



Physical Research Laboratory, Ahmedabad

Colloquium 20_05

- Speaker:** Prof. R. D. Deshpande
Geosciences Division, PRL, Ahmedabad
- Title:** “Hydrology Research in The Next Decade (2021-2030):
Scope, Possibilities and Necessity”
- Date and Time:** Wednesday, 14 October 2020, 16:00 – 17:00 hrs
- YouTube Link:** <https://youtu.be/PYqRY6tKByg>

Abstract

Beyond the well-known and popular problem of water scarcity lies the exciting aspects of fundamental hydrology, which the front-end researchers will have to pursue with great vigour in the years to come. The current decade has seen an unprecedented increase in the exchange of knowledge and ideas between interdisciplinary experts (e.g. hydrologists, geochemists, meteorologists, atmospheric scientists, modellers, space scientists); advancements in the modern observational technologies (e.g. ground-based and remotely sensed geochemical and geophysical techniques); and strides in analytical approaches (e.g. artificial intelligence, machine learning and deep learning). These developments have not only evolved and advanced the frontiers of hydrology research, but also enhanced the possibilities of efficiently carrying out scientific enquiry. While the scope and possibilities of hydrology research in the next decade has increased remarkably, the necessity and urgency to carry out this research has also increased enormously due to perpetually worsening water scarcity scenario.

Some of the important themes in fundamental hydrology which would draw the major research attention in the next decade (2021-2030) are: (1) atmospheric rivers; (2) self-recharging deep waters; (3) regional cells of terrestrial recycling; (4) interaction between static and dynamic groundwater; (5) submarine groundwater discharge; (6) changes in the rain bearing systems; and (7) hydrological perturbations due to climate change and engineered interventions. In addition to these broad themes, there are also several other hydrological issues which will have to be addressed sooner.

The importance and necessity of pursuing fundamental research in the above topics will be discussed along with its multidisciplinary linkages.

The Speaker

Prof. R D Deshpande is the Chairman of Geosciences Division of Physical Research Laboratory. He obtained his Ph.D. from the M.S. University of Baroda, Vadodara based on the topic of isotope hydrology. Prof. Deshpande’s research is focused towards understanding the complex hydro-geological and hydro-meteorological processes using stable and radioactive isotopes as tracers. His research in the field of Isotope Hydrology is well-known in India and abroad. His research is based on numerous wide-spread and exhaustive field campaigns in the country. One of the large projects was IWIN (Isotope fingerprinting of Waters of India) for which he had been the Principal Coordinator which consisted of 10 institutes and 04 central agencies of India. He has published more than 40 peer reviewed research papers. Prof. Deshpande is nominated as a Mission Expert in Isotope Hydrology by International Atomic Energy Agency (IAEA), Vienna. He is a Member of working group of National Institute of Hydrology, Roorkee. He has served as a member of several Expert and Advisory committees of MOWR, MOES, and the DST. He is an expert member in the Board of Studies and Research Development Committees of several academic institutions in India. He is a Fellow of the Geological Society of India and the Gujarat Science Academy.

ALL ARE WELCOME

