

**MASH, A LOOK DOWN UPON THE EARTH
TO OBSERVE THE SUGARCANE CROPS**



In countries where sugarcane cane is produced by thousands of small growers, that is to say most producing countries, knowing the area of sugarcane already harvested as well as the area still uncut, in near real time, is an impossible mission. This information is, however, crucial for adjusting yield forecasts, cash balances, human resources, and harvest logistics.

This is why we have developed a harvest mapping method based on the free images of the European Sentinel satellites. With systematic acquisitions every 5 to 12 days with several satellites, the automatic processing chain updates the maps every day on a webmapping platform.

Currently used in La Réunion Island, Thailand and South Africa, MASH can be used in any country thanks to extensive image acquisitions on all land surfaces. We offer support and expertise to adapt and transfer this opensource-based tool to your needs.

Contact : mash@cirad.fr
Url : mash.smartis.re



MASH

MApping of Sugarcane Harvest



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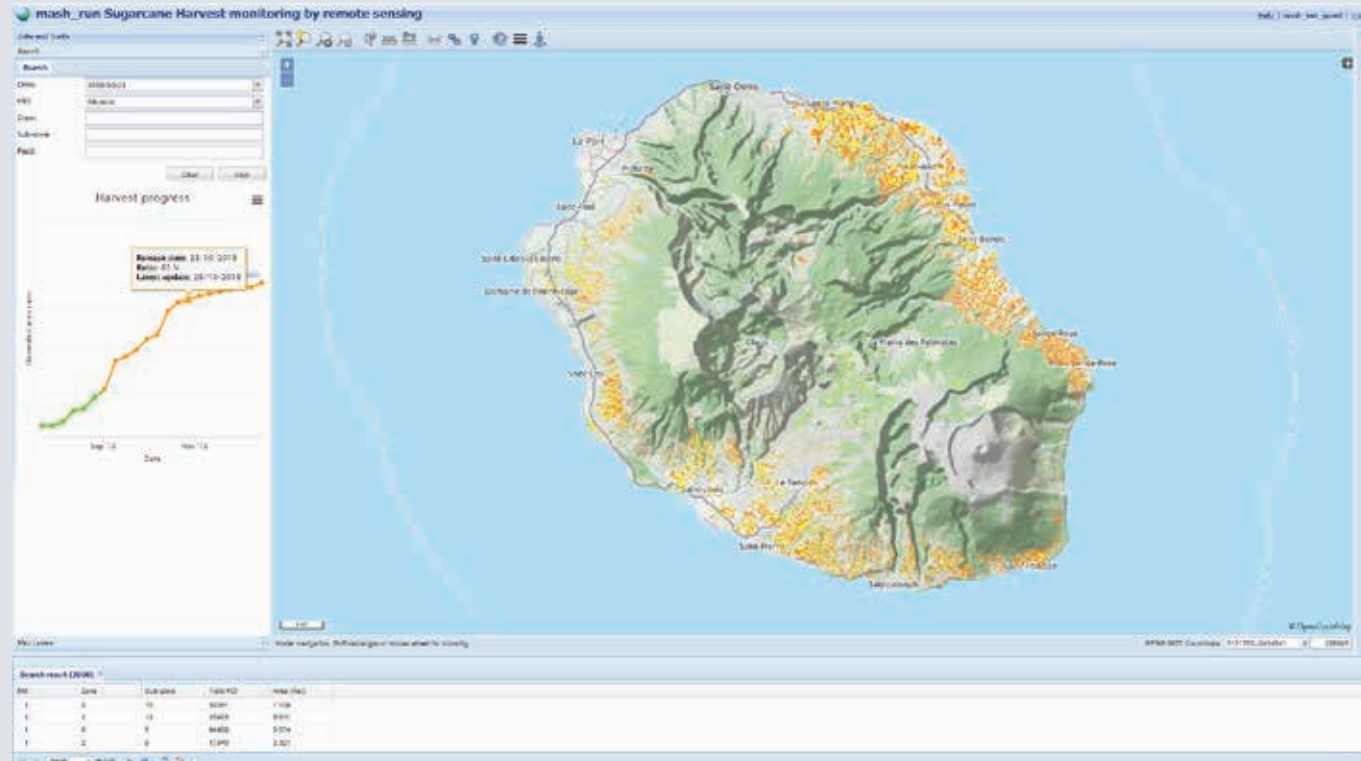
A look down upon the Earth to observe the sugarcane crops and produce near real-time harvest progress maps



MASH

*A look down upon the Earth
to observe the sugarcane crops
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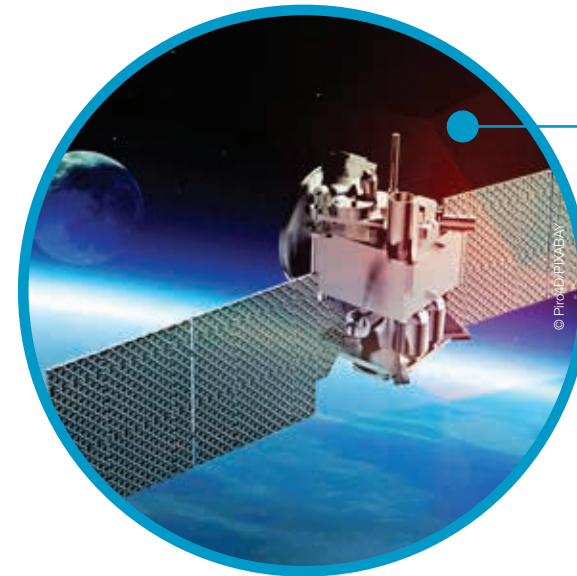


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A COMPREHENSIVE COVER OF LAND SURFACES

Maps are produced by an automatic processing chain that downloads daily from ESA's data hub the satellite images acquired over the production region. It pre-processes the images and classifies the pixels in harvested or unharvested category. Harvest progress maps and harvested area statistics at different geographical levels are then computed.

The Sentinel-1 (Radar) and Sentinel-2 (optical) European satellites provide a high frequency comprehensive cover of all land surfaces. MASH can therefore work in any country.



RADAR + OPTICAL DATA FUSION

The algorithm combines both the optical images of Sentinel-2 satellites and the radar images of Sentinel-1 satellites, which are insensitive to clouds, thus making it possible to detect cut areas for sure.

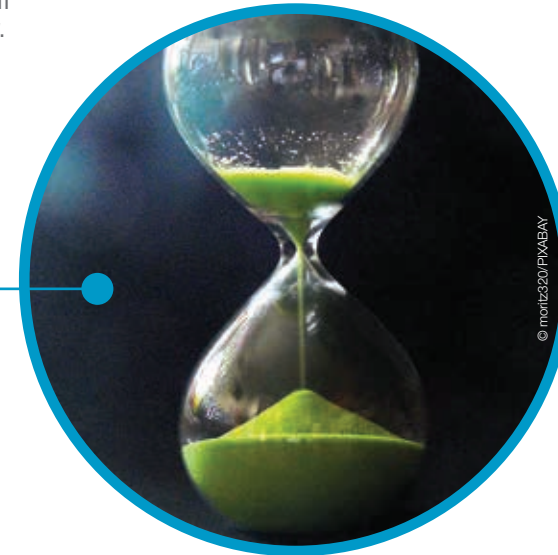


AN AUTOMATIC DATA PROCESSING CHAIN

The data processing chain uses exclusively Open Source software and Operating System to promote technology transfer to our partners with minimum IT and financial requirements.

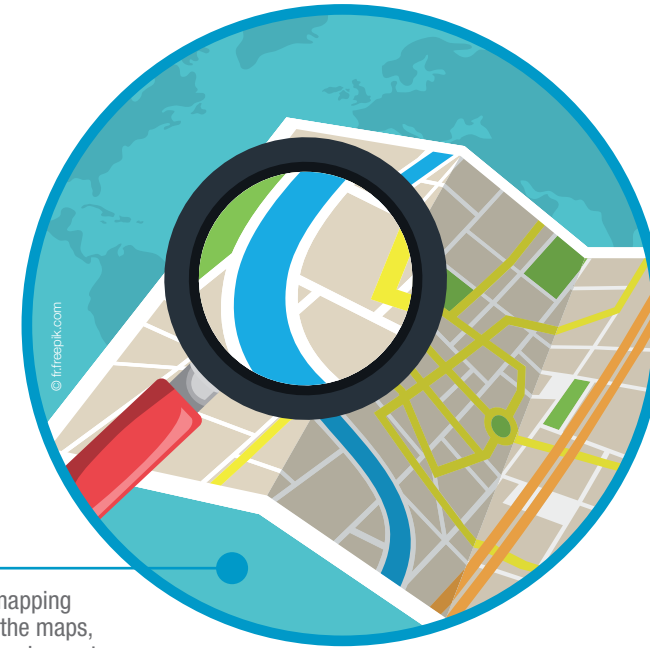
REAL TIME

With 5 to 12 days systematic acquisitions over any location on the continental surfaces by each of the 4 satellites used, the system makes it possible to detect the harvested areas in near-real time, throughout the 5 months of the harvest campaign.



VISUALIZATION TOOL

The harvest maps and harvest statistics are uploaded to a webmapping platform with user profile secure access. The users can browse the maps, go back in time at different dates of the harvest campaign, display harvest progress graphs at different geographical levels and download harvest status history of a selection of sugarcane fields.



COPERNICUS EUROPEAN PROGRAMME

Using the free images of the Copernicus European Space Agency Programme, MASH runs at no image cost.