



Near real time high resolution mapping of flood extent in west African sites

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Flood disasters cause severe damages to African communities (destroyed infrastructure, submerged fields, loss of life) and have an increasing occurrence under the changing climate. The spatial and temporal resolutions of the Sentinel-1 radar data are favourable assets towards improving the capacity to monitor flood events. Flood mapping is included among the services developed within the AfriCultuReS project, with the overall aim to improve food security in Africa (<http://africultures.eu/>). The widely used SAR threshold imaging technique for the automatic mapping of flood extent from Sentinel-1 images was tested in two pilot sites of the project, in Ghana and Niger. Two flood events with different characteristics were considered: the spillage of the Bagre dam in the south of Burkina Faso which caused farmlands to flood in north-east Ghana in August 2018 and the flood of the Niger river around Niamey after torrential rain in August 2017. These two case studies in west Africa allowed the assessment of the robustness of the method to provide timely flood delineation maps to end users and potential stakeholders. The results were evaluated through expert opinion and comparison to available reference data such as maps from the Copernicus Management Service (CEMS) which was activated in the case of the riverine flood in Niger (Copernicus EMSR235). The results show that the approach can be applied for a rapid and near-real time mapping of the flood extent in the pilot sites of the project AfriCultuReS. The near real time maps can lead to a faster assessment of the flood event severity and its damages on the local communities, help initial reporting to national institutions, and feed existing flood databases such as MifMASS for west Africa. Based on this approach a flood mapping service is under development as part of the AfriCultuReS Disasters Mapping and Monitoring service (AfriCRS-S4-P03).