

PROJECTED CLIMATE CHANGE 2030/2090

Source - Dowdy, A. et al. 2015, East Coast Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia.

WHAT IT MEANS FOR THE BURNETT MARY REGION ...

HIGHER TEMPERATURES

Increased air temperature - **very high confidence**, based on good understanding of what drives the warming & strong agreement across the projections of Global Climate Models. Between 1910 & 2013 average surface air temperature has increased by about 1 °C.



(°C)	RCP 4.5	RCP 8.5
2030	0.9 (0.6 to 1.2)	1 (0.6 to 1.3)
2090	1.8 (1.2 to 2.6)	3.7 (2.5 to 4.7)

Figures above are annual averages, seasonal projections are also available.

RAINFALL PROJECTIONS

Natural climate variability will be the major driver of rainfall changes in the next few decades. Global Climate Models show a range of results. Rainfall trend projections are not as clear as temperature trends. Annual variability will continue to be strongly influenced by the El Niño-Southern Oscillation.



RISE IN MEAN SEA LEVELS

Increased sea-level - **very high confidence**. Observed average rate of relative sea-level rise for Australia for 1966 to 2009 was 1.4 mm/year.

(M)	RCP 4.5	RCP 8.5
2030	0.13 (0.09 - 0.17)	0.13 (0.09 - 0.18)
2090	0.47 (0.30 - 0.64)	0.64 (0.44 - 0.86)

HOTTER MORE FREQUENT HOT DAYS

Much hotter days, & more often - **very high confidence**. Correspondingly, fewer frost risk days - **high confidence**.

(DAYS/YR)	CURRENT	RCP 4.5	RCP 8.5
2030			
Over 35°C	12	18 (15 - 22)	18 (15 - 22)
Over 40°C	0.8	1.2 (1.1 - 1.6)	1.2 (1.1 - 1.6)
Below 2°C	22	16 (18 - 14)	16 (18 - 14)
2090			
Over 35°C	12	27 (21 - 42)	55 (37 - 80)
Over 40°C	0.8	2.1 (1.5 - 3.9)	6 (2.9 - 11)
Below 2°C	22	11 (14 - 7.4)	3.1 (6.8 - 0.7)



EXTREME RAINFALL & DROUGHT

More intense extreme rainfall events - **high confidence**, based on good understanding of the causes of extreme rainfall and modelled projections. Size of increases is less certain. More time spent in drought - **medium confidence**.

SEA SURFACE TEMPERATURE

Increased sea surface temperature - **very high confidence**, posing significant threats to the marine environment that include changes in marine species, increased risk of coral bleaching and acidification of sea water.

HARSHER FIRE WEATHER

More severe fire-weather - **high confidence**. Increase in severity - low confidence, because of rainfall uncertainties.

EVAPORATION

Increased evapotranspiration in all seasons - **high confidence**.

(%)	RCP 4.5	RCP 8.5
2030	3.5 (2.1 to 4.9)	3.5 (2.6 to 5.6)
2090	7.4 (4.3 to 10.6)	14.1 (8.2 to 19)

(°C)	RCP 4.5	RCP 8.5
2030	0.7 (0.5 to 1.0)	0.8 (0.5 to 1.0)
2090	1.5 (1.1 to 1.9)	2.9 (2.1 to 3.5)

LEGEND

VALUES: e.g. 1.5 (0.6 to 2.3)
median projected value (range of projected values)

RCP - representative concentration pathway; a particular RCP reflects a future scenario in terms of greenhouse gas emissions in the atmosphere.
RCP 4.5 - "stabilization scenario"; emissions from human activity are controlled & have reduced effect after 2100
RCP 8.5 - "high emissions scenario"; emissions continue to rise due to lack of human intervention