

ISSI WORKSHOP on

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**Sea Level and associated climatic components at global and regional scales
as inferred from the ESA Climate Change Initiative (CCI)**

2-6 February 2015

Date: 2-6 February 2015

Location: International Space Science Institute (ISSI), Bern, Switzerland

MONDAY 2 February 2015

12:45-13:00	Registration	All participants
13:00-13:15	Welcome and Introduction to ISSI	Rafael Rodrigo, ISSI Director
13:15-13:30	Objectives of the Workshop	Anny Cazenave, (ISSI; CCI)
Session 1	Introductory session	<i>Chairman: Michael Rast</i>
13:30-14:00	The ESA Climate Change Initiative	Mark Doherty and Pascal Lecomte (ESA)
14:00-14:25	Ice sheets and climate change	Andrew Shepherd (CCI; UK)
14:25-14:50	Glaciers and climate change	Wilfried Haerberli (Switzerland)
14:50-15:15	Sea level as a climatic integrator	Anny Cazenave (CCI; France)
15:15-15:45	<i>Coffee break</i>	
15:45-16:10	Sea surface temperature and climate change	Chris Merchant (CCI; UK)
16:10-16:35	Ocean colour, carbon cycle / marine ecosystems in climate change context	Bob Brewin (CCI; UK)
16:35-17:00	Sea ice and climate change	Stein Sandven (CCI; Norway)
17:00-18:00	General discussion	All participants
18:00	<i>Welcome reception</i>	

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Session 2	CCI Essential Climate Variables (ECVs): present status (including validation) & prospects	Chairman: Jerome Benveniste
9:00-9:20	Glaciers ECV	Frank Paul (CCI; Switzerland)
9:20-9:40	Ice Sheet ECV	René Forsberg (CCI; Denmark)
9:40-10:00	Sea Surface Temperature ECV	Claire MacIntosh (CCI; UK)
10:00-10:20	Sea Level ECV	Michael Ablain (CCI; France)
10:20-10:50	<i>Coffee break</i>	
10:50-11:10	Ocean color ECV	Marie-Fanny Racault (CCI; UK)
11:10-11:30	Sea ice ECV	Stefan Kern (CCI; Germany)
11:30-12:30	General discussion on benefit from each other's dataset & expertise	All participants
12:30-14:00	<i>Lunch</i>	
Session 3	Global ocean thermal expansion & ocean mass components	Chairman: Rene Forsberg
14:00-14:30	Steric sea level from Argo and ocean reanalyses	Karina von Schuckmann (France)
14:30-15:00	Earth's thermal energy imbalance, ocean heat content & sea level	William Llovel (USA)
15:00-15:30	Ocean mass from GRACE	Don Chambers (USA)
15:30-16:00	Land water component (climate-related and anthropogenic)	Yoshi Wada (Netherlands)

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16:00-16:30 Coherence between GRACE-based ocean mass and sum of mass components over the last decade **Nicolas Champollion (ISSI)**

16:30-17:00 Coffee break

17:00-18:00 **Keynote lecture: The ESA Living Planet Program (with focus on the theme of the workshop)** **Michael Rast (ESA)**

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WEDNESDAY 4 February, 2015

Session 4	Sea level budget closure (global): Round table	<i>Chairman: Andrew Shepherd</i>
09:00-11:00	Can we close the sea level budget over the altimetry period using CCI-ECVs and/or additional data sets? Remaining gaps and uncertainties	All participants
11:00-11:30	<i>Coffee break</i>	
11:30-12:00	Round table continue	All participants
12:00-12:30	Sea level budget over the 20 th century	Svetlana Jevrejeva (UK)
12:30-14:00	<i>Lunch</i>	
Session 5	Regional variations in sea level and other climate variables; observations and processes	<i>Chairman: Christopher Merchant</i>
14:00-14.30	Observed regional sea level variations: satellite altimetry, past sea level reconstructions & ocean reanalyses	Benoit Meyssignac (France)
14.30-15:00	Internal climate modes and ocean circulation	Weiqing Han (USA)
15:00-15.30	Sea level in the Arctic	Johnny Johannessen (Norway)
15.30-16:00	Sea Level in the Mediterranean Sea	Luciana Fenoglio-Marc(Germany)
16:00-16:30	<i>Coffee break</i>	
16.30-17.30	Keynote lecture: Glacier melting: natural variability or anthropogenic forcing?	Ben Marzeion (Austria)
19:00	<i>Dinner at the CASINO restaurant, Bern</i>	

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Session 5	Regional variations in sea level and other climate variables; observations and processes – continued –	<i>Chairman: Benoit Meyssignac</i>
09:30-10:00	Solid Earth deformations and gravitational changes as a cause of regional sea level changes	Giorgio Spada (Italy)
10:00-10:20	Spatial patterns in sea level from CMIP5 models; comparison with data	Hindumathi Palanisamy (France)
10:20-10:50	Anthropogenic contribution to 20 th century sea level rise	Marta Marcos (Spain)
10:50-11:15	<i>Coffee break</i>	
Session 6	Sea level budget closure (regional)	<i>Chairman: J. Johannessen</i>
11:15-12:30	What do we know? What do we not know? What needs to be done?	All participants
12.30-14:00	<i>Aperitif & Lunch</i>	
Session 7	Sea level projections and land ice contributions	<i>Chairman: Serge Planton (CCI)</i>
14:00-14:30	Global and regional sea level projections	Aimee Slangen (Australia)
14:30-15:00	Projections for glaciers & ice sheets and key uncertainties	Ricarda Winkelmann (Germany)
15:00-15:30	Models (CMIP5)- observations comparisons for 20 th century sea level	Angelique Melet (France)
15:30-18:00	Panel discussion -WITH COFFEE & TEA- on future directions in ECV calculations, next steps and recommendations	All participants

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FRIDAY, 6 February, 2015

Morning session (9:30-11:30): Discussion about the “Surveys in Geophysics” articles (authors, review process & schedule) and the “Space Sciences Series of ISSI/Springer” Book (gathering the “Surveys in Geophysics” articles)