ACTIONABLE GEOINFORMATION ON BURNT AREAS

Rheticus® Wildfires provided the Alta Murgia National Park with weekly actionable information on wildfires, overcoming the lack of data for post-fire assessments.

The challenge

2017 will be remembered as another year of significant wildfire activity across Italy, especially within national parks and protected areas. Wildfires represent a major threat to environmental resources, with hundreds of thousands of hectares of burnt areas and invaluable loss of woods and biodiversity every year. Over the 2017 summer season, the Alta Murgia National Park (Apulia Region, Southern Italy) faced the lack of actionable information on wildfires for post-fire assessments.

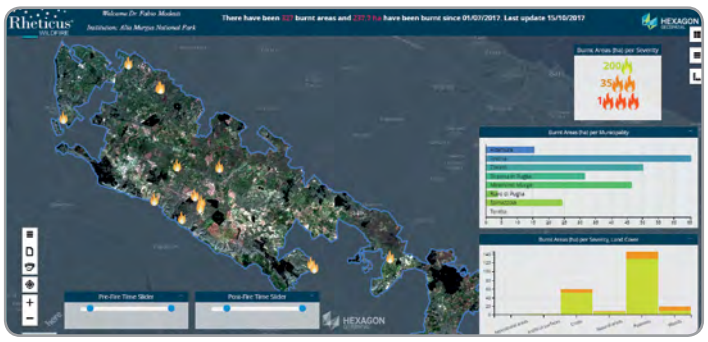
According to the Italian law on wildfires (L. n. 353/2000), the Forest Police are in charge of in situ detection of burnt scars whilst municipalities are in charge of keeping burnt area database up-to-date. Those activities require great effort in terms of money and time. Moreover, it is difficult to perform accurate field surveys over inaccessible areas. As a result, stakeholders such as national parks, protected areas and natural reserves entities quite often face the lack of actionable information for fire management and recovery planning, which are essential aspects also at European level (e.g. Council Regulation (EEC) No. 2158/92 and further modifications). Relevant satellite data are now freely available with high temporal and spatial resolutions, thus benefits of using Earth Observation are significant especially for post-fire assessments, as EO by Remote Sensing enables automatic and continual monitoring, regardless of the dimension and morphology of the area of interest. Rheticus® Wildfires is where the Alta Murgia National Park satisfied its needs.

The space based solution

In order to better monitor burnt areas after fire events, the Park activated Rheticus® Wildfires service in July 2017.

Rheticus® Wildfires by Planetek Italia is a high-performing and cloud-based geo-information service for post-fire monitoring. It provides the end-user with key information retrieved from Sentinel-2 imagery together with other open data sources through extensively tested models and algorithms. Every time new Sentinel-2 data is available over the area of interest, the service automatically downloads the image, performs some processing and generates thematic maps, dynamic geo-analytics and pre-set reports.

Thanks to the high revisit time of Sentinel-2 over the same area (up to 5-6 days) and the high spectral and spatial resolutions of those data, Rheticus® Wildfires provided the Alta Murgia National Park with burnt area detection, and fire severity classification on a weekly basis, vegetation regrowth monitoring (1/year) and detection of potential illegal infrastructure activities within past-burnt areas (4 times/year). Moreover, it helped to prioritise response teams. Data were available via the Rheticus® geo-portal www.rheticus.eu and through pre-set reports.



Rheticus® Wildfires User Interface for the Alta Murgia National Park.

All in all, Rheticus® Wildfires was where the Alta Murgia National Park obtained the required information from to develop and support its management strategies and recovery planning, fulfil its reporting duties and management strategies and overcome the lack of actionable information. Benefits to Citizens.

Thematic Area: BIODIVERSITY AND ENVIRONMENTAL PROTECTION

Region of Application: APULIA

Sentinel mission used: S2

Copernicus Service used: –

Usage Maturity Level: 5

Rheticus® Wildfires simplifies burnt areas detection and contouring from various open data sources into an interactive and comprehensive dashboard, to achieve insightful and purpose-built contents from many different perspectives. Public authorities gain immediate and reliable geo-information, including weekly and summary information over wide areas, based on continual Sentinel-2 monitoring, overcoming the difficulties and costs of field measurement campaigns. Rheticus® Wildfires generates reports, thematic maps and geo-analytics based on Sentinel-2 data, meeting local to national content requirements in the field of burnt area detection and illegal building prevention. It also helps to prioritise response teams. Furthermore, better management of precious vegetation resources is well worth the ecological advantages it gives to the environment and citizens.

Wildfires automatically retrieved from Sentinel-2 data acquired on 14/07/2017 over the Alta Murgia National Park.
Credit: Contains modified Copernicus Sentinel data [2017]

> "Rheticus® Wildfires has helped us to oversee and report fire activity, support our fire management and recovery planning through actionable knowledge on burnt areas."
>
> ***Fabio Modesti, Alta Murgia National Park***

Outlook to the future

The Copernicus Sentinels will ensure continuity of the service. This case history is expected to serve as a good example for the further promotion of the service at European and global scale. The integration of Sentinel-3 data will also be explored for further improvements.

Antonello Aiello [1], Vincenzo Barbieri [1], Fabio Modesti [2] and Chiara Mattia [2]
1. Planetek Italia, Italy
2. Parco Nazionale dell'Alta Murgia, Italy
Email: aiello@planetek.it, barbieri@planetek.it
fabiomodesti@parcoaltamurgia.it
chiaramattia@parcoaltamurgia.it

ABOUT COPERNICUS4REGIONS

This Copernicus User Story is extracted from the publication "**The Ever Growing use of Copernicus across Europe's Regions: a selection of 99 user stories by local and regional authorities**", 2018, Edited by NEREUS, the European Space Agency and the European Commission.
The model cases focus on local and regional authorities who successfully applied Copernicus data in 8 major public policy domains.

Funded by the European Union, in collaboration with NEREUS. Paging, printing and distribution funded by the European Space Agency.