



# **Virtual Event – Regional Training Course on Isotope Hydrology**

**Hosted by**

The International Atomic Energy Agency  
IAEA Headquarters  
Vienna, Austria

**16 November 2021 to 10 May 2022**

**Ref. No.: TN-RER7013-2104696**

## **Information Sheet**

### **Purpose**

The purpose of this virtual training course is to train participants on the application of isotope hydrology to understand complex aquifer systems and groundwater-surface-water interactions that is indispensable for effective integrated water management.

### **Working Language(s)**

The working language(s) of the event will be English

### **Deadline for Nominations**

Nominations received after **16 October 2021** will not be considered.

## **Project Background**

Although groundwater represents 98% of the world's unfrozen freshwater, there is often not enough understanding of complex aquifer systems. Due to the increase of groundwater usage over the past decades, there is an increasing global risk of over-depletion of groundwater, quality deterioration and pollution, putting at risk the resilience of communities, populations and ecosystems dependent on groundwater sources. The better understanding of complex aquifer systems and groundwater-surface-water interactions is thus indispensable for effective integrated water management. The analysis of stable isotopes and natural radioisotopes is an excellent tool for characterizing and understanding aquifer systems, especially when assessing the long-term exploitation of groundwater in important water supply points. However, the knowledge about isotope-based techniques and the capacity to apply them differs significantly among countries in the European region. Some Member States do have high to very high human and technological capacities to integrate isotopic techniques as an important tool for integrated water management, whereas in some other countries little to no knowledge exists.

In collaboration with its Member States, in 2020 the IAEA has thus launched this Technical Cooperation Regional Project RER7013 "Evaluating Groundwater Resources and Groundwater-Surface-Water Interactions in the Context of Adapting to Climate Change" aiming to bridge these gaps by transferring knowledge and capacity from advanced to less advanced Member States by (1) increasing awareness on the existence of isotope hydrology techniques in Member States where knowledge is very limited, (2) transferring knowledge and building capacity on the use of isotope hydrology techniques through training courses and fellowships, (3) answering specific regional or sub-regional and transboundary questions, such as on the impact of a changing climate and anthropogenic activities on groundwater resources, and (4) enhancing and sustaining a regional network for the monitoring and evaluation of water resource quality and quantity using isotope techniques. The ultimate aim of this project is to enhance evidence-based decision-making in integrated water management by an improved characterization and monitoring of groundwater resources.

## **Scope and Nature**

The course will be comprised of lectures on the application of isotope hydrology to understand complex aquifer systems and groundwater-surface-water interactions that is indispensable for effective integrated water management. The course will cover the following topics: (i) fundamentals of isotope hydrology, (ii) stable isotopes in the hydrological cycle, (iii) radioactive isotopes and groundwater dating, (iv) isotope ratio mass spectrometry and laser analysers, (v) field sampling for stable isotopes and water chemistry, (vi) preservation of data quality for water isotopes, (vii) isotope monitoring networks, (viii) nitrate isotope applications (ix) the use of isotope techniques to support water policies and (x) data collection, data handling, data use and database techniques

Other topics may also be covered if the need arises.

Each topic will be taught in a virtual session taking place once per month between November and April and lasting up to half a day. Exact timings of the sessions will be agreed upon with the nominated participants and the lecturers in September. Participants are expected to come prepared to these lectures and take quizzes after each session. The course will be completed by a final examination. A course certificate will be issued in case of successful completion. Participants are required to have an internet connection.

## Participation

The training course is open to participants from each of the participating Member States of RER7013.

## Participants' Qualifications and Experience

Participants should have a university diploma with a technical/scientific profile that attests substantive experience with the use of hydrological, hydrogeological or hydrochemical techniques, and/or their involvement in water resources assessment and/or management. They should preferably have a good understanding of water-related/hydrogeological issues.

As the course will be conducted in English language, participants should have sufficient English language proficiency to follow lectures and express themselves without difficulty.

## Application Procedure

Candidates wishing to apply for this event should follow the steps below:

1. Access the InTouch+ home page (<https://intouchplus.iaea.org>) using the candidate's existing Nucleus username and password. If the candidate is not a registered Nucleus user, she/he must create a Nucleus account (<https://websso.iaea.org/IM/UserRegistrationPage.aspx>) before proceeding with the event application process below.
2. On the InTouch + platform, the candidate must:
  - a. Finalize or update her/his personal details, provide sufficient information to establish the required qualifications regarding education, language skills and work experience ('Profile' tab) and upload relevant supporting documents;
  - b. Search for the relevant technical cooperation event (**EVT2104696**) under the 'My Eligible Events' tab, answer the mandatory questions and lastly submit the application to the

required authority.

**NOTE:** Completed applications need to be approved by the relevant national authority, i.e. the National Liaison Office, and submitted to the IAEA through the established official channels by the provided designation deadline.

For additional support on how to apply for an event, please refer to the [InTouch+ Help page](#). Any issues or queries related to InTouch+ can be addressed to [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org).

Should online application submission not be possible, candidates may download the nomination form for the training course from the [IAEA website](#).

**NOTE:** A medical certificate signed by a registered medical practitioner dated not more than four months prior to starting date of the event must be submitted by candidates when applying for a) events with a duration exceeding one month, and/or b) all candidates over the age of 65 regardless of the event duration.

## **Administrative and Financial Arrangements**

Nominating authorities will be informed in due course of the names of the candidates who have been selected and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

## **Disclaimer of Liability**

The organizers of the event do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

The IAEA takes no responsibility for, and the provider of the virtual meeting services has represented and warranted that the Services shall not contain, and that no end user shall receive from the software used to hold the virtual meeting, any virus, worm, trap door, back door, timer, clock, counter or other limiting routine, instruction or design, or other malicious, illicit or similar unrequested code, including surveillance software or routines which may, or is designed to, permit access by any person, or on its own, to erase, or otherwise harm or modify any data or any system, server, facility or other infrastructure of any end user (collectively, a “Disabling Code”).

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