



Physical Research Laboratory

Tuesday Seminar

Hydrogeological Processes in Kerala: Insights from Oxygen and Hydrogen Isotopes in groundwater

Abstract

The state of Kerala, located in the southwestern tip of India is bounded by the Arabian Sea in the west and the Western Ghats in the east. Though it occupies only 1.2% of the total area of the country, it accommodates 3% of the country's population. In spite of copious annual average rainfall of ~3100 mm, the state of Kerala has a high level of dependency on groundwater for agriculture and drinking purposes, due to geohydrological reasons compounded by the high population density and agrarian economy. The groundwater in Kerala is stored in four types of aquifers in the region, and recharged by rain and surface water. In recent decades, Kerala is facing severe groundwater problems due to variety of reasons such as seawater intrusion during summer, drying of wells, and geogenic as well as anthropogenic pollution. Therefore, it is important to understand hydrogeological processes and factors which affects availability and quality of groundwater. This knowledge is important to manage and ensure groundwater sustainably in the region. A large body of current knowledge about groundwater in Kerala is derived from the seasonal fluctuations in water table/ piezometric level and basic chemistry of water. However, there are some knowledge gaps which needs to be bridged through application of oxygen and hydrogen stable isotopic tracers.

This study is aimed to address following scientific questions: (1) Is there any hydraulic connectivity between four types of aquifers in Kerala? (2) What are the different sources of groundwater recharge? (3) Can we identify aquifers/regions recharged by NE Monsoon? (4) Are there any linkages between wetlands and groundwaters? (5) Can we estimate average travel time of groundwater from highlands to coast? (6) Does evaporation affect the groundwater of this humid region? Tentative answers to the above questions will be attempted in the seminar.

**Speaker: Mr. Amit Pandey
SRF, GSDN**

Date	Time	Venue
21-July-2020	16:00 Hrs	Ground Floor Lecture Hall

All are invited to attend and participate in discussion

A .K. Sudheer, Geosciences Division