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WORKSHOP ON GEOLOGICAL FLUID MECHANICS

A two-day workshop on "Geological Fluid Mechanics" was organised at the National Geophysical Research Institute, Hyderabad during June 26-27, 1999. The main aim of the workshop was to discuss different research and development aspects of geological fluid mechanics. A.B. Roy, in his inaugural address stressed on the need for studying the stability of the Indian shield. H.K. Gupta, in his presidential address, elaborated the role of fluids in various geological processes such as triggering of earthquakes due to pore pressure increase etc. He stressed upon the quantitative analysis of such geological processes for better understanding of their origin. R.N. Singh gave a talk on non-Newtonian flows in geosciences.

Research papers on the following topics were presented and discussed: palaeoseismicity and neotectonism, palaeoclimatic reconstruction, metamorphism, fluid processes associated with magma underplating, effects of fluid circulation on the thermal structure of evolving lithosphere, magma upwelling beneath the central Indian ridge, viscous effects in GPS geodetic observations, time dependent flow in a plume conduit, origin of hot springs in the west coast of India, mass excess in lesser Himalayas due to fluid circulation, sublithospheric deformation beneath the western continental margin of India, prediction of possible subsidence of Bassein field, power law random behaviour and seasonability bias of northeast earthquakes, seismicity and fractal dimension of fault network in Koyna region, role of pore pressure in inducing earthquakes associated with the Koyna and Warna reservoirs, modeling of groundwater flow dynamics, downward movement of moisture in shallow soil zone, and groundwater flow velocity measurements.

The following recommendations were made at the plenary session chaired by D.C. Mishra:

- Studies should be carried out on the evolution of the Indian Shield since Cambrian. Regional groundwater flow due to tectonic evolution and lineament patterns.
- Arrangements should be made for continuous monitoring of water table fluctuations, specially in problematic areas to devise suitable measures for protecting the regional water balance and preventing contamination of groundwater, water logging, depletion of aquifer, land subsidence etc.
- Experimental and modeling works should be carried out to understand the complex problems of fluid dynamics such as dynamics of liquid core, mantle convection, hydrothermal circulation in oceanic environment and continental regions etc.
- Studies on couple interaction among atmospheric, ocean and solid earth systems should be taken up for better understanding of the dynamic behaviour of earth systems.

Convenor
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