UCAR Membership Committee Review of New Application of Appalachian State University

We would like to submit for your consideration Appalachian State University’s (ASU’s) application for membership to the University Corporation for Atmospheric Research (UCAR). ASU is a constituent institution (one of seventeen) of the University of North Carolina (NC) system. Located in the Blue Ridge Mountains in Boone, NC, ASU offers more than 150 undergraduate and graduate majors to over 17,000 students.

Program of Studies and Research

Programs of study in the atmospheric and related sciences are distributed throughout ASU, including the College of Arts and Sciences, the College of Fine and Applied Arts and the Walker College of Business. Academic programs from departments within these colleges address atmospheric chemistry, atmospheric physics, climatology, physical geography, impacts of pollutants and greenhouse gases on ecological systems, aerosol loading and properties, climate change and extreme events, renewable energy including solar, wind, and water, climate and sustainable organizations (cities and businesses), and the economic and social impacts of climate change. Within the Department of Technology and Environmental Design there is a focus on instrumentation, where students learn not only how instruments work but how to service, design and build them as well.

Twenty-five faculty are engaged in ongoing research associated with atmospheric and associated sciences and related impacts. This research is multidisciplinary, international, inter-departmental, and involves other universities and government agencies including NOAA, NCDC, EPA, DOE, and NASA. ASU’s research portfolio is especially rich in water quality and resources, upstream environments and habitats, in the climate of piedmont to alpine forests and air quality in the regional mountain environment but also globally. At the time of our visit, ASU faculty and students were in Peru conducting climate research in kind. ASU is one of seven UNC system campuses conducting climate related plant growth research at the UNC system facility in Kannapolis NC. The ASU Dean of the College of Arts and Sciences and his students are conducting space weather research and see opportunities to broaden their research with NCAR scientists. The Director of the ASU Southern Appalachian Environmental Research and Education center has become a nationally known leader in the field of dendroclimatology. Another research highlight is the Appalachian Atmospheric Interdisciplinary Research Program (AppalAIR), an air quality and climate research initiative and the only monitoring station in the eastern U.S. among the NOAA global network of aerosol monitoring stations.

Progress in the Atmospheric Sciences

The newly formed, four year old ASU College of Health and Human Services already has a student enrollment of 3,300 students and aspires to be the pre-eminent allied health sciences and services in the state of NC. ASU CHHS has recently partnered with the Wake Forest University School of Medicine on health and climate and environmental epidemiology.

The enthusiasm of the incredibly engaged students and their faculty advisors was
absolutely infectious. The UCAR review team was deeply impressed with this enthusiasm as well as the commitment of the students to their research projects and challenges. There was clear evidence of a great deal of pride in the student experience outside of the classroom. ASU is the most recognized university in the United States in having received U.S. Environmental Protection Agency P-3 awards; a singular achievement. The potential opportunity of student internships on-site at NCAR in Boulder resonated amongst all of the students. The potential of accessing the NCAR HPC facilities, especially the Wyoming Supercomputer, was acknowledged multiple times by ASU staff and students.

ASU has established a robust interactive, collaborative working relationship with the scientific staff of the NOAA National Climatic Data Center located in nearby Asheville, NC. ASU faculty and students are working with NCDC staff to design joint projects of mutual interest and benefit. NCDC hosts the world’s largest data archive of climate and weather information and desires to expand the breadth of its products and services.

**Recommendation and Assessment of the Evaluation Committee**

Our assessment is that ASU faculty and students will greatly benefit from UCAR membership by broadening opportunities for faculty and student research in the atmospheric and related sciences that are core to the modern mission of the National Center for Atmospheric Research (NCAR). As a member of UCAR, we believe that Appalachian can contribute a strong commitment to multi-disciplinary and inter-disciplinary atmospheric, environmental and health sciences research. Likewise we believe that UCAR and NCAR will benefit from ASU’s broad portfolio of Atmospheric and related science and services.

*The UCAR Site Visit Team Len Pietrafesa (far left) and Thomas Mote (far right) at the AppalAIR Research Facility in Boone, NC. From left to right are Professor Howard Neufeld (Director of the Southern Appalachian Environmental Research & Education Center), Professor John Pine (Director of the Research Institute for Environment, Energy & Economics) and Professional Science Masters graduate student, Matthew West and physics undergraduate Ian Krintz.*