

## SPECIAL FOCUS – November 2019

### Major flooding along Shabelle River in Southern Somalia

Many parts of East Africa have been affected by heavy rainfall and flood events since July and the situation has intensified after particularly intensive rainfall in October, which led to the displacement of people, damage to infrastructure, loss of crops and livestock across the region ([OCHA, Eastern Africa region- October 2019](#)). Southern Somalia and parts of southern Ethiopia received more than twice the average monthly rainfall in October (Figure 1), causing widespread flooding along the Shabelle River, with 85% of Beletweyne town being inundated in early November ([Copernicus-Emergency Management Service - Mapping:Beletweyne](#)). The UN reports that more than 370.000 people have been displaced ([OCHA, Somalia Flash Update](#)) and according to FEWSNET around 10% of croplands in Lower Shabelle have been affected and cropping activities have been suspended in riverine areas ([FEWSNET-Seasonal Monitor,08 November 2019](#)).

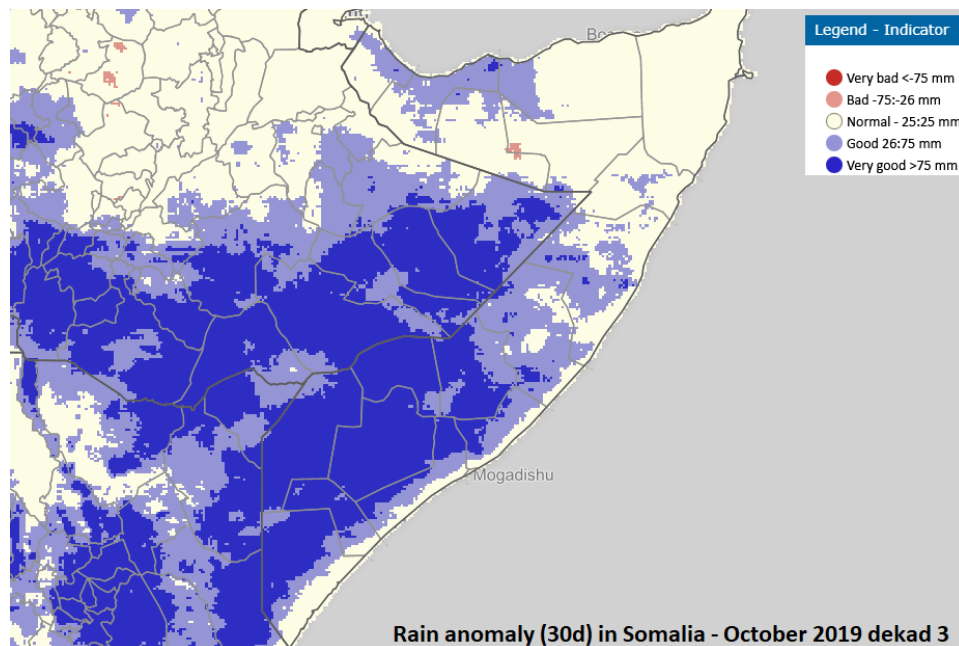


Figure 1. 30-day rainfall anomaly image showing above-average rainfall during October in Somalia, southern Ethiopia, Kenya (source: CHIRPS, data mapped by JRC).

Surface water extent was computed by applying a threshold to the Normalized Difference Water Index (NDWI) derived from Sentinel 2 data for the period 28<sup>th</sup> October to 07<sup>th</sup> November 2019 and combined with the flood extent derived from Sentinel 1 data for the same period. This is a rapid preliminary analysis and has not been field validated. An overview map is presented in Figure 2, showing the extent of the water (blue color) and cropland areas (green color) along Shabelle river, **indicating that according to the proposed methodology an area of 172,916 ha has been flooded in Hiraan and Middle Shabelle regions (this number includes permanent water) of which 36,012 ha are cropland** (source of the cropland layer: GLOBE LAND 30). Moreover, for reference in orange/red, are depicted the areas which have been flooded from a minimum of 1 to a maximum of 15 times in the previous 15 years according to the Global Surface Water Explorer (JRC). The black rectangles in the overview map indicate areas with zoomed thematic maps that are presented in this report (Figure 3 and 4). Furthermore, flooding has been reported across the Juba River but with lower extent and damage as compared to Shabelle River. Two maps are presented in Figures 5 and 6, showing the water extent and cropland across the Juba river.

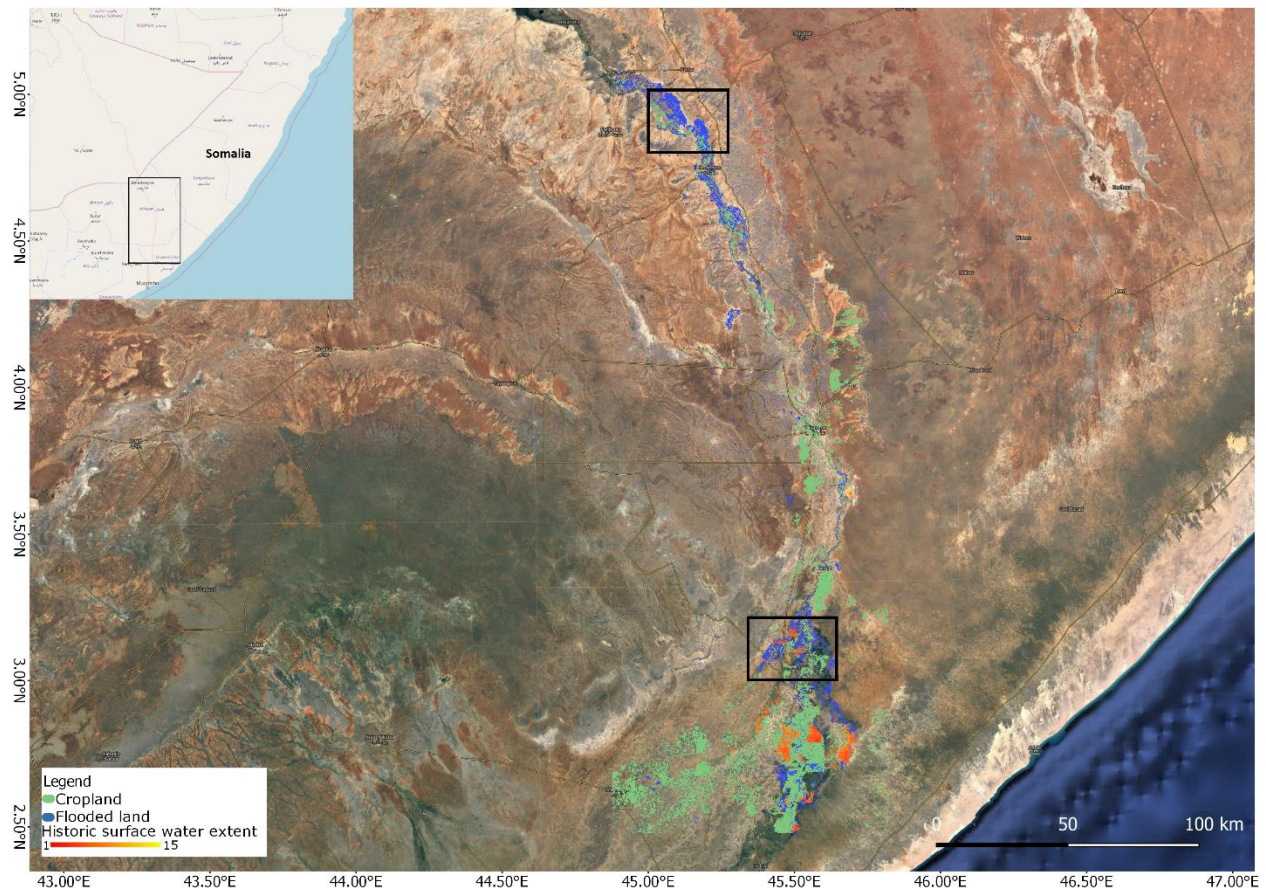
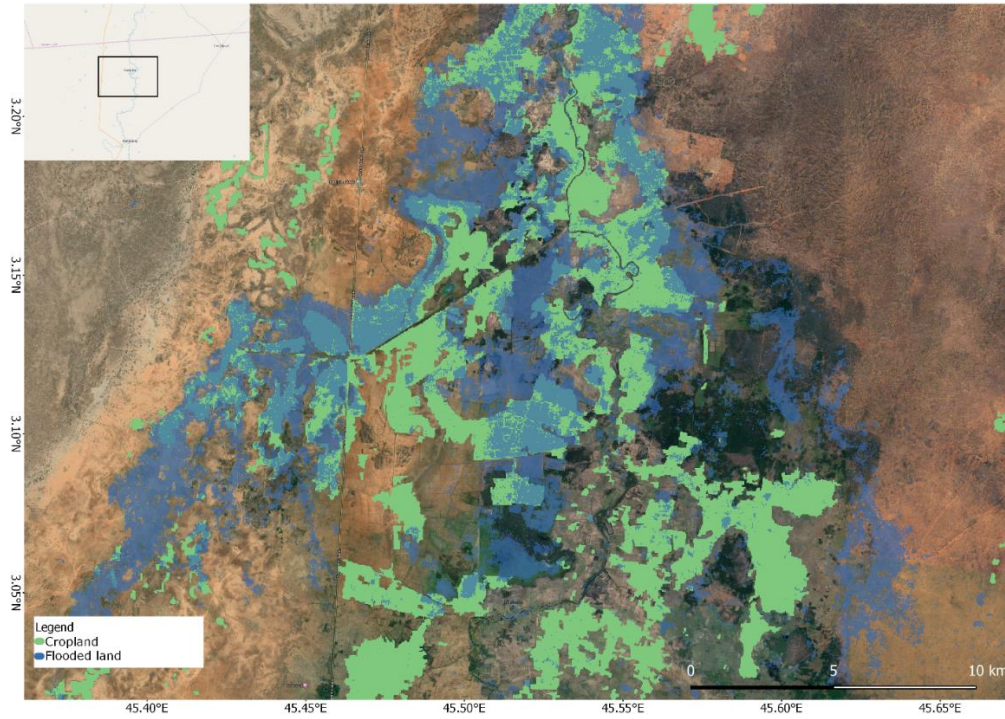
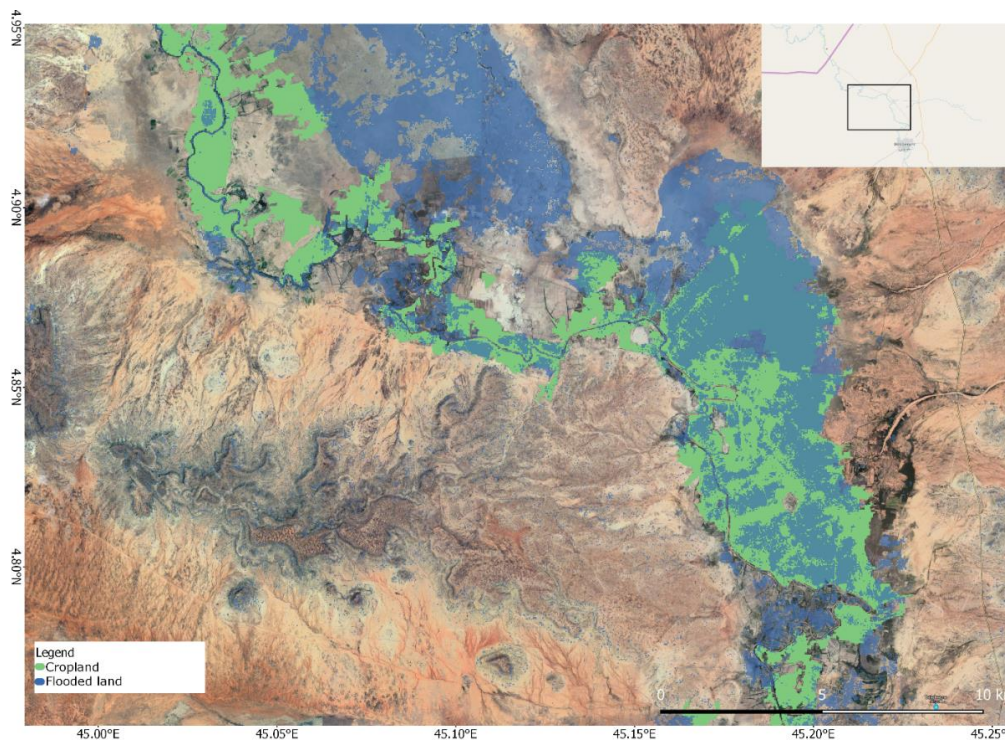


Figure 2. Overview map of the flood extent along Shabelle river, from Beledweyne in Hiraan region to Jowhar in Middle Shabelle region. Water extent: 172,916 ha. Background layer: Google Satellite.





*Figure 3. Thematic map depicting the flood extent and cropland close to Duduble in Middle Shabelle region. Flooded land: 12,951 ha, flooded cropland: 4,524 ha. Background layer: Google Satellite.*



*Figure 4. Thematic map depicting the flood extent and cropland norther of Beledweyne in Hiraan region. Flooded land: 9,000 ha, flooded cropland: 3,526 ha. Background layer: Google Satellite.*



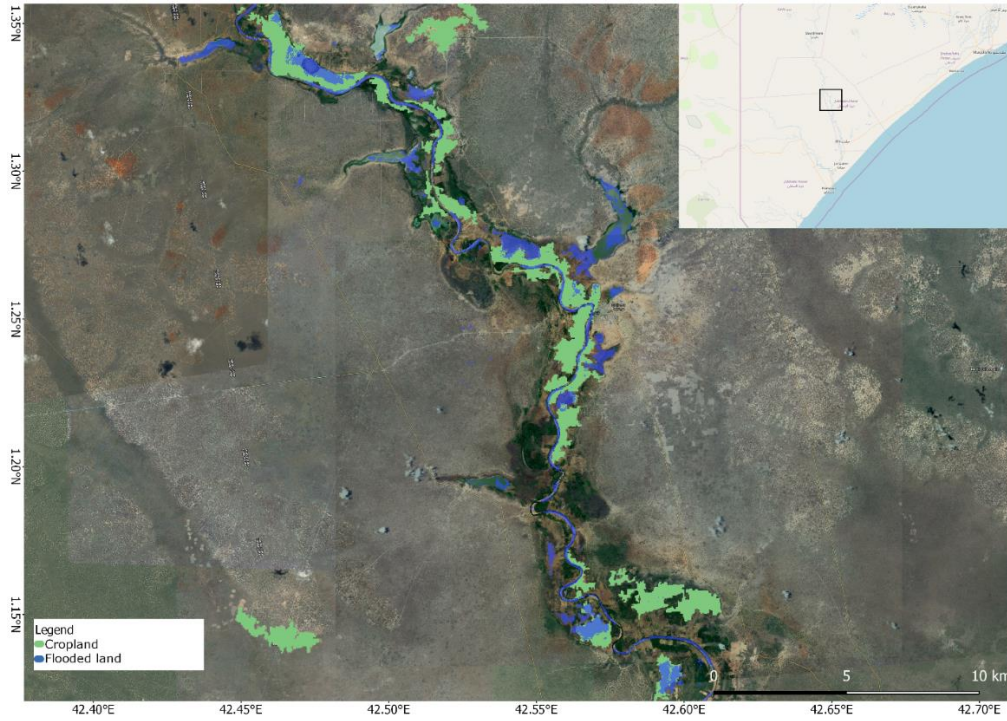


Figure 5. Thematic map depicting the flood extent and cropland along Juba river, close to Dujuma in Middle Juba region. Flooded land: 1,230 ha, flooded cropland: 289 ha. Background layer: Google Satellite.

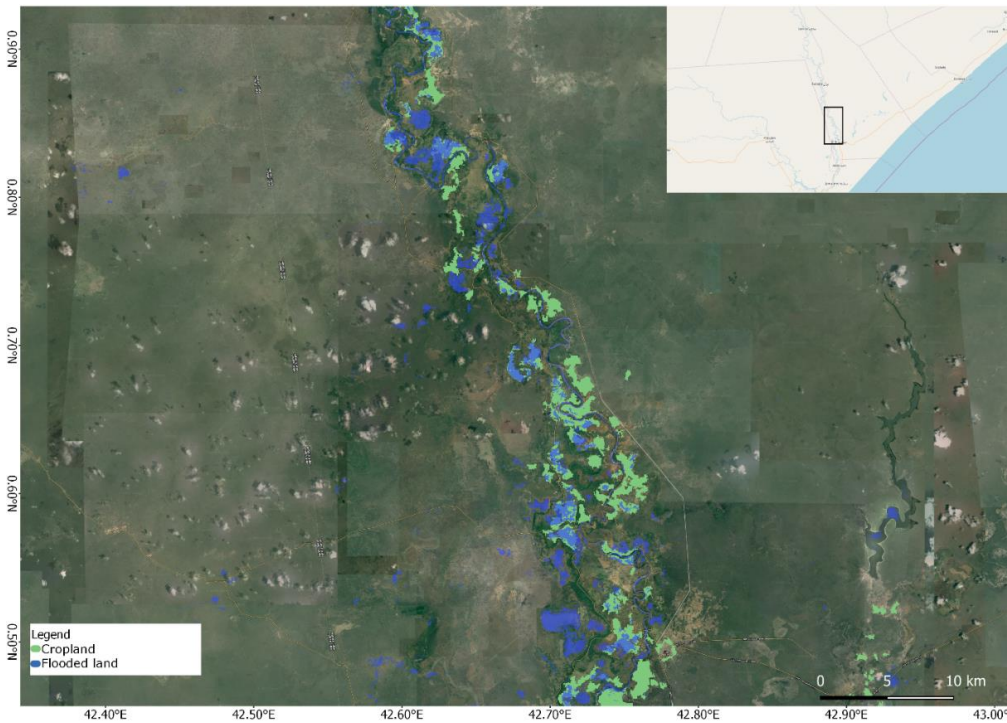


Figure 6. Thematic map depicting the flood extent and cropland along Juba river, northern of Jilib in Middle Juba region. Flooded land: 5,931 ha, flooded cropland: 1,713 ha. Background layer: Google Satellite.

More information about floods in Somalia can be found here:

- UNITAR-UNOSAT site: <https://unitar.org/maps/latest-maps>
- FAO SWALIM site: <http://www.faoswalim.org/article/flood-extent-map-middle-lower-shabelle-and-hiraan-regions>
- RELIEFWEB site: <https://reliefweb.int/disaster/fl-2019-000133-som>

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