Postdoctoral Fellow  
(Tropical Cyclone Researcher)  
22-103

Position Summary:
The Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University (CSU), located on the CSU Foothills Campus approximately five 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. The individual in this fellowship will report to the projects Principal Investigator and will be co-mentored by the CIRA Tropical Cyclone Research Scientist. The individual in this position will also collaborate with CIRA researchers from the Tropical Cyclone, Satellite Applications, and other groups, as well as with NOAA collaborators at the Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami, FL, NESDIS, and operational partners at the National Weather Service (NWS) National Hurricane Center (NHC) in Miami, FL and the Department of Defense Joint Typhoon Warning Center (JWTC) in Pearl Harbor, HI. The individual in this position will work in-person at CIRA and must start no later than September 1, 2022.

Specifically, the individual in this positon will divide their time between two tropical cyclone projects. For the first project, they will analyze model output, including results from coupled climate models, to develop new methods for parameterizing the interactions between tropical cyclones and the ocean to improve statistical models for tropical cyclone intensity forecasting. The work will include close collaboration with scientists at the NOAA AOML located in Miami, FL. For the second project, the individual in this fellowship will analyze observations from Joint Polar Satellite System (JPSS) low-earth orbit satellites, including data from Visible Infrared Imaging Radiometer Suite (VIIRS) and Advanced Technology Microwave Sounder (ATMS) to diagnose tropical cyclone structure during extratropical transition and use machine learning methods for objective storm type classification.

This Postdoctoral Fellowship is a 12-month position that is planned to start May 1 – September 1, 2022, and may receive and extension up to two years 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 tools useful as operational forecaster decision aides. Results of this research will be passed on to the NHC and JWTC via AWIPS-II (Advanced Weather Interactive Processing System) and/or the Automated Tropical Cyclone Forecast (ATCF) system.

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 project goals and objectives described in the project narrative, 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 CIRA research staff, NOAA collaborators, and sponsors.

Essential Job Duties:
Applied Research 60%  
- analyze ocean profile observations and coupled climate model ocean and atmosphere data in tropical cyclones to identify relationships between wind forcing and ocean response;  
- apply results of data and model analysis to improve parameterizations of the ocean response to tropical cyclones and test impacts on statistical intensity forecast models  
- analyze JPSS ATMS and VIIRS, and related ancillary data in tropical cyclone environments to identify parameters related to structure and intensity changes during extratropical transition  
- use JPSS and other data to develop a machine learning model for diagnosing extratropical transition  

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%
• collaborate with AOML scientists;
• 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%
• prepare annual project reports;
• publish results in conference proceedings and journal articles;
• travel to scientific conferences to present research results.

Required Qualifications:
Please specifically address all required qualifications 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;
• demonstrated experience with scientific programming in Python;
• demonstrated experience reading, writing, and quantitatively manipulating large geophysical datasets in common scientific formats such as NetCDF, HDF5, or GRIB2;
• demonstrated good oral and written communication skills (for example, scientific presentations and/or publications)
• experience and ability to work independently and in a team environment.

Preferred Qualifications:
Please specifically address all applicable preferred qualifications 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;
• experience with scientific programming in Fortran;
• experience with satellite observing systems;
• experience working with data from weather forecast or climate models;
• experience with Shell script programming.

Annual Salary: $60,000 - 62,000 commensurate with experience and qualifications

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 and How to Apply:
Applications will be accepted until the fellowship is filled; however, to ensure full consideration applications should be submitted by 11:59 PM MT on March 27, 2022. References will not be contacted without prior
notification of candidates. Apply electronically by clicking “Apply to this Job” at the following website: https://jobs.colostate.edu/postings/101040.

NOTE: 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 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 or expression, or pregnancy and 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/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 Executive Director of the Office of Support and Safety Assessment, 123 Student Services Building, Fort Collins, CO 80523-2026, (970) 491-7407. The Section 504 and ADA Coordinator is the Executive Director of Human Resources and Equal Opportunity, Office of Equal Opportunity, 101 Student Services Building, Fort Collins, CO 80523-0160, (970) 491-5836.