

# FLOWPATH 2023

## NATIONAL MEETING ON HYDROGEOLOGY

### DAY 1 WEDNESDAY 14TH JUNE

08:30 Registration

09:00 Opening Session – Introductory Messages

**09:30 Keynote Presentation: The Development of Malta's Groundwater Monitoring Framework**

Dr David Macdonald, British Geological Survey

### 10:00 COFFEE BREAK – POSTER SESSION

Session 1: Policies and Practices to Protect Groundwater

Conveners: Dr Stefania Stevenazzi/Dr Ondine Gaerty

**10:30 Keynote Presentation: The EU Policy Framework for the protection of Groundwater**

Dr Isaac Ojea Jimenez, DG Environment, European Commission

### ORAL PRESENTATIONS

11:00 Assessment of groundwater sustainable yields through the use-drawdown method - Tony Cauchi

11:15 Optimization of reservoir operation considering lake-aquifer interaction and conjunctive use of surface and groundwater - Ata Joodavi

11:30 A reproducible procedure to elaborate long groundwater level and abstraction rate time series acquired from data logger, a present-day necessity - Agnese Redaelli

11:45 Potential and limits of the Po Plain for the development of open-loop Groundwater Heat Pump Systems (GWHPs) in Italy, the case study of Milan and Turin - Alessandro Berta

12:00 Groundwater resources management in mountainous areas: a regional scale approach in Lombardy Region (Northern Italy) - Stefania Stevenazzi

12:15 Assessment of karst aquifer spring potential by 3D modelling constrained by geological maps and densely-space airborne and ground geophysics: the MountainHydro project - Alice Lucchelli

12:30 Urban groundwater: how to classify cities by a hydrogeological point of view? - Francesco La Vigna

12:45 Unconventional pumping tests in carbonate aquifers, without interruption of drinking water exploitation - Alessia di Giovanni

13:00 The use of compound-specific isotope analysis (csia) to allocate the potential sources of dissolved chlorinated solvents contaminant in large urban areas: lessons learned from few case studies - Massimo Marchesi

### 13:30 LUNCH – POSTER SESSION

**14:30 Keynote Presentation: EDORA - European Drought Observatory for Resilience and Adaptation. Relevance to Groundwater Management** - Dr Dario Masante, Joint Research Centre of the European Commission

Session 2: Special Session on Hydrogeological Studies in Malta

Conveners: Dr Sergio Rusi/Manuel Sapiano

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**DAY 1 WEDNESDAY 14TH JUNE - CONTINUED**

**15:00 Keynote Presentation: Unveiling Malta's Hydrogeological Frontier: Paving the Way for International Research Synergy.**  
Dr Ariel Thomas, University of Malta

**15:30 Keynote Presentation: The challenge of developing a freshwater-salt water interface monitoring network on the islands of Malta.**  
Dr Kim Yongcheol, Korea Institute of Geoscience and Mineral Resources

**ORAL PRESENTATIONS**

**16:00 Mapping saltwater intrusion via Electromagnetic Induction (EMI) measurements in Pwales Valley (Malta) - Lorenzo De Carlo**

**16:15 Hydraulic Characterization of Pwales Aquifer in Malta Island - Maria Clementina Caputo**

**16:30 Hydrogeological Modelling of a Seawater Intrusion Barrier in the Malta Mean Sea Level Aquifer (MSLA) coastal/island carbonate system - Francesco Demichele**

**16:45 COFFEE BREAK - POSTER SESSION**

**17:15 Numerically enhanced conceptual modelling (NECoM) applied to the Malta Mean Sea Level Aquifer - Francesca Lotti**

**17:30 SIGMA: Seismic Imaging of Groundwater for Maltese Aquifers - Matthew Agius**

**17:45 COST action (OFF-SOURCE, CA21112)- Offshore Freshened Groundwater: An unconventional water resource in coastal regions? - Hiba Wazaz**

**18:00 Optimising the management of groundwater resources through a better understanding of the role of the vadose zone: Case study from Malta - Luca Laudi**

**18:15 POSTER SESSION AND SOCIAL EVENT**



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## NATIONAL MEETING ON HYDROGEOLOGY

### DAY 2 THURSDAY 15TH JUNE

**09:00 Keynote Presentation: The potential contribution of ancient water cultures to groundwater management in achieving the SDGs.**  
Dr Eriberto Eulisse, Executive Director, Global Network of Water Museums

**09:30 Session 3: Emerging Challenges to Groundwater Quantity and Quality**  
Conveners: Dr Claudio Arras/Dr Julian Mamo

**09:30 Keynote Presentation: Water management in times of climate change – do we have a water problem in Germany? The case of the Hessian Ried**  
Prof Christoph Schuth, Technical University of Darmstadt

### ORAL PRESENTATIONS

**10:00 Stochastic simulation for defining NO3 and F background levels in different groundwater bodies of the Campania Region**  
- Gianluigi Busico

**10:15 Radar precipitation data as functional input for deriving the potential volume of water available for infiltration: the pilot case of Lombardy Region** - Andrea Citrini

**10:30 The sustainable yield of a well in low-permeability fractured aquifers: new insights from pumping tests interpretation** - Chiara Sbarbati

**10:45 Multidisciplinary investigation of groundwater flow in unsaturated slopes susceptible to shallow flow slides** - Giovanni Forte

### 11:00 COFFEE BREAK - POSTER SESSION

**11:30 New insights on groundwater flow of the Tavo tapped karst springs (Gran Sasso aquifer, Central Apennines) using tracer tests** - Valeria Lorenzi.

**11:45 Modelling transient groundwater flow dynamics in the Tabriz unconfined aquifer near Urmia Lake (Iran)** - Mattia Gaiolini.

**12:00 Climate change resilience in the poor hydrogeological setting of the Northern Apennines: the case of the Nadia spring** - Maria Filippini

**12:15 First hydrogeological water balance in the high and middle venetian plain between Mincio and Tagliamento rivers (NE, Italy)**- Davide Cappellari

**12:30 Unravelling the aquifer-scale competition for organic substrate in a polluted aquifer by interpreting multivariate statistics through scenario-based hydrogeochemical modelling** - Diego Di Curzio.

**12:45 Application of multivariate statistical analysis for the delineation of groundwater bodies: a case study in Campania Region (Southern Italy)** - Stefania Stevenazzi.

### 13:00 LUNCH – POSTER SESSION

**14:00 Changes in shallow groundwater recharge due to drought impacting the Po River Basin** - Marco Rotiroti

**14:15 Groundwater sustainable development in mountainous aquifers for adaptation to the effects of climate change: a case study in the Northern Apennines** - Laura Landi

**14:30 Groundwater flow modeling for the sustainable exploitation of the Monte Castello aquifer** - Pietro Rai

**14:45 Enhanced Thermal Response Test interpretation through MODFLOW-USG and PEST\_HP** - Sara Barbieri

**15:00 Impact of drought on the piedmont plain (NW, Italy) water resources: current status and predictions in the context of climate change** - Susanna Mancini

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## DAY 2 THURSDAY 15TH JUNE - CONTINUED

- 15:15 Estimation of transit time along the unsaturated zone in the protection of groundwater resources -Francesca Lobina
- 15:30 The role of carbonate faults on groundwater circulation: the case study of Monte Marine Fault (Central Apennines, Italy) - Emma Petrella
- 16:00 Impact of Climate Change on Water Resources: Considerations Regarding the Uncertain Future of Water Resources in the Central Apennines (Italy) – Walter Dragoni
- 16:15 Towards groundwater-level prediction using Prophet forecasting method by exploiting a high-resolution hydrogeological monitoring system - Davide Fronzi
- 16:30 **COFFEE BREAK – POSTER SESSION**
- 17:00 **Session 4: Groundwater Dependent Ecosystems**  
Convener: Dr Maria Filippini
- 17:00 **Keynote Presentation: Diversity, traits, services, vulnerability and conservation of groundwater ecosystems.**  
Dr Tiziana Di Lorenzo, IRET-CNR

## ORAL PRESENTATIONS

- 17:30 Novel experimental approaches in Ecohydrodynamics of real vegetated rivers - Giuseppe Francesco Cesare Lama
- 17:45 Hydrogeological assessment and modelling for the authorisation of water recharge in the Bereg marshes - Eva Kun
- 18:00 Hydrogeochemical and multi-isotope constraints on the geochemistry of the Bagno dell'Acqua alkaline lake, Pantelleria Island (Southern Italy) - Francesca Gori
- 18.15 Climate change and irrigation practices dissociate reduction of N fertilizers from the improvement of water chemistry in groundwater dependent rivers - Edoardo Severini
- 18:30 Karst lakes fragile environments to be known and protected - Luca Zini
- 18:45 The contribution of occult precipitation to karst aquifers recharge in semi-arid zones - Laura Sanna
- 19:00 Towards EuroKarst 2024 (Presentation)
- 19:05 Concluding Session
- 20:00 **CONFERENCE DINNER**

## DAY 3 FRIDAY 16TH JUNE

- 09:00 Departure to Technical Site Visits
- 12:00 **VISIT TO THE HAGAR QIM NEOLITHIC TEMPLE COMPLEX, FOLLOWED BY LIGHT LUNCH.**  
A shuttle to the airport will be provided at 14:00hrs directly from the Site Visits.  
Further Logistical details will be provided on registration.



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