

SAR INTER-COMPARISON EXPERIMENT

We've been processing terabytes' of compact polarimetry data, planning for the multi-frequency SAR 2019 acquisitions, prepping for the launch of the RCM satellites and writing up journal articles – here's some of what we have done.



Heather McNairn at Vandenberg Air Force Base, autographing the landing pad for the 1st stage of the SpaceX rocket

RADARSAT Constellation Mission Launch

There was big party (and sigh of relief!) here at AAFC on June 12th for the successful launch of the RCM satellites onboard SpaceX's Falcon 9 rocket. Heather was lucky to attend the launch in person, while the rest of us had a launch party back in Ottawa.

RCM imagery will be collected over select JECAM sites, which will enable the continuity of SAR-based research that has been going on with RADARSAT-2 imagery for the past 3 years.

Check out the RCM agriculture video at <https://youtu.be/OI0p9GAv3hk> for more details.



AAFC celebrates the launch of RCM

EVENTS

Past

May 2019

Living Planet Symposium
Milan, Italy
Heather & Andrew attended

Upcoming

July 2019

IGARSS 2019

Yokohama, Japan

Heather, Laura & Mehdi attending

August 12-16, 2019

Introduction to SAR for Applications in Terrestrial Environments

Ottawa, Canada

Heather & Mehdi presenting

September 4, 2019

SAR for Agriculture
NASA ARSET Webinar
Heather presenting

Going to IGARSS 2019? Check out these three (some of many) presentations about the Experiment!

Title: COMPARISON OF MACHINE LEARNING ALGORITHMS AND WATER CLOUD MODEL FOR LEAF AREA INDEX ESTIMATION OVER CORN FIELDS

Time: Thursday, August 1, 10:40 - 12:20

Authors: Mehdi Hosseini, Heather McNairn, Scott Mitchell, Andrew Davidson, Laura Dingle-Robertson

Title: RETRIEVAL OF CROP BIOPHYSICAL PARAMETERS USING C-BAND: PREPARING FOR THE RADARSAT-CONSTELLATION

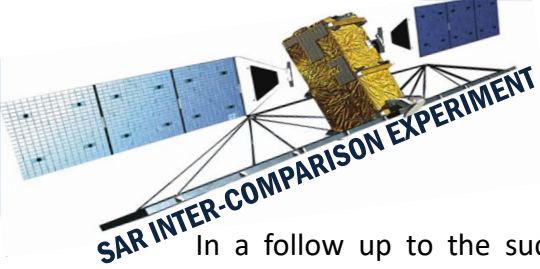
Time: Friday, August 2, 15:40 - 17:20

Authors: Heather McNairn, Mehdi Hosseini, Laura Dingle-Robertson, Andrew Davidson, Scott Mitchell, Katarzyna Dabrowska-Zielinska

Title: USING DENSE TIME-SERIES OF C-BAND SAR IMAGERY FOR CLASSIFICATION OF DIVERSE, WORLDWIDE AGRICULTURAL SYSTEMS

Time: Thursday, August 1, 08:00 - 09:40

Authors: Laura Dingle Robertson, Andrew Davidson, Heather McNairn, Mehdi Hosseini, Scott Mitchell, Diego de Abelleira, Santiago Verón, Pierre Defourny, Gueric le Maire, Milena Planells, Silvia Valero, Nima Ahmadian, Alisa Coffin, David Bosch, Michael H. Cosh, Paul Siqueira, Bruno Basso, Nicanor Saliendra



Introduction to Synthetic Aperture Radar for Terrestrial Environments August 12 – 16, 2019

In a follow up to the successful Introduction to SAR for Agriculture seminar given in February 2019, Carleton University's Department of Geography & Environmental Studies, Agriculture and Agri-Food Canada, Environment and Climate Change Canada, and Natural Resources Canada have teamed up to deliver a 5-day course which promises to unlock the world of SAR for terrestrial environments. Find out more at: <https://carleton.ca/geography/introduction-to-synthetic-aperture-radar-terrestrial/>

Activity 1 & 2 - C-band SAR for Crop Classification and LAI & Biomass Estimation

Journal articles are being completed on the first components of the Experiment including:

Published: An Investigation of Inversion Methodologies to Retrieve the Leaf Area Index of Corn from C-Band SAR Data - Mandal et al. 2019, International Journal of Applied Earth Observations and Geoinformation, <https://doi.org/10.1016/j.jag.2019.06.003>

In revision: Synthetic Aperture Radar and Optical Satellite Data for Estimating the Biomass of Corn – Hosseini et al. 2019

In final draft: Synthetic Aperture Radar (SAR) Image Processing for Operational Space-based Agriculture Mapping – Dingle Robertson et al., 2019

Agricultural Crop Classification Using Elements of the Kennaugh Matrix Derived from Polarimetric RADARSAT-2 SAR Data – Dey et al., 2019

As journal articles are written, and if they include data from your JECAM site, you will be contacted for your review of the article. Please respond as promptly as you can so that the process can proceed smoothly.

Activity 3 - Compact Polarimetry

Mehdi and Laura have completed initial data analysis on the over 42 compact pol variables per each of ~400 images that were created. Laura will be presenting results on the importance of the parameters for crop mapping at IGARSS 2019 in Yokohama, Japan.

If you contributed field data for this component of the Experiment and are interested in access to the Compact Polarimetry data please contact Laura.

Activity 4 - Multi-frequency SAR

TerraSAR X-band, RADARSAT-2 C-band and ALOS-2/PALSAR-2 L-band data are being collected over the following JECAM Partner sites for the 2019 growing season: Canada-Carman, USA-North Dakota, USA-Georgia, Mexico, Argentina, Poland, Germany, India and Brazil. We are monitoring the collections of the data and will be in contact with the partners if there is a problem with the data collection.

JECAM Website

Access has been given JECAM site leads to control the content your individual JECAM sites' information on the website. You should have received a copy of your log-on credentials along with a link to the JECAM YouTube channel for helpful videos on how to use the website. Please update your portion of the JECAM website as soon as possible.