Position Summary:
The Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University (CSU), located on the CSU Foothills Campus approximately 5 miles northwest of CSU main campus, has a long history of data analysis and algorithm development to improve understanding of and forecast skill for tropical cyclone track, intensity, and structure with an emphasis on satellite data applications. The individual in this fellowship will work on a tropical cyclone project that utilizes Joint Polar Satellite System (JPSS) and other polar-orbiting satellite data to develop tropical cyclone applications to diagnose and forecast tropical cyclone intensity and structure.

The project will involve the analysis of observations from Joint Polar Satellite System (JPSS) low-Earth orbiting satellites, including data from Visible Infrared Imaging Radiometer Suite (VIIRS) and Advanced Technology Microwave Sounder (ATMS) to derive quantitative parameters not available from models and in situ data, and use these parameters to improve tropical cyclone intensity and structure estimates and forecasts. Specifically, JPSS data will be used to diagnose tropical cyclone structure during extratropical transition and as input to machine learning methods for objective storm type classification.

This Postdoctoral Fellowship is a 12-month position that is planned to start as early as October 1, 2023 with later start dates negotiable, and may receive up to a 2-year extension contingent upon performance and funding. This Fellowship offers an opportunity to take part in an active program of research related to CIRA’s work in tropical cyclone data analysis and satellite algorithm development, and its research goal is to identify new operational forecaster decision aids. Results of this research will be passed on to the National Weather Service (NWS) National Hurricane Center (NHC) and Department of Defense Joint Typhoon Warning Center (JWTC) via AWIPS-II and/or the Automated Tropical Cyclone Forecast (ATCF) system. The individual in this position will collaborate with CIRA researchers, as well as NOAA collaborators, NESDIS, and operational partners at NHC and JTWC. Therefore, the individual in this position should have the ability to develop automated applications and work independently and in a team environment. The individual in this position will report to the Principal Investigator and will be co-mentored by CIRA Tropical Cyclone Research Scientists. This position requires on-site presence in Fort Collins, CO but will allow flexible work arrangements including hybrid office/telework.

Decision Making:
The individual in this fellowship will execute a plan of research that will resonate with the underpinning science objectives of the supporting project. The decisions they will make and the approaches they will take will be determined by the individual’s own scientific acumen and in consultation with the Principal Investigator. Successful execution of the proposed research, i.e. supporting the deliverables mentioned in the project’s statement of work, will hinge upon the definition of a scientifically-sound plan and its execution. Ultimately this decision-making process will lay a foundation that will be critical for success in future proposals and will build an independent and self-sufficient research program. Similarly, the individual in this fellowship will conduct their research with an eye toward establishing strong partnerships with both CIRA research staff, NOAA collaborators, and sponsors.

Essential Job Duties:
Applied Research 60%
- analyze JPSS ATMS and VIIRS, and related ancillary data in tropical cyclone environments to identify parameters related to cyclone structure and intensity changes during extratropical transition;
- use JPSS and other data to develop a machine learning model for diagnosing extratropical transition;
- analyze JPSS and other polar-orbiting satellite data to develop new and improve existing applications designed to help to diagnose and forecast tropical cyclone intensity and structure.

Independent Research 20%
- contribute to other tropical cyclone research that complements the principle applied research topics and
serves the CIRA and NESDIS/RAMMB mission;
• contribute to the development of new proposals that may lead to an independent research program.

Collaborative Research 10%
• travel to scientific conferences to present research results;
• collaborate with operational partners and product end users (e.g., NHC, JTWC);
• collaborate with other CIRA and RAMMB scientists working on similar research projects.

Documentation & Reporting 10%
• contribute to project reports;
• publish results in conference proceedings and journal articles.

Required Qualifications:
Note: Please detail each of these items in your cover letter.
• Ph.D. in meteorology, atmospheric sciences, oceanography, or a related field;
• at least 1 year of experience working on Linux or Unix operating systems;
• strong interest in tropical cyclones applied research;
• experience with tropical cyclone or machine learning research;
• solid programming skill and demonstrated experience with scientific programming in Python and shell scripts;
• good oral and written communication skills;
• experience reading, writing, and quantitatively manipulating large geophysical datasets;
• familiarity working with geophysical data formats such as NetCDF, HDF5, or GRIB2;

Preferred Qualifications:
Note: Please highlight applicable items in your cover letter
● experience working with tropical cyclone data;
● experience developing and running automated applications;
● experience transitioning research to operations;
● experience with statistical analysis and forecast algorithms;
● experience using machine learning methods for meteorological applications;
● familiarity with scientific programming in Fortran;
● familiarity and experience with satellite observing systems;
● familiarity and experience working with data from weather forecast or climate models.

Annual Salary: $62,000 - $64,000

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, in the discretion of the university, it is reasonable and prudent to do so.

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:
Applications will be accepted until the position is filled; however, to ensure full consideration applications should be submitted by 11:59 PM MT on September 5, 2023. For full position announcement and to apply, please click “Apply to this Job” at the following website: https://jobs.colostate.edu/postings/131900. NOTE: In your cover letter, please specifically address the required and preferred qualifications of this position. A cover letter that fails to address the qualifications of this position may not be further considered after review by the
search committee.

Colorado State University is committed to providing an environment that is free from discrimination and harassment based on race, age, creed, color, religion, national origin or ancestry, sex, gender, disability, veteran status, genetic information, sexual orientation, gender identity/expression, or pregnancy in its employment, programs, services and activities, and admissions, and, in certain circumstances, marriage to a co-worker. The University will not discharge or in any other manner discriminate against employees or applicants because they have inquired about, discussed, or disclosed their own pay or the pay of another employee or applicant. Colorado State University is an equal opportunity and equal access institution and affirmative action employer fully committed to achieving a diverse workforce and complies with all Federal and Colorado State laws, regulations, and executive orders regarding non-discrimination and affirmative action. The Office of Equal Opportunity is located in 101 Student Services. The Title IX Coordinator is the Director of the Office of Title IX Programs and Gender Equity, 123 Student Services Building, Fort Collins, CO 80523-0160, (970) 491-1715, titleix@colostate.edu. The Section 504 and ADA Coordinator is the Director of the Office of Equal Opportunity, 101 Student Services Building, Fort Collins, CO 80523-0160, (970) 491-5836, oeo@colostate.edu. The Coordinator for any other forms of misconduct prohibited by the University’s Policy on Discrimination and Harassment is the Vice President for Equity, Equal Opportunity and Title IX, 101 Student Services Building, Fort Collins, Co. 80523-0160, (970) 491-5836, oeo@colostate.edu. Any person may report sex discrimination under Title IX to the Office of Civil Rights, Department of Education.