

eurokarst



SAPIENZA
UNIVERSITÀ DI ROMA



CONSIGLIO NAZIONALE
DEI GEOLOGI



ISTITUTO NAZIONALE
DI GEOFISICA E VULCANOLOGIA



acquedotto
pugliese
l'acqua, bene comune



*Autorità di Bacino Distrettuale
dell'Appennino Meridionale*

Programma definitivo

**Dipartimento di Scienze della Terra,
Sapienza Università di Roma
10-14 June, 2024**

eurokarst 2024

MONDAY June 10

PRE-CONGRESS COURSES (duration 6 + 2 hours)

Course A) Challenges and Solutions of Numeric Groundwater Modeling in Karst using Groundwater Vistas and Connected Linear Networks (CLNs)

Teacher: Neven Kresic (Independent Groundwater Consultant)

Course B) Transport karst modelling approaches in the saturated and unsaturated zone"

Teacher: Andreas Hartmann and Gabriele Chiogna (Dresden Technical University)

Course C) Visual KARSYS

Teachers: Dr. Pierre-Yves Jeannin, Dr. Arnauld Malard (ISSKA, CH)

Final session

MOFLOW CFP, its implementation in Python CFPy and its coupling to PyKasso

Teacher: Thomas Reimann (Dresden Technical University)

This lecture will be offered to ALL participants to one of the courses.

Schedule of the day

Monday, June 10 early morning

09:00-11:00.	Lesson
11:00-11:30	Coffee Break
11.30:13:30.	Lesson
13:30-14:30	Lunch break
14:30:16:30	Lesson
16:30:17:00	Coffee break
17:00:19:00	Final common lesson

TUESDAY June 11

ORAL SESSIONS

Tuesday, June 11 late morning

10:15-10:45

KEYNOTE LECTURE

Neven Kresic

Evolution and Future of Modeling in Karst Hydrogeology

11:30-13:00

6 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: *Prof. Natasa Ravbar (Karst Research Institute ZRC-SAZU, Slovenia)* and *Dr. Davide Fronzi (Università Politecnica delle Marche, Italy)*

- Trends in long-term hydrogeological data from European karst aquifers. *Markus Giese, Yvan Caballero, Andreas Hartmann, Jean-Baptiste Charlier* [no. 158]
- Hydrogeological framework of minor aquifers in Central Italy (Alto Sangro area) and potentialities' assessment for drinking purposes. *Alessia Di Giovanni, Diego Di Curzio, Sergio Rusi* [no. 72]
- Impact of more than thirty years of intense exploitation on groundwater flow system and chemistry of a carbonate karst aquifer in a semi-arid region. The case study of Sierra de Humilladero (Malaga province, S Spain). *Pedro Marin-Troya, Juan Antonio Barberá, Bartolomé Andreo* [no. 78]
- Interdisciplinary characterization of karst aquifer of the island of Vis (Croatia). *Matko Patekar, Marco Pola, Staša Borović, Josip Terzić, Maja Briški, Ivan Kosović, Silvia Mittempergher, Alessio Lucca, Luigi Riccardo Berio* [no. 81]
- Hydrogeological characterization of Timau Devonian Karst Aquifer (NE Italy). *Daniele Karlicek, Chiara Calligaris, Maurizio Ponton, Luca Zini* [no. 71]
- Hydrogeological karst behavior in a conglomerate aquifer in Veneto Region (NE Italy). *Davide Cappellari, Roberto Tonucci, Leonardo Piccinini, Nico Dalla Libera, Paolo Fabbri* [no. 73]

Topic: Karst geomorphology and landscape – room B

Chairs: *Dr. Peter Malik (Geological Survey of Slovakia)* and *Dr. Alvarez-Alonso Rebeca (Geological Survey of Spain, University of Alcalá)*

- A karstic cave with an exceptional geological value: Cueva de las Estegamitas (Malaga, Southern Spain). *Juán José Durán Valseo, Sergio Durán, Raquel Morales, Iñaki Vadillo, Lucía Ojeda, José Enrique Sánchez Pérez* [no. 4]
- Earth's critical zone and karst critical zone: structure, characteristic and lower boundary. *Junbing Pu* [no. 33]
- Evolution of the karst network from surface to subsurface within fault zone. *Aurélie Boura, Véronique Leonardj, Catherine Homberg, Nicolas Loget, Cousquer Yohann* [no. 42]
- Sinkhole's setback distances: the methodological approach applied to the evaporitic environment. *Chiara Calligaris, Alice Buseti, Luca Zini, Chiara Piano* [no. 124]
- The RETURN project's approach to sinkholes, the most typical geological hazard in karst terrains. *Vincenzo Allocca, Matteo Berti, Domenico Calcaterra, Diego Di Martire, Riccardo Fanti, Mario Floris, Giovanni Forte, Isabella Lapietra, Isabella Serena Liso, Piernicola Lollino, Antonio Santo, Rita Tufano, Francesca Bozzano, Salvatore Martino, Mario Parise* [no. 151]

- Speleogenetic reconstitution of a karst combining underground and surface geomorphology - implication for hydrology (Verneau, French Jura). *Margot Vivier, Jean-Baptiste Charlier, Pauline Collon, Eglantine Husson, Stéphane Jaillet* [no. 129]

Tuesday, June 11 early afternoon

14:30-15:00

KEYNOTE LECTURE

Bartolomé Andreo Navarro

Vulnerability to the contamination and groundwater protection of karst aquifers

15:10-16:10

4 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: Dr. Matias Mudarra (University of Malaga, Spain) and Dr. Francesca Gori (Sapienza Università di Roma, Italy)

- Possible effect of deep CO₂ degassing in the formation and development of karst systems. *Roberto Gambini, Giovanni Chiodini, Piero Festa, Carlo Cardellini, Andrea Benassi, Isabella Serena Liso, Mauro Tieri* [no. 108]
- The effect of the degassing process at Ferrarelle's karst hydrogeological system. *Emilio Cuoco, Vittorio Paolucci, Rosario Avino, Antonio Carandente, Carmine Minopoli, Francesco Rufino, Alessandro Santi, Elisa Sacchi, Dario Tedesco, Stefano Caliro* [no. 142]
- Terzaghi's effective stress principle and hydrological deformation of karst aquifers detected by GNSS measurements. *Guido Leone, Libera Esposito, Michele Ginolfi, Francesco Fiorillo* [no. 139]
- The hydrodynamic response of the Sibillini Mts. carbonate hydrostructure before and after the Mw 6.5 Norcia earthquake (Central Italy): hints from numerical models. *Enrica Zullo, Matteo Albano, Michele Saroli, Marco Moro, Gabriel Testa, Nicola Bonora, Marco Petitta, Thomas Reimann, Carlo Doglioni* [no. 145]

Topic: Cave monitoring and management – room B

Chairs: Dr. Juan José Duran (Geological Survey of Spain) and Dr. Anne Johannet (Montpellier University, France)

- Geotechnical investigations applied to underground mining in karst environments. *Rafael Maurin Gritti, Mayara Silva, Leonardo Pereira da Silva, Lucas Zucchi Silva* [no. 57]
- Groundwater water level and block movement monitoring in the Han-sur-Lesse cave (Belgium): tools to improve visitor access and security. *Vincent Hallet, Sabine Blockmans, Romain Deleu, Ewa Krywko, Ari Lannoy, Gaëtan Rochez, Antoine Smet, Luc Funcken* [no. 61]
- Insights on groundwater-surface water interactions in the Frasassi karst system (Central Italy). *Lucio Di Matteo, Riccardo Nicolini, Sandro Galdenzi, Fabio Baldoni, Francesco Frondini, Daniela Valigi* [no. 80]
- Karst system conceptual models based on the aquifer recharge. *Bartolomeo Vigna, Adriano Fiorucci, Valentina Balestra* [no. 88]

Tuesday, June 11 late afternoon

16:45-18:00

5 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: Dr. Attila Kovacs (Geological Survey of Hungary) and Dr. Beatrice Richieri (Technical University of Munich, Germany)

- A Bayesian Multi-Model Framework for lumped parameter model structure selection and parameter estimation in karst hydrology. *Vianney Sivelle, Yohann Cousquer, Chloé Ollivier, Naomi Mazzilli, Herve Jourde* [no. 1]
- Coupling PEST and LuKARS 2.0: merits and limits of automatic parameter optimization. *Beatrice Richieri, Daniel Bittner, Vianney Sivelle, Andreas Hartmann, David Labat, Gabriele Chiogna* [no. 25]
- Development and application of the hybrid modelling approach by combining process-based and machine-learning models for karst groundwater systems. *Cenk Sezen, Andreas Hartmann, Zhao Chen* [no. 30]
- Comparison of process-based models to machine learning techniques in the simulation of flow in complex karst systems: application on semi-arid case studies in Lebanon. *Joanna Doummar, Melissa Rizkallah, Sara Najem* [no. 22]
- Stream-centric methods for determining groundwater contributions and sources in karst mountain watersheds. *Bethany Neilson, Devon Hill, Hyrum Tennant, Dennis Newell, Tianfang Xu, Soheye Choi, Jim McNamara, Nate Ashmead* [no. 131]

Topic: Vulnerability and protection of karst groundwater – Room B

Chairs: Dr. Avi Burg (Geological Survey of Israel) and Dr. Elisabetta Preziosi (Water Research Institute, CNR, Italy)

- Effects of global and climate change on the movement of the freshwater-seawater interface in the Serres de Llevant range and the Marina de Llevant karst aquifers in Mallorca Island, Spain. *Diana Puigserver, Jordi Giménez, Francesc Gràcia, José M^a Carmona, Aina Torrandell, Alberto Millán, Joan Fornós* [no. 34]
- Response to pumping of wells in carbonate and karst aquifers and effect on the assessment of sustainable well yield: some examples from southern Italy. *Chiara Sbarbati, Matteo Paoletti, Vincenzo Piscopo* [no. 119]
- Evaluation of nitrate behavior, transport and storage in 5 karst watersheds of Wallonia (South Belgium). *Amaël Poulain, Félix De Selys, Jérémy Flament, Benoit Lavigne, Laura Balzani, Georges Michel* [no. 37]
- Estimating atmospheric CO₂ uptake by carbonate rock weathering in the Mediterranean humid continental karst basin. *Fen Huang, Zhao Chen, Andreas Hartmann* [no. 40]
- Defining of karstification depth beneath dam sites using special investigations methods (the Visegrad dam example, Bosnia & Herzegovina). *Saša Milanović, Ljiljana Vasić, Branislav Petrović, Veljko Marinović, Petar Vojnović* [no. 26]

WEDNESDAY June 12

Wednesday, June 12 early morning

9:00-9:30

KEYNOTE LECTURE

Pierre-Yves Jeannin

A toolbox for managing groundwater in karst regions

9:40-11:00

5 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: *Prof. Chiara Calligaris (Università di Trieste, Italy) and Daniel Bittner (Technical University of Dresden, Dresden, Germany)*

- Defining of karstification depth beneath dam sites using special investigations methods (the Visegrad dam example, Bosnia & Herzegovina). *Saša Milanović, Ljiljana Vasić, Branislav Petrović, Veljko Marinović, Petar Vojnović* [no. 26]
- Flash flood and vigilance forecasting of a complex, anthropogenic karst hydrosystem using neural networks. Application to the Las coastal river at Toulon (South-East France). *Julien Yise Peniel Adoukpe, Romane Berthelin, Valentin Wendling, Guillaume Artigue, Alain Dezetter, Séverin Pistre, Octavian Dobricean, Kalil Traore, Bruno Arfib, Anne Johannet* [no. 49]
- Hydrogeological and physico-chemical signatures to characterize flood flows in a Mediterranean urban karst aquifer (Fontaine de Nimes spring, France). *Jean-Baptiste Charlier, Vincent Bailly-Comte, Vivien Hakoun, Bernard Ladouche, Jean-Christophe Maréchal* [no. 69]
- Investigation of groundwater-seismicity relationship in a karst aquifer: preliminary results from a new monitoring site in Southern Spain (Maro Spring, Andalusia). *Francesca Gori, Marino Domenico Barberio, Maurizio Barbieri, Adriana Damato, Cristina Liñán Baena, Lucía Ojeda, Iñaki Vadillo, Marco Petitta* [no. 83]
- Performance and intercomparison of two hydrogeological models (semi-physical and neural networks) to forecast groundwater floods of a fractured karst aquifer. Case study of the Cadarache site of the French Alternative Energies and Atomic Energy center (southeast France). *Manon Erguy, Sébastien Morilhat, Guillaume Artigue, Julien Trincal, Anne Johannet, Séverin Pistre* [no. 107]

Topic: Cave monitoring and management – room B

Chairs: Dr. James LaMoreaux (Springer, USA) and Dr. Isabella Serena Liso (Politecnico di Bari, Italy)

- Prehistoric caves facing the climate change: New sensors for an effective conservation strategy. *Bruno Lartiges, Francois Bourges, Alexandre Honiat, Salaheddine Skali Lami, Remi Losno, Loïc Drigo, Thierry Fayard, Pascal Gisquet, Jérôme Briot* [no. 111]
- Sediment features and foraminiferal assemblages in the Ficarella Cave (San Vito Lo Capo, Sicily, Italy). *Elena Romano, Letizia Di Bella, Matteo Bainsi, Luisa Bergamin, Sara Capriotti, Andrea D'Ambrosi, Melania Di Fazio, Giovanni Gaglianone, Laura Medeghini, Cristina Panti, Claudio Provenzani, Federico Spagnoli, Maria Cristina Fossi* [no. 121]
- The role of cave monitoring in the pathway towards the sustainable energy transition. *Laura Sanna* [no. 152]
- Slope-scale deformation driven by enhanced karstification: new insights from the case study of the Peschiera Spring slope. *Salvatore Martino, Gian Marco Marmoni, Guglielmo Grechi, Stefano Rivellino, Yawar Hussain* [no. 125]
- The WoKaS-Iso Database: workflow for a global compilation of d18O and d2H records in cave drip water and karst springs for enhanced understanding of karst systems. *Yining Zang, Pauline Treble, Andreas Hartmann* [no. 154]

Wednesday, June 12 late morning

11:30-13:00

6 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: Prof. Philippe Renard (Neuchatel University, Switzerland) and Prof. Delia Cusano (Università di Napoli Federico II, Italy)

- Analysis and modeling of the complex recharge-discharge relationship of the Caposele karst spring (southern Apennine). *Guido Leone, Francesco Fiorillo, Libera Esposito, Michele Ginolfi, Gerardo Ventafriida, Herve Jourde* [no. 8]
- A rainfall-input model based on Artificial Neural Network (ANN) and cross-correlation analyses for karst spring discharge simulation. *Francesco Maria De Filippi, Stefania Franchini, Giuseppe Sappa, Flavia Ferranti* [no. 5]
- Design in seasonal karst springs for sustainable water management in semi-arid karst region. *Mehmet Çelik, Süleyman Selim Çalli, Meltem Çelik* [no. 15]
- Characterizing groundwater springs in the Italian Alps: an integrated geological, geophysical, and hydrogeological approach. *Alice Lucchelli, Alessandro Signora, Francesco Dauti, Stefano Galli, Matteo Gisolo, Gianluca Fiandaca, Daniele Pedretti* [no. 18]
- Combination of stochastic and analytical modelling methods for the prediction of climate change impact on spring discharge. *Attila Kovacs* [no. 20]
- Long term discharge analysis to improve knowledge about the behavior of karst spring under climate change - Praondè spring, Civate (LC). *Nicolas Rinaldi, Laura Longoni, Monica Papini, Francesco Ronchetti, Raffaele Rossi Ronca* [no. 94]

Topic: Vulnerability and protection of karst groundwater – room B

Chairs: Prof. Catherine Bertrand (Université de Franche-Comté, France) and Giacomo Medici (Sapienza Università di Roma, Italy)

- Exploring climatic change scenarios and aquifer recharge in southern Italy. *Daniele Lepore, Silvio Coda, Delia Cusano, Vincenzo Allocca, Eduardo Bucchignani, Myriam Montesarchio, Pantaleone De Vita* [no. 45]
- Formation mechanism and countermeasures of urban karst collapse. *Jiang Xiaozhen, Ma Xiao, Dai Jianling, Lei Mingtang* [no. 52]
- Geoconservation state and antropic impact evaluation of the Lagunas de Ruidera river-lake karstic system (Central Spain). *Raquel Morales García, Juan José Durán Valsero, Pedro A. Robledo Ardila, Sergio Raúl Durán Laforet* [no. 53]
- Groundwater quality evaluation and source analysis in typical karst areas. *Shi Yu* [no. 59]
- Hydrologic confinement between two karst hydrogeologic units in Central Texas, USA. *Brian Smith, Jeff Watson, Justin Camp, Brian Hunt* [no. 75]
- Italian karst springs in the MIKAS Project. *Francesco Fiorillo, Mario Parise, Marco Petitta, Zoran Stevanovic* [no. 84]

Wednesday, June 12 late afternoon

14:30-15:00

KEYNOTE LECTURE

Hervè Jourde

Dissolution mechanisms and incipient karstification in layered fractured carbonates. New insights from numerical modelling

15:10-16:25

5 presentations per block

Topic: Methods and models in karst hydrogeology – Room A

Chairs: Prof. Laurence Gill (Trinity College of Dublin, Ireland) and Dr. Alessia Nannoni (Università di Firenze, Italy)

- Assessment of artificial recharge potential in karst aquifers: a combination of hydrogeological approach and Multi-Criteria Decision Analysis. *Musa Salmani, Zargham Mohammadi, Zahra Jamshidi, Rouhollah Asadpour* [no. 12]
- Changes in snow dynamics as a proxy for groundwater recharge in Euro-Mediterranean karst mountains. *Suleyman Selim Calli, Juraj Parajka, Zhao Chen, Claudia Notarnicola, Kübra Özdemir Calli, Andreas Hartmann* [no. 16]
- Characterization and classification of karstic groundwater resources. *Vincent Bailly-Comte, Bernard Ladouche, Jean-Baptiste Charlier, Vivien Hakoun, Claudine Lamotte, Yannick Manche, Jean Christophe Marechal* [no. 17]
- Impact of soil coverings and land cover types on groundwater recharge of karst aquifers of southern Italy. *Delia Cusano, Daniele Lepore, Vincenzo Allocca, Pantaleone De Vita* [no. 79]
- Regional-scale groundwater modeling, focusing on boundary inflow and impact assessment of managed aquifer recharge in karst systems. *Marcus Genzel, Thomas Reimann, Joanna Doummar, Philippe Renard, Steffen Birk, Alireza Kavousi, Max Gustav Rudolph, Andreas Hartmann* [no. 117]

Topic: Vulnerability and protection of karst groundwater – room B

Chairs: Prof. Nadine Goppert (Free University Berlin, Germany) and Dr. Umberto Samuele D'Ettorre (Politecnico di Bari, Italy)

- Karst springs in Brezovskè Karpaty Mts. (Slovakia): differences in sensitivity to drought impact. *Peter Malik* [no. 87]
- Managing groundwater resources in a karstic environment - Approaches for addressing groundwater vulnerability and public water supply in the outskirts of London, UK. *Ilias Karapanos, Ellie Powers* [no. 96]
- Snow cover contribution on groundwater recharge in the Gran Sasso carbonate aquifer (Central Italy) during the period 2019-2022. *Valeria Lorenzi, Marino Domenico Barberio, Mauro Manetta, Giacomo Medici, Chiara Sbarbati, Marco Petitta* [no. 126]
- Drilling and cutting-based vulnerability assessment of karst aquifers: an innovative method for practicality in karst protection. *Kamal Taheri, Nima Fathi, Jamal Karimi* [no. 167]
- Springs in platform and orogenic karst - A comparative analysis of Floridan (USA) and Dinaric aquifers (former Yugoslavia). *Zoran Stevanovic, Neven Kresic* [no. 170]

17:00-18:00

SPECIAL LECTURES

Prof. Zoran Stevanovic (University of Belgrade, Serbia) – THE MIKAS PROJECT

Prof. Dave Kremer (Las Vegas University, USA) – PRESIDENT OF IAH

THURSDAY June 13

Thursday, June 13 early morning

9:00-9:30

KEYNOTE LECTURE

Diana M.P. Galassi & Francesco Cerasoli

“Making the invisible visible”: the conservation of groundwater biodiversity in the European karst

9:40-11:00

5 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: Prof. Pauline Collon (Université de Lorraine, France) and Dr. Guido Leone (Università del Sannio, Italy)

- The freshwater origin of a brackish submarine spring inferred from a long-term stable isotope survey: the Port-Miou karstic spring (SE France). *Alexandre Zappelli, Bruno Arfib, Christine Vallet-Coulomb, Thibaut Garin* [no. 143]
- Updating of traditional groundwater budget and recharge assessment by using the APLIS method at the karst Scirca spring (Central Italy). *Davide Fronzi, Costanza Cambi, Fabio Massimo Fiorucci, Isabella Serena Liso, Alex Manucci, Massimiliano Mazzocca, Francesco Mirabella, Mario Parise, Alberto Tazioli, Daniela Valigi* [no. 163]
- Understanding climate and anthropic drivers of discharge decline of a large karstic spring feeding a NATURA2000 ecosystem. *Cristina Di Salvo, Claudio Alimonti, Daniel T. Feinstein, Randall J. Hunt, Pamela Teoli, Elisabetta Preziosi* [no. 161]
- Temperature variations of karst springs. *Claudio Pastore, Pierre-Yves Jeannin, Marc Luetscher, Amir Sedaghatkish, Frédéric Doumenc* [no. 138]
- Strike-slip faults system and related karst networks: new insights from the comparison between deep buried karst in central Tarim Basin (NW China) and the Fontaine-de-Vaucluse karst system (SE France). *Delong Ma, Wenqi Zhang, Benbiao Song, Jean-Louis Lesueur, Charles Danquigny, Gérard MASSONNAT, Shuxin Pan, Yongqiang Qu, Hongbin Wang, Zhanfeng Qiao, Ya Deng, Yuning Wang, Yixuan Zhao* [no. 132]

Topic: Karst groundwater dependent ecosystems – room B

Chairs: Dr. Nathalie Dorfliger (Danone, France) and Dr. Matteo Fiorucci (Cassino University, Italy)

- Geoheritage and geoconservation in the karstic geothermal hot springs of the Zaghouan Geopark. *Badiaa Chelli* [no. 54]
- Monitoring of hydrogeochemistry and hydrological isotopes in karst springs of Tezbent Plateau, Tebessa Region, northeast of Algeria. *Iklass Hamaili, Chemseddine Fehdi, Baali Fethi* [no. 101]
- Past and current conditions driving the distribution and the ecology of cave-dwelling crustacean isopods. *Stefano Lapadula, Benedetta Barzaghi, Gentile Francesco Fiketola, Roberto Della Toffola, Luca Dorigo, Paul Marckwick, Silvio Marta, Michele Zucali, Mattia Falaschi, Raoul Manenti* [no. 106]
- Stable isotope properties of the dripwaters in the caves of the Moravian Karst (Czech Republic). *Veronika Synková, Pavel Pracný* [no. 130]
- The role of groundwater-surface water relations in disturbing lake ecosystems: the case of the Rèmoray Lake Natural Reserve (Jura, France). *Maeva Claveau, Sophie Denimal, Joshua Ducasse, François Degiorgi, Catherine Bertrand* [no. 153]

Thursday, June 13 late morning

11:30-13:00

Topic: Methods and models in karst hydrogeology – room A

Chairs: Prof. Joanna Doummar (American University of Beirut, Lebanon) and Dr. Mostafa F. Mostafa (Arabian Gulf Oil Company (AGOCO), Lybia)

- Application of time series analysis in complex karst aquifers: a case study of the Javorniki karst aquifer (SW Slovenia). *Blaž Kogovšek, Igor Jemcov, Metka Petrič* [no. 9]
- Assessment of groundwater-river interactions in the carbonate formations of the northeastern Aquitaine Basin (France). *Olivier Cabaret, Jerome Barriere* [no. 13]
- Establishment of a holistic hydrological monitoring network in a karst critical zone. *Nataša Ravbar, Mitja Ferlan, Metka Petrič, David Štefanič, Blaž Kogovšek, Erika Kozamernik, Janez Mulec, Lado Kutnar, Cyril Mayaud, Daniel Žlindra, Sara Skok, Janez Kermavnar, Sašo Marinšek, Urša Vilhar* [no. 38]
- Flow, transport and karstification model of the Buda Thermal Karst, Hungary - theoretical and practical consequences. *Judit Mádl-Szőnyi, Brigitta Czauner, Anita Erőss, Márk Szijártó, Ádám Tóth, Tímea Trásy-Havril, Attila Galsa, Petra Kovács-Bodor* [no. 50]
- Transitory hydrodynamic state as a tool for inferring geometric constraints on groundwater flow in karst aquifers. *Martín-Rodríguez José Francisco, Matías Mudarra, Andreo Navarro Bartolomé* [no. 157]
- Complex and multiphased history of the relations between pre-salt karsts in South Atlantic basins and mantle CO₂ fluxes. Impact on the architecture of the reservoir heterogeneity and the distribution of hydraulic properties. *Gerard Massonnat, Aurélien Virgone, Jean- Louis Lesueur, Charles Danquigny, Pierre-Alexandre Teboul* [no. 24]

Topic: Karst geomorphology and landscape – room B

Chairs: Prof. Judit Madlene Szonyi (ELTE Eötvös Loránd University, Budapest, Hungary) and Dr. Matej Blatnik (Karst Research Institute ZRC-SAZU, Slovenia)

- On the risk of desertification in karstlands. *Umberto Samuele D'Ettorre, Isabella Serena Liso, Mario Parise* [no. 104]
- The myth of triple porosity karst aquifers in ancient carbonates. *Augusto Auler* [no. 149]
- Study of the influence of surface hydrological features in the recharge processes of karst aquifers in southern Italy. *Michele Ginolfi, Guido Leone, Vittorio Catani, Mauro Pagnozzi, Giovanni Testa, Libera Esposito, Francesco Fiorillo* [no. 134]
- Surface water - groundwater interaction induced by geomorphology: The Sant Josep karstic system (La Vall d'Uixò, Castellón, Eastern Spain). *Sergio Raúl Durán Laforet, Pedro Robledo Ardila, Raquel Morales, Lucía Ojeda, Juan José Durán Valseo* [no. 136]
- Susceptibility of karstic depressions in section 5b of the Maya Train, Mexico. *Francisco Rodríguez Castillo, Oscar Frausto-Martínez* [no. 137]
- GIS-based morphometric study to genetically characterize dolines in the SE sector of the Classical Karst Region (NE Italy). *Pietro Rai, Alice Buseti, Chiara Calligaris, Luca Zini* [no. 58]

Thursday, June 13 late afternoon

14:30-16:15

6 presentations per block

Topic: Methods and models in karst hydrogeology – room A

Chairs: Dr. Philippe Meus (European Water Tracing Services, Belgium) and Dr. Lucile Justy (Hydrosciences Montpellier (HSM), Université Montpellier, France)

- Combining hydrogeological, geophysical and geochemical approaches to investigate the role of weathered zones on karst water resources. *Lise Durand, Cédric Champollion, Jérémie Aubineau, Gregory Ballas, Erwan Le Ber, Bernard Ladouche, Sylvain Pasquet, Philippe Vernant, Jean-Baptiste Charlier* [no. 21]
- First results to simulate flow through a statistical karst and fault network using an original karsts statistical model. *Floriane Laurent-Comesse, André Fournon, Herve Jourde, Olivier Ricois, Frederick Delay* [no. 48]
- Interpretation of cumulative frequency distribution curves of groundwater levels can bring information about the hydrodynamic properties of a karstified aquifer. *Romane Berthelin, Manon Erguy, Paul Bareix, Sébastien Morilhat, Guillaume Artigue, Julien Trincal, Anne Johannet, Séverin Pistre* [no. 82]
- Karstic conduit dimensions: analysis and simulation. *Pauline Collon, Yves Frantz, Pierre Boymond, Philippe Renard, Sophie Viseur* [no. 89]
- Simulation of the polyphasic karst system of the Barrois limestones with a discrete karst network simulation method. *Augustin Gouy, Pauline Collon, Vincent Bailly-Comte, Christophe Antoine, Philippe Landrein* [no. 123]
- Post-Devonian fault and fracture systems and their impact on karst and groundwater flow in the Carboniferous limestones of Ireland. *John Paul Moore* [no. 110]

Topic: Methods and models in karst hydrogeology – room B

Chairs: *Franci Gabrovsek (Karst Research Institute ZRC-SAZU, Slovenia) and Dr. Valeria Lorenzi (Sapienza University of Rome, Italy)*

- Groundwater resources diminishing in mountain areas: only climate change or also a “hidden” consumer? An example from Central Apennines (Italy). *Francesco Lampa, Marco Materazzi, Steffen Birk* [no. 60]
- The application of future climate scenarios to assess long-term effects of climate change on the discharge of the Caposele karst spring, Southern Italy. *Tommaso Casati, Maria Filippini, Antonio Navarra, Alessandro Gargini* [no. 140]
- Tracer dispersion in karst conduits: study of spatially heterogeneous breakthrough curves by multi-point dye tracing and 3D Computational Fluid Dynamics (CFD) simulations. *Romain Deleu, Mohammed Aliouache, Herve Jourde, Amaël Poulain, Gaëtan Rochez, Sandra Soares-Frazão, Guy Van Rentergem, Vincent Hallet* [no. 155]
- Applying graph theory on cave surveys to represent and characterize karst networks. *Celia Trunz, Tanguy Racine, Julien Straubhaar, Pauline Collon, Jérémie Chappuis, Philippe Renard* [no. 10]

Topic: Cave monitoring and management – room B

- Transfer of meteorological signals through an autogenic recharge karst system: the Corchia Cave (Apuan Alps, Central Italy). *Alessia Nannoni, Leonardo Piccini* [no. 156]
- Setting up a monitoring network to characterize the hydrological functioning regimes the Saint-Andrè-de-Cruzières karst system (south France). *Valentin Wendling, Judicaël Arnaud, Anne Johannet, Lina Fabre, Yves Perrette, Séverin Pistre, Clementine Francois, Florian Mermillod-Blondin* [no. 122]

POSTER SESSION

Posters will be exposed throughout the congress, from June 11 to 13

Topic: Methods and models in karst hydrogeology

Panel no. 1 - A corrosion-centric analysis of the chemical characteristics of low-saturated drips in Moravian Karst. *Pavel Pracný, Barbora Daniela Filová, Veronika Synková*

Panel no. 2 - A hydrogeological observatory in southern Italy: The Foce experimental karst basin. *Paola Petrone, Pasquale Allocca, Silvio Coda, Delia Cusano, Pantaleone De Vita, Daniele Lepore, Vincenzo Allocca*

Panel no. 3 - Advancing groundwater recharge assessment in karst aquifers by coupling remote sensing and field hydrological monitoring. *Daniele Lepore, Christopher Conrad, Vincenzo Allocca, Delia Cusano, Johannes Löw, Leonard El-hokayem, Pantaleone De Vita*

Panel no. 4 - Barite precipitation in a coastal karstic aquifer. *Fernando Sola, Angela Vallejos*

Panel no. 5 - Detection and quantification of fluorescent tracers using activated carbon detectors in groundwater. *Philippe Meus, Fabien Renou, Liz Hidalgo, Dave Evans*

Panel no. 6 - Diurnal fluctuations of physico-chemical parameters in a cave stream of Grotta del Vento, Apuan Alps, Italy. *Leonardo Piccini, Alessia Nannoni, Mario Verole-Bozzello*

Panel no. 7 - Establishment of an International Communication Network for the Practice of Karst Groundwater Tracing: Proficiency Testing of Fluorescent Tracers Analysis. *Philippe Meus, Jérémy Flament, Vincent Bailly-Comte, Juan Antonio Barberá, Christelle Batiot-Guilhe, Lee Anne Bledsoe, Lionel Brabant, Dave Evans, Liz Hidalgo, Marc Luetscher, Daniel Matthews, Paulo Pessoa, Metka Petric, Natasa Ravbar, Fabien Renou, Autumn Singer, Benjamin Tobin*

Panel no. 8 - Experimental setup for scaling the dynamic of infiltration processes in karst aquifers.

Alejandro Carrasco Martín, Matías Mudarra Martínez, Andreas Hartmann, Bartolomé Andreo Navarro

Panel no. 9 - Fluorescent dye tracing: Regulations and best practices in Europa - an overview. *Sofie De Volder*

Panel no. 10 - How Karst Geology Changes Expected Streamflow Regimes in Western Snowmelt Driven Watersheds. *Hyrum Tennant, Bethany Neilson, Devon Hill, Dennis Newell, James Evans, Tianfang Xu, Seohye Choi, Nathaniel Ashmead, James McNamara*

Panel no. 11 - How to discriminate between local and regional flows for the management of karst groundwater resources? Use of $\delta^2\text{H}$ vs $\delta^{18}\text{O}$ applied to the Huveaune watershed and the hydrogeological catchment of the Port-Miou spring, south-east France). *Bruno Arfib, Thibaut Garin, Bernard Ladouche, Julio Goncalves, Benoit Dewandel, Thierry Lamarque*

Panel no. 12 - Hydrologic and Hydrodynamic characterisation via flow duration curves of the karstic outlet of Ain Zerga, Tebessa, North East of Algeria. *Bilel Djoulah, Mohammed Laid Hemila*

Panel no. 13 - Identification and quantification of karst/river exchanges through physical and chemical characterization. *Lucie Noguera, Pierre Anschutz, Stéphane Bujan, Alain Denis, Roland Lastennet, Fabien Naessens, Margot Persac, Nicolas Peyraube, David Vienne*

Panel no. 14 - Karst Modelling Challenge: what is coming next? *Pierre-Yves Jeannin, Alireza Kavousi, Thomas Reimann, Jean-Baptiste Charlier, Eulogio Pardo-Igúzquiza, Anne Johannet, Martin Lüthi, Laurence Gill, Andreas Wunsch, Thomas Woehling*

Panel no. 15 - Karstic zones influencing the development and dewatering of an underground mine. *Tereza Filipi, Edmar De Araujo, Gustavo Athayde*

Panel no. 16 - Mixing processes in a karst aquifer drained through large springs, the Hermon Mountain. *Avi Burg, Israel Gev*

Panel no. 17 - Overview of Karst Hydrogeology Research in Turkiye. *Merve Islek, Şengül Bozkurt, Esra Yıldırım*

Panel no. 18 - Recent flow extremes of Dinaric karstic rivers in Croatia. *Tatjana Vujnovic, Dario Kompar*

Panel no. 19 - Response to pumping of wells in carbonate and karst aquifers and effect on the assessment of sustainable well yield: some examples from southern Italy. *Chiara Sbarbati, Matteo Paoletti, Vincenzo Piscopo*

Panel no. 20 - Some considerations on the upgraded hydrogeological map of Albania, through an example from a karst area. *Romeo Eftimi, Isabella Serena Liso, Mario Parise*

Panel no. 21 - Structure and Functioning of Eocene Non-functional Karsts in the Montpellier Region. Example of the St Gély du Fesc-Matelles Synclinal. *Enola Fabre, Fatima Abdelfadel, Emma Blache, Séverin Pistré*

Panel no. 22 - Study on the origin of Fuentes de Marbella hot spring, Southeast of Spain. *Angela Vallejos, Fernando Sola*

Panel no. 23 - The importance of quantitative and process-based source-pathway-target approach for a backward and forward microbial tracking. *Michael Sinreich, Alain Pochon*

Panel no. 24 - UAS thermal imaging for underwater springs localization in the Duino Cliffs area (NE Italy): a methodological approach. *Christian Leone, Pietro Rai, Chiara Calligaris, Luca Zini*

Panel no. 25 - Visualize 3D dynamic flows in heterogenous aquifers with visual karsys. *Arnauld Malard, Pierre-Yves Jeannin, Nathalie Dörfliger, André Csillaghy, Tim Winkelmann*

Panel no. 26 - Global estimation of drainage characteristics in karst landscapes. *Nane Weber, Tunde Olarinoye, Tom Gleeson, Yan Liu, Vera Marx, Andreas Hartmann*

Topic: Karst geomorphology and landscape

Panel no. 27 - Complementary use of hydrodynamic and hydrochemical tools to infer groundwater-surface water interactions in rivers located in alpine karst environments. The Segura and Zumeta rivers (Jaén province, SE Spain). *Juan José Rovira Medina, Beatriz De la Torre Martínez, Matías Mudarra, Bartolomé Andreo*

Panel no. 28 - Estimating gypsum dissolution rates and comparing with limestone formations of Iran: case studies of Gachsaran gypsum formation in Maroon basin of Zagros and Kalat limestone formation in Kopet-Dag. *Hamide Gholamheidari, Mozghan Entezari, Karimi Haji*

Panel no. 29 - Expressing karst hydrogeology through choral music - the conception and realization of Inception Horizon. *Laurence Gill, Norah Walsh, Fergus McAuliffe*

Panel no. 30 - Karren on Miocene Carbonate Sandstones in Tourrettes-sur-Loup (France). *Martin Knez, Tadej Slabe*

Panel no. 31 - Landslide susceptibility of fault zones in a karstified carbonate aquifer: the Grigna massif in northern Italy. *Vincenzo Francani, Paola Gattinoni, Laura Longoni, Monica Papini*

Panel no. 32 - Leveraging high-resolution in-cave LiDAR products for the detailed geomorphological mapping of cave passages. *Tanguy Racine, Celia Trunz, Julien Straubhaar, Jérémie Chappuis, Philippe Renard*

Panel no. 33 - Middle-Upper Pleistocene paleoclimate evolution from travertine records of the Guardal River headwaters (NE Granada province). *Jone Arbulu, Antonio González-Ramón, Carlos Perez-Mejias, Raul Viedma, Concepción Jimenes de Cisneros*

Panel no. 34 - New insights on epigene karst landforms recognition and classification in Central Apennines (Abruzzi, Central Italy). *Francesco Morelli, Tommaso Piacentini*

Panel no. 35 – Possible existence of hypogene karst in Croatia. *Davor Garasic, Mladen Garasic*

Panel no. 36 - Responses of soil nutrient conditions and bacterial community to vegetation restoration in a karst rocky desertification area. *Qiufang He, Wang Jinan, Jiang Yongjun, Fan Jiaying, Wu Wei*

Panel no. 37 - The Friuli Venezia Giulia (NE Italy) regional geodatabase about natural sinkholes. *Alice Busetti, Chiara Piano, Luca Zini, Alessandro Pavan, Chiara Calligaris*

Topic: Cave monitoring and management

Panel no. 38 - An integrated monitoring system in the karst system of Monte Cucco Cave and the Scirca spring (Central Italy). *Massimiliano Mazzocca, Eugenia Franzoni, Mauro Barbieri, Costanza Cambi, Isabella Serena Liso, Alex Manucci, Mario Parise, Giacomo Schirò, Francesco Spinelli, Daniela Valigi, Andrea Vitali*

Panel no. 39 - Environmental monitoring of Cueva Larga (Sierra de los Filabres, Almeria) as support for the interpretation of paleoclimatic records from speleothems. *Elvira Ruiz-Caballero, Fernando Gázquez, Ángel Fernández-Cortés, Jose María Calaforra*

Panel no. 40 - Hydroclimatic study of a coastal karst for archaeological conservation: the case of the Cosquer cave (SE France). *Hugo Pellet, Stéphanie Touron, Pierre Henry, Bruno Arfib*

Panel no. 41 - Identifying CO₂ sources in caves during short-term ventilation events using peak detection analysis. *Lucía Ojeda, Cristina Liñán Baena, José Benavente, Iñaki Vadillo*

Panel no. 42 - Radon exposure and health risks for cave guides and speleologists. *Nicole Ruberti, Carlo Pusceddu, Ubaldo Sanna, Gianpiero Floris, Giancarlo Ciotoli, Massimo Esposito, Laura Sanna*

Panel no. 43 - Spatio-temporal variability of Carbon dioxide in the Sant Josep Cave, la Vall d'Uixò, Castellón, Spain. *Pedro Robledo Ardila, Sergio Durán, Juan José Durán, Raquel Morales García, Rebeca Álvarez Alonso, Iñaki Vadillo-Pérez, Lucía Ojeda*

Panel no. 44 - The importance of monitoring data for the protection of tourist caves. *Bartolomeo Vigna, Adriano Fiorucci, Valentina Balestra*

Panel no. 45 - Impact of global changes on the water resource of karst socio-hydrosystems: Vulnerability, Sensitivity and Management (K3 project). *Véronique Leonardi, Jean-Baptiste Charlier, André Fournou, Albert Oliosio, Christelle Batiot-Guilhe, Marina Héry, Marielle Montginoul, Jerome demarty, Emmanuel Garnier, Naomi Mazzilli, Youri Hamon, Vincent Bailly-Comte, Yohann Cousquer, Herve Jourde, Olivier Barreteau, Noémie Neverre*

Topic: Vulnerability and protection of karst groundwater

Panel no. 46 - Dynamics of Microbial Biofilms in Response to Contamination in Karstic Systems: A Case Study in the Bauges Massif (French Alps). *Lina Fabre, Yves Perrette, Clementine Francois, Florian Mermillod-Blondin*

Panel no. 47 - Element of a pluri-disciplinary project on karstic reservoir characterization: groundwater modelling of the Dévoluy Massif, France. *Nathan Rispal, Philippe Audra, Pierre Henry, Ludovic Mocochain, Bruno Arfib, Alexandre Zappelli, Benoît Viguier, Hélène Miche, Christine Vallet-Coulomb*

Panel no. 48 - Exploration for Submarine Springs using an AUV. *Todd Kincaid*

Panel no. 49 - Field evaluation of carbon injection method for in-situ biological denitrification in Karst groundwater using geochemical and metataxonomic analyses. *Jaeyoung Choi*

Panel no. 50 - Geological constraints at the origin of karst springs in the Ischitella-Vico territory (Gargano Promontory, Apulia, Italy). *Michele Morsilli, Isabella Serena Liso, Mario Parise*

Panel no. 51 - Hydrochemical and hydrodynamic regime of the thermometallic karst springs of Voskina, Agiasma and Kyllini in Greece. *Nerantzis Kazakis, Vasiliki Stavropoulou, Maria-Margarita Ntona, Eleana Nanou, Maria Papailiopoulou, Dimitra Lampropoulou, Eleni Zagana*

Panel no. 52 - Hydrochemical study of the impact of urban activities in the surroundings of the city of Merida (Yucatàn, Mexico). *Flor Árcega-Cabrera, Marta Llamas-Dios, Ismael Ocegüera-Vargas, Elizabeth Lamas-Cosío, Iñaki Vadillo-Pérez*

Panel no. 53 - Hydrogeological and geophysical characteristics of main groundwater barriers of the Vis island's karst aquifer (Croatia). *Josip Terzić, Ivan Kosović, Božo Padovan, Staša Borović, Matko Patekar, Marco Pola, Tomislav Novosel*

Panel no. 54 - Microfiber pollution in surface and subterranean aquatic environments: investigations in the Classical Karst Region. *Valentina Balestra, Matteo Galbiati, Stefano Lapadula, Benedetta Barzaghi, Raoul Manenti, Gentile Francesco Ficetola, Rossana Bellopede*

Panel no. 55 - Multi-proxy approach in the Ouyse Karst System - geochemical and hydrodynamical studies. *David Viennet, Guillaume Lorette, David Labat, Matthieu Fournier, Mathieu SEBILO, Margot Persac, Pierre Crançon*

Panel no. 56 - Preliminary Assessment of Saline Intrusion Using Hydro-chemical Indicators in the Karst Aquifer System of Benghazi Plain, NE, Libya. *Mostafa F. Mostafa, Isabella Serena Liso, Mario Parise, Hassan Z. El Shaafi*

Panel no. 57 - Resource Vulnerability Assessment of the Karst Aquifers in the Friuli Venezia Giulia Region (NE Italy) using the COP Method. *Tullio Quaia, Chiara Calligaris, Luca Zini*

Panel no. 58 - The influence of multi-year drought periods on the flow regime of the saturated zone of the Karst springs of the Dir of Beni Mellal in Morocco. *Abdelghani Qadem, Sébastien Lebaut*

Panel no. 59 - The Real-Time Monitoring Technology of Karst Groundwater and Its Application in The Prevention and Control of Induced Karst Collapse. *Qingqing Lei, Ma Xiao*

Panel no. 60 - Turbidity correction applied to in-situ monitoring of natural fluorescence. *Lucile Justy, Vincent Bailly-Comte, Pascal Brunet, Aurélien Domeau, Christelle Batiot-Guilhe*

Panel no. 61 - Understanding mass transfer mechanism between karst conduit and matrix: A critical review of mass exchange in karst water resources. *Kübra Özdemir Çallı, Andreas Hartmann*

Panel no. 62 - A comparative analysis of microbial metabolic activities in karst and volcanic-alluvial aquifers: insights from a field study. *Alessandro Valle, Stefano Amalfitano, Marco Melita, Stefano Ghergo, Elisabetta Preziosi*

Panel no. 63 - Sustainability and resilience in dual alluvial-karst aquifers: Building a groundwater mental model based on desirable future in Western Iran. *Kamal Taheri, Tomas M. Missimer, Nima Fathi*

Panel no. 64 - Case Study: Assessing Vulnerability and Remediation Strategies in Karst using the DPSIR - ""Bolje Sestre. *Momcilo Blagojevic*

Topic: Karst groundwater dependent ecosystems

Panel no. 65 - Degradation phenomena in karstic groundwater resources of central Greece. *Dimitra Rapti*

Panel no. 66 - Hydrogeological characterization of the San Giovanni spring (Castelluccio Inferiore, Basilicata region). *Muzzillo Rosalba, Filomena Canora, Francesco Sdao*

Panel no. 67 - Main characteristics of largest karst springs of Albania. *Romeo Eftimi*

Panel no. 68 - Medieval system of Managed Aquifer Recharge in karstic aquifers: The case of the Acequia de Yegen (Sierra Nevada, Spain). *Thomas Zakaluk, Jorge Jódar, Fernando Gázquez-Sánchez, Antonio González-Ramón, Blas Ramos-Rodríguez, Miguel Rodríguez-Rodríguez, Luis Javier Lambán, José María Martín Civantos, Sergio Martos-Rosillo*

Panel no. 69 - The dynamics of water availability in karst catchments of southwest China over the past decades: the contributions from climate change and vegetation greening. *Sibo Zeng, Yongjun Jiang, Peilin Zhang*

FRIDAY JUNE 14

FIELD TRIPS PROGRAM Departure from Rome h.7.30

Arrival and beginning of the field trip: h.9.30

Lunch break: 12.30-13.30

End of excursion and departure to Rome: 16.30

Estimate time of arrival in Rome: 18.30

Field Trip A: The Ferrarelle Mineral Bottle Plant and Cassino Spring. Leaders: Dott. Vittorio Paolucci and Prof. Michele Saroli

Field Trip B: The Matese karst massif and its springs. Leader: Prof. Francesco Fiorillo

Field Trip C: The Velino Valley and the hydrodiversity of San Vittorino Spring area. Leader: Prof. Marco Petitta

Brevi biografie dei relatori ad invito:

Dr. Neven Kresic is an independent groundwater consultant with more than 40 years of experience focused on groundwater and surface water consulting, research, and teaching. He specializes in characterizing and analyzing complex groundwater systems for water supply and groundwater remediation projects and is an expert in the application of numerical models for simulating groundwater flow, and contaminant fate and transport in groundwater. Over the course of his career, Dr. Kresic served in lead technical roles at major national and international engineering and environmental consulting companies based in the United States. He has worked on numerous projects for a variety of U.S. and international clients including federal, state, and local agencies; industries such as water, transportation, and power utilities; and oil, petrochemical, chemical, mining, and construction companies. Dr. Kresic taught academic courses and professional workshops in hydrogeology, groundwater modeling, and groundwater remediation at universities, government agencies, and conferences around the World. He authored and co-authored numerous papers and seven books on the topic of groundwater including in karst. Dr. Kresic is former Co-chair of the Karst Commission of the International Association of Hydrogeologists, and past Vice President for International Affairs of the American Institute of Hydrology. He currently serves on the Board of Directors of Karst Waters Institute (KWI), the United States.

Pierre-Yves Jeannin (SISKA)*, Ph.D., is hydrogeologist, Director of the Swiss Institute for Speleology and Karst-Studies and external Professor at Centre d'hydrogéologie (Univ. Neuchâtel). He is a researcher on karst hydrogeology since 1988 and closely supervised several PhD-theses related to the understanding and modelling of flow and mass transport in karst systems. He also took part to the development of methods for the evaluation of the vulnerability of karst groundwater (EPIK and VULK). Pierre-Yves supervised several research projects on the infiltration of water in karst regions, showing the very important role of the soils and the epikarst (weathered zone at the top of limestone) for absorption, temporary storage and the self-purification of water. In 2009, he successfully submitted the Swisskarst project to the Swiss National Science Foundation on the sustainable management of water (PNR61). The KARSYS approach developed in this project induces a high degree of interest among the water community because it provides an explicit 3D conceptual model of karst hydrogeological systems. Besides many applied projects Pierre-Yves Jeannin is also conducting one research project on the effect of cave ventilation on heat transfer in karst massifs.

Diana M. P. Galassi is full professor of Zoology and Environmental Biology at the University of L'Aquila (Italy) since 1997. She is the director of the Laboratory of Stygobiology where young researchers and PhD students are working in strict and friendly collaboration on the biodiversity of groundwater ecosystems of the world. Her research lines range from alpha taxonomy of the most represented invertebrate animal group, the Crustacea Copepoda, in the planet's groundwater to ecological modeling applied to groundwater dependent ecosystems, including karst aquifers. She is interested in the effects of environmental pollutants and climate change on the subterranean aquatic biodiversity of caves, karst springs, hyporheic river environments. She is currently a partner of the DarCo project "The vertical dimension of conservation: A cost-effective plan to incorporate subterranean ecosystems in post-2020

biodiversity and climate change agendas” funded by the Biodiversa+ axis of the European Union and co-funded by the Italian MUR. She coordinated more than 30 national and international projects. She served as President of the WAC (World Association of Copepodologists) for 5 years. She currently holds the position of Vice-President of the WAC. Key aspects of her research pertain to the spatial analysis of subterranean aquatic invertebrates, the conservation of subterranean aquatic biodiversity, from the megascale, the biogeographic scale, to the microscale, the microhabitat scale, of groundwater bodies. She is member of the Editorial Board of 10 indexed journals and authored 114 indexed publications on SCOPUS, all related to subterranean aquatic biodiversity.

Bartolomé Andreo–Navarro is Full Professor of Hydrogeology and Director of the Centre of Hydrogeology at the University of Malaga (Spain). Experience of work on karst media in different countries from Europe, America, Africa and Asia in the frame projects supported by European Union, UNESCO, International Atomic Energy Agency, national research agencies and consultancy companies. Successful supervision of 15 past PhD students. Co-author of hundreds of scientific publications, 92 in peer review international journals. Member of IAH Karst Commission and Past-President of the IAH Spanish Chapter. Organizer of six International Symposium on Karst in Málaga (Spain), co-founder of Eurokarst, and President of the Organizing Committee of 46th IAH Congress. Coordinator of annual HYDROKARST international training course (11 editions), in cooperation with Spanish Geological Survey (IGME), UNESCO and IAH. Coordinator of Official Master Course Program on Water Resources and Environment at Malaga University or 15 years.

Prof. Dr. Hervé Jourde is professor for hydrogeology at the University of Montpellier where he joined the HydroSciences Montpellier (HSM) laboratory in 2001, first as lecturer then as assistant professor. Previously, he was a research associate (1999-2000) at Stanford University, California, where he specialized in fluid flow modelling. In 2014 he was appointed full professor, then elected at the head of the Teaching Department in Earth, Water and Environmental Sciences (2015-2021). Since 2021, he is the director of the Master’s program in Water Sciences at the University of Montpellier. His research activities focus on characterizing and modelling underground transfers, with a particular attention to groundwater/surface water interactions, as well as to water resource evolution in response to climatic and anthropogenic forcing. He also dedicates a singular interest to the assessment of the permeability field of porous and fractured media, with a special attention to karst aquifers. Since 2012, he coordinates the SNO KARST, a network of observatories from INSU-CNRS for multidisciplinary study of karst. He is a member of the International Association of Hydrogeologists (IAH) Karst commission and Associate Editor of Hydrogeology Journal. He has served as SC member of international conferences on Karst Hydrology and occupied scientific positions in review panels.