

**Séminaire lundi le 3 février 2020 11:00 / Seminar Monday February 3<sup>rd</sup> 2020 11:00h**

**Sujet/Subject: Operational polarimetric radar applications development for the S-band dual-polarization Canadian weather radar network.**

**Langue/language : Anglais/English**

**Conférenciers/Lecturers: Sudesh Boodoo - Observation Based Research Section (OBRS)**

**Résumé/Abstract:**

The seminar is to provide an overview of upcoming algorithms utilizing the dual-polarimetric measurements for the developing S-band radar network in Canada.

As of the end of 2019, ECCC has replaced 12 legacy C-band network radars with dual-polarized (DP) S-band radars at several locations across Canada. With additional data provided by polarimetry, several algorithms are being developed for implementation into the operational radar processing chain, two of which are introduced here.

Quantitative precipitation estimation (QPE) algorithms that were previously developed at King City using C-band dual polarization data are currently being adapted for the S-band systems. An important part of the methodology is assessing the data quality of the S-band polarimetric radar measurements and the removal of non-precipitation echoes prior to applying rainfall retrieval algorithms. Currently S-band retrievals are focused on rainfall estimation for the summer season. These estimates over a large radar domain and at high temporal frequency, are useful for intense precipitation warnings, hydrological modelling, flood forecasting and as input for numerical weather prediction models.

The second dual-polarimetric development is the PARticle Classification Algorithm (PARCA) that utilizes the polarimetric measurements and incorporates model information to determine, by fuzzy logic means, the likely precipitation class encountered in each radar bin. The separation of meteorological from non-meteorological radar targets and the identification of rain, hail, and snow types is useful for radar data users that require such information for their application.