

IAEA SECRETARIAT:

Scientific Secretaries: P. Aggarwal
J. Turner
Conference Services: K. Morrison

Location of the Symposium:

International Atomic Energy Agency
Vienna International Centre (VIC)
Building C, 4th floor
IAEA Boardroom
Wagramer Strasse 5
A-1400 Vienna, Austria

Tel: (+43 1) 2600 21330 or 21336
Fax: (+43 1) 2600 29325

Working Language: English

Resolutions: No resolutions may be submitted for consideration on any subject, no votes will be taken.

TIMETABLE

Sunday, 18 May 2003

16:00-18:00 Registration

Monday, 19 May 2003

08:00 Registration

09:30–10:15 Opening Addresses

10:15–10:20 Break

10:20–12:40 Session 1 - Keynote Papers

12:40–14:00 Lunch

14:00–15:35 Session 2 – Groundwater Sustainability and Dynamics I

15:35–16:00 Coffee Break

16:00–18:00 Session 3 - Groundwater Sustainability and Dynamics I (cont'd.)

18:30 Reception

Tuesday, 20 May 2003

09:00–10:05 Session 4 - River System Dynamics

10:05–10:30 Coffee Break

10:30–12:40 Session 4 - River System Dynamics (cont'd.)

12:40–14:00 Lunch

14:00–15:40 Session 5 - Groundwater Sustainability and Dynamics II

15:40–15:55 Introduction to Poster Session I

15:55–18:00 Poster Session I
Themes: Isotopes in Groundwater, Dynamics of Groundwater, Groundwater Pollution, Modelling Approaches, Origin and Recharge of Groundwater, Palaeowaters

18:00–19:30 Informal Evening Session: Historical perspectives and reminiscences from over 50 years of isotope hydrology (Programme to be advised)

Wednesday, 21 May 2003

09:00–10:35	Session 6 – Unsaturated Zone Processes and Artificial Recharge
10:35–11:00	Coffee Break
11:00–12:00	Session 6 – Unsaturated Zone Processes and Artificial Recharge (cont'd.)
12:00–13:40	Lunch
13:40–15:15	Session 7 – Geothermal Systems
15:15–15:30	Oral Introduction to Poster Session II
15:30–17:30	Poster Session II Themes: Precipitation, Surface Waters, Geothermal Systems and Recent Analytical Developments

Thursday, 22 May 2003

09:00–10:35	Session 8 – Climate and Atmosphere
10:35–11:00	Coffee Break
11:00–12:40	Session 8 – Climate and Atmosphere (cont'd.)
12:40–14:00	Lunch
14:00–15:15	Session 9 – Biogeochemistry and Water Quality
15:15–15:35	Coffee Break
15:35–16:35	Session 9 – Biogeochemistry and Water Quality (cont'd.)
16:35–16:45	Break
16:45–17:50	Panel Session: Session Summaries and Discussion
17:50–18:00	Closing

Friday, 23 May 2003

Field Trip – Vienna Water Supply

SUNDAY, 18 MAY 2003

16:00–18:00 Registration

MONDAY, 19 MAY 2003

08:00 Registration

09:30–10:15 Opening Session

Moderator: P.K. Aggarwal, IAEA

10:15–10:20 Break

10:20–12:40 SESSION 1: KEYNOTE PAPERS

Chair: B.K. Kim, IAEA

Co-Chair: D.D. Sood, IAEA

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---	----------------	--

186 10:20–10:50	J.C. Rodda	UK
--------------------	-------------------	----

190 10:50–11:10	H. Oda	Japan
--------------------	---------------	-------

135 11:10–11:40	D. Lal	USA
--------------------	---------------	-----

33 11:40–12:10	A.L. Herczeg A.J. Love G.A. Harrington	Australia
-------------------	---	-----------

153 12:10–12:40	L.N. Plummer	USA
--------------------	---------------------	-----

12:40–14:00 Lunch

Title of Paper

Water resources prospects from a hydrological sciences perspective.

Outcomes from the 3rd World Water Forum, Kyoto, Japan, March, 2003.

Hydrological process studies using cosmic ray produced radionuclides.

Environmental isotopes as groundwater management tools: indispensable or superfluous?

Age dating of young groundwater.

14:00–15:35

**SESSION 2: GROUNDWATER
SUSTAINABILITY AND DYNAMICS I**

Chair: A.L. Herczeg, Australia

Co-Chair: N. Nur Ozyurt, Turkey

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---	----------------	--

148 14:00–14:35	M. A. Geyh	Germany
--------------------	-------------------	---------

93 14:35–14:55	J. Rueedi M.S. Brennwald R. Purtschert M. Hofer R. Kipfer	Switzerland
-------------------	--	-------------

38 14:55–15:15	A. Guéro C. Marlin C. Leduc O. Boureima	Niger France Niger
-------------------	---	--------------------------

137 15:15–15:35	L. Jeribi K. Zouari J. L. Michelot C. B. Gaye	Tunisia France IAEA
--------------------	---	---------------------------

15:35–16:00 Coffee Break

**16:00–18:00 SESSION 3: GROUNDWATER
SUSTAINABILITY AND DYNAMICS I**

Chair: Y. Travi, France

Co-Chair: K. Zouari, Tunisia

170 16:00–16:20	N. Zine A. Zerouali M. Taleb M. Qurtobi M. Ibn Majah <i>et al.</i>	Morocco
--------------------	---	---------

89 16:20–16:40	A. Plata-Bedmar L. J. Araguás-Araguás	Spain
-------------------	---	-------

Title of Paper

Radiocarbon dating of old groundwater — history, potential, limits and future.

Estimating amount and spatial distribution of groundwater recharge in the Jullemeden Basin (Niger) based on ^3H , ^3He and CFC-11 measurements.

Use of environmental isotopes (^{18}O , ^2H , ^3H , ^{14}C) and hydrodynamic modelling to highlight groundwaters mixing in the Southwestern part of the lullemeden basin (Niger).

Contribution of environmental isotopes to the study of recharge and dynamics of the multilayered aquifer system of Zeroud Basin (Kairouan plain, Central Tunisia)

Origin and residence times of the groundwater in the multi-layered aquifer of Tadla (Morocco).

Evaluation of modern recharge in the Los Arenales detritic aquifer, central Spain.

16:00–18:00

**SESSION 3 (cont'd): GROUNDWATER
SUSTAINABILITY AND DYNAMICS I**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
19 16:40–17:00	R.M.P. Nachiappan M. Someshwar Rao B. Kumar S. V. Navada Y. Satyanarayana	India
132 17:00–17:20	J.E. Moran G.B. Hudson R. Leif G.F. Eaton	USA
80 17:20–17:40	M. Dulinski J. Kania J. KarlikowskaK. M. Opoka Rozanski, <i>et al</i>	Poland
102 17:40–18:00	N. Nur Ozyurt C.S. Bayari	Turkey
18:30	Reception	

Title of Paper

Chemical and isotopic techniques for development of groundwater management strategies in a coastal aquifer: Krishna river delta, South India

Assessing aquifer contamination vulnerability using tritium-helium ages in public drinking water wells in California, USA.

Groundwater dating with sulfur hexafluoride: methodology and field comparison with tritium and hydrodynamic methods.

Unsteady state lumped parameter modelling of ^3H and CFCs transport: Analyses of groundwater residence time distribution in mountainous Karstic aquifer.

TUESDAY, 20 MAY 2003

09:00–12:40 SESSION 4: RIVER SYSTEM DYNAMICS

Chair: J.J. McDonnell, USA

Co-Chair: J.J. Gibson, Canada

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
111 08:30–09:05	C. Kendall S.R. Silva C.C.Y. Chang S.D. Wankel R.P. Hooper, <i>et al.</i>	USA
109 09:05–09:25	J.J. Gibson T.D. Prowse A. Pietroniro L. Wassenaar G. Koehler	Canada
77 09:25–09:45	J. Gat	Israel
123 09:45–10:05	M.A. Tasneem A. Manzoor J.A. Tariq M.I. Sajjad	Pakistan
10:05–10:30	Coffee Break	
79 10:30–10:50	M. Zimnoch K. Rozanski M. Mikolajczak D. Rank	Poland Austria
45 10:50–11:10	J.-F. Helie C. Hillaire-Marcel	Canada
69 11:10–11:30	J.J. McDonnell	USA
41 11:30–11:50	P. Koeniger S. Wittmann Ch. Leibundgut W.J. Krause	Germany

Title of Paper

Tracing nutrient sources in the Mississippi River Basin, USA.

Isotope tracing of water balance and climatic variability along the McKenzie river.

The isotopic river continuum model — IRCM.

Isotope characterization of major rivers of Indus basin, Pakistan.

Dynamics of water transport through catchment of the Danuberiver traced by environmental ^3H and ^{18}O — the neural networks approach.

Organic carbon sources and cycling in the St. Lawrence river: Stable isotopes and elemental approaches.

Runoff processes and small watersheds.

Tritium balance modelling in a macroscale catchment.

09:00–12:40

**SESSION 4 (cont'd):
RIVER SYSTEM DYNAMICS**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---	----------------	--

180 11:50–12:10	B.M. Fekete P. Aggarwal J. J. Gibson C.J. Vörösmarty	Hungary IAEA Canada USA
--------------------	--	----------------------------------

191 12:10–12:40	S. Prabha	India
--------------------	------------------	-------

12:40–14:00 Lunch

**14:00–15:40 SESSION 5: GROUNDWATER
SUSTAINABILITY AND DYNAMICS II**

Chair: B. Kumar, India
Co-Chair: To be advised

122 14:00–14:20	H.H. Loosli R. Purtschert	Switzerland
--------------------	-------------------------------------	-------------

103 14:20–14:40	S. Sharma K.M. Kulkarni U.P. Kulkarni A. S. Deodhar S.V. Navada. <i>et al.</i>	India IAEA India
--------------------	---	------------------------

92 14:40–15:00	J.A. Corcho R. Purtschert C. Chabault F. Barbecot J. Rüedi, <i>et al.</i>	Switzerland France Switzerland
-------------------	--	--

52 15:00–15:20	N.K. Chinh L.V. Khoi L.D. Chuan D.T. Hung	Vietnam
-------------------	---	---------

13 15:20–15:40	N. Ahmed P. K. Aggarwal K.M Kulkarni S. A. Tarafdar M. Ali	Bangladesh IAEA Bangladesh
-------------------	---	--------------------------------------

Title of Paper

Application of isotope tracers in continental scale hydrological modelling.

Science and hydrological information needs for large-scale river basin management.

How can sustainability for groundwater use be determined?

Isotope hydrogeochemistry of groundwater in Purna river basin, Maharashtra, India.

Origin and temporal evolution of the groundwater in the Fontainblau sands aquifer (France) investigated using ^3H , ^{85}Kr , ^{39}Ar , ^{14}C , and stable noble gases.

Groundwater salinization mechanism of aquifers beneath Ho Chi Minh City Area (Vietnam).

Use of Environmental isotopes to study the recharge mechanisms and arsenic pollution of Bangladesh groundwater.

- 15:40–15:55** **Oral Introduction to Poster Session 1**
A. L. Herczeg, Australia
- 15:55–18:00** **POSTER SESSION I:**
Themes: Isotopes in Groundwater, Dynamics
of Groundwater, Groundwater Pollution,
Modelling Approaches, Origin and Recharge
of Groundwater, Palaeowaters.
- 18:00–19:30** **Informal Evening Session:**
Historical perspectives
and reminiscences from over 50 years
of isotope hydrology.

WEDNESDAY, 21 MAY 2003

09:00–12:00 **SESSION 6: UNSATURATED ZONE
PROCESSES AND ARTIFICIAL RECHARGE**

Chair: **F. Longstaffe, Canada**

Co-Chair: **M. Almomani, Jordan**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---	----------------	--

154 09:00–09:35	F.J. Longstaffe K.L. Gage E.A. Webb	Canada
--------------------	--	--------

59 09:35–09:55	J. R. Hunt A.F.B. Tompson	USA
-------------------	-------------------------------------	-----

68 09:55–10:15	J. Fank W. Stichler	Austria Germany
-------------------	-------------------------------	--------------------

161 10:15–10:35	R. L. Michel P. McMahon K. Dennehy	USA
--------------------	---	-----

10:35–11:00 Coffee Break

39 11:00–11:20	N.M. Kortelainen J.A. Karhu	Finland
-------------------	---------------------------------------	---------

61 11:20–11:40	J. Vanderzalm C. Le Gal La Salle J. Hutson P. Dillon P. Pavelic, <i>et al.</i>	Australia
-------------------	---	-----------

28 11:40–12:00	M. Almomani A. Subah	Jordan
-------------------	--------------------------------	--------

12:00–13:40 Lunch

Title of Paper

Stable hydrogen — and oxygen-isotope behaviour of soil water in sand dunes, and its relationship to shallow groundwater, southern Great Lakes Region, Canada.

Long -term vadose zone processes at the Nevada test site, USA.

Results of long-term investigations on ^{18}O in the unsaturated zone in comparison to the results of tracing experiments and numerical modelling.

Use of isotopic tracers to study pathways for migration of contaminants through the unsaturated zone in irrigated agricultural sites in South-western Kansas, USA.

Tracing the decomposition of dissolved organic carbon in artificial recharge by carbon isotope ratios.

Isotope contributions to geochemical investigations in aquifer storage and recovery.

Environmental isotope application for determination artificial recharge efficiency, cases from arid and semi-arid areas of Jordan.

13:40–15:15

SESSION 7: GEOTHERMAL SYSTEMS

Chair:

Y. Kharaka, USA

Co-Chair:

To be advised

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
37 13:40–14:15	Y.K. Kharaka J.J. Thordsen R.H. Mariner	USA
14 14:15–14:35	Y.K. Koh D.S. Bae C.S. Kim G.Y. Kim	Korea, Rep. of
156 14:35–14:55	J. A. Caranto P.I. Pamatian M.S. Ogena	Philippines
36 14:55–15:15	S. Kebede Y. Travi T. Alemayehu T. Ayenew	Ethiopia France Ethiopia
15:15–15:30	Oral Introduction to Poster Session II: J.J McDonnell, USA	
15:30–17:30	POSTER SESSION II: Themes: Precipitation, Surface Waters, Geothermal Systems, and Recent Analytical Developments	

Title of Paper

Use of isotopic and chemical compositions of thermal and meteoric waters to investigate recharge for the large hydrothermal system at Yellowstone National Park, USA.

Isotope and chemical studies of the thermal waters in the Busan area, Korea.

Interaction of the deep geothermal system at Southern Negros geothermal field and the shallow groundwater aquifer in Dumaguete City.

Tracing the sources of recharge to groundwater in the specific meteorological and geological context of the Ethiopian rift and bordering plateau using environmental isotopes.

THURSDAY, 22 MAY 2003

09:00–12:40 **SESSION 8: CLIMATE AND ATMOSPHERE**

Chair: **P. Schlosser, USA**
Co-Chair: **A. Sugimoto, Japan**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
155 09:00–09:35	L. G. Thompson M.E. Davis E. Mosley-Thompson P-N. Lin., <i>et al.</i>	USA
147 09:35–09:55	C. Sturm G. Hoffmann B. Langmann W. Stichler	Germany France Germany
157 09:55–10:15	M. Kralik W. Papesch W. Stichler	Austria Germany
159 10:15–10:35	A. Sugimoto A. Numaguti M. Tsujimura K. Fujita S. Hashimoto, <i>et al.</i>	Japan
10:35–11:00	Coffee Break	
160 11:00–11:20	K. Ichiyanagi M. D. Yamanaka	Japan
158 11:20–11:40	G. Lin D. Williams E. Yopez R. Scott	USA
183 11:40–12:00	D. Yakir	Israel
189 12:00 –12:20	P. Aggarwal L. Gourcy K.M. Kulkarni K Froehlich	IAEA

Title of Paper

Stable isotopes on seasonal to millennial time scales as recorded in low-latitude, high-altitude ice cores.

Regional atmospheric modelling of the water isotope cycle.

Austrian network of isotopes in precipitation (ANIP):
Quality assurance and climatological phenomenon in one of the oldest and densest networks in the world.

Study on water vapour transport to Tibetan Plateau using stable isotopic composition of precipitation.

Temporal variation of stable isotopes in precipitation at Bangkok, Thailand.

Utilization of monsoonal rains by plants and isotopic partitioning of evapotranspiration in two contrasting semi-arid Savanna ecosystems.

Isotopic links between the water and carbon cycles.

Stable isotopes in characterization of moisture sources in precipitation.

09:00–12:40

**SESSION 8 (cont'd): CLIMATE
AND ATMOSPHERE**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
187 12:20–12:40	P. Schlosser J. Karstensen B. Newton P. Collon G. Winckler	USA
12:40–14:00	Lunch	
14:00–15:55	SESSION 9: BIOGEOCHEMISTRY & WATER QUALITY	
Chair:	C. Kendall, USA	
Co-Chair:	S. Iriarte-Diaz, Chile	
106 14:00–14:35	B. Mayer	Canada
51 14:35–14:55	S. Iriarte-Diaz C. Tore M. Pardo E. Aguirre R. Aravena	Chile Canada
66 14:55–15:15	L. Rock B. Mayer	Luxembourg Canada
15:15 –15:35	Coffee Break	
84 15:35–15:55	L. Vitoria J. Serrano A. Soler A. Àvila	Spain
1 15:55-16:15	M.A. Tasneem P.K. Aggarwal Z. Latif S. Butt T. Javed, <i>et al.</i>	Pakistan IAEA Pakistan

Selected Applications of isotopes in studies of ocean climate.

Historic and contemporary examples for assessing sources and transformations of sulfate and nitrate in the hydrosphere using isotope techniques.

Use of environmental isotopes to evaluate natural and antropic sources of groundwater in an area with multiples land uses, Santiago Norte Basin, Chile.

Temporal trends in the chemical and isotopic composition of surface water nitrate within the Oldman river basin, Southern Alberta, Canada.

^{15}N and ^{18}O isotopes as tracers of agricultural groundwater contamination in Osona (NE, Spain).

Stable isotopes of dissolved oxygen as an innovative tool for water quality parameter estimation.

14:00–15:55

**SESSION 9 (cont'd):
BIOGEOCHEMISTRY & WATER QUALITY**

<i>No. of Paper IAEA-CN-104/ Time</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
188 16:15–16:35	A. Hudson	UNDP/GEF
16:35 –16:45	Break	
16:45–17:50	Panel Session: Session Summaries and Discussion	
17:50–18:00	Closing A. Cetto, Deputy Director General, Department of Technical Cooperation, IAEA	

FRIDAY, 23 MAY 2003

A one-day field trip to the historical water supply system for Vienna, sponsored by the City of Vienna.

Title of Paper

UNDP/Global Environment Facility International
in Waters Portfolio: Possible linkages
to isotope hydrology tools and applications.

POSTERS

POSTER SESSION I

15:55 - 18:00 Tuesday, 20 May 2003

THEMES: **Dynamics of Groundwater,
Groundwater Pollution,
Modelling Approaches,
Origin and Recharge of Groundwater,
Palaeowaters**

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---------------------------------------	----------------	--

Dynamics of Groundwater

12/P	C.M. Maduabuchi P. Maloszewski W. Stichler M. Eduvie	Nigeria Germany Nigeria
17/P	C.E. Hughes D. J. M. Stone R. I. Acworth	Australia
20/P	G. Gaultier C. Marlin C. Leduc	France
24/P	B. Jamnik J. Urbanc	Slovenia
48/P	F. Gal C. Renac M. Lacroix	France
49/P	X. Song M. A. Geyh J.-J. Yu W.-Z. Gu J.-Y. Deng, <i>et al.</i>	China Germany China
53/P	F. Huneau B. Blavoux Y. Travi	France

Title of Paper

Preliminary interpretation of environmental isotope data in the Chad Basin Aquifers, NE Nigeria.

A radioisotope tracer study of estuarine groundwater movement on the eastern Australian coast.

Isotopic and hydrodynamic approaches in the Quaternary aquifer of Lake Chad basin in Niger as indicators of present and past hydrological processes.

Isotope investigations as a tool for water resource management in Ljubljana City (Slovenia).

Stable (O, H and C) and radiogenic (tritium and ^{14}C) isotopes studies of shallow and CO_2 -rich groundwater from the Forez graben (eastern Massif Central, France).

The uranium disequilibrium of groundwater at Gobi Desert in the arid Alxa Plateau, inner Mongolia.

Isotopic hydrogeology as a tool to define “good status” of groundwater bodies: example of the Valreas Miocene aquifer (France).

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
62/P	G. Pilla E. Sacchi G.M. Zuppi G. Ciancetti G. Braga	Italy
65/P	P. Bono A. Raponi B. Turi G.M. Zuppi	Italy
67/P	R. Benischke A. Leis H. Stadler	Austria
70/P	S. Pera Iburguren H. Panarello J. Ainchil G.M. Zuppi	Argentina Italy
76/P	L.F. Molerio	Cuba
83/P	A. Suckow R. Bayer F. Binot E. Brost C. Fulda, <i>et al.</i>	Germany
94/P	A. Boronina W. Balderer P. Renard W. Stichler	Switzerland Germany
104/P	N. Jacob K. Shivanna A.R. Nair T.B. Joseph A. Deodhar, <i>et al.</i>	India
110/P	B. Reichert J. Thein S. Cappy W. Stichler M. Agoussine	Germany

Hydrochemistry and isotope geochemistry as management tools for groundwater resources in multiplayer aquifers: A case study from the Poplain (Lomellina Region, South Western Lombardy, Italy).

Isotopes hydrology of Simbruini Mountains
(Central Apennines, Italy)

Deuterium as reference in a multi-tracing experiment in a karst system — a comparative study.

Isotope hydrology of the multi layer aquifer in N.E. Buenos Aires province, Argentina.

Cave levels, safe yield and turnover time in Karst aquifers.

CAT: An integrated geological, geophysical, geochemical and isotope hydrological approach to study the marine-ground water interaction.

Study of ^2H and ^{18}O in the Kouris catchment (Cyprus) for the description of the regional groundwater balance.

Use of environmental isotopes to characterise the groundwaters from tertiary aquifers of Kuttanad, Kerala, India.

Hydrogeological framework of the Northern Draa-catchment, Morocco: Results of local and regional scale investigations.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
125/P	C. Batiot C. Emblanch B. Blavoux	France
130/P	D. Wen X. Qiu D. Wang Z. Wang J.V. Turner	China IAEA
131/P	D. Qin J.V. Turner L. Han M. Groening Z. Pang, <i>et al.</i>	China IAEA
136/P	M.F. Ben Hamouda K. Froehlich A. Mamou	Tunisia Austria Tunisia
152/P	S.M.A. Adelana P.I. Olasehinde P.Vrbka	Nigeria
173/P	C. Tindimugaya C.B. Gaye	Uganda IAEA
Groundwater Pollution		
2/P	R. M. Qureshi A. Mashiatullah M. A. Tasneem E. Ahmad I. Zahra, <i>et al.</i>	Pakistan
3/P	R. M. Qureshi A. Mashiatullah M. A. Tasneem E. Ahmad	Pakistan

Title of Paper

pCO₂ ¹³C: An interesting tool to characterize types of Karstic aquifers.

Application of isotope techniques to groundwater exploration and assessment in the Erdos Basin, north west China.

Application of isotope to groundwater and management in the Guanzhong Basin, Shaanxi Province, China.

Hydraulic communication and impact on the quality of groundwater in the North Djeffara coastal aquifer, Tunisia.

The use of stable isotopes and hydrogeochemical studies to characterize water resources in the semi-arid Sokoto Basin, Nigeria.

Use of isotopes in the management of Kisoro town water supply, Uganda.

Environmental isotope studies of marine coastal pollution in Pakistan.

Isotope hydrochemical evaluation of groundwater in coastal Karachi, Pakistan.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
18/P	B. Kumar P. P. Berde R. P. Nachiappan H. Joshi S. V. Navada, <i>et al.</i>	India
32/P	M. Rangel-Medina R. Monreal-S. J. Castillo-G. M., Morales-M. H. Valenzuela	Mexico
40/P	O. Sivan Y. Yechieli B. Herut B. Lazar	Israel
60/P	M.S. Hamza S.G. Abd El Samie M.A. Ahmed H.B. Hassan	Egypt
63/P	A. Tazioli G.S. Tazioli R. Gonfiantini	Italy
85/P	L. Vitoria F. Grandia A. Soler	Spain
88/P	N. Otero A. Soler	Spain
90/P	K.-P. Seiler J. Ghergut P. Maloszewski	Germany
100/P	M. Pennisi G. Bianchini R. Cioni R. Gonfiantini A. Muti, <i>et al.</i>	Italy

Isotopic and hydrochemical approaches to study the salinity affected areas in Amravati Districts of Maharashtra State of India.

New contributions to the isotopic characterization of the coastal aquifers and their relations with the saline intrusion in the Costa de Hermosillo, Sonora, Mexico.

Geochemical evolution and time scale of seawater intrusion into the coastal aquifer of Israel.

Study of the pollution impact from the usage of sewage and drainage waters on the groundwater of the Quaternary aquifer, West Cairo, Egypt.

Landfill pollution control with isotope techniques.

Evolution of the chemical (NH_4) and isotopic ($\delta^{15}\text{N-NH}_4$) composition of pig manure stored in an experimental deep pit.

Stable isotopes of dissolved sulphate as tracers of the origin of groundwater salinization in the Llobregat river (NE Spain).

A new approach based on environmental tracers to better control groundwater exploitation.

Chemical and isotopic signature of groundwater after sea-water encroachment in coastal aquifers of the Cornia River basin (Tuscany, Italy).

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
105/P	B. Mayer F. Pawellek C. Stegemann K.-H. Feger J. Ries, <i>et al.</i>	Canada Germany
107/P	S.M. Weise K. Knöller S. Gödeke H. Weiß M. Schirmer	Germany
113/P	F. Einsiedler P. Maloszewski W. Stichler	Germany
117/P	G. Strauch R. Trettin K. Knoeller	Germany
118/P	K. Knoeller R. Trettin	Germany
120/P	R. Aravena D. Hunkeler	Canada
128/P	O. Oren Y. Yechieli J.K. Bohlke A. Dody	Israel
150/P	B. Th. Verhagen M. J. Butler E. van Wyk	South Africa
169/P	L. Bouchaou M. Qurtobi C.B. Gaye Y. Hsissou M. IbnMajah, <i>et al.</i>	Morocco IAEA Morocco

Isotopic identification of processes responsible for increasing sulfate concentrations in an aquifer near Mannheim (Germany).

Benzene-contaminated groundwaters – Transport parameters and isotopic evidence for natural attenuation.

Characterization of Biodegradation Processes in a karst aquifer using environmental isotope data.

Process and balance assessment in lignite mining areas by multi-isotope approach.

Sulfur cycling in the drinking water catchment area of Torgau-Mockritz (Germany): insights from stable isotope investigation.

Application of environmental isotopes in studies of biodegradation of organic contaminants in groundwater.

Contamination of groundwater under cultivated fields in an arid environment, Central Arava Valley, Israel.

Isotope data point to natural processes in the production of high nitrate concentrations in groundwater.

Isotopic investigation of salinity and water resources in the Souss-Massa basin (Morocco).

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---------------------------------------	----------------	--

Modelling Approaches

25/P	N. Miljevic D. Golobocanin V. Sipka D. Jankovic	Serbia and Montenegro
72/P	B. Bertleff W. Engesser M. Jodocy M. Schuler W. Stichler, <i>et al.</i>	Germany
82/P	A. Suckow H. Jonker J. Groen F. Volkering	Germany
134/P	D. Dakoure G. de Marsily M. Dray M. Besbes	Burkina Faso France Tunisia
179/P	J. Mahlkecht	Italy

Origin, Recharge and Sustainability of Groundwater

4/P	K.M. Hadi	Kuwait
7/P	Z. Saad V.A Kazpard M A. Geyh K. Slim	Lebanon Germany Lebanon
15/P	J. Mazeika V. Jakimaviciute- Maseliene R. Petrosius	Lithuania
16/P	P. Airey A. Henderson-Sellers M A Habermehl J. Bradd S. Chambers	Australia

Rapid method for mean residence time determination.

Identification of 3 dimensional flow pattern in a local quaternary gravel aquifer system using environmental isotope studies.

Calibration of a groundwater contamination transport model using Tritium-³Helium ages.

Determination of transboundary groundwater flow by isotopic tracing.

Calibration of a groundwater flow model with different tracer technologies.

Applications on environmental isotopes on groundwater in Kuwait.

Chemical and isotopic compositions of water from springs and wells in the Damour River Basin.

Tritium and radiocarbon in environmental components of the Ignalina NPP region, Lithuania.

Sustainability of groundwater under climate change.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
35/P	J.L. Pritchard A. L. Herczeg S. Lamontagne	Australia
50/P	D. Milenic A. Allen P. Königer	Ireland Germany
56/P	S. Castañeda T. Garcia L. Fernandez L. Ascaño A. Ramos, <i>et al.</i>	Philippines
71/P	J.M. Marques M. Andrade F. Gof M. J. Basto M. J. Matias, <i>et al.</i>	Portugal
101/P	C. Chabault F. Barbecot B. Ghaleb L. Dever	France
127/P	I. Forizs T. Berecz Z. Molnár	Hungary
149/P	F. Castrillon O. Quiroz O. De Bermoudes R. Aravena	Colombia Canada
167/P	W .G. Darling D.C. Gooddy	United Kingdom
Palaeowaters		
5/P	A. Faye A. Seck Y. S. Sib M. Sarr	Senegal

Title of Paper

Comparison of environmental isotopes for tracing groundwater-surface water interaction in a sand-bed stream.

Isotopic and hydrochemical investigation of ground-surface-atmospheric water-system relations, Cork, Ireland.

Isotope techniques application in understanding the recharge process of the Davao City aquifers.

Origin and evolution of high pH mineral water (S-Portugal) traced by isotope geochemistry.

Investigating groundwater properties in high annual recharge rate aquifers: Example of the Fontainebleau sands aquifer (Paris Basin, France).

Origin of bank filtered groundwater on the Csepel Island (below Budapest).

Evaluation of the origin and residence time of the groundwater in a regional aquifer system, Rio de Bogota Basin, Colombia.

Recent age indicators applied to groundwaters in fractured aquifers in the UK.

The hydrodynamic functioning of the deep aquifer of the Senegalese basin: An isotopic approach.

15:55 - 18:00

POSTER SESSION I

<i>No. of Paper</i> <i>IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member</i> <i>State/Organization</i>
11/P	M.A. Sadek M.A. Goman H.A. Ezz El-Deen	Egypt

Title of Paper

Delineation of paleowater – recent water interface
in the groundwater to the northeast of Cairo.

Poster Session II

15:30–17:30, Wednesday, 21 May 2003

THEMES: **Precipitation, Surface Waters,
Geothermal Systems
and Recent Analytical Developments**

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---------------------------------------	----------------	--

Isotopes in Precipitation

6/P	A. Dirican S. Ünal İ. Ercan Y. Acar M. Demircan	Turkey
23/P	I. Krajcar Bronic N. Horvatinčić J. Barešić B. Obelić P. Vreča, <i>et al.</i>	Croatia Slovenia
30/P	H. Stadler	Austria
54/P	S. Kebede Y. Travi	Ethiopia France
57/P	H. Peng B. Mayer S. Harris H.R. Krouse	Canada
74/P	J. Birks T.W.D. Edwards J.J. Gibson R.J. Drimmie F.A. Michel, <i>et al.</i>	Canada
86/P	A. Avila R. Puig A. Soler	Spain
96/P	L. Palcsu É. Svingor Z. Szántó I. Futó M. Molnár	Hungary

Title of Paper

Air mass patterns and temporal variation of the isotopic composition of atmospheric water vapour and precipitation over central Turkey and groundwater recharge.

Isotope composition of precipitation along the Adriatic coasts of Croatia and Slovenia.

Rain gauge with integrated isotope-sampling device.

Isotopic composition of Ethiopian rainfall waters: Observations on its typical isotopic signature.

A 10-year record of stable isotope ratios of hydrogen and oxygen in precipitation at Calgary, Alberta, Canada.

Isotope climatology of Canada: insights from the first five years of CNIP operation.

Sulphur sources in rainwater and throughfall at a Scottish pine (*Pinus sylvestris*, L.) stand located near a coal-fired power plant in Catalonia (NE Spain)

Isotopic composition of precipitation in Hungary in 2001 and 2002.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
112/P	D. Wang J. Wang K. Wang	China
146/P	M. Schürch R. Kozel	Switzerland
185/P	G. Hoffmann M. Werner M. Cuntz J. Jouzel	France Germany France

Rivers, Surface Water and Sediments

21/P	A. Owczarczyk A. Dobrowolski	Poland
26/P	S. Lojen N. Cukrov W. Papesch G. Mihelčić	Croatia Austria Croatia
34/P	S. Schumann A. Herrmann W. Stichler	Germany
44/P	J.-F. Helie C. Hillaire-Marcel L. Varfalvy	Canada
46/P	Y. Inci Tekeli A. U. Sorman M. Sayin	Turkey
73/P	Z. Tessema	Ethiopia
75/P	N.A. St. Amour J.J. Gibson T.W.D. Edwards	Canada
87/P	N. Otero A. Canals A. Soler E. Viñals	Spain

Significance level and repeatability for stable isotope thermometer of precipitation in China.

The Swiss National Network for the Observation of Isotopes in the Water Cycle (NISOT) — 10-year experience of operation.

A global balance for the stable water isotopes: A comparison between observations and general circulation models.

Application of tracers for transport investigations in unregulated rivers.

Precipitation of tufa barriers from Krka river, Croatia.

Integrated tracer hydrological approach aiming on transportation processes in small agricultural watersheds in Nepal.

Sources and metabolism of carbon in a Canadian Boreal Hydroelectric Reservoir.

Separation of hydrograph components using stable isotopes case study: Guvenc Basin, Ankara.

Hydrogeology of Awassa lake catchment: Isotopic and hydrochemical approach.

Comparison of isotopic time-series partitioning analysis with an evaporative enrichment model in lake- and wetland- dominated river basins, Mackenzie basin, Canada.

Evolution of the isotopic composition of dissolved sulphate in Calders stream (Llobregat Basin, NE Spain).

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
98/P	J.M. Landwehr T.B. Coplen	USA
99/P	F. Gherardi C. Panichi E. Droghieri G. Giuliano S. Cristini, <i>et al.</i>	Italy
108/P	J.J. Gibson	Canada
114/P	L. Lecomte A. Kies L. Pfister	Luxembourg
119/P	S. Geyer C. Siebert P. Möller Y. Gutmann	Germany Israel
124/P	L.P.R. Bergonzini E. Gibert	France
126/P	W. Nlandu L. Ndembo M. Makoko	Democratic Republic of Congo
129/P	A.S. Talma J.C. Vogel	South Africa
133/P	P. Sanyal S.K. Bhattacharya R. Kumar S.K. Ghosh S.J. Sangode	India
140/P	J. Šilar	Czech Republic
151/P	B.Th. Verhagen M.J. Butler G. Tredoux G. Christelis J. Wrabel	South Africa

Title of Paper

The oxygen and hydrogen isotope ratio in waters from the largest river systems of the United States.

Isotopic and chemical investigation of water samples from Arno and Tiber rivers (Central Italy).

The stable isotope signature of continental runoff.

Hydrograph separation using ^{222}Rn and stable isotopes estimations in four sub-catchments of the Attert basin (Luxembourg).

Deep sources of salinisation of Lake Kinneret, Israel — an isotope and rare earth approach.

New data on stable isotope compositions of Lake Malawi water: proposition for a new interpretation of the relative enrichment of the hypolimnion water.

Streamflow gauging of Mpioka using dilution method (Bas-Congo/RDC).

Lowered tritium levels in river water indicate significant storage of water in a large catchment.

Lake Miocene monsoonal record from oxygen isotope ratio of Siwalik soil carbonate.

Ground-water resources for emergency cases in the lower reaches of the Elbe (Elbe) river (Czech Republic).

Isotopic evidence for ground water contributions to rare floods in arid zone ephemeral rivers.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
162/P	V.T. Dubinchuk V.I. Ferronsky V.A. Polyakov	Russian Federation
164/P	M. Rodríguez E. Caballero C. Jiménez de Cisneros C. Almécija J. Cruz-San Julián, <i>et al.</i>	Spain
165/P	M. F. Hussein R. Michel	Egypt USA
166/P	H. Panarello C. Dapeña	Argentina
174/P	L. Lambs K. Balakrishna J.L. Probst	France
175/P	J. F. Brunet J.L. Probst D. Gaiero P.J. Depetris S.P. Gauthier Lafaye	France
176/P	S. Marimuthu C. Le Gal La Salle D.A. Reynolds	Australia
182/P	M.O. Jedrysek	Poland
Unsaturated Zone		
10/P	A.A. Nada M.F Hussein K. Froehlich	Egypt Austria
55/P	P. Cannavo C. Emblanch Y. Travi F. Lafolie	France

Title of Paper

Results of two years observations of isotope composition (D, ^{18}O , T) of Volga River Water and Precipitation (Astrakhan hydrometeorological station, 46.25 N, 48.03 E, — 18 msl altitude).

Stable isotopes and major ion chemistry of continental salt lakes from Southern, Spain.

Isotope geochemistry of water-sediments interaction downstream the Nile basin.

Stable isotope composition of the Rio de la Plata estuary: A consequence of ITCZ movement and ENSO related phenomena.

Stable isotope studies of Indian rivers.

$\delta^{13}\text{C}$ tracing of dissolved inorganic carbon in the Patagonian rivers.

Interaction between groundwater and surface water in a coastal wetlands system in South Western Australia.

Stable isotope ratios and sulphate/methane interaction in lakes.

Environmental isotope profile and evaporation in shallow water-table soils.

Soil ^{13}C - CO_2 profiles under a corn cultivated site: impact of a rainfall event.

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
Geothermal		
142/P	E. M. Isabirye Z. Pang	Uganda IAEA
29/P	Ibrahim Bani Yaseen A. Al-Saudi	Jordan
47/P	C. Alfaro-Valero Z. Pang	Colombia IAEA
64/P	R. Cionni E. Dotsika I. Leontiadis J.L. Michelot C. Panichi, <i>et al.</i>	Italy Greece France Italy
97/P	R.M. Barragan V. M. Arellano D. Nievaa E. Portugala R. Tovar	Mexico
115/P	G. Magro M. Guidi F.E. B. Bayon	Italy Philippines
116/P	W. Balderer Y. K. Amirhossainee F. Hatami H. R. Jahani	Switzerland Iran, Islamic Republic of
144/P	A. Yock C. González	Costa Rica
145/P	Zhao Ping Xie Ejun	China
181/P	G. Skrzypek M.O. Jedrysek M. Sachanbinski	Poland
184/P	N. Özgür W. Graf W. Stichler M. Wolf	Turkey Germany

A preliminary conceptual geothermal model of the geothermal system of Kibiro, Uganda.

The geochemistry of the stable isotope composition of the thermal fluids in central Jordan.

Geochemistry of the geothermal system of Paipa, Colombia.

Isotope and geochemical study of the geothermal fields of Chios Island, Greece.

Chemical and isotopic ($\delta^{18}\text{O}$, δD) behaviour of the Los Humeros (Mexico) geothermal fluids.

Origin and behaviour of noble gases in the geothermal fluid of Palinpinon (The Philippines) as traced from the concentration and isotopic composition.

Characterisation of the Khoy geothermal area/ NW Iran based on isotope and chemical investigations.

Miravalles geothermal field evolution isotopic, chemical and thermal studies.

Strontium isotope as an indicator of fluid residence from selected geothermal fields in China.

Oxygen stable isotope geochemistry of chrysoprase from Wiry and Szklary mines (SE Poland).

Origin of high sulfate contents in the thermal waters of Kizildere and environs, western Anatolia, Turkey

<i>No. of Paper IAEA-CN-104/P</i>	<i>Name(s)</i>	<i>Designating Member State/Organization</i>
---------------------------------------	----------------	--

Recent Analytical Developments

43/P	C. Varlam R. Lazar I. Stefanescu D. Steflea	Romania
58/P	J.K. Böhlke S.J. Mroczkowski T.B. Coplen	USA
81/P	A. Suckow	Germany
138/P	M. Groening S.K. Bhattacharya	IAEA India
139/P	I. D. Clark M. Marschner H. Mohammadzadeh G. St.-Jean P. Middlestead	Canada
177/P	K. Revesz J. M. Landwehr	USA

Study of tritium concentrations in environmental water samples measured by two standard methods.

New reference materials for oxygen isotopes in nitrate.

Labdata: A database and laboratory management system for isotope hydrology, geochronology and geochemistry.

IAEA Inter-Laboratory comparison exercise for $\delta^2\text{H}$ and $\delta^{18}\text{O}$ analysis of water samples.

Compound-specific $\delta^{13}\text{C}$ analysis of DOC in groundwater by LC–TIC/TOC–Continuous flow IRMS.

Measurement of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ isotopic ratios of CaCO_3 by Thermoquest-Finnigan gas bench II and delta plus XL continuous flow isotope ratio mass spectrometer with application to devils hole core DH-11 calcite.

PARTICIPATION IN IAEA SCIENTIFIC MEETINGS

Governments of Member States and those organizations whose activities are relevant to the meeting subject matter are invited to designate participants for IAEA scientific conferences, symposia and seminars. In addition, the IAEA itself usually invites a very limited number of scientists as invited speakers and only participants designated or invited in this way are entitled to present papers and take part in the discussions.

Scientists interested in participating in any of the Agency's meetings should request information from the Government authorities of their own countries, in most cases their Ministry of Foreign Affairs or national atomic energy authority.

PUBLICATIONS

Proceedings

The extended synopses of all papers and posters presented, together with a summary of the Symposium, will be published as an IAEA publication after the meeting. A copy will be sent to each participant as soon as possible after the Symposium.

Full-length papers of selected Symposium presentations will be published in a special issue of the journal 'Hydrological Processes'.

Other IAEA Publications

Order forms for IAEA publications are available at the Conference Desk. Publications may also be ordered from the Agency's sales agents in a large number of countries or ordered directly from the Publishing Section: International Atomic Energy Agency, P.O.Box 100, A-1400 Vienna, Austria.

SCIENTIFIC MEETINGS SCHEDULED BY THE IAEA

2003

International Conference on Storage of Spent Fuel from Power Reactors

2–6 June, Vienna, Austria

International Conference on Isotopic and Nuclear Analytical Techniques for Health and Environment

10–13 June, Vienna, Austria

International Conference on Innovative Technologies for Nuclear Fuel Cycles and Nuclear Power

23–27 June, Vienna, Austria

International Conference on the Safety of Transport of Radioactive Material

7–11 July, Vienna, Austria

International Symposium on Seismic Evaluation of Existing Nuclear Facilities

25–29 August, Vienna, Austria

International Conference on National Infrastructures for Radiation Safety

1–5 September, Rabat, Morocco

Scientific Forum at the IAEA General Conference

16–17 September, Vienna, Austria

International Symposium on Applications of Gene-based Technologies for Improving Animal Production and Health in Developing Countries

6–10 October, Vienna, Austria

International Conference on the Protection of the Environment from the Effects of Ionizing Radiation

6–10 October, Stockholm, Sweden

International Conference on Research Reactor (Utilization, Safety, Decommissioning, Fuel and Waste Management)

10–14 November, Santiago, Chile

2004

International Symposium on Nuclear Oncology
19–23 January, Porto Alegre, Brazil

International Conference on Topical Issues in Nuclear Safety
24–28 May, Vienna, Austria

Conference on Fifty Years of Nuclear Power, Where in the next
Fifty Years?
28 June–2 July, Moscow/Obninsk, Russian Federation

International Conference on Isotopes in Environmental Studies
30 August–3 September, Monaco

Symposium on Quality Assurance for Analytical Methods in
Isotope Hydrology
4–8 October, Vienna, Austria?

20th IAEA Fusion Energy Conference
1–6 November, Vilamoura, Portugal

For information on forthcoming scientific meetings please consult
the IAEA WorldAtom website:

<http://www-pub.iaea.org/MTCD/Meetings/Meetings.asp>