

AIG-9

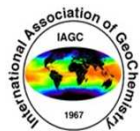
9th INTERNATIONAL
SYMPOSIUM ON

APPLIED ISOTOPE GEOCHEMISTRY

September
19 – 23
2011

TARRAGONA
CATALONIA - SPAIN

PROGRAM



B:KC
Barcelona
Knowledge
Campus



MAiMA

AIG-9

9th INTERNATIONAL SYMPOSIUM ON APPLIED ISOTOPE GEOCHEMISTRY

ORGANIZING COMMITTEE

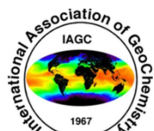
- Dr. Neus Otero, Universitat de Barcelona, Barcelona, Spain
- Dr. Albert Soler Gil, Universitat de Barcelona, Barcelona, Spain.
- Dr. Martine M. Savard, Geological Survey of Canada, Québec (QC), Canada.
- Dr. Tom Bullen, USGS, San Francisco (CA), USA.
- Dr. Emilio Custodio, Universitat Politècnica de Catalunya, Barcelona, Spain.
- Dr. Josep Mas-Pla, Universitat de Girona, Girona, Spain.
- Dr. Esteve Cardellach, Universitat Autònoma de Barcelona, Barcelona, Spain.

LOCAL COMMITTEE

- Carme Audí, Universitat de Barcelona, Barcelona, Spain.
- Roger Puig, Universitat de Barcelona, Barcelona, Spain.
- Dr. Clara Torrentó, Universitat de Barcelona, Barcelona, Spain.
- Raül Carrey, Universitat de Barcelona, Barcelona, Spain.
- Dr. Mònica Rosell, Universitat de Barcelona, Barcelona, Spain.
- Dr. Albert Folch, Universitat Autònoma de Barcelona, Barcelona, Spain.
- Dr. Jordi Palau, Université de Neuchâtel, Neuchâtel, Switzerland.
- Dr. Massimo Marchesi, University of Waterloo, Waterloo, Canada.

SCIENTIFIC COMMITTEE

- Dr. Tom Bullen, USGS, San Francisco (CA), USA.
- Dr. Isabel Cacho, Universitat de Barcelona, Barcelona, Spain
- Dr. David Widory, BRGM, Orleans, France
- Dr. Martine M. Savard, Geological Survey of Canada, Québec (QC), Canada
- Dr. Matthew Fantle, Pennsylvania State University, USA
- Dr. Àngels Canals, Universitat de Barcelona, Barcelona, Spain
- Dr. Ian Cartwright, Monash University, Australia.
- Dr. Neus Otero, Universitat de Barcelona, Barcelona, Spain
- Dr. Ramon Aravena, University of Waterloo, Canada
- Dr. Thomas Prohaska, Universität für Bodenkultur Wien, Austria



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9th INTERNATIONAL
SYMPOSIUM ON

APPLIED ISOTOPE GEOCHEMISTRY

19-23 September 2011
Tarragona, Catalonia - Spain

Barcelona, September 1st, 2011.

On behalf of the Scientific Committee, the Organizing Committee and the working group on Applied Isotope Geochemistry (International Association of GeoChemistry-IAGC), we are very pleased to welcome you to Tarragona (Catalunya, Spain) for the AIG-9, the 9th Symposium on Applied Isotope Geochemistry. We hope that the present Symposium will make possible to maintain the well attained AIG's reputation and will provide a relaxing atmosphere which will led to fruitful discussions and collaborations.

One of the main objectives of the AIG conference is promoting a multi-disciplinary and multi-isotopic approach to geological, environmental and biogeochemical questions. According to these objectives, the following topics will be studied and discussed during the next days: advances in isotope techniques and instrumentation, isotope signals of climate change, isotopes in environmental and forensic studies, isotopes to unravel biogeochemical cycles, isotope hydrology, isotope geology and isotopes in biological applications. Key aspects of the meeting will be the discussion and exchange of new results and ideas in these fields, as well as recommendations for an improved use of these techniques and methods.

The city of Tarragona is included in the UNESCO's list of World Heritage Sites and has a privileged location, on a hill by the sea with excellent views of the Mediterranean Sea. During the conference week, you will have the opportunity to appreciate the Roman Tarraco with its very important historical legacy, as well as enjoy the festivities of Santa Tecla. The mid-conference field trip will take us to the central region of Catalunya (Cardona and Sallent), where an old potash-mining site will be visited.

The current AIG-9 conference could not have been taken place without the presence of the participants and the help of a large number of people and institutions. We wish to thank to all who contributed to the symposium to become a reality. We also wish to give our special acknowledgment to Tom Bullen, for his effort and advice to organize such an interesting program. Finally, we would also like to express our gratitude to the sponsors for their essential support.

Neus Otero & Albert Soler

AIG-9 Chairs

THANKS TO ALL OUR AIG-9 SPONSORS



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ACKNOWLEDGMENTS

First, we would like to thank the members of the Scientific Committee for their hard work and dedication in developing the conference program. A special thanks to Tom Bullen and Roger Koopmann for their great efforts and all their useful experience. We would like also to extend our thanks to Martine M. Savard for her time and efforts.

This conference would not have been possible without the financial support of: The “Ministerio de Ciencia e Innovación” from the Spanish Government, the “Agència de Residus de Catalunya” (ARC) and the “Agencia de Gestió d’Ajuts Universitaris i de Recerca (AGAUR)” both from the Catalan Government of “Generalitat de Catalunya”; the Facultat de Geologia from the University of Barcelona; the Barcelona Knowledge Campus, the “Universitat de Barcelona”; the “Universitat de Girona” and the “Universitat Politècnica de Catalunya”.

In addition, the financial support of private companies, especially from Repsol, Picarro, NU instruments, Thermo Scientific, Spectromat, Vertex Technics, Elementar and Trallero and Schlee, facilitated enormously the organization of this conference.

The financial support by the International Association of Geochemistry and the AIG-8 organization is also very much appreciated.

Finally we would like to thank all of you for your participation at the 2011 AIG-9 Conference in Tarragona!

GENERAL INFORMATION

Registration

The organizing secretariat will be opened as follows:

Sunday 18 th	From 16:00h to 18:30h
Monday 19 th , Tuesday 20 th	From 8:00h to 14:00h and from 15:30h to 17:00h
Thursday 22 nd , Friday 23 rd	From 9:00h to 11:00h

Poster sessions

The posters will be displayed by the participants on the room Forum II (First Floor). Posters will be on display during the whole week. Dedicated time slots for posters are scheduled; the posters sessions will take place on Monday 19th, Tuesday 20th and Thursday 22nd during the afternoon session, from 16:35 to 18:00 with beer, wine and soft drinks refreshment. On Friday the poster session is scheduled during the morning coffee break, from 10:35 to 11:35.

Participants are encouraged to put the posters on display either Sunday 18th afternoon, from 16:00 h to 18:30h, or on Monday 19th morning, from 8:00 to 11:00.

Oral sessions

The keynote presentations will have 30 minutes length. The oral presentations will last a total of 15 minutes each, including 12 minutes presentation and 3 minutes discussion. All the presentations for the following day should be copied the previous day on the PC (OS Windows) located at the reception (First Floor). In case this is not possible, the presentation must be uploaded at least an hour before the beginning of the session. The schedule for the upload of the presentation is as follows:

Sunday 18 th	From 16:00h to 18:30h
Monday 19 th	From 8:00h to 8:45h and from 16:35h to 18:30h
Tuesday 20 th	From 16:35h to 18:30h
Wednesday 21 st	Closed
Thursday 22 nd	From 16:35h to 18:30h

SOCIAL EVENTS

For all participants:

Sunday, 18th, 19:00h CONFERENCE ICEBREAKER

Conference Icebreaker will take place in the Roman Amphitheatre (weather permitting). Inside the Roman Amphitheatre, wrapped in a unique atmosphere and with exceptional sea views we will come into contact all together for the first time.

Meeting point: We will depart from the AIG-9 hotel at **18:35h** (Ciutat de Tarragona Hotel), and walk to the Roman Amphitheatre.

Thursday, 22nd, 21:00h CONFERENCE DINNER

The conference dinner will take place in the Roman Circus. Almost in the end of our journey together we will have the opportunity to enjoy once more of the mysterious atmosphere that surrounded roman people 2000 years ago.

Meeting point: We will depart from the AIG-9 hotel at **20:30h** (Ciutat de Tarragona Hotel), and walk to the Roman Circus.

Wednesday, 21st, 8:00h MID-CONFERENCE FIELDTRIP

The mid-conference field trip will take us to the central part of Catalonia. We will start travelling to Cardona, a Medieval town. Near the town there is an extensive deposit of salt (halite and sylvite) that corresponds to Tertiary evaporitic sediments. The salt is outcropping by diapirism and forms a mountain mass called "Muntanya de Sal". The halite has been extracted from a salt quarry since Roman times and at the beginning of the XXth century the K underground mining started in the region due to the presence of K salts (carnallite and sylvite).

We will visit a Medieval Castle, the Cardona diapir and an old K-mine. We will have lunch in Sallent village, which owns the largest K mine tailings in the area.

Meeting point: The buses will depart from the AIG-9 hotel (Hotel Ciutat de Tarragona) at **8:00h**. The cost of the field trip is included in the registration fees for all the participants.

OPTIONAL TRIPS & TOURS

Sunday, 18th, 10:00-12:00h: WALKING TOUR TO DOWNTOWN BARCELONA (Gothic Quarter, Cathedral, Born Quarter)

For those who arrive early or the previous day to Barcelona, a walking tour through the streets of the Gothic and the Born Quarters of Barcelona is scheduled on Sunday morning. Lunch is not included.

Meeting point: On the corner of the "Hard Rock Café", Plaça de Catalunya, 21 at **10:00h**. Due to limitation of time, punctuality is required. The group will not wait more than 10 minutes.

Contact person: Mònica Rosell

Sunday, 18th, 12:00h: HUMAN CASTLES IN TARRAGONA

For those who are already in Tarragona on Sunday morning, you have the opportunity to see the Human Castles. The Plaça de la Font square is where on the first Sunday of the festival the human castle day is held, with two of the best colles castelleres (human castle groups) of the moment and the two colles of the city that best results obtained the year before. This day has enabled the Tarragona's feast day to recover the most difficult human towers.

Meeting point: The tour will depart from the AIG-9 hotel (Ciutat de Tarragona Hotel) at **11:30h**.

Tuesday, 20th, 18:15h: GUIDED TOUR TO TARRACO, WORLD HERITAGE SITE

The tour will be organized and guided by the Tourist Board of Tarragona and it includes the visit of: a scale model of the Roman Tarraco, the Roman Walls (Archaeological Promenade), the Cathedral from the outside, the Roman Provincial Forum, the Praetorium, the Roman Circus, and the Roman Amphitheatre.

Meeting point: The tour will depart at **18:15h** from the AIG-9 hotel (Ciutat de Tarragona Hotel).



Friday, 23rd, 13:00h: HUMAN CASTLES

On the 23rd of September, Festivity of Santa Tecla, the city's four colles castelleres (human castle groups) build their best constructions at the "Plaça de la Font" Square which is full of spectators.

Meeting point: The tour will depart at **12:40h** from the AIG-9 hotel (Ciutat de Tarragona Hotel).

Saturday, 24th, 13:00: WALKING HUMAN TOWERS

For those spending the weekend in Tarragona, the 24th of September, Festivity of "La Mercè", the four local colles are once more the protagonists on a special festive day. At the "Plaça de les Cols" square the groups face their last special round on one of the most exciting human castle's day. At the base of the cathedral's stairs the castle groups have to lift a pillar of four and walk it 500 meters to the balcony of the Town Hall building, at the "Plaça de la Font" Square.

Meeting point: The tour will depart at **12:30h** from the AIG-9 hotel (Ciutat de Tarragona Hotel)

Additional activities for accompanying members:

Monday, 19th

For the first day a Walking Tour in Tarragona is planned, together with a guided visit inside the Cathedral that is being refurbished. Lunch will take place in the beautiful restaurant "La Cucafera" located in the Old Town, at the base of the stairs of the Cathedral. The group will depart at **9:00h** from the AIG-9 hotel (Ciutat de Tarragona Hotel).

Tuesday, 20th

A guided trip to the Santes Creus Cistercian Monastery and a visit to the cellar of "Nulles" are planned. Lunch is included in the restaurant "La Casa Vermella".

The bus will start the trip at **9:00h** at the Hotel Ciutat de Tarragona.

Wednesday, 21st

Mid-conference field trip (see details above)

Thursday, 22nd

A guided trip to Barcelona is planned. We will center the visit in the Modernism Tour, visiting the Gaudi Sagrada Familia Church, the Olympic Village (Montjuic), and the historic town center. Lunch to a typical "Tapes" restaurant is included in the restaurant "Pulpería A'Gudiña".

The buses will start the trip at the central bus station located next to the Hotel Ciutat de Tarragona at **8:00h**.

Friday, 23rd

Free day. Optional activity Human Castles (see above)

Note:

The registration fees do not include insurance for participants. Neither the Ciutat de Tarragona Hotel nor the Organizing Committee are responsible for any loss, theft, injury, or damage to persons or belongings, however caused.

MEETING OVERVIEW



Time	Sunday, September 18th	Monday, September 19th	Tuesday, September 20th	Wednesday, September 21st	Thursday, September 22nd	Friday, September 23rd	Saturday, September 24th	Time
8:00-9:00h								8:00-9:00h
9:00-10:00h								9:00-10:00h
10:00-10:35h	Walking tour Barcelona	Morning sessions. 1st Part	Registration to the congress (1st Floor Hall)	Registration to the congress (1st Floor Hall)	Morning sessions. 1st Part	Registration to the congress (1st Floor Hall)	Morning sessions. 1st Part	10:00-10:35h
10:35-10:50h		Coffee break			Coffee break			Coffee break and poster session
10:50-11:20h		Registration to the congress (1st Floor Hall)						10:50-11:20h
11:20-11:35h		Morning sessions. 2nd Part	Registration to the congress (1st Floor Hall)					11:20-11:35h
11:35-12:00h								11:35-12:00h
12:00-12:35h		Lunch						12:00-12:35h
12:35-13:00h	Human Castles in Tarragona			Mid-Conference Field Trip to Cardona				12:35-13:00h
13:00-14:00h								13:00-14:00h
14:00-15:30h								14:00-15:30h
15:30-16:00h		Afternoon sessions.	Registration to the congress (1st Floor Hall)					15:30-16:00h
16:00-16:35h	Registration to the congress (1st Floor Hall)							16:00-16:35h
16:35-17:00h		Poster session with Beer/Wine						16:35-17:00h
17:00-18:00h								17:00-18:00h
18:00-18:30h								18:00-18:30h
18:15-19:00h								18:15-19:00h
19:00-21:00h	Conference Icebreaker in the Roman Amphitheatre		Guided tour to Tarraco					19:00-21:00h
21:00h					Conference Formal Dinner in the Roman Circus			21:00h

WHO TO CONTACT IN CASE OF DOUBT

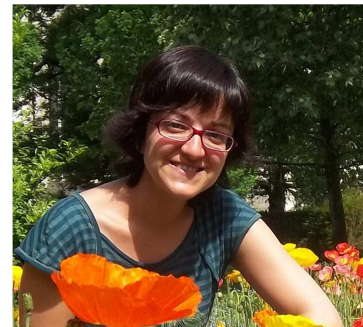
Social Program Coordination

Carme Audi



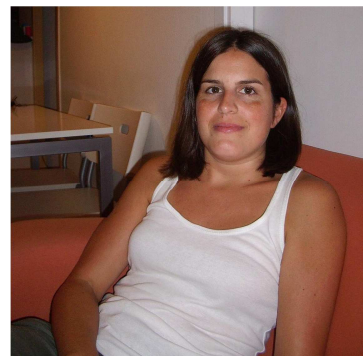
**Acompanying Members
Coordination**

Mònica Rosell



**Scientific Program
Coordination**

Clara Torrentó



Sponsors Coordination

Roger Puig



Computer room

Raúl Carrey



Field Trip Coordination

Jordi Palau



Albert Folch



Student Award Coordination

Massimo Marchesi



SCIENTIFIC PROGRAM

Monday 19

Advances in isotope techniques and instrumentation

9:00 – 12:35

Using isotopes to unravel biogeochemical cycles

14:00 – 16:20

Tuesday 20

Isotope Hydrology

9:00 – 12:35

Isotope signals of climate change

14:00 – 16:20

Thursday 22

Isotopes in environmental and forensic studies

9:00 – 12:35

Isotopes in biological applications

14:00 – 16:50

Friday 23

Isotope Geology

9:00 – 12:05

MONDAY 19th	
Advances in isotope techniques and instrumentation	
CHAIR: Thomas Prohaska	
9:00 - 9:30	KEYNOTE: Bodo Hattendorf Instrumental approaches to improve accuracy and precision of isotope ratio measurements with laser ablation-multicollector ICP-MS
9:35 - 9:50	Anthony Nonell Application of collision reaction-cell based MC-ICPMS to in-situ interferences resolution for elemental and isotope ratios measurements of nuclear samples
9:50 - 10:05	Conrad Dorer Two-dimensional compound-specific isotope analysis as a tool to distinguish reaction mechanisms for BTEX degradation with a focus on ethylbenzene
10:05 - 10:20	Mette M. Broholm Assessment of 1,1,1-TCA degradation using isotope fractionation
10:20 - 10:35	Jose Ignacio Garcia Alonso Direct multiple linear regression of chromatographic data for precise and accurate Rb-Sr and Nd-Sm isotope measurements
10:35 - 10:50	Yann Lahaye A pilot study of new isotopic tracers (Li, Mg, Sr, Pb, U) in monitoring artificial groundwater recharge in SW Finland
COFFEE BREAK	
11:20 - 11:35	Francois Fourel ¹⁸ O/ ¹⁶ O ratio measurements of inorganic and organic materials by new EA-Pyrolysis-IRMS continuous flow techniques
11:35 - 11:50	Francisco Javier Montalván The hydrochemical and isotopic characterizations and the use of natural tracers to the conceptualizing of an hypersaline hydro geological system: Fuente de Piedra (Spain)
11:50 - 12:05	Susanne Stadler Brine history as indicated by Sr, Br, Mg and S isotopes: case study Stassfurt, Germany
12:05 - 12:20	Albert Folch Multi-isotopic approach as a tool to identify groundwater flow dynamics in large scale hydrogeological systems
12:20 - 12:35	David Clow Dating young groundwater in alpine terrain: a multi-tracer approach

Using isotopes to unravel biogeochemical cycles

CHAIR: **Isabel Cacho**

14:00 - 14:30	KEYNOTE: Christina De La Rocha Our current understanding of silicon isotope biogeochemistry and its relevance to reconstructions of the silica cycle
14:35 - 14:50	Anja Wunderlich Effects of carbon sources and water isotopic value on nitrate isotopes during denitrification
14:50 - 15:05	Madeline Rosamond Characterizing the stable isotopic ratio of N ₂ O across 24 temperate streams: Determining source and global significance
15:05 - 15:20	Jason Venkiteswaran On the Fate of Ammonia Released From Wastewater Treatment Plants to Rivers
15:20 - 15:35	Elina Sahlstedt Sulfur isotope variations in fracture-bound sulfides linked to multiphase evolution and microbial activity, Olkiluoto, Finland
15:35 - 15:50	W. Berry Lyons The carbon stable isotope biogeochemistry of streams, Taylor Valley, Antarctica
15:50 - 16:05	Bolou Bi B. Emile Effects of biogeochemical processes on magnesium isotope variations in a forested catchment
16:05 - 16:20	Riikka Emilia Kietäväinen Stable isotopes of water in deep geobiosphere studies
16:35 – 18:00 POSTER SESSION BEER AND WINE REFRESHMENT	

TUESDAY 20th Isotope Hydrology CHAIR: Ian Cartwright	
9:00 - 9:30	KEYNOTE: Bernhard Mayer The role of stable isotopes in tracing movement and reactions of CO ₂ at geological CO ₂ storage sites
9:35 - 9:50	Alexandra Schulz Monitoring of a simulated carbon dioxide leakage into a shallow aquifer using stable carbon isotopes
9:50 - 10:05	Nina Kortelainen Isotope tracers in monitoring the start up of artificial recharge
10:05 - 10:20	Antoine Baillieux Assessing controls on regional groundwater quality with environmental isotopes
10:20 - 10:35	Luisa Stellato Is Rn-222 a suitable tracer of stream-groundwater interactions? Evidences and remarks from three experimental studies at subcatchment-scale
10:35 - 10:50	Valentí Rodellas Estimating the groundwater fluxes from two distinct aquifers to a Mediterranean wetland by using Rn-222 and Ra isotopes
COFFEE BREAK	
11:20 - 11:35	Romain Millot Lithium isotopes in low and high temperature hydrosystems
11:35 - 11:50	Robert Michel Use of isotopic data to determine influence of seasonal effects in rivers
11:50 - 12:05	John Gibson Isotope tracing of lake and watershed budgets: new insights from recent surveys in Canada
12:05 - 12:20	Karsten Osenbrueck Origin of elevated C-14 DIC concentrations in arid regions: a multi-isotope study of a regional groundwater system in southern Oman
12:20 - 12:35	Ian Cartwright Constraining groundwater recharge and the rate of geochemical processes using environmental isotopes: Ovens catchment, Australia

Isotope signals of climate change CHAIR: Matthew Fantle	
14:00 - 14:15	Hazel Reade Correlating oxygen isotope ratios of environmental waters and tooth enamel: an insight into north African palaeoclimate and human occupation
14:15 - 14:30	Jean Birks Canadian Network for Isotopes in Precipitation: Regional Controls on Isotope-Climate Relations
14:30 - 15:45	Juha Karhu Evidence from the $^{87}\text{Sr}/^{86}\text{Sr}$ ratios and $\delta^{18}\text{O}$ values of subfossil mollusc shells for the salinity evolution of the Baltic sea
14:45 - 15:00	Delia Cristina Papp The early aptian negative carbon-isotope event recorded in the carbonate platform of Pădurea Craiului (Apuseni Mountains, Romania)
15:00 - 15:35	KEYNOTE: Luke Skinner 'Ventilation' of the deep ocean since the last glacial period: carbon cycle impacts
15:35 - 15:50	Matthew Fantle Isotopic constraints on, and implications of, diagenetic alteration of carbonate proxies
15:50 - 16:05	Jan Fietzke Application of $\delta^{11}\text{B}$ for pH studies in marine biogenic carbonates using LA-MC-ICP-MS
16:05 - 16:20	Dirk Kirste Monitoring CO_2 storage using stable isotopes, insights into the dynamics of sample collection and the process of storage
16:35 – 18:00 POSTER SESSION BEER AND WINE REFRESHMENT	

THURSDAY 22th	
Isotopes in environmental and forensic studies	
CHAIR: David Widory	
9:00 - 9:30	KEYNOTE: Martin Elsner Current challenges in isotope studies of environmental contaminants: multielement isotope analysis and investigations of micropollutants
9:35 - 9:50	Ramon Aravena Use of multiple lines of evidence for studying chlorinated solvent degradation enhancing integrity of a thin aquitard
9:50 - 10:05	Anko Fischer Assessing sources and sinks of hexachlorocyclohexane (HCH) isomers at contaminated field sites using stable carbon isotope analysis
10:05 - 10:20	Paul Baudron Use of environmental tracers to assess the impact of intense agricultural activity on a semi-arid aquifer: case study in Campo de Cartagena (Spain)
10:20 - 10:35	Genevieve Bordeleau The use of stable isotopes to assess natural attenuation of explosives and to distinguish nitrate sources in groundwater on military training ranges
10:35 - 10:50	Alexander Poser Isotope fractionation of nitrate-dependent sulfide oxidation by <i>Thiobacillus denitrificans</i> and <i>Desulfurimonas denitrificans</i>
COFFEE BREAK	
11:20 - 11:35	José M. Carmona Biogeochemical processes hampering natural attenuation in chloromethane contaminant episodes
11:35 - 11:50	Bill Buhay A preliminary carbon and nitrogen isotope investigation of human remains excavated at Canimar Abajo, Cuba
11:50 - 12:05	Thomas Prohaska The use of strontium isotope ratios determined by MC-ICP-MS for the reconstruction of human and animal migration
12:05 - 12:20	Richard Wanty Zinc isotopic fractionation during precipitation of hydrozincite, Rio Naracauli, Sardinia, Italy
12:20 - 12:35	Martine M. Savard Tree-ring stable isotopes in the context of oil-sand developments – proxies for past changes in air quality

Isotopes in biological applications CHAIR: Tom Bullen	
14:00 - 14:30	KEYNOTE: Thomas Walczyk Exploration of human iron metabolism using stable isotope techniques
14:35 - 14:50	Clara Torrentó Biostimulation with pyrite to enhance denitrification in sediments and groundwater from a nitrate-contaminated aquifer (Osona, Spain)
14:50 - 15:05	Georgina Vidal-Gavilan Isotope characterization of an in situ biodenitrification pilot plant
15:05 - 15:20	Mònica Rosell Unraveling more initial enzymatic mechanisms during aerobic biodegradation of fuel oxygenates by means of 2d-CSIA
15:20 - 15:35	Marie Noele Croteau Stable metal isotopes as a tool to understand and predict the environmental fate of emerging contaminants: nanosized Ag, Cu and Ni
15:35 - 15:50	Brian Gulson Should we be using sunscreens containing metal oxide nanoparticles?
15:50 - 16:05	Sara Chlot Studying nitrogen cycling and uptake by macrophytes using ¹⁵ N tracer techniques
16:05 - 16:20	Yongwen Gao Isotopic signatures of Otoliths and application in fisheries management
16:20 - 16:35	Julie Sueker Assessment of trichloroethene degradation in a groundwater DNAPL zone using stable carbon isotope analysis
16:35 - 16:50	Martin Blaser Carbon isotope fractionation and the acetyl-CoA pathway
16: 50 – 18:15 POSTER SESSION BEER AND WINE REFRESHMENT	

FRIDAY 23th Isotope Geology CHAIR: Martine Savard	
9:00 - 9:30	KEYNOTE: Avner Vengosh An overview of the energy-water quality nexus: using isotopic tools to elucidate the impact of energy production on water resources in the U.S.
9:35 - 9:50	Isaac Corral Stable isotope (S, O, H) data as indicators of depositional environment for the Au-Cu mineralization of Cerro Quema (Panama)
9:50 - 10:05	Raymundo Martinez-Serrano Sr-Nd-Pb isotopic determinations in volcanic rocks associated to the Apan-Tlálloc fault system, Trans-Mexican Volcanic Belt, Mexico
10:05 - 10:20	Thomas Bullen Comparison of calcium and strontium behavior across a Hawaiian soil climosequence: evidence from Ca and Sr stable isotopes
10:20 - 10:35	Clemens Reimann Lead and lead isotopes in agricultural soils of Europe – the lead isotopic geochemical landscape of Europe
10:35 – 11:35 POSTER SESSION COFFE BREAK	
11:35 - 11:50	Lhoussaine Bouchaou Use of strontium isotopes for delineating the origin of groundwater from the Lakhssas Plateau, Western AntiAtlas of Morocco
11:50 - 12:05	Tiziano Boschetti Isotope composition of lithium, boron and methane in hyperalkaline springs of Northern Apennines (Italy)

POSTER SESSIONS

MONDAY 19th	
Advances in isotope techniques and instrumentation	
1	Miryam Martinez Understanding the influence of land use and geology on hydrochemistry and hydrodynamic of Salburua wetland (Isotope techniques)
2	Christophe Innocent A method for U-Th isotopic analysis of saline and geothermal waters
3	Karsten Osenbrueck Multi-isotopic characterization of origin, residence time and transport processes of nitrate in the Weida river catchment, Germany
Using isotopes to unravel biogeochemical cycles	
4	Sherry Schiff Stable isotopes of N ₂ O emissions to the atmosphere from a large impacted river

TUESDAY 20th	
Isotope Hydrology	
5	Macarena Bustamante Acuña Hydrochemical and isotopic results from the El yeso sub-basin, Santiago metropolitan region
6	Yi Yi Water Isotope Characterization and Partition of Main Flow in the Mackenzie River System, Western Canada
7	Abdelhamid Guendouz Deep groundwater dating with nobles gases (He) and chlorine 36: the continental intercalaire aquifer from the Sahara basin
8	Merhawi GebreEgziabher GebreMichael The application of $\delta^2\text{H}$ and $\delta^{18}\text{O}$ to understand the groundwater system in Raya Valley, Northern Ethiopia
9	Girum Admasu Nadew Estimating ungauged catchment flows and unaccounted evaporative water loss from Lake Tana and its floodplains: Isotope hydrological approach
10	Romain Millot Geothermal waters from the Taupo volcanic zone, New Zealand: a view through Li, B and Sr isotopes
11	María Fe Díaz-Teijeiro Characterization of evaporation in "Las tablas de daimiel" national park using stable isotopes of water
12	Ian Cartwright Implications of open-system C-14 exchange for dating of regional groundwater
13	Juan José Gómez-Alday Denitrification assessment in a high vulnerable area to nitrate pollution (Petrola lake endorheic basin, SE Albacete, Spain)
14	Paula Niinikoski Oxidative decomposition of dissolved organic carbon in an artificial recharge plant, Tuusula, Southern Finland
15	Jürgen Sültenfuß Reliability of groundwater dating with 3H - 3He : a tool to identify mixing of water with different ages
16	Emily Henkemans Geochemical processes affecting surface and groundwaters in Kangerlussuaq, Greenland
17	John Gibson Isotope tracing of lake and watershed budgets: new insights from recent surveys in Canada

18	Josep Mas-Pla Surface discharge isotopes as indicators of stream capture by ground water exploitation: Arbúcies river basin (NE Spain)
19	Josep Mas-Pla Isotopic characterization of ground water in western Pyrenees
20	Waleed Saeed Compound-specific isotope analyses of BTEX degradation by persulfate in saline environment at elevated groundwater temperature
21	Anne Rautio Chemical and isotopic indications of groundwater-surface water interactions
22	Antonio Garralon Hydrochemical and isotopic study of the origin of saline water exploitations from Guadalajara (Spain)
23	Lori Cicci Revisiting isotopic tracers studies with a special focus on Oak Ridges Moraine, Southern Ontario, Canada
24	Stephen Good A direct comparison of stable isotope evapotranspiration flux measurement techniques with closed path water vapor isotope analyzers
25	Albert Folch Using groundwater isotopes (D and ^{18}O) to identify rainfall origin and recharge patterns in range-and-basin flow systems
26	Nathaniel Warner Strontium isotopes as an indicator of mixing between major aquifer systems of the Tadla Basin, Morocco
27	Teodora Szocs Isotope studies in the survey of thermal and cold transboundary groundwater in the Mura-Zala basin, NE Slovenia and SW Hungary
28	Teodora Szocs Arsenic and $\delta^{18}\text{O}$, δD , $\delta^{13}\text{C}$, ^{14}C , and ^3H isotope studies in the Danube-Tisza interfluvial, Hungary
29	Emilio Custodio Deuterium excess in the Canary Islands rainfall and groundwater
Isotope signals of climate change	
30	Laura Arppe $\delta^{18}\text{O}$ patterns of MIS 3-2 (52-24 ka) precipitation in Europe – evidence from biogenic phosphate and paleogroundwaters combined

THURSDAY 22nd

Isotopes in environmental and forensic studies

31	Brian Gulson Use of lead isotopes in determining sources of lead arising from opportunistic contamination of environmental samples and in remediation
32	Yehudit Harlavan Applying Pb isotopes for detecting asbestos in soils adjacent to asbestos plant, Northern Israel
33	Nathalie Pérez Copper isotope fractionation in mine tailings in Northern Sweden
34	Elisabeth Widom Source of lead contamination in street sediment in southwest Ohio, USA: constraints from lead isotopes
35	Myriam Demuth Tracing sources of nitrate in a porous aquifer using stable isotope (¹⁵ N, ¹⁸ O) analysis
36	Laureline Bourcier Coupling between a thermo-optical analyzer and an IRMS to characterize air particulate matter sources
37	Stefan Cretnik Chlorine and carbon isotope measurements can help assessing the effectiveness of a zero valent iron barrier
38	Isabel Muñoz Pascual Assessment of the sources of groundwater nitrate contamination by using a dual isotope approach
39	Anna Buczynska Extraction, clean-up and analysis of PAHs from air particulate matter for carbon stable isotope determination as a tool for source apportionment
40	Romain Millot Wine and champagne: evidence from lithium isotopes
41	Rosemary Capo Environmental tracking of fossil fuel-related northern Appalachian waters using strontium isotopes
42	Iñaki Vadillo-Pérez $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of nitrate for the identification of sources of contamination and hydrochemical processes in a mixing land-use porous aquifer
43	Marco Petitta Hydrodynamic and isotopic characterization of a site contaminated by chlorinated solvents: Chienti river valley, central Italy

44	Jordi Palau Stable isotope analysis to evaluate the origin of tetrachloroethylene in sites polluted by complex mixtures of chlorinated ethenes and ethanes
45	Anne Schucknecht Stable lead isotope signatures of tropical soils in north-eastern Brazil – indicator for precipitation-dependent natural processes?
46	David Widory The carbon isotope composition of herbicides in groundwater: the example of glyphosate and its degradation byproduct ampa
47	Keir Soderberg Soil water vapor isotopes: combining continuous field measurements with experimental and modeling approaches in a semi-arid ecosystem
48	Isabel Anson Application of multi-isotopic studies (^{18}O , D, ^{15}N , ^{34}S , ^{13}C) to identify hydrochemical processes in groundwater in an urban area
Isotopes in biological applications	
49	Arndt Schimmelmann Stable hydrogen isotopes in bone collagen as an indicator of trophic level
50	Raúl Carrey Attenuation of nitrate in the Pétrola basin groundwater's (SE Spain). Assessment by microcosm experiments
51	Shiran Qiu Sorption or biodegradation? – evidence from carbon isotope analysis of a transient toluene pulse passing through a pristine aquifer
52	Diego Roverano Application of compound specific isotope analysis to assess biodegradation of light hydrocarbons of petroleum in spill sites
53	Martin Elsner Measurements of compound specific isotope fractionation to assess biodegradation of pesticides in the environment
54	Martin Elsner Insight on microbial reductive dechlorination of TCE by applying compound-specific chlorine isotope analysis
55	Marc Viñas CSIA and microbial community analysis in natural attenuation assessment: case study of a fractured bedrock aquifer contaminated by a mixture of chlorinated organic compounds
56	Aranzazu Martinez-Aguirre A comparative study of U uptake by Fossil Bones

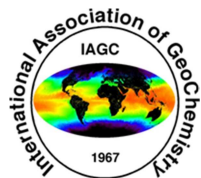
FRIDAY 23rd

Isotope Geology

57	Clemens Reimann Variations in Pb concentrations and Pb-isotope ratios in soils collected along an east-west transect across the United States
58	Irina Segal Implications of new Pb isotope data from Timna ores: Provenance of ancient metallurgical artifacts
59	Àngels Canals Isotopic fractionation of gypsum as a function of temperature, supersaturation and salinity
60	Meritxell Aulinas Juncà The role of ultramafic xenoliths on the evolution of the gran canaria plio- quaternary magmas

ORAL PRESENTATIONS OVERVIEW

MONDAY 19th, morning. Chair: Thomas Prohaska		TUESDAY 20th, morning. Chair: Ian Cartwright		Wednesday 21st		THURSDAY 22nd, morning. Chair: David Widory		FRIDAY 23rd, morning. Chair: Martine Savard			
Advances in isotope techniques and instrumentation		Isotope Hydrology		Mid-conference field trip		Isotopes in environmental and forensic studies		Isotope Geology			
9:00	9:30	Hattendorf	9:00	9:30	Mayer	9:00	9:30	Elsner	9:00	9:30	Vengosh
9:35	9:50	Nonell	9:35	9:50	Schulz	9:35	9:50	Arawana	9:35	9:50	Corral
9:50	10:05	Dorer	9:50	10:05	Kortelainen	9:50	10:05	Fischer	9:50	10:05	Martinez-Serrano
10:05	10:20	Broholm	10:05	10:20	Baillieux	10:05	10:20	Baudron	10:05	10:20	Bullen
10:20	10:35	Garcia Alonso	10:20	10:35	Stellato	10:20	10:35	Bordeleau	10:20	10:35	Reimann
10:35	10:50	Lahaye	10:35	10:50	Rodellas	10:35	10:50	Poser	10:35	10:50	
10:50	11:20	Coffe Break	10:50	11:20	Coffe Break	10:50	11:20	Coffe Break	10:35	11:35	Coffe and Poster Session
11:20	11:35	Fourel	11:20	11:35	Millot	11:20	11:35	Carmona	11:35	11:50	Bouchaou
11:35	11:50	Montalvan	11:35	11:50	Michel	11:35	11:50	Buhay	11:50	12:05	Boschetti
11:50	12:05	Stadler	11:50	12:05	Gibson	11:50	12:05	Prohaska			
12:05	12:20	Folch	12:05	12:20	Osenbrueck	12:05	12:20	Warty			
12:20	12:35	Clow	12:20	12:35	Cartwright	12:20	12:35	Savard			
12:35	14:00	Lunch	12:35	14:00	Lunch	12:35	14:00	Lunch			
MONDAY 19th, afternoon Chair: Isabel Cacho		TUESDAY 20th, afternoon. Chair: Matthew Fantle		THURSDAY 22nd, afternoon. Chair: Tom Bullen							
Using isotopes to unravel biogeochemical cycles		Isotope signals of climate change		Isotope in biological applications							
14:00	14:30	De La Rocha	14:00	14:15	Reade	14:00	14:30	W/alczyk			
14:35	14:50	Wunderlich	14:15	14:30	Birks	14:35	14:50	Torrento			
14:50	15:05	Rosamond	14:30	14:45	Kathu	14:50	15:05	Vidal-Gavilán			
15:05	15:20	Venkateswaran	14:45	15:00	Papp	15:05	15:20	Rosell			
15:20	15:35	Sahlstedt	15:00	15:35	Skinner	15:20	15:35	Croteau			
15:35	15:50	Lyons	15:35	15:50	Fantle	15:35	15:50	Gulson			
15:50	16:05	B. Emile	15:50	16:05	Fietzke	15:50	16:05	Chlot			
16:05	16:20	Kietäväinen	16:05	16:20	Kirste	16:05	16:20	Gao			
16:35	18:00	Beer/Wine and Poster Session: Advances and Biogeochem.	16:35	18:00	Beer/Wine and Poster Session: Hydrology and Climate Change	16:50	18:15	Beer/Wine and Poster Session: Environmental and Biological			



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