Evaluating impact and erosion risk
after devastating forest fire

"To meet end user requirements regarding data content and quality, Copernicus Services need access to open, up-to-date, and harmonised geospatial information across Europe. Data produced by National Mapping, Cadastral and Land Registration Authorities, the members of EuroGeographics, is therefore key to its success.

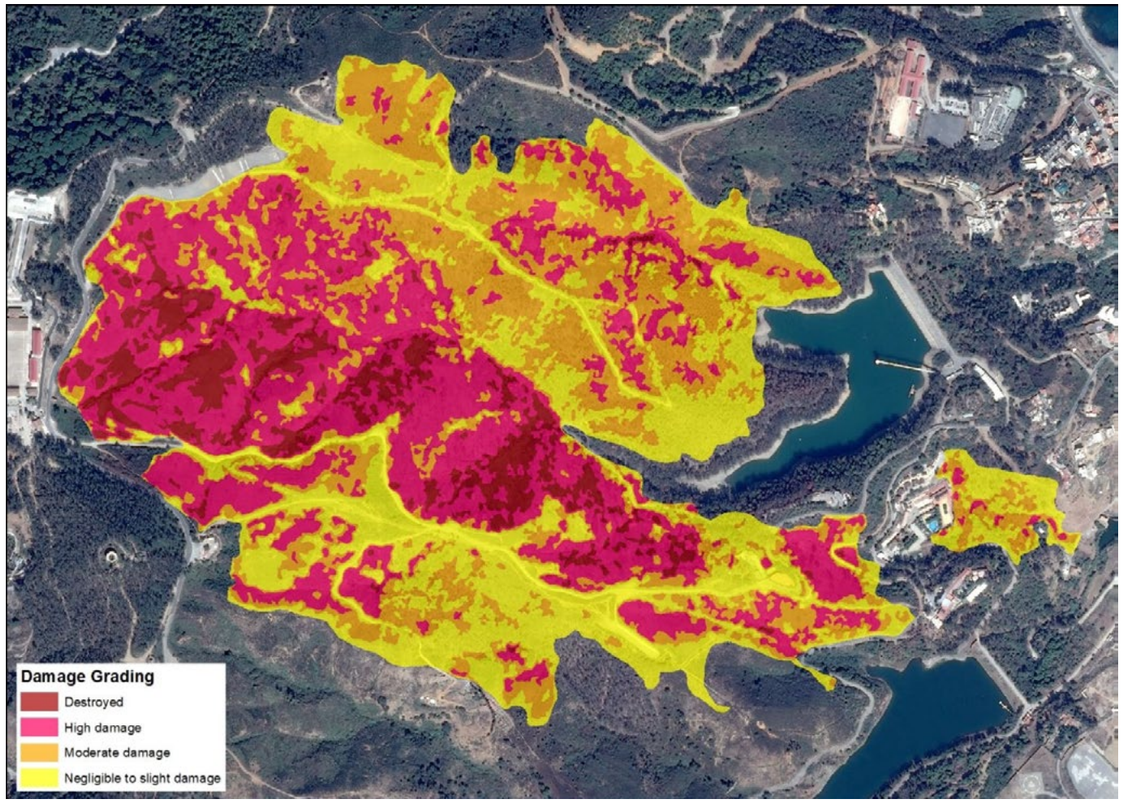
Typically, geospatial data is relevant for all the different services, but we have identified three key services which require geospatial data: the Copernicus emergency service and its rapid mapping, and risk and recovery mapping; the Copernicus land monitoring service; and the Copernicus Security Service which supports, inter alia, the EU External Action Service.

By working closely together, we can improve the use of authoritative data and services by Copernicus and ensure National Mapping, Cadastral and Land Registration Authorities are recognised for their essential contributions."

Jose Miguel Rubio Iglesias
Geospatial Data Management Expert,
European Environment Agency (EEA)

Introduction

Transportation, Land Use and Land Cover data provided to the Copernicus Emergency Management Service by the National Geographic Institute of Spain played a key role in evaluating the impact of the 2022 Ceuta wildfire. It was also used to assess the risk of soil erosion in more than 130 hectares of forest in the Spanish autonomous city which is located on Africa's north coast.



Challenge

Emergency services estimate that the fire burnt through 5% of the city, making it the largest ever in the Spanish enclave's history. Furthermore, with 65% of the land destroyed land of high ecological value, including space of community interest and a special zone for the protection of birds, it was vital to assess not only the damage, but to also evaluate subsequent erosion risk and potential changes to the soil's properties.

Benefits

- Identifies the extent of the wildfire impact and the different levels of damage.
- Assesses the ecological value of the affected area.
- Provides insights to understand the risk of soil erosion as a result of fire damage.
- Enables identification of areas where the soil's chemical and physical properties have changed.
- Contributes to post-fire recovery.
- Demonstrates value of cooperation between EEA and European National Mapping, Cadastral and Land Registration Authorities.

Solution

"As the National Mapping Authority for Spain, we were pleased to support post-fire impact assessments with authoritative data. The insight gained from the various analysis not only identified the levels of damage in different areas but also confirmed the subsequent erosion risk due to soil loss."

Lorenzo Garcia Asensio
Director General, National Geographic Institute, Spain

The Copernicus Emergency Management Service Risk and Recovery mapping was activated by the Spanish General Directorate of Civil Protection and Emergencies on behalf of the Área de Coordinación de Emergencias y Protección Civil de Ceuta.

The goal of the activation was to identify the extent of the wildfire damage, assess the ecological value of the affected area, and to understand the risk of soil erosion where the loss of vegetation may have changed the soil's chemical and physical properties.

Land Use and Land Cover data provided by the National Geographic Institute of Spain was essential for the analysis and the post-disaster model to show post-fire erosion susceptibility.

National Land Cover and Land Use Information System (SIOSE, https://www.siose.es).

Transport data from the National Geographic Institute supported the impact assessment on assets and population. Reference Geographic Information on Transport networks (IGR-RT).

The National Geographic Institute also provided reference data for the P14-Impact assessment analysis on population. This key ancillary data enables the affected population to be correctly estimated. In addition, its hydrography data was used as a reference layer for map production and the National DEM (5m) was used in the P16 product to estimate soil erosion risk.

MORE INFORMATION
http://centrodedescargas.cnig.es/CentroDescargas

ACTIVATION
https://emergency.copernicus.eu/mapping/list-of-components/EMSN137

Copernicus Europe's eyes on Earth

Emergency Management

In Situ