Prajeesh Ag

📍 KAUST, Jeddah, KSA ✉ prajeeshag@gmail.com 📞 +91 70572 53778 in prajeeshag ⌘ prajeeshag

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 pediction system for Arabian Peninsula region. A fault tolerant automated workflow for a 50 ensemble system is developed using Cylc 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 mordern 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

PhD

University of Pune, Atmospheric Science

- **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: Atmosperic Circulation, Climate Modelling, Atmospheric Physics and Thermodynamics

Apr. 2018 to Mar. 2024

| MSc | **Cochin University of Science and Technology**, Physical Oceanography | May 2008 to Apr. 2010 |

- Main subjects: Fluid Dynamics, Ocean Circulation, Numerical Modelling of Ocean

Additional Experience And Awards

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

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, Debuggers and Profilers

Publications

For a list of my academic publications, please visit my Google Scholar profile ↗