

New 'hotter and drier' warning for south west coastal regions

July 7 2016

New climate modelling has found that coastal regions of south west WA (SWWA) could be hotter and drier than previously predicted.

Murdoch University researchers Julia Andrys, Dr Jatin Kala and Emeritus Professor Tom Lyons employed the Weather Research and Forecasting Model to find that projected temperature increases appear to be highest in areas where rainfall decline has been greatest.

Because rainfall reductions have been the largest near the coast, these regions are expected to experience the biggest temperature increases.

"Winter rainfall decline is caused by fewer rain bearing frontal systems traversing the region, and hence fewer rain days" said Ms Andrys.

"The linking of the highest temperature increases with areas of greatest rainfall decline has significant implications for the region, in particular for forestry resources.

"Previous research has linked high forest mortality rates to higher than average temperatures combined with prolonged drought periods in SWWA."

The projections also show an increase in night time temperature variability, which means that extreme night time temperatures are likely to become more common in the future. The number of frost days in SWWA is also expected to decline and a further reduction in winter

rainfall is also projected.

The scientists used the Weather Research and Forecasting Model to compare SWWA climate projections from 2030-2059 with the historical period 1970-1999.

Broadly speaking, the projected changes were consistent with forecasts made from general circulation models, but interesting findings emerged when they looked at [temperature](#) and precipitation in specific areas.

Dr Kala said SWWA was already at risk of substantial negative impacts if measures are not taken to adapt to future climate change because of its status as a biodiversity hotspot and agricultural centre.

"Detailed climate modelling provides the region with a key insight into its future, helping to prepare and manage the effects of climate change," he added.

The scientists said the next stage of their research would refine their data to correct the biases inherent in [climate](#) modelling to make the outputs more useable by impacts researchers.

More information: Julia Andrys et al. Regional climate projections of mean and extreme climate for the southwest of Western Australia (1970–1999 compared to 2030–2059), *Climate Dynamics* (2016). [DOI: 10.1007/s00382-016-3169-5](#)

Provided by Murdoch University

Citation: New 'hotter and drier' warning for south west coastal regions (2016, July 7) retrieved 11 May 2024 from <https://phys.org/news/2016-07-hotter-drier-south-west-coastal.html>

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