



**Centre for Atmospheric and Ocean Sciences (CAOS), and
Interdisciplinary Centre for Water Research (ICWR) invite
applications for 2 Project Associates.**

We are looking to hire two enthusiastic researchers in a cutting-edge project: “Development and integration of a dynamic and interactive aquifer layer to CFSv2 for improving extended-range monsoon prediction” funded by the Ministry of Earth Sciences, Govt. Of India. This project aims at enhancing the skill of sub-seasonal predictions at sub divisional scale beyond 3 weeks and achieve skill score of ~ 0.6 for seasonal forecasts, for homogenous regions over India.

General overview of the project: Earth’s climate is a coupled system interacting among different components. The relative importance between these components depends on their characteristics like heat capacity and the timescale of interaction being considered. Climate models would be able to realistically simulate such interactions only when all scale-relevant components of climate are ‘modelled’ accurately. However, many of these models include surface components only and do not have a groundwater compartment. Since groundwater changes are directly linked to the land surface and play an important role in modulating the land-atmosphere interaction, incorporation of a dynamic ground water (GW) component into the climate model would open a new dimension of research using the CFSv2 model. The implications of including a ground water layer to CFSv2 is expected to change its mean climate (including the rainfall and temperature bias), Intraseasonal oscillation characteristics, forecasting skills and seasonal prediction capabilities.

Objectives:

1. Develop and integrate a dynamic groundwater (GW) compartment in the NOAH land surface model (LSM).
2. Perform idealistic simulations with the NOAH LSM with different soil and vegetation types.
3. Perform several ensemble simulations of the GW-based CFSv2 for extended-range prediction.
4. Use satellite derived soil moisture to initialize the NOAH model and see its impact on the extended range prediction of monsoon.

Essential Qualification:

Project Associate (Eqv. To JRF): BTech/MSc or equivalent degree.

Research Associate (Eqv. to Postdoc): PhD in Atmospheric/Oceanic Sciences or related discipline.

Desirable requirement: Good knowledge of programming, particularly in Python/MATLAB and/or Fortran/c/c++, additionally, the candidate with good knowledge of linear algebra and water cycle will be given preference. any prior experience in similar area would also help.

Duration: Initially for three months and extendable to three years, based on review of work.

Salary: As per DST norms with eligible increments.

How to apply: Interested candidates are requested to send a cover letter (describing their motivation and interests), their CV/resume along with the name and contact information of two referees to arch@iisc.ac.in or bramha@iisc.ac.in. The last date to apply is 23 November 2024.