GLOBCORINE

Product Description Manual

Milestone	Final meeting
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Acronyms

CLC   : Corine Land Cover
ENVISAT   : European Space Agency Environmental Satellite
ESA   : European Space Agency
EU   : European Union
FRS   : Full Resolution Full Swath
LCCS   : Land Cover Classification System
MERIS   : Medium Resolution Imaging Spectrometer Instrument (http://envisat.esa.int)
TOA   : Top Of Atmosphere

1. Product summary

1.1. General content

The GlobCorine land cover map has been generated over the period between December 2004 and June 2006, covering a pan-European area. The pan-European area corresponds to the 27 EU (European Union) countries extended to the Mediterranean basin and to the Western Russia. It approximately extends from 20°N to 75°N and from 15°W to 65°E, as illustrated in Figure 1.
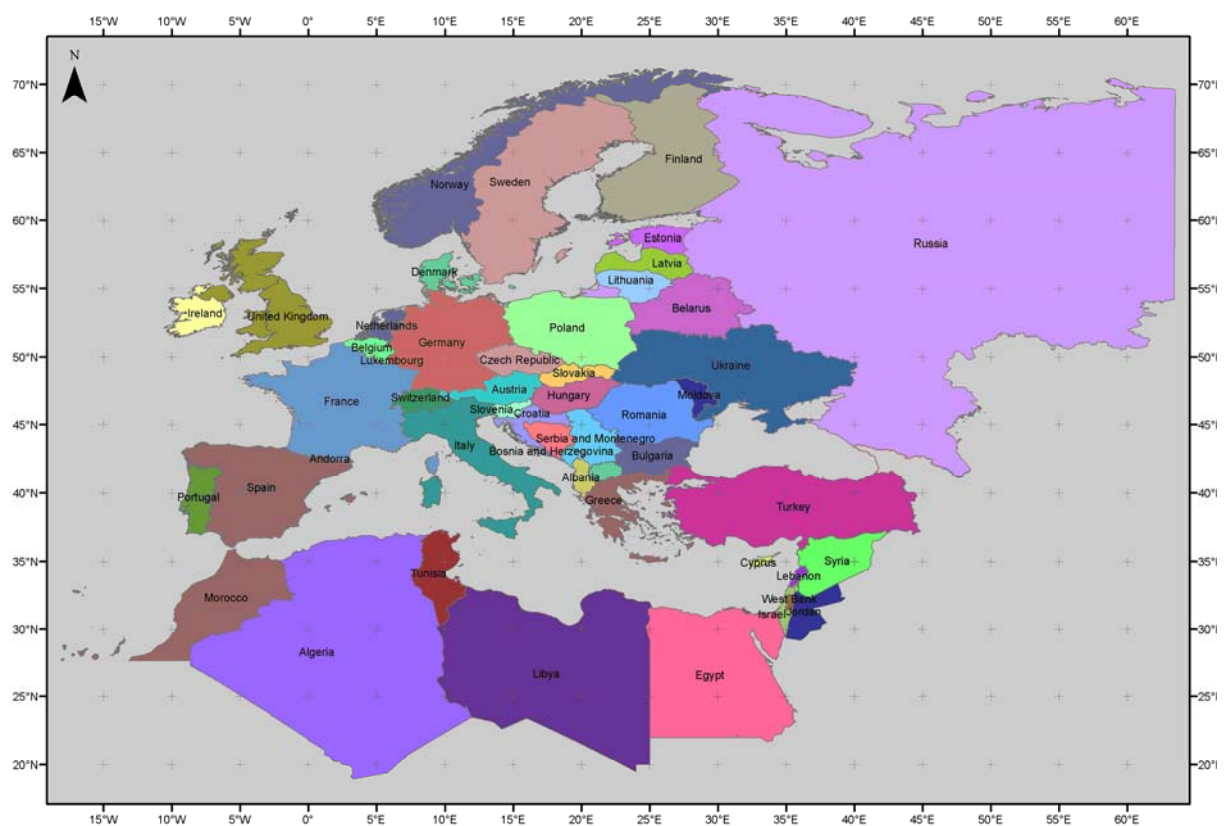
Figure 1. Pan-European extent of the GlobCorine land cover map

The map is derived from an automatic and regionally-tuned classification of a time series of MERIS seasonal and annual mosaics. The product nomenclature is as compatible as possible with the CLC aggregated typology, while presenting an LCCS-based structure.

The product is available in the GeoTIFF format and stored in a zip archive named "GlobCorine_LC.zip" enriched with additional files.

1.2. Data Source

The GlobCorine land cover map is based on the same dataset than the GlobCover land cover map.

The GlobCover project used ENVISAT's Medium Resolution Imaging Spectrometer (MERIS) Level 1B data acquired in the Full Resolution mode with a spatial resolution of 300 meters. For the generation of the Level 1B data, the raw data acquisitions have been resampled on a path-oriented grid, with pixel values having been calibrated to match the Top Of Atmosphere (TOA) radiance. The GlobCover project was based on 19 months of MERIS Fine Resolution Full Swath (FRS) data, from December 2004 until June 2006.

Further information about the ENVISAT MERIS Mission is available at the MERIS home page ENVISAT MERIS Mission (http://envisat.esa.int/object/index.cfm?fobjectid=1665).

1.3. Data access

The GlobCorine product is available through the ESA Ionia server at:

http://dup.esrin.esa.int/ionia/globcorine/products.asp

2. Product nomenclature

The GlobCorine land cover map name follows the general nomenclature (Table 1):

GLOBCORINE_LC_[YsYsYsYsMsMs]_[YeYeYeYeMeMe].tif

Field	Signification	Value
GLOBCORINE	Project Acronym	GLOBCORINE
LC	Product Name	LC
YsYsYsYsMsMs	Start Year (YsYsYsYs) and start month (MsMs) of mosaic	200412
YeYeYeYeMeMe	End Year (YeYeYeYe) and end month (MeMe) of mosaic	200606

Table 1. GlobCorine land cover map name nomenclature

The Table 2 list the parameters used for the projection processing of the GlobCorine land cover map.

Field	Description
Projection	Plate-carrée
Reference ellipsoïd	WGS 84 (R_e =Equatorial Radius= 6378,14km; R_p=Polar Radius=6356,76 km)
Angular pixel resolution	Res_{deg}= 1/360 degree
Kilometric pixel resolution	height: $h[km] = r * (2pi/360) * Res_{deg}$ width : $w[km] = R_e * \cos(lat) * (2pi/360) * Res_{deg}$ with $r = \dfrac{R_e * R_p}{\sqrt{R_e^2 * \sin^2(\theta_c) + R_p^2 * \cos^2(\theta_c)}}$ and $\tan(\theta_c) = (1 - f)^2 * \tan(lat)$ and $f = \dfrac{(R_e - R_p)}{R_e}$ (h is variable between $2pi/360 * R_e * Res_{deg}$ at the Equator and $2pi/360 * R_p * Res_{deg}$ at the Pole)
Upper Left corner of Upper Left pixel	Upper Left corner of Upper Left pixel longitude: -20° E Upper Left pixel of Upper Left pixel latitude : 75° N

Table 2. GlobCorine product geographic location information
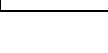
3. Product Specification

The GlobCorine land cover product is available in a zip archive containing the GlobCorine land cover map (2 raster TIFF files), the associated legend (.xls) and a quicklook of the GlobCorine land cover map (.jpg). An explanation of that content is provided below.

- **The GlobCorine land cover map**

The GlobCorine land cover product has been designed to be a consistent continental land cover map. Therefore, the legend is determined by the level of information that is available and that makes sense at the scale of the pan-European continent. The GlobCorine legend counts 14 classes and meets this requirement (Table 3).

NB_LAB	LAB	Color
10	Urban and associated areas	
20	Rainfed cropland	
30	Irrigated cropland	
40	Forest	
50	Heathland and sclerophyllous vegetation	
60	Grassland	
70	Sparsely vegetated area	
80	Vegetated low-lying areas on regularly flooded soil	
90	Bare areas	
100	Complex cropland	
110	Mosaic cropland / natural vegetation	
120	Mosaic of natural (herbaceous, shrub, tree) vegetation	
200	Water bodies	
210	Permanent snow and ice	

Table 3. 14 classes of the GlobCorine legend

A 15th class (coded as "230") has been added to the final legend to account for no data pixel-values or for areas that are not covered by the project.

The **delivered GlobCorine land cover product** is provided in a GeoTIFF format as single-band and RGB files, according to the following nomenclature:

- GLOBCORINE_LC_200412_200606.tif: land cover map with the 14 classes as a single-band file;

- GLOBCORINE_LC_200412_200606_Color.tif: land cover map with the 14 classes as a RGB file.

The description of the single-band format is given in Table 4. The specification of the RGB format is described in Table 5. According to this last format, the land cover map is presented

in a coloured version, each band of the file standing for the R, G and B values of the color code.

Parameter	Description	Type	Range
Object ID	The value corresponding to the number of class (not related to the legend)	BYTE	[0 14]
Value	The class value corresponding to the associated legend	BYTE	[0 230]
Count	The number of pixels in the corresponding class	BYTE	[0 10^8].

Table 4. Specifications of the GlobCorine land cover map single-band file

Parameter	Description	Type	Range
Object ID	The value corresponding to the number of class (not related to the legend)	BYTE	[0 255]
Value	The class value corresponding to the associated legend	BYTE	[0 255]
R	The value corresponding to the Red color code	BYTE	[0 255]
G	The value corresponding to the Green color code	BYTE	[0 255]
B	The value corresponding to the Blue color code	BYTE	[0 255]

Table 5. Specifications of the GlobCorine land cover map RGB file

- **The GlobCorine legend**

It is presented in an Excel file named "GlobCorine_legend.xls", described in Table 6.

Field	Signification	Value
Value	This field indicates the ID value for the considered class	[0 230]
Label	This field describes the thematic content for the considered class	String
Color Red	This field indicates the Red color code	[0 255]
Color Green	This field indicates the Green color code	[0 255]
Color Blue	This field indicates the Blue color code	[0 255]

Table 6. Description of the Excel file associated with the land cover / land use product

- **A quicklook of the GlobCorine land cover map**

It is presented as a file named "Preview.jpg".

4. Data Policy

The GlobCorine land cover map is made available to the public by ESA. You may use the GlobCorine land cover map for educational and/or scientific purposes, without any fee on the condition that you credit ESA and the ESA GlobCorine Project, led by Université Catholique de Louvain, as the source of the GlobCorine products.

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