

Remote Sensing in Climatology – Essential Climate Variables (ECVs) and their Uncertainties

November 13 to 17, 2023

Monday, 13 November 2023		
Time		Chair / Speaker
13:00	Registration ISSI, Hallerstrasse 6, 1st floor	
14:00-14:30	Introduction to ISSI – Objectives of the Workshop,	Director, Conveners
	Session 1: ECVs – International initiatives and current status	Chair: M. Rast
14:30-15:00	Records of Essential Climate Variables from Space: Lessons Learned and Half-Learned	C. Merchant
15:00 -15:30	ESA's new climate change initiative (CLIMATE-SPACE)	S. Mecklenburg
15:30 - 16:00	<i>Coffee Break</i>	
16:00 – 16:30	The Copernicus Climate Change Service and the ECV programme	J. Munoz-Sabater
16:30 – 17:00	CM SAF Land ECVs	A. Tetzlaff
17:00 - 17:30	Uncertainties in ECVs: A metrological viewpoint	E. Woolliams
17:30	<i>Welcome Reception - Hallerstrasse 6, 1st floor</i>	



Tuesday, 14 November 2023		
Time	Session 2: Uncertainties in ECVs and their definition	Chairs R. Hohensinn (am), J. Munoz (pm)
09:00-09:30	ECVs terrestrial water storage and groundwater (G3P)	A. Jäggi / A. Güntner
09:30-10:00	Large, systematic, and often overlooked: Uncertainties in aerosol and cloud ECVs	A. Povey
10:00-10:30	Characterising uncertainties in multi-satellite soil moisture climate data records	W. Dorigo
10:30-11:00	<i>Coffee Break</i>	
11:00-11:30	Defining an uncertainty budget for surface temperature retrieval	C. Bulgin
11:30-12:00	About uncertainties of the sea ice Essential Climate Variable	S. Kern / T. Lavergne
12:00-12:30	Discussion: ECVs and their uncertainties in the climate system	All (chaired)
12:30-14:00	<i>Lunch</i>	
14:00-14:30	Roles of uncertainty in the retrieval of biophysical ECVs	S. Blessing
14:30-15:00	ECV snow cover fraction	C. Mortimer / S. Wunderle
15:00-15:30	Ozone as an ECV: cause and effect, trend and uncertainty	T. Verhoelst
15:30-16:00	<i>Coffee Break</i>	
16:00-16:30	Uncertainty aspects of Surface Radiation Budget	A.C. Mikalsen
16:30-17:00	Global ocean heat content and Earth Energy imbalance from space geodetic observations	A. Blazquez
17:00-17:30	Quantifying uncertainties in long-term historical records of sea surface temperature	N. Rayner
17:30-18:00	Brainstorming – scene setting for article outlines	All (chaired)



Wednesday, 15 November 2023

Time	Topic	
	Session 3: Modelling uncertainties of remotely sensed ECVs, calibration and traceability	Chairs C. Mortimer (am), A. Jäggi (pm)
09:00-09:30	Uncertainties in calibration and uncertainty propagation	J. Mittaz
09:30-10:00	Laboratory measurements of spectral emissivity: can we trust the truth?	M. Langsdale
10:00-10:30	Standardised validation of satellite-based terrestrial ECVs	F. Camacho
10:30-11:00	<i>Coffee Break</i>	
11:00-11:30	Climate data record stability for trend analysis: the importance of uncertainties	C. Bulgin / J. Mittaz
11:30-12:00	Uncertainty Assessment of Terrestrial Water Storage Data	U. Meyer / E. Boergens / H. Dobslaw
12:00-12:30	Discussion: ECVs – adjustment needs for monitoring	All (chaired)
12:30-14:00	<i>Lunch</i>	
14:00-14:30	Assessing Uncertainties in Geophysical Time Series: Advancing from Temporal to Spatio Temporal-Stochastic Modelling	K. Gobron / R. Hohensinn
14:30-15:00	Strengths and weaknesses of the use of GNSS in determining ECVs	J. Bogusz
15:00-15:30	Uncertainty quantification in deep learning applied to geodetic problems	B. Soja / J. Gou.
15:30-16:00	<i>Coffee Break</i>	
16:00-16:30	Uncertainty in deep neural networks	A. Salberg
16:30-17:00	Trend Acceleration of Global Sea-Level Changes from GGOS Observations with PCA	J.P. Montillet
17:00-17:30	Towards traceable uncertainty budgets for soil moisture climate data records	A. Gruber
17:30-18:00	General discussion and brainstorming of article ideas, groupings by article interests	All (chaired, notetakers)
19:00	<i>Workshop Dinner at the Restaurant Kornhauskeller, Bern</i>	

Thursday, 16 November 2023		
Time	Topic	
	Session 4: ECV modelling and time series	Chairs C. Bulgin (am), S. Wunderle (pm)
09:00-09:30	The use of observations and ECVs in the Coupled Model Intercomparison Project	H. Hewitt
09:30-10:00	Climate modeling: uncertainties from a historical perspective	G. Krinner
10:00-10:30	The potential and limitations of remote sensing for the ECV Permafrost	A. Bartsch
10:30-11:00	<i>Coffee Break and Meeting photo</i>	
11:00-11:30	Optimization of the snow parameterisation in the ORCHIDEE land surface model using ESA-CCI snow products	A. Cuynet
11:30-12:00	Benefit of assimilating the ESA-CCI land surface temperature into the ORCHIDEE land surface model	L. Olivera
12:00-12:30	Discussion: data assimilation in advanced models	All (chaired)
12:30-14:00	<i>Lunch</i>	
14:00-14:30	Stability of climate data records - an ultimate downstream test of the uncertainty impact?	A. Devasthale
14:30-15:00	ECVs ice sheets / ice caps /glaciers	I. Velicogna
16:00-16:30	The Global Climate Observing System (GCOS) Programme in support of climate research, applications, and policy	M.M. Belèn
15:30-16:00	<i>Coffee Break</i>	
16:00-18:00	General discussion – article brainstorming, reflections from participants on the workshop and progress made & moving forward	All (chaired)

Friday, 17 November 2023		
Time	Topic tbd.	Chair: M. Rast
09:00-09:30	Uncertainties in the future – a perspective from GCOS and an operational data provider	R. Hollmann
09:30-10:00	Invited presentation on policy needs, inputs from ECVs, for climate change assessments (tbc)	C. Macintosh
10:00-10:30	Discussion	All (chaired)
10:30-11:00	<i>Coffee Break</i>	
11:00-12:30	Article breakout sessions / workshop wrap-up <ul style="list-style-type: none"> - Table of content of the Special Issue, articles content and lead authors - Agree/summarise work on articles, prioritise, who does what, time plan - Capture summary statement/priorities from workshop - Wrap-up 	All (chaired by conveners)
12:30-14:00	<i>Lunch and departures</i>	
<i>End of Workshop</i>		