

MONDAY 10 SEPTEMBER 2001

Beginning 1400hrs, Lecture Room 1, Geological Institute, Luisenstrasse 37, Munich, Tel. (089) 21806569

**(C11) UNESCO/ IAEA/ IAH-MAR Session on
Uses of Isotopes to Evaluate Recharge Enhancement**

followed at 1600 hrs by

IAH-Management of Aquifer Recharge Working Group Meeting

This session is organised by Dr. Peter Dillon, Australia Peter.Dillon@adl.ciw.csiro.au and Dr. A. Pekdeger, Berlin pekdeger@zedat.fu-berlin.de.

This session is hosted by United Nations Educational, Scientific and Cultural Organization, the International Atomic Energy Agency and the IAH Working Group on Management of Aquifer Recharge

Isotopes may provide a valuable tool for understanding mixing and biogeochemical processes and efficiency of recharge enhancement. This session will consist of four talks, dealing with wadi/pond infiltration, bank filtration, and aquifer storage and recovery and how isotopes have and can be used to study these. The talks will cover following subjects:

- *Groundwater replenishment from surface ponding and wadi flow in the arid zone and the isotopic signature (Oxygen-18 and Deuterium) of flood-flows relative to the precipitation inputs and their tracing through groundwater bodies.*
- *Changes resulting from anthropogenic activities in the watershed, such as change in land use, urbanisation etc.*
- *Use of isotopes to estimate flow time and mixing during bank filtration - Examples will be shown on the use of stable isotopes O-18 and Deuterium on a multi tracer approach for evaluating bank filtrate quality and quantity in an urban area (Berlin).*
- *Use of a lumped parameter model to interpret isotopic data during bank filtration, is shown to be a very practical method and cheaper than the alternatives, for calibrating numerical flow and transport models.*
- *The fate, mixing and biogeochemical processes following injection of stormwater into a confined aquifer - examples of the use of Deuterium, O-18 and C-14 in association with chloride as tracers of the injected water, and of N-15, C- 13 and S-34 as indicators of redox transformations taking place. -*

Following the talks there will be an opportunity for discussion on use of isotopes for estimating efficiency of recharge enhancement projects in arid environments, and any other closely related scientific or management issues that delegates want to raise. It is intended to identify activities needed to evaluate recharge enhancement in arid developing countries as part of the new IAEA - UNESCO Joint International Isotope in Hydrology Programme.

*After this session there will be an open meeting of the IAH Working Group on Management of Aquifer Recharge (Artificial Recharge). **ALL CONFERENCE DELEGATES WHO ARE INTERESTED ARE INVITED TO ATTEND.** Activities completed since the inaugural meeting in Cape Town in Nov 2000 will be reported and we will formulate plans for activities in the coming year. Some of these may emerge from the preceding session.*

**Monday 10 September
PROGRAMME**

**(C11) UNESCO/ IAEA/ IAH-MAR Session on
Uses of Isotopes to Evaluate Recharge Enhancement**

Lecture Room 1, Geological Institute, Luisenstrasse 37

1400-1405	Alice Aureli (UNESCO)	Welcome and objectives
1405-1425	Joel Gat (Israel)	Wadi/pond infiltration in arid environments
1425-1455	Asaf Pekdeger and Piotr Maloszewski (Germany)	Bank filtration & Isotopes- Measurements and Modelling
1455-1510	Peter Dillon (Australia)	Injection of stormwater in wells - fate, mixing and biogeochemical processes
1510-1535		General discussion -issues in evaluating effectiveness of recharge enhancement
1535-1540	Jeff Turner (IAEA)	Conclusions

IAH-MAR Working Group Open Meeting (Chair; Ivan Johnson)
(MAR = Management of Aquifer Recharge - formerly 'Artificial Recharge')
1600-1730. *Lecture Room 1, Geological Institute, Luisenstrasse 37*

AGENDA

1. Welcome and Introductions -
2. Activities since first meeting, IAH XXX, Cape Town
Web Page - Ian Gale
Email List - Peter Dillon
Artificial Recharge Survey - List of sites - web page - Ivan Johnson
Publications data base - web page - Alfredo Perez-Paricio / Peter Dillon
European Bank Filtration Group - Thomas Grischek
DFID/BGS project on recharge enhancement in India - Ian Gale
UNESCO publication 'Wise Strategies for Groundwater Recharge Enhancement' - Alice Aureli
3. IAEA/UNESCO project on isotopes to evaluate arid zone recharge enhancement - Jeff Turner, AA
4. Arid zone recharge evaluation postgraduate project proposal - Ines Beernaerts/ FAO
5. Research Projects, Gaps and Coordination - Peter Dillon
6. Standards for Recharge Enhancement (EWRI) - Ivan Johnson
7. 4th Intl Symp on Artificial Recharge, Adelaide, 22-26 Sept 2002- Call for Papers- Peter Dillon
8. Suggestions for future activities - all
Newsletter ?
9. House Keeping of Working Group - name, roles, election of officers?, volunteers
10. Any Other Business

A reception for IAH XXXI by the Bavarian Government will begin between 1800 and 1900h