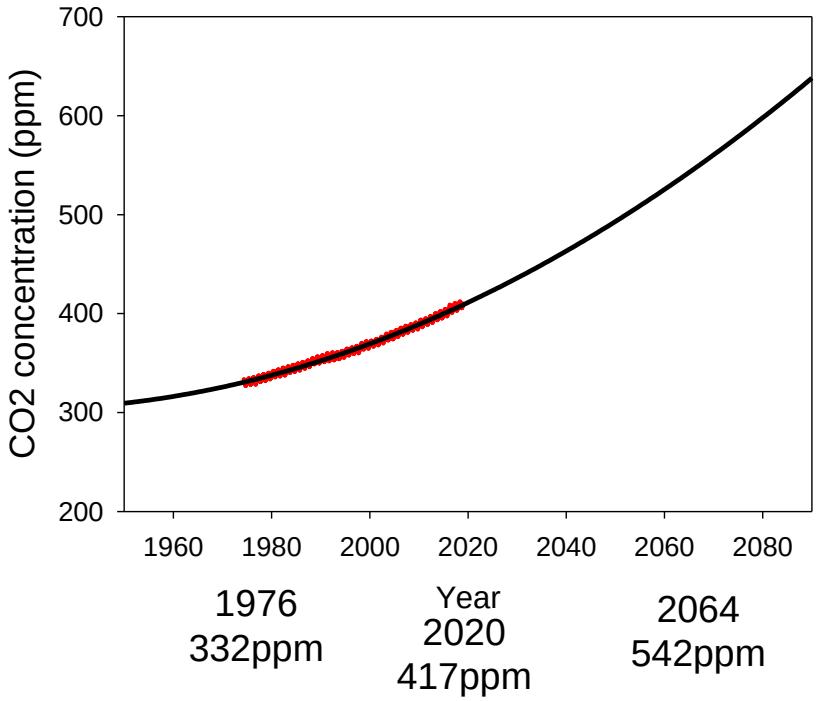
First grapes leaving Marlborough at the Picton Ferry 2.20pm Tuesday 16 March 1976 for the Montana Gisborne winery
15 T Riesling grapes. Mate Yukich at the wheel of the truck

Atmospheric CO2 data from Mauna Loa
https://www.esrl.noaa.gov/gmd/ccgg/trends/data.html



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Climate Change and Heatwaves

Blenheim

1 July 2020

Dr Jim Salinger,

Tasmanian Institute for Agriculture,

University of Tasmania

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OUTLINE

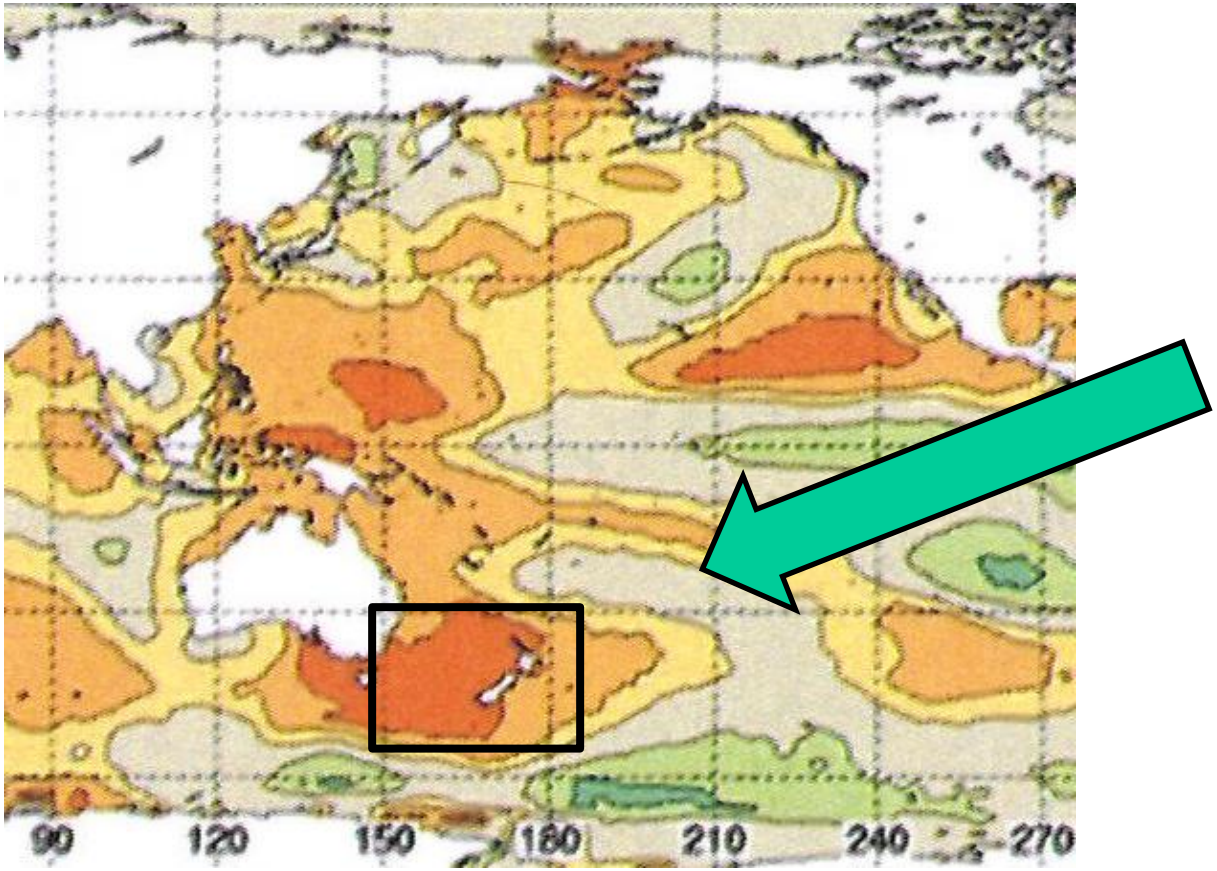
Where

What happened

The Impacts

The Causes

WHERE



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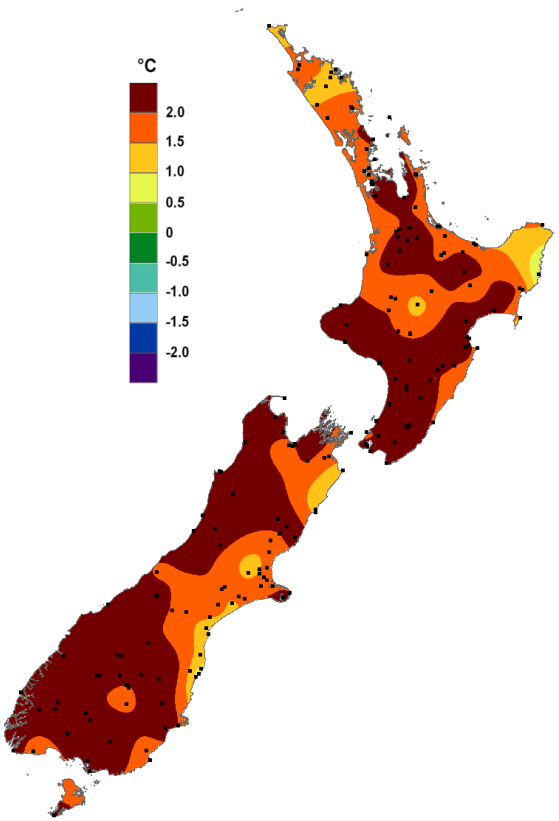
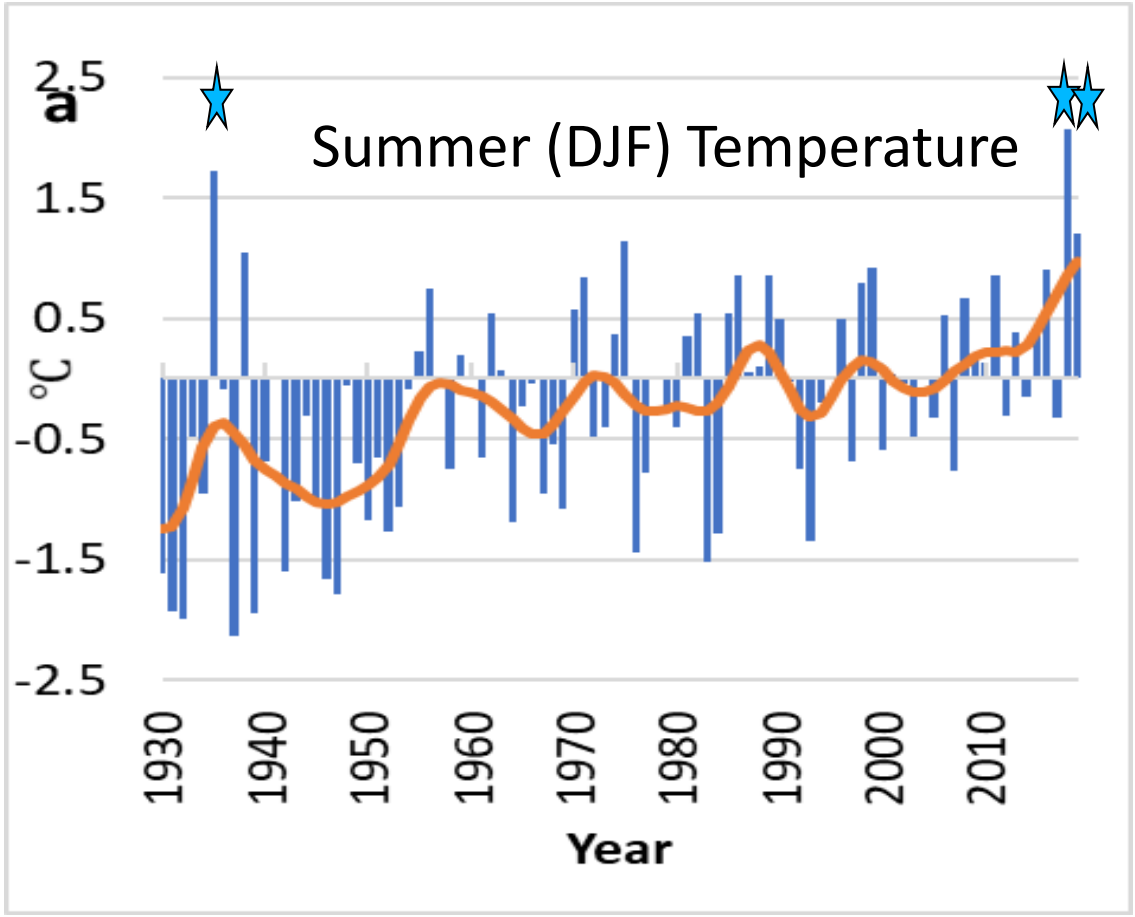
WHAT HAPPENED - TEMPERATURES



Mean Temperature Anomaly,
9am 01/12/2017 to 9am 28/02/2018



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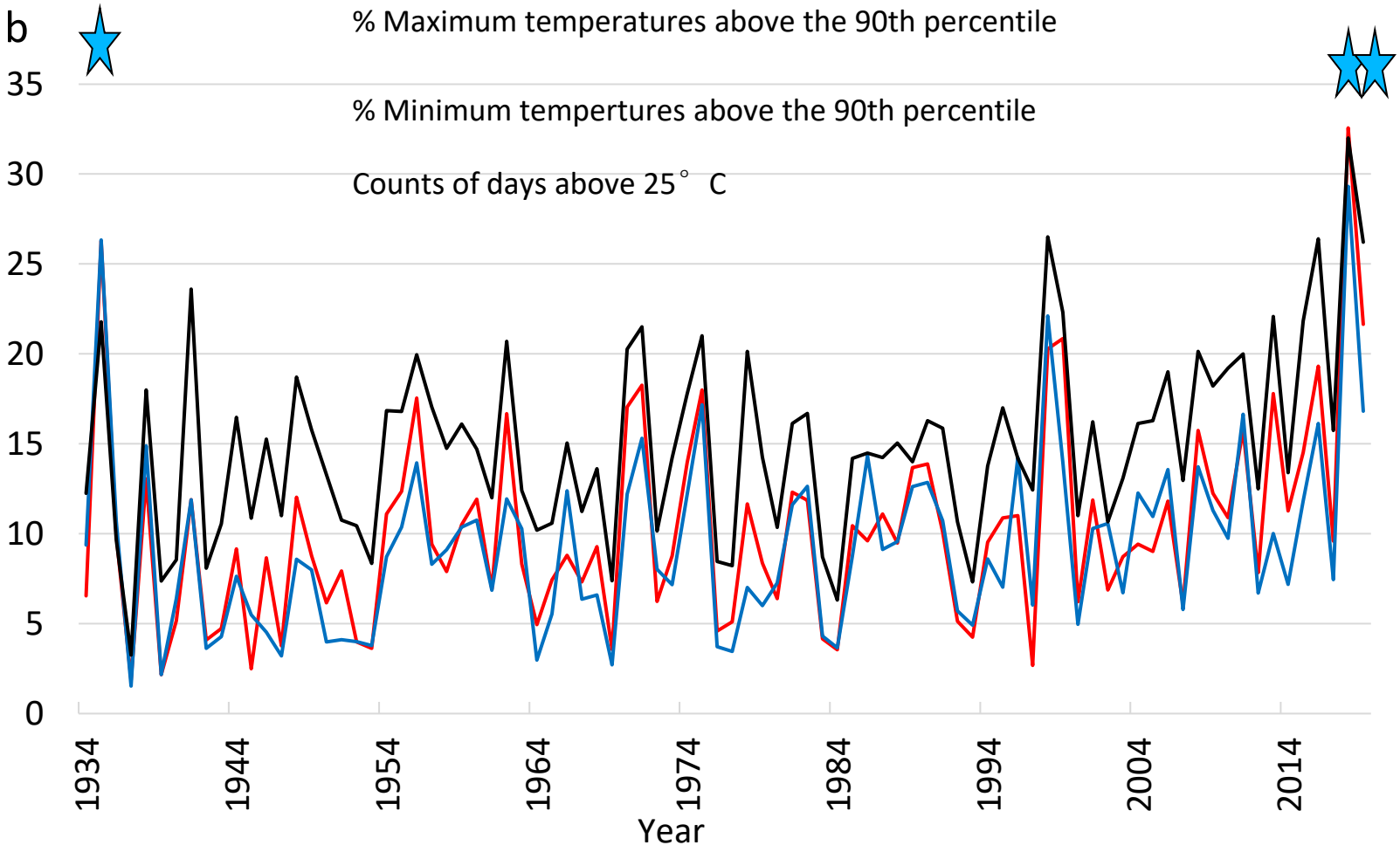

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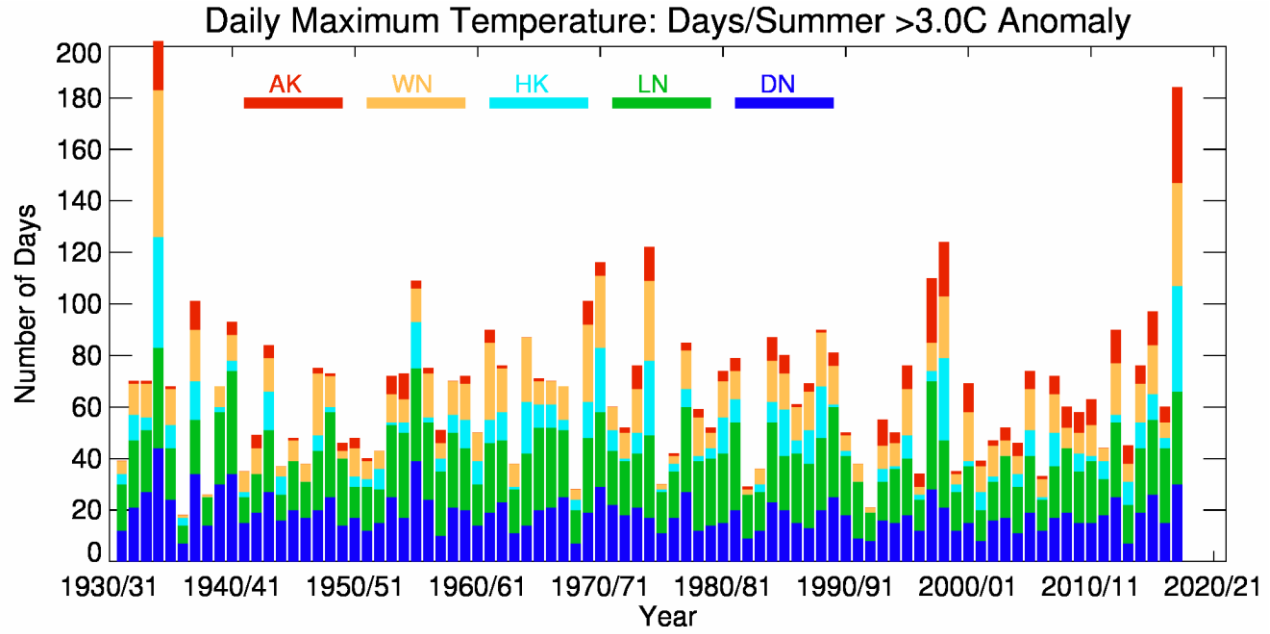

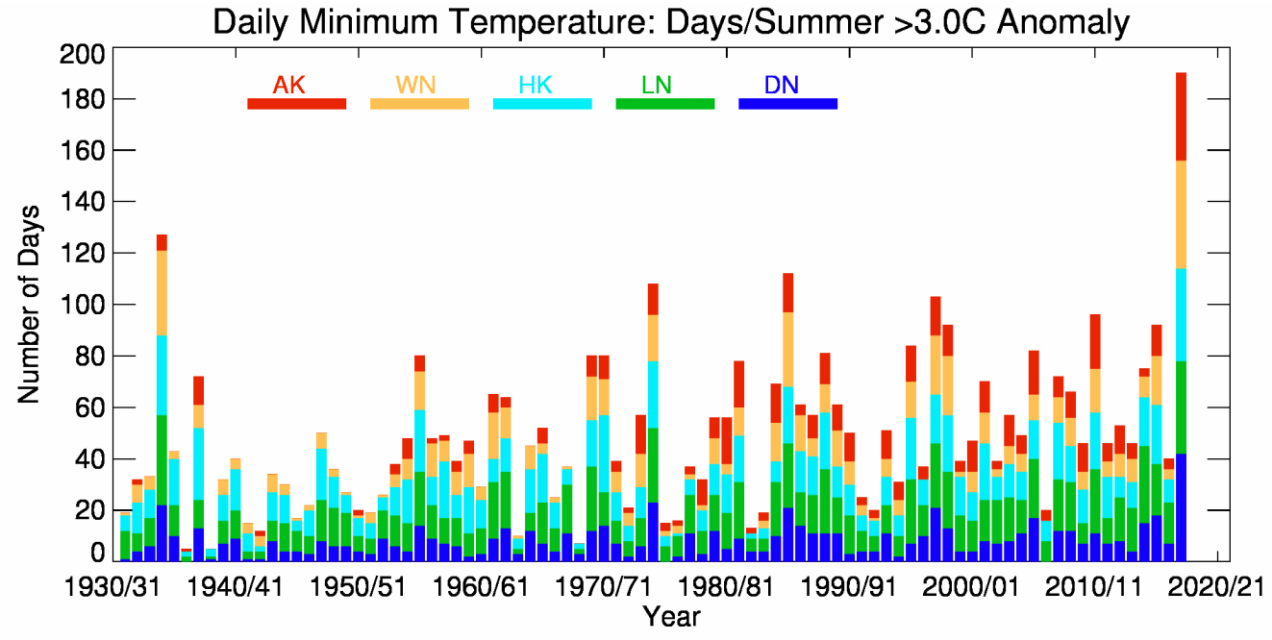

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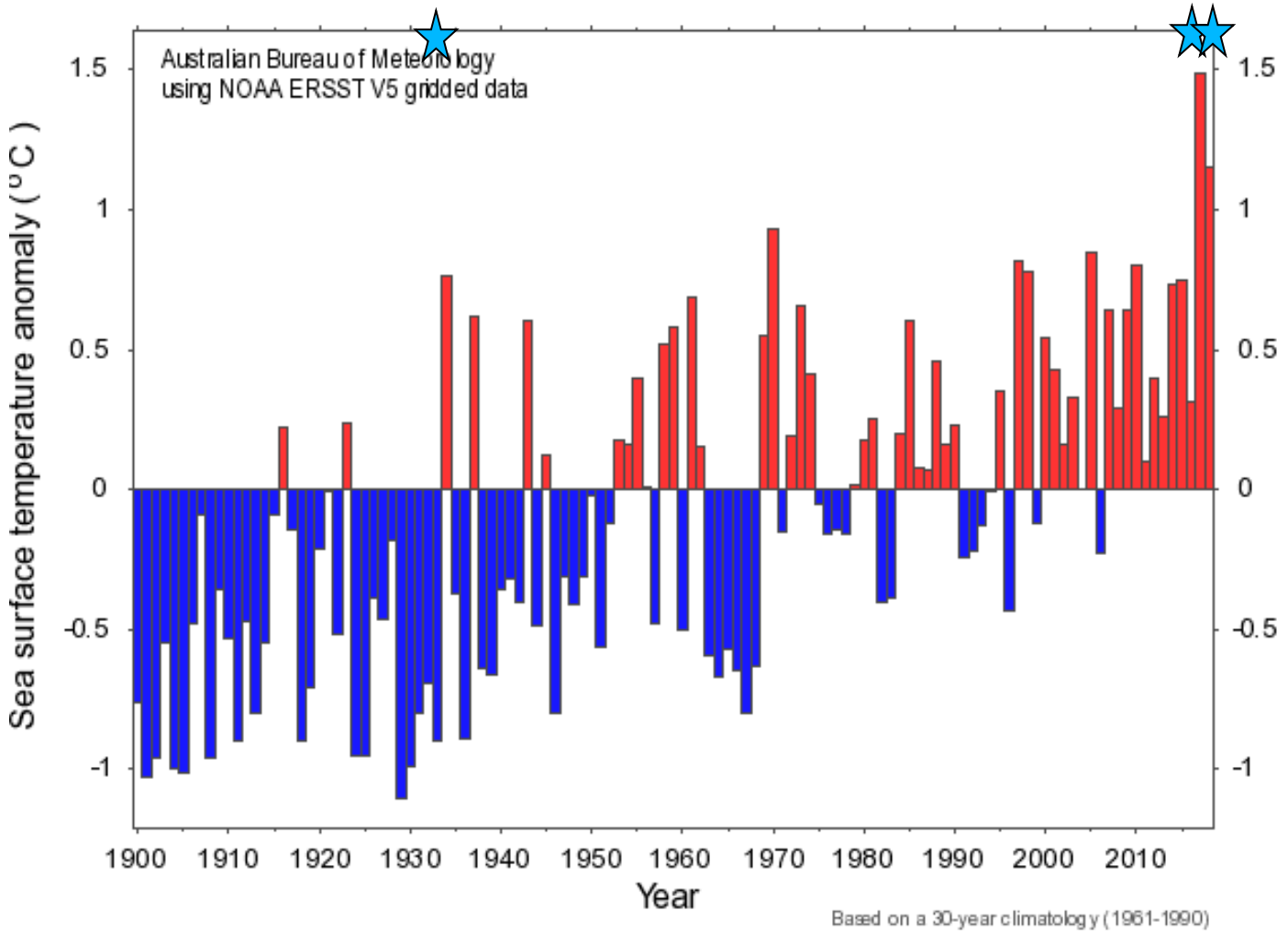
WHAT HAPPENED – SEA SURFACE TEMPERATURES



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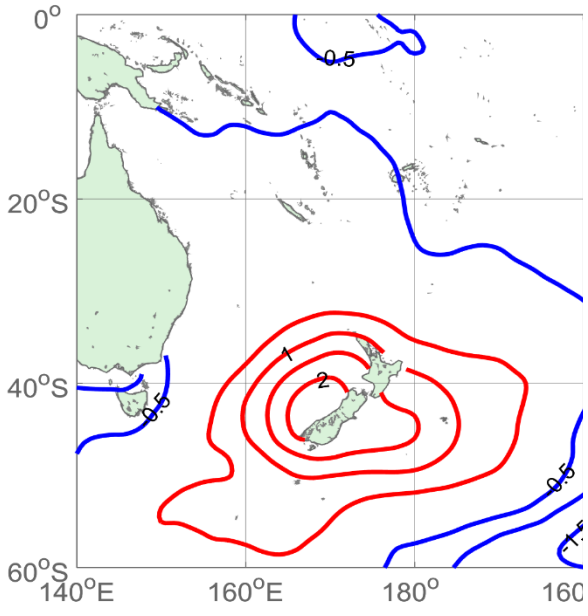
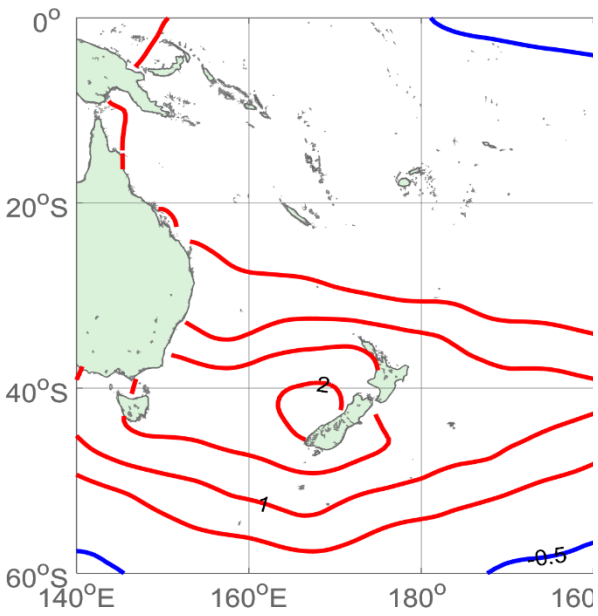
WHAT HAPPENED – SEA SURFACE TEMPERATURES

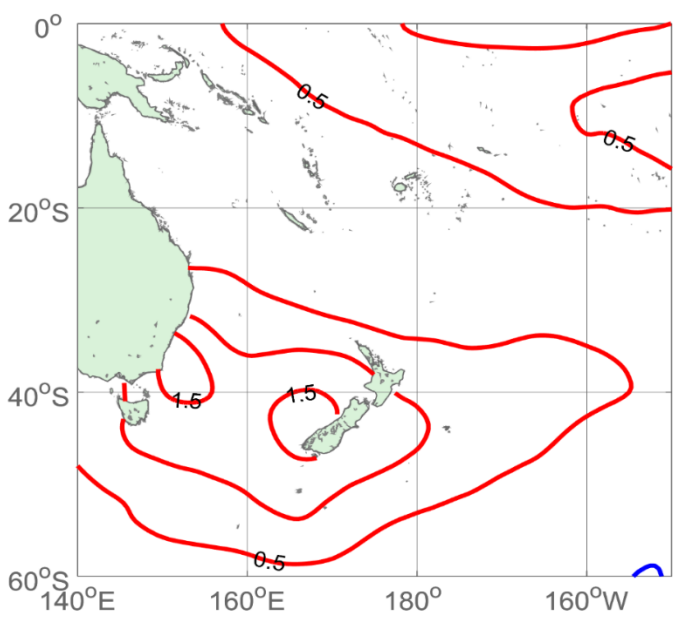
1934/35



2017/18



2018/2019



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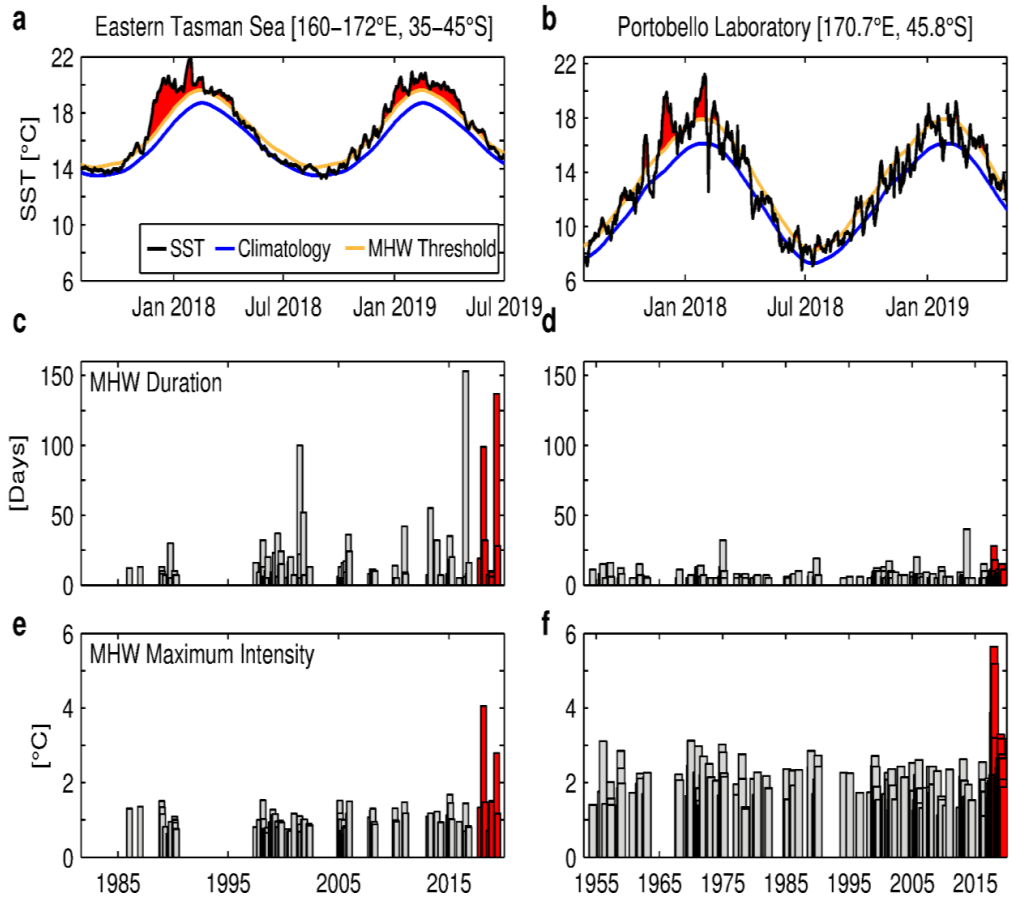
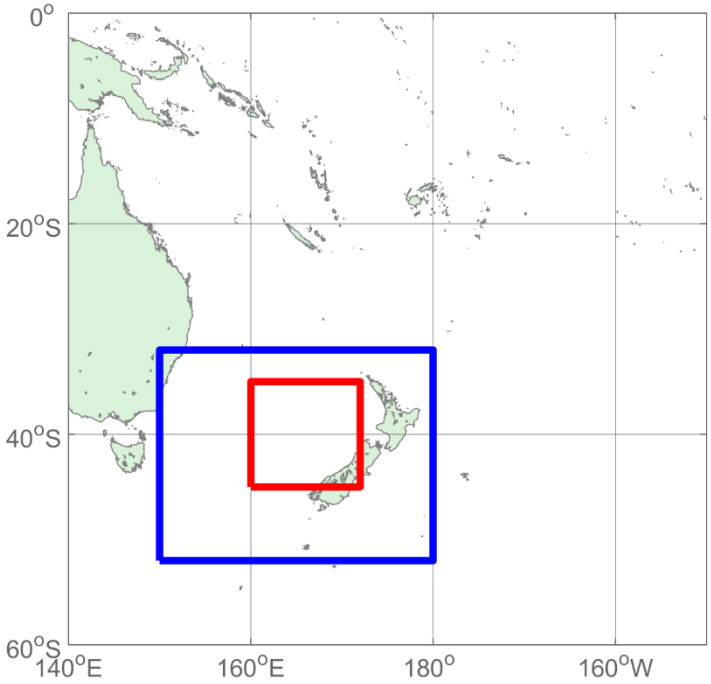
WHAT HAPPENED – SEA SURFACE TEMPERATURE

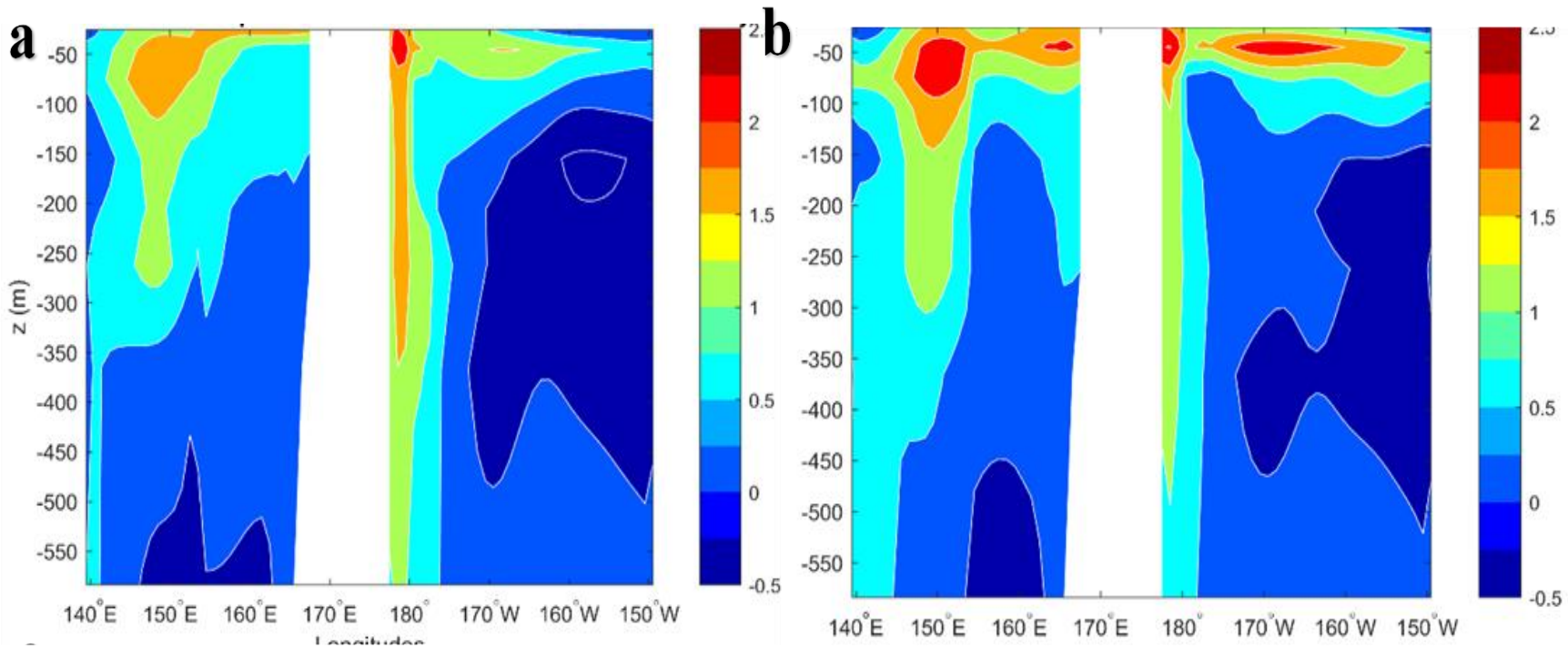




WHAT HAPPENED – SEA SUB SURFACE TEMPERATURE

2017/18

2018/2019



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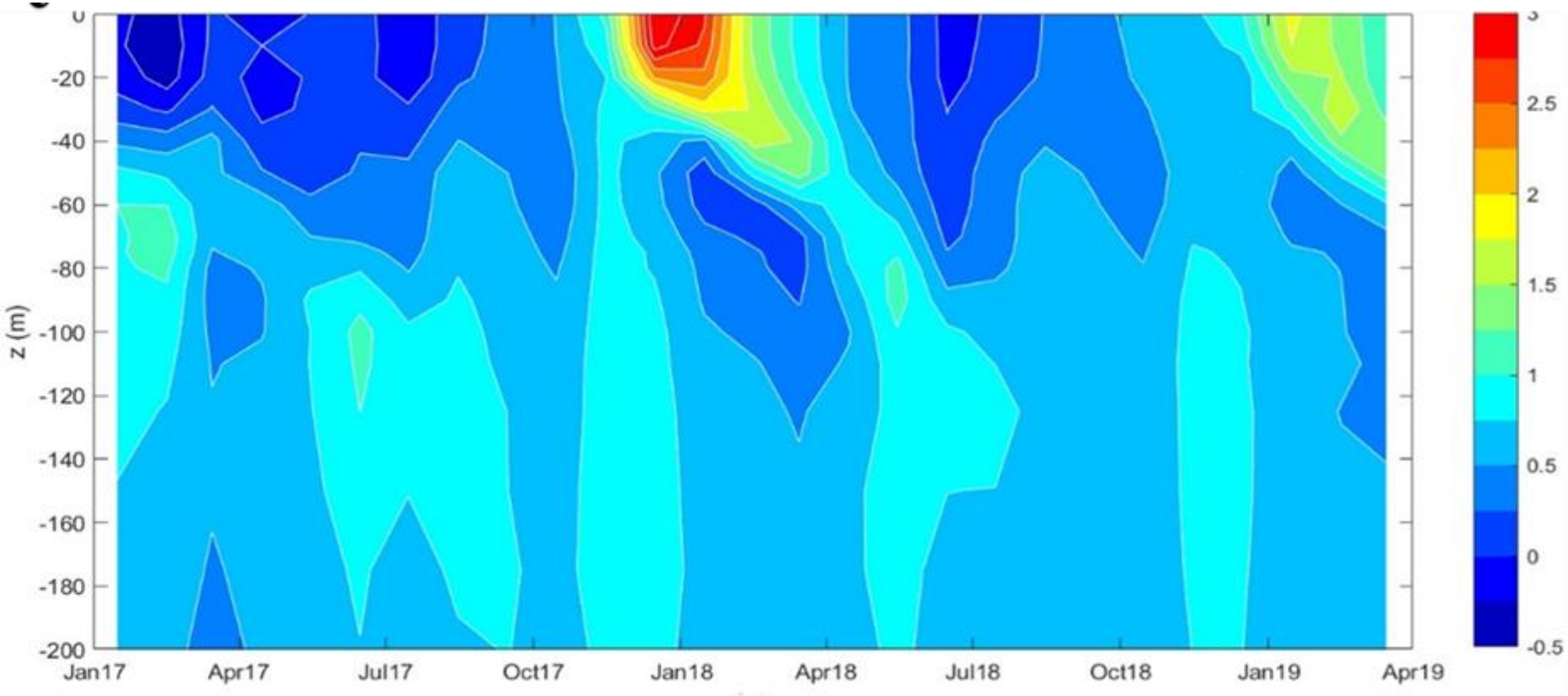
WHAT HAPPENED – SEA SUB SURFACE TEMPERATURE



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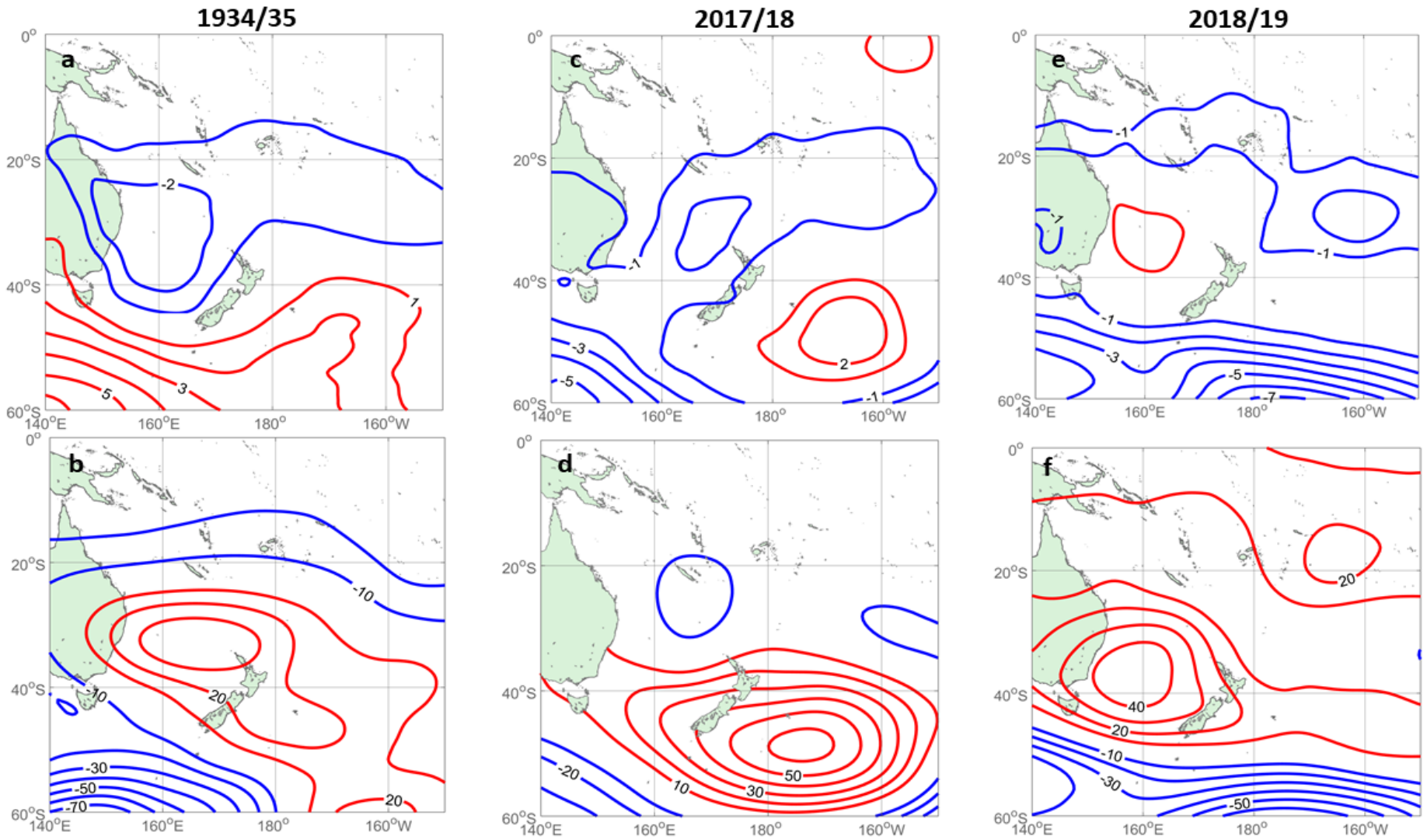
WHAT HAPPENED– SEA LEVEL & UPPER AIR PRESSURE



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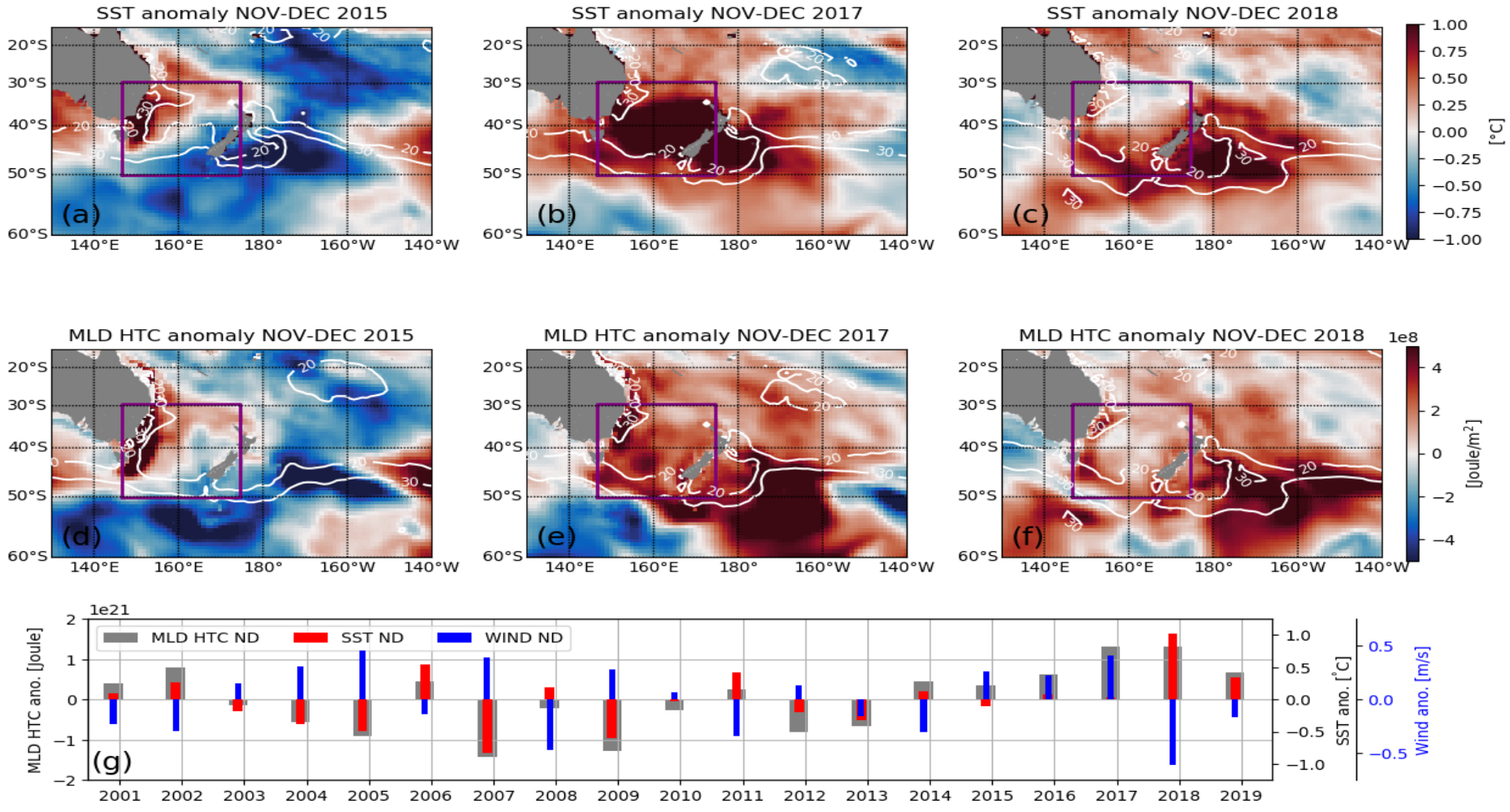
WHAT HAPPENED – OCEAN HINDCASTS



Mixing tia

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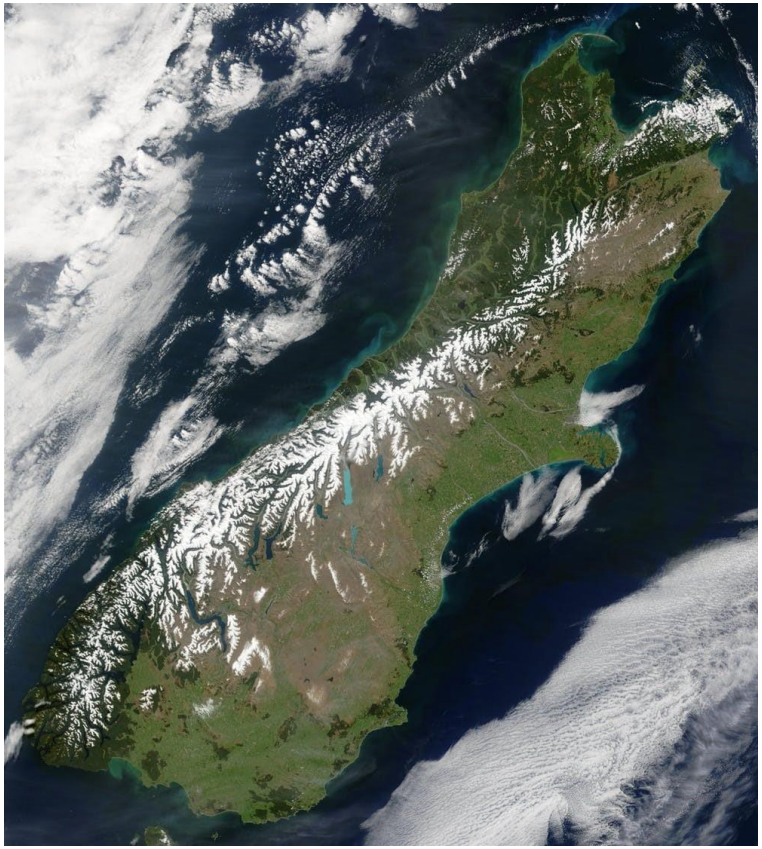
THE IMPACTS – GLACIERS & SEASONAL SNOW



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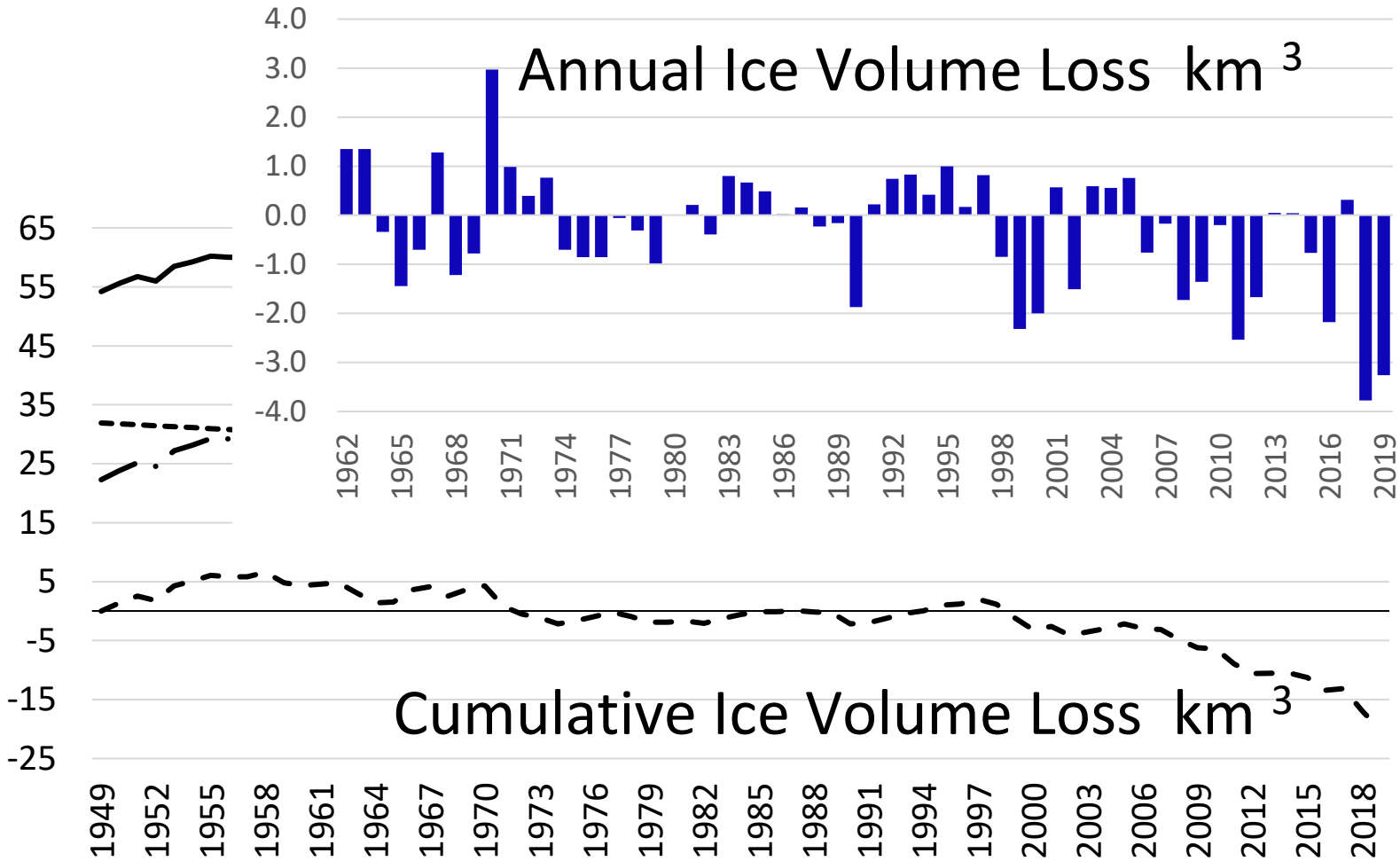
THE IMPACTS – GLACIERS



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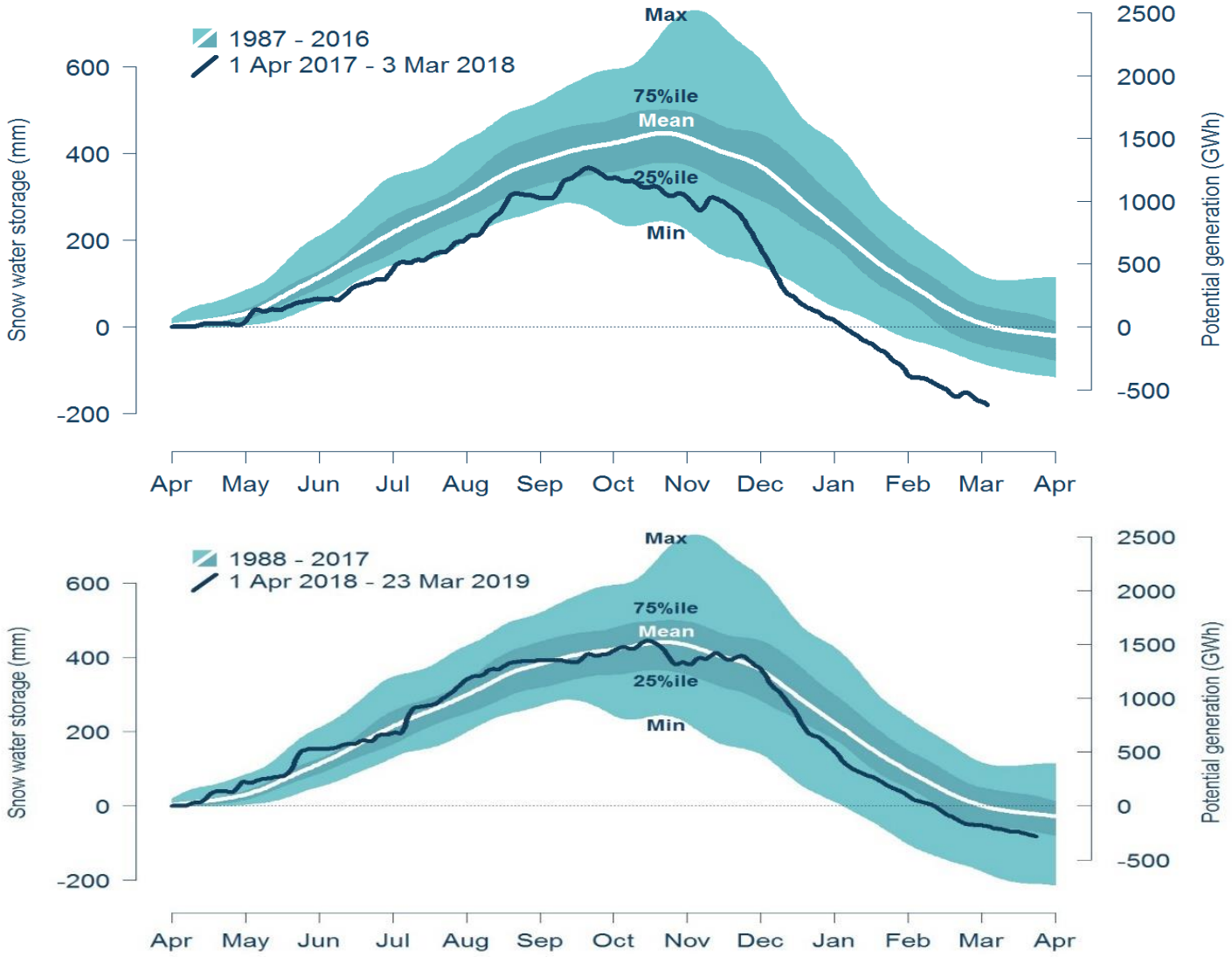
THE IMPACTS – SEASONAL SNOW



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THE IMPACTS – WINEGRAPES

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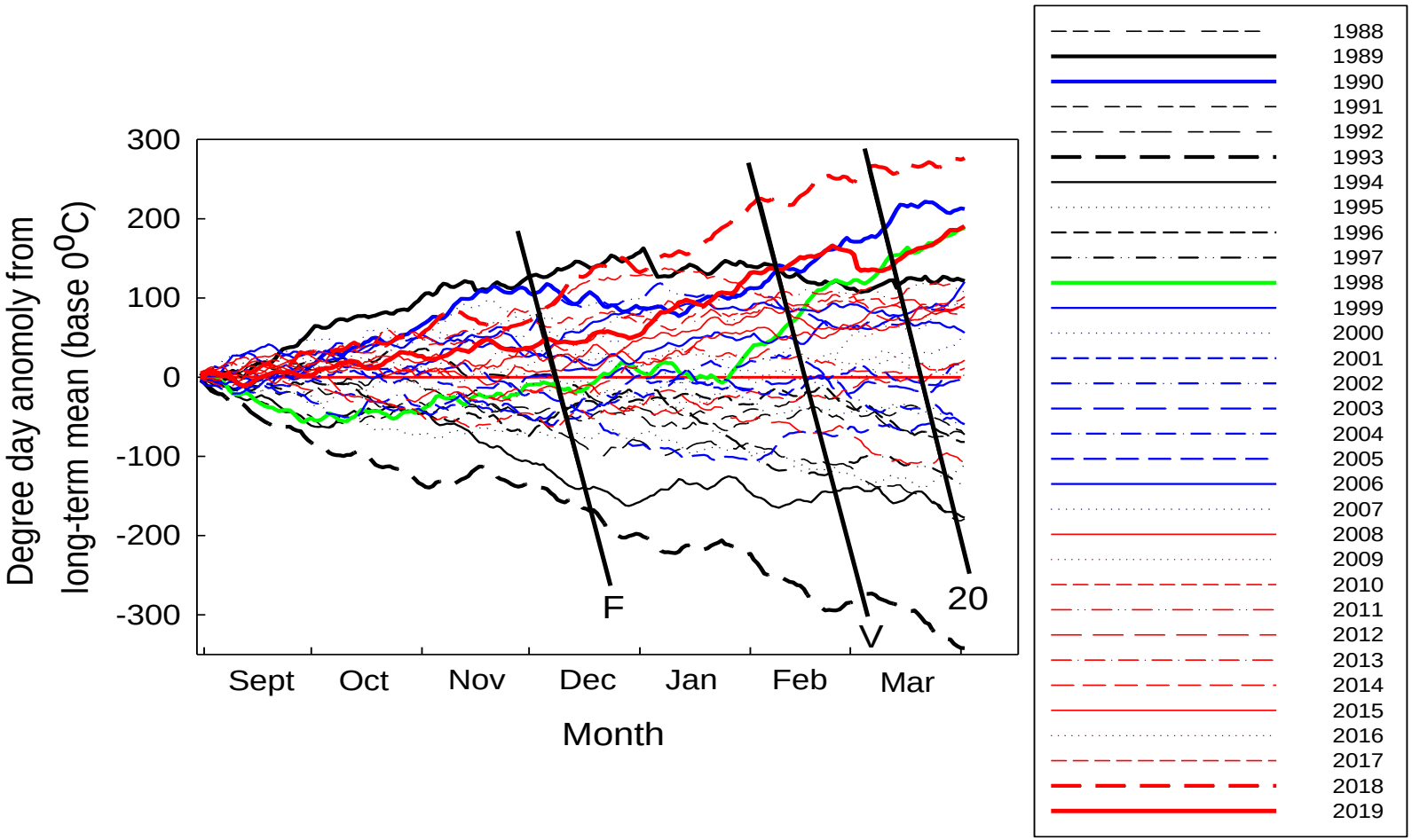
THE IMPACTS – WINEGRAPES



F – Flowering, V – Veraison, 20 – 20% soluble solids

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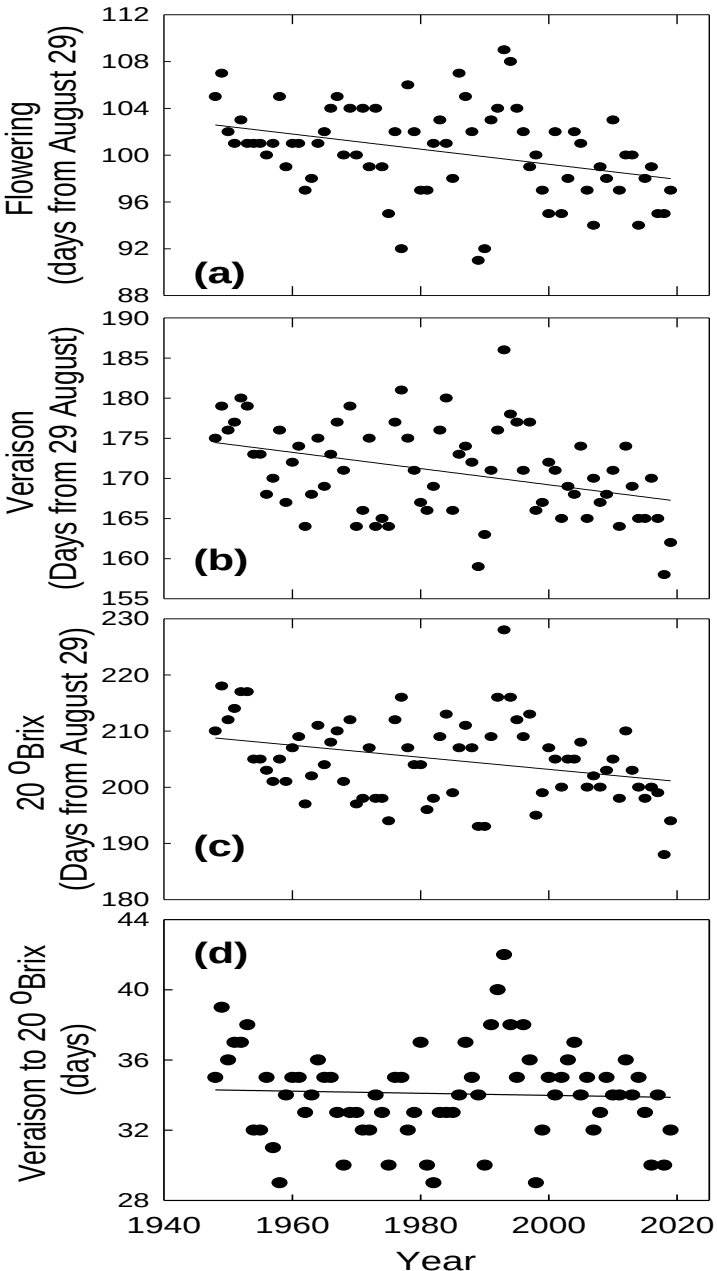
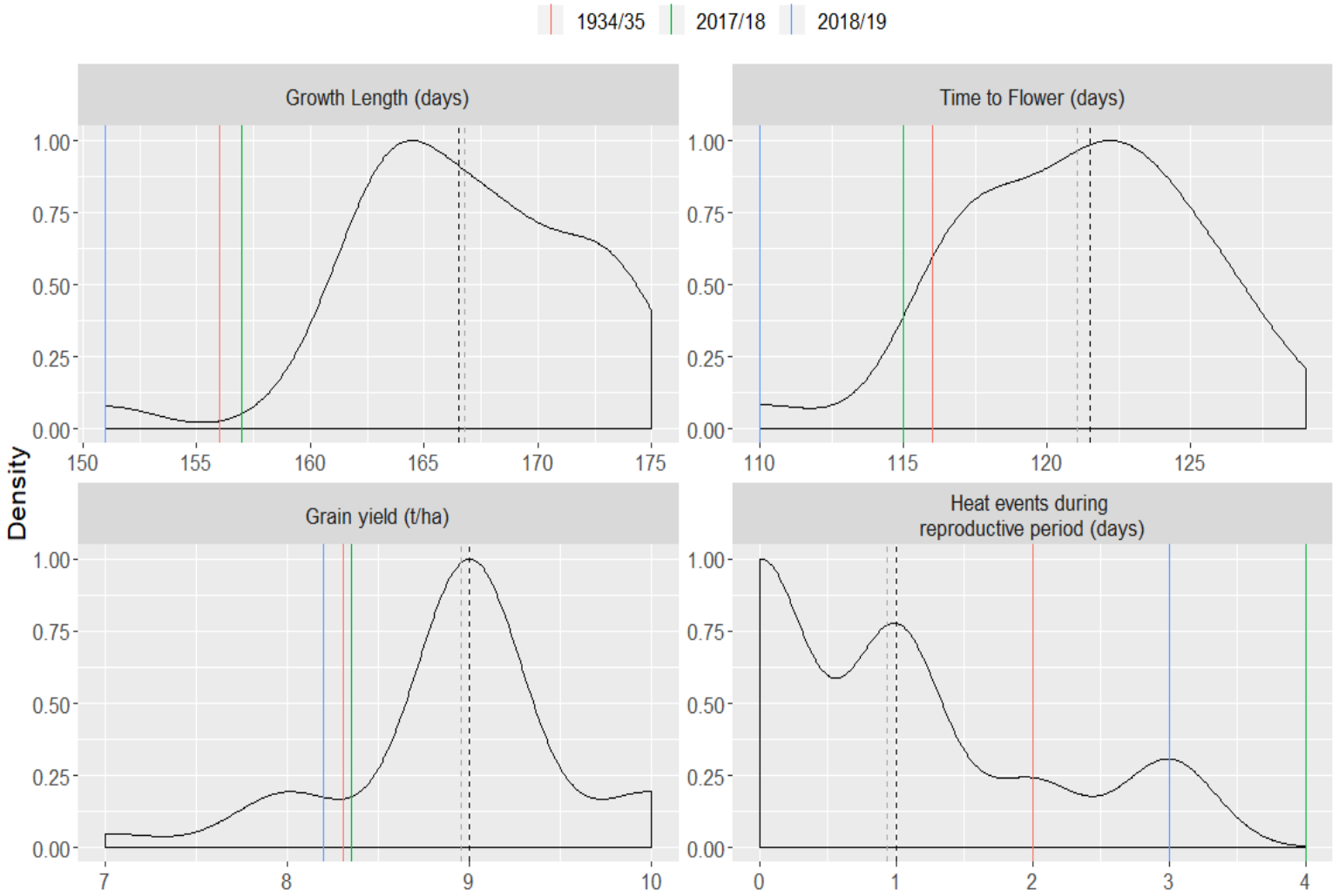
THE IMPACTS – WINEGRAPES



THE IMPACTS – SPRING WHEAT



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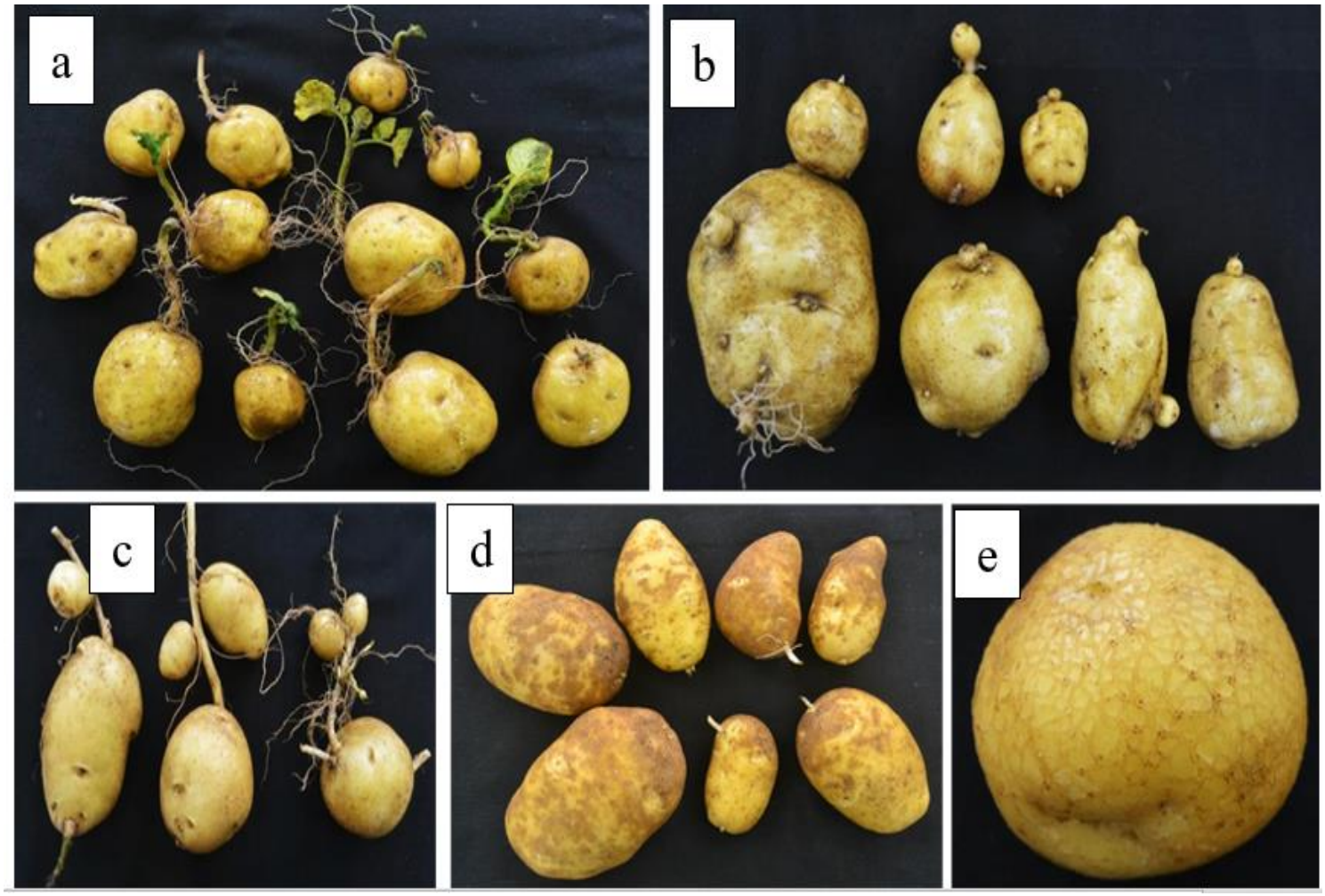
THE IMPACTS – POTATOES



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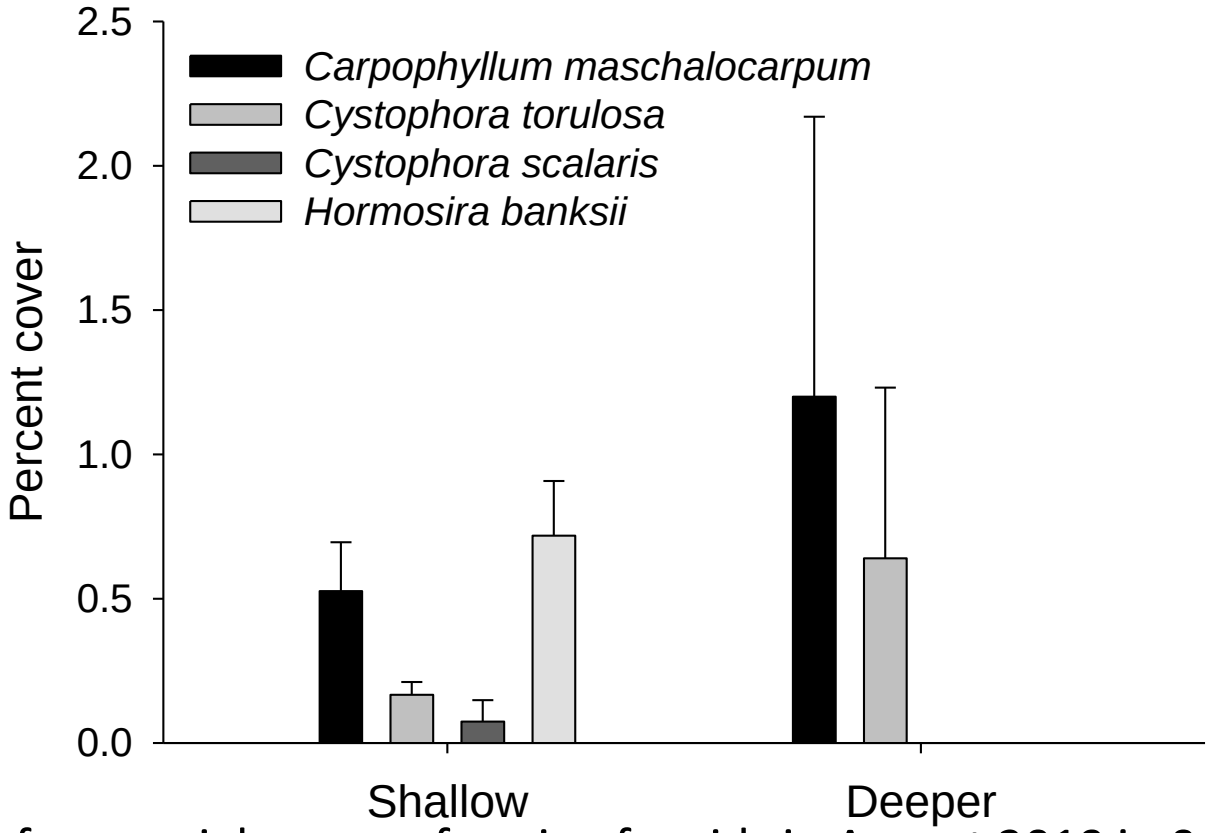
THE IMPACTS – MARINE



Abundances of perennial canopy-forming fucoids in August 2019 in 0.25 m^2 plots in 'shallow' (N = 27) and 'deeper' (N = 5) parts of the reef inhabited by bull kelp prior to the 2017/18 MHW (the four species were absent from the reef prior to the MHW).

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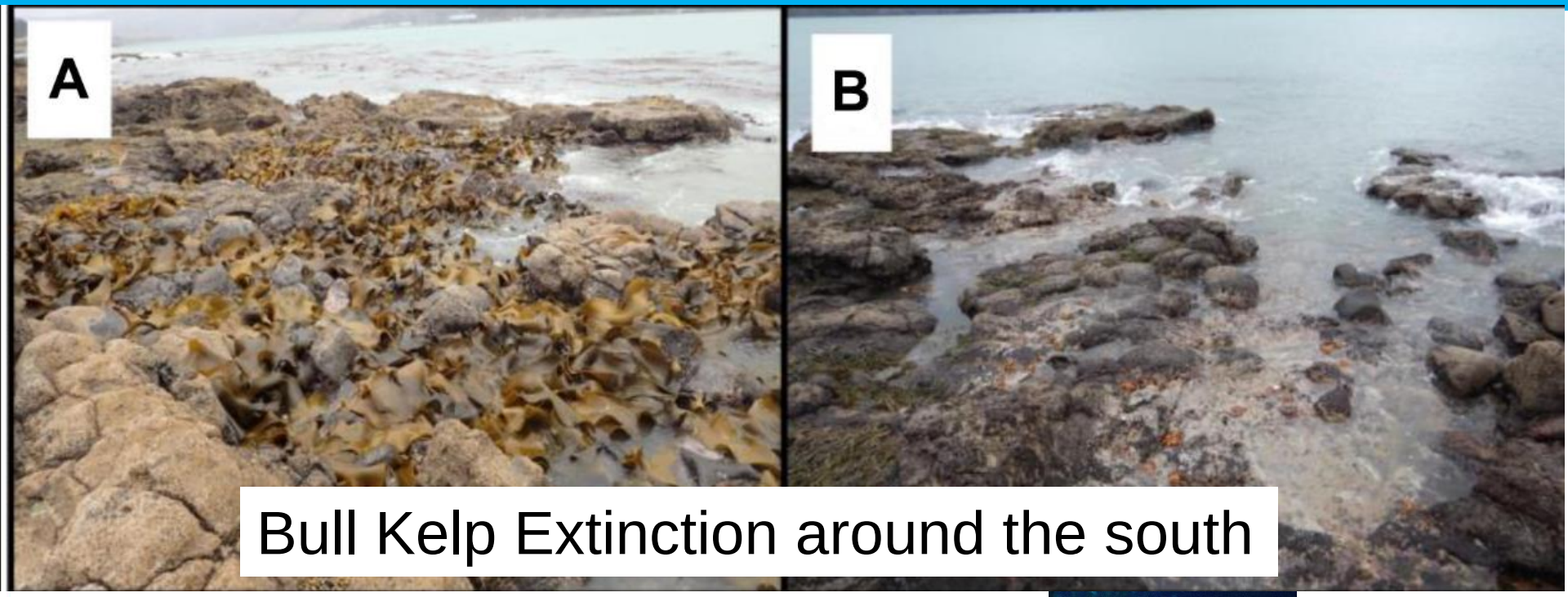
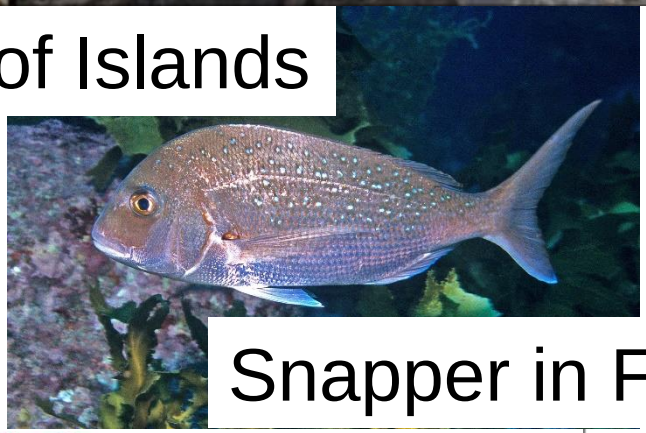
THE IMPACTS - MARINE



Bull Kelp Extinction around the south

Queensland Groper in Bay of Islands

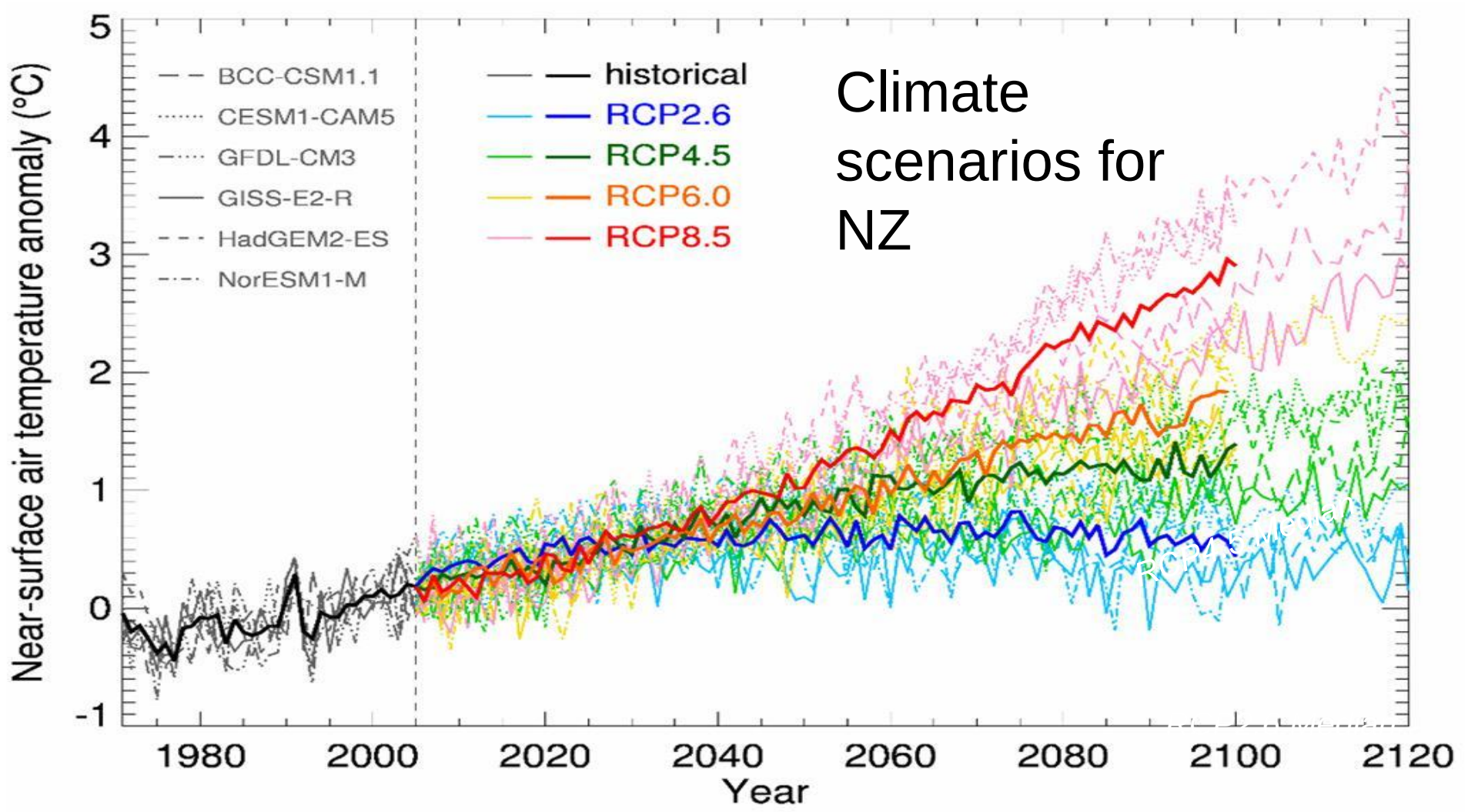


Snapper in Fiordland

CLIMATE SCENARIOS

Region	2017/18 %TX90p	2017/18 %TN90p	Days ≥25°	days ≥25	2017/18 Diff. %	RCP 2.6 summer change %	RCP 4.5 summer change %	RCP 6 summer change %
Northland	37	27	33.4	20.4	**64%**	52%	125%	175%
Auckland	46	32	42.1	17	**148%**	56%	142%	201%
Waikato	44	9	39.2	20.5	**91%**	41%	103%	144%
Bay of Plenty	24	40	25.6	14.5	**77%**	54%	137%	197%
Taranaki	52	35	17.1	5.8	**195%**	71%	203%	309%
Manawatu-Whanganui	46	38	34.1	15.5	**120%**	38%	97%	138%
Gisborne	20	20	21.1	19.1	**10%**	33%	80%	113%
Hawke's Bay	22	29	35.3	22.3	**58%**	31%	73%	101%
Wellington	43	46	33	16.7	**98%**	31%	75%	105%
Tasman-Nelson	47	37	17.1	10	**71%**	45%	129%	195%
Marlborough	31	15	20.1	11.8	**70%**	38%	95%	136%
West Coast	47	34	17	7	**143%**	41%	121%	189%
Canterbury	36	39	31.2	20.5	**52%**	21%	50%	68%
Otago	29	32	27.1	14.4	**88%**	20%	51%	70%
Southland	22	29	16.9	6.7	**152%**	28%	72%	104%
7-station average	35	32	27.3	14.8	**84%**	40%	104%	150%

THE FUTURE



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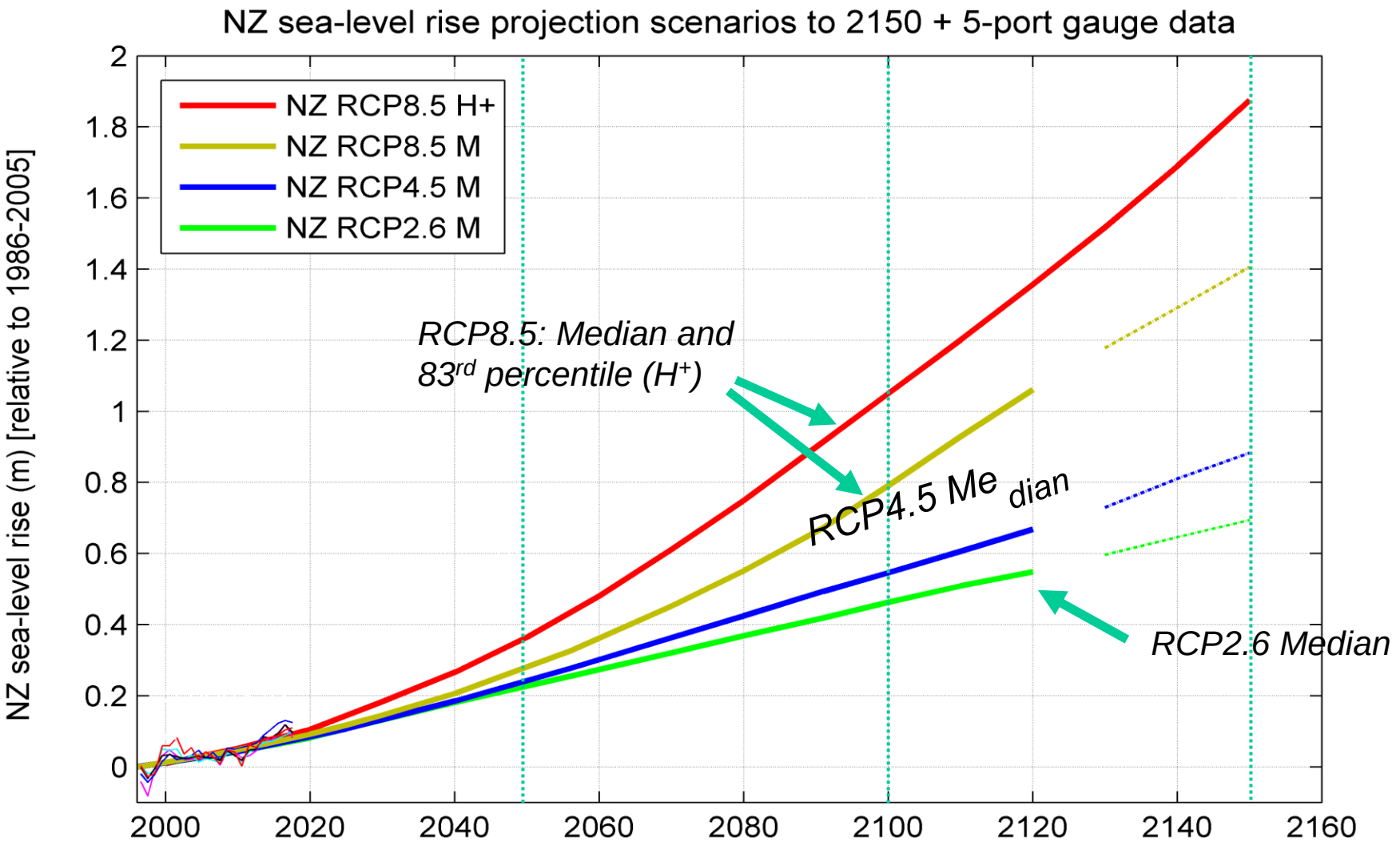
THE FUTURE



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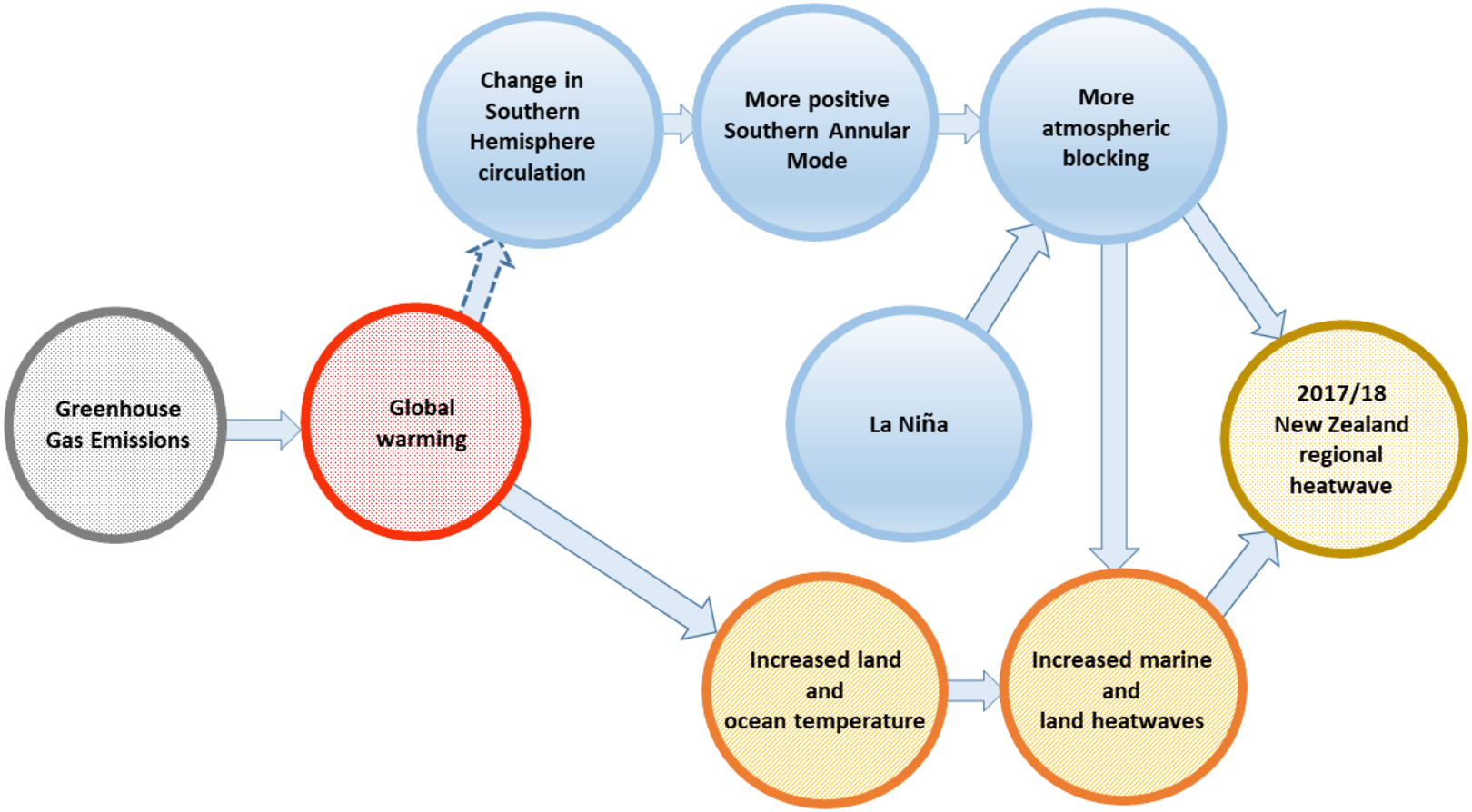
The Impacts - Mechanism



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