



**HAL**  
open science

## Testing an innovative framework for flood forecasting, monitoring and mapping in Europe

Francesco Dottori, Milan Kalas, Valerio Lorini, Annett Wania, Florian Pappenberger, Peter Salamon, Maria-Helena Ramos, Hannah Louise Cloke, Carlos Castillo

### ► To cite this version:

Francesco Dottori, Milan Kalas, Valerio Lorini, Annett Wania, Florian Pappenberger, et al.. Testing an innovative framework for flood forecasting, monitoring and mapping in Europe. EGU General Assembly 2017, Apr 2017, Vienna, Austria. Geophysical Research Abstracts, 19, pp.1, 2017. hal-02606254

**HAL Id: hal-02606254**

**<https://hal.inrae.fr/hal-02606254v1>**

Submitted on 16 May 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



## **Testing an innovative framework for flood forecasting, monitoring and mapping in Europe**

Francesco Dottori (1), Milan Kalas (1), Valerio Lorini (1), Annett Wania (1), Florian Pappenberger (2), Peter Salamon (1), Maria Helena Ramos (3), Hannah Cloke (4), and Carlos Castillo (5)

(1) European Commission, Joint Research Centre, Ispra, Italy (francesco.dottori@jrc.ec.europa.eu), (2) European Centre for Medium-Range Weather Forecasts, Reading, UK, (3) Irstea, Institut National de Recherche en Sciences et Technologies pour l'Environnement et l'Agriculture, Antony, France, (4) University of Reading, Reading, UK, (5) Eurecat Technology Centre of Catalonia, Spain

Between May and June 2016, France was hit by severe floods, particularly in the Loire and Seine river basins. In this work, we use this case study to test an innovative framework for flood forecasting, mapping and monitoring. More in detail, the system integrates in real-time two components of the Copernicus Emergency mapping services, namely the European Flood Awareness System and the satellite-based Rapid Mapping, with new procedures for rapid risk assessment and social media and news monitoring.

We explore in detail the performance of each component of the system, demonstrating the improvements in respect to stand-alone flood forecasting and monitoring systems. We show how the performances of the forecasting component can be refined using the real-time feedback from social media monitoring to identify which areas were flooded, to evaluate the flood intensity, and therefore to correct impact estimations. Moreover, we show how the integration with impact forecast and social media monitoring can improve the timeliness and efficiency of satellite based emergency mapping, and reduce the chances of missing areas where flooding is already happening. These results illustrate how the new integrated approach leads to a better and earlier decision making and a timely evaluation of impacts.