



Quality Water for All

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NOAA/NESDIS/STAR/SOCD



Quality Water for All

What is GEO AquaWatch?

GEO AquaWatch is the premier international, science-based organization dedicated to global satellite-based water quality observations for the benefit of society.

We work in freshwater to marine aquatic areas, combining satellite data and water sampling to inform policy and management decisions.

Our membership is open and includes professionals in research, observations and monitoring, and policy.

Our strengths include a global network of subject matter experts as well as an emphasis on free, open source data and tools.

We are proud of our new Early Career Society and our commitment to Diversity, Equity, and Inclusivity

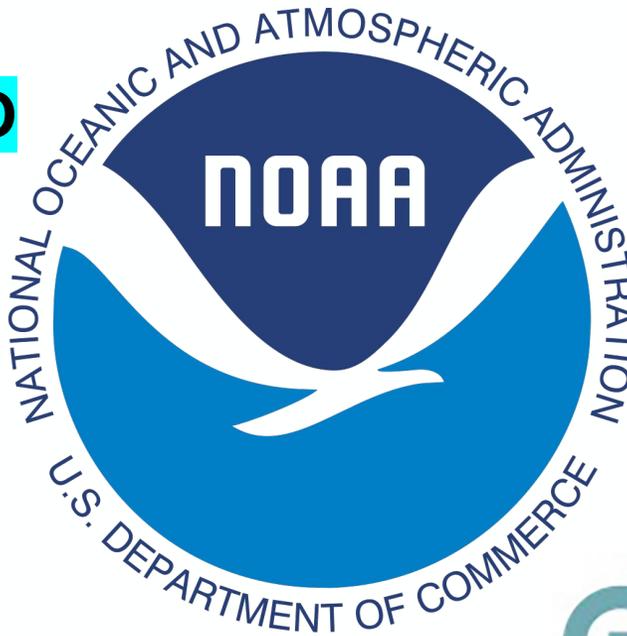


Relevance to NOAA & History

NOAA directly benefits from the outcomes and capacity building of GEO AquaWatch

NOAA mandate to monitor water quality and quantity (jurisdiction: oceans, Great Lakes, weather-ready nation includes inland waters)

NOAA maintains many leadership positions in GEO AquaWatch



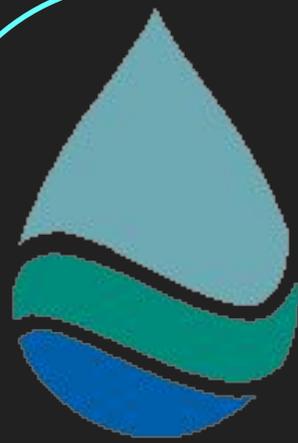
NOAA-funded secretariat
Director (2018-2022)
Scientific Coordinator
(2017-present)



NOAA was part of the initial Community of Practice and an early co-lead (circa 2009)

IMPACT AREAS

Global
Best Practices
Fit for Purpose
Accessible



**AQUA WATCH
COMMUNITY**



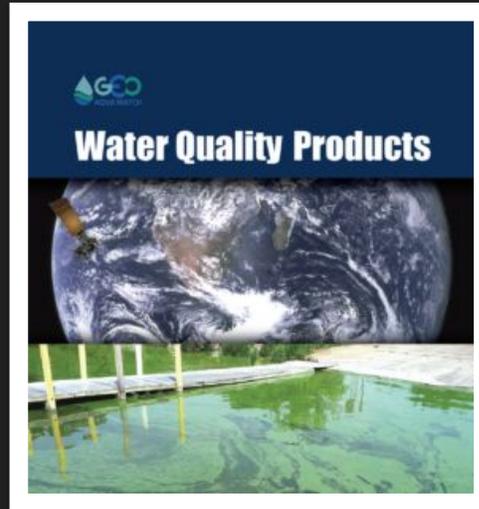
Nodes: Univ. Stirling,
IGB-Berlin, Deltares

www.geoaquawatch.org

Email: join@geoaquawatch.org

Past Success

OUTREACH & USERS



Paper: Perspectives on user engagement of satellite Earth observation for water quality management

List of Available Training

Decision Tree Tools

TECHNICAL BEST PRACTICES

3 Global Water Quality Inventories: monitoring projects, citizen science projects, databases

Guides: GEO AquaWatch Introductory and Advanced Algorithm and Atmospheric Correction Guidance Documents

Paper: Integrating Inland and Coastal Water Quality Data for Actionable Knowledge

Recent UN Water Conference Contributions



Biodiversity and Ecosystem Sustainability



Disaster Resilience



Energy and Mineral Resource Management



Food Security and Sustainable Agriculture



Public Health Surveillance



Infrastructure and Transport Management

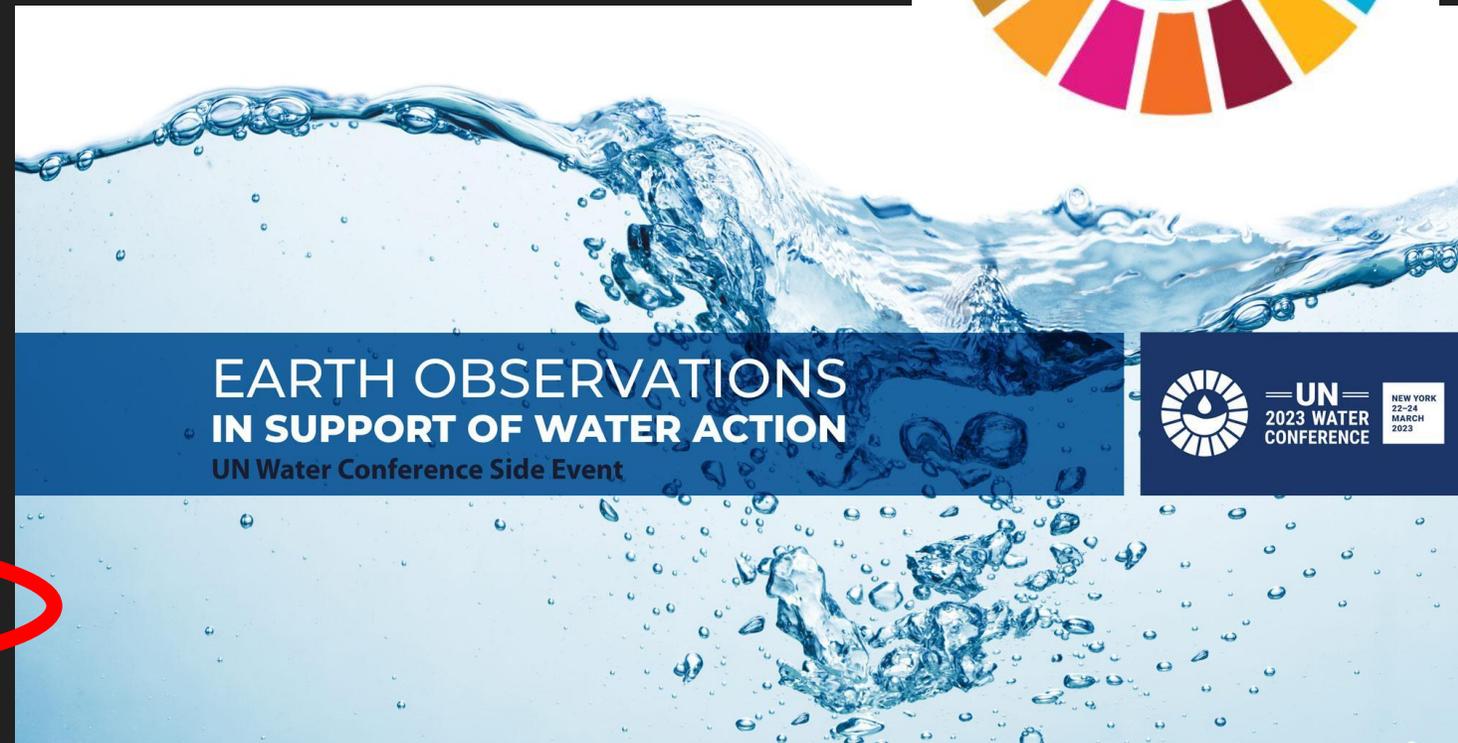


Sustainable Urban Development



Water Resources Management

GOAL: Introduce new users to available Earth Observation tools for water



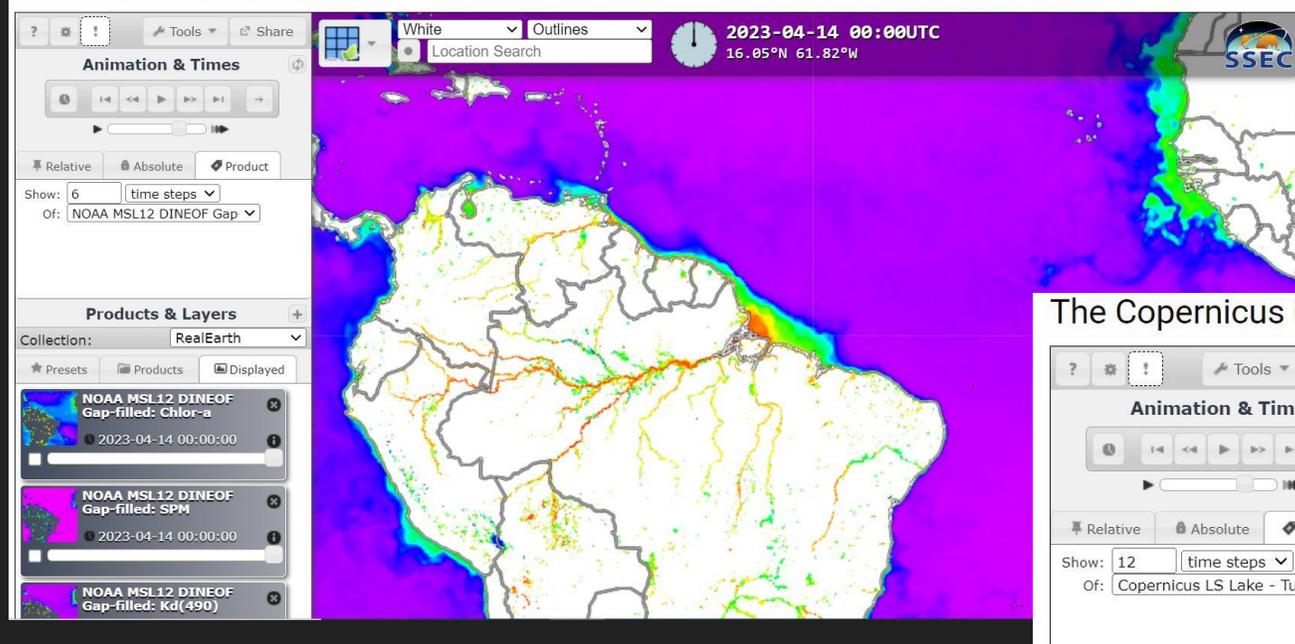
Successful Webinar Series since 2013



- Enabled ~100 water quality seminars and panels
- Most have been recorded, linked on our website, and accessible on YouTube Channel
- Striving for Diversity, Equity and Inclusivity in presenters
- Including Early Career Scientists
- Early Career Society will host “V Talks” series in 2023-24
- Application for early career water quality speakers under-represented-in-science: broadly interpreted as geographically, non-English speakers, traditional knowledge holders, women, non-white, LGBTQIA, early career
- Led by and for Early Career Offer a mentorship for presentations workshop, then schedule seminars

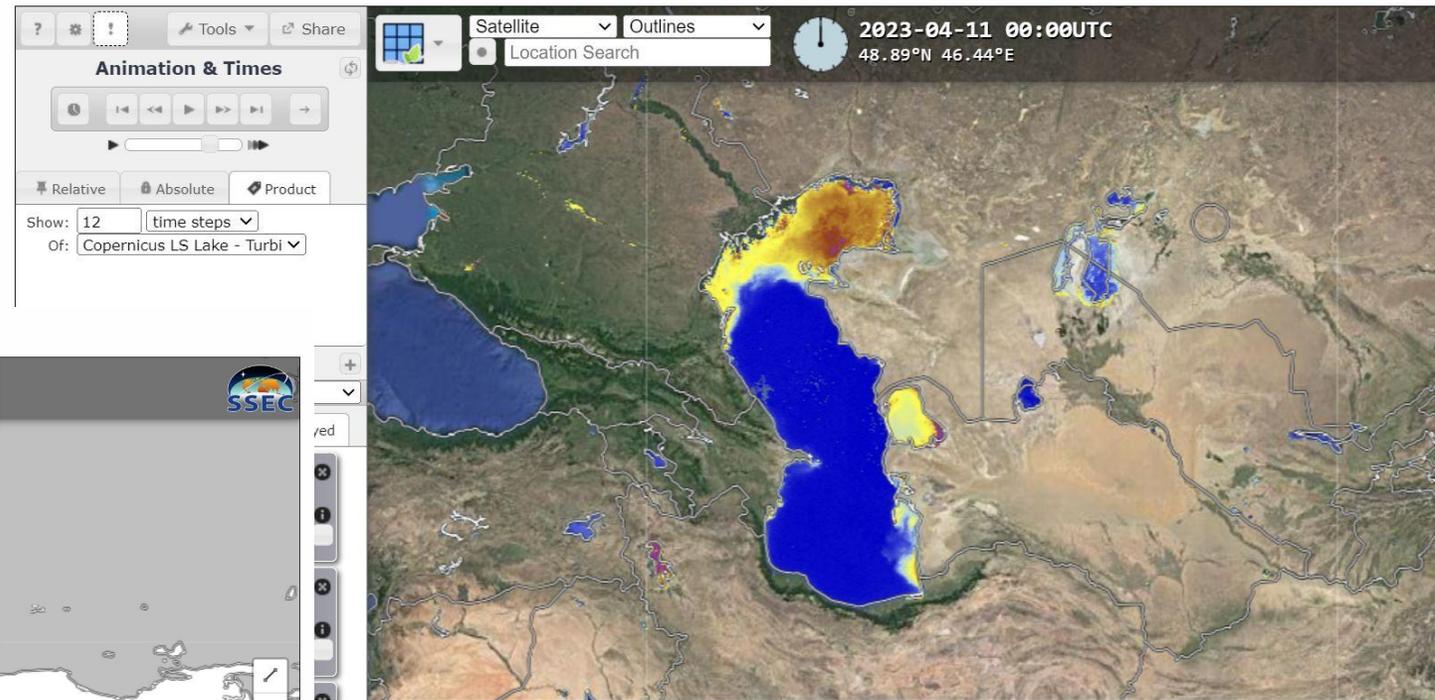
Access to 4 Water Quality Mapping Services

NOAA Multi-Sensor Gap-filled

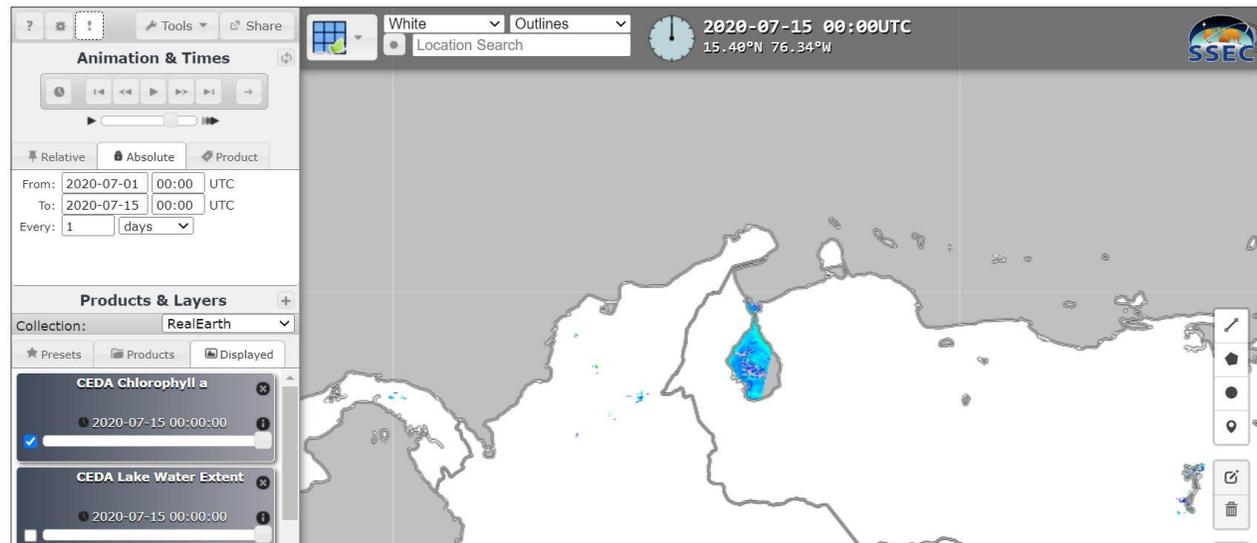


Real Earth Portal: Includes access to matchups and GEMSWater In Situ data for Cal/Val

The Copernicus Global Land Service



CEDA Archive of Lake Observations for CCI



Google Earth Engine Projects

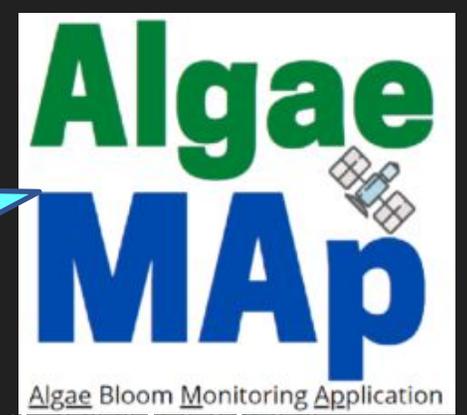
2023



Implementation of aquatic based atmospheric correction for Landsat/OLI and Sentinel-2/MSI in Google Earth Engine

- **Using GEE as an environmental economist**
- **Investigations of Aquatic Applications in Google Earth Engine**

2021

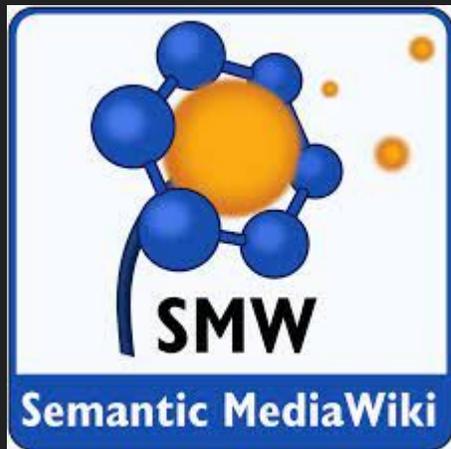


- Algae MAP's published application and *Remote Sensing* article (entitled **AlgaeMAP: Algae Bloom Monitoring Application for Inland Waters in Latin America**) describe the use of Google Earth Engine for monitoring water quality on a continental scale!
- The AlgaeMAP phone application is a partnership of the Federal University of Pelotas (UFPeI), INPE, the Federal University of Rio de Janeiro (UFRJ) and Michigan State University.

Solving the Jargon and Nomenclature Problem!

with a curated version-based online encyclopedia:

www.aquatic-optics.science



Thematic Areas

Optics

Biology

Chemistry

Geology

Statistics

History

Benthic Habitat

Earth Observation

GLOBOLakes, GLEON, CYAN, CGLOPS

Of interest to NOAA CoastWatch scientists and Water Node Users may also be access to Global Lakes Ecological Observation Network (GLEON) outcomes: <https://gleon.org/>

CyAN (USEPA, USGS, NOAA, USACE)

<https://www.epa.gov/water-research/cyanobacteria-assessment-network-cyan>

and associated phone Application:

<https://www.epa.gov/water-research/cyanobacteria-assessment-network-application-cyan-app>

GLOBOLakes: There's data through 2020 though. [Dataset Record: ESA Lakes Climate Change Initiative \(Lakes_cci\): Lake products, Version 2.0.2 \(ceda.ac.uk\)](#). The operational services are still available through Copernicus Land Service, which is driven by the outputs from GloboLakes: <https://land.copernicus.eu/global/themes/water>

Related, the CGLOPS has a nice interactive page and provides NRT products [CGLOPS : NRT Monitoring \(laketemp.net\)](#)

Upcoming Biennial Meeting

One-day GEO AquaWatch Meeting: November 13, 2023, St. Petersburg, FL USA - in conjunction with the International Ocean Color Science Meeting Nov 14-16, 2023.

- Features a session of invited talks, jointly organized with GEO BluePlanet entitled: **Remote Sensing for Eutrophication Monitoring in Support of SDGs 6 & 14**
- **We also will jointly co-chair a breakout session on The User Perspective during the IOCS meeting in conjunction with NOAA CoastWatch.**

Thank you!

If interested in joining our Technical or User-Oriented working groups, the Early Career Society, or just getting involved in GEO AquaWatch, please contact us at join@aquawatch.org, mbneely@geoaquawatch.org or Merrie.Neely@noaa.gov



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[linkedin.com/in/geoaquawatch/](https://www.linkedin.com/in/geoaquawatch/)

Visit our website: www.geoaquawatch.org

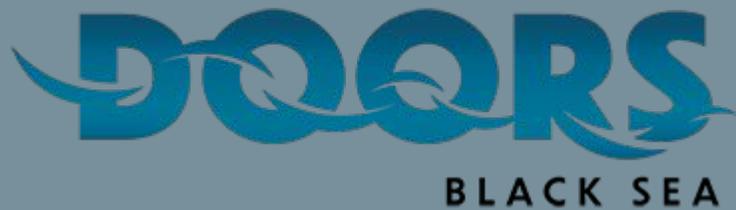




Ongoing or Recent UK/EU-funded Projects



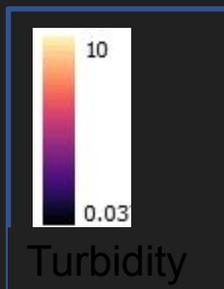
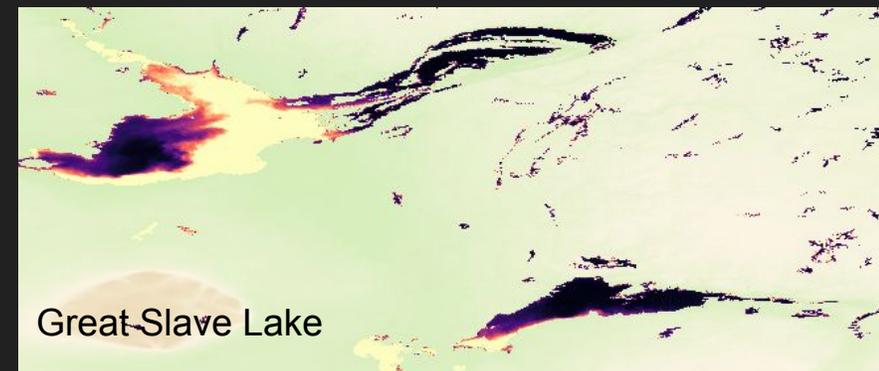
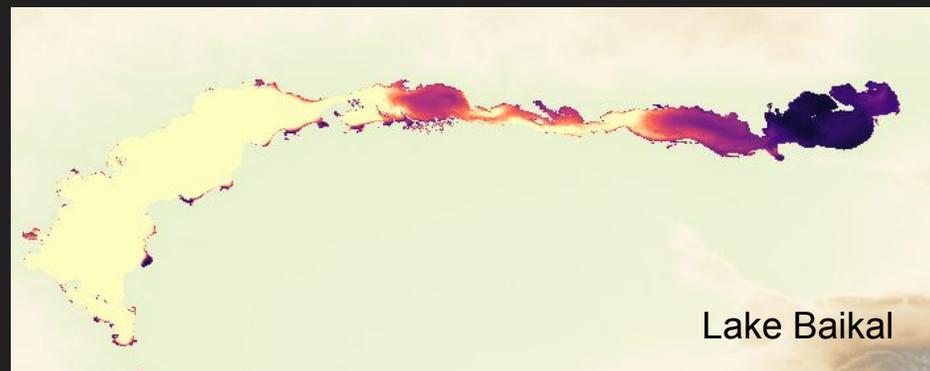
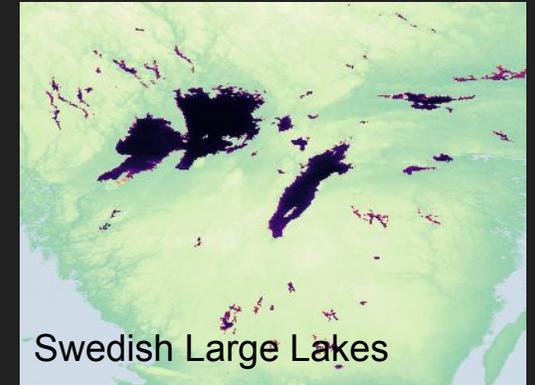
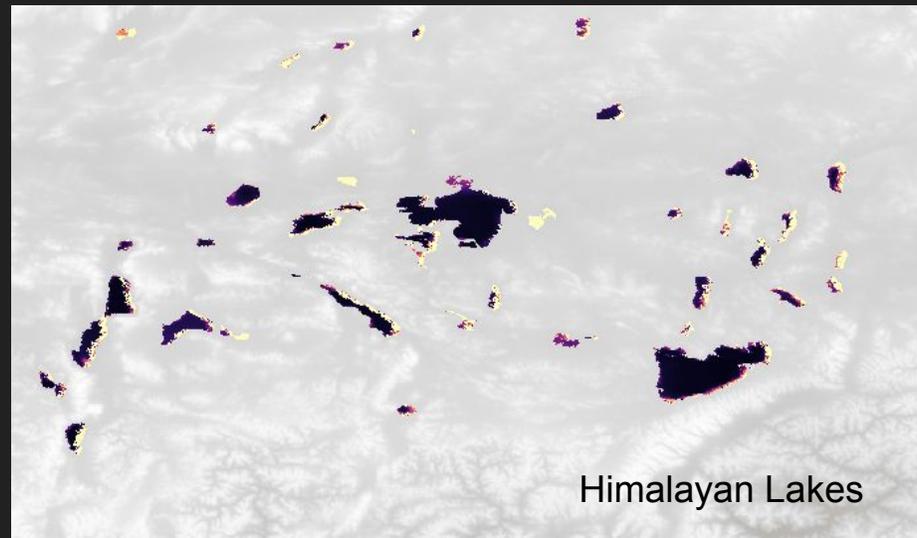
eo4ukwater



Water - ForCE



Copernicus Global Land Inland Waters



Copernicus Global Land Service
Lake Water Quality Products

Mobile App

- Observe your water body of interest in near real time (1 day after acquisition)
- See changes compared to period before
- Report water color and blooming alerts of your lake of interest

