UCAR Membership Committee Review of New Application of Embry-Riddle Aeronautical University

We would like to submit for your consideration Embry-Riddle Aeronautical University’s application for membership to the University Corporation for Atmospheric Research (UCAR). Embry-Riddle. Located on campuses in Daytona Beach, FL and Prescott, AZ. Embry-Riddle Aeronautical University (ERAU) offers undergraduate majors in meteorology and operational meteorology. ERAU is a PhD (and MS) granting institution with programs that include research on many aspects of atmospheric and space related science.

Program of Studies and Research

Embry-Riddle’s teaching and research as it applies to the atmosphere occurs primarily within three separate departments on their two residential campuses; the Department of Applied Aviation Sciences at Daytona Beach, FL; the Department of Physical Sciences at Daytona Beach; and the Department of Applied Aviation Sciences at Prescott, AZ.

The Department of Applied Aviation Sciences at Daytona Beach conducts instruction and research in the fields of atmospheric science and climatology. The department has 8 tenured faculty, 1 tenure-track faculty, 2 non-tenure track faculty, 1 research staff and 59 undergraduate students. In the last 3 years the department has granted 60 BS degrees. Facilities include two dedicated, 30-seat, computer-equipped labs. The labs are equipped with a Broadcast Media Lab with full green screen and HD video production capability, plus a 15-computer Weather Center with dual projectors for presentations. The program maintains a cluster of servers that receives, processes and stores weather data from a NOAA Port down-link and Internet2 data resources. This provides students and faculty with more data than is available at a typical NWS WFO.

The Department of Applied Aviation Sciences at Prescott conducts instruction and research in the fields of atmospheric science and climatology. The meteorology program has 4 tenured faculty, 2 adjunct faculty, and 26 undergraduate students. In the last 3 years the department has granted 30 BS degrees. Facilities at Prescott include a 36-seat classroom equipped with computer terminals at each desk, a 36-seat lecture classroom, and a 30-seat lab classroom with large format tables that enable hand analysis of weather maps. There is a Meteorology Lab with 10 PCs, 2 Linux machines, and six large-format displays of real-time forecast charts and remote sensing imagery. They also have rooftop weather equipment including a Honeywell Primus 880 aircraft weather radar, IQEye weather cam, Vaisala weather balloon sounding system and balloon launcher, and Vaisala MAWS301 automatic weather station.

The Department of Physical Sciences at Daytona Beach conducts instruction and research in the fields of physics, engineering physics, aeronomy, ionospheric physics and plasma/magnetospheric physics. Bachelors, Masters and PhD degrees are offered in Engineering Physics and a Bachelors degree is offered in Space Physics. The department has 13 tenured faculty, 7 tenure-track faculty, 11 non-tenure track faculty, 3 research staff, 104 undergraduate students and 35 graduate students. In the last 4 years the
department has granted 76 BS degrees (12 in Space Physics & 64 in Engineering Physics), 22 MS degrees (Eng. Phys.) and 4 PhD degrees. Of particular note is that 6 ERAU faculty have received NSF Career awards to support their research over the last several years.

Progress in the Atmospheric Sciences

Despite being a primarily undergraduate teaching institution, ERAU faculty members have remained productive in both funded and unfunded research. Their publications include American Meteorological Society journals as well as more aviation-focused journals. In addition, they have been engaged in a variety of professional society efforts in the atmospheric and geosciences.

Participation in UCAR-related Sciences by the Department of Applied Aviation Sciences at Daytona Beach includes externally funded grants (past 5 years) totaling $794K and 45 publications (past 3 years). Recent and current service to meteorology societies and associations include serving as committee members for NWA Aviation Committee, Unidata Users’ Committee Panel, NTSB General Aviation Weather Safety Panel, UCAR Review Panel for NCEP Space Weather Prediction Center, and AMS Board of Higher Education. The UCAR-related research and scholarship carried out at ERAU-Prescott over the last three to five years includes 11 refereed research papers and 40 conference presentations. The department has received approximately $984,655 of external funding over the past five years to support its research. In the Department of Physical Sciences, Daytona Beach, atmospheric science related publications over the past five years include 2 books, 6 book chapters, 70 peer-reviewed publications, 17 invited talks, and 96 conference talks. Center for Space & Atmospheric Research (CSAR, http://csar.erau.edu)-related research has received funding of $4,543,741 over the past five years, mainly from NSF and NASA.

Participation in UCAR Activities

Examples of ERAU participation in UCAR related activities include student participation in the NCAR ASP (Advanced Study Program), and collaboration with NCAR scientists. Every year a large group of ERAU aeronomers and plasma physicists attend the CEDAR Workshop (partly sponsored/supported by UCAR’s Visiting Scientist Program) and organize workshop sessions. Also, NCAR scientists have been invited to give department colloquia at Embry-Riddle.

ERAU makes extensive use of satellite data and software packages provided by UCAR, and have also made use of software training for several faculty and staff members. ERAU faculty are involved in research and teaching activities using UCAR National Center for Atmospheric Research (UCAR/NCAR), UCAR Community Programs (UCP), NCAR’s Research Aviation Facility (RAF), NCAR’s Research Applications Laboratory (RAL), UCAR Satellite Real time weather (RAP), Unidata, the Earth Systems Research Laboratory (ESRL), NCAR's Earth Observing Laboratory (EOL) data, models, and research tools.
Recommendation and Assessment of the Evaluation Committee

Our assessment is that Embry-Riddle faculty and students will 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 Embry-Riddle can contribute a strong commitment to multi-disciplinary and inter-disciplinary atmospheric and environmental sciences research. Likewise we believe that UCAR and NCAR will benefit from Embry-Riddle’s broad portfolio of Atmospheric and related science and services.