Prajeesh Ag

KAUST, Jeddah, KSA | prajeeshag@gmail.com | +91 70572 53778 | prajeeshag | prajeeshag

Experience

Climate Change Center, KAUST, Research Specialist — Jeddah, KSA
Jan. 2023 to present
1 year 4 months

- 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

Indian Institute of Tropical Meteorology, Scientist-D — Pune, India
Jan. 2020 to Dec. 2022
2 years 11 months

- 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 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

Indian Institute of Tropical Meteorology, Scientist-C — Pune, India
Jan. 2016 to Dec. 2019
3 years 11 months

- 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

Indian Institute of Tropical Meteorology, Scientist-B — Pune, India
Jan. 2013 to Dec. 2015
2 years 11 months

- 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

Education

PhD — **University of Pune**, Atmospheric Science — Apr. 2018 to Mar. 2024

- **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

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

Publications

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