

**23-150**  
**Research Associate II/III**  
**Meteorological Software Developer**

**Overview**

The Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University seeks to fill a professional scientific research position designed to conduct collaborative research with the National Oceanic and Atmospheric Administration (NOAA) located at the Global Systems Laboratory (GSL) in Boulder, CO. The position will be for a meteorological software developer at NOAA/OAR/GSL Weather Informatics and Decision Support (WIDS) Division and Weather Information Systems Evolution Branch. **Office will be in Boulder, CO at a federal building and requires the ability to pass a tier 1 federal background check. Onsite presence is desired for this position, but remote work will be considered.**

**Background**

The Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University (CSU) is a multi-million dollar research organization located on CSU's Foothills Campus in Fort Collins, Colorado. CIRA 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.

NOAA's Global Systems Laboratory (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.

Within GSL, the Weather Informatics and Decision Support Division (WIDS) / Weather Information Systems Evolution Branch (WISE) is on the forefront in developing new systems for NWS forecasters (and other federal and international agencies) who require display of and interaction with real-time weather data for their forecast and warning operations, as well as to support Impact-Based Decision Support Services (IDSS). For example, a key function is the generation of warnings or hazard information for high-impact weather events such as tornadoes, hurricanes, and floods.

WISE has been tasked with the creation of a variety of science-based applications to enable forecasters to work more quickly and efficiently for both routine tasks and in critical weather

situations. The host platform for these applications is the 2nd generation of the Advanced Weather Interactive Processing System (AWIPS II). It uses service-oriented architecture and is written in Java and Python using the Eclipse framework.

### **Position Summary**

The position will serve as a meteorological program developer at NOAA/OAR/GSL and will have direct interaction with scientists and developers within NOAA as well as partners outside of NOAA. This includes; NCEP centers, NWS weather forecast offices, NOAA research facilities, academia, and the NWS Science and Operations Officer community. Expertise in operational weather forecasting and decision support services will be applied to the development of software applications.

The individual in this position will work in collaboration with other scientists and software developers as well as the broader community, designing, developing, testing and refining applications for operational weather entities. Development will initially occur within the Hazard Services framework in AWIPS II, but may also include other web-based platforms. The near focus will be on applications and extensions to services that support forecasting and warning services, as well as IDSS, for diverse phenomena such as tropical storms and associated storm surge, thunderstorms, winter storms, flooding, as well as new ground-breaking paradigms involving the incorporation of continuous and probabilistic information. This position will report to the Forecast Operations Specialist.

This position will be classified Research Associate II or III according to the credentials of the finalist selected for hire as follows:

· For position title Research Associate II: B.S. in the physical sciences, computer science, or a related field AND At least three (3) years of related professional experience

–OR–

M.S. in physical sciences, computer science, or a related field

· For position title Research Associate III: B.S. in in the physical sciences, computer science, or a related field AND five (5) + years of related professional experience

–OR--

M.S. in physical sciences, computer science, or a related field AND two (2)+ years of related professional experience

–OR–

Ph.D. in physical sciences, computer science, or a related field

## **Decision Statement**

### **RA II**

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 technological 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, planning work, and/or refining methods and techniques.

### **RA III**

Decision making depends on the analysis of the user requirements, software architecture constraints, or technical issues involved with each software development activity; the chosen implementation approach may need to be selected from many alternatives. This position normally receives little instruction in day-to-day work and receives general guidance on the overall software development work conducted. The individual will set priorities that accurately reflect the relative importance of particular software development and other work activities as well as established software release deadlines.

## **Essential Job Duties**

### Software Development for Weather Applications (90%)

- Utilize operational forecasting concepts and best-practices to develop software applications on AWIPS II and web-based platforms
- Apply operational forecasting techniques to test and refine forecasting, warning, and IDSS software applications, internally at GSL and within NOAA testbeds
- Interact with the operational weather community to define requirements, operational practices, and scientific developments appropriate to weather operations
- Develop innovative, scientific solutions to modernize software used in weather forecasting and warning applications and to support IDSS
- Participate in group discussions and activities associated with software development, data assimilation, numerical weather prediction systems, and remote sensing systems in the context of environmental analysis and prediction

### Documenting and Reporting (10%)

- Prepare software documentation in collaboration with other team members
- Summarize research results for sponsors and broader weather community
- Prepare manuscripts for publication, based on these research results
- Participate in proposal writing activities
- Apply basic principles of project management to ensure deliverables and milestones are met on time, project scope is appropriately aligned with statements of work, and timelines are adhered to
- Complete annual reports documenting the status of existing projects

## **Required Job 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.**

### **RA II Requirements**

B.S. in the physical sciences, computer science, or a related field AND

At least three (3) years of related professional experience

–OR–

M.S. in physical sciences, computer science, or a related field

### **RA III Requirements**

B.S. in in the physical sciences, computer science, or a related field AND

Five (5) + years of related professional experience

–OR--

M.S. in physical sciences, computer science, or a related field AND

Two (2)+ years of related professional experience

–OR--

Ph.D. in physical sciences, computer science, or a related field

### **Required qualifications for both classifications**

- Ability to pass a tier 1 federal background check because the position is located inside a federal building;
- 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.
- Professional experience developing, testing and evaluating information systems or applications
- Formal experience in computer science and/or computer programming
- Proficiency in python programming language
- Experience working with complex, real-time, environmental datasets including observations and numerical weather prediction output using common meteorological data formats, such as BUFR, NetCDF, HDF, and GRIB, etc.

### **Preferred Job 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.**

- Proficiency in the use and configuration of AWIPS and its Linux environment
- Experience with software version control (e.g. git) and using the NOAA Virtual Lab (VLAB) for software development collaboration

- Experience maintaining robust community code in a real-time environment, including formal code reviews and check-in processes
- M.S. in atmospheric sciences, meteorology, or a related field;
- Experience with Java
- Demonstrated skill in performing tasks requiring organization and attention to detail.
- Ability to communicate effectively (verbal and written) and work effectively in a team environment.
- Ability to work in an agile, fast-paced environment with production deadlines and deliverables
- Be able to grasp the big picture and translate it into software design, test plans, and documentation
- Demonstrated skill in communicating effectively with scientists of diverse backgrounds on technical details of work plans, and present results accurately and clearly in both oral and written form.

### **Background Check**

Colorado State University is committed to providing a safe and productive learning and living community. To achieve that goal, we conduct background investigations for all final candidates being considered for employment. Background checks may include, but are not limited to, criminal history, national sex offender search, and motor vehicle history. In addition, the final candidate will be required to pass a tier one federal background check because the job is in a federally occupied building.

### **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.

### **Application Deadline and Details**

To ensure full consideration applications should be submitted by 11.59pm, Monday, January 8, 2024 . Apply electronically by clicking “Apply to this Job” at the following website: <https://jobs.colostate.edu/postings/136896> . References will not be contacted without prior notification of candidates. In your cover letter, please specifically address the required and preferred qualifications of this position. A cover letter that fails to address the required and preferred qualifications of this position may not be considered further after review by the search committee.