HYDROSPACE-GEOGloWS 2021

Surface Water Storage and Runoff: Modeling, In-Situ data and Remote Sensing

PROGRAMME

v2021-06-03

Times in CEST (UTC+2)

Monday, 7 June 2021		Speaker
13:30 - 14:00	**Welcome and Introduction**	
	Chairs: Jérôme Benveniste, Alice Andral	
13:30	Welcome and Introduction ESA	Jérôme Benveniste
13:35	Welcome and Introduction CNES	Philippe Maisongrande
13:40	Welcome and Introduction GEOGloWS	Angelica Gutierrez
13:45	Welcome and Introduction African Union Commission	Tidiane Ouattara
13:50	Logistics	Valeria Rosicarelli
14:00 -16:00	**1. Space techniques to measure hydrological surface variables - Block 1**	
	Chairs: Jean-François Crétaux, Angelica Tarpanelli	
14:00	Amazon hydrology from space: scientific advances and future challenges	Rodrigo Paiva
14:20	River Discharge from multi-sensor data	Luciana Fenoglio
14:40	An unprecedented joint use of in situ and earth observation datasets improves our understanding of how waters flow in the Congo River Basin	Benjamin Kitambo
15:00	Combining In-situ Measurements and Spectral Ratios of High-resolution Airborne Imagery for an Improved Representation of River Bathymetry	Nicolas Le Moine
15:20	From surface to groundwater: the variability of water storage changes over the Amazon and Congo tropical river basins from multi-satellite observations	Fabrice Papa
15:40	Estimation of river discharge using a mass-conserved Kalman filter approach relying on simulated SWOT observations	Mohammad Tourian
16:00 - 16:20	**Coffee Break**	
16:20 - 18:20	**1. Space techniques to measure hydrological surface variables - Block 2**	
	Chairs: Karina Nielsen, Fabrice Papa	
16:20	Lake Water Levels: From Topex/Poseidon to Sentinel-3. From R&D to operational products	Jean-François Crétaux
16:40	Monitoring of water dynamics in Earth's reservoirs at scale by fusing freely-available optical and radar datasets	Gennadii Donchyts
17:00	Use of Optical Imagery and Altimetry to Monitor Small Water Bodies in Sahel	Mathilde De Fleury
17:20	The Lake Chad Hydrological Cycle Under Current Climate Change	Jean-François Crétaux
17:40	Investigating the Impact of Ice and Snow Properties on the Estimation of Lake Ice Thickness from Altimetry Missions	Claude Duguay
18:00	Variation of Water Volumes From SWOT Temporal Simulations: Study Case of Canadian Lakes	Manon Delhoume
18:20 - 19:30	**POSTER SESSION 1**	
	Chairs: All Session 1 chairs	
POSTER ID	**POSTER LIST (all Session 1 Posters)**	**Presenter**
5	A Comparative Analysis of CTOH Derived Water Levels With Tide Gauge Data on Coast of Karachi, Pakistan.	Talal Naseer
6	Progress in Soil Moisture Retrieval From Satellite Radar Altimetry	Philippa Berry
8	Mapping Inland Water Body Dynamics Using Spaceborne GNSS-R Systems	Mohammad Al-Khaldi
9	A global analysis of spatial correlation lengths of water storage anomalies	Ehsan Sharifi

11	New Upgrades of Open-Loop Tracking Command (OLTC) Tables of Nadir Altimeters in 2020 and Benefits for Inland Waters Users	Simon Boitard
12	The GravIS Portal: User-friendly Terrestrial Water Storage Variations from GRACE and GRACE-FO	Eva Boergens
17	Developing a roadmap for Copernicus water services	Tiit Kutser
20	River widths extraction for the future SWOT mission using hydrological constraints	Kevin Larnier
22	Observation of Surface Water Regime in Ireland With Radar Altimetry	Elena Zakharova
24	Sentinel-3 Mission Performance Center: Performances of the S3A and S3B Surface Topography Missions over inland waters.	Nicolas Taburet
33	Hydrological response to the extreme drying condition from 1999 to 2013 in the semi-arid Selenga River basin, Northern Mongolia	Li Han
34	Retrieval of Lake Ice Thickness from Satellite Altimetry Missions: Early Results from ESA CCI+ Lakes	Anna Mangilli
35	Water Mass Cycle in the Mediterranean and Black Seas	David Garcia-Garcia
36	Upcoming global altimetry based products of lake and river water level time series	Karina Nielsen
39	Leading Edge Identification with Prior Information (LEIPI): a new approach to retracking inland water altimetry waveforms	Sajedeh Behnia
46	Linking past, present and future water observation datasets in abandoned watersheds through satellite altimetry and modelling to re-activate an operational monitoring of the basin: case of the Tsiribihina River, Madagascar	Stéphane Calmant
52	Modulable software for the retrieval of multi-mission water level dynamics in on-demand locations at world scale	Laia Romero
61	Automated processing of altimetry-derived river water levels at global scale - Design & first results from a new L3 processor	Nicolas Bercher
69	Environmental effects on methods' benchmarking: case of Chad Archipelago when exploiting HR optical and SAR Sentinel data in the CCI Lakes framework	Hervé Yésou
70	Validation of lake water level estimated by altimetry compare to in situ measurements	Beatriz Calmettes
71	Multiscale/Multi-Temporal Study of The Lake Surface Water Temperature (LSWT) Retrieval Using IRT Sensors: Application to Issyk-Kul Lake, Kyrgyzstan	Ivan Hernandez-Galindo
80	Sentinel-1 Synthetic Aperture Radar (SAR) Images and Open-Source algorithm for floodplain Spatio-Temporal Monitoring in an Iberian Peninsula Watershed	Lorena Lombana
86	SAR, SARin, RDSAR and FF-SAR Altimetry Processing on Demand for CryoSat-2 and Sentinel-3 at ESA G-POD	Marco Restano
88	The hydrogeological and hydrogeophysical survey in Maqu, the Tibetan Plateau	Mengna Li
94	A New Fully-Focused SAR Altimetry Processor in the ESA G-POD SARvatore Family: Validation and Applications on Inland Waters	Karina Nielsen
101	Application the space techniques to measure the area forestation and wetlands at the basin of the Vistula within Ukraine	Maksym Martyniuk
110	Validation of CryoSat-2 SARIn pseudo-swath processing for inland water	Heidi Ranndal
111	Terrestrial Snow Cover	Igor Appel
112	Modeling the water balance of Lake Poopó, TPDS (Titicaca, Poopó, Desaguadero, Salares) basin. Evaluation of different evaporation methodologies	Ignacio Garcia
115	Five methods to retrieve lake surface water temperature in small and medium sized lakes from satellite imagery. Implementation for 2000-2020 in San Pedro lagoons, Chile.	María Pedreros Guarda
117	Integrated Study of Lake Maracaibo (Venezuela): Hydrometeorology and Pollution Over the Last 20 Years	Karen Escalona
119	Analysis of wave conditions on Lake Peipus based on satellite altimetry data	Yaan Prokofiev
120	Global monitoring of reservoir volume dynamics using a joint EO and hydrological modeling approach	Gennadii Donchyts
202	Cryo-TEMPO - Inland Water monitoring	Beatriz Calmettes
203	Large Scale Wetland Inventorying based on Sentinel-1 and Sentinel-2 Time-Series Data	Michael Riffler
19:30	**End of day 1**	

Tuesday, 8 June 2021		Speaker
9:00 - 11:00	1. Space techniques to measure hydrological surface variables - Block 3	
	Chairs: Rodrigo Paiva, Philippa Berry	
09:00	Forecasting Inundation Extents using Rotated Empirical Orthogonal Function analysis (FIER)	Chi-hung Chang
09:20	New Upgrades of Open-Loop Tracking Command (OLTC) Tables of Nadir Altimeters in 2020 and Benefits for Inland Waters Users	Simon Boitard
09:40	Determining Water Availability, Connectivity, and Barriers in Wetland Systems Worldwide with Synthetic Aperture Radar Sensors (SAR) and Their Interferometry (InSAR)	Fernando Jaramillo
10:00	South American wetlands from space: a comparative hydrology approach	Ayan Fleischmann
10:20	High Resolution (1km) Global Soil Moisture Product Based on Google Earth Engine	Qianqian Han
10:40	Surface water detection and soil moisture monitoring using Spire's GNSS-R bistatic radar measurements	Vahid Freeman
11:00 - 11:20	Coffee Break	
11:20 - 13:20	1. Space techniques to measure hydrological surface variables - Block 4	
	Chairs: Mohammad Tourian, Peter Bauer-Gottwein	
11:20	Inland Water Level Timeseries from Satellite Altimetry and Deep Learning	Fernando Niño
11:40	Water Level Monitoring Over Continental Areas From Fully Focused SAR Altimeter Processing	Maxime Vayre
12:00	Robust approaches for water detection in SWOT HR interferometric SAR images	Nicolas Gasnier
12:20	DAHITI – Satellite-derived Hydrological Products for Monitoring the Global Water Cycle	Christian Schwatke
12:40	Operational Lakes and Rivers Water Level Monitoring using satellite altimetry data : contributions from HydroWeb and Copernicus Global Land Services	Nicolas Taburet
13:00	Satellite-Derived Global SurfaceWater Extent and Dynamics Over the Last 25 Years (GIEMS-2)	Catherine Prigent
13:20 - 14:00	Lunch Break	
14:00 - 16:00	1. Space techniques to measure hydrological surface variables - Block 5	
	Chairs: Christian Schwatke, Jérôme Benveniste	
14:00	Global Dynamic River Masks From Landsat Imagery	Omid Elmi
14:20	NASA's MODIS/VIIRS Global Water Reservoir product suite from moderate resolution remote sensing data	Huilin Gao
14:40	Observing Global Variability in Water Level Using ICESat-2	Sarah Cooley
15:00	The GravIS Portal: User-friendly Terrestrial Water Storage Variations from GRACE and GRACE-FO	Eva Boergens
15:20	SMASH (SMall Altimetry Satellites for Hydrology) : A Mission to Better Monitor Inland Waters and Estuaries	Denis Blumstein
15:40	The hydrology component of the Sentinel-3 Next Generation Topography Mission (S3NG-T)	Craig Donlon
16:00 - 16:20	Coffee Break	
16:20 - 17:20	POSTER SESSION (all Session 1 Posters)	
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17:20 - 18:30	1. Space techniques to measure hydrological surface variables - DISCUSSION (Animated by all Session 1 chairs	All
18:30	End of day 2	
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6	Progress in Soil Moisture Retrieval From Satellite Radar Altimetry	Philippa Berry
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Wednesday, 9 June 2021		Speaker
11:00 - 13:00	**2. Modelling and Assimilation - Block 1**	
	Chairs: Ayan Fleischmann, Catherine Prigent	
11:00	Near-real-time monitoring of the Congo River Basin from space and models	Adrien Paris
11:20	Use of Icesat-2 data for Upstream Yellow River Hydrodynamic modelling	Monica Coppo Frias
11:40	Coherent monitoring of the water cycle over the Amazon using satellite observation	Victor Pellet
12:00	Predicting Inundations in Large Ungauged Floodplains: on the Benefit of Jointly Assimilating Soil Moisture and Flood Extent Satellite Observation	Renaud Hostache
12:20	An integrated high resolution precipitation field for the Digital Twin Earth Hydrology experiment and its impacts on the water cycle description	Luca Brocca
12:40	Hydrogeomorphological Parameters Extraction From Remotely-Sensed Products for SWOT Discharge Algorithm	Charlotte Emery
13:00 - 14:00	**Lunch Break**	
14:00 - 16:00	**2. Modelling and Assimilation - Block 2 (GEOGloWS)**	
	Chairs: Alice Andral, Angelica Gutierriez	
14:00	Using Earth Observations for Operational Hydrological Forecasting at ECMWF. What are the Benefits and Challenges and What Future Missions Could be Helpful?	Calum Baugh
14:20	GEOGloWS ECMWF Streamflow: A Global Hydrology Model Service that Provides a Sustainable Source of Water Information	Riley Hales
14:40	From Global to Local: Validating Forecast Flood Events from GEOGloWS ECMWF Streamflow Services	Jorge Sanchez Lozano
15:00	River discharge estimations from SWOT-like data using a hybrid data-driven and physically-based algorithm	Kevin Larnier
15:20	Exploring Sentinel-1 and Sentinel-2 diversity for Flood inundation mapping using deep learning	Goutam Konapala
15:40	River discharge estimation by using satellite observations: STREAMRIDE project	Stefania Camici
16:00 - 17:30	**2. Modelling and Assimilation - DISCUSSION (Animated by all Session 2 chairs)**	All
17:30	**End of day 3**	
POSTER ID	**POSTER LIST (all Session 2 Posters)**	**Presenter**
10	One Dimensional Hydrodynamic Modelling Of Bhagirathi River Using Remote Sensing And GIS Applications	Tripti Dimri
19	Hydrological modeling and uncertainty estimation due to atmospheric input data by means of ensemble methods	Imane Farouk
25	A multi-mission remote sensing data assimilation for large-scale hydrological and hydrodynamic estimation	Sly Wongchuig
55	Near-real-time monitoring of the Congo River Basin from space and models	Adrien Paris
57	Remote Sensing Discharge Estimation Using Reach-averaged Rating Curves With a Periodic Geometry.	Mounir Mahdade
77	Water cycle and climate forecasting from space	Bakhram Nurtaev
81	Determination of Environmental Flow for Rivers at the South of Ukraine	Valeriya Ovcharuk
93	Can we supplement the in situ data with satellite data?	Thomas Legay
96	Implementation and Sensitivity Analysis of a Dam-reservoir Model Over Spain	Malak Sadki
102	Measuring the water cycle	Mikhail Smilovic
116	Adding Earth Observation-based Virtual Observations to Improve Data Assimilation for Fluvial Flood Forecasting – Example of the Garonne Marmandaise Catchment	Thanh Huy Nguyen
201	Explainable Convolutional Neural Networks for Flood Modeling and Recovery	Thomas Chen

Thursday, 10 June 2021		Speaker
9:00 - 11:00	3. From products to applications - Block 1	
	Chairs: Hyongki Lee, Christophe Brachet	
09:00	Implementing the GEOSS Water Strategy: A Status Report	Richard Lawford
09:20	Future Perspectives for Earth Observation in Quantitative Water Management	Chris Bremmer
09:40	Promoting Societal Benefits From SWOT: Developing Applications Early Adopters and User Communities	Margaret Srinivasan
10:00	The Space4Water Portal: Lessons learnt in building a community of practice	Nina Kickinger
10:20	From altitudes To actions: Space hydrology for transboundary river basin Management	Blaise Dhont
10:40	CERES - A citizen science approach monitoring reservoir operation from space for poorly gauged reservoirs	Tien Du
11:00 - 11:20	Coffee Break	
11:20 - 13:20	3. From products to applications - Block 2	
	Chairs: Andreas Güntner, Huilin Gao	
11:20	HYFAA : a semi-operational forecasting system of the Niger river basin using altimetry assimilation	Vanessa Pedinotti
11:40	From Global to Local: A Streamflow Bias Correction for GEOGloWS ECMWF Streamflow Services	Jorge Sanchez Lozano
12:00	Towards an operational Copernicus service: a Global Gravity-based Groundwater Product (G3P)	Andreas Güntner
12:20	HYDROWEB-NG: an innovative webSIG for the hydrology community	Flav Gouillon
12:40	Towards Near-Real-Time Satellite Monitoring of Dam Water Stocks	Santiago Pena Luque
13:00	Automatic flood monitoring from remote sensing data: the FloodDAM Space Climate Observatory project	Christophe Fatras
13:20 - 14:00	Lunch Break	
14:00 - 15:00	POSTER SESSION (all Session 3 Posters)	
	Chairs: All Session 3 chairs	
	See below the POSTER LIST (all Session 3 Posters)	
15 :00 - 15:20	Coffee Break	
15:20 - 17:20	3. From products to applications - Block 3	
	Chairs: Zaidi Arjumand, Cédric David	
15:20	Fusion of Satellite and Drone Remote Sensing with In-situ Data and VIP process-based model to Retrieve Hydrological Regime for the Middle- and Up- stream Yellow River	Suxia Liu
15:40	Prediction of Flow Duration Curves Using Near Infrared Band From MODIS	Angelica Tarpanelli
16:00	River discharge estimation for narrow rivers: benefits of Sentinel-2 high resolution data	Paolo Filippucci
16:20	Water quality dynamics of Brazilian rivers from satellite based water color	Jessica Fontoura
16:40	Monitoring of reservoir surfaces, altitudes and volumes using Sentinel-2 and Jason-3 satellite data, and future trends with SWOT: case of the lacs de Seine reservoirs (France)	Thomas Ledauphin
17:00	Current status and future developments of HYDRAFloods: operational flood monitoring in Southeast Asia	Arjen Haag
17:20 - 18:30	3. From products to applications - DISCUSSION (Animated by all Session 3 chairs)	All
18:30	End of day 4	
POSTER ID	POSTER LIST (all Session 3 Posters)	Presenter
4	A new way to measure accumulating Snow Water Equivalent in mountain and polar catchments on the kilometre-scale and in real time	Hamish Pritchard

45	Sentinel-3 Altimetry Thematic Data Product for inland waters & Sentinel-3 Validation Team benefits	Pierre Féménias
50	Determining Uncertainty in Estimations of Global Surface Water Extent derived from a Diurnal Earth Observation Time-Series	Stefan Mayr
51	Baltic SEAL: new regional sea level product offers opportunities to clarify basin sea level budgets.	Rory Scarrott
53	HYSOM: a pre-operational collaborative platform for spatial hydrology-hydraulics: the case of the Maroni basin	Adrien Paris
66	Analysis of ENSO-driven Variability, and Long Term Trends, of Extreme Precipitation Index in Colombia, Using the Satellite Rainfall Estimates CHIRPS	Juan Diego Giraldo-Osorio
79	Essential Water Variables (EWVs) for Water Cycle Research and Water Sustainability Applications	Sushel Unninayar
98	Exploring the advantages of satellite-based tools in a Wastewater and Water Utility: Challenges and opportunities	Ioannis Lioumbas
99	An Overview of the HYDRAFloods Platform: from Open Access Research to Actionable Flood Relief Information	Arjen Haag
204	Towards sustainable agricultural practices and crop production in a Green Deal context	Sophie Bontemps
205	Satellite Altimetry for Inland Water Monitoring – Automatic Processing at Virtual Station Level	Cécile M. M. Kittel
206	Research Challenges in Africa - the EO AFRICA Research and Development Facility	Zoltán Vekerdy

Friday, 11 June 2021		Speaker
15:30 - 17:00	**4. General DISCUSSION**	
	Chairs: Angelica Gutierrez, Christophe Brachet, Philippe Maisongrande, Jérôme Benveniste	
15:30	Chairs Debrief of Session 1 Discussion	Chairs
15:40	Chairs Debrief of Session 2 Discussion	Chairs
15:50	Chairs Debrief of Session 3 Discussion	Chairs
16:00	General DISCUSSION	All
17:00 -18:00	**5. Closing Session**	
	Chairs: Jérôme Benveniste, Alice Andral	
17:00	A Word from African Union Commission	Tidiane Ouattara
17:10	A Word from GEOGloWS/NOAA	Angelica Gutierrez
17:20	A Word Fron NASA	Sushel Unninayar
17:30	A Word from CNES	Philippe Maisongrande
17:40	A Word from ESA	Jérôme Benveniste
17:50	Closing Remarks and Outlook	Jérôme Benveniste
18:00	**End of HYDROSPACE-GEOGloWS 2021**	