

**Position Summary:
Air Quality Data Specialist – Advanced**

The Lake Michigan Air Directors Consortium (LADCO) is seeking an advanced-level Air Quality Data Specialist to assist the Wisconsin Department of Natural Resources in Madison, Wisconsin.

Position Summary:

This position will work with the Wisconsin Department of Natural Resources to provide quantitative analyses of ambient air quality data in support of Clean Air Act planning objectives. This position will use advanced statistical methods, tools and techniques to analyze state and regional air quality data, specifically related to ozone and ozone precursors, to inform a better understanding of the relationship between emissions and ozone levels. This position will also use statistical methods to analyze satellite and other remote sensing data to better understand the spatial distribution of emissions sources and atmospheric processes. Activities will primarily be focused on ozone, ozone precursor, and meteorological data collected at state-operated monitoring sites, as well as from multi-platform field campaigns. An understanding of atmospheric science, chemistry or meteorology would be helpful in meeting the needs of this position.

In addition to ozone, this position will also support the gathering, analysis, review, and quality-assurance of other pollutants, including greenhouse gases, when needed to support inventory or other programmatic needs.

This position participates on interdisciplinary teams to translate data into regulatory and policy applications and will collaborate with other staff to provide recommendations for field data collection activities. This position will also be expected to recommend and implement data management and handling practices to help ensure long-term availability of the data.

This position will coordinate with external groups, such as universities, researchers, U.S. EPA, other states, and the Lake Michigan Air Directors Consortium (LADCO) on activities associated with this position.

The ideal applicant is comfortable working in a dynamic policymaking environment, is capable and motivated to understand complex situations, is detailed oriented and well organized, can manage flexible work assignments, enjoys challenges, and has exceptional written and verbal communication skills.

A more complete description of positional responsibilities is appended.

Compensation:

Starting pay is between \$23.85 - \$34.68 an hour, based on the candidate's qualifications and experience.

Desired Knowledge, Skills and Abilities:

- Excellent communication skills, especially the ability to relate technical quantitative information to a non-technical audience.
- Skill with data analysis, performing tasks such as querying databases, interpreting and explaining data, detecting patterns and trends, preparing data for presentation, etc.
- Ability to apply statistical methods to environmental data sets, including use of advanced spatiotemporal signal detection methods.

- Ability to apply multi-variate and/or spatiotemporal statistics to environmental data sets (e.g., principal component analysis, spatial statistics, timeseries analysis, etc.)
- Ability to use programming software, including R, for data and statistical analysis.
- Knowledge of satellite and other image processing, including image classification, filtering, and spatial modeling.
- Ability to use software for image processing and spatial data analysis (e.g., ERDAS Imagine, ArcGIS, ArcMap, etc.).
- Knowledge of machine learning applications appropriate to data analysis.
- Knowledge of database design, structure, and management.
- Ability to use self-describing data formats such as HDF or NetCDF.
- Ability to manage large databases and write queries.
- Ability to use Linux command line tools.
- Skill with using data visualization using tools such as SAS, SPSS, Tableau, or related applications.
- Ability to produce publication-grade data visualization.
- Ability to determine the best way to present data depending on project needs.
- Ability to understand environmental regulations, policies and laws and apply them effectively to data sets where applicable.
- Knowledge of atmospheric science, atmospheric chemistry, or meteorology.

Location:

This position is located in the central office of the Wisconsin Department of Natural Resources in Madison, Wisconsin. This position is expected to begin as 100% telework but will transition to an office setting when public health conditions in Madison allow.

Application instructions:

To apply, send a single PDF that includes a cover letter (not to exceed 2 pages) and resume by September 2, 2020 to Cortney Shelton at Cortney.Shelton@wisconsin.gov. Reference "Air Quality Data Specialist" in the email subject line.

Special notes:

Applicants must be legally entitled to work in the United States (i.e., a citizen or national of the U.S., a lawful permanent resident, or an alien authorized to work in the U.S. without LADCO or Wisconsin Department of Natural Resources sponsorship) at the time of application. Successful applicants will need to undergo a background check before beginning work with the Wisconsin Department of Natural Resources.

**Position Summary:
Responsibilities and Accountabilities**

- 65% A. Complete data analysis activities using advanced statistical methods, tools and techniques to determine the relationships between emissions, meteorological conditions, and monitored air pollutant concentrations, especially in relation to ozone.
1. Conduct spatial and temporal analyses of air quality data and interpret data results to distinguish patterns and recognize trends.
 2. Apply statistical methods to environmental data sets, including use of advanced spatiotemporal signal detection methods.
 3. Employ statistical methodology to identify, model and interpret trends and relationships, cluster, classify and predict outcomes of interest in air quality data.
 4. Analyze ambient air quality data to assess and document trends in both Wisconsin and the larger Great Lakes region.
 5. Build expertise in various data sources that hold data about air quality, including data collected from ground-based monitors, remote sensors, satellites, and metrological stations.
 6. Coordinate the planning and completion of data analyses, using appropriate quantitative and qualitative methods, to support regulatory and policy decisionmaking by the program.
 7. Complete analyses and develop data visualizations using programs such as R, Python, SAS, SPSS, Tableau, or related applications.
 8. Prepare reports, presentations, and graphics, and develop and compile briefs associated with data analysis.
 9. Respond to short-term, ad hoc data requests for data analysis and evaluation activities.
 10. Communicate and explain quantitative findings to both internal staff and external stakeholders (including policy analysts, management, regulated sources, and other non-specialists).
 11. Prepare technical reports clearly describing the methodology and uncertainty associated with the results of data analyses.
 12. In collaboration with program air monitoring staff, develop and make recommendations for data collection needed to support state ambient air quality network development and enhanced ozone monitoring activities, as well as regional efforts to do the same.
 13. Coordinate the development and implementation of plans for the long-term storage and access to data collected in support of air quality planning activities.

14. Serve as the principal staff expert on data analysis activities, advising and supporting other program staff working with air quality data.
- 15% B. Support, coordinate, and cooperatively complete ambient air quality analysis activities with external organizations.
1. Coordinate program air quality data analysis needs and activities with state, regional, and national partners and organizations, such as the Lake Michigan Air Director's Consortium (LADCO), as well as universities and research institutions.
 2. Collaborate with outside agencies and organizations to conduct analysis of air quality data in support of state goals and objectives.
 3. Work with air management stakeholders, including utilities, industry, environmental groups, and U.S. EPA, on air quality plans, policies, and issues.
- 15% C. Participate on cross-program, interdisciplinary teams addressing priority Clean Air Act planning topics.
1. Collect and analyze air quality data for use in development of air quality State Implementation Plans or as otherwise needed to meet DNR needs.
 2. Apply data analysis results and technical information to documents, assessments and other policy materials needed to meet state responsibilities or priorities.
 3. Evaluate and apply current air quality research to Wisconsin and prepare presentations and technical documents regarding air quality analysis, forecasting, and modeling as it related to state air quality.
 4. Work across the program, including with field staff, to complete activities related to ambient air quality data collection and analysis.
- 5% D. Completion of other duties as may be assigned.
1. Stay abreast of innovations in analytics and data science tools and techniques, as well as other position-related skills.
 2. Participate in job-related training and organizational meetings as assigned by supervisor.
 3. Prepare forms and reports as necessary for personnel and budget accounting purposes in a timely manner.
 4. Perform other position-related duties as assigned.