The European Commission’s science and knowledge service
Joint Research Centre

Copernicus and Earth observation in support of EU policies – success for environment & climate

Monitoring the surface water extent

We need to go back in time to accurately measure changes in surface water

Measuring the past helps to understand the consequences of our past economic and societal choices, and contributes to more informed management decisions.
High-resolution mapping of global surface water and its long-term changes

Joint Research Centre
Global Surface Water

Data Access

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Citation

If you are using the data in a published work, please include the following citation:

Data Users Guide
For a description of all of the datasets and details on how to use the data, please see the Data Users Guide.

Delivery Mechanisms
All of the datasets of the Global Surface Water 1984-2013 are being made freely available using the following delivery mechanisms: Global Surface Water Explorer, Data Depot, https://global-surface-water.appspot.com

Up to date
Water-Related Ecosystems
https://www.sdg661.app
Global Surface Water explorer

a virtual time machine
to support more informed
water-management decision-making

Tier 1 indicator dataset for
SDG 6.6.1: water-related ecosystems

Contact: Jean-Francois.Pekel@ec.europa.eu
Monitoring water quality
Water quality product with 10 days update frequency
Copernicus Global Land Monitoring Service

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

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

- Time span
  - 2002-2012 (MERIS + AATSR)
  - 2016-ongoing (OLCI + SLSTR)

- Service
  - Products available 3 days after last day of decade

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

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

Contact: Michael.Cherlet@ec.europa.eu
Current research: from satellite design to tailored product

Observations
- Space-borne
- Ground-based

Data processing & integration, assimilation, modeling

Policy indicators, decision support

EC participates in Satellite Mission Advisory Group

EC controls QA/QC

EC provides SDG indicators, observation-based evidence, etc.
Also for GHG monitoring, in particular the CO$_2$ Monitoring and Verification Support

Precision: 0.5-0.7 ppm

Output:
- Country budget
- Reduction in emission uncertainty
- PP/city plume budgets
- Energy market uptake?
Land use, land-use change and forestry

30m

DRC

S2 10m

Biomass

30m

DRC

REDD+

LULUCF - EU

European Commission
Climate mainstreaming across different thematics
Current research: from policy needs to observation-based products
Translating requirements

MONITORING
Under COPERNICUS

translating policy user needs into technical requirements

UNDERSTANDING
for EU policy DGs

E.g.
CLIMA – Adaption, REDD+, Emissions
AGRI – CAP, Food Security
ENV – MSFD, Habitat
ENER – Renewables
MOVE – Maritime safety
MARE – Maritime surveillance
REGIO – Human Settlement Analysis
ECHO – Disaster prevention and Emergencies
EEAS – Global maritime surveillance
DEVCO – Degradation, Reconstruction
HOME – EUROSUR

Assessing fitness-for-purpose & performance of products, solutions, services
Outcome of Copernicus Uptake study
Policy-support with Copernicus within EC

Core services:
- Marine Environment
- Climate Change
- Emergency Management
- Land
- Atmosphere
- Security

Translation from policy needs into technical requirements

Policy-tailored solutions & products:
- Water Management
- Agriculture & Forestry
- Tourism
- Insurance
- Transport
- Energy
- Health
- Infrastructure Disaster Risk Reduction
- Coastal Areas
Increased uptake of EO and Copernicus data and information by policy DGs, in particular ENV, AGRI, CLIMA, ENER, DEVCO

Further develop EO/Copernicus-based applications for EU policies:
- Future evolution of the Copernicus services;
- Development of user products (e.g. water quality app, farmer app)

Improve uptake within the policy DGs
- Outspoken role of EO/Copernicus brokering is needed
- Establishment of DG-specific user-groups of Copernicus and helpdesks, reference datasets and tools, example setting
- Fitness for purpose check, with feedback to derive more appropriate EO information