



National Aeronautics and  
Space Administration

NASA  
earth

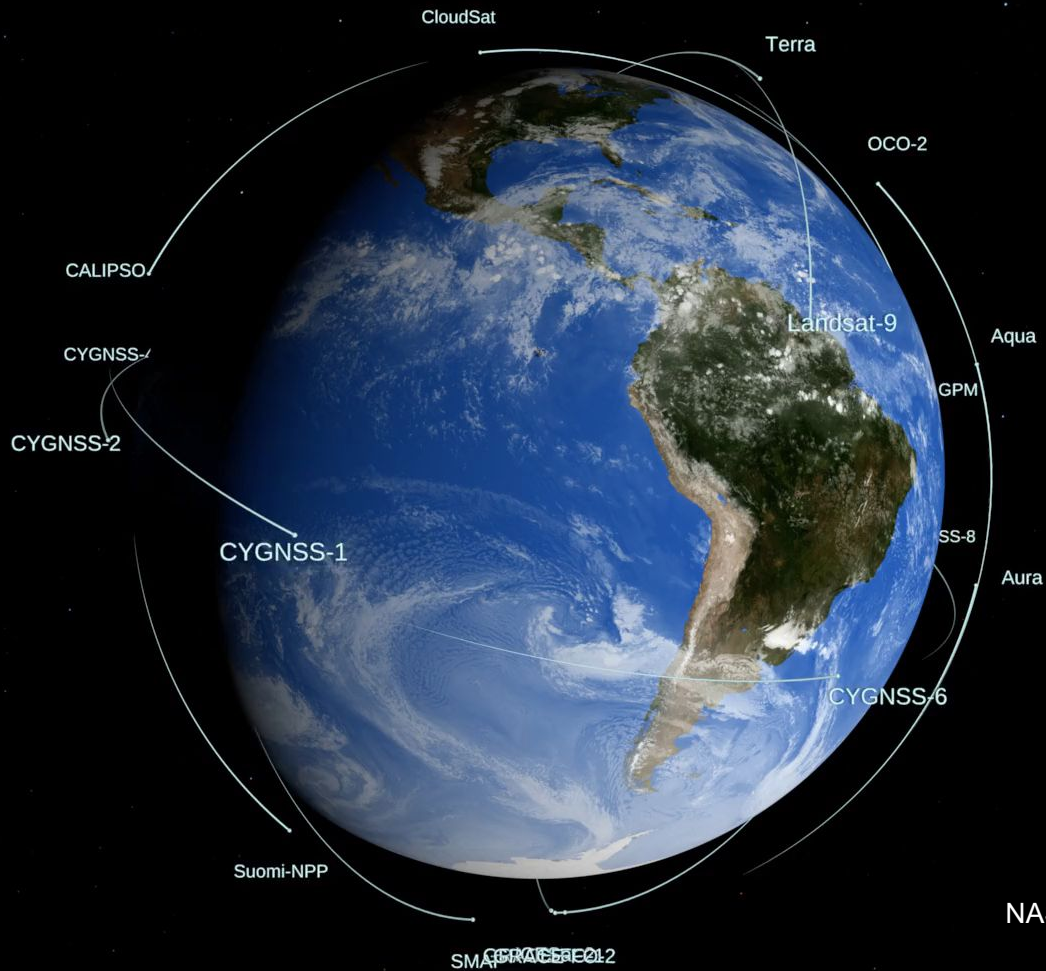
# From Space to Stream: Satellite Data and Applications for Water Resources Management

Perry Oddo

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INBO World General Assembly

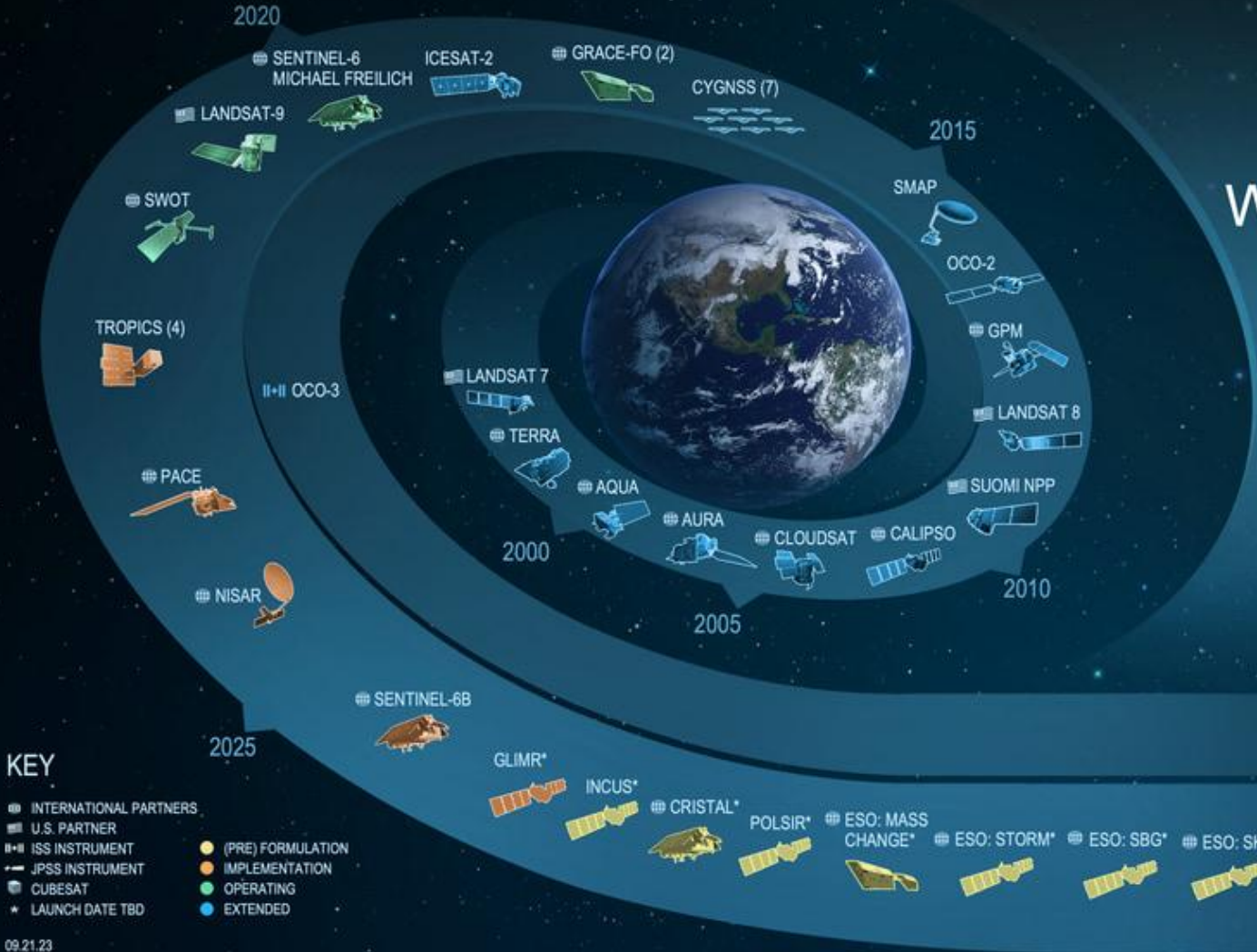
9 October 2024







# Water Cycle Fleet



## INVEST/CUBESATS

- NACHOS 2022
- CTIM 2022
- NACHOS-2 2022
- MURI-FD 2023
- SNOOPI\* 2024
- HYTI\* 2024
- ARGOS\* 2024

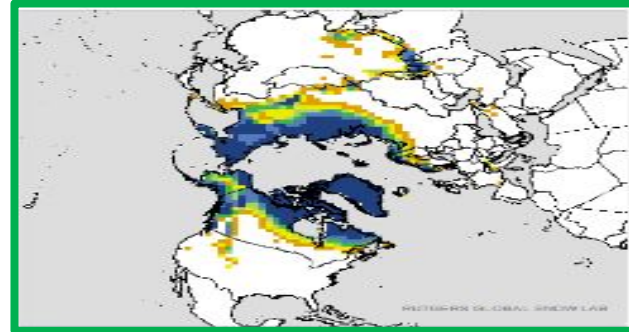
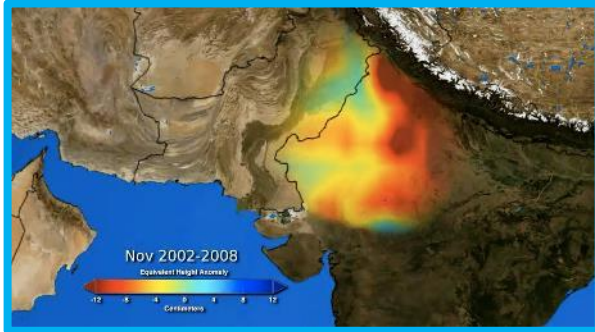
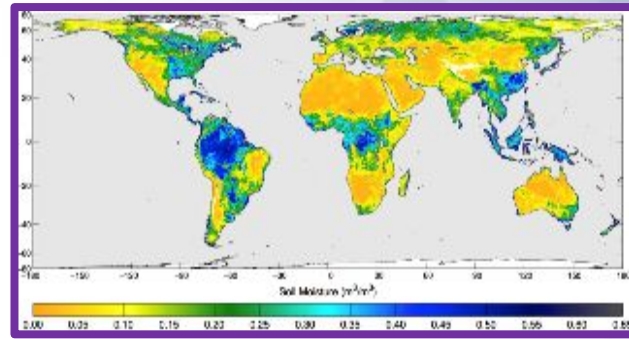
## ISS INSTRUMENTS

## KEY

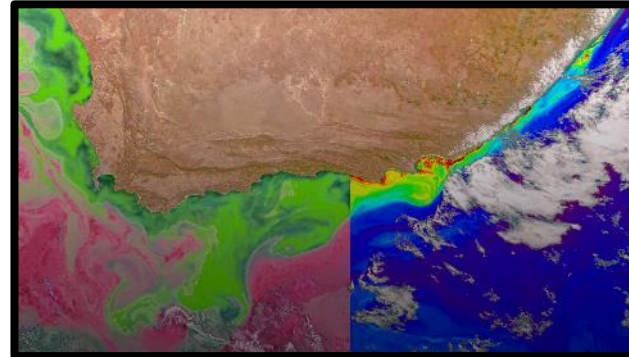
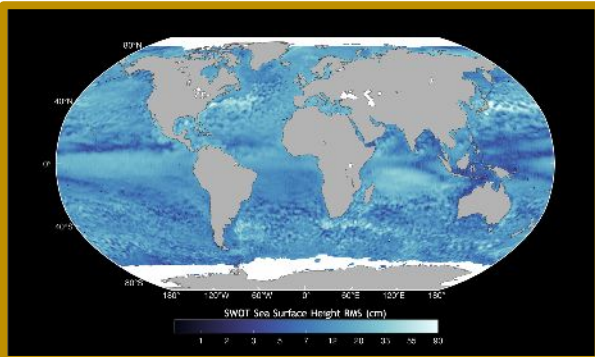
- INTERNATIONAL PARTNERS
- U.S. PARTNER
- ISS INSTRUMENT
- JPSS INSTRUMENT
- CUBESAT
- LAUNCH DATE TBD
- (PRE) FORMULATION
- IMPLEMENTATION
- OPERATING
- EXTENDED

## MISSIONS

# Satellite Water Data



- Precipitation
- Soil Moisture
- Groundwater
- Snow Cover
- Water Elevation
- Water Quality



# Matching NASA data products to community needs

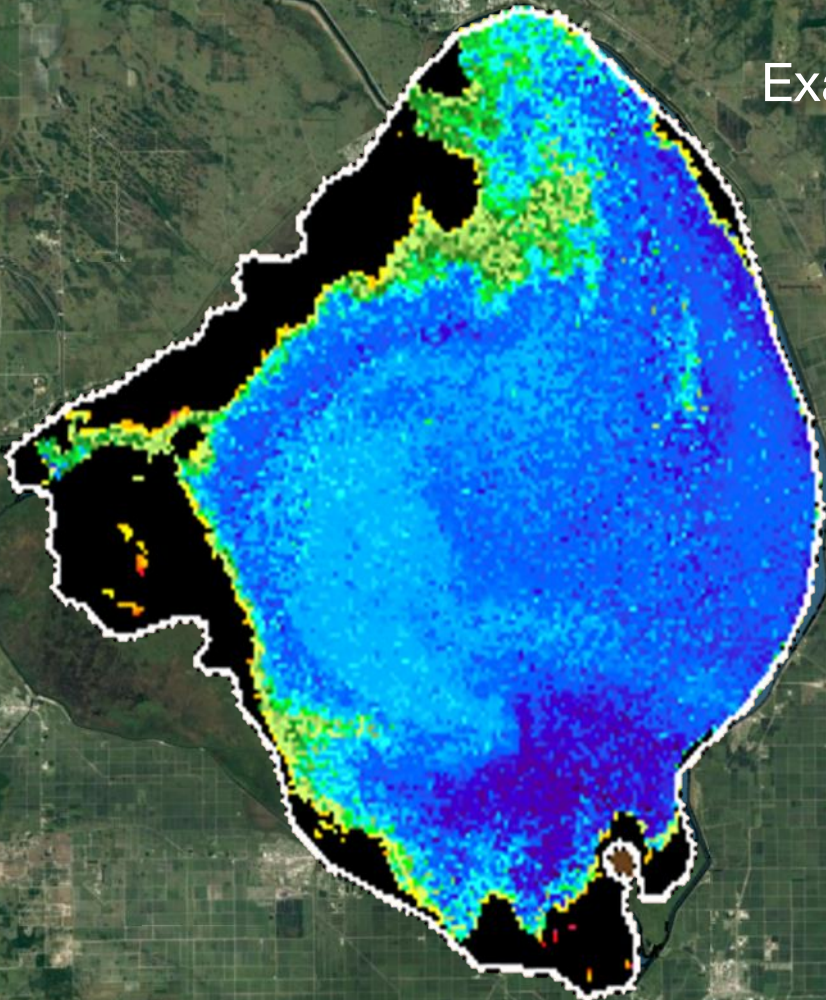
## Identified community needs

## NASA has significant current and planned future capabilities to address these needs

• Extreme Events Predictions and Impacts	• <a href="#">S2S Modeling and Forecasting</a>
• High Quality Groundwater Estimates	• LIS, GRACE-FO, WLDAS, <a href="#">NISAR</a>
• Timely Streamflow Predictions at the Sub-Basin Level	• SWOT, Snow DS, LIS, WLDAS
• Streamflow Monitoring, wet/dry indicator across all streams	• SWOT, Snow DS, LIS, WLDAS
• Stream Temperatures and Temperature Dynamics	• LIS
• Land Use and Land Cover Mapping	• Landsat, MODIS (Terra/Aqua), Suomi-NPP, <a href="#">SBG</a>
• Crop and Irrigated Land Mapping	• Landsat, SMAP, <a href="#">SBG</a> (+Sentinel-2)
• Infrastructure Monitoring	• <a href="#">NISAR</a>
• Land Subsidence Due to Groundwater Extraction	• <a href="#">NISAR</a> , <a href="#">OPERA</a> , ARIA
• Harmful Algal Blooms	• Landsat, MODIS (Terra/Aqua), Suomi-NPP, CyAN, PACE, <a href="#">SBG</a>
• Flood Plain Mapping	• SWOT, Landsat, <a href="#">SBG</a>

Blue text denotes missions / projects under development

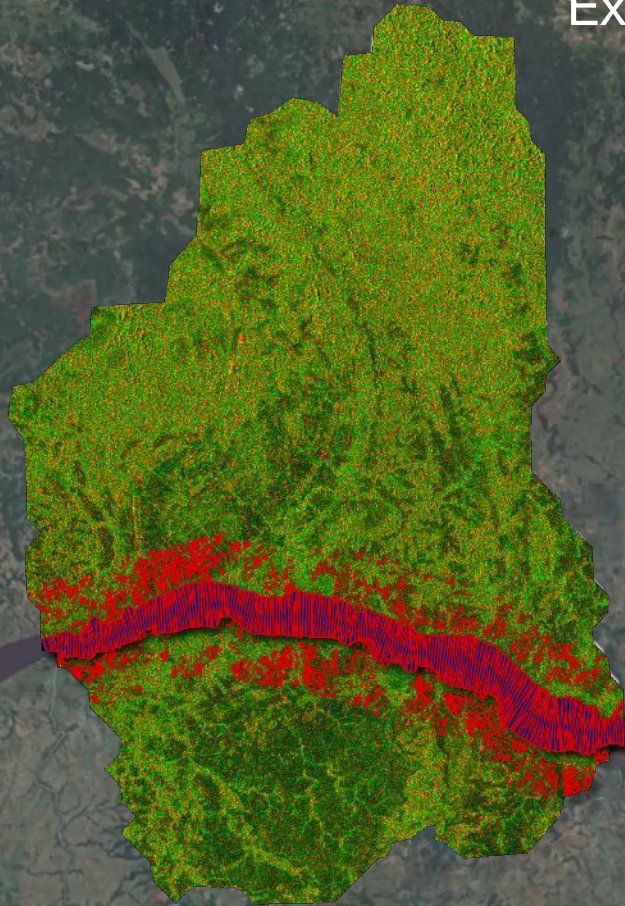
# Example 1: Lake Water Quality



Chl-a ( $\text{mg m}^{-3}$ )



## Example 2: River Navigability



# Putting things into practice: La Plata River Basin



**CIC**  
Cuenca del Plata



Organization of  
American States



Interagency Science  
and Applications Team

The poster features a top banner with logos for OAS, GOBIERNO del PARAGUAY, MADES, ITAIPU BINACIONAL, ISAT, and NASA. The main title is 'Building Capacity on Scientifically Robust Tools and Methodologies for IWRM in La Plata Basin: Modeling Frameworks', with 'Second edition' below it. The background shows an aerial view of the Itaipu Dam. A green diagonal banner contains the title and edition information. A blue footer section provides details on Date (March 5-7, 2024), Language (Spanish, Portuguese, and English), and Location (Itaipu Binacional). The bottom section is titled 'Day 1: Tuesday, March 5, 2024' and includes a 'Welcome' section for 9:00-10:00, listing the opening session agenda.

**DATA AND SCIENCE FOR  
DECISION MAKING IN  
TRANSBOUNDARY WATERS IN  
LATIN AMERICA AND THE  
CARIBBEAN (LAC)**

**Building Capacity on  
Scientifically Robust Tools  
and Methodologies for  
IWRM in La Plata Basin:  
Modeling Frameworks**

*Second edition*

**Date**  
March  
5 - 7, 2024

**Language**  
*Simultaneous interpretation available  
in Spanish, Portuguese and English.*

**Location**  
Itaipu Binacional

**Day 1: Tuesday, March 5, 2024**

**Welcome**

**9:00-10:00 Opening Session**

- Itaipu Binacional Welcome
- MADES Welcome
- CIC Welcome
- CIC Member Countries
- ISAT Introduction



# LIS Training: Rio de la Plata

Contributors: Perry Oddo  
Date created: 2024-02-22 03:37 PM | Last Updated: 2024-03-07 12:06 PM

Create DOI  
Category: Project  
Description:  
Agenda and training materials for the interagency Water Working Group (ISAT) workshop, Building Capacity on Scientifically Robust Tools and Methodologies for IWRM in La Plata Basin: Modeling Frameworks  
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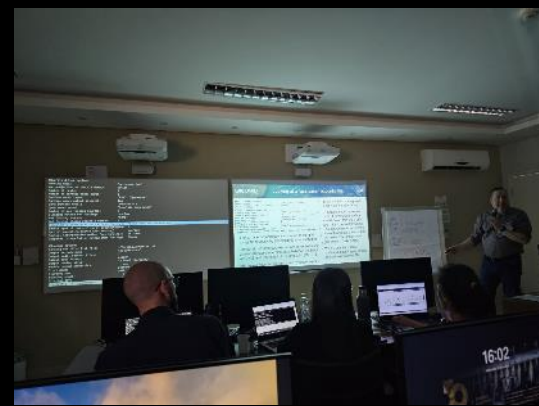
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Add components to organize your project.

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CIC x ISAT x LIS x NASA x OAS x USACE x  
Water Resources x Add a tag

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# Connect with NASA water data

## Data Access

- [NASA Earth Data](#)
- [Earth Information System: Freshwater](#)
- [Water and Agricultural Pathfinder](#)
- [GESDISC](#)

## Resources

- [ARSET](#)
- [Earth Observatory](#)
- [Western Water Applications Office](#)
- [Scientific Visualization Studio](#)

## Open Tools & Applications

- [JPL Opera](#) - six operational product suites for applied remote sensing
- [CyAN](#) – web and app-based tool that provides daily, weekly, and true-color satellite data on potential harmful algal blooms
- [Global Water Monitor](#) - satellite data products relevant to lakes, reservoirs, river channels, wetlands and global mean sea level
- [Open ET](#) - easily accessible satellite-based estimates of evapotranspiration (ET) at the field scale

