2nd Symposium on High Performance Computing for Weather, Water, and Climate

The Symposium, co-chaired by Dr. Brian Etherton from NOAA/ESRL and Mr. Gerry Creager from the University of Oklahoma/NSSL/CIMMS, was held at the 96th AMS Annual Meeting in New Orleans, Louisiana on Thursday, 14 January 2016. The symposium had greater attendance than the first symposium did the year before, with approximately 60 attendees, including some international representation.

The four oral sessions of this symposium were: High Performance Computing in Operations, Cloud Systems and Visualization, Ocean Circulation Modeling and High Performance Computing, and Tuning Codes for HPC or Evolving Interconnects to Improve Performance. A poster session was also held. In addition, a joint session on Artificial Intelligence and Big Data was held in conjunction with the AI working group.

The Operations session focused on current and future HPC processes and methods in US and international centers, including discussion of NCEP's upgrades to hardware and software, a discussion of the Next Generation Global Prediction System, discussion of cost/benefits of various processor and coprocessor combinations, ECMWF's next-generation IO, and optimization of performance/scalability for the HWRF model.

Two student prizes were awarded during the conference:
- The Oral presentation prize was awarded to Negin Sobhani (University of Iowa),
- The Poster presentation prize was awarded to Timothy Sliwinski (Texas Tech University).

The Cloud Systems and verification session focused on workflows and methods of enabling end-to-end processing for cloud-based systems.

The session dedicated to Ocean Circulation modeling and HPC included presentations on model system guidance for real-time decision support, scientific rationale for high resolution modeling, high-order numerical methods for geophysical fluid flows, the use of new models to improve scalability and performance, techniques to enable existing Fortran code, and Hpx code interoperability, updates on the Intel PHI coprocessor and its use with the ADCIRC model, and a report and demonstration of an interactive display system for the ADCIRC model incorporating real-time output.

The Code Tuning session focused on scalable implementations for data assimilation in large models, tuning/preparing NASA's global modeling system for future (petascale) HPC, WRF performance optimization using Intel PHI, performance analysis and optimization of the WRF model, and the future potential for a 3 km operations prediction system on a global basis, using the dynamic core NUMA.

All of the oral presentation sessions were well attended, with over 40 people in each, despite being on the last day of the conference.

The 3rd AMS Symposium on High Performance Computing for Weather, Water, and Climate, will be held in conjunction with the 97th Annual Meeting in Seattle, WA in 2017, and will again be co-chaired by Dr. Brian Etherton and Mr. Gerry Creager, (brian.etherton@noaa.gov).