



CLIMATE DETECTIVES 2021 – 2022



Drosoulites
Drosia

RESEARCH QUESTION

How to evaluate and minimize the effects on the local environment and assets from a forest fire event, utilizing in situ resources, such as swimming pools?

SUMMARY OF PROJECT

The proximity of the densely built fabric of Drosia to forest and scrubland open areas creates the potential for uncontrollable fire events, that can propagate rapidly through the green volumes indispersed in the neighborhoods, causing great harm to life and property. Due to the extreme and lengthy summer heat loads experienced in the area last summer, caused by the global climate change, a devastating fire event swept through and greatly endangered the very existence of the suburb. As a result, procedures and technological tools are utilized to assess relevant enviromental health parameters and practical ways to mobilize mitigation actions to safeguard more efficiently the natural and built environments.

MAIN RESULTS

Environmental impacts of the forest fire in Drosia:

1. Moisture level is dropped in the burnt area.
2. Increase in CO concentration because of the fire.
3. The temperature of the burnt area is a couple of degrees higher, comparing to the corresponding temperature of the forest right next to it.

Methods and Materials: Sentinel 2 L2A- Moisture Index, Landsat 8 L1- Thermal, Sentinel 5 CO

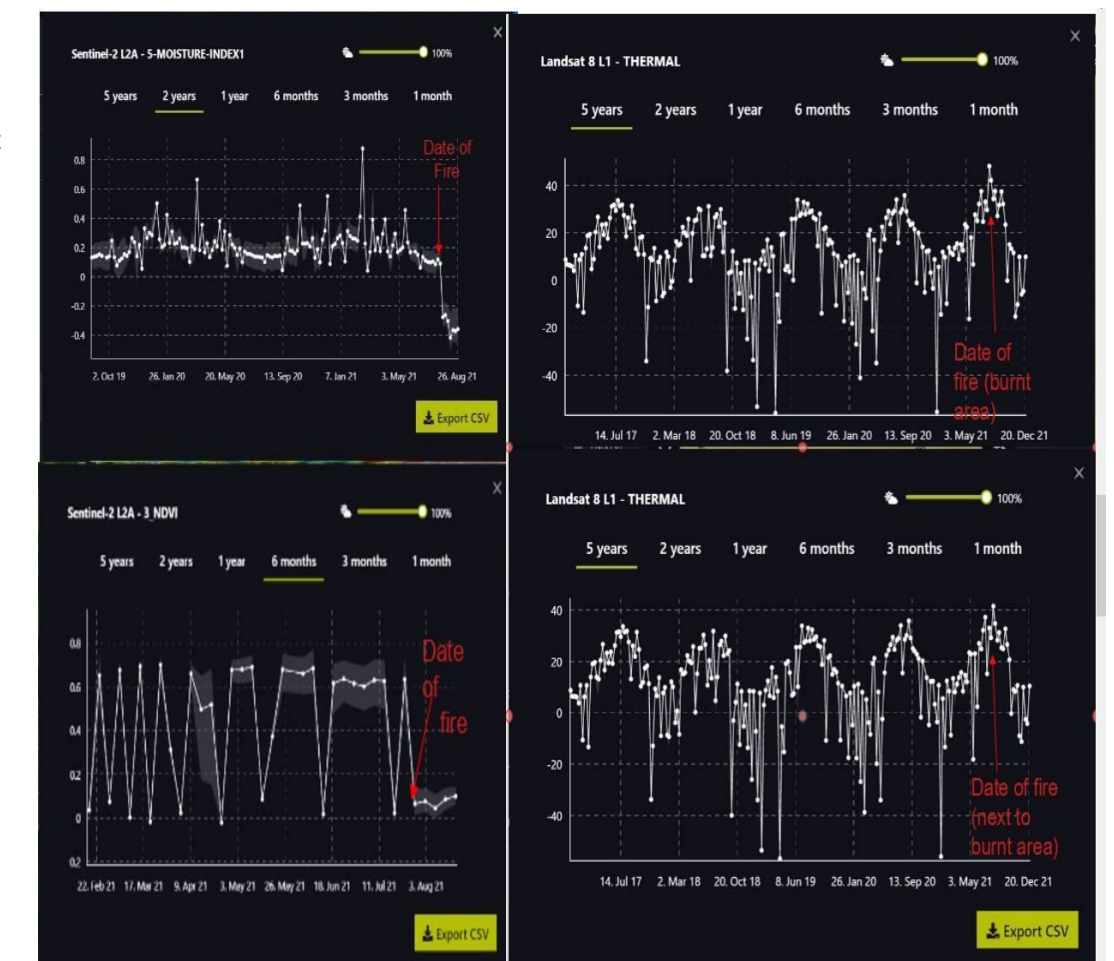


Figure 2: Enviromental effects of the fire near Drosia

ACTIONS TO HELP LESSEN TO THE PROBLEM



Figure 1: 27/07/2001 fire event near Drosia

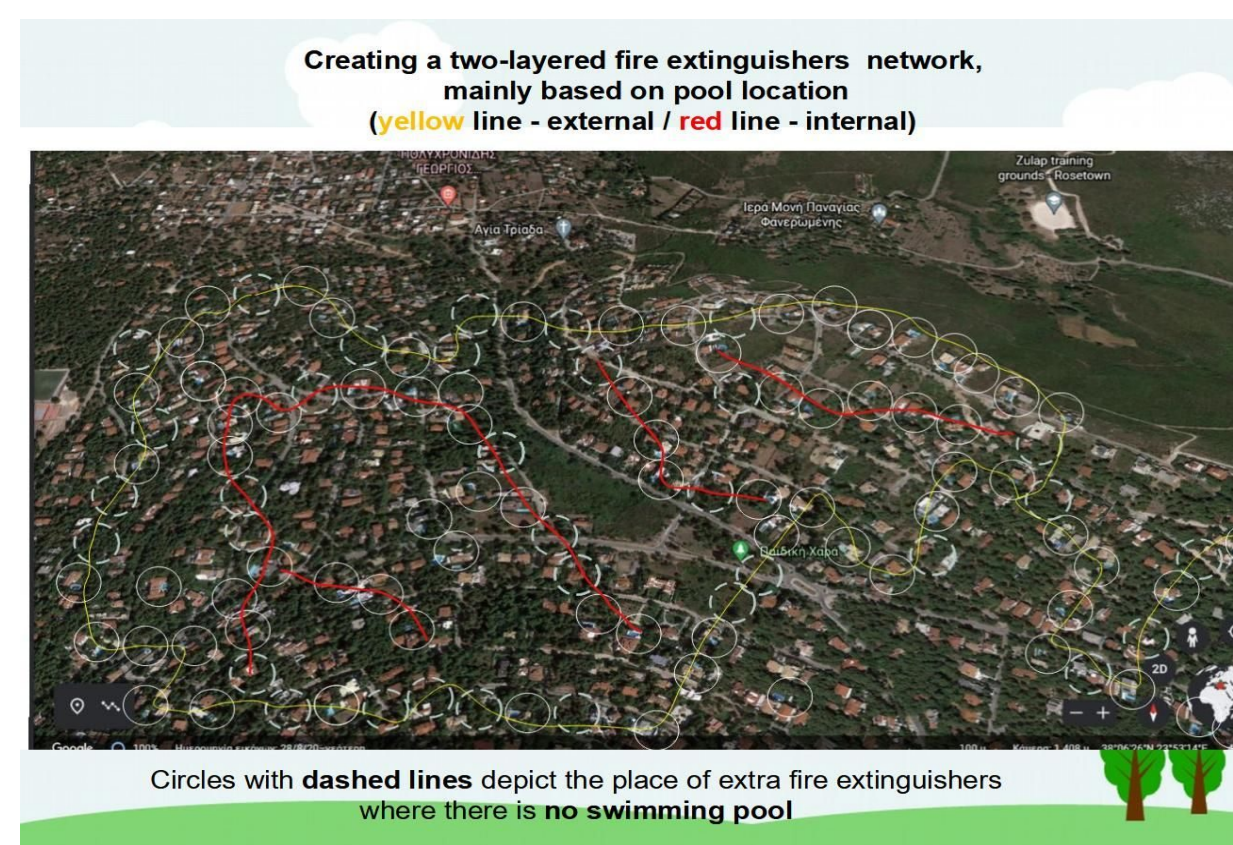


Figure 3: Network of fire extinguishers mainly based on pool location

- Most of the enviromental impacts of Drosia forest fire will be gradually reduced, because of natural forest regeneration.
- Tree planting.
- Measures must be taken to minimize the effects of similar fire events in the future.
- The main idea is to use the water of the swimming pools located in the area, for fire extinguishing.
- When renewing the water in the swimming pools, for maintenance and clean up purposes, the recycled swimming pool water quantities will be sent to tanks to be used by the fire extinguishers network, or even to refill fire brigade vehicles.
- The fire extinguishers network is coupled with a sensor system that scans the area continuously and pinpoints within minutes the location of the fire.
- Each fire extinguisher will throw water in a radius of approximately 50 m.
- The location of this fire extinguishers network makes it a shield to safeguard the virgin forest of Penteli mountain, which is nearby.
- Natural Water Reservoirs could be reformed to collect rain water to refill Fire Brigade helicopters and vehicles.
- Alternatively, these reservoirs could be connected to the fire extinguishers network to enforce its water supply