



BEYOND FLOODS MONITORING
Alexia Tsouni
National Observatory of Athens
Greece

ONE step BEYOND Workshop, 15 October 2015
ESA - Frascati, Italy



FP7-Regpot-2012-23-1



BEYOND

Building a Centre of Excellence for EO-based monitoring of Natural Disasters



Flood events are the world's most frequent natural disasters affecting a large number of people and assets.



- ## ***Factors affecting floods***
- * Rainfall intensity and duration;
 - * Characteristics of the river and the basin (area, shape, slope, soil type and land use), antecedent conditions, extreme temperature;
 - * Drainage systems and river (or generally water resources) management;
 - * Human activities, such as agriculture, urban development, industry and tourism, but also climate change, contribute to an increase in the likelihood and adverse impacts of flood events.





European Union Floods Directive 2007/60/EC

The EU Floods Directive “*on the assessment and management of flood risks*” aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage, economic activity and infrastructure.

This Directive applies to inland waters as well as all coastal waters across the whole territory of the EU, and defines flood as ‘*a covering by water of land not normally covered by water*’.

Member States are ultimately required to establish **flood risk management plans focused on prevention, protection and preparedness.**



BEYOND's Floods Observatory for Greece & South-Eastern Europe

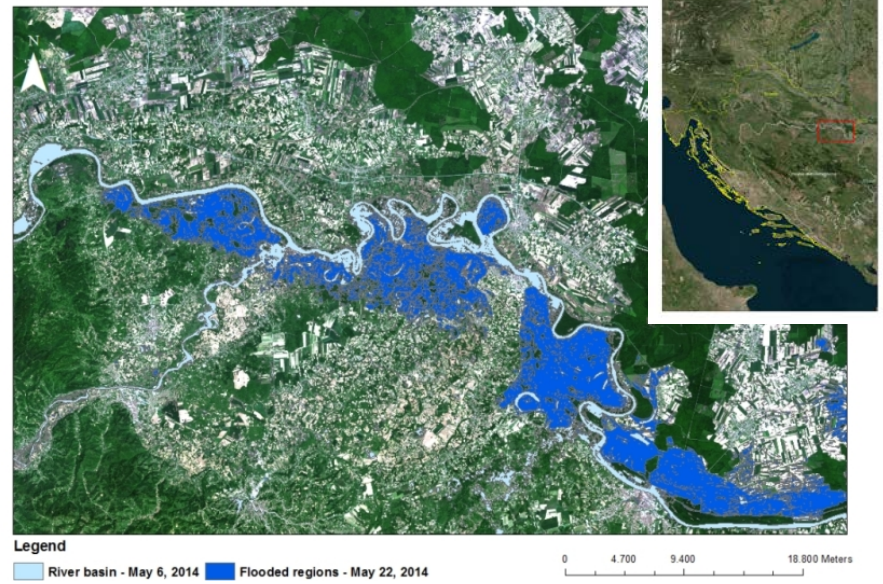
We register major flood events and we publish the flood mapping results produced following the processing and photo-interpretation of satellite Optical and SAR images.

FLOODS OBSERVATORY / ΠΑΡΑΤΗΡΗΤΗΡΙΟ ΠΛΗΜΜΥΡΩΝ

WITHIN THE FRAMEWORK OF THE BEYOND PROJECT SINCE JUNE 2013 / ΣΤΟ ΠΛΑΙΣΙΟ ΤΟΥ ΠΡΟΓΡΑΜΜΑΤΟΣ BEYOND ΑΠΟ ΤΟΝ ΙΟΥΝΙΟ ΤΟΥ 2013

Date	Location
2014/04/21	Lom
2014/06/20	Varna
2014/05/22	Bosnia
2014/05/22	Serbia
2014/05/22	Croatia
2014/06/02	Istanbul
2013/11/14	Spetses
2013/12/02	Argos
2013/11/22	Rhodes
2013/12/02	Kiato
2013/12/02	Korinthos
2013/12/02	Sparti
2013/12/02	Kyparissia
2013/11/25	Rhodes
2013/11/24	Attica
2013/11/14	Argolis
2013/11/11	Attica

Bosnia and Herzegovina Flood - May 22, 2014



**ONE step BEYOND Workshop, 15 October 2015
ESA - Frascati, Italy**



FP7-Regpot-2012-23-1



MoU with the Public Power Corporation S.A. Hellas (PPC S.A.)

We have established cooperation with the Public Power Corporation S.A. Hellas (PPC S.A.), as there is a mutual interest in the field of studying floods and developing a methodology for monitoring and management of flood risks.



The contribution of PPC S.A. covers the provision of relevant expertise and information derived from the processing of the in-situ collected data of the hydrometeorological network operated by PPC S.A., and data relating to the management of the hydrological basins under study.



BEYOND

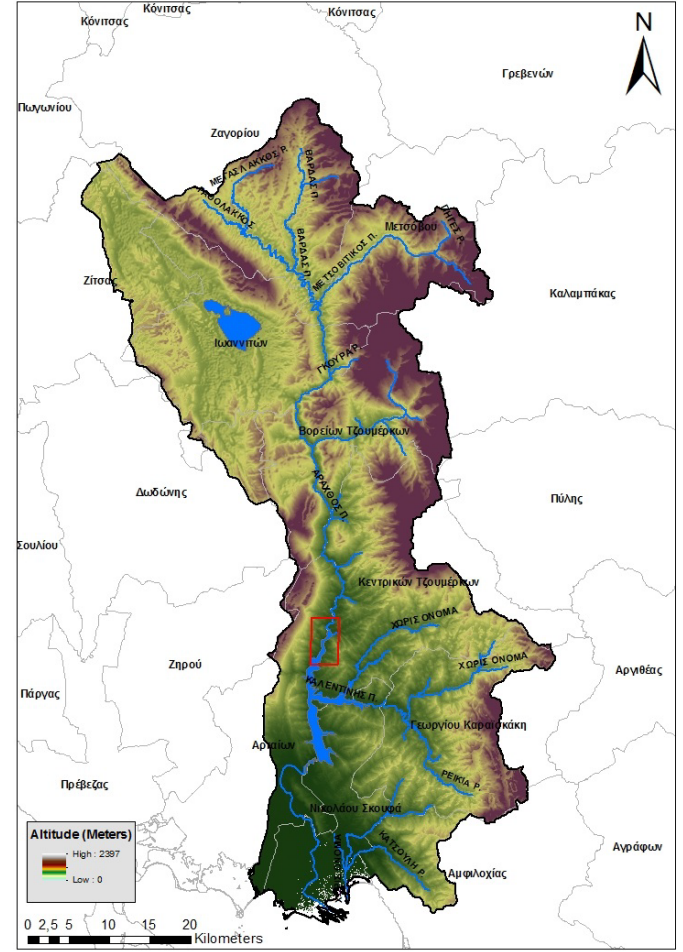
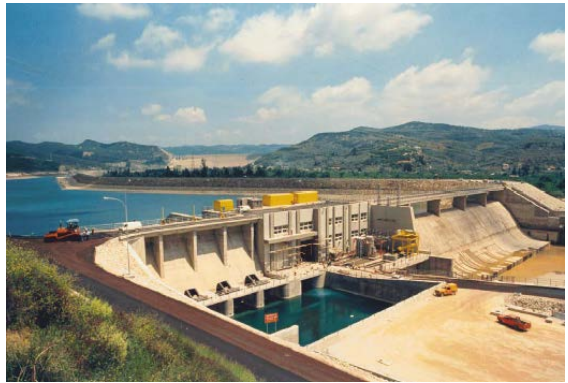
Building a Centre of Excellence for EO-based monitoring of Natural Disasters



CASE STUDY:

The first case study is the river basin of Arachthos (1.850 km²), a river with several flood events, just upstream of the city of Arta, where PPC S.A. is operating two hydroelectric plants:

- 1) a large one known as Pournari I (effective capacity of reservoir 303 million m³)
- 2) a smaller one known as Pournari II (effective capacity of reservoir 4 million m³).



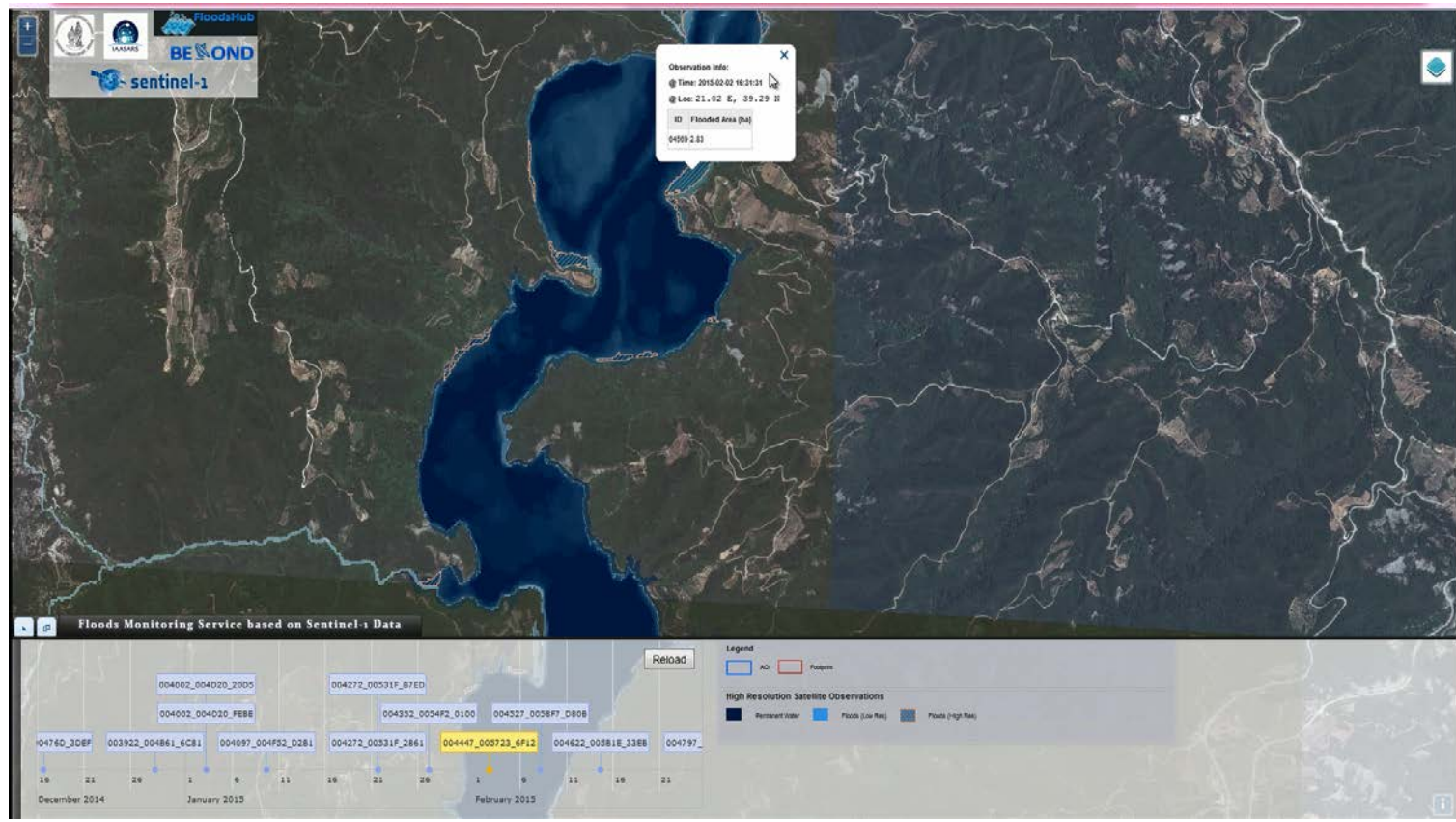


BEYOND

Building a Centre of Excellence for EO-based monitoring of Natural Disasters



BEYOND's Floods Monitoring Service for Arachthos river basin



ONE step BEYOND Workshop, 15 October 2015
ESA - Frascati, Italy



FP7-Regpot-2012-23-1



BEYOND

Building a Centre of Excellence for EO-based monitoring of Natural Disasters



BEYOND's Floods Monitoring Service for Arachthos & Acheloos river basins

We monitor all the flood events and we publish the flood mapping results produced following the processing of Sentinel-1 IW swath mode from the Hellenic National Sentinel Data Mirror Site.

The screenshot displays the BEYOND Floods Monitoring Service interface. At the top left, there are logos for the Hellenic Republic, IAASARS, BEYOND, and Sentinel-1. The main area is a satellite map of Greece with a red and blue outlined region. A legend on the right lists layers: FOOTPRINTS, FLOODED_AREAS, PWATER_AREAS, DRAINAGE_BASINS, and Base maps (Toponyms, CLC 2000, BingMaps). Below the map is a table of data points with columns for ID, Date, and Status.

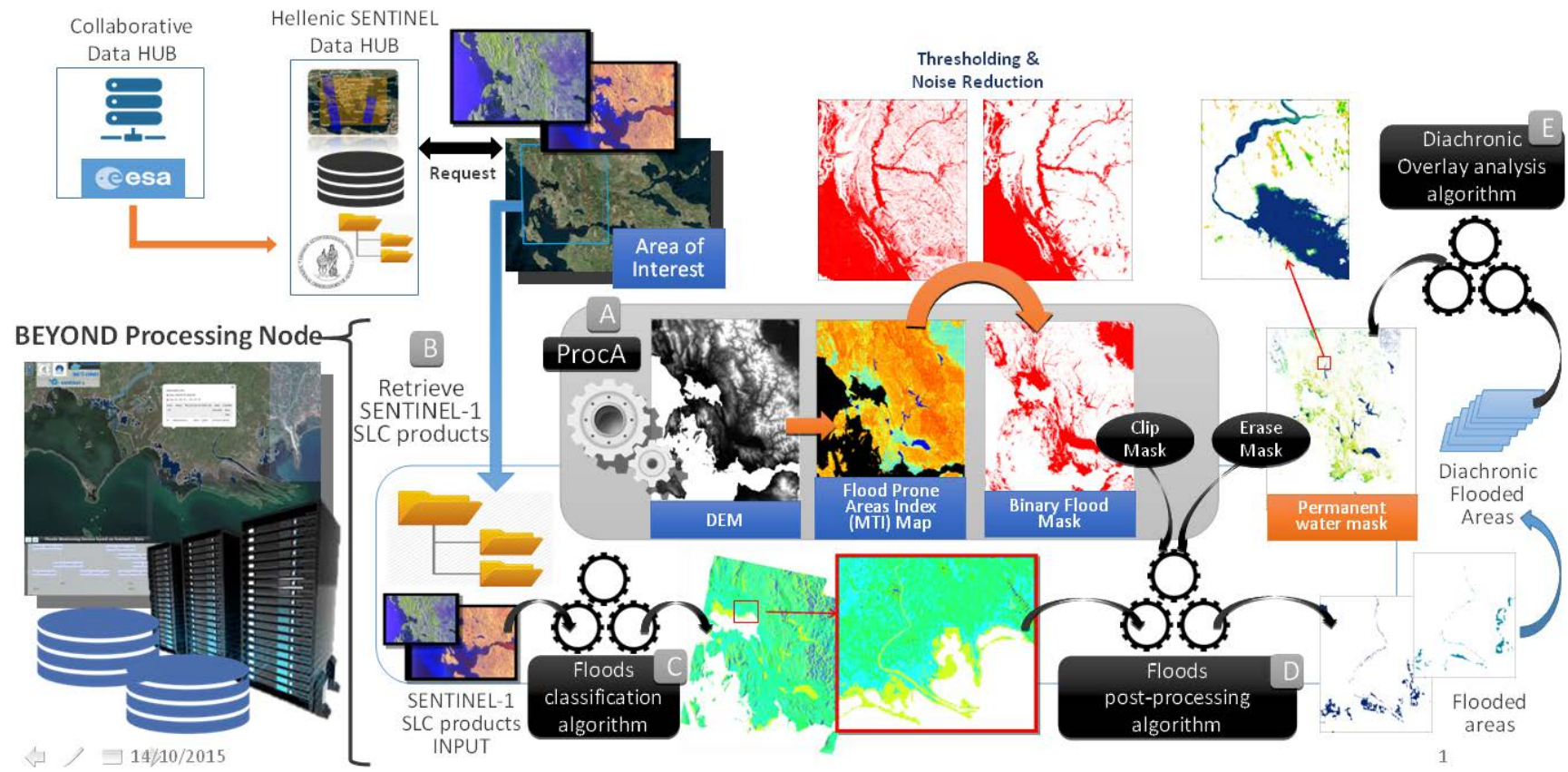
ID	Date	Status
003922_004861_6C81		
004002_004020_2005		
004002_004020_F88E		
004097_004F52_0281		
004272_00531F_2861		
004352_0054F2_0100		
004447_005723_6F12		
004527_0058F7_D808		
004622_00581E_32E8		
004797_005F40_F313		
004972_00638F_34E7		
005147_006...		
005002_00637E_8203		

ONE step BEYOND Workshop, 15 October 2015
ESA - Frascati, Italy



FP7-Regpot-2012-23-1

BEYOND's FloodsHUB Architecture





BEYOND

Building a Centre of Excellence
for EO-based monitoring of Natural Disasters



FP7-Regpot-2012-23-1