Raymond L. Desjardins

Dr. Raymond Desjardins is a senior research scientist with Agriculture and Agri-Food Canada. He co- leads a research program on: Modeling agricultural interactions with the environment especially as they relate to GHG emissions. He is a member of the editorial board of Advances in Meteorology. He is the agriculture representative on the international committee Methane to Market. He is on the management team of the Commission of Agricultural Meteorology of WMO (2014-2018). He was the team Leader of the agriculture component of the government Program on Energy Research and Development on Enhancement of GHG Sinks (1987-2007). He has been a member of the scientific advisory committee of FluxNet Canada (2002-2007). He has been co-and principal investigator in numerous international experiments and projects [e.g. the First ISLSCP Field Experiment (FIFE), The Boreal Ecosystem Atmospheric Study and many others].He was team leader of the Expert Team on the Contribution of Agriculture to Climate Systems for one of the Open Area Programme of WMO (2002-2006). He has been actively involved with the Intergovernmental Panel on Climate Change. He is responsible for estimating the GHG budget indicator for agro ecosystems in Canada. He is a member of NASA Science team of the Rapid Arctic Methane Pulse project to study the impact of climate change on the arctic (2014-2019).

Dr. Desjardins has developed techniques to quantify GHG emissions at a wide range of scales, that is, point source using a mass balance technique or a backward lagrangian technique, field measurements using tower-based systems, regional fluxes using aircraft-based sensors and national scale using models. He and his colleagues recently showed that mesoscale fluxes obtained using aircraft-based measurements are comparable in magnitude to the energy balance residuals from tower-based measurements close to the flight track. They showed that the common practice of correcting fluxes of sensible and latent heat for the lack of energy closure according to the Bowen Ratio is not justified. He and his colleagues recently estimated the GHG emissions per unit of production for the various sectors of the livestock industry in Canada. He has published over 220 publications in refereed journals and a similar number of technical publications in the form

of book chapters and miscellaneous publications. He has edited several books: 1) The Health of our Air- Towards sustainable agriculture in Canada; 2) The contribution of agriculture to the state of climate; 3) Better Farming, Better Air- A scientific analysis of farming practice and greenhouse gases in Canada; 4) Reducing nitrous oxide emissions from agro ecosystems. 5) Enhancement of greenhouse gas sinks.