UCAR Membership Committee Review of the University of Missouri

The University of Missouri (UM) has been a UCAR member since 1968 and continues to be an active participant and contributor to the atmospheric and related science fields as the University of Missouri System, via the programs of study and activities of its flagship campus UM Columbia and the research activities and collaborations at the UM Science and Technology (UMS&T, formerly UM Rolla) and UM Kansas City campuses.

All of the main programs of study (B.S., M.S. and Ph.D. degrees in Soil, Environmental, and Atmospheric Sciences with formal or informal Atmospheric Sciences emphasis) are housed at the Department of Soil, Environmental and Atmospheric Sciences at UM Columbia. The B.S. program meets American Meteorological Society curricular guidelines and federal standards for employment as a meteorologist. There are also graduate degrees in Natural Resources (M.S. and Ph.D.) offered in collaboration by the departments within the School of Natural Resources. These alternative degrees can be completed with an Atmospheric Sciences emphasis as well. The programs count with adequate laboratory and computing resources, specialized instrumentation (radar, mobile radiosonde, GPS water vapor, NLDN, etc.) and unique observation stations (including 26 micrometeorological stations throughout the state and a historic farm that has been recording atmospheric and soil conditions since 1888). UMS&T also hosts graduate completing their graduate programs. Atmospheric Science courses have been offered at UM Kansas City since 1933 in the Department of Geosciences. Offerings have been expanded during recent years and these efforts will continue with the goal of offering a minor in meteorology suitable for Environmental Science and Geography majors in the near future. The department also participates in a unique individually tailored M.S. program in Urban Environmental Geosciences in collaboration with faculty from Engineering, Physics, History, Computer Sciences and Economics.

There are 10 tenured faculty members (three of them solely focused on atmospheric sciences), two non-tenure track research faculty and two instructors at UM Columbia, five tenured faculty at UMS&T and one tenure-track faculty member at UM Kansas City. A fourth tenure-track position in atmospheric sciences at UM Columbia was recently added and is currently in the search process. The programs have additionally hosted four visiting and postdoctoral associates in the recent past. Master’s degrees awarded during the last eight years add to 32 at UM Columbia and three at UMS&T. During the same period there were seven and one doctoral degrees completed at each institution, respectively. Currently, there are 11 M.S. and four Ph.D. students completing degrees with an Atmospheric Science emphasis, including a small number of female and minority students. All graduate and undergraduate enrollments and completions have increased substantially since the last review.

Research activities at UM Columbia, conducted mainly through the graduate programs, are active in large-scale atmospheric dynamics and general circulation, climate dynamics and climate change, synoptic and mesoscale dynamics, precipitation processes, hydrology, atmospheric physics and agricultural meteorology. The department also houses the Missouri Climate Center that monitors, documents and makes available datasets on atmospheric conditions, climate variations and ecosystem changes in the state. Research in aerosols and cloud microphysics, especially nucleation processes, are conducted at UMS&T within the internationally recognized Cloud and Aerosol Science Laboratory (CASL).
managed by the Department of Physics. A Center of Excellence for Aircraft Particulate Emissions Reduction has also been established under CASL. This and other “centers of excellence” of which CASL is a member involve faculty from Physics, Chemistry, and Engineering Departments. Additionally, micrometeorology and physical meteorology studies are conducted at UM Kansas City.

Atmospheric science faculty members were PIs, Co-PIs and collaborators on 55 grants and projects (NSF, USDA and others) in the recent past, totaling $4.92 M. Additionally, even though not specifically mentioned in the formal application, a variety of publications in the atmospheric and related sciences are listed in many of the individual faculty members’ CVs.

UM counts with two UCAR representatives, one from UM Columbia and one representing the rest of the UM System, at least one of which attends Heads and Chairs and annual members’ meetings. Atmospheric sciences faculty members have additionally attended UCAR and Unidata workshops and use COMET modules and resources to supplement their teaching. They have also been PIs on COMET partners’ grants leading to publications and have been awarded a Unidata equipment grant to update computer facilities. UM Columbia has also regularly sent students to the UCAR Summer Undergraduate Leadership Workshop and a UMS&T Ph.D. student is currently a summer visiting scientist under the NCAR Graduate Visitor Program.

In summary, the UM System hosts active programs of study with atmospheric sciences emphasis and dedicated faculty, conducts a variety of research activities and manages a variety of centers and facilities that serve the atmospheric science community and the public, and participates in UCAR related activities by taking advantage of available workshops, products and programs. As a result, the UCAR Membership Committee agrees that the appropriate criteria are adequately fulfilled and recommends to the Members’ Representatives that the membership of the University of Missouri be continued as provided by the bylaws.