

NEWSLETTER

Vol. 14 - 2018 YEAR-END REVIEW



SAR INTER-COMPARISON EXPERIMENT

Happy New Year! It has been a busy year of research, collaboration, and making connections for the JECAM SAR Inter-Comparison Experiment. Here are some highlights!

EVENTS:

- February 2018** Emerging Technologies and Methods in Earth Observation for Agricultural Monitoring Washington, DC Heather, Laura, and Andrew attended
- April 2018** Workshop on Data and Systems Requirements for Operational Agricultural Monitoring - GEOGLAM Ispra, Italy Andrew attended
- May/June 2018** International Coordination for Spaceborne Synthetic Aperture Radar Data Acquisition, Processing and Analysis for Earth Science and Applications Pasadena, California Heather attended
- June 2018** NISAR Science Team Meeting - Washington, DC Heather attended
- July 2018** IGARSS 2018 Valencia, Spain Heather and Mehdi attended
- September 2018** Earth Observation Technologies for Crop Monitoring: A Workshop to Promote Collaborations among JECAM/Asia-RiCE Taichung City, Taiwan Andrew attended
- December 2018** AGU 2018 - Washington, DC Laura attended

JECAM Annual Meeting



Earth Observation Technologies for Crop Monitoring: A Workshop to Promote Collaborations among JECAM/AsiaRiCE in Taiwan, September 2018

AGU 2018



Son Nguyen-Thanh, Professor Chi-Farn Chen from Taiwan and Laura in Washington, DC at AGU 2018, December 2018.

Emerging Technologies and Methods in Earth Observation for Agricultural Monitoring



Visit from JECAM partners from Costa Rica and Brazil (from left) Shaun Cullen - AAFC, Patricia Campos - Brazil, Jose Alvarez - Costa Rica, Xianfeng Jiao - AAFC, Amine Merzouki -AAFC, Heather and Mehdi, Ottawa, Canada at AAFC Offices, December 2018.

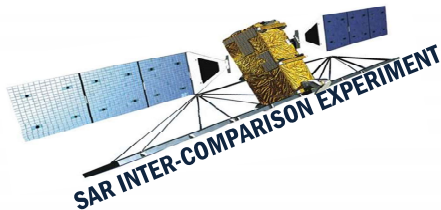
IGARSS 2018



Mehdi presents while Heather and the JECAM presenters look on at IGARSS 2018, Valencia, Spain, July 2018.



Pierre Defourny, UCLouvain, JECAM co-lead provides insight on JECAM in Washington, DC, February 2018.



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

JECAM sites' data stacks for crop inventory classification have been provided to the JECAM partners who requested the data to assess their crop classification methodologies (Activity 1b). If you have not yet received the data, contributed your field data and wished to test your methods please contact Laura.

A document describing how to return the results of those classifications will be forthcoming. Please review that document and return the results in a timely fashion to ensure that your results are included. A deadline for results will be given in that document.

AAFC has completed classifying the data stacks for all 13 sites using both our existing operational Decision Tree Classifier and our new Random Forest operational classifier to all stacks. We are now reviewing the results.

Activity 3 - Compact Polarimetry

We have received six sets of LAI and biomass field data from Partners we collected RADARSAT-2 quad polarization SAR data for 2018 growing season. The compact polarimetry data are now being generated for 13 northern hemisphere sites, which includes the six LAI and Biomass partners and the remained crop survey Partners. Twenty-four CP individual parameters and decompositions resulting in 42 features per date of imagery are being generated, including: Stokes vector (S_0 , S_1 , S_2 , S_3), received polarization (RH, RV, RR, RL), conformity image, contrast, coherence, circular ratio, Cloud α_S , compact random volume over ground (mv, ms), delta image, degree of linear polarization, Shannon Entropy, degree of polarization, entropy image, orientation angle image, alpha angle, Linear Polarization Ratio, ellipticity, eigenvalues, probability (1, 2), RH-RV correlation, pseudo3 component decomposition (surface (surf), double bounce (db), volume (vol)), m-chi decomposition (db, vol, surf), m-delta decomposition (db, vol, surf), and m-alpha decomposition (alpha angle, db, vol, surf).

Four southern hemisphere sites will be sent requests to upload their field site locations so that we can start the process to create the compact polarimetry data for those sites and derive the 42 features.

For all participating sites, once these features are derived we will be sending these data back out to the participating Partners along with the associated field data.

Activity 4 - Multi-frequency SAR

We have received commitment from the Japan Aerospace Exploration Agency (JAXA) for the collection of ALOS L-band data over some JECAM Partner sites. We also have commitment from the Canadian Space Agency to continue allowable agreed upon data acquisition. We have commenced proposals to DLR and CONAE for additional acquisitions of X- and L-band data respectively. We will be contacting Partners to confirm field data collections for the 2019 growing seasons soon.