



# COPERNICUS

Le programme  
et ses Relais locaux

Cerema Sud Ouest  
Dominique HEBRARD



Copernicus EU



Copernicus EU

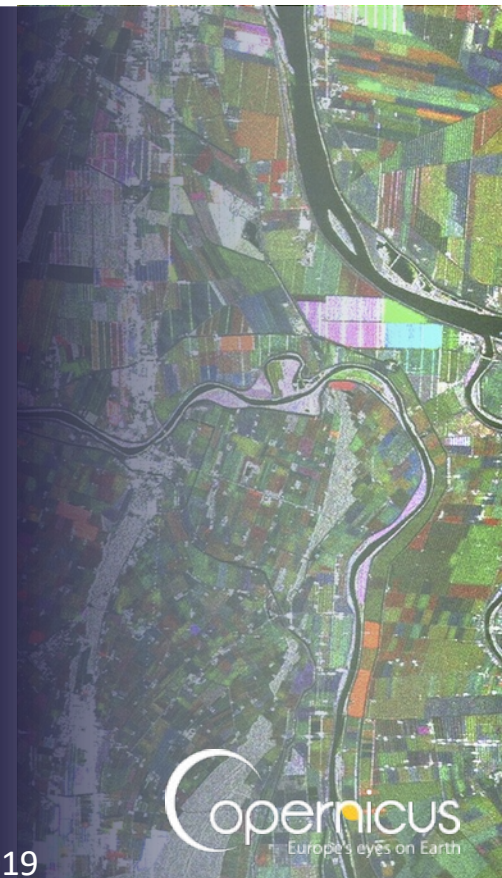


@CopernicusEU

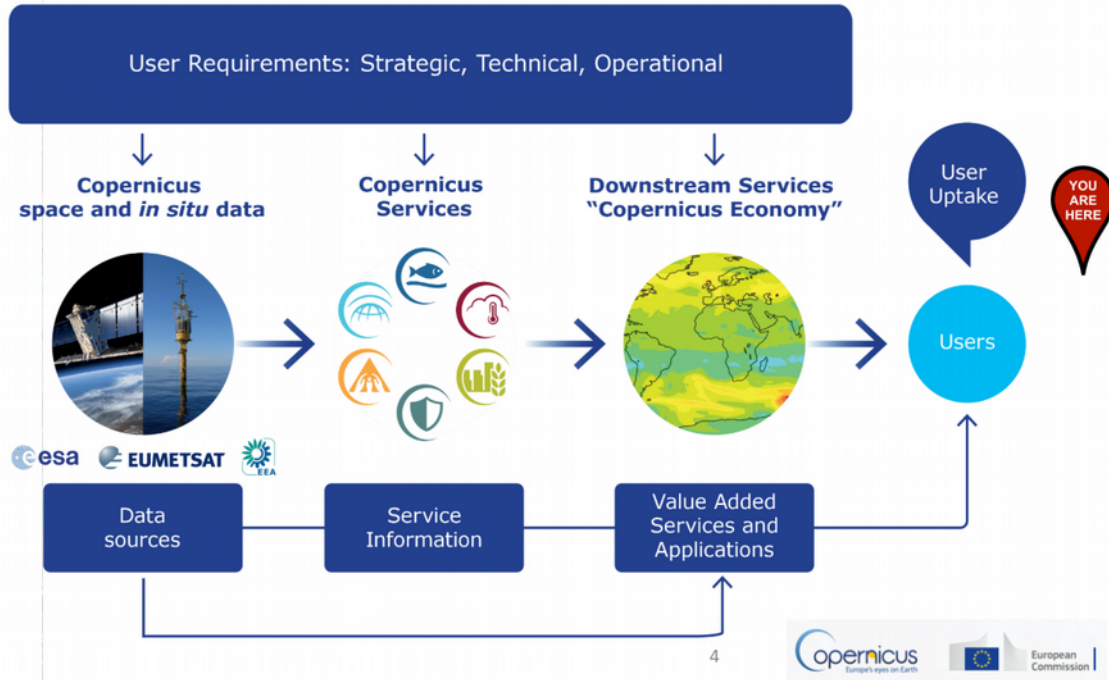


www.copernicus.eu

Journée COTITIA, Toulouse, 11 février 2019



# Piloté par les utilisateurs





Data  
Access

# COPERNICUS SERVICES

*Monitoring the State of the  
Earth System Environment\**



Land Monitoring



Marine Environment  
Monitoring



Climate Change



Atmosphere Monitoring



Emergency  
Management



Security

*... Six cross-cutting  
Thematic Services*





Copernicus

# COPERNICUS, LES ACTIONS DES RELAIS

## – Accès aux services

Ecosystems

Biodiversity

Agriculture

Forestry

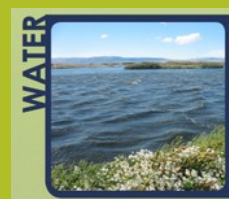
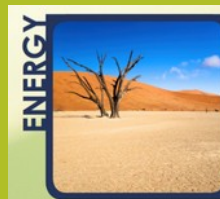
Energy

Natural Resources

Water

Urban planning

Global



Pan-European

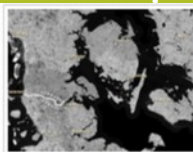


Image Mosaics



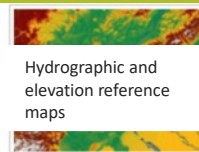
EU Land Cover

CORINE Land Cover



Specific land cover info

High Resolution Layers



Hydrographic and elevation reference maps

Reference Data



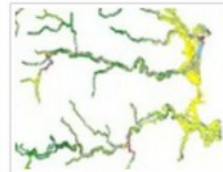
% of built-up area

Related Pan-European products

Local



Urban Atlas



Riparian Zones



Natura 2000 (N2K)



Copernicus is a European system for monitoring the Earth. Data is collected by different sources, including Earth observation satellites and in-situ sensors. The data is processed and provides reliable and up-to-date information in six thematic areas: land, marine, atmosphere, climate change, emergency management and security. The land theme is divided into four main components:



### Global

*provides a series of bio-geophysical products on the status and evolution of the land surface at global scale at mid and low spatial resolution*



### Pan-European

*provides information about the land cover and land use (LC/LU), land cover and land use changes and land cover characteristics*



### Local

*focuses on different hotspots, i.e. areas that are prone to specific environmental challenges and problems*



### Imagery and reference data

*satellite imagery forms the input for the creation of Copernicus land products. In order to ensure an efficient and effective use of satellite data the Copernicus land monitoring service needs access to in-situ data*



## Pan-European

 [Print](#)

## User corner

 [How to access our data](#)

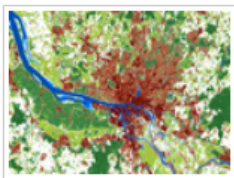
 [Technical library](#)

 [Factsheets](#)

 [Use cases](#)



[CORINE Land Cover](#)



[High Resolution Layers](#)



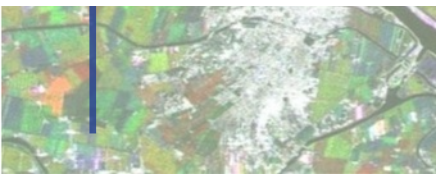
[Related Pan-European products](#)

The pan-European component is coordinated by the European Environment Agency (EEA) and produces satellite image mosaics, land cover / land use (LC/LU) information in the CORINE Land Cover data, and the High Resolution Layers.

The CORINE Land Cover is provided for 1990, 2000, 2006, 2012, and 2018. This vector-based dataset includes 44 land cover and land use classes. The time-series also includes a land-change layer, highlighting changes in land cover and land-use. The high-resolution layers (HRL) are raster-based datasets which provides information about different land cover characteristics and is complementary to land-cover mapping (e.g. CORINE) datasets.

Five HRLs describe some of the main land cover characteristics: impervious (sealed) surfaces (e.g. roads and built up areas), forest areas, grasslands, water & wetlands, and small woody features.

 [Read more](#)







Copernicus

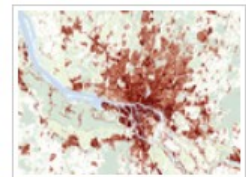


## High Resolution Layers

Print

## User corner

- How to access our data
- Technical library
- Factsheets
- Use cases



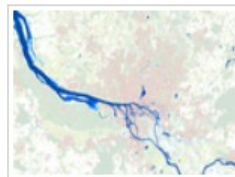
Imperviousness



Forests



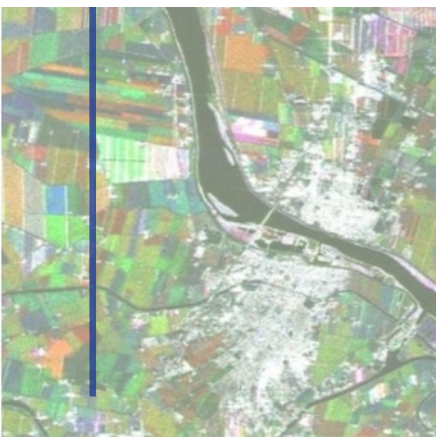
Grassland

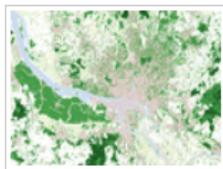






Water & Wetness



Small Woody Features



**Tree Cover Density****Dominant Leaf Type****Forest Type**

-  How to access our data
-  Technical library
-  Factsheets
-  Use cases

**The tree cover density status layer for 2015 and change layer for 2012-2015 has been updated after corrections to the calibration methods. For a number of regions, omitted density value ranges were discovered, causing a gap in the histograms. The error (with histogram gaps of >2 TCD %-points) concerned a total area of 211 000 km<sup>2</sup> (only part of which is tree covered).**

The HRL Forests consists of 3 types of (status) products, and additional change products. The status products are available for 2012 and 2015 reference years:

1. **Tree cover density (TCD)** (level of tree cover density in a range from 0-100%)
2. **Dominant leaf type (DLT)** (broadleaved or coniferous majority)
3. A **Forest type product (FTY)**. The forest type product allows to get as close as possible to the FAO forest definition. In its original (20m) resolution it consists of two products: 1) a dominant leaf type product that has a MMU of 0.5 ha, as well as a 10% tree cover density threshold applied, and 2) a support layer that maps, based on the dominant leaf type product, trees under agricultural use and in urban context (derived from CLC and imperviousness 2009 data). For the final 100m product trees under agricultural use and urban context from the support layer are removed.

Please find a more detailed product specification in the [technical document](#).

### Change layers

The forest change products are new, and comprise a) TCDC: a simple tree cover density change product for 2012-2015 (% increase or decrease of real TCD changes), and a b) experimental complex dominant leaf type change product (DLTC), mapping different types of dominant leaf type changes (not yet available online).



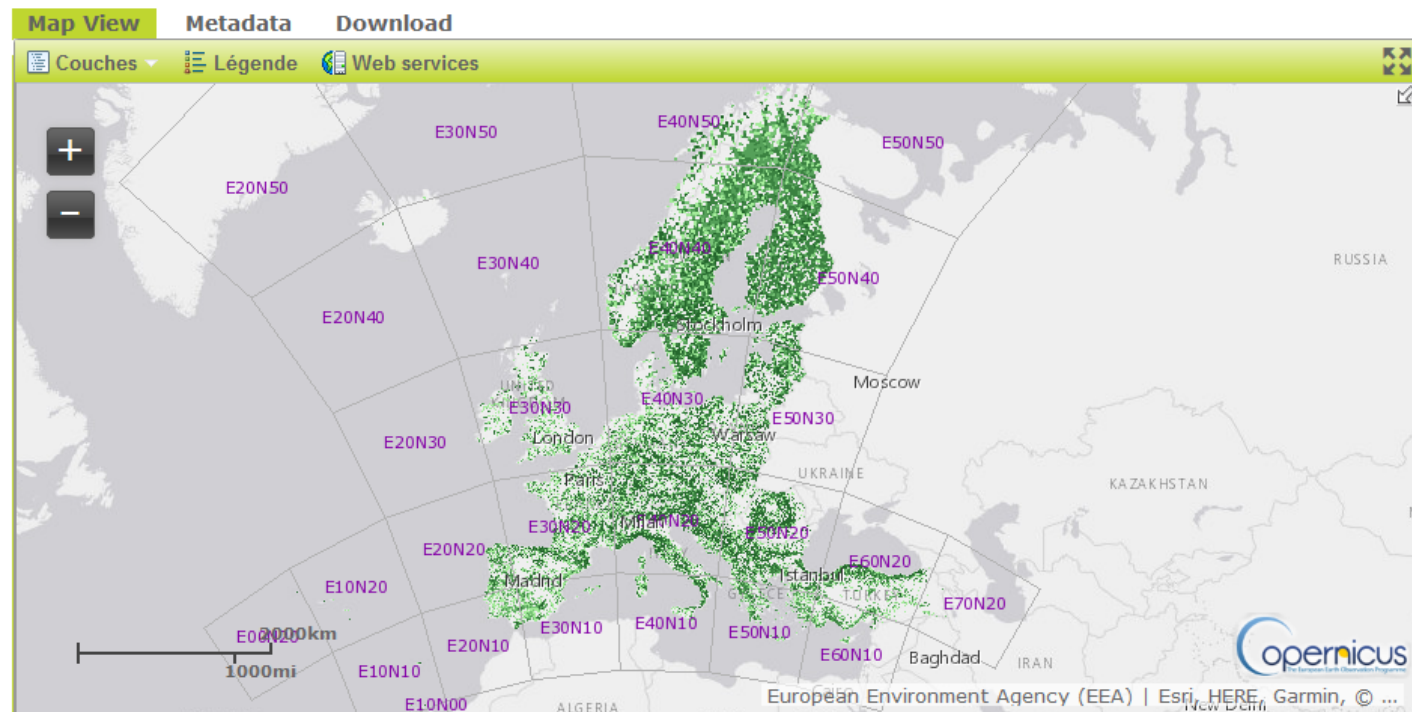


# Tree Cover Density 2015

Print

## User corner

- How to access our data
- Technical library
- Factsheets
- Use cases





# Tree Cover Density 2015

Print

## User corner

created by Ludvig Forslund — last modified Jul 09, 2018 02:31 PM

- Map View
- Metadata
- Download**

Data is now provided as a mosaic of the full area, and as tiles with a side length of 1000 km x 1000 km. The data is available as raster data in European projection (EPSG: 3035) with 20 and 100m resolution. More information about these products can be downloaded [here](#).

- How to access our data
- Technical library
- Factsheets
- Use cases

Show  entries

Search:

<input type="checkbox"/> Name	Type	Resolution	Size
<input checked="" type="checkbox"/> TCD-2015-100m-E30N20	<b>Raster</b>	100m	56.3 MB
<input checked="" type="checkbox"/> TCD-2015-20m-E30N20	<b>Raster</b>	20m	759.3 MB

Previous  Next

**Download**  
2 files selected (815 MB size)





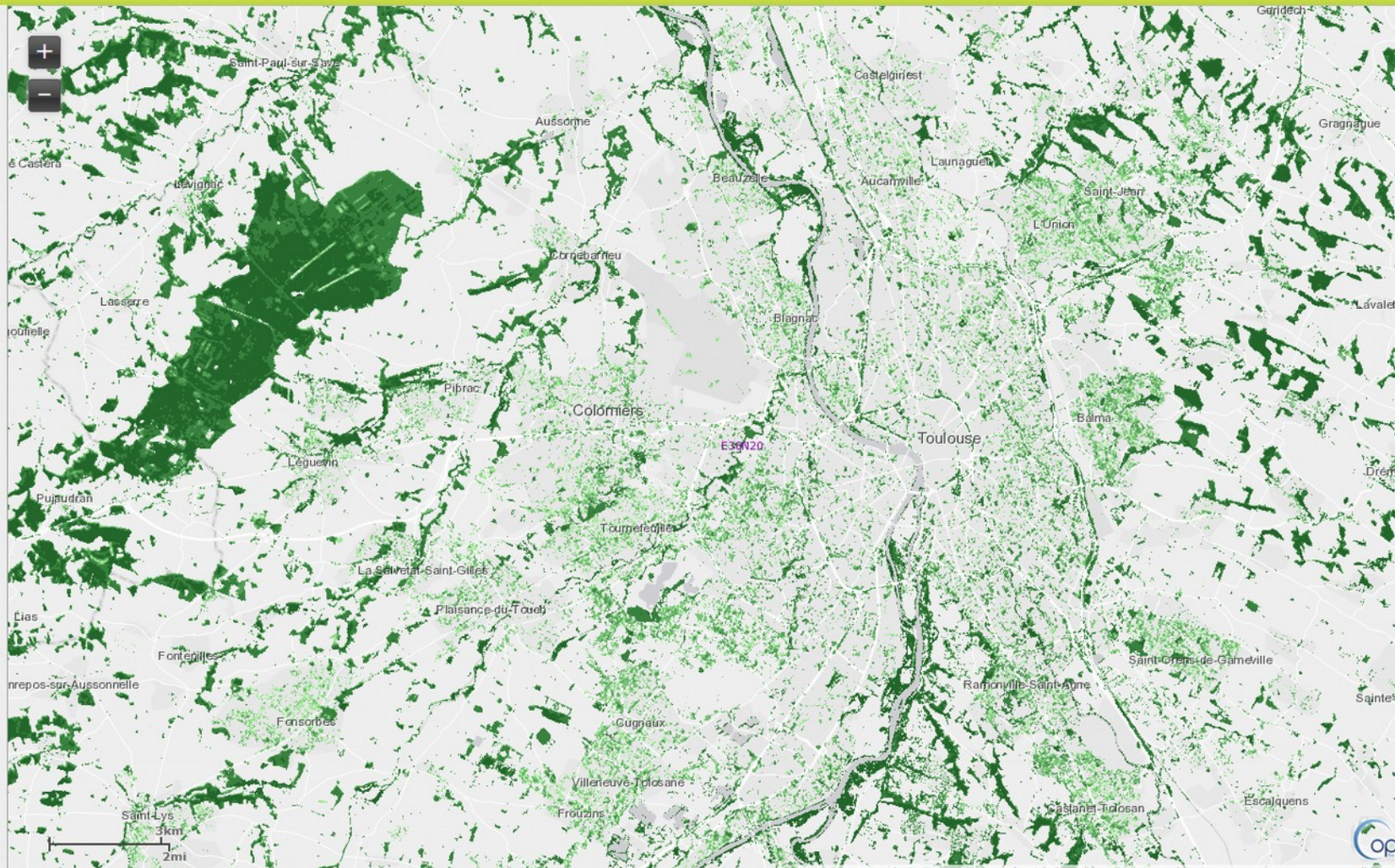
HRL\_TCD\_2015\_DL

TCD\_Download

HRL\_TreeCoverDensity\_2015

Tree Cover Density 2015

- All Non Tree Areas
- 1 - 20 %
- 21 - 40 %
- 41 - 60 %
- 61 - 80 %
- 81 - 100 %
- Unclassifiable
- Outside Area







Copernicus

# COPERNICUS, SERVICE GESTION DE CRISES

**Disaster  
Emergency  
Situations**

**Humanitarian  
Crises**



## Risk & Recovery Mapping:

- Reference Maps
- Pre-disaster Situation Maps
- Post-disaster Situation Maps

## Rapid Mapping:

- Reference Maps
- Delineation Maps
- Grading Maps

## Early Warning:

- Floods: EFAS
- Forest Fires: EFFIS








EFAS = European Flood Awareness System;  
EFFIS=European Forest Fire Information System

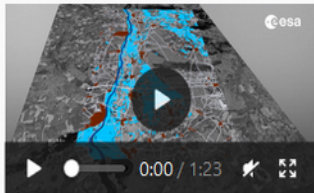
## Copernicus Emergency Management Service

Copernicus Emergency Management Service (Copernicus EMS) provides information for emergency response in relation to different types of disasters, including meteorological hazards, geophysical hazards, deliberate and accidental man-made disasters and other humanitarian disasters as well as prevention, preparedness, response and recovery activities. The Copernicus EMS is composed of an on-demand mapping component providing rapid maps for emergency response and risk & recovery maps for prevention and planning and of the early warning and monitoring component which includes systems for floods, droughts and forest fires:

### Copernicus EMS - Mapping

The Copernicus EMS - Mapping addresses, with worldwide coverage, a wide range of emergency situations resulting from natural or man-made disasters. Satellite imagery is used as the main datasource. The service covers in particular:

-  Floods
-  Tsunamis
-  Earthquakes
-  Landslides
-  Fires
-  Severe Storms
-  Volcanic eruptions
-  Technol. disasters
-  Humanitarian crises

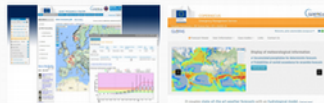


Copernicus EMS - Mapping

### European & Global Flood Awareness System

The European and Global Flood Awareness Systems (EFAS & GloFAS) provide complementary flood forecast information to relevant stakeholders supporting flood risk management at national, regional and global level.

The forecasts are derived using in-situ and satellite data as well as hydro-meteorological models and aim at facilitating users with a wide range of added value (medium-range lead time, probabilistic, river basin wide, flash flood indicators etc.) flood forecast products.



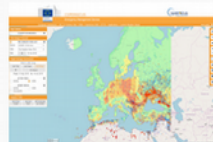
EFAS

GloFAS

### European Forest Fire Information System (EFFIS)

The European Forest Fire Information System (EFFIS) monitors forest fire activity in near-real time and in Europe, Middle East and North Africa and supports wildfire management at national and regional scales.

At the global scale, the JRC leads the development of the Group on Earth Observations (GEO) Global Initiative for the development of a Global Wildfire Information System (GWIS), supported by EU Copernicus and NASA programs.



EFFIS

### Drought Observatory

The EMS Drought Observatory (DO) provides drought-relevant information and early-warnings for Europe (EDO) and the globe (GDO). Short analytical reports (Drought News) are published in case of imminent droughts.

EDO and GDO build on open web services and connect drought data providers and users from global to regional levels.



EDO

GDO



Copernicus



COPERNICUS

Emergency Management Service - Mapping



Search bar

Copernicus EMS » Mapping

Home | What is Copernicus | EMS - Mapping | EMS - Early Warning System

News

LATEST NEWS · 2019-02-01 | [EMSR342] Flood in Townsville, Australia

EMS - MAPPING

- Service Overview
- Who can use the service
- How to use the service
- Products: Rapid Mapping
- Products: Risk and Recovery
- Quality control / Feedback
- User Guide

RAPID MAPPING

- List of Activations
- Map of Activations
- GeoRSS Feed

RISK AND RECOVERY

- List of Activations
- Map of Activations
- GeoRSS Feed

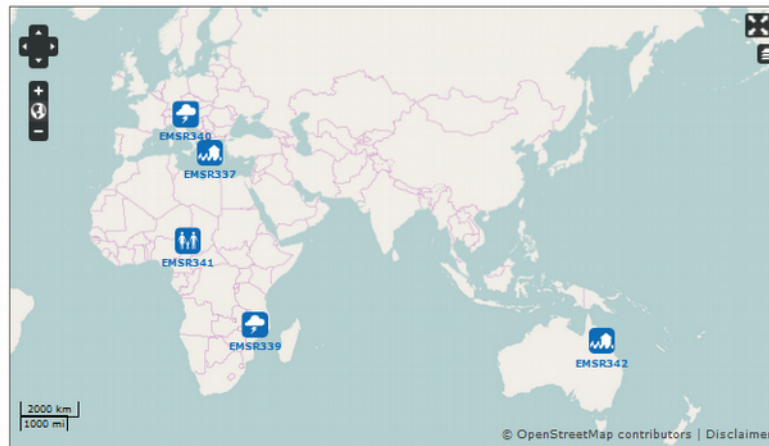
OTHER

- Map of Activations of Other Organizations
- Map Coverage Planner
- Meetings, Workshops
- Citation Guidelines
- Citations
- Press Mentions
- Calls for Tender

Follow @CopernicusEMS

# Copernicus Emergency Management Service - Mapping

A service in support of European emergency response



Map above displays only latest Copernicus EMS - Mapping Activations. To see a Map of All Activations, go to section Map of Activations in Rapid Mapping or in Risk and Recovery Mapping sub-menus respectively.

### Latest Copernicus EMS - Mapping Activations

Act. Code	Title	Event Date	Type	Country/Terr.	Feed
EMSR342	Flood in Townsville, Australia	2019-01-31	Flood	Australia	
EMSR341	Internally Displaced People in Rann,...	2019-01-28	Humanitarian	Nigeria	
EMSR340	Wind Storm in the South of Austria	2018-10-28	Storm	Austria	
EMSR339	Floods in Mozambique	2019-01-22	Storm	Mozambique	
EMSR337	Flood in Western Greece	2019-01-12	Flood	Greece	

Summary of the Copernicus EMS - Mapping Activations







Copernicus

# [EMSN028] Evry: Maximum Flood Extent (Detail)

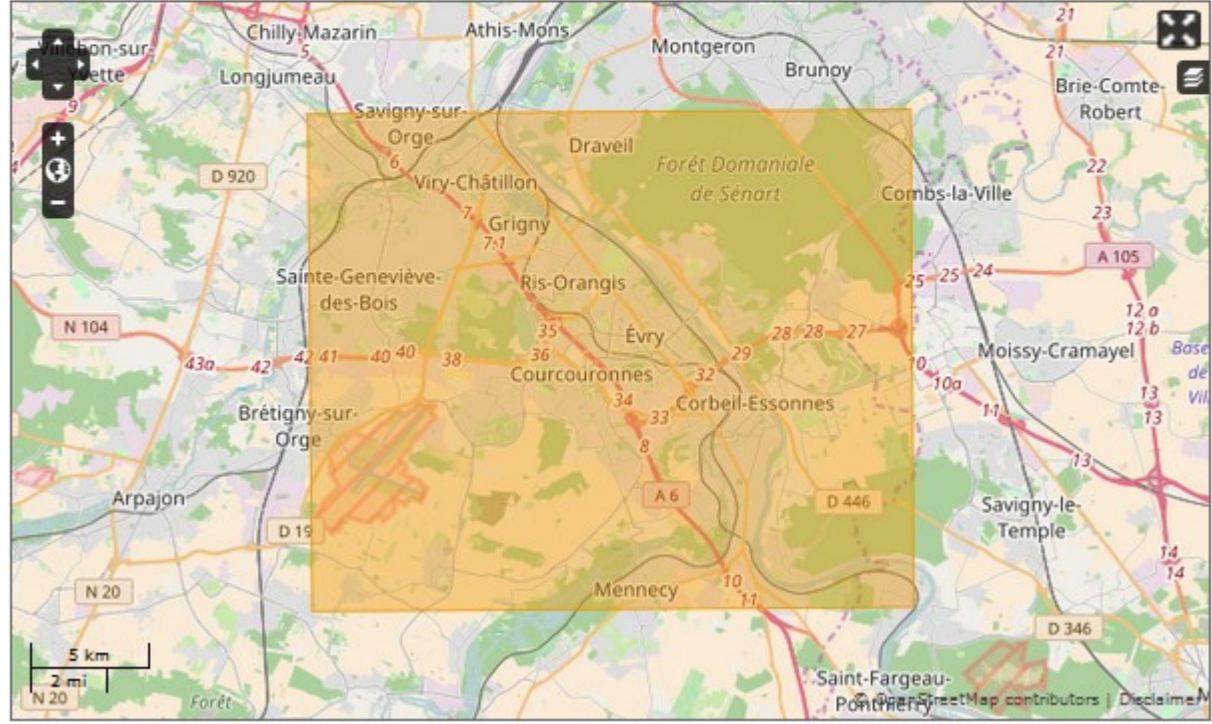


Published: 2016-09-06 00:00 (UTC)  
 Product version: v1  
 Map scale: 1:25000  
 Status:  
 Production finished

**Downloadable items**  
**PDF:** 100 DPI 200 DPI 300 DPI  
**JPEG:** 100 DPI 200 DPI 300 DPI  
**TIFF:** 100 DPI 200 DPI 300 DPI

Show all maps produced in **Copernicus EMS - Mapping activation EMSN028.**

## Geographic Extent:







Copernicus

### Map Preview:



**FRISK - JUNE 2018**  
 Estimated maximum flood extent and water depth (cm)

Publication date: 2018-06-15

Scale: 1:25,000

**Legend**

Water	Water	Water
...	...	...

**Map information**

**Data sources**

**Disclaimer**

**Map production**

**Contact**



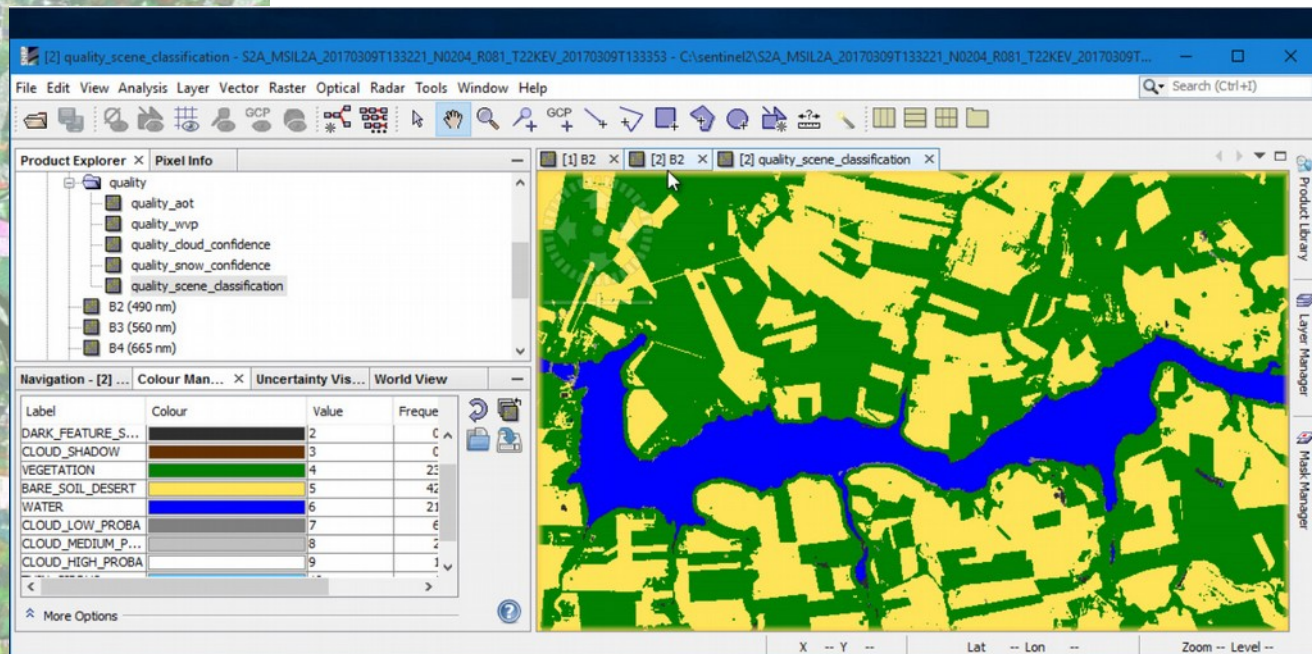
Copernicus

# Copernicus, LES RELAIS

## – Informations sur les outils

<http://step.esa.int/main/toolboxes/snap/>

SNAP  
DIAS  
RUS  
TEP  
....







Copernicus

C O P E R N I C U S

# MERCI DE VOTRE ATTENTION



Copernicus Relai CNES/CEREMA

[Philippe.billast@cnes.fr](mailto:Philippe.billast@cnes.fr)

[christelle.bosc@cerema.fr](mailto:christelle.bosc@cerema.fr)

