Position Summary:
The Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University seeks to fill a full-time professional research position for its collaborative research with the National Park Service (NPS). Position title of Research Scientist I will apply to the finalist who possesses a PhD plus 1-2 years of experience working with operating chemical transport models and/or receptor models and analysis of chemical and meteorological data; position title of Research Scientist II will apply to the finalist who possesses a PhD plus 3 years or more of experience working with operating chemical transport models and/or receptor models and analysis of chemical and meteorological data.

The individual in this position will report to the project Principle Investigator and work with both CIRA and NPS researchers in the Fort Collins office. The NPS collaborates with other federal and state organizations to monitor air quality data in national parks and other class I areas. This includes speciated fine particulates, haze, reactive nitrogen, and ozone data measured in the IMPROVE, NADP, CASTNet, and other monitoring programs. In addition, short-term, intensive monitoring studies are conducted to measure physical, chemical, and optical properties of aerosols and gaseous pollutants in select national parks. Eulerian, Lagrangian, and receptor models are used and integrated with the measured data to investigate the causal mechanisms for elevated pollutant levels. The modeling and data analysis results are used to develop air quality policy positions within the NPS and inform state and federal agencies for the implementation of regulations and strategies to mitigate air quality issues.

The individual in this position will incorporate air quality models with measured aerosol, reactive nitrogen, ozone, and other data to determine the causal mechanisms for elevated pollution in class I areas. This will include operating Eulerian chemical transport models, Lagrangian dispersion models, and receptor models for source apportionment, and evaluating the role of meteorology, emissions, and other physical and chemical processes on measured and modeled concentrations.

The role that emissions from agricultural activities play in affecting regional air quality in national parks and class I areas is an important area of concern. Animal feeding operations and fertilizer application represent the largest sources of ammonia emissions and are among the largest contributors to excess reactive nitrogen deposition to sensitive ecosystems in many national parks. These sources also influence particle formation, contributing to haze and visibility degradation. One of the first projects that the individual in this position will complete, will be use of chemical transport models and other tools to assess the contributions of agricultural activities to air quality issues in national parks throughout the United States. This work will involve improving the skill of the models to simulate air quality, including achieving a better understanding of the temporal and spatial distribution of agricultural emissions, improving deposition mechanisms, and using new observations (e.g., satellite ammonia retrievals) to evaluate model performance and to incorporate into potential hybrid/inverse models.

Essential Job Duties:
Research- 80%
- incorporate chemical transport models with measured aerosol, reactive nitrogen, ozone, and other data to determine the causal mechanisms for elevated pollution in class I areas; this will include operating Eulerian chemical transport models, Lagrangian dispersion models, and receptor models for source apportionment, and evaluating the role of meteorology, emissions, and other physical and chemical processes on measured and modeled concentrations.

Dissemination of Research Results - 20%
- write reports and publish research results in peer-reviewed journals;
- attend and present papers at various national and international conferences.

Required Qualifications:
Note: Please detail each of these items in your cover letter.
• for position title Research Scientist I: Ph.D. in one of the physical sciences or a related field (e.g., environmental science) plus 1-2 years of experience working with operating chemical transport models and/or receptor models and analysis of chemical and meteorological data;
• for position title Research Scientist II: Ph.D. in one of the physical sciences or a related field (e.g., environmental science) plus 3 or more years of experience working with operating chemical transport models and/or receptor models and analysis of chemical and meteorological data;
• excellent verbal and written communication skills.

Preferred Qualifications:
Note: Please detail each of these items in your cover letter.
• demonstrated, innovative use of chemical transport models, including process analysis or inverse modeling;
• demonstrated innovative use of data analysis and receptor modeling;
• experience applying global or regional-scale prognostic chemical transport models (e.g., CMAQ or CAMx) and/or weather models (e.g., WRF), including the ability to troubleshoot model performance by modifying existing mechanisms within the model;
• experience applying Lagrangian particle dispersion models to simulate and aid in the interpretation of measured air quality data;
• familiarity with model inputs, especially emission inventories, including emissions processing and QA with the SMOKE emissions processing system;
• diagnostic model performance evaluation, including time series analyses with available monitoring data, process analysis, and the application of satellite-derived information;
• demonstrated programming skills, ideally with Fortran 77/90, as well as analytical packages (e.g., R, IDL, Matlab) and scripting (e.g., Python).

Annual Salary: Commensurate with experience and qualifications.

Application Deadline and How to Apply: Applications will be accepted until the position is filled; however, to ensure full consideration applications should be submitted by 11:59 PM MT on June 7, 2020. For full position announcement and to apply, please click “Apply to this Job” at the following website: http://jobs.colostate.edu/postings/77326. NOTE: In your cover letter, please specifically address the required 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.

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.