

## EMS Activation Fact Sheet

### *EMSN-041: Forest fire risks assessment in Croatia*

#### Main information

<b>Activation number:</b>	EMSN-041
<b>Activation title</b>	Forest fire risks assessment in Croatia
<b>Country</b>	27 AOIs; Croatia
<b>Start Date:</b>	contract signature;05.09.2017
<b>End Date:</b>	10.10.2017
<b>Service Provider :</b>	GEOAPIKONISIS S.A.P.GE. Dora Aifantopoulou 11, Maindroupoleos str., 11524 Athens, Greece mail(at)geoapikonisis.gr
<b>Keywords:</b>	Forest Fire, Vulnerability, Exposure, Risk, Pre-disaster
<b>Users</b>	National Protection and Rescue Directorate
<b>Total area (km<sup>2</sup>)</b>	4225
<b>Scale</b>	Detail/GIS data:1:10000 Overview: 1:50000

## Summary

The purpose of the requested mapping is to generate comprehensive knowledge through performing pre-disaster situation analysis concerning forest fire risk at specified coastal areas in Croatia.

The results refer to risk assessment products; exposure, vulnerability and risk mapping. The analysis identified population and assets (points of interests at risk: infrastructural and environmental). The risk assessment was based on hazard exposure and vulnerability of assets (POIs), road network characteristics, etc. Estimated risk severity level was set in the context of establishing the necessary first response/ first aid infrastructure.

Towards adequate disaster preparedness, efficient support and informed decision making (mitigation & recovery planning/ prioritization) the content of the products information also refers to suggestions (top level) of risk/infrastructure - specific mitigation measures.

The historical analysis of fire events shows that the coastal and eastern parts of Croatia suffer, mostly, from wildfire events with the most intense fires occurring along the Dalmatian coastline and islands during summer months. These fires along the Adriatic coast are most common in summer triggered by drought, hot and windy weather. They can have severe impacts on Croatia's tourist industry as they cut off main roads, power supplies and threat citizen's properties and lives. The number and intensity of the fires seems to follow the natural variability and there is no evidence of an increasing or decreasing trend during the period 2001-2016.

## List of contracted products

Product 1	FIRE HAZARD & ASSETS & POPULATION EXPOSURE
Product 2	ASSETS (POIs) & POPULATION VULNERABILITY
Product 3	TRANSPORT NETWORK (TN) VULNERABILITY TO DISRUPTION; roads capacity & population
Product 4	POPULATION, ASSETS (POIs) & TN AT RISK; POIs, Transport Network, Risk level, mitigation, first response
Product 5	REFERENCE MAPPING; Topographic elements , Settlements, transport network, POIs, etc
Product 6	LAND USE/ COVER MAPPING; Land Use/ Cover

## Product descriptive summary

Product 1	The assessment of forest fires hazard is based on geomorphological characteristics (elevation, orientation and slope gradient), climatological properties, vegetation cover susceptibility to fire, as well as the spatial distribution of historical fire events. Forest fire hazard index overlaid to assets. Exposed elements (population, assets, LU/LC classes, transportation segments) at various hazard levels presented in tabular format. As a general conclusion, it is indicated that the forest fire hazard increases from north to south. <u>Assets</u> : OSM and Data Capture from the VHR satellite images (2016, 2017).
Product 2	Vulnerability of Assets (POIs) and population. Vulnerability of biomass fuel types. Vulnerability assessment of the exposed elements was based on specific criteria. Different approaches have been deployed to assess fire vulnerability in urban and non-urban areas. Population and assets (bridges, dams, ropeways, gas, oil, electricity infrastructure & schools, etc.) at various vulnerability levels presented in tabular format. <u>Population</u> : Grid basis (100m) level population data (National Protection and Rescue Directorate).
Product 3	Vulnerability of disruption was based on Road capacity inferred by the respective taxonomy (highway, primary, secondary, etc.), Proximity to population places and Population (residents) <u>Transport Network</u> : OSM data and Data Capture from the VHR satellite images (2016, 2017) <u>Road Network capacity</u> : On the basis of the hierarchy and accounting for the guidelines of the <a href="#">Highway Capacity Manual</a> . A 500 m buffer was used around each road segment to retrieve the nearby population density
Product 4	Population, assets (POIs) & transport network (TN) at risk. Risk assessment was based on the combination of forest fire hazard and vulnerability of the exposed elements. Forest fire risk estimation depends on the type of biomass fuel and the proximity of population and assets to the most hazardous areas in terms of forest fire activity. Transport network risk is estimated as the combined effect of hazard and vulnerability to disruption Population, assets and transportation network at risk. Population, POIs, LU/LC elements and transportation segments at various risk levels presented in tabular format.
Product 5	OSM Data Integration and Data Capture from the VHR satellite images (2016, 2017); Digitization of buildings footprints (large structures/ POIs), road network digitization and harmonization, buildings information enrichment (use: education, governmental facilities, hospitals, etc) through visual inspection of Geo-portals, etc. Topography layer (DEM with 5m horizontal resolution): Adequately processed data provided by the National Protection and Rescue Directorate).
Product 6	OSM Data Integration and Data Capture from the VHR satellite images (2016, 2017); Delineation and assignment of LULC category on the basis of the optical data and through accounting for the CLC2012 information.

**Last updated**

Last updated: 09/10/2017