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An automatic system for flood mapping based on Sentinel-1 data

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Floods are the most frequent and costliest natural disasters worldwide. The potentiality of the images provided by synthetic aperture radar (SAR) systems for near real-time flood mapping was demonstrated by several past studies. Nowadays, scientific methods for daily automatically detection and identification of flood area or, more generally, areas where standing water is present from SAR data are mature and ready for an operational implementation which can complement the Copernicus Emergency Service (CEMS) for mapping and monitoring floods.
A fully automated Sentinel-1 based flood service was designed to work at national scale on the framework of the convention between the Italian Department of Civil protection (DPC) and CIMA Research Foundation. The processing chain implementing the service includes the automatic and daily procurement of Sentinel-1 data and the run of a fully automatic flood mapping algorithm. The flood mapping algorithm firstly performs the geocoding and the calibration of the GRD data and then applies a combination of an Isodata clustering, an automatic thresholding and a Region Growing technique. Flood maps generated by the processing chain will be shown and discussed at the conference.

Which session would you like to present in?

1. Remote sensing, hydrological modelling and data assimilation

Primary authors: Dr PULVIRENTI, Luca (CIMA Research Foundation); Dr SQUICCIARINO, Giuseppe (CIMA Research Foundation); Dr FIORI, Elisabetta (CIMA Research Foundation); Dr PUCA, Silvia (Italian Civil Protection Department)

Presenter: Dr FIORI, Elisabetta (CIMA Research Foundation)

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