

Kentucky Climate Center

Department of Geography & Geology
Western Kentucky University
1906 College Heights Boulevard
Bowling Green, KY 42101
Phone: (270) 745-5983 Fax: (270) 745-6410
kyclim@wku.edu <http://kyclim.wku.edu>



Dr. Stuart A. Foster, State Climatologist and Director
Dr. Rezaul Mahmood, Associate Director

The Kentucky Climate Center (KCC) observed its 32nd year of operation in 2010. As a member of Western Kentucky University's Applied Research and Technology Program (ARTP), the KCC received funding to support both undergraduate and graduate students and provide opportunities for them to participate in a variety of research and service activities, including presentations at statewide, regional, and national meetings. The KCC currently supports students from programs in geography, meteorology, and mathematics.

The KCC is recognized by the AASC as the State Climate Office for Kentucky in the National Climate Services Partnership. Therein, the KCC had developed strong relationships with the five National Weather Service forecast offices that serve portions of Kentucky, which include Jackson, KY, Louisville, KY, Paducah, KY, Wilmington, OH, and Charleston, WV. The KCC also enjoys supportive relationships with the Midwestern Regional Climate Center and the National Climatic Data Center.

In addition to housing the Office of the State Climatologist, the Kentucky Climate Center is home to the Kentucky Mesonet and the Climate Research Laboratory. The Kentucky Mesonet is a statewide network of automated weather and climate stations that is recognized as the official source of climatological observations for the Commonwealth of Kentucky. The Climate Research Laboratory houses several Linux workstations running WRF, WRF-Chem, MM5, and RAMS and supports atmospheric and atmospheric chemistry modeling focusing on impacts of land use and land cover change.

Information Services

The KCC provides climate data and information through a variety of channels. These include communication via telephone, fax, and e-mail. Our primary source of service delivery is via our website, which includes a variety of narratives, tables, maps, and graphs summarizing Kentucky's historical climate. The website emphasizes interactive graphics to help users find the data and information they need. The Kentucky Climate Center produces monthly climate

summaries for Kentucky. These reports are submitted to the Midwestern Regional Climate Center and disseminated through the AASC website, as well as the KCC website. In addition, the KCC maintains the Kentucky Mesonet website (<http://www.kymesonet.org/>). The Kentucky Mesonet, a partnership with the National Weather Service, was recognized in 2010 by Kentucky's Commonwealth Office of Technology as winner of the Best of Kentucky Technology Award for Best Application Serving Public Agencies.

Research

Faculty and students associated with the Kentucky Climate Center are involved in a variety of applied research projects. A current focus is on the analysis of data from the Kentucky Mesonet, including mountain/valley temperature differences and temperature bias due to station exposure and instrumentation. Modeling research continues to assess impacts of land-use/land-cover change and soil moisture on planetary boundary layer, precipitation, and air quality dispersion. Papers on these topics were published in Atmospheric Environment, Applied Engineering in Agriculture, and Journal of Geophysical Research. The KCC also contributed to a monograph addressing the bias in daily mean temperature when calculated using different formulas for NCDC's Climate Database Modernization Program.

Faculty, staff, and students affiliated with the Kentucky Climate Center presented research papers at the Annual Meetings of the American Meteorological Society, the Association of American Geographers, the Kentucky Academy of Sciences, and the Southeast Division Association of American Geographers.

Outreach

The KCC provides outreach via the media, including interviews through the television, radio, and newspaper media addressing significant weather events, climate change, and the Kentucky Mesonet.

The state climatologist plays an active role on the Drought Mitigation and Response Advisory Council organized through the Kentucky Division of Water within the Kentucky Cabinet for Energy and Environment.

The KCC was a contributing sponsor of the Regional Climate Change Forum (<http://www.kstc.com/conferences/rccf/index.cfm>) organized and hosted by the Kentucky Science and Technology Corporation. The state climatologist delivered a featured presentation highlighting Kentucky's climate, natural hazards, and documented climate variability and change in Kentucky.

The Kentucky Division of Emergency Management and the Kentucky Climate Center hosted the 2010 Kentucky Weather Conference in January. This event was targeted at emergency managers and other first responders and was the first in what is anticipated to become an annual event.

The KCC was an invited presenter at the Kentucky Association of Mitigation Managers 2010 annual meeting. The presentation highlighted the Kentucky Mesonet and its value for hazard mitigation and response.

Monitoring and Impact Assessments

Development of the Kentucky Mesonet continued. Forty-nine automated environmental monitoring stations have been installed throughout the state as of May 2010, including 25 new stations over the previous year. Mesonet staff continues to enhance relationships with NWS forecast offices serving Kentucky. Data from the Kentucky Mesonet are freely available to the public at <http://www.kymesonet.org/>.