

## Interdisciplinary Cluster Hire Focused on High Impact and Severe Weather

School of Meteorology  
College of Atmospheric and Geographic Sciences  
The University of Oklahoma

As part of a multi-year College-level effort to become a global leader in Earth System Predictions and Community Resilience Research, the School of Meteorology welcomes applications for a cluster of eight (8) faculty positions from candidates whose experiences and interests have prepared them to be an integral contributor to the advancement of our inclusive and diverse communities engaged in scientific discovery, developing talent, and service to society. The first year of this multi-year hiring initiative is mostly focused on high-impact and severe weather (HISW), while years 2 and 3 will target subseasonal to seasonal (S2S) predictions, and Earth System Modeling (ESM) and Prediction, respectively. This first-year search is coordinated by the College of Atmospheric and Geographic Sciences, and includes an additional two (2) appointments in the Department of Geography and Environmental Sustainability (DGES), with one of the eight appointments of this cluster search envisioned as joint between the two academic units.

The University of Oklahoma is committed to achieving a diverse, equitable, and inclusive university community by embracing each person's unique contributions, background, and perspectives. The University recognizes that fostering an inclusive environment for all, with particular attention to the needs of historically marginalized populations, is vital to the pursuit of excellence in all aspects of our institutional mission. This enhances the OU experience for all students, faculty and staff, and for the communities that we engage. The Mission of the College of Atmospheric and Geographic Sciences is to provide a world-class academic experience that promotes convergent, innovative and inclusive education and research at the intersections of weather, climate, and sustainability. To fulfill our mission, we are dedicated to preparing students for successful careers in the private sector, academia, government agencies, and non-governmental organizations.

The School of Meteorology has a long and distinguished history of excellence in various sub-fields of meteorology. Our vision, i.e., to "*Develop the School into a just and equitable, globally-engaged, student-centered atmospheric science program to advance the Nation's Weather, Water, and Climate enterprise, by leveraging our strengths in research, education, and community engagement*" is articulated in the recently developed Strategic Plan (SP2030), available [here](#). This cluster search constitutes the first year of a multi-year strategic hiring effort and is broadly focused on six positions in High Impact and Severe Weather research, a seventh position, the Williams Chair, in subseasonal to seasonal (S2S) prediction, and an eighth position focused on urban climate, which will be a joint position between the SoM and DGES:

### **Focus Area 1: Radar Meteorology (Chair: Dr. Robert Palmer, rpalmer@ou.edu)**

Two (2) tenured/tenure-track positions are available in the broad area of radar meteorology.

- 1) Radar Meteorology - High Impact and Severe Weather: Competitive candidates for this position should have expertise in radar-based studies of high-impact weather. Interest in fieldwork, advanced radar systems such as polarimetric and phased array radar, and/or using radar observations with numerical models is desirable. The successful candidate will become an important member of the School of Meteorology faculty and the vibrant

Norman radar meteorology community, which includes several university research centers, NOAA partners, and private companies. <http://apply.interfolio.com/95632>

- 2) Radar Meteorology - Cloud Dynamics and Microphysics: Competitive candidates for this position should have expertise in radar-based studies of cloud dynamic and microphysical processes. Interest in fieldwork, advanced radar systems such as polarimetric and phased array radar, and/or using radar observations with numerical models is desirable. The successful candidate will become an important member of the School of Meteorology faculty and the vibrant Norman radar meteorology community, which includes several university research centers, NOAA partners, and private companies. <http://apply.interfolio.com/96128>

**Focus Area 2:** Numerical Weather Predictions and Data Analytics (Co-Chairs: Dr. Greg McFarquhar, [mcfarq@ou.edu](mailto:mcfarq@ou.edu); Dr. David Ebert, [ebert@ou.edu](mailto:ebert@ou.edu); Dr. Steven Cavallo, [cavallo@ou.edu](mailto:cavallo@ou.edu))

- 3) NWP - Data Assimilation & Modeling of Cloud & Precipitation Processes: A tenure-track position is available in the broad area of numerical weather prediction (NWP) in order to improve the understanding and prediction of high impact weather. A particular focus is modeling of cloud and precipitation processes and/or data assimilation as needed for NWP models. The ideal candidate will have expertise in one or more of the following areas: (i) development of cloud microphysical parameterizations, (ii) development of planetary boundary layer parameterizations or other physical parameterizations for use in NWP, or (iii) the development and application of data assimilation techniques and/or systems for NWP to improve prediction of severe or other high impact weather, especially using radar data, satellite radiances and other remotely sensed observations <http://apply.interfolio.com/96135>
- 4) Data Analytics - AI, & ML for High-Impact Weather Applications: A tenure-track position is available in the broad area of using artificial intelligence (AI) and machine learning (ML) techniques for improving the prediction and understanding of weather and climate, especially for time scales ranging from subhourly through subseasonal to seasonal. This position is in partnership with the new OU Data Science Institute for Societal Challenges. Examples of expertise sought include development and use of AI/ML to postprocess model outputs, development of hybrid AI/numerical models, and the use of AI/ML to improve forecasts <http://apply.interfolio.com/96137>

**Focus Area 3:** Dynamic Meteorology and Boundary Layer Observations (Co-Chairs: Dr. Scott Salesky, [salesky@ou.edu](mailto:salesky@ou.edu); Dr. Petra Klein, [pkklein@ou.edu](mailto:pkklein@ou.edu))

- 5) Dynamic Meteorology - Theory and Modeling of the Dynamics of PBL Processes and Mesoscale Meteorology: A tenure-track Assistant Professor position is available in dynamic meteorology, with an emphasis on planetary boundary layer (PBL) processes and/or mesoscale meteorology. The ideal candidate will have expertise in theoretical or computational approaches for studying atmospheric dynamics at the micro- to mesoscale. Moreover, they are expected to teach courses in the School's undergraduate and graduate curricula focusing on atmospheric dynamics, mesoscale meteorology, and numerical modeling and to develop new courses in their area of expertise. Examples of expertise sought for this position include theoretical modeling of PBL and/or mesoscale processes,

numerical modeling of atmospheric dynamics, and development or improvement of boundary-layer parameterizations.

<http://apply.interfolio.com/96153>

- 6) Boundary Layer Observations Using Innovative Sensing Technologies: A tenured Associate Professor position is available in the broad area of planetary boundary layer observations. Ideal candidates will have expertise in development and/or application of innovative, emerging instrumentation for boundary layer research (e.g. observations from uncrewed aerial system platforms, lidars, or satellites). A proven track record of external funding and participation in observational campaigns, preferably in a lead role, is expected. Moreover, the candidate is expected to teach courses in the School's undergraduate and graduate curricula focusing on atmospheric observations, boundary-layer meteorology, and atmospheric dynamics, and to develop new courses in their area of expertise <http://apply.interfolio.com/96154>

**Position 7** (Co-Chairs: Dr. Berrien Moore III, [berrien@ou.edu](mailto:berrien@ou.edu); Dr. Jens Redemann, [jredemann@ou.edu](mailto:jredemann@ou.edu))

- 7) Williams Chair, Earth System Predictions on S2S Scales: The Williams Chair, a tenured (associate/full professor) position, is available in the area of Subseasonal to Seasonal (S2S) Prediction and is a central element of the University's vision which focuses upon Earth System Prediction and Environmental Sustainability. The successful applicant is expected to play a leadership role in advancing research focused on the linkages between weather and climate at sub-seasonal to longer time-scales. Clearly demonstrated scholarly attainment, primarily but not exclusively through teaching, research, and scholarly activity, is preferred. The ability to communicate effectively with a wide range of leaders within the region, nationally, and internationally is desirable. <http://apply.interfolio.com/96241>

**Position 8** (Chair: Dr. Renee McPherson, [renee@ou.edu](mailto:renee@ou.edu))

- 8) Urban Climate: We seek an innovative scholar with the potential to make significant contributions in the understanding of the link between high-impact weather and climate extremes and community resilience in urban environments. The scholar's research may include public health, sustainability, climate-change impacts or adaptation, heat waves, air quality, or flooding. This position will be a joint appointment between the Department of Geography and Environmental Sustainability (DGES) and the SoM. The ideal candidate will embed their research in urban systems thinking and employ geospatial technologies, numerical modeling, data science, or remote sensing to address these questions. This search is led by DGES and embedded there in a separate focus area: <https://apply.interfolio.com/95572>

Candidates who meet criteria of more than one of the advertised positions are encouraged to submit multiple applications.

The University of Oklahoma (OU) is a Carnegie-R1 comprehensive public research university known for excellence in teaching, research, and community engagement, serving the educational, cultural, economic and health-care needs of the state, region, and nation from three campuses: Norman, Health Sciences Center in Oklahoma City and the Schusterman Center in Tulsa. OU enrolls over 30,000 students and has more than 2700 full-time faculty members in 21 colleges. In

Fall 2021, approximately 25% of OU's freshmen were first-generation students, 38% of all students belonged to a historically underrepresented, underserved, and/or marginalized race/ethnicity and in Fall 2020 5% were international.

We acknowledge that the University of Oklahoma is on the traditional lands of the Caddo Nation and the Wichita & Affiliated Tribes. This land was also once part of the Muscogee Creek and Seminole nations. It also served as a hunting ground, trade exchange point, and migration route for the Apache, Cheyenne, Comanche, Kiowa, and Osage nations. Today, over 40 federally recognized, state-recognized, or self-identified tribal nations dwell in what is now the State of Oklahoma as a result of settler colonial policies designed to encapsulate and to assimilate Indigenous peoples.

Norman is a vibrant university town of around 113,000 inhabitants with a growing entertainment and art scene. With outstanding schools, amenities, and a low cost of living, Norman is a perennial contender on "best place to live" rankings. Visit <http://www.ou.edu/flipbook> and <http://soonerway.ou.edu> for more information. Within an easy commute, Oklahoma City features a dynamic economy and outstanding cultural venues adding to the region's growing appeal.

Application Materials Requested: To apply, please specify to which position(s) you are applying and submit (as one single pdf file) a letter of interest, *curriculum vitae*, list at least 3 people who can serve as references (with e-mail addresses, and telephone numbers), and brief (~2-3 pages) statements of interest regarding 1) research, 2) teaching, 3) service, and 4) diversity, equity, and inclusion (DEI). The research statement should summarize your prior contributions to research and your goals for developing a research program at OU. The teaching statement should summarize past instructional and mentorship experiences, your pedagogical philosophy, and plans/goals for teaching at OU (including existing and proposed courses) and advising a diverse cohort of undergraduate and graduate students. The service statement should describe your vision for internal service to the academic unit, the College, and the University, and for external service to our scientific community and other stakeholders. The DEI statement should summarize your understanding and experience of relevant best practices, and outline plans for contributing to diversity, equity, and inclusion efforts through research, teaching, and/or service.

Screening of applications will begin on December 1, 2021 and will continue until the positions are filled. The search committee chairs listed above and the SoM Director Jens Redemann ([jredemann@ou.edu](mailto:jredemann@ou.edu)), would be happy to answer any questions about the positions and our organization, and look forward to receiving your application materials.