



### Overview of Submodule Contents

- a) Information about Copernicus Land Monitoring Service (CLMS) products
  - The three components: Global, Pan-European, Local
  - Access to specific products
  - Product specifications and characteristics
  - Usage of the CLMS Web Map Service (WMS)
  - Additional information (Publications, Technical Library, etc.)
- b) Download Copernicus products, e.g. for further analysis
  - User registration and product download
  - Integration of the Web Map Service into a GIS environment









# **Global Component**

- Series of bio-geophysical products
  - addressing status and evolution of land surface at global scale
  - with focus on monitoring Vegetation, Water and Energy & Cryosphere
- at medium/low spatial resolution (e.g. 300m-1 km)
- at high temporal frequency (every ten days)
- coordinated by Joint Research Centre (JRC)







### CLMS Portfolio and Data Access

## Bio-geophysical Products of Global Land Surface

#### Vegetation

- Burnt Area (BA)
- Dry Matter Productivity (DMP)
- Fraction of Absorbed Photosynthetically Active Radiation (FAPAR)
- Fraction of green Vegetation Cover (FCover)
- Leaf Area Index (LAI)
- Land Cover
- Normalized Difference Vegetation Index (NDVI)
- Soil Water Index
- Vegetation Condition Index (VCI)
- Vegetation Productivity Index (VPI)

### Cryosphere

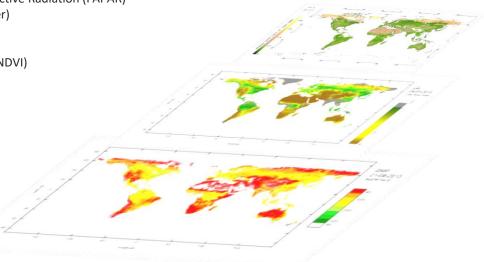
- Lake Ice Extent
- Snow Cover Extent
- Snow Water Equivalent

#### Energy

- Land Surface Temperature (LST)
- Surface Albedo (SA)
- Top Of Canopy Reflectances (TOC-r)

#### Water

- Water Bodies (WB)
- Water Level
- Lake Surface Water Temperature
- Lake Water Quality











# Pan-European (Continental) Component

- Land cover/land use products at European extent
  - CORINE Land Cover (1990, 2000, 2006, 2012, 2018 upcoming)
  - High Resolution Layers (2012; 2015)
- Image mosaics and reference data at European scale
  - Image Mosaics (2000, 2006, 2009, 2012)
  - Reference Data: EU-DEM, EU-Hydro
- allowing to monitor status, changes, developments, trends
- high spatial resolution (e.g. 20 m, 2018: 10m)
- regular update cycle of three/six years
- coordinated by the European Environment Agency (EEA)







## **Local Component**

- monitoring hot spots of human activity and biodiversity
  - Urban Atlas (2006, 2012)
  - Riparian Zones (2012, 2018 planned)
  - Natura 2000 (2006, 2012)
- Land cover/land use information with very detailed class nomenclatures (up to 65 classes)
- very high spatial resolution (2012: 1.5m 2.5m; 2015: < 1m)</li>
- regular update cycle of six years
- coordinated by the European Environment Agency (EEA)









### CLMS Portfolio and Data Access









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