Michigan State University
New UCAR Member Application – 2010

On 5 April 2010, the UCAR membership site team (Jack Fellows, UCAR; Jonathan Overpeck, University of Arizona; and Bill Beasley, University of Oklahoma) visited Michigan State University (MSU) as part of the process of evaluating application by MSU for full membership in UCAR. It was a great visit, but unfortunately just the day after MSU had been eliminated (by only two points) from the NCAA national final four by Butler University. Butler went on to be defeated by Duke in the final. It was a proud, but disappointing day for the MSU faculty.

We were welcomed and provided a brief introduction to MSU by Dr. Marietta Baba (Dean of the College of Social Science), Dr. Ian Gray (Vice President for Research and Graduate Studies), and Dr. Steve Pueppke (Assistant Vice President for Research and Graduate Studies and Director of the Michigan Agricultural Experiment Station). The UCAR site visit team provided a brief overview of UCAR and there was a general discussion with the faculty and students throughout the visit on how UCAR membership could benefit MSU and how MSU could contribute to the UCAR community.

Our host for the visit was Dr. Sharon Zhong. Dr. Zhong led the University of Houston UCAR membership effort when she was at that university and has served on the PACUR Committee for several years. During the course of the day, we had a broad range of presentations highlighting the MSU graduate program, faculty research and community service activities in the Great Lakes region and beyond. We then toured the campus and met with the graduate students. Presentations and meetings included:

- **Curriculum Overview.** Drs. Kaz Fujita (undergraduate) and Julie Winkler (graduate) outlined the undergraduate and graduate curriculum.

- **MSU Centers and Programs Overview.** Drs. Jeff Andresen (State Climatology Office, EnviroWeather), Jiaguo Qi (CGCEO), George Lerio (ESPP), Jan Stevenson (CWS), Jay Charney (USFS), Julie Winkler (Great Lakes RISA).

- **Faculty Research Presentations.** Drs. Pang-Ning Tan, David Campbell, Julie Winkler, Sara Nicholls, Dave Hyndman, Mike Kiefer, Jeff Andresen, Lifeng Luo, and Sharon Zhong.

- **Meeting with Graduate Students.** Zubin Abraham, Adam Cinderich, Marwan Katurji, Sangjun Lee, Jovanka Nikolic, Perdition, Arron Pollyea, Greg Soter, Xiaohui Xu, and Dave Young.

Through these presentations and meetings we learned that the graduate program has a strong focus on climatology and meteorology and that significant activities in these areas are distributed across many departments and agencies. The current graduate students include:

- One PhD. student in wind energy potential under climate change scenarios.
- Three (2 PhD and 1 MS) in climate change and health.
- Four (2 PhD and 2 MS) in land use/land cover change and regional climate.
- Three (1 PhD and 2 MS) in climate change impact on agriculture.
- One PhD student in climate change and public policy.
- Two MS students in horticulture and water management under climate change scenarios.
- Four MS students in urbanization and regional climate in India and China.
- One MS student studying the Great Plains low level jet.
- Two MS students in climate change and bioenergy.
One of the most impressive aspects of the MSU program is synergy among the physical and social sciences in their overall program. The core of their UCAR-relevant education and research efforts are through the MSU Geography Department, but there are also significant contributions from the Environmental Science and Policy Program, the Center for Water Sciences, and the Department of Computer Science and Engineering. The strengths of their program are in the areas of:

- Applied climatology and meteorology
- Climate change (including impact assessments)
- Agricultural climatology
- Boundary-layer climatology and meteorology
- Hydroclimatology
- Synoptic climatology

MSU is also a partner in the NOAA-sponsored Great Lakes Regional Integrated Science and Assessment Center (RISA), which is scheduled to begin operations in the Fall of 2010. The Co-PIs for this RISA are Don Scavia (Director, Graham Environmental Sustainability Institute, University of Michigan) and Tom Dietz (Department of Sociology and Assistant Vice President for Environmental Research, Michigan State University). Many of the MSU faculty are involved in this RISA that will focus on agriculture, watershed management, and natural resources-based recreation and tourism. MSU also hosts the Michigan State Climatologist Office (headed by Dr. Jeff Andresen) and the Michigan Enviro-Weather Project. The Enviro-Weather Project is an interactive information system (mesonet) linking real-time weather data, forecasts, and biological and other process-based models for assistance in operational decision-making and risk management associated with Michigan’s agriculture and natural resource industries. MSU also has a Climate-Land Interaction Project Lab focused on climate change links to changes in land use, crops, livestock, natural ecosystems and health. This is a partnership with many universities both here in the U.S. and abroad that has been working effectively since 1995. The Lab uses a broad range of weather and climate models and remote sensing data to examine the relationships among climate, land use and health. MSU also has a very strong relationship with the USDA Forest Service Northern Research Station and have collaborative research projects on climate, fire, and carbon cycle sciences.

The faculty have some existing collaborations with NCAR scientists, particularly on both earth system and climate modeling. They also use several UCAR and NCAR tools (e.g., downscaling WRF for climate analysis, Unidata/COMET tools and resources, etc). They look forward to expanding these collaborations through the UCAR member network, learning more about UCAR resources, and participating in UCAR governance activities. It was clear that MSU senior leaders were extremely proud of the MSU weather and climate related activities and enthusiastic about their membership in UCAR.

**Recommendation:** The Membership Committee concludes that the Michigan State University clearly exceeds the UCAR membership criteria, and accordingly recommends that the Member Representatives elect the Michigan State University a UCAR member.