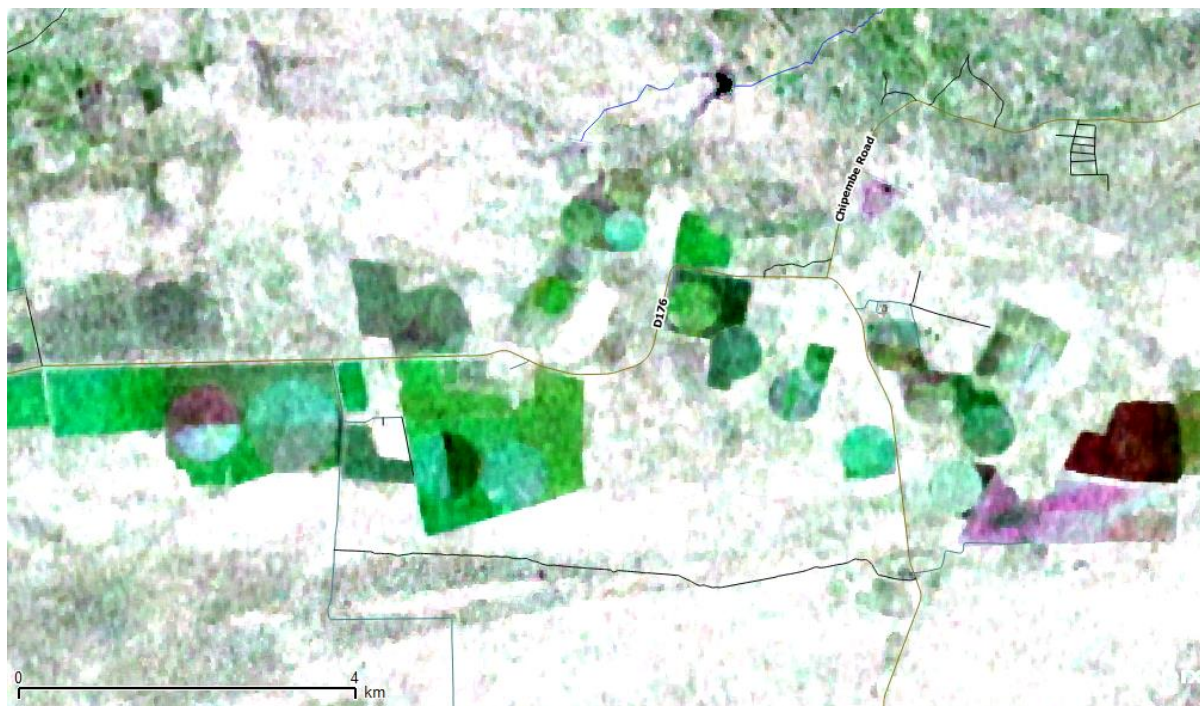


Map product “Evolution”

The map product Evolution is based on a combination of three succeeding ESVI maps. The single files are merged in such way, that each acquisition date is assigned to a different color channel.

The earliest acquisition is assigned to red. The central acquisition is assigned to blue and the last acquisition is assigned to green. The values range from 0 – 100.

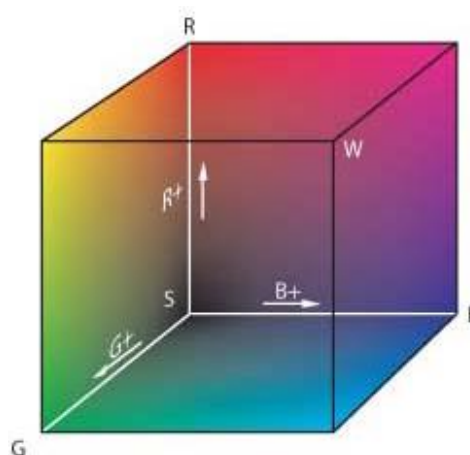


The colors in the map for each pixel are driven by the value combination of the three channels.

If we look at the color scheme, at the right side, we better understand the meaning of the colors in the map.

Pink for example appears when we have a relative low value in green, but high values in red and blue.

Red appears when red has high values, but low values in green and blue, which means for the map product, there was a relative high value at the earliest date, but lower values at the central and last date.

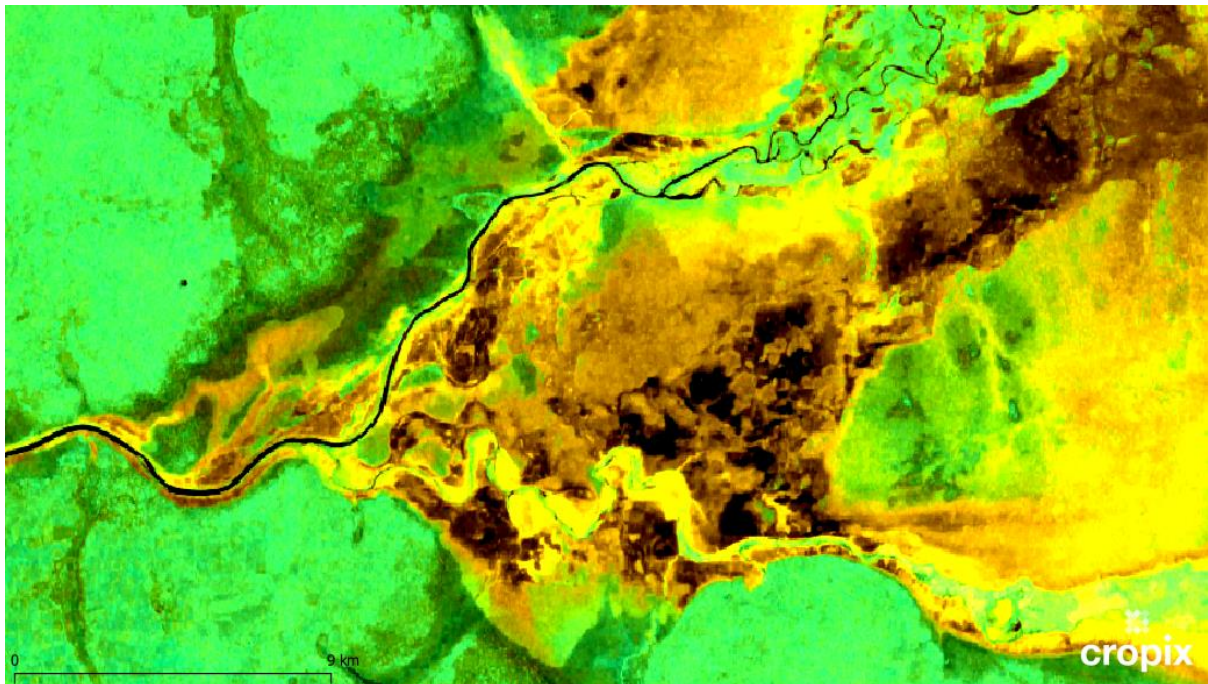


| | Map color which results from the combination of ESVI values | | | | | | | | | |
|---------|---|----|----|----|----|----|----|----|----|----|
| 1. date | 23 | 22 | 2 | 95 | 58 | 29 | 40 | 42 | 74 | 2 |
| 2. date | 32 | 46 | 2 | 93 | 59 | 19 | 26 | 59 | 16 | 58 |
| 3. date | 60 | 66 | 21 | 86 | 41 | 18 | 25 | 54 | 2 | 68 |

Dark colors mean in general low values and bright colors appear where we have high values.

The third example in the table for example is dark green, which means, that the first and second date had very low values. There was probably bare soil condition. The latter something is growing there but the value is still low. Therefore this color shows a change on low level in terms of crop development. It rather shows the evolution than the real condition of the crop.

Another example from Central Province in Zambia: In the center is the Kafue river and a part of the Lukanga swamps. The following image shows the pseudo-true-color image from March 28, 2020.

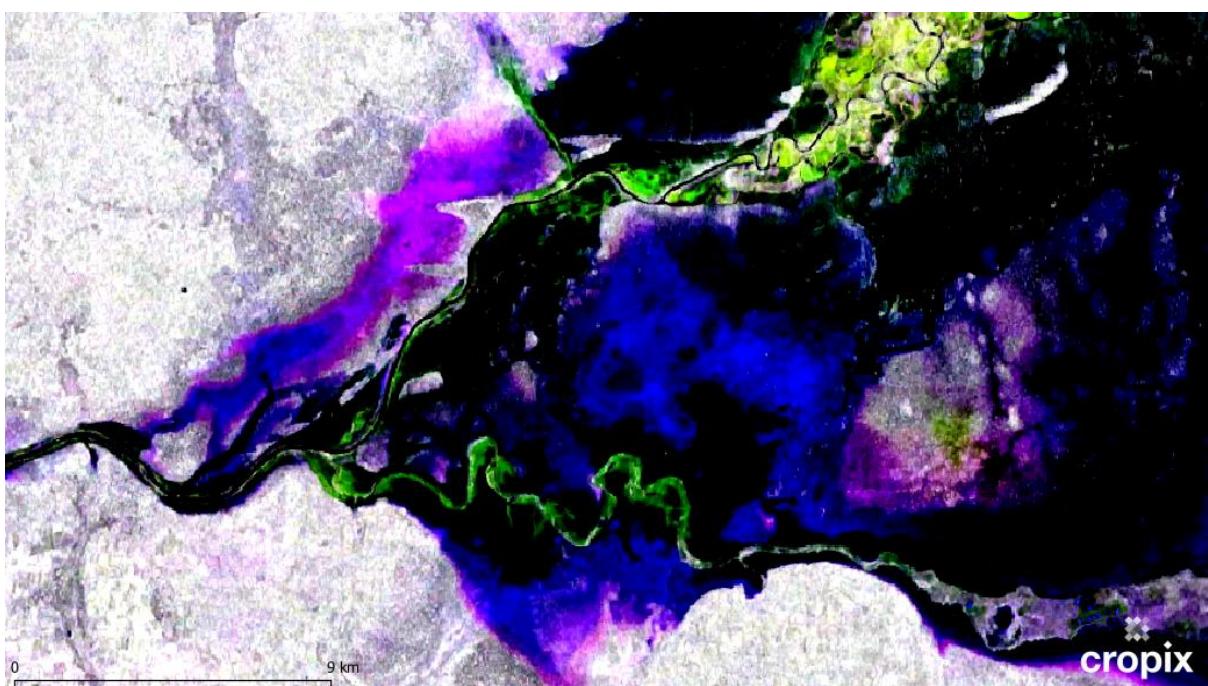


Water from Lukanga swamp normally flows into Kafue river. If the river has a lot of water the swamp gets flooded. The swamp keeps the water for weeks or month and releases it when the water level of the Kafue river drops again in the dry season.

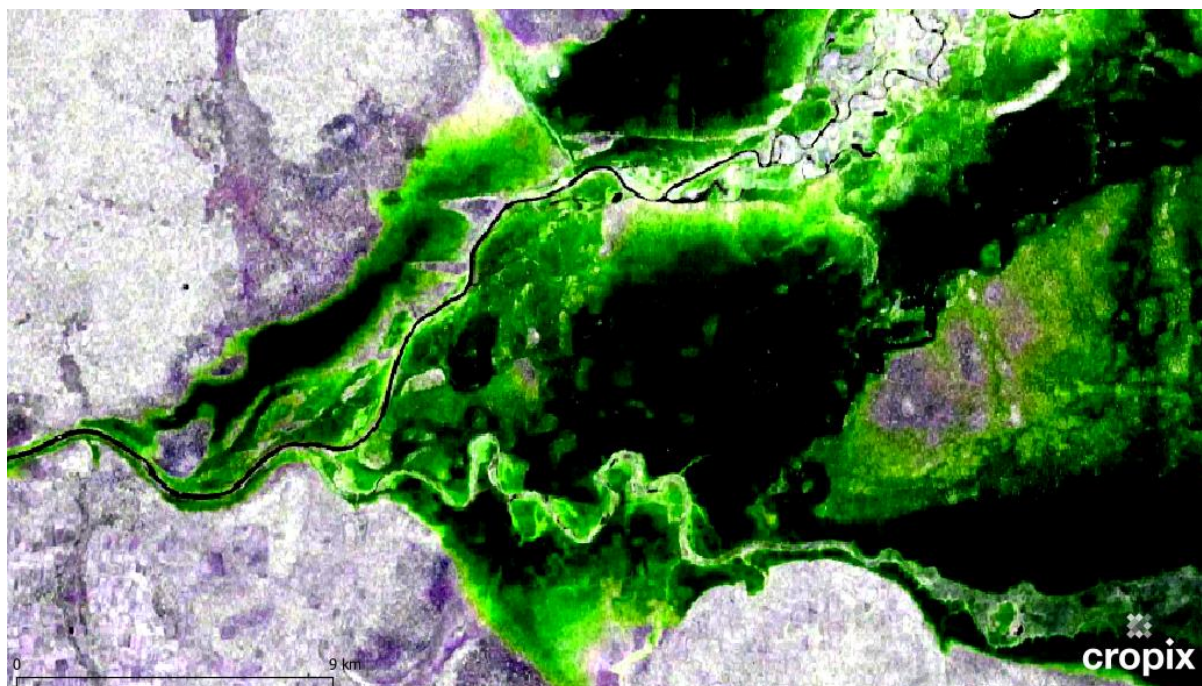
The following map shows the evolution of the past three ESVIs. The last one was on April 9, 2020.

This is one acquisition date after March 28, 2020. The blue channel in the Evolution map product is derived from the ESVI from March 29, 2020. We see that the water flows into the swamp. The swamp is flooded by the Kafue.

Grey color shows a constant condition no matter concerning the absolute value. There is no change.

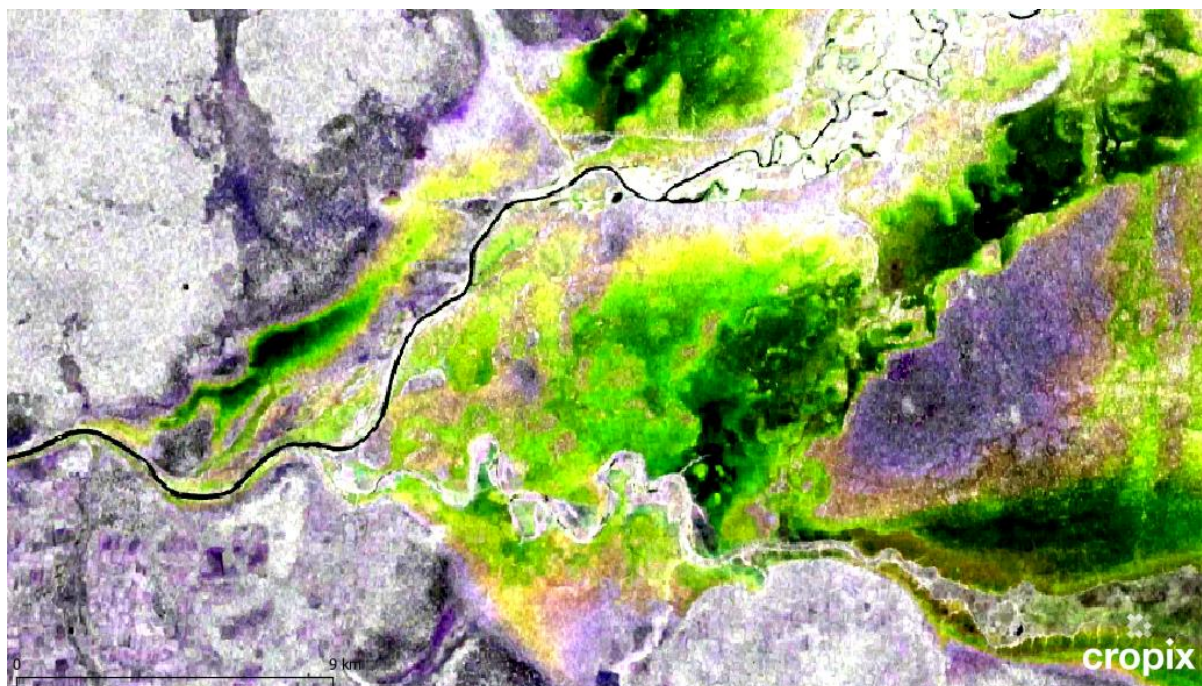


The next image is the Evolution over three acquisitions up to May 15, 2020



It seems the swamp is filled with water in central parts. The edges show an increase of values, which means growth in the past 12 days..

The last one is the Evolution over three acquisitions up to June 8, 2020.



Here we see that the swamp releases the water again. The water drains into the Kafue river.

The map product is not easy to understand and needs some training. But once you have learned to read it you see the trends clearly.