

## **Motivational Letter**

My name is Sarla, PhD Research Scholar at CSIR – National Physical Laboratory, New Delhi, India. With this letter I hereby would like to express my interest in attending summer school on “Effective HPC for climate and weather” which will take place at University of Reading, Whiteknights Campus, Reading, UK from 23<sup>th</sup> to 28<sup>th</sup> August, 2020.

The research title of my thesis is “*Effect of aerosol physico-chemical properties on regional climate*”. The topic offered in the programme is of a special relevance to my academic goals and career objectives, and therefore I would highly appreciate if I could be given an opportunity to attend the said school.

I am much eager to adopt and be acquainted with new skills. The high-quality education standards, extremely distinguished faculty members, and research facilities are the factors which have motivated me to apply for this summer school on “Effective HPC for climate and weather”. While offering both depth and breadth across this field, this course put into perspective the importance and relevance of Atmospheric Science, the science of Climate Change and the application of its fundamentals to the problems faced by the real world.

As a special added value of this course, I find the opportunity to network with subject experts and other students from all over the world which is an exceptional opportunity for horizontal exchange of experience. I perceive this also as a stage to familiarize with good practices as a channel for my academic as well as personal development.

I am confident that you will find my application as a worthwhile investment. I will also acknowledge the experience in my PhD work. Attached herewith is my curriculum vita to elaborate my personality and my passport for your kind reference.

### **Academic group project:**

Optical properties of aerosol affect absorption and scattering pattern of radiation coming from the Sun. For computation of optical properties of particles, most wide approach was assumption of particles as homogeneous sphere. It is noteworthy to mention the aerosol optical properties (asymmetry parameter, Qext, SSA) are function of their physico-chemical properties (i.e. particle morphology, composition and mixing state). Neglecting physico-chemical properties leads to uncertainties in numerical estimation of optical and radiative properties of particles. Characterisation of particles at individual level plays important role for enhancement of accuracy in radiative forcing.

Therefore, it is suggested that for group project, by using physico-chemical properties of aerosols, we can further numerically simulate the optical properties of aerosols using FDTD, SIEM, VIEM which are computational intensive methods with high HPC capacity and will give accurate results in lesser time frame.