Overview
The SIParCS Program at the National Center for Atmospheric Research (NCAR) offers graduate students and undergraduate students (who have completed their sophomore year summer 2013) significant hands-on R&D opportunities in high performance computing (HPC) and related fields that use HPC for scientific discovery and modeling. This program embeds students as summer interns in the Computational and Information Systems Laboratory (CISL), an organization within NCAR charged with provisioning supercomputing and data systems to the geosciences research community, as well as conducting research and development in computational science, data analysis, scientific visualization and numerical modeling. These twin roles of service and research in CISL support NCAR’s broad scientific mission of discovery in the atmospheric and related sciences.

NCAR scientists run models on supercomputers to study the Earth system, including the oceans, atmosphere, land processes, ice and solid earth. The phenomena studied by computational geoscience, including solar flares, tornadoes, hurricanes, earthquakes, tsunamis, ocean circulation patterns, climate change, drought and wildfires, have tremendous economic and societal importance. Moreover, the use of massively parallel computer architectures and complex networking and data storage systems in this enterprise has become a critical factor for scientific progress. Also critical is the need for a trained cadre of scientists and engineers capable of maintaining and using these high-end systems to achieve the goals of 21st century computational geoscience research. Progress on modeling the Earth system also requires sophisticated numerical algorithms and results in large and complex data sets. These areas are also in need of a new generation of mathematical and statistical scientists who are able to work on a multidisciplinary team and in an HPC environment.

The program is aimed at university students who are interested in pursuing a career in computational science, applied mathematics, statistics, computer science, or the computational geosciences. The goal of the SIParCS program is to make a long-term, positive impact on the quality and diversity of the workforce needed to use and operate 21st century supercomputers. To this end, the SIParCS program can offer exceptional students a wide variety of experiences with a diverse collection of HPC equipment, software development projects, parallel computational science problems, and analysis of data and numerical methods. All these projects are tied to the HPC systems and activities that support NCAR’s scientific mission.

Examples of SIParCS Intern Projects:

Online application opens November 12, 2012 at: www2.cisl.ucar.edu/siparcs/application