

### International collaboration

In November 2014, EFG signed cooperation agreements with both the Australian Institute of Geoscientists (AIG) and the Geological Society of South Africa (GSSA). The signing organisations recognise that their objectives with respect to the professional practice of the geological sciences are similar and further recognise the importance of cooperation as the practice of the geological sciences transcends international borders.

The International Association for Promoting Geoethics (IAPG) and the European

Federation of Geologists (EFG) signed a Memorandum of Agreement (MoA) on 12 December 2014 to collaborate on issues of common interest. The International Association for Promoting Geoethics (IAPG) is a multidisciplinary, scientific platform for widening the debate on problems of ethics applied to the geosciences. EFG and IAPG shall collaborate in defining ethical problems affecting professional geologists, also through case-studies, and in promoting geoethical principles and best practices in geosciences among their networks.

In March 2015, the European Federation of Geologists (EFG) and the Geological

Society of Africa (GSAF) signed a memorandum of understanding in Brussels to increase their mutual cooperation. Given the similar objectives and common benefits of its members, EFG and GSAF agree to promote activities fostering cooperation in scientific research and promote scientific opportunities between members of both organisations.

More information: <http://eurogeologists.eu/global-network/>

## The KINDRA project: a European groundwater research inventory

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**W**ater-related research activities cover a wide spectrum of research areas at EU and national levels. This fact is a result of the intrinsic nature of the topic “water”, which symbolises a key aspect of modern society: not only it is a pivotal human, biological and environmental requirement, it also represents the engine for several research topics which are interconnected, and it has a fundamental impact on urban systems. **Groundwater is the hidden component** of the water cycle, difficult to assess, evaluate and communicate, but at the same time it plays a fundamental role by sustaining the health of our ecosystems, ourselves and our industrial and agricultural production. For these reasons, the groundwater topic must be inserted and highlighted in the EC agendas.

In this framework, the KINDRA project ([www.kindraproject.eu](http://www.kindraproject.eu)) has received fund-

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ing from the European Union’s Horizon 2020 Research and Innovation programme under grant agreement No. 642047. KINDRA seeks to help achieve a better understanding of the groundwater topic by providing an overall view of the scientific knowledge that exists across Europe. With respect to the water cycle, the management of groundwater brings additional challenges to the implementation of the Water Framework Directive (WFD) and climate change adaptation (such as integrated transboundary management of groundwater resources). In general, groundwater has been considered mainly for its relationships with surface waters, influencing river flow, environmental flows, GDE (groundwater-dependent ecosystems), pollutant fate, agricultural practices, water scarcity and others. In this framework, the importance of groundwater inside the WFD has been reinforced by the daughter directive on groundwater since 2006. In the last years, particular insights have been developed on surface waters/groundwater interactions and several related research projects have been carried out.

Nevertheless, a specific focus on hydrogeology, the branch of science studying groundwater, has been overlooked until now, despite the utmost importance of groundwater as a renewable, high-quality, naturally protected (but still vulnerable) resource. At the same time the European knowledgebase that has been acquired on this important topic is spread amongst several projects, plans, actions, realised at national levels and fragmented into wider programs generally related to water, environment or ecology. **In order to have a comprehensive understanding on the groundwater theme, it is necessary to create a “snapshot” of our scientific knowledge as of 2015/2016, covering as many European countries as possible.** Such comprehensive coverage will result in an accurate assessment of the state of the art in hydrogeology research in various geographical and geo-environmental settings, allowing for direct comparison and the exploitation of synergies.

Furthermore, KINDRA seeks to create a critical mass for scientific knowledge exchange of hydrogeology research, to ensure wide applicability of research results, including support of innovation and development, and to reduce unnecessary duplication of efforts. The project started in January 2015 with the overall objective to take stock of our contemporary knowledge of hydrogeology with the help of an



KINDRA activities flow chart

inventory of research results, activities, projects and programmes, and then use the inventory to identify critical research challenges and gaps, with a view to avoiding overlaps. This approach takes into account the implementation of the WFD and new innovation areas within integrated water resources management, allowing at EU scale the future correct management and policy development of groundwater.

As mentioned before, practical and scientific knowledge related to groundwater research and innovation is scattered amongst various actors throughout Europe. KINDRA will develop an inventory of this groundwater knowledgebase, following a new **Harmonised Research Classification System (HRC-SYS)**. This requires an effective assessment of the state-of-the-art of hydrogeology research across different geographical and geo-environmental settings, allowing for direct comparison and identifying synergies in groundwater research. After compiling a common clas-

sification system, a new **European Inventory of Groundwater Research results (EIGR)** will be compiled, including survey results and research activities, projects and programmes, all of which are essential to identify and determine future trends, critical challenges and research gaps. The objective is to improve the management and policy development of groundwater resources at EU level, coherently with the Water Framework Directive (WFD) and the Groundwater Directive (GWD). At the end of the project, following the adopted classification, **the inventory will provide a public-access service for European hydrogeological research in progress.**

At the same time, in parallel with technical implementation, the project previews various forms of communication and dissemination activities for raising awareness on the importance of groundwater. KINDRA will work in close cooperation with the technical and scientific community, stakeholder groups and without constrain to the general public. In addition, KINDRA counts on the direct

involvement of the European Federation of Geologists (EFG), which will provide the technical expertise of its national members actively cooperating within the project. A general orientation meeting for national representatives is scheduled for the autumn of 2015, while specific national workshops will be realised during 2016 in many member states, organized by National Associations of EFG. Furthermore, project implementation will be strongly supported by an expert group of the JPE (Joint Panel of Experts), thus work will be carried out in close interaction with different EU ground-

water associations, networks and working groups. This will also facilitate community involvement and dissemination. Last but not least, the majority of KINDRA's technical content and results will be adapted into outreach materials that will help the general public to better know and understand the relevance and importance of groundwater in daily life.

**The KINDRA Partnership:**

Project Coordinator: Earth Sciences Department, Sapienza University of Rome, Italy

EFG – European Federation of Geologists  
REDIAM – Environment and Water Agency of Andalusia, Spain

LPRC – La Palma Research Centre for Future Studies S.L., Spain

UM – Faculty of Earth Science and Engineering, University of Miskolc, Hungary

GEUS – Geological Survey of Denmark and Greenland, Denmark

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For more information and regular updates on KINDRA, please visit the **project website: [www.kindraproject.eu](http://www.kindraproject.eu)** or follow us on:

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KINDRA consortium members and the JPE, Sapienza University of Rome, 27 March 2015.