SPECIAL ALERT – July 2018

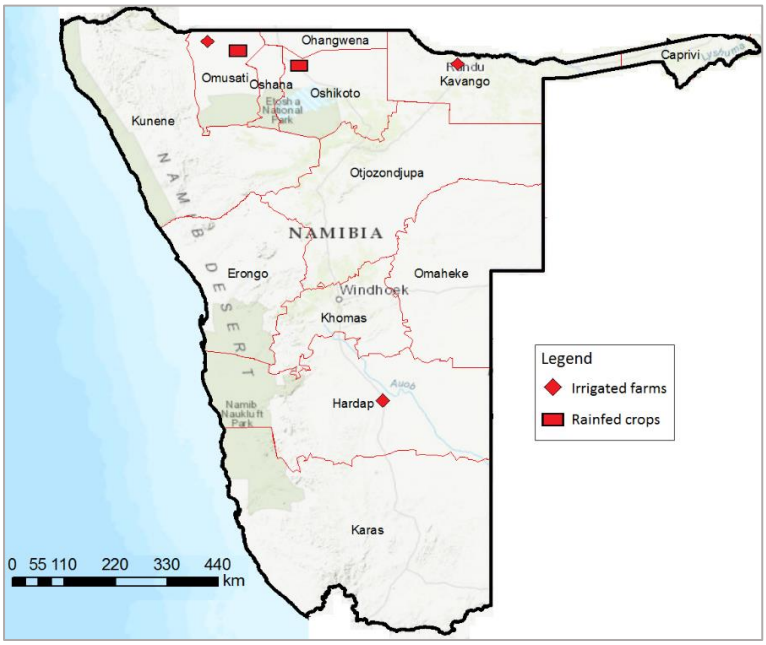
Mixed crop production outputs in Southern Africa

Dry spells early in the season and erratic rainfall distribution patterns led to mixed cereal production prospects for Southern Africa region.

High resolution satellite imagery (mainly Sentinel 2) of the ASAP high resolution viewer were used to map different examples of crop performance during the 2017/2018 crop season in Namibia, Zambia and Madagascar.

In **Namibia** the 2017/2018 season was severely affected by drought, with negative impacts on rangelands and livestock, while at the same time the country reached an above average cereal production, which can be largely attributed to the contribution of irrigated farms. In **Zambia**, according to an official national survey, most provinces were affected by early season drought; however, some provinces were able to cope better than others. This could be related to management practices as well as to the exact timing of the dry period. Finally, the southwest of **Madagascar** and especially Androy and Atsimo Andrefana regions, suffered from below normal rainfall throughout the crop season and as a result crops and rangelands were severely damaged and maize production is estimated to be lower than the 5-year average. On the other hand, northern and central parts of the country received abundant rainfall resulting in close to average rice production. High-resolution satellite data, combined with ground truth data, where they are available, confirm the above mentioned mixed production expectations.

Namibia's cereal production according to the recent SADC report (Synthesis Report on the State of Food and Nutrition Security and Vulnerability in Southern Africa, July 2018) is at 135 770 tonnes, 35% above the 5-year average (2012-2016). Although the country sustained prolonged dry spells early in the season, rainfall improved in March and April especially in the North East, alleviating some of the negative effects that drought had on crop growth development. Additionally, irrigated crops contributed to a positive production result. The following map (Figure 1) shows the location of high-resolution satellite image maps for Namibia used in this document.



The Hardap Dam is the largest dam in Namibia and provides water for irrigation. As can be seen in Figure 2 (top left), near Mariental irrigated crops are depicted in bright red indicating active vegetation in March 2018. Additionally, Figure 2 (top right and bottom) presents irrigated crops in Kavango and Omusati regions for March and March-April respectively.

Figure 1: Map of Namibia showing the location of high-resolution imagery examples for irrigated and rainfed crops.

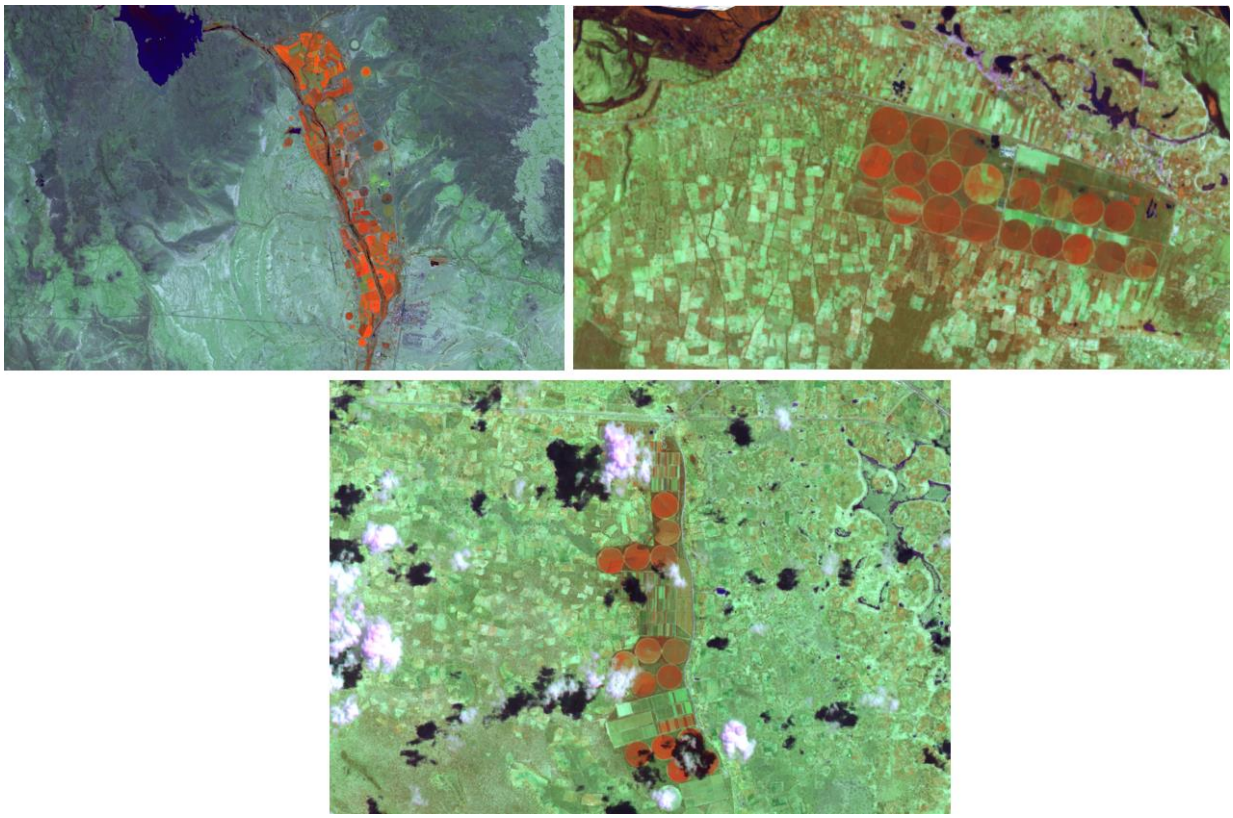


Figure 2: Irrigated crops in Hardap (top left), Sikondo Irrigation Farm in Kavango region (top right), Irrigated crops in Omusati region (bottom)

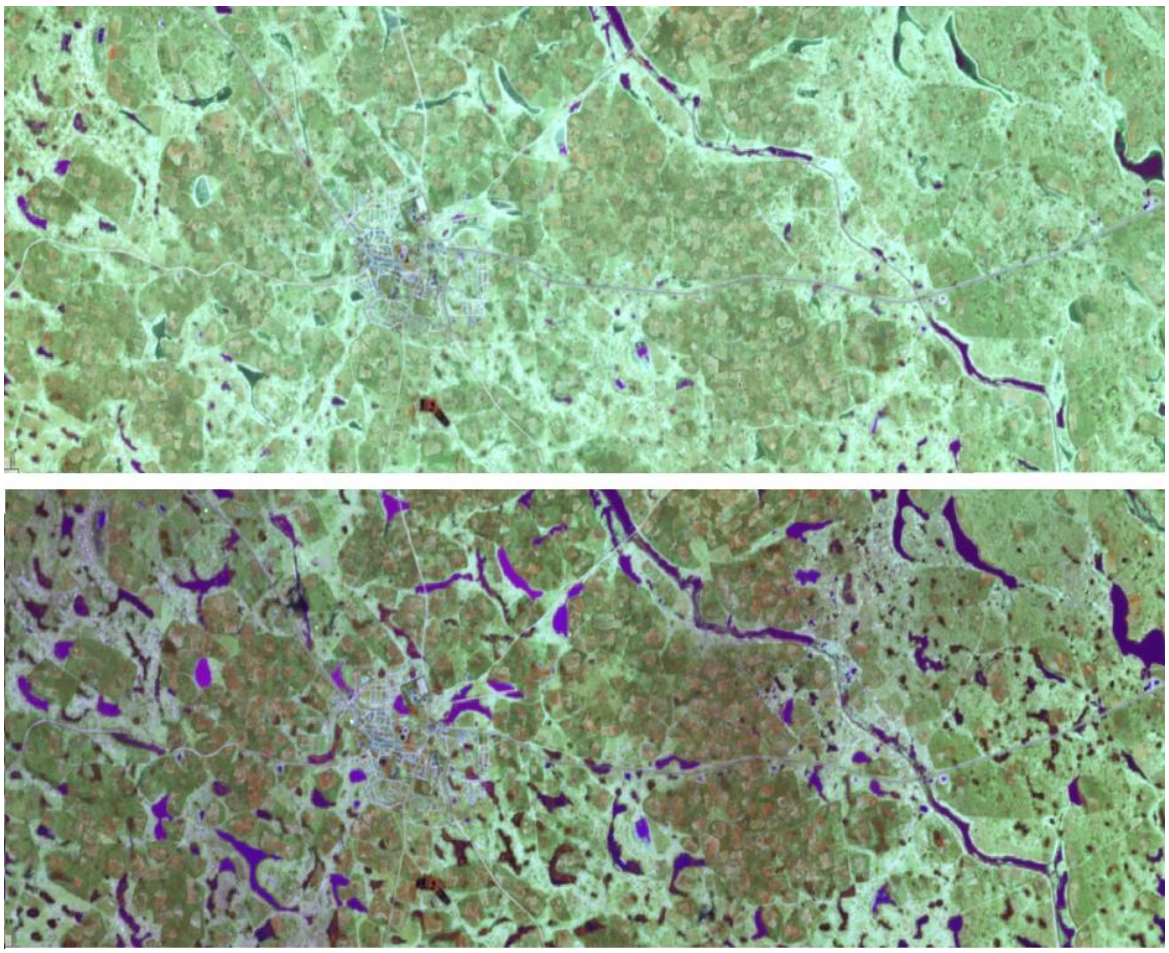


Figure 3: Rainfed crops in Omusati region, near Okahao in April 2018 (top) and April 2017 (bottom). The images are false color composites with red showing active vegetation, with purple water bodies and with light green bare soil or mixture of grass.

Figure 3 shows the negative impact that January dry spells had on the development of rainfed crops, in contrast to the good development of irrigated crops shown in Figure 2. Figure 3 (top) refers to 2018 and shows less healthy vegetation (in red) than Figure 3 (bottom) for the same area in 2017. The figure also shows lower surface water availability (in purple) in April 2018 than at the same time of the previous year.

Another example of the impact of drought on rainfed crops is shown for Oshikoto region in Figure 4 for March 2018 and in comparison with the previous year. Figure 5 shows a zoom of the black rectangles, where field borders of smallholder parcels become visibile.

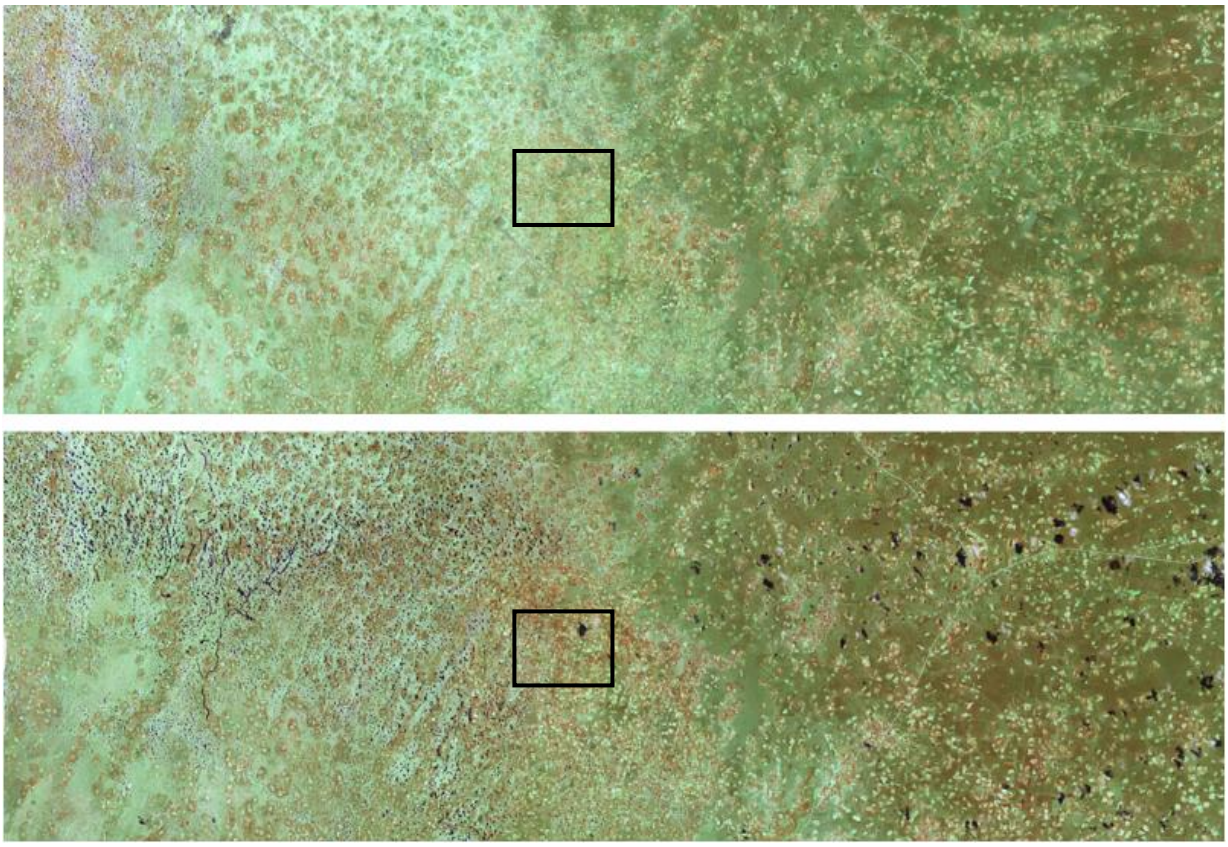


Figure 4: Rainfed crops mixed with natural vegetation in Oshikoto region, in March 2018 (top) and March 2017 (bottom).

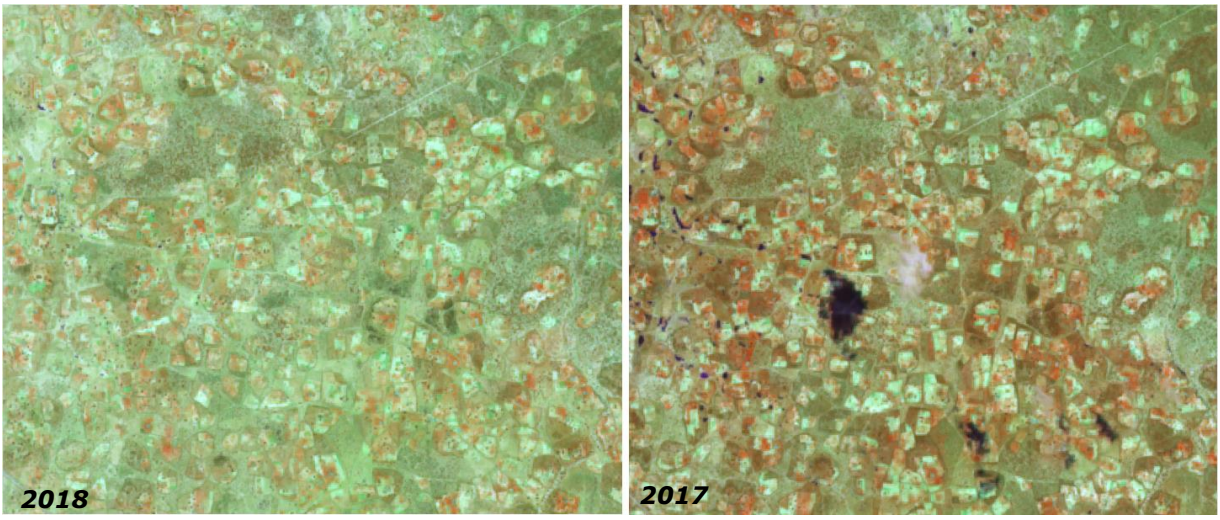


Figure 5: Zoom at field level for the black rectangles in Figure 4.

In Zambia, early season drought affected crops in all provinces. Official national surveys conducted in May-June 2018, indicate that the national production for maize is expected at 2 394 906 metric tonnes, 16% below the 5-year average. The survey also indicates that maize production was severely affected in Southern, Eastern and parts of Lusaka and Northern provinces; while considerably affected in Copperbelt, North Western, Central, Muchinga and Luapula provinces.

In Figure 6, a crop area close to Sipatunyana, in the Southern region of Zambia is visualized on Sentinel2 imagery for 2018 (top) and 2017 (bottom). A major part of the planted area can be seen in light green, instead of red that indicates active vegetation. On the contrary, according to the survey, some pockets of Zambia experienced a boost in production, particularly in North Western, Northern, Copperbelt, Muchinga, Western and Luapula provinces. Local differences in crop management and impact of pest and diseases (e.g. FAW) might have influenced the different production outcomes in these areas.

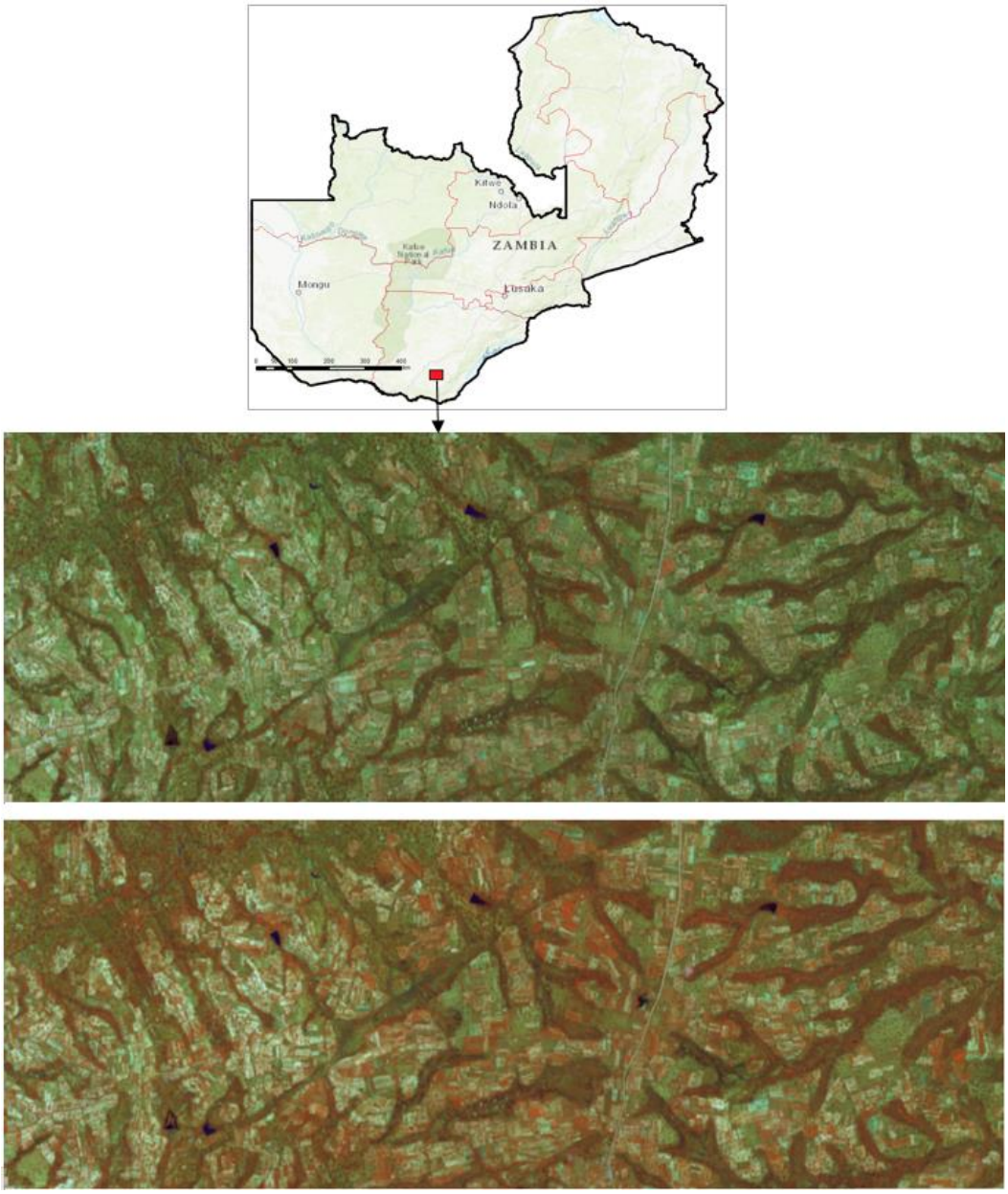


Figure 6: Southern region in Zambia in April 2018 (top) and April 2017 (bottom).

Finally, for Madagascar two examples are presented, one for Androy and one for Atsimo Andrefana, the most drought-affected regions in 2018. The parts of these areas that are visualized in the ASAP high-resolution viewer are shown in rectangles in the map in Figure 7.

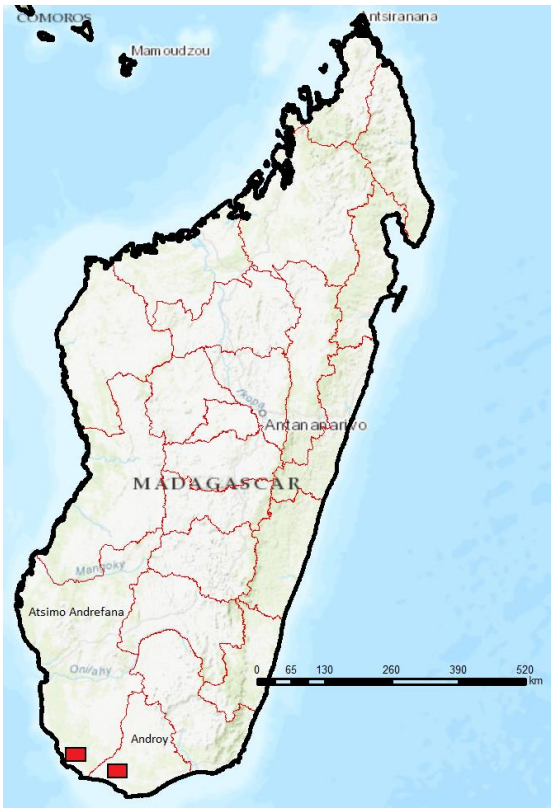


Figure 7: In rectangles are depicted the areas that were visualized in the ASAP high-resolution viewer for Atsimo Andrefana and Androy regions in Madagascar.

In both figures (8 and 10), for the 2018 images (top) all planted area is in light green, indicating bare soil, whereas for the 2017 images (bottom) crops appear mostly red, indicating active vegetation. The area described by rectangles in Figure 8, is shown as field level zooms in Figure 9.

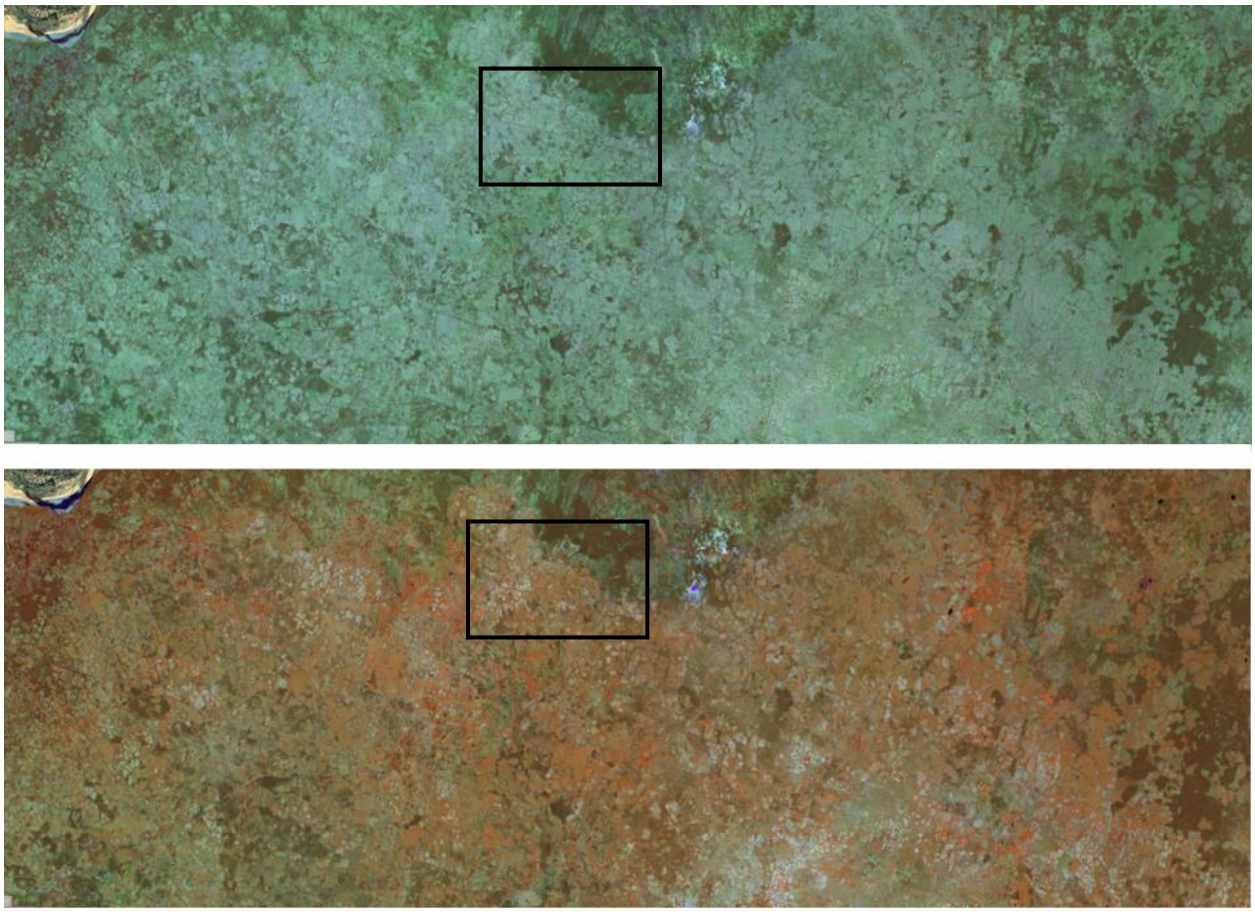


Figure 8: Androy region in Madagascar in March 2018 (top) and March 2017 (bottom).

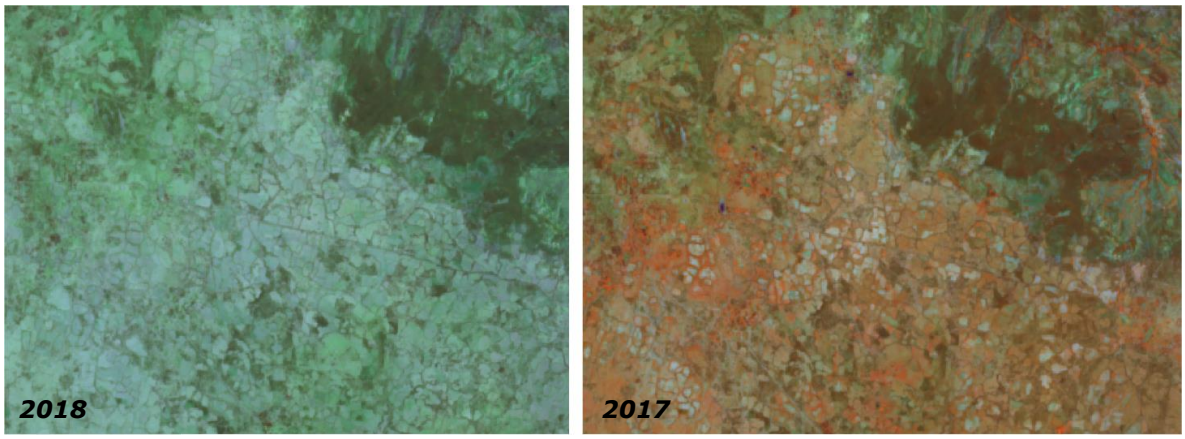


Figure 9: Field level zooms depicting the area inside the black rectangles in Figure 8.

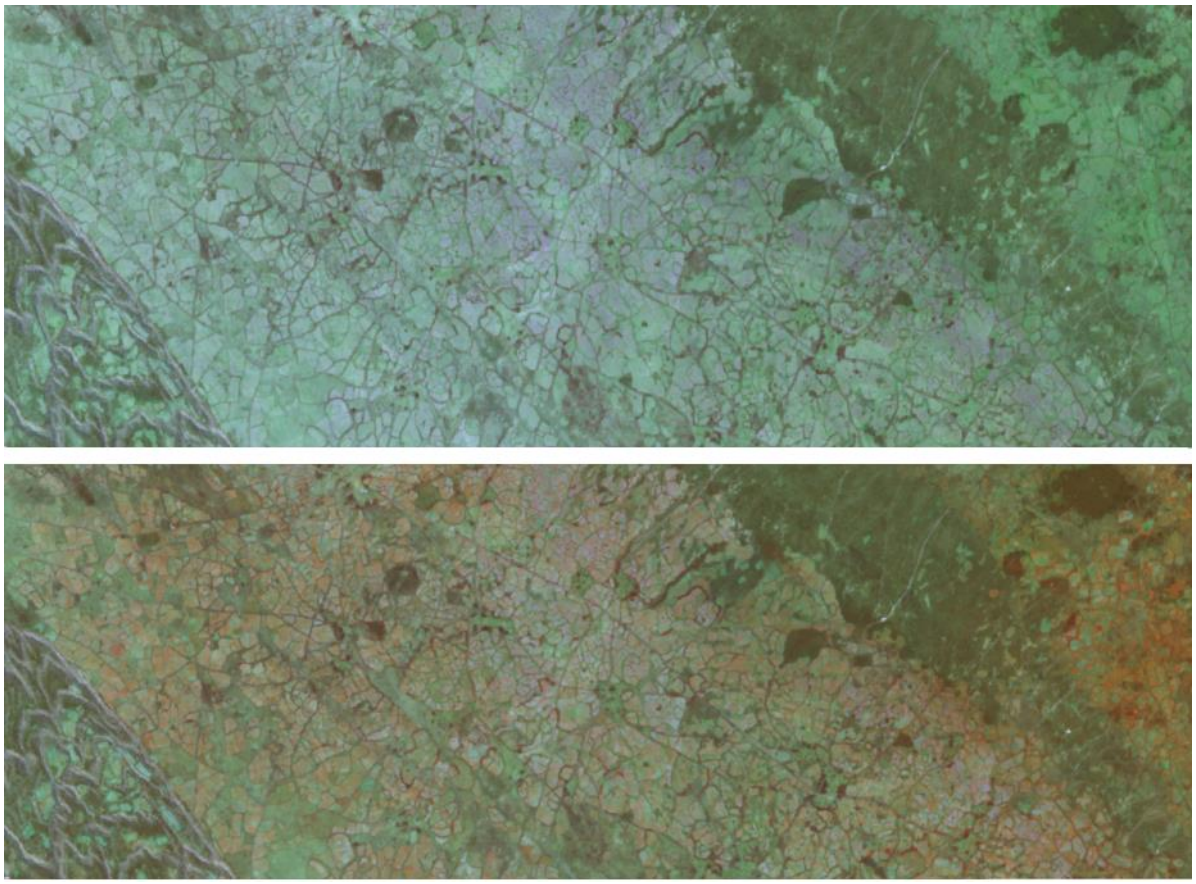


Figure 10: Atsimo Andrefana region in Madagascar in March 2018 (top) and March 2017 (bottom).

More information can be found in the SADC report:

https://www.sadc.int/files/1715/3114/9162/2018_SADC_RVAA_Synthesis_Report__060718.pdf

For any feedback and questions please write to the address below.

Feedback can also be posted on Twitter by including the hashtag: #asapEU

The ASAP team acknowledges Joysee Rodriguez Baide for her contribution to the Zambia section

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