

23-146

Research Associate III

Fire Weather Applications Researcher

Overview

The Cooperative Institute for Research in the Atmosphere (CIRA) with Colorado State University (CSU) seeks to fill a full time, professional research associate position to conduct collaborative research with the National Oceanic and Atmospheric Administration (NOAA) at the Global Systems Laboratory (GSL) in Boulder, CO. The office for this position is located in Boulder, CO, at a federal facility, and requires the ability to pass a tier one federal background check for building and HPC access. An onsite presence at the laboratory in Boulder, CO is required with part-time telework available.

Background

CIRA is a multi-million dollar research organization located on CSU's Foothills Campus in Fort Collins, Colorado, and it is a cooperative institute that is also a research department within CSU's College of Engineering, in partnership with the Department of Atmospheric Science. Its vision is to conduct interdisciplinary research in the atmospheric sciences by entraining skills beyond the meteorological disciplines, exploiting advances in engineering and computer science, facilitating transitional activity between pure and applied research, leveraging both national and international resources and partnerships, and assisting NOAA, Colorado State University, the State of Colorado, and the Nation through the application of our research to areas of societal benefit.

GSL is a federal science and research laboratory under NOAA's Office of Oceanic and Atmospheric Research. GSL provides the National Weather Service (NWS) and the nation with environmental observing, prediction, computer, visualization, and information systems. These systems deliver data, forecasts, and predictions of weather, including severe weather events, within the next few minutes to weeks away. GSL is a leader in the applied research, directed development, and technology transfer of environmental data, models, products, and services that enhance environmental understanding with the outcome of supporting commerce, protecting life and property, and promoting a scientifically literate public.

This position is situated within the Earth Prediction Advancement Division (EPAD) of GSL and serves both the Scientific Computing Branch (SCB) and the Atmospheric Composition Branch (ACB) within GSL/EPAD. SCB conducts physical and computational scientific research in support of innovative, impactful and future-oriented NOAA forecast and analysis systems. ACB conducts research on modeling of fire weather and atmospheric composition.

Position Overview

The SCB and ACB seek candidates with a strong background in atmospheric and computational sciences with experience in convective boundary layer phenomenology, Geophysical or Computational Fluid Dynamics to collaborate on model application and development and in-depth characterization using both idealized test cases and observations. Experience with lidar and/or radar data is desirable for validating model capabilities. The primary application area will be inherent fire dynamics, smoke plume rise and evolution, dispersion, and fire-weather interactions. The successful candidate will have strong

scientific software engineering skills, preferably in C++ or Fortran and an ability to run on large HPC systems. This position will report to the Sr. Computational Scientist.

Decision Making

Decision making depends on the scale of each assignment and issues involved; the chosen course of action may need to be selected from many solutions, dependent upon the end user and technical requirements, and may require coordination with other members of the project team to reach a final decision. The individual in this position makes many decisions concerning such things as interpretation of data, task planning, and/or refining methods and techniques.

Responsibilities

Collaborative Research, Tool Development and Testing 85%

- * Computation and analysis of idealized fire weather model configuration with and without moisture; comparison with observations; numerical analysis;
- * Evaluation of resolved dynamics, Large Eddy Simulation closures and parameterization development for fire weather models;
- * Development of data analysis tools;
- * Use of fire plume observations from the field campaign data (FIREX-AQ, CalFiDE etc.);
- * Interface with CIRA, GSL and other researchers both to broaden utility of findings, and to aid with validation;

Documentation and Reporting 15%

- * Presentation of research status and findings to sponsors and peer organizations; participation in workshops and conferences.
- * Presentation of research findings in peer-reviewed publications;
- * Incorporation of products into authoritative code repository;
- * Active participation in team/branch meetings, presentation of work progress as requested;
- * Preparation, maintenance of project and software documentation in collaboration with team members.

Required Qualifications

In your cover letter, please specifically address EACH requirement as relates to your experience. A cover letter that fails to address the required qualifications for this position may not be considered further after review by the search committee.

- * M.S. in Mathematics, Physical Science (especially, Atmospheric Science), or related field (ie: Computational Fluid Dynamics) **AND**
- * Two (2) years of relevant work experience **OR**

* Ph.D. in Mathematics, Physical Science (especially, Atmospheric Science), or related field (ie: Computational Fluid Dynamics)

* Experience programming in C/C++ , Fortran or Python;

* The office for this position will be located in Boulder, CO, at a federal facility and requires the ability to pass a tier one federal background check for building and HPC access.

* Must be legally authorized to work in the United States by the start date. CIRA will not sponsor a visa for this position now or in the future.

Preferred Qualifications

In your cover letter, please specifically address the applicable preferred qualifications for this position. A cover letter that fails to address the preferred qualifications for this position may not be considered further after review by the search committee.

* Experience with lidar and/or radar data analysis.

* Experience with Python and associated libraries SciPy, NumPy and Pandas.

* Good verbal and written communication skills required to participate in group meetings, and to give technical presentations, write scientific reports and manuscripts.

* Proven ability to work independently on well-defined tasks and demonstrated ability to work in a team environment

To ensure full consideration applications should be submitted by 11:59pm January 8, 2024. Apply electronically by clicking "Apply to this Job" at the following website:
<https://jobs.colostate.edu/postings/136524>

References will not be contacted without prior notification of candidates. NOTE: In your cover letter, please specifically address the required and applicable preferred qualifications for this position. A cover letter that fails to address the required and preferred qualifications for this position may not be considered further after review by the search committee.

Commitment to Diversity and Inclusion

Reflecting departmental and institutional values, candidates are expected to have the ability to advance the Department's commitment to diversity and inclusion.

Background Check

Colorado State University (CSU) strives to provide a safe study, work, and living environment for its faculty, staff, volunteers and students. To support this environment and comply with applicable laws and regulations, CSU conducts background checks. The type of background check conducted varies by position and can include, but is not limited to, criminal (felony and misdemeanor) history, sex offender registry, motor vehicle history, financial history, and/or education verification. Background checks will be conducted when required by law or contract and when, at the discretion of the university, it is reasonable and prudent to do so. The office for this position will be in Boulder, CO in a federal facility and will require the ability to pass a tier 1 federal background check for building and HPC access.