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Thousand year old stalagmites provide rainfall patterns for SE Australia

Stalagmites up to 1,000 years old are helping to examine past rainfall patterns for one of the country's driest areas and in doing so, providing clues as to what we may be likely to experience in the future.

Delegates at the *Australian Earth Sciences Convention* in Canberra have heard how valuable information has been extracted from NSW's Wombeyan Caves to reconstruct south-eastern Australia's rainfall history over the past 1,000 years.

Dr Janece McDonald, a conjoint fellow at the University of Newcastle's School of Environmental and Life Sciences said the study of the stalagmites shows an increasing drying trend since ~1600AD.

"This means the past decade of drought in south-eastern Australia is not unusual in the context of a longer-term drying trend," she added.

The continuation of a drier climate cycle for one of the areas most adversely affected by the El-Nino related drought, which most scientists agree was one of the most significant droughts on record, will have consequences for water management and planning.

"Until now, much of what was known about drought of the past decade had been based on instrumental climate records, which in eastern Australia, extended back to the 1800s," explained Dr McDonald. "Given natural climate variability, 200 years is insufficient to capture the true variability of moisture patterns in SE Australia."

The Wombeyan Caves – 100 km southwest of Sydney - are located in an area with a highly variable rainfall and are sensitive to many of the climate disturbances associated with the El Nino Southern Oscillation and the Inter-decadal Pacific Oscillation.

"The chemical composition of stalagmites can preserve the hydrological (water information) conditions of a region," said Dr McDonald. "This is because the stalagmites build up layer by layer from dripping water on the cave floor that has fallen over thousands of years."

Information from this study will also be used by the Sydney Catchment Authority to better model climate cycles in the Warragamba catchment, which provides 80 per cent of Sydney's drinking water.

Ends

Issued on behalf of the Geological Society of Australia by Connection Communications. For further information or to arrange an interview with Dr Janece McDonald, please call Maria Padua on 0419 200 935.