



Copernicus Land

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Global



Continental

Local

European Environment Agency



- Producción sistemática de composiciones espaciales y temporal de observaciones globales sistemáticas.
- Producción de variables bio-geofísicos terrestres a escala global y continental
- Reprocesamiento de datos históricos para nuevo análisis y anual entre comparaciones

❖ Servicio Copernicus Land Global

From medium to high resolution

Theme	Variable	Spatial Resolution
Vegetation	Land Cover	Moderate 100m
		In production

Non-gridded products

Theme	Variable	Rivers and Lakes
Water	Water Level	In production

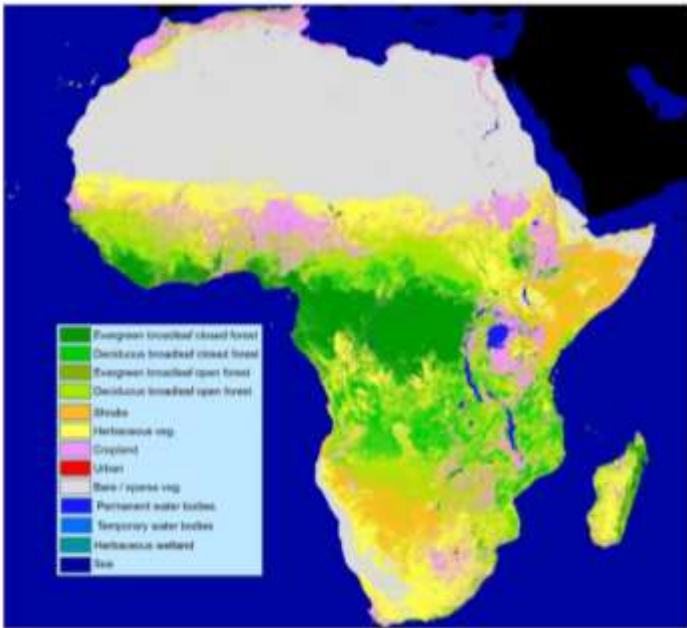


Figure 2: The CGLS Dynamic Land Cover Map at 100 m for Africa 2015 (shown at continental scale).



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From coarse to medium resolution

Theme	Variable	Spatial Resolution	
		Coarse ≥1km	Medium 300m
Vegetation	Fraction of photosynthetically active radiation absorbed by the vegetation	In production	In production
	Fraction of green vegetation cover	In production	In production
	<u>Leaf Area index</u>	In production	In production
	Normalized Difference Vegetation Index	In production	In production
	Vegetation Condition Index	In production	
	Vegetation Productivity Index	In production	
	Dry Matter Productivity	In production	In development
	Burnt Area	In production	In production
	Soil Water Index	In production	
	Surface Soil Moisture	In development	
Energy	Land Surface Temperature	In production	
	Top Of Canopy Reflectance	In development	In development
	Surface Albedo	In development	In development
	Downward Short- and Longwave Fluxes at the surface	In development	
Water	Water Bodies	In production	In production
	Lake Surface Water Temperature	In development	
	Lake Water Quality (reflectance, turbidity, trophic state)	In development	
Cryosphere	Lake Ice Extent	In development	
	Snow Cover Extent	In development	
	Snow Water Equivalent	In development	



❖ Servicio Copernicus Land Global

The screenshot shows the Copernicus Global Land Service website. At the top, there is a browser address bar with the URL `land.copernicus.vgt.vito.be/PDF/portal/Application.html#Home`. The main header features the Copernicus logo and navigation links for Login, Help, Register, FAQ, and Contact. Below the header, the page is divided into two main sections: "Vegetation State" and "Energy Budget".

Vegetation State

- VEGETATION PROPERTIES**: Includes a world map showing vegetation indices and a "Collections" link.
- VEGETATION INDICATORS**: Includes a world map showing vegetation indicators and a "Collections" link.
- BIOMASS**: Includes a world map showing biomass distribution and a "Collections" link.
- FIRE DISTURBANCE**: Includes a world map showing fire disturbance and a "Collections" link.
- DYNAMIC LAND COVER**: Includes a map of Africa showing land cover changes and a "Collections" link.
- SOIL WATER**: Includes a world map showing soil water content and a "Collections" link.

Energy Budget

- TOP OF CANOPY REFLECTANCE**: Includes a world map showing reflectance and a "Collections" link.
- ALBEDO**: Includes a world map showing albedo and a "Collections" link.
- LAND SURFACE TEMPERATURE**: Includes a world map showing land surface temperature and a "Collections" link.

At the bottom of the page, there are links for "About us", "Terms of use", and "Feedback". The footer also includes a Creative Commons license (CC BY) and logos for VITO and the Spanish National Geographic Institute (IGN).

Servicio continental

→ Corine Land Cover



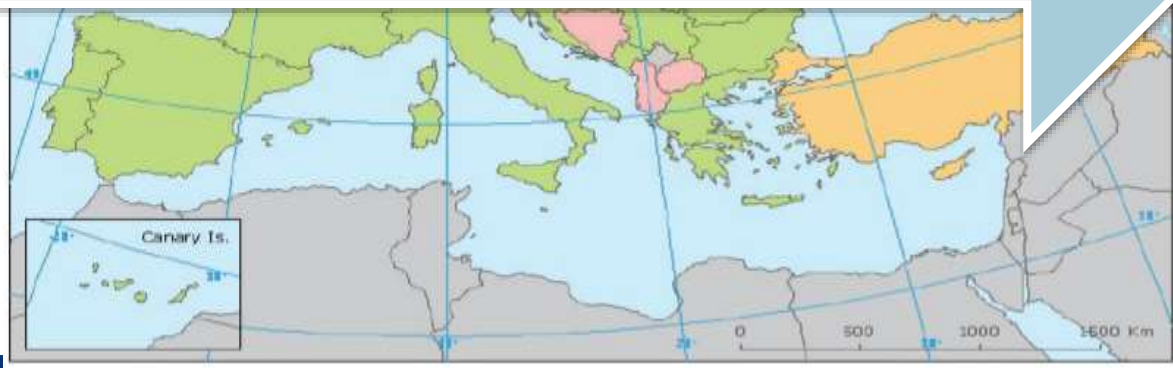
CLC 90

CLC 2000

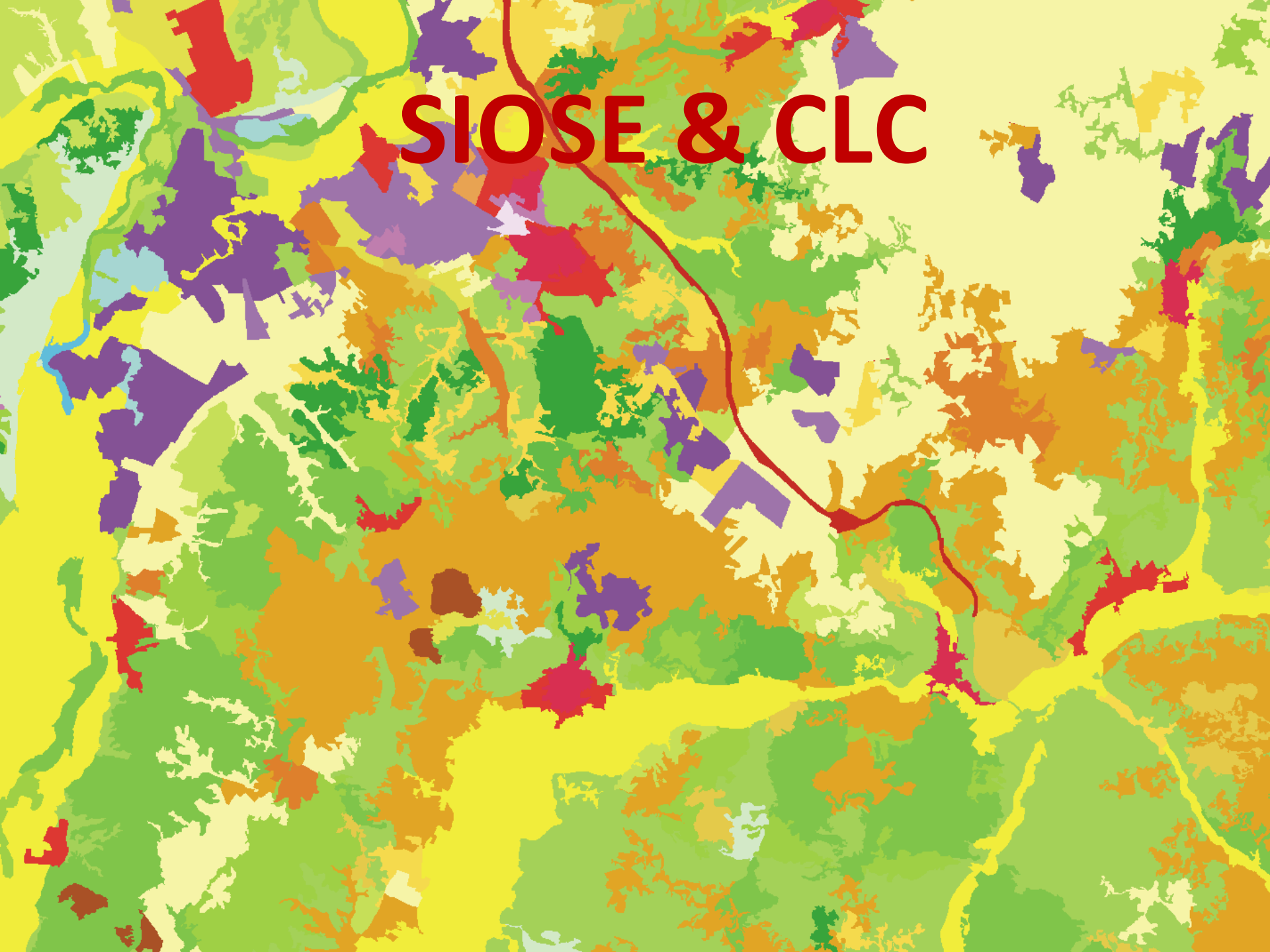
CLC 2006

CLC 2012

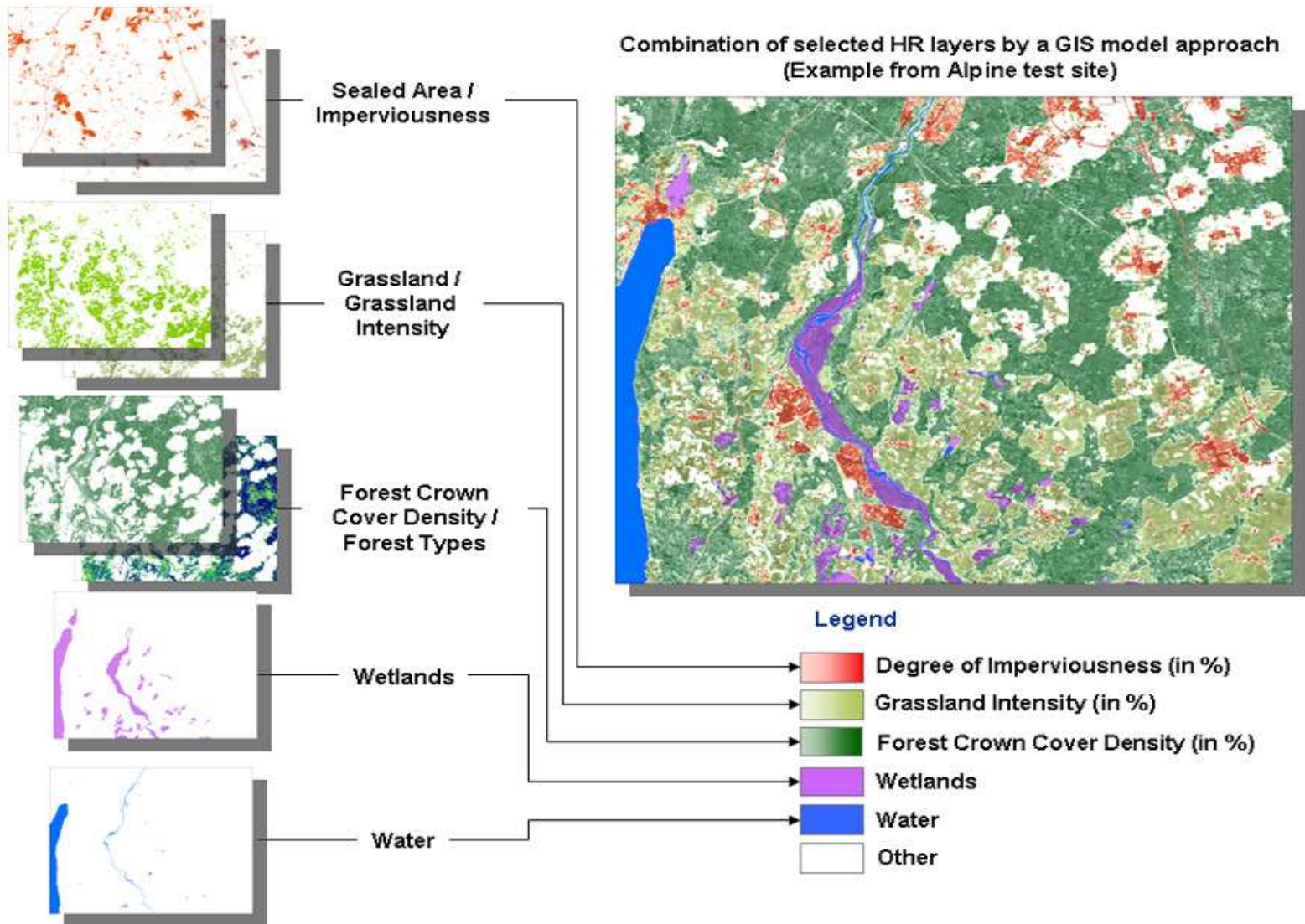
CLC 2018



SIOSE & CLC

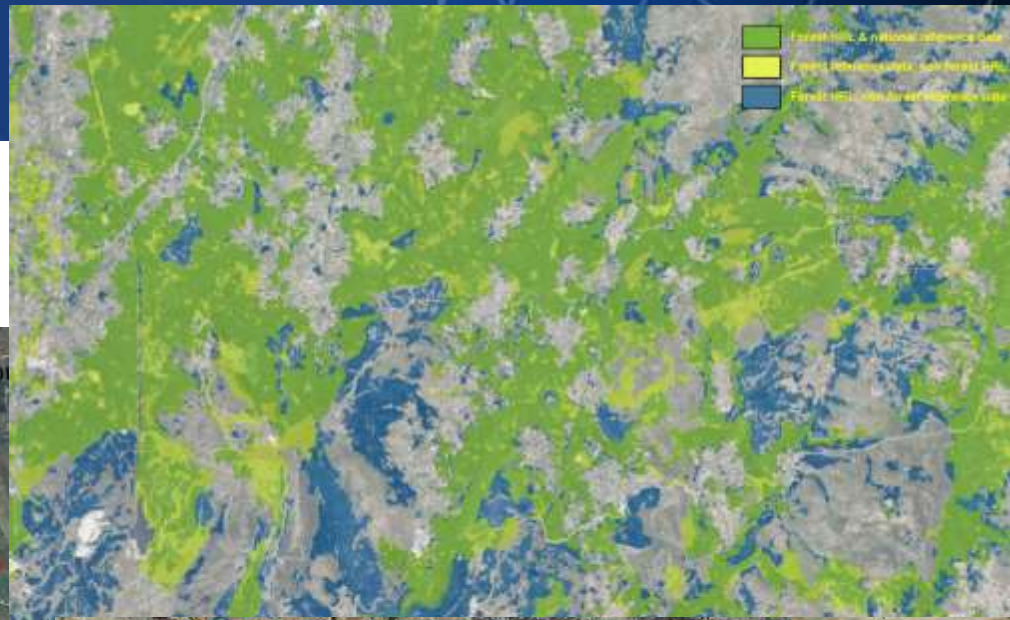
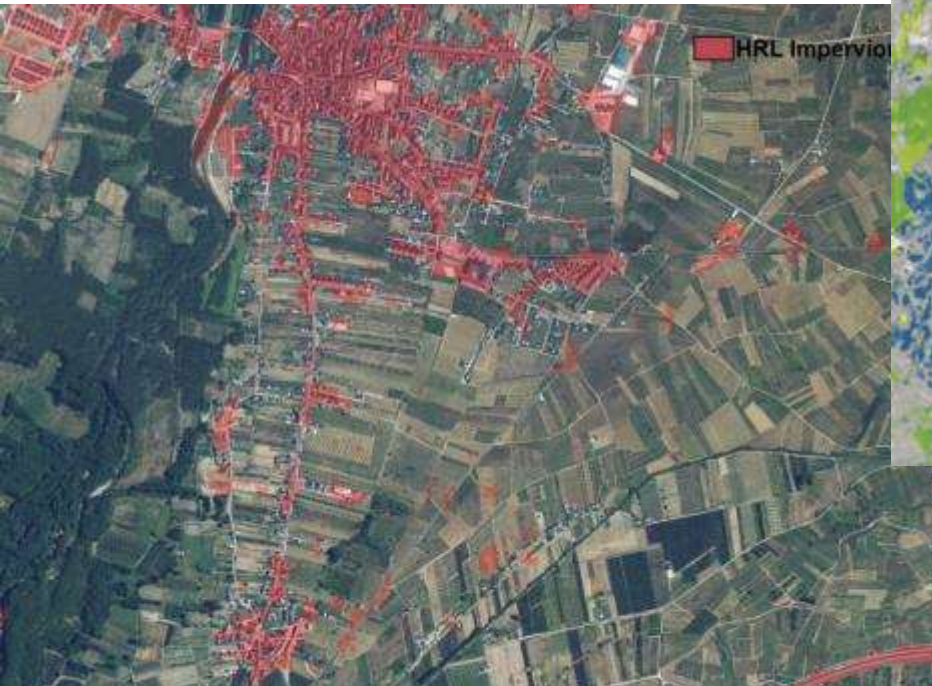


❖ Copernicus Land Pan- Europeo: HRLs



❖ CNR & Copernicus Land

■ HRL

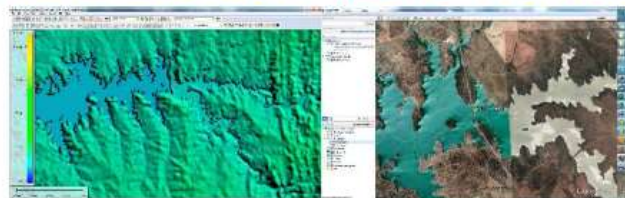
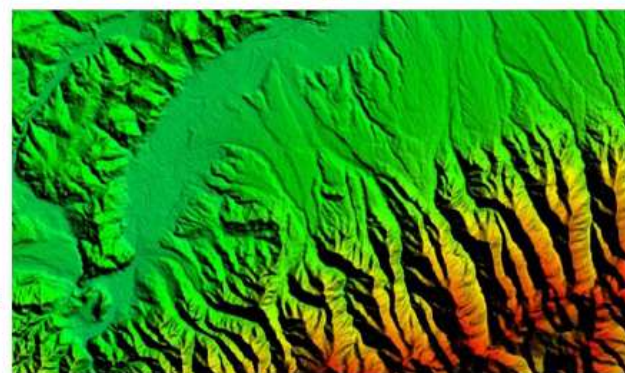
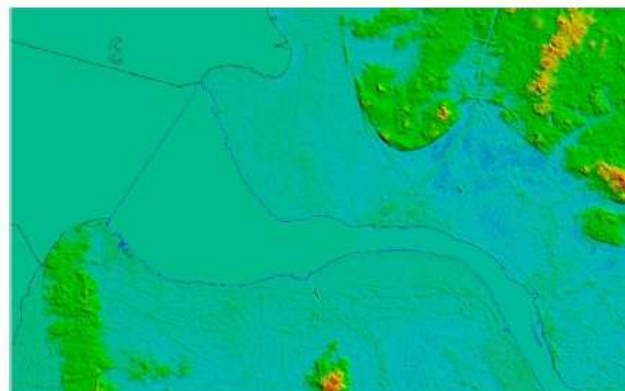


	Omission error	Comision error	National enhacement with
Forest density	4.5% ± 1.22	16.0% ± 1.72	MF50, MFE25, IFE, SIOSE
Forest type	13.2% ± 2.13	26.0% ± 2.14	MF50, MFE25, IFE, SIOSE
Grassland	20.4% ± 2.0	27.3% ± 2.6	SIOSE
Imperviousness	8.9% ± 1.64	9.2% ± 1.26	SIOSE, BTN100
Water	18.5% ± 2.13	32.0% ± 2.54	SIOSE, BTN100
Wetlands	51.2% ± 2.94	47.2% ± 2.97	SIOSE, BTN100



EU-DEM 2015

- ★ Pixel resolution: 25 meters
- ★ Vertical accuracy of +/- 7 meters RMSE
- ★ Projection: LLAEA (EPSG:3035); ellipsoid GRS80, vert. datum EVRS2000 geoid EGG08
- ★ Source datasets: SRTM, ASTER GDEM and Russian topographic maps
- ★ Delivery format: GeoTIFF 32 bit, 100x100 km tiles
- ★ More than 75.000 artifacts detected and corrected
- ★ Consistency with the EU-HYDRO coastline
- ★ Burning EU-HYDRO water bodies into EU-DEM
- ★ QC: statistical analysis, removal of artifacts & ge-positioning errors, consistency with EU-HYDRO, completeness



Servicio Land Local: Urban Atlas

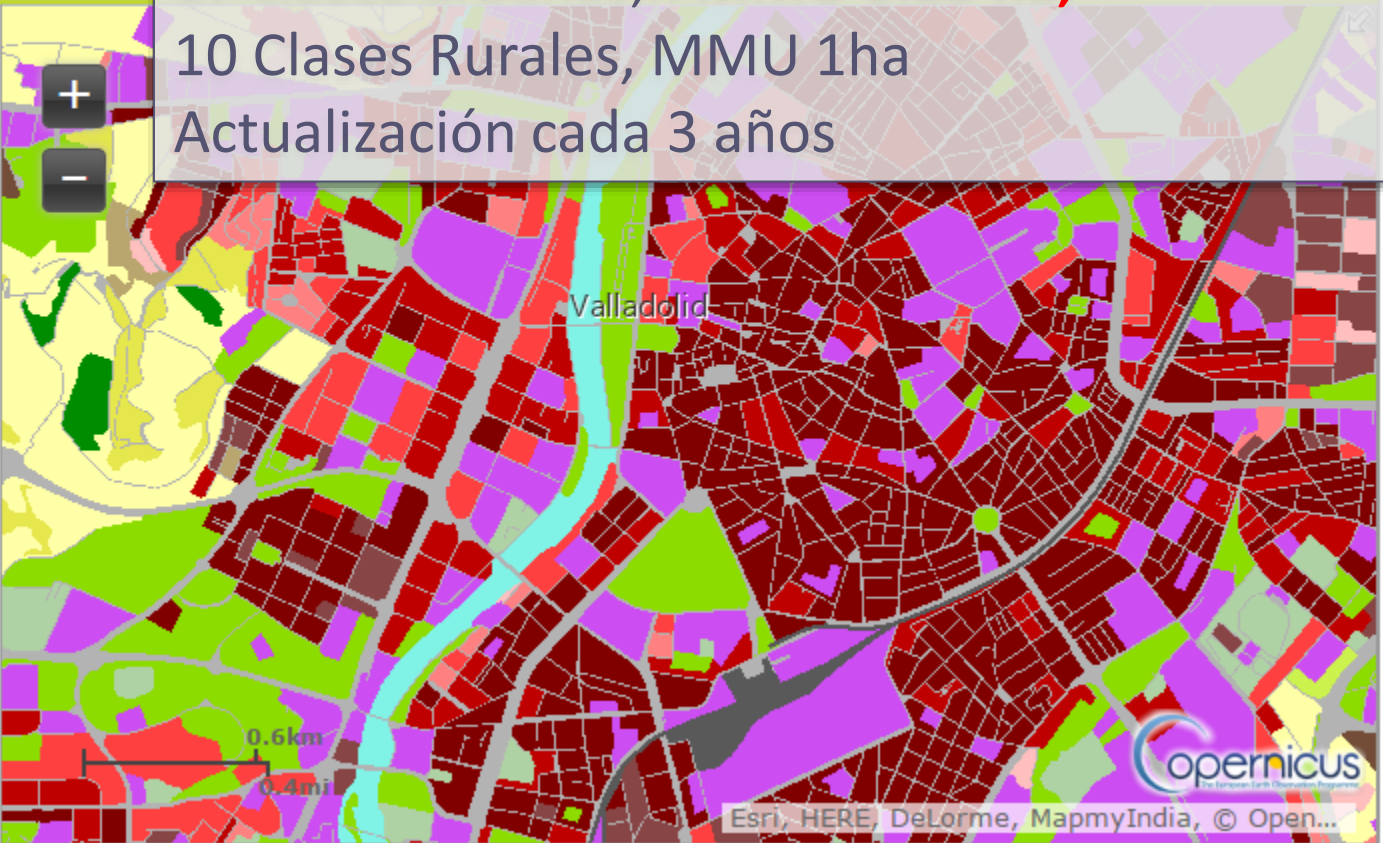
Urban Atlas 2012 **Not yet validated.**

Map View Metadata Download

Leyenda Web services

- Urban_Atlas_2012
- Land Use
- 11100: Continuous Urban fabric (S.L. > 80%)
 - 11210: Discontinuous Dense Urban Fabric (S.L.: 50% - 80%)
 - 11220: Discontinuous Medium Density Urban Fabric (S.L.: 30% - 50%)
 - 11230: Discontinuous Low Density Urban Fabric (S.L.: 10% - 30%)
 - 11240: Discontinuous very low density urban fabric (S.L. < 10%)
 - 11300: Isolated Structures
 - 12100: Industrial, commercial, public, military and private units
 - 12210: Fast transit roads and associated land
 - 12220: Other roads and associated land
 - 12230: Railways and

Ciudades EU28 (695) > 50.000 hab.
17 clases urbanas, h **MMU 0.25 ha;**
10 Clases Rurales, MMU 1ha
Actualización cada 3 años



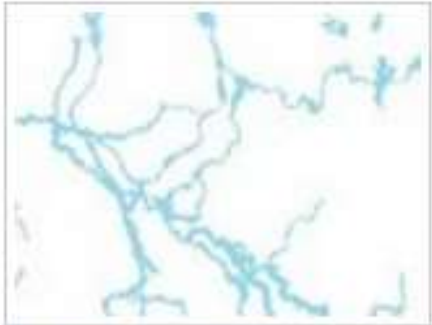
En España 145 ciudades, escalas 1:10K-1:25K



Riparian Zones



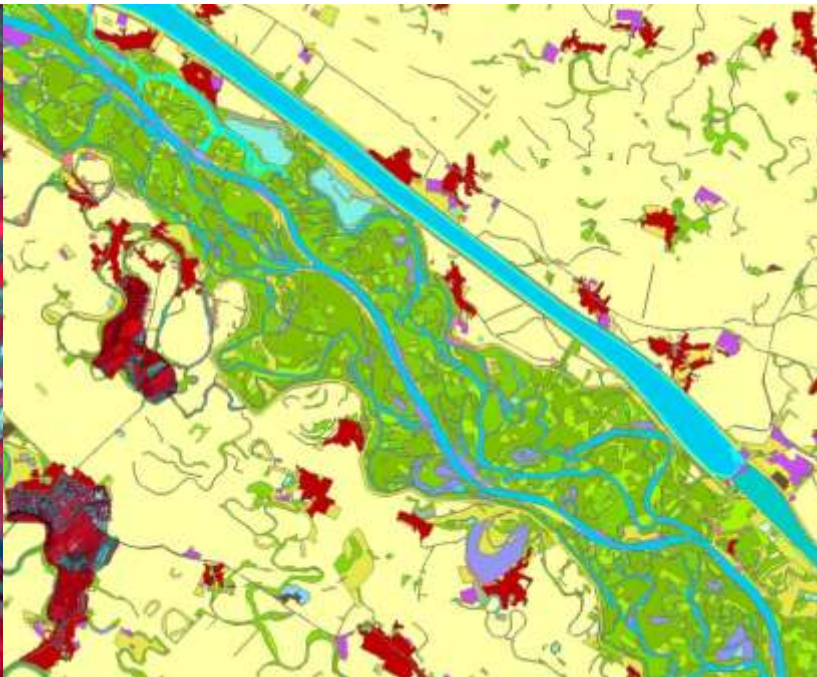
Land Cover/ Land Use
(0,5MMU)



Delineation of Riparian
Zones



Green Linear Elements



❖ Servicio Land Local

N2K grassland-rich sites: 5 grassland habitats types 6210, 6240, 6250, 6510 and 6520, including a 2km buffer (covering approx. 160.000 km²)

Natura 2000 **Not yet validated.**

Map View Download
Leyenda Web services



- CLC & CLCC cada 6 años (2018) → EAGLE, CLC extendido (Mediterráneo, Mar Negro)
- HRLs cada 3 años, en estudio anuales, actuales con mejoras
- Continuidad EU DEM& EU HYDRO

Uso iniciativas y experiencias europeas y globales:
INSPIRE, HELM, GEO GEOSS, EAGLE

Nuevas HRLs

- Green linear elements
- Improved grassland/ intensity of agricultural management

Servicio Local - nuevos elementos:

- Urban Atlas: 3ª dimensión
- Riparian: Extensión según categorías Strahler
- Segunda serie Natura 2000
- Nuevos:
 - Coastal zone monitoring (Marine Service+MS)
 - Permanent snow & ice cover monitoring

Land Services (PNOT)



Continental & Local



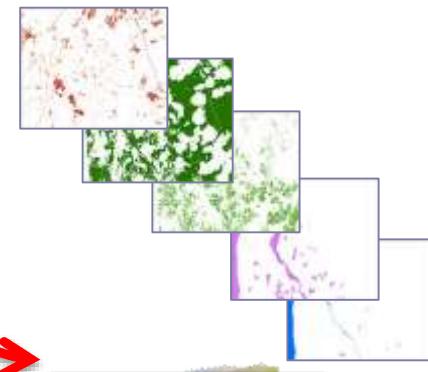
Copernicus Land Framework Agreement

(CLC-HRL-Local components-CLC+) → 2017-2021

CLC 2018



HRL 15-18



LOCAL Comp

Instituto Geográfico Nacional



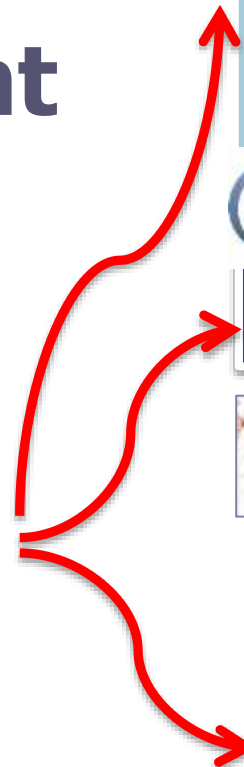
SIOSE 2011



SIOSE 2014



SIOSE 2017



❖ Servicio Land: Conclusiones

- Coordinación & Cooperación con MS: CLC, verificación (Pan+Local) HRLs+Local: **basado en industria**
- Reconocimiento Diversidad y competencias MS
- **Flexibilidad Copernicus+MS en generación servicios** → Datos in situ

Aumentar conocimiento & uso Servicio Copernicus land

- Verificación
- Análisis
- Gestión
- **Mejora servicio**



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