



Atmospheric Science and Technology Directorate
4905 Dufferin Street
Toronto, Ontario M3H 5T4

March 15, 2017

Dear Atmosphere-Related Research in Canadian Universities (ARRCU) Working Group,

We are pleased to support ARRCU undertakings and to participate in the coordination activities with ECCC's Science and Technology program. The ARRCU Working Group is a group of Canadian university faculty who undertake research in Earth-system science with a focus on atmosphere-related processes in weather, climate, and air quality. Earth-system here encompasses the entire atmosphere, and its interaction with land-surface, hydrologic, ocean, cryospheric, and space systems and their interaction with eco-systems and societies.

The provision of increasingly timely and accurate information on weather, climate and air quality events to Canadians is an important science-based mission of ECCC. This task has become increasingly complex and inter-disciplinary and includes challenging upstream science questions that can be best answered in close collaboration with the Canadian and international atmosphere-related academic research communities. These joint Canadian government-academia science priorities in the next decade include:

- To develop and apply unified Earth-system models (integrated weather, climate, chemistry, biogeochemistry) for weather and climate forecasts and projections.
- To advance utilization of space based observations through development of data assimilation systems for physical and chemical atmospheric parameters and land surface conditions.
- To develop methods for atmospheric monitoring, emissions measurements, including development of observation-model fusion methods for regional and facility-scale emission source characterization.
- Priorities in environment and agriculture: strengthening water resource sustainability in agriculture, adapting agricultural production systems to climate change, disaster mitigation for climate extremes.

These challenges and the training of relevant High Qualified Personnel (HQP) in atmospheric-related science can be met most effectively through collaborative academia-government research as proposed by ARRCU. Hence we support strongly ARRCU and our involvement in the proposed partnership.

Sincerely,

Charles A. Lin, Ph.D.
Director General