

Embargo Thursday 3 April 2003

Worth of Water: Environment, Society and Sustainability

Session 5 1:40pm Groundwater



Presentation: ***Dowsing Hot Spots***

Groundwater management

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The Science Forums

- key words/terms: groundwater, hotspots, sustainability
- applications: groundwater management, sustainable water management

The National Centre for Groundwater Management at the University of Technology, Sydney is conducting pilot studies with new software to help accurately manage groundwater levels in rural areas. The pilot, conducted in the Namoi and Murrumbidgee Valleys is a joint project between UTS and the NSW Government.

More than four (4) million people across Australia are supported by groundwater for domestic, stock and irrigation use. About 450,000 megalitres (about 200,000 Olympic size swimming pools) is consumed each year in urban and rural areas, while 2,600,000 megalitres is required to irrigate 430,000 hectares (0.11% of Australia's land area). This has resulted in an over-allocation of groundwater, beyond sustainable levels, in most rural areas. Such areas where the water level declines are extreme and not sustainable are referred to as 'hot spots'.

The new software, called 'HotSpots', has been developed by researchers at UTS for the NSW Government to determine the optimal level of groundwater allocation to farms. This may have the effect of reducing allocations to farmers below their current entitlements.

Presently, groundwater in NSW is managed according to a regional sustainable yield, with farmers receiving a share in proportion to their farm area. Nature, however, is not so uniform and depending upon spatial variations and proximity to rivers, this means some properties are better endowed with groundwater than others. HotSpots can investigate and identify these imbalances and decide the best form of distribution between farms.

Farms that are forced to use less water or farms that are better supplied with groundwater may have the option of trading their excess to farms not so well off, and again, HotSpots can be used to decide if the exchange will be beneficial or not.

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Profile

Noel Merrick is Deputy Director of the National Centre for Groundwater Management at the University of Technology, Sydney (UTS), where he is Senior Lecturer in Groundwater Modelling and Geophysics. He is also a Research Scientist with the Institute for Water and Environmental Resource Management at UTS. His particular interests are modelling of groundwater resources, optimisation approaches to groundwater management, groundwater geophysics and software development. He has trained many of Australia's groundwater modellers and was part of the team that developed recent groundwater modelling guidelines for Australian conditions. He holds a Bachelors Degree in Physics and Mathematics, a Graduate Diploma in Data Processing, a Masters Degree in Geophysics, and a PhD in Groundwater Management.

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