



## South Eastern Australian Climate initiative

### **MEDIA RELEASE**

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### **GLOBAL WARMING LINKED TO RAINFALL DECLINE IN SOUTH-EAST AUSTRALIA**

There is growing evidence that lower rainfall and reduced runoff in the south-east of Australia is linked to global warming.

That's just one of the findings discussed at a science review for land and water resource managers organised by the South-Eastern Australia Climate Initiative (SEACI) in Melbourne yesterday.

SEACI, which began in 2006, is a three-year, \$7 million collaboration between six agencies to provide the most intensive analysis yet of factors responsible for the rainfall decline over the past decade and inflows into the Murray-Darling river systems.

The partners are the Murray-Darling Basin Commission (MDBC), Commonwealth Department of Climate Change, the Victorian Department of Sustainability and Environment, Australia's Managing Climate Variability program, CSIRO and the Bureau of Meteorology.

The Murray-Darling Basin Commission is the managing agency of the program.

MDBC Chief Executive Dr Wendy Craik AM said Bureau of Meteorology and CSIRO research for SEACI had generated increasing evidence of the impacts of global warming on rainfall in the south-east of Australia.

“The research shows there are firm signals in the current drought that correlate with future projections of reduced rainfall in southern Australia,” Dr Craik said.

“It also provides evidence of a clear north-south rainfall divide on either side of a naturally-occurring band of high pressure (known as the sub-tropical ridge) roughly on a line running east to west through Adelaide and Canberra.”

The research is detailed in a report by scientists at the Bureau of Meteorology.

A copy is available at [http://www.mdbc.gov.au/subs/seaci/research\\_reports.html](http://www.mdbc.gov.au/subs/seaci/research_reports.html) or contact team leader Dr Bertrand Timbal at the Bureau of Meteorology on 03-9669 4697.

Dr Craik said the Melbourne meeting also discussed SEACI's work on an extensive review of a century of rainfall and temperature records and a refinement of climate models to deliver localised seasonal forecasts.

“Researchers are looking for patterns in oceanic and atmospheric conditions over and around Australia that will provide clues to present and future climate change, its impacts on water resources and lead to improvement in the quality of seasonal forecasts,” she said.

Other recent findings from SEACI presented at the review were:

- Mean sea level pressures were found to have the strongest (inverse) correlations with rainfall across South Eastern Australia.
- As a result of the strong influence of increasing mean sea level pressures over southern Australia, there may be a weakening of the influences of tropical climate features such as the El Nino-Southern Oscillation and the Indian Ocean Dipole on the climate of south-east Australia
- Reductions in rainfall south of the sub-tropical ridge occur in late autumn to winter and in summer to autumn to the north. In the south, the rainfall decline started in the early 1990s but has become apparent only since 2000 in the north.
- The intensity of the subtropical ridge has been rising since the 1970s and that can be translated into a sizeable rainfall decline.
- The intensity of the subtropical ridge previously peaked in the 1940s at the time of a particularly dry decade in the south-east.
- During the 20th century, changes in the intensity of the subtropical ridge have largely corresponded with changes in global temperature. This correspondence means that there is a high likelihood that the current rainfall deficit is linked to current global warming, through the intensification of the subtropical ridge.

“Considerable effort has been invested in refining climate computer models used by scientists in generating three to six month regional seasonal forecasts,” Dr Craik said.

“SEACI also has made significant progress in profiling previous and current droughts and understanding the climatic influences that determine why one region receives rain and another misses out.

“We are gaining a stronger sense now of how the Indian and Southern Oceans influence the climate of South-East Australia, and of the factors such as global warming that influence change and alter rainfall patterns and stream and river inflows.

“In the final year of the project, we want to extend this knowledge to improving short-term seasonal forecasts and climate change projections for the region, through more accurate modelling. We are also identifying our future climate science needs to underpin our strategies for adapting to climate change in the Basin” Dr Craik said.

Dr Craik said many of the research findings have been peer-reviewed for science publications or will be submitted for peer review before publication.

The Murray-Darling Basin Commission is currently working with the SEACI partner governments to identify future directions for climate research.

More information and reports are available at: SEACI’s website at [www.mdbc.gov.au/subs/seaci/](http://www.mdbc.gov.au/subs/seaci/)

**Media liaison** – Sam Leone, MDBC, phone 0407 006 332