



<https://hydrologyfromspace.org>

Dates and Location	<b>21-25 November 2022</b> <b>South America Water from Space III, Foz d'Iguacu, Brazil,</b> <b>Venue: Itaipu Binacional</b>
--------------------	---

## Program

### Monday 21 November 2022:

#### Morning (08h-10h): Registration at ITaipu

08h00-10h00: Registration

09h30-10h00: Coffee

#### Morning (10h-10h45): Opening ceremony - Welcome speech

10h00-10h05: Institutional Video by Itaipu-Binacional (5')

10h05-10h10: Organizing Committee, Daniel Moreira and Fabrice Papa (5')

10h10-10h15: Director Superintendent of PTI, General Eduardo Garrido (5')

10h15-10h20: Brazil Director General of Itaipu, Almirante Anatalicio Risten (5')

10h20-10h25: Paraguay Director General of Itaipu, Manuel Marai Cáceres Cardozo (5')

10h25-10h30: Director of Hydrology and Land Management of SGB-CPRM, Alice Castilho (5')

10h30-10h35: Counselor for Cooperation and Cultural Action to the French Embassy in Brazil, Francois Legue (5')

10h35-10h40: Secretary General of the Amazon Cooperation Treaty (ACT), María Alexandra Moreira López (5')

**Morning (10h45-12h30):** General presentation by Institutions and Agencies. Talks on Water Cycle and Observations.

*Chair persons: Daniel Moreira - Fabrice Papa*

10h45-10h55: Presentation by SGB-CPRM officials (Frederico Peixinho) (10')

10h55-11h05: Presentation by IRD official (F. Seyler) (10')

11h05-11h15: Presentation by IPH-UFRGS official (Joel Avruch Goldenfum) (10')

11h15-11h25: Presentation by ABRHidro official (Diogo Buarque) (10') + Presentation of the ABRHidro edition book "Amazon from Space" in Portuguese

11h25-11h55: Presentation by CNES official: The SWOT mission and Hydrology from Space general overview (Jean-François Crétaux, CNES, France) (25' + 5' questions)

11h55-12h10: Rios Online, a Citizen Science Initiative in the Amazon basin (Naziano Filizola, UFAM, Brazil) (10' + 5' questions)

12h10-12h30: Logistics about the conference, mini-courses (Organizing Committee)

Lunch break (12h30-14h00)

**Afternoon (14h00-18h00) Session I.** Continental water from space and SWOT mission

*Chair persons: Daniel Kazay- Frédérique Seyler*

14h00-14h30: Keynote Amazon Hydrology From Space: Scientific Advances and Future Challenges, (Rodrigo Paiva et al., IPH-UFRGS) (25' + 5')

14h30-14h50: Tracking global surface water extent from space (M. Bonnema, NASA-JPL, USA) (15' + 5')

14h50-15h10: Worldwide Rivers monitoring from altimetry: current status and future mission (S. Calmant, IRD, France) (15' + 5')



15h10-15h30: Unsolved Problems in Hydrology (UPH) – a Latin American perspective (Pedro Chaffe, UFSC and the UPH Latin America) (15'+5')

15h10-15h30: The variability of water storage in the Tropics: current knowledge and future opportunities (Fabrice Papa, IRD-France and UnB-Brazil, Daniel Moreira, SGB-Brazil and GET-France) (15' + 5')

15h50-16h15 Coffee Break

*Chair persons: Oliver Saavedra- Tannia Maria Isabel Villanueva Aguero*

16h15-16h35: Use of satellite for Itaipu management (D. Kazay, Itaipu, Brazil) (15'+ 5')

16h35-16h55: Monitoring reservoirs in the Brazilian Nordeste from satellites (Alfredo Ribeiro Neto, UFPE Recife, Brazil) (15'+ 5')

16h55-17h15: Climate variability affects water storage extremes in South America (Rodrigo Abarca del Rio, Uni. Concepcion Chile and Vanesa Bohn, Uni. Nacional del Sur Argentina) (15'+ 5')

17h15-17h35: Remote sensing of precipitation, a review (Romulo Juca Oliveira, LEGOS – Hydro-Matters and M. Gosset, IRD-France and FUNCEME-Brazil) (15'+ 5')

17h35-17h55: Round table- discussion- questions

**Evening(18h00-20h00) Social event: Cocktail and show at Itaipu Dam**

**Tuesday 22 November 2022 :**

**Morning (9h00-10h50): Session 2: Integrated studies for hydrology and water cycle.**

*Chair persons: – Marielle Gosset- M. Bonnema*

9h00-9h30: Keynote: Sustainable development of Amazon wetlands through hydrologic and interdisciplinary approaches: the contribution of satellite data (Ayan Fleischmann, Mamiraua Institute, Brazil) (25'+ 5')

9h30-9h50: Lake monitoring from space (J-F Crétaux, LEGOS-CNES, France and R. Abarca del Rio, Uni Concepcion, Chile) (15' + 5')

9h50-10h10: Development of combined daily satellite-based precipitation products over Bolivia (Oliver Saavedra, Bolivia) (15'+ 5')

10h10-10h30: Recent developments in low-cost ground-based GNSS Reflectometry for water altimetry (Felipe Geremia Nievinski, UFRGS, Brazil) (15' + 5')



10h30-10h50: Amazon hydrological reanalysis and land-atmosphere interactions in a changing climate (Sly Wongchuig, LEGOS-CNES) (15' + 5')

10h50-11h15: Coffee Break

**Morning (11h15-12h30):** Session 3: SWOT Early adopters and Operational Agencies.

*Chair persons: Rodrigo Abarca del Rio – Ayan Fleischmann*

11h15-11h45: Engaging the Applied User Community of the Surface Water and Ocean Topography (SWOT) Mission (Margaret Srinivasan, NASA-JPL, USA) (25' +5')

11h45-12h15: WMO-IRD collaboration to promote the use of satellite and other innovative data to enhance operational HydroMeteorological services and flood warning (Marielle Gosset, IRD, France) (15' +5')

12h15-12h35: Ongoing studies LabISA-INPE in supporting the monitoring of Brazilian inland Waters by Remote Sensing (Claudio Barbosa, INPE, Brazil) (15'+ 5')

Lunch break (12h30-13h45)

**Afternoon (13h45-16h30):** Session 3 (continued): SWOT Early adopters and Operational Agencies.

13h45-14h15: Strengthening knowledge for better transboundary water resources management in the Guiana shield: case of the BIO-PLATEAUX project (Célia BIANCAT, OiEau, French Guyana, Chevelle Rigters, Ministry of Public Works, Hydraulic Research Division (HRD), Surinam and Jefferson Erasmo de Souza Vilhena, Instituto de Pesquisas Científicas e Tecnológicas do Estado do Amapá, Brazil) (25' +5')

14h15-14h30: SGB-CPRM (Brazil): Remote Sensing of Water in Operational and SWOT context (Daniel Moreira, SGB-Brazil and GET-France) (10'+5')

14h30-14h50: ANA (Brazil) Hydrology operational activities (Vinícius Roman, ANA, Brazil)

14h50-15h10: SENAMHI. Hydroclimatology from Peru using space data and land climatological observations (Harold Llauca and Waldo Lavado, SENAMHI, Peru) (15'+ 5')

15h10-15h30: CEMADEN. Operational forecast in Brazilian river: expected benefits from the use of SWOT (Alex Ovando, CEMADEN, Brazil) (15'+ 5')

15h30-15h50: IBGE. Brazilian geoid and vertical datum, altimetric and tide gauge network (Roberto Teixeira Luz, IBGE, Brazil) (15'+ 5')



15h50-16h10: Plugin SWOT to Enhance Water Resource Management in Lower Mekong Region (Chinaporn Meechaiya, Asian Disaster Preparedness Center) (15'+ 5')

16h10-16h30: Operational hydrology from Space: the real time monitoring of rivers using satellite and models (Adrien Paris, LEGOS-HydroMatters, France) (15'+ 5')

### Poster Session (16h30-18h00) and coffee

16h30-18h00: Hydrological Science, Water Cycle and Water Resources from Satellites with special focus on South America.

- Water bodies/Lake/Wetlands/Rivers monitoring and processes
- Precipitation and HydroClimatology
- Water resources and management
- Hydrology and models in large river basins
- SWOT SA Early adopters

See the complete program p. 8

## Wednesday 23 November 2022 :

### Morning (9h-12h30): Courses

Choice #1: Radar altimetry by Adrien Paris (LEGOS-HydroMatters, France)  
For ~25-30 persons, session of 3h

Choice #2: ADCP and field trip by Pablo Souza Dos Santos and ITAIPU's hydrological studies team, For ~16 persons maximum, session of 3h

Choice #3: SWOT Hydrology-Toolbox and SWOT simulator by Damien Desroches (CNES, France). For ~25-30 persons, session of 3h

Choice #4: Water Resources Applications by Rodrigo Paiva and a team from IPH-UFRGS. For ~25-30 persons, session of 3h

Coffee break (10h45-11h15)

Lunch break (12h30-14h00)

### Afternoon (14h00-17h30): Courses

Choice #1: Radar altimetry by Adrien Paris (LEGOS-HydroMatters, France)  
For ~25-30 persons, session of 3h

Choice #2: ADCP and field trip by Pablo Souza Dos Santos and ITAIPU's hydrological studies team, For ~16 persons maximum, session of 3h



Choice #3: SWOT Hydrology-Toolbox and SWOT simulator by Damien Desroches (CNES, France). For ~25-30 persons, session of 3h

Choice #4: Water Resources Applications by Rodrigo Paiva and a team from IPH-UFRGS. For ~25-30 persons, session of 3h

Coffee break (15h45-16h15)

## Thursday 24 November 2022 :

**Morning (9h00-12h30):** Session 4: Hydrological studies worldwide

*Chair persons: Jean-Francois Crétaux- Homero Reis*

9h00-9h20: Large-scale spatio-temporal variability of the Congo Basin surface hydrologic components from space over 1992-2015 (Benjamin Kitambo, LEGOS, France and CRREBaC, Congo) (15'+ 5')

09h20-09h40: Small reservoirs monitoring in the semi-arid Brazilian Nord Este in Cearà and SWOT Cal/val site (Rafael Reis Oliveira, FUNCEME, Brazil) (15'+ 5')

9h40-10h00: Sediment variability in the Amazon River basin (Andre Martinelli, SGB-CPRM and UFAM, Brazil) (15'+ 5')

10h00-10h20: Evapotranspiration from Space: Application of geeSEBAL for Brazilian biomes (Leonardo Laipelt, IPH-UFRGS, Brazil) (15'+ 5')

10h20-10h40: EIBEX - Detection of Chlorophyll a using Landsat and Planet images (Diego Alberto Tavares, Itaipu-PTI, Brazil) (15'+ 5')

10h40-11h10: Coffee Break

11h10-11h30: Web-based sediment analysis using satellite, modelling and in situ data and its application in hydropower projects (Henrique Reisdorfer Leite, EOMAP/Lactec, Brazil) (15'+ 5')

11h30-11h50: Assessment of GPM era satellite rainfall products against high resolution rain maps from Commercial Microwave Links and radar in Tropical areas – Focus in moist conditions in Guyana and semi-arid Ceara (Rodrigo Zambrana, Weather Force, Bolivia) (15' +5')

11h50-12h10: How much evaporation occurs in Brazilian largest reservoirs? A remote sensing perspective (Júlia Brusso Rossi, IPH-UFRGS, Brazil) (15'+ 5')

12h10-12h30: SurfWater and StockWater (Nicolas Gasnier et Santiago Pena Luque, CNES, France) (15'+ 5')

Lunch break (12h30-13h30)



**Afternoon (13h30-15h00):** Presentation of 2 IRD GDR. Cal/val activities during SWOT first months. Future projects after SWOT lunch. Open discussions. Closing Ceremony.

*Chair persons: Jefferson Melo and Adrien Paris*

13h30-13h50: The GRDI RainsMore (Marielle Gosset) (20')

13h50-14h10: The GDR ScyHyLab: Ongoing and upcoming field campaigns in SA after the SWOT launch (S. Calmant, IRD) (20')

14h10-14h40: Conclusions, discussions, future projects, journal special issue (hydrogeodesy WRR/GRL); Where/when are we planning the next conference?

14h40-15h00: Closing Ceremony

**15h00 End of conference**

**Friday 25 November 2022:**

**Morning (8h30-12h00): Visit of Itaipu Dam**

**Afternoon (13h30-17h): Visit of Itaipu Dam and PTI Biological Refuge Bela Vista**



## Poster Session Program

Tuesday 22<sup>nd</sup> of November 2022, Itaipu, 16h30-18h30:

Sly Wongchuig et al., A multi-mission remote sensing data assimilation for large-scale hydrological and hydrodynamic estimation

Naziano Filizola et al., Seasonal pattern of *malaria* cases and the relationship with hydrologic variability in the Amazonas State

Manuel Rodrigues de Freitas Filho et al, Mapping of dams and monitoring of water bodies located in the state of Ceará

Arthur Kolling Neto et al., Flow sensitivity to climate change and variability in South America

Benjamin Kitambo et al., Combined use of in-situ and satellite-derived observations to characterize surface hydrology and its variability in the Congo River Basin

Fabien Durand et al., Hydrodynamics of the Amazon estuary: from tides to water level extreme events

Karen Escalona et al., A Google Earth Engine approach for Remote Sensing and Machine Learning monitoring for Spatio-Temporal Variations in Aquatic Vegetation: The Lake Maracaibo case.

Larissa de Castro Ribeiro et al., Evaluation of different high resolution MDEs on water basin delimitation in the flat Amazon region

Leonard Niero da Silveira et al., Preliminary inter-comparison of lidar and radar satellite altimeters and in situ water level stations in the patos lagoon/guaíba complex, southern Brazil

Pedro Torres Miranda et al., Low sensitivity to extremes in current hydrological modelling

Stefany Gonçalves Lima et al., A methodology for estimating large-scale cascading dam failures

Thalita Pereira Delduque et al., Custos evitados com o manejo de macrófitas: uma abordagem de valoração ecossistêmica aplicada ao reservatório de Itaipu

Waterloo Pereira Filho et al., Identificação de zonas de transição em reservatórios

Wilany Rodrigues Galvão Alves et al., Development of a tool to estimate GPP for Brazil in high spatial resolution using cloud computing in Google Earth Engine.

Itaipu team et al, A evolução dos levantamentos topo-batimétricos para o monitoramento hidrológico da ITAIPU Binacional

Itaipu team et al., Avaliação dos dados de precipitação por satélite para área de interesse da Itaipu Binacional

Itaipu team et al., Os modelos hidrológicos considerados na rotina de previsão de aflúências de Itaipu

Itaipu team et al., O uso de modelos hidrodinâmicos para tomada de decisão na usina de Itaipu



Aline Flack et al., Assessing the Potential of Upcoming Satellite Altimeter Missions in Operational Flood Forecasting Systems

Ignacio Garcia Torres et al., Evaluation of different evaporation methods for modeling the water balance of Lake Poopó.

Gabriel Matte Rios Fernandez et al., WebGIS Tools for large-scale hydrological assessments based on remote sensing datasets and cloud computing

Luiz Fernando Lozove et al., Bias evaluation of numerical weather prediction models

João Paulo Mariano de Faria et al., Index of Susceptibility to Aquifer Contamination

Stephane Calmant et al., The future SMASH altimetric constellation for hydrology

Andre Nascimento et al., Impacts of river bank erosion and sedimentation on riparian communities in the Amazon reserve of Mamiraua.

Gomes et al., Ensemble hydrological predictions at intraseasonal scale through a statistical-dynamical downscaling approach over southwestern Amazonia

Vergasta et al., An Assessment of the Present Hydroclimatic Regime of the Madeira River Basin Using Climate and Hydrological Models

Gasnier et al., Water quality from remote sensing and the UNESCO World Water Quality Portal in La Plata basin

