Climate catalogue for the Greater Wellington region

Seasonal variation of climate, atmospheric and oceanic variables, updated for 1961-2023

Prepared for Greater Wellington Regional Council

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Executive summary

Greater Wellington Regional Council requested NIWA to produce a climate images catalogue, containing a synoptic reference of various seasonal atmospheric and oceanic indicators.

Two catalogues of climate images were generated, each using a different gridded precipitation dataset, but otherwise retaining consistency in the remaining variables presented. These catalogues provide an illustrative overview of the seasonal variability from 1961-2023/24 for the following variables:

- rainfall anomalies in the Greater Wellington region;
- mean sea level pressure;
- sea-surface temperature, and;
- three climate modes (El Niño Southern Oscillation, Indian Ocean Dipole, and the Southern Annular Mode).

The main source of rainfall observation data was NIWA's National Climate Database, with supplementary rainfall data obtained from third-parties, including Greater Wellington Regional Council. Sources of uncertainty in the results could be attributed to the application of bias correction, and the spatial resolution of the gridded datasets. Overall, however, the datasets presented in each catalogue respectively showed comparable spatial patterns of seasonal rainfall anomalies across the Greater Wellington region during the 1961-2023/24 period.

In addition to the catalogues illustrated in this report, PNG copies of individual maps were provided to GWRC.

1 Purpose of this report

This report presents the observed seasonal variations in rainfall, mean sea level pressure (MSLP), sea-surface temperature (SST), and climate modes (El Niño Southern Oscillation; ENSO, Indian Ocean Dipole; IOD, and Southern Annular Mode; SAM), for the period 1961-2023/24. The seasonal state of these variables is illustrated as easy-to-read seasonal maps by year, which have been combined to form the first comprehensive catalogue of annual climate variability for the Wellington region.

The primary purpose of this climate catalogue is to provide Greater Wellington Regional Council (GWRC) stakeholders and researchers with a visual reference document that demonstrates, at a glance, the seasonal rainfall variability in conjunction with corresponding synoptic scale climatic influences. Specifically, the climate catalogue aims to leverage a recently developed gridded rainfall product that illustrates observed rainfall over the Greater Wellington region at a high spatial resolution (500 m). This 500 m gridded resolution is the highest available to date, for the analysis of Wellington regional rainfall patterns.

This new experimental high-resolution product has been made possible by accessing long-term rainfall data made available by GWRC and other Regional Councils. As such, both GWRC and stakeholders now have an opportunity to compare the older (standard 5 km resolution) and augmented (500 m resolution; see Section 2.1) datasets which aim to improve the knowledge of fine scale, localised rainfall patterns.

2 Data used and methodology

Sections 2.1 and 2.2 describe the rainfall, MSLP, and SST data sources and how the seasonal variation of these variables were calculated, respectively. The ENSO, IOD, and SAM climate modes were selected due to their influence on Aotearoa New Zealand's climate and weather. Where relevant, the 1991-2020 climate normal period has been applied, for example when calculating the seasonal rainfall, MSLP, and SST anomalies. Note that the summer season starts in December of the year specified, and ends the following February, for example summer 1961 represents December 1961 – February 1962, summer 1962 represents December 1962 – February 1963, and so on.

2.1 Rainfall

Precipitation data from the National Institute of Water and Atmospheric Research (NIWA), New Zealand MetService (MetService), and other third parties such as Regional Councils (Figure 2-1) have been post-processed by NIWA as part of the New Zealand Water Modelling Framework project's data ingestion process (C. Zammit, personal communication, May 2023). This post-processing generated five distinct interpolated daily gridded precipitation datasets for New Zealand. The base methodology used to generate the different precipitation gridded datasets provided here is described in Tait et al. (2006) and Tait et al. (2012). Note, the Mean Annual Rainfall Surface (MARS) is used as a covariate in the interpolation. Bias-correction was applied to one of the gridded precipitation datasets, based on the analysis described in Tait et al. (2012).

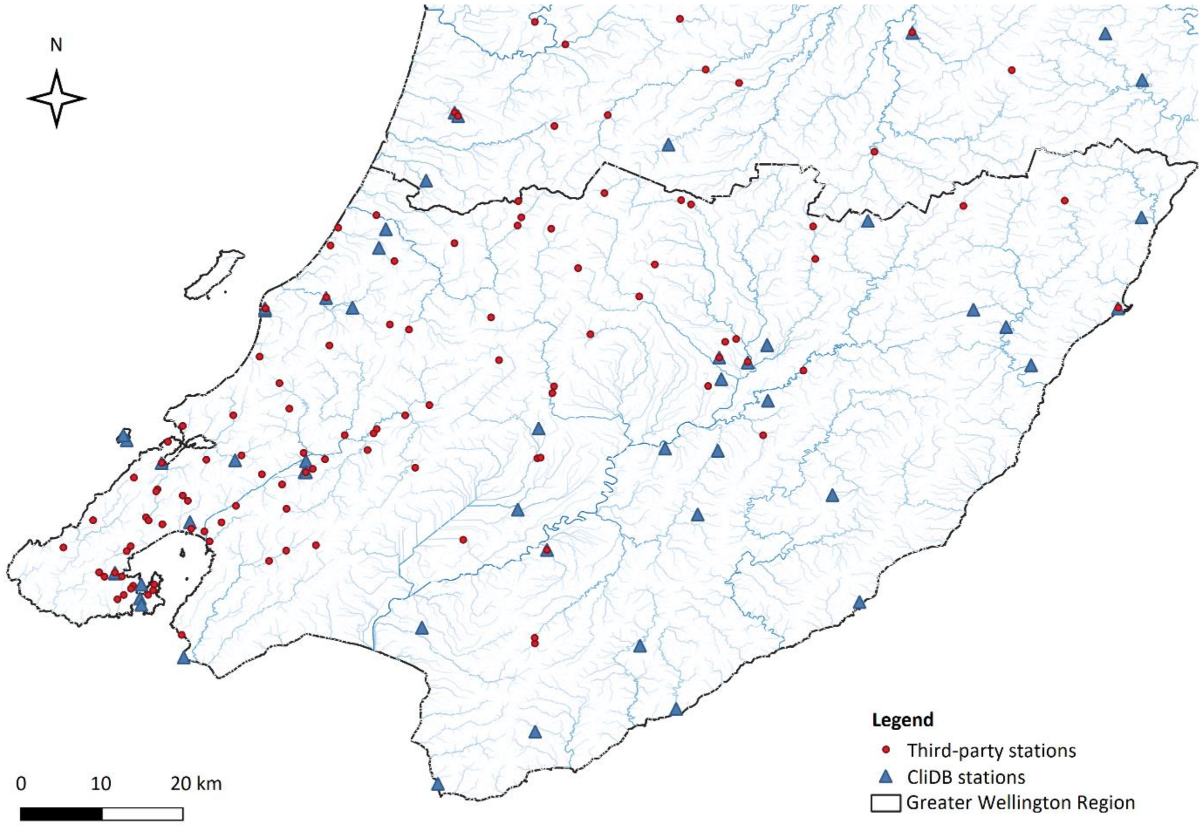

Figure 2-1: Location of rainfall stations. Data for CliDB stations (blue triangles) were available in NIWA's National Climate Database. Data for third-party stations (red dots) were supplied by third parties including Greater Wellington Regional Council. Rivers are depicted by blue lines.

Two source datasets were used to generate the different gridded precipitation datasets:

1. Operational: uses daily precipitation observations stored in NIWA's National Climate Database (CliDB). Comprises data collected by NIWA and MetService only.

2. Augmented: uses (a) daily precipitation observations stored in CliDB, and (b) daily precipitation observations shared by third parties, including the GWRC rainfall network. It was anticipated that the increased density of observations would deliver an improved gridded representation of rainfall. This expectation motivated the creation of this catalogue as a first comparison between the two sets of data of the overall seasonal patterns of climate, atmospheric and oceanic variables.

2.1.1 Augmented rainfall data

The primary gridded precipitation dataset chosen for the climate catalogue is described here as the *Augmented@500m* dataset. This consists of interpolated daily gridded precipitation generated over the period 1 January 1972 – 3 October 2021 (at the time of this assessment) at a 0.005 degree resolution (approximately 500 m) using the augmented observation dataset.

A second gridded precipitation dataset, the *Operational_BiasCorrected@5km*, was chosen to produce a supplementary version of the climate catalogue as an exercise of validation. The *Operational_BiasCorrected@5km* dataset is the standard interpolated daily gridded dataset generated over the period 1 January 1961 – 28 February 2024 (at the time of this assessment) at a

0.05 degree resolution (approximately 5 km) using the operational dataset including 'dummy' station data that are used for bias-correction.

The 'dummy' (or virtual) stations are used to better represent the orographic effect on precipitation. Due to the paucity of high elevation rainfall observations that were available across all data providers, synthetic data for nine 'dummy' stations located at the top of the Southern Alps and the Tararua Ranges are included. These 'dummy' stations are linked with nearby rainfall observations, for example from Hokitika, based on the ratio of the estimated mean annual rainfall at the 'dummy' and nearby station locations. With 'dummy' stations included, the dataset is then postprocessed and bias corrected based on Tait et al. (2012).

Seasonal anomalies for the period 1961-2023/24 were calculated, based on the 1991-2020 climate normal period.

2.1.2 Mapping the rainfall datasets

Seasonal anomalies for the two selected gridded precipitation datasets were mapped using the Python programming language. The gridded format of the data means that some areas near coastlines were not captured by the datasets. To account for this, a nearest-neighbour interpolation was applied to expand the extent of the datasets. These extended boundaries were then clipped by masking out all areas that fell outside the Greater Wellington region boundary.

The 0.05 degree resolution of the *Operational_BiasCorrected@5km* dataset appears pixelated when mapped. To achieve a smoothed illustration, Python's xESMF package[1] was used, with the original dataset interpolated onto a 0.005 degree grid (i.e. matching the grid resolution of the *Augmented@500m* dataset) using bi-linear interpolation.

Rainfall anomalies were illustrated in 20% increments. This differs from an earlier version of this catalogue, where 10% increments were used (Macara et at., 2023). The purpose of using 20% increments was to illustrate greater spatial variability of rainfall anomalies that were greater than 200%.

2.1.3 Caveats

There are several caveats to consider when interpreting the rainfall anomaly maps presented in the climate catalogues:

- As part of the data generation, no attempt was made to bias correct the *Augemented@500m* observations. As a result, this dataset should be considered as a "raw" interpolated dataset, which may be subject to further corrections and improvements in future. With that said, the greater station density and coverage of this dataset mitigates the need for bias correction.
- To reduce a 'persistent drizzle' effect caused by the interpolation process, all daily interpolated precipitation less than 1 mm was set to 0 mm/day.
- The reliability of gridded precipitation datasets is affected by the availability and density of station observations. Specifically, greater reliability is expected for areas with a relatively high density of station observations (see Figure 2-1), and where

[1] https://xesmf.readthedocs.io/en/latest/

observations are available for the entire 1961-2023/24 period (not addressed in this report).

- Previous examination of the gridded precipitation datasets has presented examples of ring-like artefacts around relatively high elevation terrain when the data are mapped. These tended to occur when observed rainfall does not correlate well with the MARS, but further examination is required to understand why these artefacts occur (R. Srinivasan, personal communication, April 2023).

- The *Operational_BiasCorrected@5km* dataset has a gridded resolution of approximately 5 km. As described in Section 2.1.2, these data were further interpolated onto a gridded resolution of approximately 500 m. Therefore, the resulting relatively high resolution illustrated in the corresponding maps of the secondary catalogue (presented in Section 8) does not reflect the resolution available in the source dataset. This is not the case, however, for the *Augmented@500m* dataset used for the primary version of the catalogue (presented in Section 7) which utilises all additional third-party weather stations available.

2.2 Mean sea level pressure and sea-surface temperature

The MSLP and SST variables were sourced from the European Centre for Medium-Range Weather Forecasts (ECMWF) fifth generation atmospheric reanalysis of the global climate (ERA5; Hersback et al. 2020). ERA5 provides hourly estimates of many atmospheric, land and oceanic climate variables. The data cover the Earth on a 30 km grid, covering the period from January 1940 to present (ECMWF, 2023). Data were aggregated to the seasonal timestep, with anomalies calculated relative to the 1991-2020 climate normal period.

2.3 Climate modes

Much of the variation in New Zealand's climate is random and lasts for only a short period, but longer term, quasi-cyclic variations in climate can be attributed to a range of factors. Three large-scale oscillations that influence climate in New Zealand are the El Niño-Southern Oscillation (Ministry for the Environment, 2008), the Indian Ocean Dipole, and the Southern Annular Mode. These three climate modes were selected for presentation in the climate catalogue developed here.

2.3.1 El Niño-Southern Oscillation

El Niño-Southern Oscillation (ENSO) is a natural mode of climate variability that has wide-ranging impacts around the Pacific Basin (Ministry for the Environment, 2008). ENSO involves a movement of warm ocean water from one side of the equatorial Pacific to the other, changing atmospheric circulation patterns in the tropics and subtropics, with corresponding shifts of rainfall patterns across the Pacific.

ENSO events (El Niño or La Niña) occur on average three to seven years apart, typically becoming established in April or May and persisting for about a year thereafter. During El Niño events, New Zealand often experiences a stronger than normal south-westerly airflow. This generally brings wetter than normal summer conditions to the west of New Zealand (Salinger and Mullan, 1999). During La Niña events, New Zealand usually experiences more north-easterly airflows than normal, and drier summer conditions in the south and west of the South Island (NIWA, 2024). For other seasonal ENSO impacts on New Zealand, the reader is referred to the NIWA ENSO webpage at https://niwa.co.nz/el-nino-and-la-nina.

For this catalogue, ENSO was classified according to the Southern Oscillation Index (SOI) and the Nino 3.4 regional index (domain is 5°S - 5°N, 190-240°E). This combined methodology was used to identify ENSO events comprehensively. Note, this differs from the previous version of this catalogue (Macara et al., 2023), which only used SOI to classify ENSO. ENSO events were classified as follows:

- The SOI, a commonly used index for phases of ENSO, was calculated using air pressure data for Tahiti and Darwin. These data were obtained from the Australian Bureau of Meteorology. ENSO events were categorised via an SOI filter of ±0.7 over a five-month rolling average period. For example, if the five-month rolling average ending in February is at least +0.7, the event is classified as a "La Niña summer", whereas if it is ≤-0.7, the event is classified as an "El Niño summer."

- The Nino 3.4 index was calculated using the monthly SST dataset ERSST version 5b[2]. Monthly SST anomalies were calculated for the Nino 3.4 region with respect to the 1991-2020 climatological period. Seasonal average values were then calculated from the monthly anomalies. The top ten and bottom ten values for each season were selected and classified as El Niño and La Niña seasons, respectively. Standard deviations of ±1.0 were also used to identify El Niño (>1.0 Std Dev) and La Niña (<-1.0 Std Dev) events. Remaining seasons were classified as neutral.

2.3.2 Indian Ocean Dipole

The Indian Ocean Dipole (IOD) is a coupled ocean and atmosphere phenomenon, similar to ENSO but in the equatorial Indian Ocean (BOM, 2024). A positive IOD event is associated with warmer sea surface temperatures and enhanced precipitation in the western Indian Ocean region, relative to the eastern Indian Ocean region (Griffiths, 2011; BOM, 2024). Conversely, a negative IOD event is associated with cooler sea surface temperatures in the western Indian Ocean relative to the east (BOM, 2024). During a positive (negative) IOD event, westerlies and associated storm track activity tend to weaken (enhance) over northern New Zealand, whereas they enhance (weaken) over southern New Zealand (Ashok et al., 2007). IOD data were obtained from the Japanese Meteorological Agency[3]. A seasonal three-month rolling average value of the IOD was used to determine the mode's status; i.e. ≥ 0.5 = positive, -0.49-0.49 = neutral, and ≤ -0.5 = negative.

2.3.3 Southern Annular Mode

The Southern Annular Mode (SAM) describes the variability of circumpolar atmospheric jets that encircle the Southern Hemisphere and extend out to the latitudes of New Zealand. The SAM is often coupled with ENSO, and both phenomena affect New Zealand's climate in terms of westerly wind strength and storm occurrence (Renwick and Thompson, 2006). In its positive phase, the SAM is associated with relatively light winds and more settled weather over New Zealand, with stronger westerly winds further south towards Antarctica. In contrast, the negative phase of the SAM is associated with unsettled weather and stronger westerly winds over New Zealand, whereas wind and storms decrease towards Antarctica.

SAM data were sourced from NIWA's Climate Present and Past project, and were generated via the National Centers for Environmental Protection (NCEP) reanalysis data using the methodology described in Limpasuvan & Hartmann (1999).

[2] Available at https://psl.noaa.gov/data/gridded/data.noaa.ersst.v5.html
[3] https://ds.data.jma.go.jp/tcc/tcc/products/elnino/index/iod_index.html

3 Results

Two climate catalogues have been generated, and these are presented towards the end of this report in Section 7 and Section 8, respectively. These catalogues illustrate the seasonal variability of rainfall, MSLP, and SST, as well as the seasonal status of three climate modes (ENSO, IOD, and SAM), for the period 1961-2023/24. The first catalogue uses the *Augmented@500m* gridded precipitation dataset (Section 7), while the second catalogue uses the *Operational_BiasCorrected@5km* gridded precipitation dataset (Section 8). Note that the MSLP, SST and climate mode information presented in each catalogue is the same, i.e. the rainfall maps are the only element that differs between each climate catalogue.

The catalogues contain 598-756 maps, noting that the rainfall anomaly maps are unavailable from spring and summer 2021 for the *Augmented@500m* catalogue, as the underlying gridded data ends in October 2021. Additionally, the *Operational_BiasCorrected@5km* catalogue now starts in 1961, which is earlier than the *Augmented@500m* catalogue (which starts in 1972). There were many examples of ring-like artefacts around relatively high elevation terrain when the *Augmented@500m* precipitation data were mapped (e.g. Figure 3-1). These may have occurred due to the lack of bias-correction, or poor correlation between observed rainfall and the MARS (as described in Section 2.1.3). Therefore, users are urged to be circumspect when interpreting the rainfall anomalies presented in the *Augmented@500m* catalogue, particularly for areas about the Tararua Range, Remutaka Range, and the Aorangi Range.

The ring-like artefacts were not present in the *Operational_BiasCorrected@5km* (e.g. Figure 3-1), which suggests that bias-correction and the use of dummy stations has improved the interpretability of these data at higher elevation terrain. Overall, the rainfall anomaly patterns illustrated by the two gridded precipitation datasets used in this report were comparable across all seasons and years (e.g. Figure 3-1). Although subtle discrepancies are present, they don't appear to materially change the overall spatial patterns of seasonal rainfall anomalies observed across the Greater Wellington region during the 1961-2023/24 period, as shown by the example below.

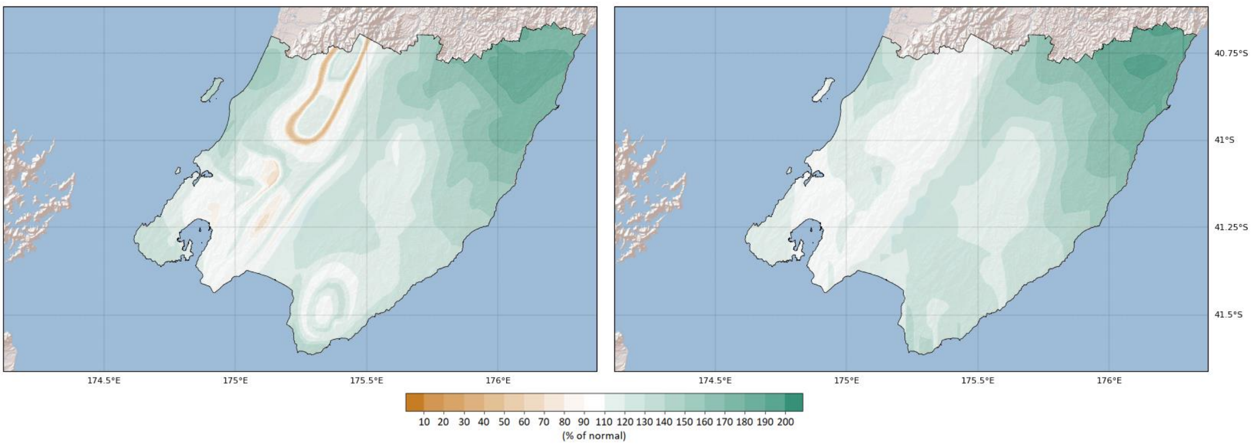

Figure 3-1: Autumn 2018 rainfall anomalies, based on the Augmented@500m (left) and Operational_BiasCorrected@5km gridded datasets. Anomalies are relative to 1991-2020 climate normal period.

4 Summary and conclusions

This study has generated two climate catalogues, each using a different gridded precipitation dataset, but otherwise retaining consistency in the remaining variables presented. These catalogues provide an illustrative overview of the seasonal variability in climatological anomalies and climate modes in the Greater Wellington region, and how they could influence rainfall anomalies, for the period 1961-2023/24.

A simple qualitative assessment of the climate catalogues indicate rainfall anomalies for the Wellington Region are closely linked with the changing direction of dominant wind flows. Westerly anomalies tend to increase the rainfall west of the ranges, whereas easterly anomalies tend to increase the precipitation over the Wairarapa. Increased rainfall for the region overall tends to be associated with warm, moist airflow anomalies (i.e. more frequent winds from the northerly-quarter). Other insights include: 1) lower rainfall tends to be associated with El Niño, and cooler SSTs, but can also occur during ENSO neutral conditions, and 2) higher rainfall tends to occur most often during ENSO neutral conditions, and warmer SSTs. This suggests that El Niño and La Niña are not necessarily associated with consistently contrasting weather patterns over the Wellington Region, and that significant rainfall anomalies can also occur under ENSO neutral conditions.

It was anticipated that the increased density of observations available for the *Augmented@500m* dataset might deliver an improved gridded representation of rainfall, and this may well be the case at lower elevations of the Greater Wellington region. However, a lack of bias-correction appears to contribute to ring-like artefacts in the rainfall anomalies at higher elevation terrain, which would seem improbable given typical physical processes (e.g. the orographic effect) associated with rainfall in these areas. Further investigation is required to better understand why these artefacts occur, and determine if they are a feature that can (or should) be corrected.

Although different gridded precipitation datasets are presented in each catalogue, the catalogues should not be used to infer which rainfall dataset is more reliable than the other before further research is carried out. There are several advantages and disadvantages associated with each dataset, respectively. Overall, both datasets observed comparable spatial patterns of seasonal rainfall anomalies across the Greater Wellington region during the 1961-2023/24 period.

This catalogue can aid understanding of climatological variability and the associated rainfall anomalies observed in the Greater Wellington region – useful for considerations of seasonal climate prediction and identifying potential long-term changes. In addition to the catalogues set out in this report, PNG copies of individual maps were provided to GWRC. The rainfall anomaly maps include labelled contours to aid interpretation. GWRC has commissioned NIWA to produce a detailed climate drivers report to identify and analyse further correlation details between high resolution rainfall, and the climatic and oceanic modes of influence. This is due to be published at a similar time to the present report.

5 Glossary of abbreviations and terms

CliDB	NIWA's National Climate Database
ECMWF	European Centre for Medium-Range Weather Forecasts
ENSO	El Niño Southern Oscillation
ERA5	Fifth generation atmospheric reanalysis of the global climate
GWRC	Greater Wellington Regional Council
IOD	Indian Ocean Dipole
MARS	Mean Annual Rainfall Surface
MetService	New Zealand MetService
MSLP	Mean sea level pressure
NCEP	National Centers for Environmental Protection
NIWA	National Institute of Water and Atmospheric Research
SAM	Southern Annular Mode
SOI	Southern Oscillation Index
SST	Sea-surface temperature

6 References

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Tait A., Henderson, R., Turner, R., Zheng, X. (2006) Thin plate smoothing spline interpolation of daily rainfall for New Zealand using a climatological rainfall surface. *International Journal of Climatology*, 26(14): 2097-2115. https://doi.org/10.1002/joc.1350

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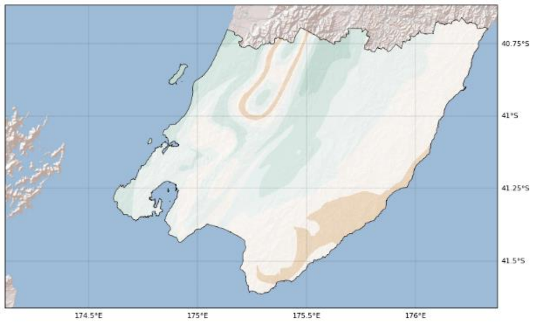
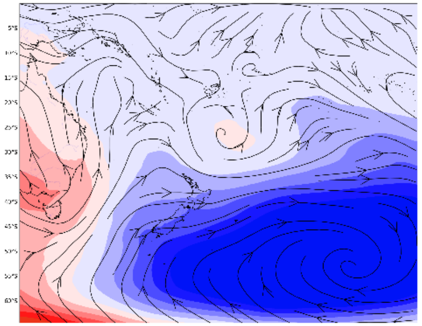
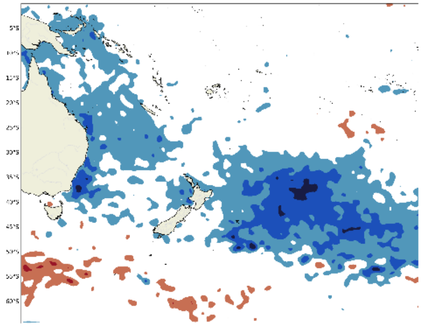
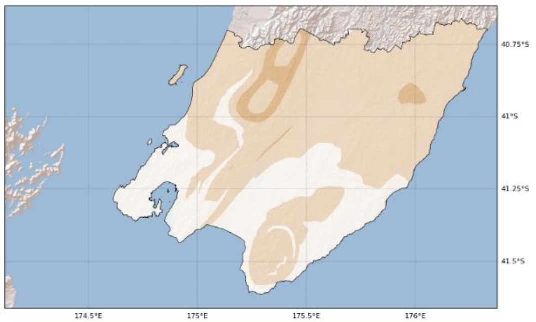
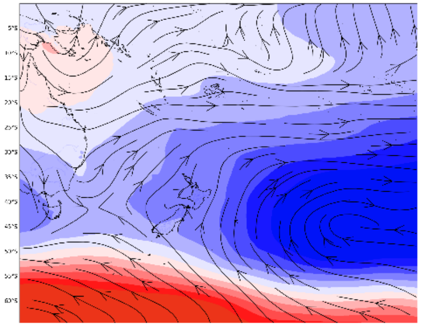
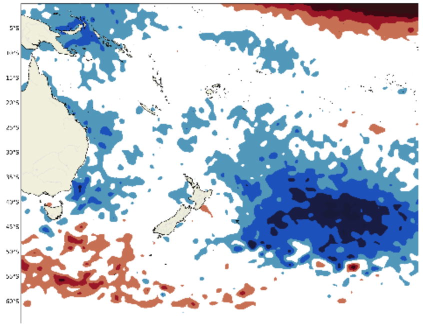
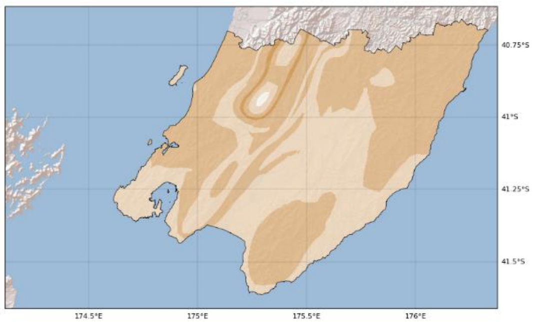
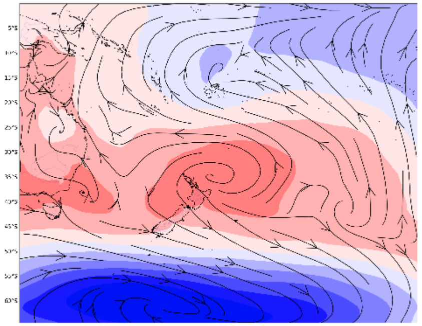
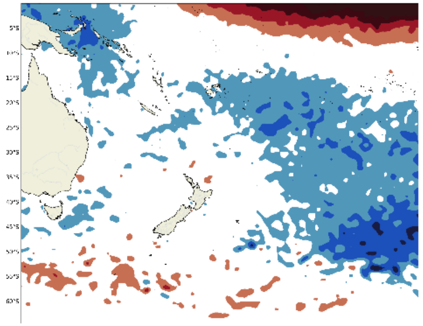
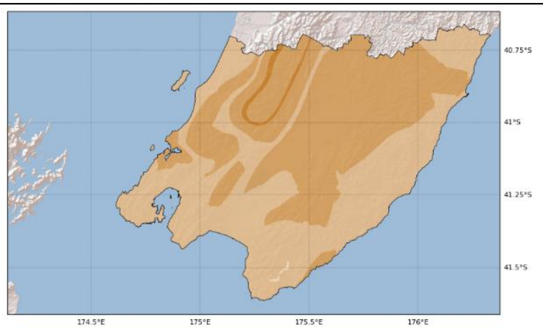
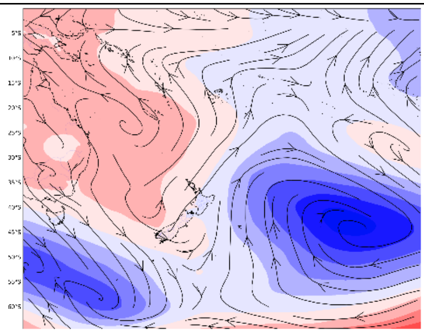
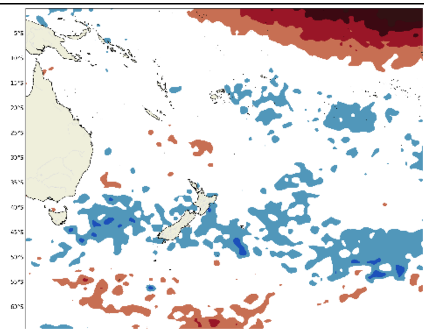
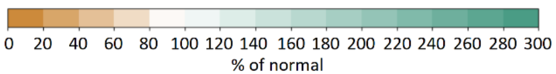
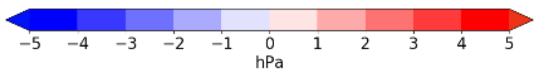
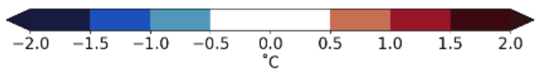
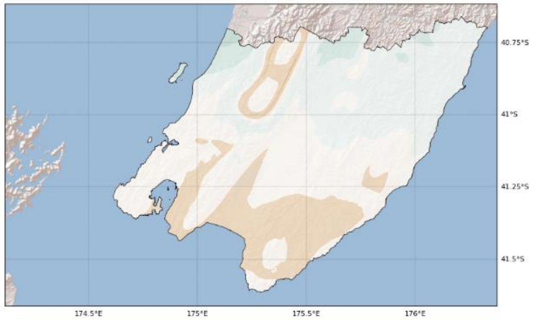
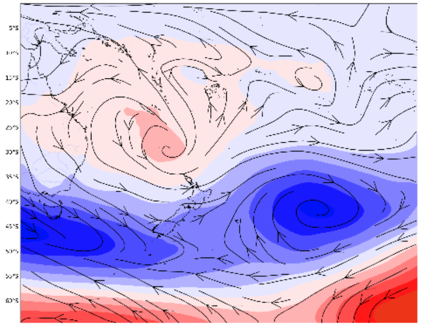
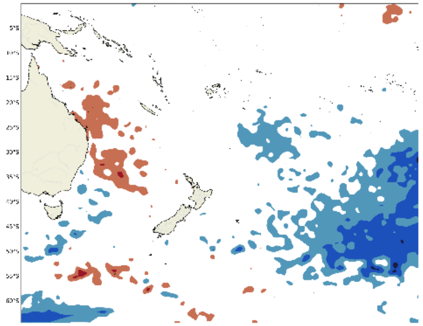
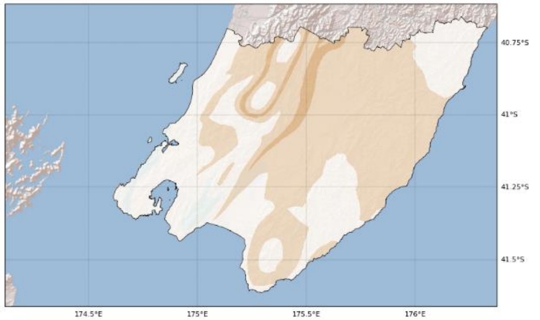
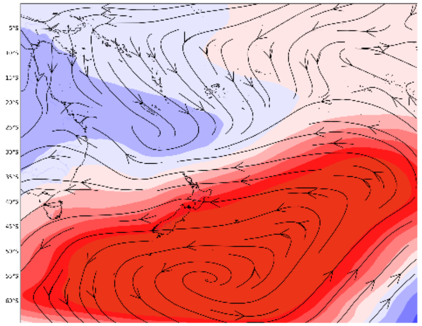
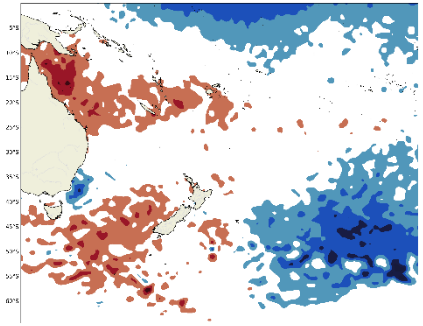
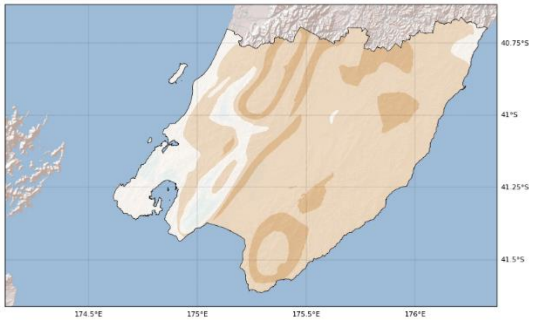
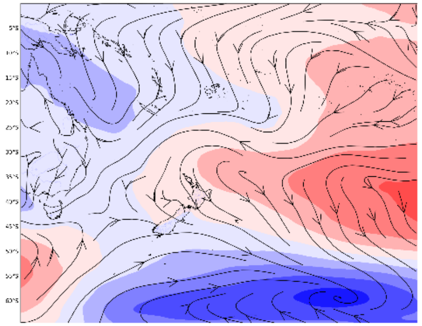
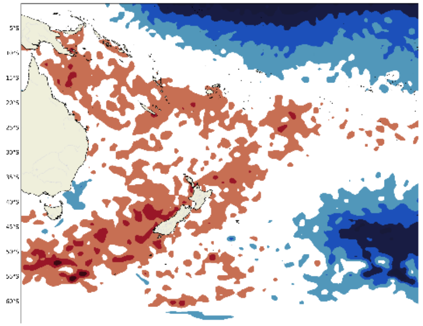
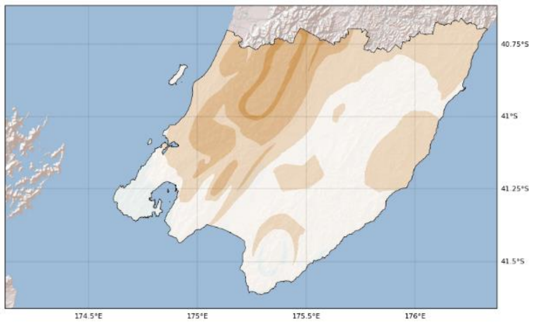
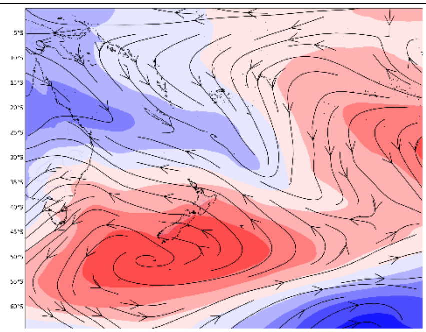
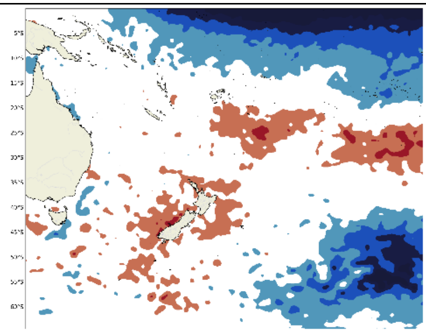
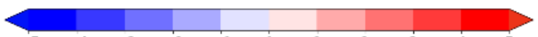
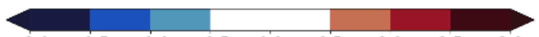
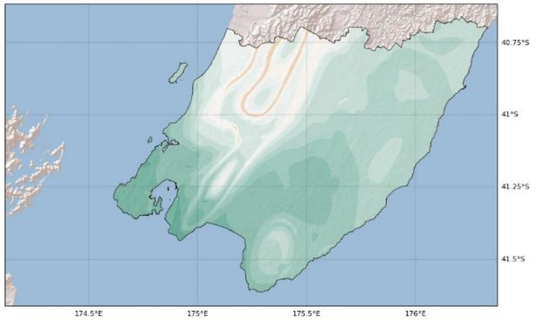
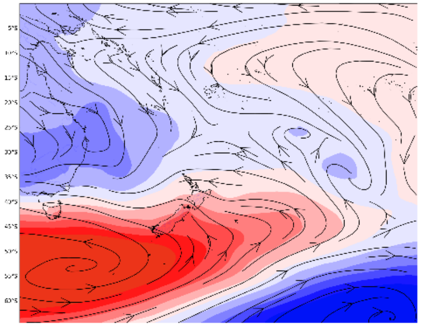
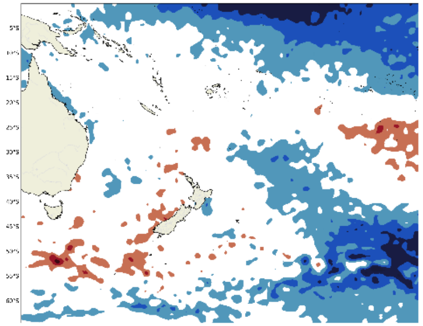
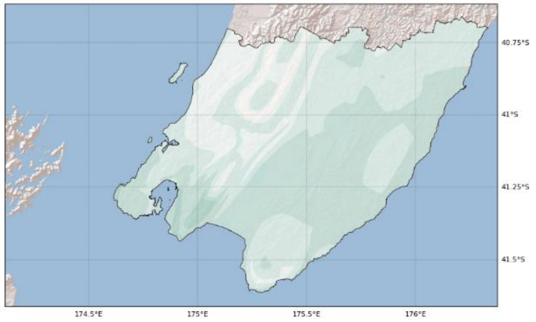
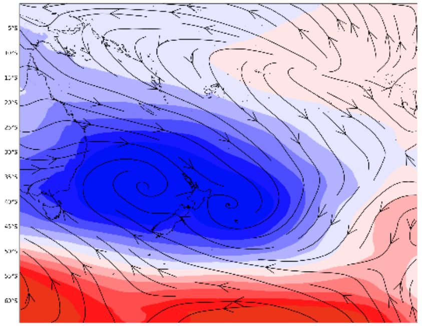
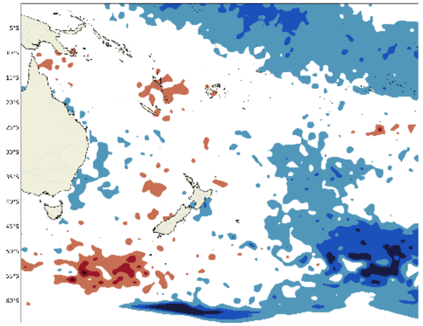
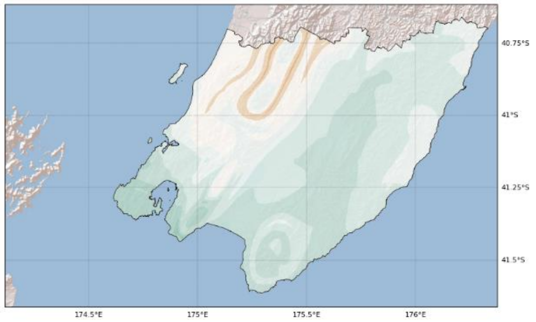
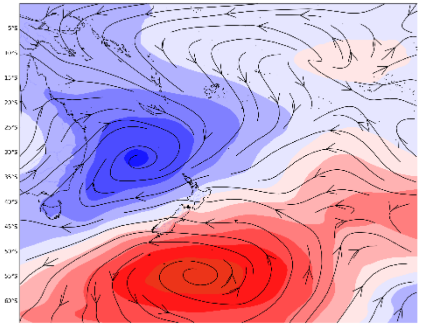
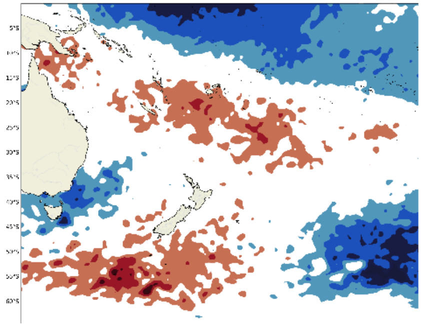
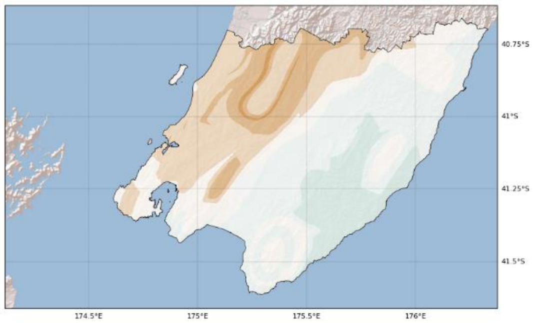
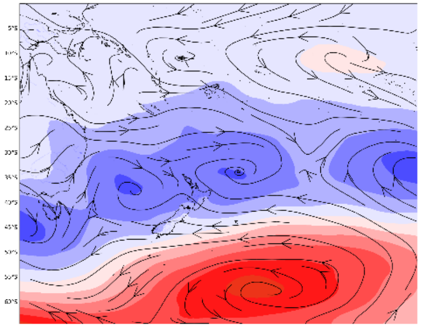
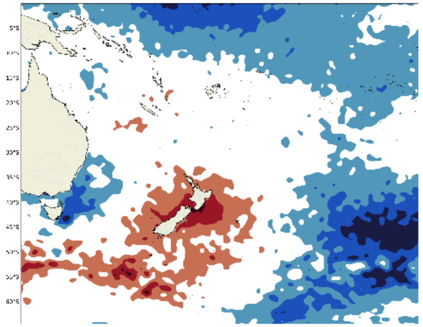
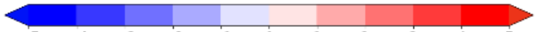
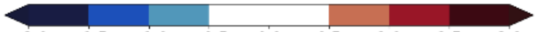
7 Climate Catalogue A: Rainfall Augmented@500m

Generated using the *Augmented@500m* gridded precipitation dataset, which runs from autumn 1972 to winter 2021. This dataset is experimental, using supplementary rainfall data provided by third-parties including Greater Wellington Regional Council.

1972	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
Winter				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Negative
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Aug@500m**

1973	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

<table>
<tr><th>1974</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Negative</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall: Aug@500m</td></tr>
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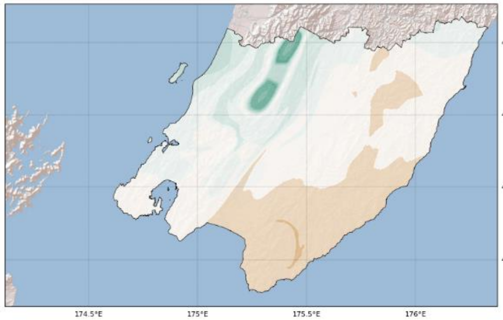
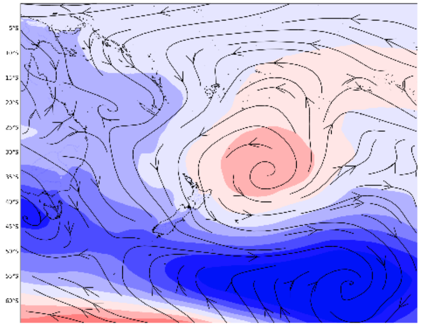
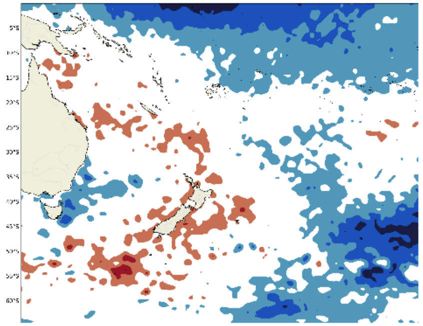
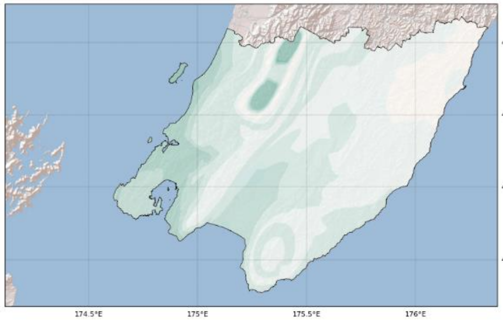
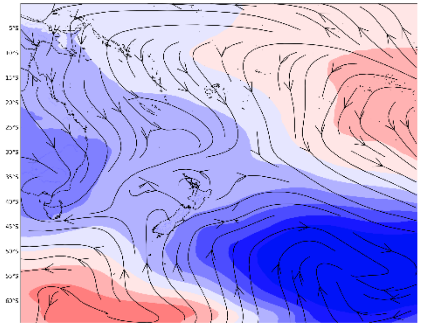
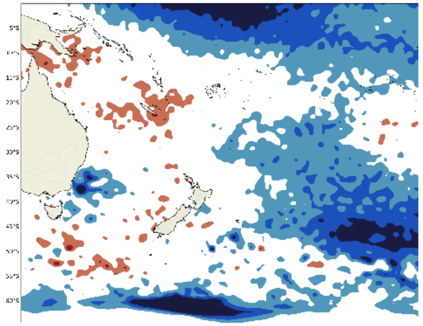
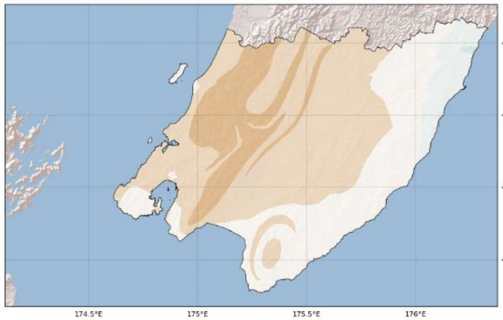
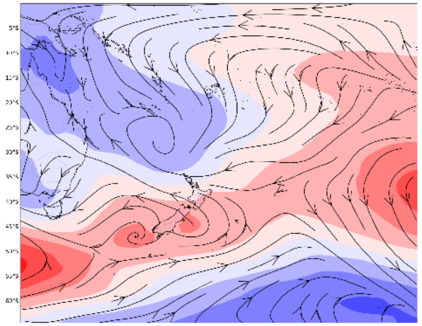
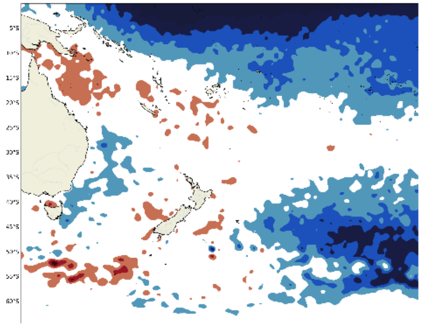
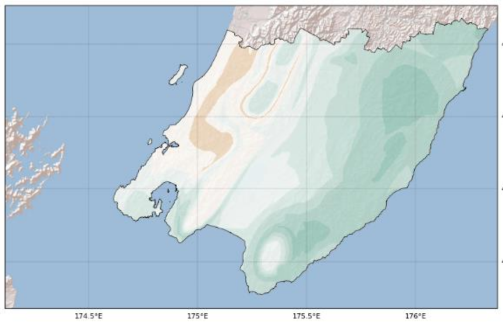
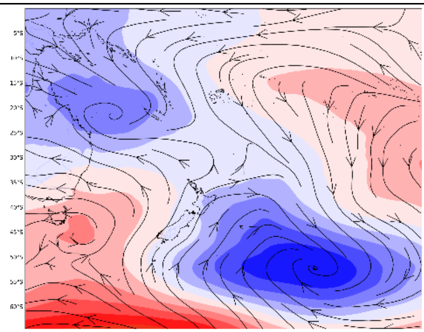
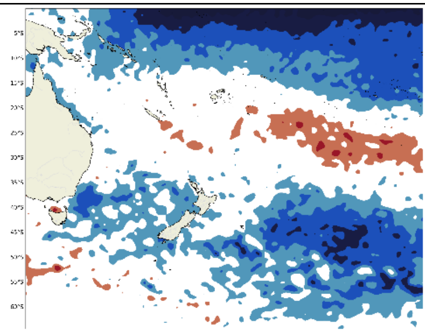
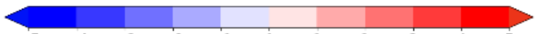
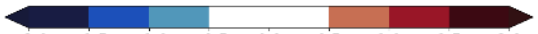
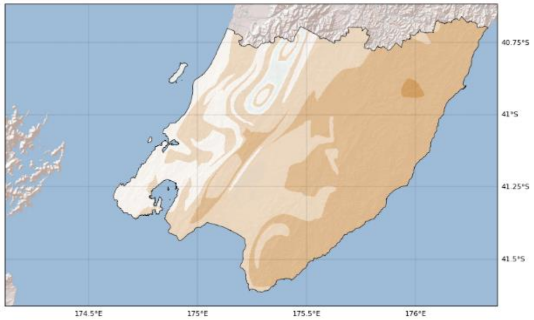
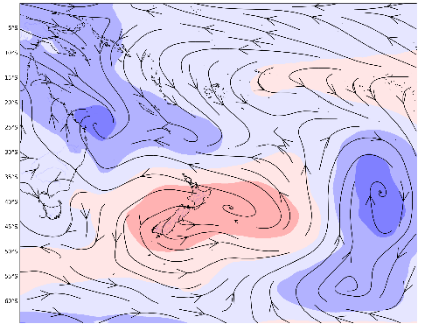
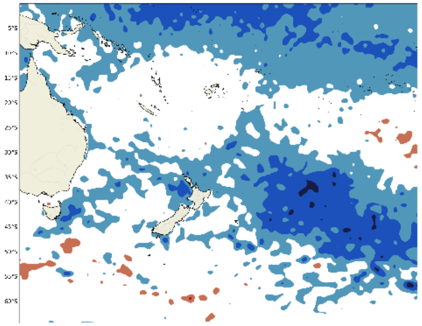
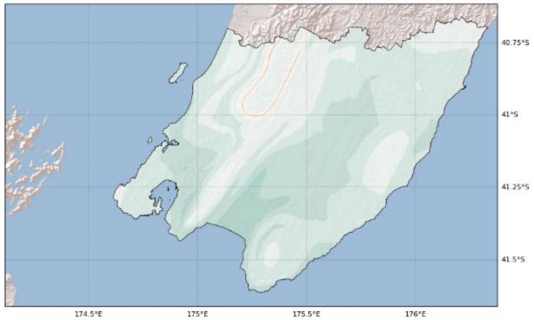
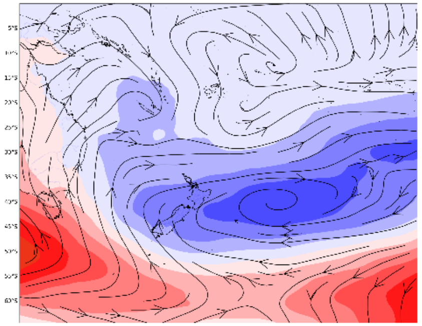
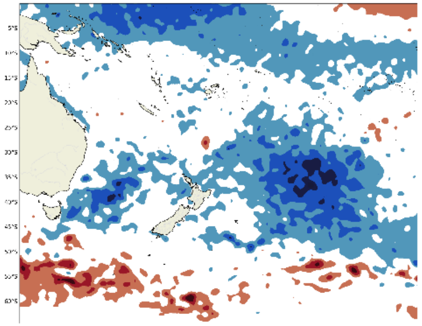
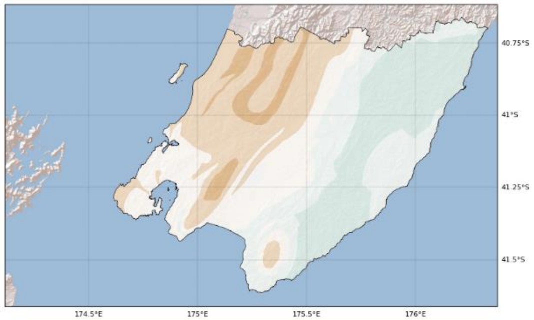
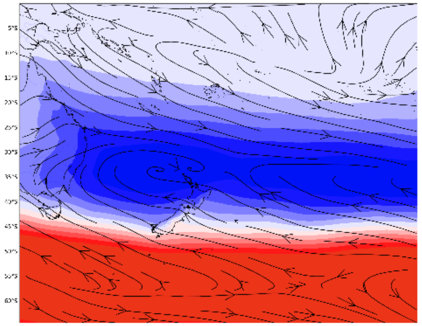
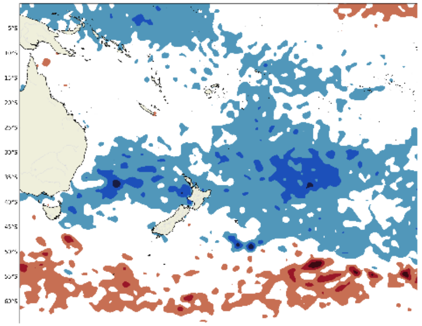
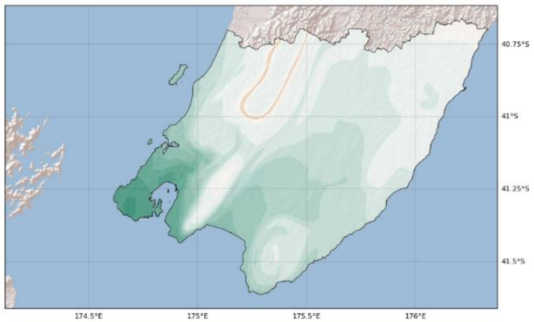
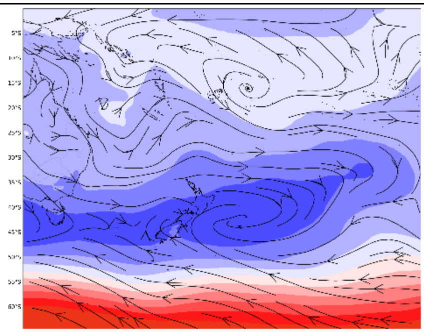
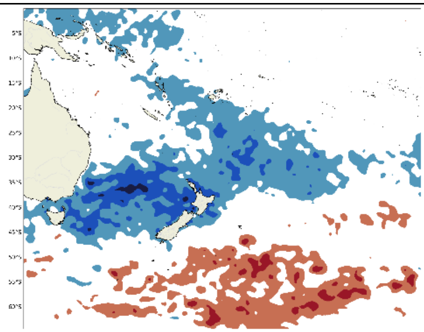
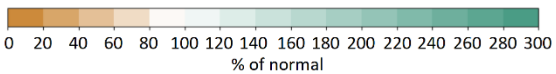
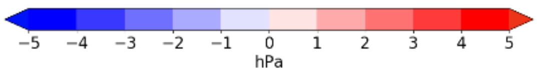
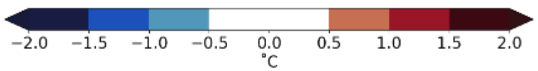
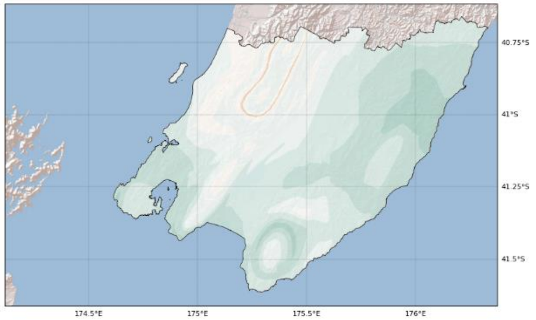
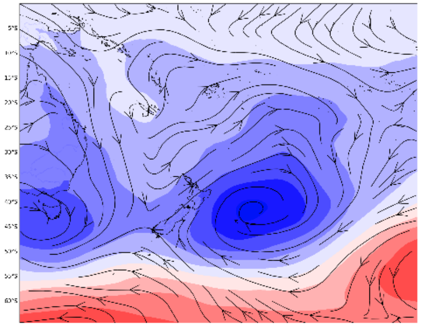
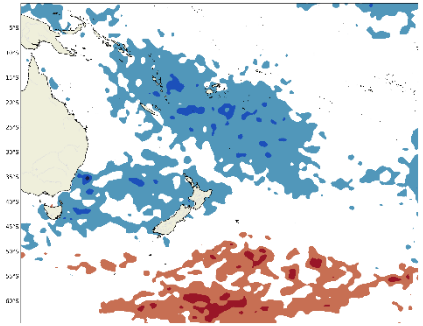
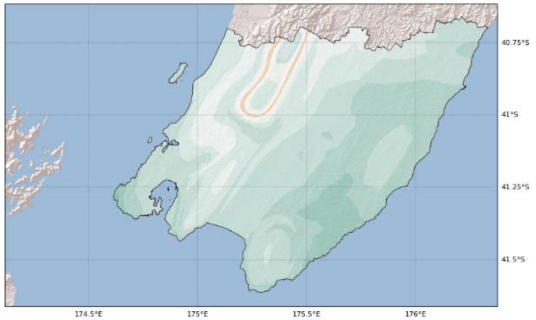
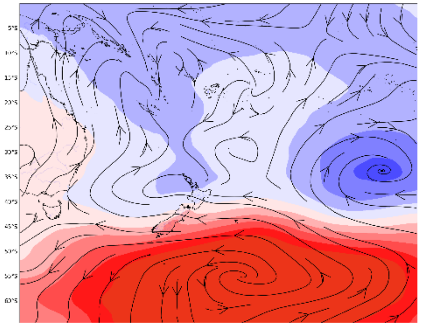
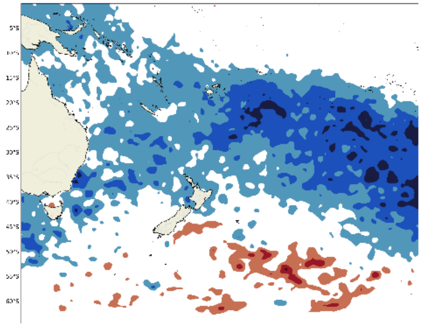
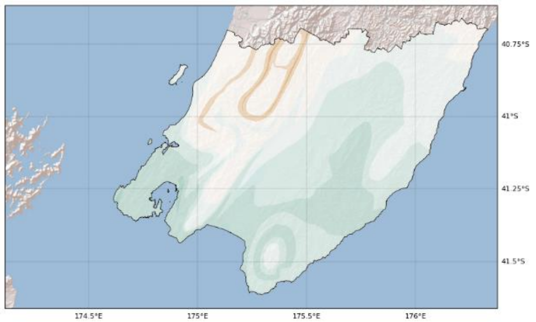
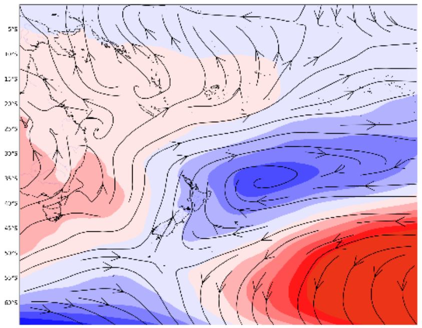
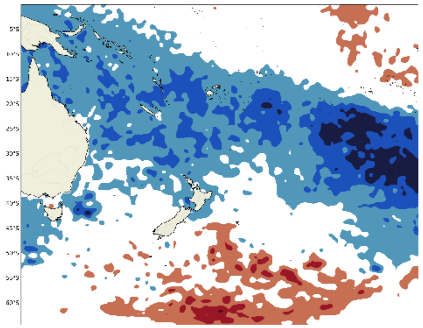
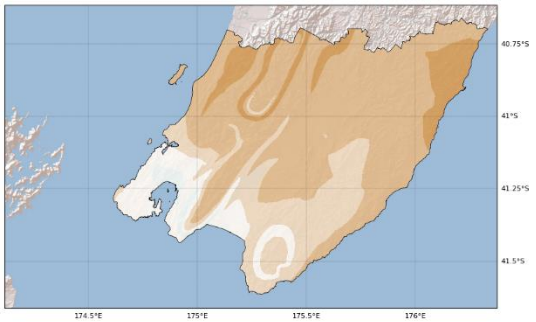
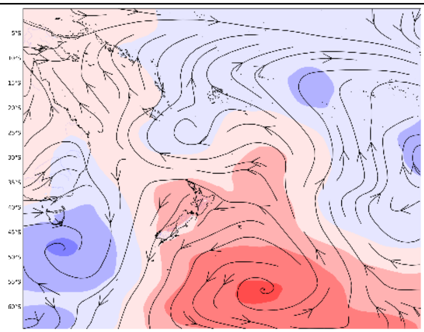
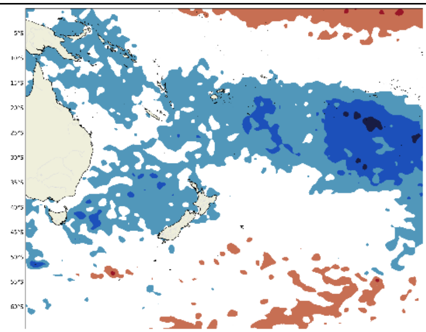
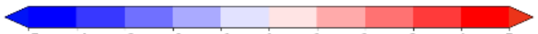
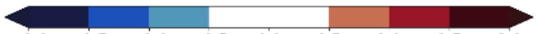
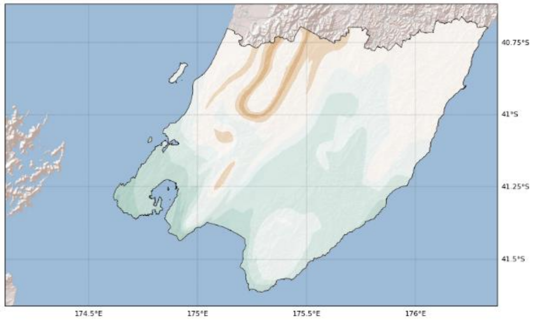
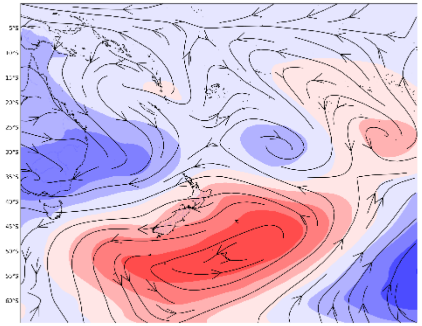
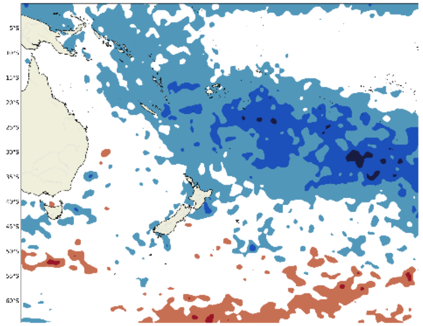
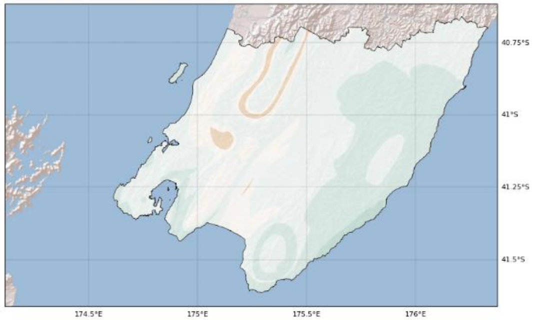
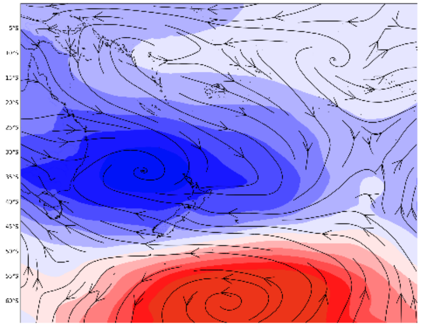
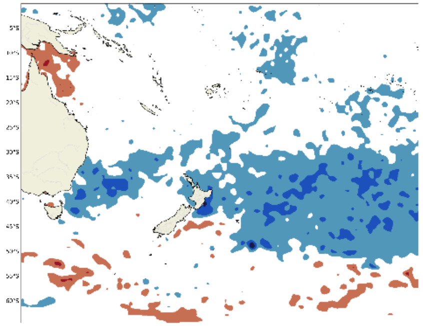
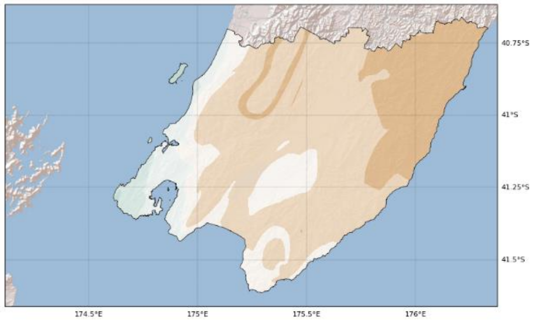
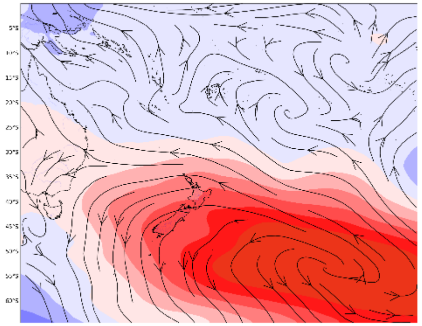
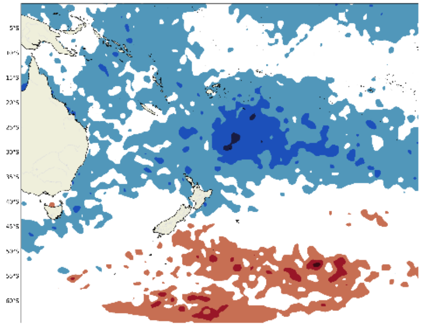
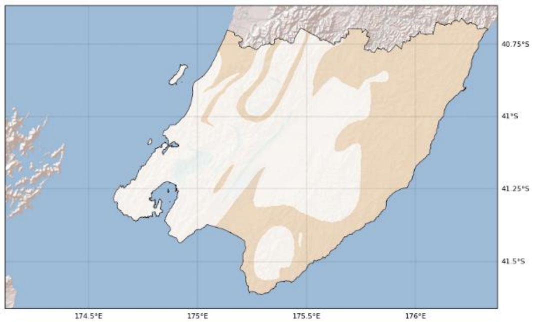
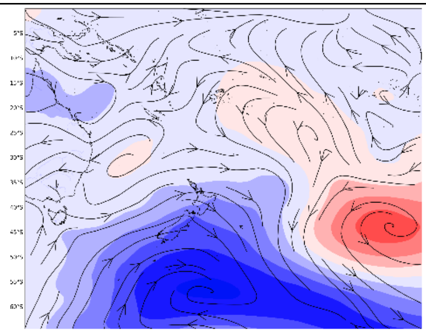
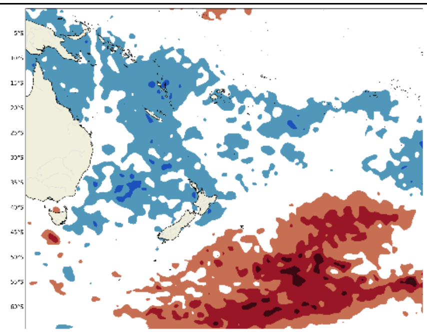
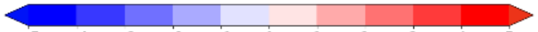
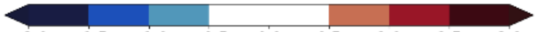
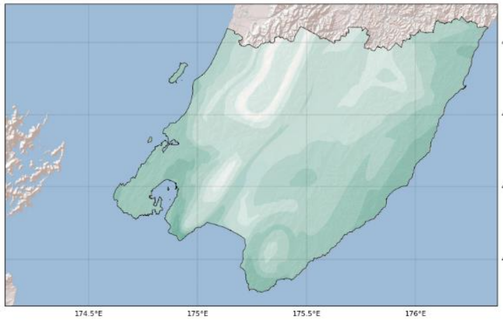
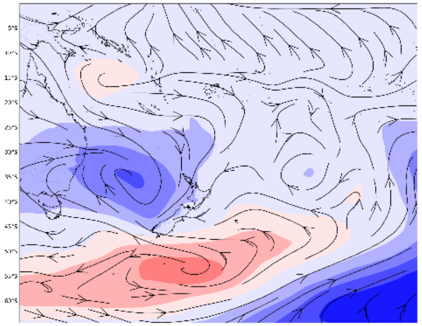
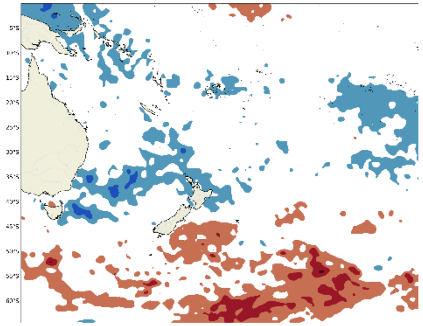
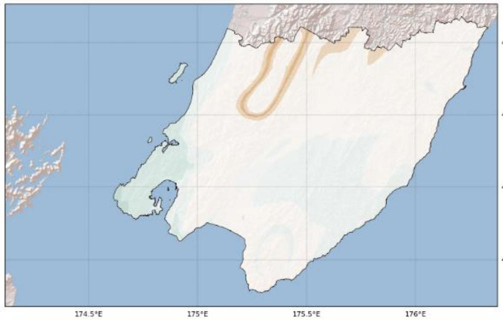
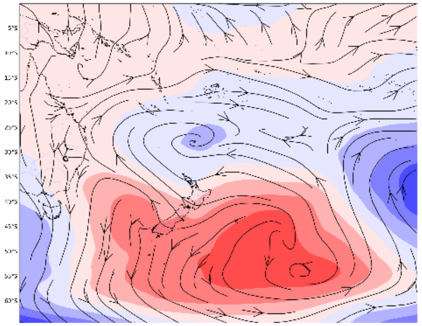
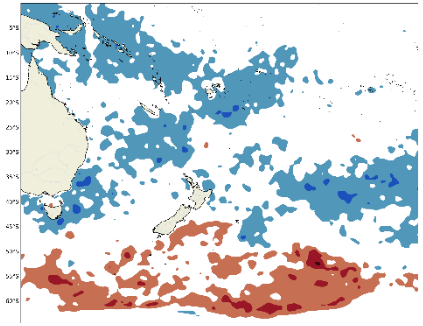
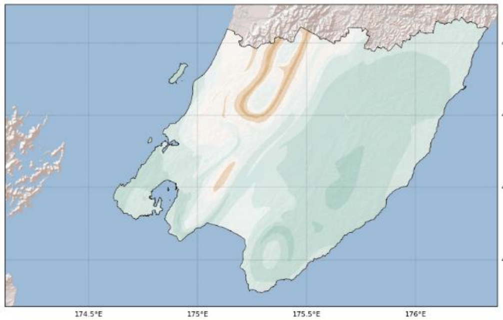
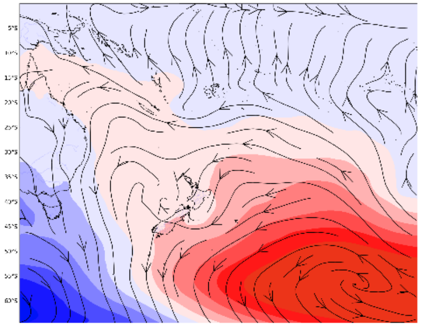
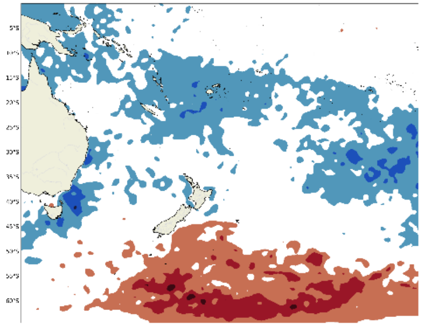
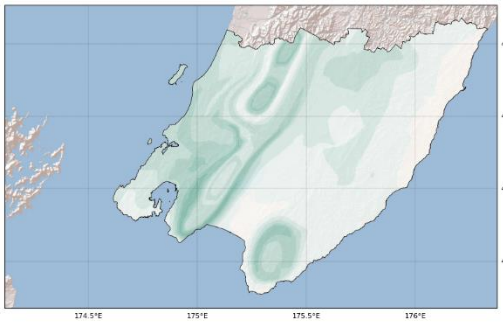
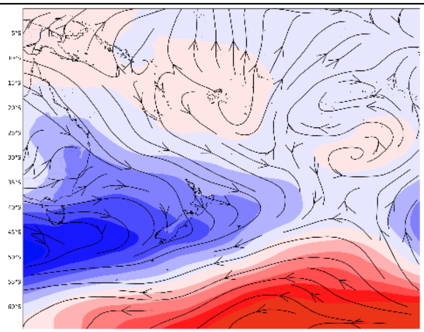
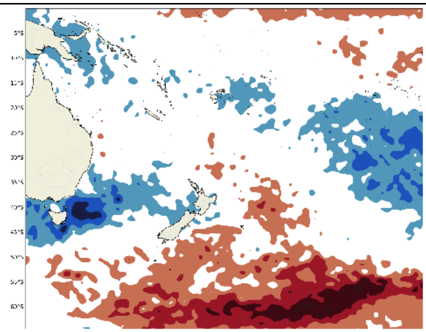
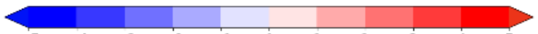
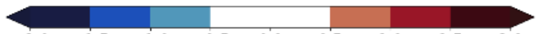
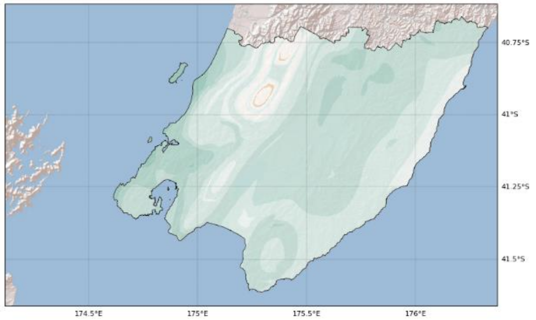
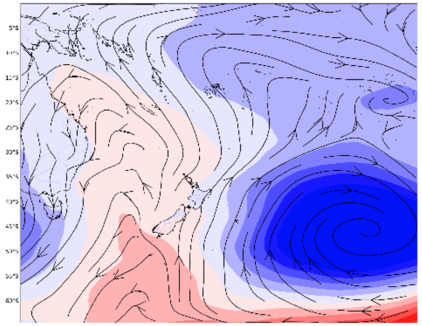
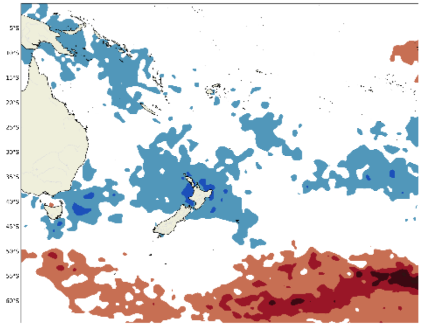
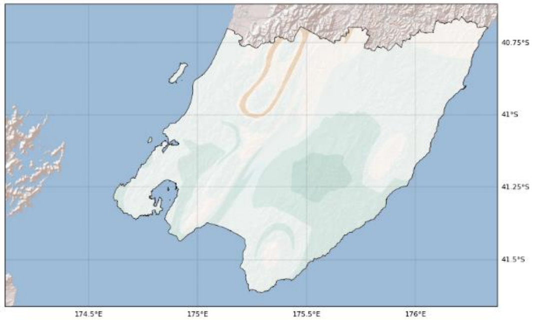
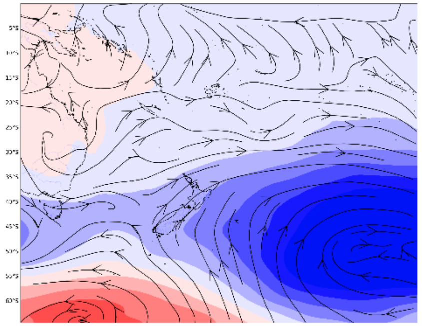
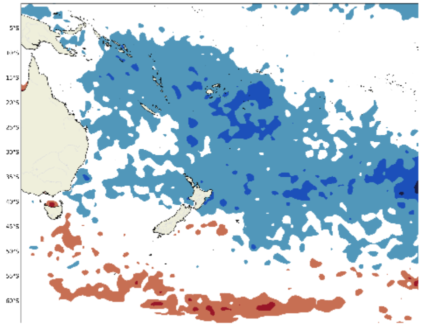
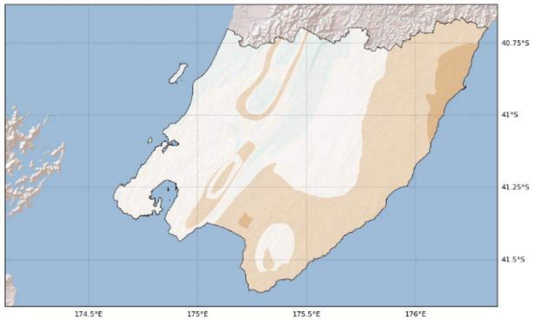
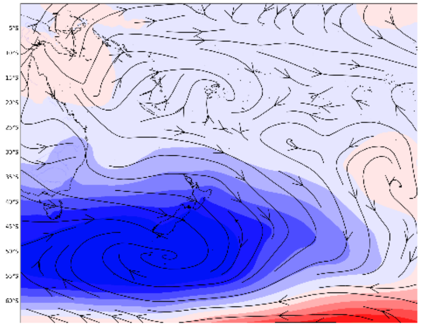
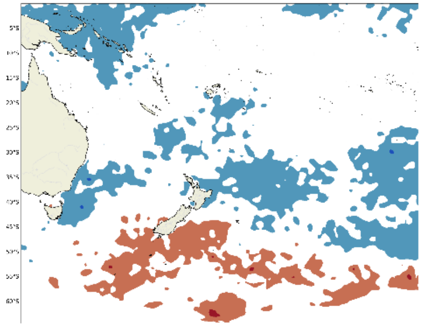
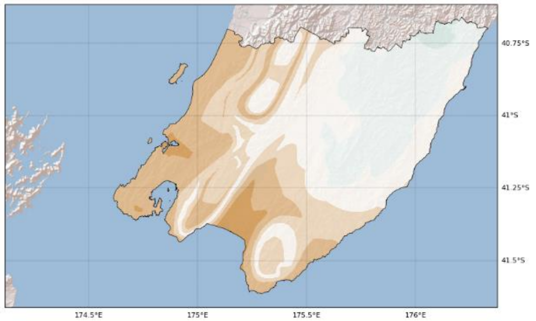
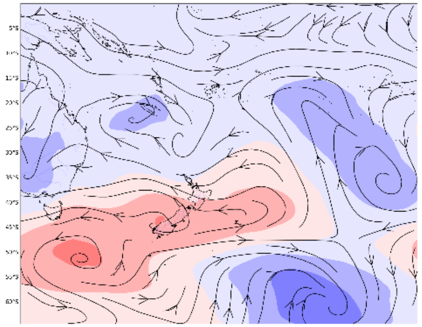
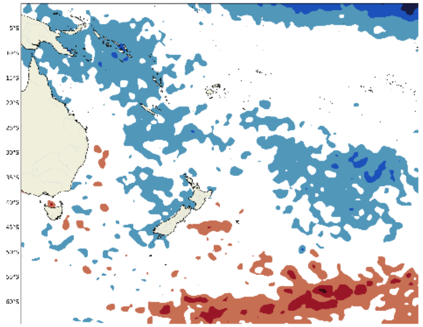
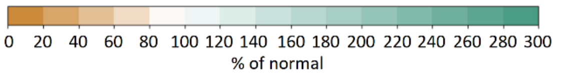
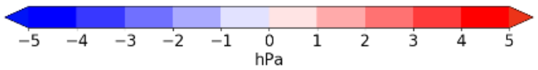
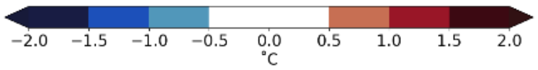
1975	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Negative SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

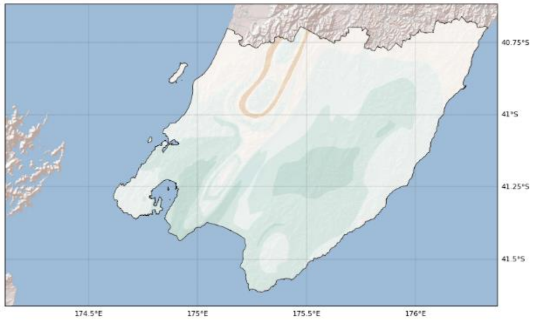
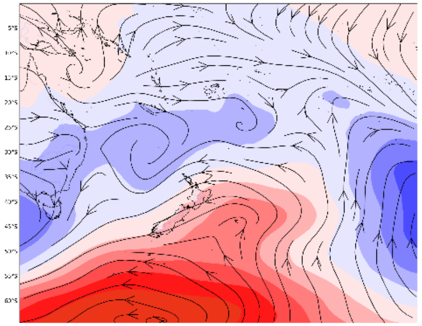
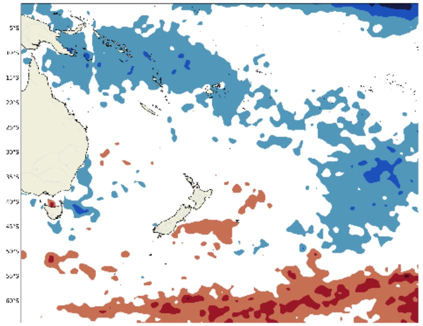
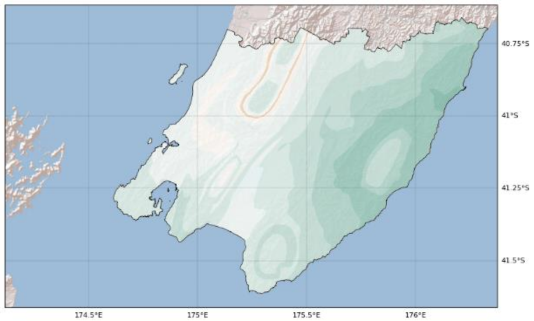
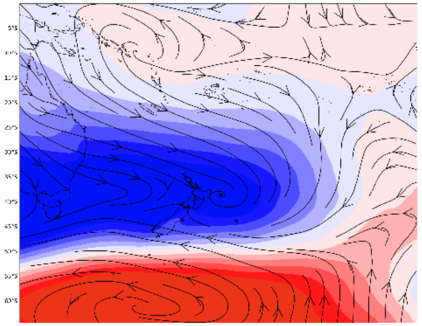
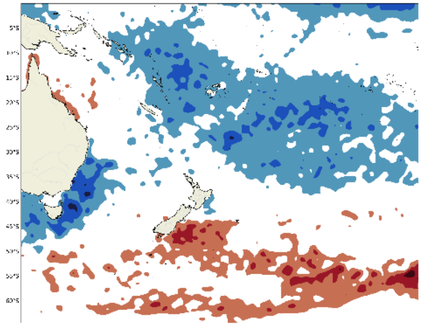
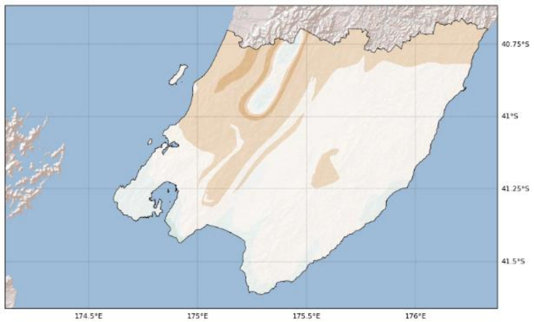
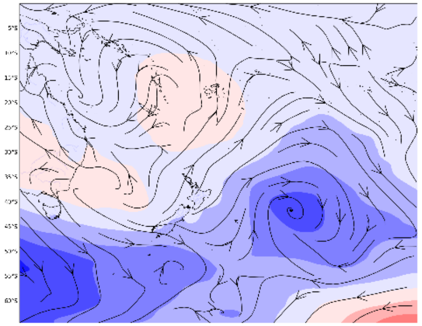
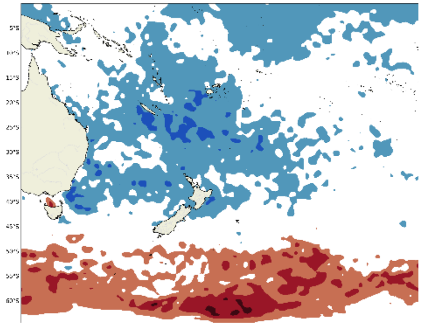
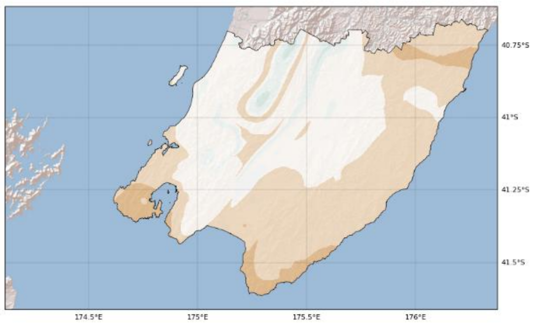
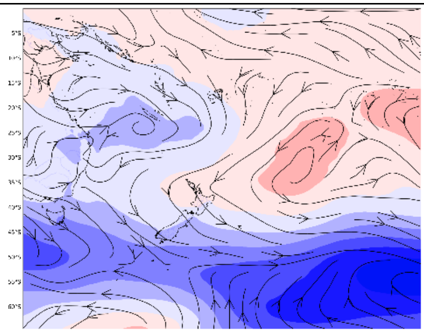
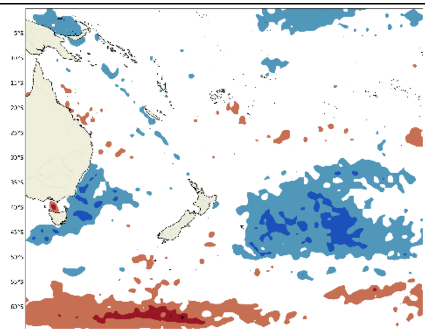
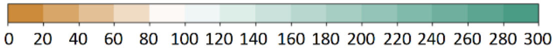
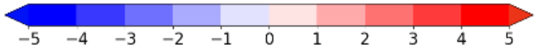
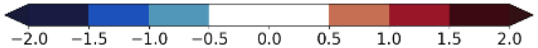
1976	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Aug@500m**

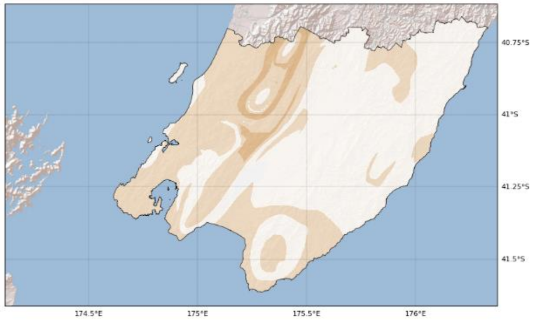
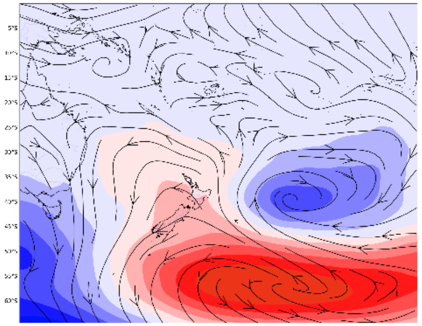
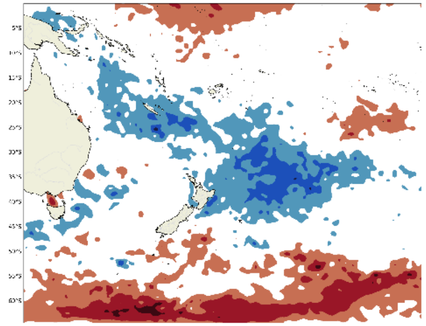
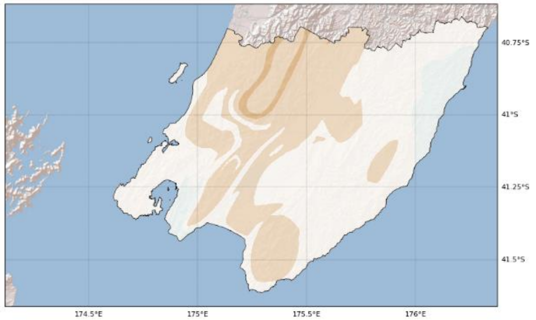
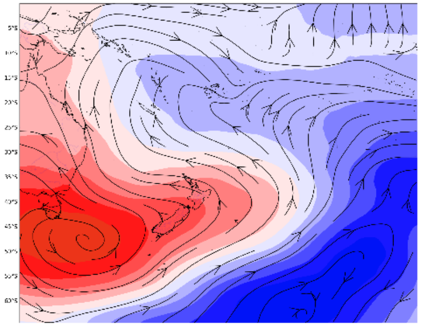
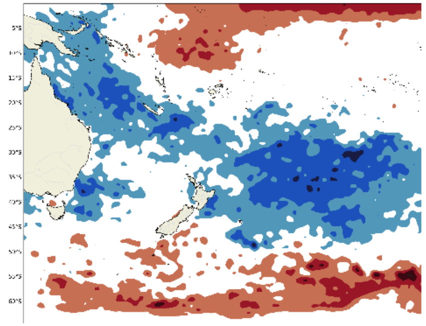
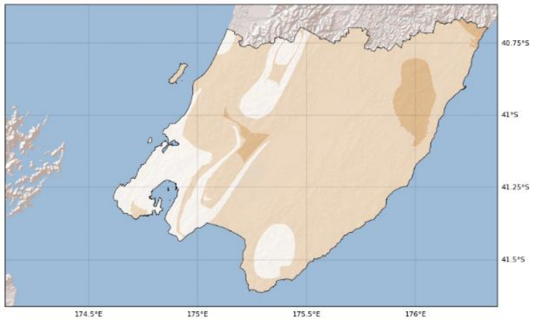
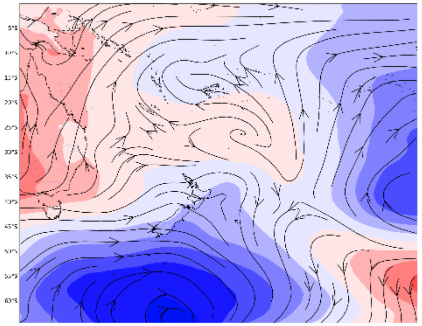
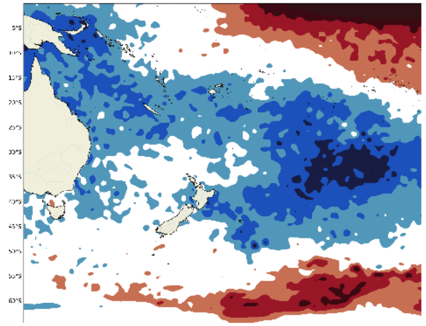
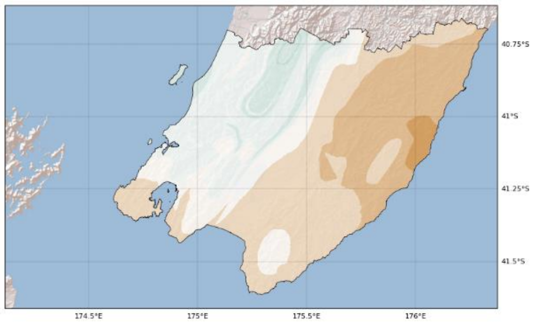
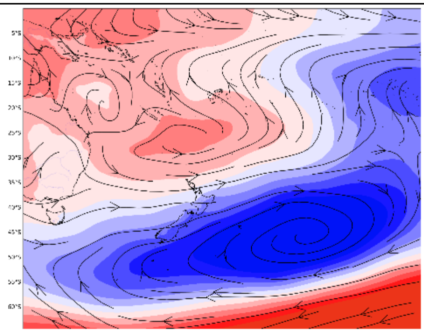
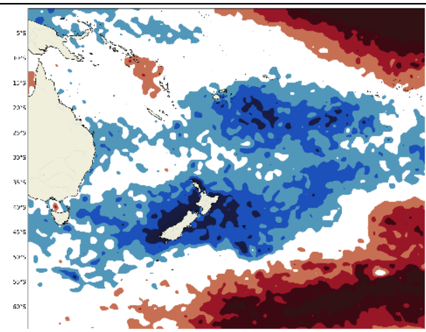
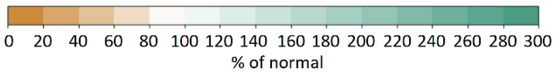
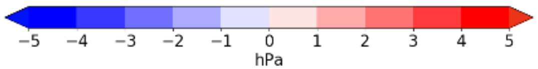
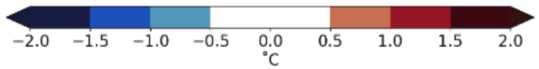
1977	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO El Niño IOD Neutral SAM Negative
Spring				ENSO El Niño IOD Neutral SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

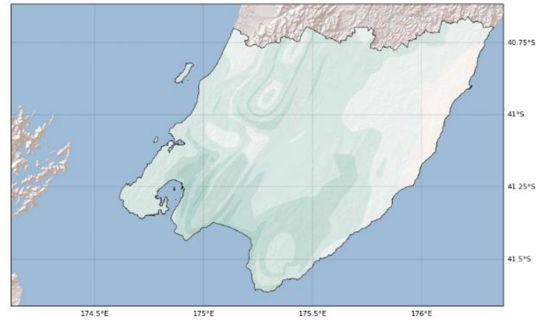
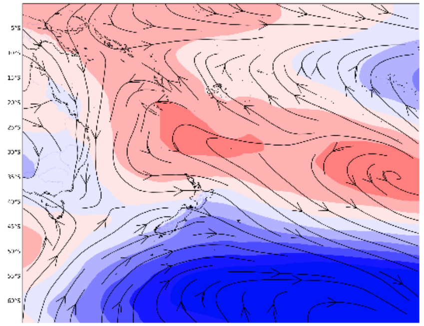
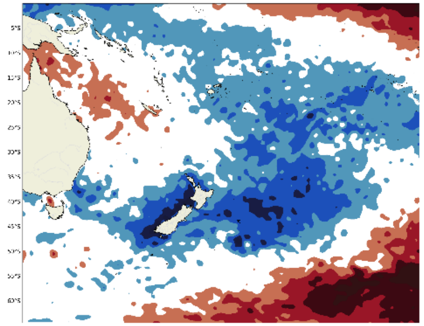
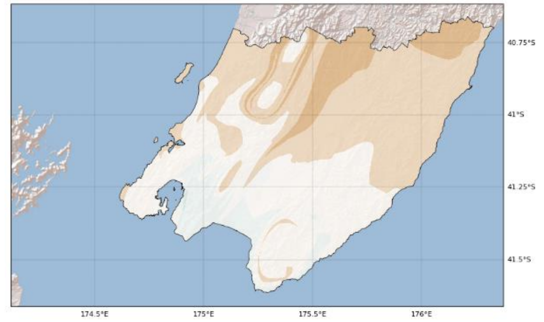
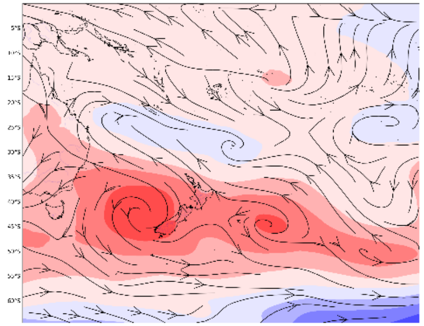
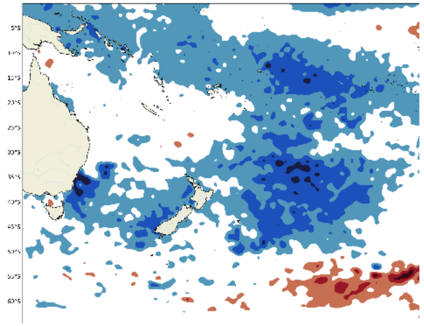
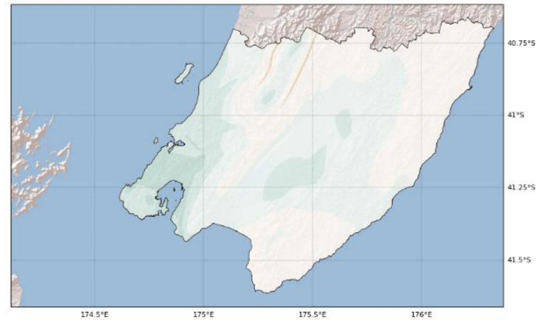
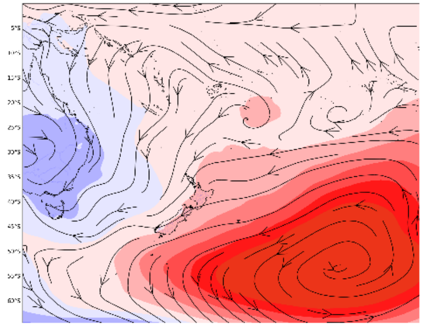
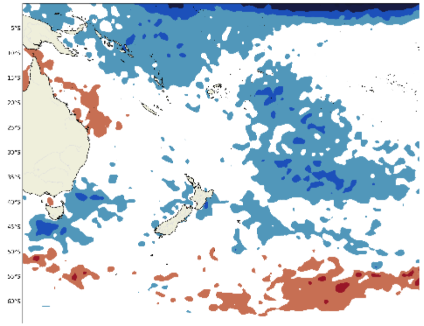
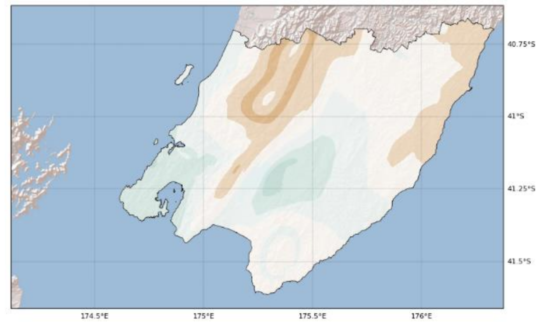
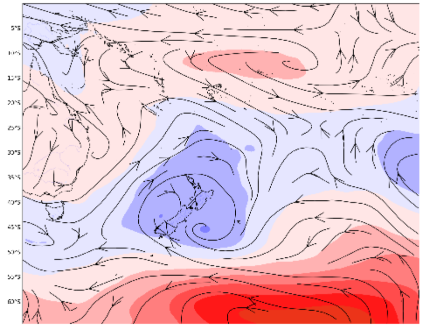
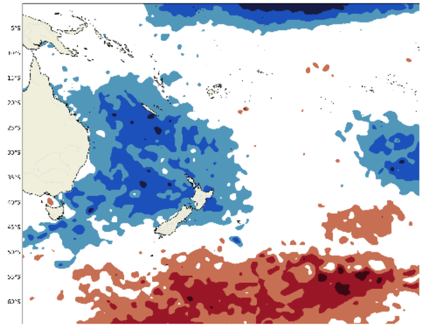
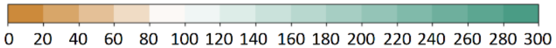
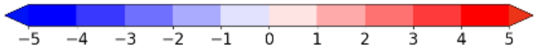
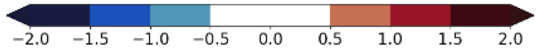
1978	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

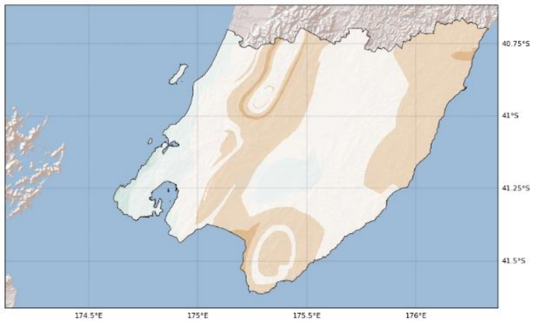
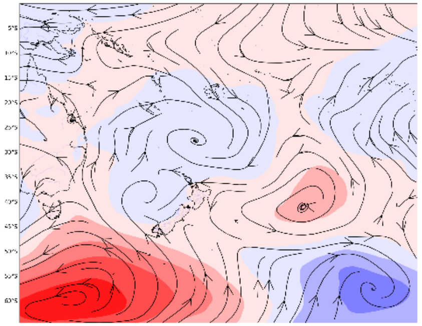
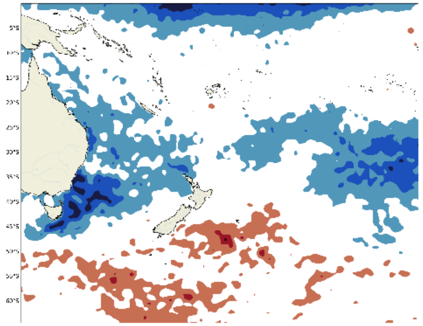
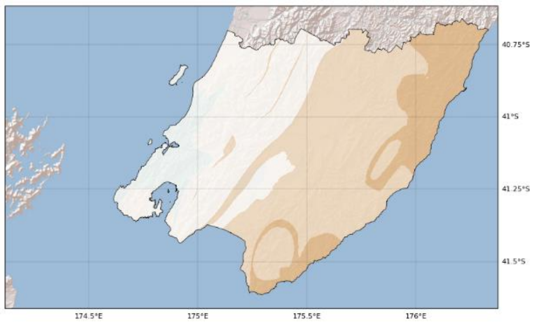
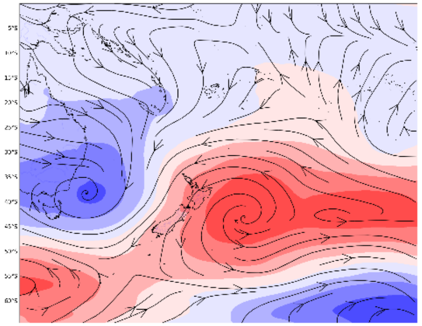
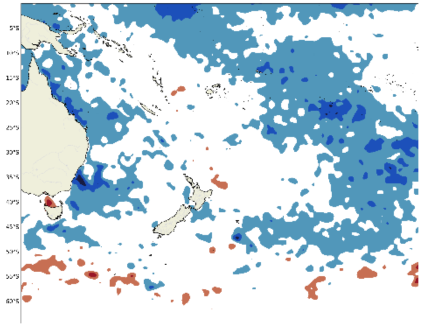
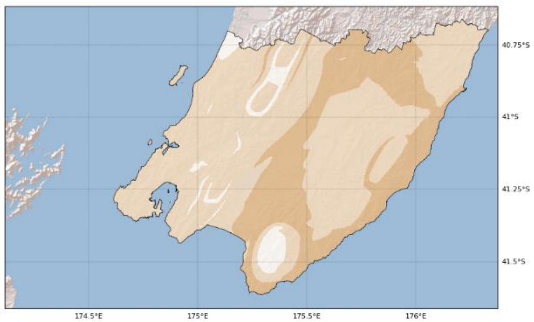
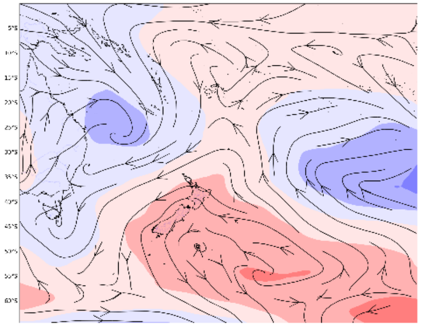
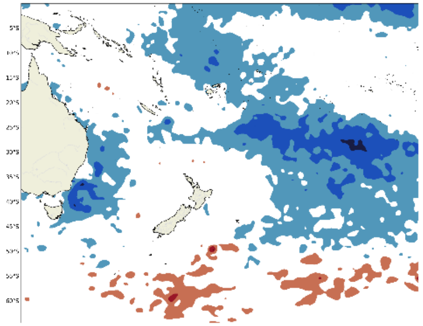
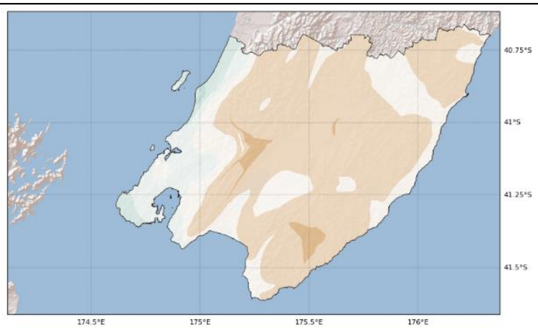
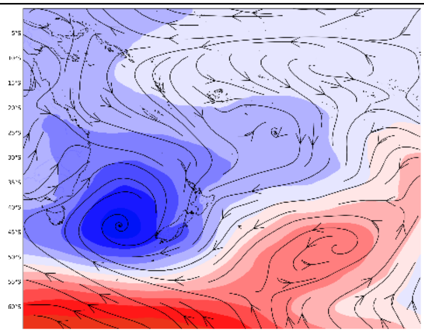
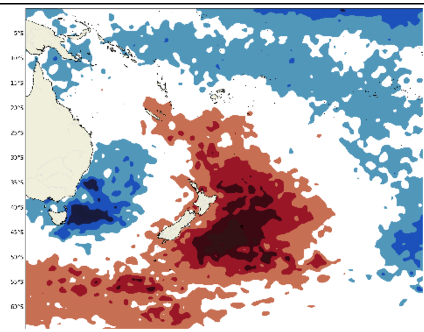
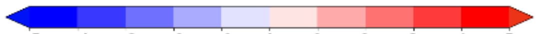
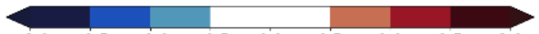
1979	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

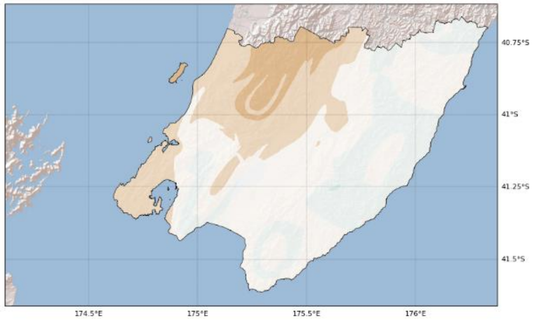
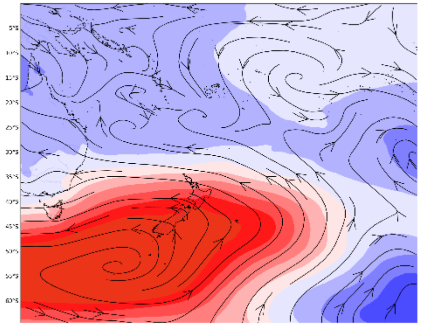
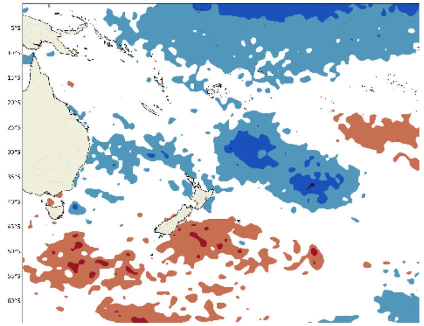
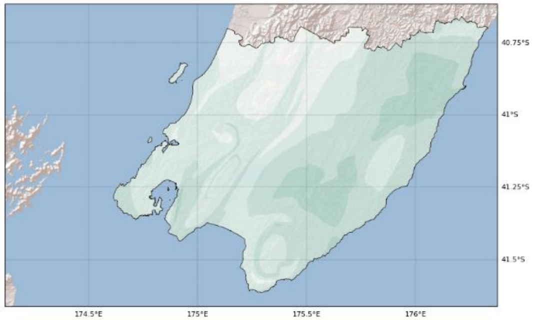
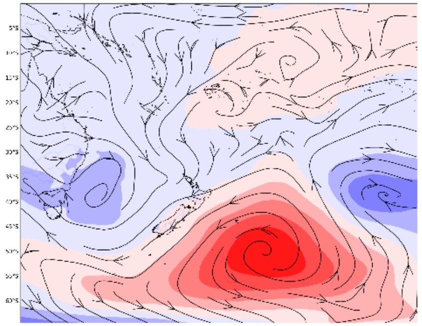
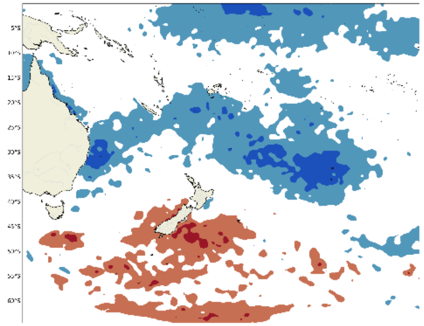
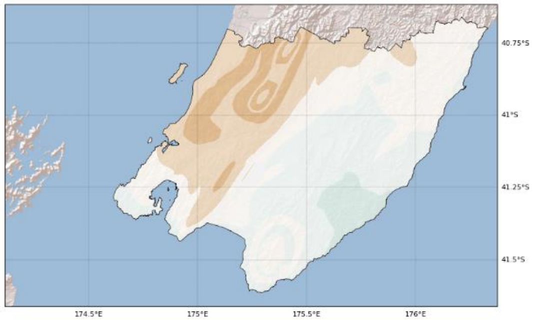
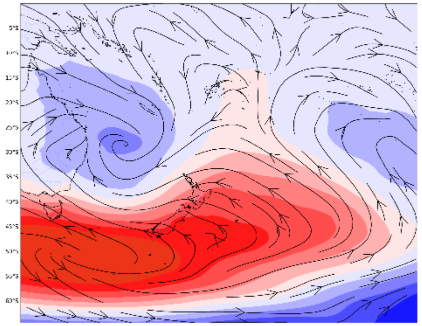
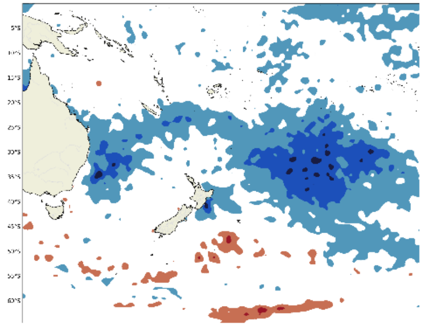
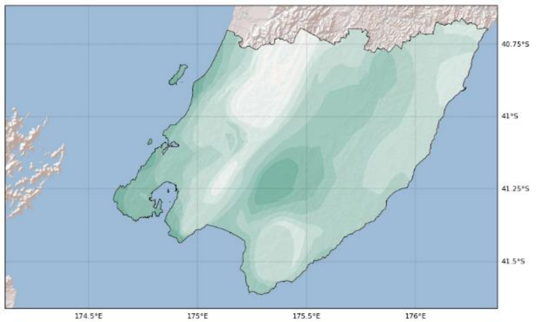
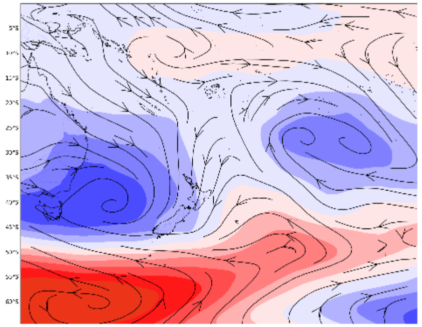
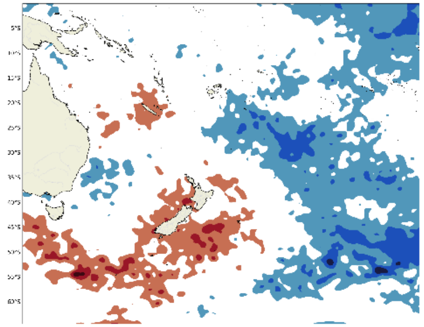
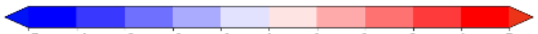
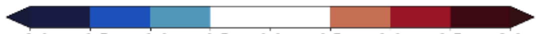
1980	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

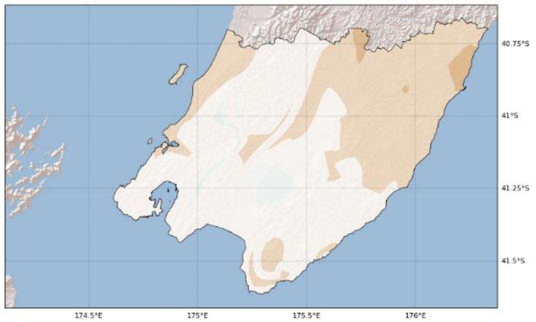
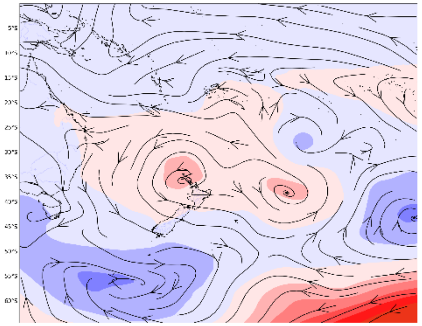
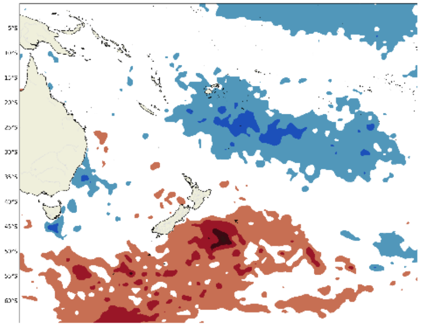
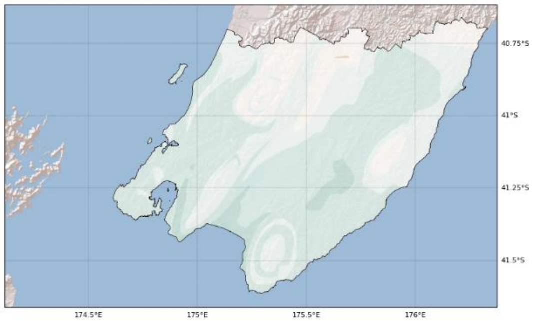
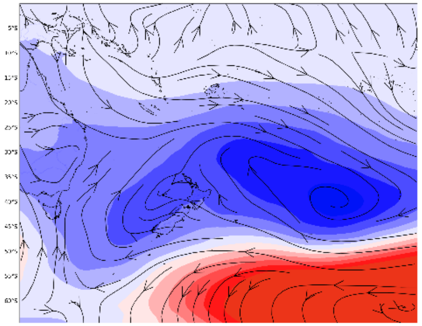
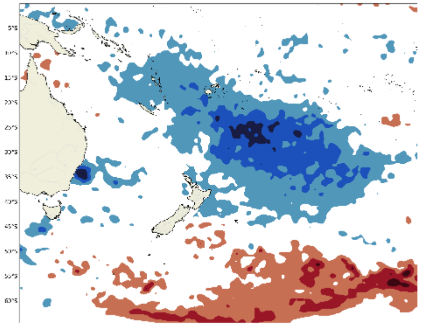
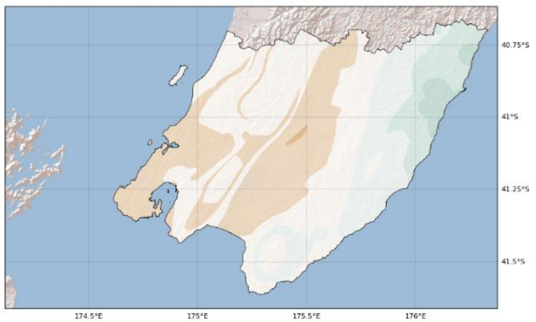
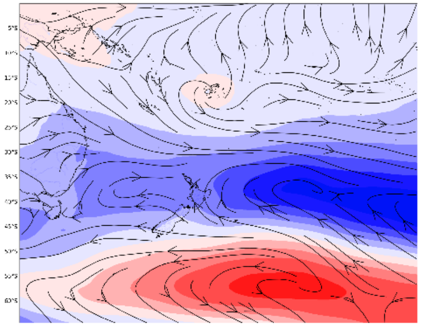
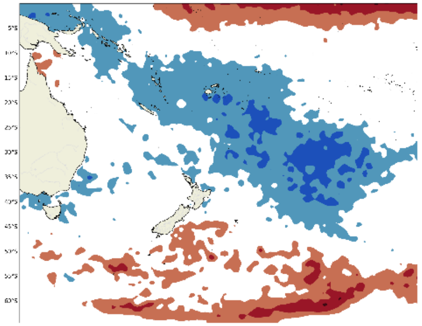
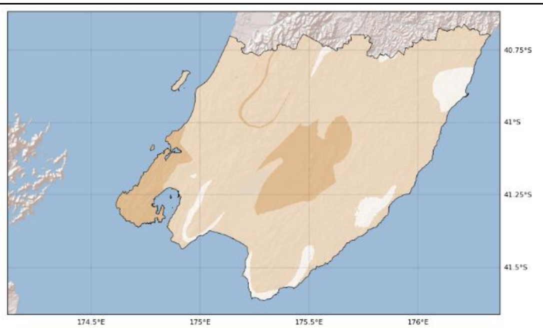
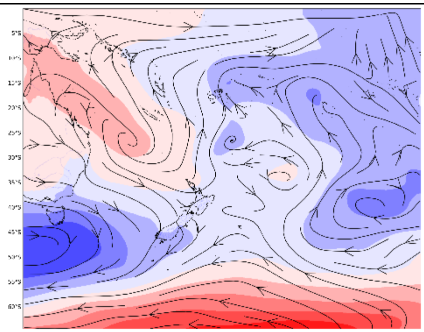
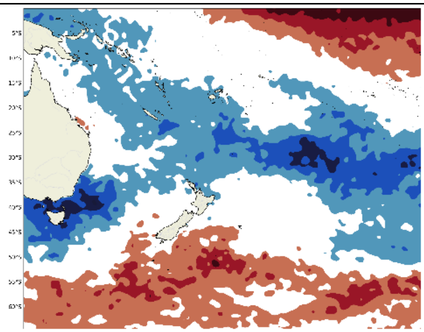
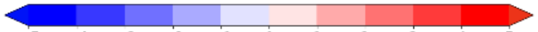
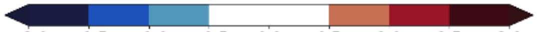
1981	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO La Niña IOD Neutral SAM Negative
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

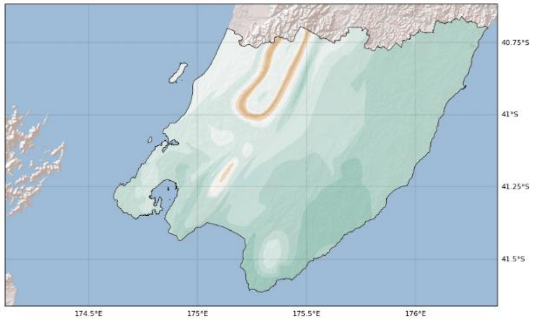
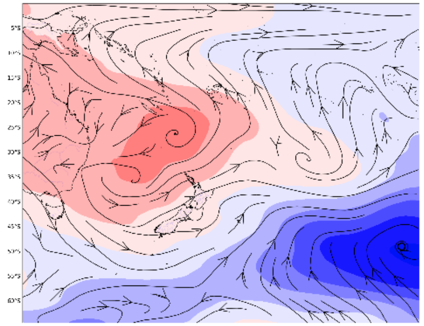
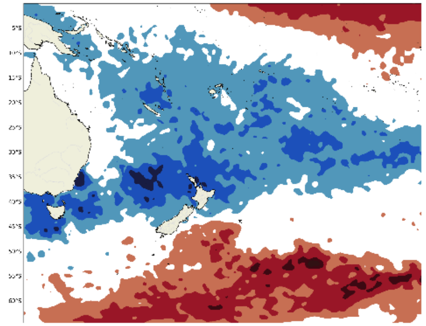
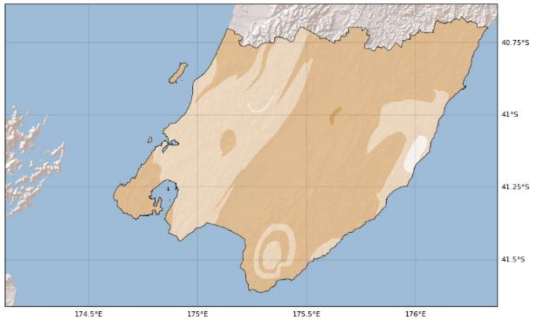
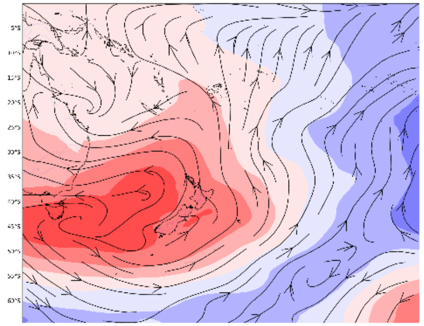
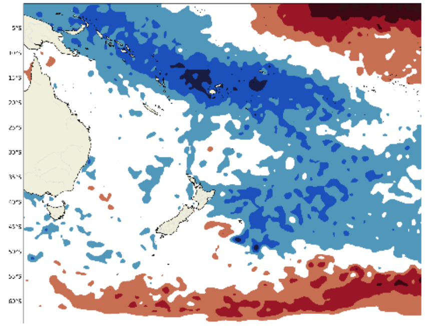
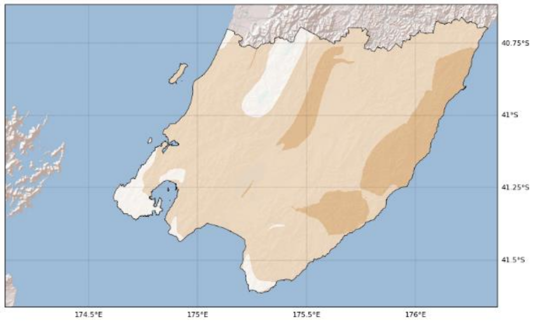
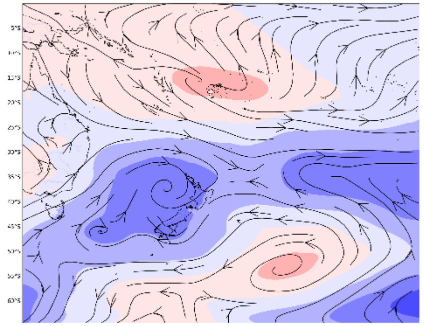
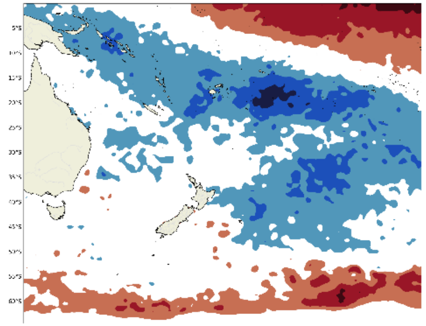
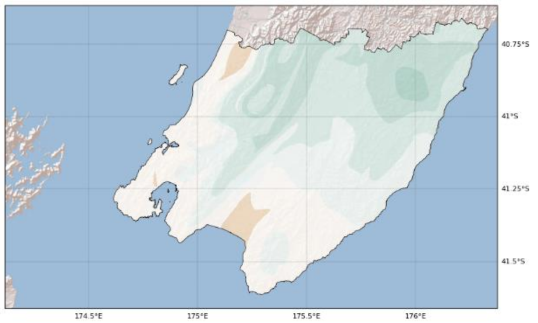
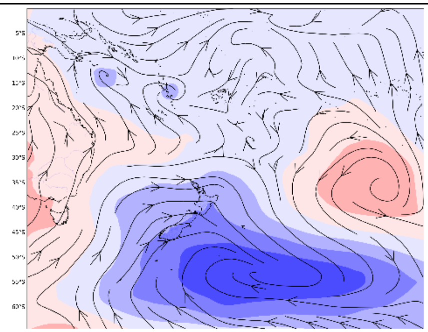
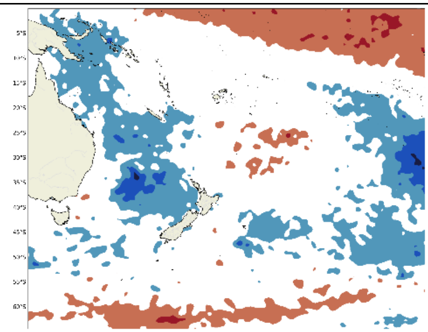
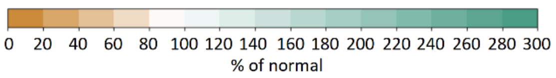
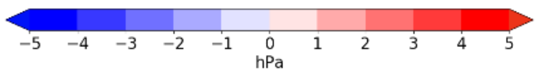
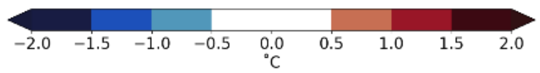
1982	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Aug@500m**

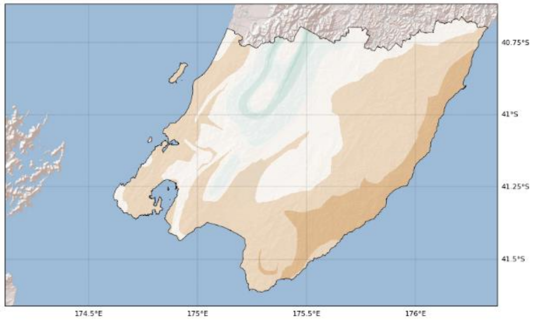
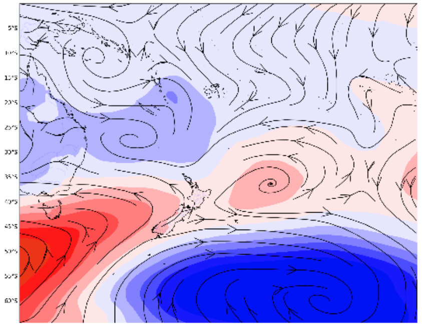
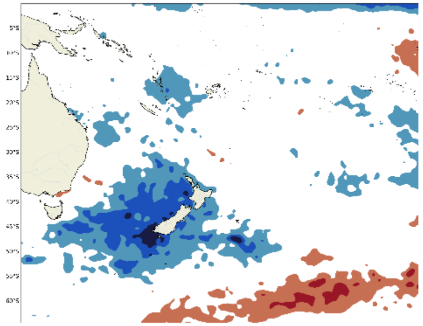
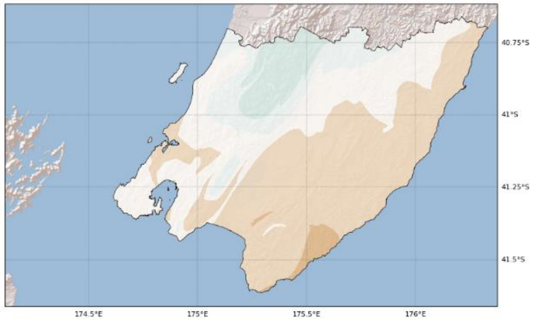
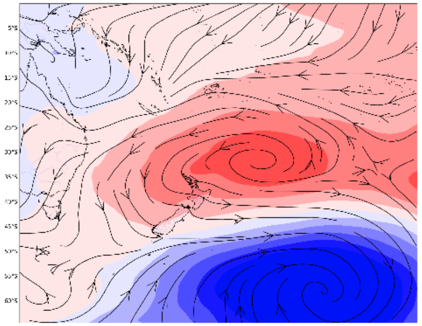
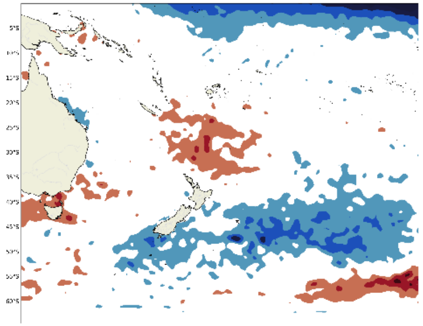
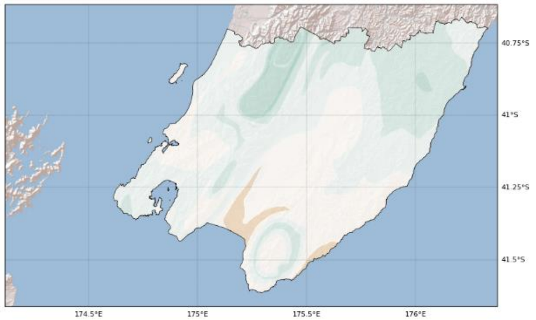
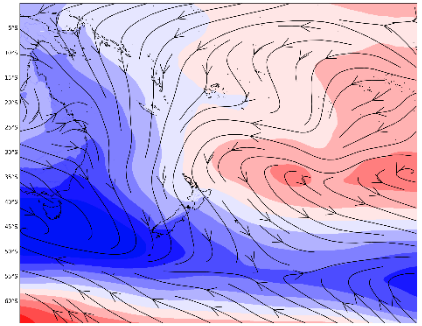
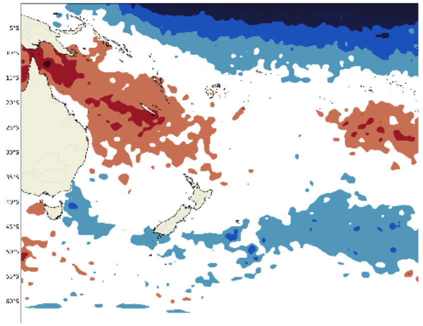
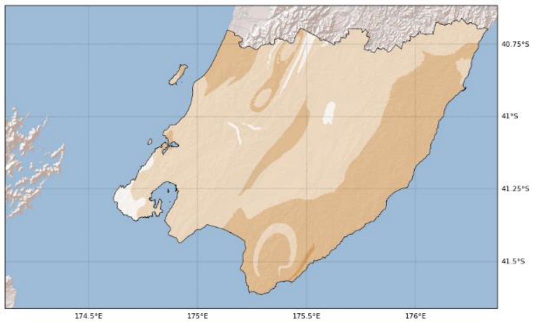
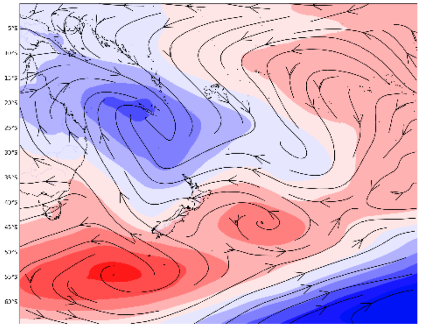
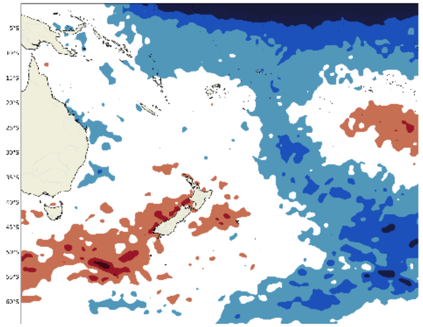
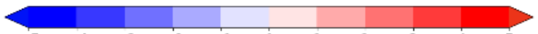
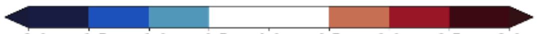
1983	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Positive <u>SAM</u> Positive
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Aug@500m**

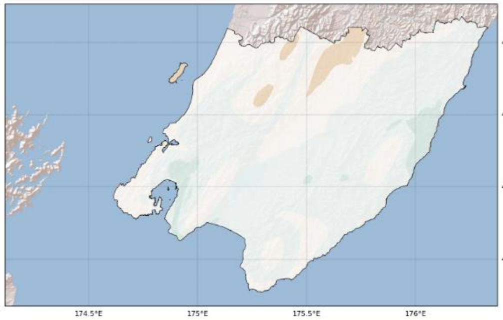
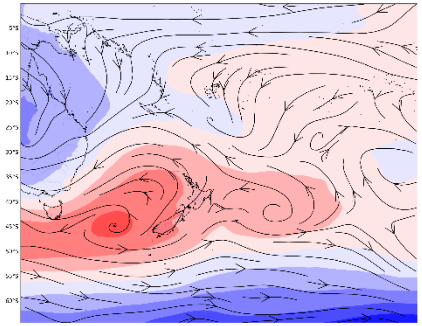
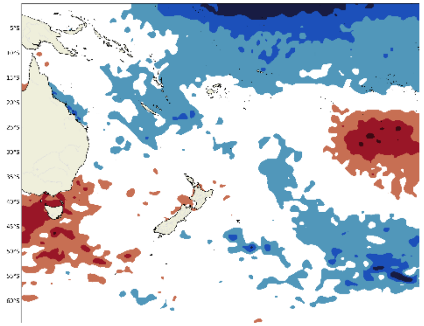
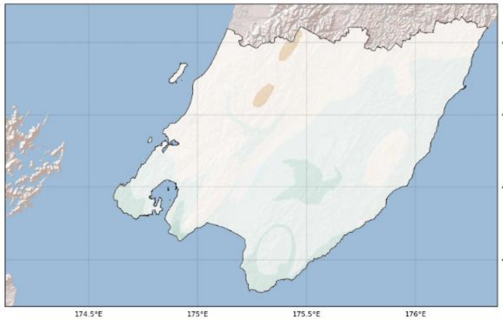
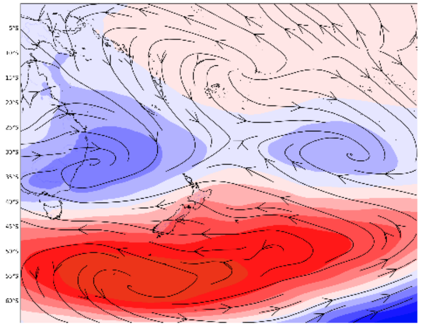
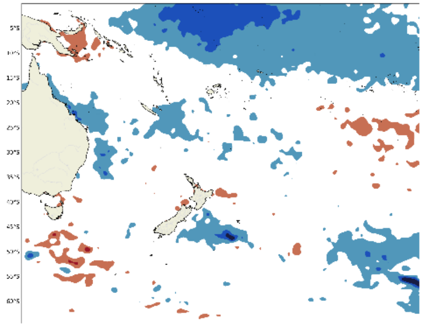
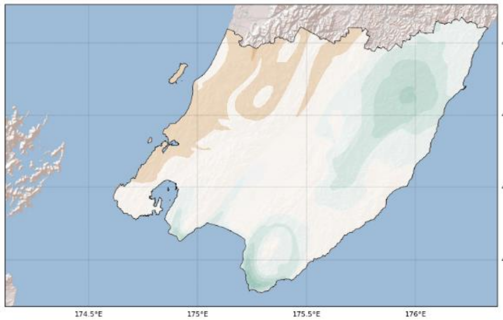
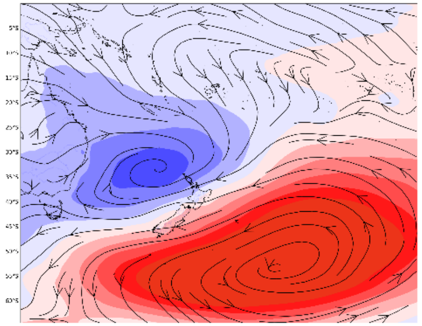
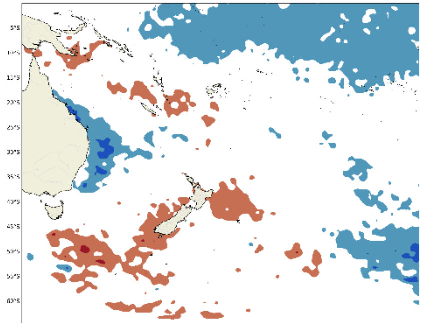
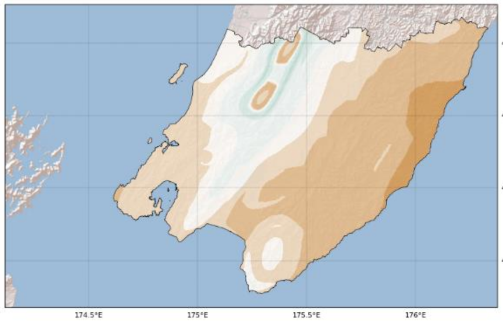
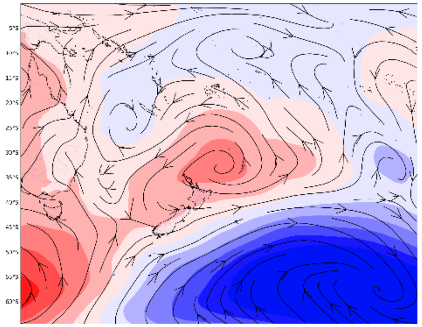
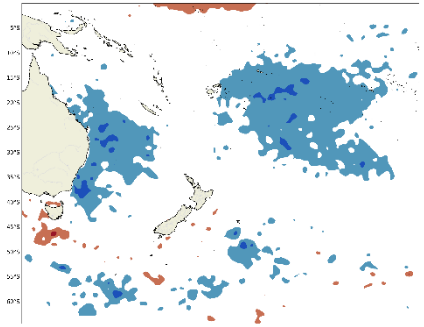
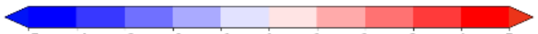
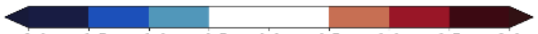
1984	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Aug@500m**

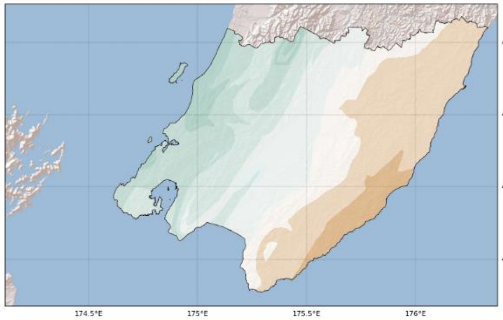
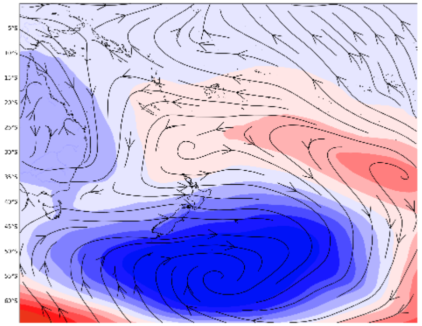
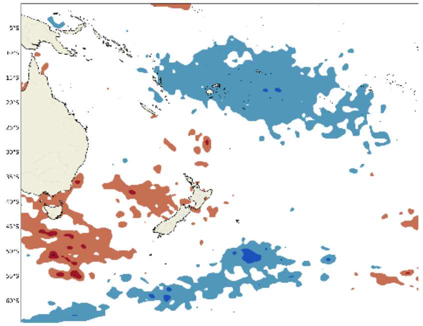
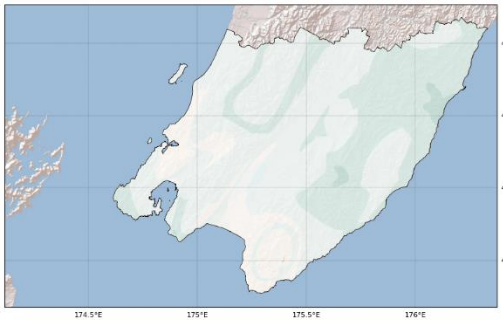
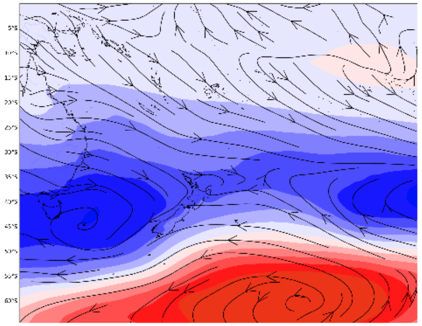
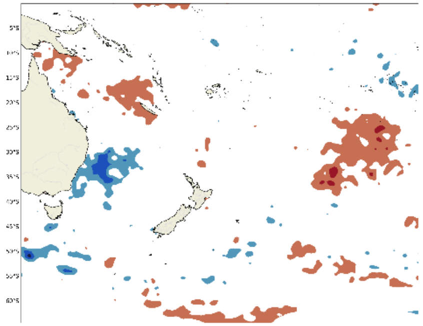
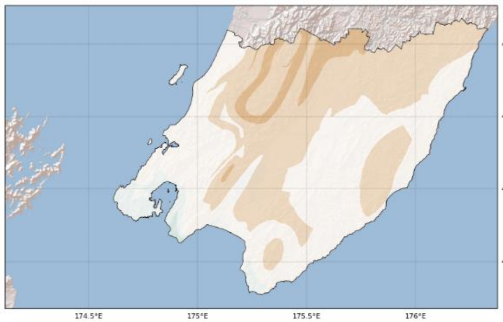
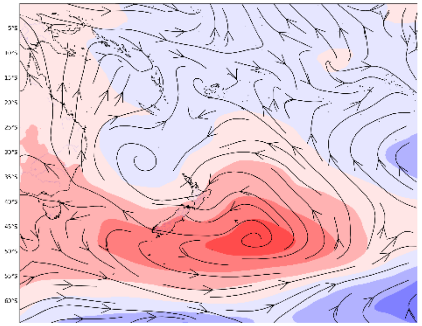
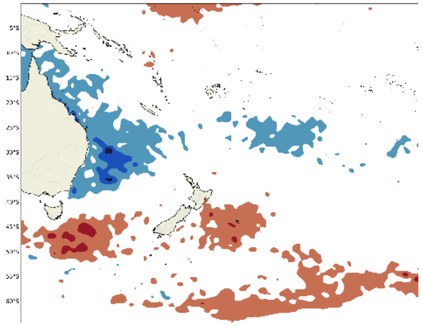
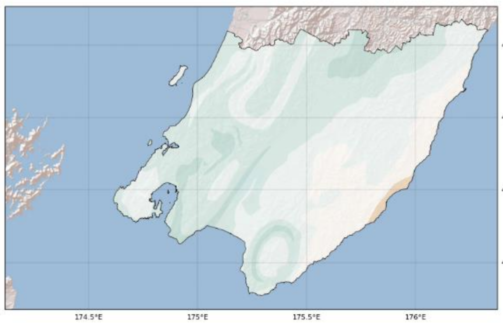
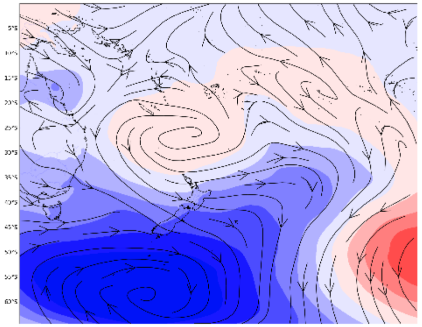
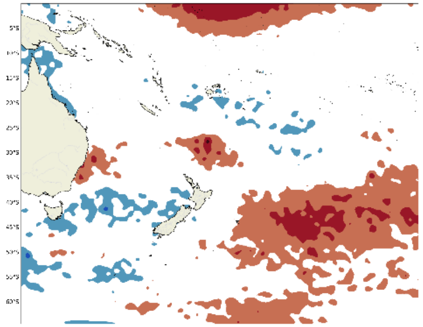
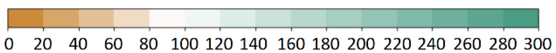
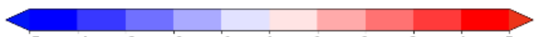
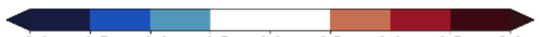
1985	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Aug@500m**

1986	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

1987	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Neutral
Winter				ENSO El Niño IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

1988	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

1989	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Negative SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

<table>
<tr><th>1990</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Negative
<u>SAM</u>
Positive</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall:
Aug@500m</td></tr>
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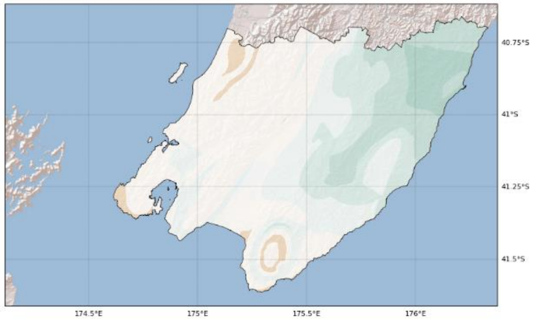
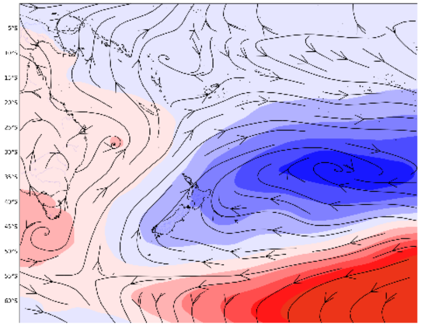
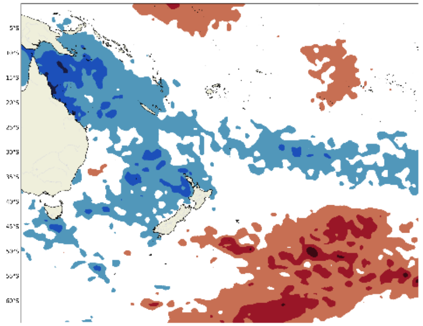
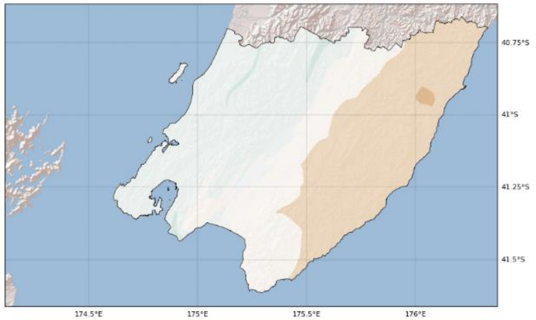
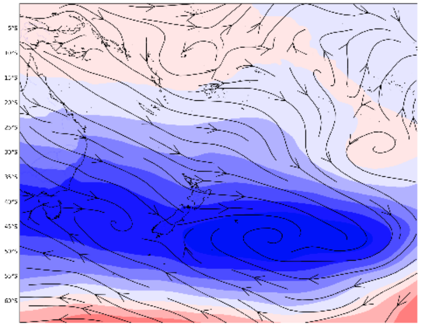
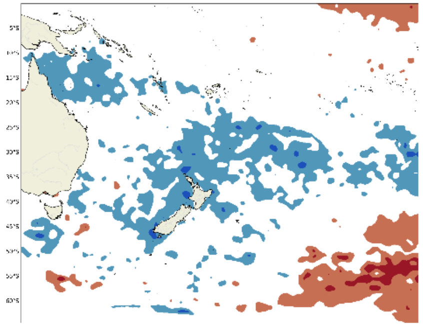
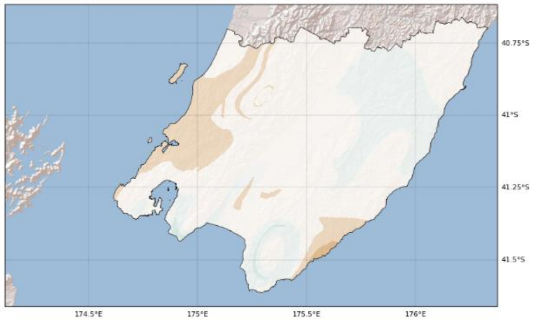
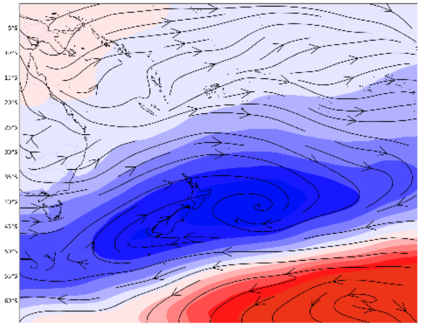
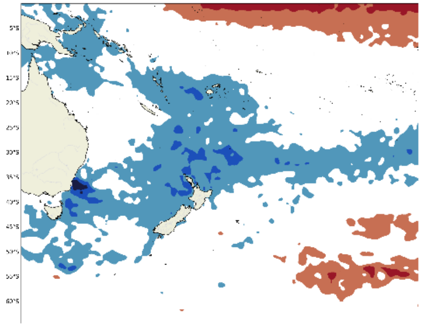
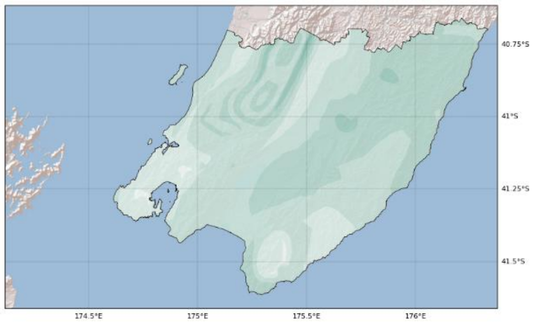
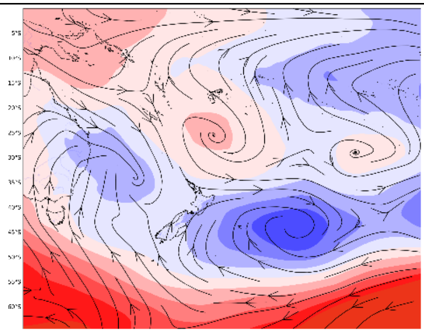
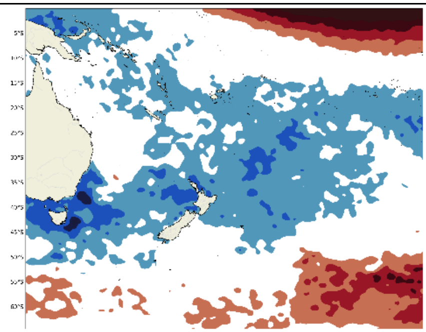
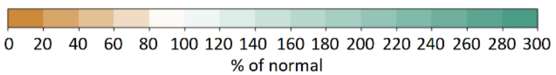
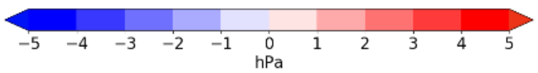
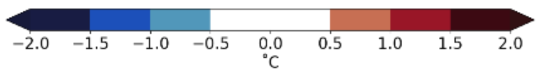
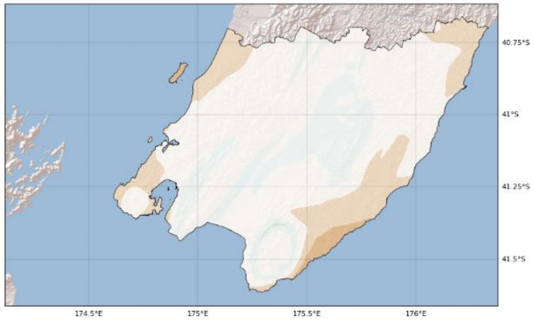
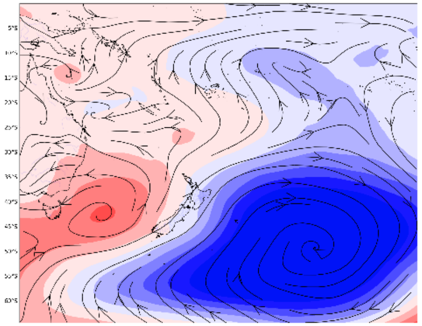
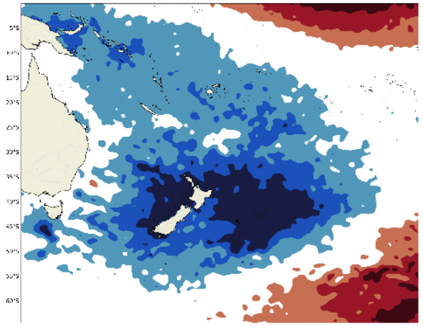
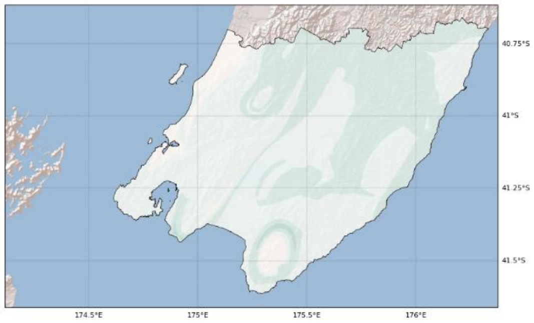
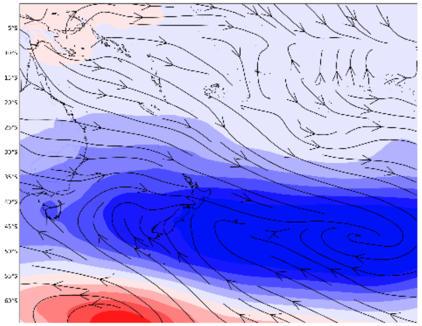
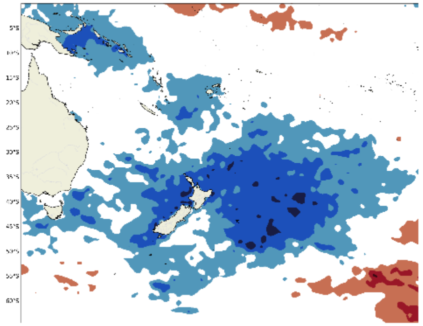
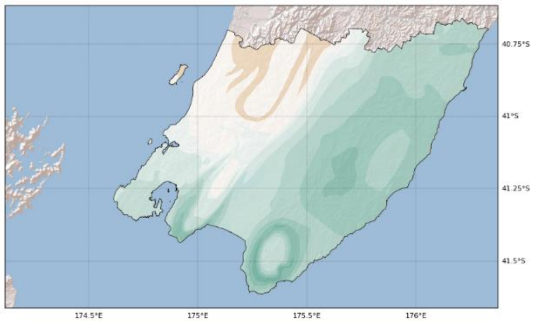
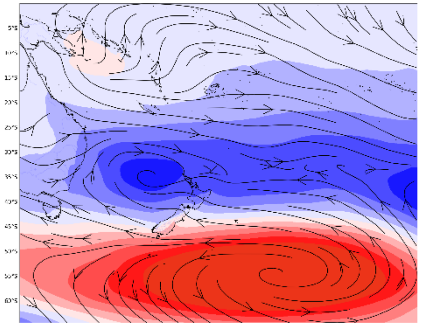
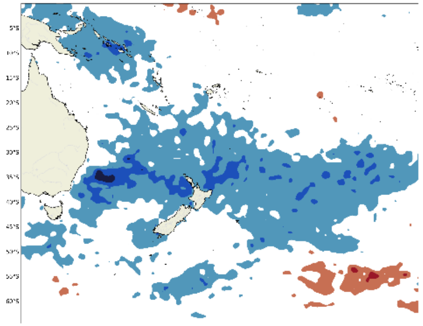
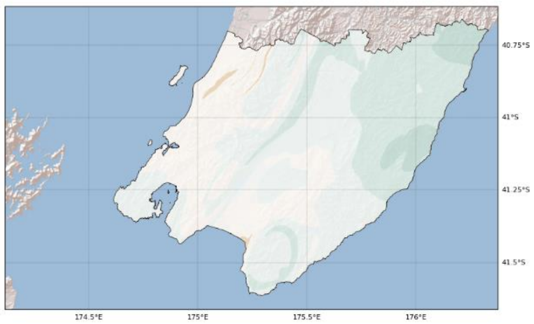
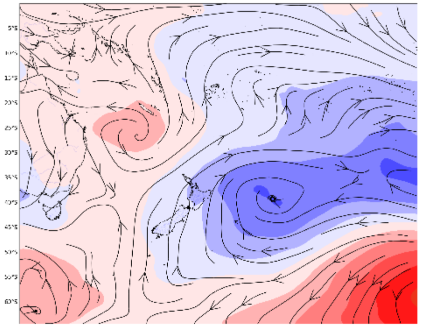
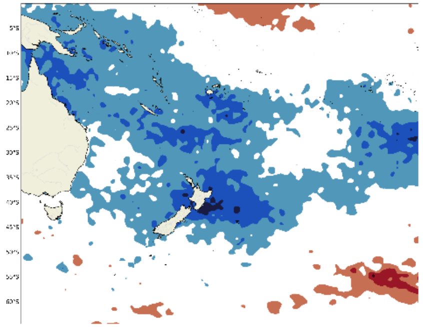
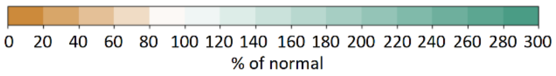
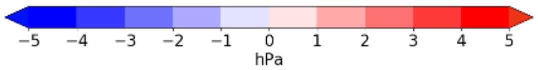
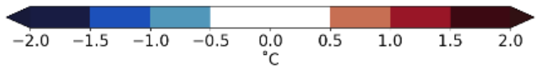
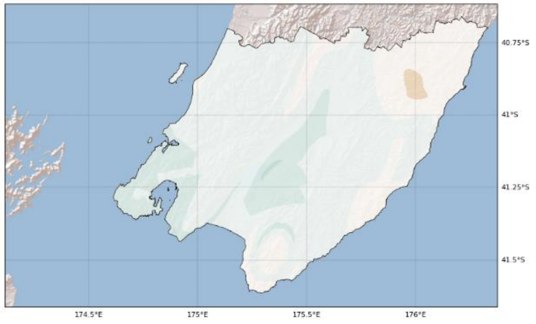
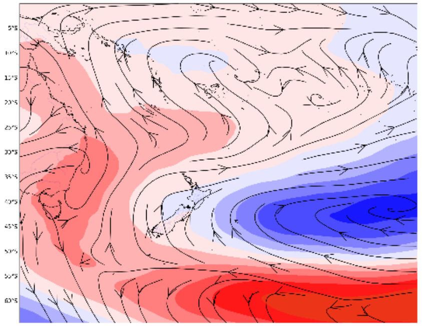
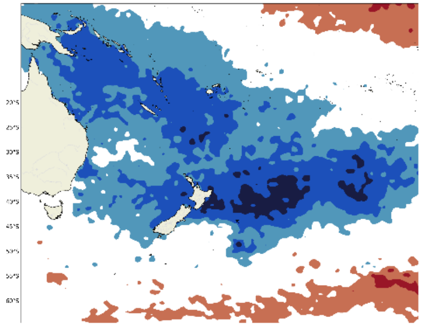
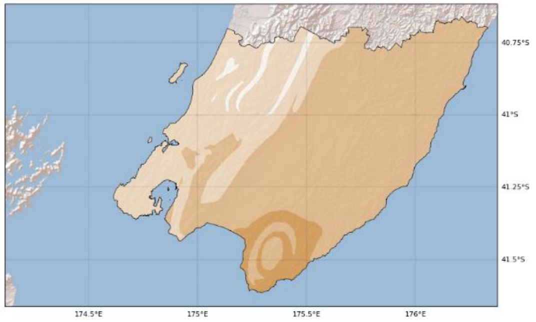
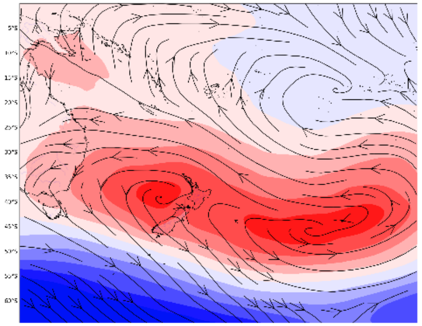
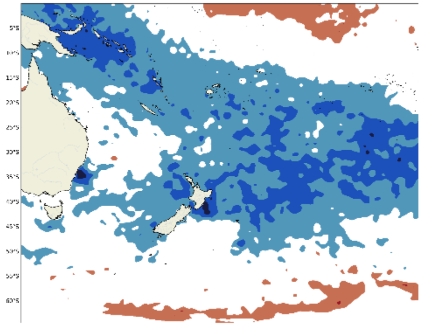
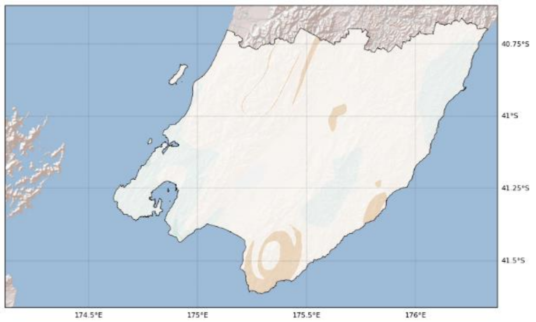
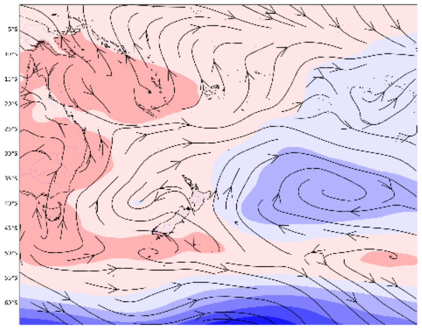
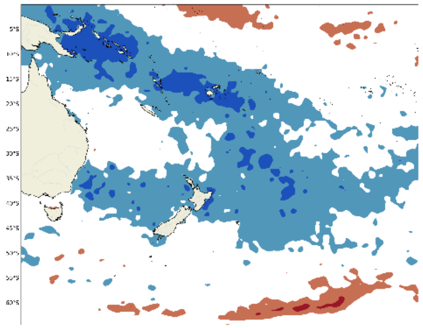
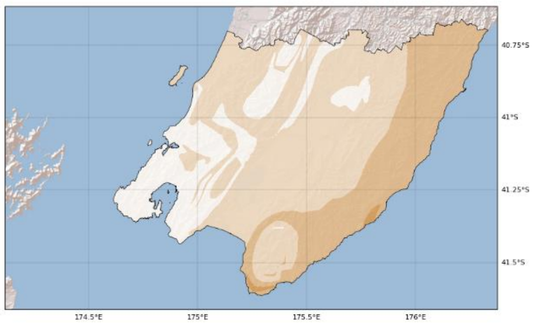
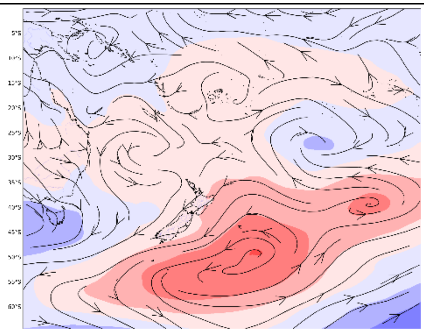
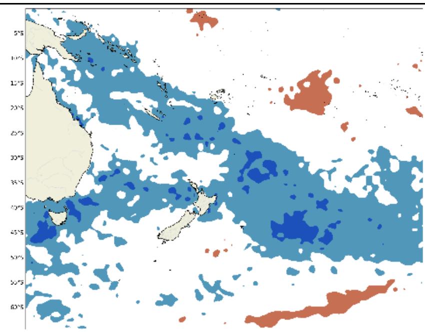
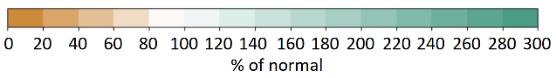
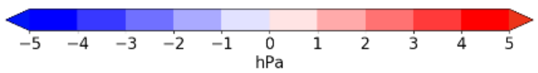
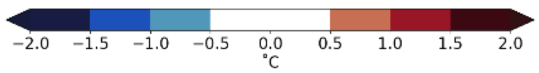
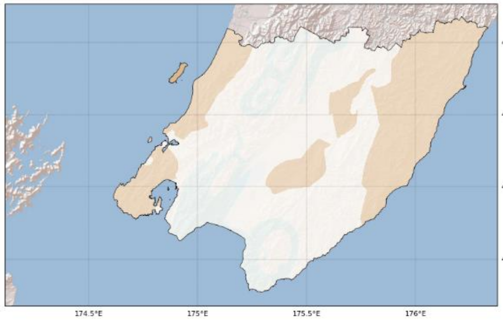
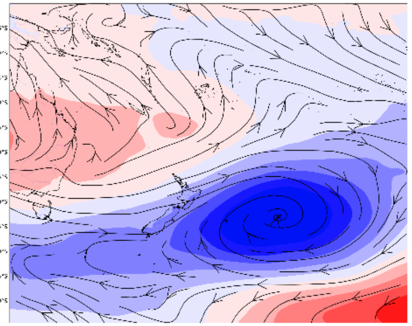
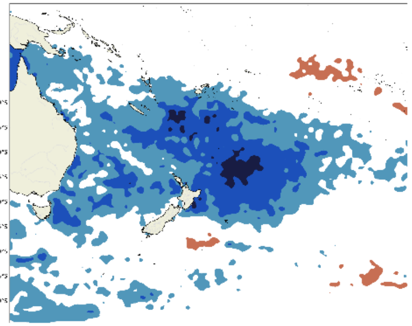
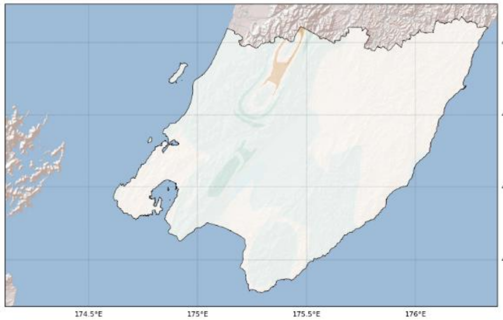
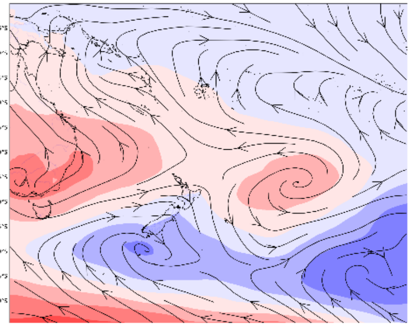
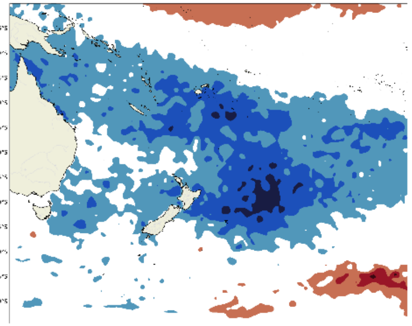
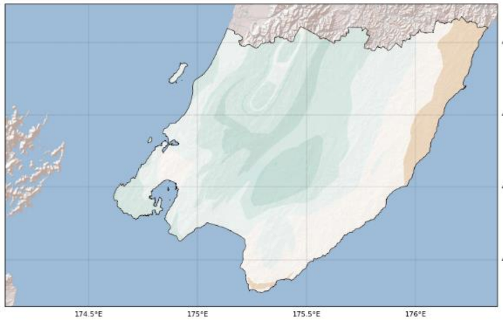
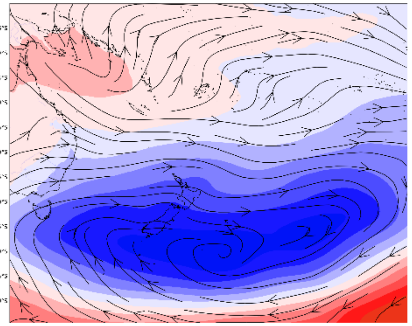
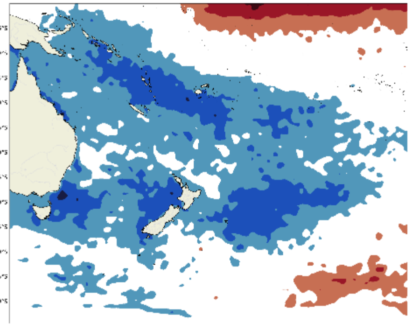
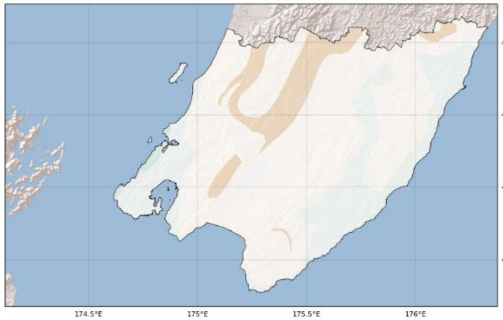
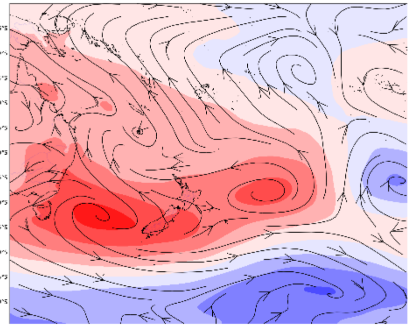
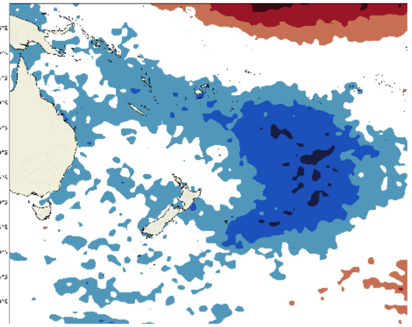
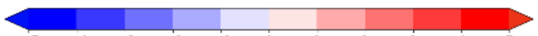
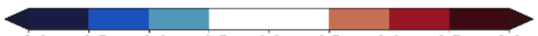
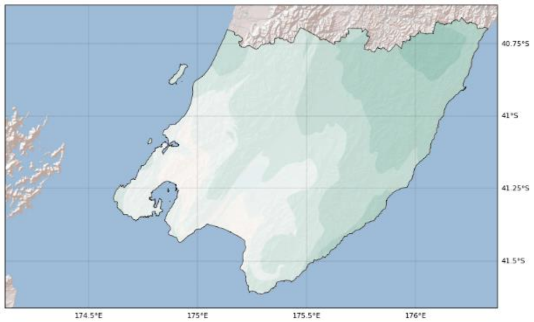
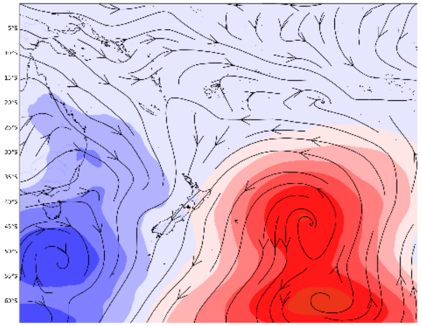
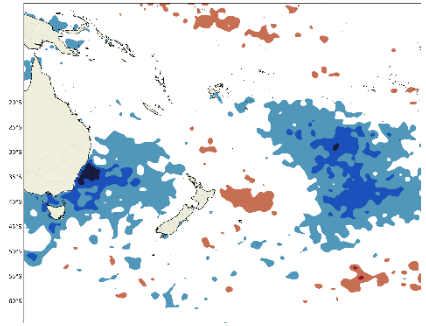
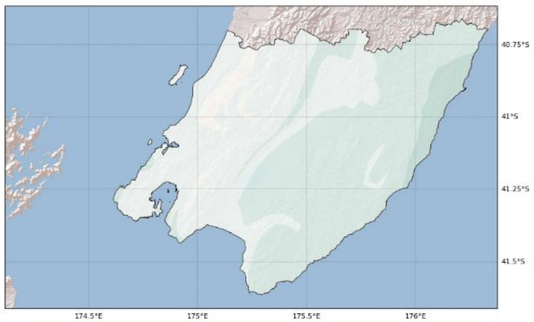
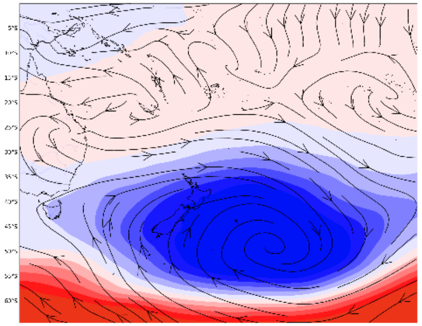
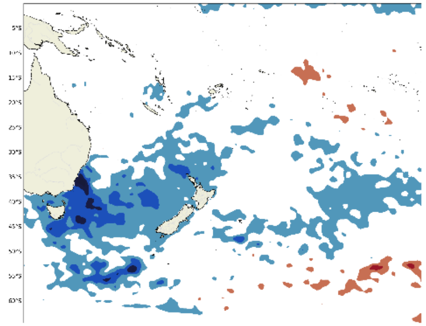
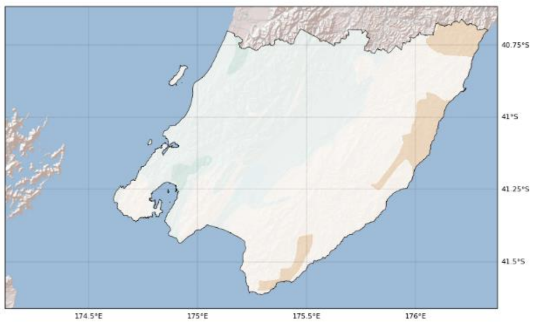
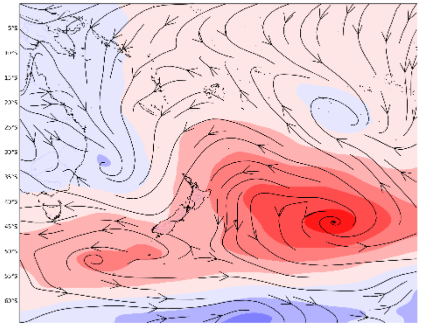
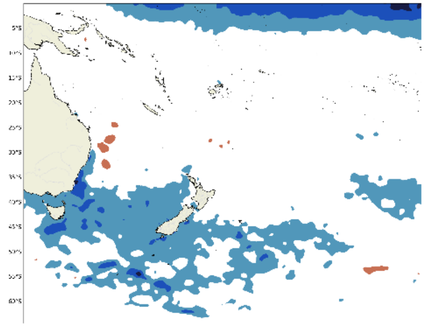
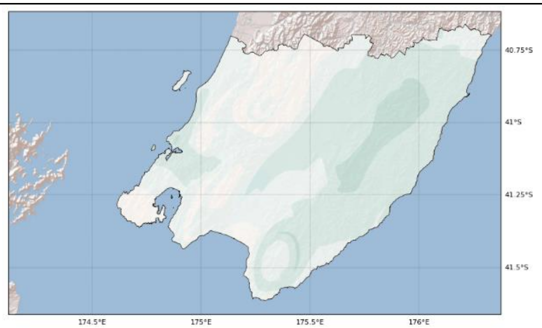
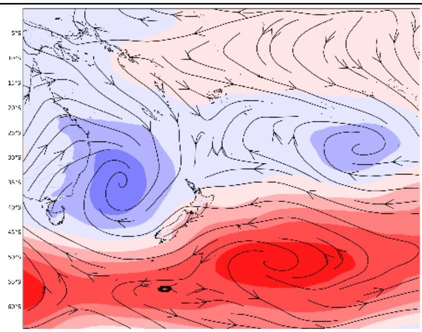
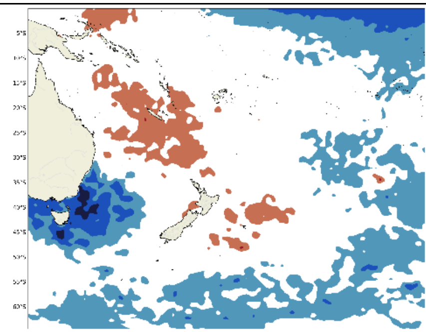
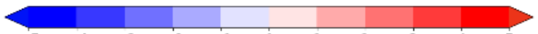
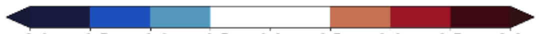
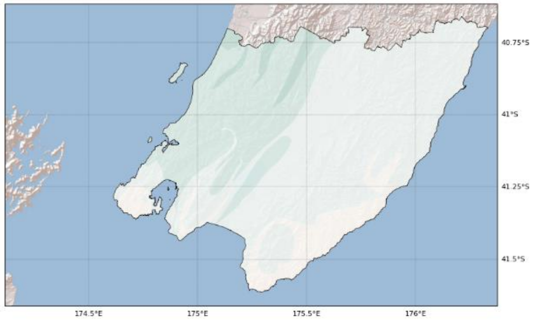
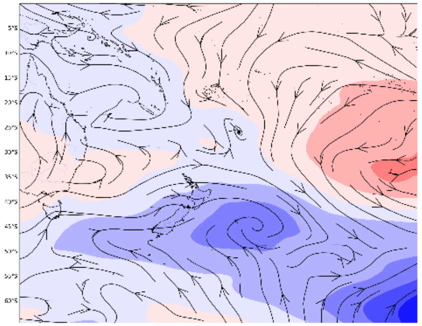
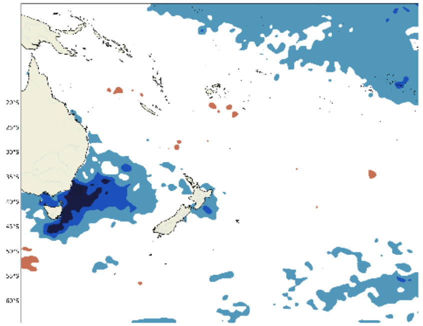
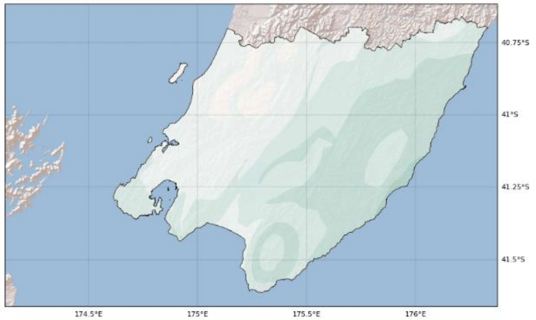
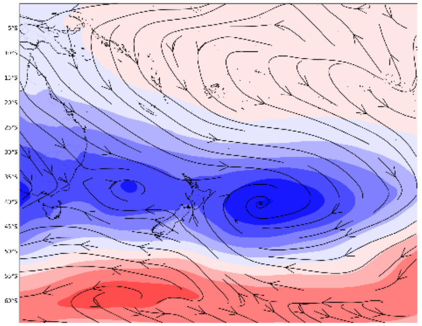
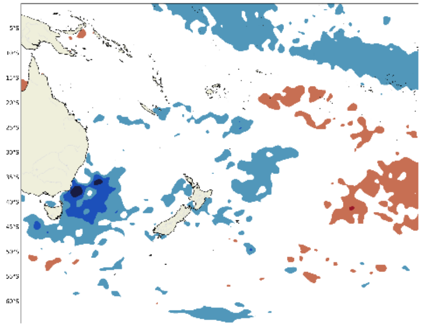
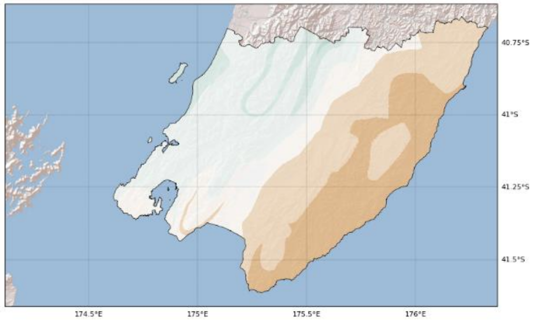
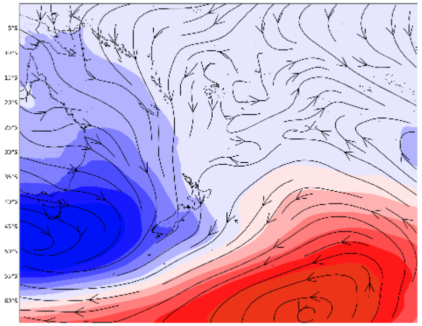
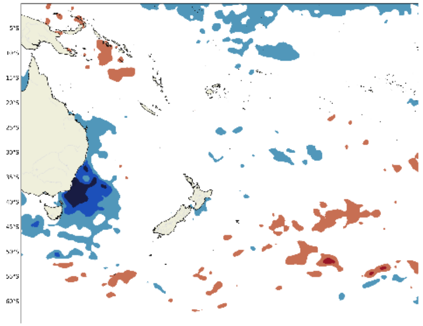
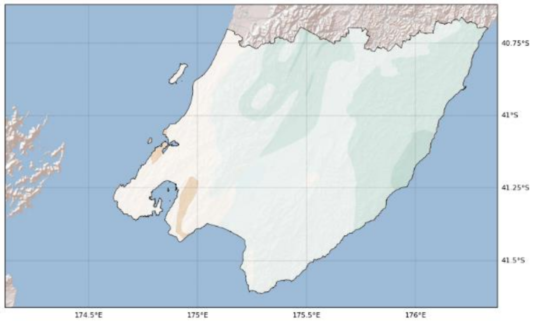
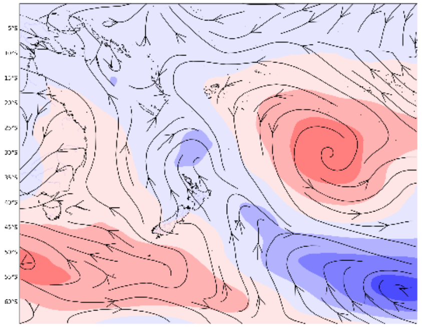
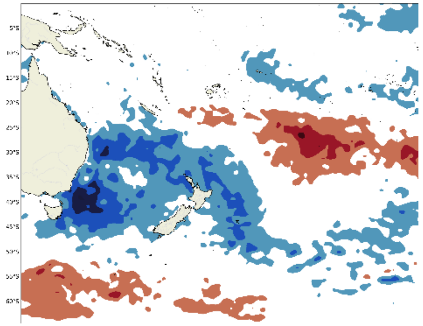
1991	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Aug@500m**

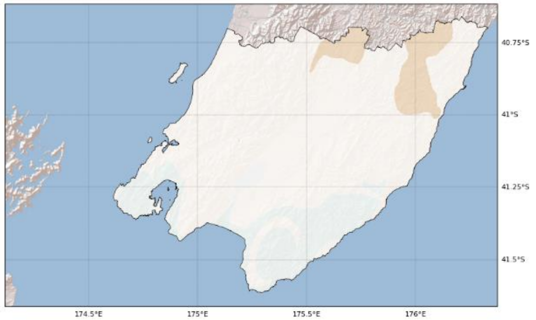
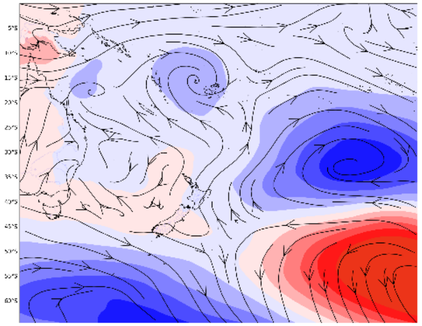
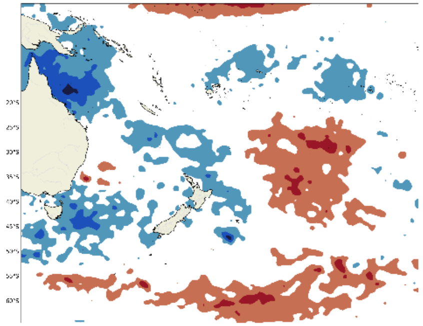
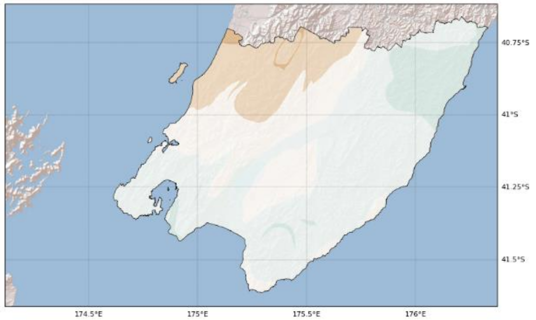
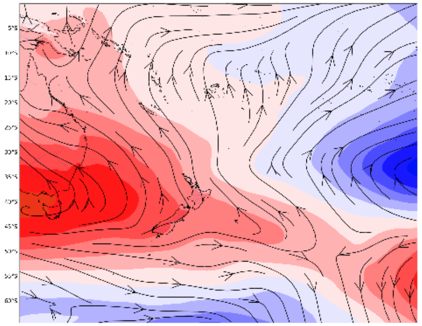
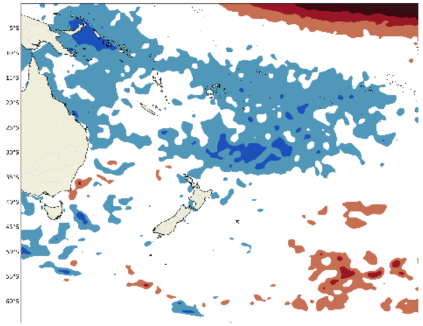
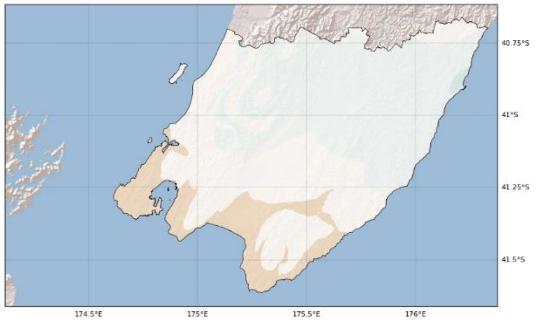
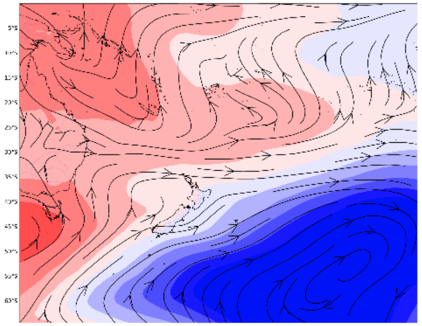
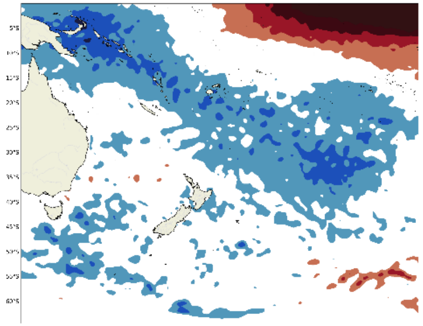
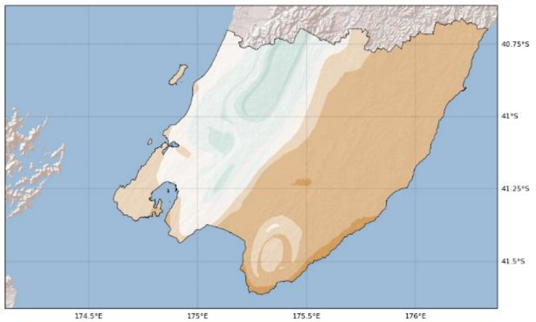
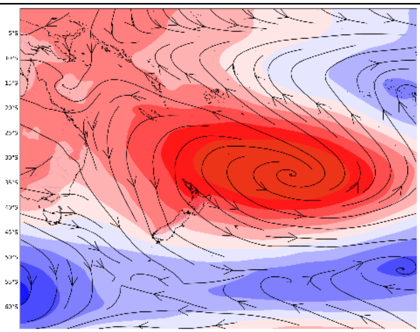
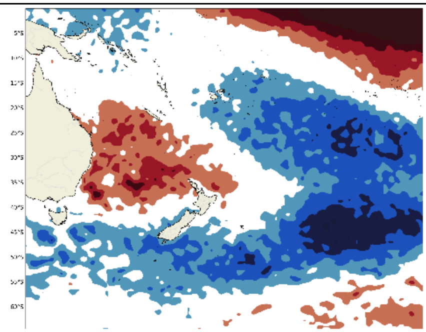
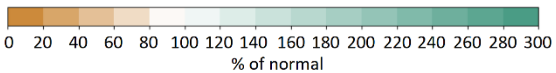
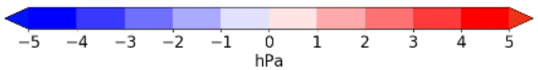
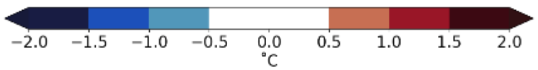
1992	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Negative SAM Neutral
Winter				ENSO Neutral IOD Negative SAM Neutral
Spring				ENSO Neutral IOD Negative SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

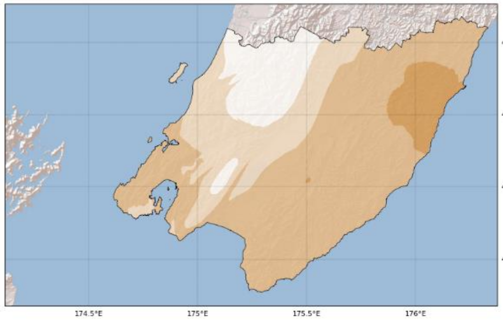
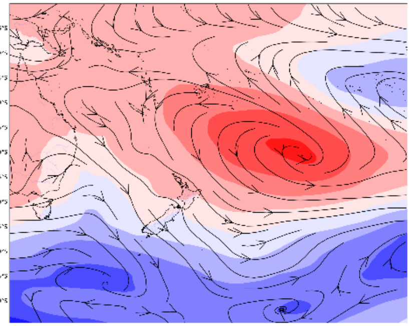
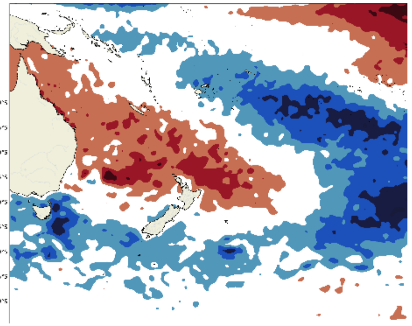
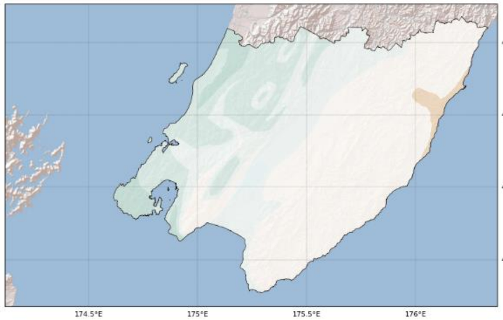
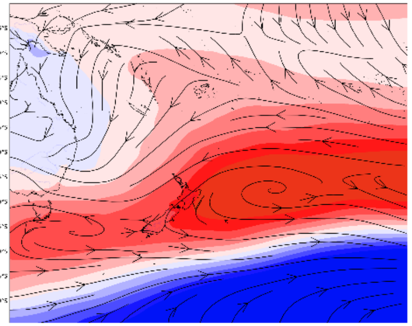
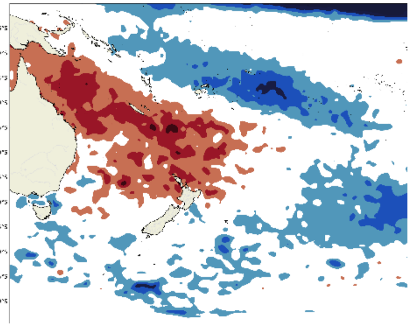
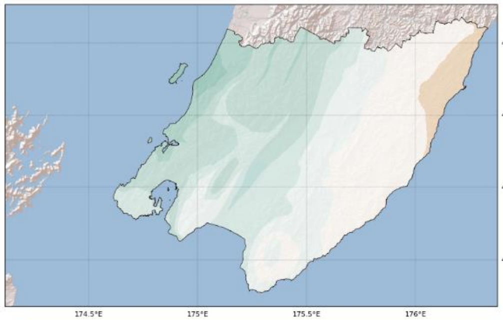
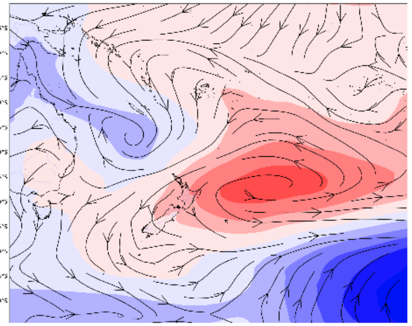
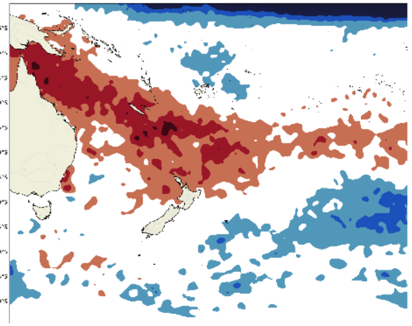
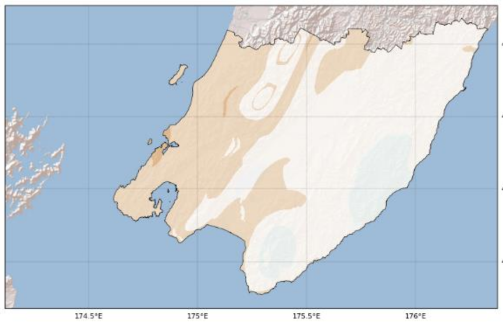
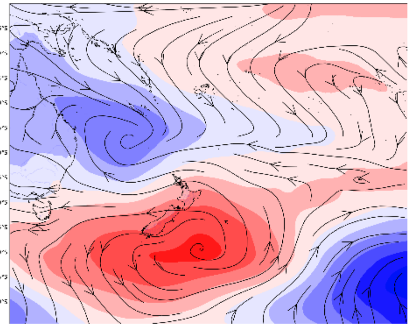
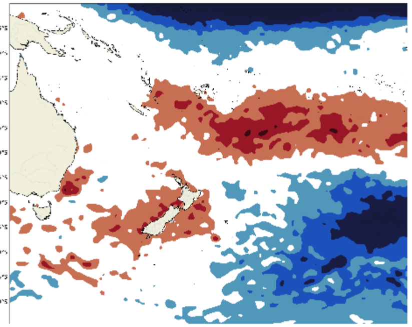
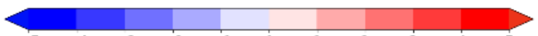
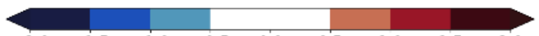
1993	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO El Niño IOD Neutral SAM Positive
Spring				ENSO El Niño IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

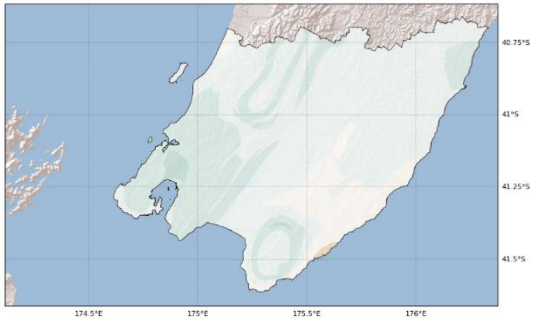
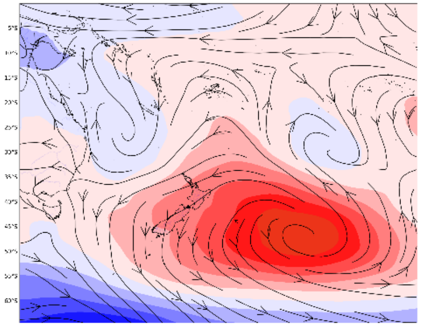
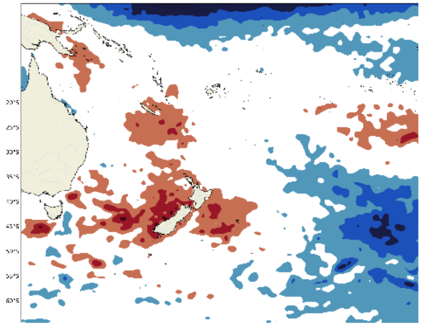
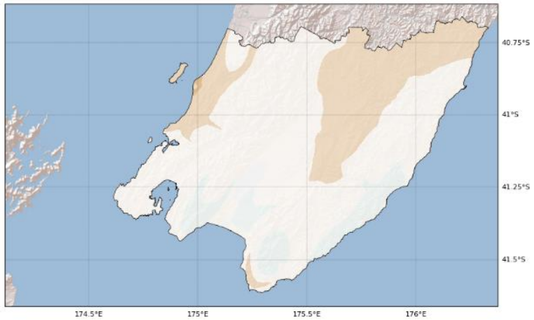
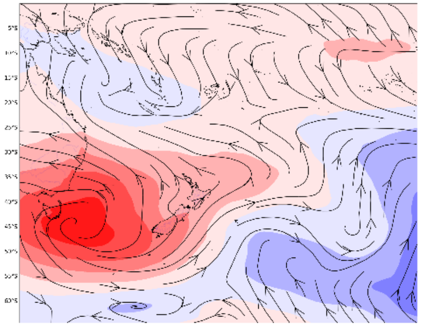
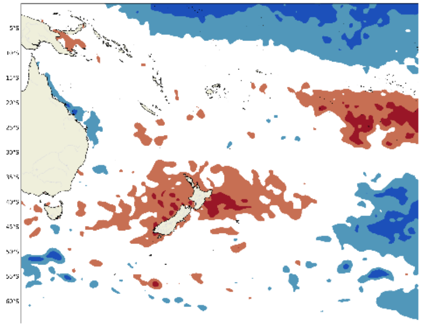
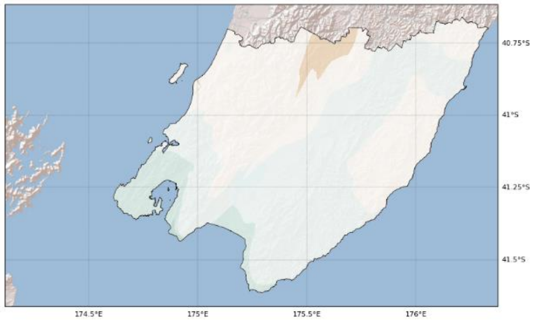
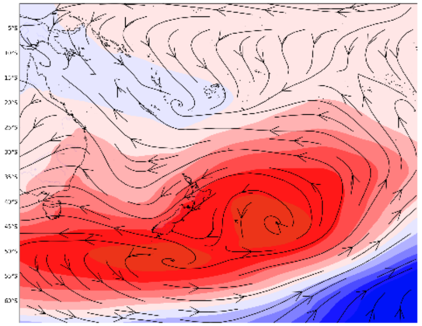
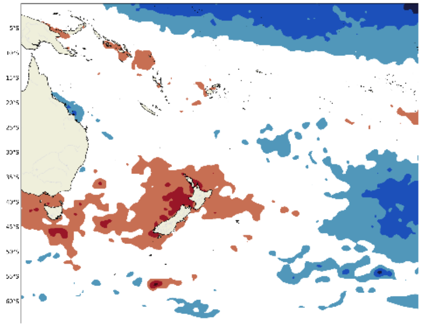
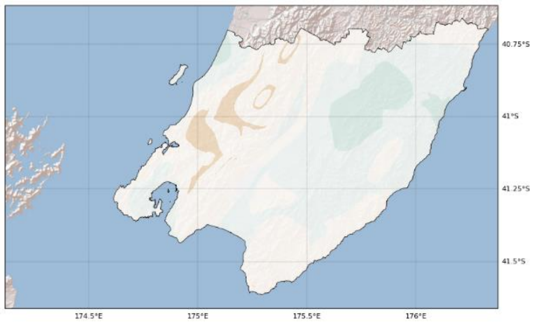
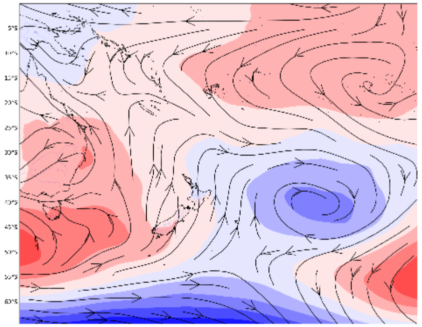
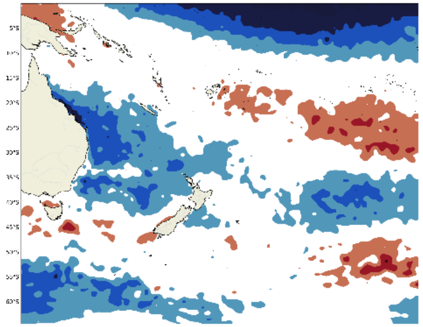
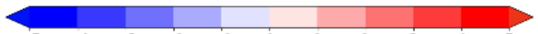
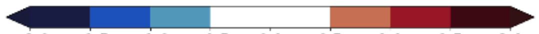
1994	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

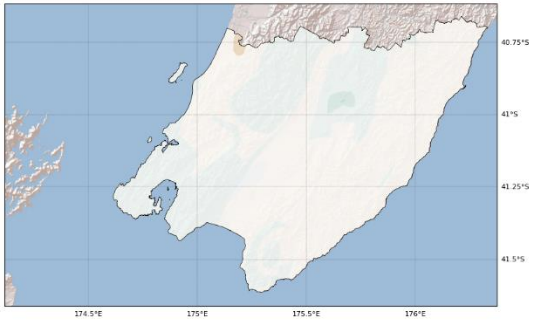
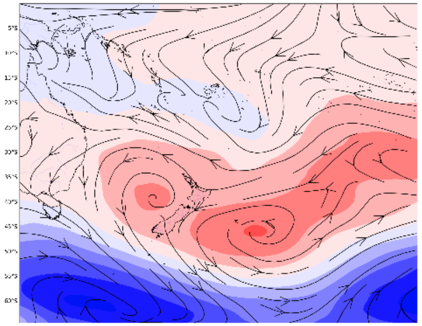
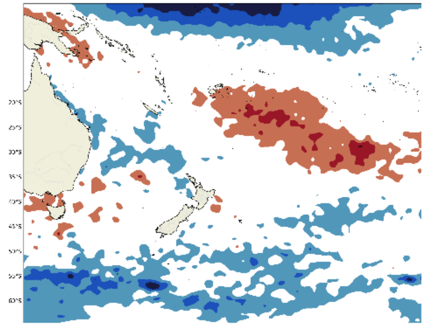
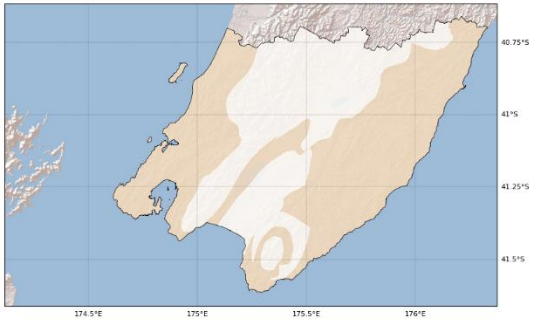
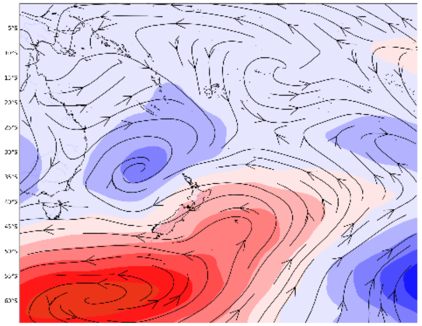
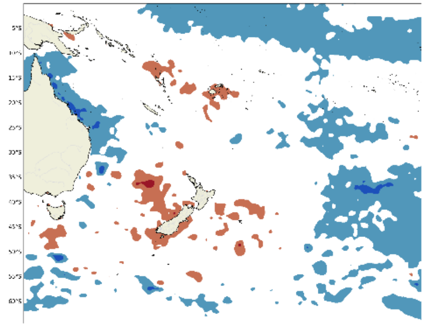
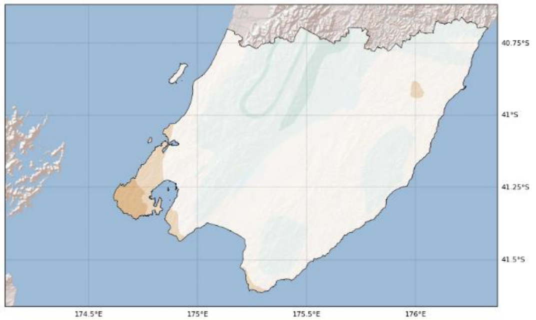
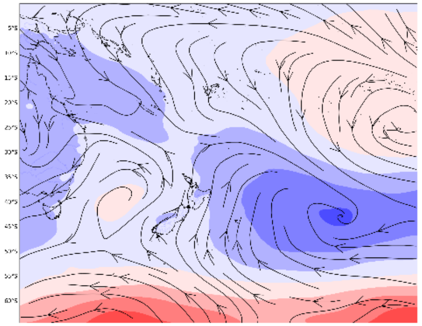
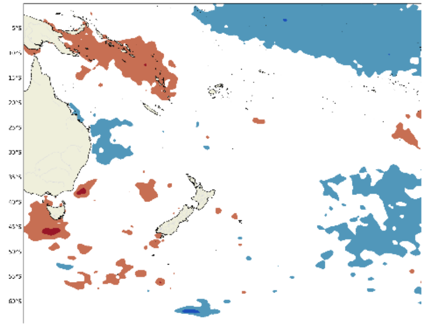
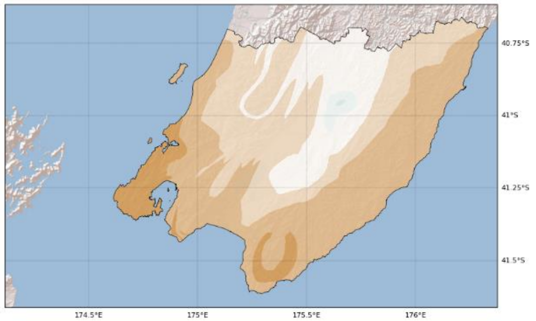
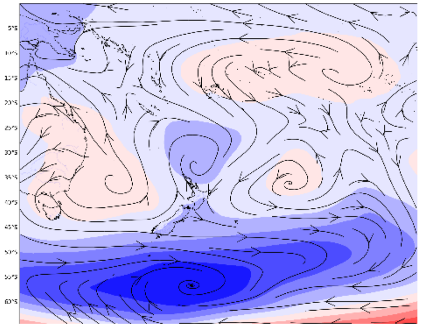
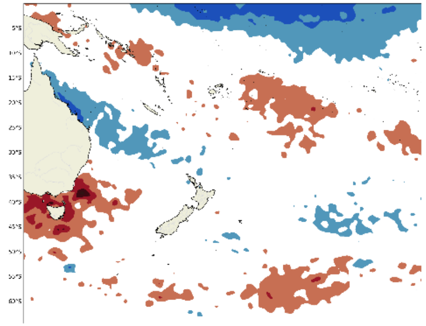
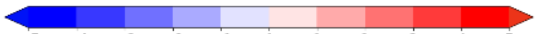
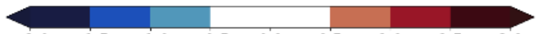
1995	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Negative
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

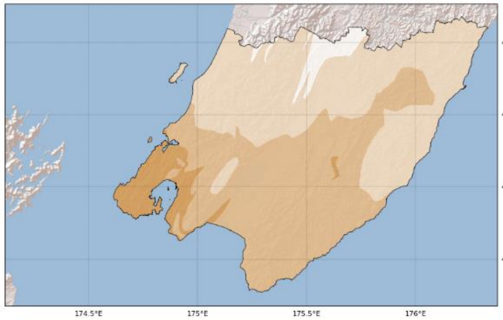
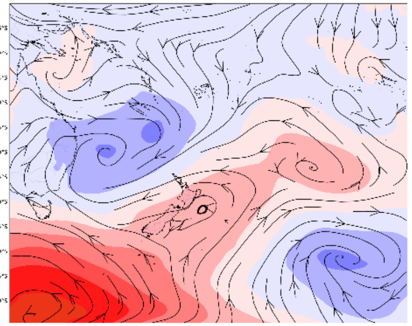
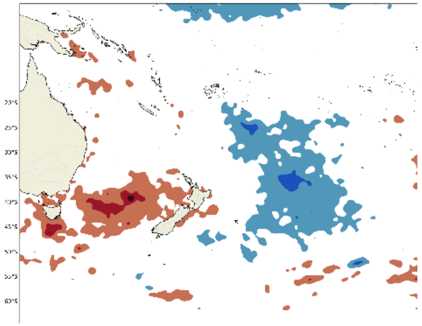
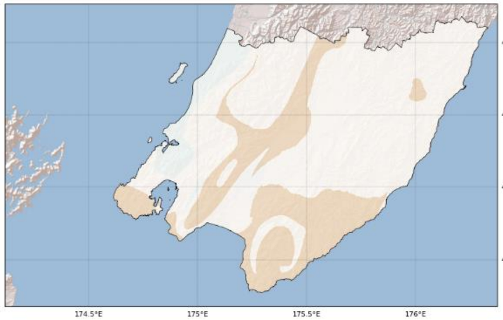
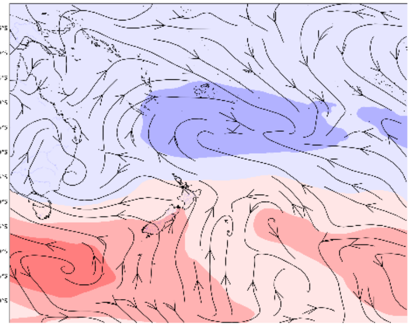
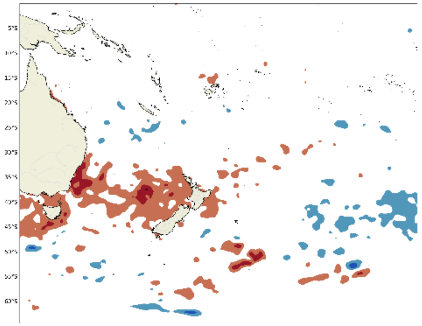
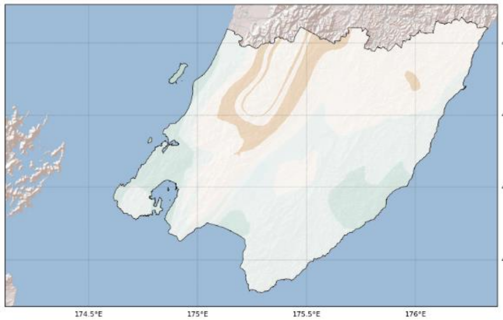
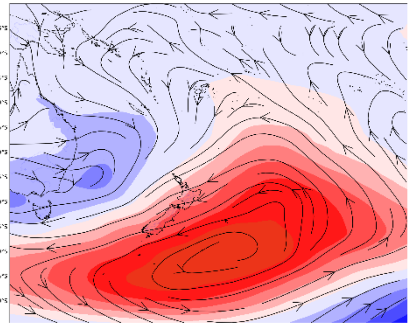
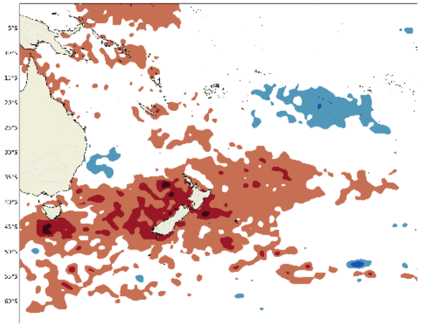
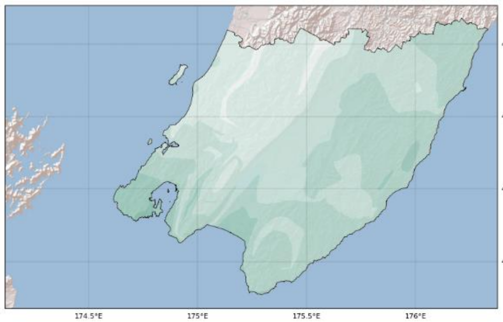
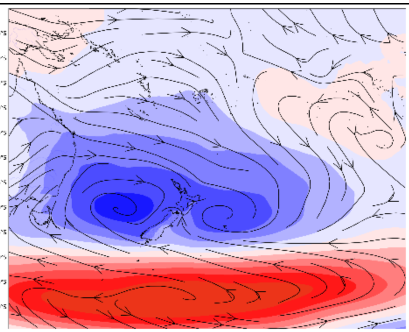
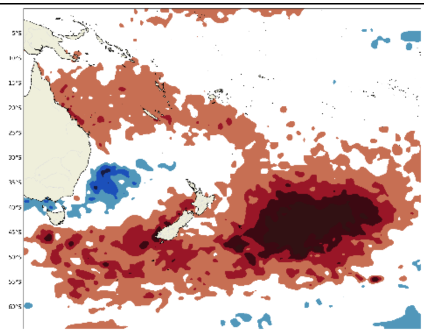
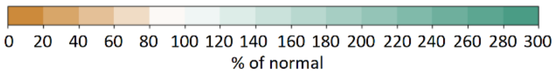
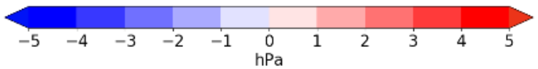
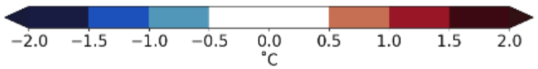
1996	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Negative SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Neutral
	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	−5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	−2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Aug@500m**

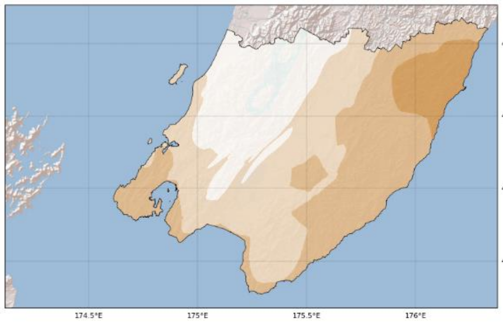
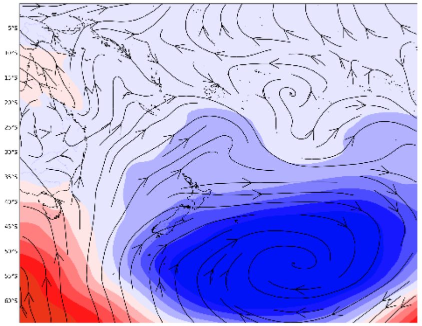
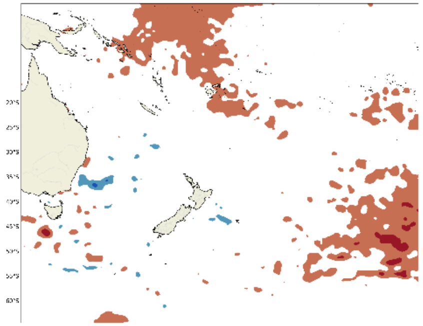
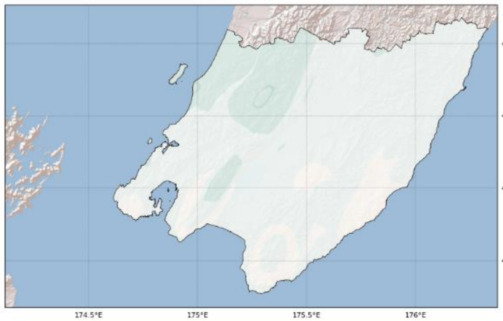
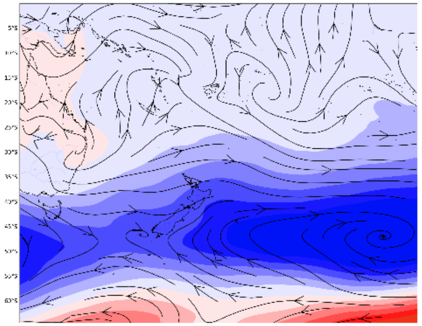
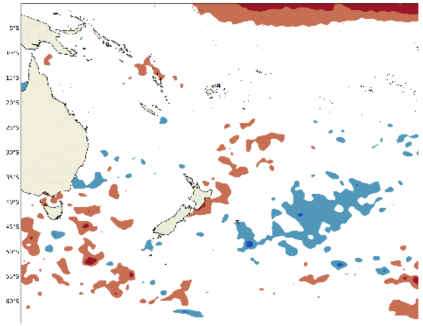
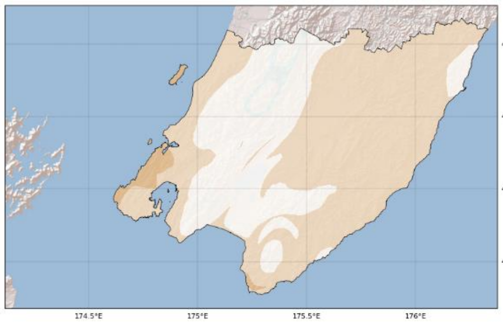
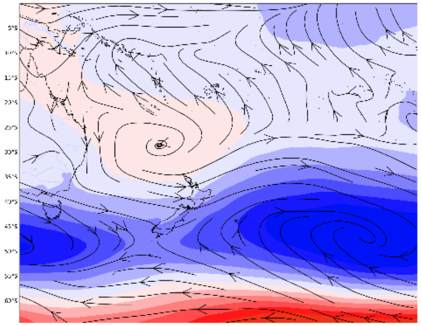
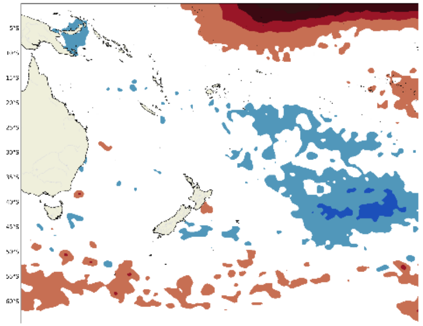
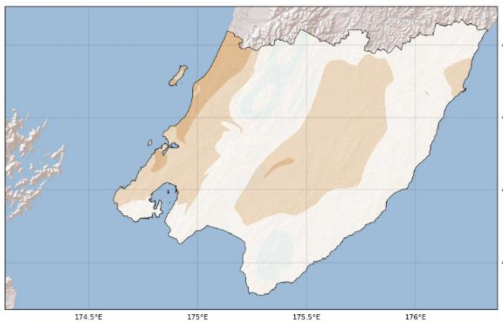
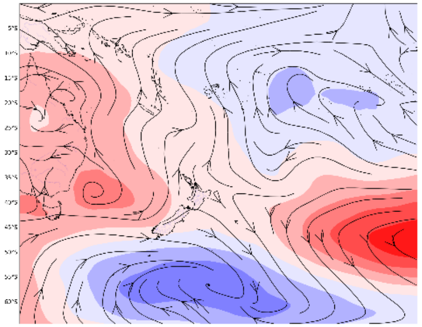
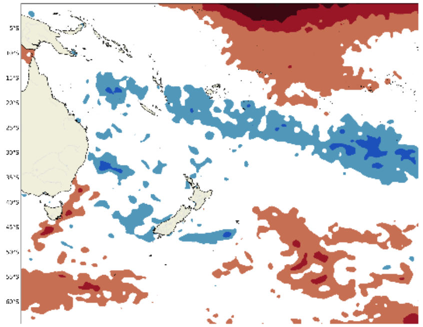
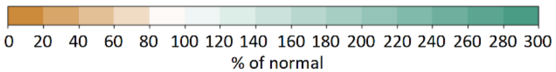
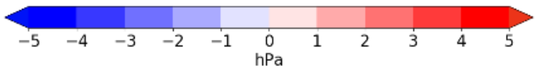
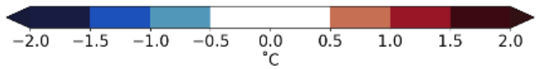
1997	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Positive
				**Rainfall: Aug@500m**

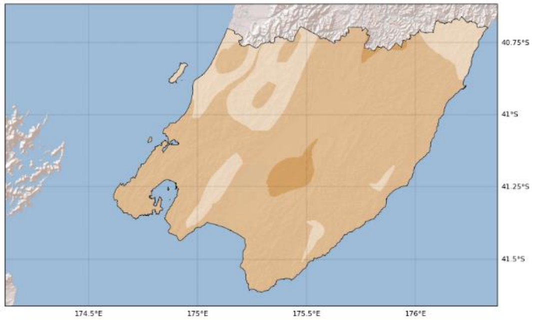
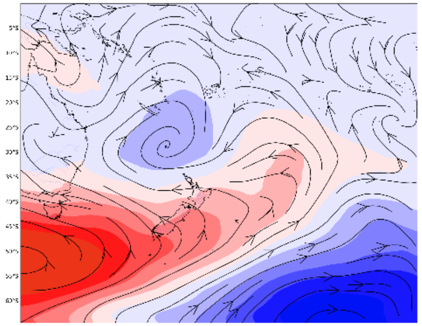
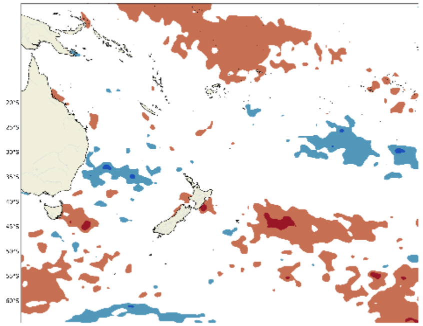
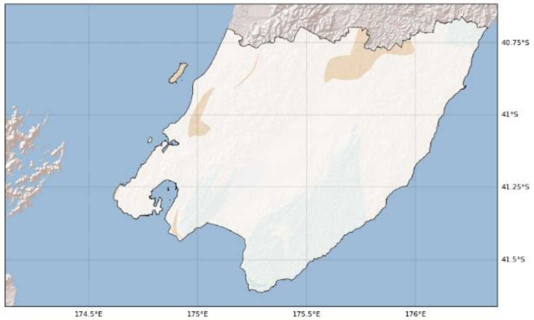
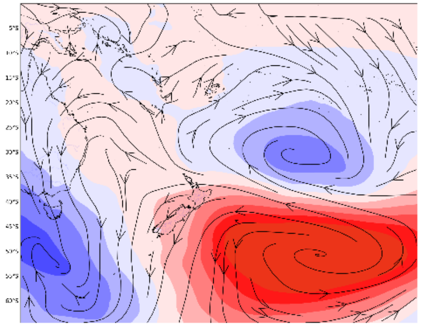
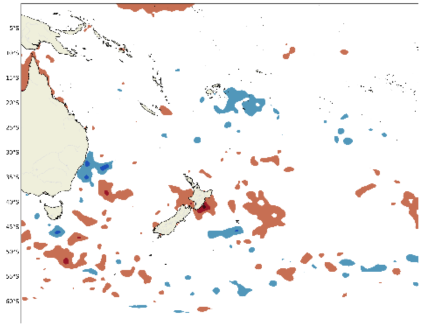
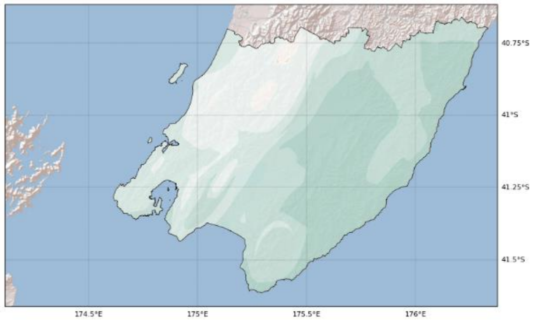
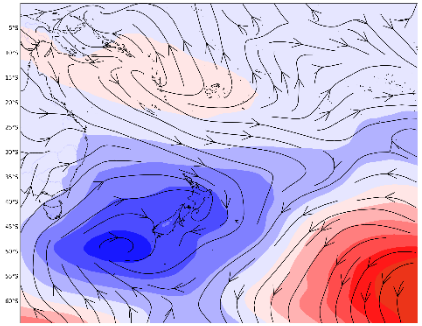
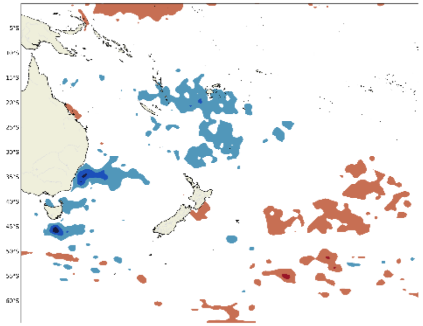
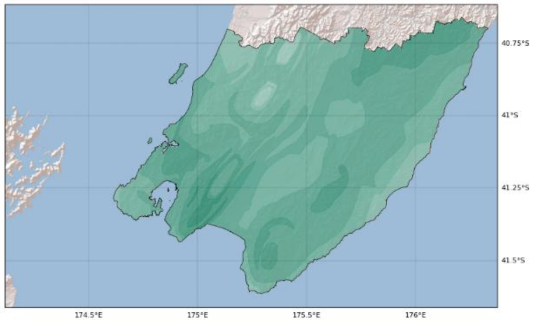
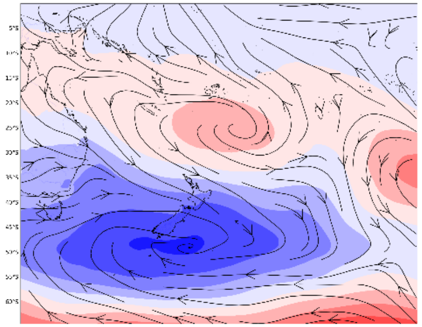
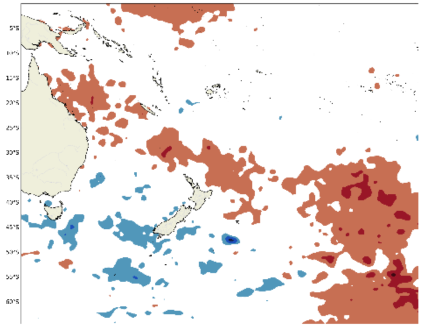
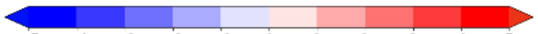
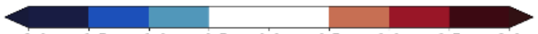
1998	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Negative <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

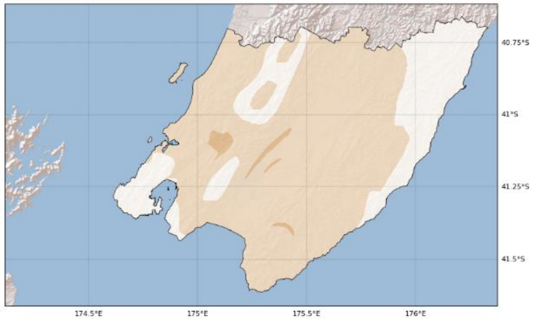
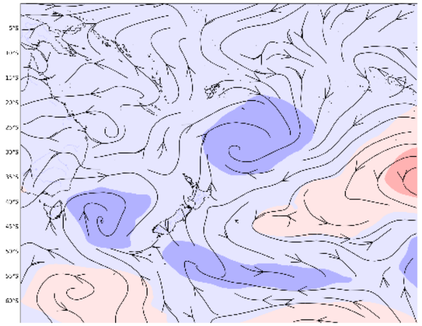
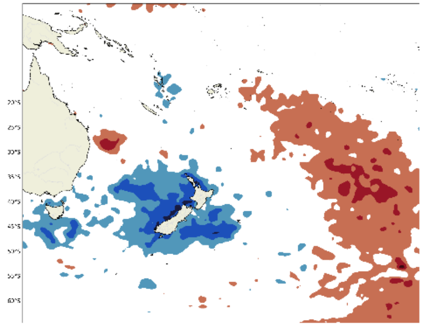
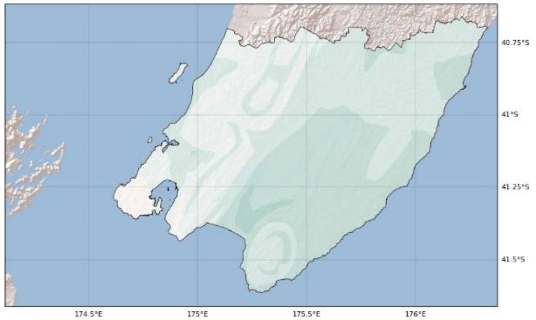
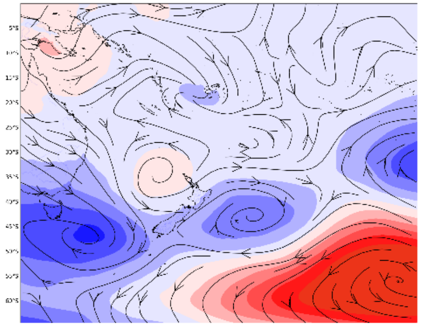
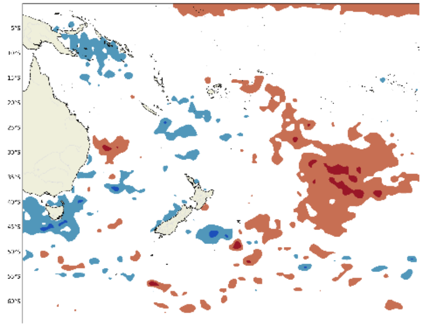
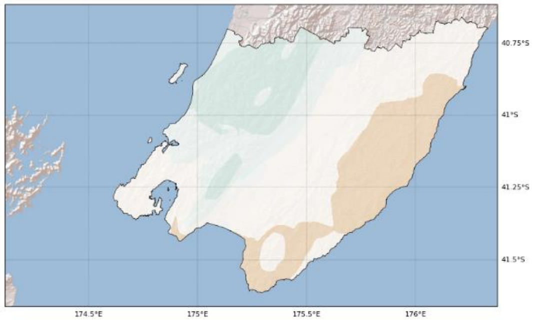
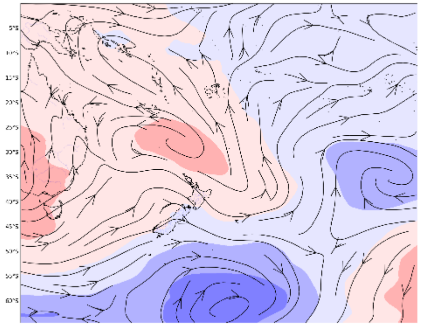
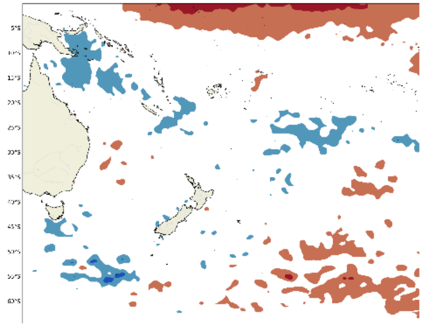
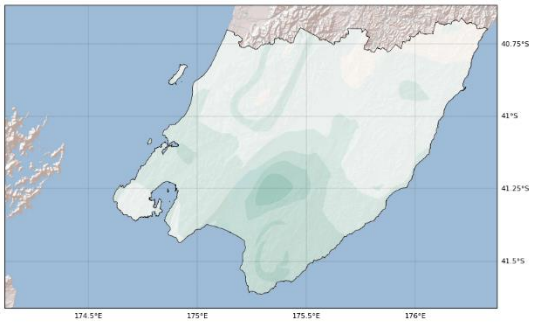
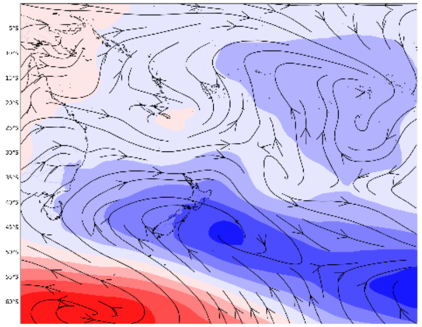
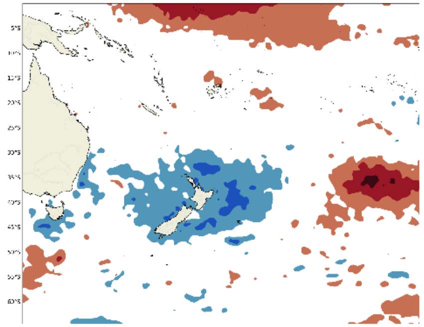
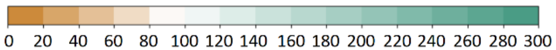
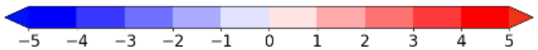
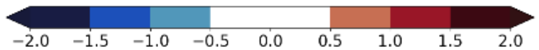
1999	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

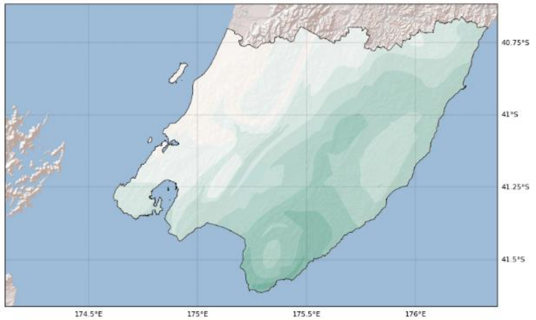
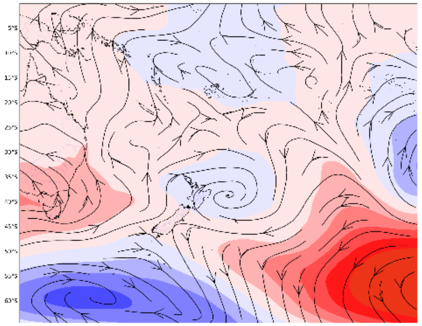
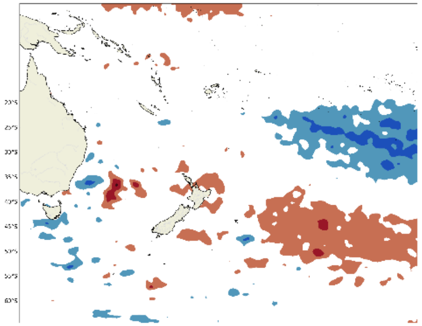
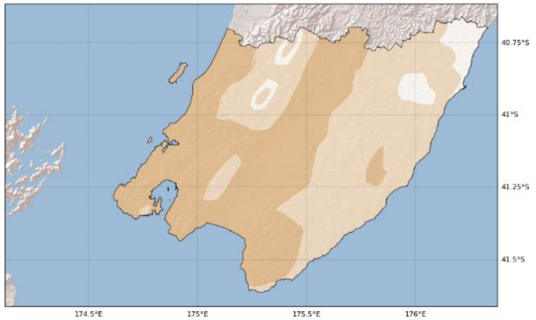
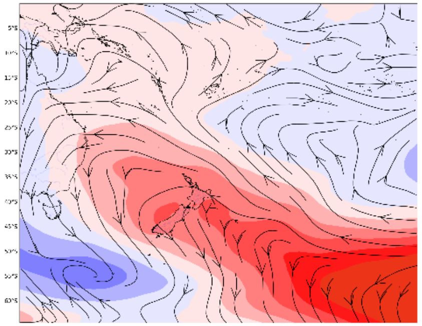
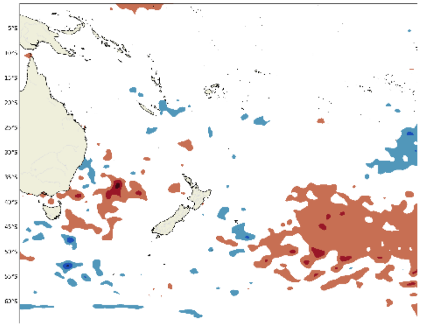
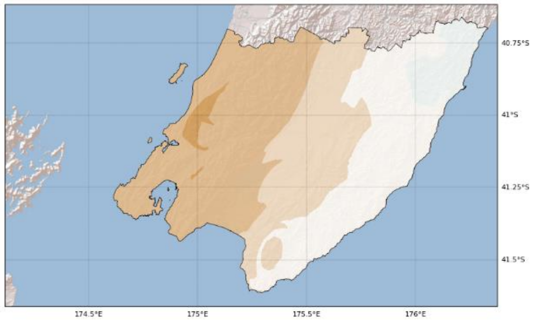
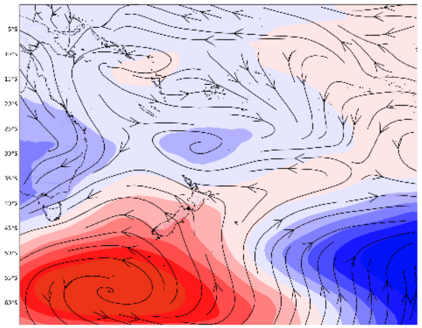
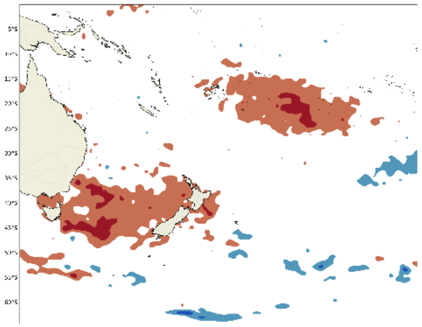
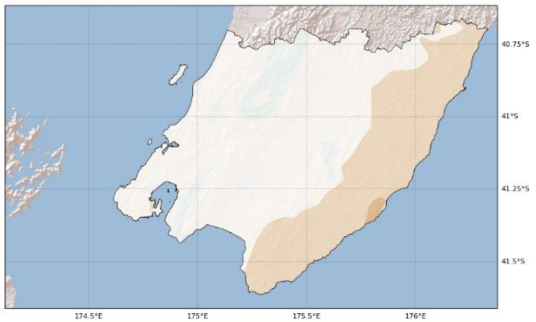
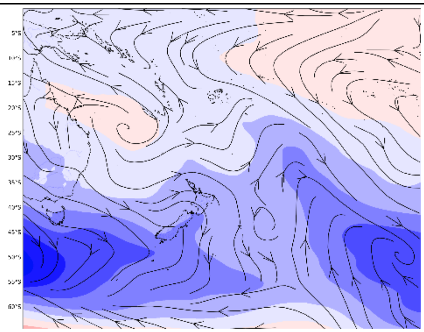
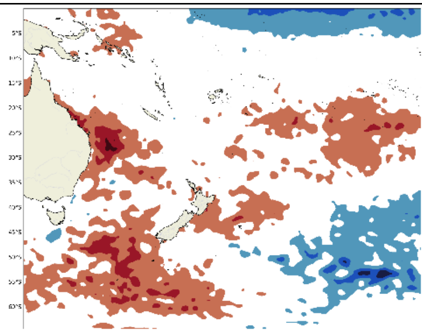
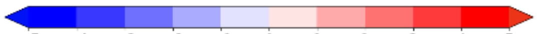
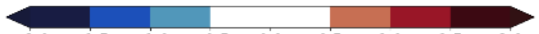
2000	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

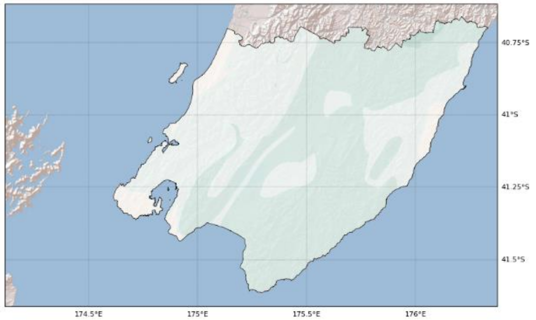
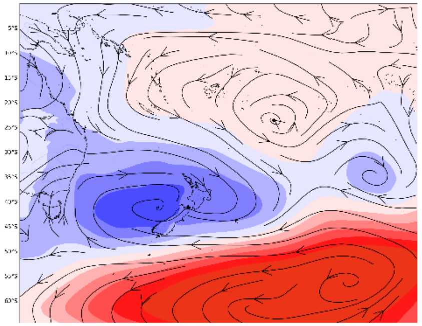
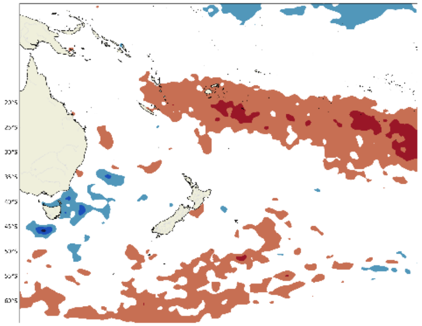
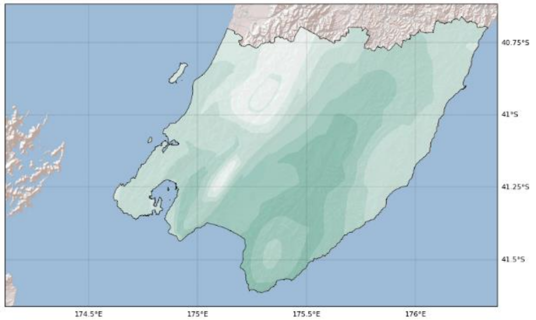
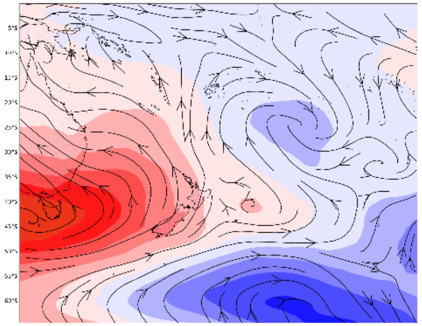
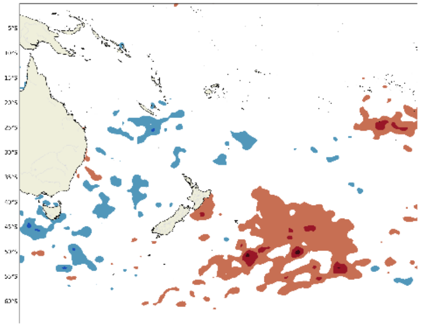
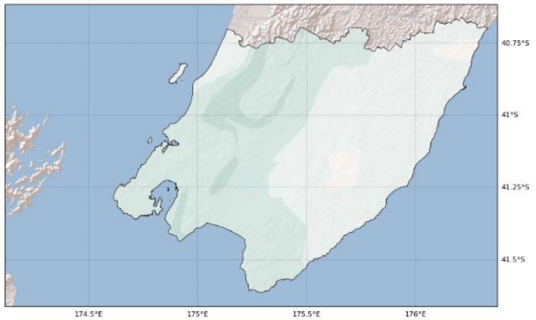
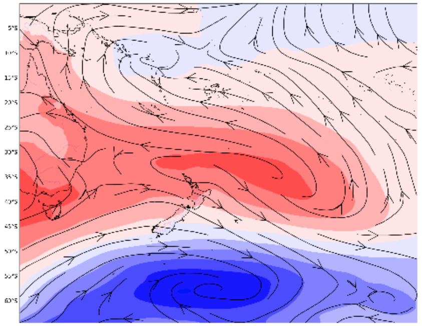
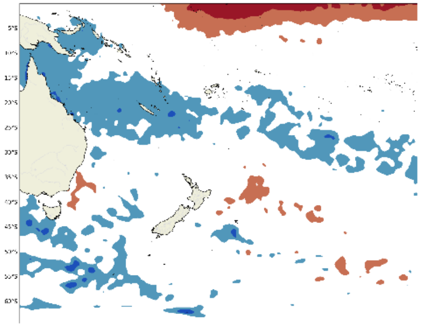
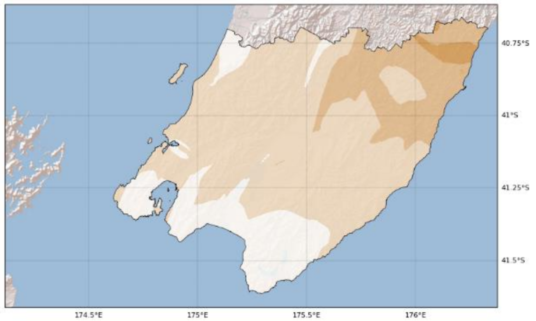
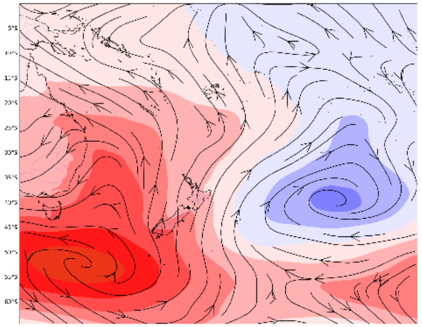
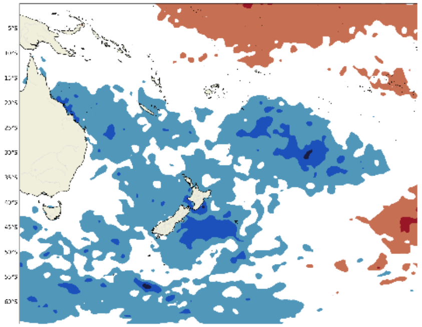
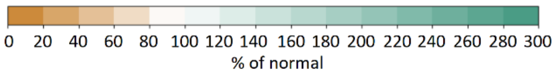
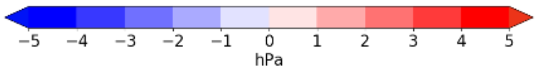
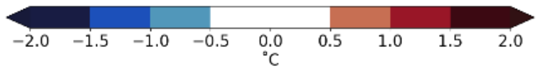
2001	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

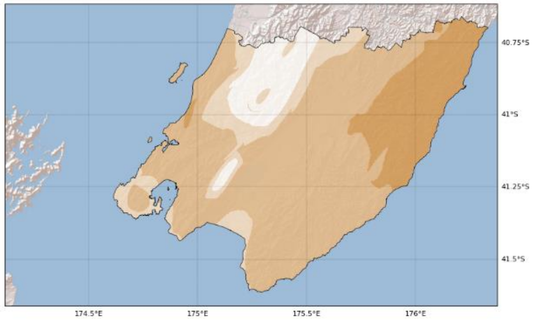
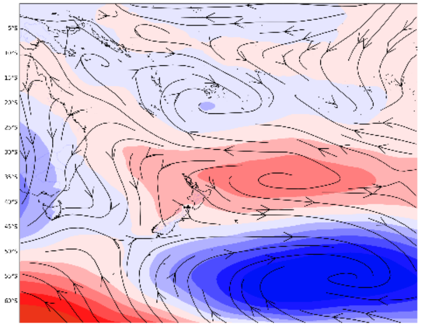
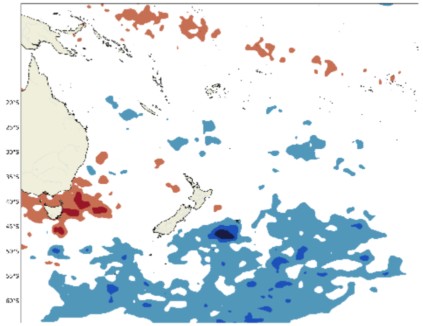
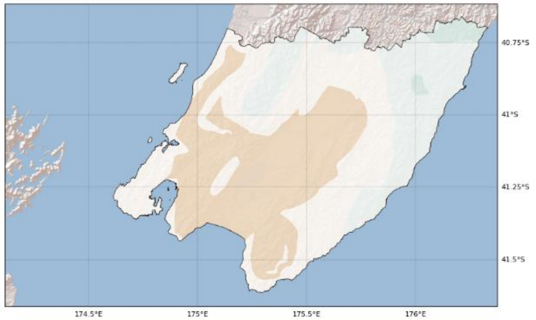
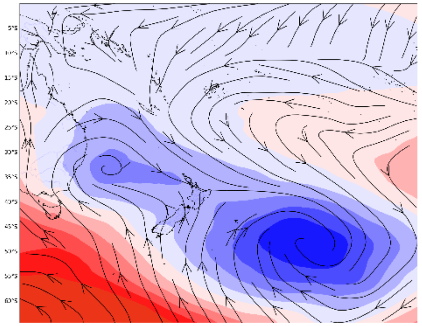
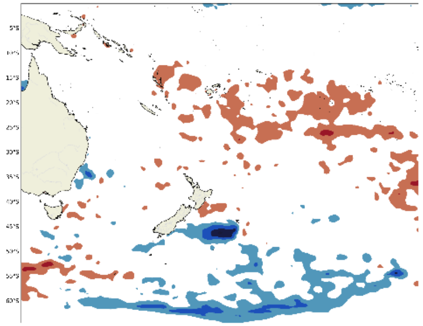
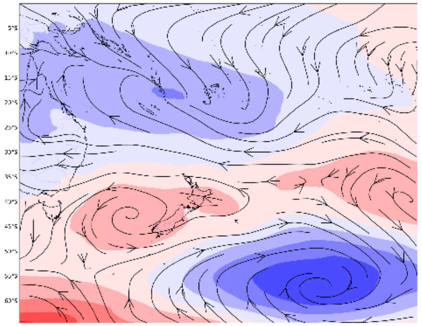
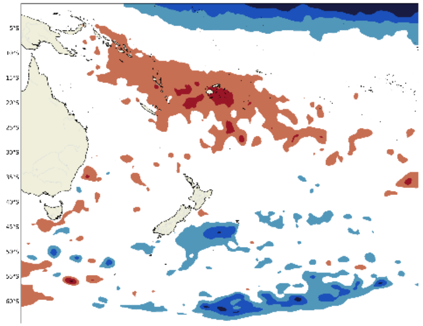
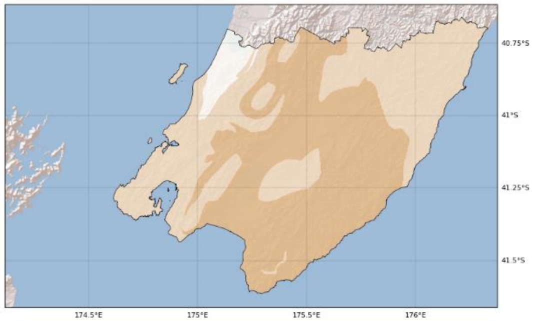
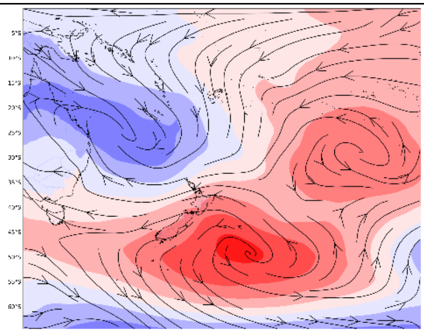
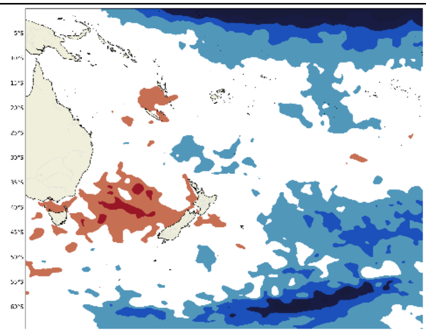
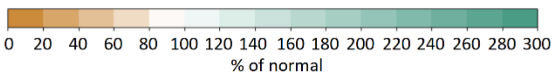
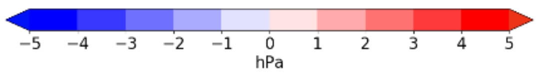
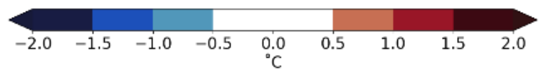
2002	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Negative
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Aug@500m**

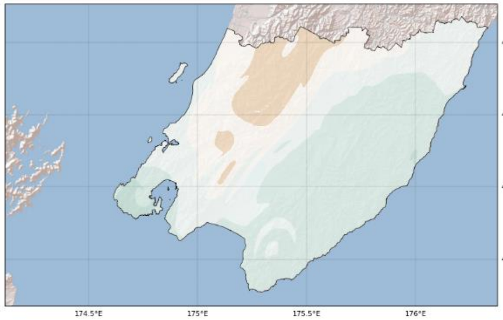
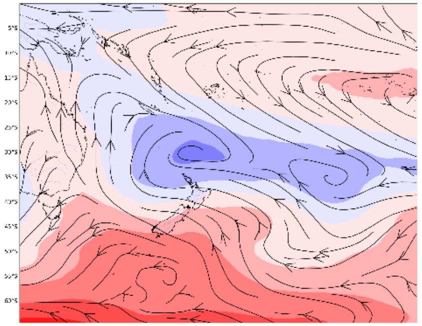
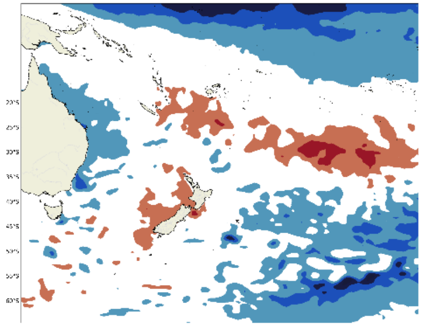
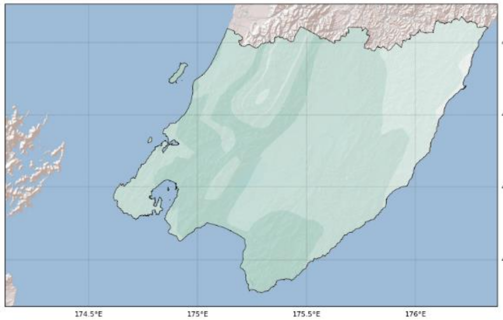
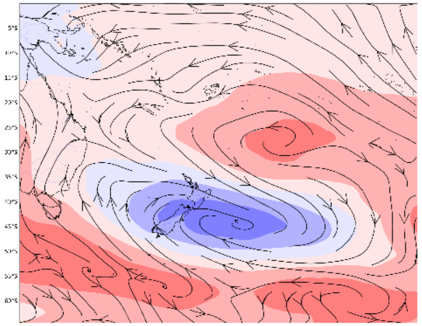
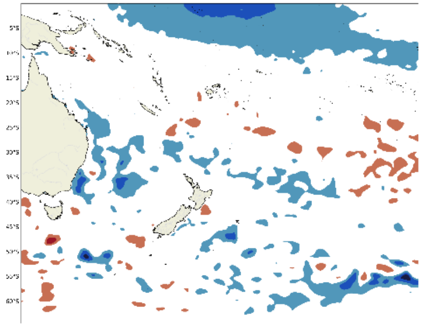
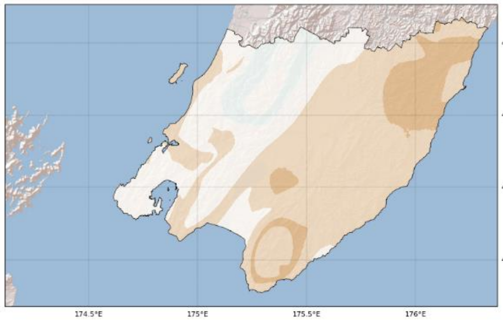
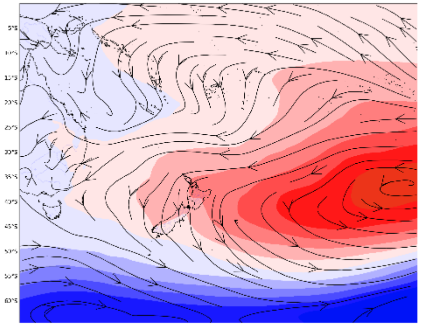
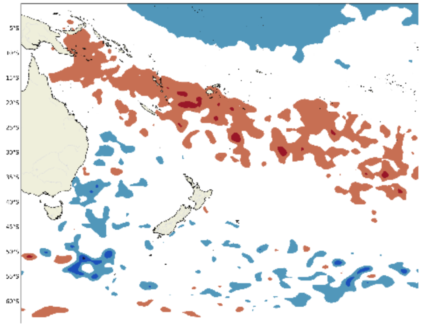
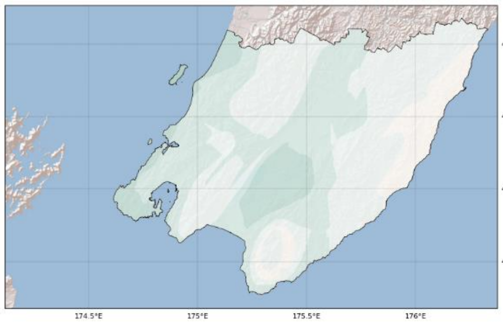
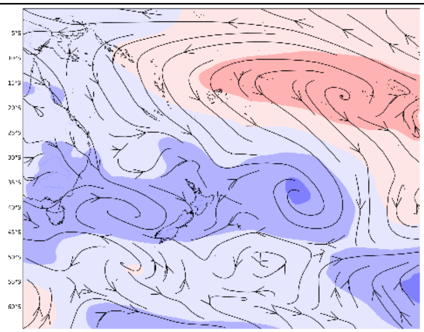
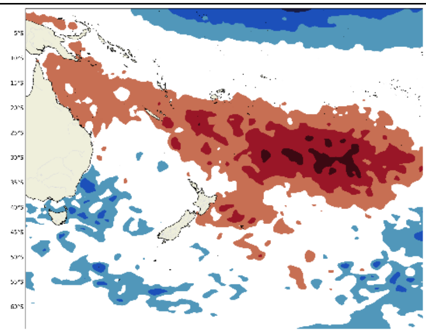
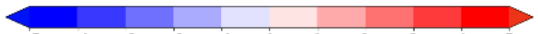
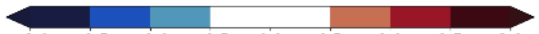
2003	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				Rainfall: Aug@500m

2004	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

2005	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Aug@500m**

2006	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Positive SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

2007	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

<table>
<tr><th>2008</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Positive
<u>SAM</u>
Positive</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall: Aug@500m</td></tr>
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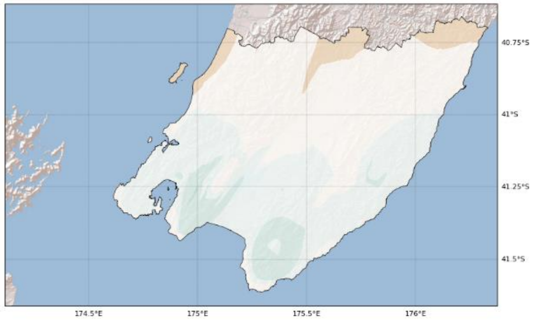
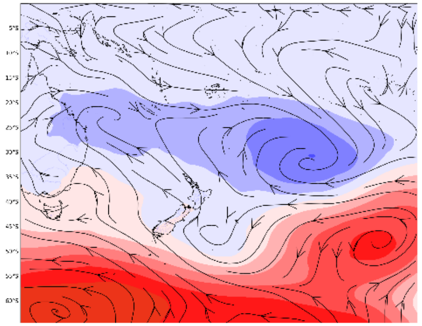
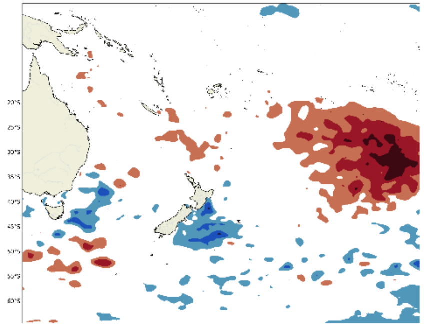
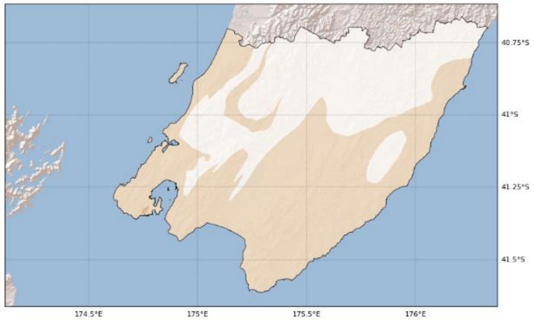
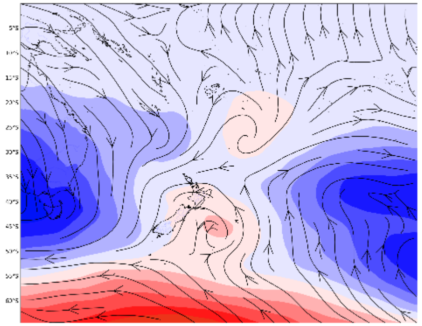
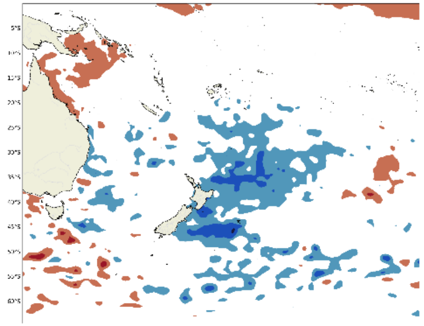
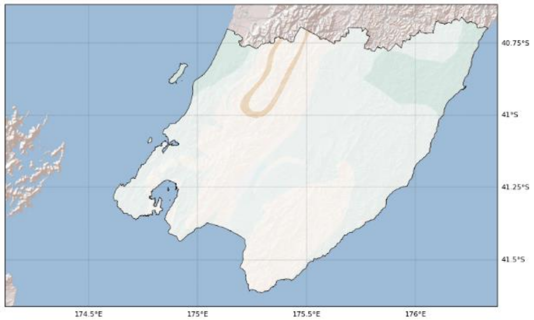
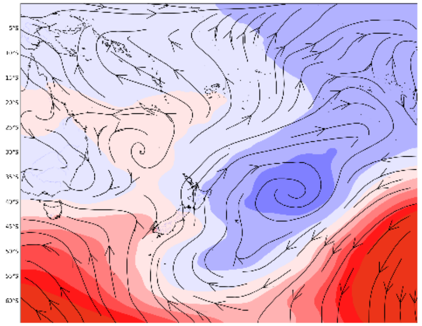
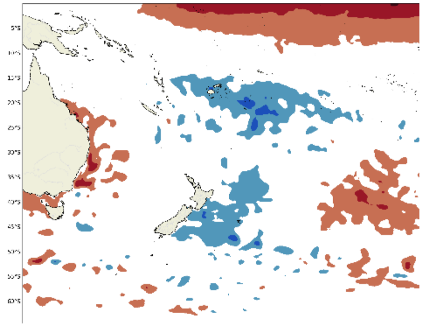
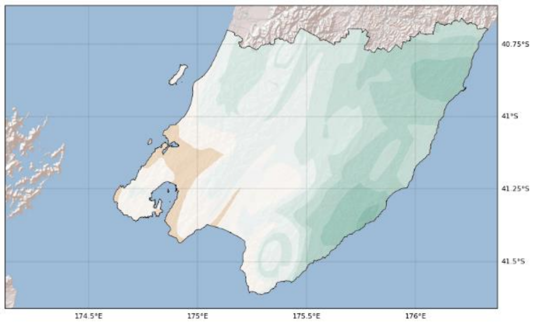
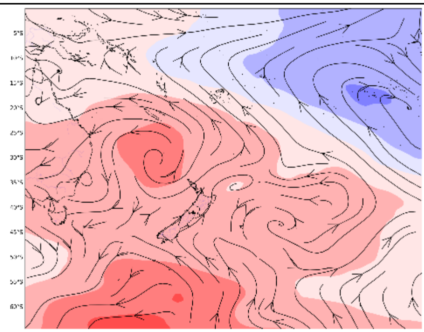
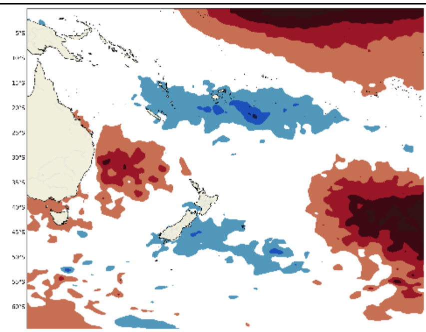
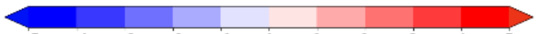
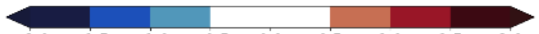
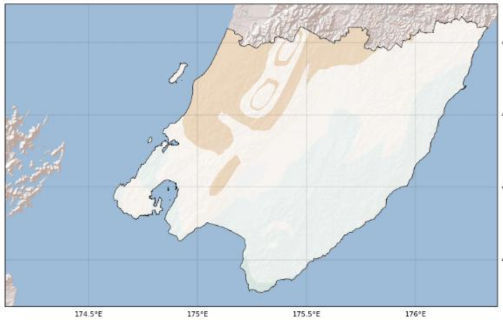
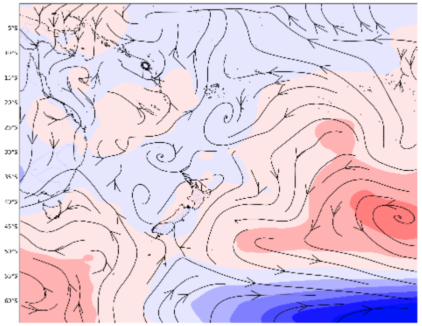
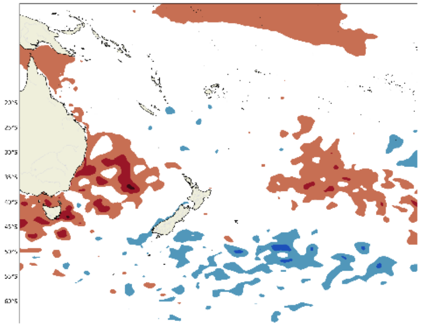
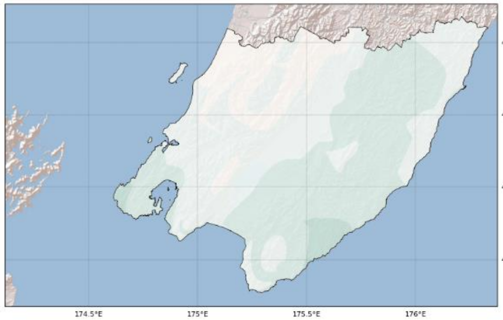
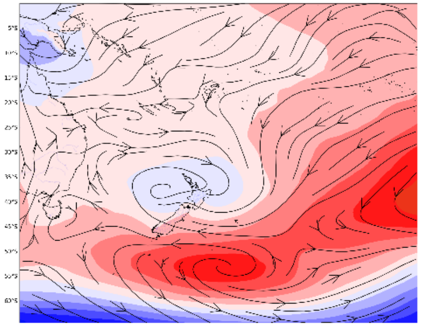
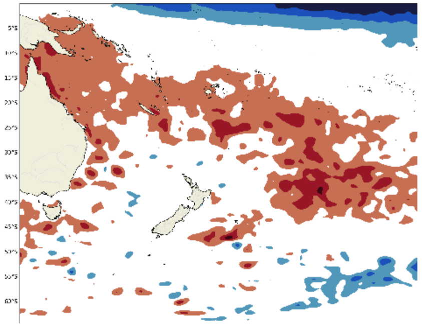
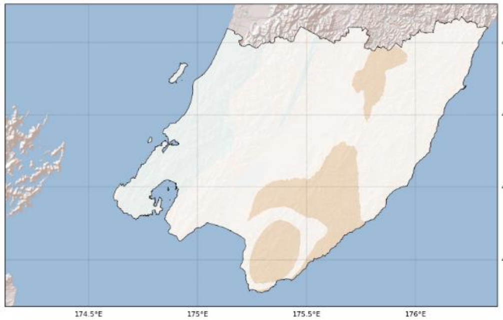
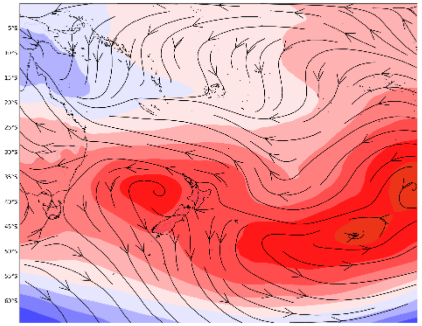
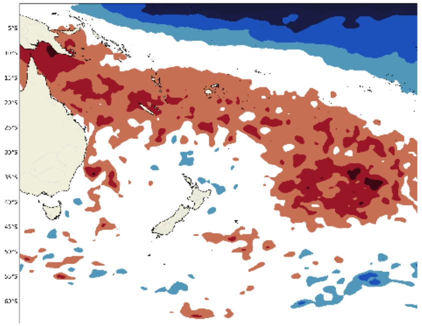
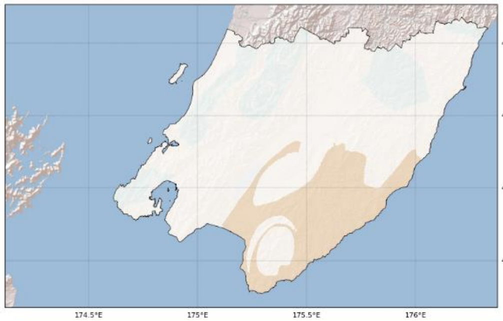
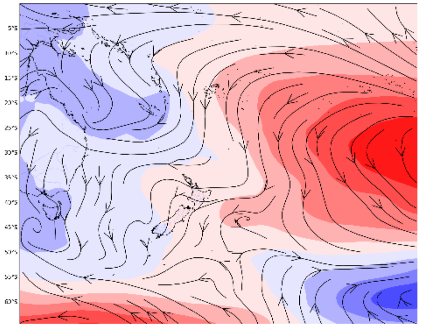
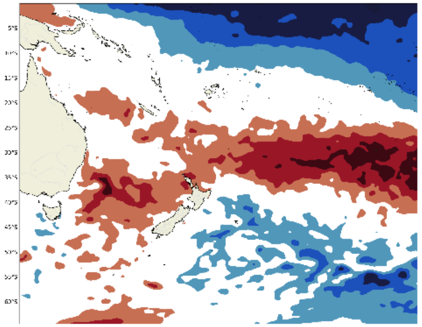
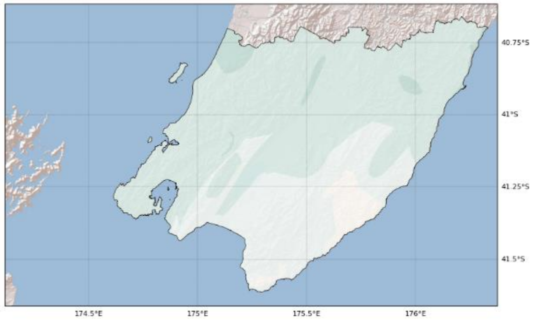
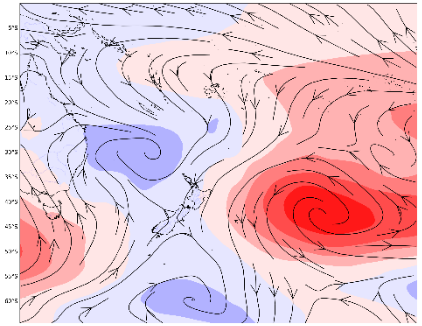
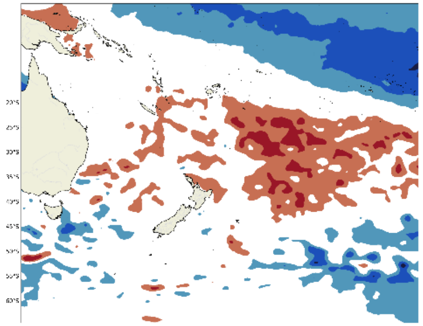
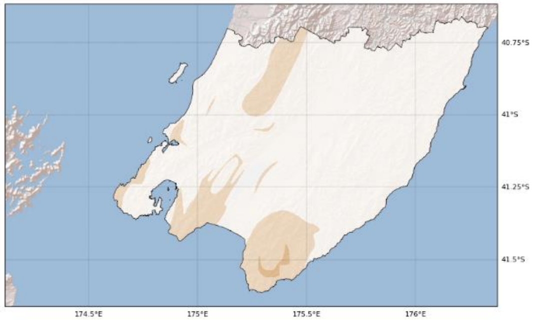
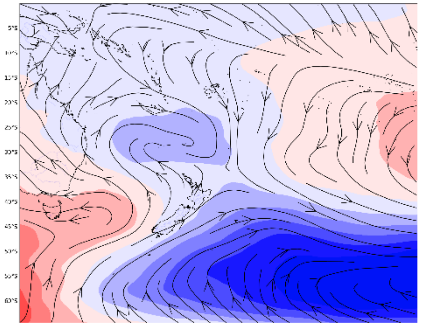
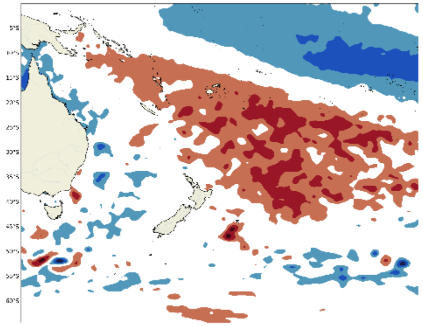
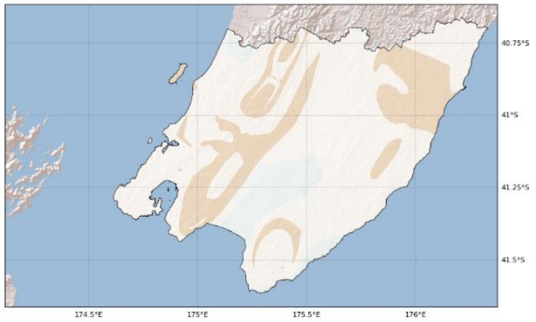
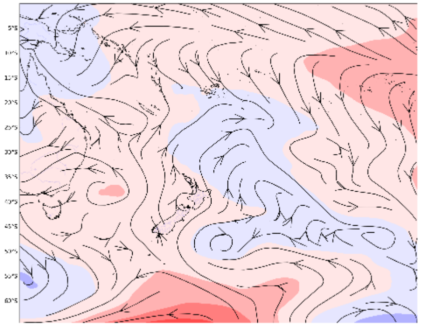
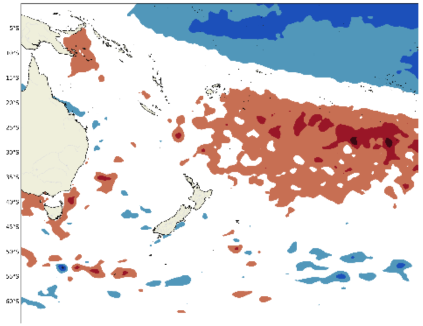
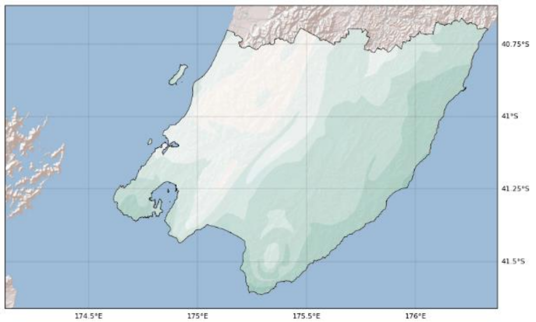
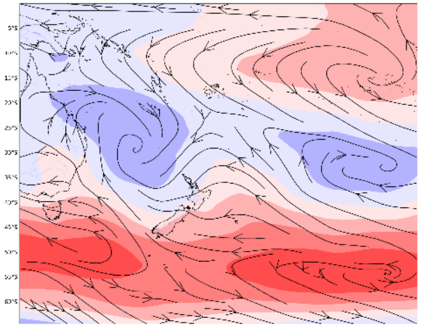
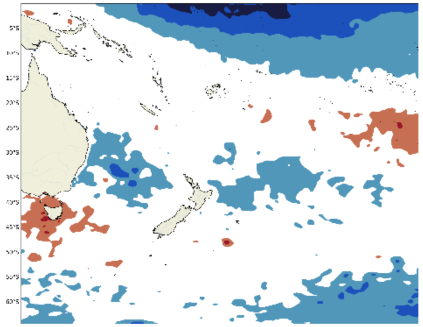
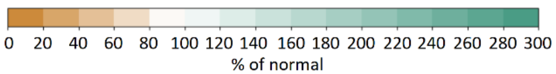
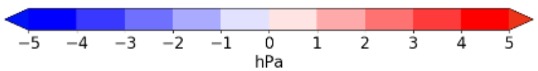
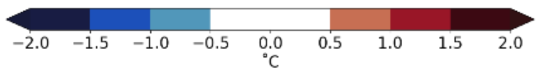
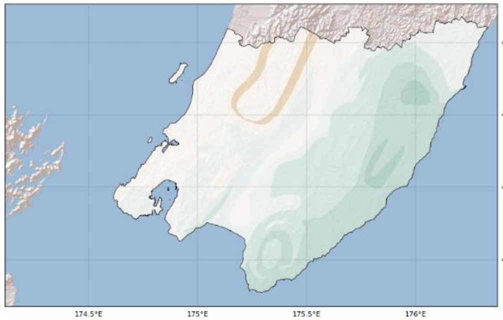
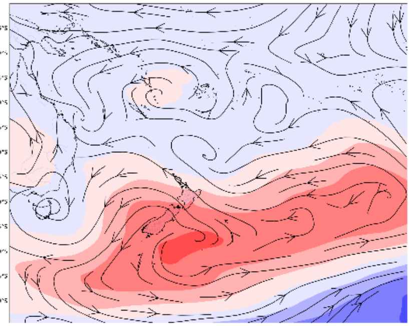
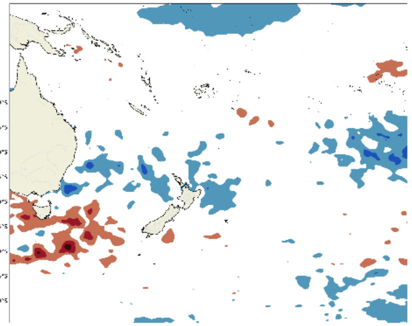
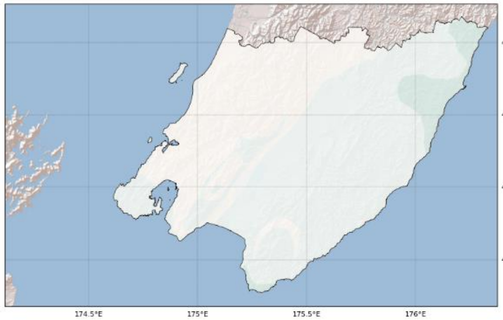
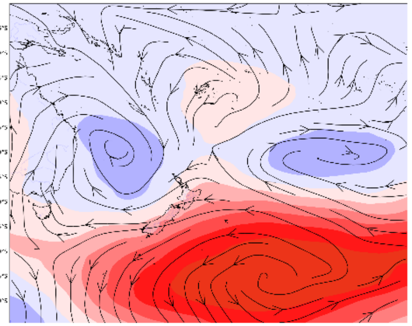
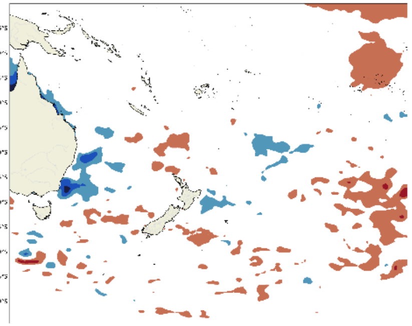
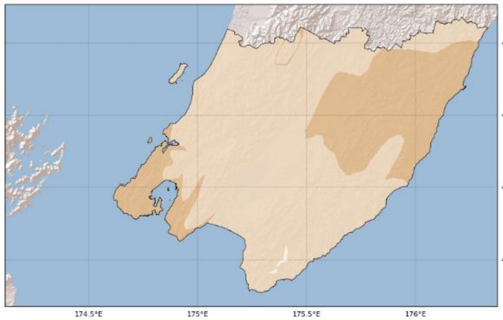
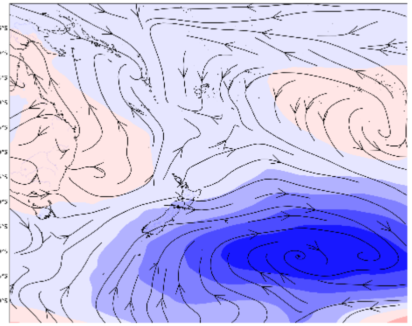
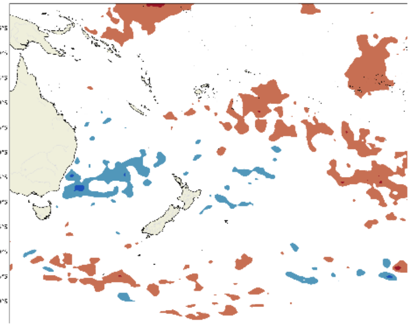
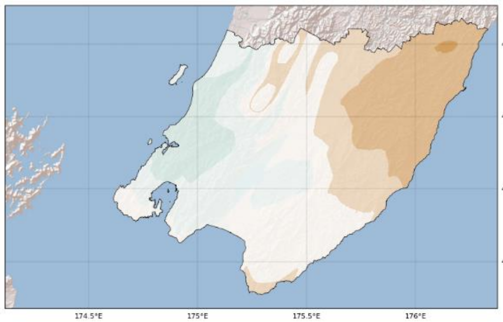
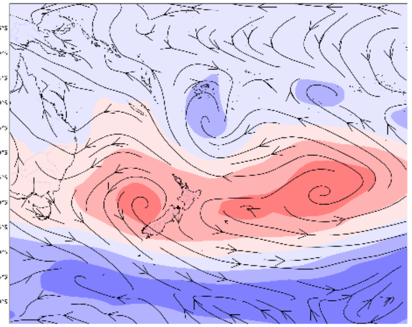
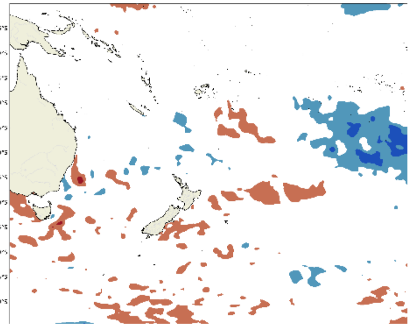
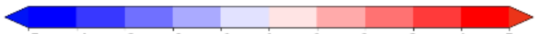
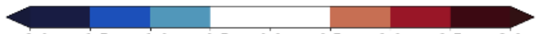
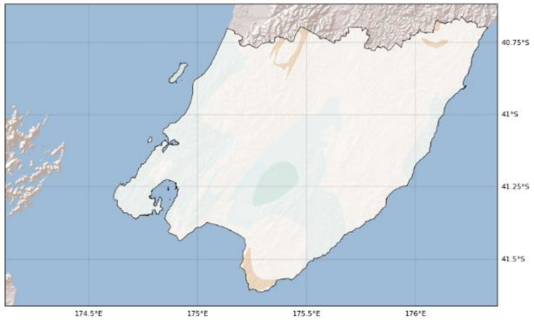
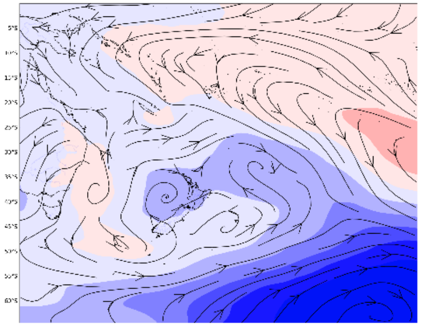
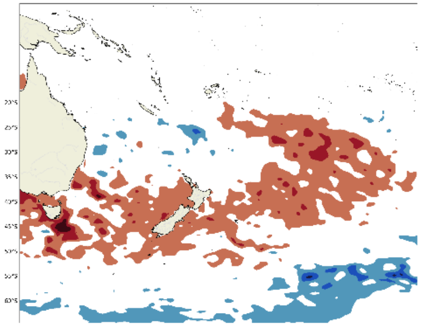
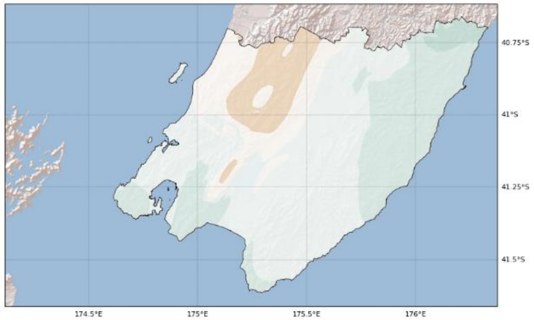
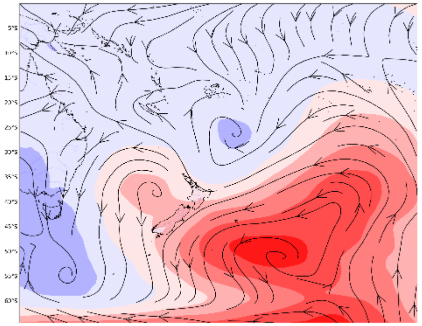
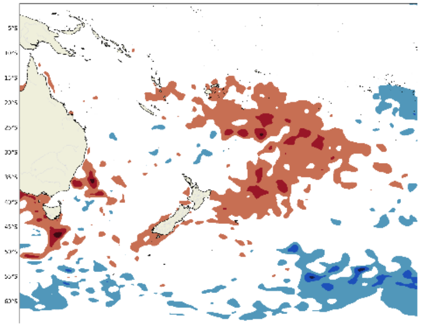
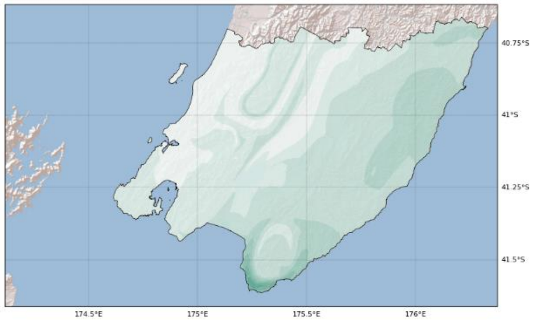
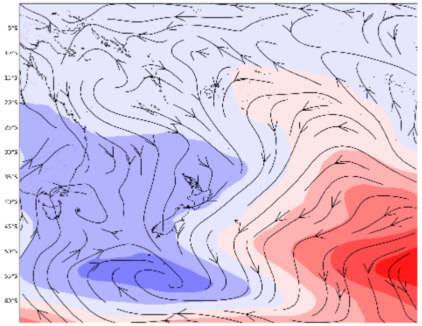
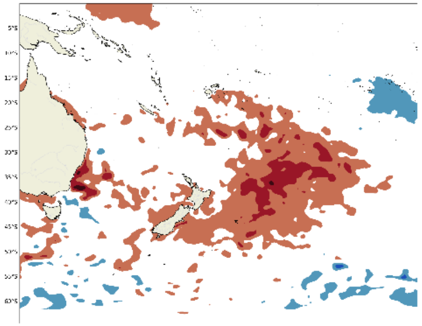
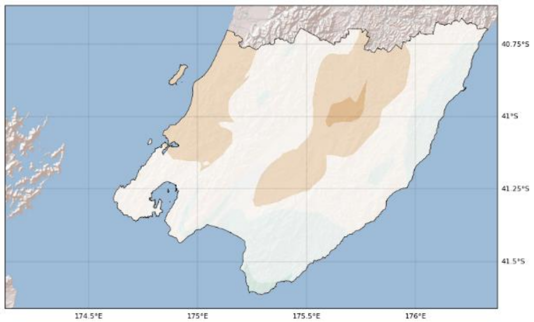
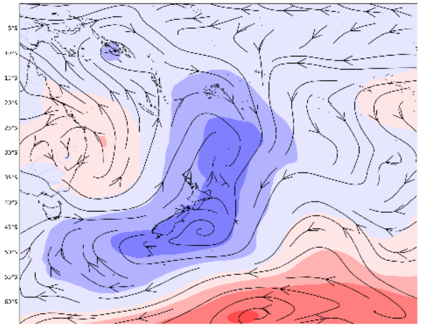
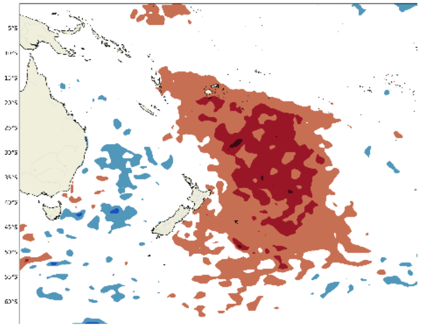
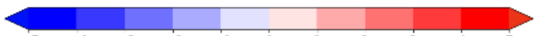
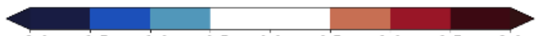
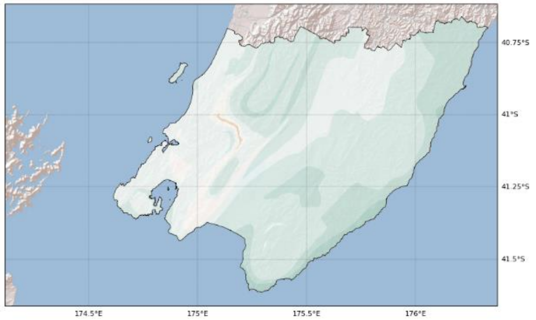
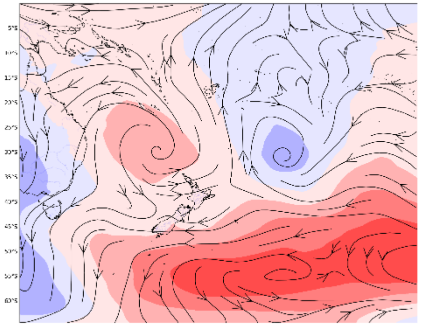
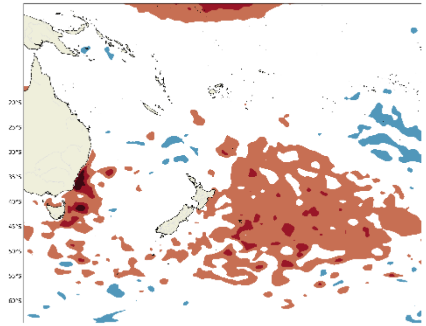
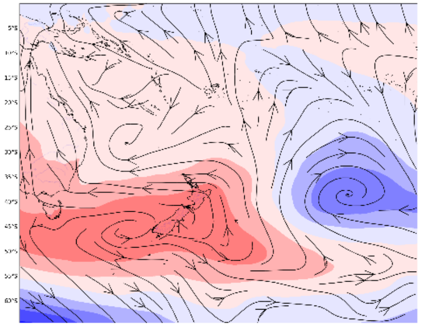
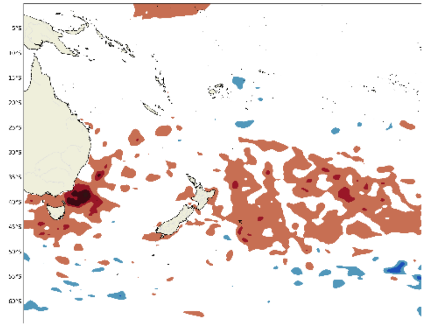
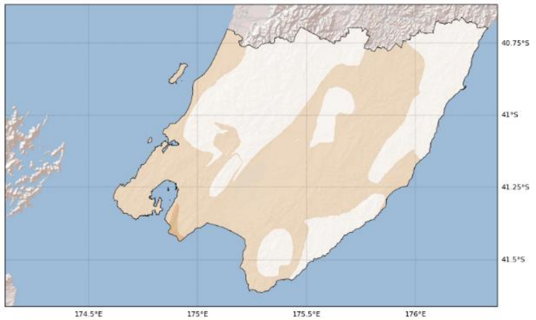
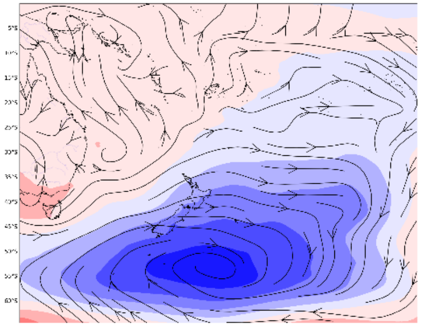
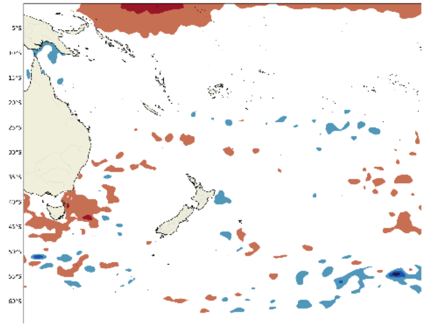
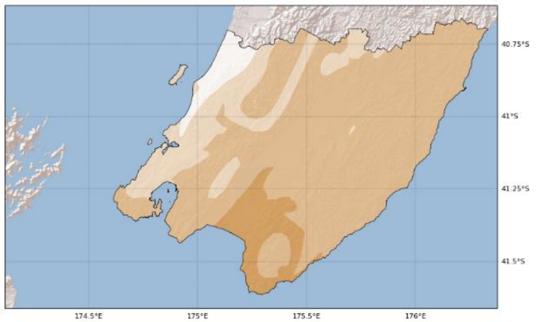
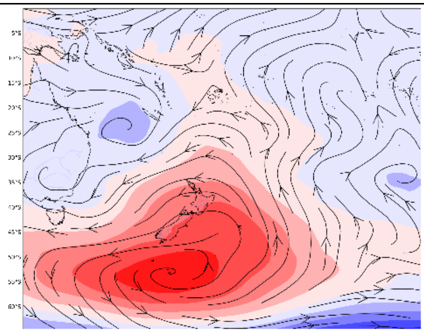
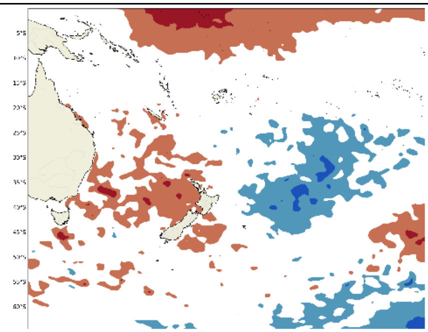
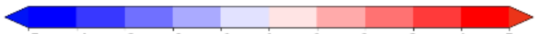
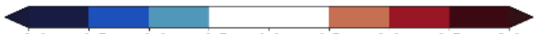
2009	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO El Niño IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Neutral SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

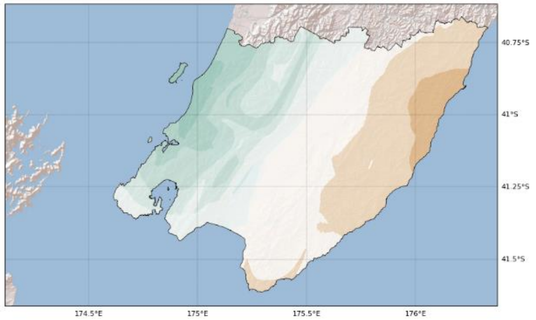
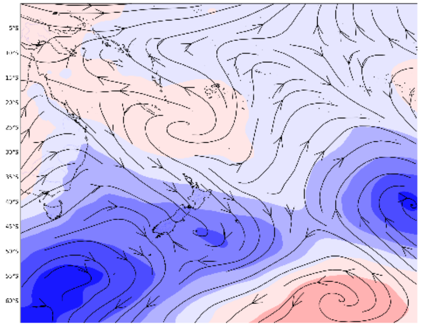
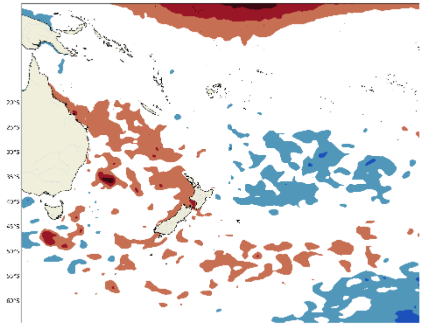
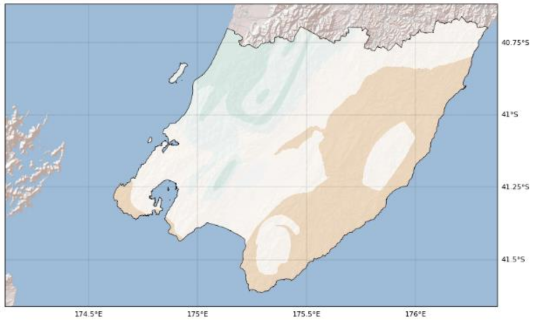
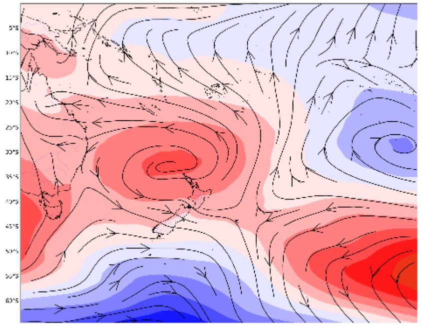
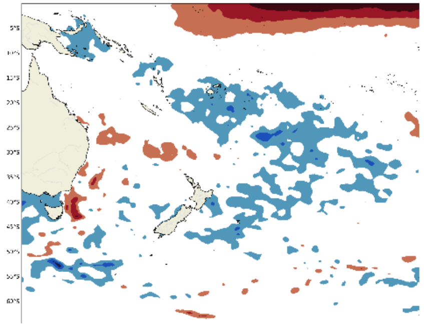
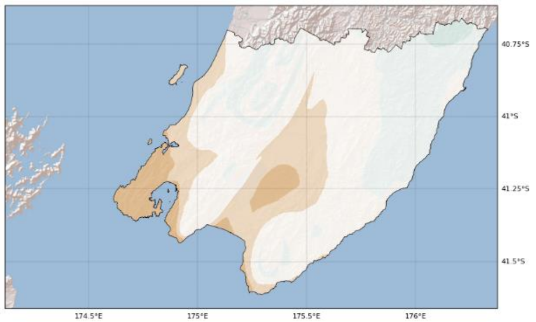
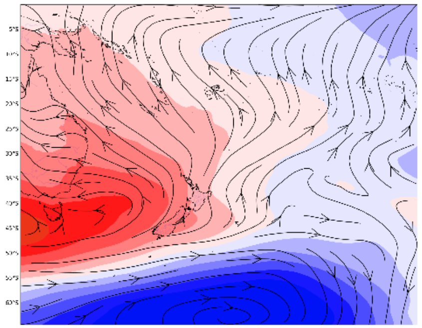
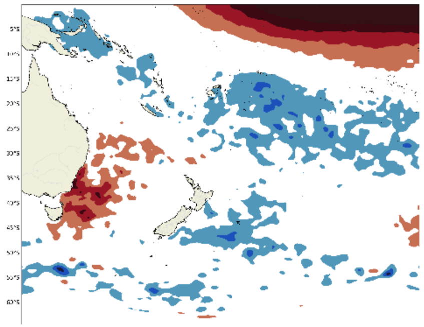
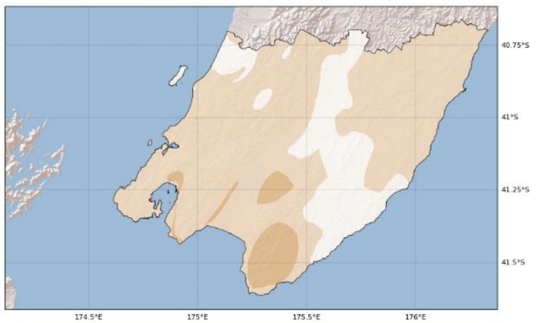
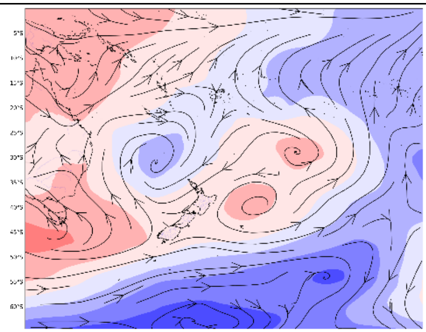
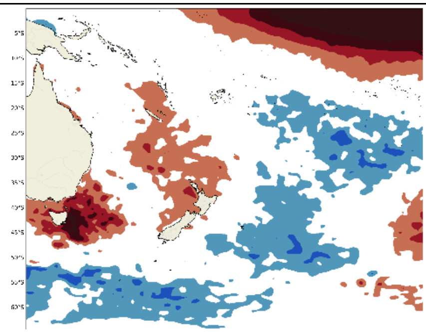
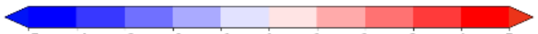
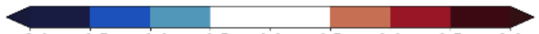
2010	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Positive
Spring				ENSO La Niña IOD Negative SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Neutral
	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	−5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	−2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Aug@500m**

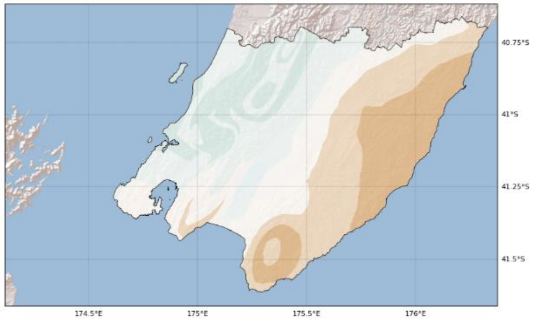
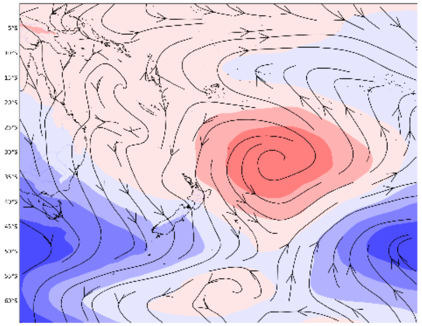
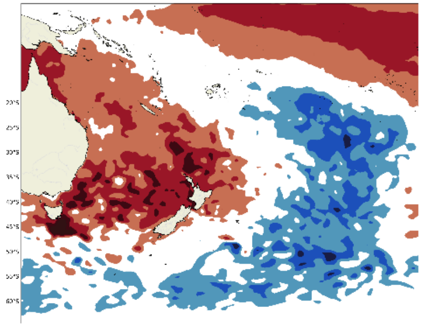
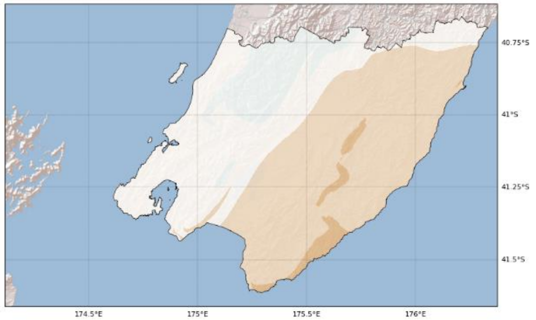
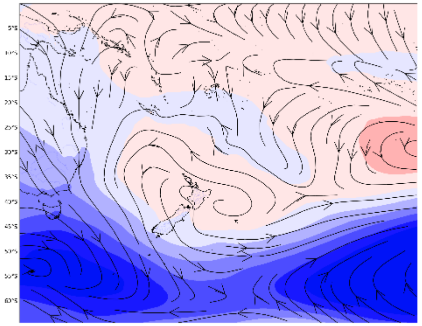
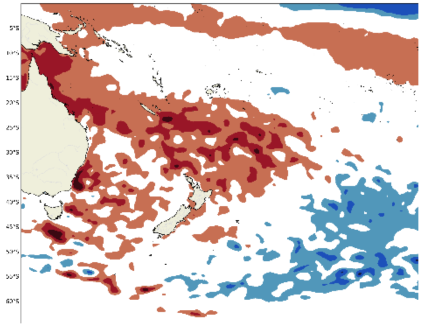
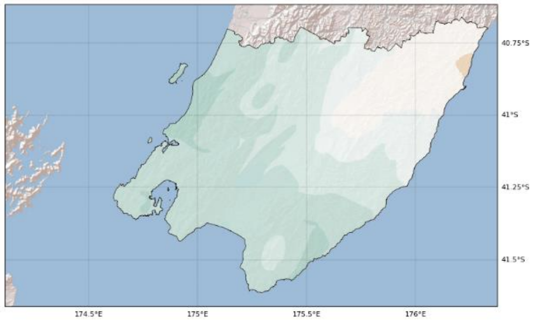
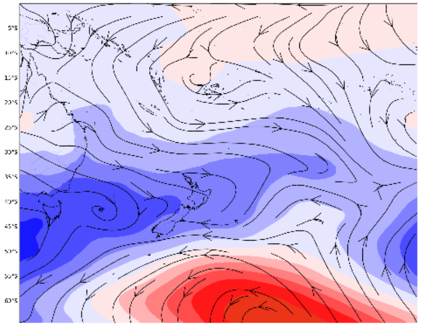
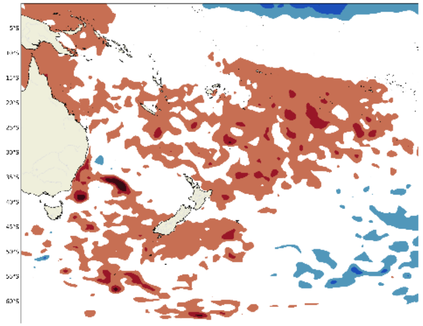
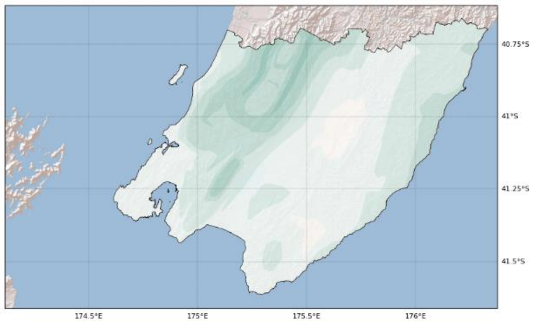
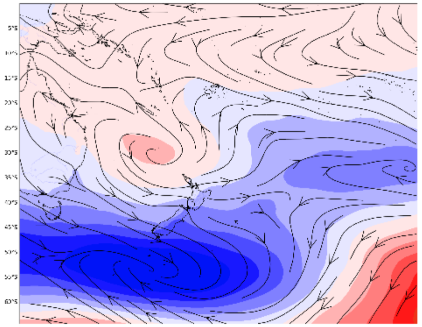
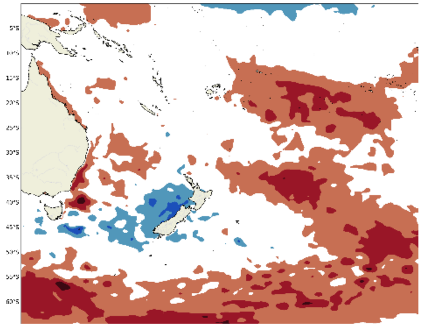
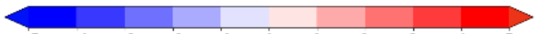
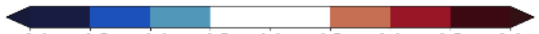
2011	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

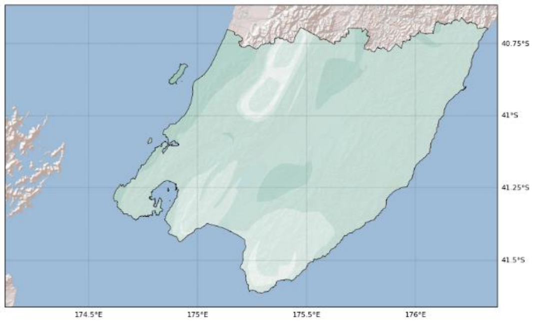
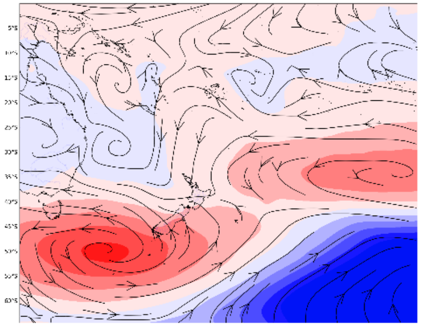
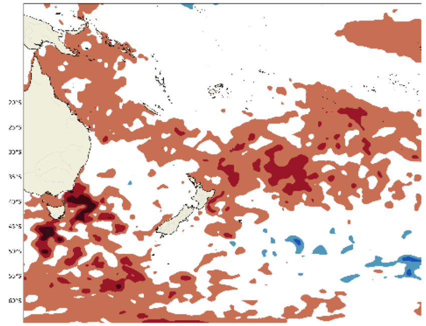
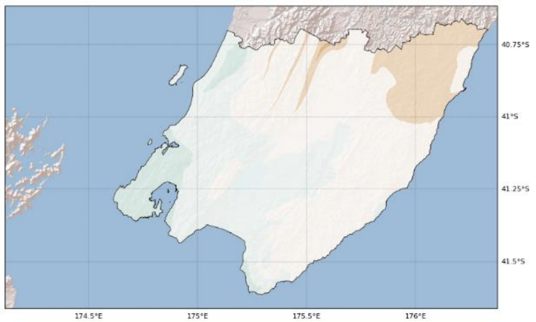
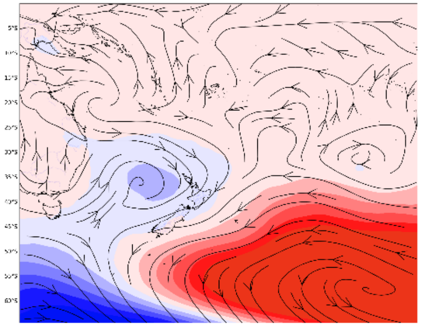
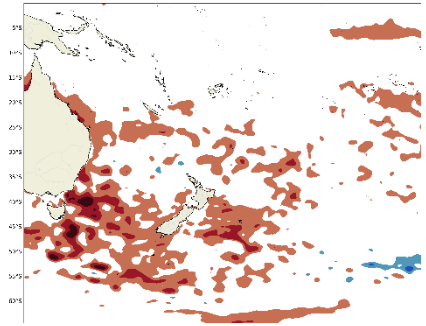
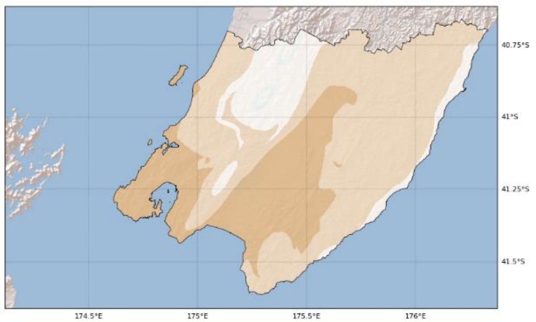
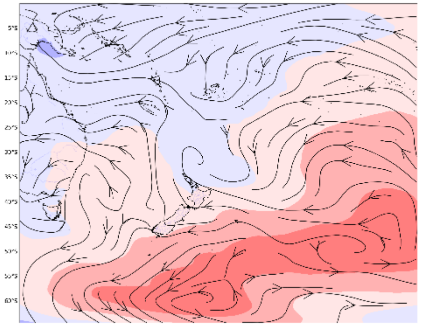
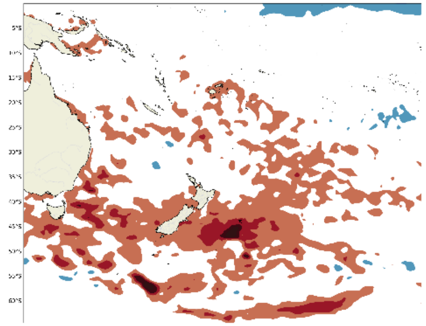
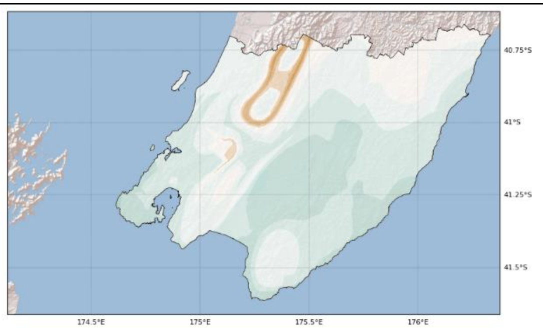
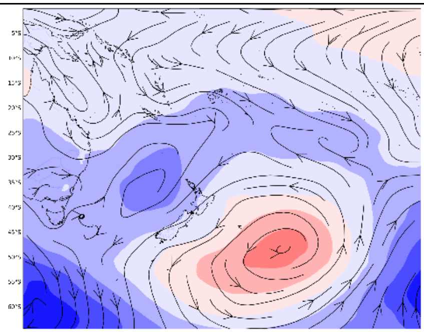
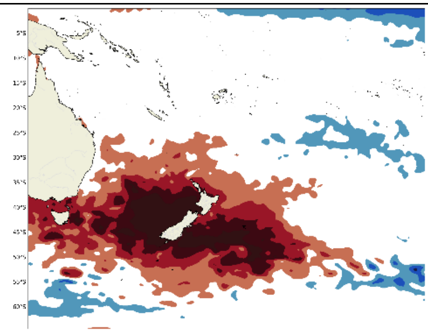
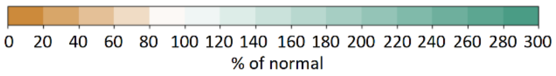
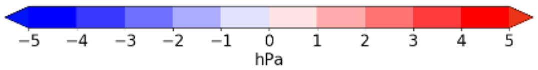
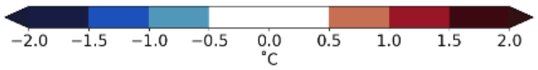
2012	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

2013	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

2014	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO El Niño IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

2015	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Positive
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

2016	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Negative SAM Positive
Spring				ENSO Neutral IOD Negative SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

2017	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

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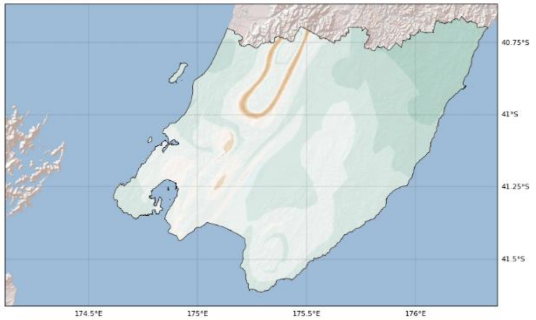
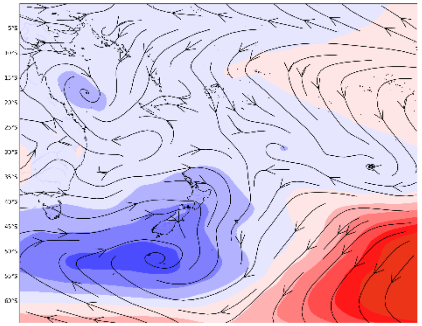
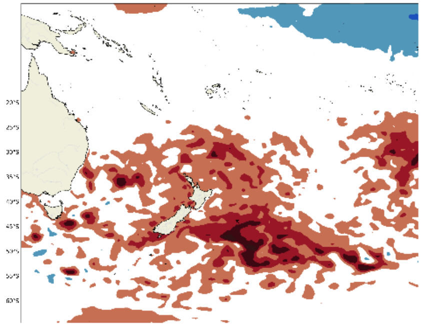
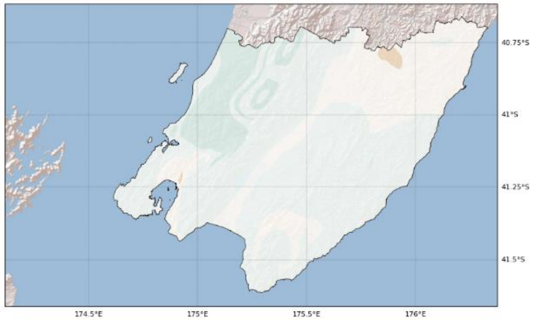
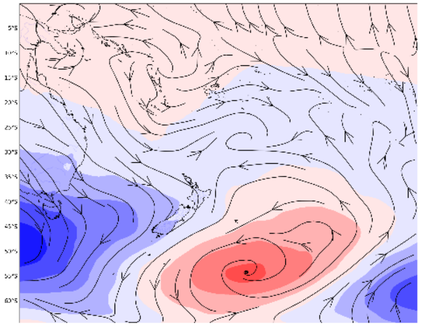
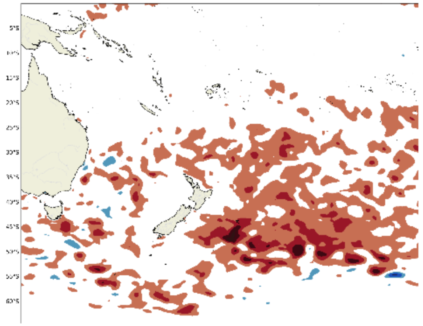
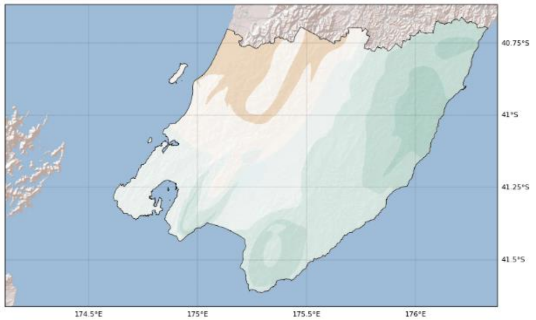
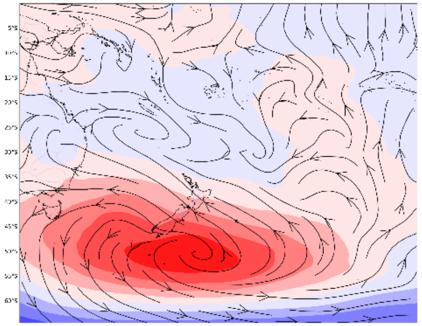
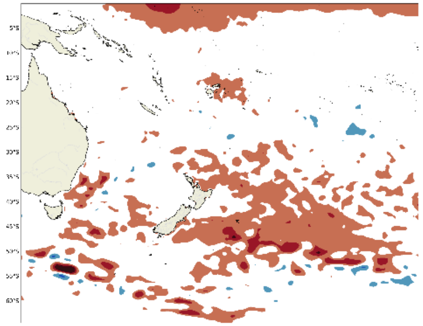
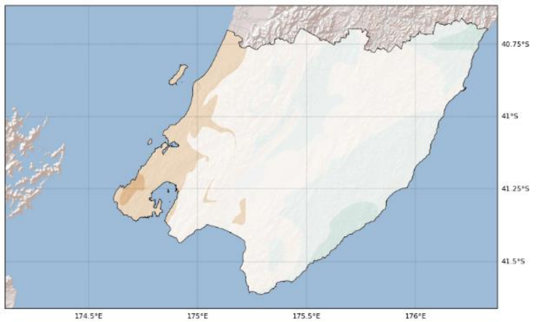
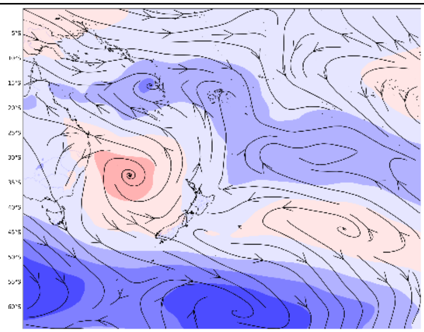
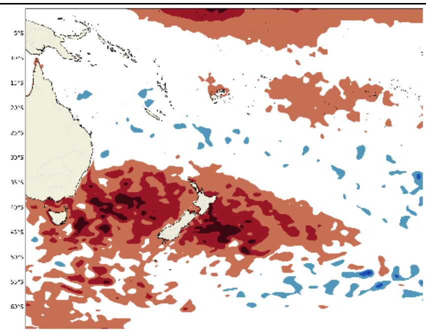
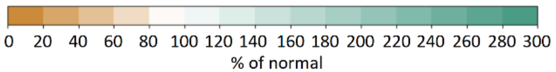
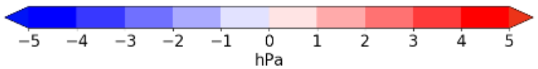
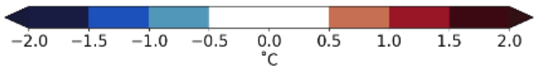
<tr><th>2018</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall:
Aug@500m</td></tr>
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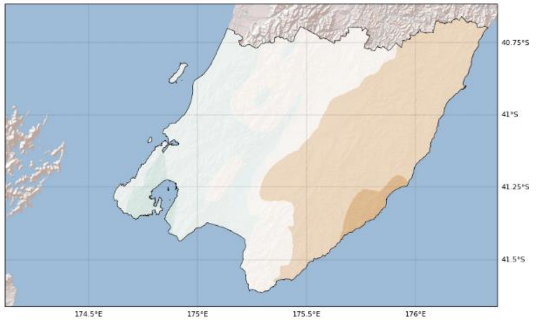
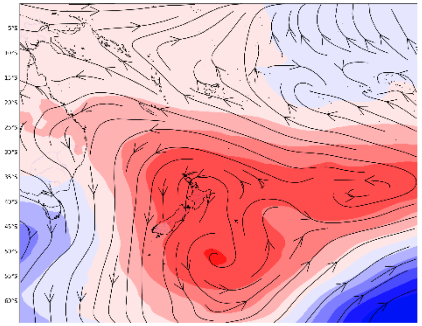
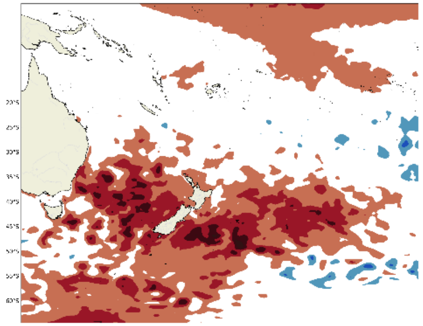
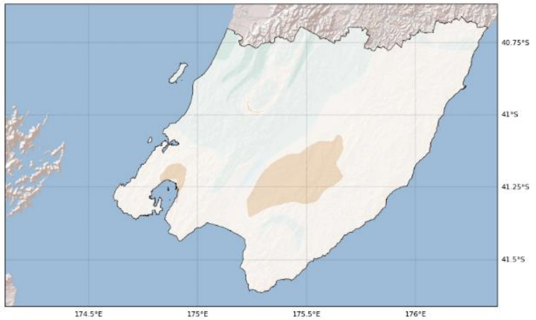
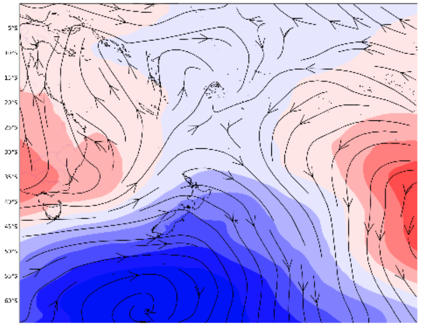
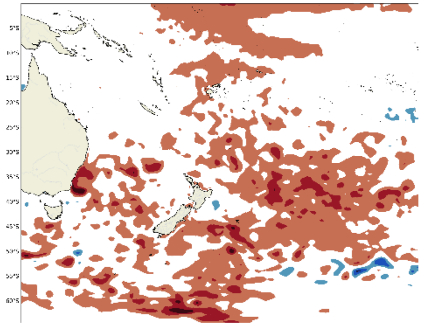
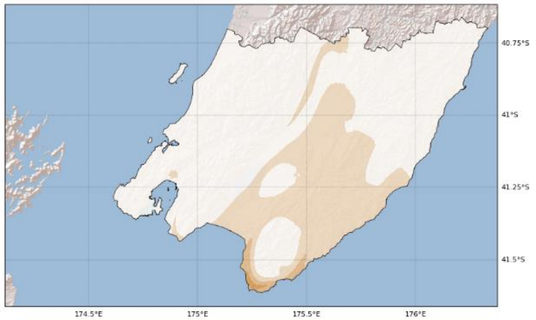
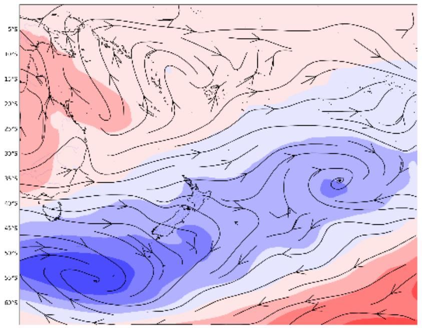
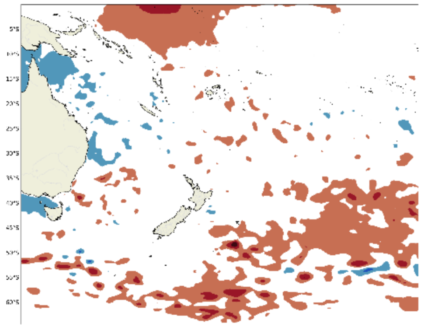
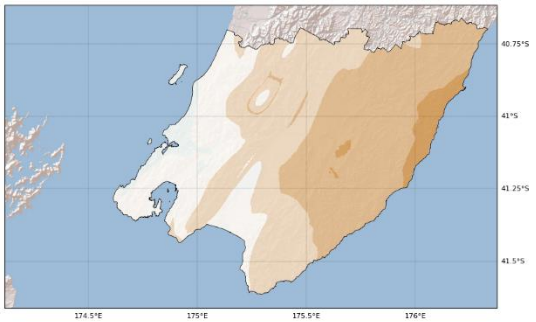
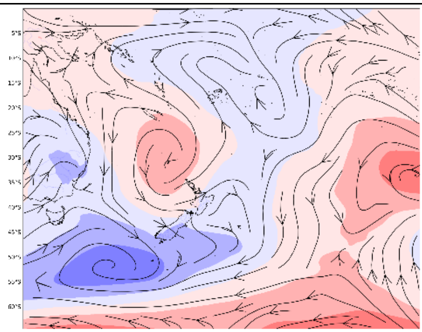
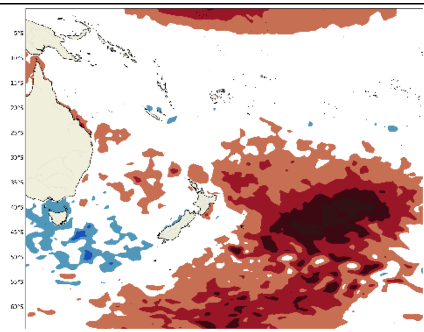
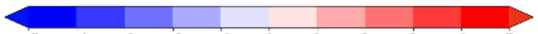
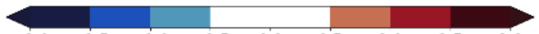
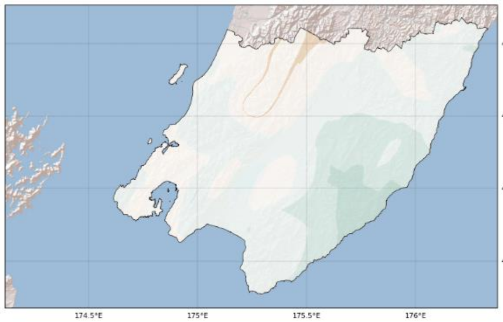
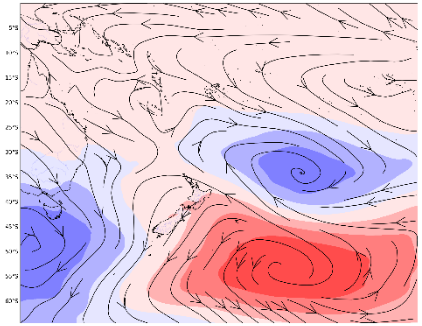
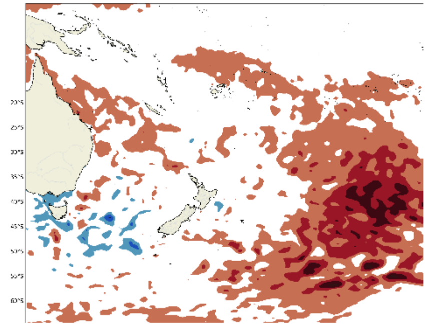
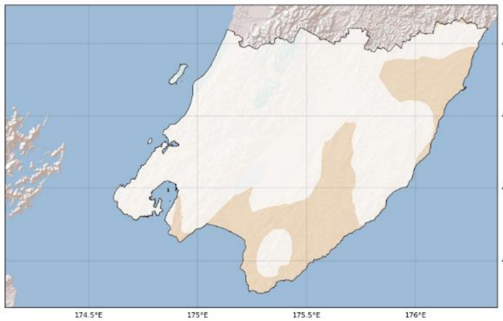
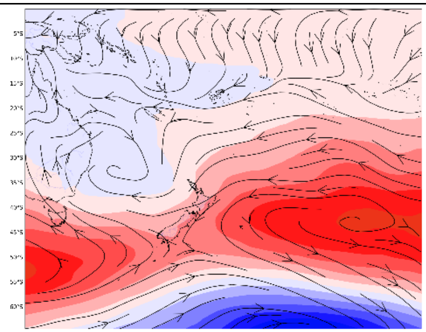
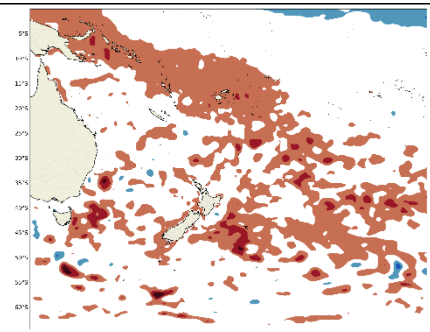
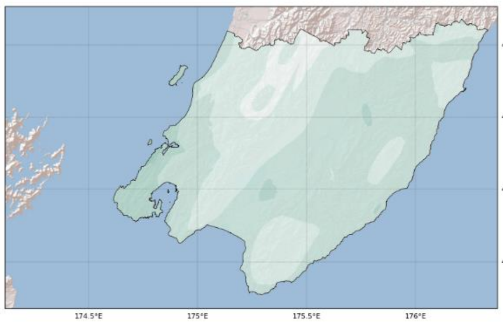
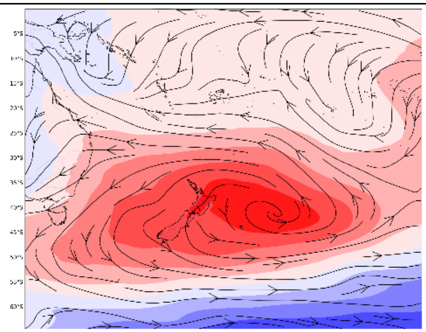
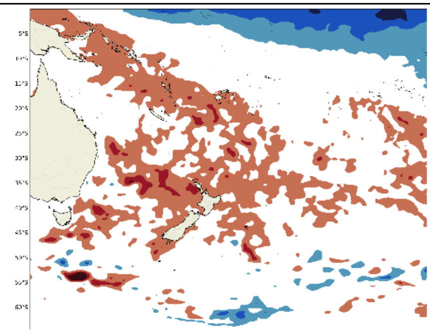
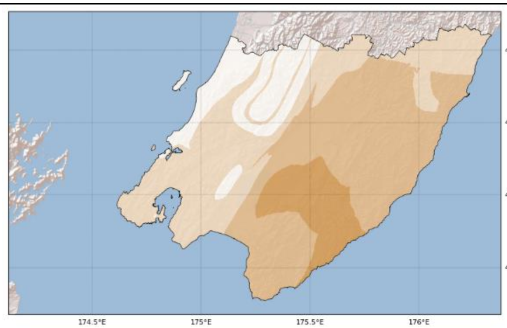
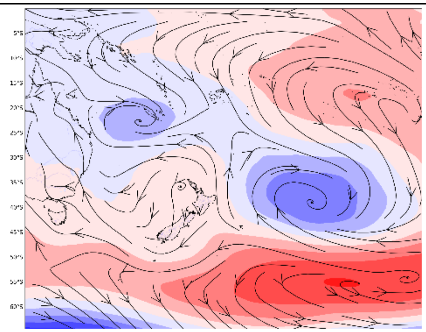
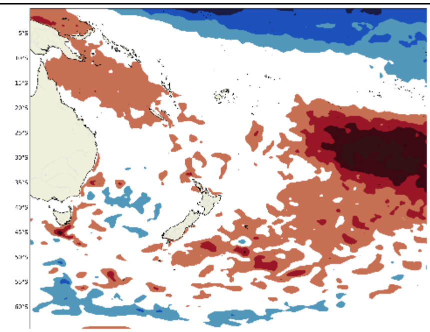
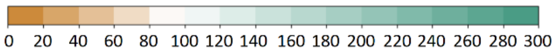
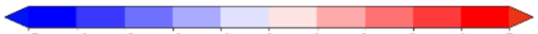
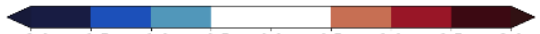
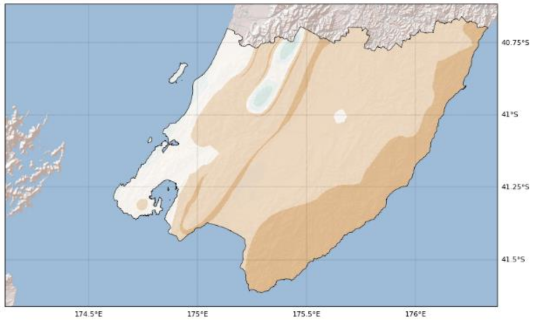
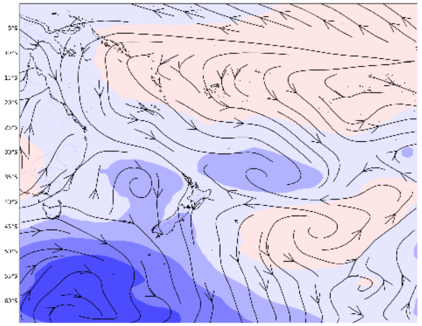
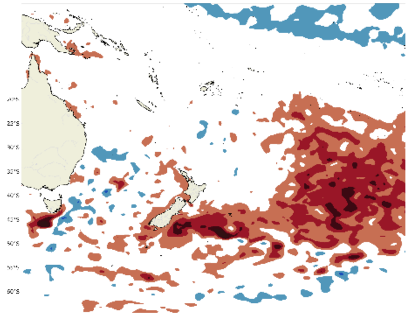
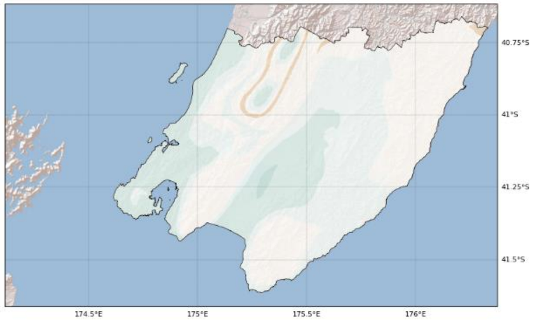
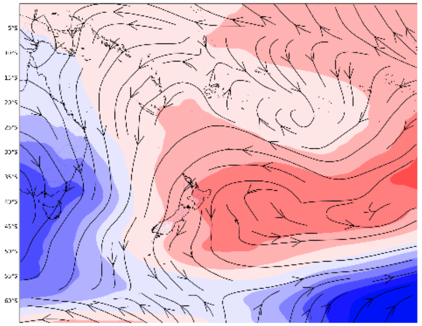
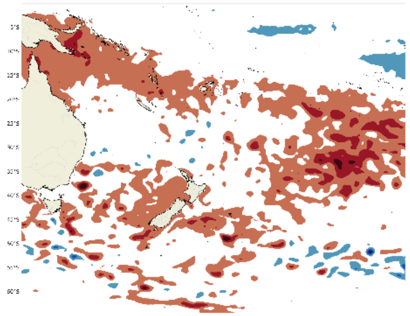
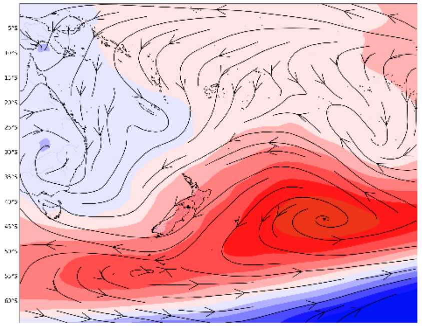
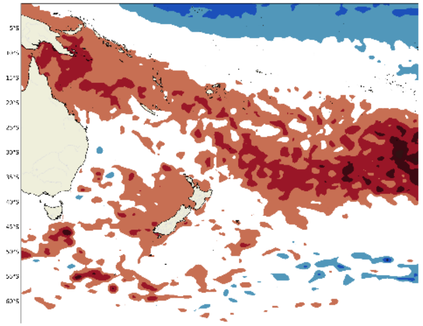
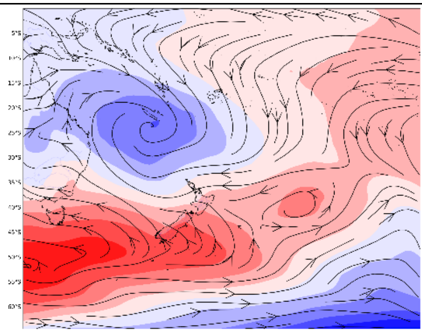
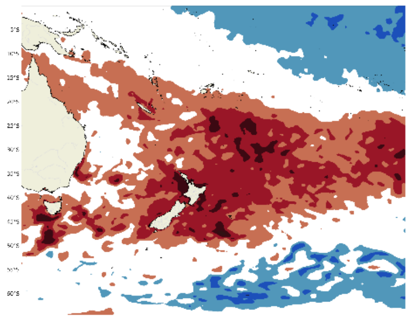
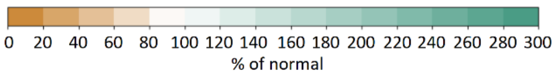
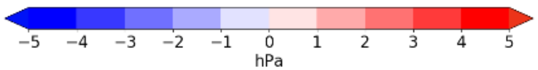
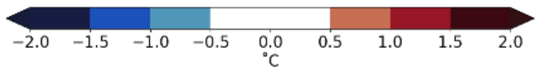
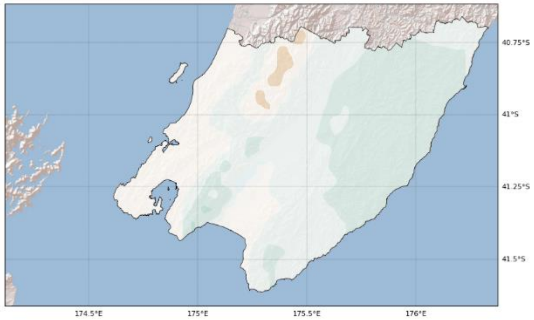
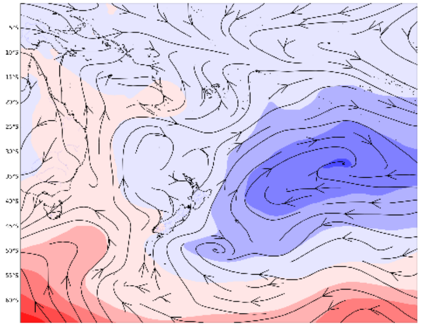
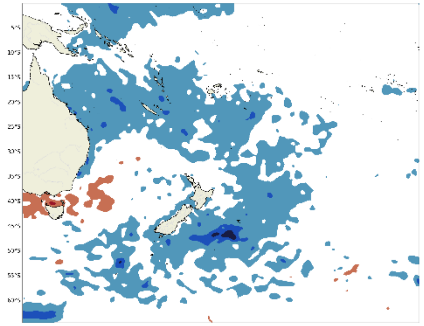
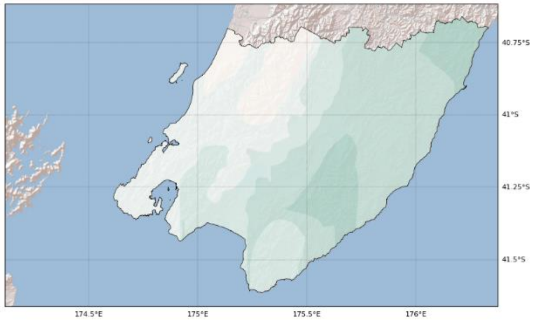
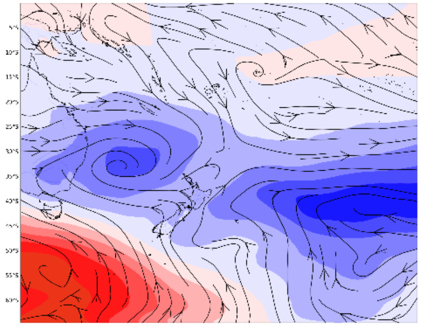
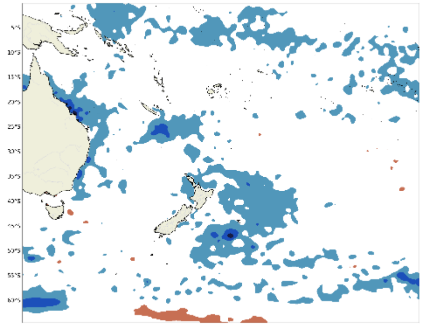
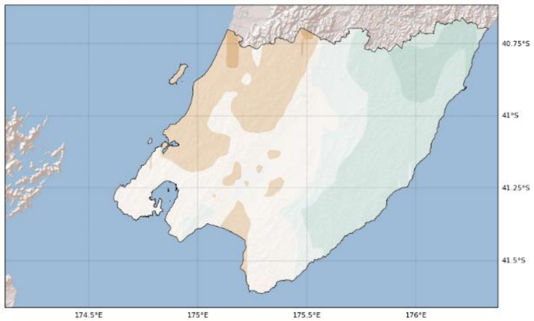
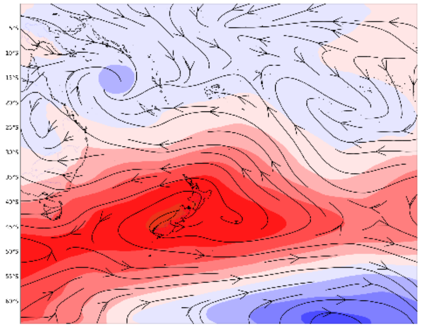
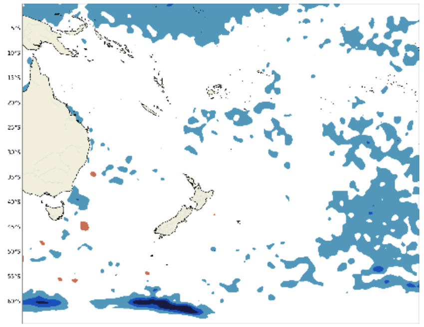
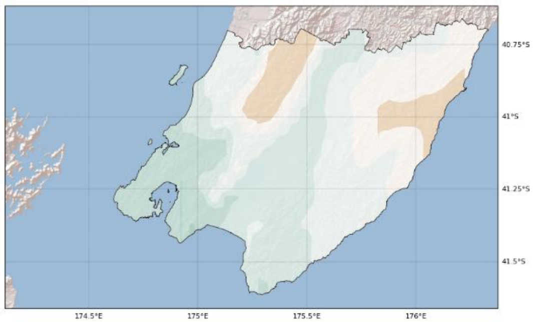
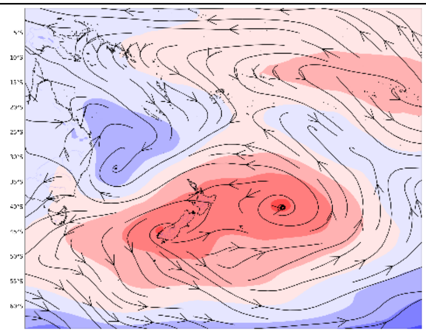
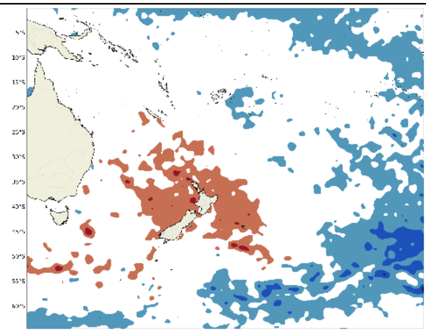
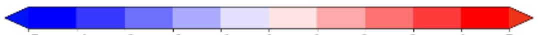
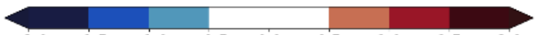
2019	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Positive SAM Positive
Spring				ENSO Neutral IOD Positive SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Aug@500m**

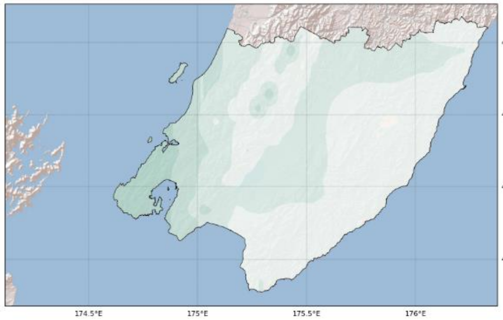
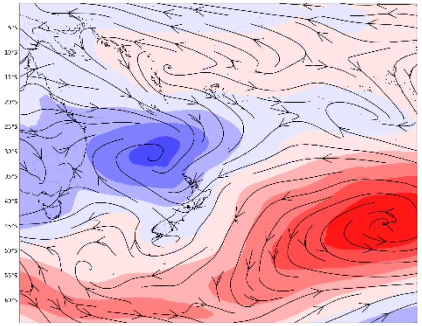
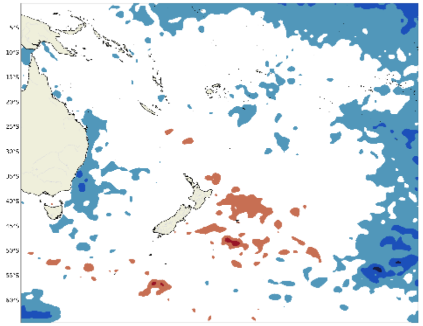
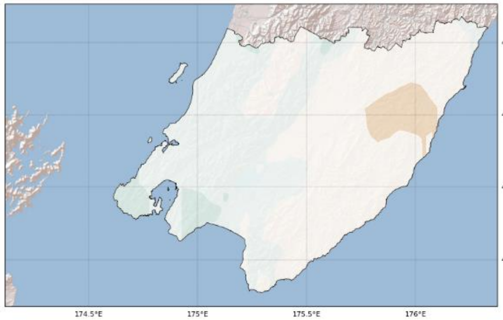
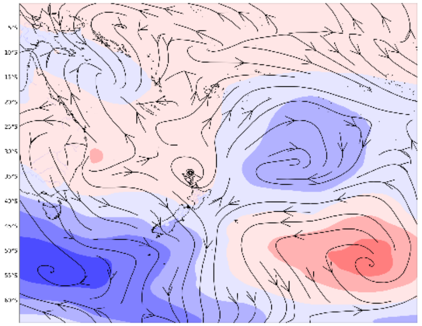
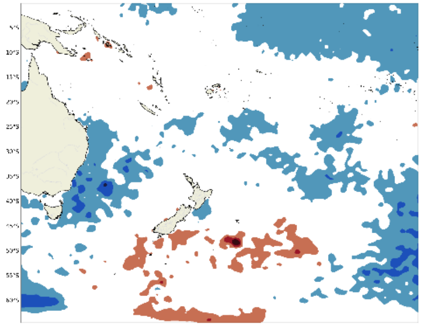
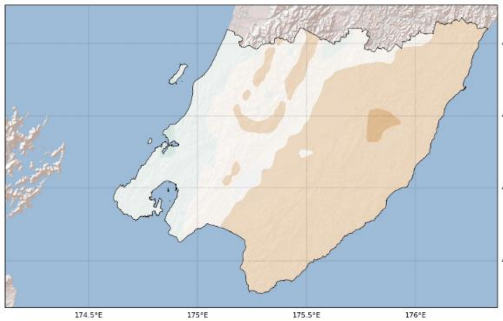
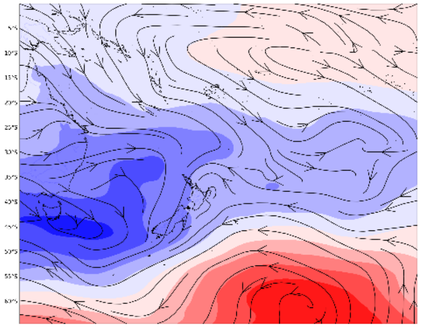
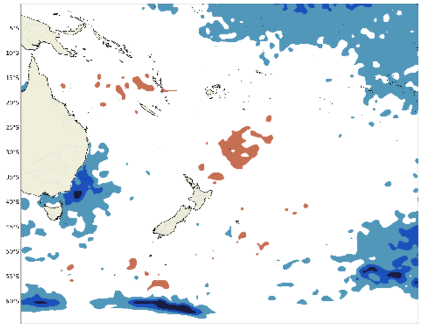
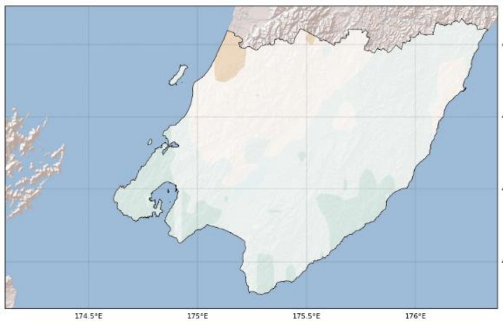
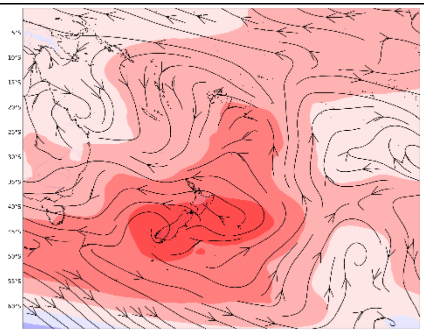
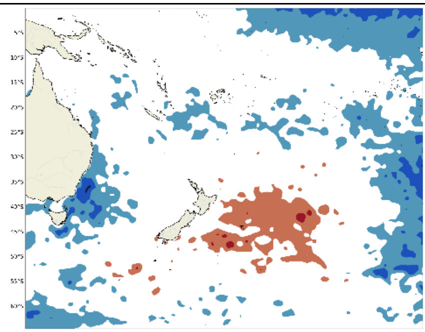
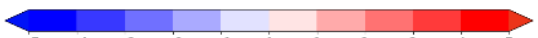
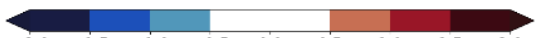
2020	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Positive
				**Rainfall: Aug@500m**

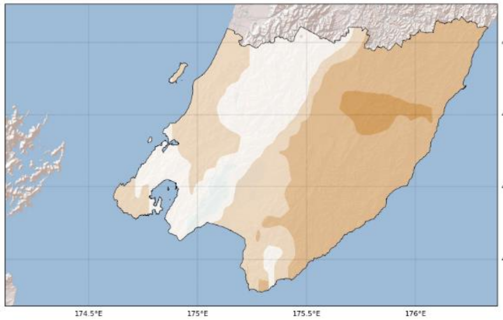
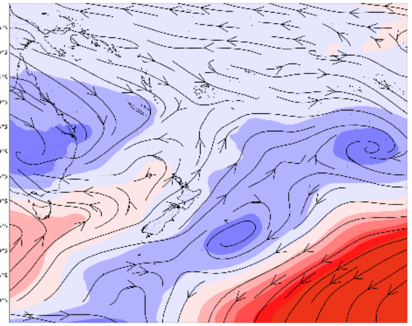
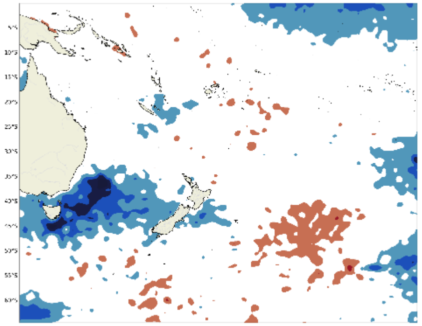
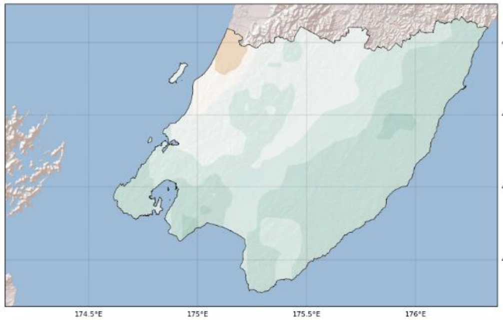
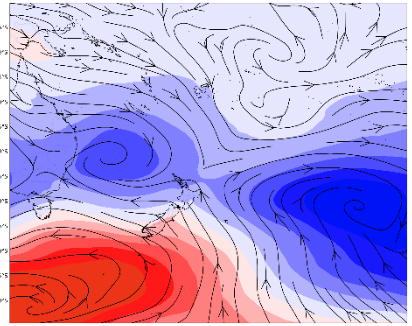
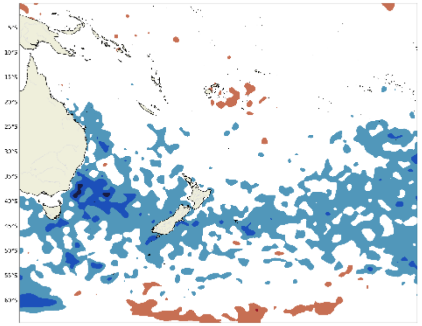
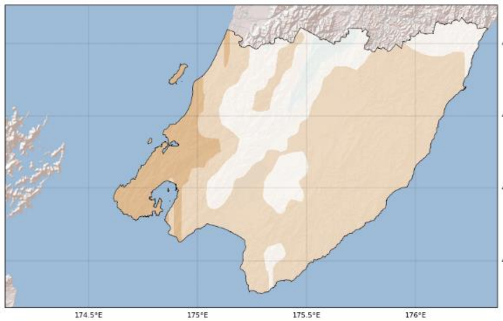
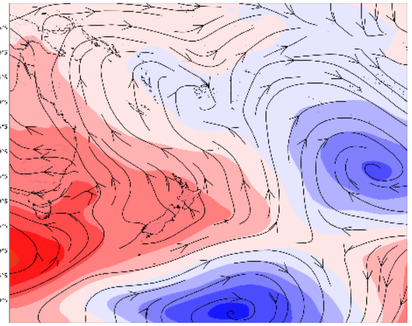
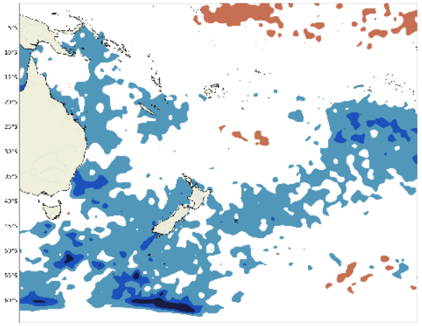
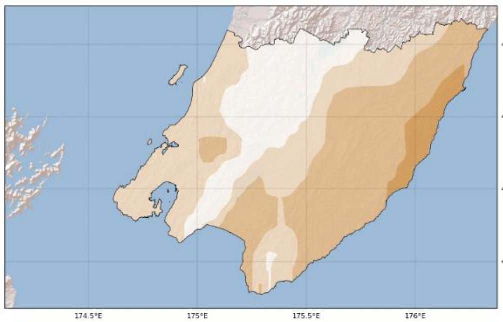
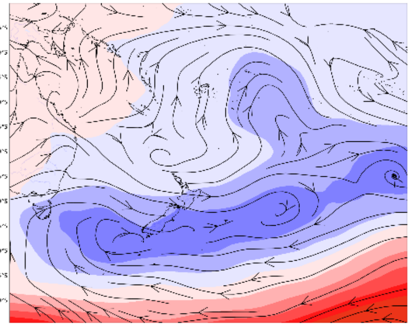
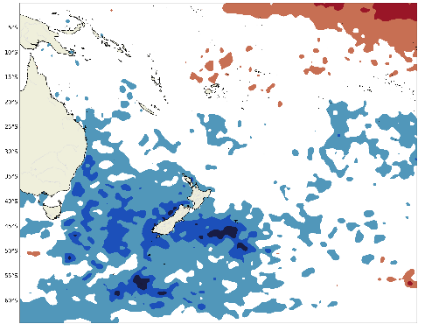
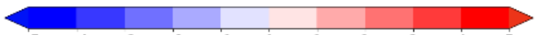
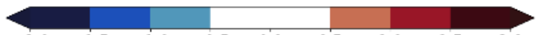
2021	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Spring	*Map not available*			<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer	*Map not available*			<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Aug@500m**

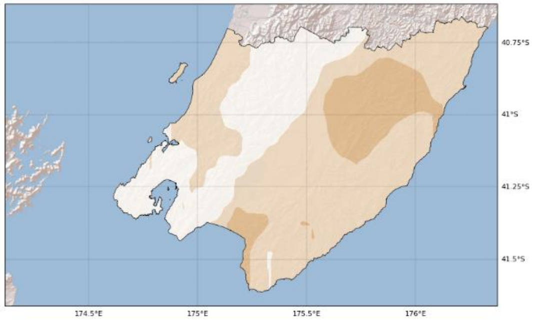
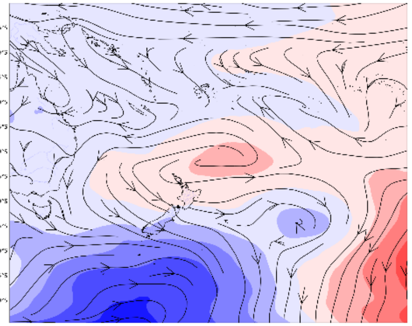
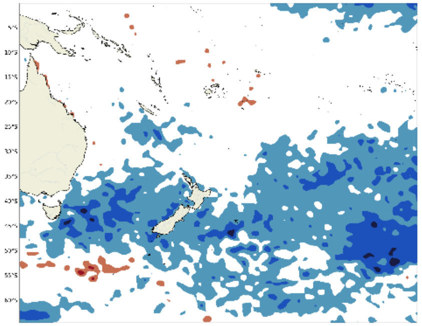
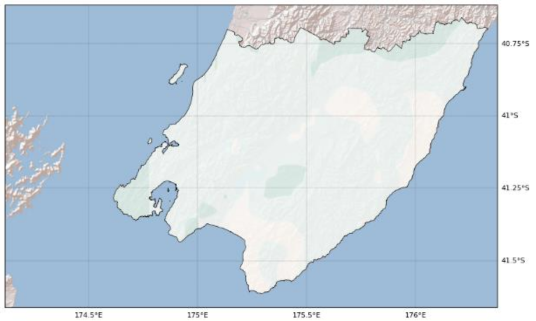
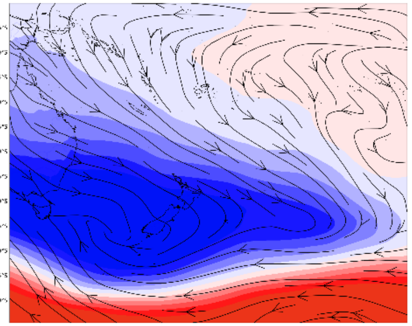
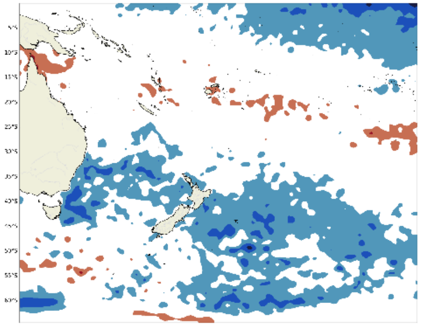
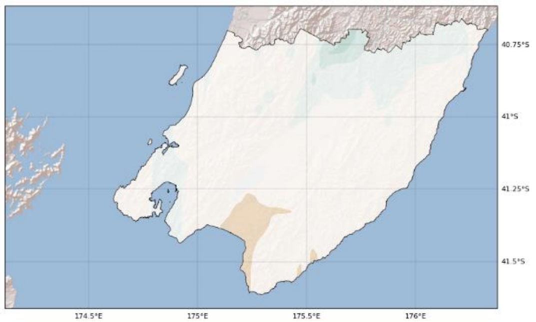
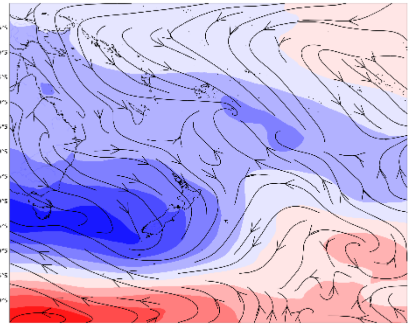
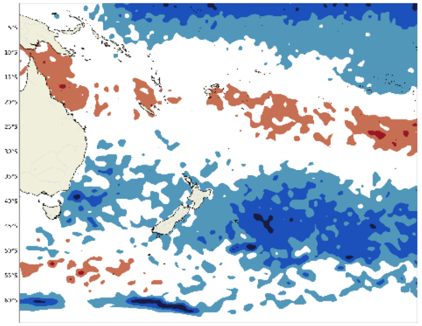
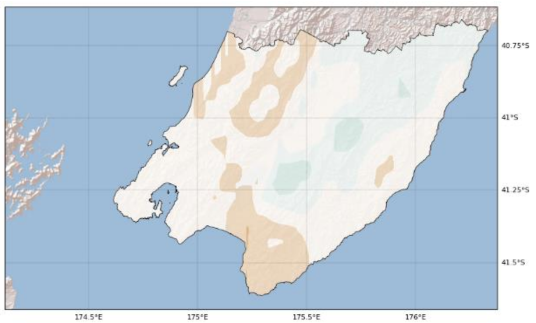
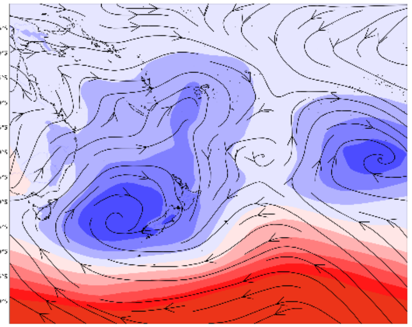
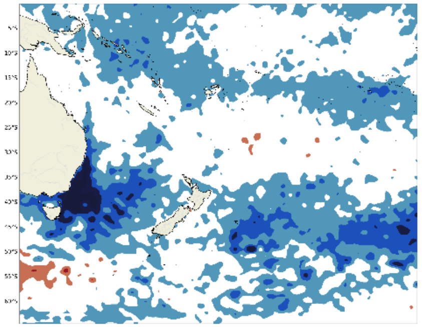
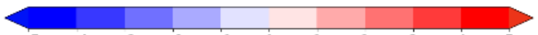
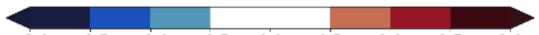
8 Climate Catalogue B: Rainfall Operational_BiasCorrected@5km

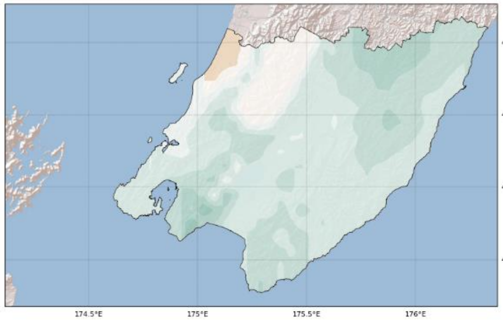
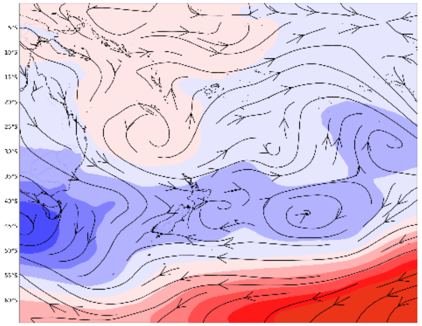
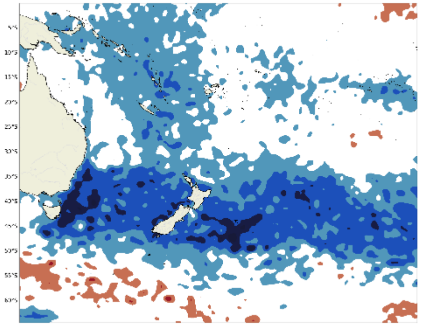
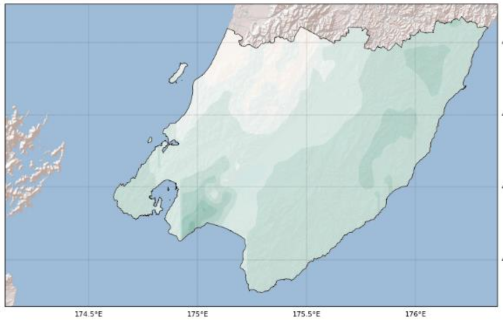
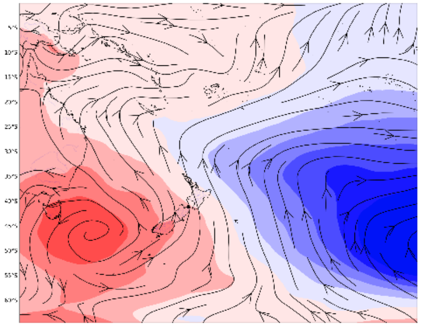
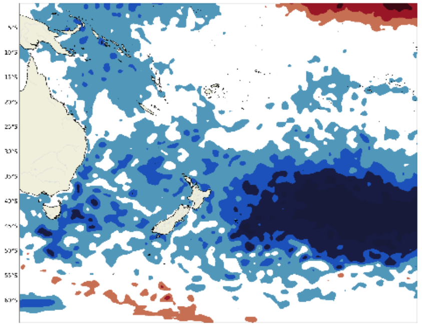
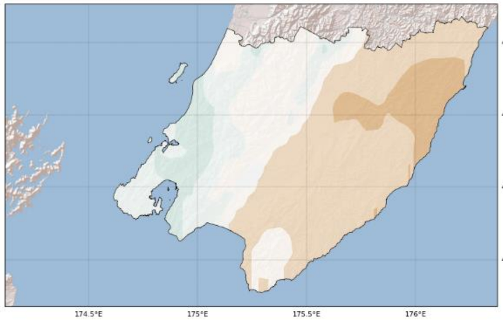
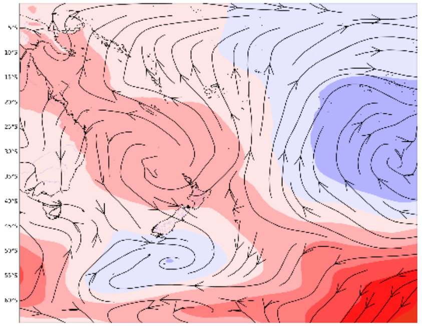
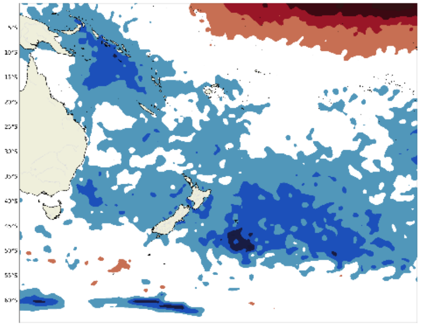
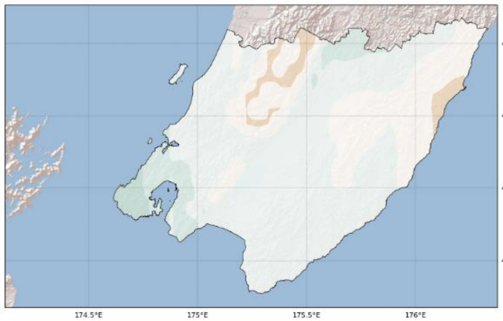
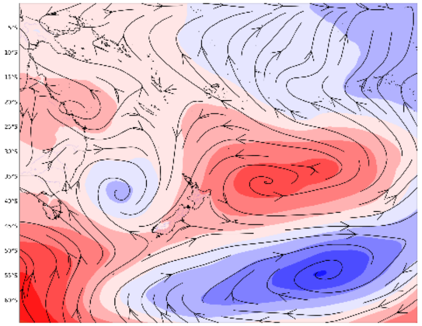
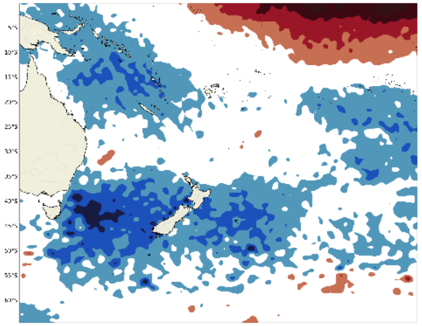
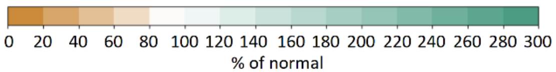
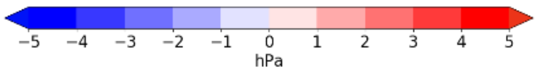
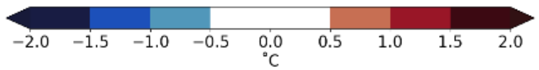
Climate Catalogue B is the same as Climate Catalogue A, except it has been generated using the *Operational_BiasCorrected@5km* gridded precipitation dataset. These data are the standard Virtual Climate Station Network (VCSN) data. Data for this catalogue are available from autumn 1961 to summer 2023-24.

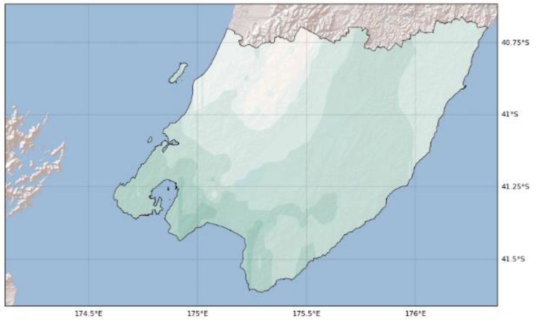
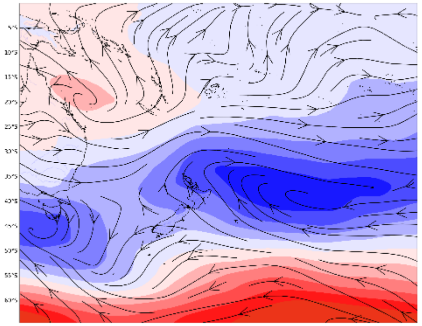
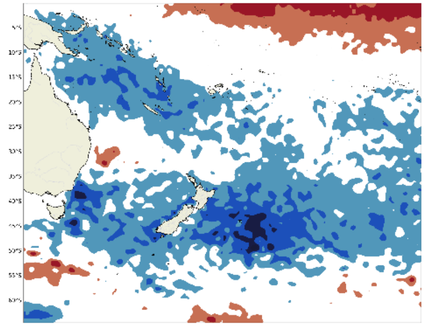
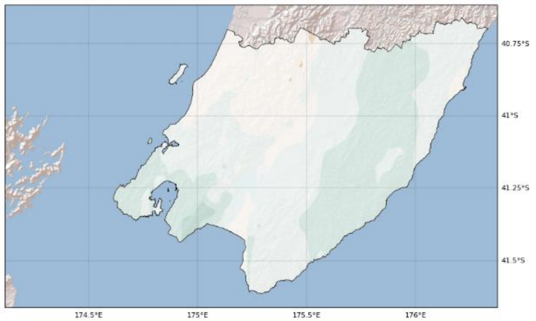
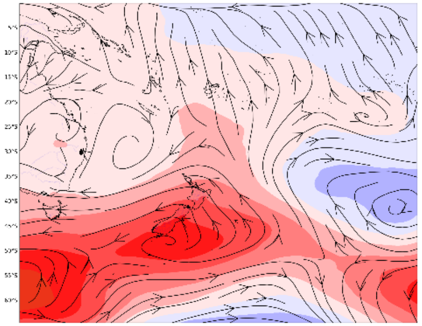
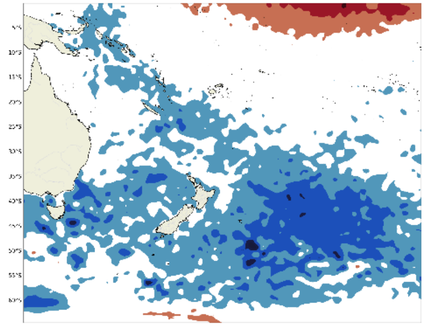
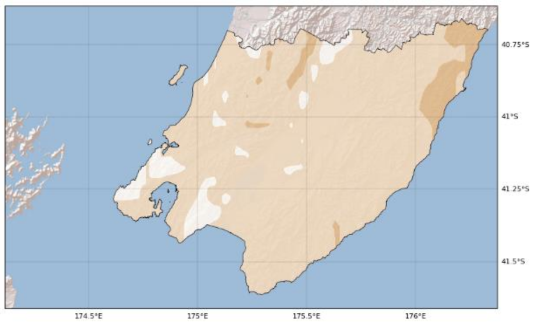
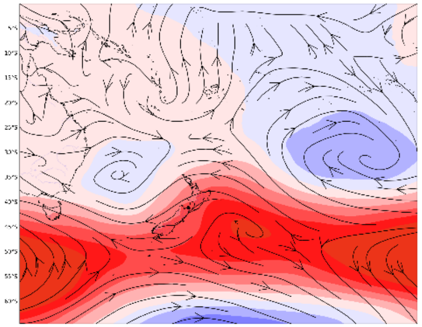
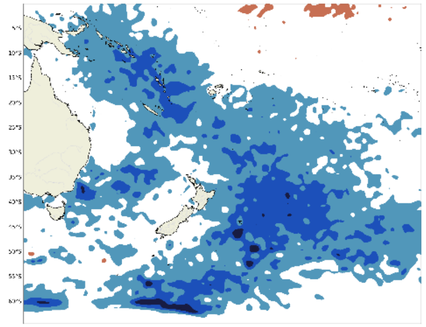
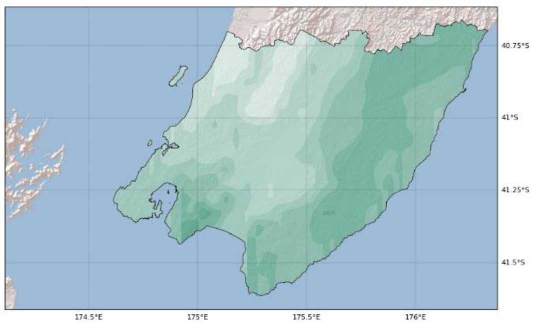
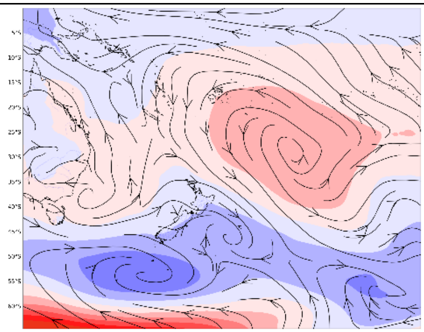
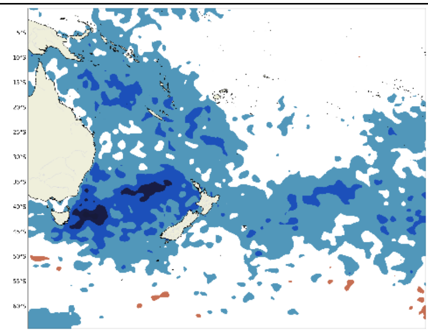
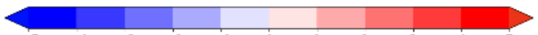
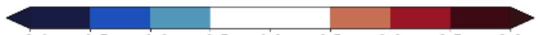
1961	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO Neutral IOD Positive SAM Negative
Spring				ENSO Neutral IOD Positive SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

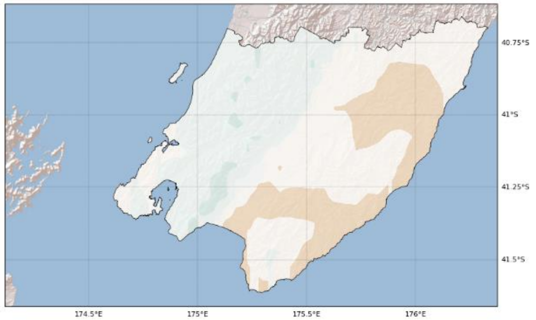
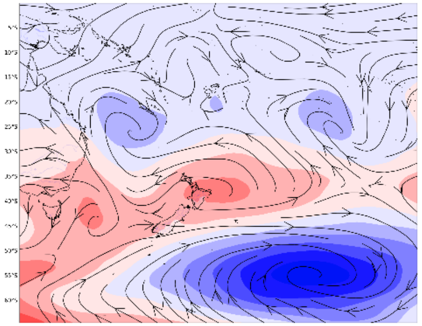
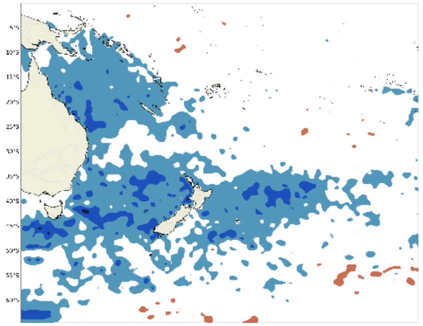
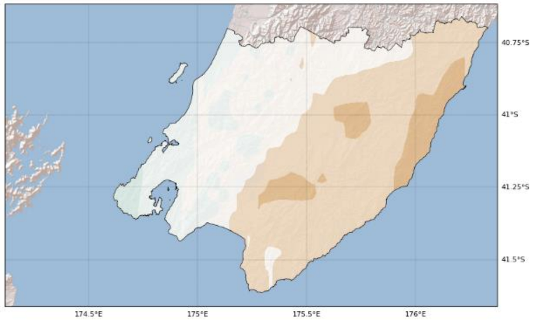
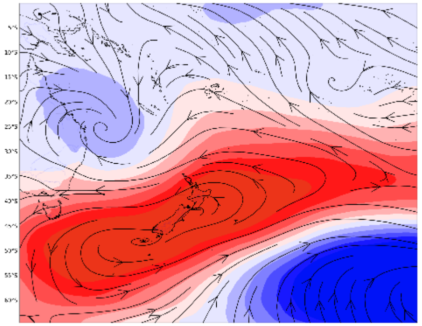
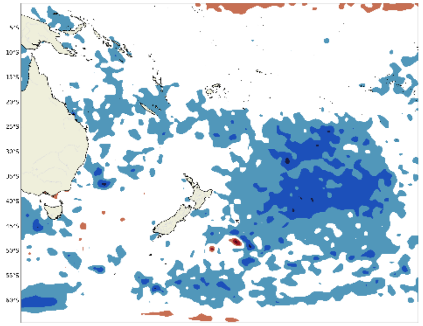
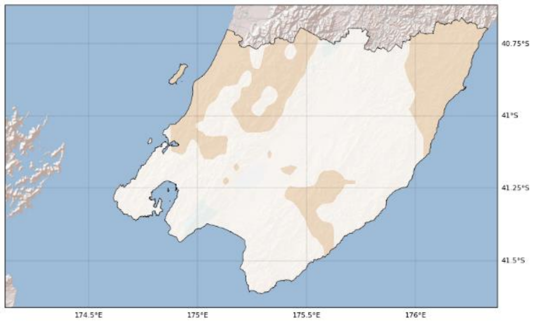
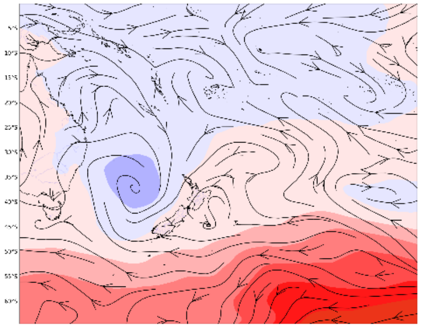
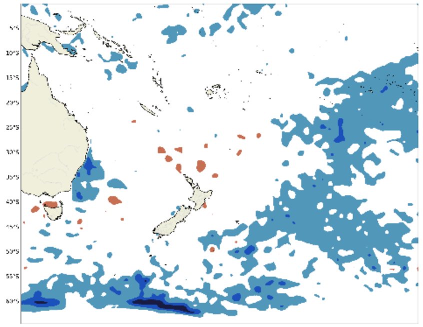
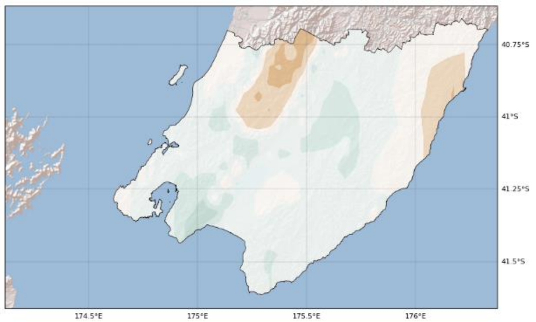
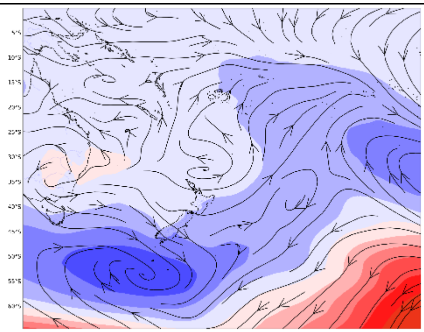
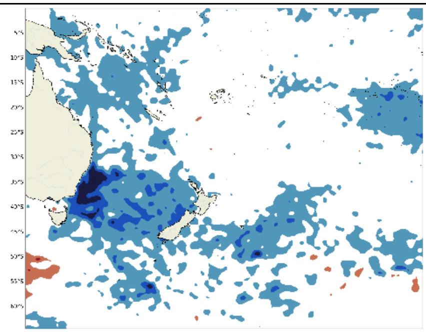
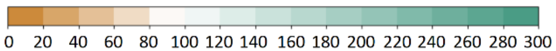
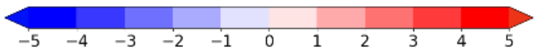
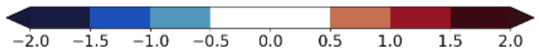
1962	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Negative
Spring				ENSO Neutral IOD Neutral SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

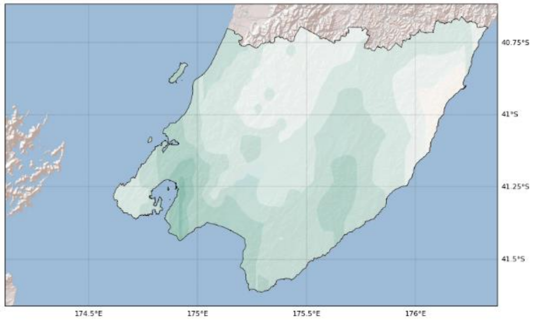
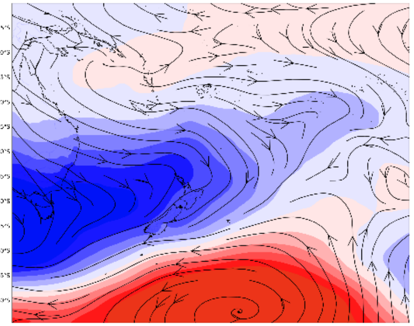
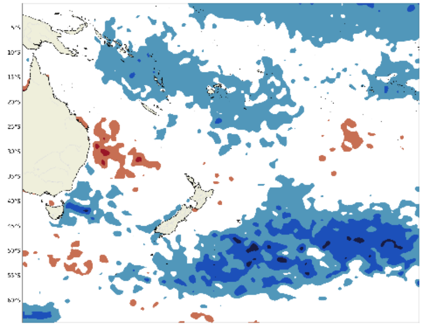
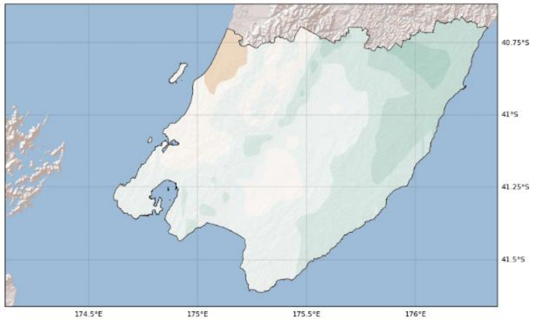
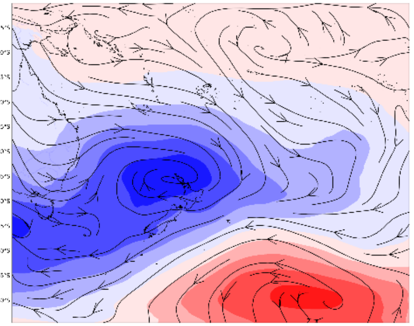
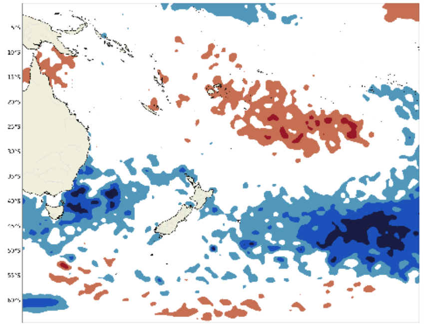
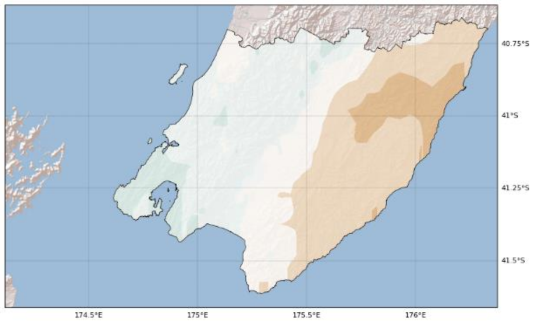
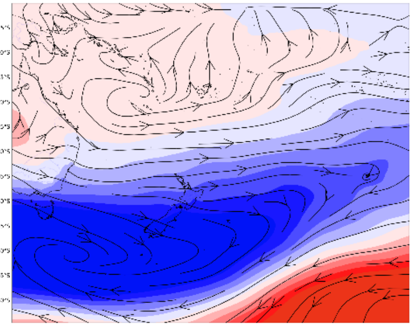
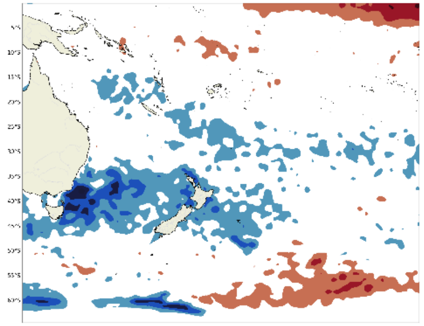
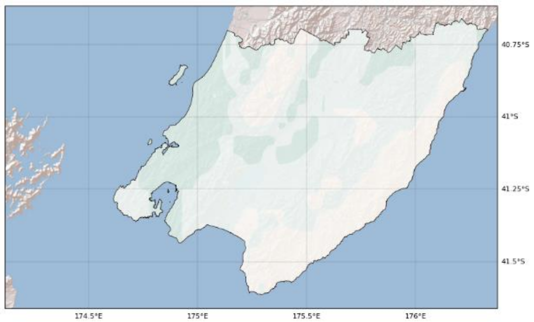
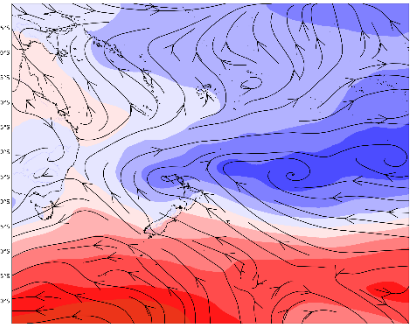
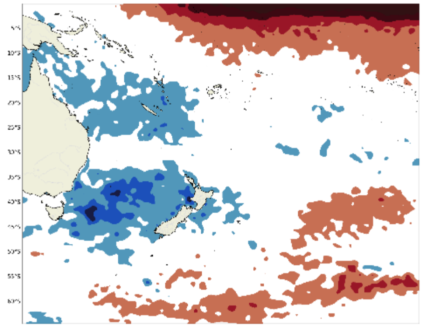
1963	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO Neutral IOD Neutral SAM Negative
Spring				ENSO Neutral IOD Positive SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

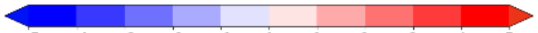
1964	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Negative
Winter				ENSO La Niña IOD Neutral SAM Negative
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

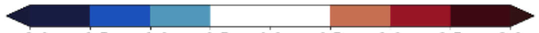
1965	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO El Niño IOD Neutral SAM Negative
Spring				ENSO El Niño IOD Neutral SAM Negative
Summer				ENSO El Niño IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

1966	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Negative
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

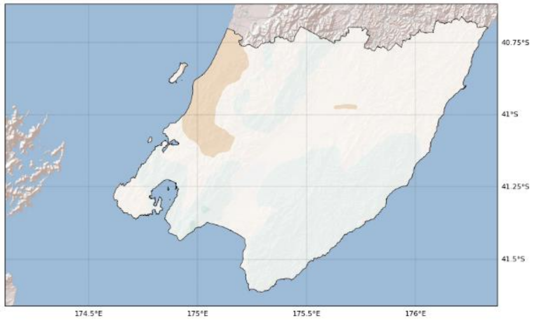
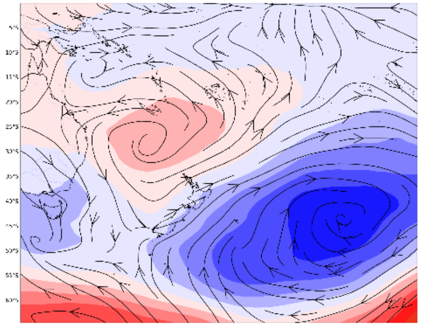
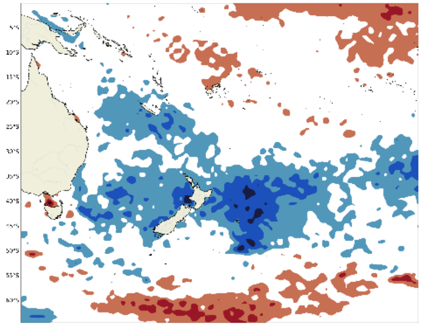
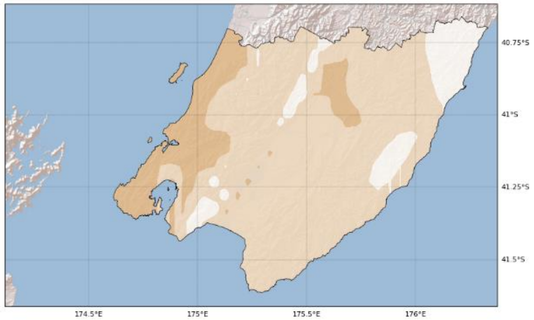
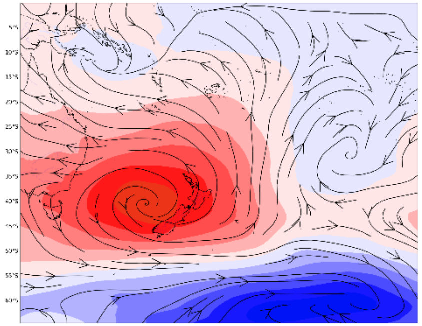
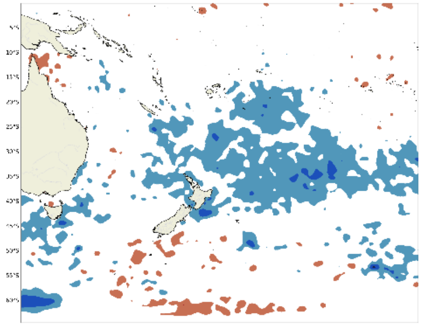
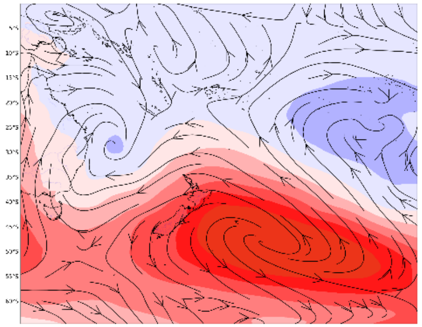
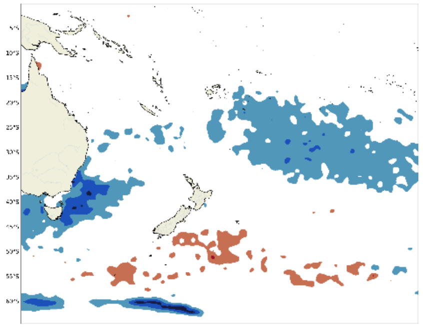
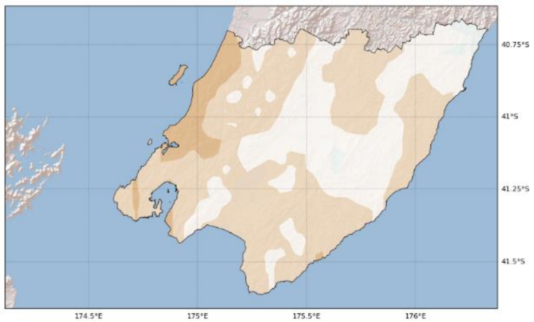
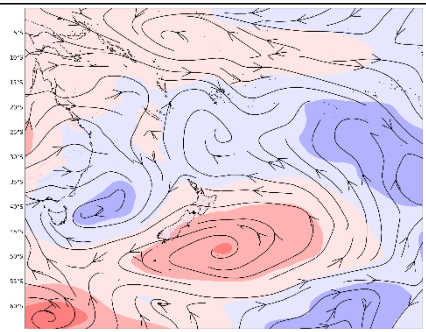
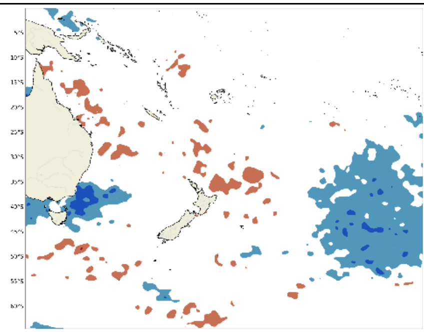
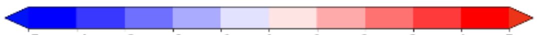
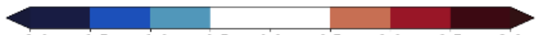
1967	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Positive SAM Neutral
Spring				ENSO Neutral IOD Positive SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

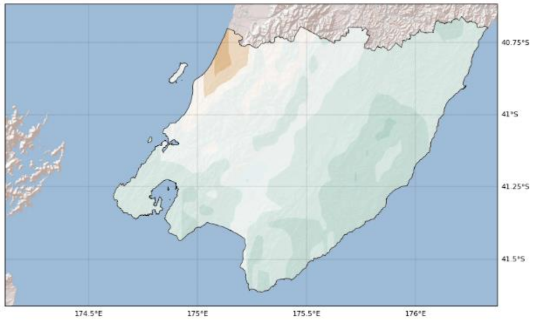
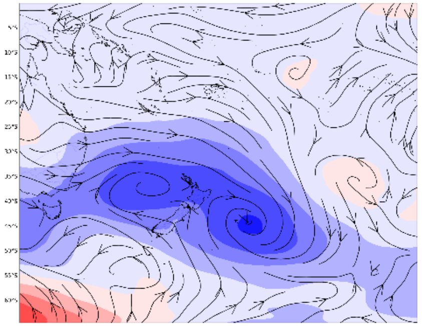
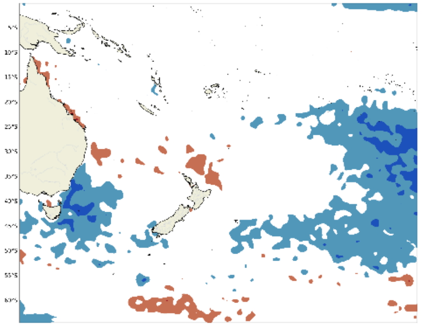
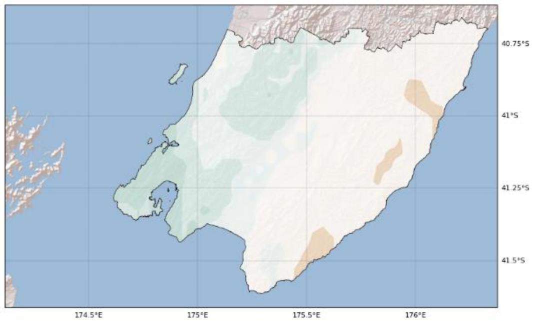
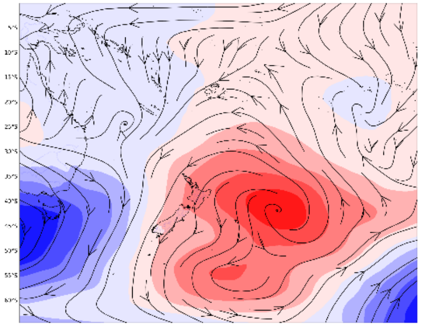
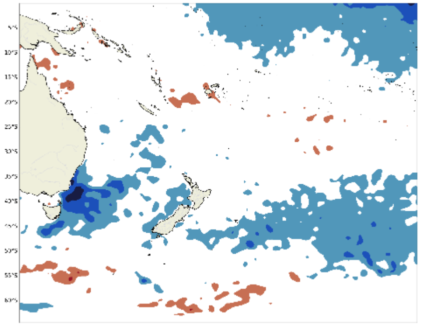
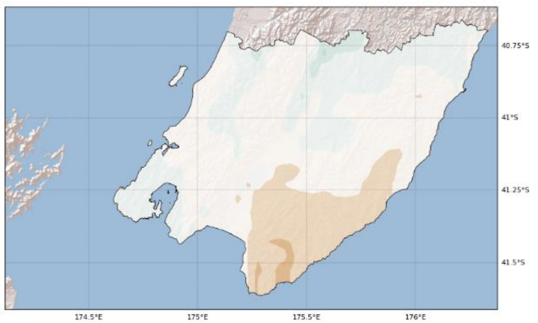
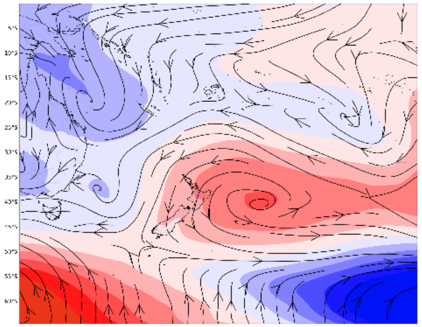
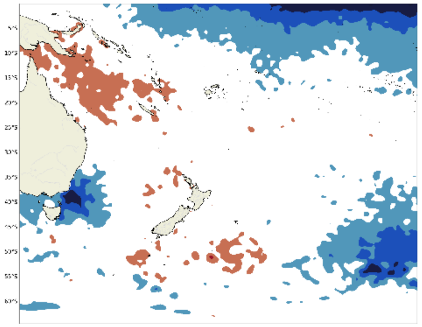
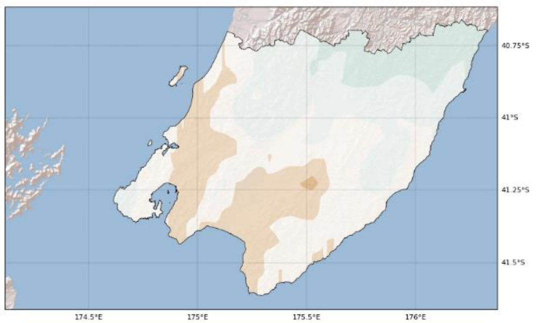
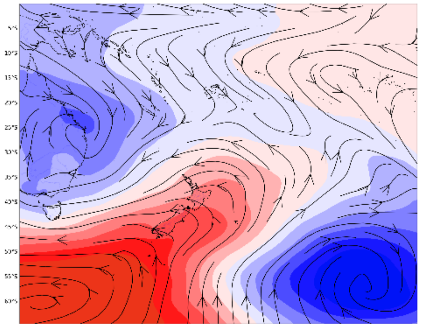
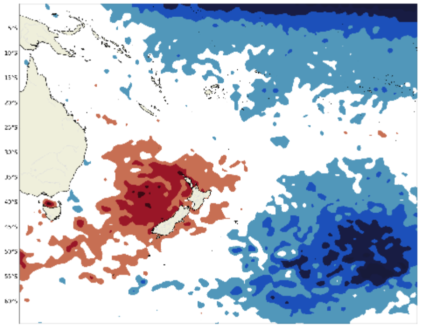
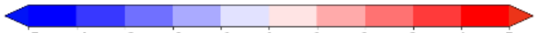
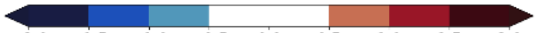
1968	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Negative
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Negative

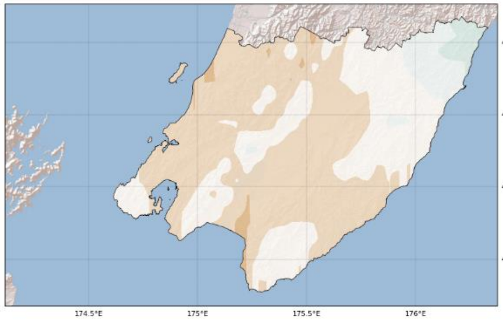
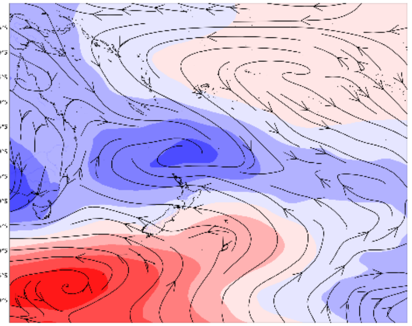
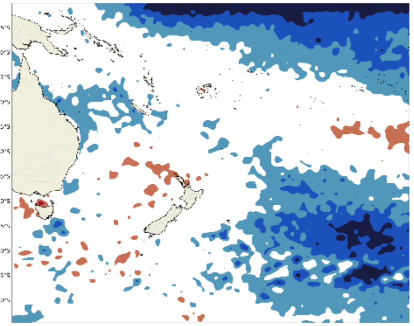
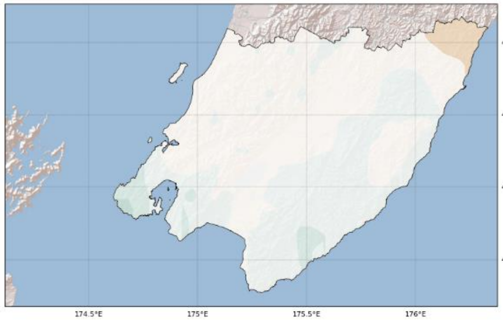
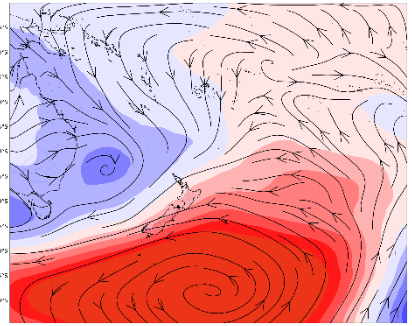
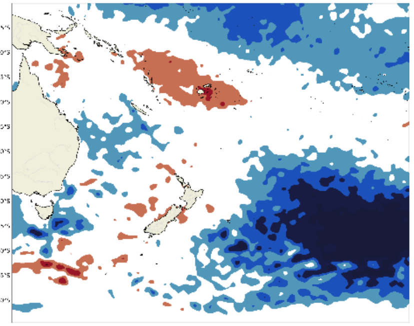
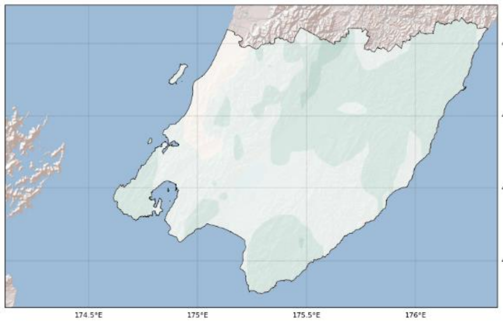
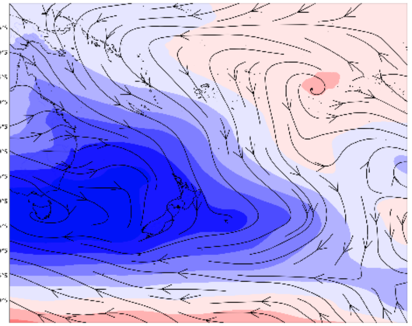
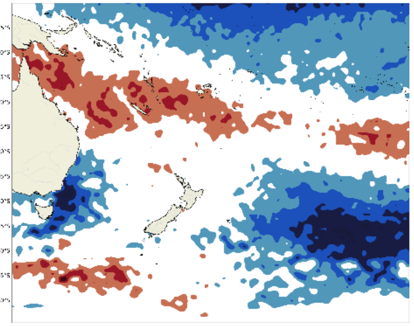
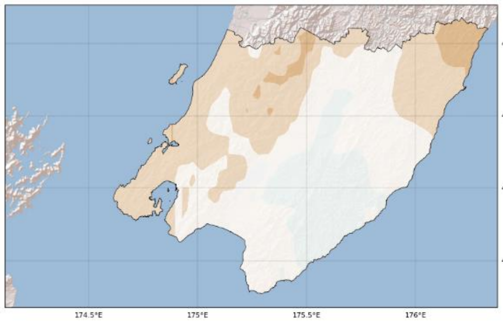
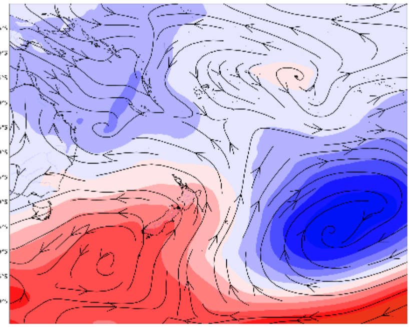
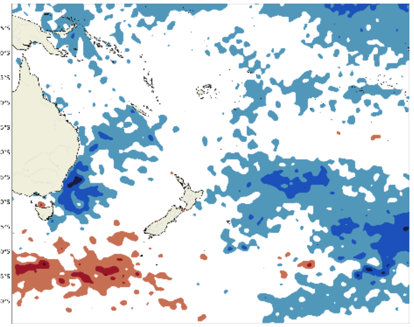
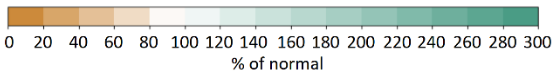
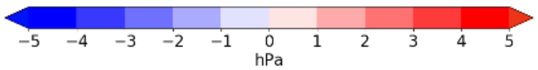
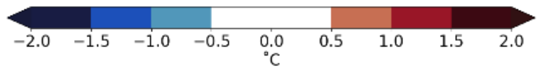




Rainfall: Op_BC@5km

1969	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Negative
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

1970	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

<table>
<tr><th>1971</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Negative</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Negative</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall: Op_BC@5km</td></tr>
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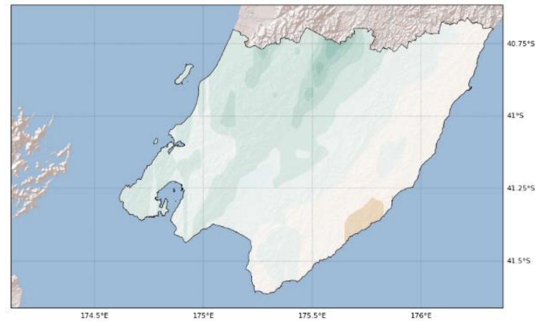
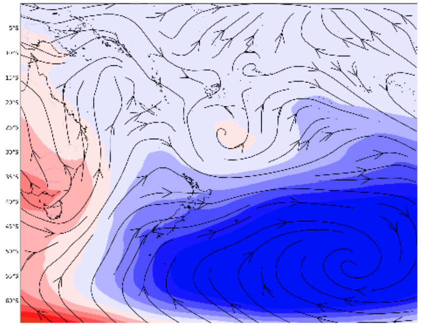
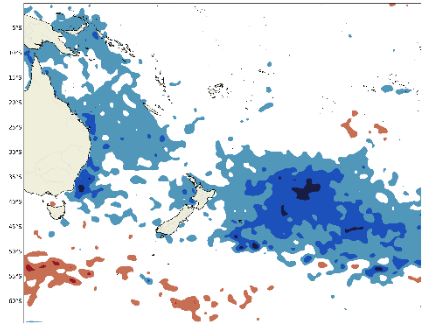
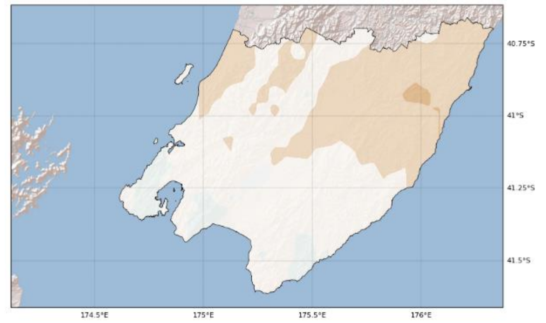
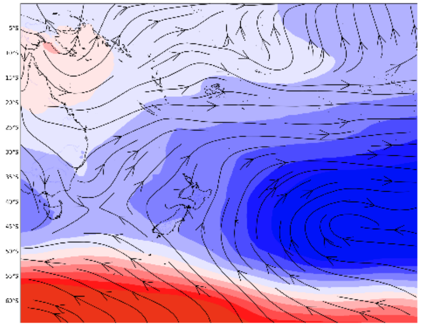
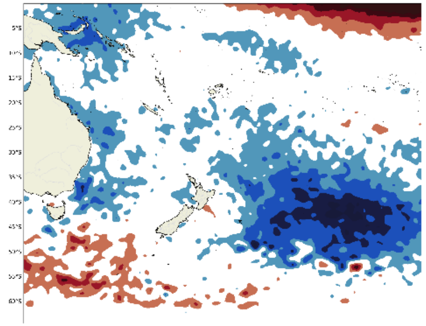
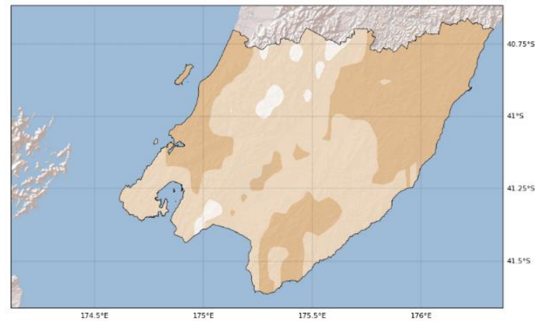
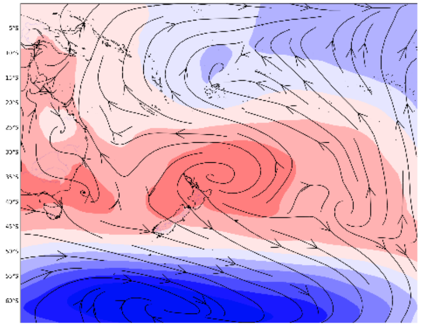
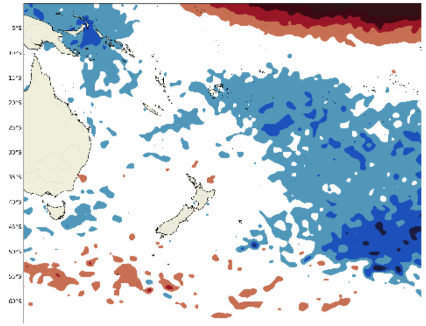
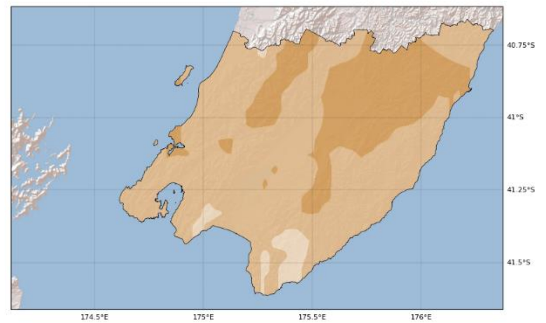
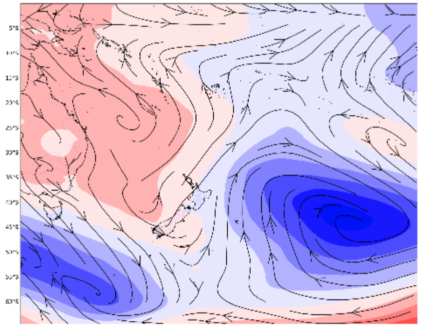
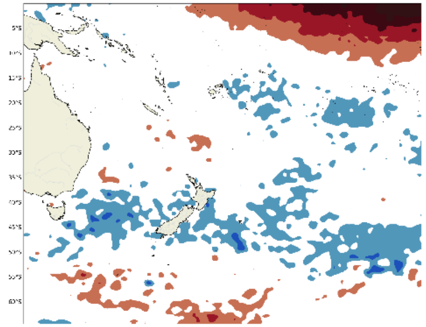
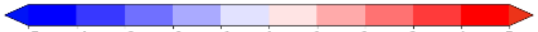
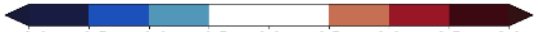
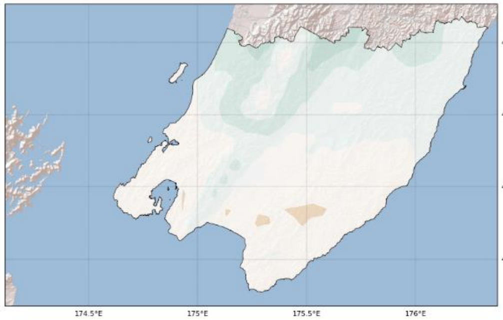
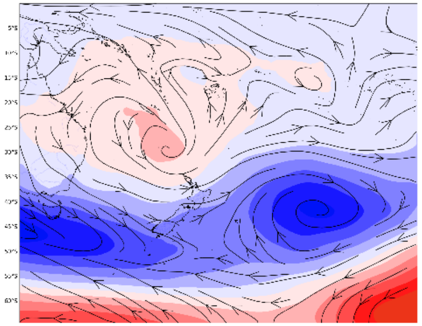
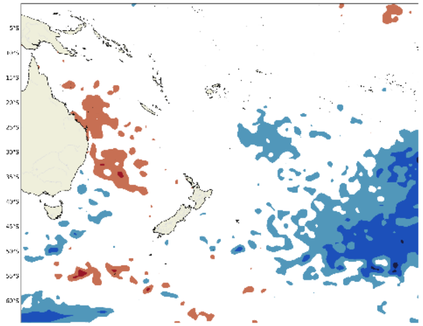
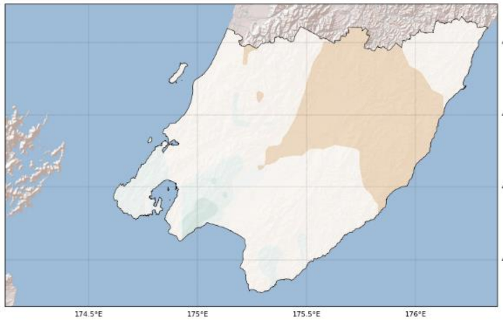
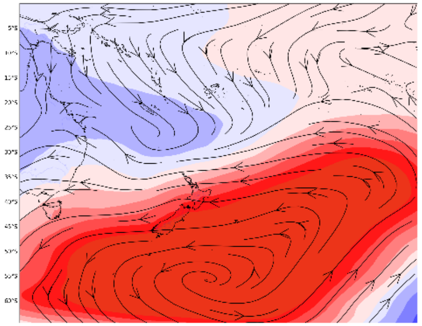
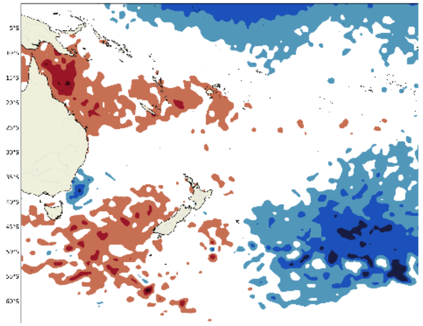
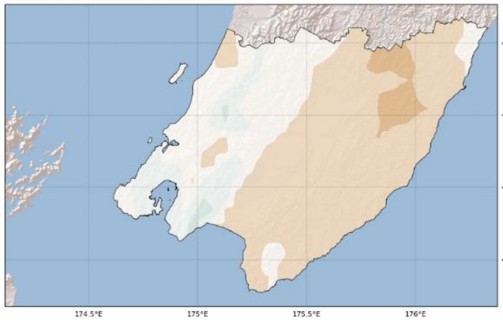
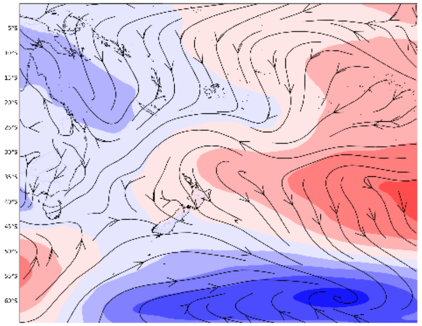
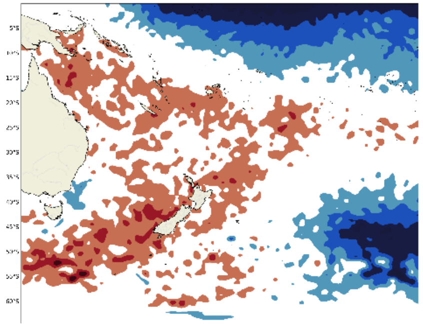
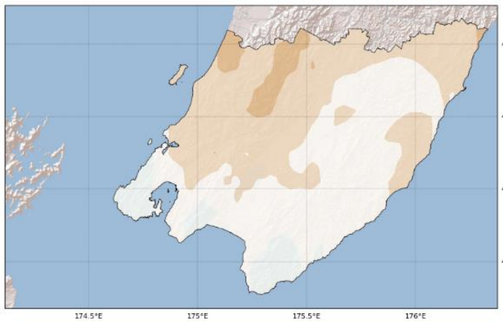
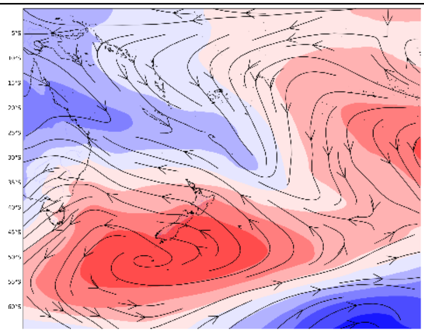
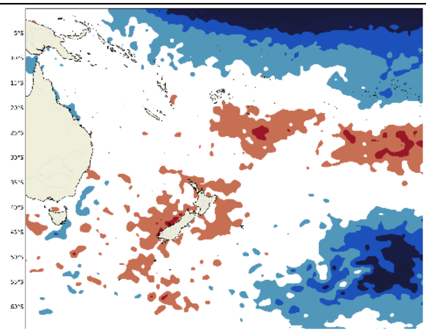
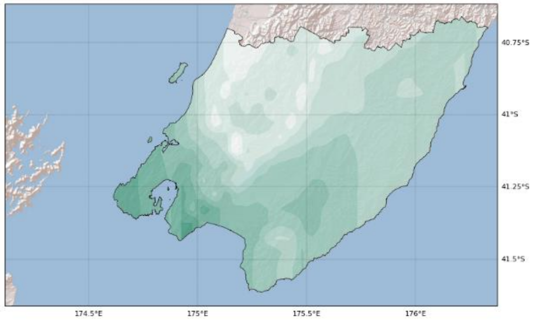
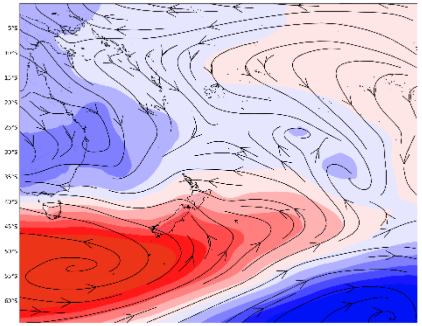
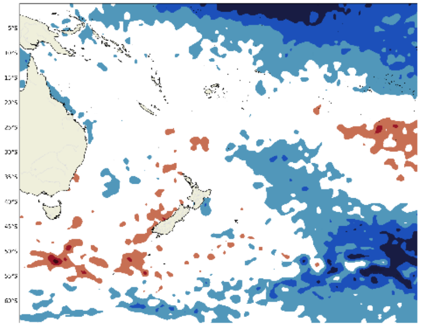
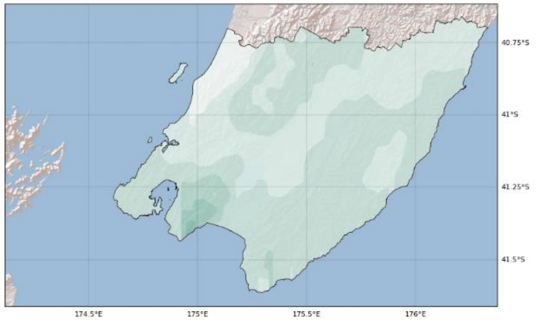
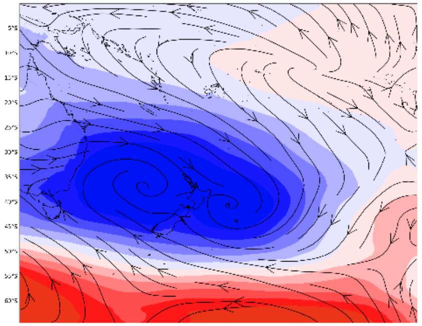
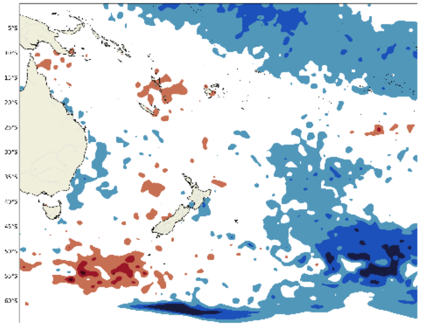
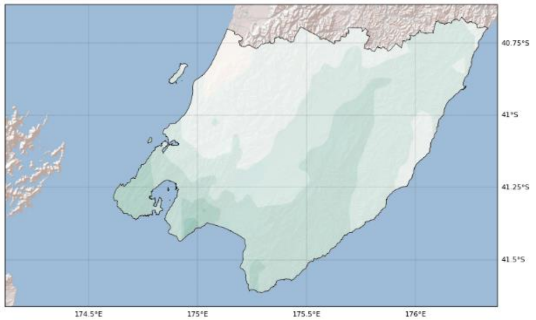
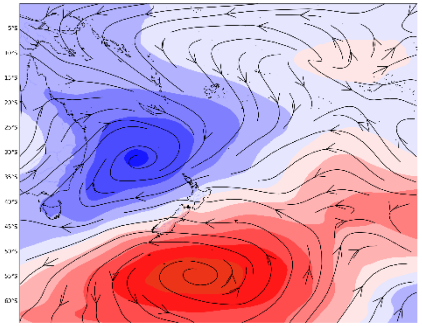
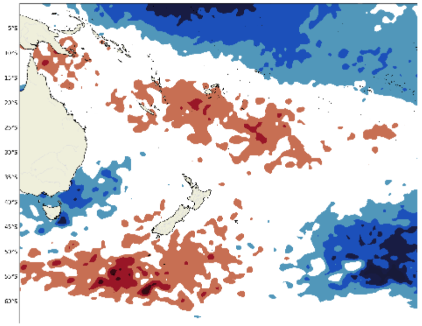
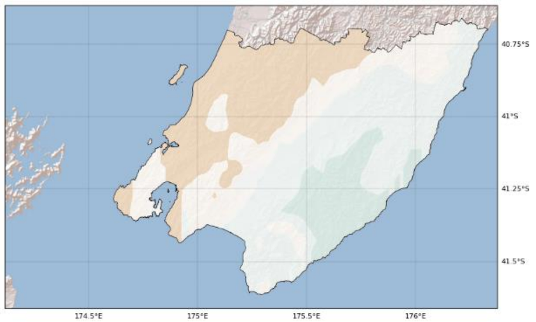
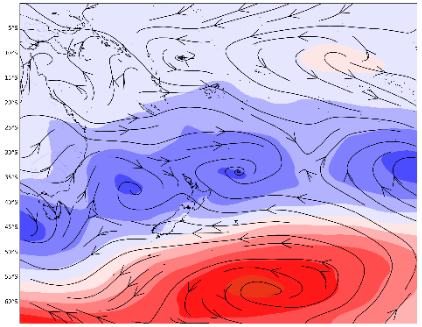
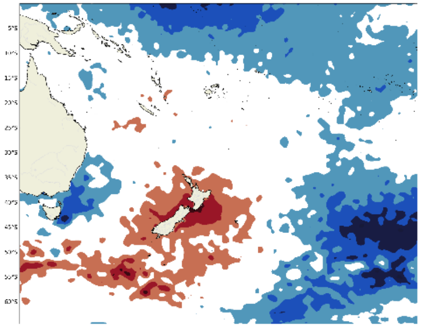
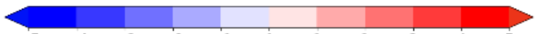
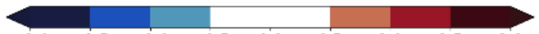
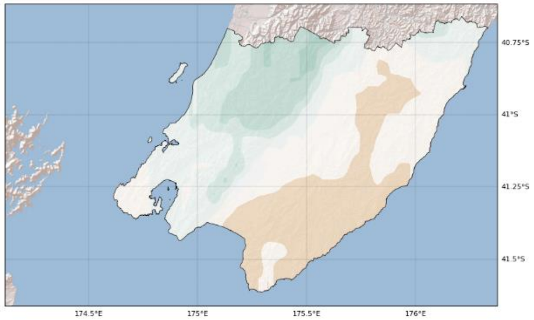
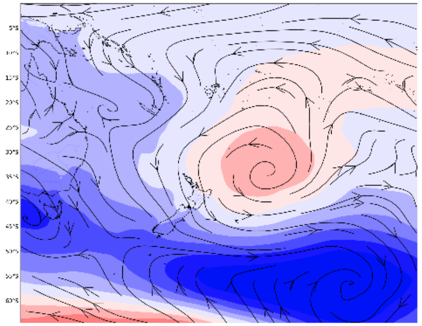
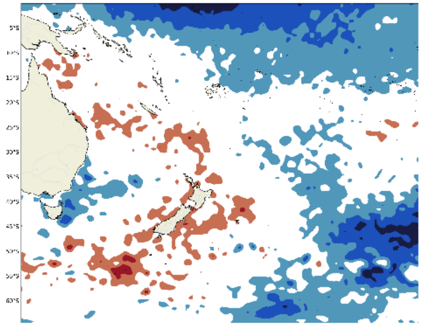
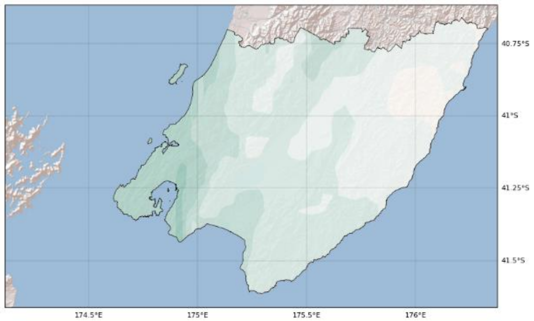
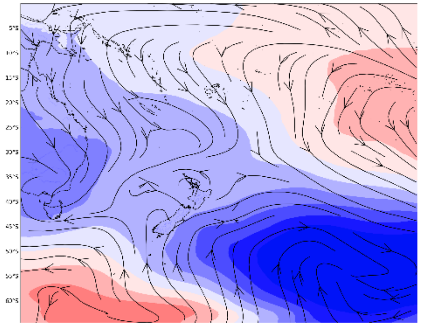
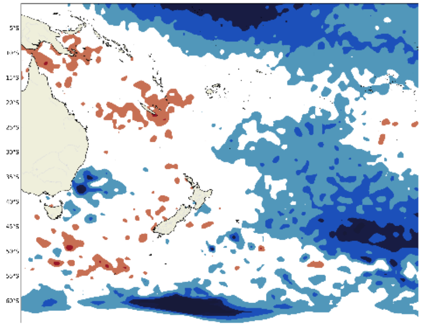
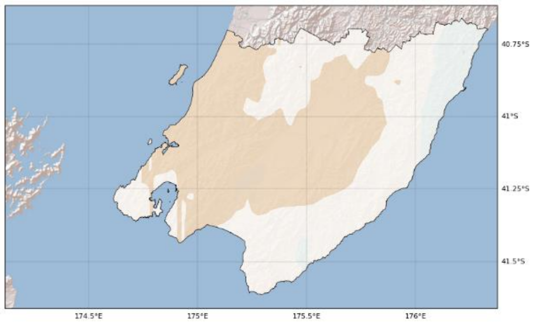
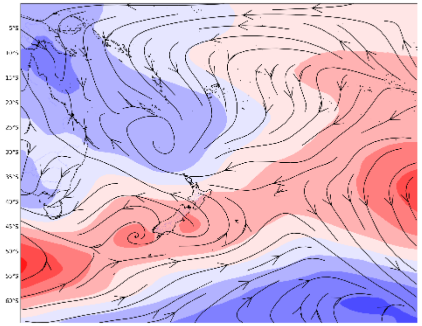
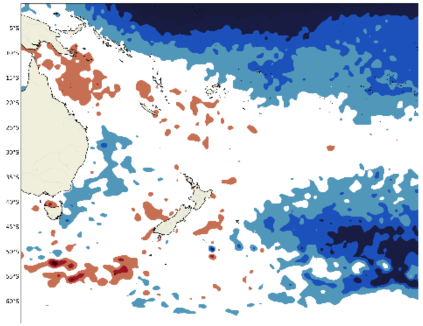
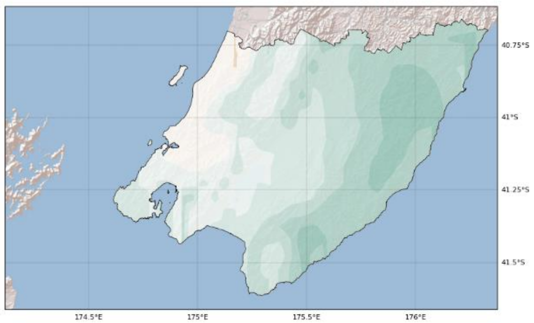
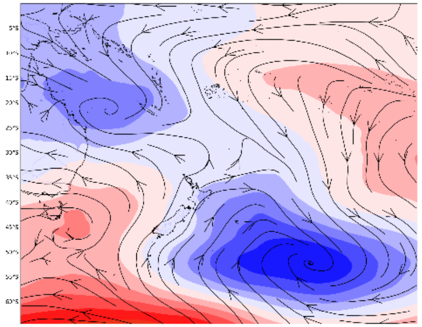
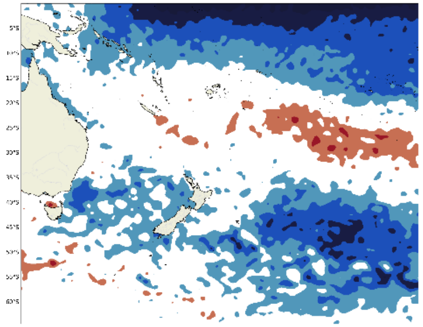
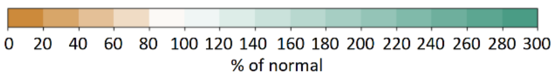
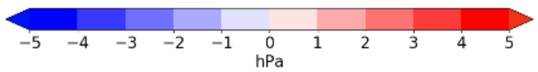
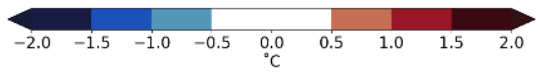
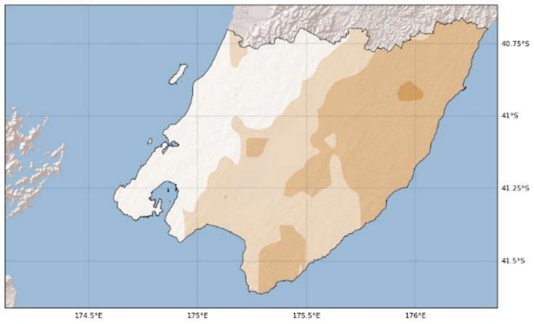
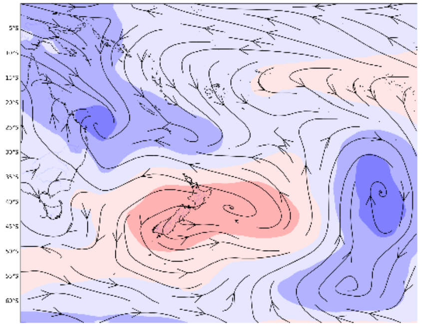
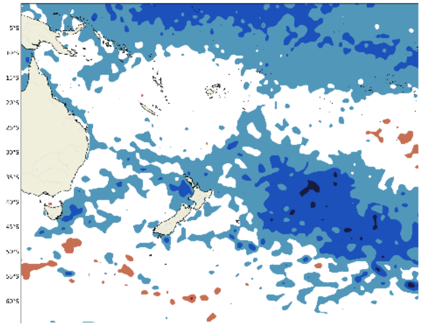
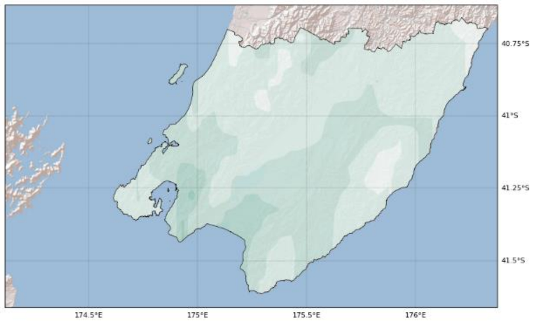
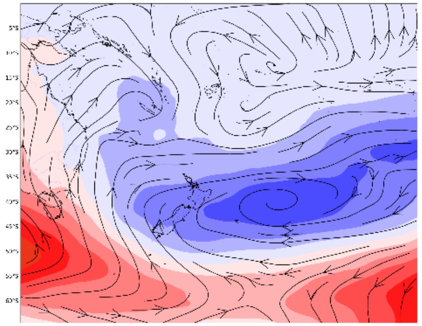
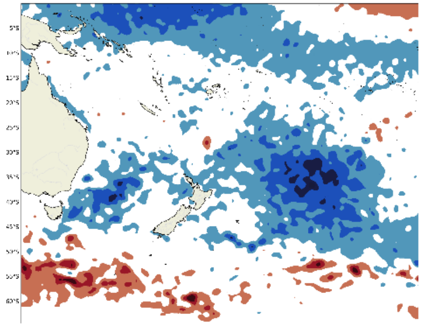
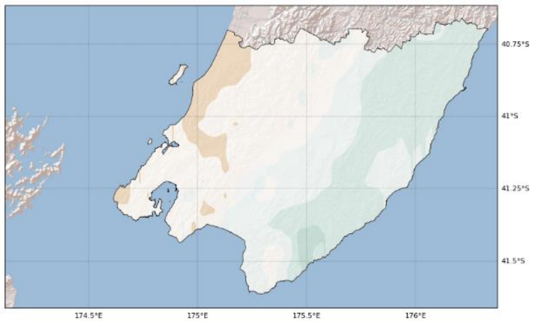
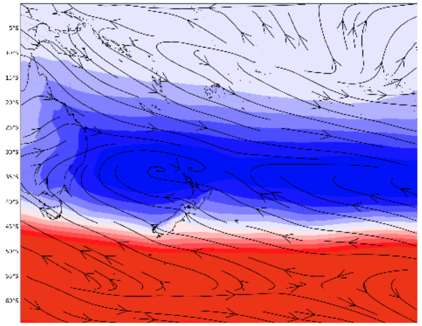
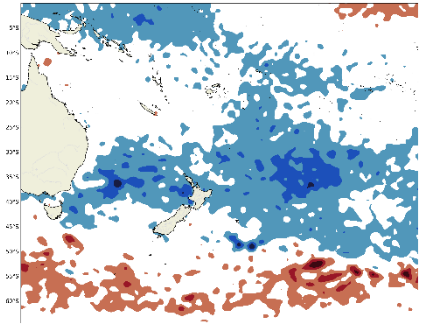
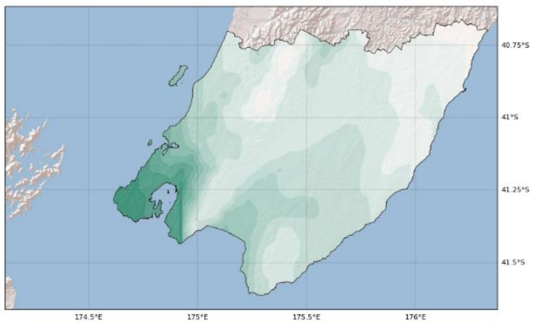
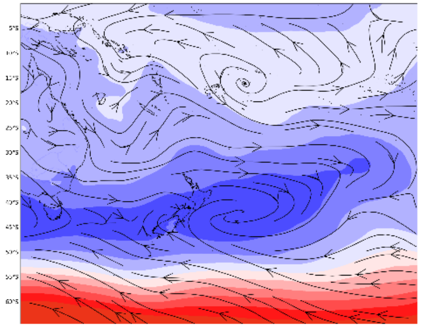
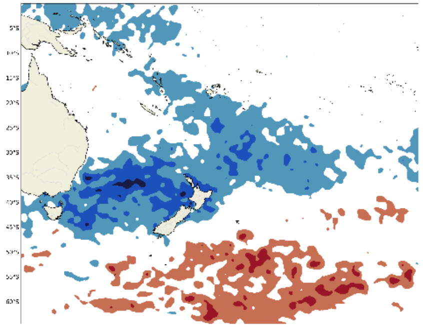
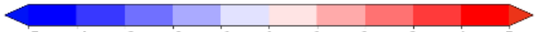
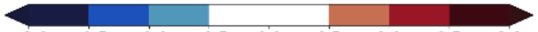
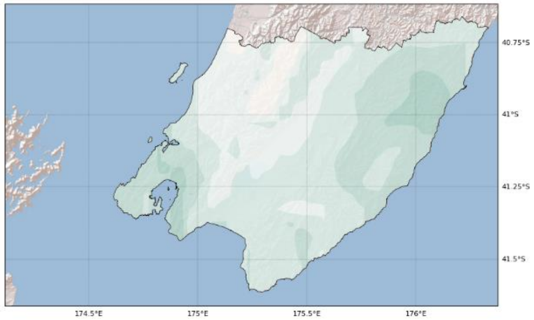
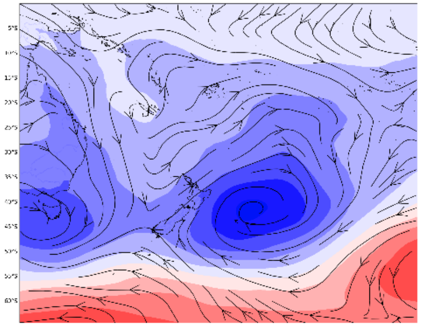
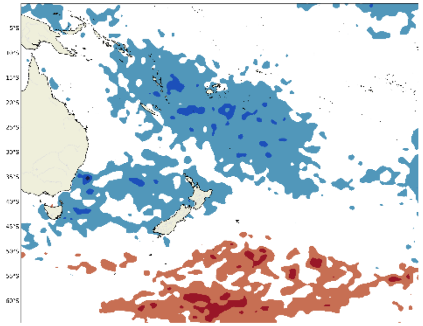
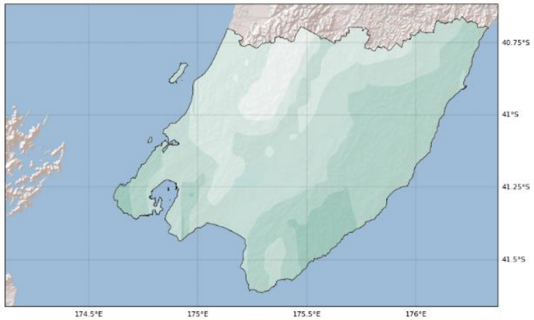
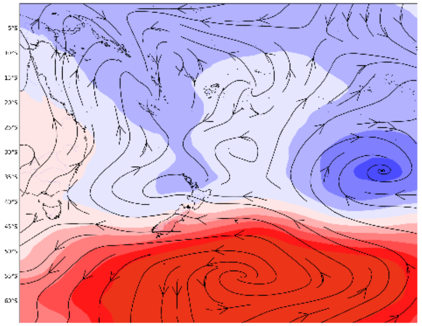
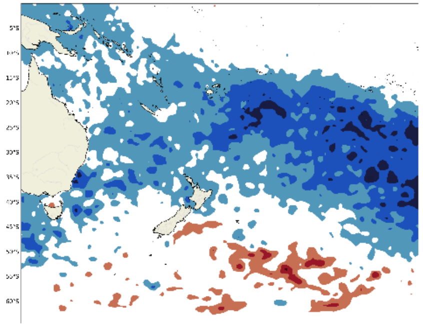
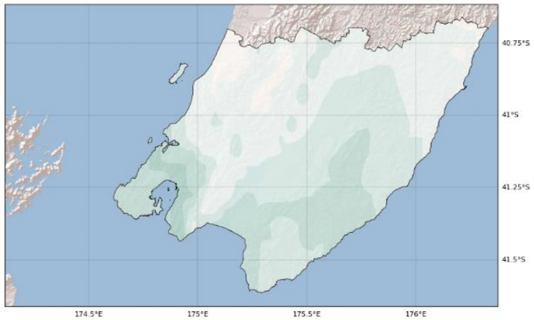
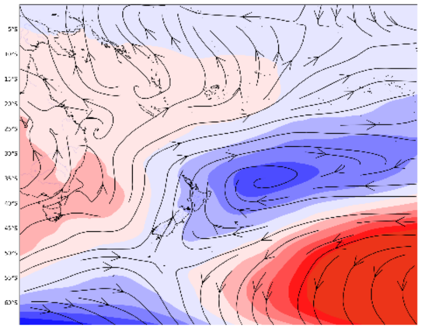
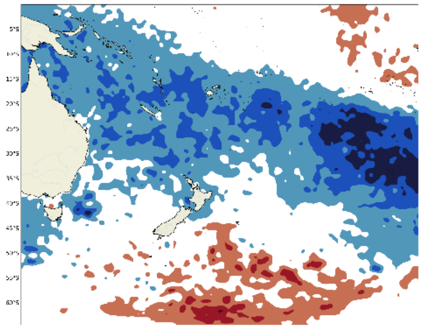
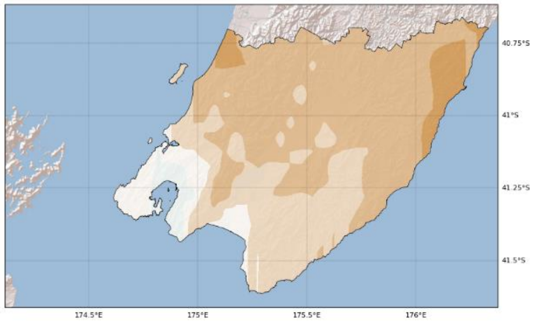
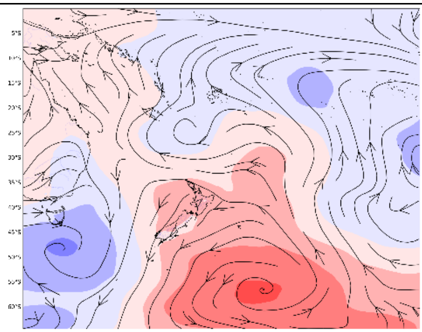
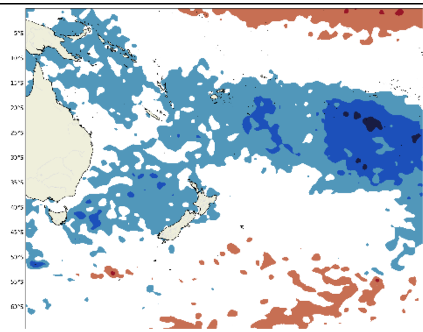
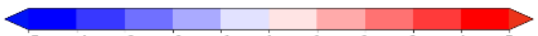
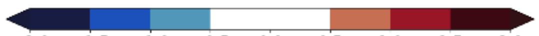
1972	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO El Niño IOD Positive SAM Negative
Spring				ENSO El Niño IOD Positive SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

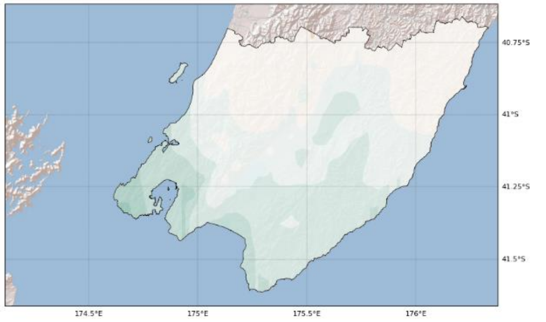
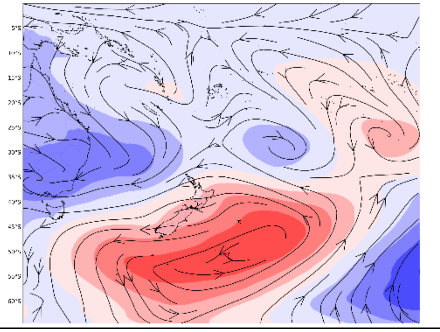
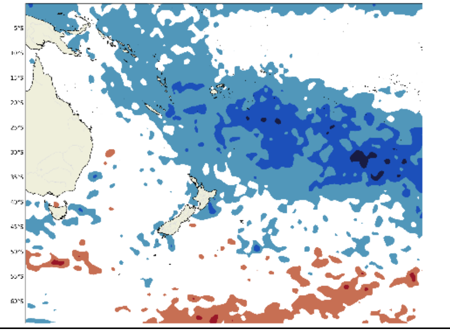
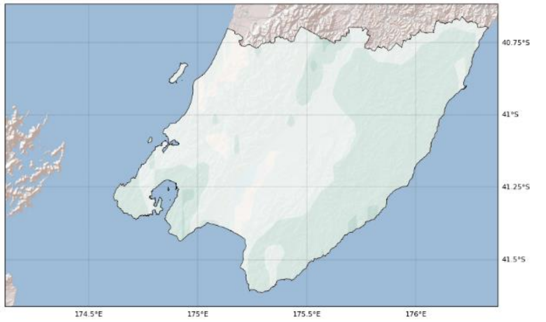
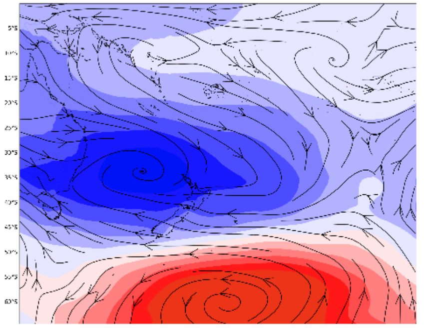
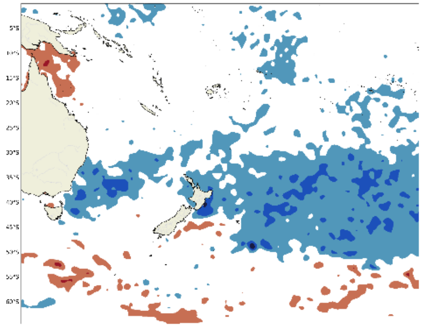
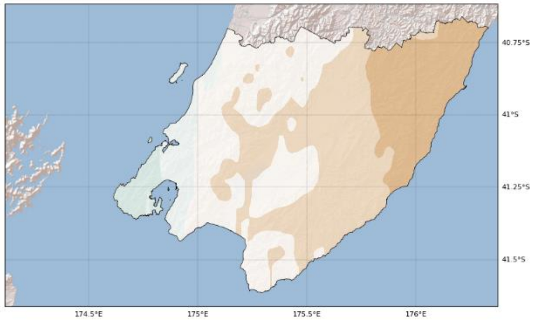
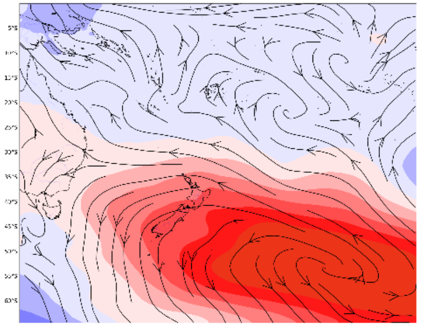
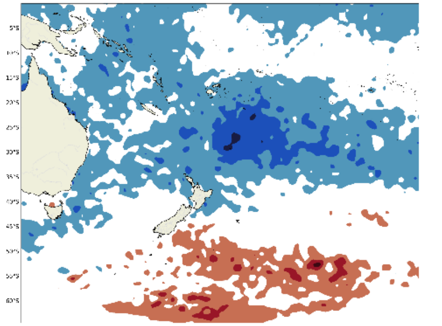
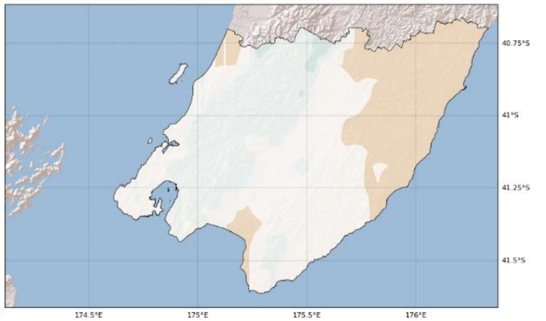
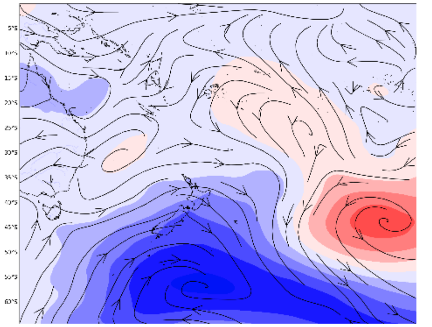
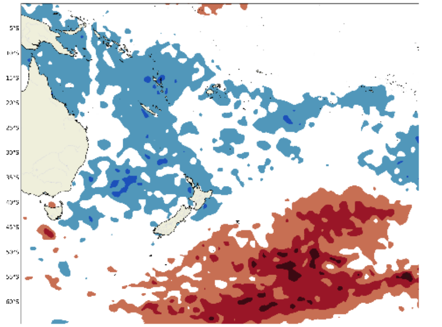
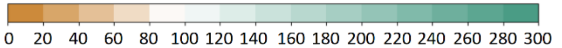
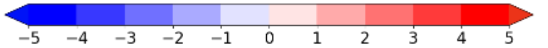
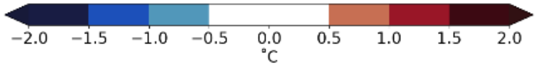
1973	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Positive
	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	−5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	−2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

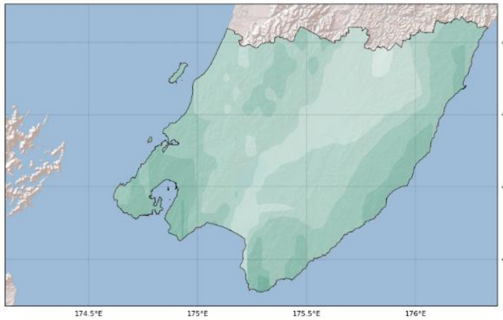
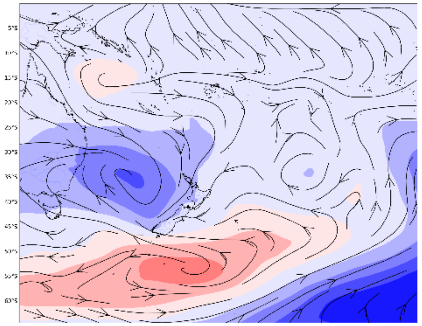
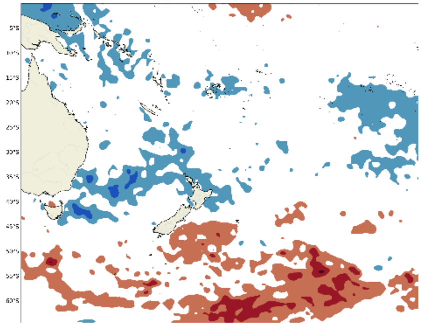
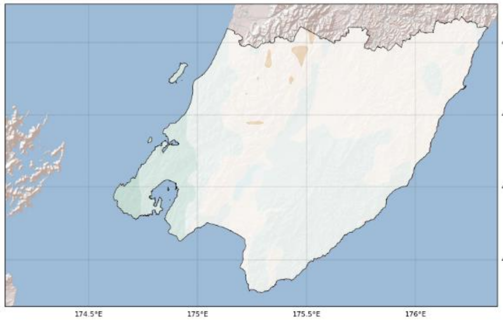
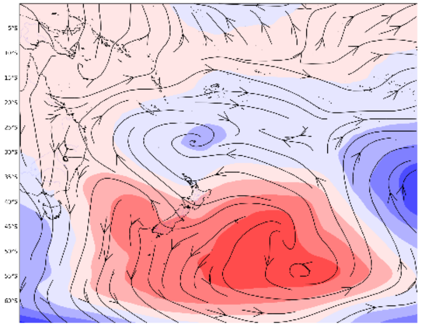
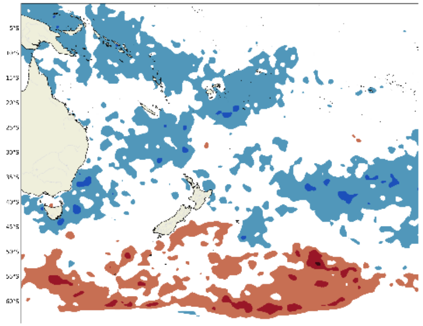
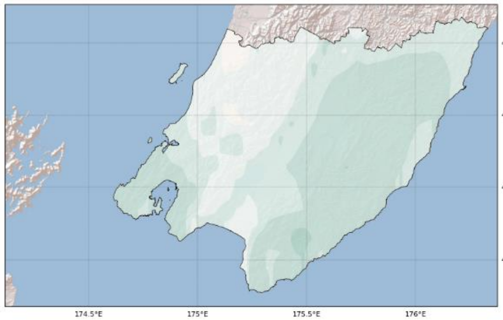
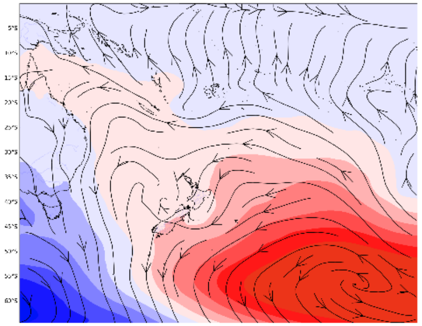
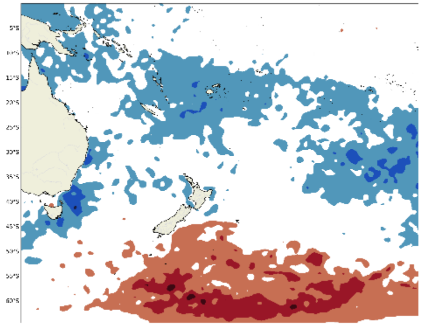
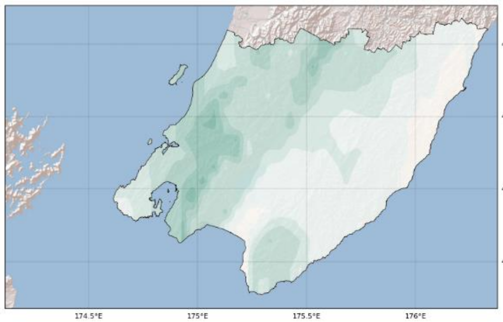
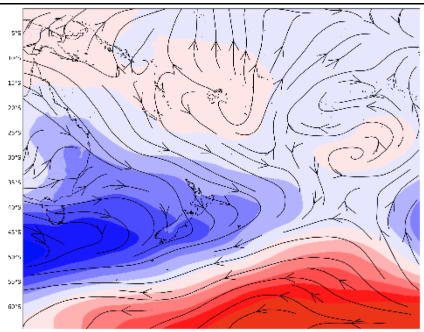
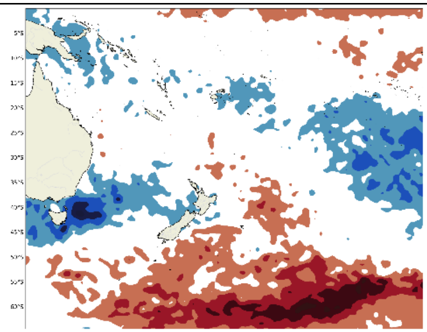
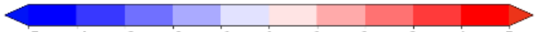
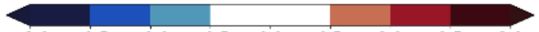
1974	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Op_BC@5km**

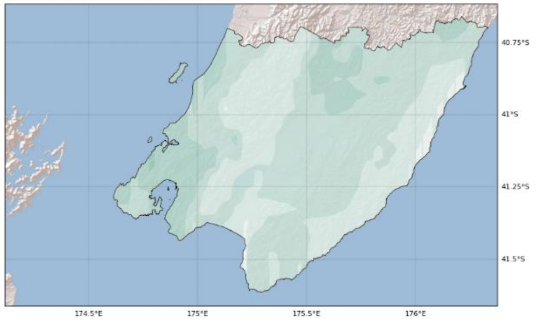
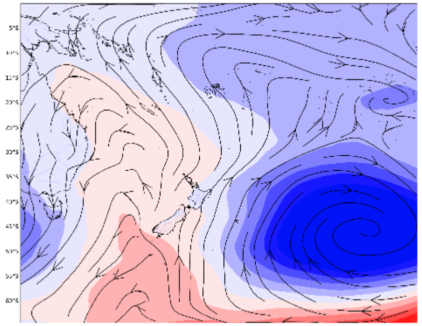
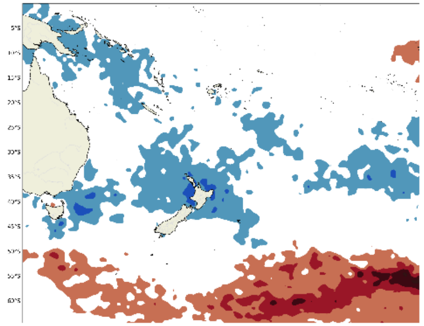
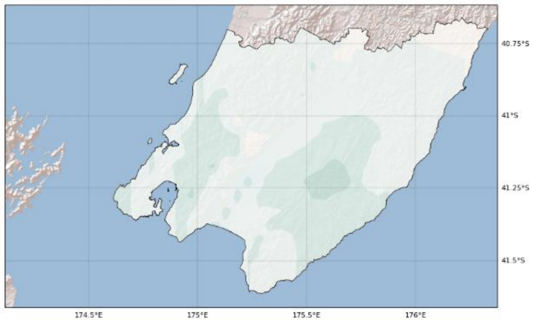
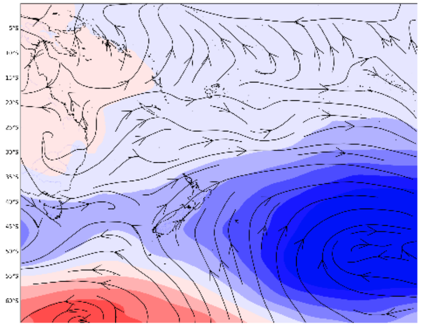
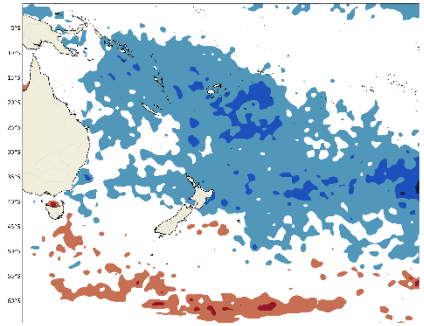
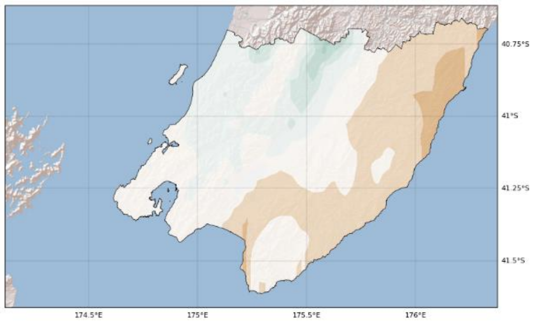
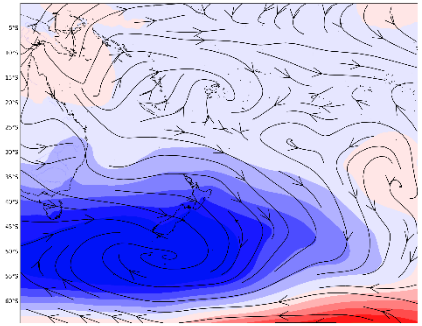
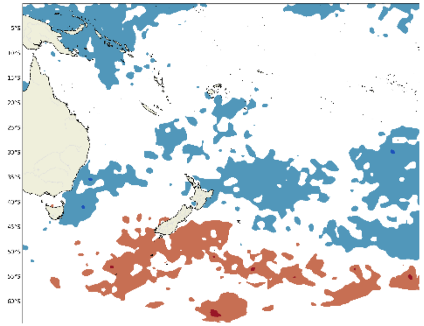
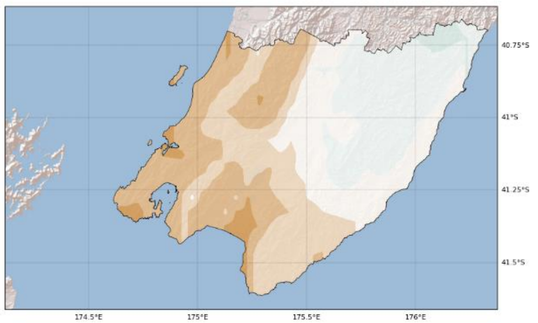
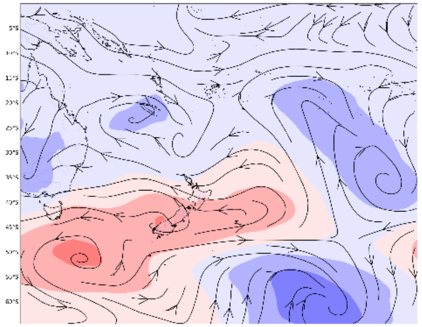
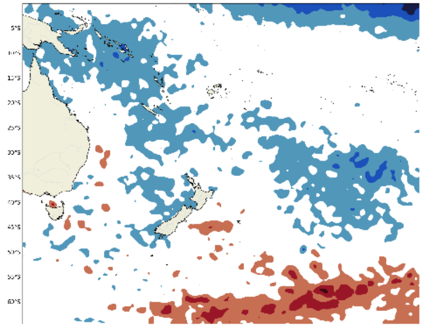
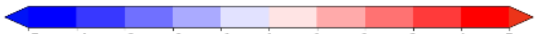
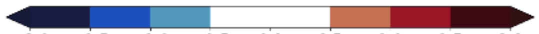
1975	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Negative SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

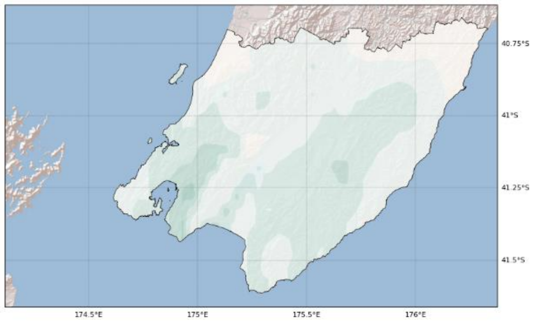
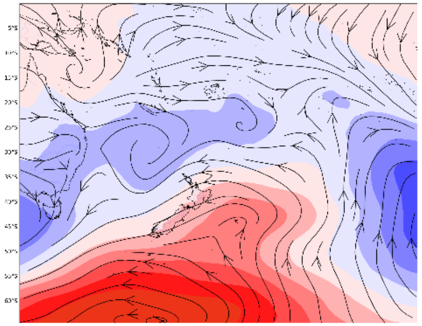
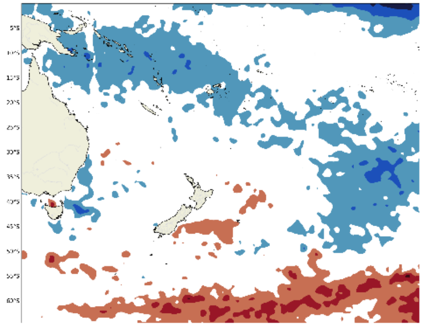
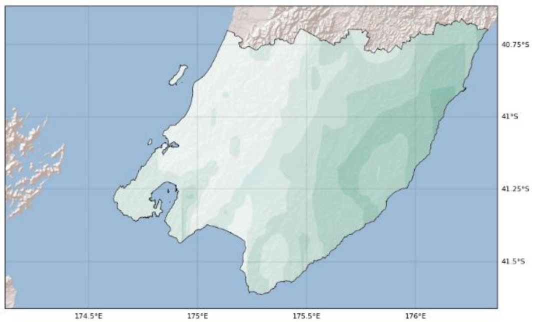
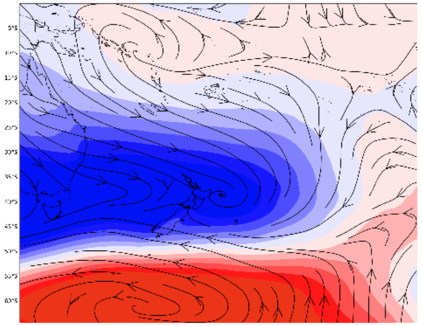
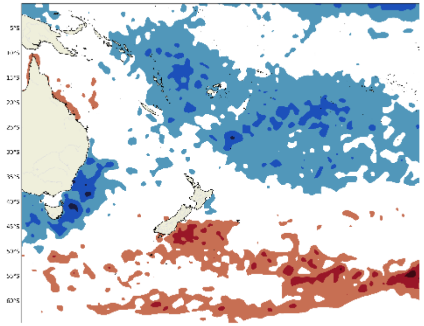
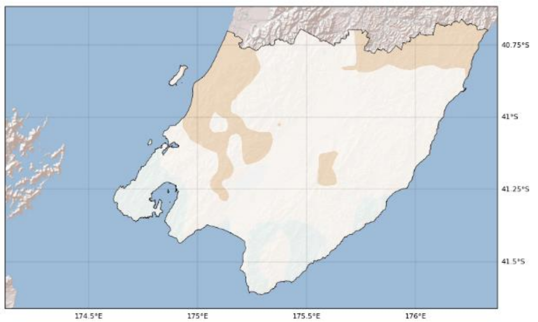
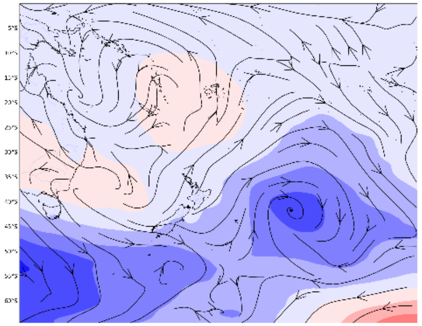
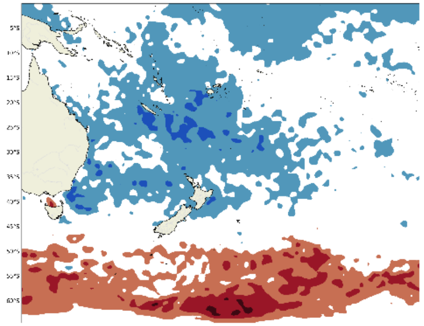
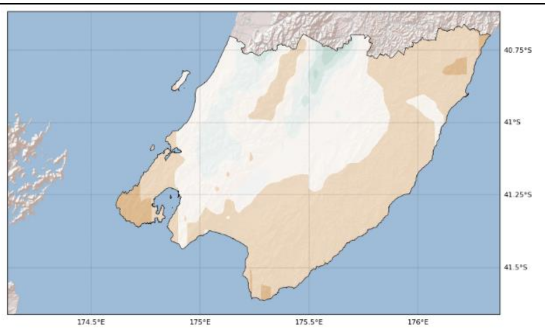
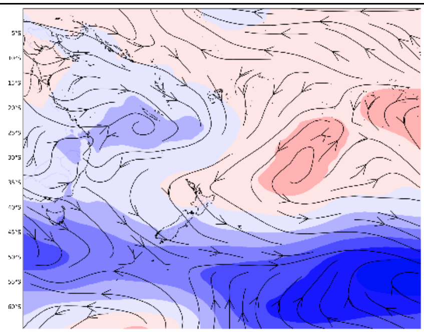
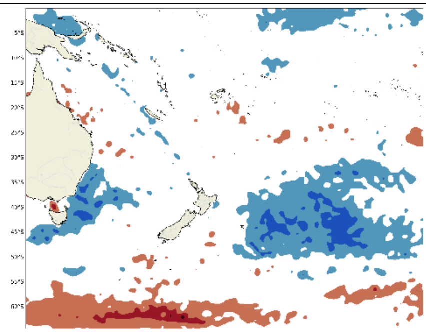
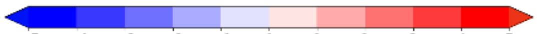
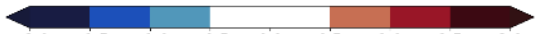
1976	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Negative
				**Rainfall: Op_BC@5km**

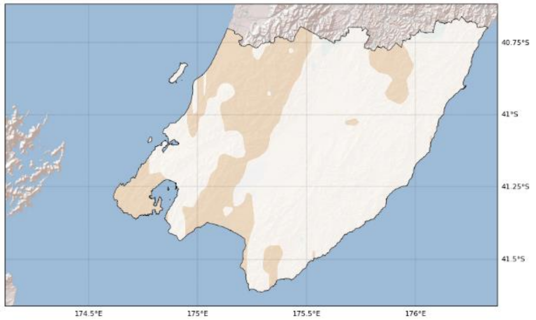
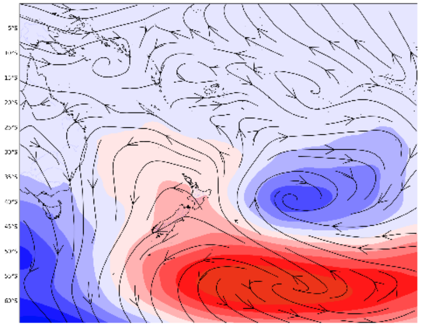
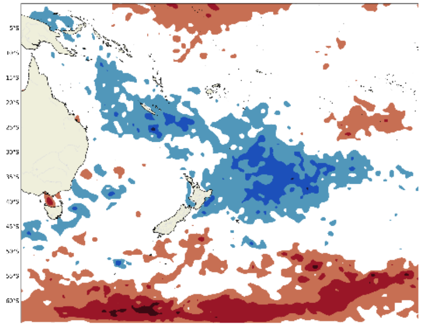
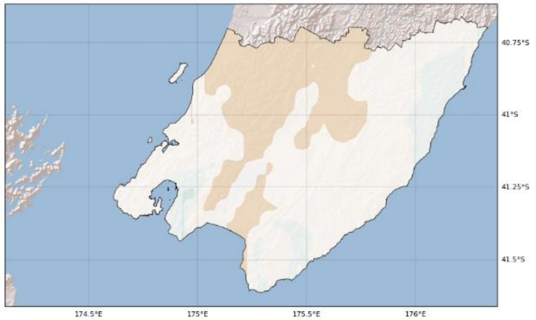
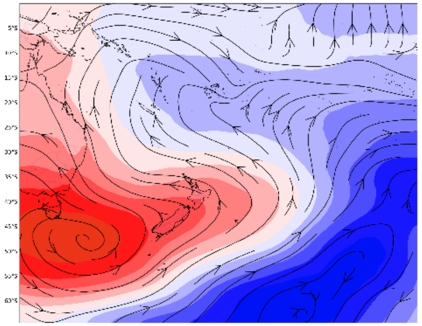
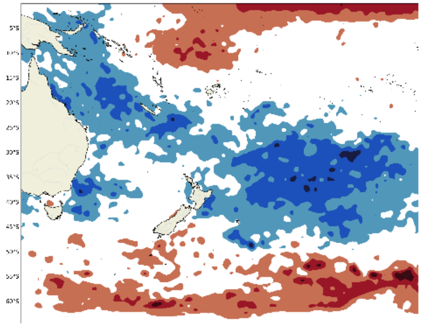
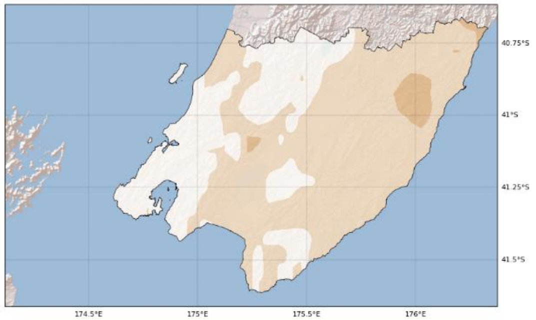
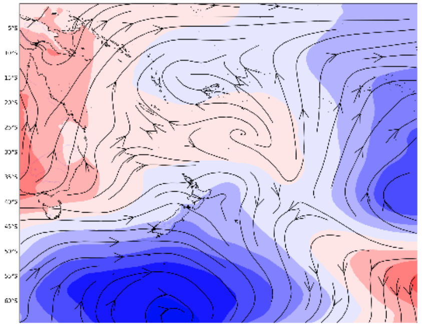
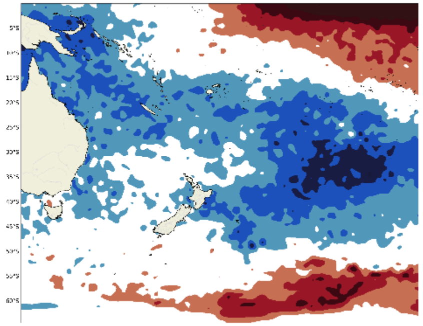
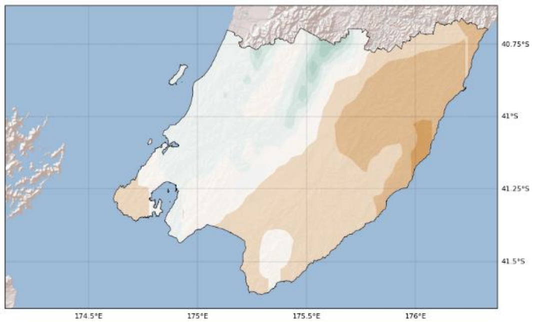
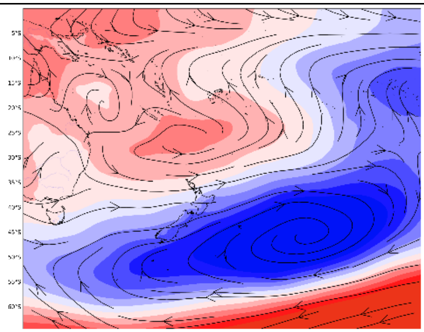
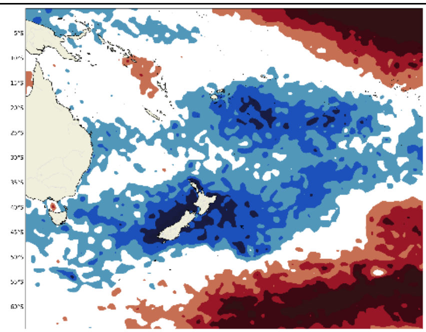
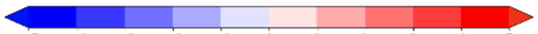
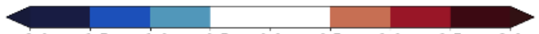
1977	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO El Niño IOD Neutral SAM Negative
Spring				ENSO El Niño IOD Neutral SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

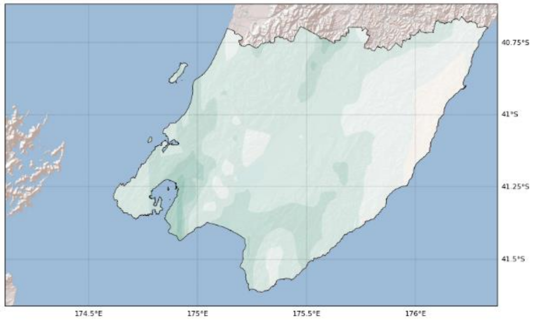
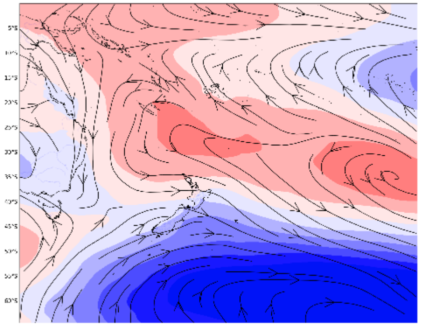
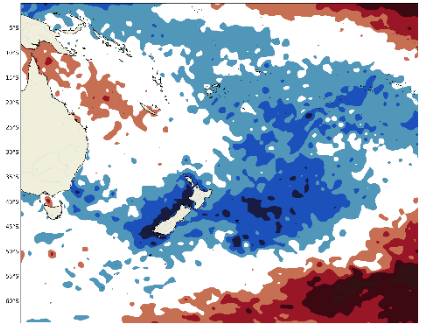
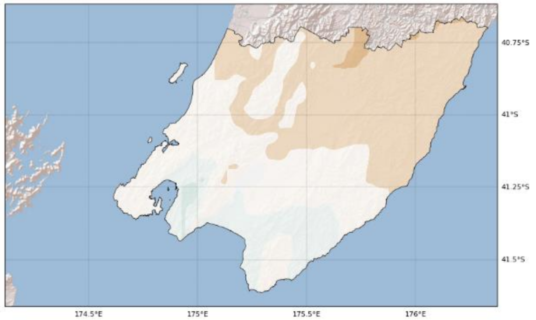
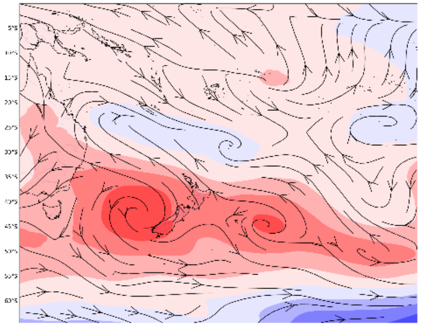
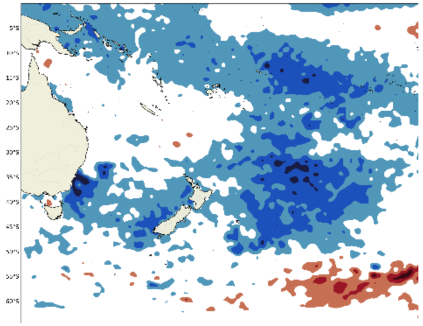
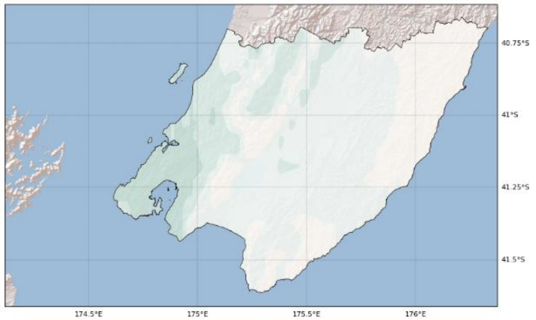
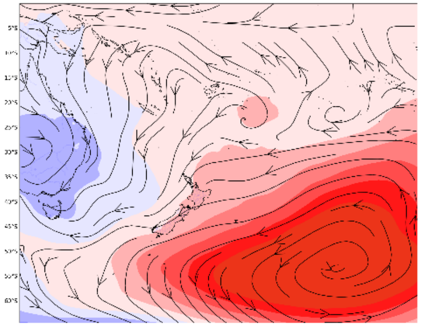
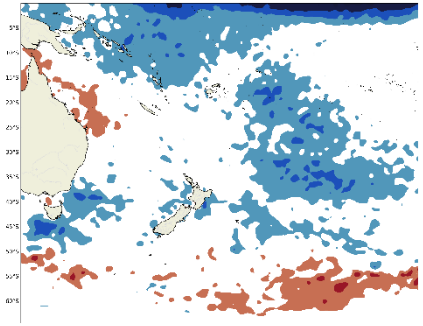
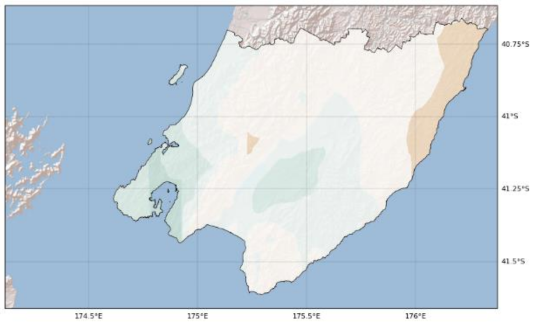
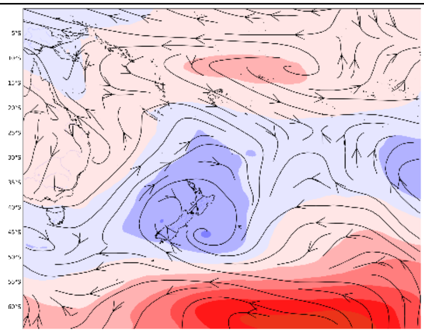
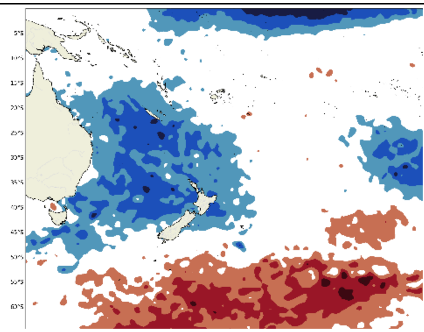
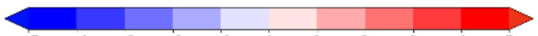
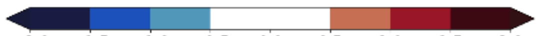
1978	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

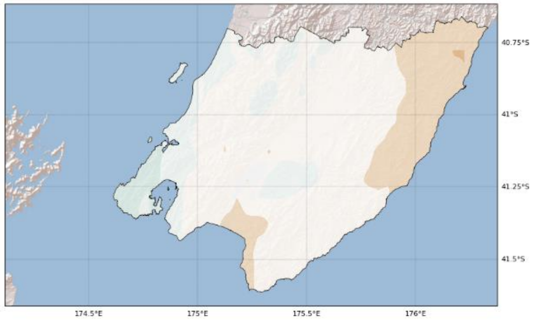
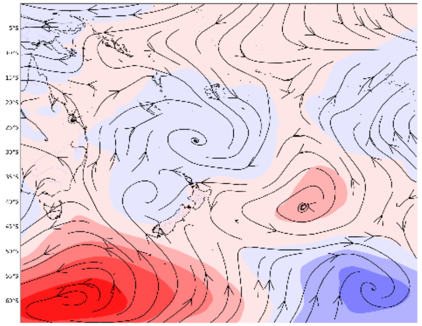
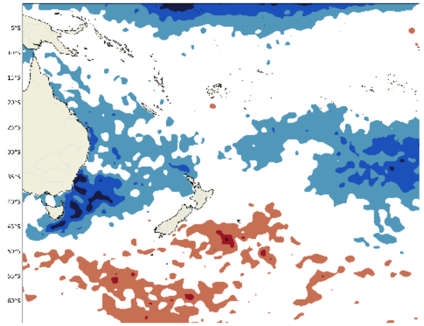
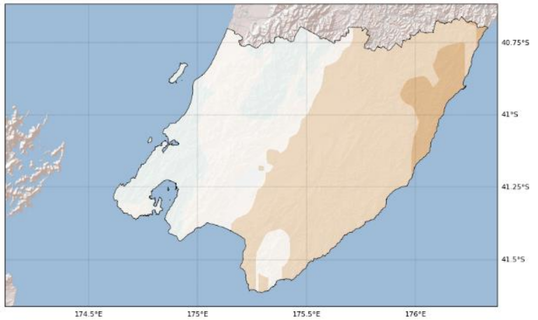
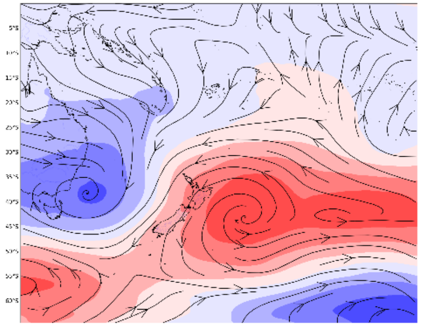
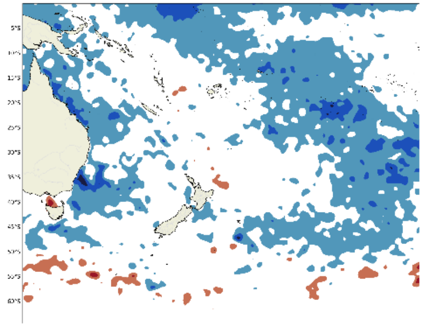
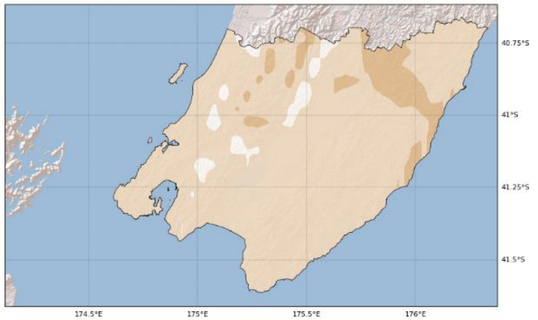
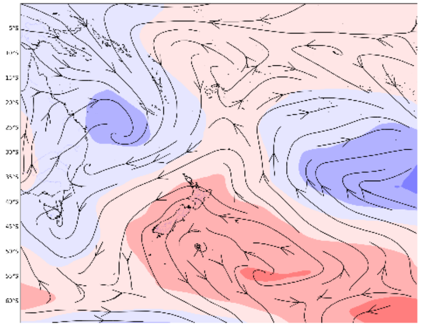
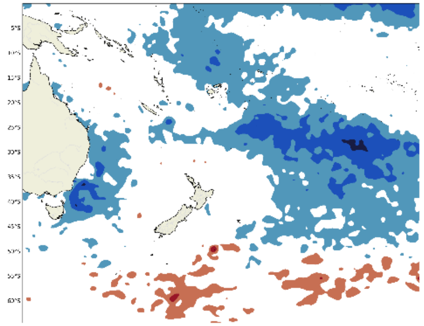
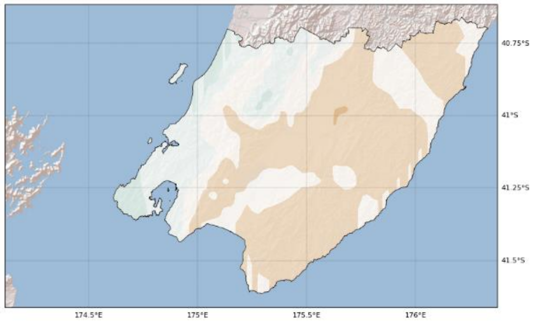
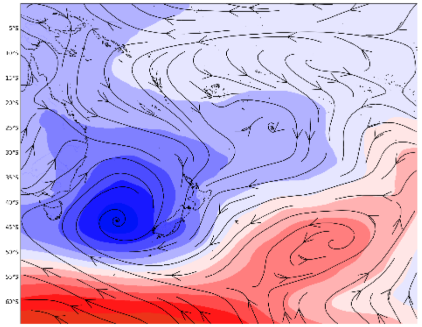
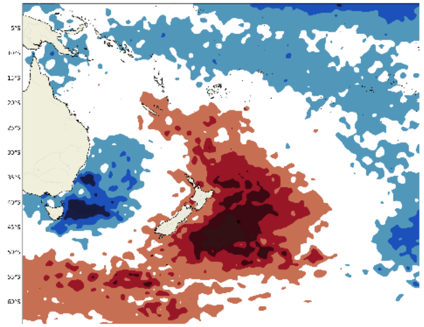
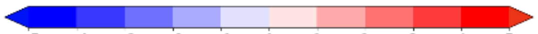
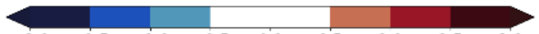
1979	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

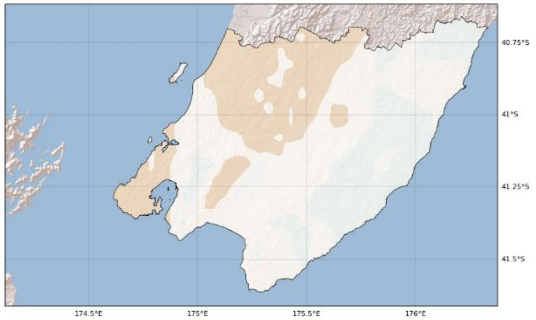
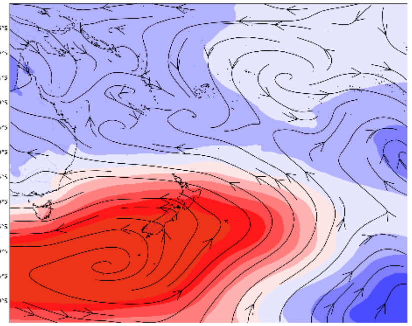
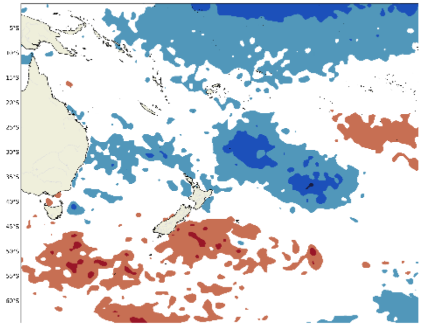
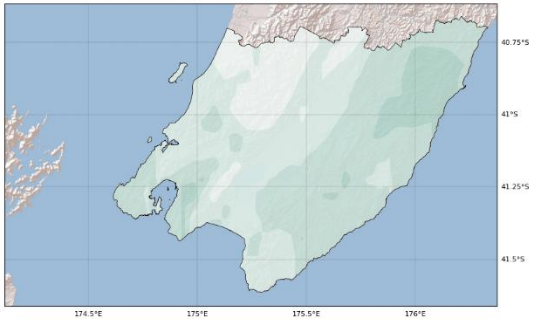
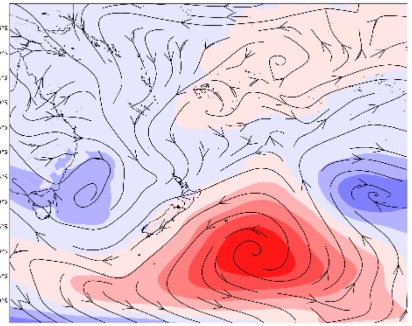
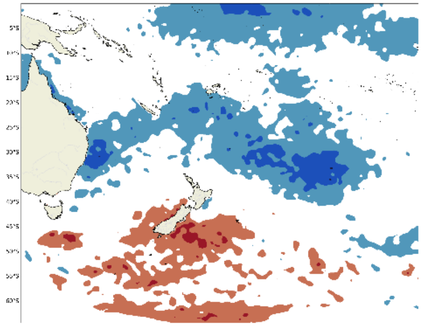
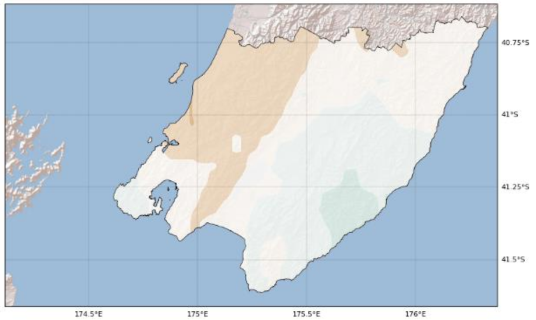
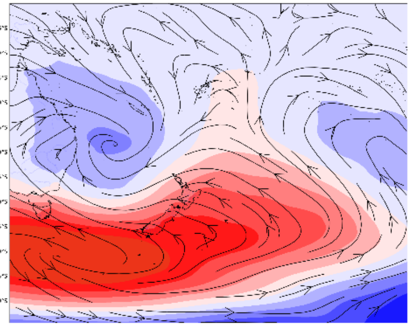
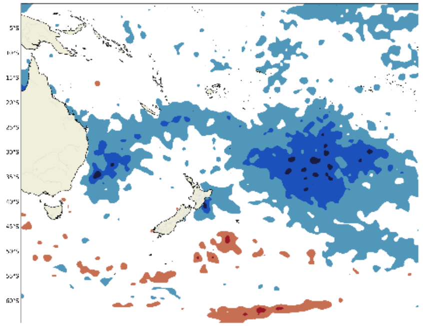
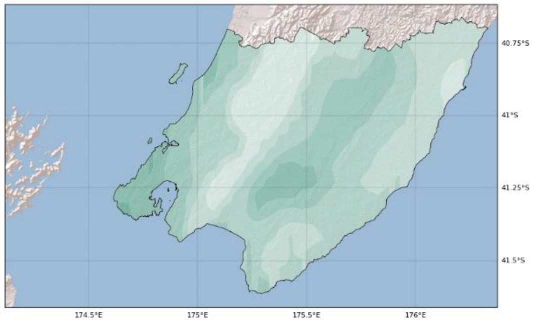
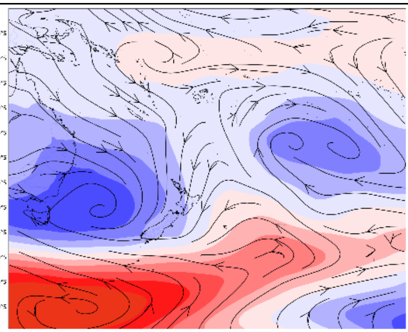
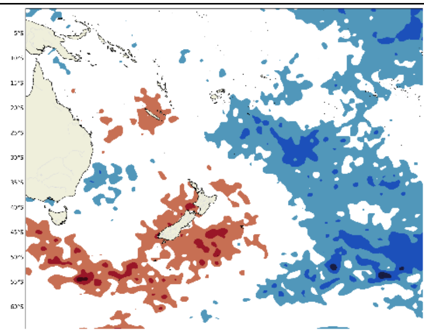
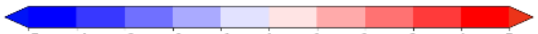
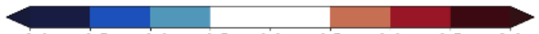
1980	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

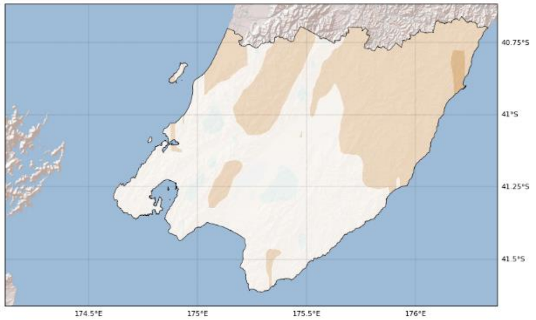
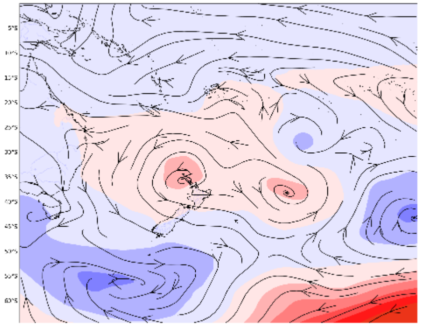
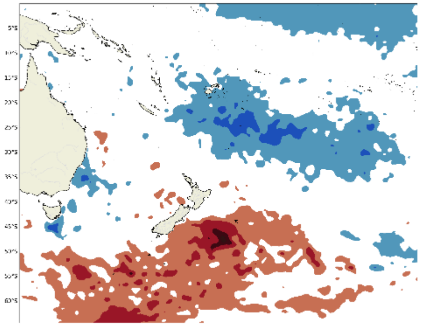
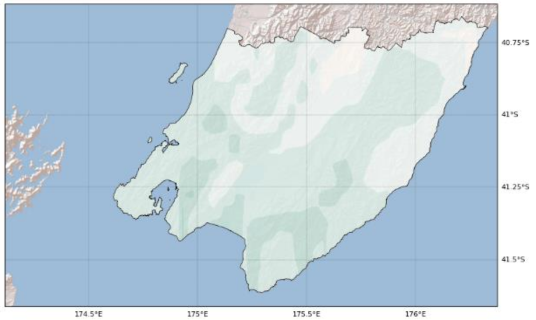
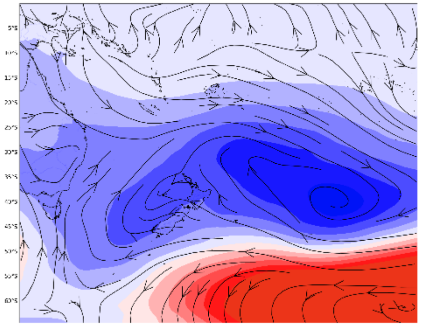
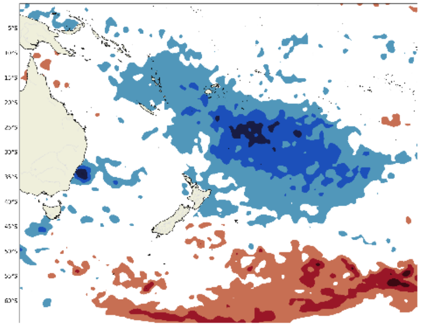
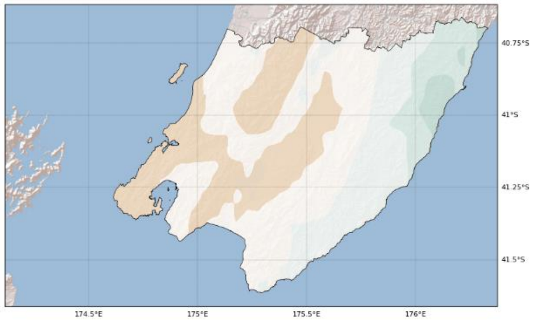
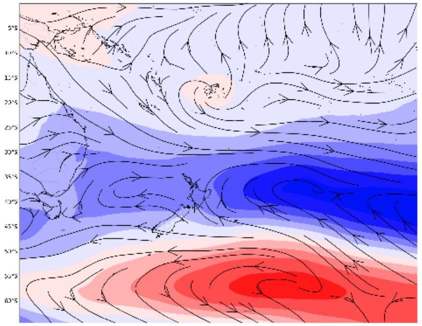
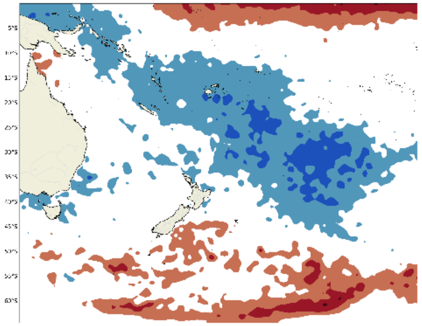
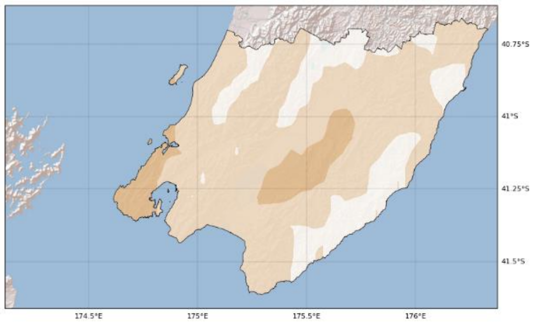
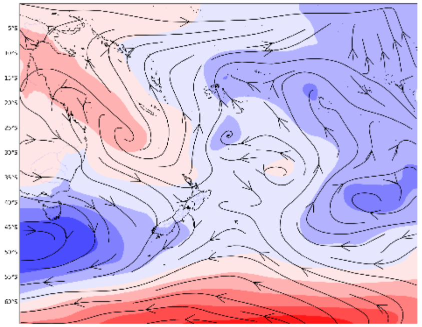
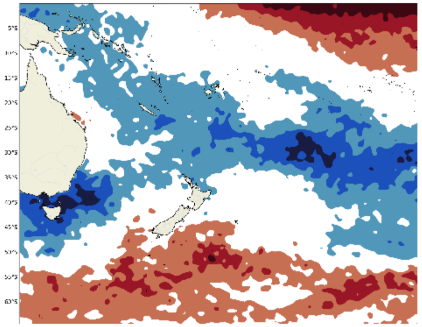
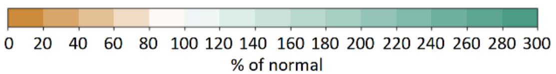
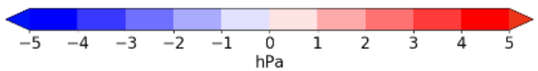
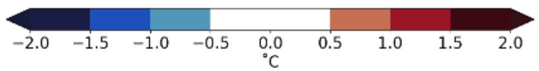
1981	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO La Niña IOD Neutral SAM Negative
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

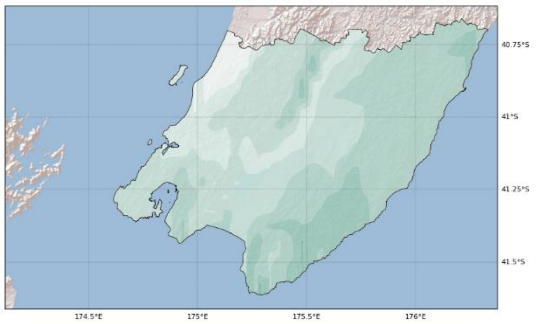
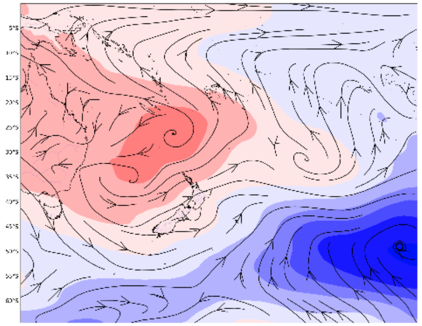
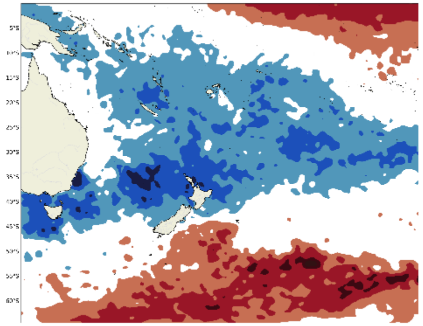
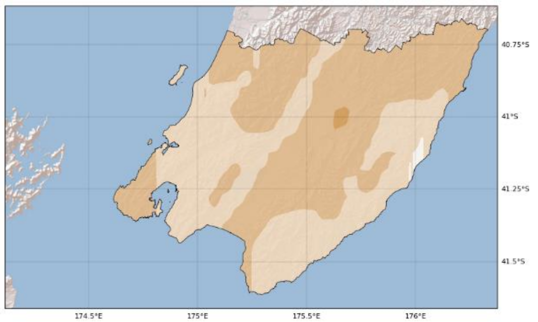
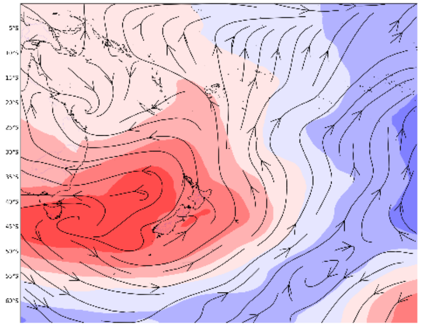
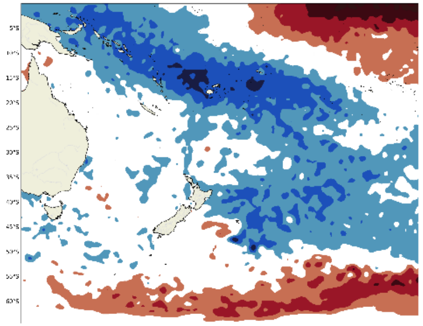
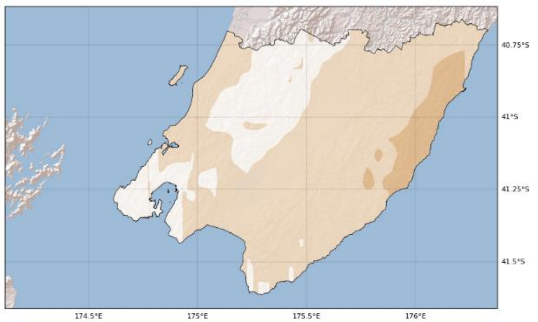
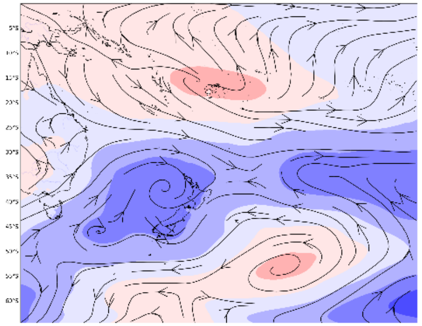
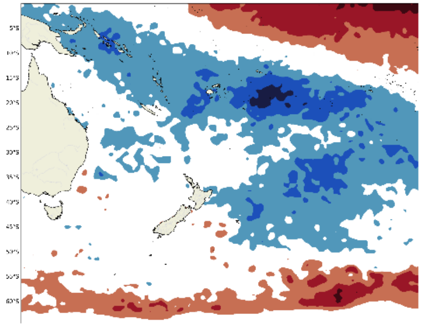
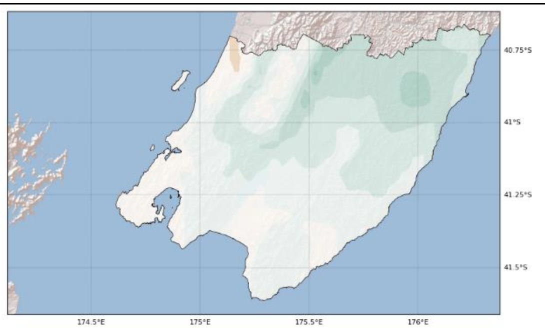
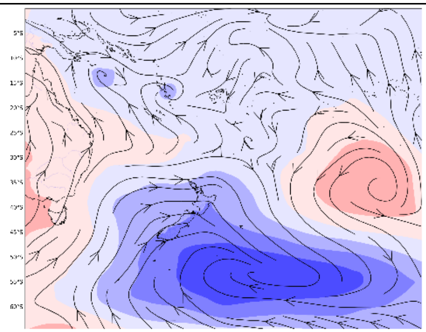
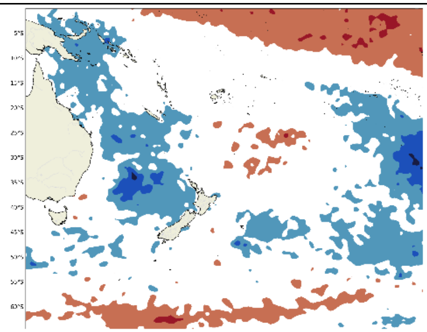
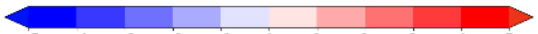
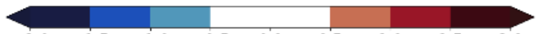
1982	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Neutral
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Negative
				**Rainfall: Op_BC@5km**

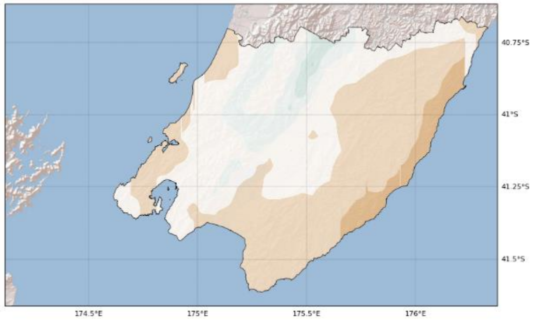
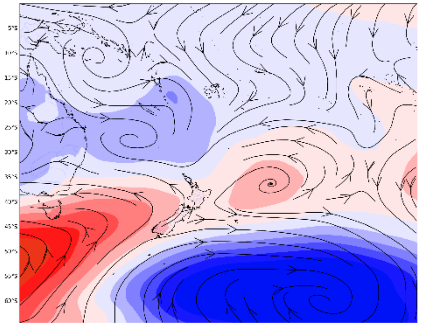
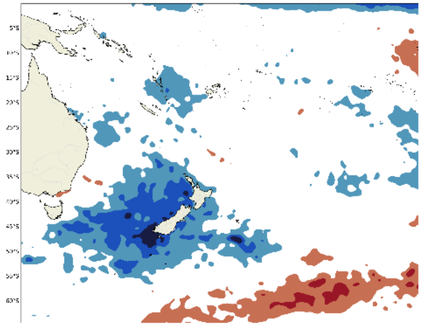
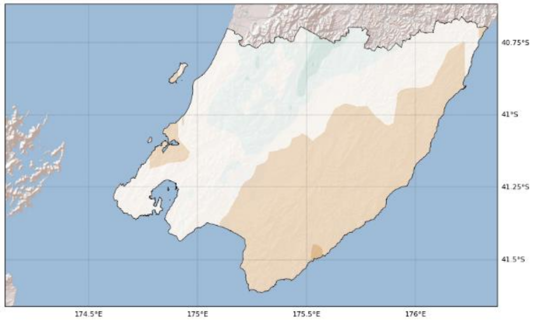
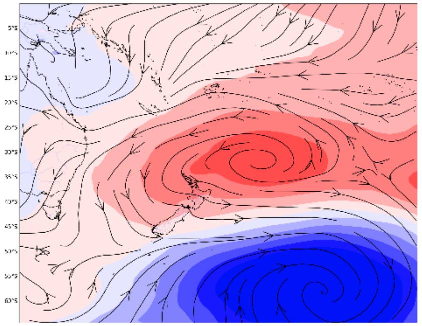
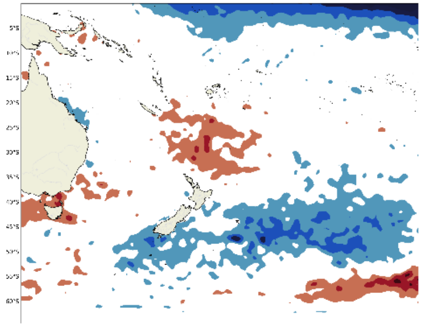
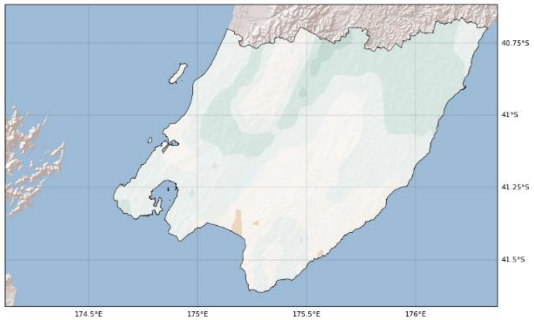
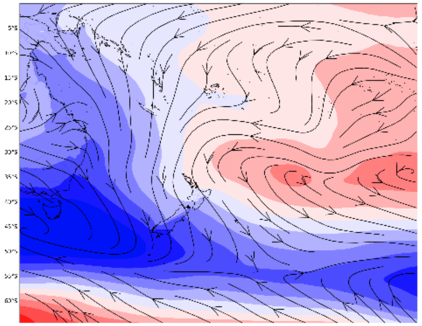
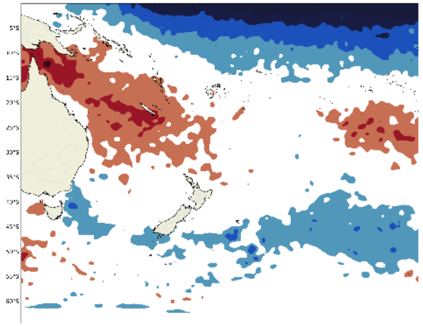
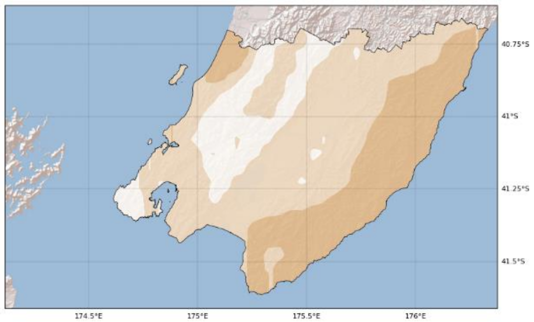
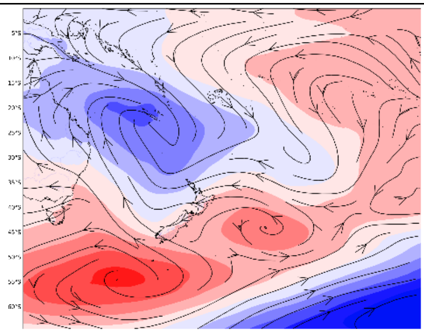
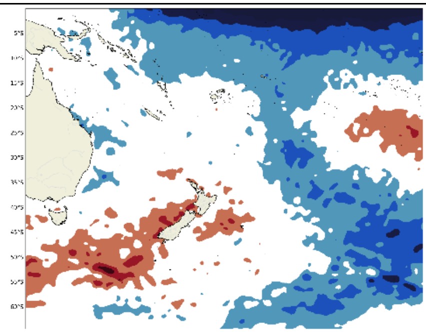
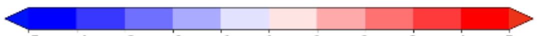
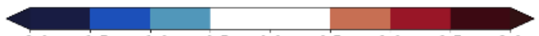
1983	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Positive <u>SAM</u> Positive
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall:** **Op_BC@5km**

1984	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Negative
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 ˚C	**Rainfall: Op_BC@5km**

1985	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Neutral
Winter				ENSO La Niña IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

1986	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

1987	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Neutral
Winter				ENSO El Niño IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

<table>
<tr><th>1988</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Rainfall:
Op_BC@5km</td></tr>
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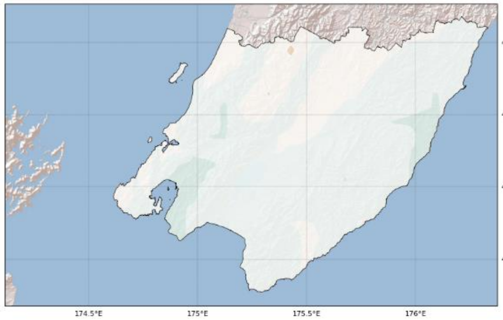
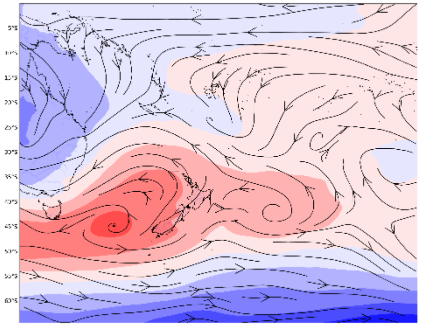
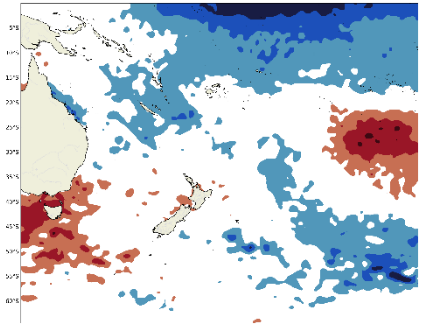
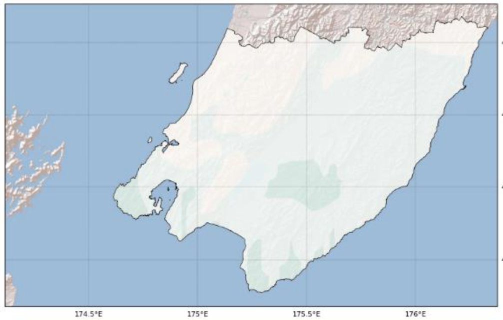
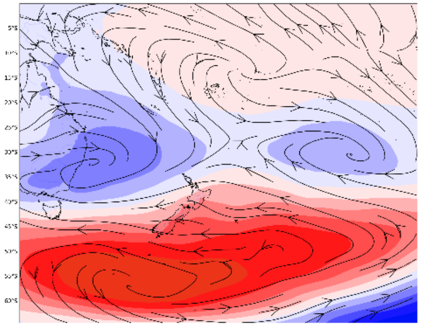
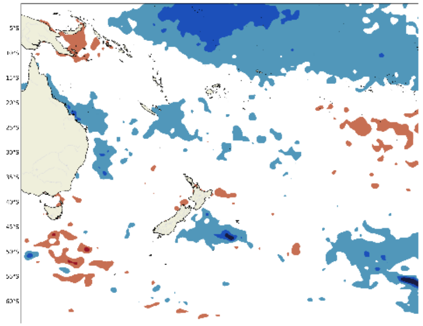
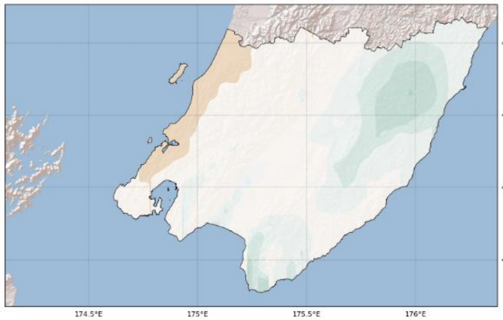
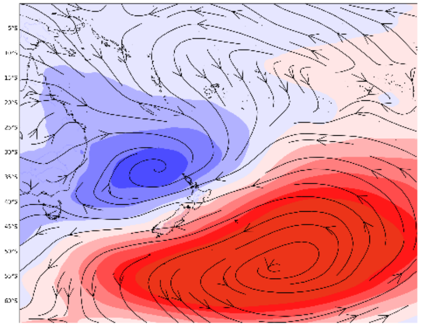
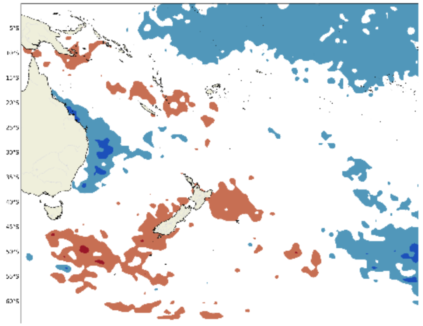
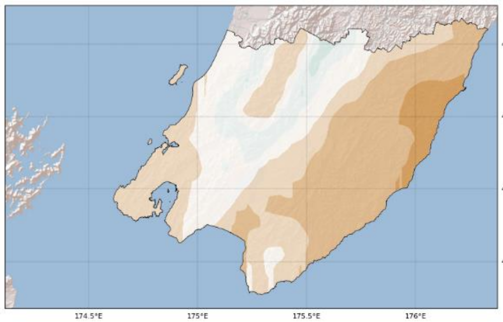
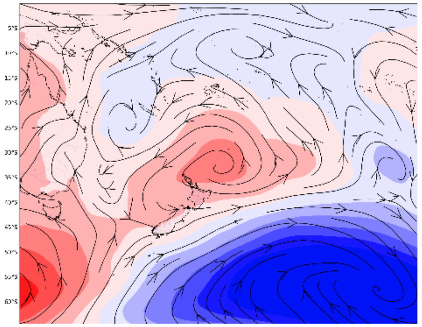
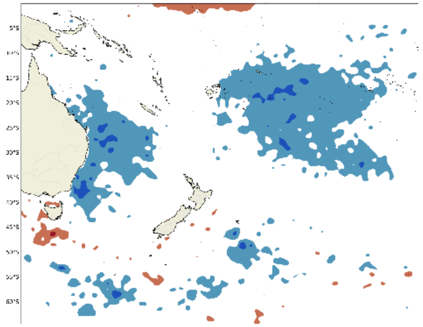
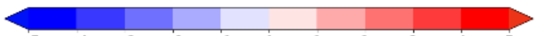
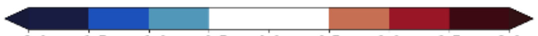
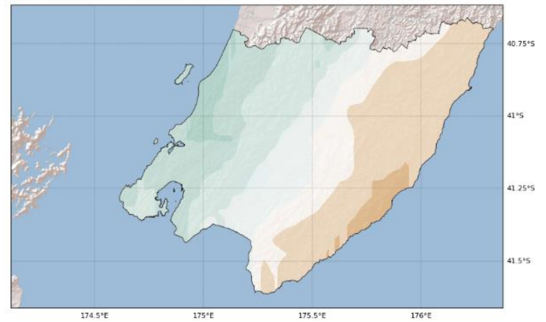
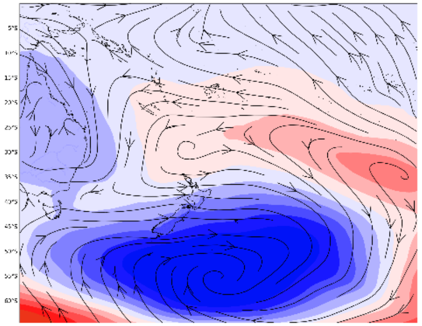
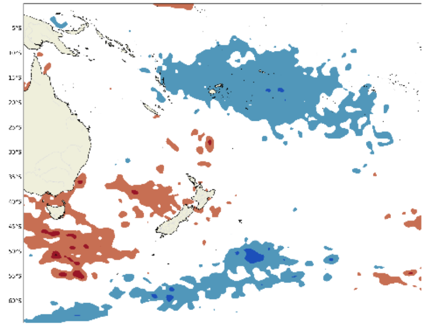
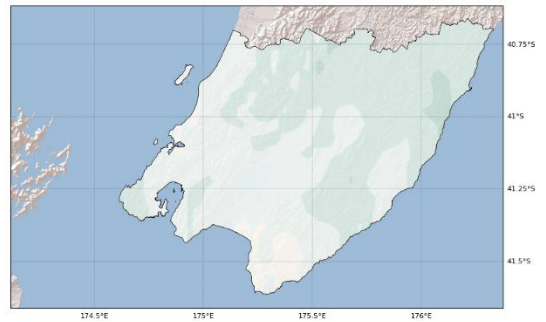
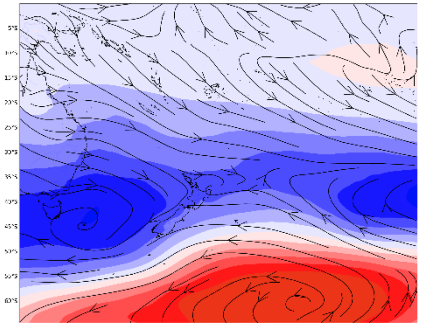
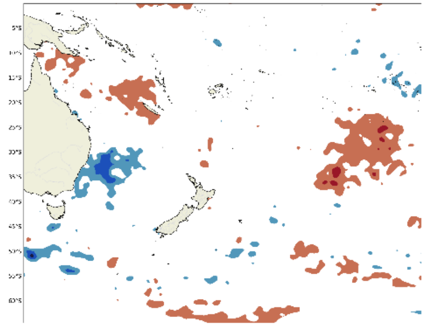
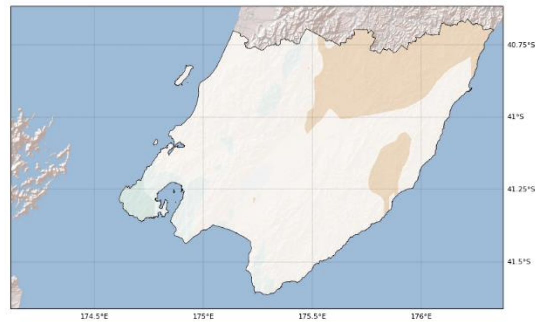
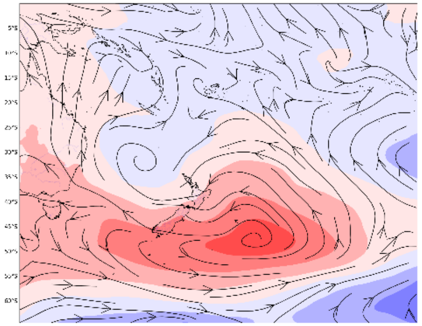
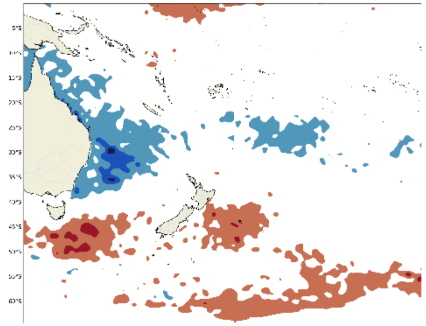
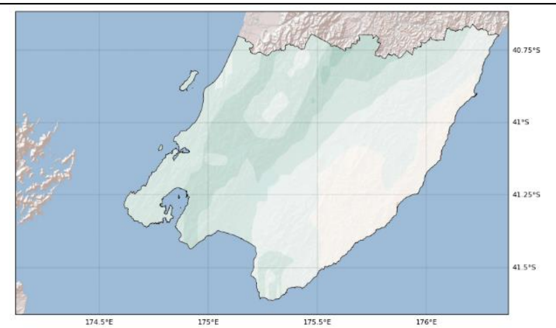
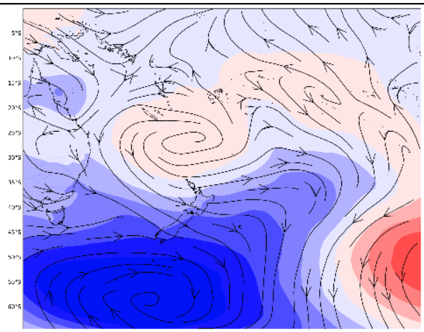
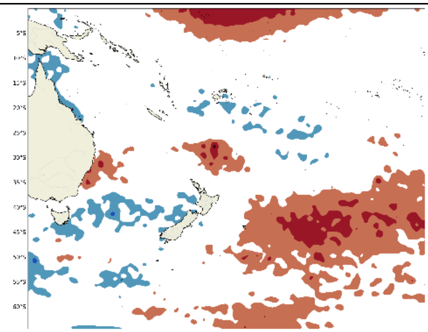
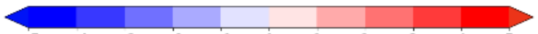
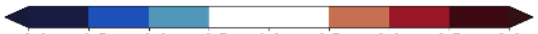
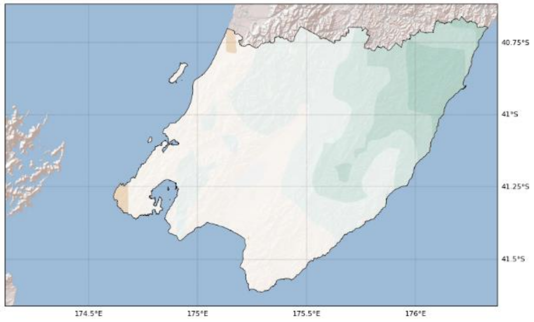
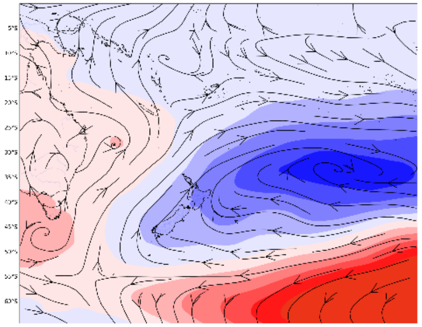
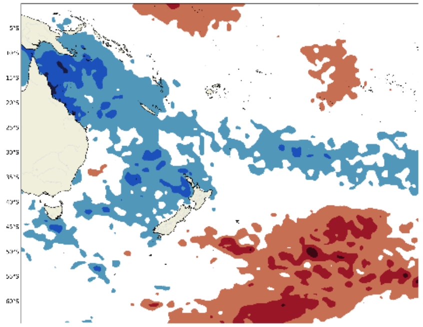
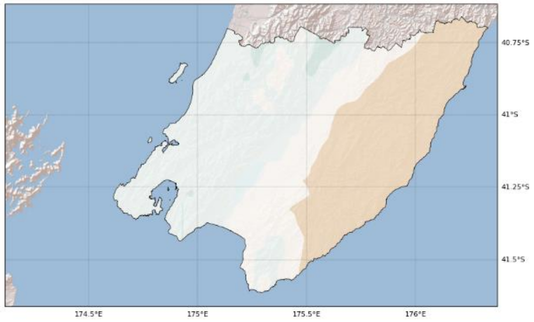
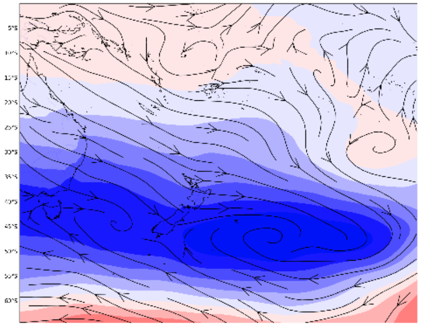
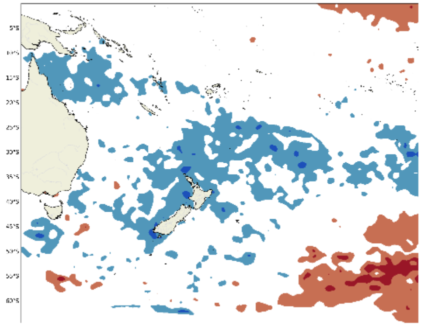
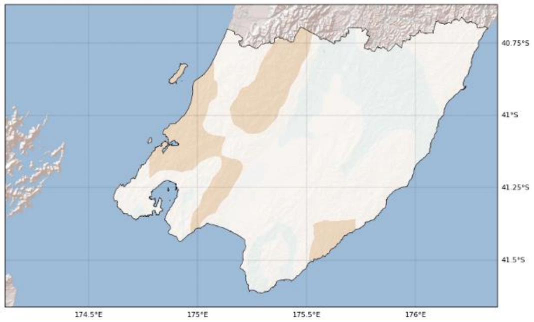
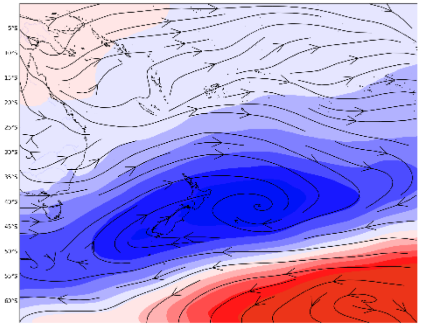
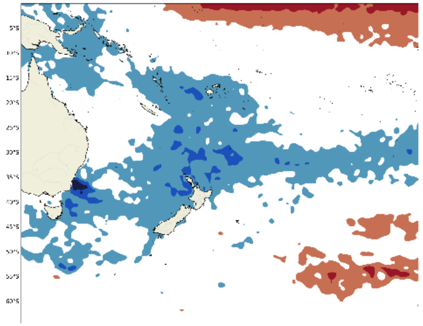
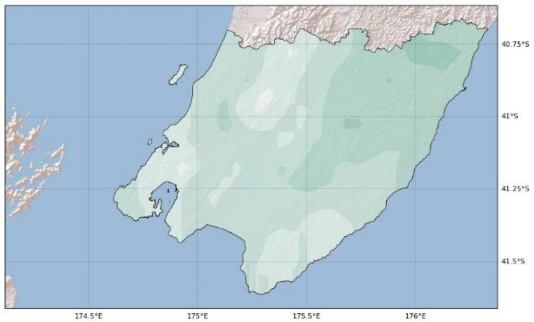
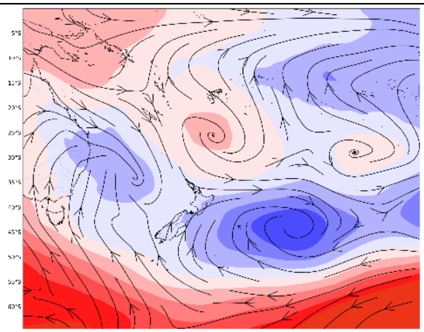
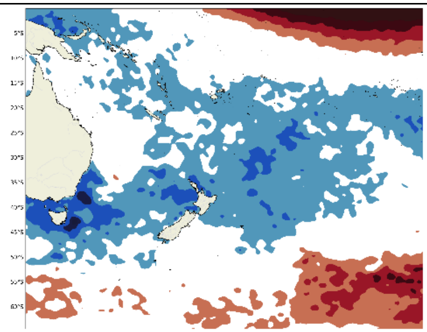
1989	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Negative SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

1990	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Negative SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

<table>
<tr><th>1991</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
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<u>SAM</u>
Negative</td></tr>
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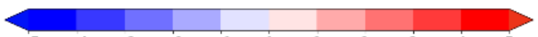
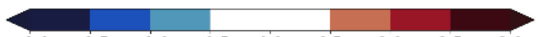
</td><td>
</td><td>
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Op_BC@5km</td></tr>
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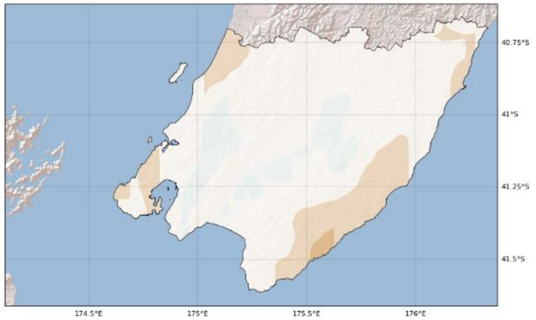
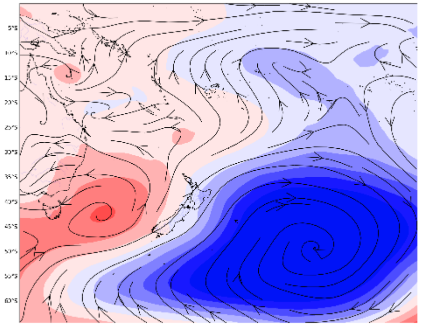
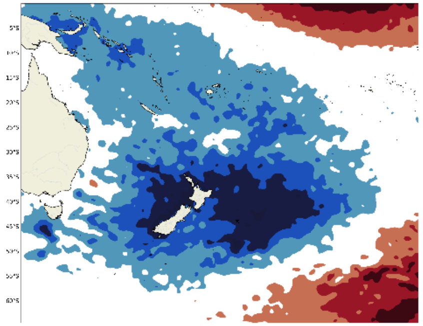
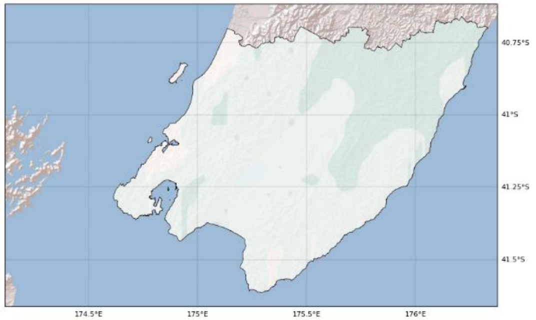
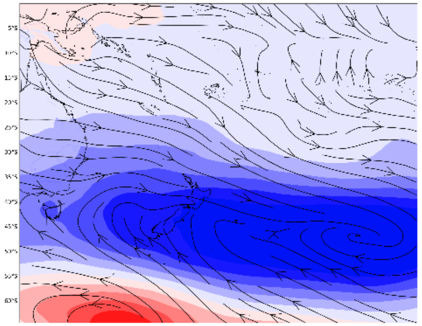
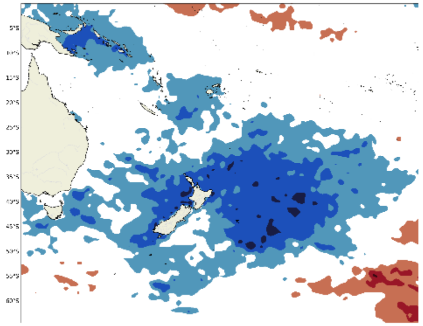
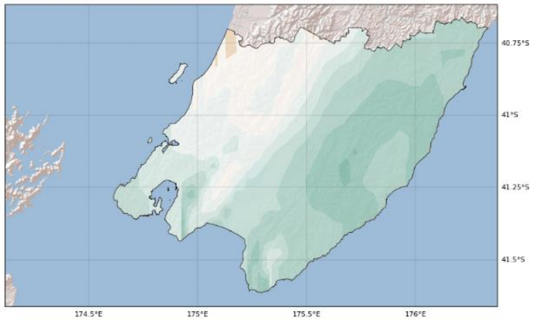
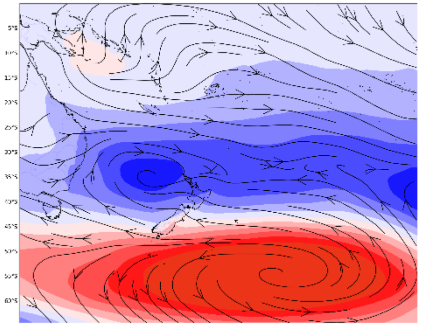
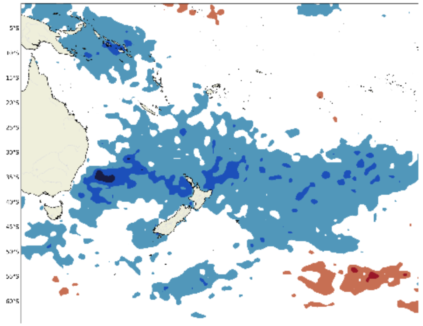
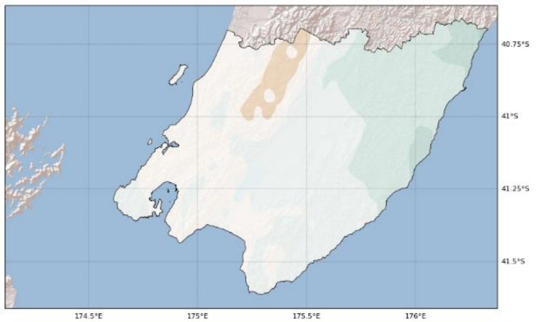
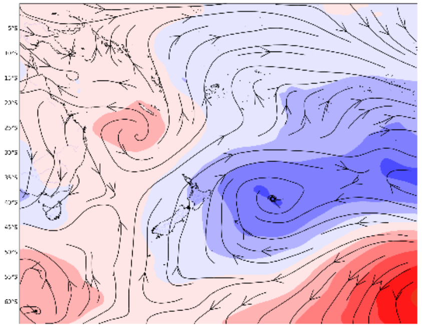
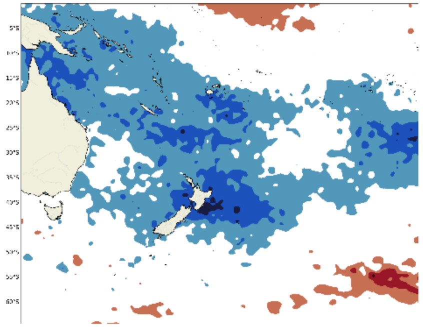
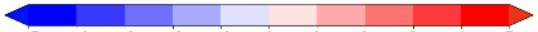
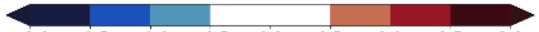
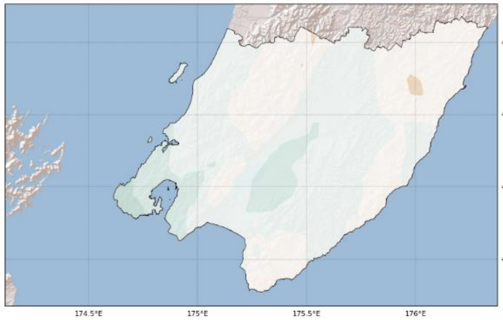
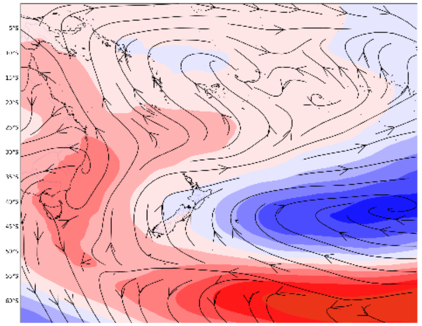
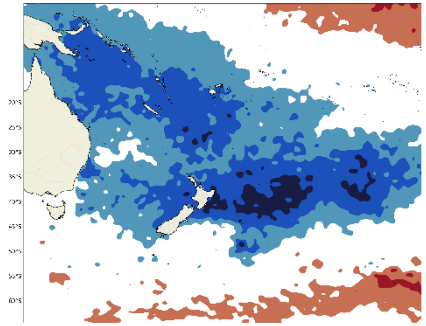
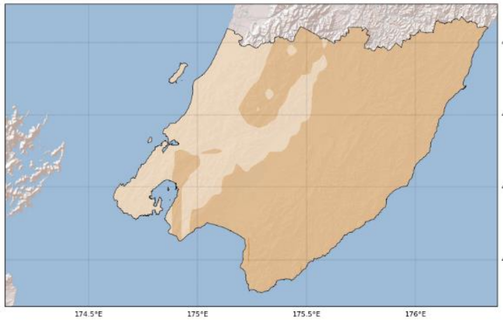
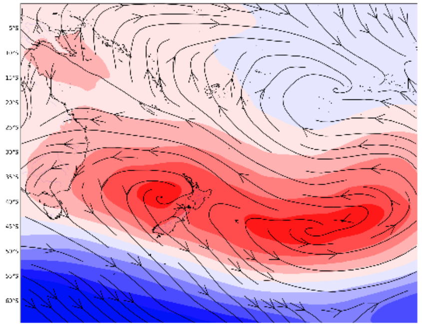
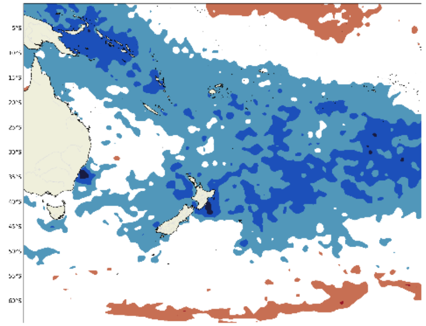
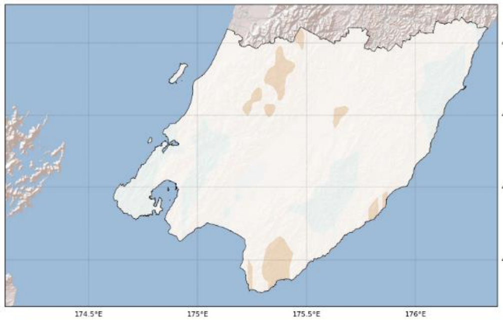
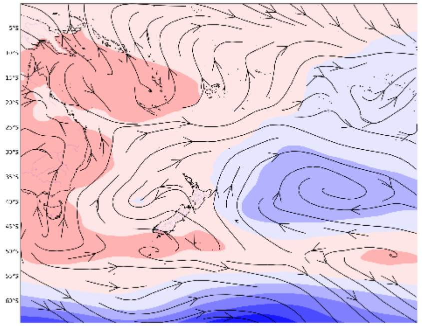
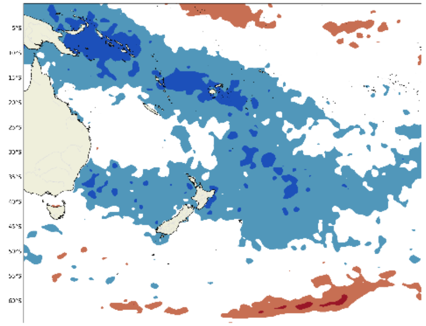
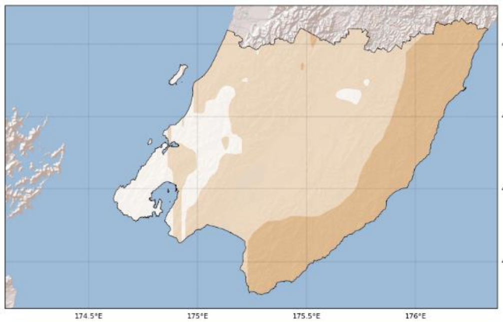
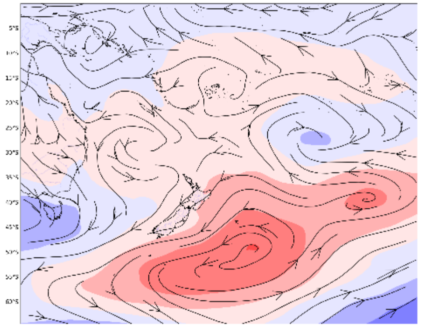
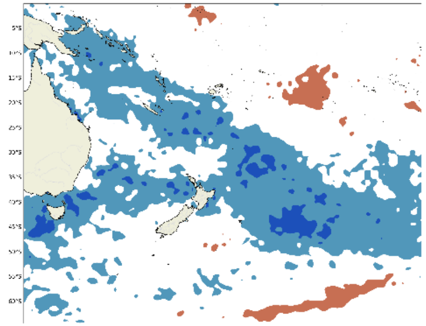
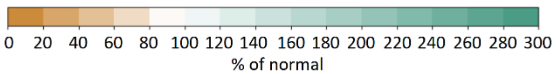
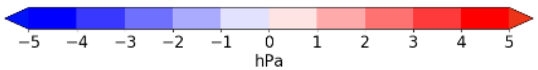
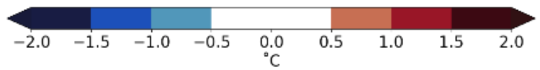
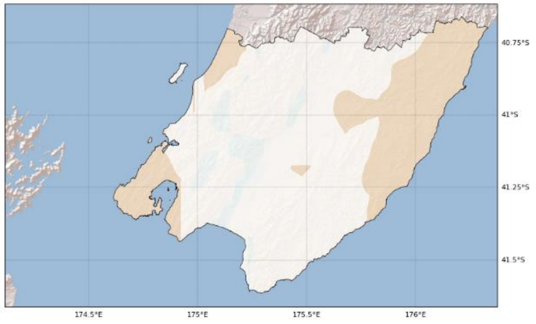
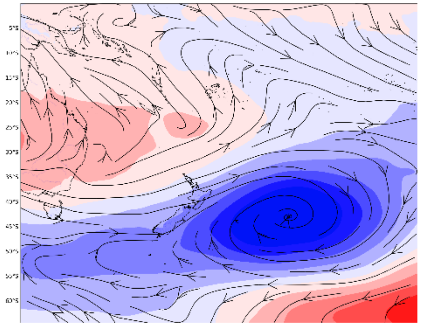
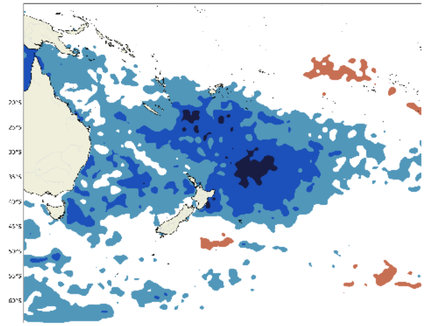
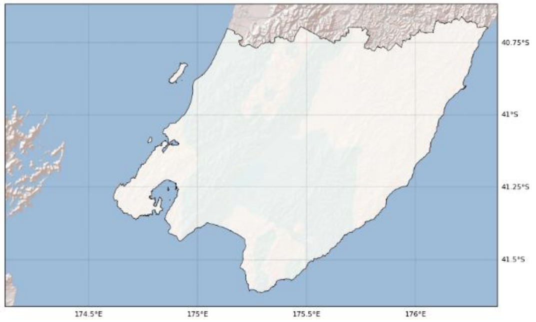
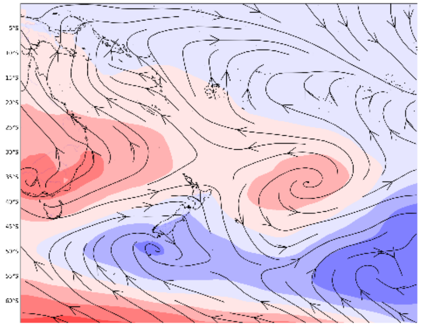
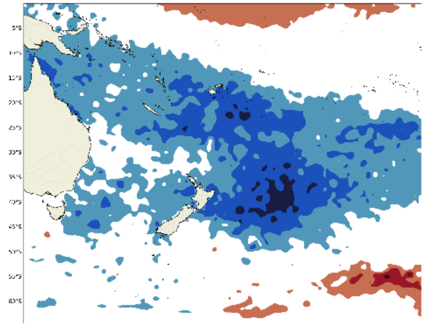
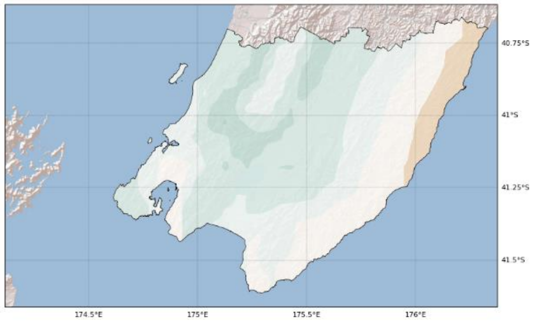
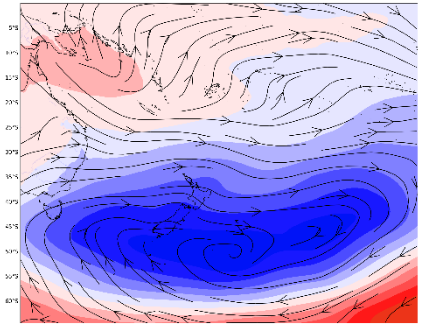
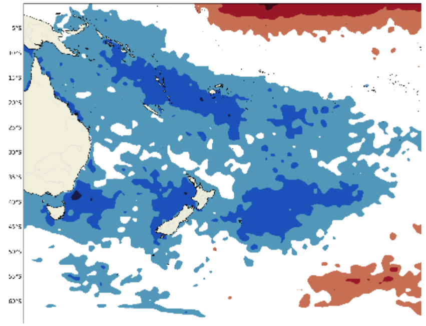
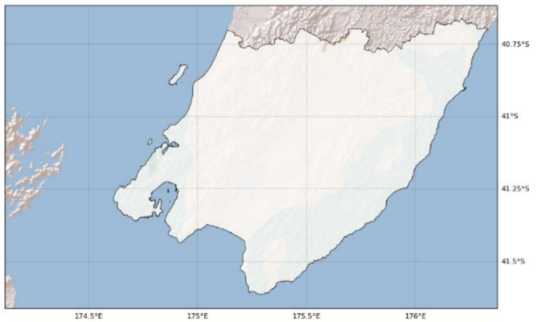
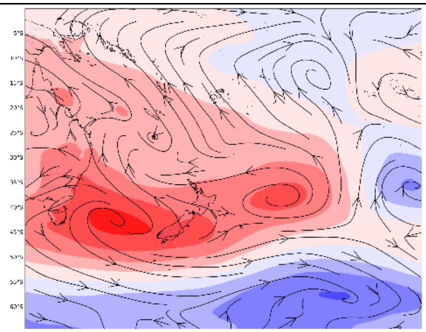
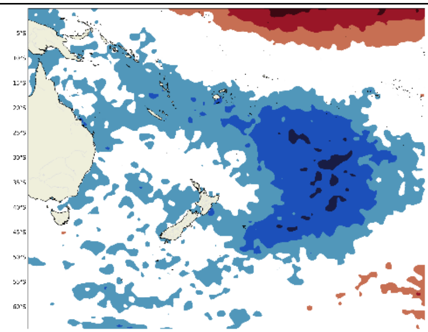
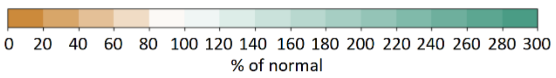
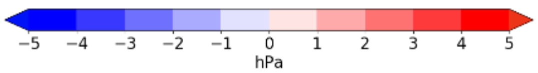
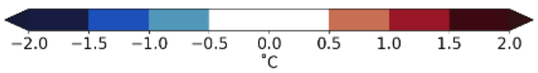
1992	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Negative SAM Neutral
Winter				ENSO Neutral IOD Negative SAM Neutral
Spring				ENSO Neutral IOD Negative SAM Neutral
Summer				ENSO El Niño IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

1993	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

<table>
<tr><th>1994</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td>
</td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td>Winter</td><td>
</td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Positive
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td>
</td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Positive
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td>
</td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td></td><td>
</td><td>
</td><td>
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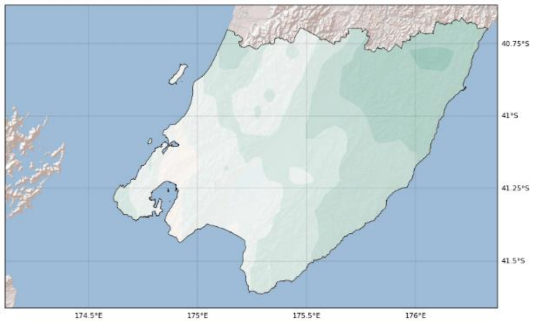
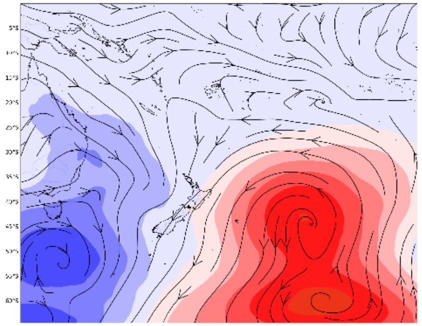
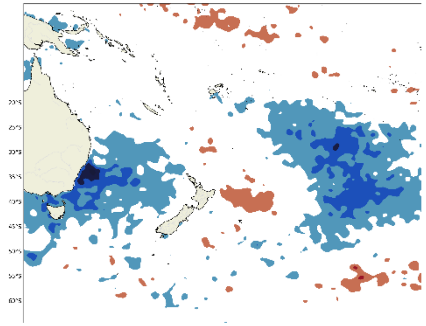
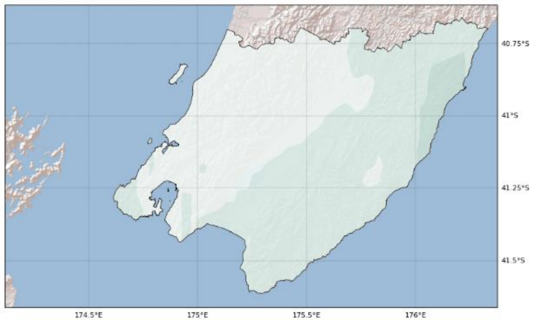
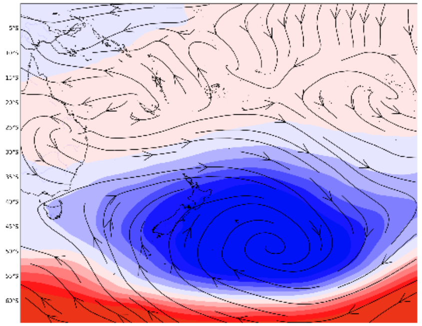
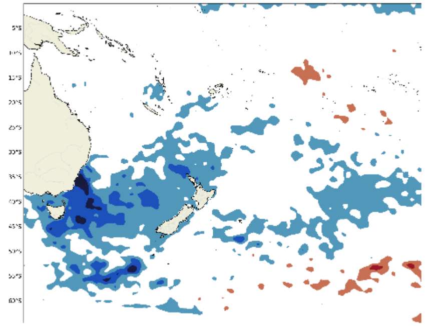
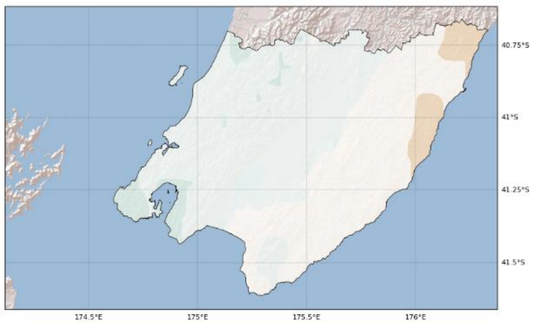
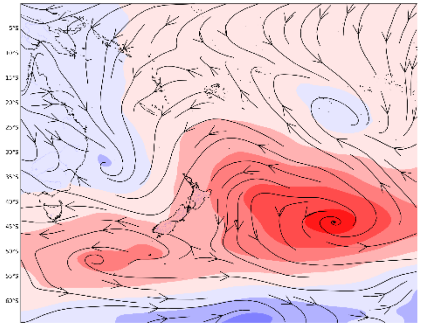
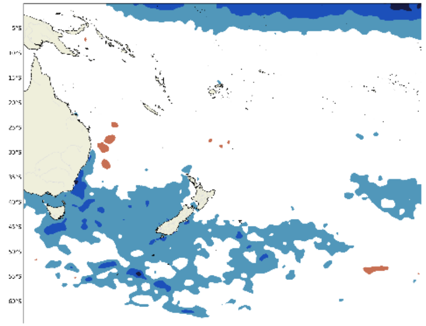
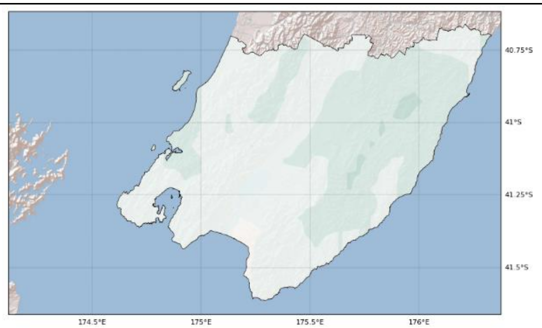
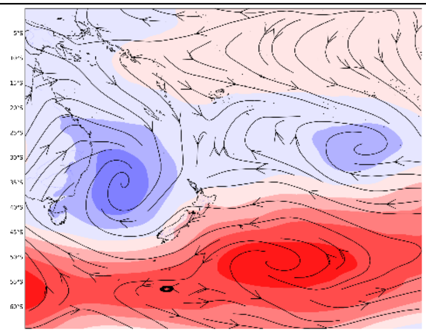
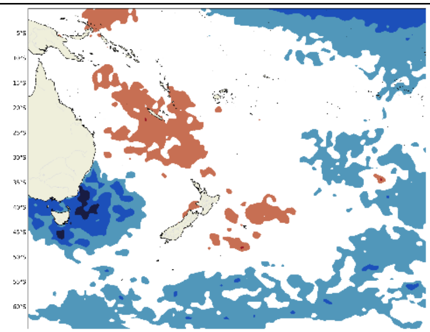
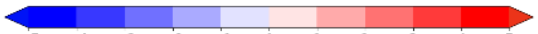
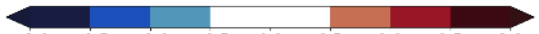
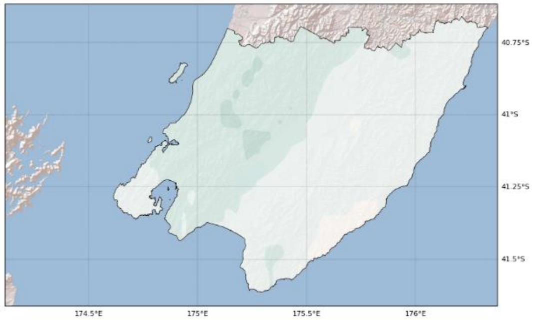
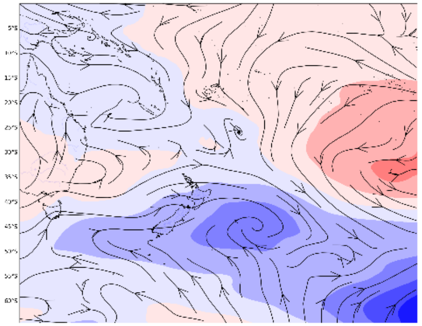
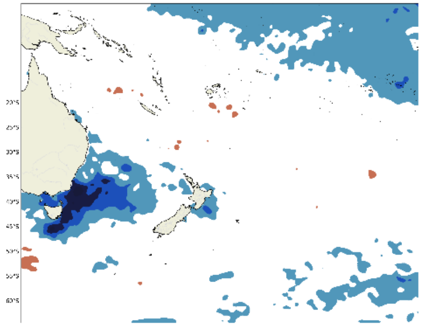
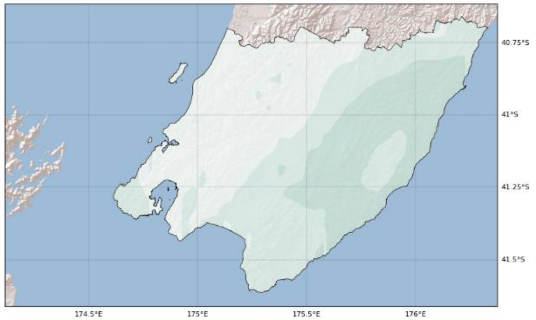
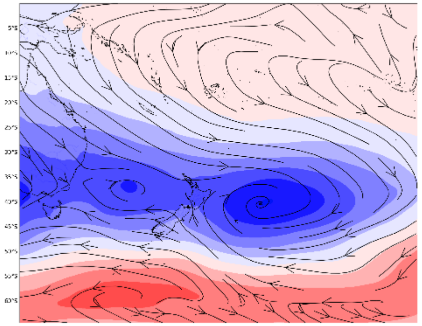
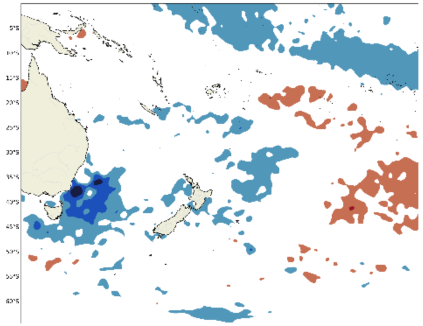
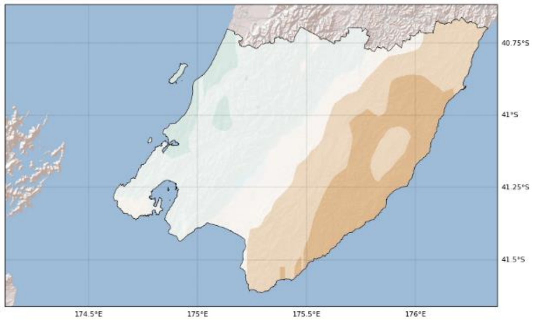
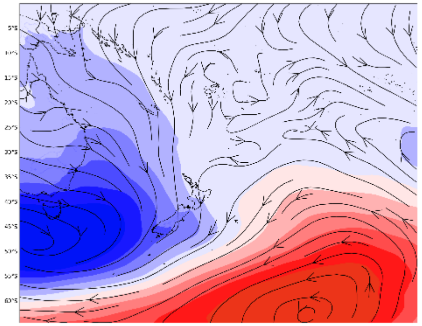
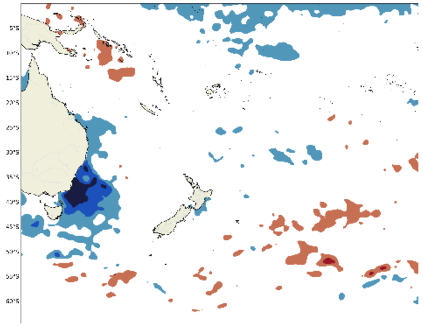
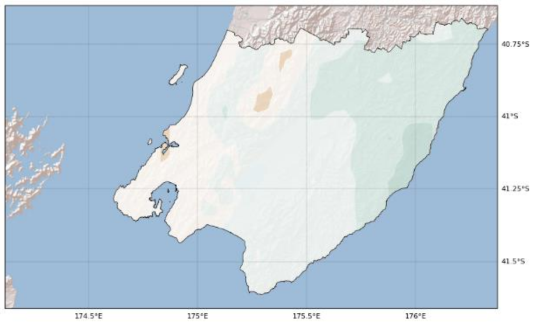
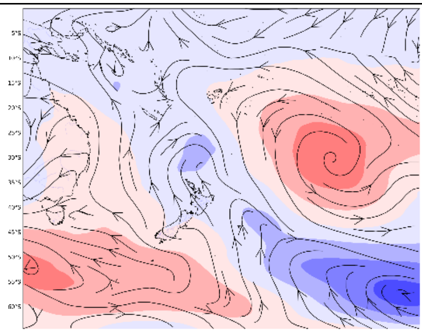
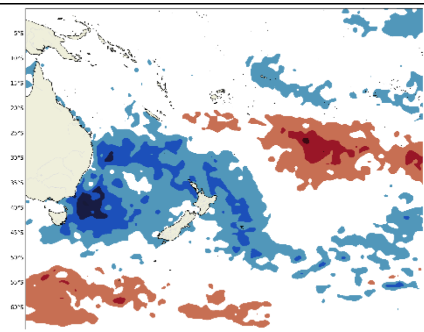
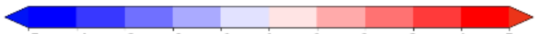
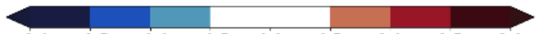
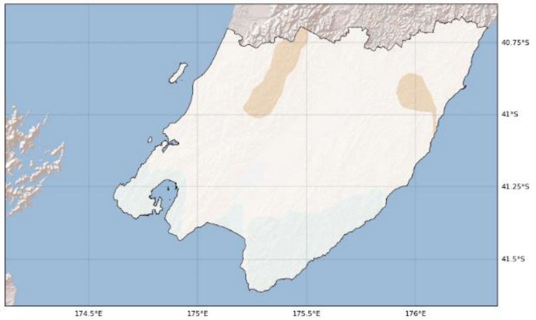
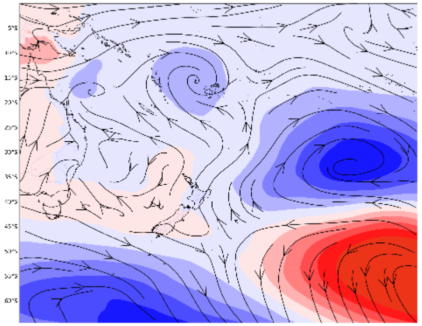
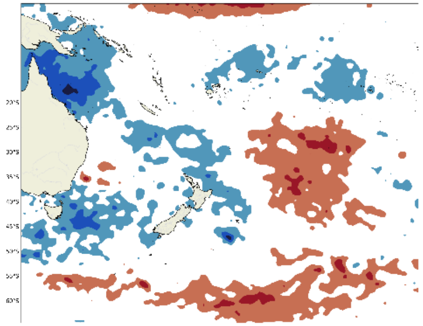
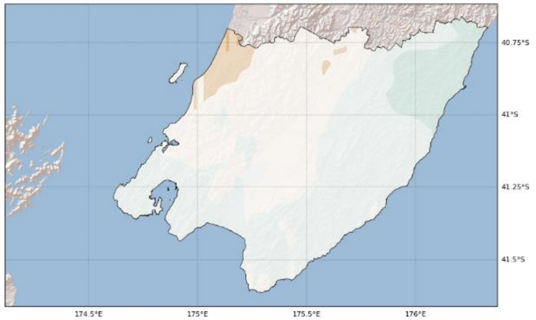
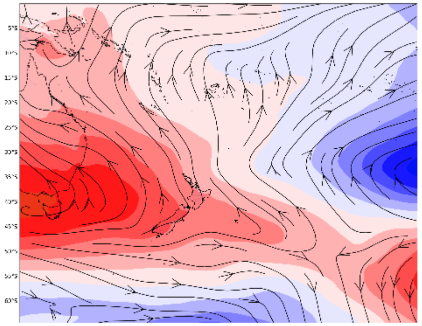
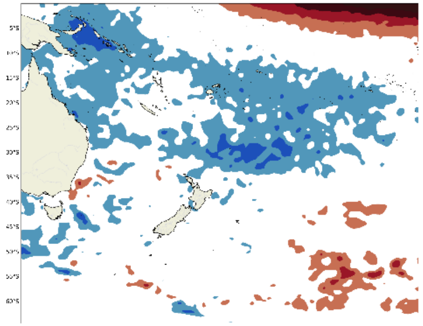
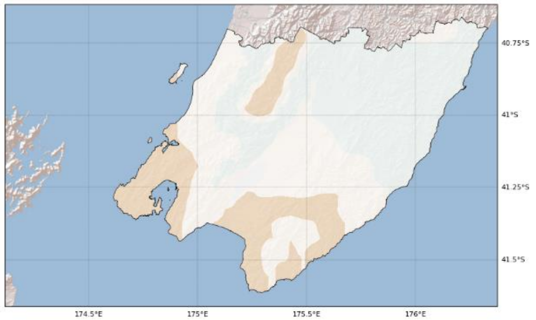
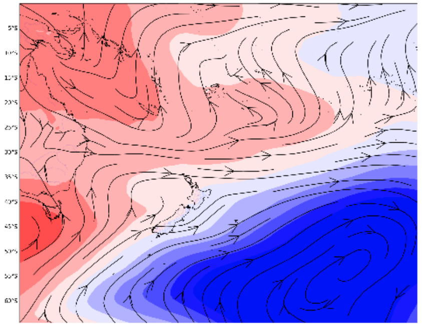
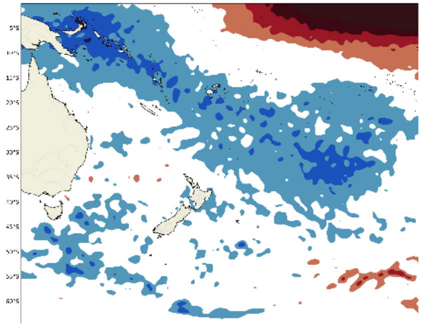
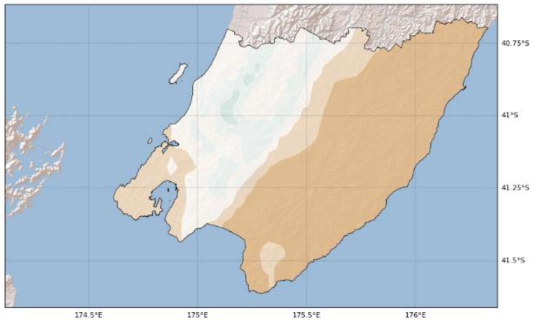
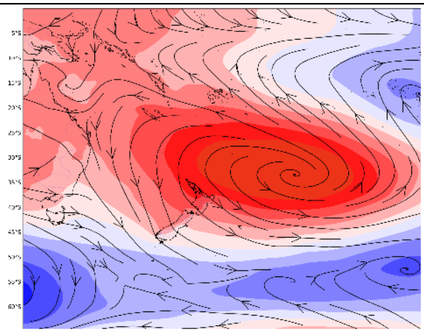
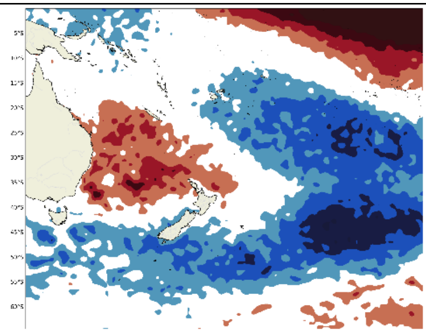
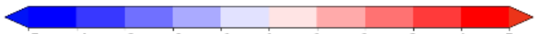
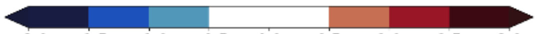
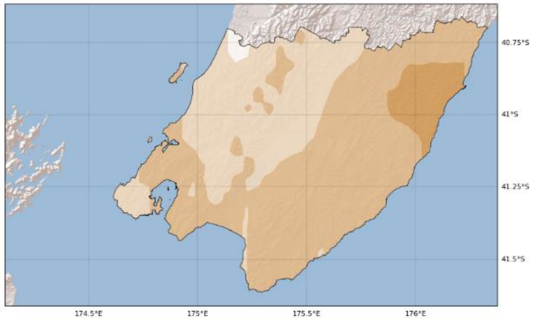
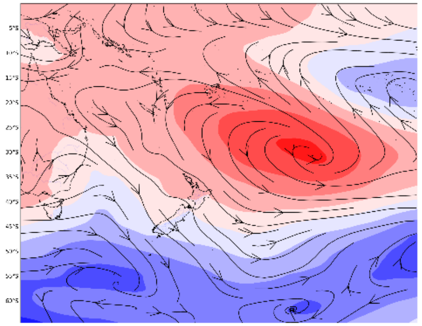
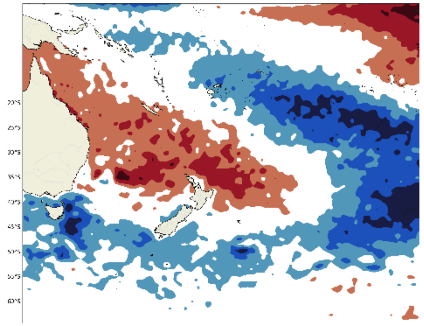
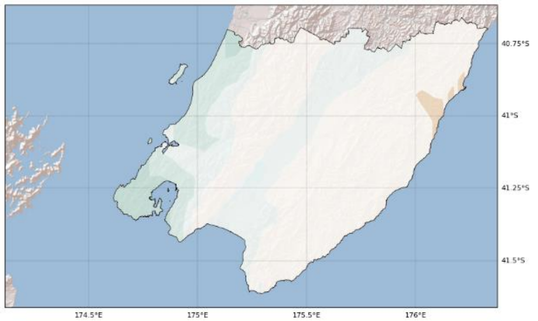
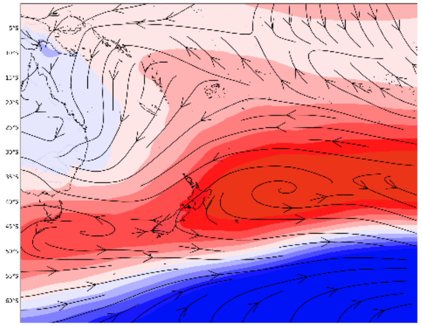
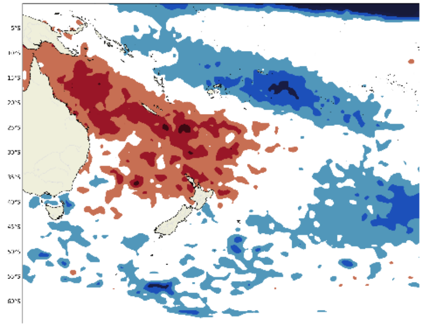
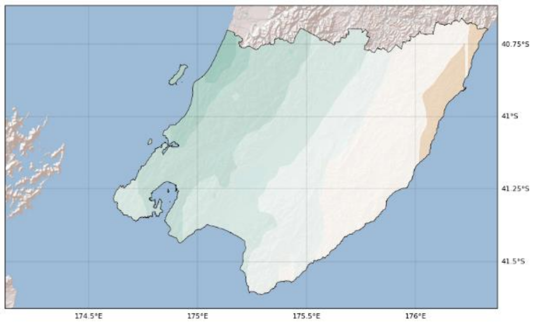
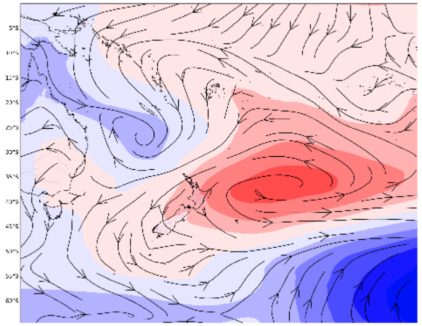
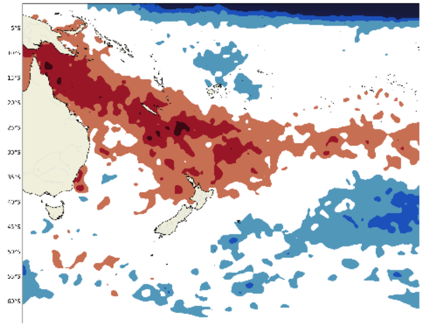
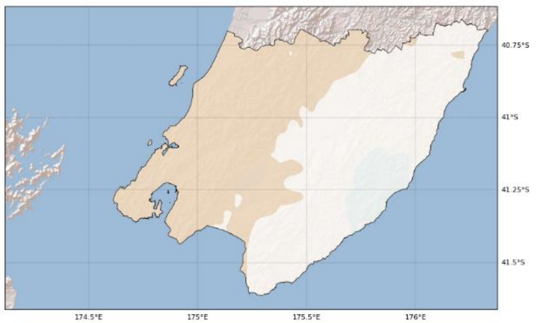
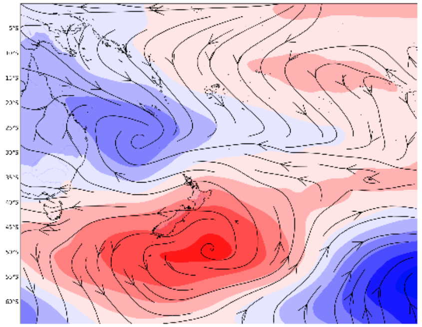
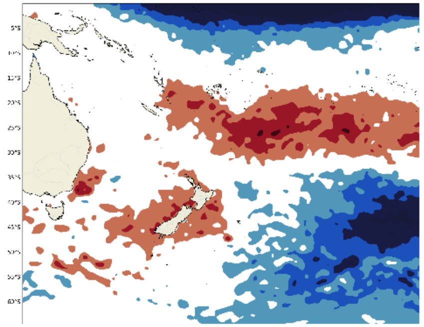
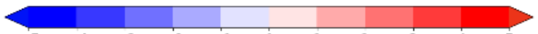
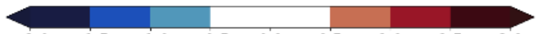
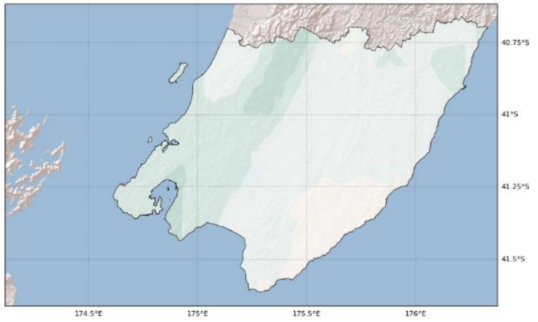
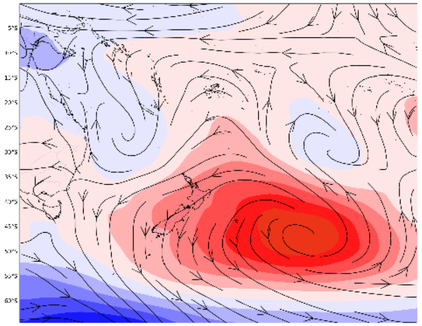
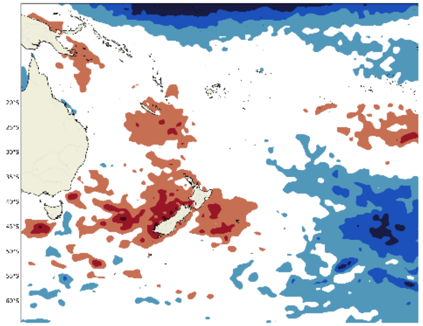
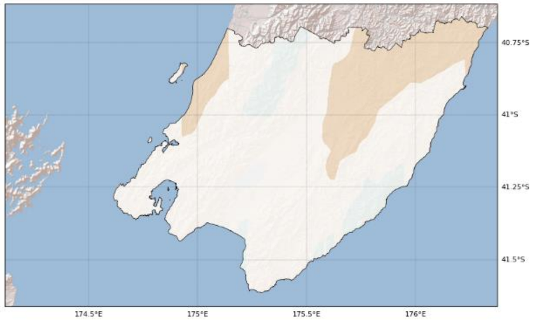
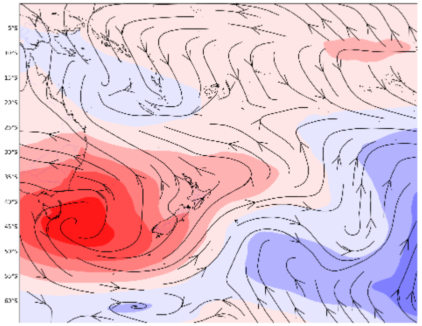
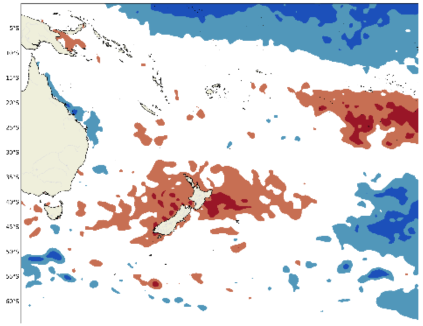
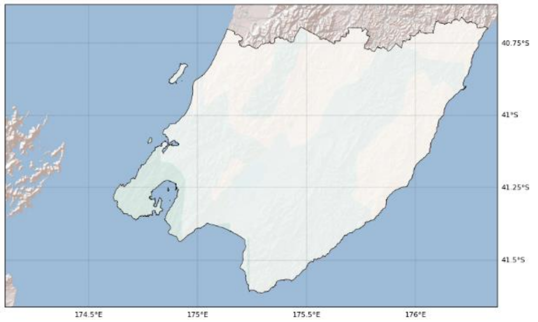
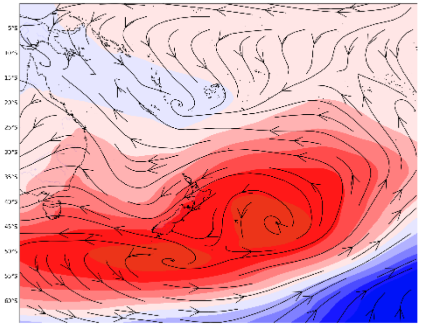
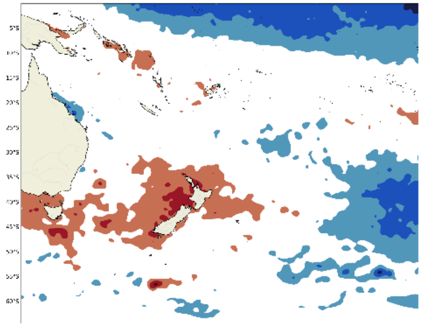
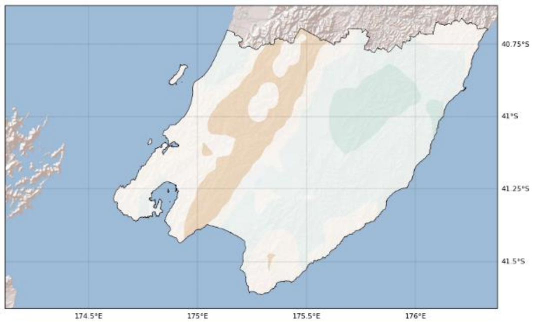
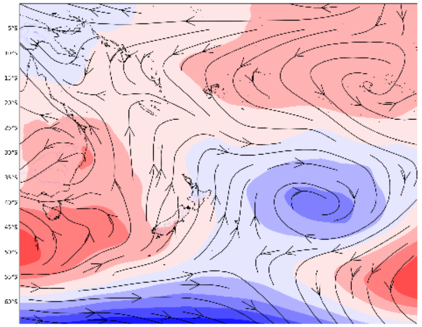
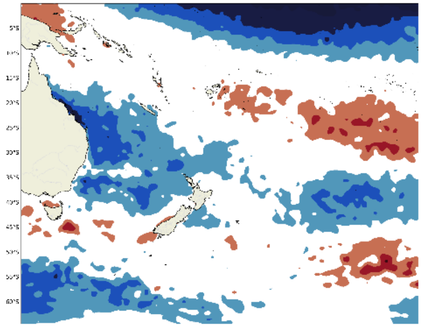
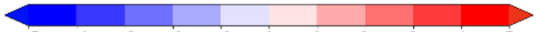
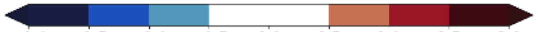
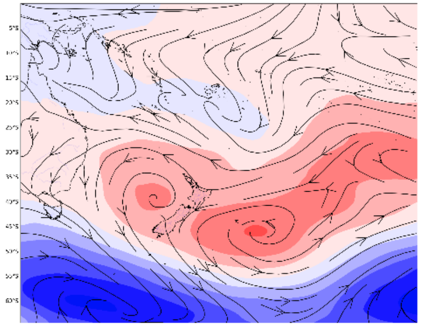
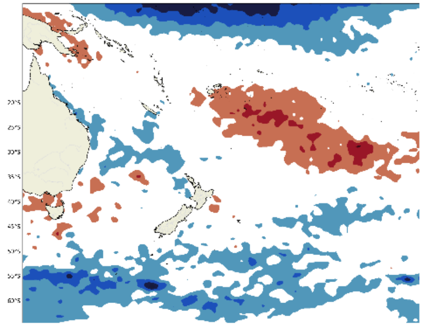
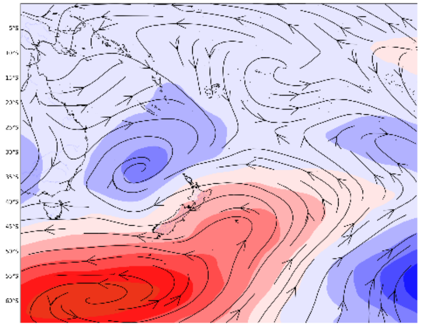
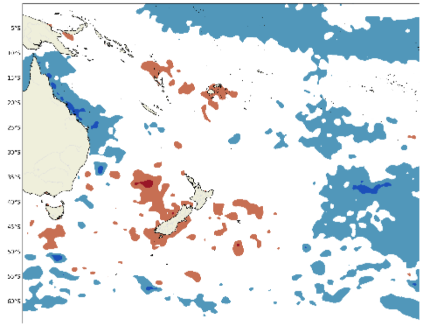
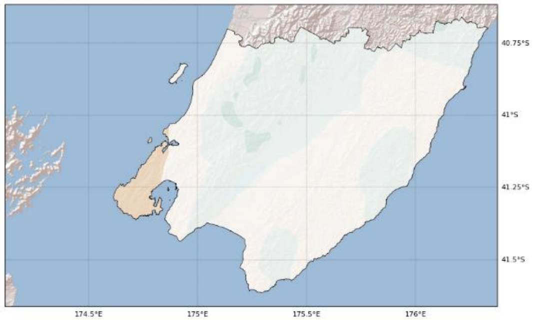
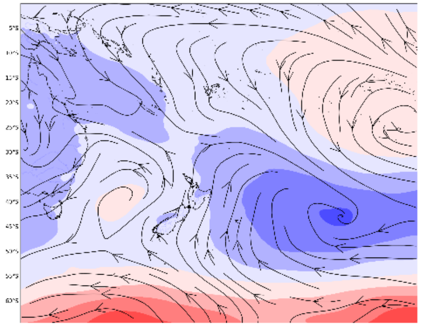
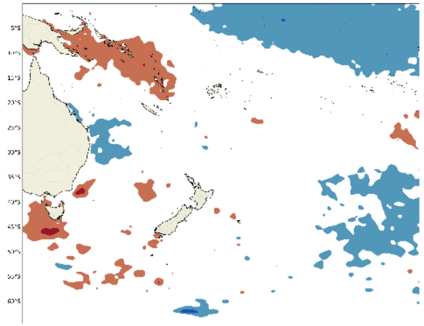
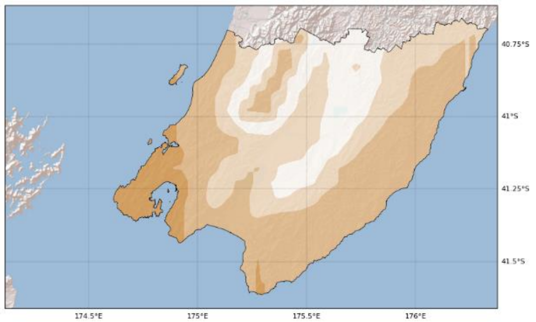
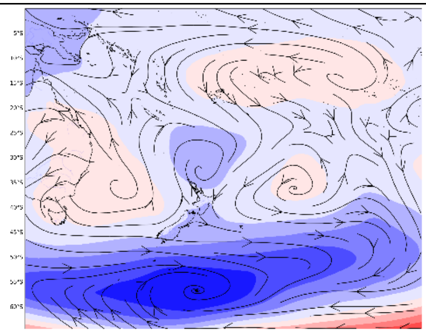
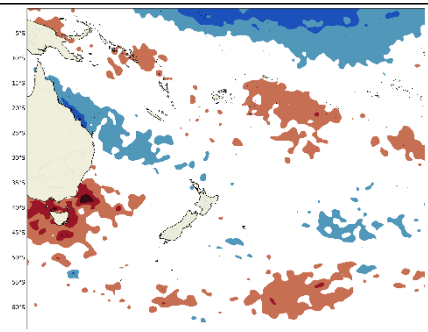
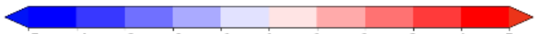
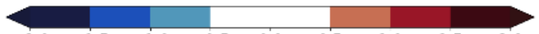
1995	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Negative
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

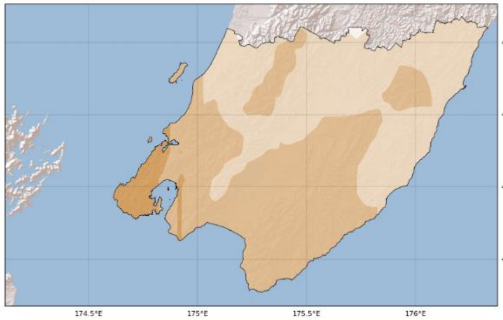
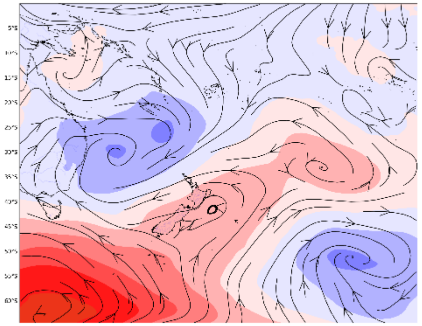
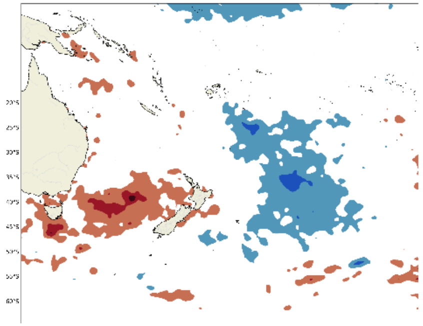
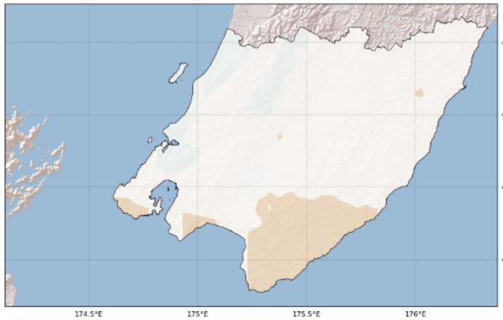
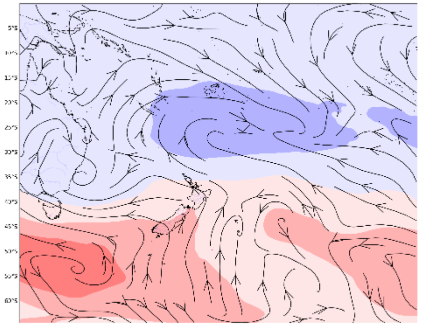
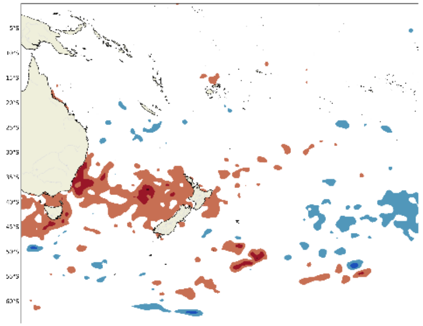
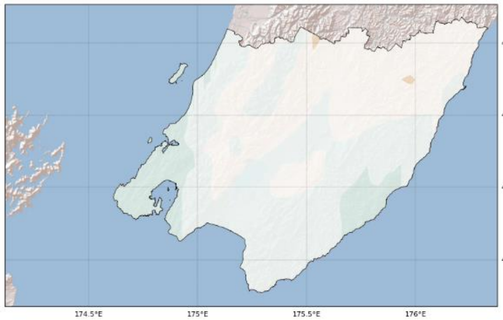
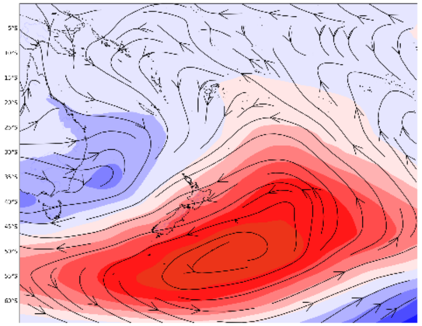
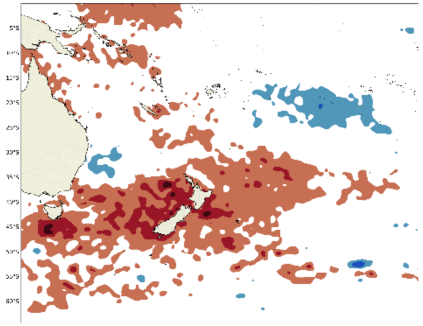
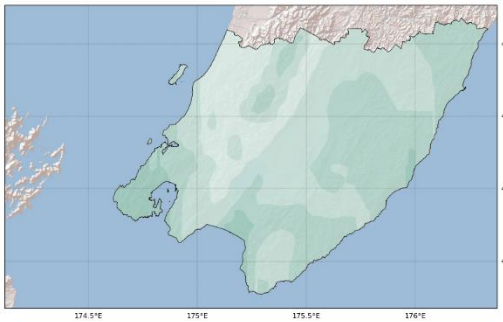
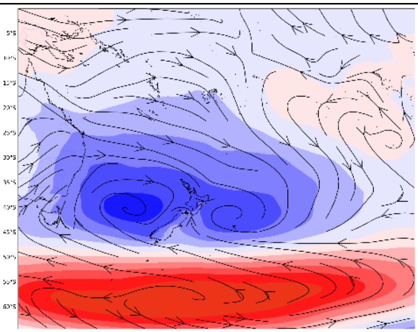
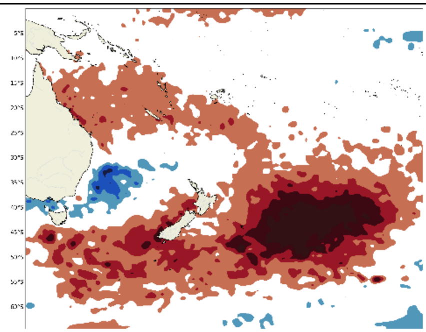
1996	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Negative SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Neutral
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

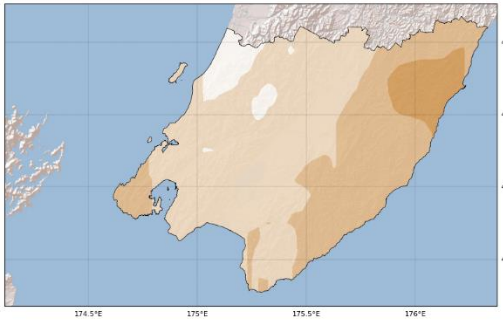
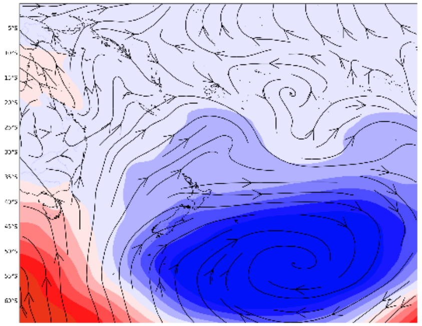
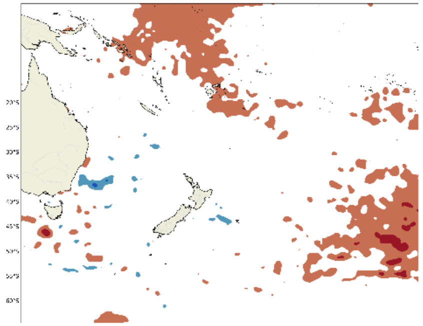
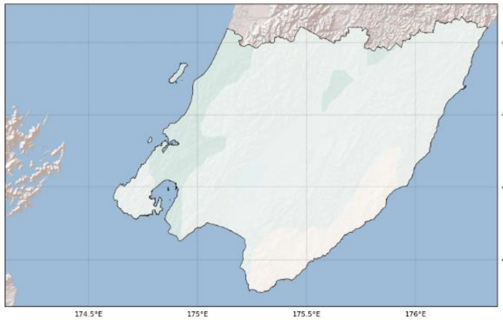
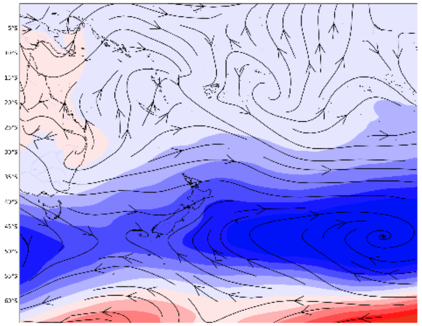
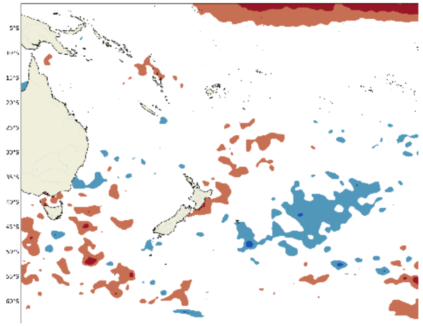
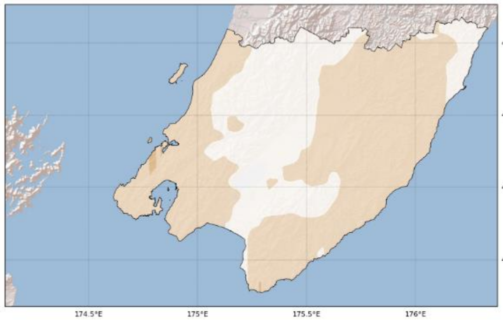
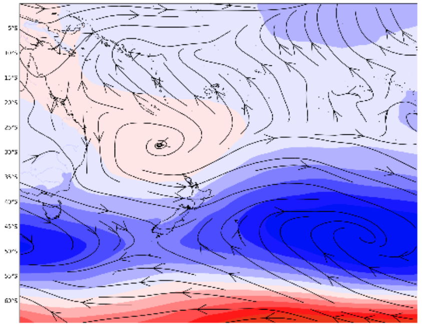
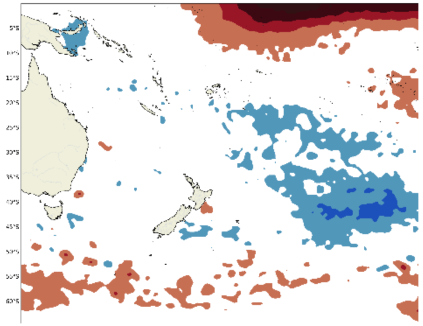
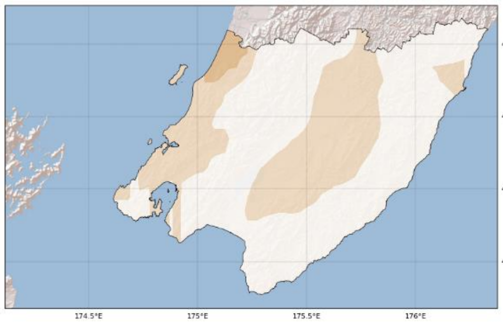
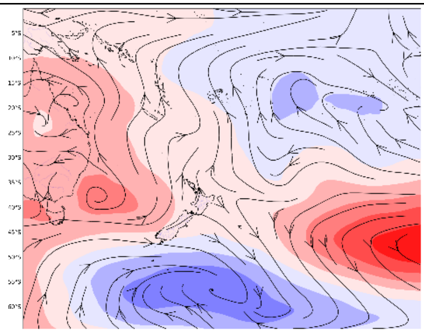
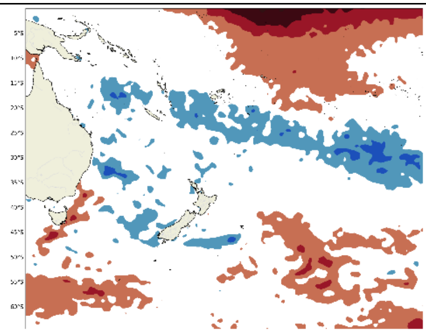
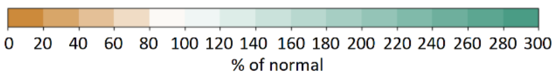
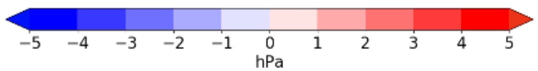
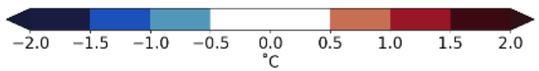
1997	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO El Niño IOD Neutral SAM Positive
Spring				ENSO El Niño IOD Positive SAM Neutral
Summer				ENSO El Niño IOD Positive SAM Positive
				**Rainfall: Op_BC@5km**

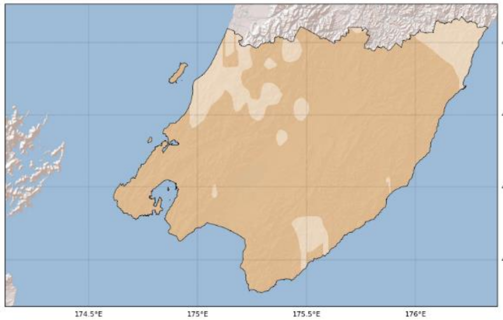
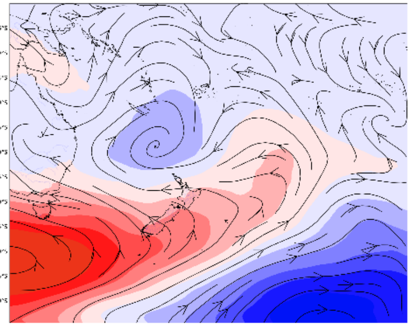
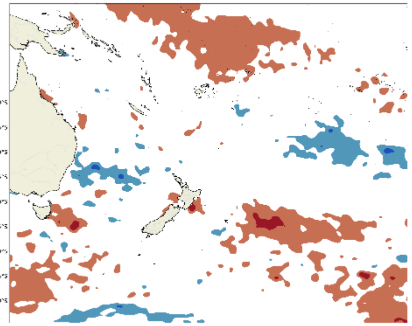
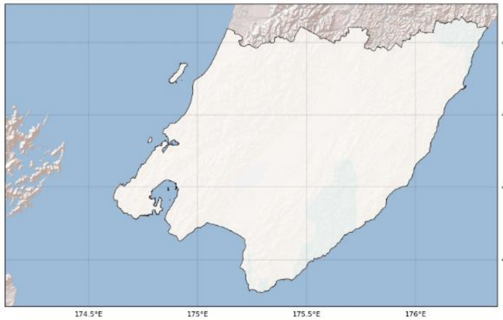
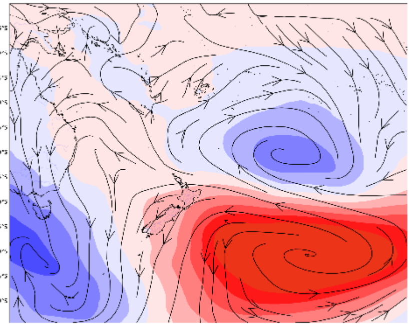
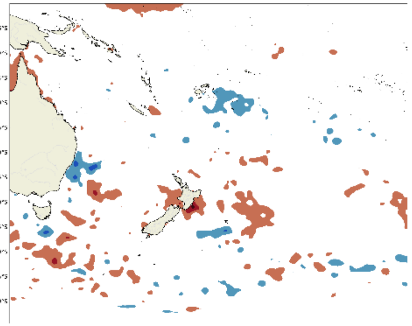
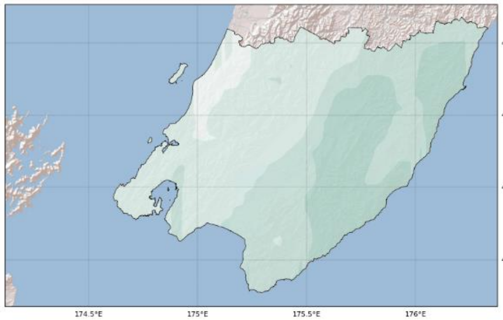
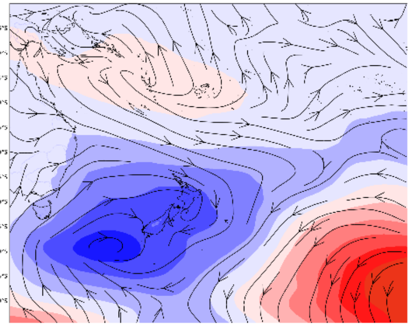
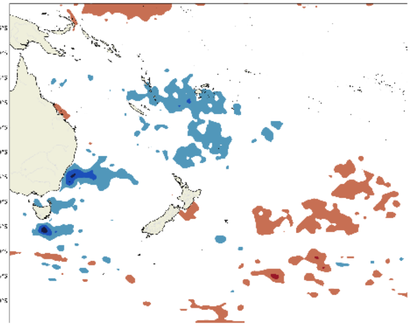
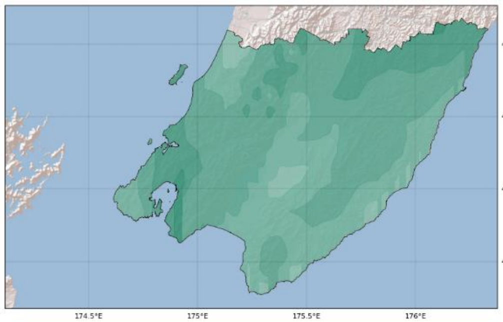
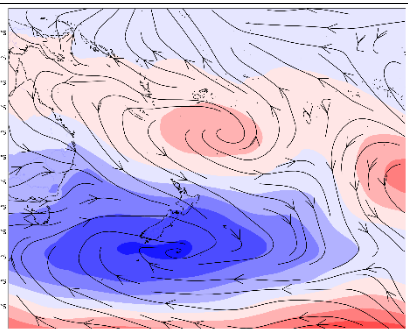
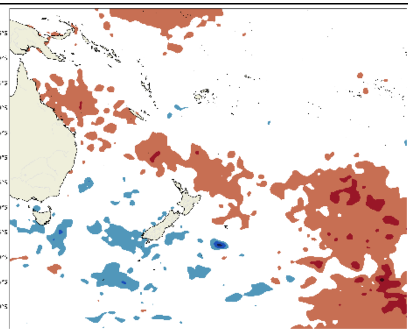
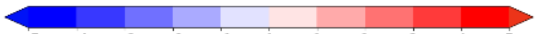
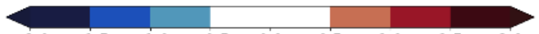
1998	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Negative <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

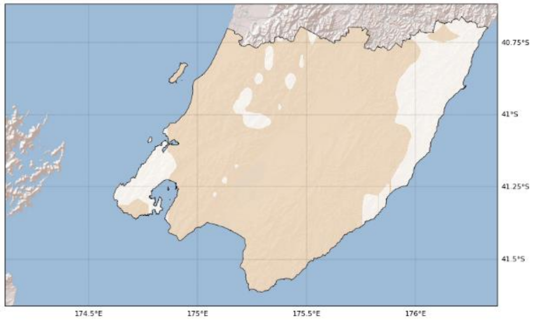
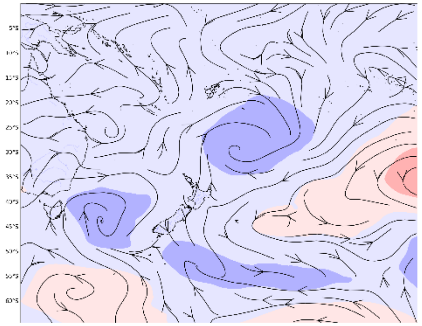
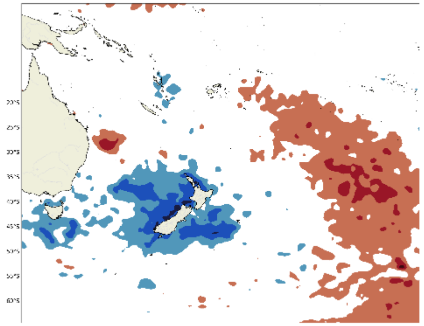
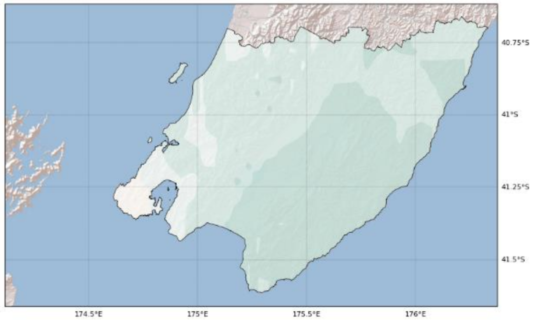
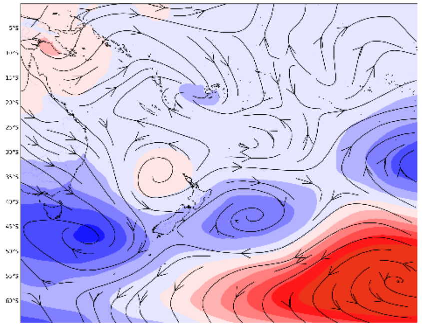
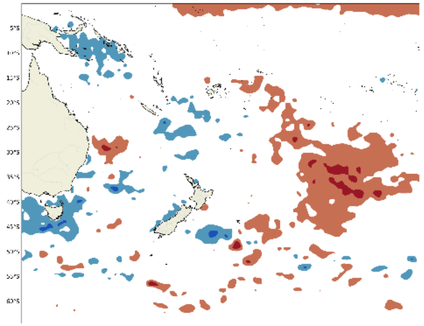
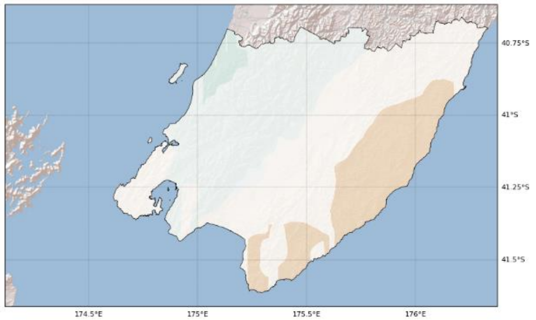
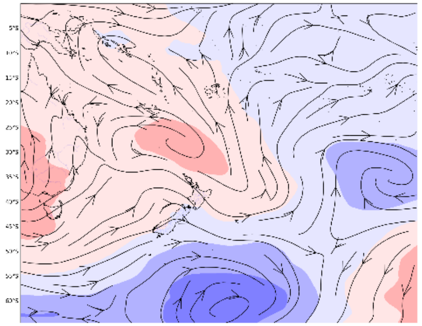
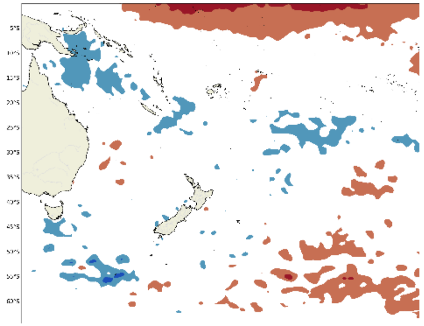
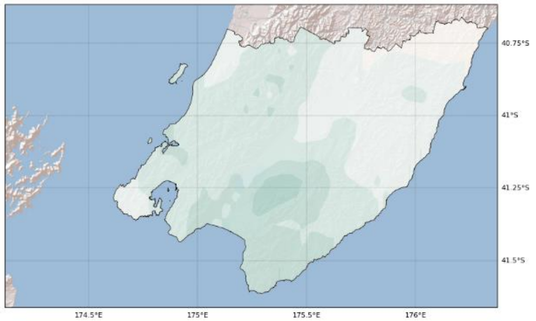
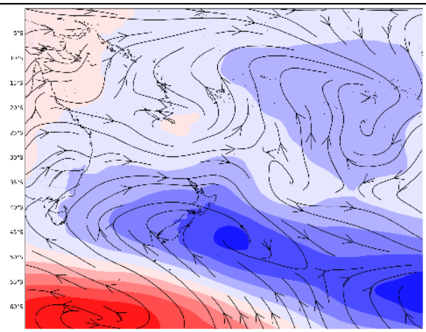
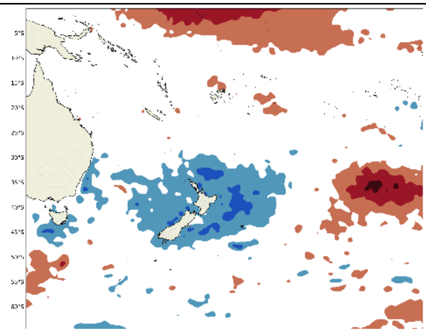
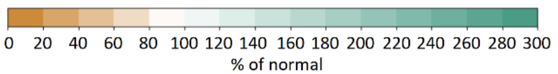
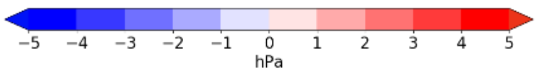
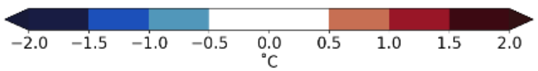
1999	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

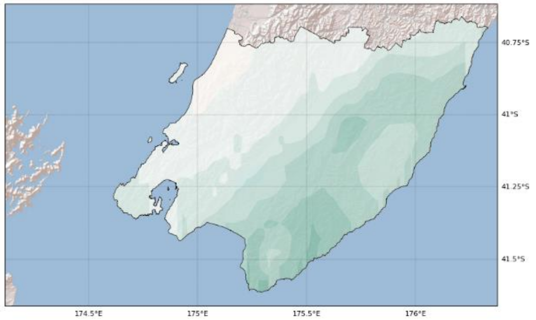
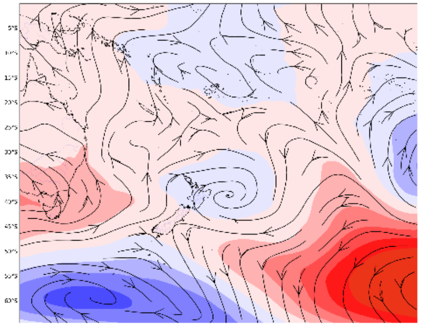
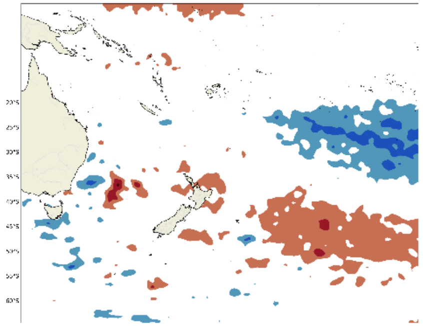
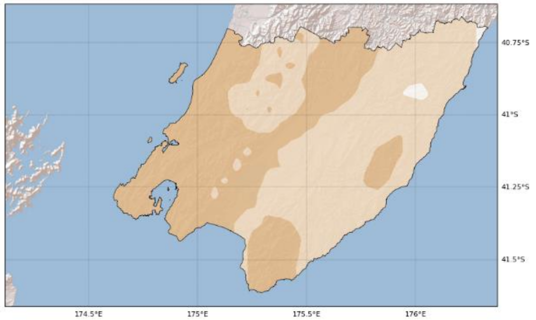
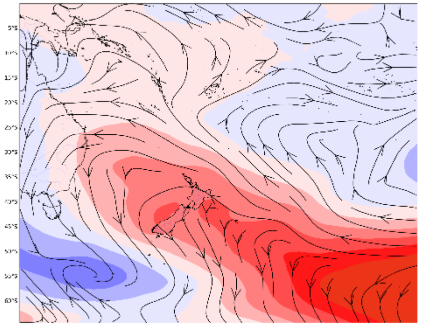
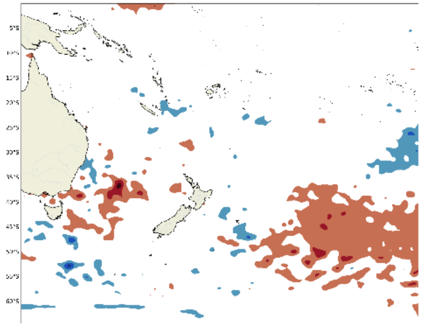
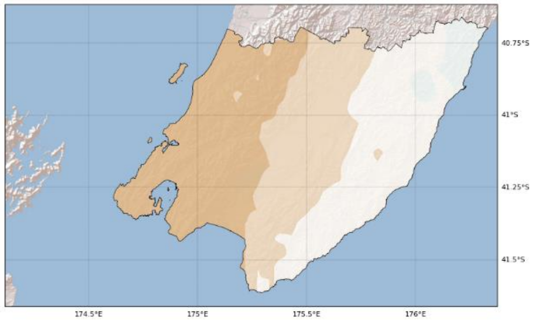
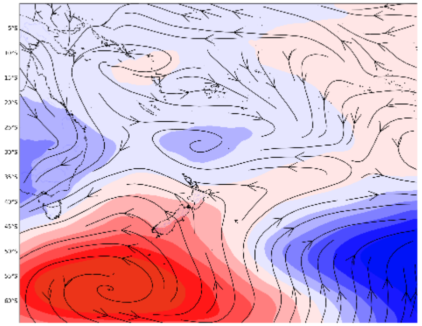
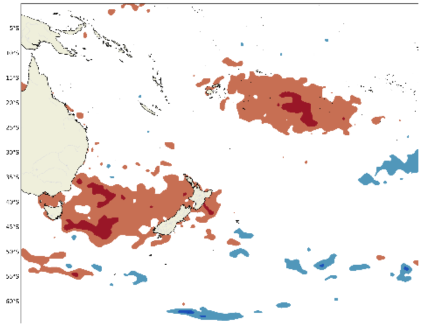
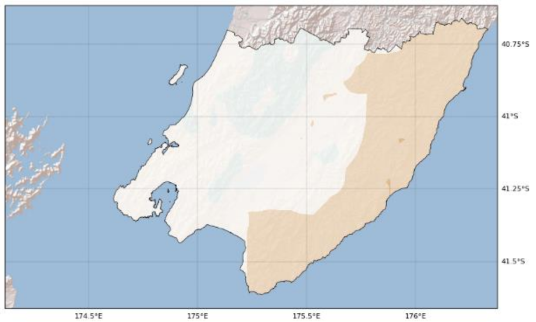
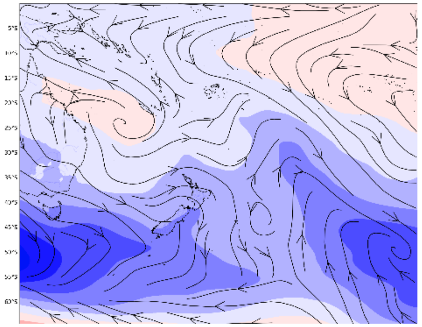
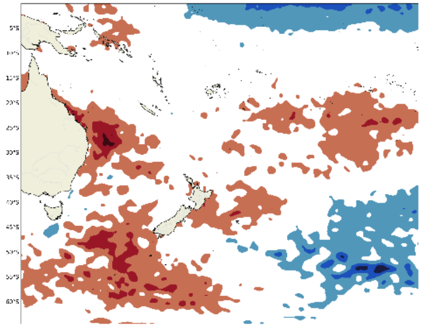
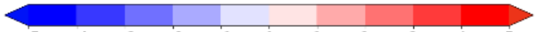
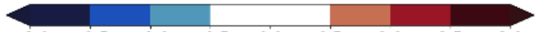
2000	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Neutral
Summer				ENSO La Niña IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

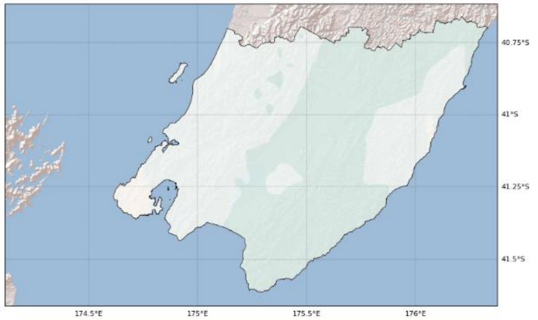
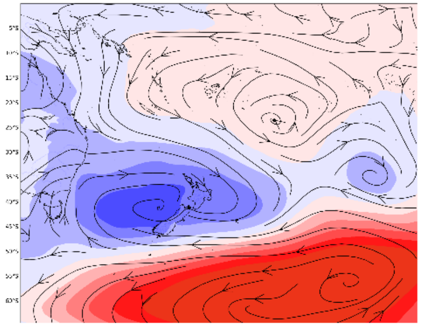
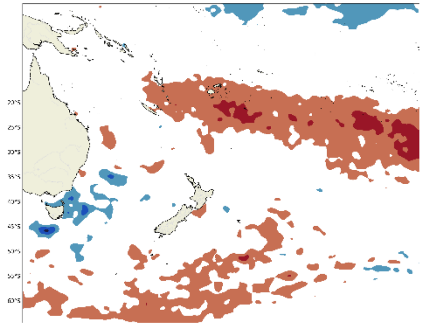
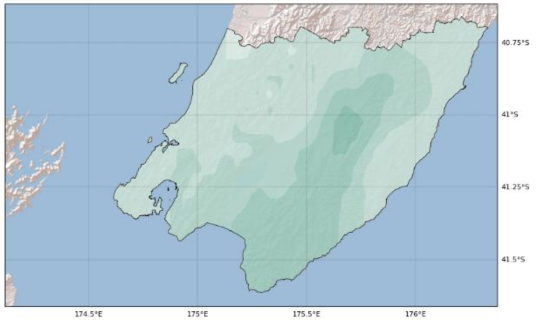
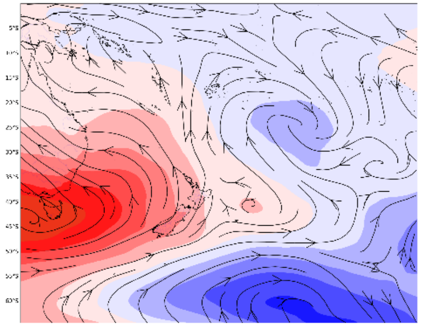
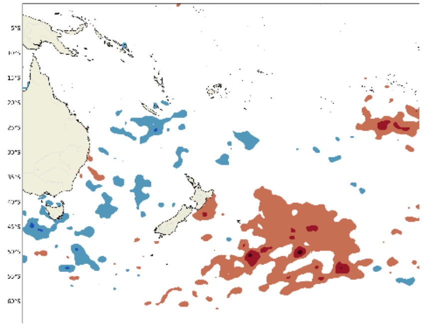
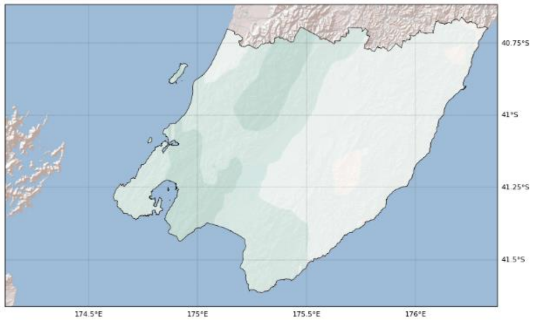
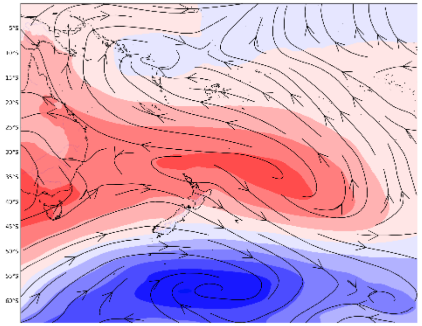
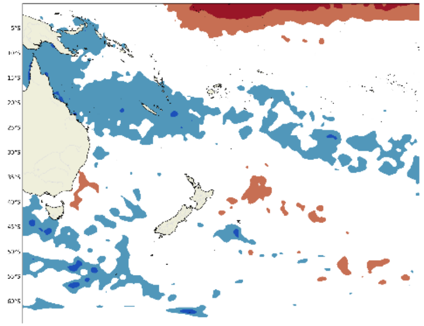
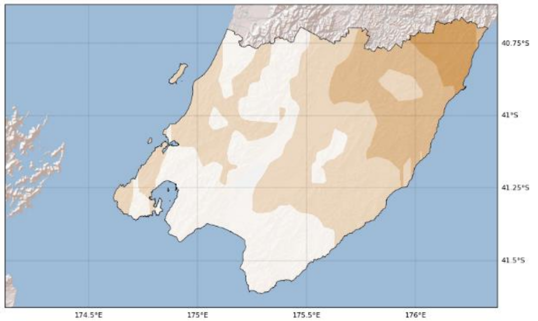
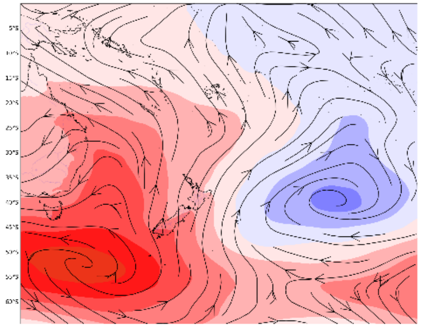
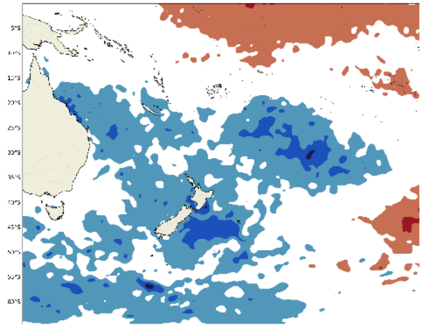
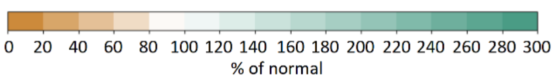
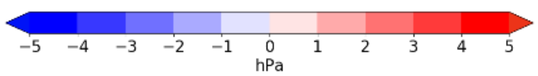
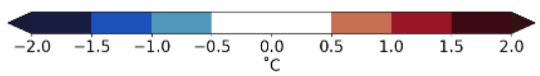
2001	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	−5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	−2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

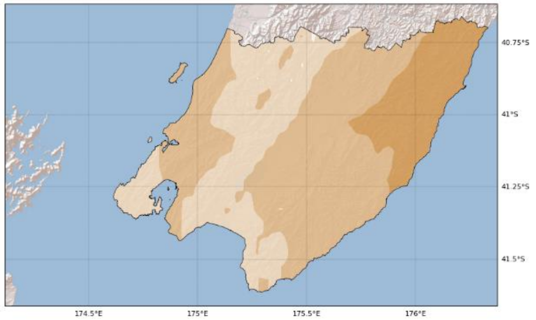
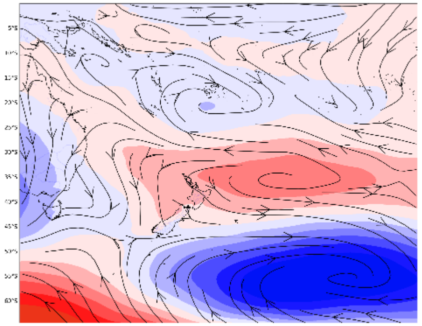
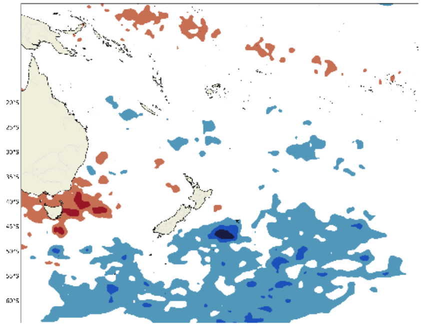
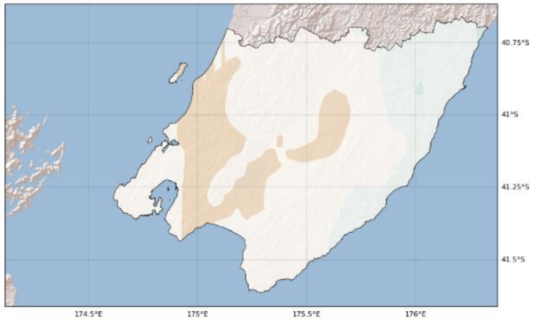
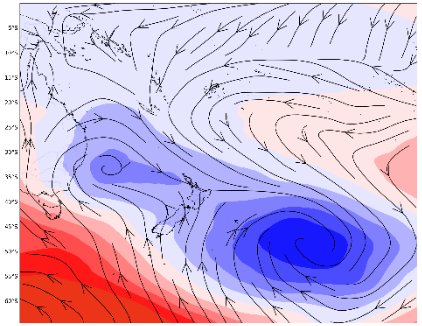
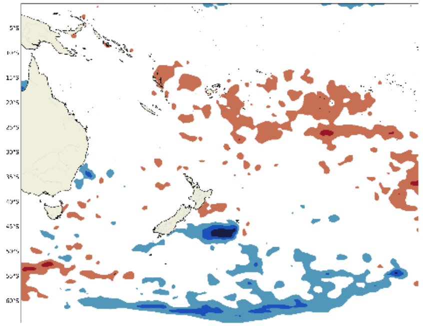
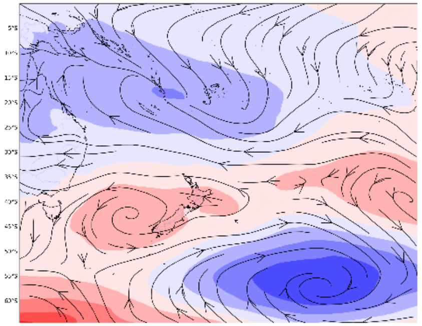
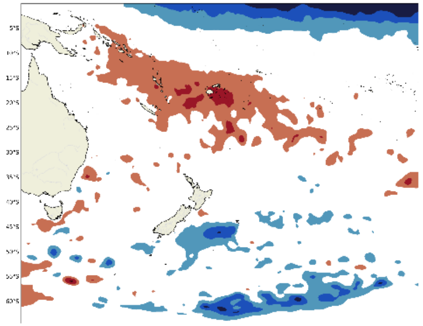
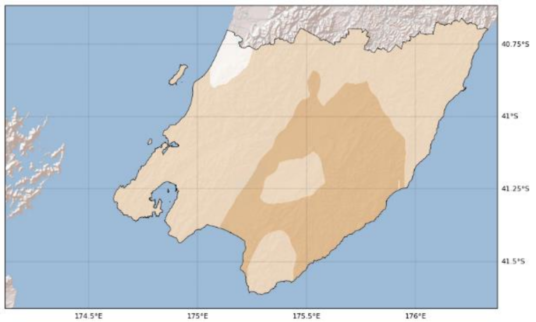
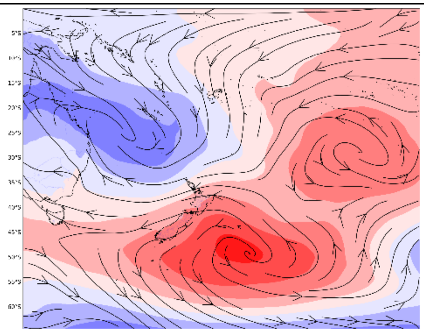
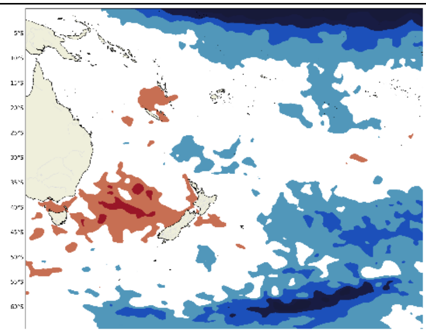
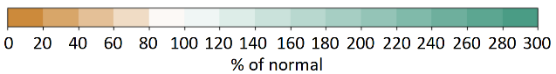
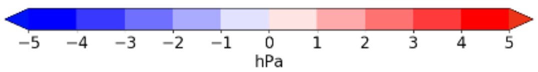
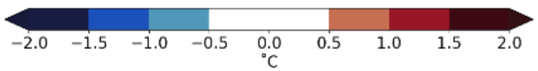
2002	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Negative
Winter				ENSO El Niño IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Neutral SAM Negative
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

2003	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

2004	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

2005	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

2006	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Positive SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

<table>
<tr><th>2007</th><th>Rainfall anomaly</th><th>MSLP anomaly</th><th>SST anomaly</th><th>Climate modes</th></tr>
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
La Niña
<u>IOD</u>
Neutral
<u>SAM</u>
Positive</td></tr>
<tr><td></td><td>
</td><td>
</td><td>
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Op_BC@5km</td></tr>
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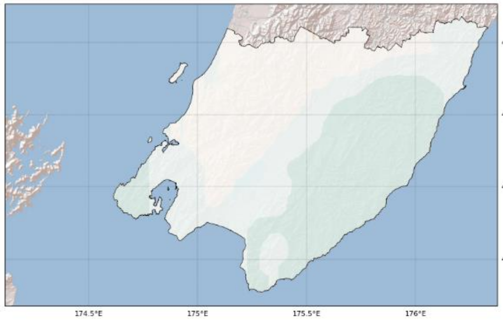
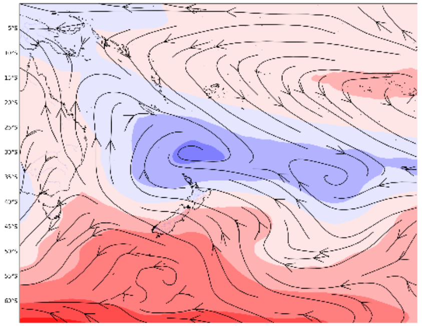
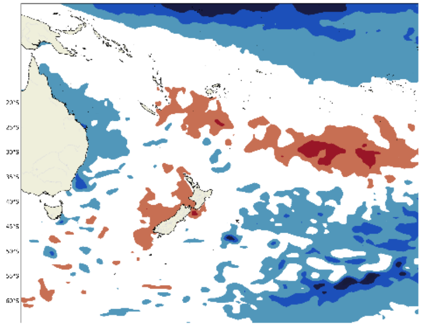
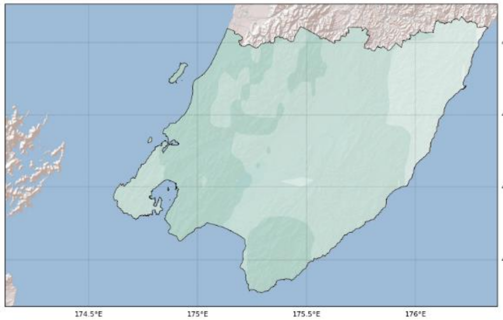
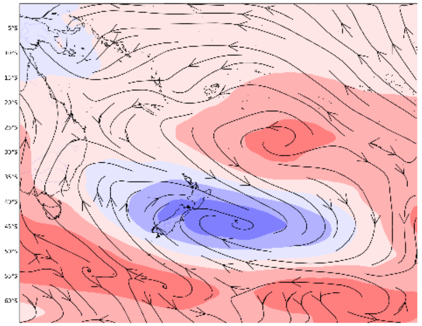
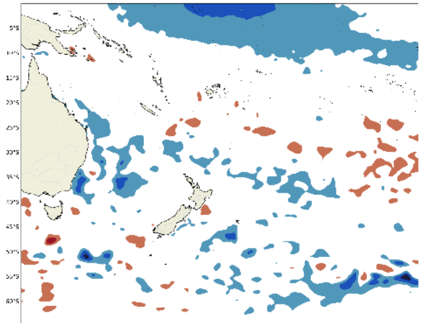
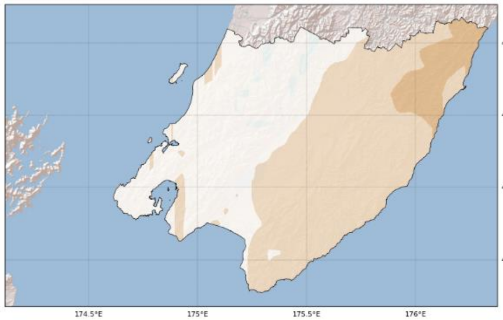
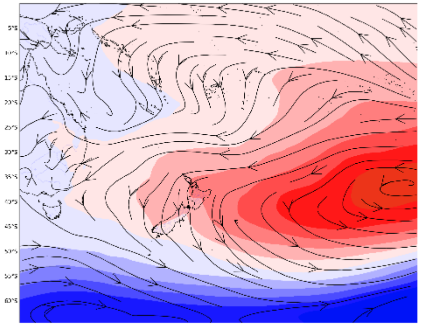
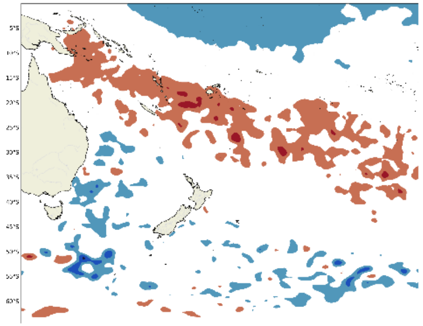
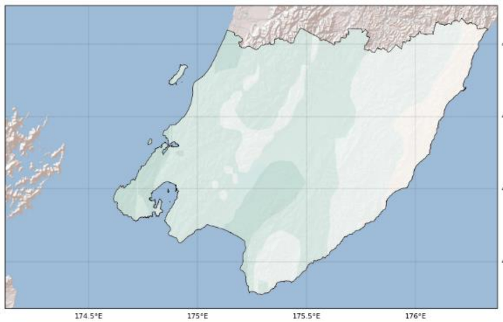
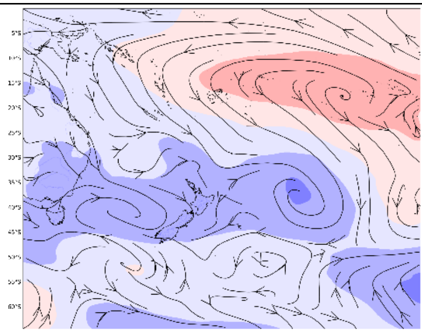
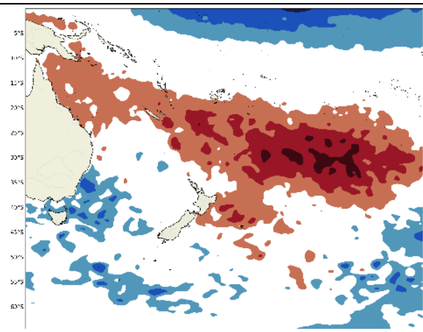
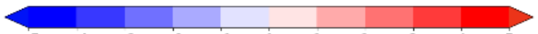
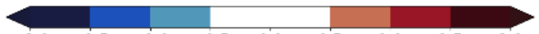
2008	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> Neutral <u>IOD</u> Positive <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

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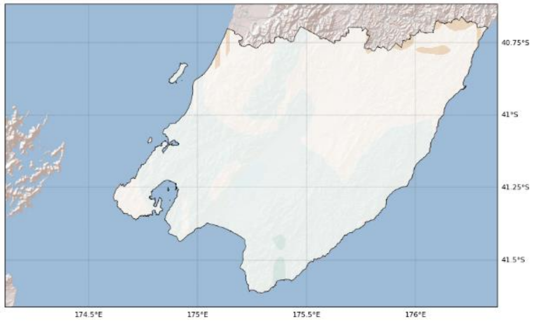
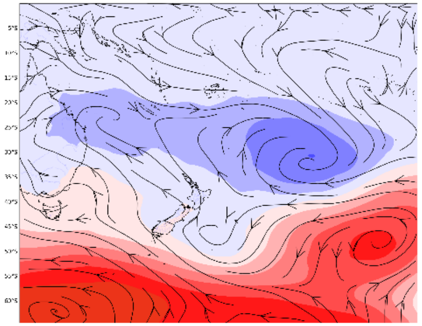
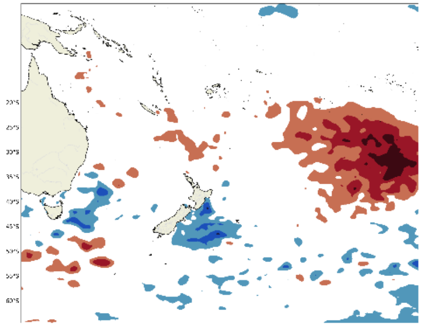
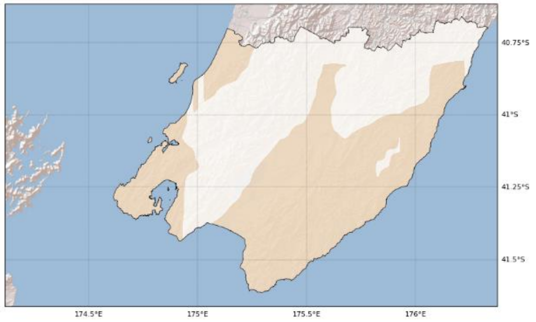
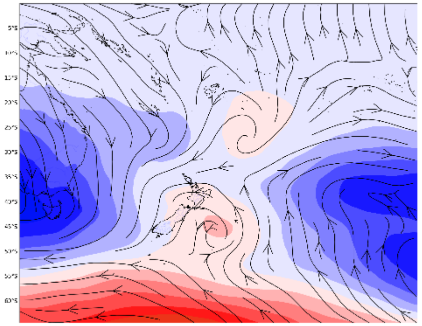
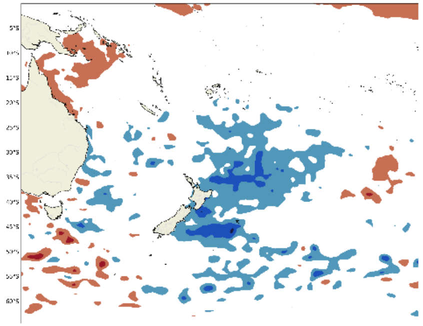
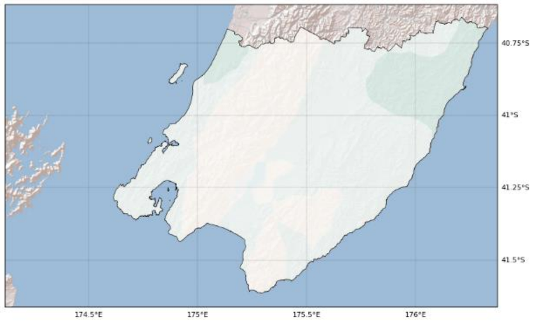
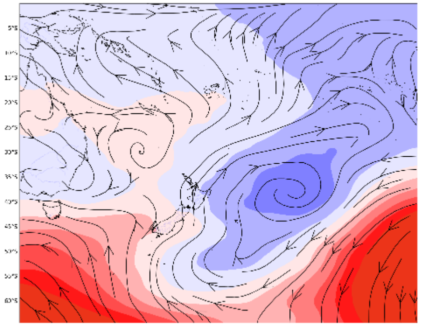
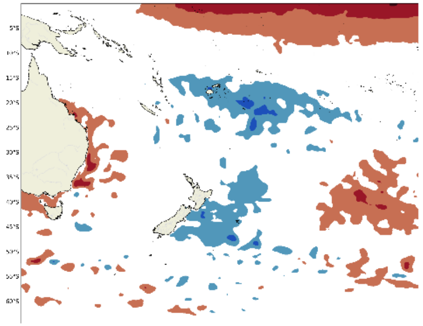
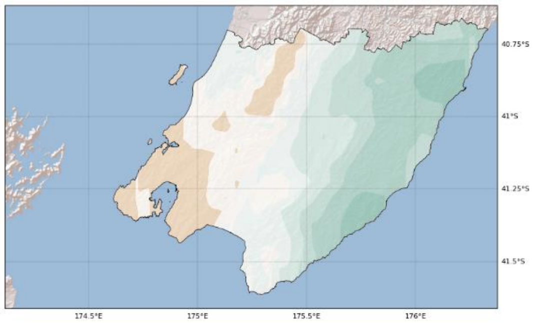
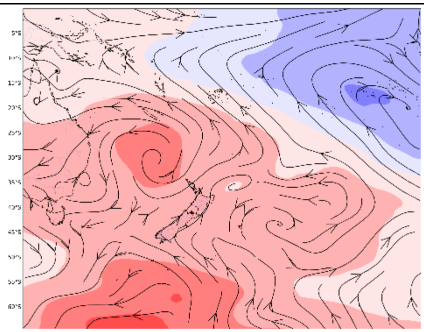
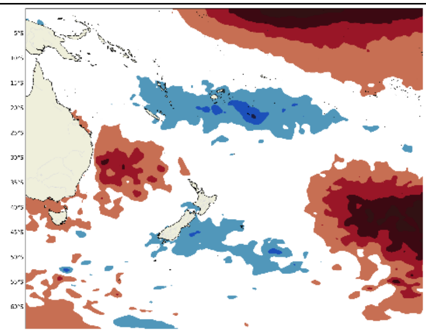
<tr><td>Autumn</td><td></td><td></td><td></td><td><u>ENSO</u>
Neutral
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Winter</td><td></td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Spring</td><td></td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
Neutral</td></tr>
<tr><td>Summer</td><td></td><td></td><td></td><td><u>ENSO</u>
El Niño
<u>IOD</u>
Neutral
<u>SAM</u>
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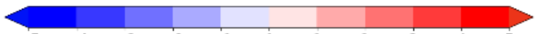
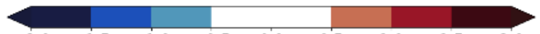
</td><td>
</td><td>
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Op_BC@5km</td></tr>
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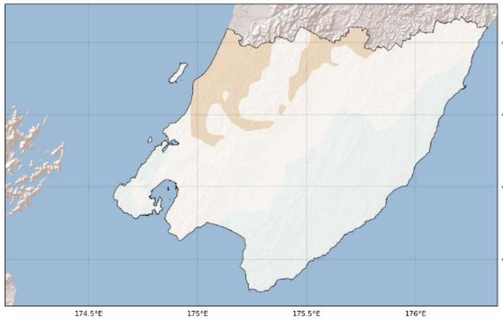
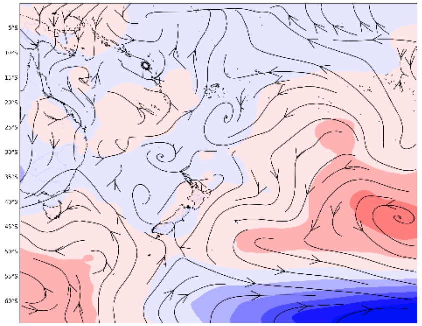
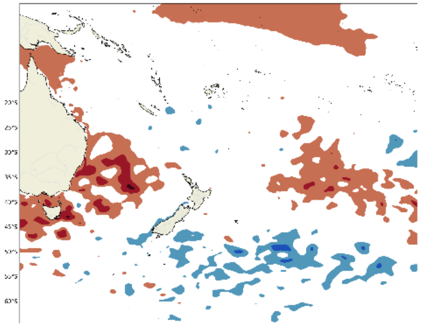
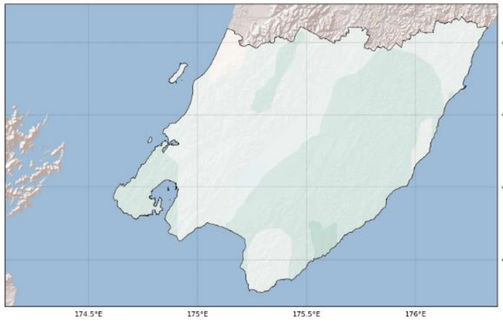
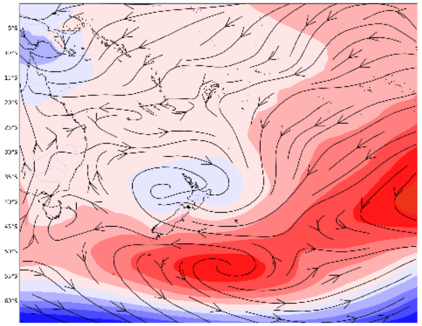
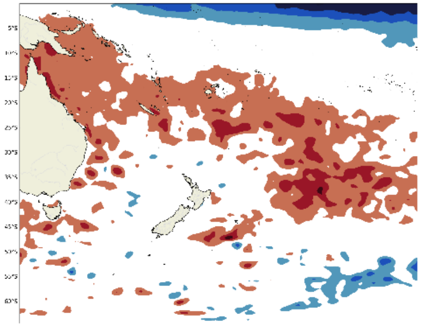
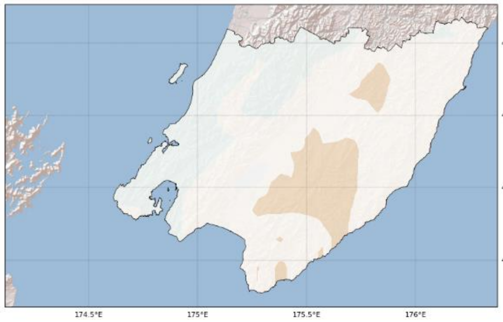
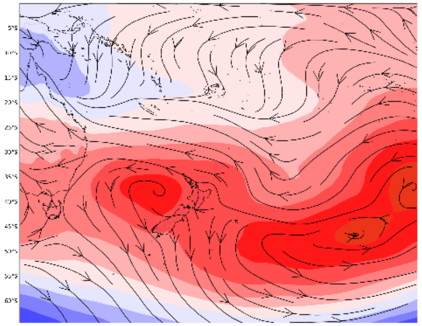
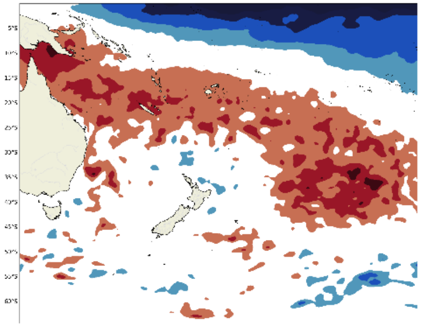
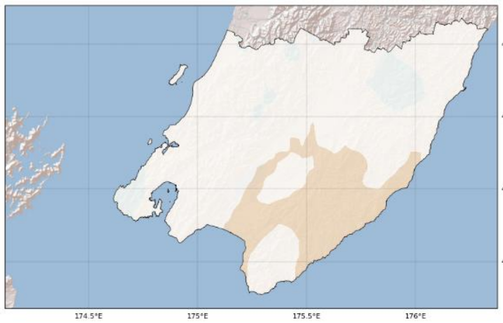
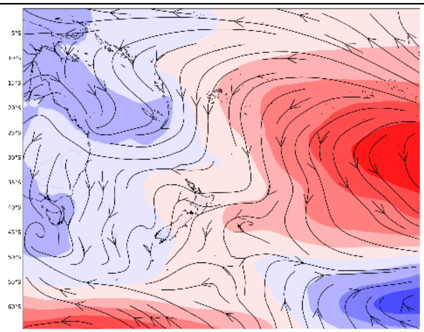
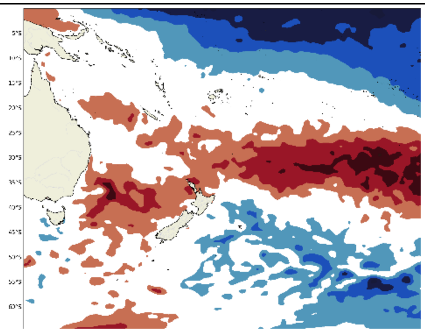
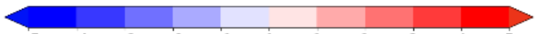
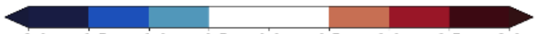
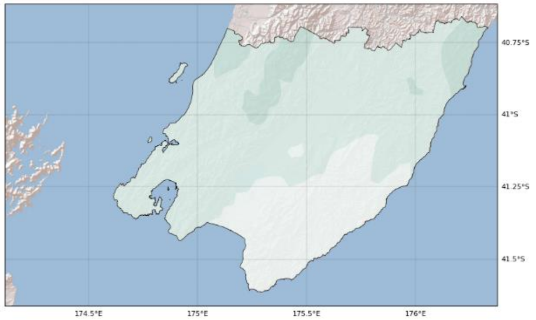
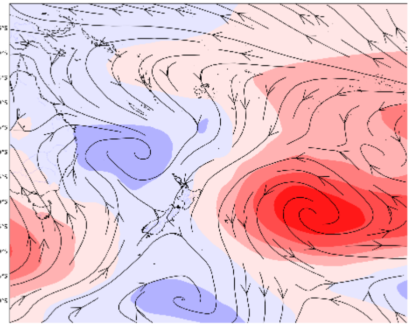
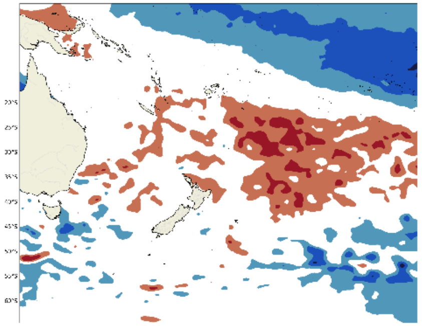
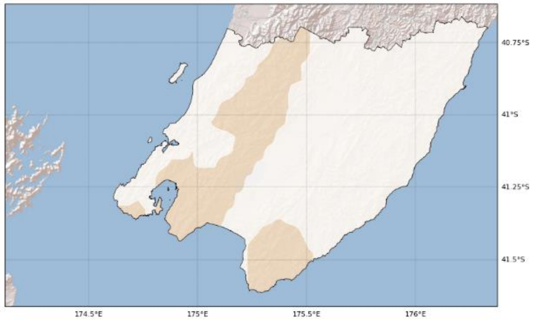
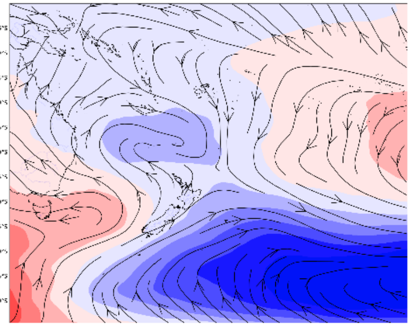
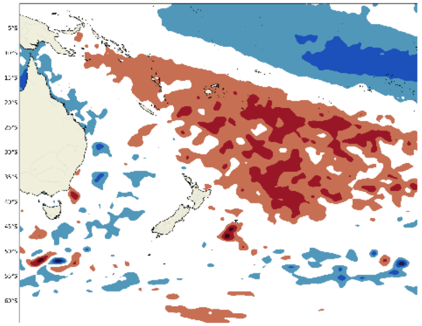
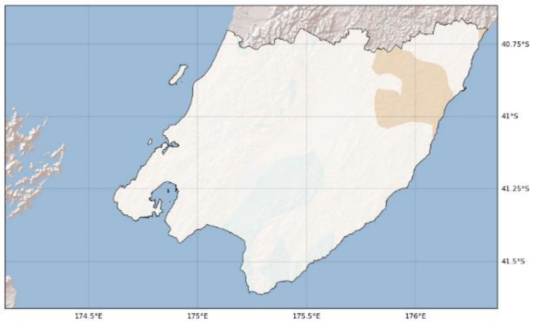
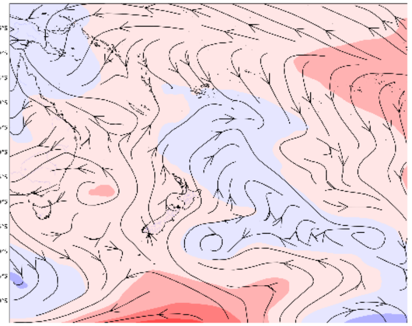
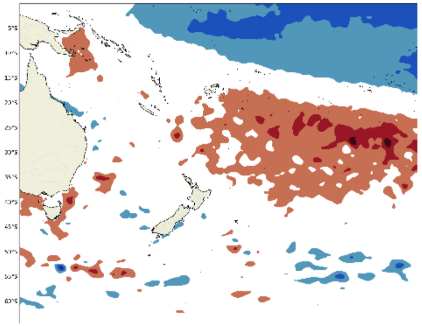
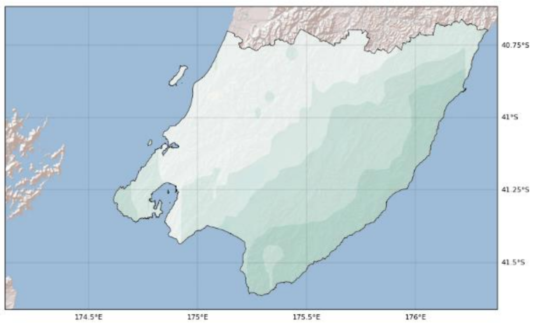
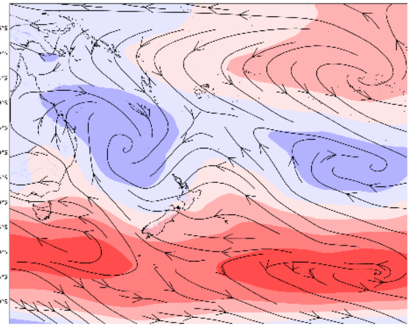
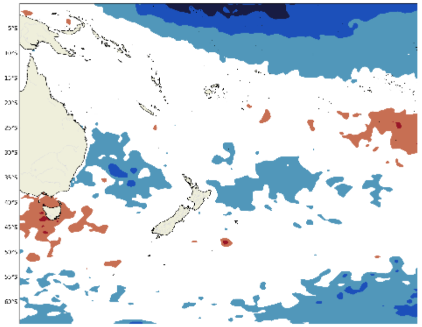
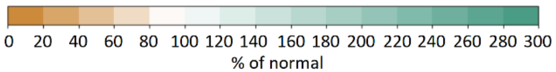
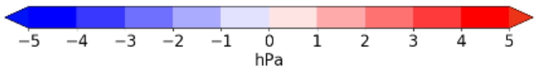
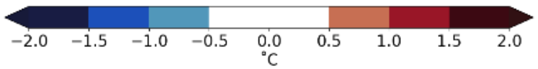
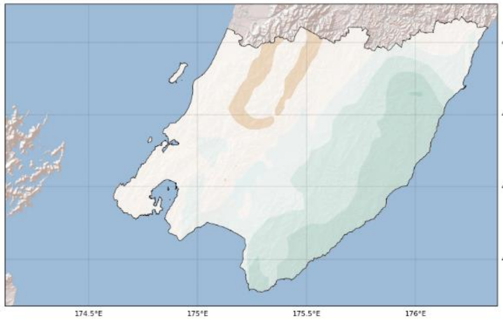
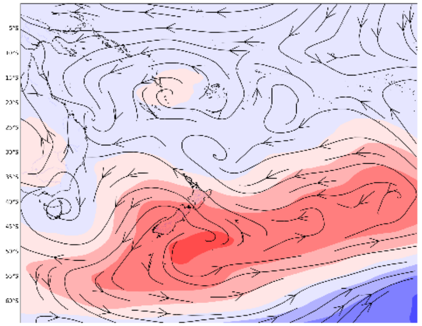
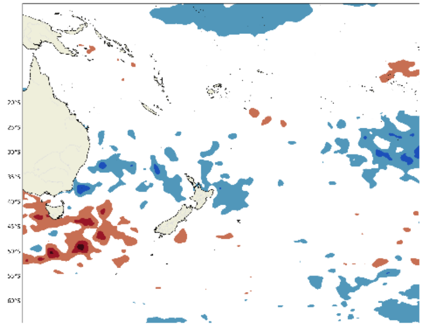
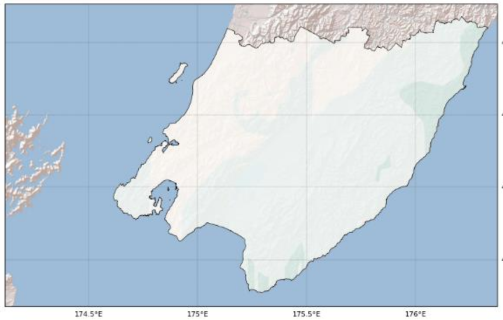
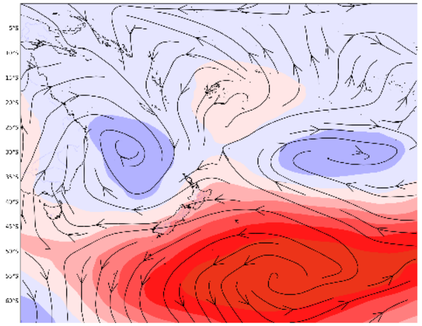
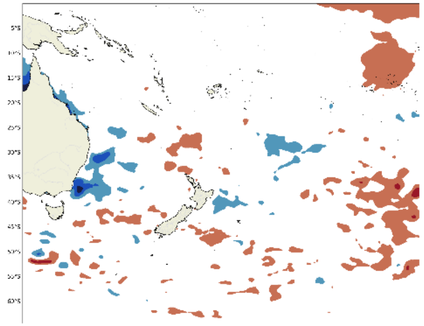
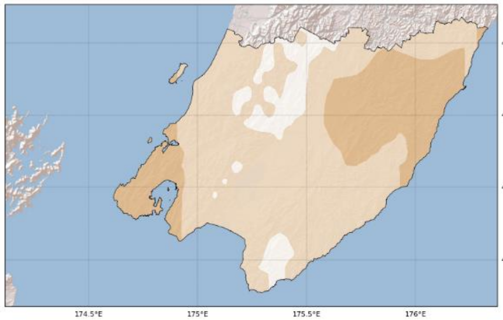
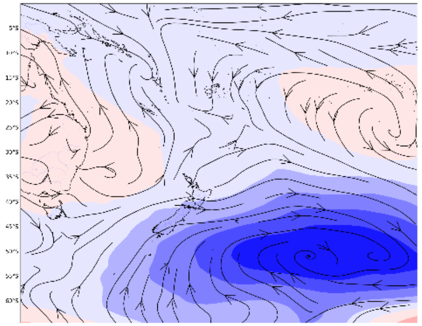
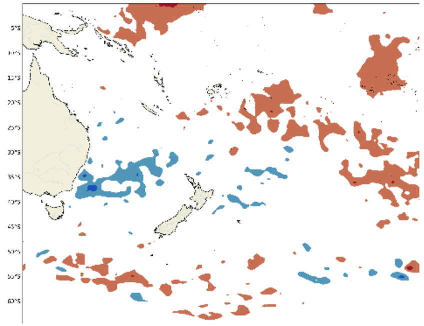
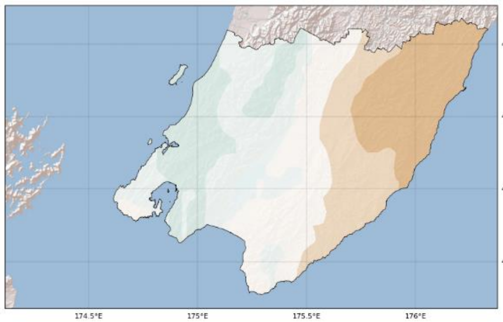
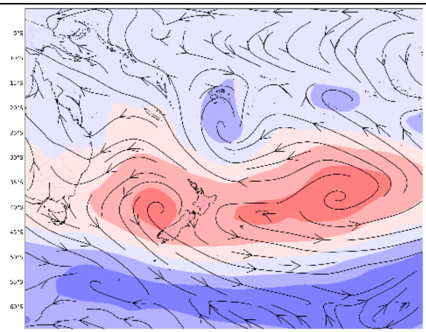
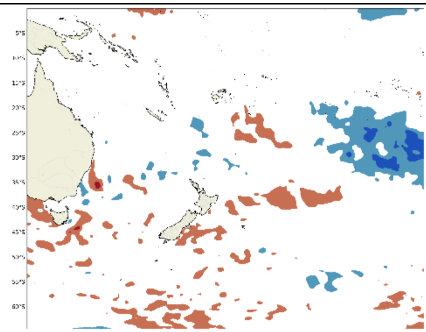
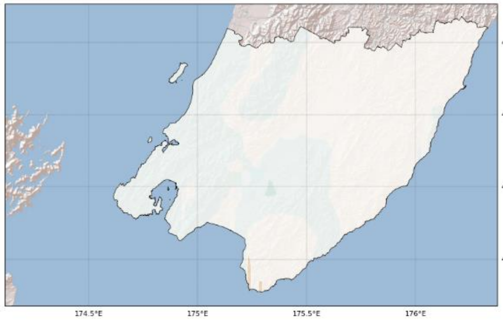
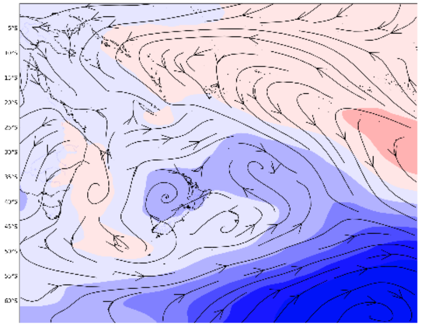
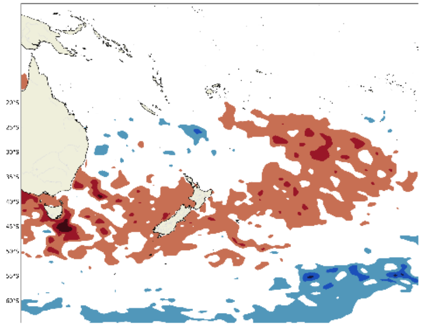
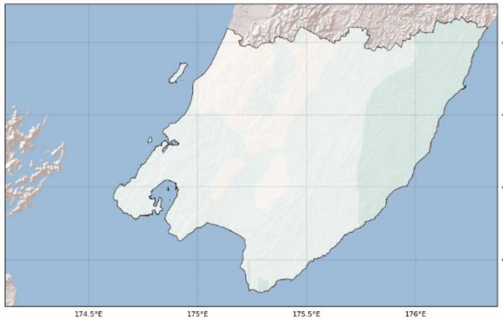
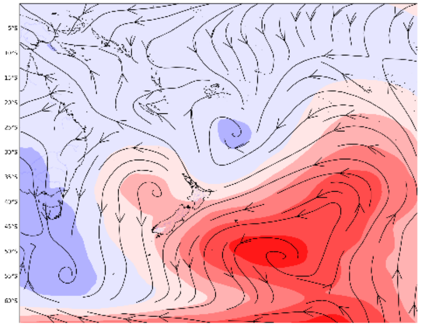
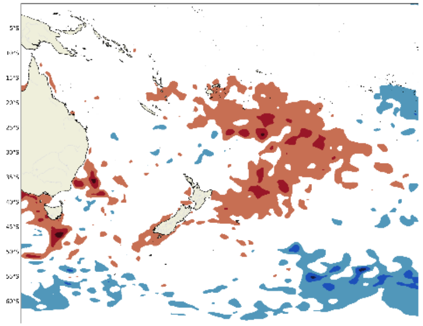
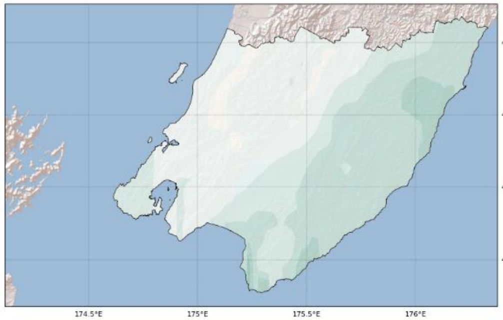
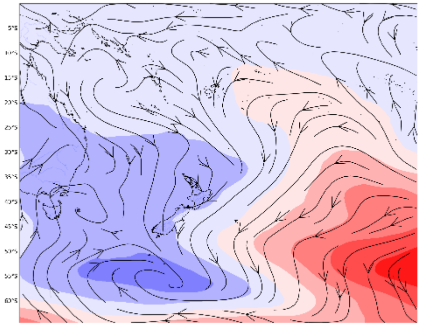
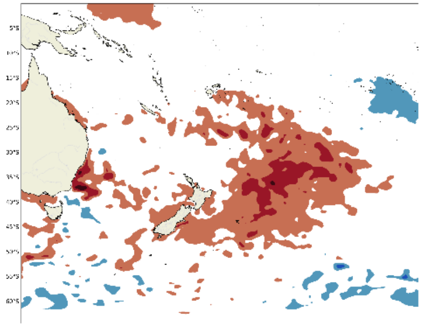
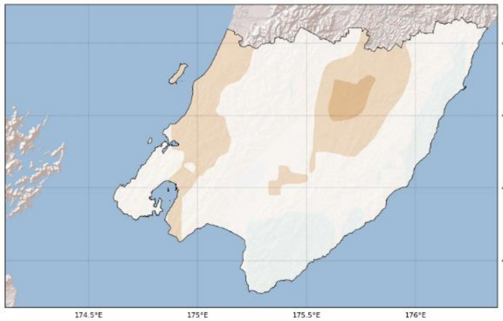
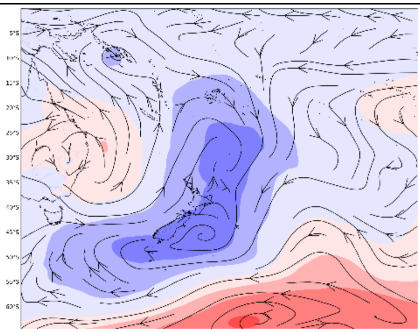
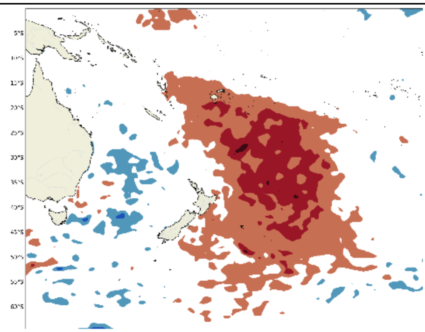
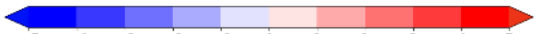
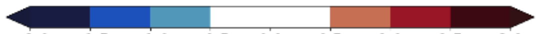
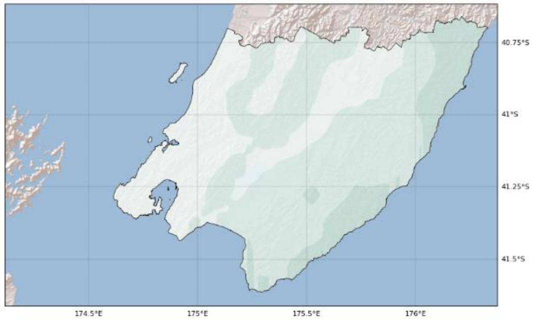
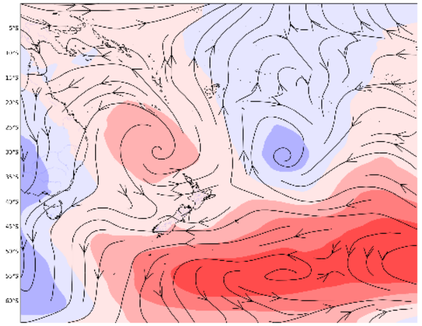
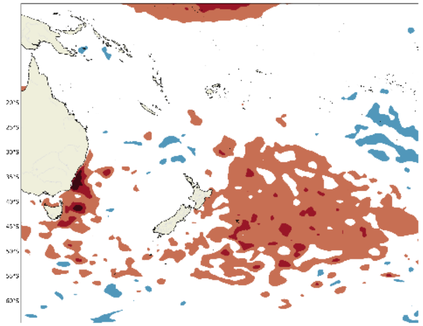
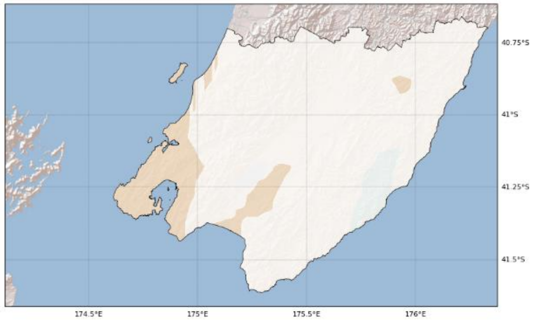
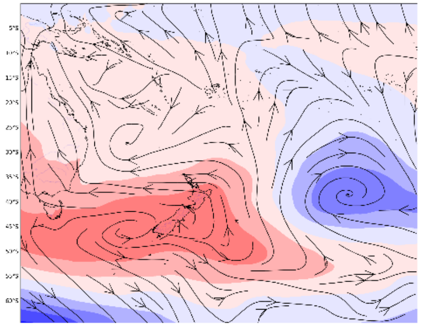
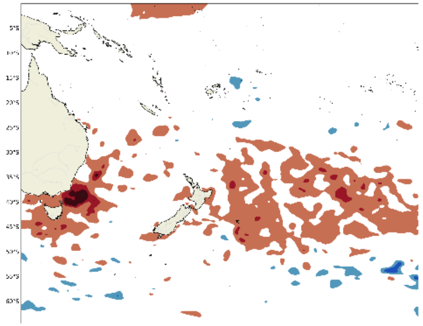
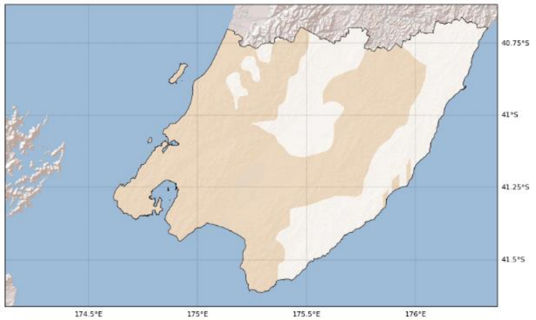
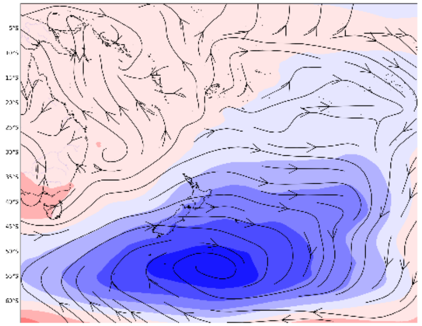
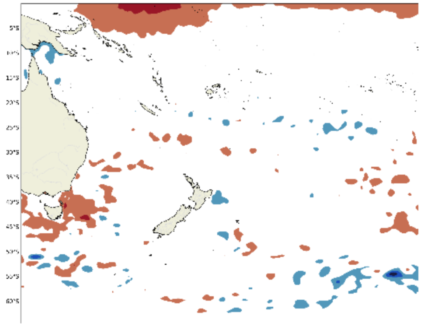
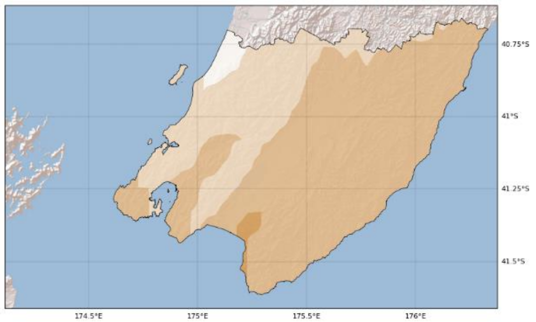
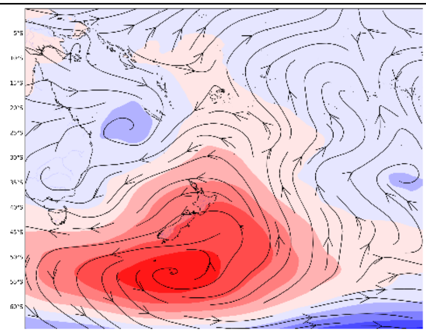
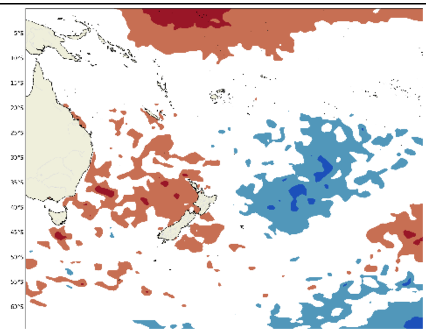
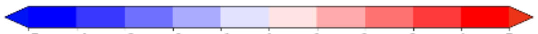
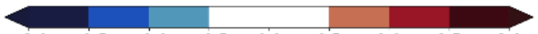
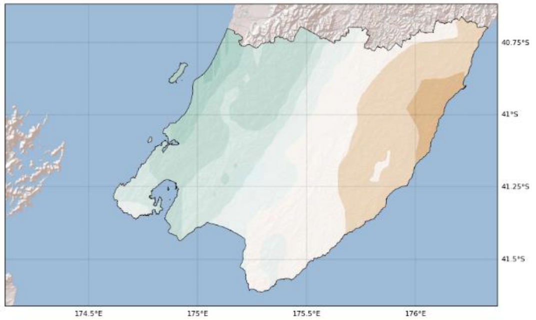
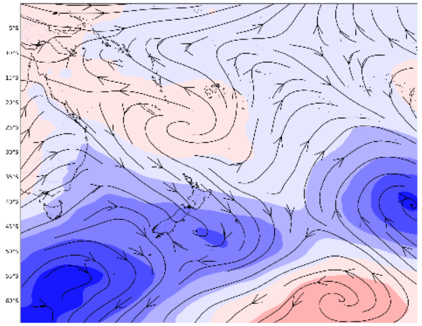
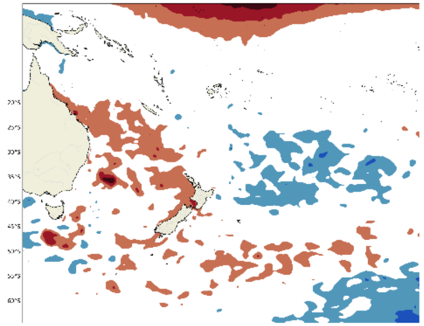
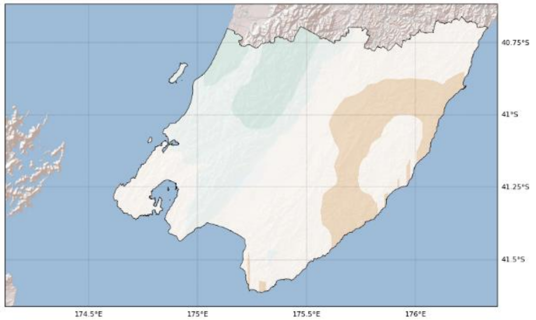
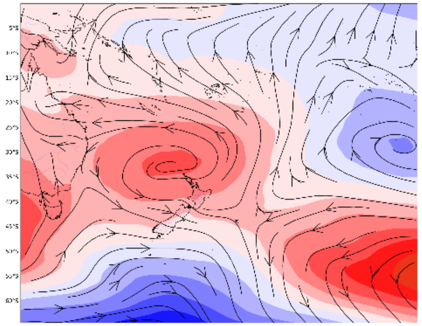
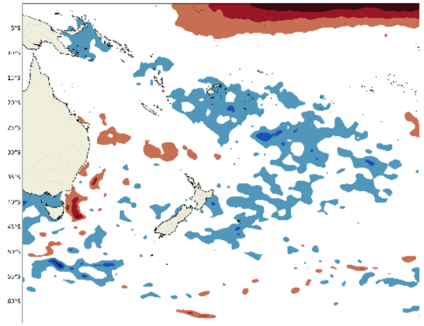
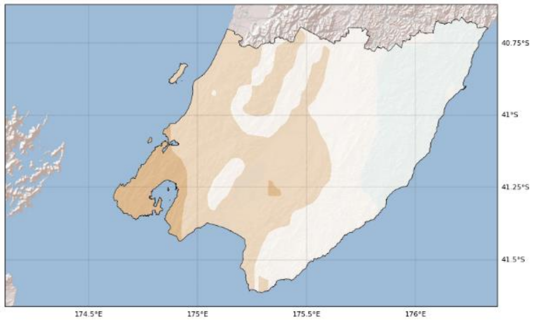
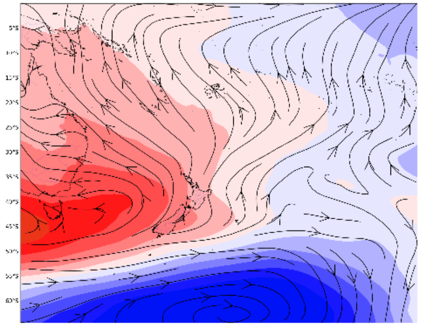
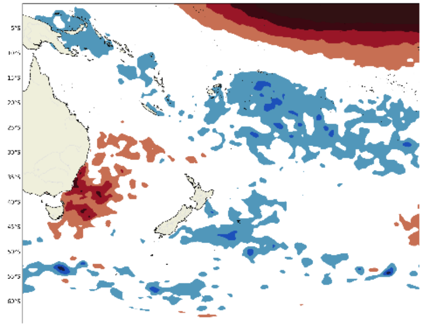
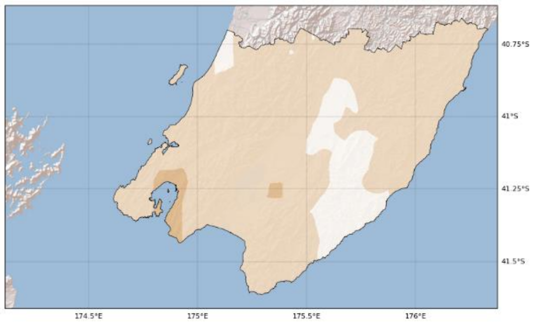
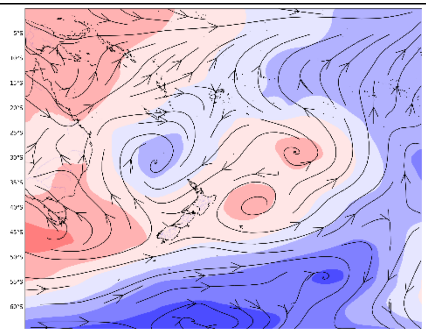
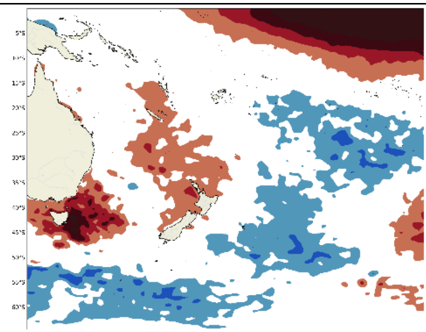
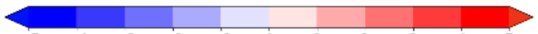
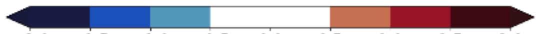
2010	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Negative <u>SAM</u> Positive
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

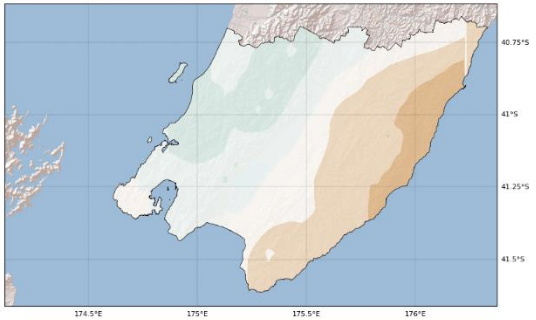
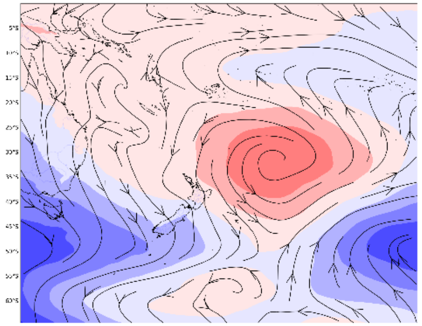
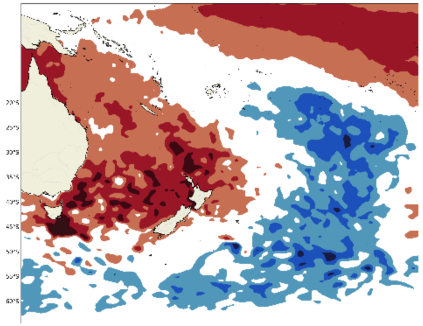
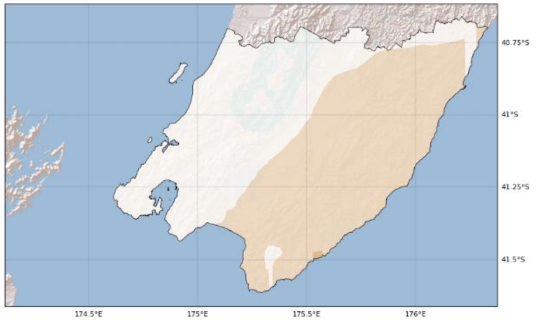
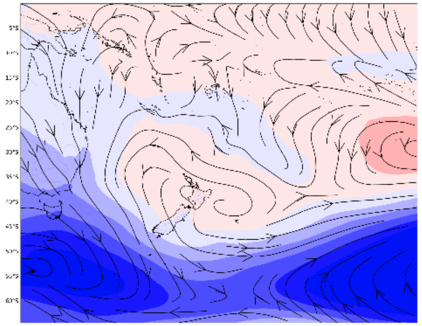
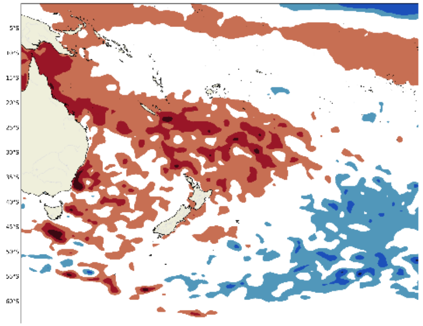
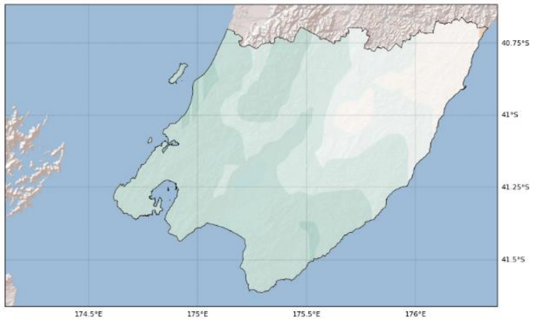
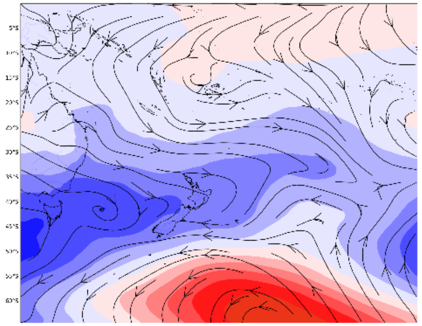
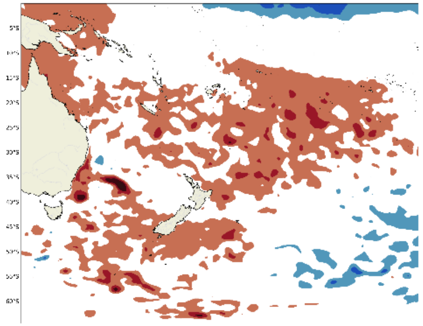
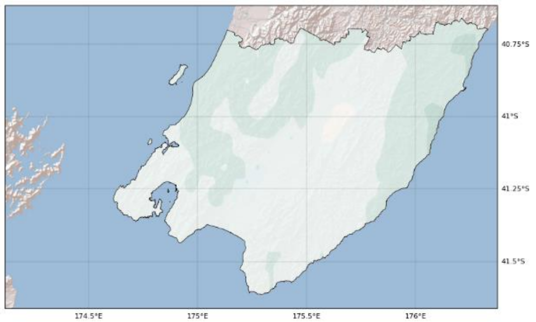
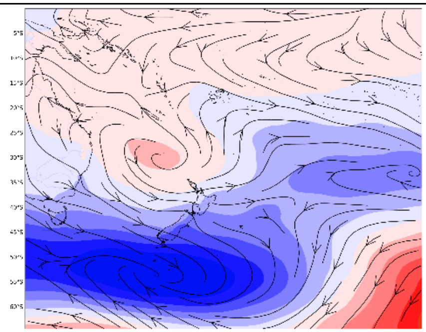
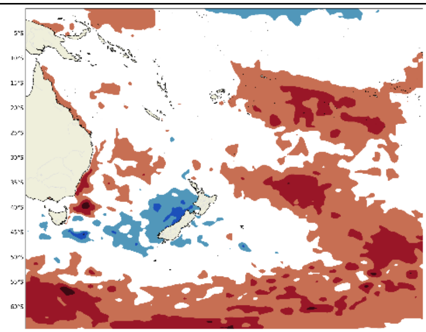
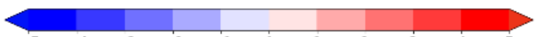
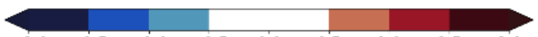
2011	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Winter				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Neutral
Summer				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

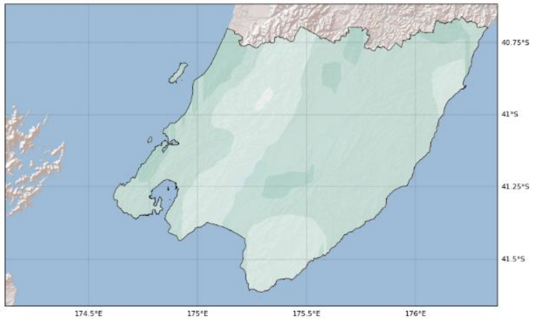
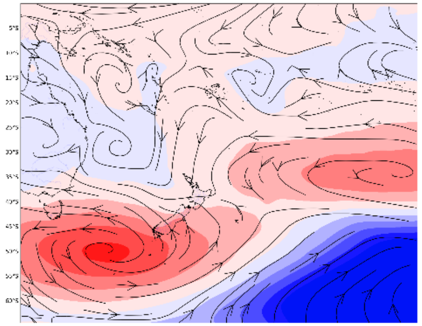
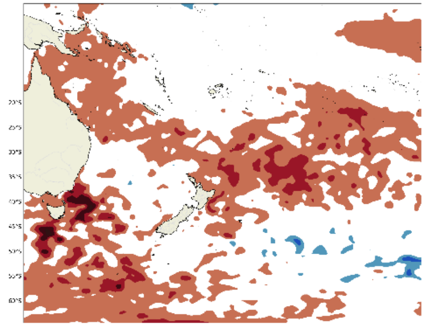
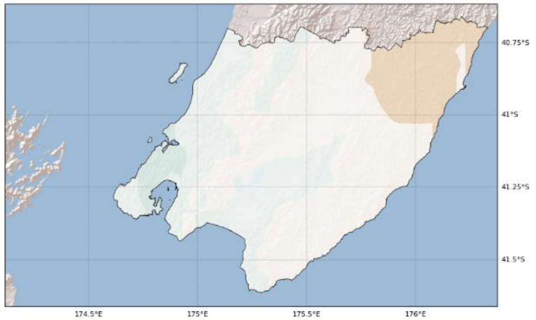
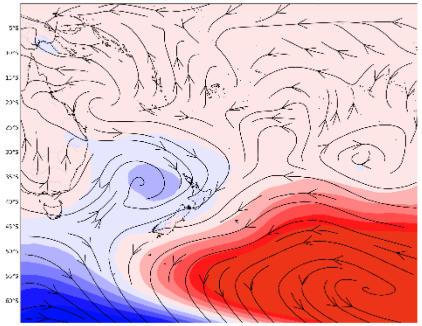
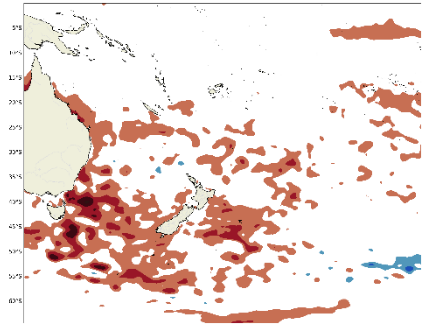
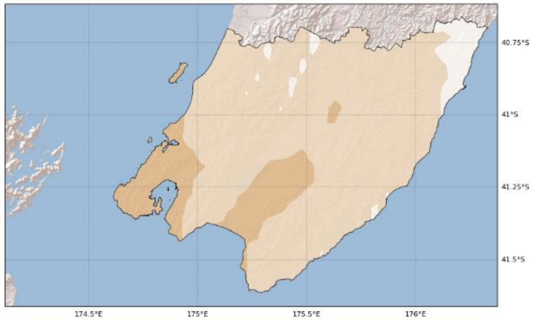
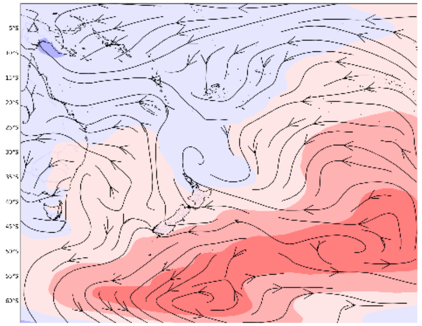
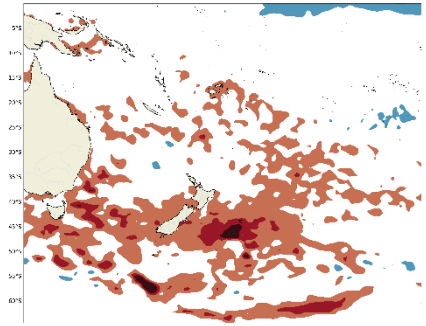
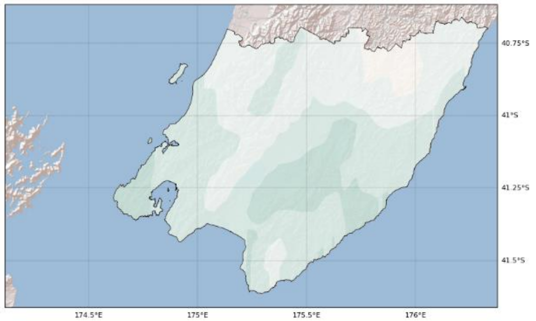
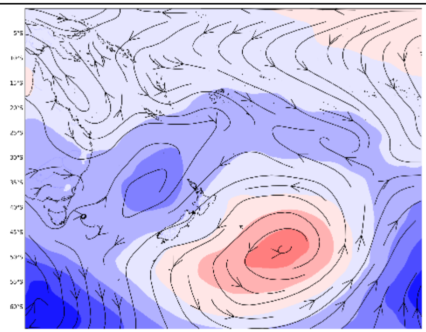
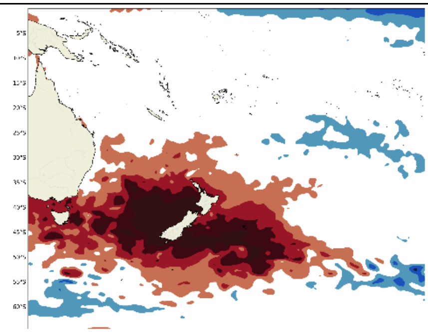
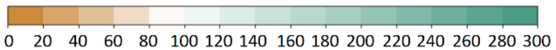
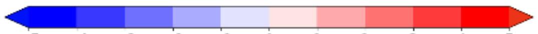
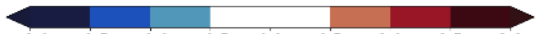
2012	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	−5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	−2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

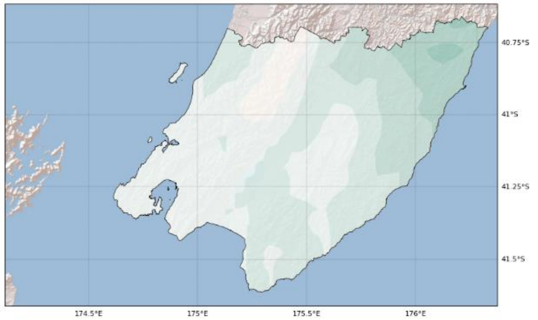
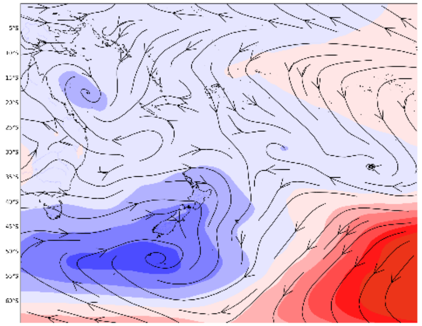
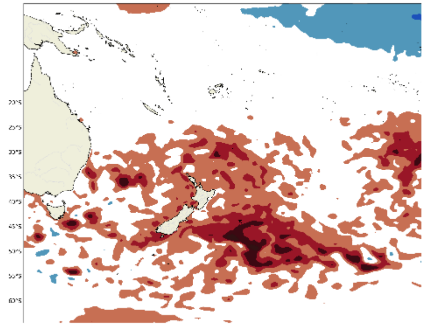
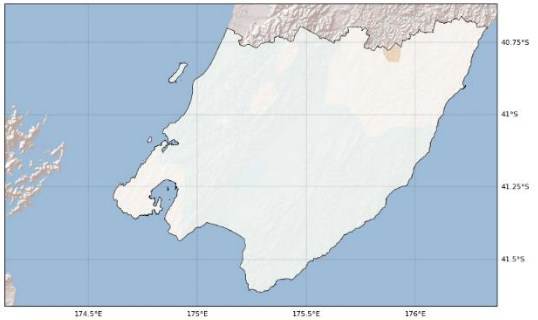
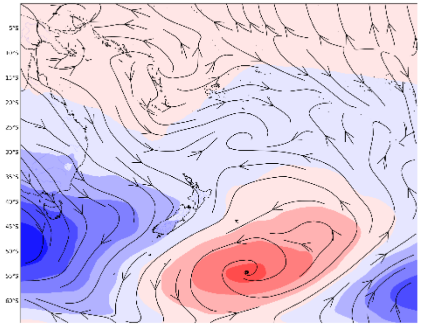
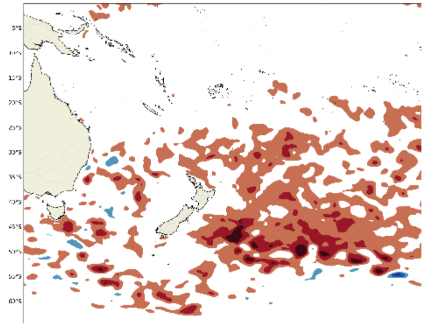
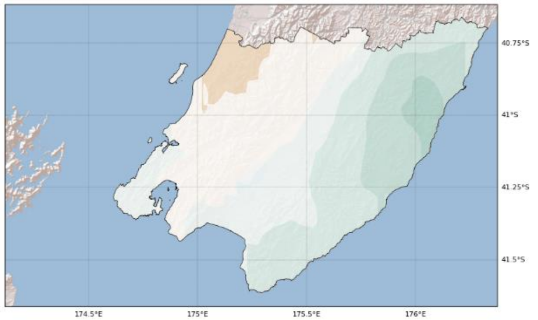
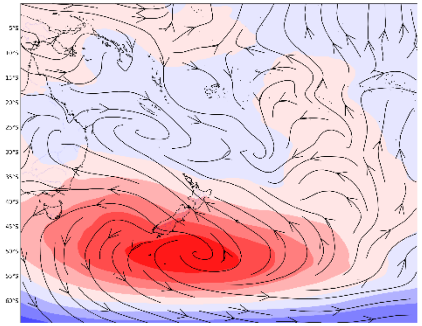
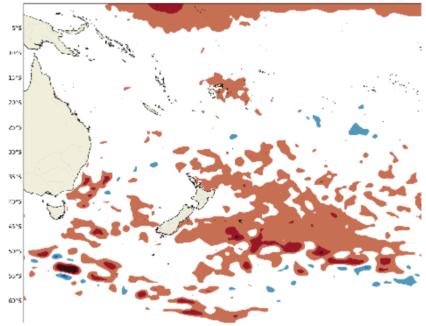
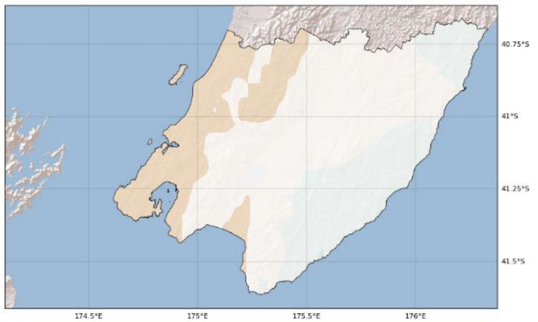
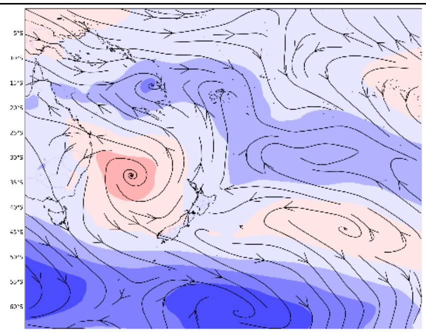
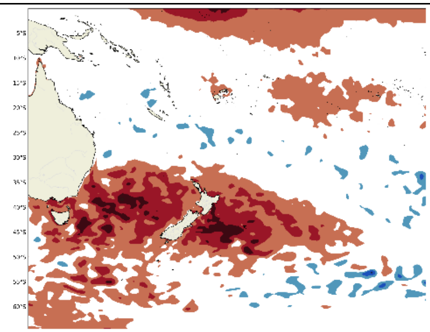
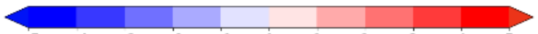
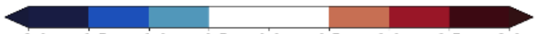
2013	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

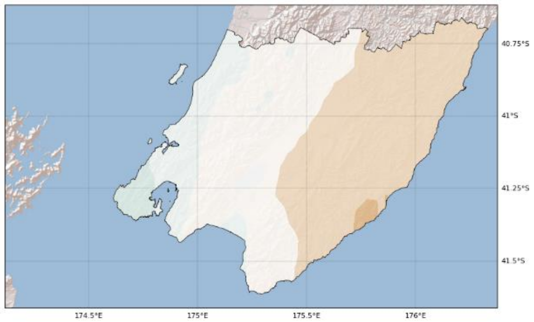
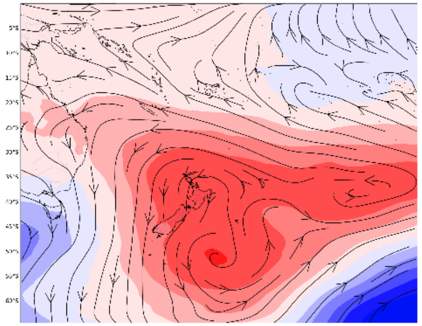
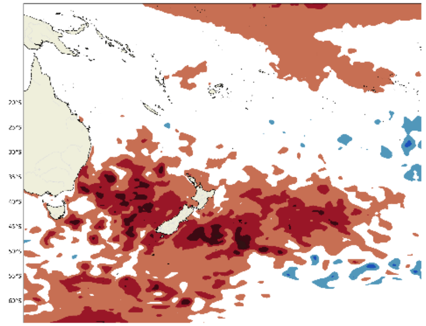
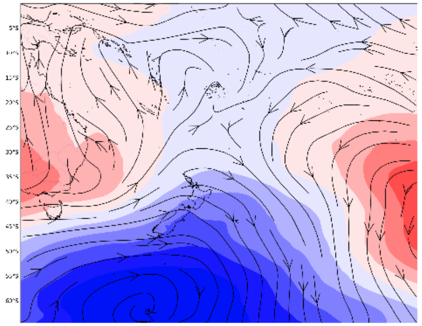
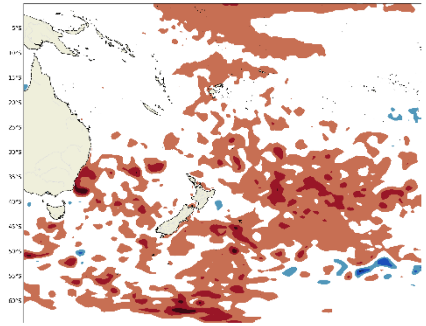
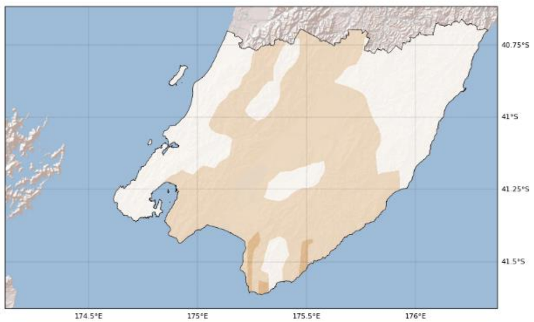
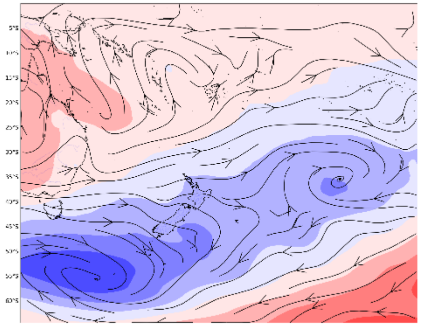
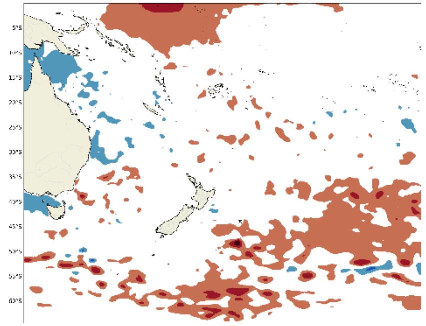
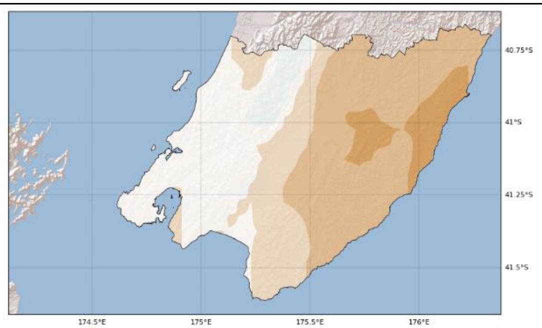
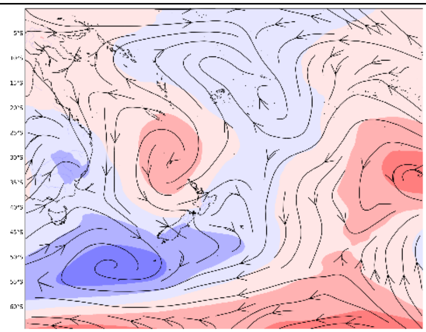
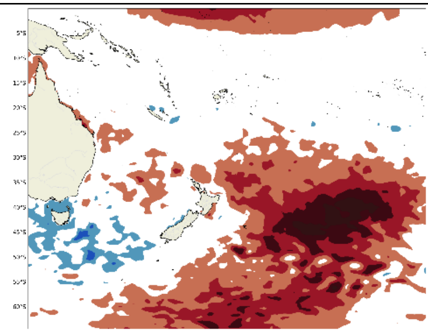
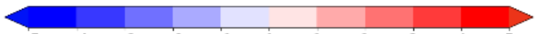
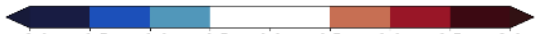
2014	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Positive
Spring				ENSO El Niño IOD Neutral SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

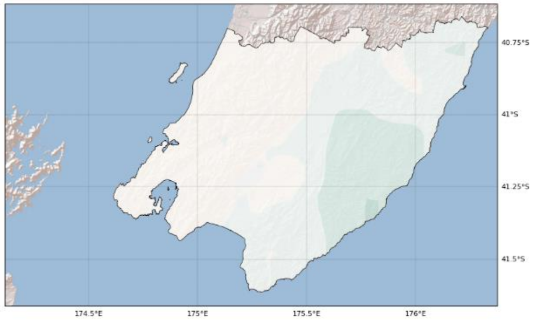
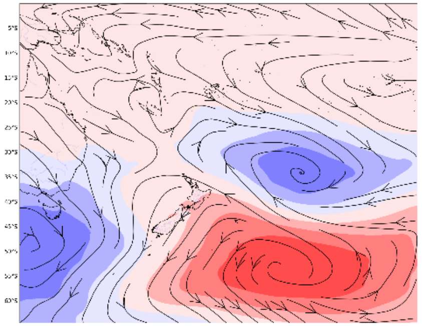
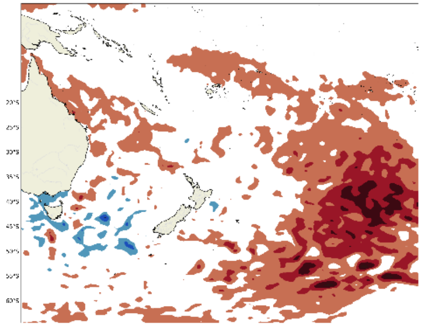
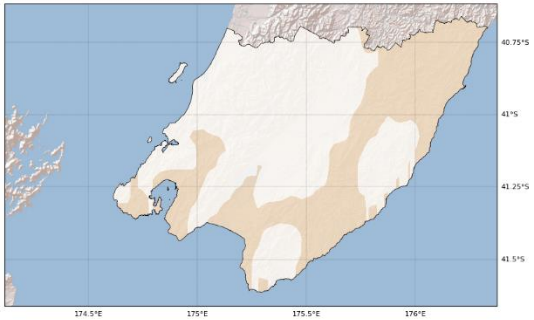
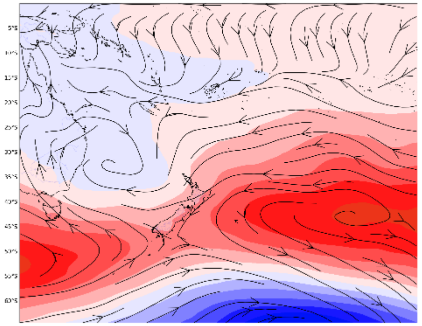
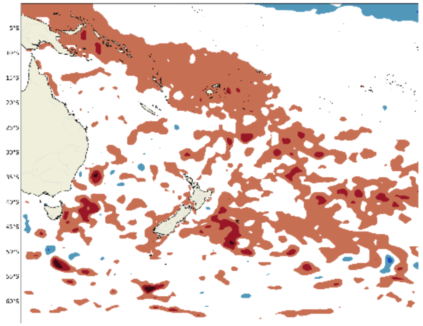
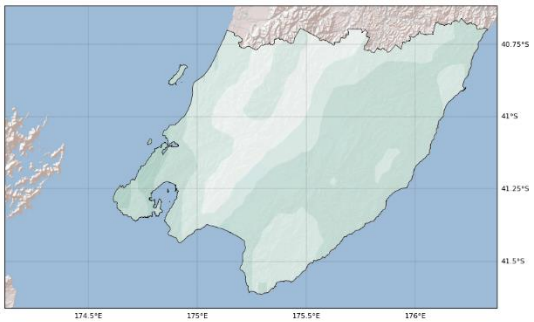
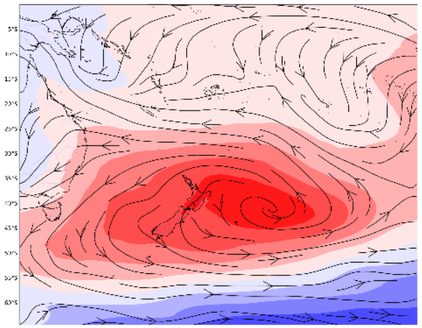
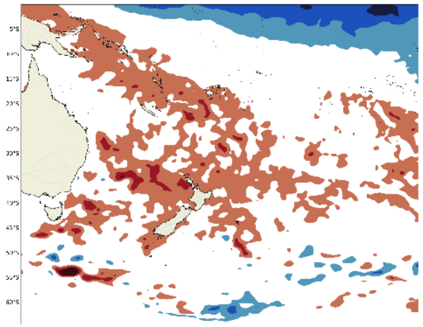
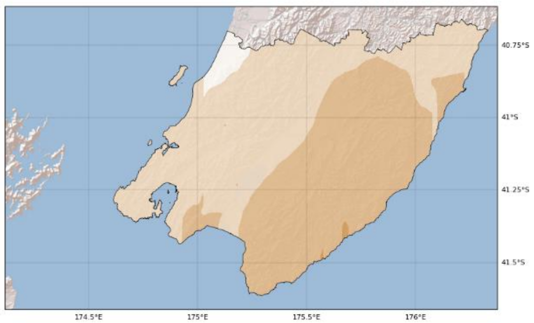
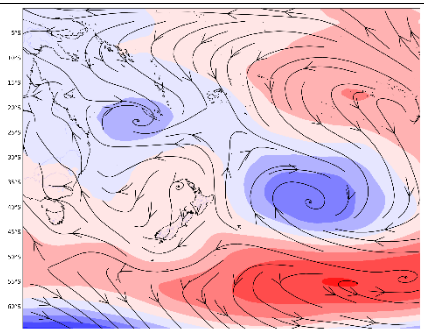
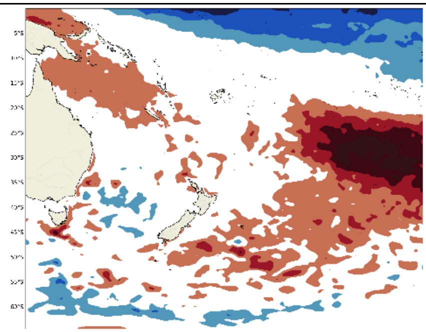
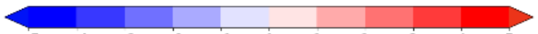
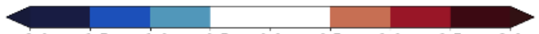
2015	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> El Niño <u>IOD</u> Positive <u>SAM</u> Positive
Summer				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

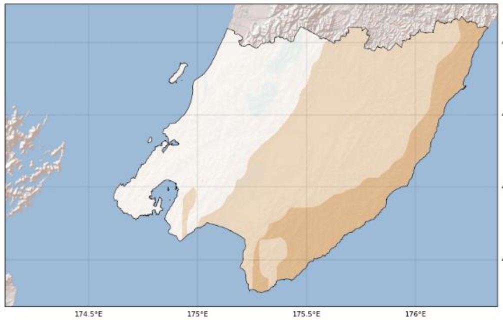
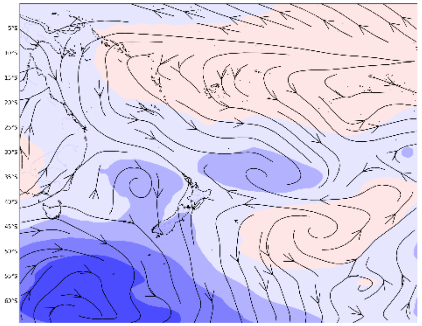
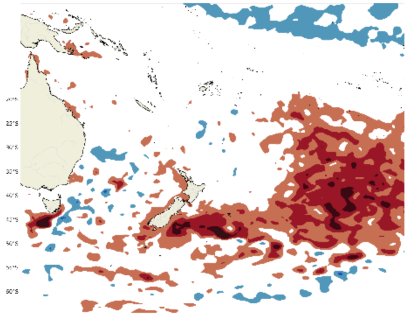
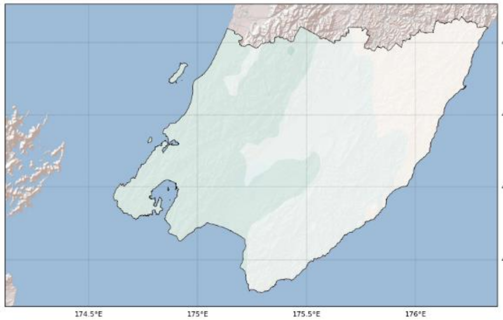
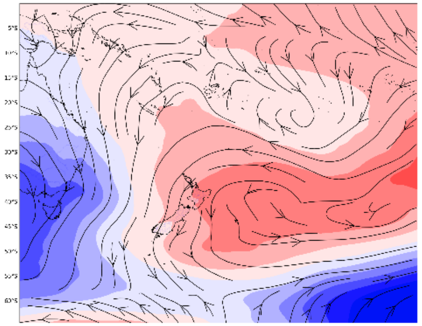
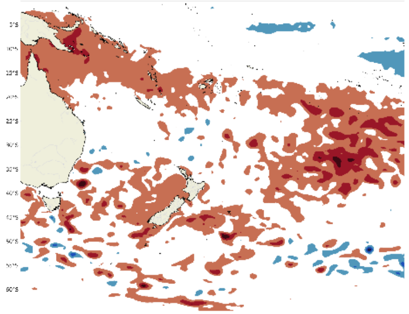
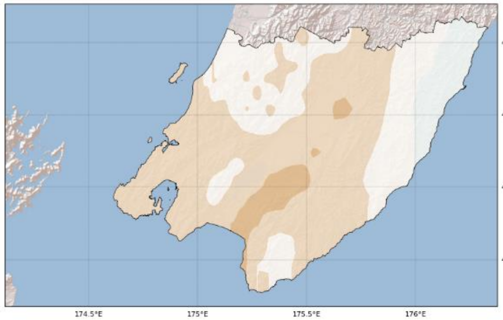
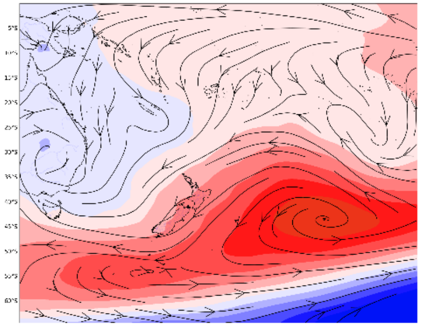
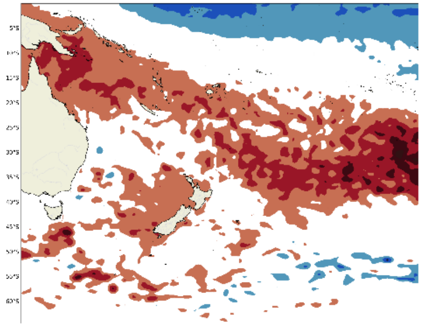
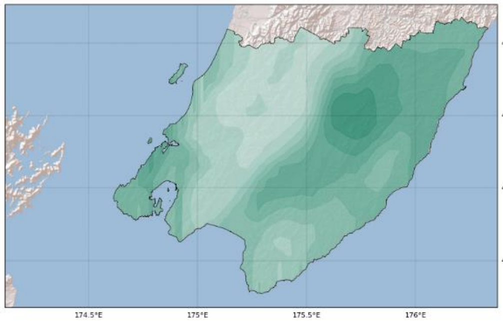
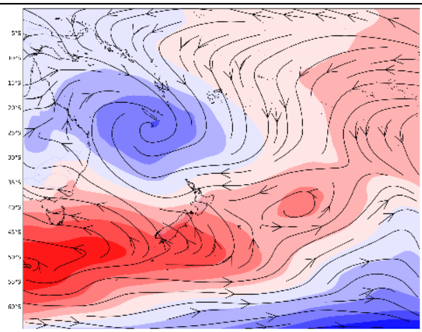
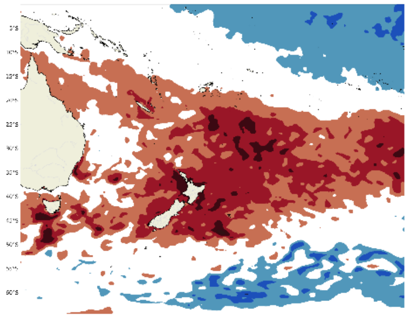
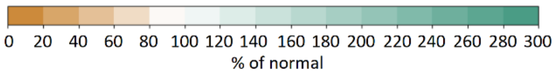
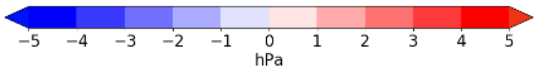
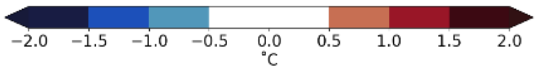
2016	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> El Niño <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> Neutral <u>IOD</u> Negative <u>SAM</u> Positive
Spring				<u>ENSO</u> Neutral <u>IOD</u> Negative <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Neutral
				**Rainfall: Op_BC@5km**

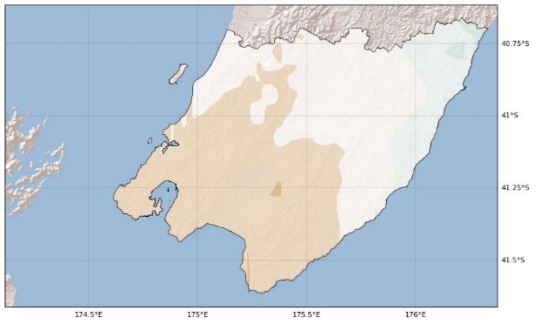
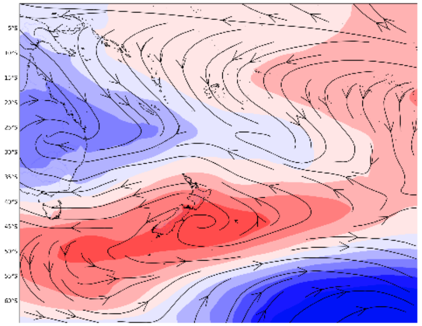
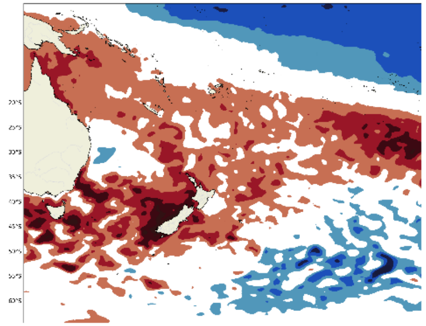
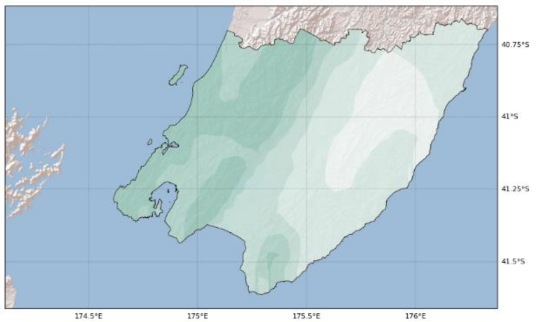
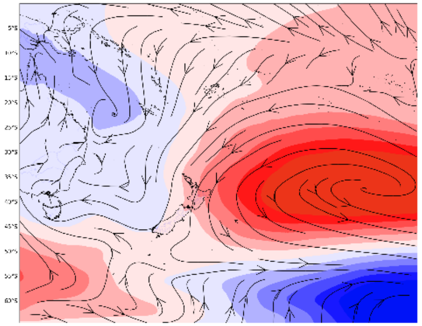
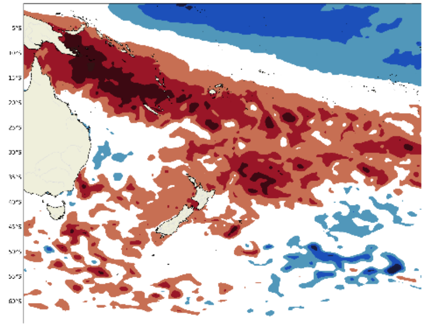
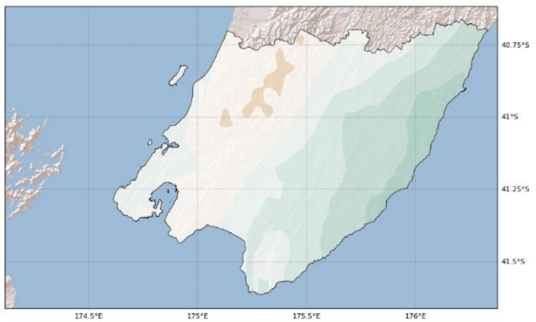
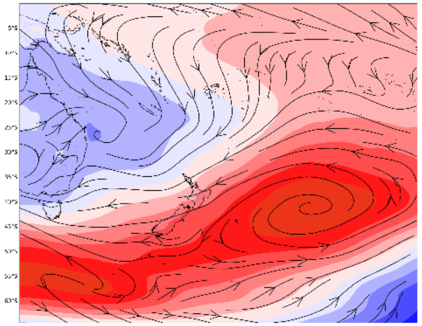
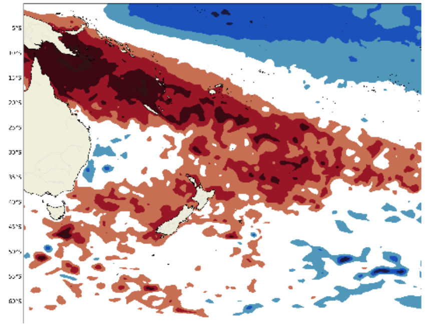
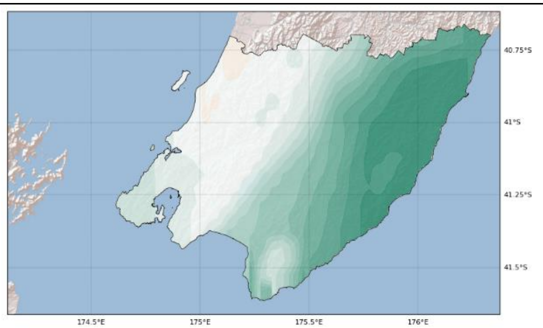
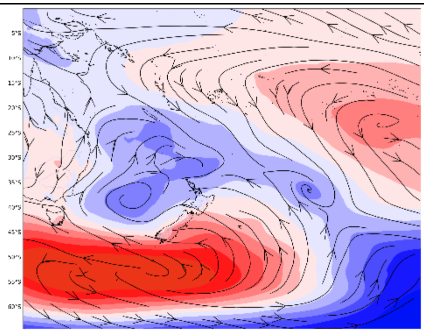
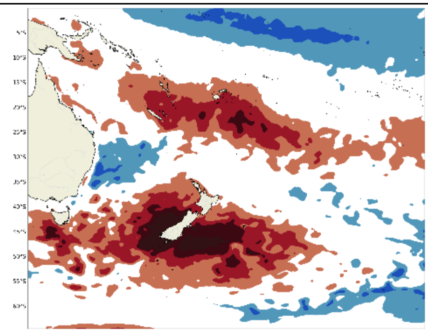
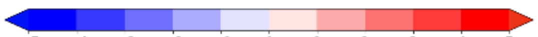
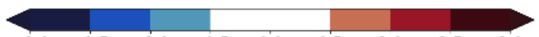
2017	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Winter				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
Spring				<u>ENSO</u> La Niña <u>IOD</u> Neutral <u>SAM</u> Positive
Summer				<u>ENSO</u> Neutral <u>IOD</u> Neutral <u>SAM</u> Positive
				**Rainfall: Op_BC@5km**

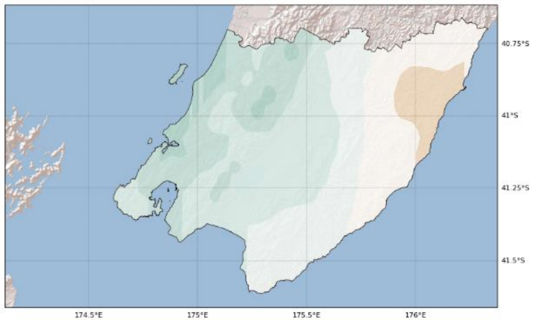
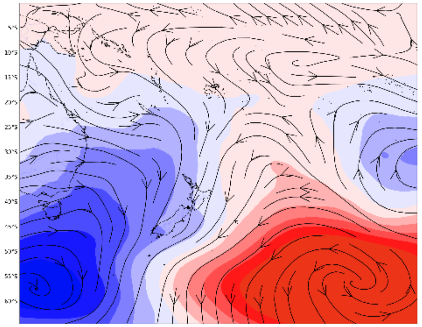
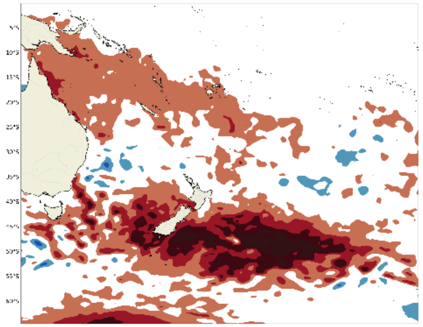
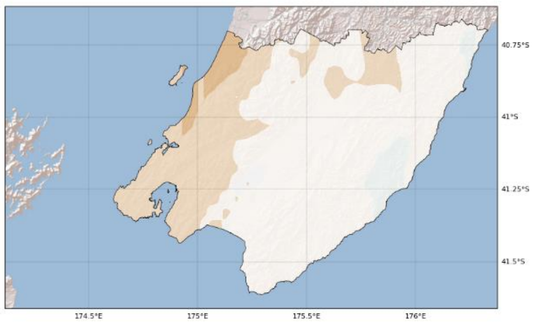
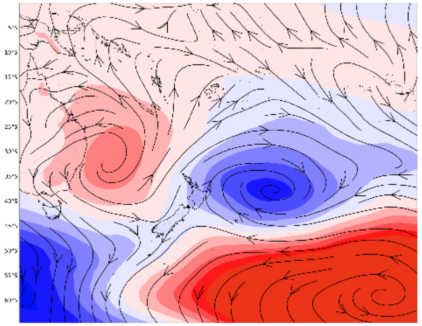
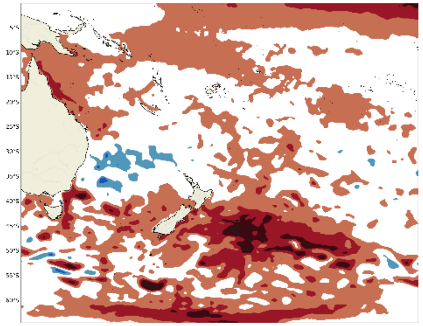
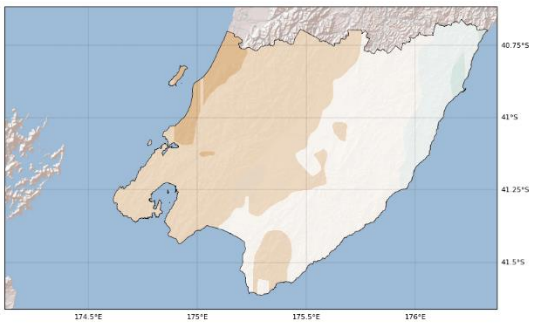
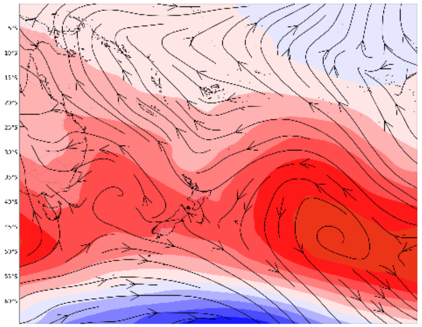
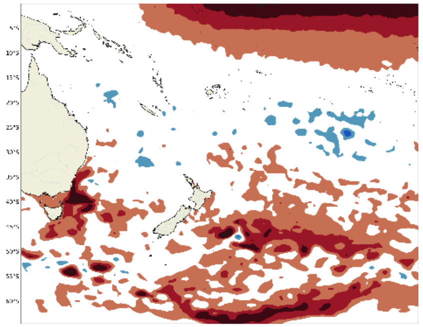
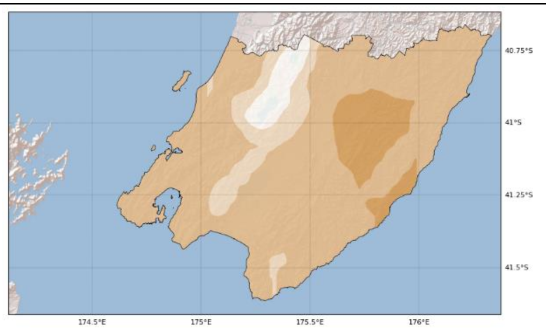
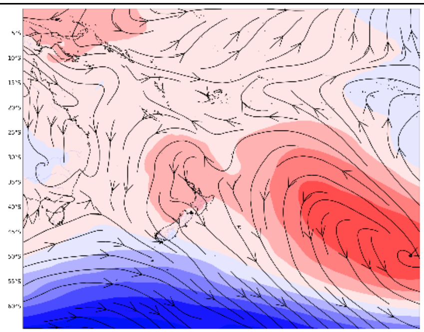
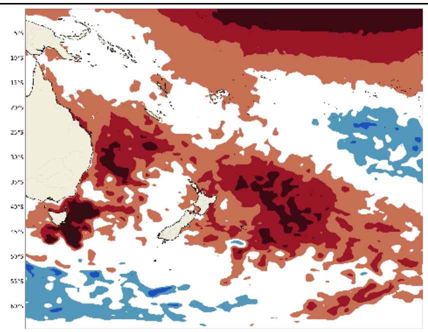
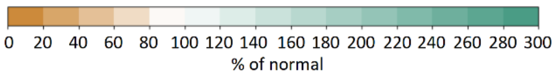
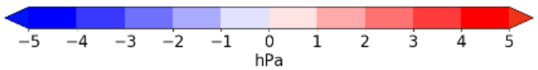
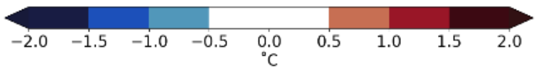
2018	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO Neutral IOD Neutral SAM Positive
Summer				ENSO Neutral IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

2019	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO El Niño IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Positive SAM Positive
Spring				ENSO Neutral IOD Positive SAM Neutral
Summer				ENSO Neutral IOD Neutral SAM Neutral
				**Rainfall: Op_BC@5km**

2020	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Positive
Winter				ENSO Neutral IOD Neutral SAM Neutral
Spring				ENSO La Niña IOD Neutral SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

2021	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Neutral SAM Positive
Spring				ENSO La Niña IOD Neutral SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Positive
				**Rainfall: Op_BC@5km**

2022	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO La Niña IOD Neutral SAM Positive
Winter				ENSO La Niña IOD Negative SAM Positive
Spring				ENSO La Niña IOD Negative SAM Positive
Summer				ENSO La Niña IOD Neutral SAM Positive
	 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 % of normal	 −5 −4 −3 −2 −1 0 1 2 3 4 5 hPa	 −2.0 −1.5 −1.0 −0.5 0.0 0.5 1.0 1.5 2.0 °C	**Rainfall: Op_BC@5km**

2023	Rainfall anomaly	MSLP anomaly	SST anomaly	Climate modes
Autumn				ENSO Neutral IOD Neutral SAM Neutral
Winter				ENSO El Niño IOD Neutral SAM Neutral
Spring				ENSO El Niño IOD Positive SAM Positive
Summer				ENSO El Niño IOD Positive SAM Positive
				**Rainfall: Op_BC@5km**

9 Acknowledgements

Regional Councils are thanked for contributing rainfall data from their networks which was used to generate the high resolution VCSN dataset. Dr. Alex Pezza (GWRC) is thanked for his collaboration and contributions during the development of this catalogue, which resulted in an improved final version.