

# Climate Briefing

## 10<sup>th</sup> October 2019

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TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

# Outline



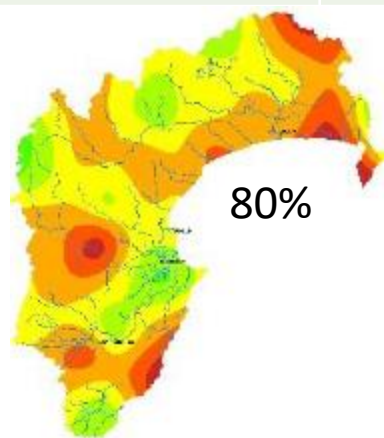
1. Current State – rainfall, PET and soil moisture
2. Status and outlook of climate modes
3. Forecasts



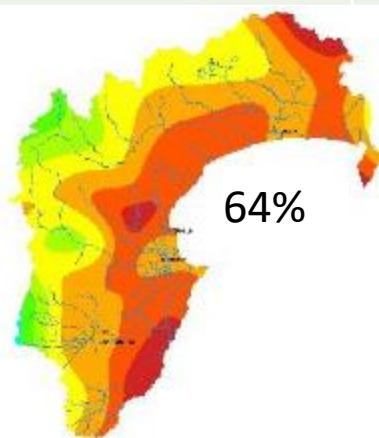
## Current State – rainfall, PET and soil moisture

# Current State - rainfall

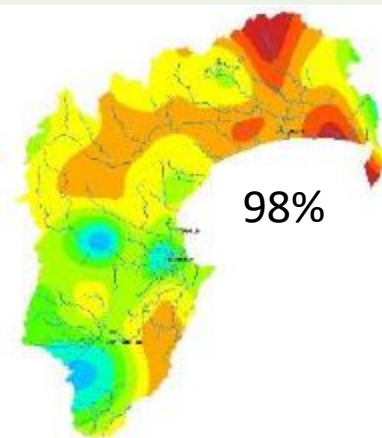
Area	June (%) 100%	July (%) 80%	August (%) 64%	September (%) 98%
Waikaremoana	69	85	72	67
Northern HB	66	66	52	64
Tangoio	94	77	36	89
Kaweka	116	79	82	85
Ruahine	104	77	116	125
Heretaunga Plains	115	89	52	131
Ruataniwha Plains	128	76	57	114
Southern HB	113	88	45	113



July 2019

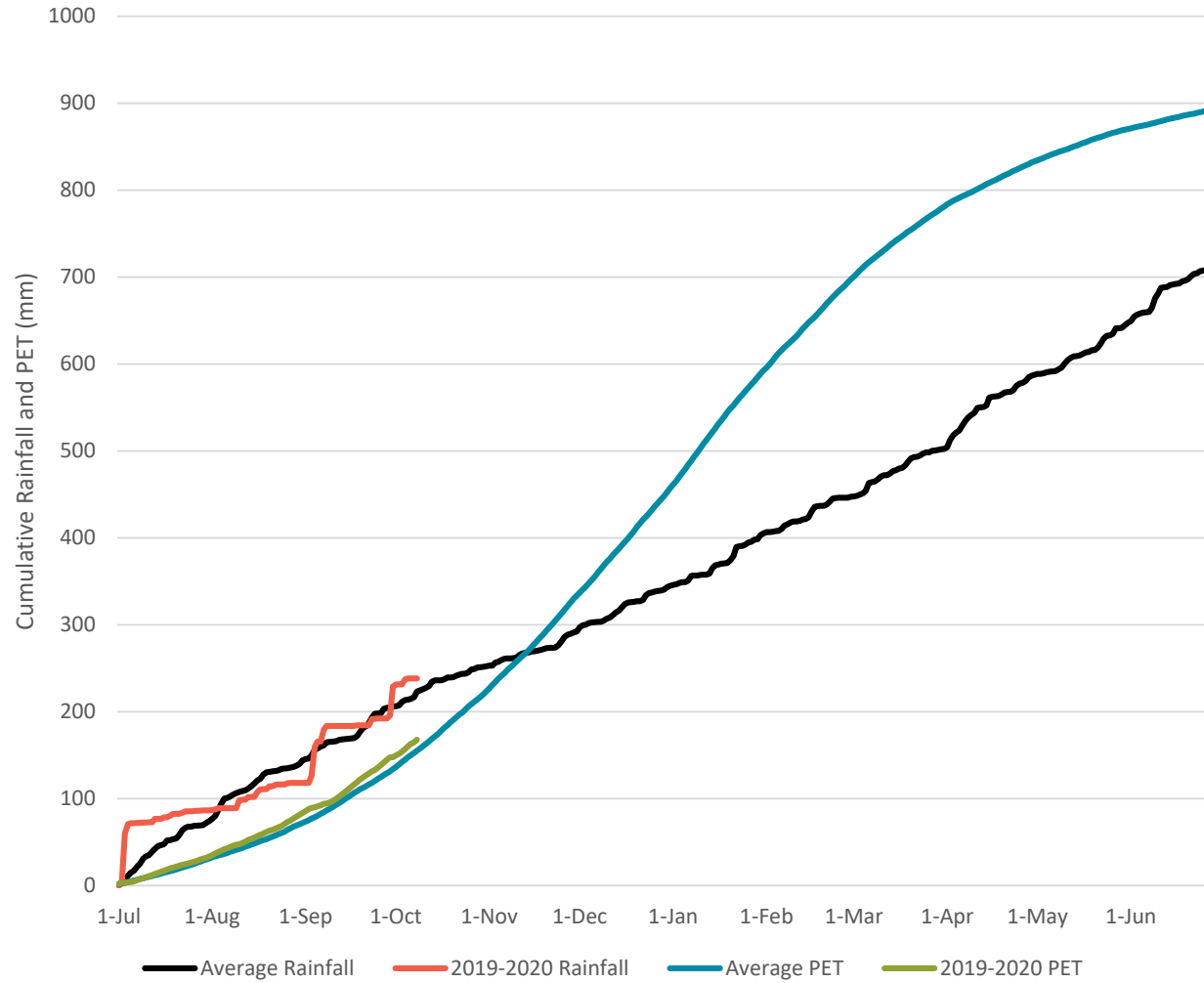


August 2019



September 2019

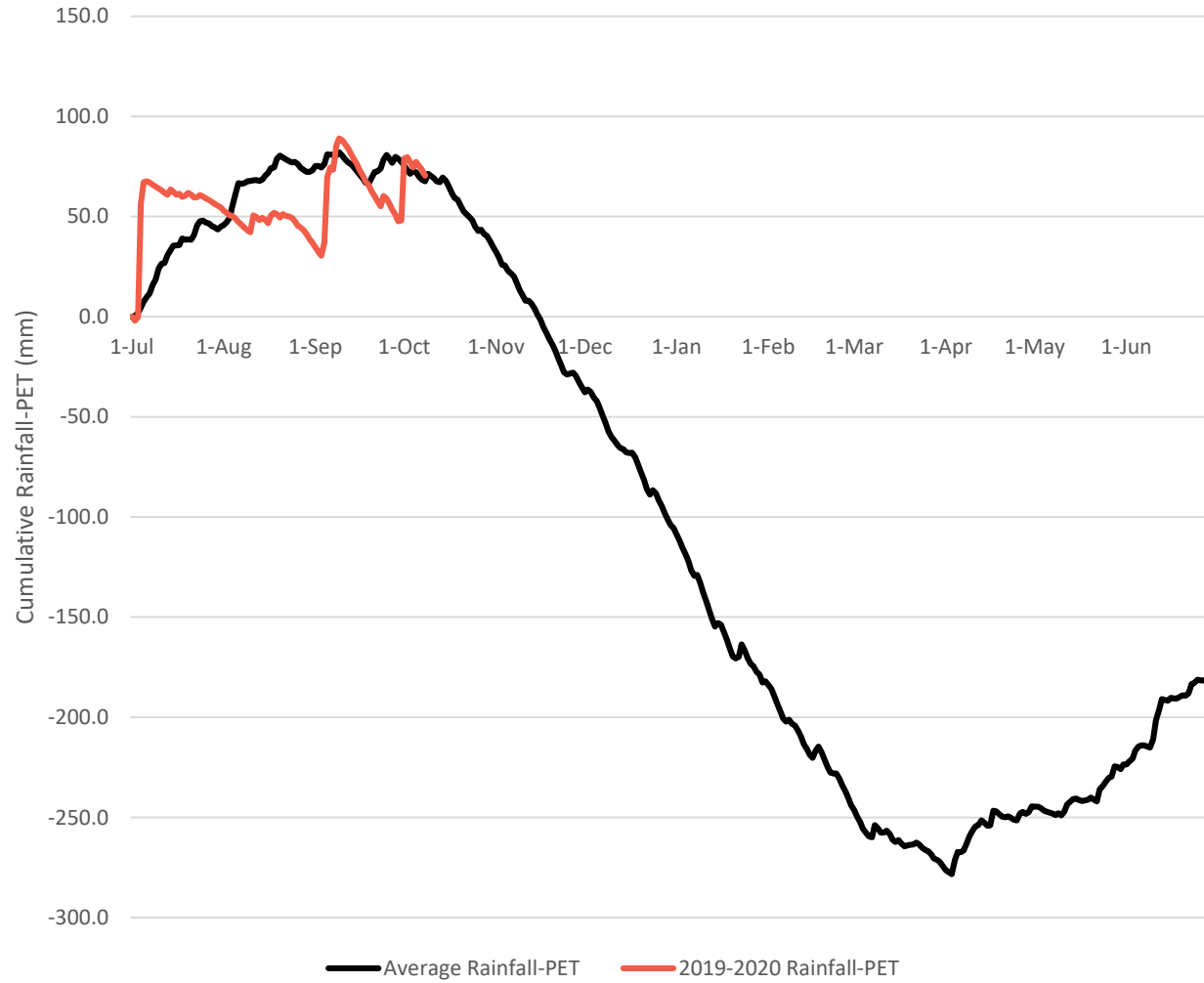
Bridge Pa Cumulative Rainfall and PET



## Cumulative Rainfall & Potential Evapotranspiration (PET)

Average cumulative rainfall and average cumulative PET are calculated from July 2009 to July 2018.

Bridge Pa Cumulative Rainfall-PET

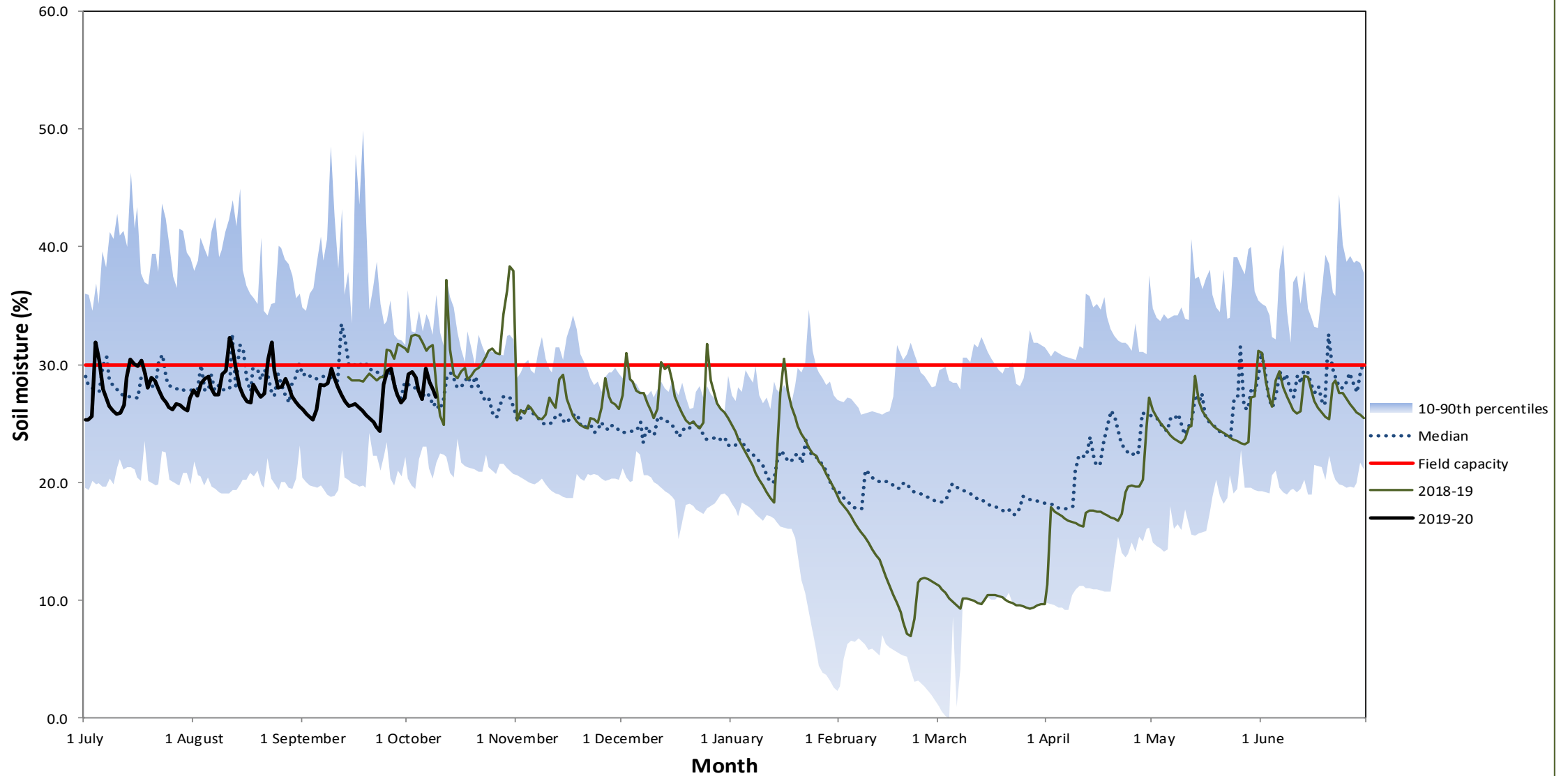


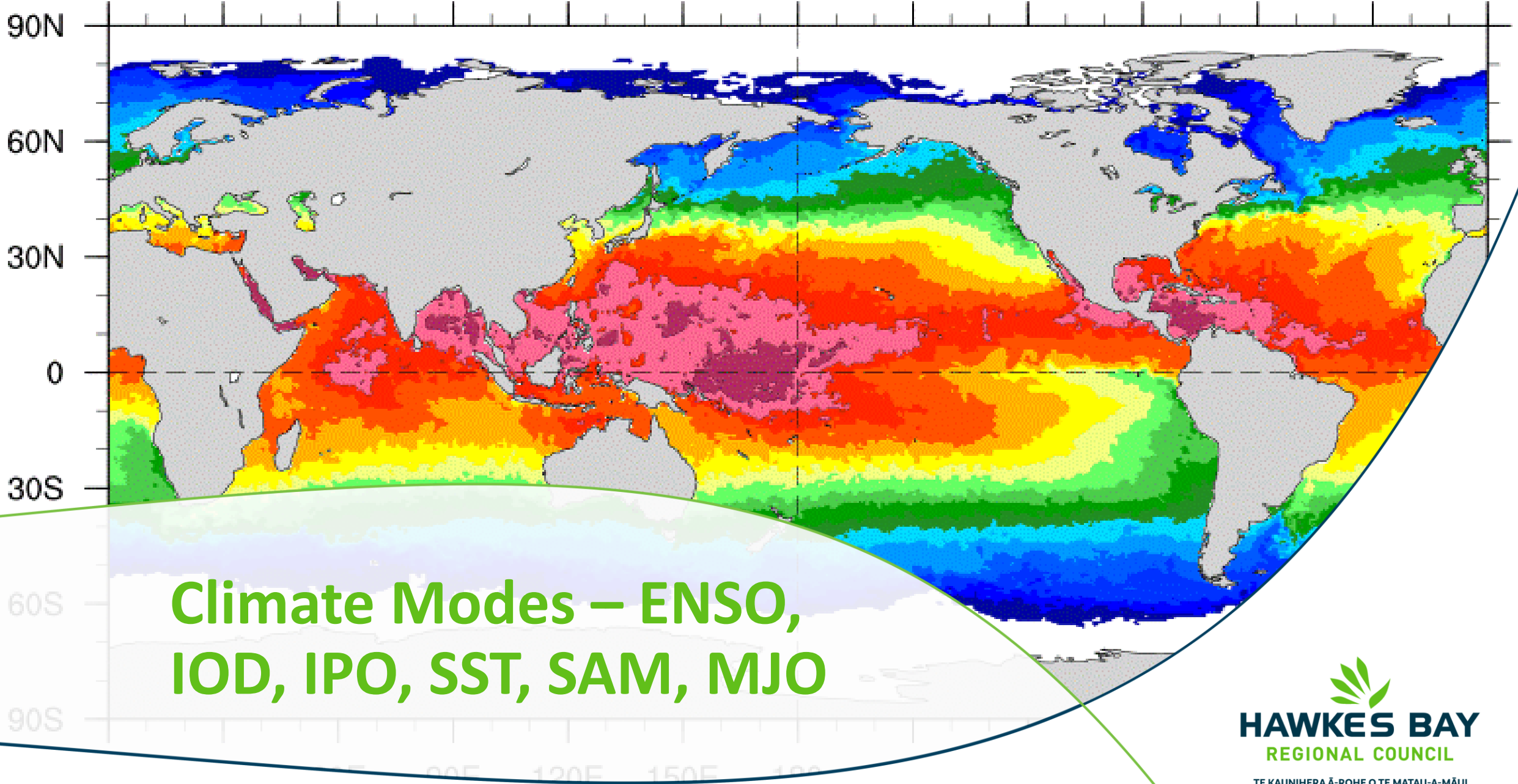
## Cumulative Rainfall - Potential Evapotranspiration (PET)

Average cumulative rainfall and average cumulative PET are calculated from July 2009 to July 2018.

# Current State – soil moisture

Taharua - Average Daily Soil Moisture (2008-19)



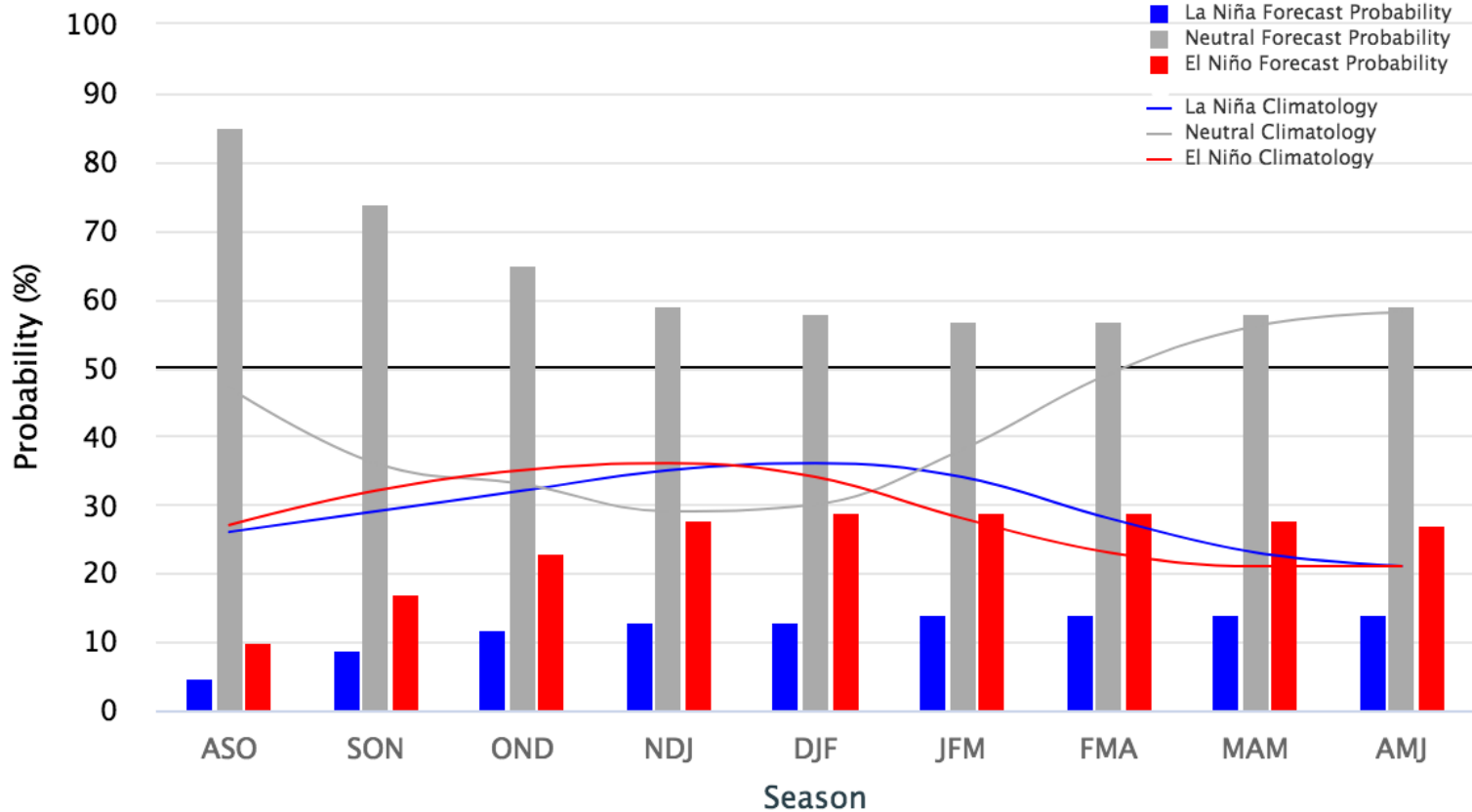


**Climate Modes – ENSO,  
IOD, IPO, SST, SAM, MJO**



### Early–September 2019 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
 Neutral ENSO: -0.5 °C to 0.5 °C

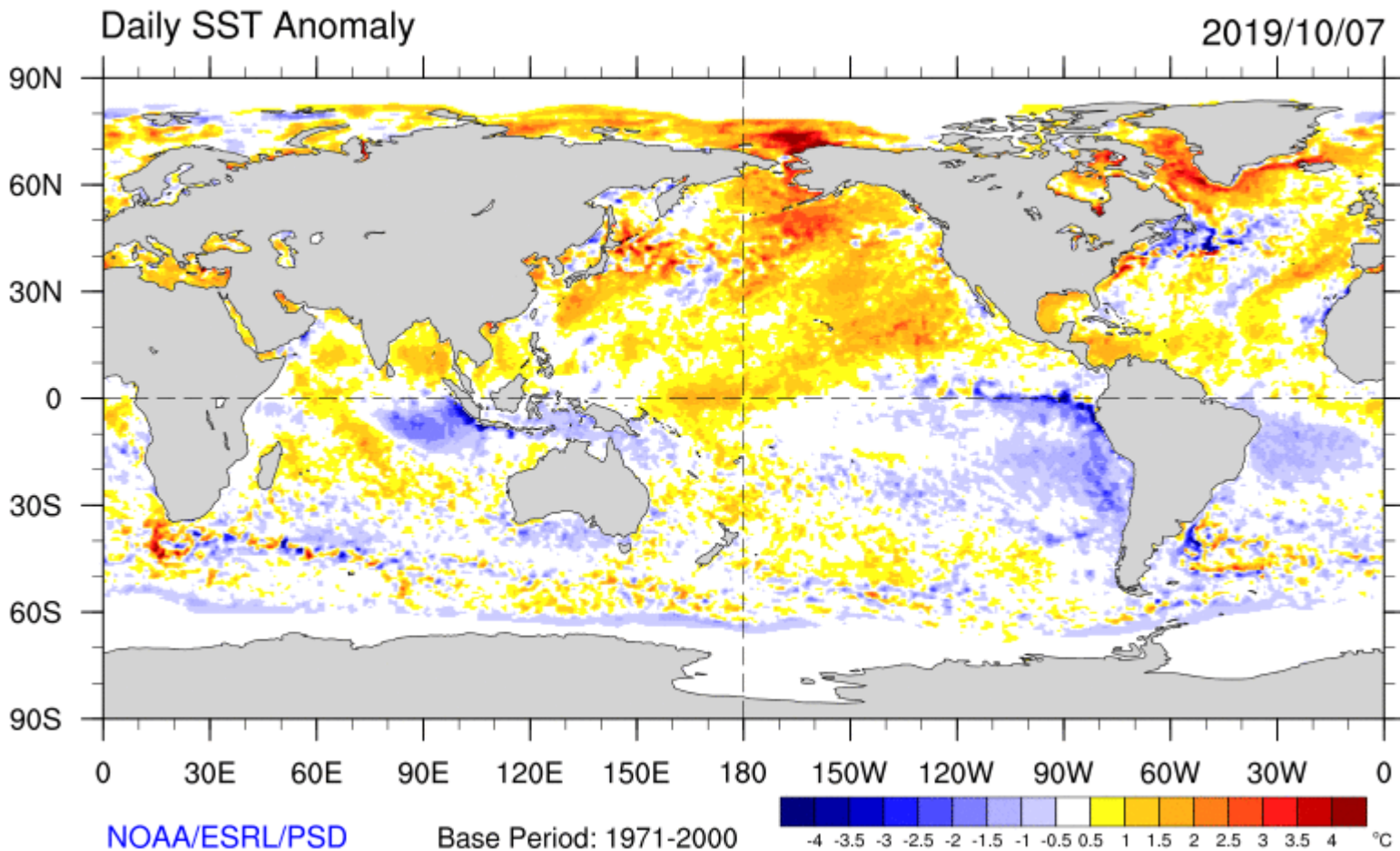


# EL NIÑO – SOUTHERN OSCILLATION (ENSO)

**NEUTRAL**

Source:

[https://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/lanina/enso\\_evolution-status-fcsts-web.pdf](https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf)



**INTERDECADAL PACIFIC  
OSCILLATION**

**POSITIVE**

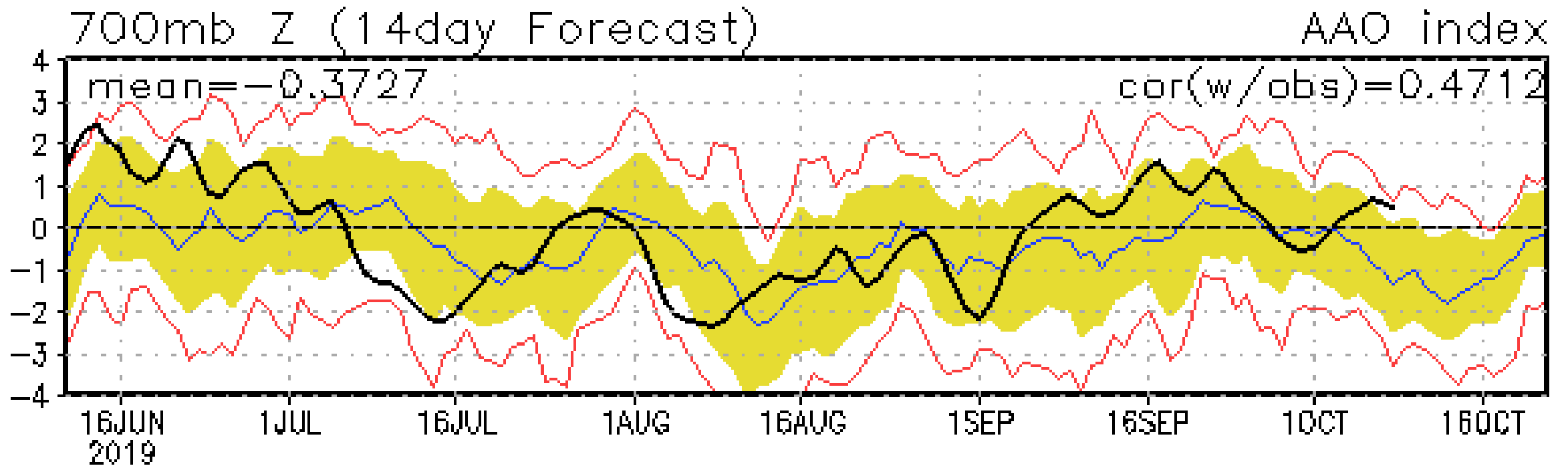
**INDIAN OCEAN DIPOLE**

**POSITIVE**

<https://www.esrl.noaa.gov/psd/map/clim/sst.shtml>

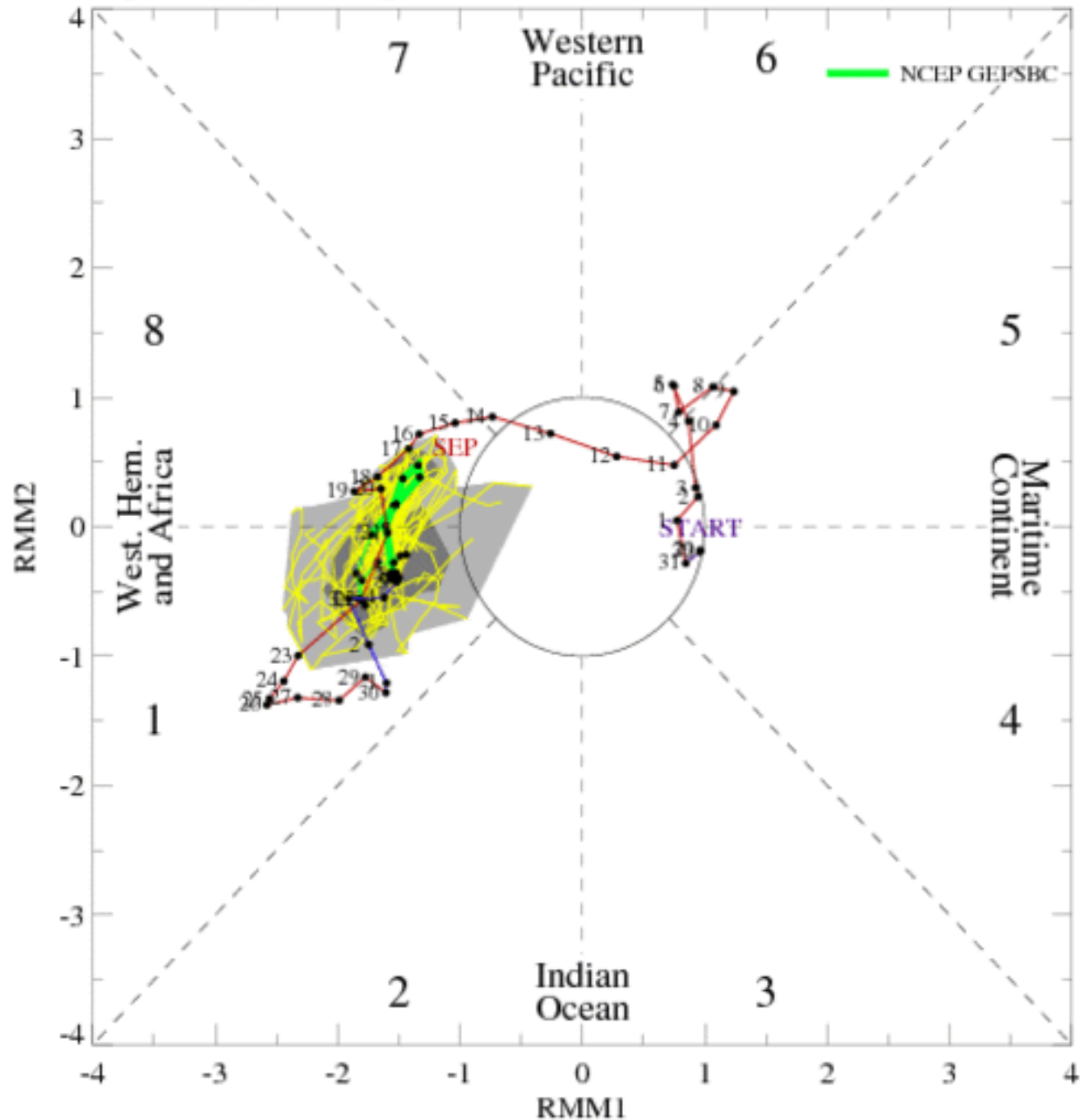
**SEA SURFACE TEMPERATURES AVERAGE**

# SOUTHERN ANNULAR MODE (SAM)



[https://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily\\_ao\\_index/aao/aao.sprd2.gif](https://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/aao/aao.sprd2.gif)

[RMM1, RMM2] forecast for Oct-08-2019 to Oct-22-2019

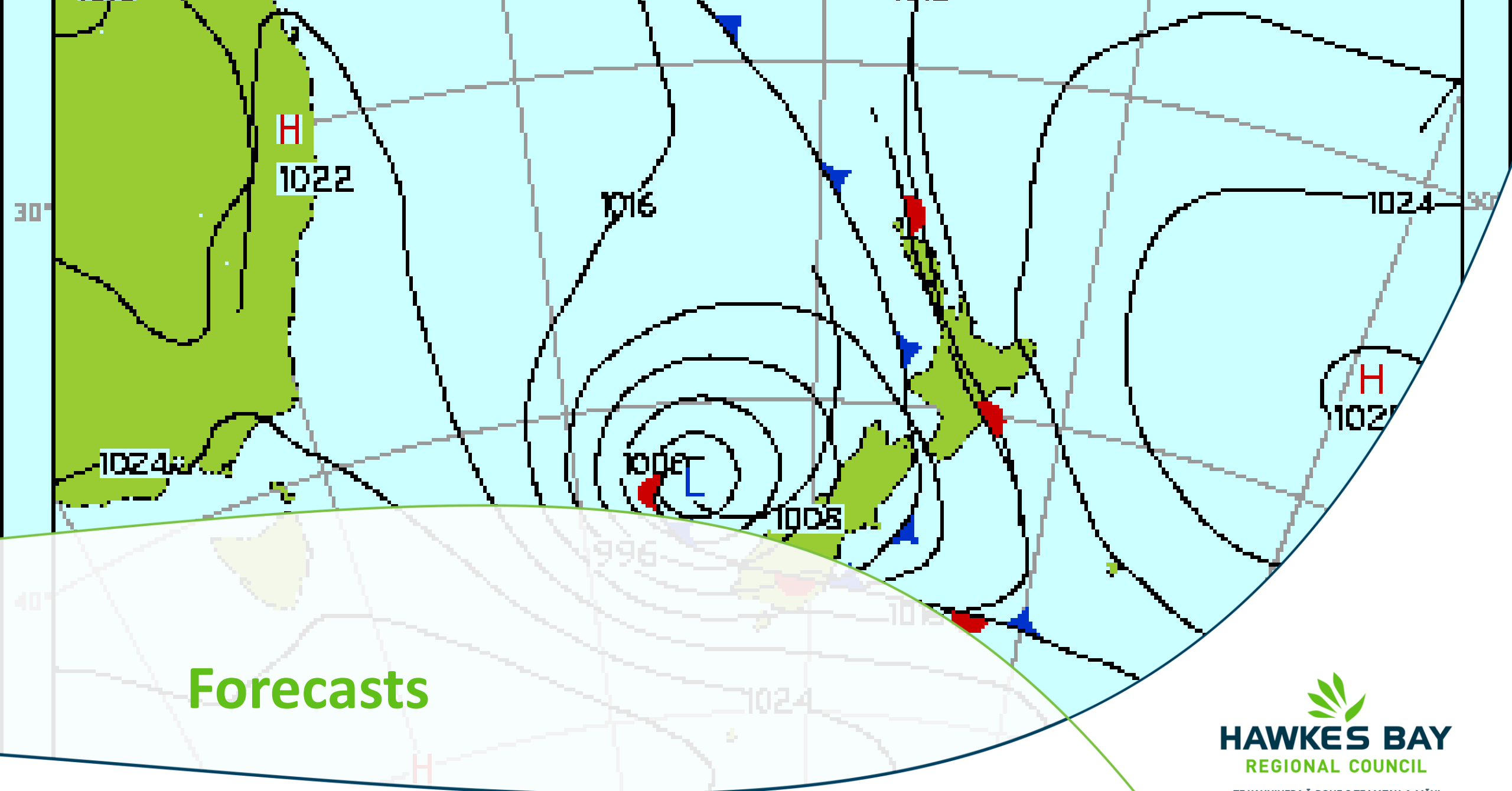


# MADDEN-JULIAN OSCILLATION

Sources:

<http://www.bom.gov.au/climate/mjo/>

<https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/foregfs.shtml>



# Forecasts

# NIWA Seasonal Forecast

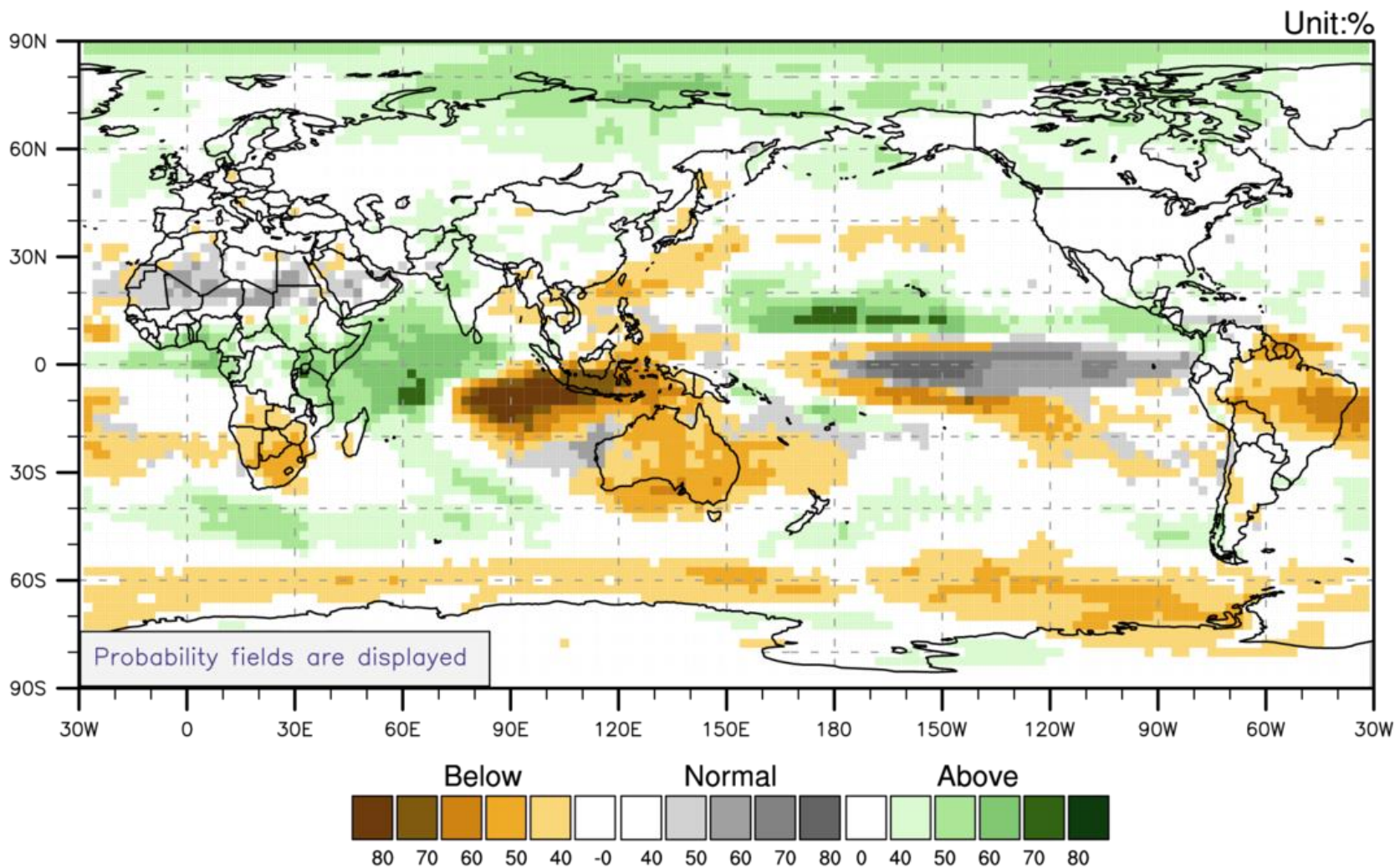
## October to December 2019

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- Temperatures are most likely to be near average (50% chance)
- Rainfall totals are most likely to be near normal (45% chance)
- Soil moisture levels are most likely to be near normal (40% chance)

<https://www.niwa.co.nz/climate/seasonal-climate-outlook>

# Precipitation for October-December 2019

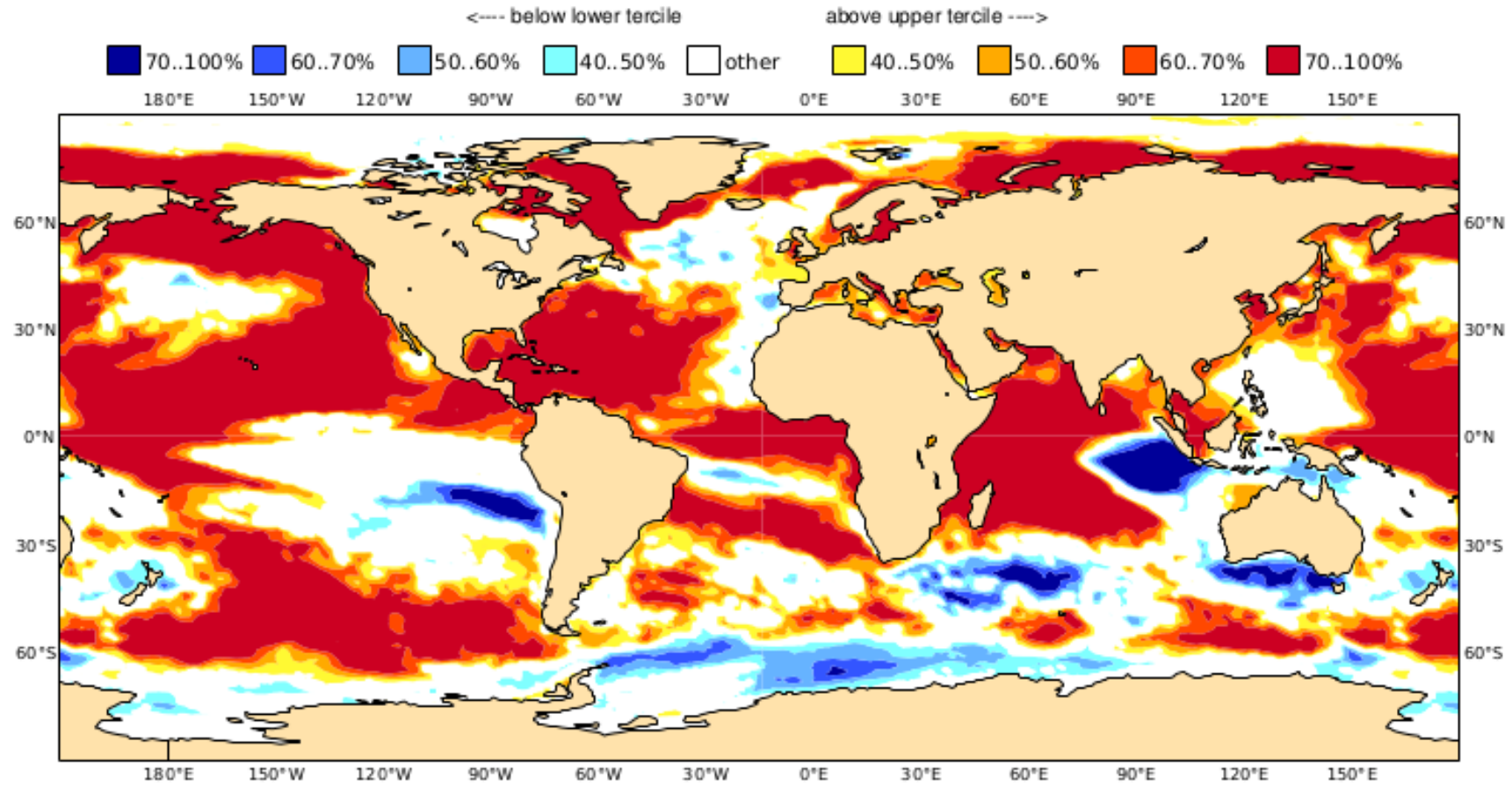


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C3S multi-system seasonal forecast  
Prob(most likely category of forecast SST)  
Nominal forecast start: 01/09/19  
Unweighted mean

ECMWF/Met Office/Météo-France/CMCC/DWD  
OND 2019



[https://climate.copernicus.eu/charts/c3s\\_seasonal/c3s\\_seasonal\\_spatial\\_mm\\_mslp\\_3m?facets=undefined&time=2019090100,720,2019100100&type=tsum&area=area08](https://climate.copernicus.eu/charts/c3s_seasonal/c3s_seasonal_spatial_mm_mslp_3m?facets=undefined&time=2019090100,720,2019100100&type=tsum&area=area08)



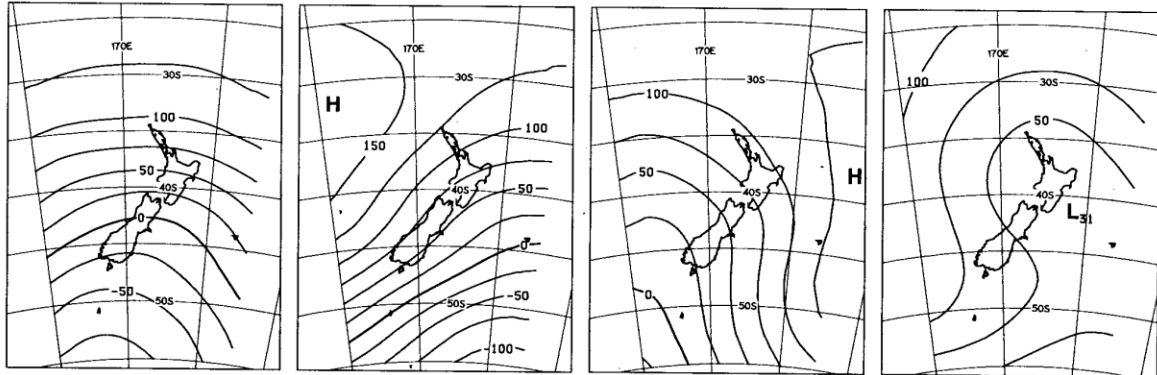
**“Trough” group**

**T - 12.3%**

**SW - 11.3%**

**TNW - 7.6%**

**TSW - 7.3%**



# Twelve Kidson Weather Types

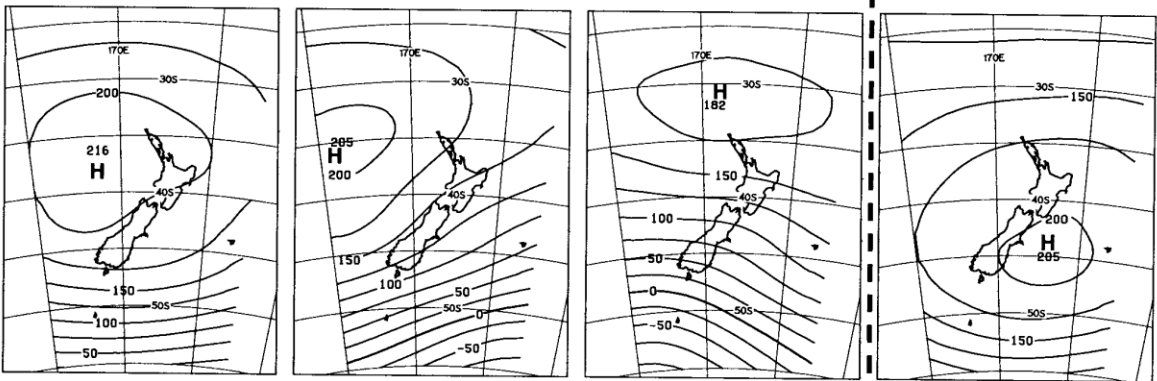
**“Zonal” group**

**H - 12.9%**

**HNW - 6.9%**

**W - 4.8%**

**HSE - 13.7%**



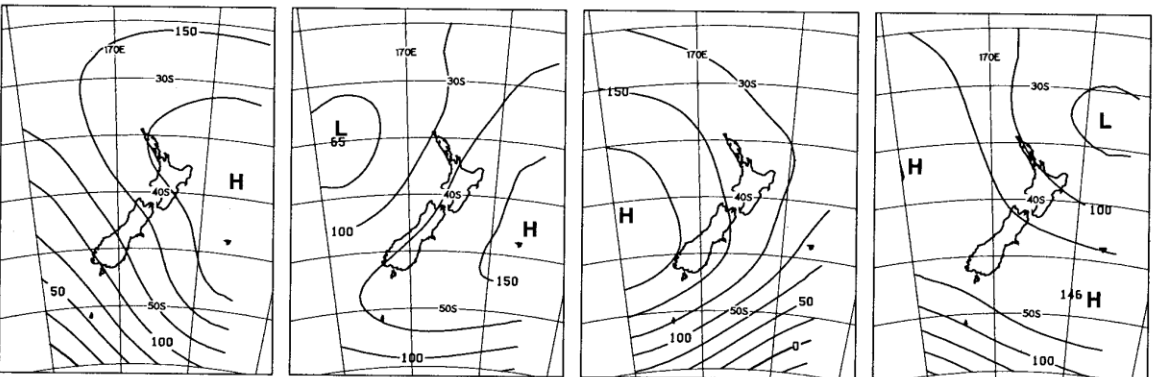
**“Blocking” group**

**HE - 7.1%**

**NE - 6.3%**

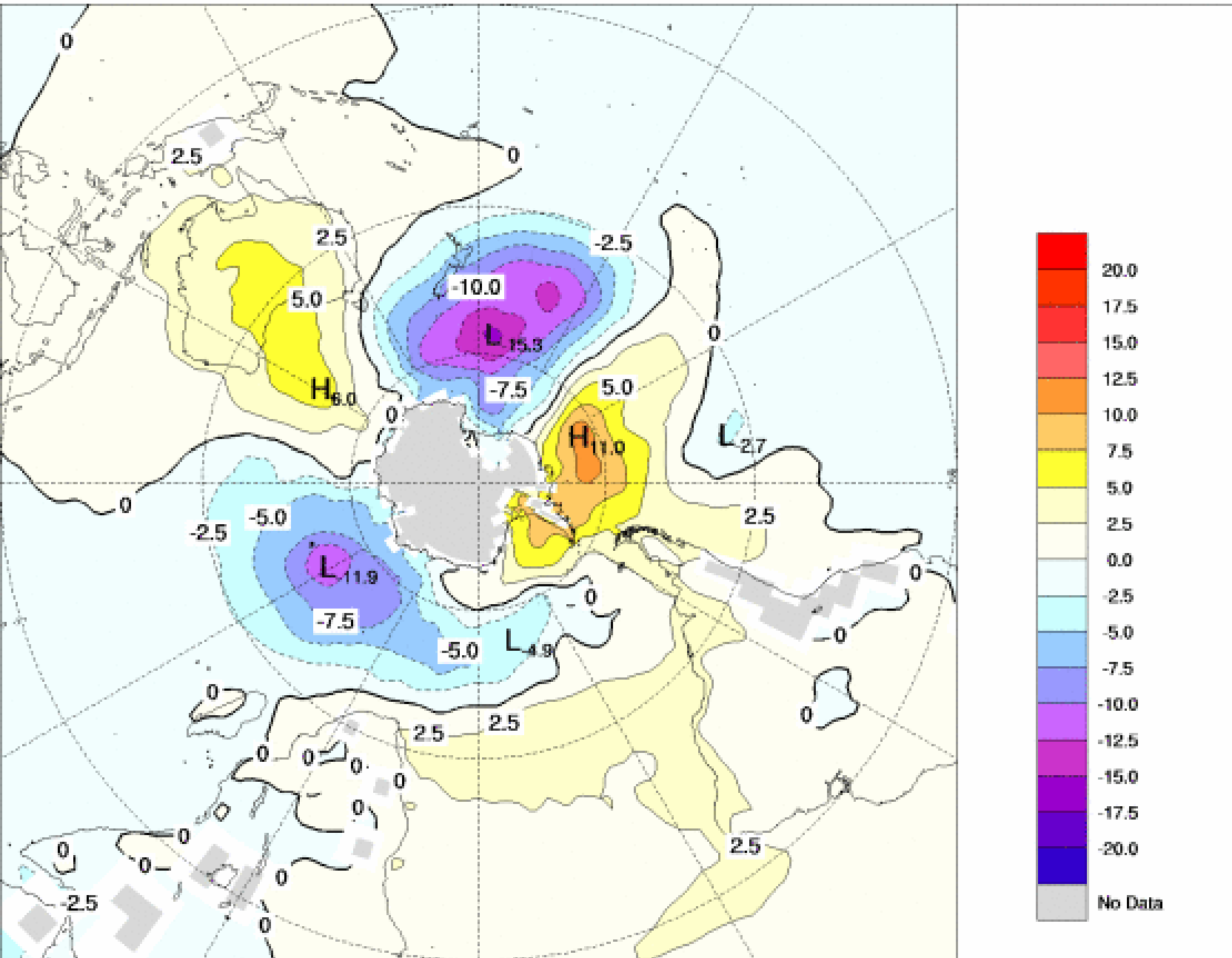
**HW - 5.4%**

**R - 4.7%**



SPRING	Waikaremoana	Northern HB	Tangoio	Kaweka	Ruahine	Heretuanga Plains	Ruataniwha Plains	Southern HB
T	1	-12	-5	-2	28	-7	-18	-12
SW	-10	-20	-24	-37	-5	-32	-39	-30
TNW	5	26	15	9	5	19	18	15
TSW	36	38	27	27	-8	55	47	41
H	-12	-18	-28	-38	-44	-26	-10	-10
HNW	-1	4	-10	-23	-15	-24	-7	-1
W	-28	-19	-14	-1	34	-19	-14	2
HSE	-14	4	8	19	8	3	4	2
HE	-16	-22	-5	-6	-13	-3	3	-4
NE	2	3	13	34	7	19	19	11
HW	5	26	15	9	5	19	16	15
R	35	37	62	26	55	48	30	44

Correlation (r) between the seasonal frequency of Kidson Weather Types and seasonal rainfall at sites with 30 year records



# MSL Pressure in past months