

Corals show Aussie drought link to Asian monsoon

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Droughts of greater severity and length could be in store for Australia and Indonesia if the Asian monsoon system continues to strengthen, palaeoclimatologists have warned.

The international team led by researchers from The Australian National University has uncovered new insights into the connection between three major climate engines: the Indian Ocean Dipole, El Niño/Southern Oscillation, and the Asian monsoon.

Their findings, based on the analysis of climate records stored in coral reefs off western Indonesia, are published in *Nature* yesterday.

Lead researcher Dr Nerilie Abram said that by looking at climate behaviour over the last 6,500 years, the team found that stronger monsoons in Asia led to greater ocean cooling in the eastern Indian Ocean, which in turn increased the drought-causing effects of the Indian Ocean Dipole in Indonesia and Australia.

“The Indian Ocean Dipole (IOD) has a dramatic effect on the climate in countries surrounding the Indian Ocean,” Dr Abram explained. “Changes in surface temperature and winds in this oceanic region to Australia’s north west can cause wildfires in Indonesia, floods in Africa, and droughts in Australia. There was such an IOD event in the latter half of last year that exacerbated the effects of El Niño in our region.

“Chemical analysis of fossil corals allows us to understand, in great

detail, how the climate behaved thousands of years ago. The corals show us that drought has always been a key feature associated with IOD cooling, but the nature and timing of these droughts were quite different back when the Asian monsoon was stronger than it is now.”

Team member Dr Mike Gagan from ANU said this was because the stronger monsoon drove more powerful winds across the Indian Ocean, cooling the surface water and increasing the effects of the Dipole.

“It should be a matter of concern, then, that the Asian monsoon system appears to be growing stronger,” Dr Gagan said. “This means we could see a return to those heightened droughts that hit countries around the eastern Indian Ocean 6,500 years ago. Such a change in the timing and severity of droughts in the future could have major implications for Australia and its neighbours.”

Source: Australian National University

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