



# Guardia Civil



## ENVIRONMENTAL CRIMES WORKSHOP 2024

ESA, Frascati, June 11-12th

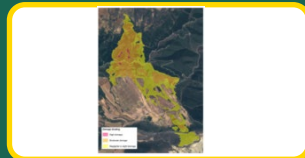
Sgt. Gema Armero. GUARDIA CIVIL-SEPRONA



Guardia Civil-SEPRONA



GC Activations 2023-2024



Main purposes of the products delivered



Conclusions





**What is the Guardia Civil?**



**Police Force with a military status**



**Depends on the Ministry of Interior**

(Ministry of Defence only for military missions)



**Founded in 1844  
180 years of history**





2000



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80.000

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COPERNICUS



Emergency Management Service - Mapping

DATE	MUNICIPALITY	REGION	CODE	LINK
14/03/23	TUDELA	NAVARRA	EMSN148	<a href="https://emergency.copernicus.eu/mapping/list-of-components/EMSN148">https://emergency.copernicus.eu/mapping/list-of-components/EMSN148</a>
08/09/22	LOS GUAJARES	GRANADA	EMSN183	<a href="https://emergency.copernicus.eu/mapping/list-of-components/EMSN183">https://emergency.copernicus.eu/mapping/list-of-components/EMSN183</a>

Both were Risk and Recovery FLEX (for tailor-made studies)



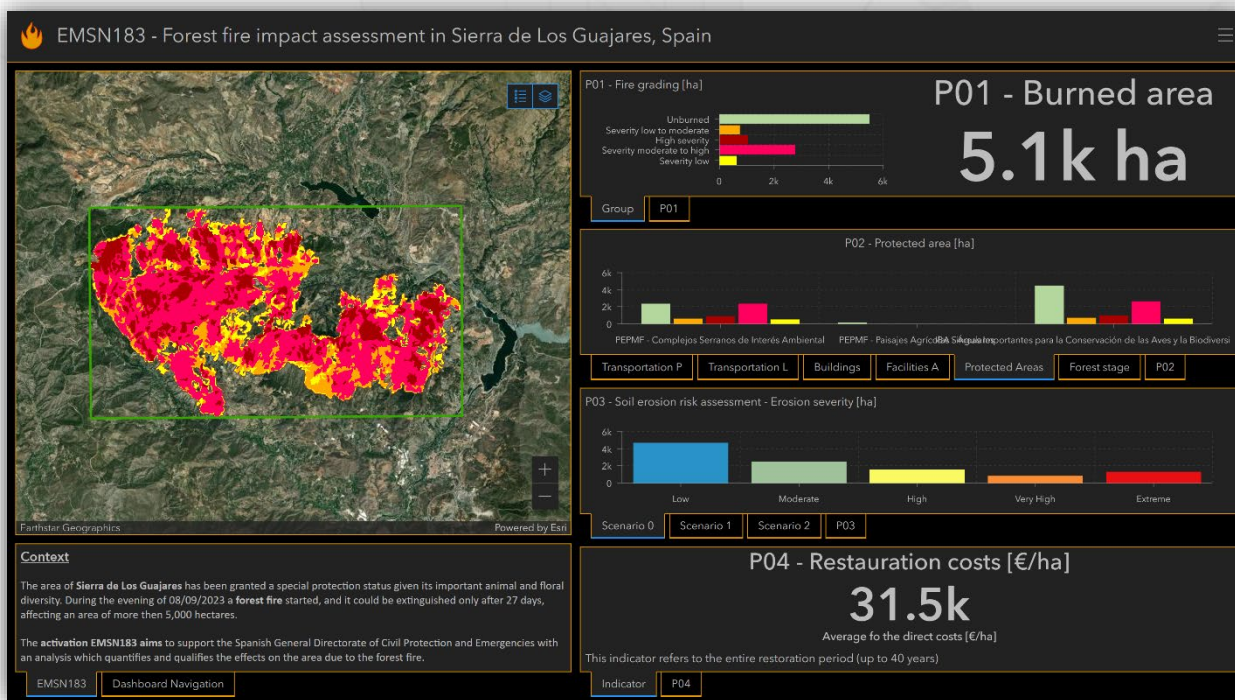


# MAIN PURPOSE



- According to the Spanish Penal Code, the **CIVIL RESPONSIBILITY** consists in the obligation of the perpetrator of a crime to financially compensate for the damages caused or derived from his infraction.
- In order to help the judicial authority to quantify this responsibility, including in the police report an **economical quantification** of the damage of the crime using a scientific methodology remains very useful.

**For this purpose, standard and flex products produced by CEMS On-Demand Mapping provide significant support for the quantification of the damage**



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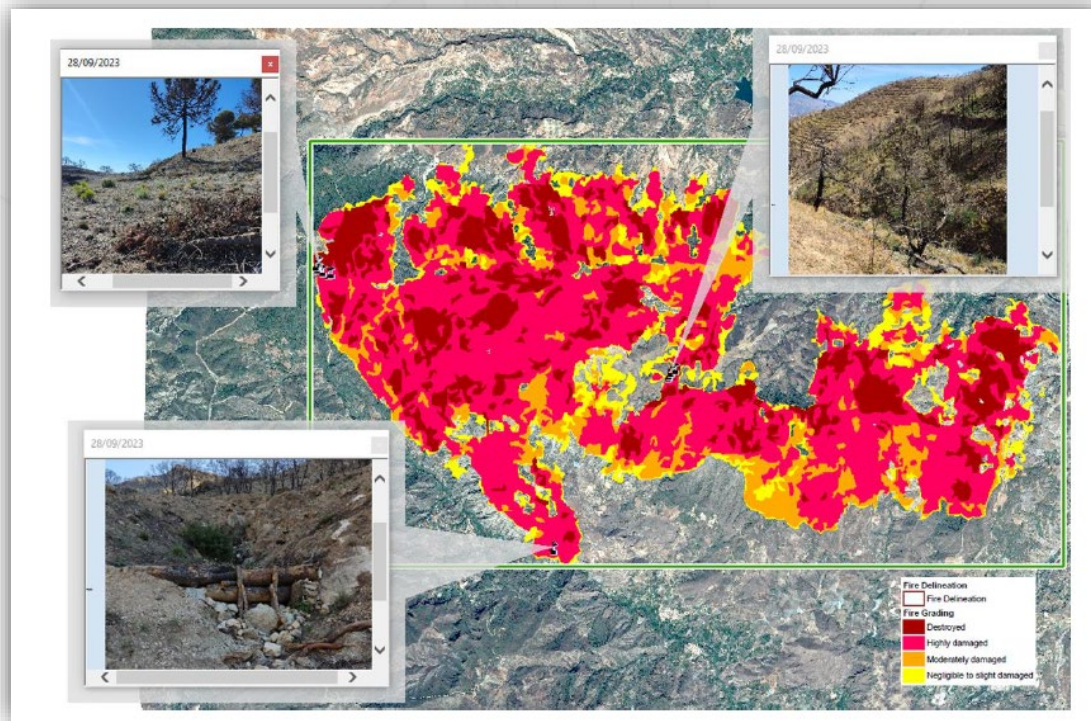




# MAIN PURPOSE



In addition the use of fire products delivered by Rapid Mapping and Risk & Recovery for SEPRONA (Environmental Protection Service) - **Guardia Civil**, as a **law enforcement agency**, makes possible to **give to the judicial authority as more elements as possible to support when assessing the aggravating circumstances of the crime of forest fire**



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## SPANISH CRIMINAL CODE

### Art 352.

Those who **set fire to the forest** stands will be punished with 1 to 5 years **IMPRISONMENT** and fine of twelve to eighteen months.

**If there has been danger to life or physical integrity of any person**, the action shall be punished in accordance with the provisions of article 351 (10-20 years imprisonment), imposing in any case, the fine of twelve to twenty-four months.

### Art 353.

Actions referred to the previous article will be punished with a prison sentence of 3 to 6 years and a fine of 18 to 24 months **when the fires reaches special severity**, attending any of the following circumstances:

1. When they cover a considerably **LARGE AREA**
2. When they cause major or serious **SOIL EROSION** effects
3. When they significantly alter the conditions of **ANIMAL OR PLANT LIFE** or affect any **PROTECTED NATURAL SPACE**
4. It affects areas near to urban population centres or **POPULATED AREAS**
5. The fire is caused at a time in which the weather or **SOIL CONDITIONS** significantly increase the risk of it spreading
6. In all cases, when there is serious deterioration or **DESTRUCTION OF THE RESOURCES AFFECTED**







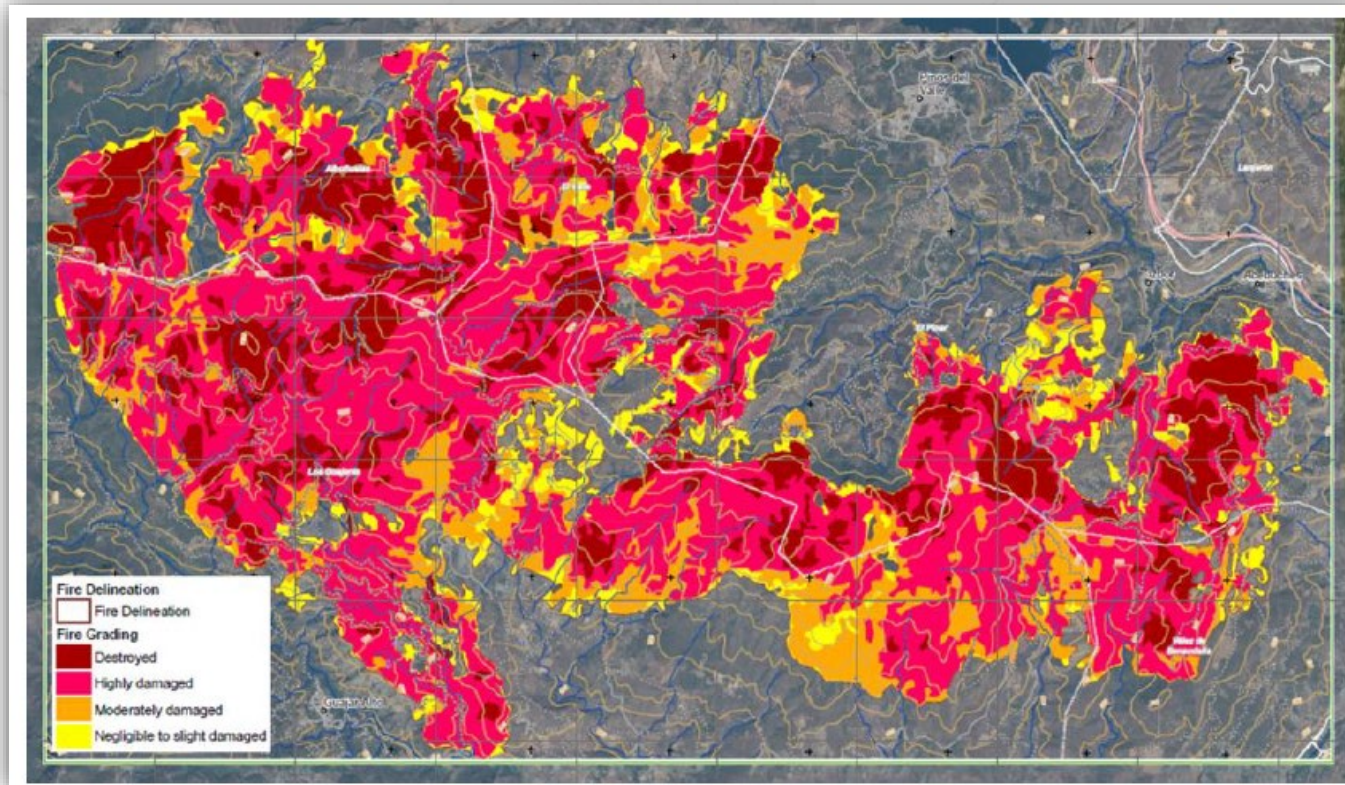
# MAIN PURPOSE: Risk and Recovery



## P1 – Fire delineation and grading

Fire delineation and grading provides a detailed analysis of the **extent and severity** of a fire event within a specific Area of Interest (AOI).

Consequences within the AOI						
Unit of measurement		Destroyed	Highly damaged	Moderately damaged	Negligible to slight damaged	Total affected
Burned area	ha	1,044.3	2,759.8	731.1	606.2	5,141.3



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# MAIN PURPOSE: Risk and Recovery



## P2 – Impact assessment on land cover, population, and assets

The P2 impact assessment product provides a detailed evaluation of the impact of the wildfire effects on **land cover, population, and assets**.

	Unit of measurement	Destroyed	Highly damaged	Moderately damaged	Negligible to slight damage	Total affected	Total in AOI	
Burned Area	ha	1,044.29	2,759.76	731.07	606.16	5,141.29		
Population	No.	8	44	14	43	108	2,454	
Built-up	Non-residential buildings	No.	0	11	5	25	41	593
	Residential buildings	No.	0	1	3	3	7	1,628
Transportation	Highway	km	0.00	0.00	0.00	0.00	0.00	10.55
	Primary road	km	0.00	0.00	0.00	0.00	0.00	4.33
	Secondary road	km	0.00	0.00	0.00	0.00	0.00	3.32
	Local road	km	0.40	2.72	0.61	0.93	4.67	62.17
	Cart track	km	9.90	47.50	11.63	17.97	87.01	252.90
	Trail	km	0.30	0.54	0.25	0.82	1.91	5.80
	Bridge and elevated highway	No.	0	1	0	0	1	23
	Tunnel	No.	0	0	0	0	0	2
Facilities	Solar Panel	ha	0.00	0.00	0.01	0.01	0.02	2.50
	Dams	ha	0.00	0.00	0.00	0.00	0.00	0.59
	Constructions for mining or extraction	ha	0.00	0.00	0.00	0.00	0.00	6.33
	Sport and recreation constructions	ha	0.00	0.00	0.00	0.00	0.00	0.73
	Canals	km	0.00	0.00	0.00	0.00	0.00	4.23
	Dams	km	0.00	0.00	0.00	0.00	0.00	0.04
Protected areas	Long-distance pipelines and lines	km	0.00	0.00	0.00	0.00	0.00	27.87
	IBA	ha	534.57	694.33	2,647.93	976.96	4,495.39	9,349.18
Land use and land cover	PEPMF	ha	442.48	600.91	2,316.17	890.19	2,409.89	6,659.65
	Artificial surfaces	ha	13.51	66.41	17.61	17.61	115.14	456.20
	Agricultural areas	ha	50.19	276.96	141.97	245.94	715.06	3,299.92
	Forests and semi-natural areas	ha	979.42	2,413.42	571.38	342.19	4,306.41	6,829.31
	Water bodies	ha	0.00	0.00	0.00	0.00	0.00	50.94

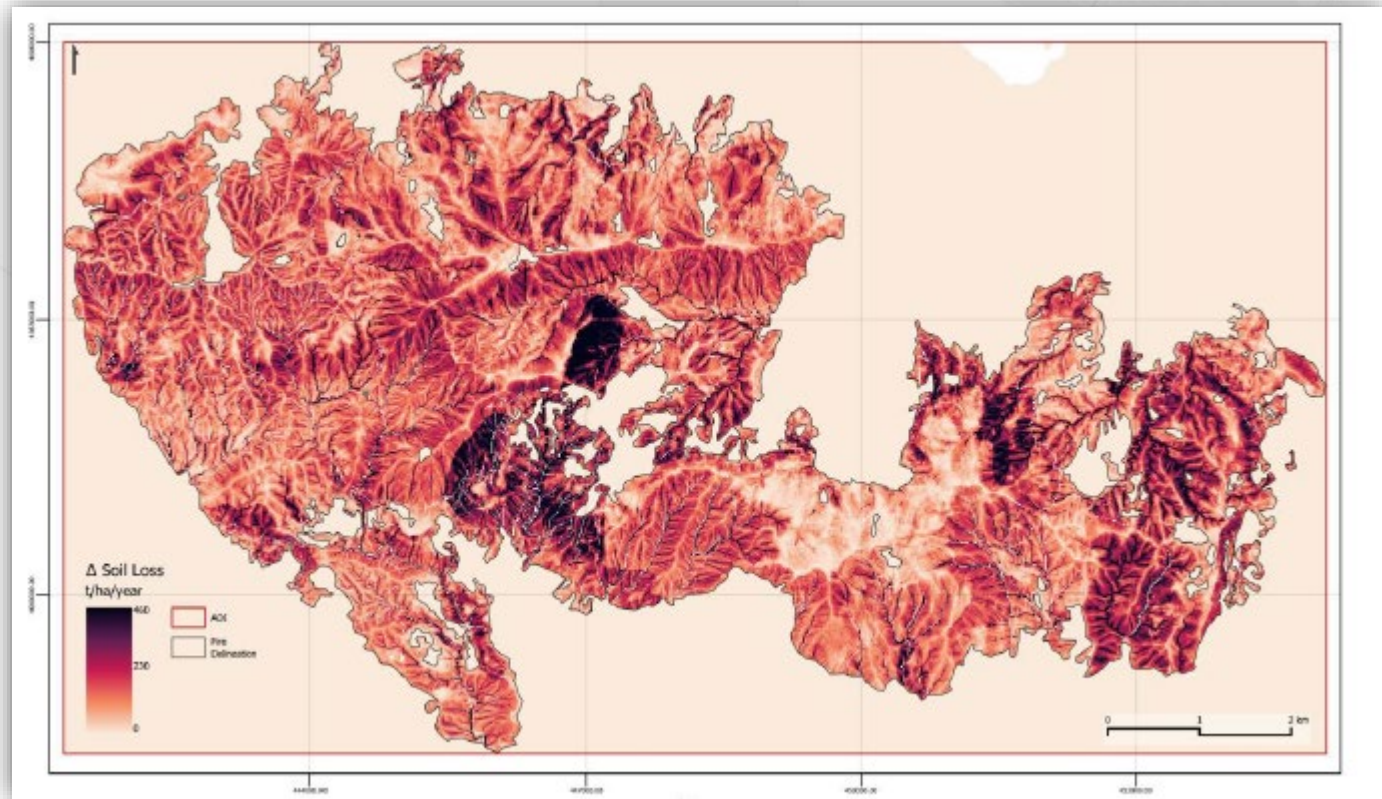




# MAIN PURPOSE: Risk and Recovery



## P3 – Soil Erosion risk assessment Useful in order to evaluate the SOIL EROSION effects



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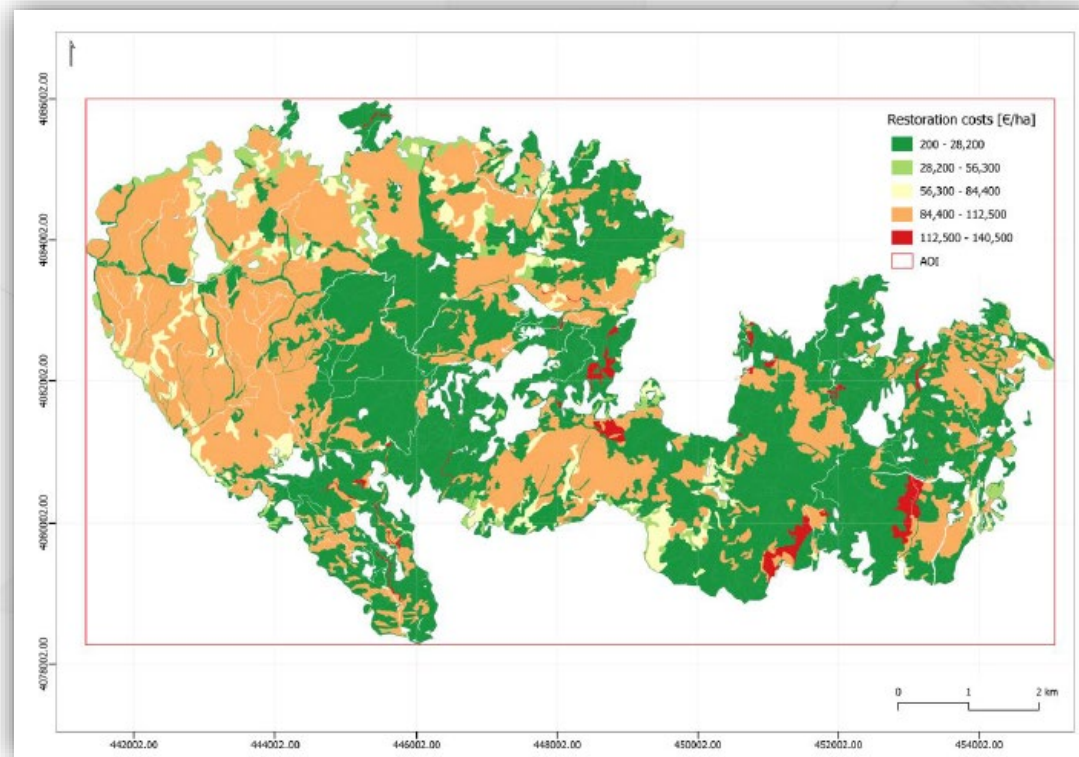
# MAIN PURPOSE: Risk and Recovery



## P4 – Economic loss assessment

### Direct costs

For the calculation of direct economic loss, the methodology provided by JRC was followed, in which the direct economic loss is a factor of the average price for melioration of natural environments, the reconstruction period, the severity of fire, and the time-value of money.



Helps to establish the CIVIL RESPONSIBILITY

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## P4 – Economic loss assessment

### Indirect costs

The estimation of indirect costs is based on the nomenclature proposed by the Common International Classification of Ecosystem Services (CICES). A set of ecosystem services in fire-affected areas were identified and mapped onto the fire-affected area

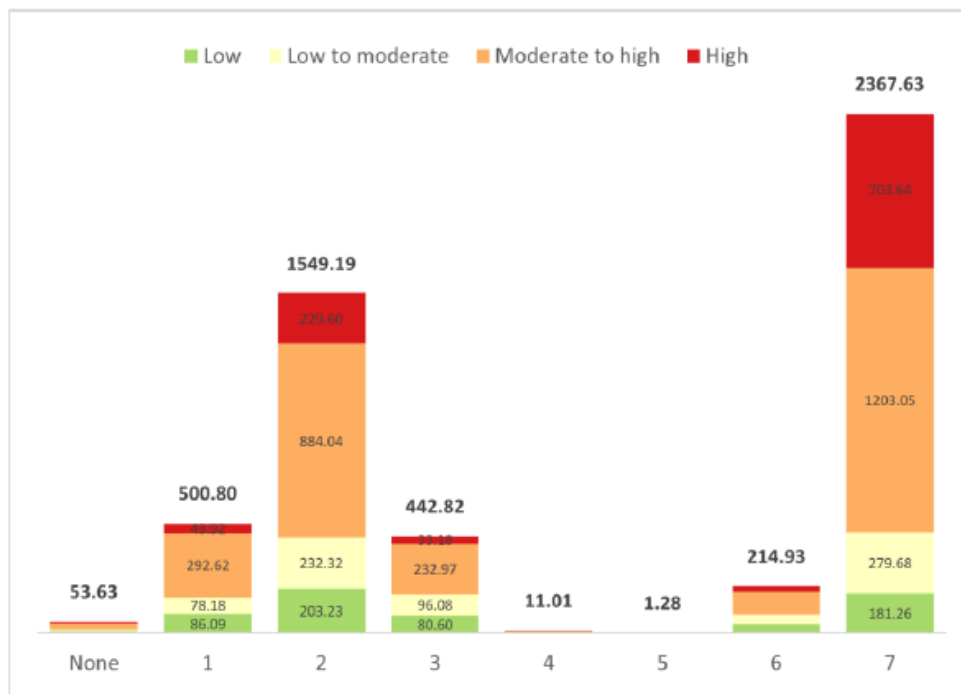


Figure 14: Area [ha] affected by fire, categorised by fire severity (low to high) and sum of ecosystem services provided. Total affected area [ha] per number of services in bold at top of the bars

Helps to establish the **CIVIL RESPONSIBILITY**





# MAIN PURPOSE: Rappid mapping



## [EMSR538] Avila: FEP Product, version 1, release 1, RTP Map #01



Published: 2021-08-16 18:57 (UTC)

Product version: v1

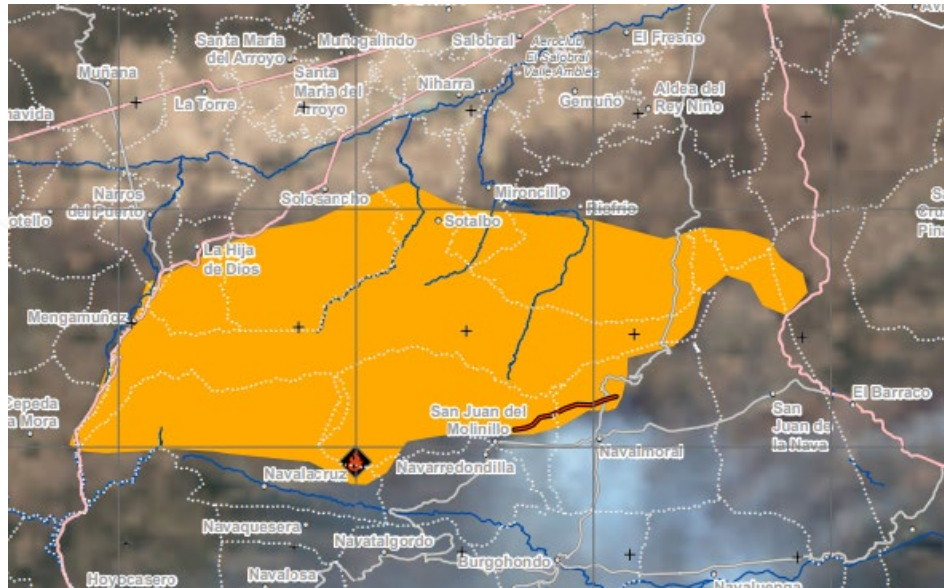
Downloadable items

PDF: 200 DPI

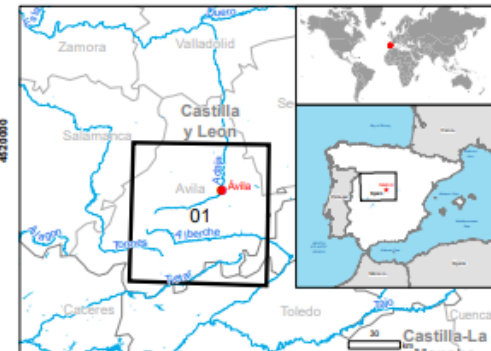
JPEG: 200 DPI

Vector package: ZIP

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### First Estimate Product



### Legend

Crisis Information	Administrative boundaries	Transportation
Active Flames	Region	Highway
Fire Fronts	Province	Primary Road
Burnt Area	Municipality	Secondary Road
Area of Interest	Placename	Long-distance railway
Image Footprint	Hydrography	Airfield runway
		Helipad

## First Estimate Product (FEP)

Useful to quickly know the scope of the event in case we need to request preventive measures from the judicial authority

### Map Information

On 14/08/2021, a major forest fire started close to a road located in Cepeda de La Mora (Avila). This fire mainly affects the municipality of Robledillo, Villaviciosa, Riofrío, Sotalbo and Solosancho in Castilla y León. Due to the adverse weather conditions, the fire could be active for several days and affect more areas. Copernicus EMS Rapid Mapping is requested to provide First Estimate Product, Delineation and Grading products.

The present map shows the First Estimate Product in the area of Avila (Spain). The thematic layer has been derived from post-event satellite image by means of visual interpretation. The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 600m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 810000sq m.





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Using a scientific methodology, the judicial authority is informed about:

- Affected area
- Degree of destruction
- Impact on assets and populations
- Economical quantification



ESSENTIAL ELEMENTS TO DEFINE THE SENTENCE





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Thank you for  
your attention



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