SMAP Algorithms and Cal/Val Workshop

Oxnard, CA, USA

June 9-11, 2009

Cal/Val Expectations

Introduction

- SMAP will provide a capability for global mapping of soil moisture and freeze/thaw state with unprecedented accuracy, resolution, and coverage.
  - These measurements will be used to enhance our understanding of processes that link the water, energy and carbon cycles, and to extend the capabilities of weather and climate prediction models.
  - They will also provide data that will be used to quantify net carbon flux in boreal landscapes and to develop improved flood prediction and drought monitoring capabilities.
- *The SMAP mission is currently in its formulation phase, which requires the development of algorithm theoretical basis documents (ATBDs) and a calibration/validation (C/V) plan.*
- There are a number of scientific issues that need resolution and review by the community before these plans advance. These documents, plans and decisions will have significance in identifying research needs and allocating resources.
- *This workshop will review the ATBDs and C/V plan, solicit input from experts in these areas, resolve key issues, and develop implementation plans.*
  - The workshop addresses both algorithms and C/V because they are inseparable; mission science requirements drive the algorithms, which in turn drive the C/V plan .

Expectations

- Comments on the approach and scope of the SMAP Cal/Val Plan
- Identify ATBD requirements for Cal/Val and assign priorities
- Specific plans for mission product validation: establish infrastructure
  - Core sites
  - Integrating existing networks/measurement programs
    - testbeds, standards, scaling
- Suggestions on international cooperation/participation
  - Validation sites
  - Field experiments
- Identify key elements of near-term field experiments
- Long range experiment plans

Agenda

02:10	Cal/Val Workshop Expectations	Jackson
02:25	Overview of SMAP Cal/Val approach (Draft Cal/Val Plan)	Jackson/Kimball
03:00	Break	
03:15	Cal/Val requirements from algorithms (L1 radiometer and radar products)	Piepmeier/West/1-slides
03:45	Cal/Val requirements from algorithms (L3 & L4, SM & F/T products)	O'Neill/van Zyl/Das/McDonald/Reichle/Kimball
04:45	Preliminary assessment of priorities	Jackson
Day 3 (Thursday June 11, 2009)		
08:30	In situ network data acquisition and integration	Jackson
	SM Networks	
	USDA NRCS SCAN	Schaeffer
	NOAA CRN	Wilson
	Oklahoma Mesonet	Basara
	USDA ARS Watersheds	Cosh
	COSMOS	Zreda
	GPS	Small
	Additional presentations (1 slide)	
	FT(Met) Networks	Kimball/McDonald
	Compatibility of Networks with Cal/Val Needs	Jackson
	Proposal for establishing an Insitu Testbed(s)	Cosh
	Strategy for International Participation	Jackson
09:45	Methodologies for scaling	Famiglietti
	Methods	
	Replication and Variability	Famiglietti
10:00	Break	
10:15	Methodologies for scaling (cont.)	
	Temporal Stability	Cosh
	Enhanced Temporal Stability	Mohanty
	Model Enhanced Approaches	Crow
	Additional presentations (1 slide)	
	Research Priorities	Famiglietti/Jackson
11:15	Design of an optimal SMAP multi-scale validation site	Jackson/Kimball
	Identify potential primary validation sites and actions needed for implementation	
12:15	Lunch	
01:30	Satellite resources and role in SMAP Cal/Val	Jackson
	Prelaunch: L3_SM_40 (SMOS, Aquarius); L3_SM_3km (ALOS), L3_FT (ALOS)	
	Postlaunch: L1_TB (SMOS, Aquarius), L1_BS (ALOS, SAOCOM), L3_SM_40 (SMOS, GCOM-W), L3_SM_3km (SAOCOM)	
	Comments from SMOS, GCOM-W, and Aquarius on cooperation	
02:00	Field Campaign Plans (Near-Term): SMAPVEX10	Jackson
	Priorities, aircraft/tower resources, broader interaction considerations	
03:15	Break	
03:30	Field Campaign Plans (Long-Term) Cal/Val Scenarios	Jackson
04:30	Wrap-up discussions and actions	Jackson/Colliander