



44th ANNUAL CONGRESS OF THE INTERNATIONAL ASSOCIATION OF HYDROGEOLOGISTS
Dubrovnik, Croatia, 25th-29th September 2017

Main Topics and Sessions

T1. Groundwater Heritage – Passing Benefits to Current and Future Generations

Description: Groundwater heritage focuses on groundwater reserves as well as groundwater quality by passing benefits from past to current, and from current to future generations. Identification of declining or rising trends of groundwater levels i.e. groundwater reserves vital for human existence, as well as trends in groundwater quality deterioration or improvement in the past, present and future, give us a better insight into our groundwater heritage. Such knowledge is also of importance in planning and preserving current and the future quantitative and qualitative status of groundwater, the most important natural resource that makes up an estimated 98 to 99 percent of all freshwater in the world available for our use. What are the trends in groundwater levels i.e. reserves and quality? How are they affecting groundwater protection? What are the main sources of groundwater contamination? Moreover, how does climate change involving extreme conditions and events affect groundwater?

Sessions

- T1.1. Groundwater heritage and trends in water levels, flows and quality
- T1.2. Groundwater management and energy source development in a changing climate

T2. Sustainable Management of Groundwater Resources

Description: Sustainable management of groundwater resources is necessary to control the risks and pressures on groundwater caused by existing and increasing anthropogenic pressures, as well as present climate change and variations. This topic is mainly focused on developing countries, but experience and knowledge gained in sustainable management of groundwater resources worldwide is also relevant. Management strategies for sustainable use of groundwater resources differ according to variations in natural conditions and differing degrees of interaction with groundwater. What are appropriate response actions and emergency plans in a changing natural and socio-economic environment? What are adaptation measures for solving conflicts between competing sectors and their demands? What are the measures for sustainable groundwater recharge management? What is the importance of protecting transboundary aquifers? What are the planned actions for achieving the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development (adopted by world leaders in September 2015 at an UN Summit)?

Sessions

- T2.1. Sustainable management of groundwater resources in Central Europe (CE) – 3rd IAH CE
- T2.2. The role of groundwater in reducing poverty
- T2.3. Sustainable management of groundwater resources worldwide – what have we learned?



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- T2.4. Managed Aquifer Recharge
- T2.5. Transdisciplinary and participatory approaches in groundwater research and management
- T2.6. Regulatory framework of groundwater management
- T2.7. Groundwater quality and natural environmental tracers
- T2.8. Management of groundwater systems in urban and mining areas

T3. Groundwater Modelling

Description: Topic is focused on research of intergranular, karst and hard rock systems presenting various modelling approaches, both analytical and numerical, for solving groundwater flow and contaminant transport problems in groundwater resources management and protection. Flow and transport modelling in fully and variably saturated media, groundwater/surface water interactions, parameter estimation and uncertainty analysis, stochastic modelling.

Sessions

- T3.1. Groundwater modelling in intergranular systems
- T3.2. Groundwater modelling in fractured systems
- T3.3. Using unconventional observation data in hydrogeological modelling
- T3.4. Groundwater flow and transport modelling
- T3.5. Groundwater modelling and management

T4. Groundwater Monitoring – New Approaches

Description: This topic focuses on standard and new approaches and technologies used in monitoring and characterization of quality and quantity status of groundwater, as well as in biological monitoring of underground aquatic ecosystems. Moreover, the topic extends to monitoring of all water balance components important for groundwater management and protection.

Sessions

- T4.1. Monitoring of groundwater levels and flows
- T4.2. Monitoring of groundwater quality and contamination
- T4.3. Tracer experiments and application of natural isotopes in groundwater studies
- T4.4. Application of remote sensing and geophysics techniques in groundwater monitoring



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T4.5. Groundwater resources evaluation and management under arid conditions

T5. Groundwater in Karst Systems

Description: Specifics of groundwater flow in karst environment, bifurcations, trifurcations, accumulating groundwater in karst environments, impact of karst groundwater on rock characteristics, speleogenesis in karst hydrogeology, significant hydrogeological phenomena in Dinaric karst, significant hydrogeological phenomena worldwide.

Sessions

- T5.1. Sustainability of karst aquifer use – global and regional outlooks
- T5.2. Functionality and control of groundwater flow in karst
- T5.3. Modelling of flow and contaminant transport in karst
- T5.4. Protection of karst sources and environment
- T5.5. Karst groundwater quality and contamination
- T5.6. Novel methods and techniques for karst aquifer characterization

T6. Coastal and Island Hydrogeology

Description: Many areas worldwide have no better solution of their water supply than to use groundwater which is subjected to underground influence of seawater. In coastal zones such seawater penetration forms more or less regular wedge under fresh water; or freshwater forms a lens above seawater – usually in small island aquifers. Between fresh and salt water a wide transition or mixing zones is being formed, what makes this complex environment even more difficult for research and especially modelling. If there is no possibility to use completely fresh water in such zones, than brackish water extracted from transition (or mixing) zone can be used after certain desalination. Further, changes in climate and sea level drive changes of the coastal and island aquifers, which will in turn affect coastal and island ecosystems as well as human population. This topic comprises specific problems of groundwater in coastal and island areas, which are under influence of seawater penetration, as well as future climate and sea level changes. Modelling of such aquifers, their monitoring, hydrochemical and geophysical research, desalination, water management, water supply, assessment of potential impacts on the sustainability of coastal and island aquifers and habitats, as well as very specific coastal and island aquifers in karstic areas, will be main focuses of the topic.

Sessions

- T6.1. Modelling of coastal and island aquifers
- T6.2. Monitoring of seawater influenced aquifers
- T6.3. Sea-aquifer relationship – using new and old tools



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T6.4. Management of groundwater resources of coastal aquifers

T7. Groundwater and Dependent Ecosystems

Description: Groundwater and aquatic ecosystems are highly connected, whether we consider underground ecosystems or terrestrial groundwater dependent ecosystems. Consumption and irrigated agriculture are putting increasing pressures on groundwater quantity and quality, which can in turn have negative impacts on public water supply as well as on groundwater dependent ecosystems. How does groundwater interact with aquatic ecosystems? How does consumption and irrigated agriculture affect groundwater reserves? To what extent does this demand affect forest and wetland ecosystems?

Sessions

T7.1. Methods for characterisation of groundwater dependent ecosystems

T7.2. Groundwater and associated aquatic ecosystems

T7.3. Groundwater and terrestrial ecosystems

T8. Mineral and Geothermal Waters

Description: The practice of using mineral and geothermal waters for treatment and curing of diseases as well as heating has a long history. Geothermal energy is a renewable energy resource which produces less pollution than non-renewable resources. Nevertheless, they do have some environmental impacts. What is the interpretation of the term mineral waters in different countries? Exploration methods of origin of mineral and geothermal waters. What are the best approaches for ensuring sustainable use, protection and integrated environmental management of mineral and geothermal water sources? What are the benefits and environmental impacts of geothermal energy? What are best practises in mitigation of usage conflicts – bottling company vs. spa; transboundary water sources: country vs. country? What are the effects of mineral and geothermal waters on human health? What are the social and economic benefits?

Sessions

T8.1. Groundwater and Energy

T8.2. Geothermal reservoirs and their potential

T8.3. Hydrogeochemistry of thermal and mineral waters