Séminaire 18 Mai 2011 11h / Seminar May 18th 2011 11h

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Sujet/Subject: The Inclusion of L-band Soil Moisture Brightness Temperatures within CaLDAS Description and Preliminary Evaluation Studies

Présentation/Presentation: Anglais / English

Lieu/Room: Salle des vents (Dorval)

wiki: https://wiki.cmc.ec.gc.ca/wiki/RPN_Seminars

iweb: http://web-mrb.cmc.ec.gc.ca/mrb/rpn/SEM/
web: http://collaboration.cmc.ec.gc.ca/science/rpn/SEM/index.php

Abstract

A brief description of the Canadian Land Data Assimilation System (CaLDAS) is provided. The recent progress of pre-operational tests currently being performed for the assimilation of screen-level temperature and dew point temperature, so-called CaLDAS-SCREEN, will be discussed in the context of verification scores for the surface and upper-air. Within CaLDAS an increased emphasis has been placed upon the incorporation of space-based remote sensing information to characterize the land-surface and vegetation characteristics. The Soil Moisture Ocean Salinity (SMOS) mission by the European Space Agency is providing near-global coverage of soil moisture brightness temperatures while the Soil Moisture Active and Passive (SMAP) mission led by NASA is scheduled for launch in late 2014 and will include an active L-band radar. Results from a series of synthetic and real data assimilation experiments where L-band soil moisture brightness temperatures are assimilated will be shown. For the synthetic experiments the inclusion of the L-band brightness temperature data leads to improved soil moisture analyses when compared to ' open loop ' simulations. Nonetheless the synthetic experiments did highlight a few areas which need further development and these will be discussed. The real-data case is focused upon the Canadian Experiment for Soil Moisture (CanEx-SM10) field campaign in the summer of 2010. This experiment was a particular challenging assimilation test owing to the extremely wet conditions on the ground. The assimilation of SMOS L-band data is shown to improve the root-zone soil moisture. In particular, bias correcting the SMOS data was found to be important in obtaining the documented improvements.