

## **Scent: Smart Toolbox for Engaging Citizens into a People-Centric Observation Web**

Harris Georgiou<sup>1</sup>, Thanos Konstantakis<sup>1</sup>, Angelos Amditis<sup>2</sup>, Athanasia Tsertou<sup>2</sup>, Benjamin Cohen<sup>3</sup>, Ioana Popescu<sup>4</sup>, Andreja Jonoski<sup>4</sup>, Iulian Nichersu<sup>5</sup>, Eugenia Marin<sup>5</sup>, Iacopo Carreras<sup>6</sup>, Andrea Cuoghi<sup>6</sup>, Linda Henriksson<sup>7</sup>, Amy Hume<sup>7</sup>, Silvia Brandalesi<sup>8</sup>, Luca Simeone<sup>8</sup>, Emil Todorov<sup>9</sup>, Mary Miska<sup>10</sup>, Dimitra Alexopoulou<sup>10</sup>

<sup>1</sup>*Hellenic Rescue Team Attica (HRTA, Greece).*

<sup>2</sup>*Institute of Communications and Computer Systems (ICCS, Greece).*

<sup>3</sup>*IBM (Israel).*

<sup>4</sup>*IHE Delft (Netherlands).*

<sup>5</sup>*Institutul National de Cercetare-Dezvoltare Delta Dunarii (DDNI, Romania).*

<sup>6</sup>*U-Hopper SRL (Italy).*

<sup>7</sup>*CARR Communications (Ireland).*

<sup>8</sup>*XTeam Software Solutions (Italy).*

<sup>9</sup>*Societatea Ornitologica Romana (SOR, Romania).*

<sup>10</sup>*Attica Region (Greece)*

### **Abstract**

In environmental policy-making, Citizen Observatories (CO) is an innovative approach that integrates the countless off-the-shelf personal mobile devices into a crowd-sensing network.

Scent is a European Union research project funded under the Horizon 2020 programme. The project runs between 2016 (September) and 2019 and comprises 10 partner organizations across six countries and a wide range of expertise. It constitutes a comprehensive framework that enables citizens to become the ‘eyes’ of the policy makers by monitoring land-cover/use changes in their everyday activities. More importantly, citizens will support this tracking process using their everyday mobile devices like smart-phones and tablets.

This work presents the general Scent approach and the results of the first stages of the system design.

User needs assessment has been completed based on a set of questionnaires, starting from stakeholder identification with the method of focus group and semi-structured interviews, as well as end-user needs and expectations. Based on this comprehensive analysis, the Scent system functional requirements were specified in detail and an architectural design has been established.

The Scent Toolbox and the CO approach in general will be assessed in two real-world operational deployments. Specifically, one pilot will run in the Danube Delta (Romania) for addressing its use in rural areas and another will run in the river basin of Kifisos in Attica (Greece) for addressing the urban case. These two deployments will provide valuable operational feedback from field experts, as well as end-user feedback. Both pilots are currently under preparation for kick-off within the next few months.

It is expected that Scent will improve the accuracy of existing flood risk maps by more than 15% and thus make areas close to floodplains less vulnerable to disasters. Furthermore, the collected data will be published via web services into existing repositories, such as the Global Earth Observation System of Systems (GEOSS) portal.

**Keywords:** *Citizen Observatories, crowd sourcing, GIS, land cover; flood management*