

Motivation Letter

Dear organiser,

I am Prashant Singh, submitting my Ph.D. thesis title as “Study for modeling and simulation of convection process in the atmosphere” by end of March 2020 at the Department of Physics, University of Mumbai. I did my Ph.D. research in collaboration with the University of Mumbai and International Centre for Integrated Mountain Development (ICIMOD), Nepal.

I used the WRF-Chem model along with reanalysis and several satellite data to understand the lifting of black carbon (BC) during the convective monsoon period. The first time our study shows the presence of a consistent and significant amount of BC plume between 500-300 hPa during monsoon over central India. During my Ph.D. work, I worked with WRF-Chem, HYSPLIT, AERMOD, and several tools for analysis NCL, CDO, R, and Python. I am quite good with Linux environment and shell scripting, I had automated model simulation process and analysis of satellite and model data. I used radio occultation and radio sounding data to understand the convection and thunderstorm prediction during my M.Phil. thesis.

Most of the time as a researcher in modeling field with background of Physics and Atmospheric science we struggle with technical nature of computation tools and environment. Many times, we create few codes and short cuts to over come our limitation and repeats the same without further improvement in our technical knowledge. I suggest academic group project related to Big data analysis, code development and visualisation. We may work on satellite (radio occultation), reanalysis data and output from regional models to create moisture profile over complex terrain of Himalaya and visualise in sense of probability precipitation product.

This opportunity will provide me a platform to interact with experts and researchers in the field of application of HPC in climate and weather. It will be great to share and learns problems and solutions in this field with researchers with better infrastructure and facility. It will be great platform for future collaboration and possibility to explore better postdoc topics.

Thanks for considering my application, hope to join summer school.

Thanks, and Regards.