

**EUROGEO
WORKSHOP 2021**

20-23 SEPTEMBER 2021

#EGW2021

EuroGEO Disaster Resilience Action Group: The operational FloodHub solution supporting civil protection in flood early warning and monitoring



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CHALLENGE: Flood was the most frequent type of disaster and the only one increasingly deadly in 2020

Figure 2

Occurrence by disaster type: 2020 compared to 2000-2019 annual average

368 2000 to 2019 < 389 in 2020

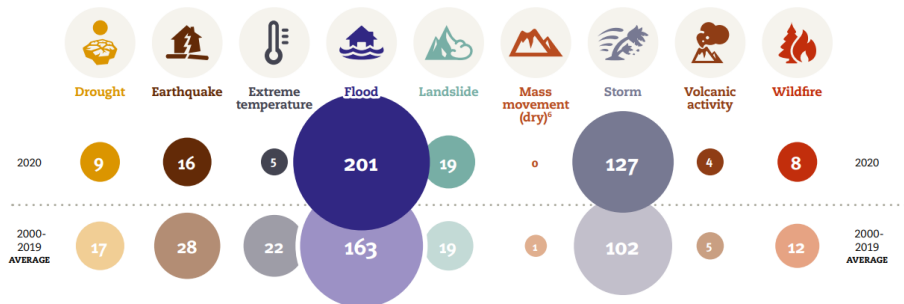
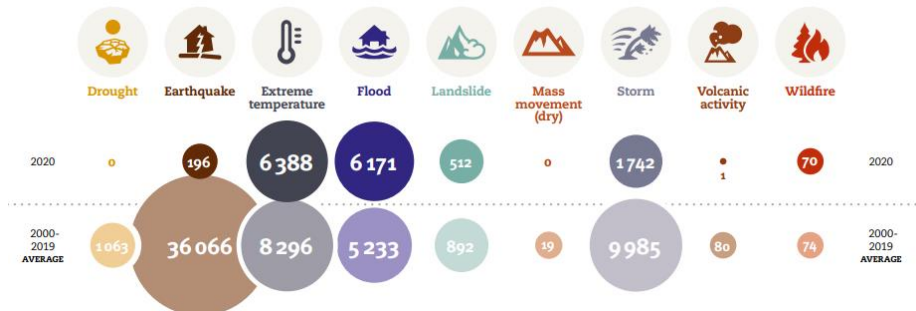


Figure 4

Number of deaths by disaster type: 2020 compared to 2000-2019 annual average

61,709 2000 to 2019 > 15,080 in 2020



Flood in Mandra, Greece, 2017:

This extreme flash flood event affected the urban and suburban area of Mandra with landslides, extensive million-euro damages to property and infrastructure and 24 recorded fatalities rendering it the deadliest flood in Greece in the last 40 years.



SOLUTION: Floods Monitoring & Early Warning Architecture of the FloodHUB system

An integrated near-real-time flood monitoring system:

- based on modeling, multi-source EO and crowdsourced data
- with a fully scalable and transferable modular architecture
- delivering a reliable operational awareness picture of the crisis every 5-15 minutes to all the relevant authorities




Near-real-time ingestion and assimilation of:

- hydrometeorological parameters measured at 3 in-situ telemetric stations (installed at 3 critical locations)
- satellite data (e.g. from high resolution Sentinels collected from the Hellenic Mirror Site)
- crowdsourced data (collected via the dedicated crowdsourcing platform).





FloodHub: Web platform of the 3 telemetric hydrometeorological stations




Today is: 11/05/20, 16:22

MAIN NAVIGATION

- Home
- Data
- Notifications
- Files
- Users
- Settings

Sign out in: 59:21 [Refresh](#)



Home / View Data


N Πέριου

Άγιος Αθανάσιος

Μάνδρα-Εκτροπή

Μάνδρα-Κόμβος

ΑΓΙΟΣ ΑΘΑΝΑΣΙΟΣ



Perfecture: ΑΤΤΙΚΗΣ
City: Μάνδρα
Territory: Μάνδρα
Installation Time: 07/24/20

[Live Photos](#)

SELECTION FILTERS FOR DATA VIEW

Date Interval: Choose Interval ▼ Date From * Time from 00:00 Date To * Time to 23:59

Sensors *

average surface velocity	Water level	Discharge	Barometric Pressure
Air temp	Relative humidity	Ηλιακή ακτινοβολία	Wind direction
Wind speed	Rainfall	Battery supply	

☐ Single Y Axis

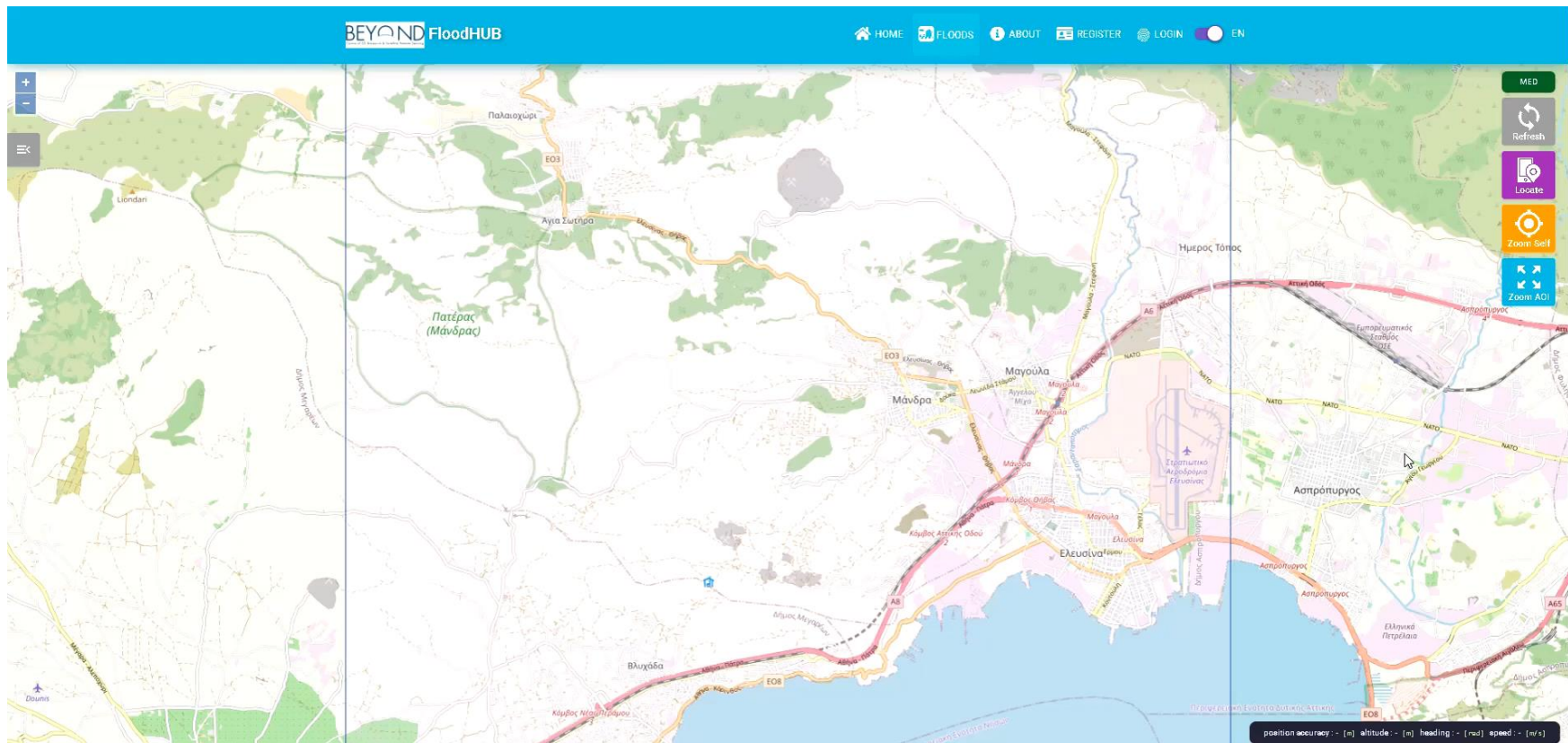
Compare to sensors of other stations:
Select one or more stations to compare

View per: [Total](#) [Minutes](#) [Hour](#) [Day](#) [Week](#) [Month](#) [Year](#) [Chart](#) ▼

The BEYOND Center of Excellence can now provide **to the relevant operational bodies (e.g. civil protection and local authorities)** every **5-15 minutes** measurements for **10 parameters**: rainfall, water level, discharge, average surface water velocity, wind direction, wind speed, air temperature, barometric pressure, relative humidity and solar radiation.

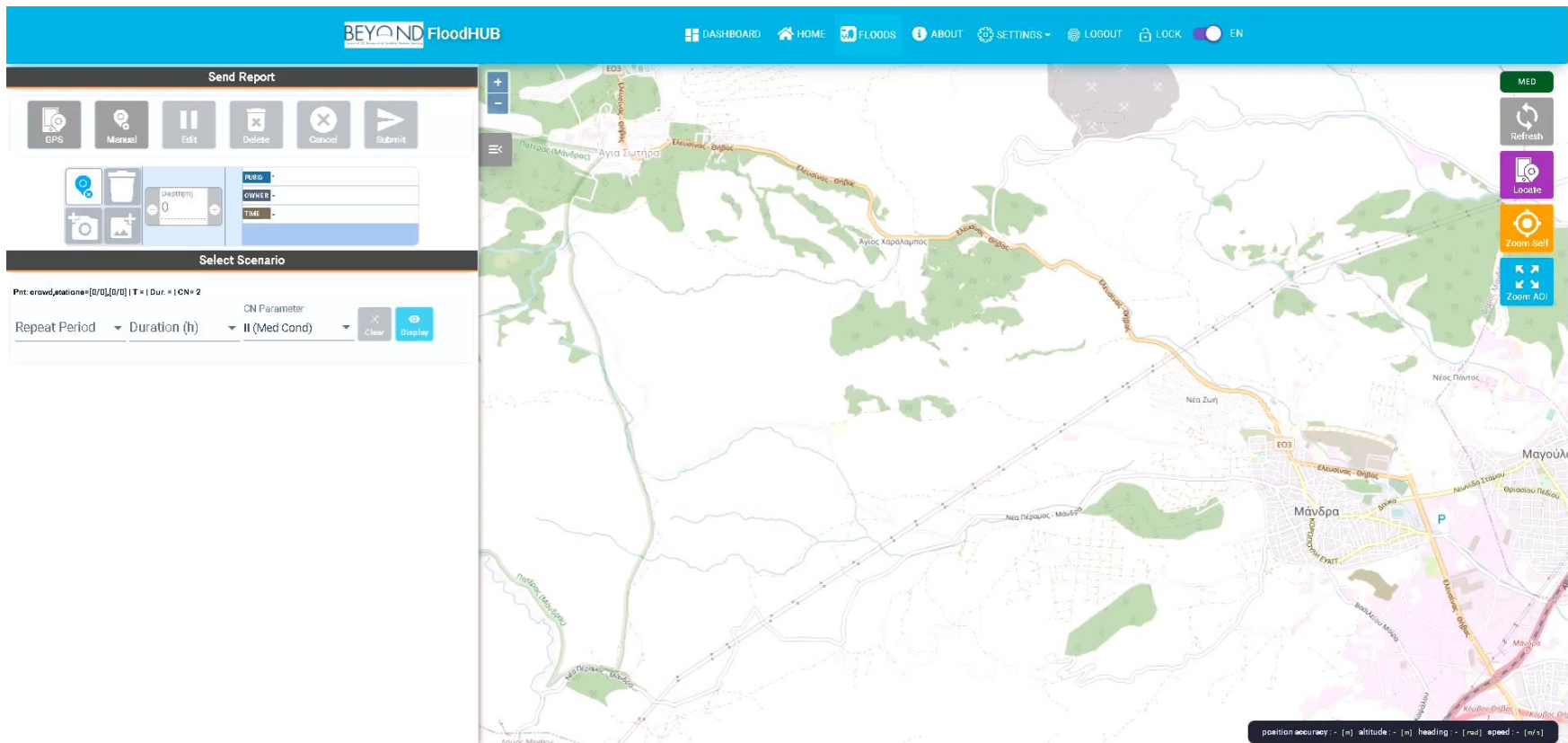


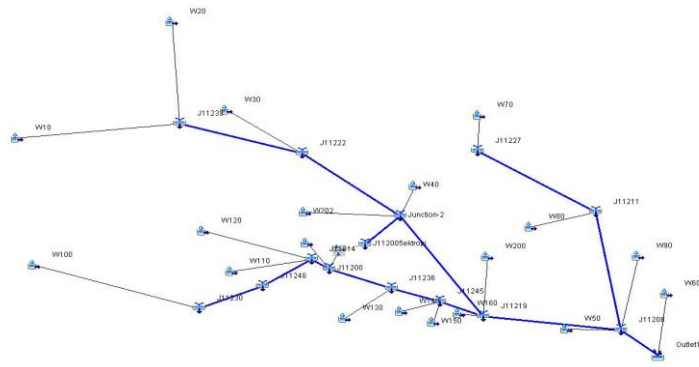
FloodHub: Integrated near-real-time flood monitoring and early warning system



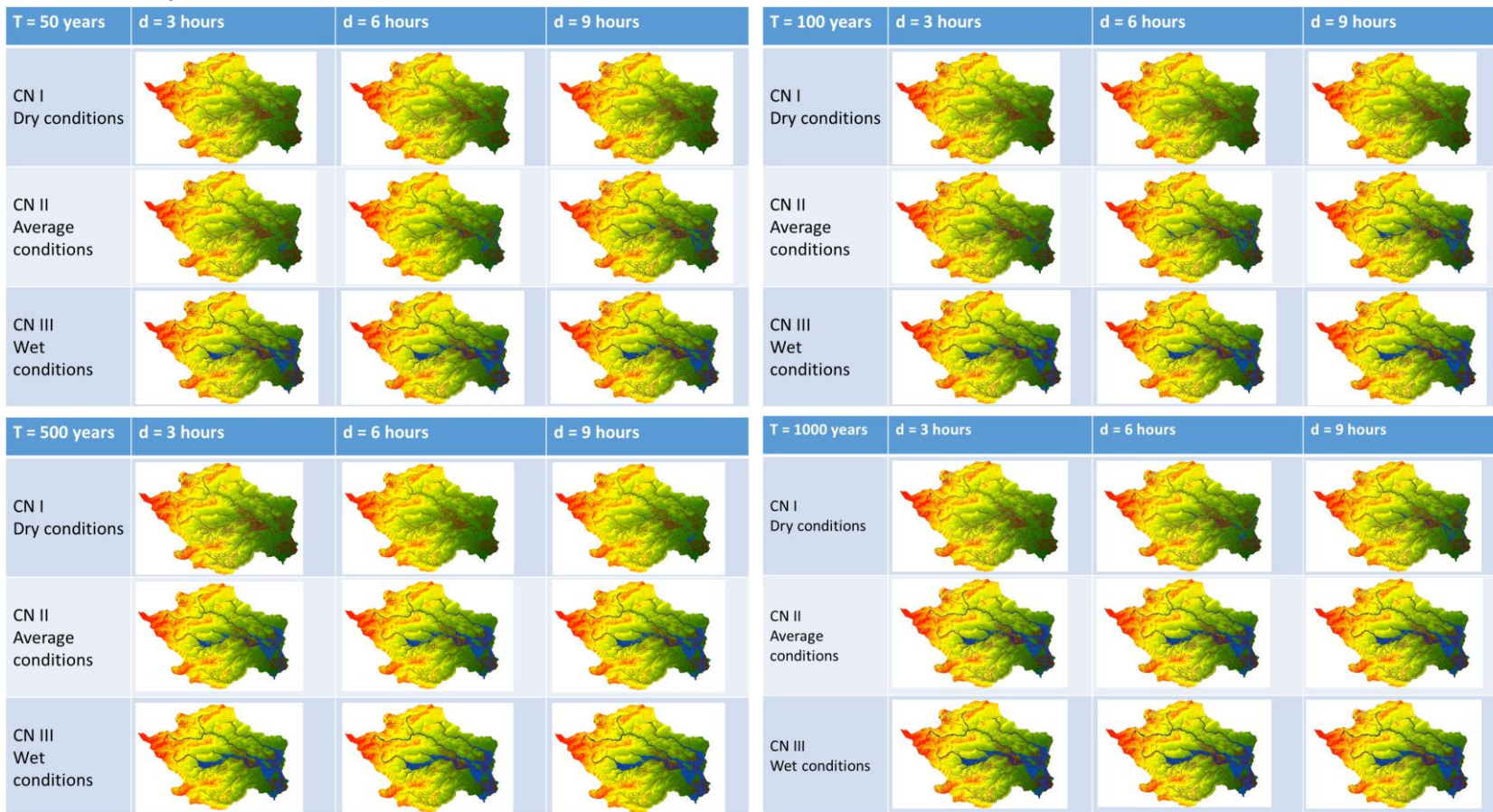


FloodHub: Integrated near-real-time flood monitoring and early warning system





FloodHub: Flood mapping results





FloodHub: Validation

Blue:
Simulation
of flood
scenario
T1000
CNIII
d6



Pink:
VHR
satellite-
based
mapping
(Meteoview)

FloodHub: Co-design & capacity building



FloodHub: Supporting decision makers

In line with the requirements for the implementation of the:

- ✓ EU Floods Directive 2007/60/EC “on the assessment and management of flood risks”
- ✓ Sendai Framework for Disaster Risk Reduction
- ✓ UN SDGs:



- ✓ GEO's Societal Benefit Areas:



Disaster Resilience



Sustainable Urban Development



Water Resources Management



Public Health Surveillance



Food Security and Sustainable Agriculture



Infrastructure and Transportation Management



Disaster Resilience
Action Group



<http://beyond-eocenter.eu>



Thank You!

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National Observatory of Athens, 24/06/2021

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Collaborate and communicate with GEO:

