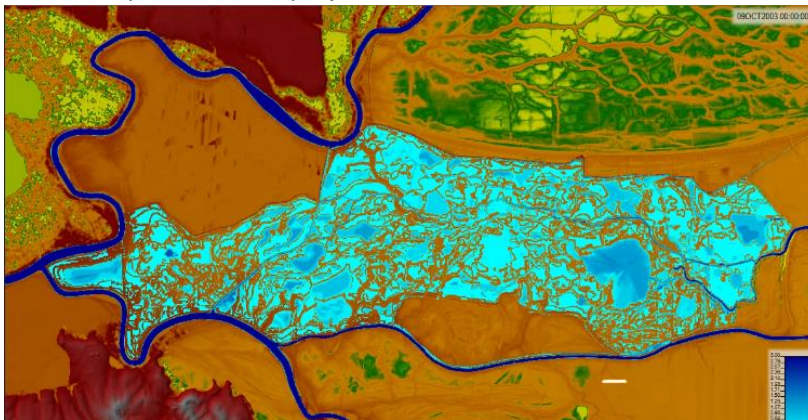## Executive Summary

Deliverable D6.1 introduces the work carried out in Task 6.1, which aims at setting up hydrodynamic models for simulating spatio-temporal flooding patterns and flood hazard maps in two pilot case studies of the Scent project, Kifisos and Danube Delta (DD). These models are set up using existing data available through project partners, DDNI and Attica, together with publicly available remote sensing data.

The first part of the report, after the general introduction of the scope and intended readership, introduces the case studies characteristics that are relevant to flood modelling. The Scent project involves two study areas: Danube Delta and Kifisos catchment. These areas are very distinct. The Danube Delta is predominantly natural, flat, formed by a large network of canals and lakes that are frequently in flood conditions. Floods in the Danube Delta are a benefit for the local environment, unique biome in the region. On the other hand, the Kifisos catchment is predominantly urban, with steep slopes in the north, and it is dry for most of the year, until flash floods occur putting the society and economy at risk.

As the characteristics of the two pilot case studies are different, they require different modelling approaches. The DD pilot requires a detailed 1D/2D hydrodynamic model, and Kifisos pilot requires a hydrological model. The theoretical concepts of hydrodynamic and hydrological modelling are presented in the third section of this deliverable, along with data requirements for applying them. Section three presents, as well, the available data in the case study areas, based on which the models are developed.

For each of the pilot study area, several models have been set-up, depending on the available input, types of geometries, characteristics of the areas, and/or boundary conditions. The specifically developed models, their calibration and validation are detailed in section four of the report. Modelling results are presented in section 5.

The models of the two selected pilot study areas that are presented in this report were built only with existing data, acquired without any contributions from citizens. These two models will be compared, in the last year of Scent project, with the models enriched with data collected by citizens. Scent data collection with support of citizens is envisaged to take place through planned field campaigns in the pilot areas. The initial models described in this report support the design of field campaigns and will serve as basis for assessing potential improvements when using crowdsourced data.

Figure 1: Scent flood modelling