Ancy Thomas
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Research Statement

With the work experience at CDAC and pursuing PhD in Data Science at IIIT Bangalore continue to enhance my research in data analytics and more effective way of data handling and research; to take on more challenging research problems in the future and strengthen my career as Atmospheric Data Scientist.

Professional Experience

Centre for Development of Advanced Computing (C-DAC) , November 2006 – Present

Education

IIIT, Bangalore (August 2021 - Present)
PhD in Data Science, Advisor – Prof. Jaya Sreevalsan Nair

M.Tech Atmospheric Science (CUSAT, Kochi, 2005)

Work Experience at C-DAC

- Algorithms & computational model development using Spherical Harmonics functions. Development of Time Step methods for linear and nonlinear differential equations using Spherical Harmonic functions (fourth order and second order Runge Kutta methods, Leap Frog scheme and Euler forward difference schemes) .
- Weather research & applications on HPC clusters (CPU/GPU/Accelerators)
- Principal Investigator: Successfully completed project on 'Short range weather information services at Agro Ecological Zone level for Kerala State. The project was in collaboration with Kerala State Planning Board, for the year 2009 – 2016 in seven phases.
- Project Leader in Marine Forecast Dissemination and Visualization interface project, funded by Naval Research Board, DRDO. Development for the GTS data processing

system and display of GTS observations around the station, cyclone track automation system.

- Development & simulations of NWP models; WRF, GFS, RAMS, Coupled WRF-STEM, WRF-CMAQ models on HPC systems

- Development for the Grid enabled WRF-STEM model for climate change simulations.

- Development of Weather data & analytics portal, Met@India , for climatology, observations and model simulation data & its statistical analysis.

- Computational simulations using NWP models WRF, GFS, RAMS, Coupled WRF-STEM, WRF-CMAQ models on various generations of HPC systems

- Domain research on short range weather forecast for QPF and cyclones, and further participated in CDACs Indian summer monsoon rainfall research

- Scientific programming: coding, testing and debugging air quality and meteorological models.

- Worked on various sources of data from regional/global models, observations, satellite data from TRMM, Sentinel, Landsat and reanalysis of atmosphere/ocean dataset, in different data formats netcdf, hdf, grib etc.

- Satellite data processing for categorization of water bodies and its analysis.

- Optimization of weather code on High Performance Computing Systems

Publications/Book

I. **Ancy Thomas**: Evaluation of Indian Summer Monsoon rainfall using NCEP Global model: An SST impact study (Pure and Applied Geophysics, 2019)

II. **Ancy Thomas**, Sagar Kashid, Akshara Kaginalkar, Sahidul Islam:How accurate are the weather forecasts available to the public? (Weather, 2016)

III. **Ancy Thomas**, Basanta K Samala, Akshara Kaginalkar: Simulation of North Indian Ocean Tropical Cyclones using RAMS Numerical Weather Prediction Model (Tropical Cyclone Research and Review, March 2014)

IV. **Ancy Thomas**, Rajasree Nair and Akshara Kaginalkar: Chapter on "Weather forecasting technology for Crop Management: Book on Weather & Plant Health Management in Kerala (Dec 2015, Page 44 -63).

V. Amit Kesarkar, Mohit Dalvi, **Ancy Thomas** and Akshara Kaginalkar, 2008, Simulation of Diurnal Variation of Planetary Boundary Layer Parameters over Western Ghats of India, World Group of Numerical Experiments Blue Book 2008 Series, WMO TD.

Conferences

VI. Conference Paper on "Assessment of CFSV2 in SST prediction for the climatology years: **Ancy Thomas**;D.R.Sikaa; Akshara Kaginalkar" presented during Annual Monsoon workshop 2014, IITM Pune

VII. Seasonal variability in black carbon aerosols over India using regional model simulations: K.Jayakrishnan, P.Sadavarte, N.Patil, A. Kaginalkar, **Ancy.Thomas**, S.Kulkarni, G.Carmichael, C.Venkataraman: Fourth NRCCC-2013, IIT Madras, October 26-27

VIII. Presented 'Country level predictions for JJAS 2014 : on South West Monsoon 2014 using NCEP's high resolution GCM model T170' for South Asian Climate Outlook Forum SASCOF-5 , Pune, 22-23 April 2014