NATIONAL OBSERVATORY OF ATHENS

INSTITUTE FOR ASTRONOMY AND ASTROPHYSICS SPACE APPLICATIONS AND REMOTE SENSING

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PRESS RELEASE

Dynamic Fire Monitoring and Daily Fire Mapping over Greece - Use of Medium to High Resolution Satellite Images acquired in the EO Center of Excellence BEYOND for Natural Disasters Monitoring IAASARS / NOA

The EO Centre of Excellence BEYOND for the monitoring of Natural Disaster which is hosted by the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS) of the National Observatory of Athens (NOA), continues playing its societal role by deriving, supporting and distributing on a daily basis maps depicting the extent and the level of physical damages caused from every fire incident occurring over Greece during the fire season. The rapid mapping service of burned areas is based on satellite images of medium resolution which are collected on a 24/7 basis at the satellite stations owned and operated by the Centre (e.g. MODIS, NPP-VIIRS, NOAA/AVHRR, FY), as well as based on high resolution Sentinels II data. The latter are being collected in near real time at the Hellenic Mirror Site, under the collaboration agreement signed between NOA and the European Space Agency (ESA). The daily damages of land use/ land cover types are assessed several times a day at the medium resolution of 500-750 m, while every ten days a more detailed assessment at the much high resolution of 10m is provided. This information is delivered in real-time to the Fire Brigades Authority of Greece, and also the Local Authorities, that undertake the challenging task to immediately address and react to the crisis but also after the disaster for landscape recovery, compensation and

mitigation purposes. To be noted that for specific cases of big disastrous fire events the BEYOND Center is offering its services through a specific framework contract and in collaboration with selected European partners, to the Copernicus EMS European Union Space Program for assessing the flood, landslide, and soil erosion risk in the affected by the fire areas.

The following table presents four characteristic cases of fires of this summer (2017). It provides the daily assessment of the fire extent (in ha) and the type of damage, the latter expressed as the percentage of the affected land use/land cover types. One of the most disastrous events that took place this summer so far (8/8/2017), has been the fire in Kithira Island. The first (medium resolution) assessment based on NPP-VIIRS data of the fire extent is of the order of 2340 Ha. In a few days with the first descending passage of Sentinel II, a much more detailed and higher accuracy assessment will be provided to the Local Authorities at the spatial resolution of 10 meters.

Location	Date of Event	Burned Area (ha)	Percentage of Land Use/Land Cover Types Affected	Fig
Kotrona, Parasyro / East Mani	1/7/2017	**1850**	Shrub and/or herbaceous vegetation association: 63% Heterogeneous agricultural areas: 22% Permanent crops: 15%	1
Kalyvia Thorikou / Markopoulo Attiki	31/7/2017	**331,2**	Shrub and/or herbaceous vegetation association: 85% Heterogeneous agricultural areas: 15%	2
Spetses Island	1/8/2017	**72,2**	Shrub and/or herbaceous vegetation association: 94% Heterogeneous agricultural areas: 6%	3
Kithira Island	4/8/2017	**2340**	Shrub and/or herbaceous vegetation association: 47% Heterogeneous agricultural areas: 26% Open spaces with little or no vegetation: 20% Arable land: 7%	4

The services of **a) rapid daily fire mapping of burned areas,** together with the **b) real time fire monitoring every 5 minutes (http://195.251.203.238/seviri/)**, and the **c) high resolution detailed mapping of diachronic fires that have occurred over Greece during the last thirty years (http://ocean.space.noa.gr/diachronic_bsm/)** constitute the three pillars of the well-recognized and validated FIREHUB (http://ocean.space.noa.gr/FireHub) service of BEYOND which has received the first prize as **Best Service Challenge in the Copernicus Masters competition (2014).**

More information can be found at www.beyond-eocenter.eu.

Burn Scar Mapping Kotrona & Parasyro (1/7/2017)

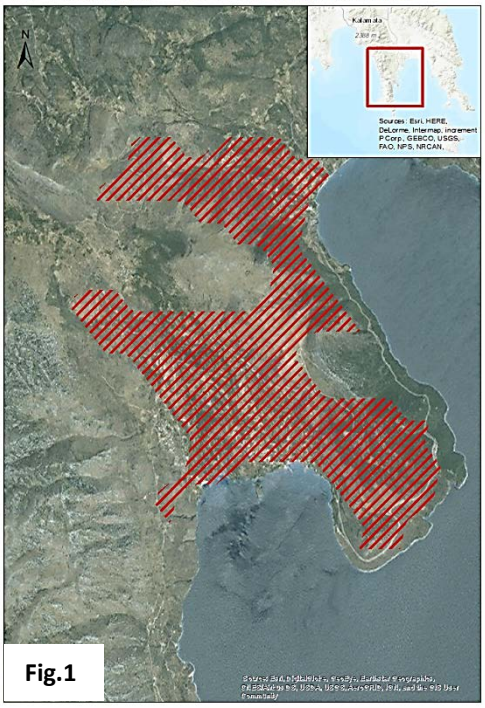


Fig.1

Burn Scar Mapping Kalyvia Thorikou (31/7/2017)

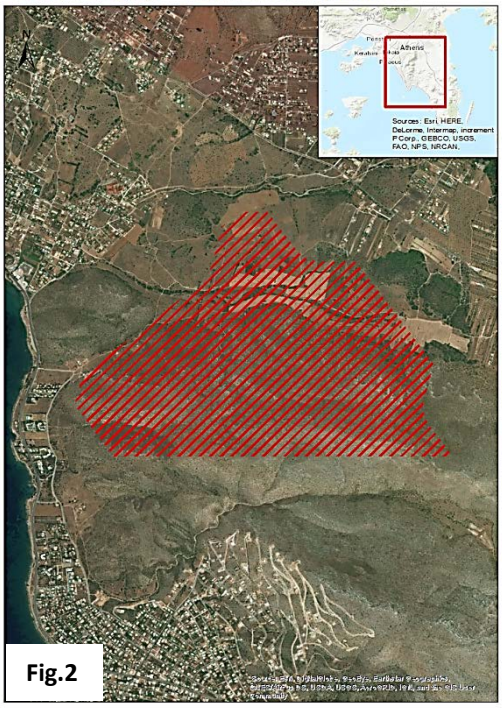


Fig.2

Burn Scar Mapping Spetses Island (1/8/2017)

Fig.3

Burn Scar Mapping Kithira (4/8/2017)

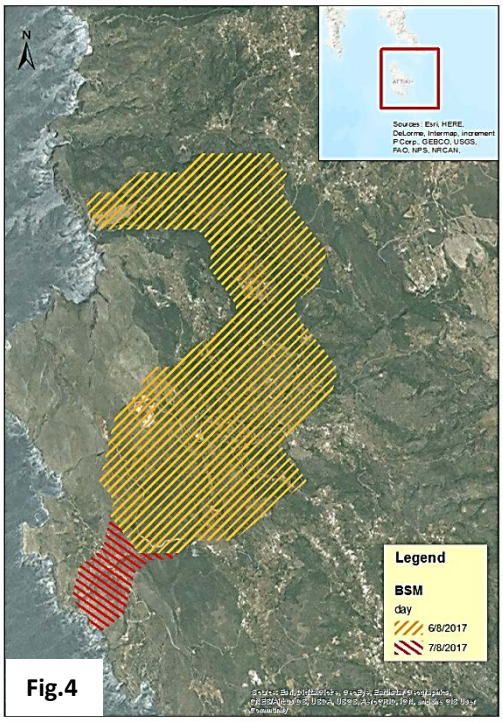
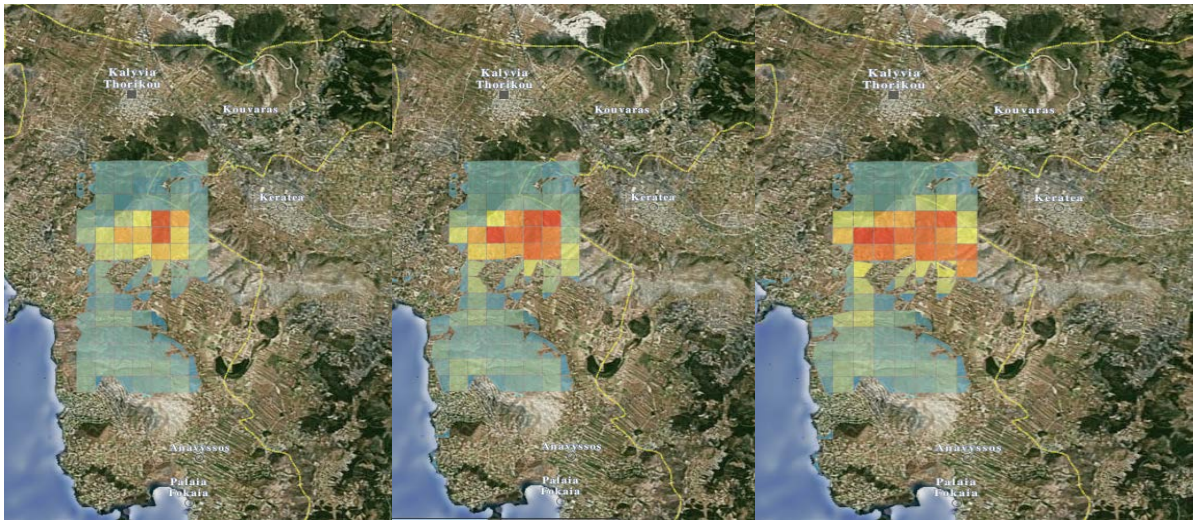


Fig.4

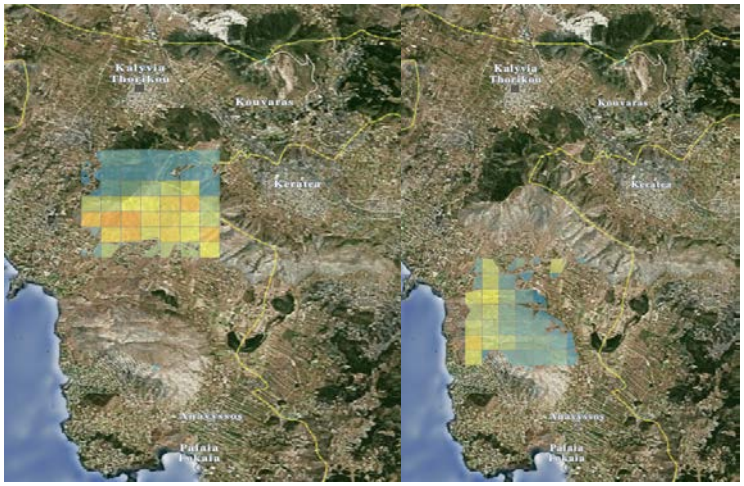
As with every fire event, the disastrous fire that occurred in Kalyvia Thorikou, Markopoulo-Attica, at 16:25 p.m. on July 31st, 2017, a fire that attracted much attention since it was located near to densely populated areas, was detected by the **FireHub monitoring** system (http://195.251.203.238/seviri/) in **real time**, within the first 10 minutes after the fire ignition time, using METEOSAT -MSG SEVIRI satellite

data in conjunction with MODIS, and NPP VIIRS satellite data. The information and associated imagery was being delivered in real time to the Operations Control Room of the Hellenic Fire Brigade Authorities.

Selected timestamps of fire spread every 5 minutes – Kalyvia Thorikoy Αττικής



Fire spread at 16:40 p.m At 17:15 p.m At 18:00 p.m.



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At 18:40 p.m At 20:10 p.m.