

Facilities and Equipment Available to the Project

[Please modify by targeting to the funding opportunity, e.g., describe equipment in your lab or address a particular concern in the funding opp.]

College of Earth, Ocean, and Atmospheric Sciences

Drs. _____, _____, and _____ are faculty members in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University, which provides office and lab space for them and their graduate students, postdoc scholars, and faculty research assistants.

Computing

Drs. _____, _____, and _____ have existing PC/Mac and/or Unix computers for processing, analyzing and posting environmental data. These computers are linked to the CEOAS computer facilities which are among the best in the nation.

The CEOAS Environmental Computing Center contains modern, high-throughput computing-class infrastructure in order to facilitate, deliver and meet the challenges of next-generation scientific workflows. Significant improvements and innovation in compute, networks, storage, visualization and sensor technology continue to accelerate, generation after generation. These advancements add to the complexity of computation, data analysis and delivery, which now takes hundreds of steps as scientists continuously push the limits of technology.

In order to address the infrastructure requirements for next-generation cyber infrastructure workflows, CEOAS has deployed throughout the Environmental Computing Center an end-to-end, low-latency 10GbE network crossbar switching fabric, protected and backed up by 24x7 uninterruptible power distribution and generator. At the core of this fabric we have over 1 Tbps switching capacity, enabling new edge services with excellent levels of scale as emerging richer data types take hold in the scientific community. In addition to providing this high-bandwidth intra-Data Center connectivity, CEOAS has designed, architected and extended the same infrastructure connectivity throughout all our buildings as well as into offices and labs.

The CEOAS network domain has 12 buildings that are all connected together via high-capacity, single-mode optical-fiber cabling (10G) with high-speed, non blocked switching to the desktop. More than 2,000 devices are connected to this CEOAS network. From this local network domain, CEOAS is connected to the OSU campus network, which in turn is connected to the commodity Internet as well as Internet-2.

At the heart of the Environmental Data Center are supercomputer-class machines ranging from large shared memory systems to tightly coupled clusters with and without Graphics Processing Unit-enabled acceleration providing a wide range of services, including compute, storage, application, print, project and scratch services. Our Digital Media Laboratory and Student facilities contain a heterogeneous mix of workstations specifically tuned for more demanding scientific needs. These include Linux/Unix based systems from Dell, Apple, Oracle/Sun. In addition, throughout the complex are high-end color printers, plotters, and scanners as well as digital postproduction tools for analyzing and creating visualizations targeted at streaming or DVD/Blu Ray distribution. A purpose-built visualization laboratory contains exceptional computing and video gear to produce high-definition 4k data visualizations and complete video

presentations of research projects. An advanced geographic information system (GIS) Lab running on dedicated equipment is also available.

All these facilities feed a state-of-the-art seminar and presentation faculty enabling “one-touch” control of systems and data routing. These facilities are capable of delivering high definition scientific workflow experiences at a full 2 and 4K resolution.

Publication Support

The CEOAS Research Publishing and Outreach department works with PIs to produce their own scientific publishing and outreach. This support includes editing and graphic services for journal articles and presentations; web templates; materials such as brochures, scientific posters, and reports.

The department also creates outreach vehicles such as the college website, research highlights, student recruitment information, and other college-wide publications.

Administrative Support

CEOAS administrative support includes a fully-staffed on-site business office to help administer the grant. Other CEOAS administrative support includes help with purchasing, travel arrangements, workshops, reception, mailing and shipping, office supplies for researchers, etc.