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Programme



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Initiative on  
Water Quality

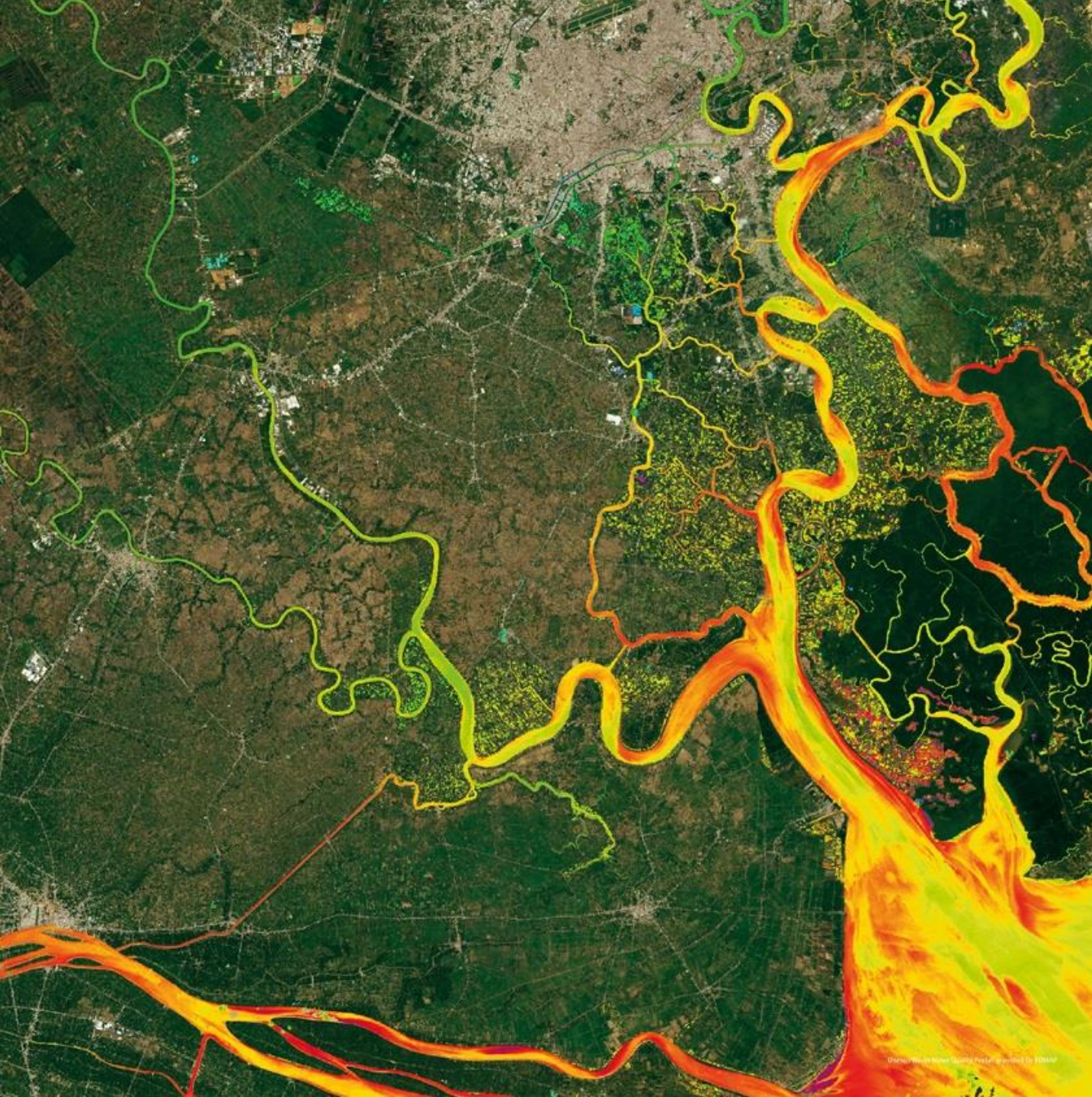
A large, dynamic splash of blue water droplets and waves serves as the background for the entire slide.

# Monitoring Water Quality using Earth Observation UNESCO World Water Quality Portal

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**UNESCO**

Division of Water Sciences - International Hydrological Programme





# Monitoring Water Quality using Earth Observation

A new frontier in  
water resources management  
and SDGs monitoring



# Water quality monitoring for the SDGs implementation and progress evaluation

**Lack of** global water quality data and information

**Lack of** human and technical capacity for water quality monitoring

**Need** to evaluate and monitor progress towards SDGs achievement

There is a need to enhancing global water quality data and information, supported by capacity building on water quality monitoring



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# UNESCO-IHP IIWQ

# World Water Quality Portal



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An innovative tool to monitor water quality, using Earth Observation (satellite data), to support the SDG 6 implementation and monitoring at the global and national levels

The screenshot shows the website interface for the IIWQ World Water Quality Information and Capacity Building Portal. The main map displays global water quality data with a color scale for Turbidity (FTU) ranging from 0.1 to 650. A control panel on the right allows users to select a region (currently set to 'World - Mosaic - [90m]'), choose a parameter (currently 'Turbidity'), and set a date (currently 'Various Dates. Mosaic'). A 'Station Values' section shows a value of 2.00 FTU for a specific date and time. A 'Time Series Plot' button is also visible. The website footer includes the UNESCO logo, the text 'UNESCO 2017 | powered by BOMAP | Legal Information', and a copyright notice for Microsoft Corporation.

[www.worldwaterquality.org](http://www.worldwaterquality.org)





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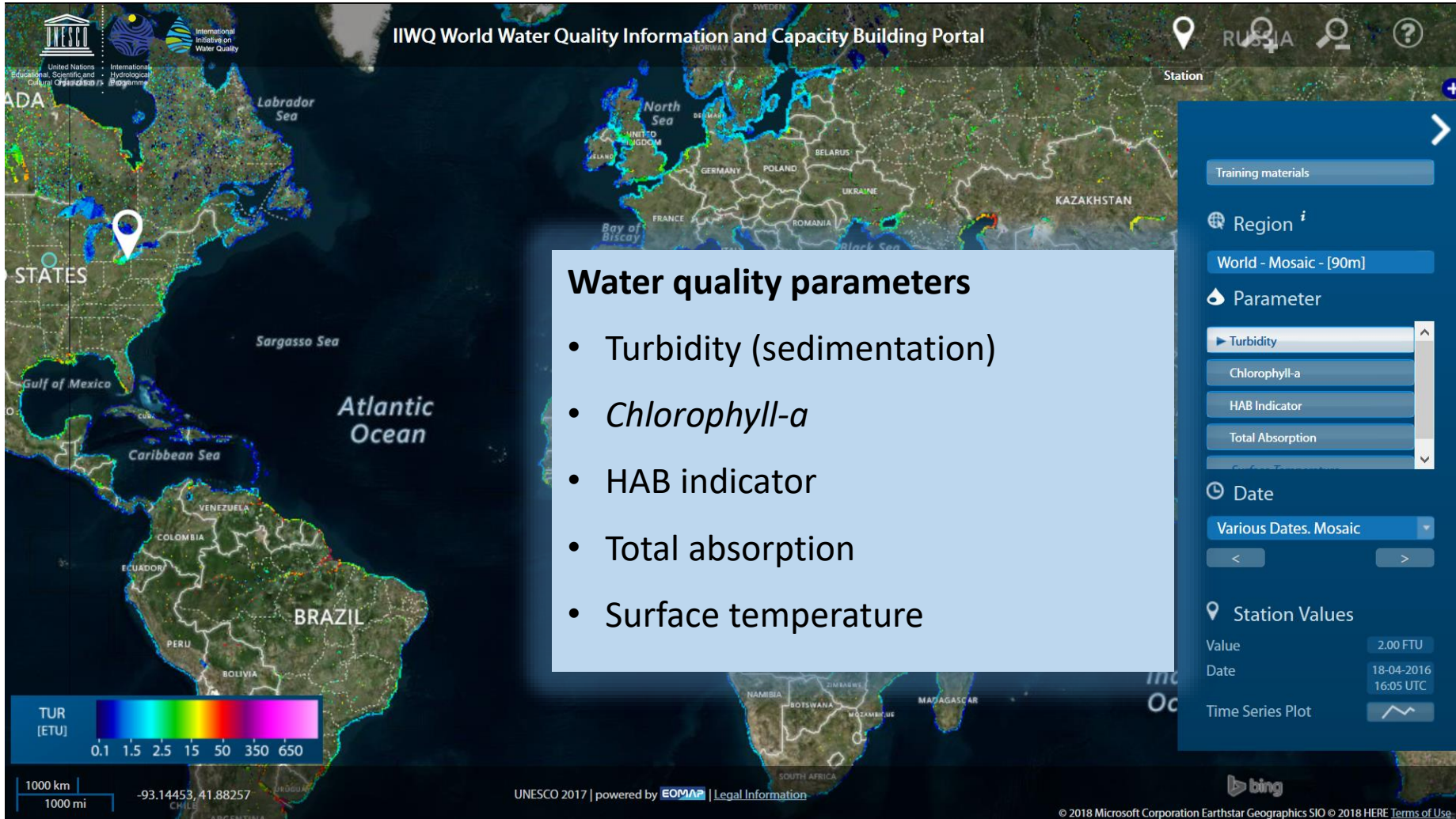


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# UNESCO-IHP IIWQ World Water Quality Portal

http://www.worldwaterquality.org/ X +

www.worldwaterquality.org

tour de france 2018

**Global layer** (90-meter/mixed resolution)  
**Regional layers/demonstration basins** (30-meter resolution, time series):

- **Lake Sevan in the Caucasus highlands**  
*Armenia, Azerbaijan*
- **Itaipu and Parana River Basins**  
*Argentina, Brazil, Paraguay*
- **The Mecklenburg Lake Plateau** - *Germany*
- **River Nile and Aswan Reservoir** - *Egypt, Sudan*
- **The Mekong Delta** - *Vietnam*
- **Florida Lakes** - *USA*
- **Zambezi River** - *Zambia, Zimbabwe*

TUR [ETU] 0.1 1.5 2.5 15 50 350 650

1000 km 1000 mi 83.16406, 28.51301

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Station

Training materials

Region

World - Mosaic - [90m]

World - Mosaic - [90m]

AM/AZ - Caucasus highlands, timeseries - [30m]

AR/BR/PY - Itaipú/Paraná River, timeseries - [30m]

DE - Mecklenburg Lake Plateau, timeseries - [30m]

EG/SD - Nile & Assuan Reservoir, timeseries - [30m]

KH/VN - Mekong delta, timeseries - [30m]

US - Florida lakes, timeseries - [30m]

ZM/ZW - Zambezi River, timeseries - [30m]

Station Values

Value 2.00 FTU

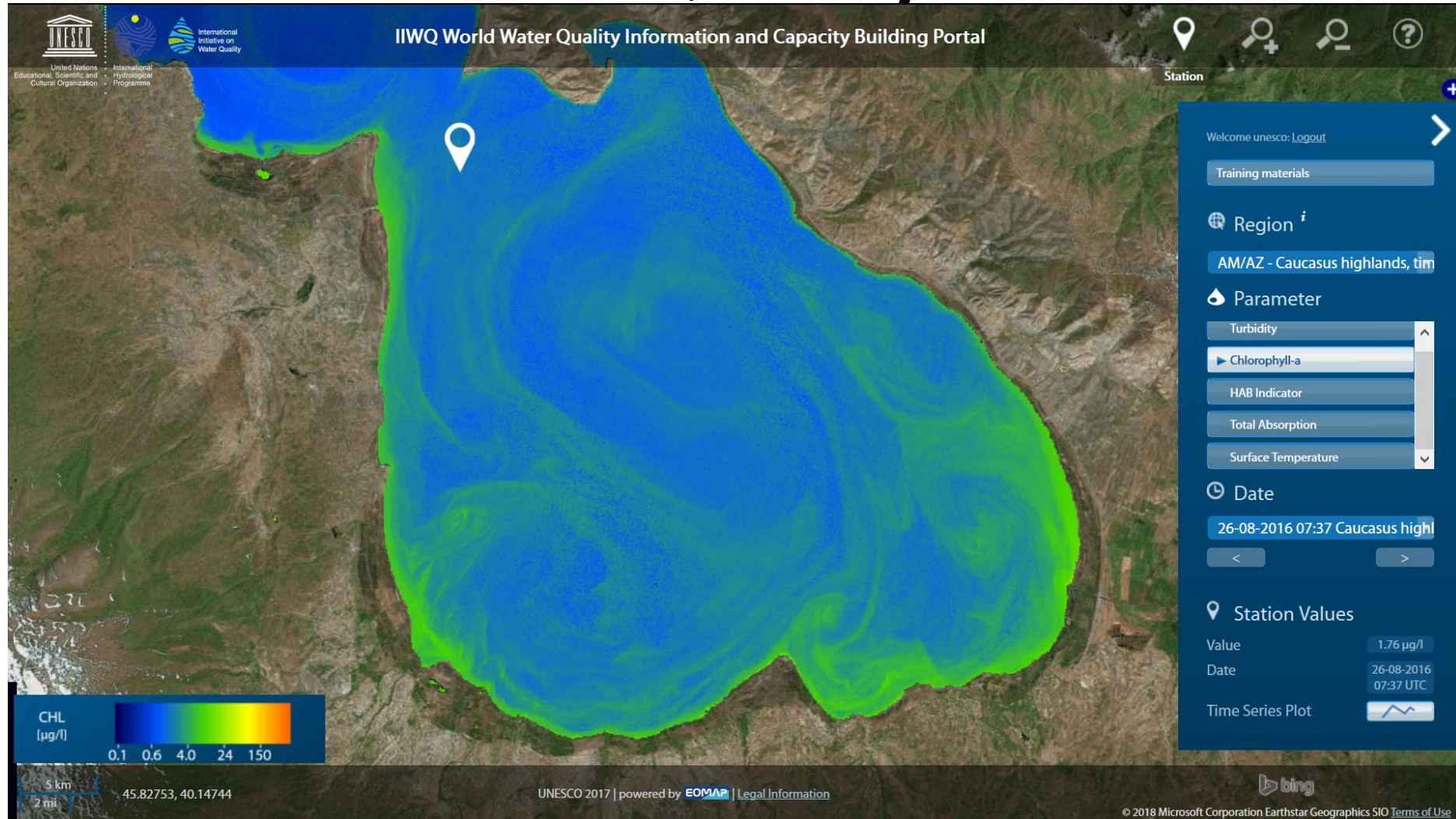
Date 18-04-2016 16:05 UTC

Time Series Plot

[www.worldwaterquality.org](http://www.worldwaterquality.org)



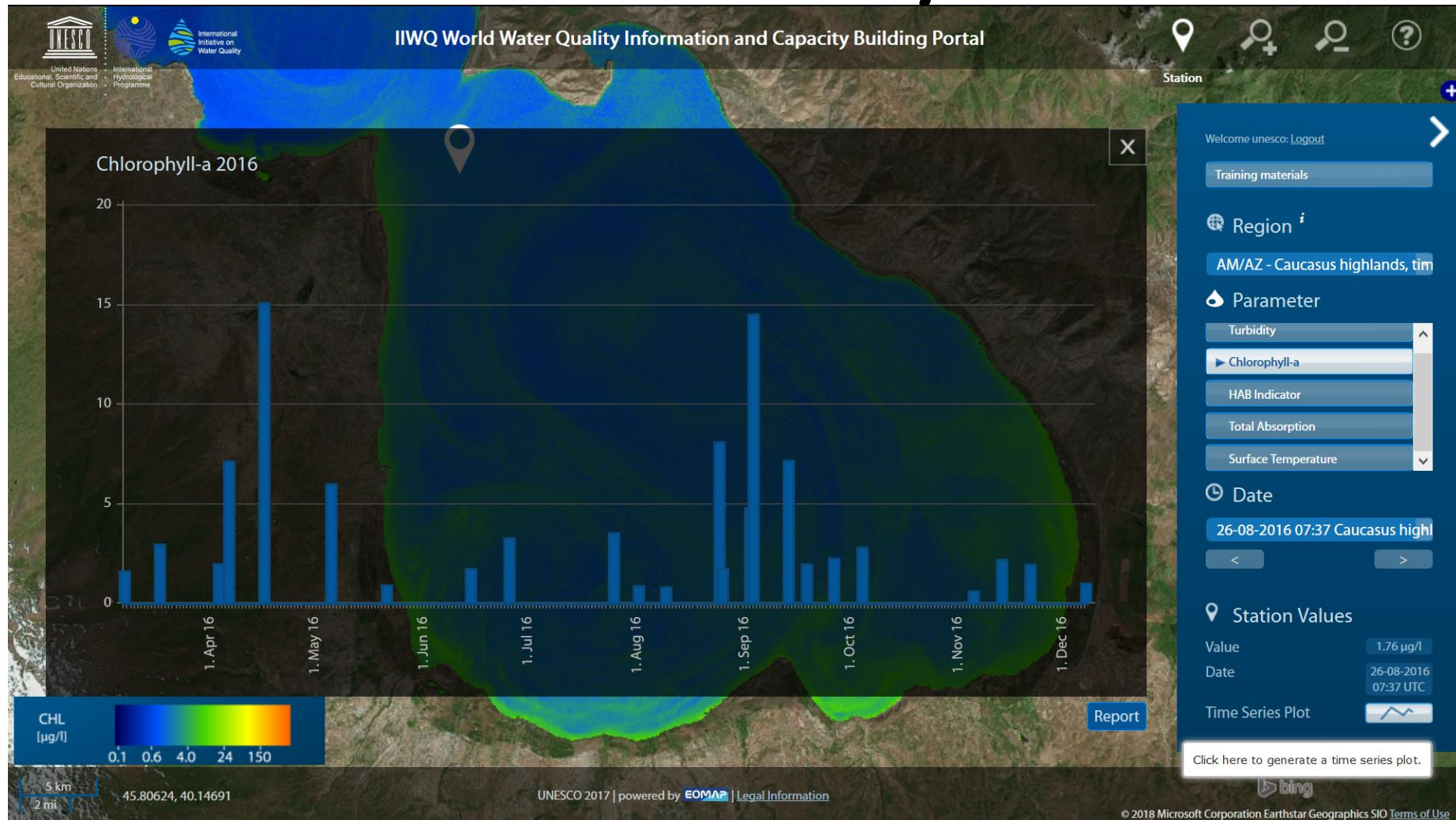
# UNESCO-IHP IIWQ World Water Quality Portal





# UNESCO-IHP IIWQ

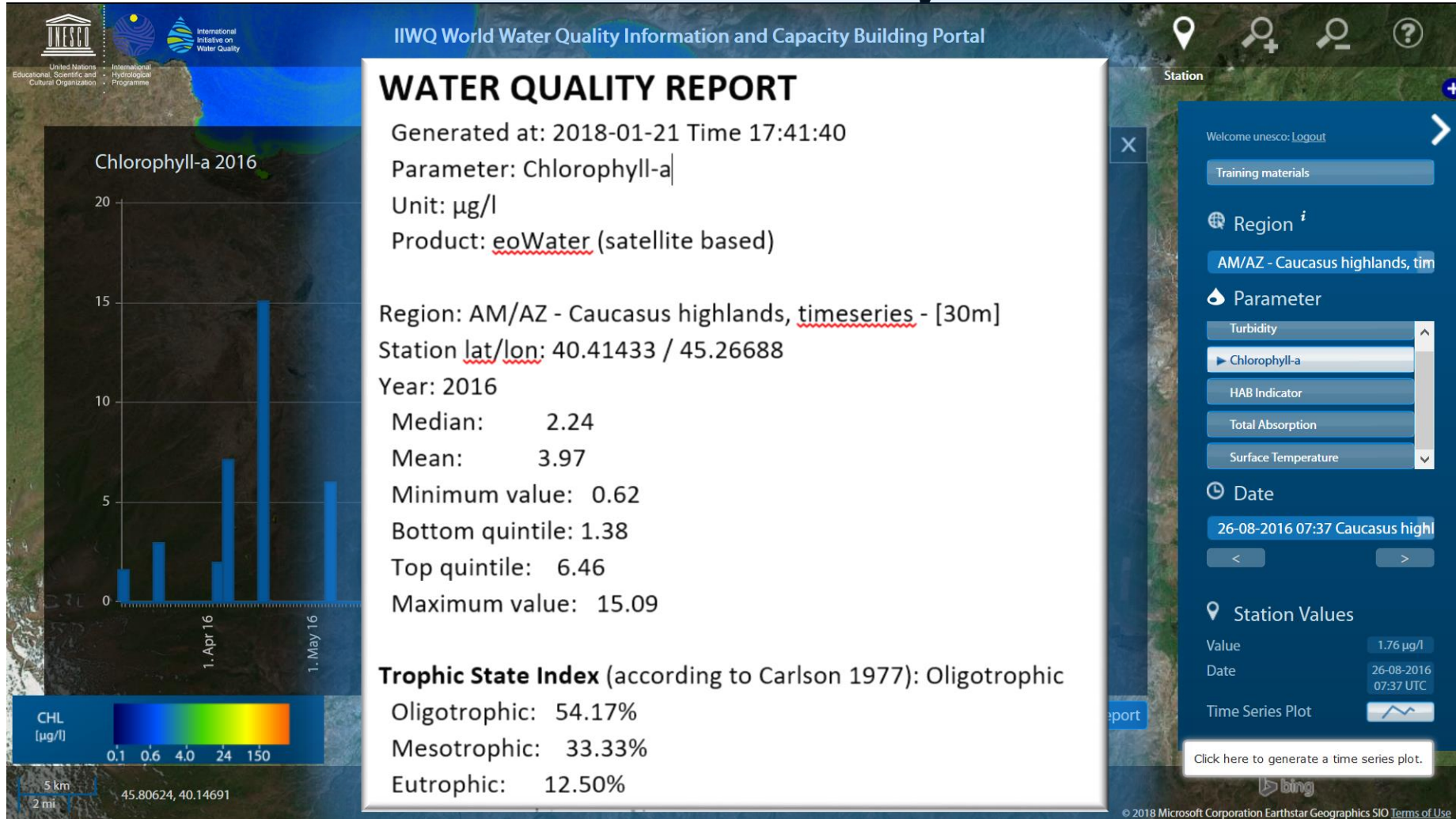
## World Water Quality Portal





# UNESCO-IHP IIWQ

## World Water Quality Portal





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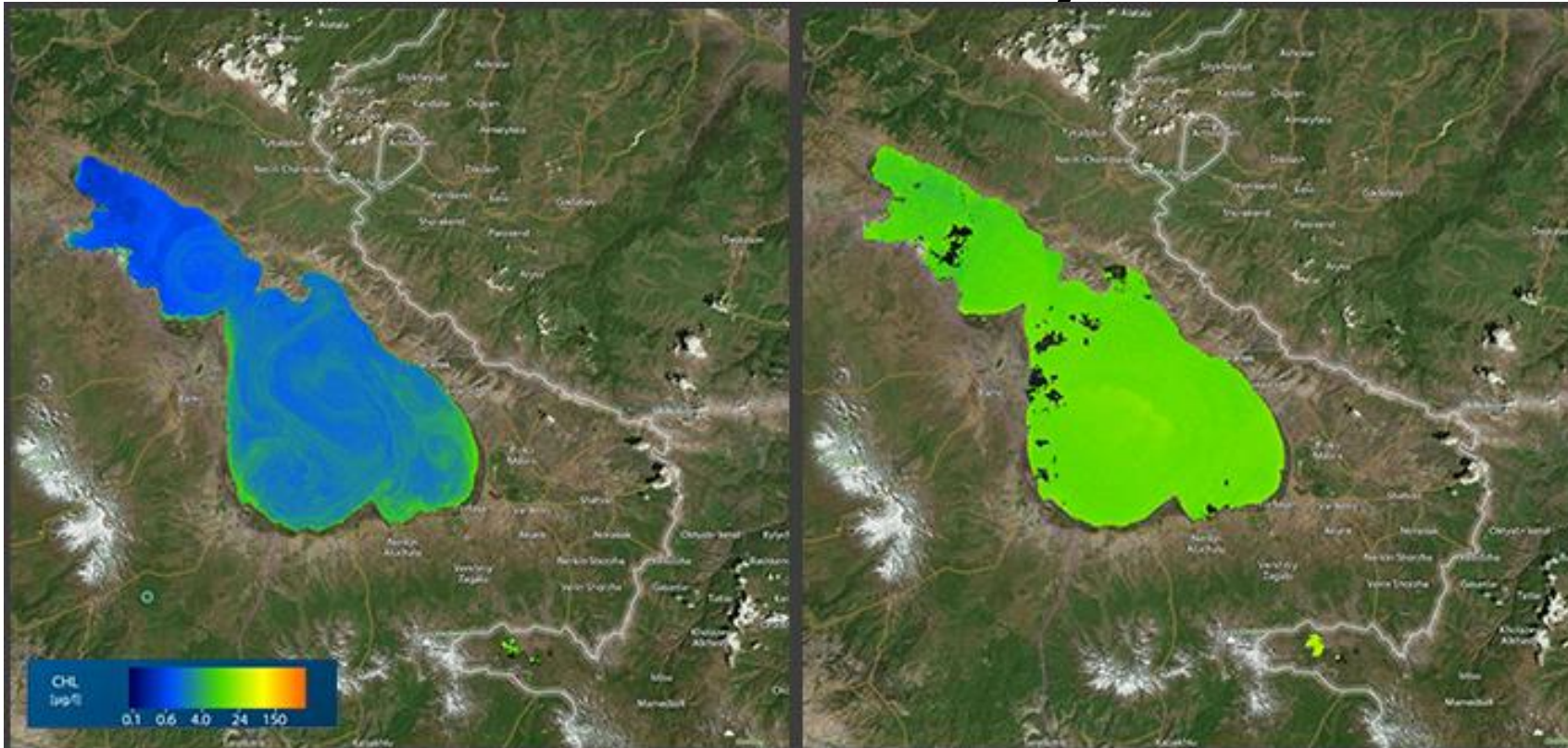


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Chlorophyll-a levels in Lake Sevan on 26 August and 04 September 2016.  
IIWQ World Water Quality Portal, UNESCO / EOMAP

**Lake Sevan in the Caucasus highlands: Armenia, Azerbaijan**

Water quality (Chlorophyll-a) (26 August & 04 September 2016)

[www.worldwaterquality.org](http://www.worldwaterquality.org)





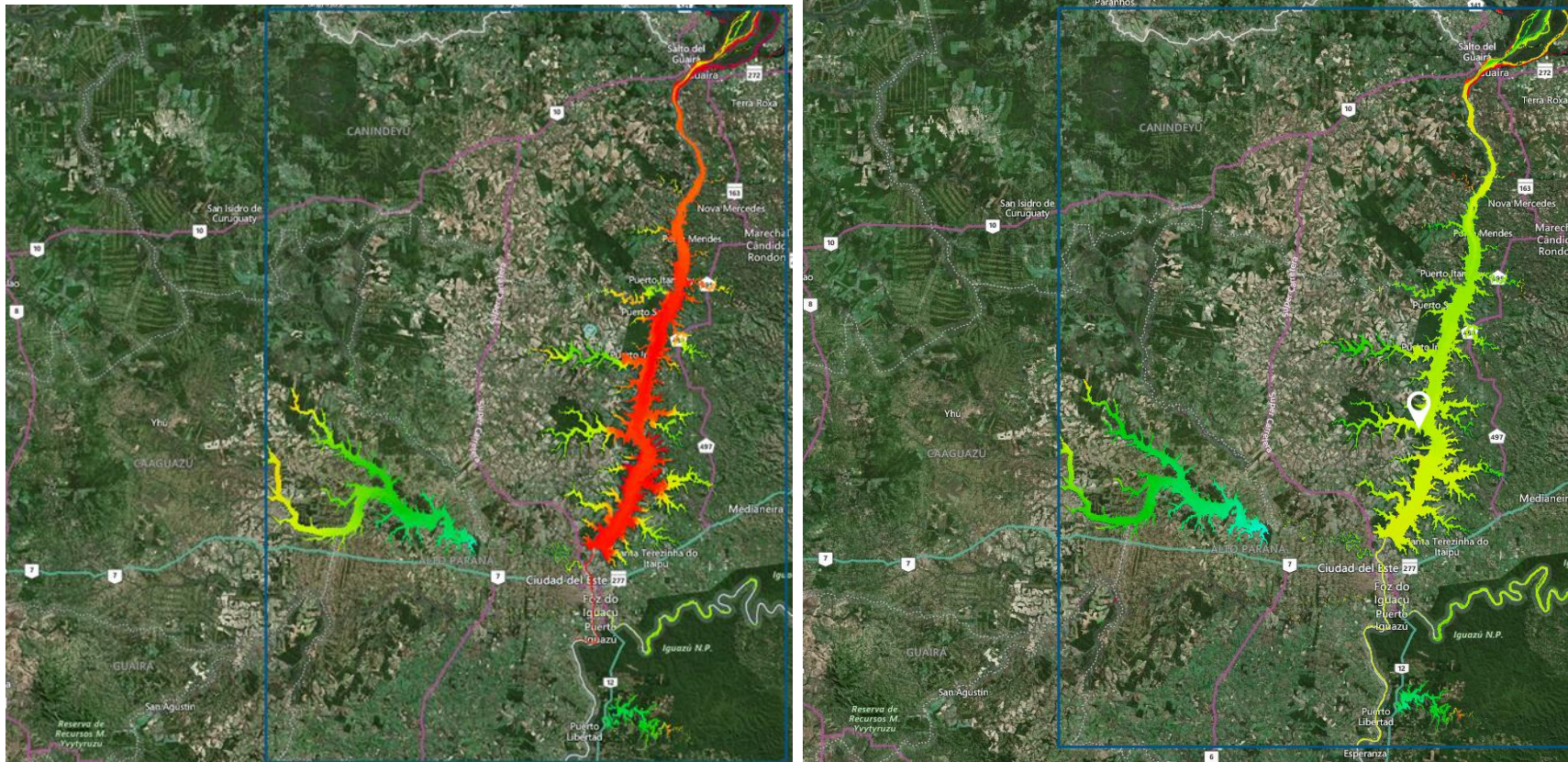
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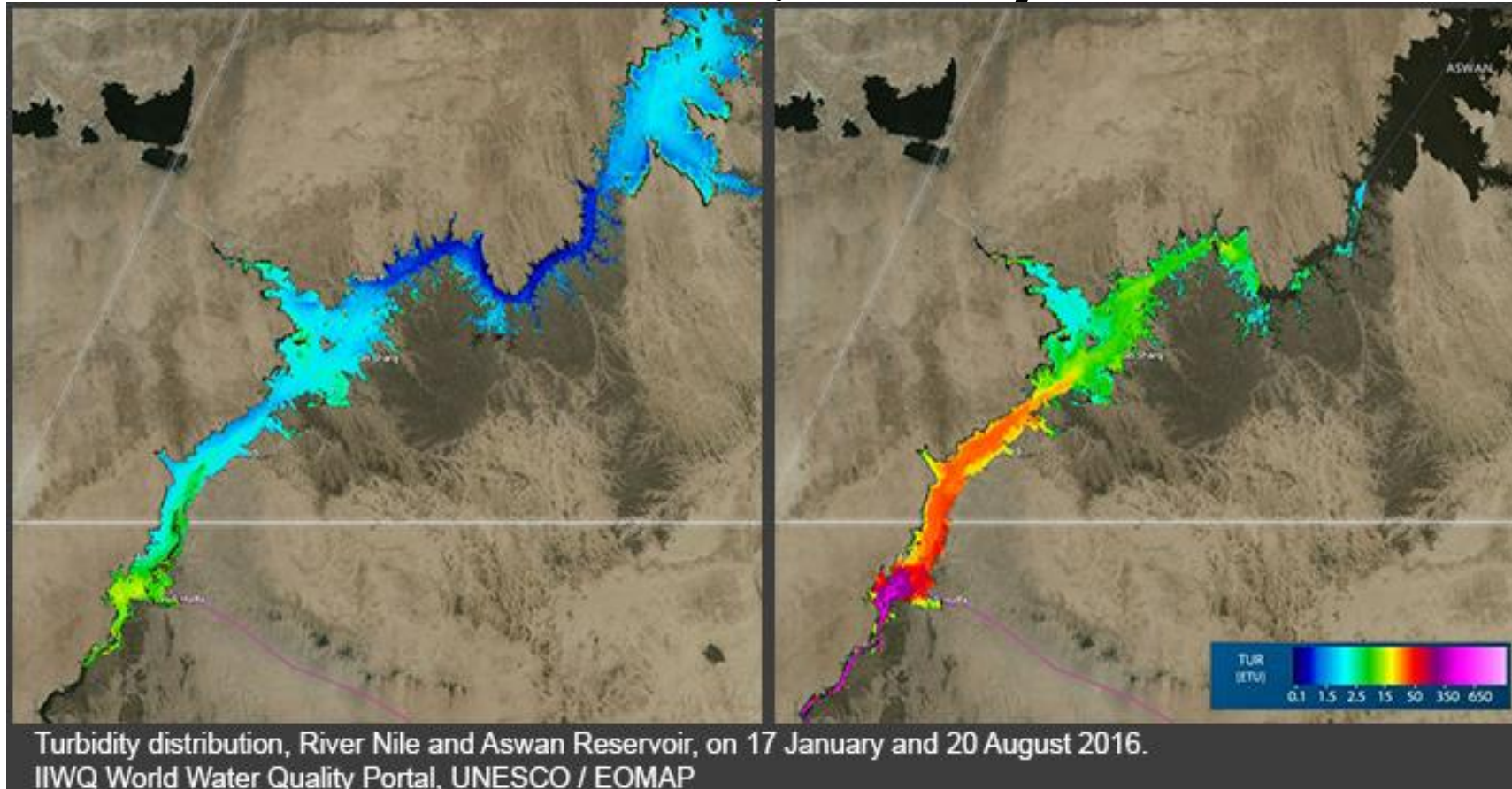
**Paraná River Basin: Brazil, Paraguay, and Argentina**

Sedimentation distribution in Itaipu reservoir zone (08 June & 11 August 2016)

[www.worldwaterquality.org](http://www.worldwaterquality.org)



# UNESCO-IHP IIWQ World Water Quality Portal



**Nile River Basin and Aswan Reservoir: Egypt, Sudan**

Turbidity distribution (17 January & 20 August 2016)

[www.worldwaterquality.org](http://www.worldwaterquality.org)



# UNESCO-IHP IIWQ World Water Quality Portal

## A tool for monitoring of SDG Indicators 6.3.2 and 6.6.1



**6 CLEAN WATER  
AND SANITATION**



**6.3.2 Indicator: *Proportion of bodies of water with good ambient water quality***

**Indicator 6.6.1: *Change in the extent of water-related ecosystems over time (spatial extent, quantity and quality of water)***

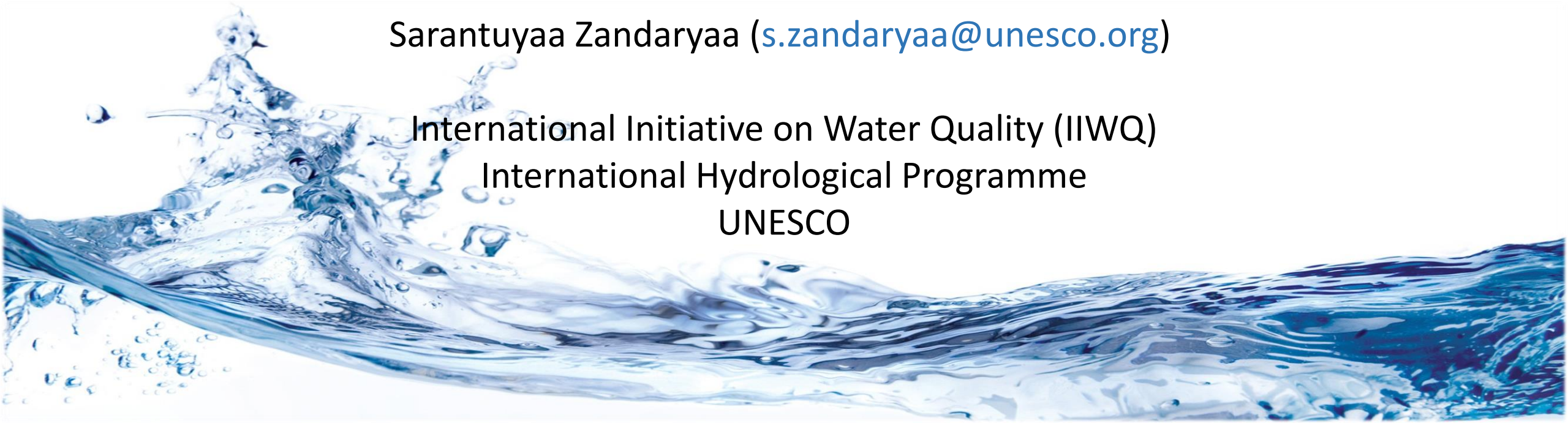
- **Supports national efforts for the implementation of water quality related SDG targets as well as for monitoring progress towards their realization.**
- **Promotes science-based, informed decision-making and policy development on water quality, leading to sustainable water resources management towards the SDGs achievement.**
  - A decision-support tool, helping countries identify the most pressing water quality problems such as pollution hotspots and consequently the action needed.

# Thank you !



Sarantuyaa Zandaryaa ([s.zandaryaa@unesco.org](mailto:s.zandaryaa@unesco.org))

International Initiative on Water Quality (IIWQ)  
International Hydrological Programme  
UNESCO







**UNESCO**

**International Initiative on Water Quality - IIWQ**





# International Initiative on Water Quality - IIWQ

**Unique international initiative aims to address water quality issues in a holistic manner towards ensuring water security for sustainable development:**

- Promoting research and scientific cooperation
- Facilitating knowledge generation and dissemination
- Promoting effective technological solutions, science-based policy-making, innovative approaches and best practices

**IIWQ implements activities and projects of interdisciplinary and trans-sectoral scopes, focusing on specific water quality and wastewater issues**

- in a participatory and cooperative manner, engaging researchers, water professionals, and policy-makers, as well as other stakeholders (NGOs, the private sector, the general public)
- in both developing and developed countries

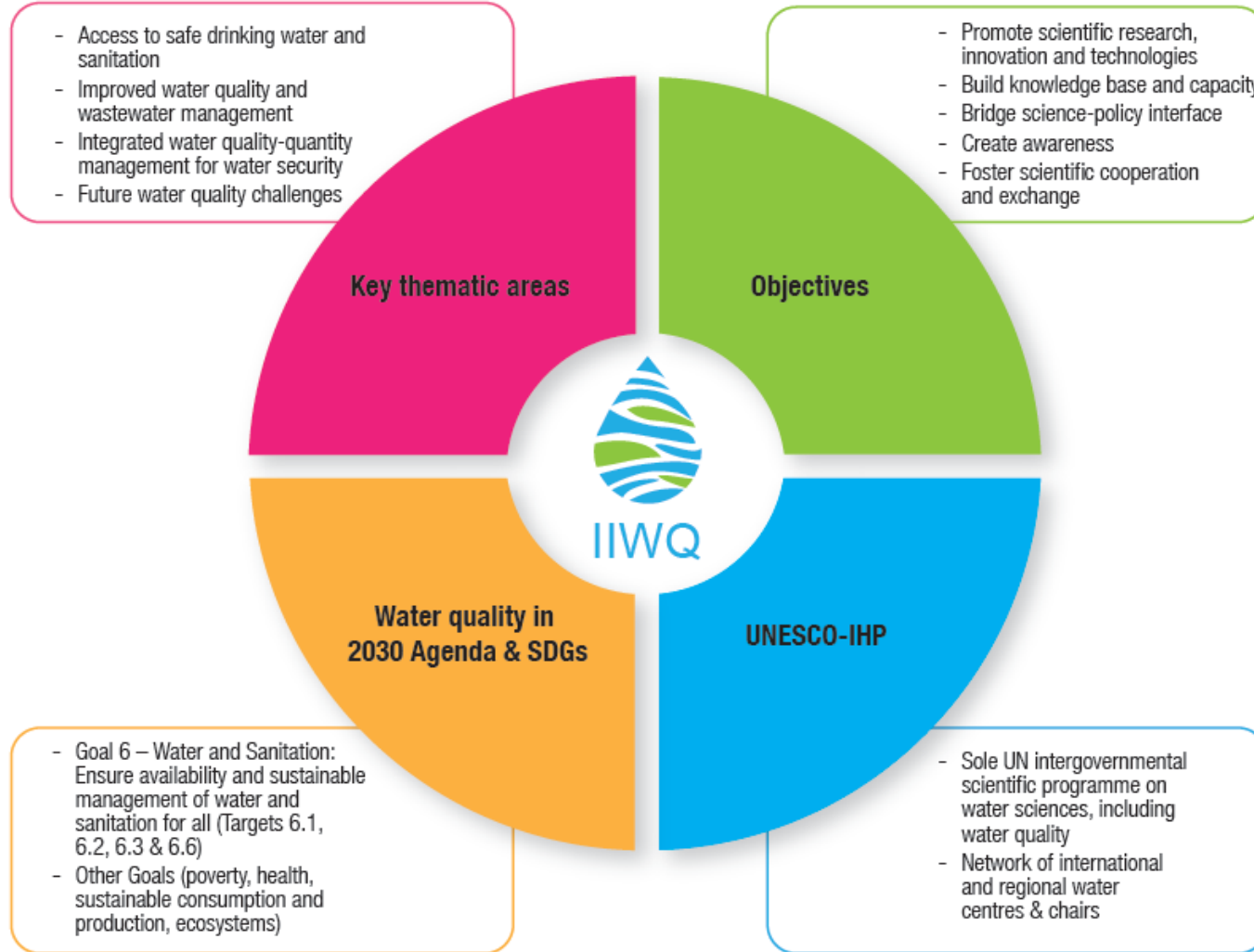
IIWQ was established by the endorsement of the UNESCO IHP Intergovernmental Council in its 20<sup>th</sup> session in 2012.



## UNESCO-IHP International Initiative on Water Quality (IIWQ)

### Key thematic areas:

- Safe drinking water and sanitation
- Water quality management
- Wastewater management and reuse



### Objectives:

- Promoting scientific research, innovation and technologies
- Building the knowledge base and capacity
- Bridging the science-policy interface
- Creating awareness
- Fostering scientific cooperation and exchange

# IIWQ Expert Advisory Group

**A network of experts and specialists on water quality and in other areas related water quality**, representing governmental and non-governmental organizations, research institutions and the academia from different regions.

The IIWQ Expert Advisory Group aims to:

- Provide **state-of-the-art technical and expert advice** on water quality challenges, priorities, and emerging issues, as well as on future directions of IIWQ
- Facilitate **scientific exchange and promote collaboration** to support IIWQ activities



# International Initiative on Water Quality

## Partners

- **A large network of experts** in fields related to water quality, wastewater and other specialized areas with strong links to water quality
- **An expanding network of collaborative research institutions and governmental organizations** in both developing and developed countries
- **Strategic collaboration with UN, intergovernmental and international organizations**
  - **OECD, UNEP, HELCOM etc.**
- **Active in all regions:** Africa, Asia, Arab States, Europe, Latin America and the Caribbean, North America.

For more information:

<http://en.unesco.org/waterquality-IIWQ>

<http://en.unesco.org/emergingpollutants>

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ABOUT US THEMES COUNTRIES PARTNERSHIPS JOIN US RESOURCES

Home > International Initiative on Water Quality (IIWQ)

## International Initiative on Water Quality (IIWQ)

Water quality is intrinsically linked with human health, poverty reduction, gender equality, food security, livelihoods and the preservation of ecosystems as well as economic growth and social development of our societies. Water quality problems represent a major challenge in both developing and developed countries. Technical, institutional, policy and financial challenges still remain to be addressed despite global efforts and initiatives to improve access to safe water and improve water quality and wastewater management.

UNESCO resource scientific

The Inter scientific knowledge and best both dev

Managing the quality of freshwater development Goals by mobilizing er quality challenges.

Programme aimed at promoting ough joint research activities, echnologies, policy approaches ill as among other stakeholders in

**IIWQ UNESCO**

**The global water quality challenge & SDGs**

**What is IIWQ?**

**IIWQ Activities and Projects**

**IIWQ Regional Consultations and Symposium Series**

**Partners**

**International Initiative on Water Quality**

PROMOTING SCIENTIFIC RESEARCH, KNOWLEDGE SHARING, EFFECTIVE TECHNOLOGY AND POLICY APPROACHES TO IMPROVE WATER QUALITY FOR SUSTAINABLE DEVELOPMENT

**UNESCO Project**

**Emerging Pollutants in Wastewater Reuse in Developing Countries**

Implemented under UNESCO-IHP International Initiative on Water Quality (IIWQ)

Funded by the Swedish International Development Cooperation Agency (Sida)

**2014-2017**

Division of Water Sciences International Hydrological Programme

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ABOUT US THEMES COUNTRIES PARTNERSHIPS JOIN US RESOURCES

Home > Emerging Pollutants in Water and Wastewater

## Emerging Pollutants in Water and Wastewater

Emerging pollutants present a new global water quality challenge with potentially-serious threats to human health and ecosystems. Good quality water is essential to sustain human well-being, livelihoods and environmental protection for the post-2015 sustainable development.

Implemented under UNESCO-IHP International Initiative on Water Quality (IIWQ), aims to identify and support UNESCO Member States to strengthen their scientific, technical and institutional capacities to manage human health and environmental risks caused by emerging pollutants in water and wastewater. Consequently, the strengthening of these capacities of Member States will help improve wastewater management, including safe reuse of wastewater, and enhance water and

**Emerging Pollutants in Water and Wastewater**

**Strengthening Scientific Research and Policy (2015-2016)**