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
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/I-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
SM Networks
USDA NRCS SCAN
NOAA CRN
Oklahoma Mesonet
USDA ARS Watersheds
COSMOS
GPS
Additional presentations (1 slide)
FT(Met) Networks
Compatibility of Networks with Cal/Val Needs
Proposal for establishing an Insitu Testbed(s)
Strategy for International Participation
09:45 Methodologies for scaling
Schaeffer
Methods
Wilson
Replication and Variability
Basara
Cosh
Zreda
Small
Kimball/McDonald
Jackson
Cosh
Jackson
Famiglietti
Famiglietti
10:00 Break
10:15 Methodologies for scaling (cont.)
Cosh
Temporal Stability
Mohanthy
Enhanced Temporal Stability
Crow
Model Enhanced Approaches
Famiglietti/Jackson
Additional presentations (1 slide)
Jackson/Kimball
Research Priorities
11:15 Design of an optimal SMAP multi-scale validation site
Jackson
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): SMAP/EX10
Priorities, aircraft/tower resources, broader interaction considerations
Jackson
03:15 Break
03:30 Field Campaign Plans (Long-Term) Cal/Val Scenarios
Jackson
04:30 Wrap-up discussions and actions
Jackson/Collander