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Editorial

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Isotope Hydrology Techniques-Practical Tools to Solve Water Problems

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Introduction

This Section implements all activities of the IAEA's Water Resources Programmed that promotes and transfers ability on the utilization of atom geophysics as an efficient tool for water resources assessment and property water management. It additionally provides help and coaching on analytical services via its atom geophysics Laboratory. The Section maintains and operates many international atom information networks for geophysics and climate studies, as well as the International Atomic Energy Agency international Network of atoms in Precipitation and also the international Network of Isotope Rivers. These distinctive networks give Member States access to international and regional information sets on water isotopes (oxygen-18, isotope and tritium) and connected mapping product. This wide used information sets square measure extraordinarily helpful tools for hydrological, climatological and environmental studies. Further activities of the Section square measure associated with the dissemination of atom geophysics tools and strategies through specialized publications and coaching. The potential utility of the naturally gift hydrogen in meteorology, hydrology, and earth science was found out in 1957 by the late Willard Libby, noblest for his work on radiocarbon dating. However before this utility may be completed, it had been clear that the temporal and geographical variations of hydrogen in precipitation and different precipitation would have to be compelled to be studied. As a result, the Agency, in co-operation with the globe meteoric Organization, created a worldwide precipitation sampling network. Initially, the samples were • measured by a number of the comparatively few national hydrogen laboratories that existed at that point. However, this arrangement couldn't address the analytical load and moreover there was a visible would like for a world comparison of measurements to confirm standardization. The Agency therefore created a low-level hydrogen laboratory, with sizable resource from the us nuclear energy Commission within the time period. The samples from the precipitation survey weren't solely analyzed for hydrogen, however additionally for isotope and oxygen-18. Though it had been better-known for an extended time that the concentrations of those isotopes in natural waters varied, precise study solely very became attainable with the arrival of the mass-spectrometer, simply many years before the precipitation study got beneath approach. At associate early stage the Agency recognized that the introduction and development of those new techniques needed shut collaboration between atom specialists and hydrologists. Not solely was the workers enlarged to incorporate hydrologists, however associate agreement was reached with United Nations agency in 1961 to introduce atom techniques in large-scale groundwater comes funded by the international organization Development Programme. The agreement, including compensation of Agency prices, was one in all the primary samples of inter-organization collaboration within the international organization system. Afterwards this sort of arrangement has been broadened to incorporate variety of different organizations of the world organization system, like UN agency, WHO, UNICEF, and also the international organization. Drinking water is scarce in Djibouti as a result of the new desert climate. Moreover, water intrusion or fossil seawater contamination of the restricted range of fresh aquifers thanks to groundwater exploitation affects those that live on the brink of the lineation (~80% of the population). Despite this, the geothermic potential of the country's plentiful hot springs may resolve the increasing electricity demand. Sr isotopes (87Sr/86Sr) square measure habitually won't to verify sources and mix relationships in geochemical studies. They need tested to be helpful in determinant weathering processes and quantifying finish member mix processes. during this study, we have a tendency to summaries and reinterpret the 87Sr/86Sr magnitude relation and Sr concentration information of the groundwater collected to this point within the totally different regions of the Djibouti country, making an attempt to discriminate between the various water sources, to gauge the water/rock magnitude relation and to match the info with those coming back from the groundwater within the neighbor Main Ethiopian Rift and also the sea bottom brine. New preliminary information from the groundwater of the Hanlé-Gaggadé plains also are bestowed Nitrate is one in all the foremost common pollutants in stream systems. This study takes the lower reach of Fenhe stream as a case study, combined with a multi-isotope and hydro chemical because the tracers to spot nitrate sources in stream system.

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