

The rapid changes in climate over the last decades, together with the explosion of human population, have shaped the context for a fragile biosphere, prone to natural and manmade disasters that result in massive flows of environmental immigrants and great disturbances of ecosystems. Nowadays, the great disasters (e.g. the Indonesian tsunami in 2004, the Fukushima nuclear disaster in 2011, the European Heat Wave in 2003, the Greece's wildfires in 2007, the Earthquake of Nepal) have shown great evidence for high quality Earth Observation (EO) services as it regards disaster and emergency management, and risk reduction (DRR & EMS). The EO community has initiated large scale initiatives in order to: a) generate operational EO services with direct impact in the biosphere and useful to the societies, b) stimulate wider participation of the society including local authorities, volunteers, NGOs, and after all the citizens, enabling the Openness effect and promoting the Open Innovation paradigm, and c) utilize the rapidly growing technologies associated with web, social media, mobile, Crowdsourcing and Participatory Sensing.

The Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing of the National Observatory of Athens (IAASARS/NOA) has developed, in the framework of the BEYOND Centre of Excellence for EO-based monitoring of Natural Disasters (<http://www.beyond-eocenter.eu>), and operates a rich EO ecosystem of Copernicus compliant services addressing diverse hazardous phenomena caused from climate and weather extremes (fires, floods, windstorms, heat waves), atmospheric disturbances (smoke, dust, ozone, UV), and geo-hazards (earthquakes, landslides, volcanoes). However, there is a communication gap between the BEYOND EO services ecosystem and those either directly concerned by natural disasters, i.e. the citizens or are responsible for managing them. This disruption of information flow – a dissemination break - between interested parties is addressed by DisasterHub.

DisasterHub will fill in this gap by introducing a mobile application that will act as a middleware between a mobile user and the rich suite of the BEYOND EO services, building on the concept of citizen observatories in support of Copernicus, GEO, GEOSS, and UN-SPIDER. In this context the roadmap for generating beneficial EO services through DisasterHub is sketched in two main branches: (i) ingestion, processing and proper fusion of multimodal big EO data (space, in-situ, airborne, and crowd) with additional spatiotemporal evidences (originated from Core Copernicus, GEO, GEOSS) for deriving higher value DRR and EMS decision support information products, and (ii) interlinking the web and mobile platforms for the exchange and ease access of the societies to open EO/crowd generated information products and services.

Through the DisasterHub mobile application the benefited communities will be effectively enlarged. Mutually the BEYOND ecosystem will profit from the large amount of tagged information returned from the field, forming a unique input to the production chains and assimilation of predictive modelling. In summary DisasterHub will showcase in the EO community an upgraded version of the BEYOND ecosystem, the DisasterHub EO services ecosystem which will enable enhanced capabilities such as: software infrastructure for easy access of a mobile user to the EO services and products of BEYOND, tools for practical communication with the EO services in real-time, integration of open geospatial and socioeconomic data via open/linked data ingestion mechanisms (APIs), retrieved from the GEOSS Data-CORE, Copernicus and other EU portals, as well as site specific data sources as cadastral data, asset maps, etc., new validation and fusion techniques relevant to ingesting Crowdsourcing and Participatory Sensing data in EO services.