

# Prajeesh Ag

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## Experience

### Climate Change Center, KAUST, Research Specialist

- Developed a regional coupled climate model for subseasonal to seasonal scale prediction over Arabian Peninsula region. WRF and MITgcm were coupled using ESMF coupler
- Developed CLI preprocessing utility in Python for generating and manipulating input data for the coupled model
- Implemented seasonal prediction system for Arabian Peninsula region. A fault tolerant automated workflow for a 50 ensemble system is developed using CycL workflow engine

Jeddah, KSA  
Jan. 2023 to present  
1 year 4 months

### Indian Institute of Tropical Meteorology, Scientist-D

- Developed a novel spectral dynamical core for the atmospheric model of IITM-ESM [↗](#), enabling 2D domain decomposition in both spectral and grid point domains using FFTW library. This innovation significantly enhances scalability and throughput of the Model
- Developed a high resolution (6km) global forecast model ([HGFM ↗](#)) using TCO grid for Short Range Forecasting
- Implemented MPI parallelisation in Ocean Dynamics Thermodynamic Model [ODTM ↗](#), which improved the throughput of the model upto 30 times
- Supervised a team of 3-4 scientists working on IITM-ESM development

Pune, India  
Jan. 2020 to Dec. 2022  
2 years 11 months

### Indian Institute of Tropical Meteorology, Scientist-C

- Development of a easy to use and modular I/O manager for IITM-ESM using the OOP capabilities of modern Fortran and NetCDF4
- Implemented fractional grid for surface flux computation, resolving inconsistencies in flux-transfer over sea-ice and land-ocean boundaries. Significantly improved sea-ice simulations as a result ([Swapna et al., 2018 ↗](#)).
- Developed post-processing softwares in Python, C and Fortran using NetCDF4 and GRIB libraries

Pune, India  
Jan. 2016 to Dec. 2019  
3 years 11 months

### Indian Institute of Tropical Meteorology, Scientist-B

- Implemented concurrent coupling using FMS coupler to increase the throughput of the IITM-ESM model
- Identified memory leak issues in the IITM-ESM using Valgrind and fixed it
- Did performance analysis of IITM-ESM using Allinea MAP and identified bottle necks

Pune, India  
Jan. 2013 to Dec. 2015  
2 years 11 months

## Education

### University of Pune, Atmospheric Science

Apr. 2018 to Mar. 2024

PhD

- Thesis:** Indian Ocean Dipole variations in a warming climate and associated linkages to monsoon and marine primary productivity ([pdf ↗](#))
- Used advanced statistical techniques such as cross-correlations, principal component analysis, significance tests and anomaly composites
- Course work: Atmospheric Circulation, Climate Modelling, Atmospheric Physics and Thermodynamics

**MSc** **Cochin University of Science and Technology**, Physical Oceanography  
• Main subjects: Fluid Dynamics, Ocean Circulation, Numerical Modelling of Ocean

May 2008 to Apr. 2010

## Additional Experience And Awards

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**Instructor (2015 - 2022):** Taught Computer Application for Climate Science course.

**Web Development:** Developed a football tournament web application using Django web framework with the facility of team and player registration, player transfer, match scheduler, on-ground score and match details entering, player and team statistics, and dynamic standings table

**JRF-Fellowship, UGC-CSIR:** Awarded JRF Fellowship from UGC-CSIR

## Technologies

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**Languages:** Fortran (proficient), Python (proficient), Bash (proficient), C (Familiar), JavaScript (Prior Experience)

**Data Formats:** NetCDF4, GRIB1/2, JSON, XML, Binary, ASCII, YAML

**High performance computing:** Job Schedulers (Slurm, PBS, LSF), Parallel Programming (MPI, OpenMP)

**Data processing and Visualization:** CDO, NCO, Matplotlib, Cartopy, Xarray, Pandas, Iris.cube, NCL

**Others:** Linux OS, Git, GitHub, Workflow automation

## Publications

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For a list of my academic publications, please visit my [Google Scholar profile](#)