

COPERNICUS' SUPPORT TO SUSTAINABLE DEVELOPMENT GOALS AND INTERNATIONAL AGREEMENTS' INDUSTRY WORKSHOP

LAND AND INLAND WATERS – A PERSPECTIVE FROM A SERVICE PROVIDING COMPANY

Carsten Brockmann, Kerstin Stelzer, Brockmann Consult GmbH

Brussels
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BROCKMANN CONSULTS LINK WITH INTERNATIONAL CONVENTIONS AND SDGS

EU and its Member States are Parties to many multi-lateral environmental agreements which address among others:

- biodiversity and nature protection,
- climate change,
- desertification,
- management of chemicals and waste,
- transboundary water and air pollution,
- industrial accidents,
- maritime and river protection,
- environmental liability

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our expertise

SDGs, COPERNICUS AND SERVICE PROVISION

The unprecedented amount of data and information generated by Copernicus supports decision-makers in developing adequate policies to achieve the goals and facilitates the monitoring of the SDGs and International Agreements.

It is available on a full, free and open basis, which reduces the cost of monitoring measures indicators.

It also allows for the development of operational products and services.

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BIODIVERSITY, DEFORESTATION AND LAND DEGRADATION



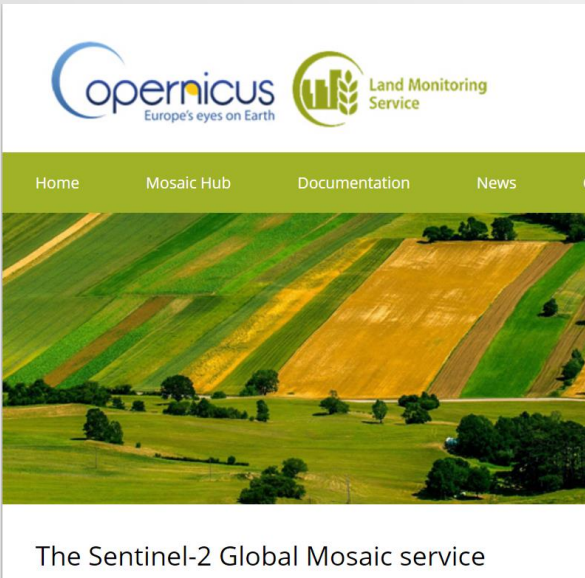
ESA Data User Element – DIVERSITY II

- Assessing biological diversity using satellite data supporting the CBD.
- Engaging with UN & international stakeholders
- Brockmann Consult Prime contractor, Dryland indicators done by Geoville, Austria



Copernicus Land Monitoring Service – Global Mosaic

- Brockmann Consult is prime contractor
- Provision of Analysis Ready Data for land surface monitoring
- Support the sustainable management of natural resources
- Users can tailor Level 3 products to their specific requirements in terms of area of interest, compositing period, included bands, file format, and metadata content



S2 MOSAIC HUB



Manual draw File upload Country selection Continent selection WKT

Area Of Interest selected ✓

 PREPARE DOWNLOAD



WATER – SDG 6.3 WATER QUALITY



Copernicus Global Land Service

Providing bio-geophysical products of global land surface



VEGETATION



Leaf Area Index (LAI)
Fraction of Absorbed PAR
Fraction of vegetation cover (FCOVER)
NDVI
Vegetation Condition Index (VCI)
Vegetation Productivity Index (VPI)
Dry Matter Productivity
Burnt Area
Land Cover
Soil Water Index
Surface Soil Moisture

ENERGY



Top-of-Canopy reflectance
Surface Albedo
Land Surface Temperature
Radiation Fluxes

WATER



Water Bodies
Lake and river water level
Lake surface water temperature
Lake surface reflectance
Lake turbidity
Lake trophic state
Water Level

CRYOSPHERE



Lake Ice Extent
Snow Cover Extent
Snow water equivalent

PORTFOLIO - [HTTP://LAND.COPERNICUS.EU/GLOBAL](http://land.copernicus.eu/global)



PRODUCT SPECIFICATION

Spatial resolution

- 300m, 1km
- 100m (in evolution)

Temporal aggregation

- 10days for water LSWT, TUR and TSI
- Best spectrum within 10days for LSR

Time span

- 2002-2012 (MERIS + AATSR)
- 2016-ongoing (OLCI + SLSTR)
- Evolution: 2019-ongoing (S2 MSI)

Service

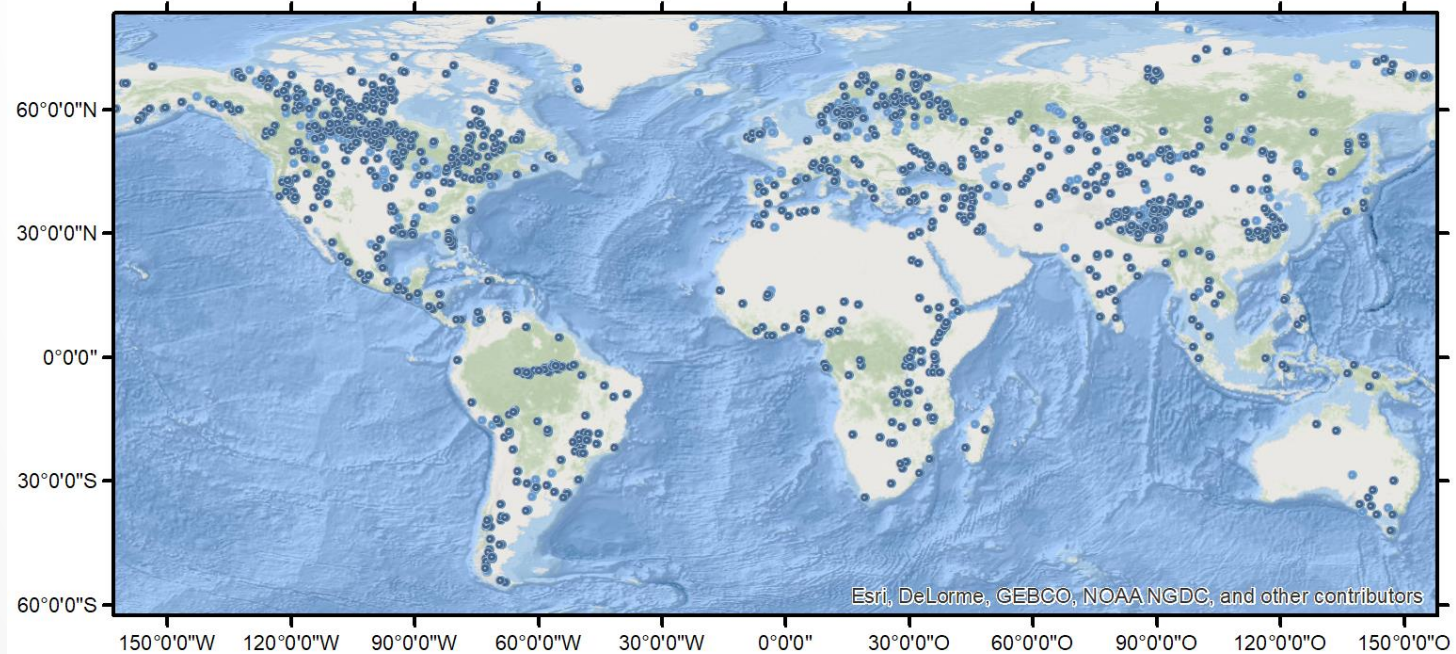
- Products available 3 days after last day of decade

Status

- 300m: Operational products
- 100m: S2 demonstration service starting in January 2019

Producer

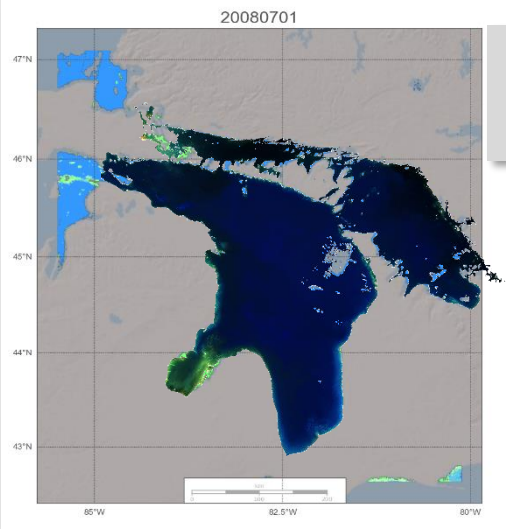
- Brockmann Consult, PML, Univ. Reading, Hygeos



Parameters

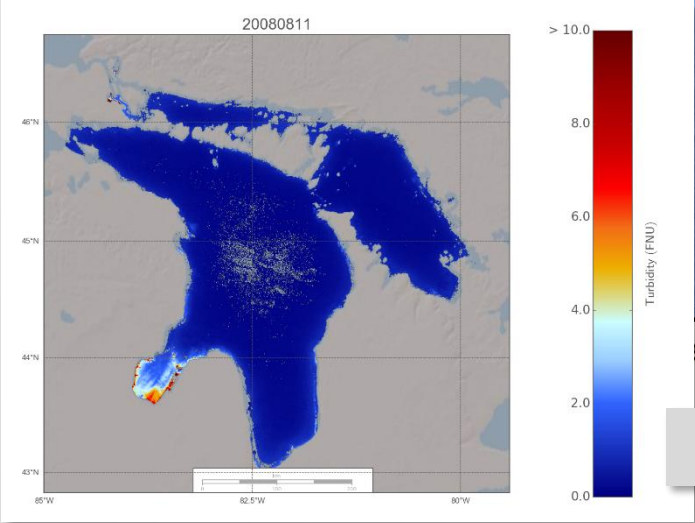
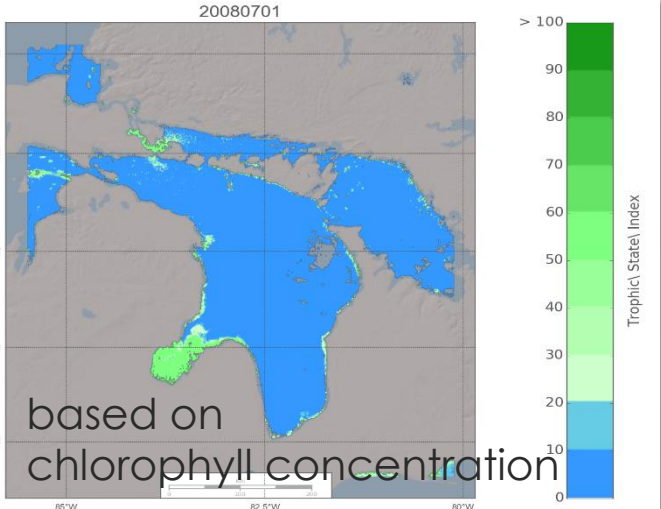
- Lake Surface Water Temperature (LSWT)
- Turbidity (TUR)
- Trophic State Index (TSI)
- Lake Surface Reflectances (LSR)

GLOBAL DISTRIBUTION OF INLAND WATER BODIES



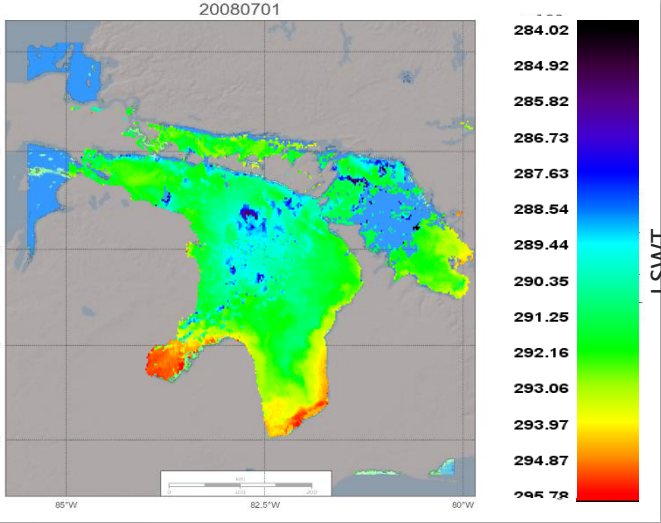
Water Leaving
Reflectances

Trophic State Index



Turbidity

Lake Surface Temperature



WATER QUALITY 10DAYS GLOBAL PRODUCT



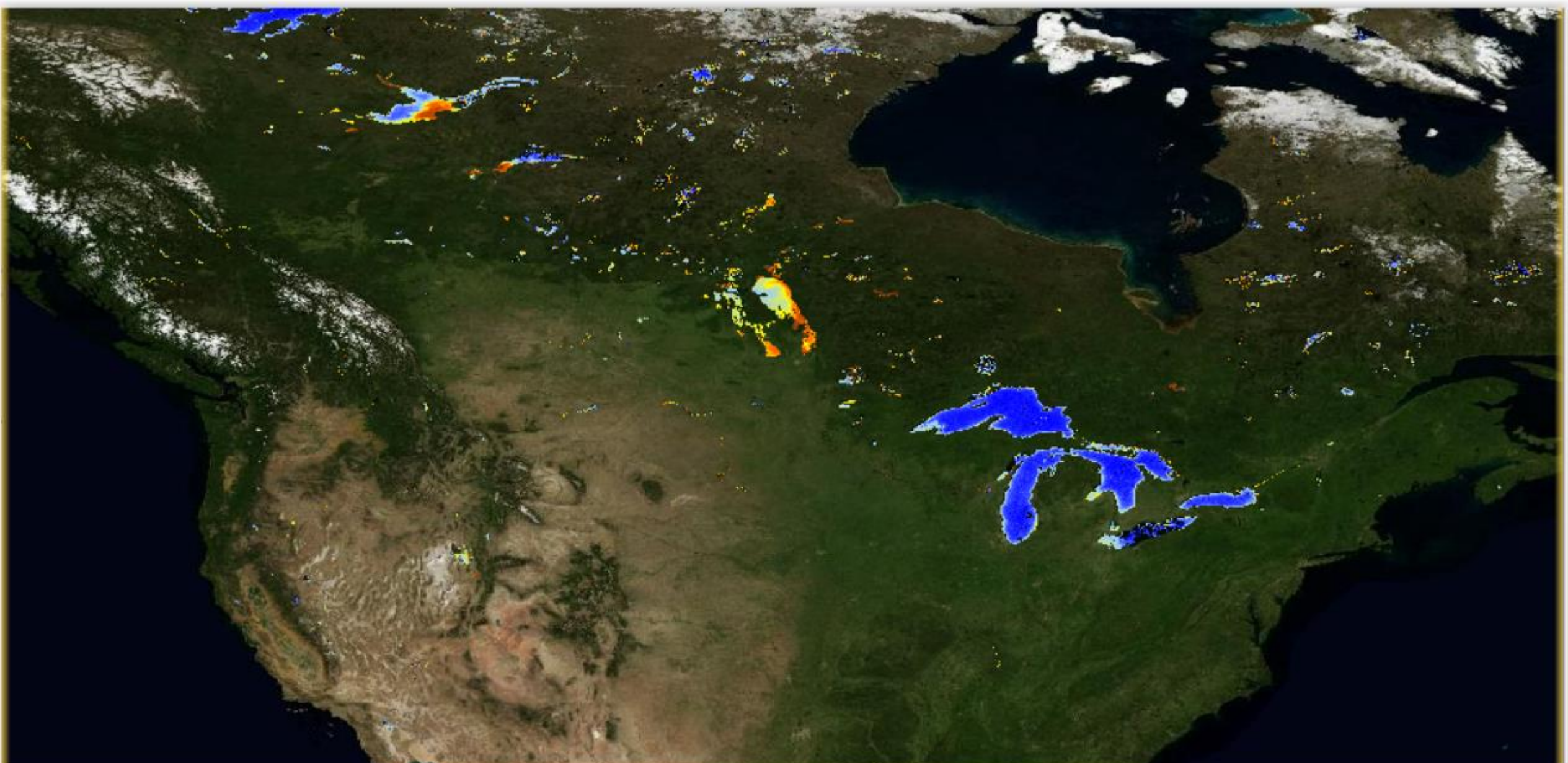
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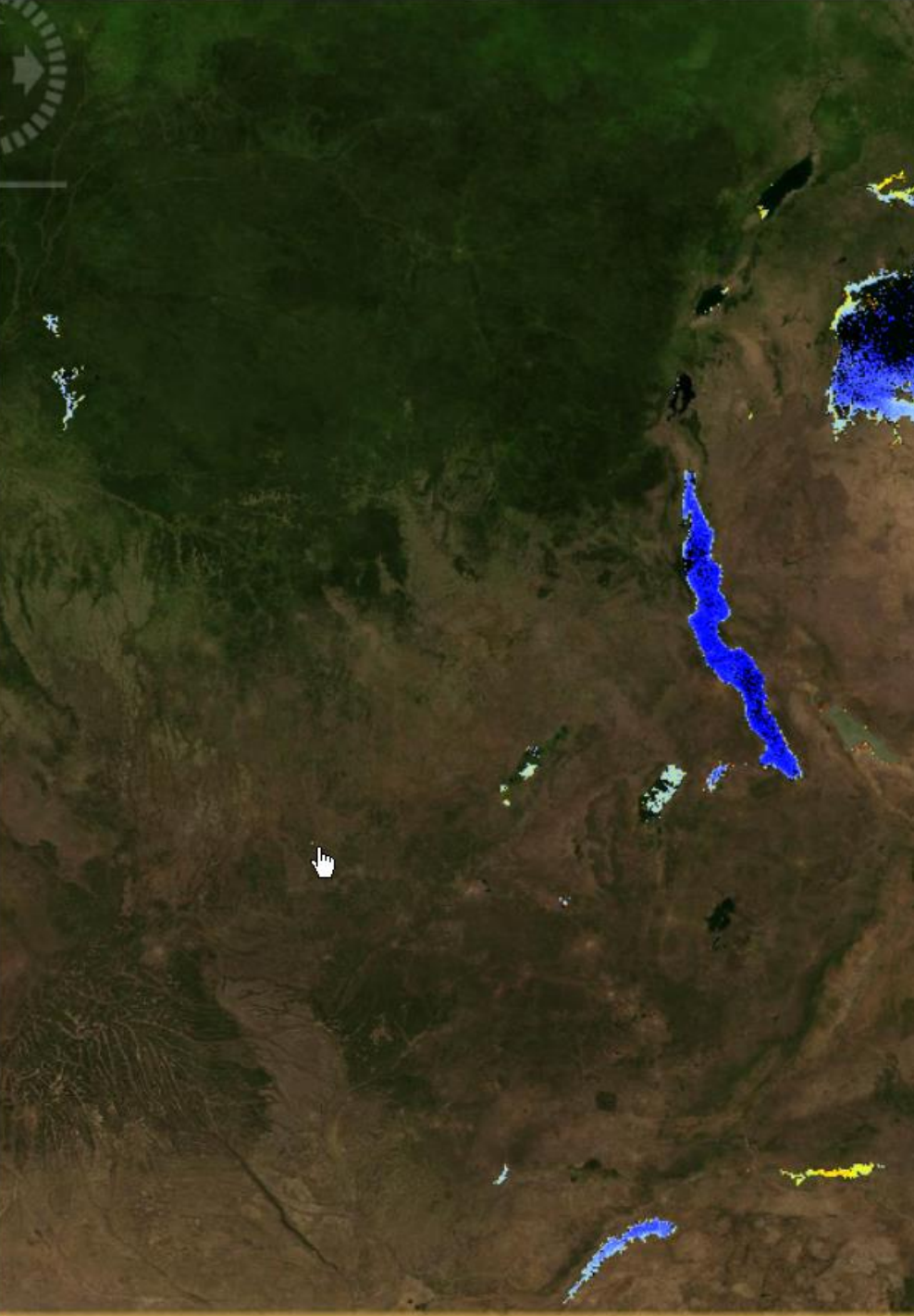
Turbidity

GLOBAL PROCESSING



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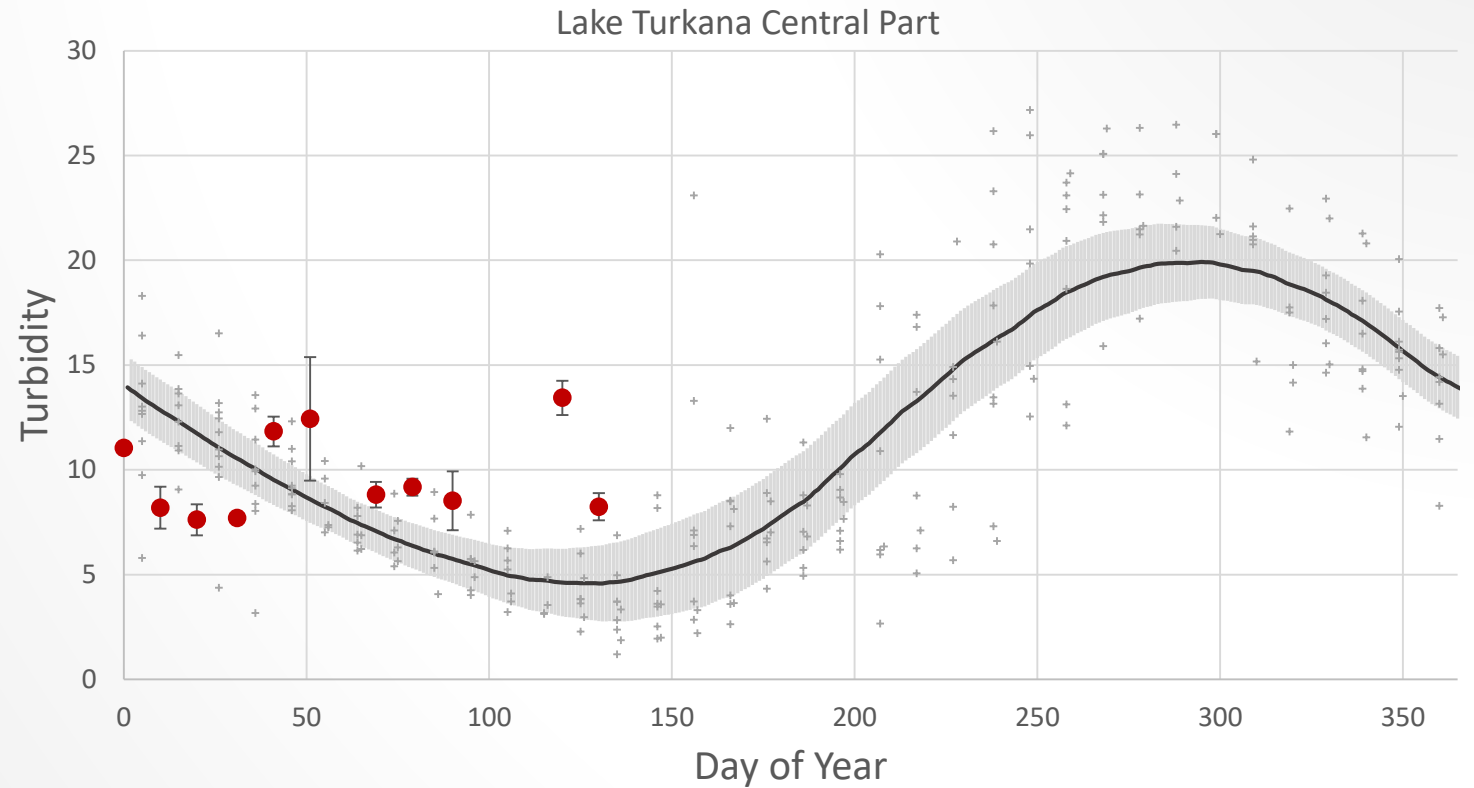
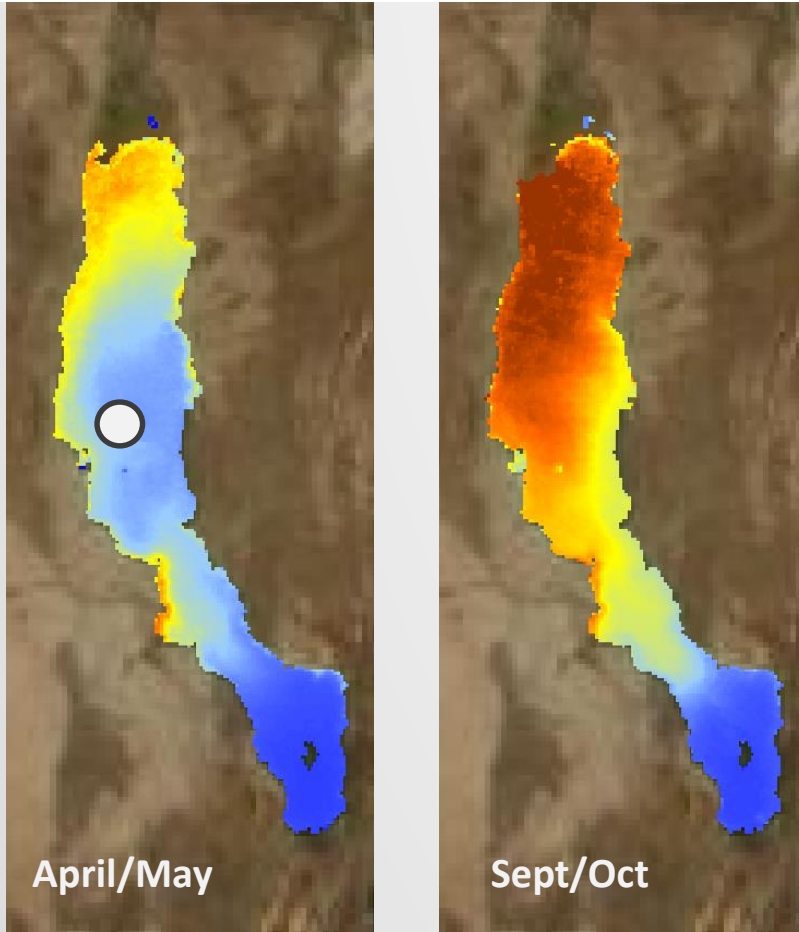


LAKE TURKANA



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Long-term average situation

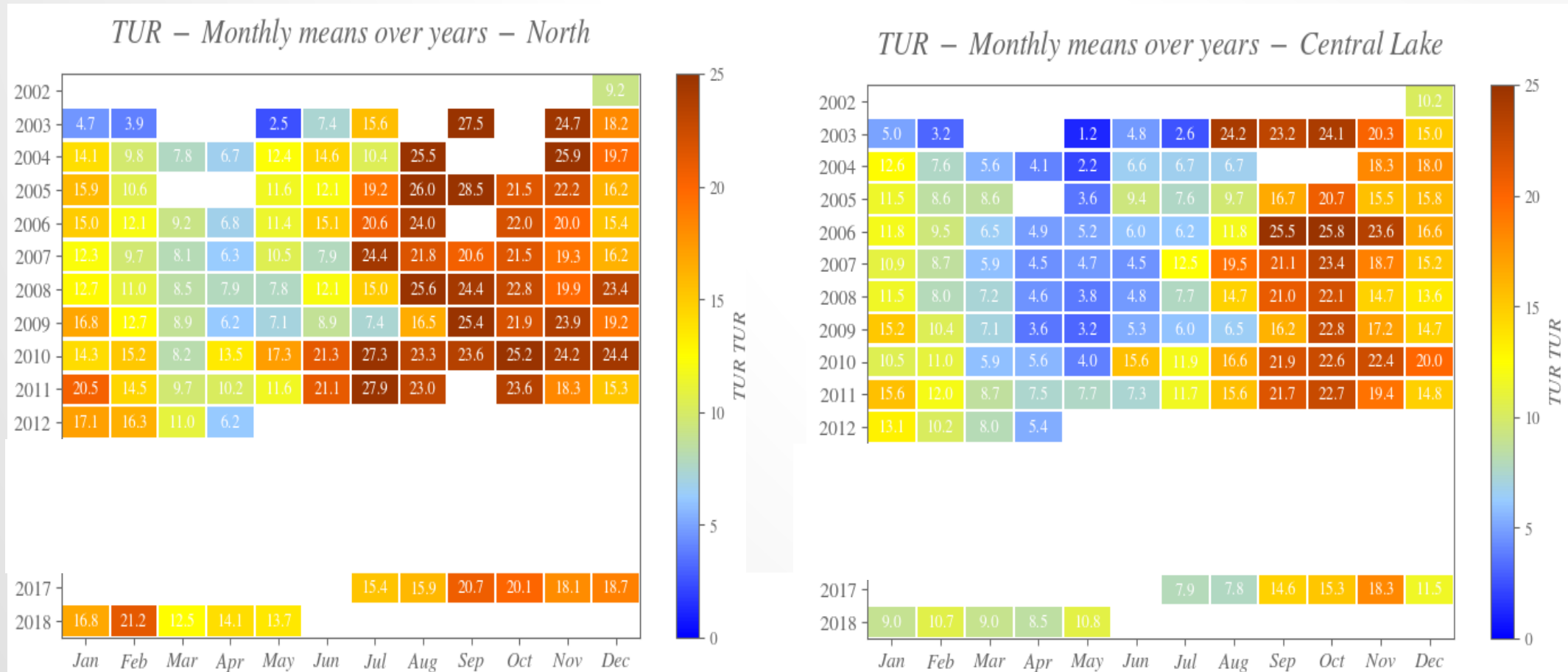
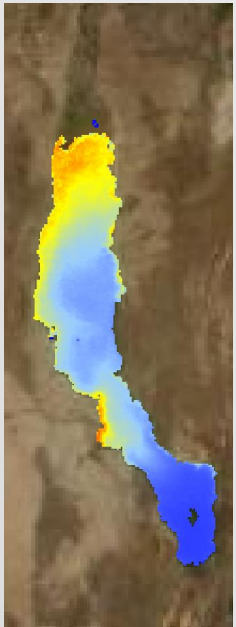


Archive Turbidity data over 10 years, seasonal trends
NRT Turbidity data

Data from Copernicus CGLOPS service

LAKE TURKANA – CHANGES OF SEASONAL PATTERNS?

- Due to dam constructions along the Omo River
- Expectation to have a reduction of seasonality
- Comparing seasonal patterns: Heatmaps derived from 12 years of data



CyanoAlert

Space Based Cyanobacteria Information & Services

H2020 Project, 2016 – 2020



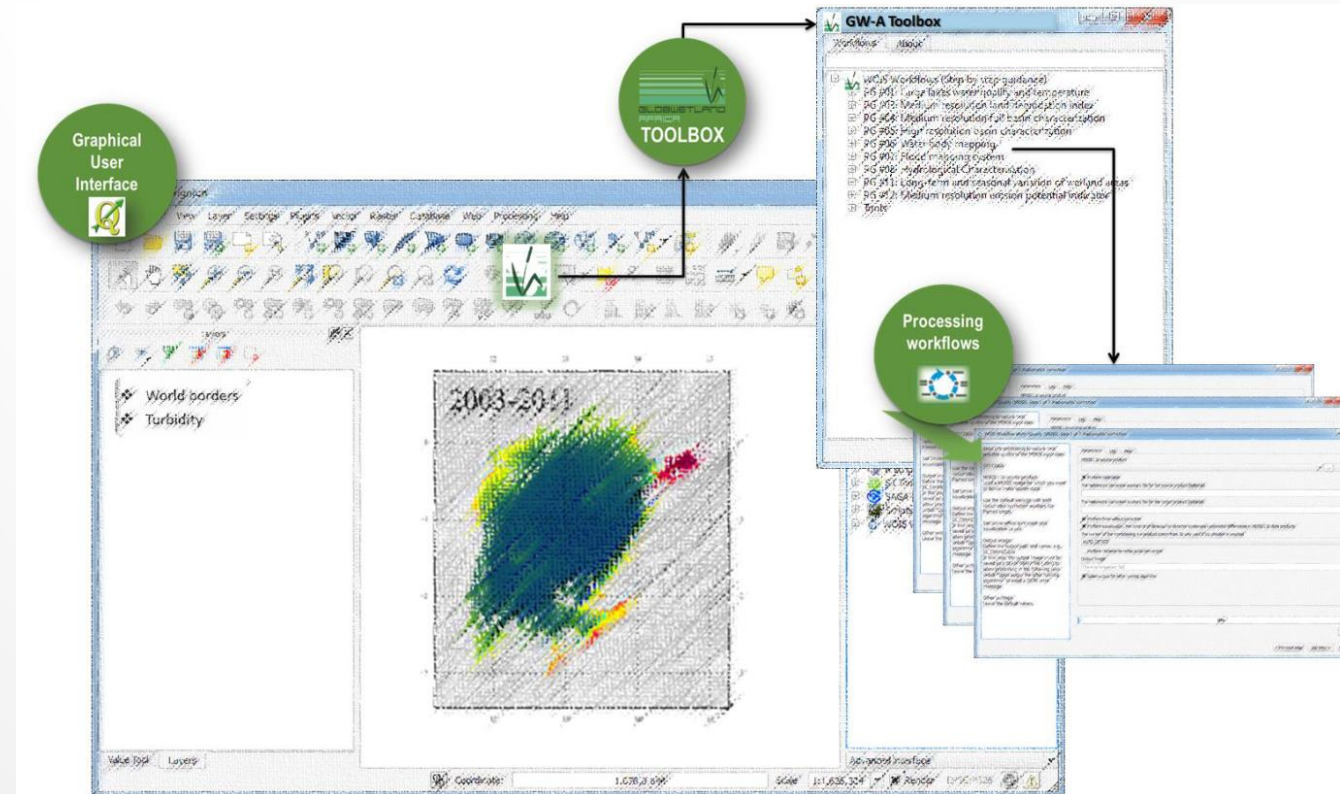
TURNING DATA INTO INFORMATION

Globwetland-Africa Toolbox

Workflows for processing wetland products and inland water quality products

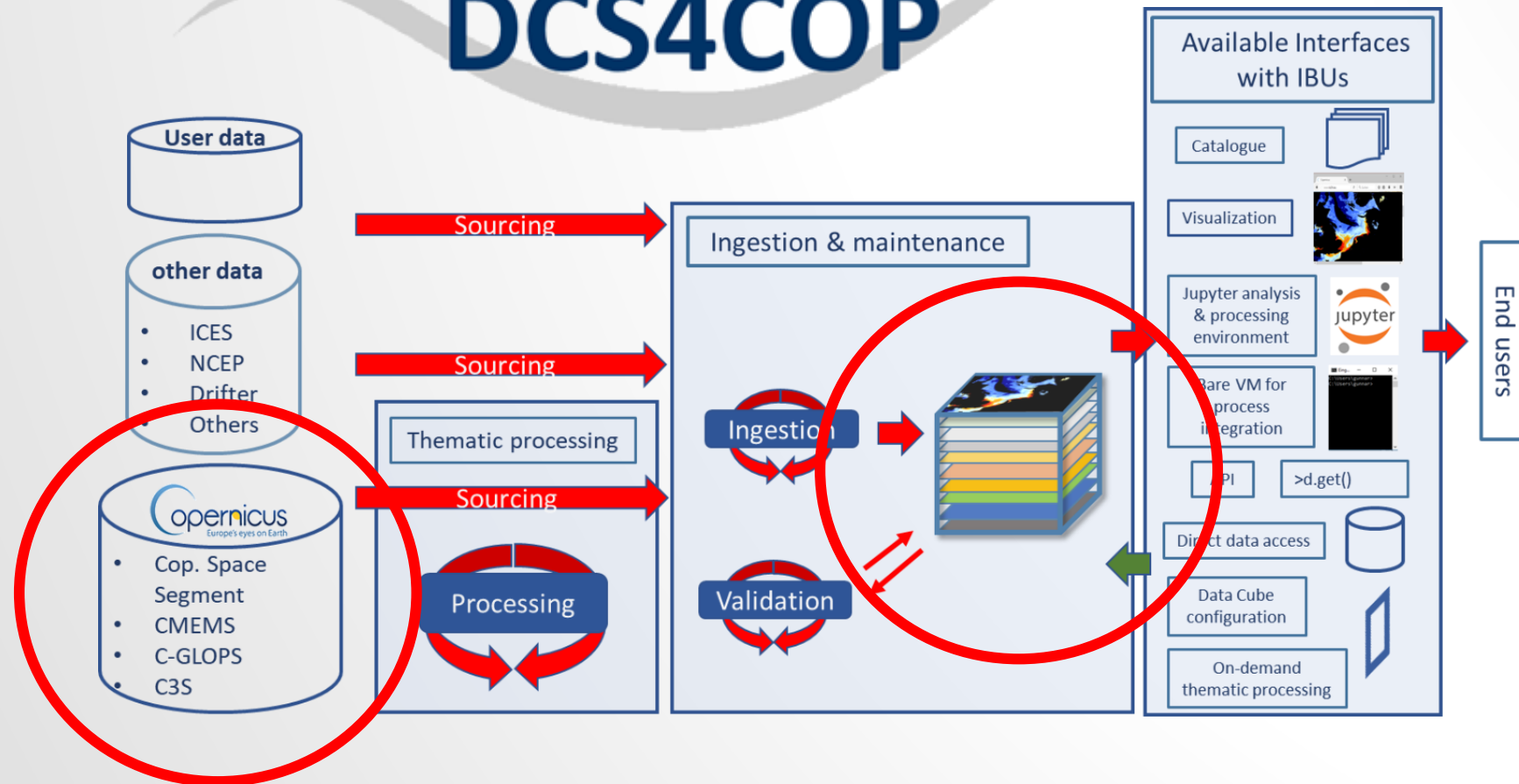
Inland water workflow is available for MERIS and OLCI

- Pre-defined processing chain
- Selected parameters adaptable



TURNING DATA INTO INFORMATION

DCS4COP



Datacube Service for Copernicus



SUMMARY

- Copernicus programme aims at a global, continuous, autonomous, high quality, wide range Earth observation capacity supporting most of the 17 SDGs.
- As a private company we can contribute to the value chain on turning data into information
 - Provision of analysis ready data
 - Specialised expertise on water quality
 - Software and IT expert knowledge
 - Agile development, fast reaction to evolving user needs, user engagement
- A critical factor for success of this contribution is the Copernicus programme
 - **Global coverage** with short repetition times (A and B models of Sentinels)
 - Combination of **different technologies** (SAR, optical HR, optical MR)
 - **Copernicus Services** providing higher level information in fields where we are not experts
 - **Operationality** (ground segment of Sentinels as well as Copernicus Services)
 - **Long term sustainability** → this is probably the most important aspect when talking to environmental monitoring stakeholders
 - H2020 R&D programme: calls concerning Copernicus support us to further develop technological capacity, test ideas and engage with users