



April 1st, 2024:

Environment and Climate Change Canada, Air Quality Research Division: **Post-Doctoral Position in Toronto, Ontario, Canada**

The Air Quality Research Division invites applications for two Post-Doctoral Fellowship positions, for a one-year term with the possibility of renewal for up to 2 additional years upon mutual agreement.

The post-docs will support a multi-year research project focused on quantifying methane and VOC emissions from Canada's downstream oil and gas (O&G) infrastructure using atmospheric observations and understanding the co-benefits of methane mitigation on air quality. The successful candidate will quantify emissions of reactive organic carbon (VOC, I/SVOC, total organic carbon) and other air pollutants using high time-resolution mobile measurements, in order to a) improve the apportionment of downstream O&G methane, b) assess air quality impacts of downstream O&G operations and infrastructure on local communities and potential air quality co-benefits of methane mitigation, and c) characterize non-methane emissions and compare them with bottom-up emissions. The research will primarily involve field measurements across Canada (refineries, petrochemical plants, oil storage facilities); operation, calibration, maintenance of instruments on-board the mobile platform; QA/QC and subsequent analysis of field data. Additional aspects of the research may include developing/applying inverse models for quantifying emissions; applying positive matrix factorization (PMF) or other source-receptor/machine learning models to separate sources; method/instrument development for the measurement of a large suite of reactive organic carbon compounds.

- A Ph.D. in chemistry, atmospheric sciences, environmental engineering, or a related discipline is required.
- Demonstrated skills in field-based atmospheric measurements and working with large datasets are also required.
- Experience in the operations of advanced real-time gas instrumentation (Chemical ionization mass spectrometry (CIMS) including PTR-HR-ToF-MS) are highly desirable.
- Demonstrated ability in computer programming (e.g., Igor, Matlab, Python etc.), and/or complex data analysis (e.g., PMF, source-receptor modeling, dispersion/inverse modeling, machine learning) is also highly desirable.
- Must be able to travel for field work within Canada for up to six weeks per year.

The successful candidate must have the ability to work in a team environment and with multiple collaborators within Environment and Climate Change Canada and in academia. A proven track record of publication in peer-reviewed journals is essential.

Qualified candidates are requested to send their curriculum vitae, including a full list of publications, their date of availability and contact information for 2 references to Dr. Sumi Wren and Dr. John Liggio by e-mail (sumi.wren@ec.gc.ca, john.liggio@ec.gc.ca).

To be eligible to be selected, the candidate must have obtained a PhD within the past 5 yrs. The successful candidate must also apply to be included in an inventory of candidates from which they will be selected. To be placed in the inventory, prospective candidates should follow the instructions at: [Postdoctoral Research Program \(canada.ca\)](#)

Review of complete applications will begin immediately until the position is filled.

Environment and Climate Change Canada's Air Quality Research Division studies the chemistry and physics of the atmosphere as it pertains to a variety of atmospheric pollution problems. Additional information on the department can be found at:

[About air quality science - Canada.ca](#)