

SPECIAL FOCUS – March 2019

Severe crop damages in parts of Southern Africa hit by Cyclone Idai and crop failure due to drought in Zambia’s Southern Province

Three countries on the east side of the southern Africa region, Mozambique, Malawi and Zimbabwe (Figure 1) faced heavy rainfall in March 2019 (Figure 2), floods and strong winds caused by Cyclone Idai, resulting in one of the worst weather-related disasters in the history of Africa according to the United Nations. Food security conditions will be exacerbated in the affected regions through production shortfalls due to damaged cropland areas, as well as destruction in infrastructure and livestock losses. As of April 2nd, “more than 715000 hectares of crops were destroyed at the beginning of the main harvest period” in **Mozambique** (OCHA). The central part of the country represents a key cereal producing area, with Sofala, Manica and Zambezia contributing 40-50% of the national cereal output.

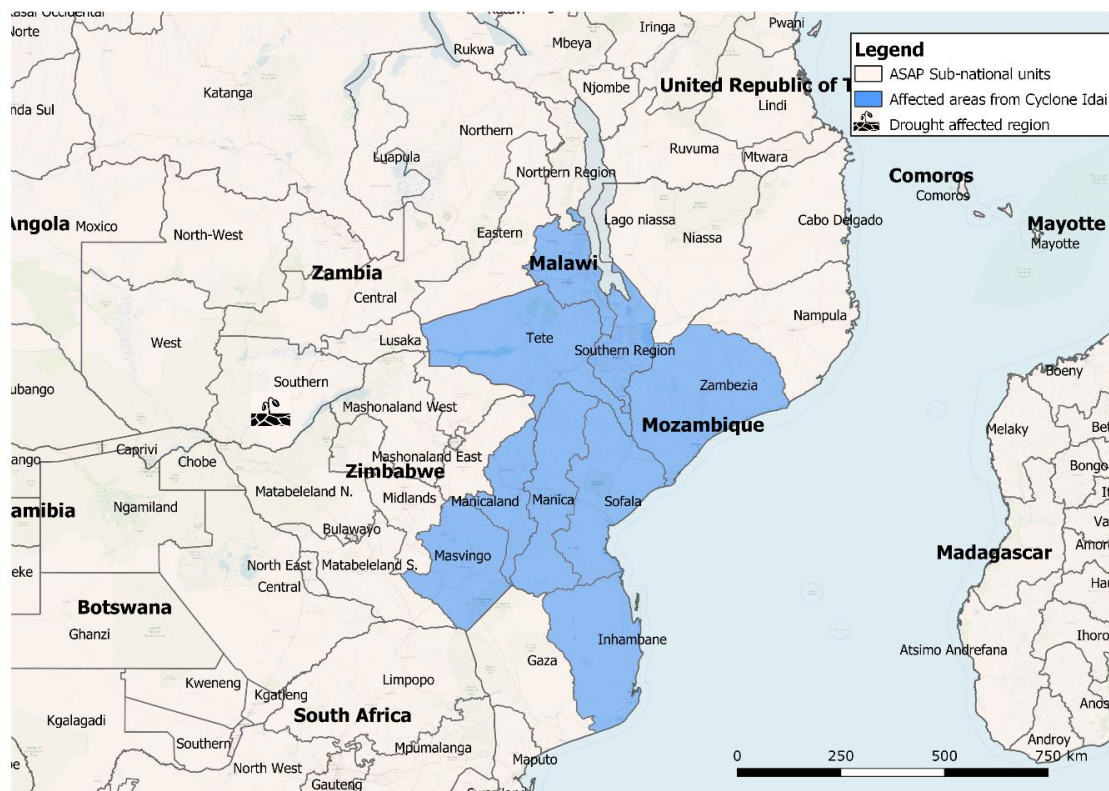


Figure 1. Reference map showing the regions affected by Cyclone Idai in Mozambique, Malawi and Zimbabwe and by drought in Southern Zambia.

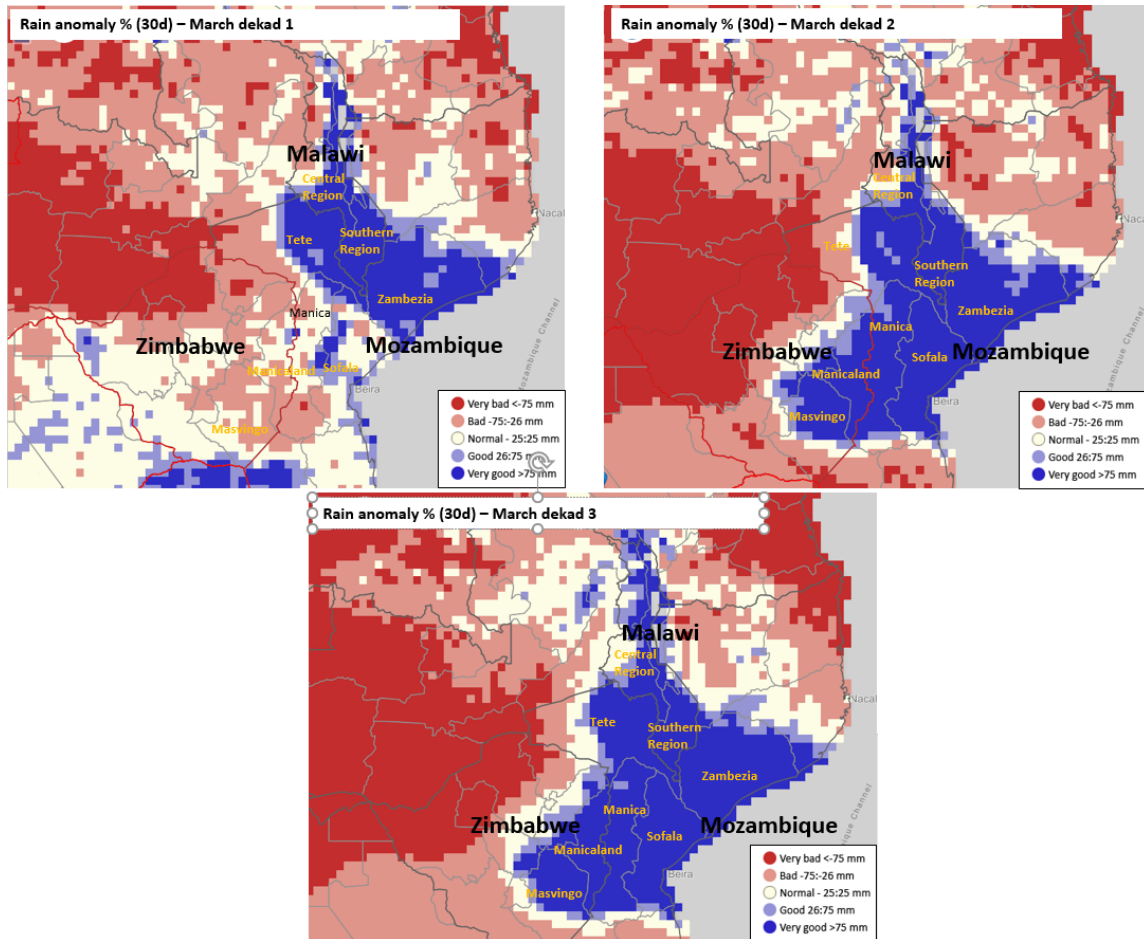


Figure 2. Monthly rainfall anomaly estimates by the 10th of March (upper left), by the 20th of March (upper right) and by the 31st of March (bottom) (source: ASAP Warning Explorer).

Before Cyclone Idai, **Malawi** experienced favorable weather conditions during the 2018/19 agricultural season and was expecting an above-average cereal output for 2019. However, according to preliminary results, 25.000 to 35.000 ha of maturing crops were destroyed in southern parts of the country, thus decreasing the production estimates (FEWS NET led joint assessment). The disaster in eastern **Zimbabwe** (mainly in Masvingo and Manicaland provinces) has further aggravated an already dire 2018/2019 agricultural season, which was marked by poor rainfall distribution and dry spells since October. Crops that were not already affected by drought have now been destroyed by floods and strong wind.

Sofala province in Mozambique was among the worst affected regions, since Cyclone Idai made landfall on 14th of March close to the port city of Beira. In Figure 3, Area 1 and Area 2 show zooms of the most severely affected areas close to Beira (Sentinel 2 data) whereas thematic maps show the extent of the non-agricultural flooded area (blue), the flooded cropland (purple) and the non-flooded cropland areas (green). For reference in orange/red (right) 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).

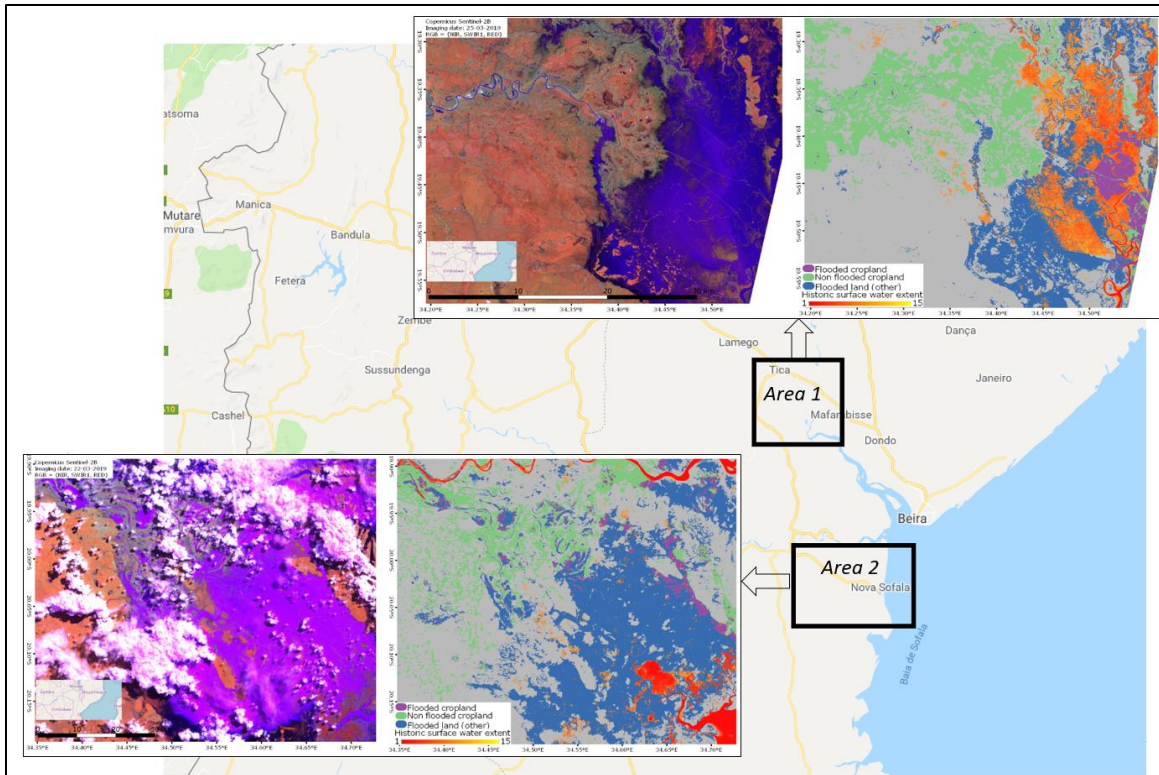


Figure 3. Flooded areas in Sofala region, in Mozambique. In purple in the satellite images on the left show the flooded areas in 25/03 (area 1) and in 22/03 (area 2). The flooded cropland area (in purple on the right) corresponds to 3398 ha for Area 1 (total area of the polygon is 126.625 ha) and 3591 ha for Area 2 (total area described by the polygon is 136.823 ha).

Extremely heavy rains in **Malawi**'s southern parts since the beginning of March will likely aggravate local food shortages due to floods and damaged crops, which would have been soon ready for harvest. In Figures 4-5, three examples of flooded areas along the Shire River are presented, since the Shire Valley, was Malawi's worst-affected region. According to IFPRI, the Shire Valley accounts for 4.8 percent of the total area planted to food crops in the main 2018/19 agricultural season.

Since the central region of Malawi was less affected and in combination with the positive production prospects of the northern region, that experienced favorable weather conditions since the start of the season, food needs in the south might be partially compensated by surplus production in the central and northern regions.

Eastern Zimbabwe experienced torrential rainfall and strong winds due to Cyclone Idai, resulting in "crop and livestock losses, as well as the destruction of food stocks caused by flooding" (VOA 28/03/019). The worst affected districts are Chimanimani and Chipinge districts in Manicaland, where "agricultural activity forms the main source of income and contributes to Zimbabwe's main agricultural exports, including tea and tobacco (ACAPS 19/03)".

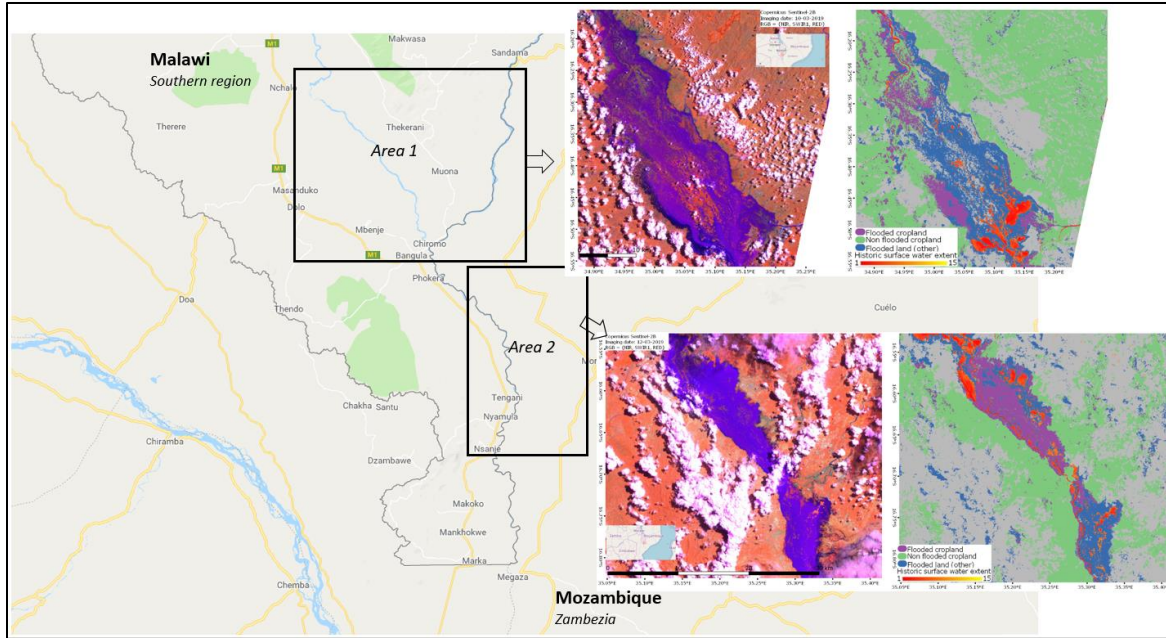


Figure 4. Flooded areas in southern region, in Malawi (Area 1) and in Zambezia region, in Mozambique. In purple in the satellite images on the left are shown the flooded areas in 10/03 (Area 1) and in 12/03 (Area 2). The flooded cropland area (in purple on the right) corresponds to 13.093 ha for Area 1 (total area of the polygon is 176.396 ha) and 8.644 ha for Area 2 (total area of the polygon is 117.469 ha).

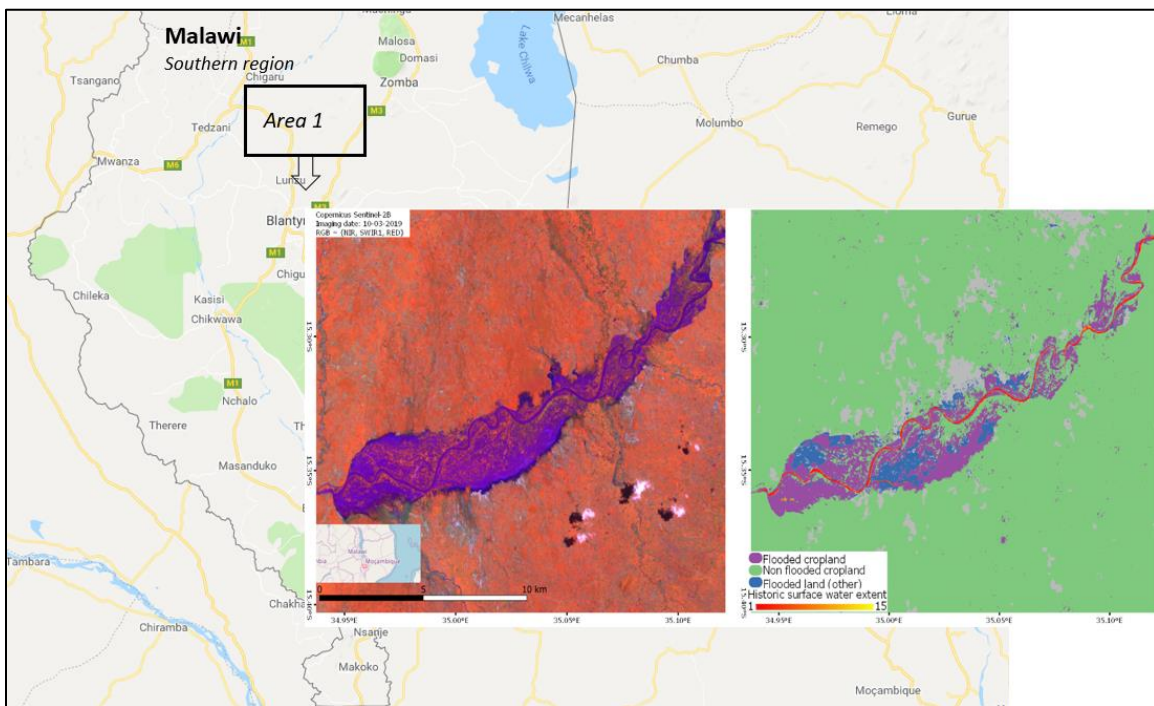


Figure 5. Flooded areas in southern region close to Chigaru in Malawi (10/03). The flooded cropland area in purple on the right, corresponds to 2362 ha (total area described by the polygon is 30.956 ha).



Figure 6. Destroyed fields in Zimbabwe (source: <https://www.unocha.org/southern-and-eastern-africa-rosea/cyclone-idai>, copyrights:GOAL).

During the agricultural season of 2018/2019, many parts of the Southern Africa region have experienced a delayed onset of the seasonal rainfall and persistent rainfall deficits, including: Southern Angola, Namibia, parts of Botswana, Lesotho, Southern Africa. Among the most affected areas is the Southern region of Zambia that is facing one of the worst droughts in decades. A prolonged dry spell since the end of February (93% less-than -average 30-day cumulative rainfall) has caused wide spread crop failure according to a field visit co-organized by FEWSNET and USDA. The impact of drought is visible on the selection of Sentinel 2 high-resolution imagery in Figure 5 for crop areas around Kalomo (satellite imagery of 22/03-02/04). The images are false color composites with red showing active vegetation, with black water bodies and with light green bare soil or sparsely vegetated soil. Crop areas in 2019 (left) show significantly less active vegetation than at the same time in 2017 (right). The Southern region of Zambia, together with Central and West (only partially affected by drought), contribute around 44% of the total maize production.

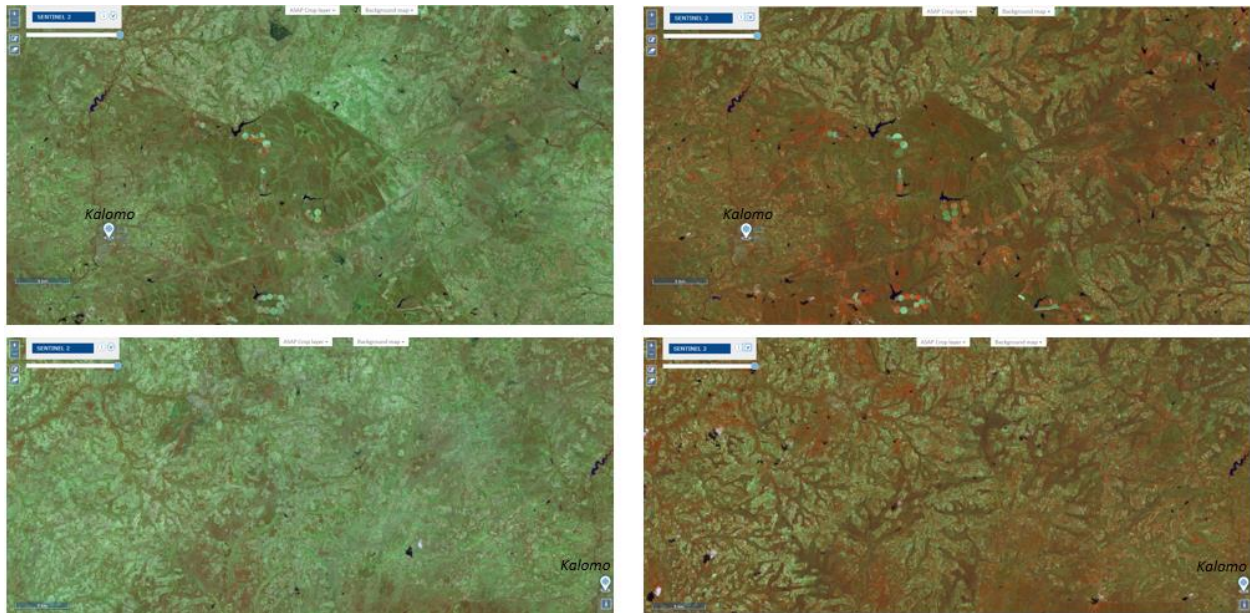


Figure 7. Top: Sentinel-2 Imagery showing crop areas west form Kalomo in Southern region, in Zambia, in 2019 (left) and in 2017(right). Bottom: Sentinel-2 Imagery showing crop areas east form Kalomo in Southern region, in Zambia, in 2019 (left) and in 2017(right).

More information can be found here:

<https://www.acaps.org/country/malawi/special-reports>

<https://www.acaps.org/country/zimbabwe/special-reports>

<https://www.acaps.org/country/mozambique/special-reports>

<https://reliefweb.int/sites/reliefweb.int/files/resources/MOZAMBIQUE%20CYLONE%20IDAI%20%26%20FLOODS%2C%20SITUATION%20REPORT%20NO.1%2002%20April%202019.pdf>

<http://fews.net/southern-africa/malawi/key-message-update/march-2019>

<https://www.ifpri.org/blog/how-cyclone-idai-floods-are-impacting-food-security-malawi>

<https://www.voanews.com/a/un-assesses-situation-in-zimbabwe-amid-calls-for-food-assistance/4851607.html>

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