

International Symposium on Advances in Isotope Hydrology and its role in Sustainable Water Resources Management, (IHS-2007)

**Vienna International Centre (VIC)
Austria**

21 - 25 May 2007

**FINAL
PROGRAMME**

Programme Committee (IAEA):

P.K. Aggarwal
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IAEA Secretariat:

Scientific Secretaries: P. K. Aggarwal
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Symposium Coordinator: H. Schmid

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Location of the Symposium:

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

Tel.: (+43 1) 2600 21336
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Working Language: English

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

TIMETABLE

Sunday, 20 MAY 2007

17:00–19:00 Registration Gate 1

Monday, 21 MAY 2007

08:00 Registration Gate 1

09:30–10:00 Opening Session

10:00–10:45 Invited Lecture – I

10:45–11:15 *Coffee/Tea Break* C04 Lounge

11:15–12:00 Invited Lecture – II

12:00–12:45 Invited Lecture – III

12:45–13:00 Briefing on Poster Session and Announcements

13:00–14:00 *Lunch Break*

14:00–15:30 Poster Session 1 Rotunda, Building C

15:30–16:00 *Coffee/Tea Break* Rotunda, Building C

16:00–17:30 Poster Session 1 Rotunda, Building C (Cont'd.)

Tuesday, 22 MAY 2007

09:30–10:15 Invited Lecture – IV

10:15–11:00 Invited Lecture – V

11:00–11:30 *Coffee/Tea Break* C04 Lounge

11:30–11:50 Case study – 1

11:50–12:10 Case study – 2

12:10–12:30 Case study – 3

12:30–12:45 Briefing on Poster Session and Announcements

12:45–14:00 *Lunch Break*

14:00–15:30 Poster Session 2 Rotunda, Building C

15:30–16:00 *Coffee/Tea Break* Rotunda, Building C

16:00–17:30 Poster Session 2 Rotunda, Building C (Cont'd)

18:00–20:00 IAEA Cocktail Reception (VIC restaurant)

Wednesday, 23 MAY 2007

09:00–09:15 Participants board the buses for Melk at Gate 1

09:30–11:30 Vienna to Melk

11:30–14:00 Monastery visit/ Lunch (own expenses)

14:00–14:15 Departure from Monastery for departure by ship (peer no.10)

14:15–14:30 Transfer to ship

14:30 Departure from Melk to Vienna by ship

15:30–17:00 Invited Lecture – VI

Invited Lecture – VII

18:00 Cocktail and Dinner on board

20:00 Arrival in Vienna

(Reichsbruecke, peer no.4)

Thursday, 24 October 2007

09:30–10:15 Invited Lecture – VIII

10:15–10:35 Case study – 4

10:35–10:55 Case study – 5

10:55–11:30 *Coffee/Tea Break* C04 Lounge

11:30–11:50 Case study – 6

11:50–12:10 Case study – 7

12:10–12:30 Case study – 8

12:30–12:45 Briefing on Poster Session and Announcements

12:45–14:00 *Lunch Break*

14:00–16:00 Poster Session 3 Rotunda, Building C

16:00–18:00 Roundtable Sessions

Friday, 25 May 2007

09:30–10:15 Invited Lecture – IX

10:15–11:00 Invited Lecture – X

11:00–11:30 *Coffee/Tea Break* C04 Lounge

11:30–12:30 Panel Discussion and Summary

12:30–13:00 Closing Session

Display of Posters:

Posters will be displayed in the Rotunda of Building C, ground floor

Display of Commercial Exhibits:

Commercial exhibits will be displayed in the C4 Lounge in the morning and in the Rotunda of Building C, ground floor in the afternoon.

SUNDAY, 20 MAY 2007

17:00–19:00 **Registration and distribution of
symposium material**

MONDAY, 21 MAY 2007

08:00 **Registration (Gate 1)
Distribution of symposium material (C04)**

09:30–10:00 **Opening Session
IAEA Boardroom (4th Floor, C Building)**

10:00–10:45 **Oral Presentation – Invited Lecture**

<i>No. of Paper IAEA-CN-151/</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
156	Sherwood Lollar, B. Chartrand, M.C. Hirschorn, S. Howlett, M. Biddleman, T.F., et al.	Canada	Invited Lecture – I: Compound specific stable isotope analysis: Research frontiers in isotope hydrology and water resources management
10:45–11:15	Coffee/Tea Break		
11:15–12:45	Oral Presentations – Invited Lectures		
163	Kharaka, Y.K. Cole, D.R. Thordsen, J.J. Kakouros, E.	USA	Invited Lecture – II: Application of stable isotopes and fluid chemistry to understanding anthropogenic CO ₂ -brine-rock interactions in sedimentary basins: Results from the Frio brine pilot tests, Texas, USA
147	Leavesley, G.H. Regan, R.S. Winter, T.C. Reddy, M.M.	USA	Invited Lecture – III: The integration of isotope data and hydrological models to support sustainable water-resources management
12:45–13:00	Briefing on the Poster Session and Announcements		
13:00–14:00	Lunch Break		

MONDAY, 21 MAY 2007

14:00–15:30 **POSTER SESSION – I**
(Precipitation,
Surface water dynamics and quality,
unsaturated zone and artificial recharge)

15:30–16:00 **Coffee/Tea Break**

16:00–17:30 **POSTER SESSION – I (cont'd)**

<i>No. of Poster IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
2p	Miljevic, N. Golobocanin, D. Milenkovic, A. Nadezdic, M.	Serbia	Dynamics of water transport through the Velika Morava catchment
5p	Hocini, N. Moulla, A.S.	Algeria	Detection of water leaks in Foug-EI-Gherza Dam (Algeria)
8p	Ekaabi, A.S.	United Arab Emirates	Application of isotope hydrology for the assessment of artificial ground water recharge in some areas of UAE
9p	Dang, D.N. Bich Lieu, D.T. . Van Giap, T. Minh, D.A. Anh, V.T., et al.	Vietnam	Isotopic composition of precipitation and water from the Red River in Hanoi, North Vietnam
13p	Stump, C. Maloszewski, P. Stichler, W.	Germany	Quantification of the heterogeneity in water transport through the unsaturated zone of sandy soils using environmental isotopes
15p	Ali, M. Latif, Z. Fazil, M. Qureshi, R.M. Ahmad, M.	Pakistan	Isotopic study of the water exchange between atmosphere and biosphere at selected sites in Pakistan
16p	Schumann, S. Stichler, W. Herrmann, A.	Germany	The necessity for monitoring the $\delta^{18}\text{O}$ - $\delta^2\text{H}$ relationship during tracer experiments carried out with deuterium under monsoon conditions in lands under flood irrigation
22p	Belhadj Salem, S. Chkir, N. Zouari, K. Beji, R.	Tunisia	Isotopic and geochemical impact of water releases from the Sidi Saâd Dam on groundwater in Kairouan Plain (Central Tunisia)
29p	Argiriou, A. Lykoudis, S.P.	Greece	Geostatistical methods for producing stable isotope maps over Central and Eastern Mediterranean
30p	Baneschi, I. Gonfiantini, R. Guidi, M. Michelot, J.-L. Pennisi, M., et al.	Italy	Isotopic and chemical study of Lake Massaciuccoli, Tuscany: Hydrodynamic patterns, water quality and anthropogenic impact

<i>No. of Poster IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
32p	Abou Zakhem, B. Hafez, R.	Syria	Hydrochemical and isotopic study of Al-Mouh Sabkha evaporatic system (Syria)
36p	Brooks, J. R. Barnard, H. McDonnell, J. Coulombe, R. Burdick, C.	USA	Stable isotopes as indicators of soil water dynamics in watersheds
43p	Zhukova, O. Bakarykava, Zh. Germenchuk, M.	Belarus	Long-term behaviour of Chernobyl radionuclides in the Dnieper River Basin
45p	Obelić, B. Babinka, S. Krajcar Bronić, I. Horvatinčić, N. Barešić, J., et al.	Croatia	Mean residence time of water from springs of the Plitvice lakes and Una River area
49p	Bertrand, G. Celle-Jeanton, H. Chazot, G. Huneau, F.	France	Application of natural tracers (major ions, total organic carbon, stable isotopes) to understanding the functioning of volcanic aquifers: An example from the Argnat Basin (Auvergne, France)
51p	Michel, R. L. Aggarwal, P. Kurttas, T. Araguas, L. Kulkarni, K.M.	USA	The use of tritium in river baseflow to understand long-term changes in water quality
54p	Hughes, C.E. Fischer, M. Stone, D.M. Hollins, S.E.	Australia	Deuterium and Oxygen-18 ratios in rainfall and streamflow in a major drinking water catchment near Sydney, Australia, during drought
58p	Seebach, A. Knöller, K.	Germany	New approaches for the detailed assessment of meromictic lakes by using stable isotopes
59p	Hatami, F. Khalaj Amirhossainee, Y. Kuhpour, M.	Islamic Rep.of Iran	Examination of the source of salinity in water resources using isotope techniques: Water resources of Shapoor River Basin
62p	Feurdean, V. Feurdean, L. David, C.	Romania	Deuterium as indicators of the natural and anthropic stress on the waters of the Danube Delta, Romania
65p	Morgenstern, U.	New Zealand	Prediction of future nitrogen loading to Lake Rotorua, New Zealand
67p	Liotta, M. Favara, R. Fontana, M. Gagliano, E. Pisciotta, F., et al.	Italy	Isotopic composition of meteoric water in Sicily

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68p	Koeniger, P. Link, T.E. Marshall, J.D.	USA	Do water isotopes reflect differences in timber harvest practices? Isotope ecohydrology in the Mica Creek watershed, Idaho, USA
70p	Michel, R.L. Schuster, P.F. Walvoord, M.A.	USA	Tritium concentrations in the Yukon River Basin and their implications
71p	Hernández-Limón, L.G. Mahlknecht, J. Chávez-Rodríguez, A. Pinales-Munguía, A. Aravena, R.	Mexico	Evaluation of the impact of groundwater resources on surface water in Chihuahua, Northern Mexico
72p	Deeprasertkul, P. Chitradon, R.	Thailand	Internet GIS and water resource information
79p	Garel, E. Marc, V. Ruy, S. Doussan, C. Simler, R., et al.	France	Infiltration processes and impact on shallow groundwater in agricultural dry land areas
82p	Díaz, M.F. Rodríguez, J. Pérez, E. Castaño, S. Araguás, L.	Spain	Factors controlling the stable isotopic composition of recent precipitation in Spain
84p	Martínez, D. Dapeña, C. Betancur Vargas, T. Panarello, H. O. Quiroz Londoño, M., et al.	Argentina	Environmental isotopes in the water cycle in the catchment of the Quequen Grande River, Argentina
87p	Mali, N. Urbanc, J. Leis, A.	Slovenia	Use of deuterated water as a conservative artificial tracer in the study of water movement in a coarse gravel unsaturated zone
90p	Dapeña, C. Panarello, H.O.	Argentina.	Application of environmental isotope techniques to selected hydrological systems in Pampean, Argentina
92p	Varlam, C. Stefanescu, I. Cuna, S. Faurescu, I. Popescu, I., et al.	Romania	C-14 and tritium activities along Romanian Danube Sector – Preliminary results
93p	Qurtobi, M. Emblanch, C. Marah, H. Elmahboul, A.	Morocco	Rainwater tracing using stable isotopes in the Western Mediterranean (case of Rif Chain in the North of Morocco)

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101p	Paralta, E. Carreira, P. Ribeiro, L.	Portugal	Assessing agriculture pollution in the Beja aquifer using nitrogen isotopes (South Portugal)
102p	Kozel, R. Leuenberger, U. Schürch, M. Stichler, W.	Switzerland	The role of rivers and surface waters in the frame of Nisot, the Swiss network for the observation of isotopes in the water cycle
103p	Gherardi, F. Bono, P. Fiori, C. Diaz Tejeiro, M.F. Gonfiantini, R.	Italy	Modeling the altitude isotope effect in precipitations and comparison with the altitude effect in groundwater
105p	Mayer, B. Wassenaar, L. I. Rock, L. McCallum, J. E.	Canada	Combining hydrological, chemical, and isotopic approaches to identify sources and fate of sulfate and nitrate in the South Saskatchewan River System, Canada
110p	Verhagen, B.Th. Butler, M.J.	South Africa	Ground water input to a rare flood event in an arid zone ephemeral river identified with isotopes and chemistry
113p	Cencur Curk, B. Stichler, W.	Slovenia	Deuterium tracer experiment in the unsaturated zone of fractured karst aquifers
123p	Fianko, J.R. Osae, S. Adomako, D. Achel, D.G.	Ghana	Isotope hydrology and hydrochemistry of some nutrient enrichment sources to the Densu River Basin, Ghana
126p	Gillon, M. Barbecot, F. Gibert, E. Marlin, C. Massault, M.	France	Carbon-13 and carbon-14 contents of groundwater located in sandy aquifer outcrops: Driving influence of the unsaturated zone
136p	Ndembo Longo, J. Travi, Y. Makoko Moyengo, L. Nlandu Wabakaghanzi, J.	Dem. Rep. of Congo	Isotopes in precipitations of Kinshasa area: Moisture sources and groundwater tracing
139p	Sanda, M. Sobotkova, M. Cislerova, M.	Czech Republic	Water flowpaths in the mountainous watershed traced by oxygen-18 isotope
148p	Vysoka, H. Bruthans, J. Churackova, Z. Silar, J.	Czech Republic	Flow and residence time in soil and unsaturated zone of Moravian Karst – An application of ^{18}O , ^3H

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149p	Kloppmann, W. Vengosh, A. Pankratov, I. Guerrot, C. Millot, R.	France	Isotope signatures of reverse osmosis desalinated seawater
153p	Lin, Y. Huang, L. Clayton, R.N.	USA	Non-mass dependent oxygen isotope effect observed in water vapour from Alert, Canada
157p	Lu, B.H. Sun, T.T. Wang, J.Y.	China	Stable river water isotopic peak or valley of temporal variations is a good indicator to split wet and dry season at site
159p	Carmi, I. Kronfeld J. Yecheili, Y. Yakir, D. Stiller, M., et al.	Israel	Isotopic concentration of carbon in pore-water of the unsaturated zone: Implications for improved dating of groundwater with ¹⁴ C
160p	Zhou, W.B. Wang, M.L. Hu, C.H. Xiao, H.Y.	China	Preliminary Isotope Studies of Poyang Lake, China
165p	Barnard, H.R. Van Verseveld, W. Graham, C.B. Bond, B.J. Lajtha, K. et al.	USA	Linking water pathways and nutrient dynamics in a small head water catchment: Results of a controlled sprinkler experiment using a deuterium tracer in western Oregon

TUESDAY, 22 MAY 2007**09:30–11:00 Oral Presentations – Invited Lectures**

<i>No. of Paper IAEA-CN-151/</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
60	Teranes, J.L. Bernasconi, S.M.	USA	Invited Lecture – IV: Using carbon and nitrogen isotope geochemistry to assess cultural eutrophication and remediation efforts in lakes
18	Moore, W.S.	USA	Invited Lecture – V: Radionuclide tracers of submarine groundwater discharge

11:00–11:30 Coffee/Tea Break**11:30–12:30 Oral Presentations – Case Studies**

23	Barros, G.V. Martinelli, L.A. Pla, J. M. Oliveira, N.T.M. Ometto, J.P., et al.	Brazil	Case study 1: Spatial variations of environmental tracers distribution in water from a mangrove ecosystem: the case of Babitonga Bay (Santa Catarina, Brazil)
31	Oga Yei, M.S. Sacchi, E. Zuppi, G.M.	Ivory Coast	Case study 2: Origin and effects of nitrogen pollution in groundwater traced by $\delta^{15}\text{N-NO}_3$ and $\delta^{18}\text{O-NO}_3$: the case of Abidjan (Ivory Coast)
158	Manzano, M. Custodio, E.	Spain	Case study 3: Groundwater and its function on the wetlands of the Doñana Ramsar site (SW Spain): Role of the environmental isotopes to define the flow system

12:30–12:45 Briefing on the Poster Session and Announcements**12:45–14:00 Lunch Break**

TUESDAY, 22 MAY 2007**14:00–15:30** **POSTER SESSION – II**
(Groundwater dynamics and quality)**15:30–16:00** **Coffee/Tea Break****16:00–17:30** **POSTER SESSION – II (cont'd)**
(Groundwater dynamics and quality)

<i>No. of Poster IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
1p	Galego Fernandes, P. Carreira, P.M. Nunes, D. Condesso de Melo, M.T. Marques da Silva, M.	Portugal	Assessing the impacts of anthropogenic activities on groundwater quality using nitrogen isotopes – Aveiro Quaternary aquifer (Portugal)
4p	Marques, J.M. Carreira, P.M. Afonso, M.J. Chaminé, H.I. Teixeira, J., et al.	Portugal	Input of isotopic (¹⁸ O, ² H and ³ H) and geochemical studies in the assessment of groundwater resources in Porto urban area (NW Portugal)
7p	Carreira, P.M. Marques, J.M. Pina, A. Mota Gomes, A. Almeida, E., et al.	Portugal	Assessment of groundwater salinization mechanisms in Santiago Island – Cabo Verde: An environmental isotopic approach
10p	Zine, N. Abddaim, L. Zerouali, A. Krimissa, M.	Morocco	Origin of the salinity of the alluvial aquifer of Geulta Zergua, Morocco
20p	Trabelsi, R. Charfi, S. Chkir, N. Abidi, B. Zouari, K.	Tunisia	Contribution of isotopic indicators to the assessment of groundwater mixture between continental Intercalaire and Djeffara aquifers (South-Eastern Tunisia)
24p	Aravena, R.	Canada	Application of compound-specific carbon and chlorine stable isotopes for fingerprinting sources of chlorinated compounds in groundwater
27p	Van Giap, Trinh. Dac Luc, H. Duc Nhan, D.	Vietnam	Use of environmental isotopes of hydrogen and oxygen to determine Red River water and groundwater mixing in Hanoi area of Vietnam
28p	Castañeda, S.S. Almoneda, R. Fernandez, L. Sucgang, R.	Philippines	Isotope and chemical techniques in assessing groundwater contamination from Metro Manila landfill

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33p	Sacchi, E. Pilla, G. Allais, E. Guallini, M. Zuppi, G.M.	Italy	Tracing nitrification and denitrification processes and rates in a periodically flooded shallow sandy aquifer
34p	Sacchi, E. Pilla, G. Gerbert-Gaillard, L. Zuppi, G.M.	Italy	A regional survey on nitrate contamination of the Po valley alluvial aquifer (Northern Italy)
35p	Tazioli, A. Mosca, M. Tazioli, G.S.	Italy	Location of recharge area of Gorgovivo Spring, Central Italy: A contribution from isotope hydrology
37p	Ketchemen-Tandia, B. Ntamak-Nida, M.J. Boum-Nkot, S. Wonkam, C. Emvoutou, H., et al.	Cameroon	First results of the isotopic study (^{18}O , ^2H , ^3H) of the Douala Quaternary aquifer (Cameroon)
39p	Noble, J. Shivanna, K. Joseph, T.B. Deodhar, A. Navada, S.V.	India	Isotope hydrogeochemical investigation on the occurrence of fluoride in groundwaters of Alapuzha District, Kerala, India
41p	Pilla, G. Sacchi, E. Ciancetti, G.	Italy	Hydrochemical and isotopic groundwater investigation in the Oltrepo region (Po Valley, Northern Italy)
42p	Dulinski, M. Michalec, B. Rozanski, K.	Poland	Uranium isotopes in mineral waters of the Polish Carpathians
48p	Bomtempo, V.L. Minardi, P.S.P.	Brazil	Origin and age of groundwater in Araguari, Minas Gerais, Brazil
57p	Huneau, F. Rey, F. Riss, J. Pretou, F. Celle-Jeanton, H.	France	Groundwater resources from carbonate rocks in mountainous regions – Hydrochemical and isotopic survey of groundwaters in the Western Pyrenees (France)
61p	Feurdean, L. Feurdean, S. Sarbu, S. Glihan, M. Stefanescu, I.	Romania	Isotopic indicators for the processes from the chemoautotrophic ecosystem of the Movile Cave, Romania
63p	Milne-Home, W.A. Sahli, N.I.M.	Australia	Application of ^{15}N isotope to manage of groundwater quality, Jabal Hasouna Wellfields, Great Man-Made River Project, Libya

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64p	Osenbrück, K. Knöller, K. Strauch G. Gläser H.-R. Reinstorf, F., et al.	Germany	Transport processes of pharmaceuticals and personal care products during stream-aquifer interaction in the urban area of Halle/Saale, Germany
69p	Re, V. Cisse, S. Faye, A. Gaye, C.B. Sacchi, E., et al.	Italy	Origin and fate of nitrogen pollution in groundwater traced by $\delta^{15}\text{N-NO}_3$ and $\delta^{18}\text{O-NO}_3$: the case of the suburban area of Dakar (Senegal)
73p	Suwanlert, J.	Thailand	Isotope techniques in groundwater contamination studies in urbanized and industrialized areas, Hat Yai Basin
76p	Engesser, W. Bertleff, B. Maloszewski, P. Stichler, W.	Germany	Interaction surface water – groundwater: Investigation in the Rhine Valley using environmental isotopes
77p	Pfleiderer, S. Reitner, H. Heinrich, M. Rank, D.	Austria	The use of isotopes for karst water research in the Northern Calcareous Alps
83p	Dakoure, D. Gaye, C.B.	Burkina Faso	Determination of transboundary groundwater flow by isotopic tracing
91p	Ben Ammar, S. Zouari, K. Leduc, C.	Tunisia	Interaction between groundwater and surface water by the El Haouareb Dam (Central Tunisia)
94p	Fekri, A. Wahbi, M. Benbouziane, A. Marrah, H. Hammoumi, O.	Morocco	The stable isotope of hydrogen as an indicator of Mediouna Landfill leachate pollution (Casablanca, Morocco)
95p	Matiatos, I. Alexopoulos, A.	Greece	Isotopic and chemical investigation of water samples in Argolis Peninsula (Greece)
96p	Althaus, R. Heidinger, M. Lorenz, G. Purtschert, R. Selg, M., et al.	Switzerland	Cross-border groundwater management: the contribution of deep groundwater to Quaternary basins deduced from isotope data
97p	Gu, W.-Z. Lu, J.-J. Wu, Y.	China	Identification of groundwater recharge sources by using of ^{234}U excess and ^{34}S for the arid Ejina-Badain Jaran Interior Basin of Alxa Plateau, Inner Mongolia
99p	Ertl, S. Heidinger, M. Martin, H. Schmidt, K.R. Tiehm, A., et al.	Germany	^{13}C -isotope investigations for the determination and quantification of natural attenuation effects at the CHC contaminated site in Frankenthal, Germany

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100p	Ertl, S. Heidinger, M. Martin, H. Schmidt, K.R. Tiehm, A.	Germany	Stable isotope fractionation during PCE halo-respiration and aerobic <i>cis</i> DCE and VC biodegradation
104p	Mayer, B. Klassen, P. Cheung, K. Taylor, S.	Canada	Isotopic approaches for monitoring potential contamination of shallow aquifers with produced fluids or gases from coalbed methane operations in Alberta, Canada
106p	Raistrick, M. Hutcheon, I. Shevalier, M. Mayer, B.	Canada	Monitoring carbon dioxide injection and storage in aquifers and depleted oilfields using carbon and sulfur isotope techniques
112	Voerkelius, S. Lorenz, G. Eichinger, L.	Germany	$\delta^{18}\text{O}$ isotope map generation of European mineral waters: applications and limits
114p	Ouda, B. Marah, H. Mokadem, K. Zine, N. Filali, M., et al.	Morocco	Geochemical and isotopic characterization of groundwater resources in Maidere Basin (southern part of Morocco)
116p	Darling, W.G. Gooddy, D.C.	UK	Assessing the applicability of global CFC and SF ₆ input functions to groundwater dating in Britain
117p	Bono, P. Brun, C. Fiori, C. Gonfiantini, R. Zucco, F.	Italy	The use of oxygen-18 and deuterium in the water dynamics assessment in the Quaternary volcanic structure of Mount Vulture, Southern Italy
119p	Núñez, I. Araguás, L. González, A. Perez, E. Rodríguez, J., et al.	Spain	Hydrochemical and isotope evolution in a deep carbonate aquifer in Northern Andalusia, Spain
121p	Bahir, M. Carreira, P. Misdaq, M.A. Silva, M.O. Fernandes, P.	Morocco	Characterization of the aquifers of the Essaouira Synclinal Basin (Morocco) by using ² H, ³ H, ¹⁴ C and ¹⁸ O isotopes
122p	Pang, Z. Qin, D. Yang, Y.	China	Isotopes in deep groundwater in Northwest China: Hydrological and paleo climate implications

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128p	Kralik, M. Humer, F. Grath, J. Nurmi-Legat, J. Hanus-Illnar, A., et al.	Austria	Impact of transboundary air pollution on our alpine water resources: Application of a multi-isotope (N, O, S, Pb, Sr) approach
135p	Herczeg, A.L.	Australia	A simple approach to using radiocarbon to estimate groundwater recharge and flow rates
138p	Kazpard, V. Saad, Z. El Samrani, A.	Lebanon	Tracing sources of nitrate in groundwater by using hydro-chemical and isotopic methods: Beirut region and its suburbs
142p	Palcsu, L. Aeschbach-Hertig, W Kopf, M. Zechner, E.	Germany	Experiments on the formation of excess air in groundwater under various recharge regimes
144p	Petelet-Giraud, E. Négre, Ph. Gourcy, L. Schmidt, Ch. Schirmer, M.	France	How isotopic tools can contribute to constrain groundwater - surface water interactions in a highly anthropized site? The Wolfen/Bitterfeld Megasite (Mulde Basin, Germany)
151p	Horstmann, U.E. Coetzee, H. Verhagen, B.Th.	South Africa	Re-watering of Witwatersrand mining basins, South Africa – Traced by stable light and stable radiogenic isotope systems
155p	Stellato, L. Petrella, E. Terrasi, F. Belloni, P. Belli, M., et al.	Italy	Interactions between river and groundwater in an alluvial aquifer in Central Italy assessed by means of classic hydrogeological methods and natural tracers (²²² Rn and water chemistry)
162p	Adar E.M. Halamish, N. Sorek, S.	Israel	Hydro-isotope Mixing Cell Model for assessing fluxes in complex aquifers undergoing transient hydrochemical and isotopic evolution
164p	Ahmad, M. Akram, W. Tasneem, M.A. Ali, M. Jabbar, A., et al.	IAEA	Isotope investigation of groundwater recharge by delay action dams in the arid region of Balochistan, Pakistan
18:00-20:00	IAEA Cocktail Reception (VIC Restaurant)		

WEDNESDAY, 23 MAY 2007**09:00–20:00 SCIENTIFIC SIDE EVENT ON
RIVER DANUBE****Oral Presentations – Invited Lectures**

<i>No. of Paper IAEA-CN-151/</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
111	McDonnell, J.J. Vache, K. Weiler, M. Seibert, J.	USA	Invited Lecture – VI: Stable isotopes as tools for watershed hydrology model development, testing and rejection
17	Solomon, D. K. Rank, D. Aggarwal, P. Suckow, A. Stolp, B., et al.	USA	Invited Lecture – VII: Tritium/Helium-3 dating of baseflow – Southern Vienna Basin

THURSDAY, 24 MAY 2007**09:30–10:15 Oral Presentation – Invited Lecture**

<i>No. of Paper IAEA-CN-151/</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
146	Hendry, M. J.	Canada	Invited Lecture – VIII A decade of environmental isotope research in a low permeability aquitard system

10:15–10:55 Oral Presentations – Case Studies

78	Tekeli, Y.I. Unal Sorman, A.	Turkey	Case study 4: Relationship between stable isotopes of precipitation and atmospheric circulation: Application in a pilot basin in Central Anatolia
108	Tindimugaya, C. Taylor, R.G. Kulkarni, K.M. Atkinson, T.C. Barker, J.	Uganda	Case study 5: Assessment of groundwater dynamics in Uganda using a combination of isotope tracers and aquifer hydraulics data

10:55–11:30 Coffee/Tea Break**11:30–12:30 Oral Presentations – Case Studies**

154	Ye, N.J. Gong, J.S. Ge, W.Y. Lu, J.J. Ha, C.Y., et al.	China	Case study 6: Environmental isotopic study for groundwater of the North Plain of Huai He River, China
81	Umayadoss, S.K. Sharma, S. Deodhar, A.S. Mohokar, H.V. Navada, S.V., et al.	India	Case study 7: Environmental isotope and hydrochemical investigation on groundwater recharge and dynamics of the coastal sedimentary aquifers of Tiruvadanai, Tamilnadu State, India
118	Carrillo-Rivera, J.J. Cardona, A. Edmunds, W.M.	Mexico	Case study 8: Groundwater flow functioning in arid zones with thick volcanic aquifer units, North-Central Mexico

12:30–12:45 Briefing on the Poster Session and Announcements**12:45–14:00 Lunch Break**

THURSDAY, 24 MAY 2007**14:00–16:00 POSTER SESSION III
(Groundwater sustainability,
Geothermal systems,
Coastal zone hydrology,
Analytical developments)**

<i>No. of Paper IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
3p	Peralta Vital, J.L. Gil Castillo, R. Molerio León, L. Leyva Bombuse, D. Carrazana Gonzáles, J.A., et al.	Cuba	Isotope hydrology application in Cuba for assessment of water resource management in the most important basin of Havana City
6p	Carreira, P.M. Marques, J.M. Carvalho, M.R. Capasso, G. Grassa, F., et al.	Portugal	A new contribution to the isotopic and geochemical characterization of the gas phase ascribed to the CO ₂ - rich thermomineral waters (N. Portugal)
11p	Nguyen, K.C. Huynh, L. Le, V.K.	Vietnam	Use of isotope techniques to estimate recharge sources of groundwater in the upper part of Nambo Plain (Vietnam)
12p	Lamego Simões Filho, F.F. Aravena, R. Fernandes, H.M.	Brazil	Geochemistry and isotope evolution of groundwater flow and recharge from uranium production center in Brazilian semi-arid region (Caetité-BA, Brazil) – Toward sustainability or shortage?
14p	Shouakar-Stash, O. Frape, S.K. Gargini, A. Pasini, M. Drimmie, R.J., et al.	Canada	Compound-specific chlorine stable isotope of vinyl chloride by continuous flow-isotope ratio mass spectrometry (CF-IRMS)
19p	Jovanovic, S. Dlabac, A.	Montenegro	Possibilities for applying gamma-spectrometry software ANGLE in isotope hydrology analytical procedures
21p	Ben Moussa, A. Charfi, S. Chkir, N. Zouari, K. Oueslati, M.N.	Tunisia	Contribution of isotopic indicators to groundwater assessment and management in Grombalia Plain (North-Eastern Tunisia)
25p	Çelik, M.	Turkey	Evaluation of origin of the Ayaş-Beypazarı geothermal waters with sulfur isotopes, Central Anatolia, Turkey
26p	Del Soldato, S.C. Hernandez, M. Kruse, E. Panarello, H. Pera Ibarguren, S., et al.	Italy	Surface water - groundwater interactions in transition environments: The example of the Rio de la Plata Coastal Plain, Argentina
38p	Brencic, M. Vreca, P.	Slovenia	Characterization of bottled waters with stable isotopes of hydrogen, oxygen and carbon

<i>No. of Paper IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
40p	Scholten, J.C. Schubert, M. Schmidt, A. Rutgers van der Loeff, M.M. Schlüter, M., et al.	IAEA	Submarine groundwater discharge to the Mediterranean Sea: A Case study off Monaco
44p	Bouchaou, L. Hsissou, Y. Ikenne, M. Tagmaa, T. Michelot, J.L., et al.	Morocco	Isotope study for relationship between surface and ground waters under a semi-arid climate: Case of Souss-Massa catchment (South-West Morocco)
46p	Roller-Lutz, Z. Bojić, D. Mandić, M. Lutz, H.O. Kapelj, S.	Croatia	Installation of a laboratory for stable isotope analysis in Croatia
47p	Horvatincić, N. Kapelj, S. Sironić, A. Krajcar Bronic, I. Kapelj, J., et al.	Croatia	Investigation of water resources and water protection in the karst area of Croatia using isotopic and geochemical analyses
50p	Celle-Jeanton, H. Huneau, F. Travi, Y.	France	Natural baseline quality within the lower Triassic sandstone of Lorraine (France): Status and evolution
52p	Aguirre, E. Squeo, F. Aravena, R.	Chile	Application of stable isotopes to evaluate groundwater recharge of a coastal aquifer in North-Central Chile and its role in vegetation dynamics
53p	Ben Hamouda, M.F. Zouari, K. Tarhouni, J. Gaye, C.B. Oueslati, M.N.	Tunisia	Characterization of marine intrusion and origin of salinization in the Plio-Quaternary oriental coastal aquifer of Cap Bon (Tunisia)
55p	Alcindor, H. A. Taigbenu, A.E. Araguas, L.J. Jayawardena, L.P.	Seychelles	Assessment of groundwater resources on La Digue Island in the Republic of Seychelles
56p	Abidin, Z. Brodjonegoro, A. Djiono	Indonesia	The ¹⁴ C natural isotope as a tool for monitoring of groundwater exploitation
74p	Maduabuchi, C. Eduvie, M. Babarinde, S.	Nigeria	Assessment of viability of exploiting artesian aquifers for municipal water supply in parts of South-East Nigeria using isotope techniques
75p	Watzel, R. Heidinger, M.	Germany	Isotope response of hydrological systems to long-term exploitation in the Singen aquifer system, Germany
85p	Chery, M.C.	Haiti	Isotope hydrology evolution in Haiti

<i>No. of Paper IAEA-CN-151/p</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
86p	Hadi, K.	Kuwait	Environmental isotope investigation of fresh groundwater lenses at Al-Raudhatain area, Kuwait
88p	Urbanc, J. Jamnik, B.	Slovenia	Stable isotope research as a basis for long-term exploitation plans on the Sorsko Polje aquifer, Slovenia
89p	Gültekin, F. Fırat Ersoy, A. Ersoy, H.	Turkey	Isotopic assesment of Trabzon mineral springs and Ayder (Çamlıhemşin-Rize) - Ilicaköy (Ikizdere-Rize) hot springs
98p	Karakuş, H. Şimşek, Ş.	Turkey	Isotopic and geochemical techniques applied to Efteni and Derdin geothermal systems, NW Turkey
107p	Nalbantçılar, M.T. Gocmez, G. Kara, I.	Turkey	Isotopic evaluation of geothermal waters in Konya region (Turkey)
109p	Verhagen, B.Th. Butler, M.J. van Wyk, E.	South Africa	A deep, highly productive aquifer is identified using isotope, hydrochemical, and geophysical techniques
115p	Göçmez, G.. Nalbantçılar, M.T.	Turkey	Isotopic and hydrochemical properties of hot and mineralized waters in SW Konya Geothermal Field (Turkey)
120p	Pasvanoğlu, S. Gültekin, F.	Turkey	Hydrogeochemical and isotopic evaluation of thermal and mineralized waters of Terme (Kırşehir) and Kozakli (Nevşehir), Turkey
124p	Molerio Leon, L.F.	Cuba	Radon-222 and tritium in the prevention of sea water intrusion and oil pollution in a coastal karst aquifer
125p	Molerio Leon, L.F.	Cuba	Tritium as an indicator of groundwater overexploitation in a tropical karst aquifer
127p	Adelana, S. Xu, Y.	South Africa	Tracing stable isotope values from meteoric water to groundwater in the Cape Flats, South Africa: Indicative tool for resource management
129p	Balderer, W. Khalaj Amirhossainee, Y. Hatami, F. Kulkarni, K.M.	Switzerland	Study of the Khoy geothermal area based on isotope and chemical investigations
130p	Balderer, W. Leuenberger, F. Frei, Ch. Surbeck, H.	Switzerland	Origin of the thermal waters of Stabio (Switzerland) and Sirmione (Italy) based on isotope and chemical investigations
131	Povinec, P.P. Aggarwal, P.K. Kulkarni, K.M.	Slovakia	Isotopic characterization of groundwater-seawater interactions
132p	Ghirlanda, S. Jensen, D.	Switzerland	Recent advances in modern ion chromatography for the analysis of environmental water samples: Reagent free ion chromatography systems using recycled eluent and their applications

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133p	Khalaj Amirhossainee, Y. Hatami, F. Kuhpour, M.	Iran	Isotope studies of water resources in Iran – Tabas area Case study
134p	Coplen, T.B. Aggarwal, P.	USA	Cooperative USGS-IAEA improvements in a sequential, time-integrated collector of precipitation, ground water and surface water for measurement of relative isotope-ratio amounts
137p	Saad, Z. Kazpard, V.	Lebanon	Use of environmental isotopes to evaluate the sources of submarine freshwater in the southern shoreline in Lebanon
141p	Aeschbach-Hertig, W. El-Gamal, H. Friedrich, R. Dahab, K. Kipfer, R., et al.	Germany	Identifying and dating the origin of groundwater resources in reclamation areas of Egypt
145p	Négrei, Ph. Petelet-Giraud, E. Brenot, A. Millot, R. Roy, S., et al.	France	Multi isotopic and geochemical constraints on interconnection and heterogeneities of water bodies in the Adour-Garonne district (SW France) – The CARISMEAU research project
150p	Kloppmann, W. Van Houtte, E. Gaus I. Guerrot, C. Millot, R.	France	Multi-isotope (B, Li, O, H) tracing of reverse osmosis treated waste water recharged artificially into a coastal aquifer (Torreele/Wulpen, Belgium)
161p	Yechieli, Y. Kafri, U. Sivan, O.	Israel	The interrelation between the sea and coastal aquifer deduced from analyses of radioactive isotopes
16:00–18:00	Roundtable Sessions		

FRIDAY, 25 MAY 2007**09:30–11:00 Oral Presentations – Invited Lectures**

<i>No. of Paper IAEA-CN-151/</i>	<i>Name</i>	<i>Designating Member State/Organization</i>	<i>Title</i>
152	Yakir, D. Angert, A. Gat, J.	Israel	Invited Lecture –IX: Local-scale effects of surface–atmosphere interactions on the isotopic composition of atmospheric moisture
80	Kerstel, E.	Netherlands	Invited Lecture – X: Advances in optical water isotope ratio measurements
11:00–11:30	<i>Coffee/Tea Break</i>		
11:30–12:30	Panel Discussion & Summary		
12:30–13:00	Closing Session		

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5–9 November, Sydney, Australia

International Symposium on Clinical PET and Molecular Medicine
10–14 November, Bangkok, Thailand

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19–22 November, Edinburgh, UK

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