

# ESA Scout HydroGNSS Online Workshop

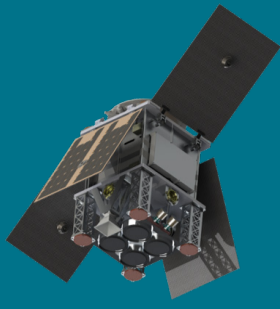
24-25th February 2022

SSTL is supported by a team of Science partners, comprising:



## Day 1 Agenda: 24th February

Session	Description	Chairs	Time (UK)	Participants	Title
Introduction to HydroGNSS / Keynotes	Welcome and introductions from ESA, UKSA and mission prime, and an overview of the HydroGNSS mission.	Ben Stern, Jean Pascal Lejault	09:00	Ben Stern, SSTL	Welcome
			09:10	Maurice Borgeaud, Head of Science Apps and Climate, ESA	ESA Introduction
			09:20	Dominique Gillieron, Head of Earth Explorer Programme, ESA	Scout Introduction
			09:30	Beth Greenaway, Head of EO and Climate, UKSA	UKSA EO Activities
			09:40	Martin Sweeting, Chairman, SSTL	Introduction from SSTL
			09:50	Manuel Martin Neira, Principal Engineer, ESA	A historical review to GNSS passive reflectometry and interferometry
			10:10	Martin Unwin / Peter Garner, SSTL	HydroGNSS Mission Overview
<b>10:30 - 10:40 Break</b>					
HydroGNSS Data Products	HydroGNSS will collect parameters closely connected with Essential Climate Variables (ECVs). Details will be given regarding the soil moisture, inundation, freeze / thaw and biomass, ocean wind speed and sea ice extent Level 2 product plans.	Serena Donati, Max Pastena	10:40	Nazzareno Pierdicca, Sapienza	Soil Moisture from HydroGNSS
			11:00	Kimmo Rautiainen, FMI	Freeze/Thaw from HydroGNSS
			11:20	Estel Cardellach, ICE-CSIC/IEEC	Inundation from HydroGNSS
			11:40	Emanuele Santi, IFAC	Forest Biomass from HydroGNSS
			12:00	Giuseppe Foti, NOC	Ocean-based L1 calibration, ocean winds and sea-ice products from HydroGNSS
<b>12:20 - 13:20 Lunch Break</b>					
Session on HydroGNSS Mission (1)	The outline of the mission will be the focus of these sessions covering the satellite, instrument, measurements, ground segment and related areas.	Peter Garner, Nazzareno Pierdicca	13:20	Serena Donati, SSTL	HydroGNSS Mission and Systems
			13:40	Reynolt de Vos van Steenwijk, SSTL	HydroGNSS Instrument Summary
			14:00	Jonathan Rawlinson, SSTL	GNSS-R on DoT-1, HydroGNSS precursor
			14:20	Martin Unwin / Jonathan Rawlinson, SSTL	HydroGNSS Measurements & calibration approach
<b>14:40 - 14:50 Break</b>					
Follow on Session on HydroGNSS Mission (2) and research topics in GNSS-R	The outline of the mission will be the focus of these sessions covering the satellite, instrument, measurements, ground segment and related areas. Further research topics in GNSS-R will be discussed along with the opportunities that HydroGNSS provides.	Martin Unwin, Estel Cardellach	14:50	Andy Newton, SSTL	HydroGNSS Ground Segment, PDGS & User Access
			15:10	Nazzareno Pierdicca, Sapienza / Gabrielle Marigold, SSTL	End to End Simulation for HydroGNSS
			15:25	Klaus Scipal, ESA	SMOS and Biomass introduction and complementarity
			15:45	Clara Chew, UCAR	Soil Moisture products from CYGNSS GNSS-R
<b>16:05 Main Meeting Closed</b>					



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## Day 2: 25th February

Session	Description	Chairs	Time (UK)	Participants	Title
Related Research supporting the Mission	This session will include related research supporting the mission, including GNSS technology, on-board digital elevation, measurement and modeling of reflections off land surfaces.	Jonathan Rawlinson, Kimmo Rautiainen	09:00	Lucinda King, University of Surrey	On-board DEM implementation
			09:20	Paul Blunt, University of Nottingham	GPS and Galileo Signal Characteristics for GNSS-Reflectometry
			09:40	Leila Guerriero, Tor Vergata / Davide Comite, Sapienza	Electromagnetic simulation of GNSS-Reflectometry
			10:00	Weiqiang Li, ICE-CSIC/IEEC	Mission consolidation studies using raw IF data sets
			10:20	Maurizio di Bisceglie, Lilli Galdi, Uni Sannio	GNSS-R coherence metrics over land and inland water surfaces
<b>10:40-10:50 Break</b>					
Potential Users of HydroGNSS	This session includes potential future users of HydroGNSS to share experience of validation and assimilation of data into models for improving the knowledge of climate change and weather.	Giuseppe Foti, Paul Blunt	10:50	Mehrez Zribi, Cesbio	Cesbio GNSS-R Activities over Land Surfaces
			11:10	Clement Albergel, Climate Scientist, ESA	ESA CCI programme and Integration of New Data
			11:30	Joaquin Munoz Sabater, ECMWF	Copernicus Climate Change Services and ECV Services, and future value of HydroGNSS
			11:50	Wolfgang Wagner, TUWien	Challenges in the use and validation of satellite soil moisture data
			12:10	Milad Asgarimehr, GFZ	GNSS-R for Hydrology: an overview of recent studies at GFZ
<b>12:30 - 13:30 Lunch Break</b>					
Mission Synergy	This session includes experiences from previously launched GNSS-R missions to identify synergies and lessons learnt.	Maria Paola Clarizia, Davide Comite	13:30	Adriano Camps, UPC	GNSS-R Experience from FSSCat and MIR L1+L5
			13:50	Cong Yin, NSSC, China	Soil moisture retrieval from the FY3E GNOS-II
			14:10	Phil Jales, Spire	Spire activities in GNSS-R
			14:30	Hugo Carreno Luengo, U-M	GNSS-R Experience from CYGNSS including Freeze / Thaw detection
<b>14:50-15:00 Break</b>					
Further Research, Prospects and Round Table Discussion	Further research topics in GNSS-R will be discussed along with the opportunities that HydroGNSS provides. The session will end with a panel discussion on the main themes of the workshop and resulting areas for discussion/ collaboration.	Martin Unwin, Nazzareno Pierdicca, Estel Cardellach	15:00	Brandi Downs, OSU	CYGNSS Level 1 Analysis for Inundation
			15:20	Eric Loria, JPL	Scattering and Coherence modelling
			15:40	Martin Unwin & HydroGNSS Team	Summary of meeting, HydroGNSS Prospects
			15:50	Jean-Pascal Lejault, ESA	Summary from ESA
			16:00	Philip Brownnett, Managing Director, SSTL	Summary from Mission Prime
			16:10	Round Table Discussion	Addressing Future HydroGNSS Challenges
<b>16:40 Meeting Ends</b>					