

Séminaire vendredi le 21 avril 2017 11:00 / Seminar Friday April 21<sup>st</sup> 2017 11:00h

**Sujet/Subject: Observation of mesoscale convective systems during the High Ice Water Content project**

**Langue/language : Anglais/English**

**Conférencier/Lecturer: Alexei Korolev** (Cloud Physics and Severe Weather Section, Environment and Climate Change Canada)

**Résumé/Abstract:**

Cloud regions with high ice water content at the tops of mesoscale convective systems are recognized as a potential cause for uncontrolled power loss of commercial aviation engines. The High Ice Water Content (HIWC) project is aimed at enhancing our knowledge about the high ice water content conditions within mesoscale convective systems (MCS) and on providing aviation regulatory agencies with cloud microphysical data for developing new aviation safety envelopes. Environment and Climate Change Canada in collaboration with National Research Council Canada organized field operations on the NRC Convair580 airplane out of Cayenne (French Guyana) in May 2015 to support the HIWC project. A total of fourteen flights were used to study cloud microstructure in oceanic MCSs. Preliminary results of cloud microphysical measurements are discussed: observation of ice multiplication, aggregation of ice crystals, mechanisms of formation of high ice water content, thermodynamical characteristics of the convective regions. A special effort is undertaken to explore a possibility of developing a satellite based tool for identification of high ice water content regions, which can be used to enhance the safety of the commercial aviation operation. High resolution NWP simulation is used to study a possibility of nowcasting formation of high ice water content regions in MCSs. The results of the simulations are compared to the in-situ observations obtained from the Convair580.