

# Understanding the Carbon and Water Cycles using SMOS Data and Models

THURSDAY 13 NOVEMBER 2014

## SESSION I: INTRODUCTION

9:00-9:20	Welcome and introduction to the workshop	Drusch	Matthias	ESA
9:20-9:40	ESA's Earth Observation Programme: Relevance to water & carbon cycle	Borgeaud	Maurice	ESA
9:40-10:00	SMOS mission status	Mecklenburg	Susanne	ESA

## SESSION II: VEGETATION AND CARBON CYCLE - METHODS AND VALIDATION Chair: Jennifer Grant (Lund University) and Simone Bircher (CESBIO)

10:00-10:30	<b>Keynote I: The need for soil moisture data for evaluation and optimisation of a global Land Surface Model</b>	Mc Bean	Natasha	IPSL - LSCE
10:30-11:00	<b>Keynote II: Carbon and water cycle interactions from space</b>	de Jeu	Richard	VU University Amsterdam
		Dolman	Han	VU University Amsterdam
11:00-11:20	COFFEE BREAK			
11:20-11:40	Retrieval, validation and scientific content of forest optical depth	Vittucci	Cristina	Tor Vergata University
11:40-12:00	A global-scale vegetation water product from SMOS optical depth	Grant	Jennifer	Lund University
12:00-12:20	Three years of ground-based L-band radiometry in the Alps: topography, vegetation and snow issues	Pellarin	T.	CNRS
12:20-12:40	Using remotely sensed soil moisture to estimate vegetation phenology for seasonally-arid regions	Olén	Niklas	Lund University
12:40-13:00	Analysis of the behavior of microwave L-band emissions of organic-rich soils in the northern cold climate zone in support of the SMOS mission	Bircher	Simone	Spatiales de la Biosphère (CESBIO),
13:00-14:00	LUNCH			

## SESSION III: VEGETATION AND CARBON CYCLE - APPLICATIONS, Chair: Marko Scholz (Lund University) and Klaus Scipal (ESA)

14:00-14:30	<b>Keynote I: Potential of combining SMOS products with other vegetation state /functioning information to improve the description of surface-atmosphere carbon exchanges in global dynamical models.</b>	Moreno	Jose	University of Valencia
14:30-15:00	<b>Keynote II: Better matching satellite Earth surface observations within numerical weather prediction models: why &amp; how</b>	Balsamo	Gianpaolo	ECMWF
15:00-15:20	Constraining terrestrial carbon fluxes by assimilating the SMOS soil moisture product into a model of the global terrestrial biosphere	Scholze	Marko	Lund University
15:20-15:40	Quantifying the synergistic benefits of remotely sensed soil moisture and solar induced fluorescence for global agricultural monitoring	Drewry	D.	Jet Propulsion Laboratory
15:40-16:00	A SMOS/MODIS Synergistic Approach to Assessing Bioenergy-induced Soil Moisture Variations in the Mississippi River Basin, USA	Wang	C.	University of South Carolina
16:00-16:20	COFFEE BREAK			
16:20-16:40	Monitoring and understanding carbon and water cycles at high latitudes using SMOS	Rautiainen	Kimmo	Finnish Meteorological Institute
16:40-17:00	SMOS Soil Moisture and Vegetation Products Comparison against Remote	Escorihuela	M. J.	isardSAT
17:00-18:30	DISCUSSION			

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<b>SESSION IV: WATER CYCLE: RETRIEVAL AND VALIDATION, Chair: Chris Rüdiger (Monash University) and</b>				
9:00-9:30	<b>Keynote: SMOS' contribution to a better understanding to the water cycle: overview on SMOS soil moisture data products</b>	Yann	Kerr	CESBIO
9:30-9:50	Soil moisture dynamics across a continental scale - seasonal patterns	Rüdiger	Christoph	Monash University
9:50-10:10	Spatio-temporal merging of soil moisture from active and passive microwave	Tomer	Sat Kumar	CESBIO
10:10-10:30	Improving Remote Sensing of Rainfall Through SMOS Soil Moisture Data: a Comparison of Techniques	Brocca	L.	National Research Council
1:30-11:00	COFFEE BREAK			
11:00-11:20	Intercomparison of Global Soil Moisture Data Products from SMOS and AMSR2 and their Impact on Land Surface Model Simulations	Zhan	X.	NOAA-NESDIS
11:20-11:40	The Challenge of Retrieving SM from SMOS under Forests: Issues, Advances, and Comparisons with Measurements in North America	Ferrazzoli	P.	Tor Vergata University
11:40-12:00	Multi-sensor Soil Moisture Retrieval using Neural Networks	Rodriguez-Fernandez	N.	CNRS
12:00-13:00	DISCUSSION			
13:00-14:00	LUNCH			
<b>SESSION V: WATER CYCLE: ASSIMILATION AND APPLICATION, Chair: Joaquin Munoz-Sabater (ECMWF) and</b>				
14:00-14:30	<b>Keynote: Monitoring extreme hydrological events with SMOS data: Monitoring droughts and leveraging flood risk</b>	Al Bitar	Ahmad	CESBIO
14:30-14:50	Assimilation of the SMOS Soil Moisture in a Hydrological Model over an African Watershed	Leroux	D.	LTHE
14:50-15:10	Assimilation of SMOS Observations to Improve Streamflow Simulation in the Murray Darling Basin, Australia	Lievens	H.	Ghent University
15:10-15:30	Use of SMOS Data in a Coupled Land-atmospheric Model; Sensitivity to Different Model and Observations Scenarios	Munoz Sabater	J.	ECMWF
15:30-15:50	Assimilating SMOS soil moisture observations to improve terrestrial evaporation estimates over continental Australia	Martens	B.	Ghent University
15:50-16:30	DISCUSSION (including coffee break)			
16:30-17:00	WRAP UP OF WORKSHOP			