

# Detect illegal or undesired crops

## Applications

### Crops satellite detection and monitoring

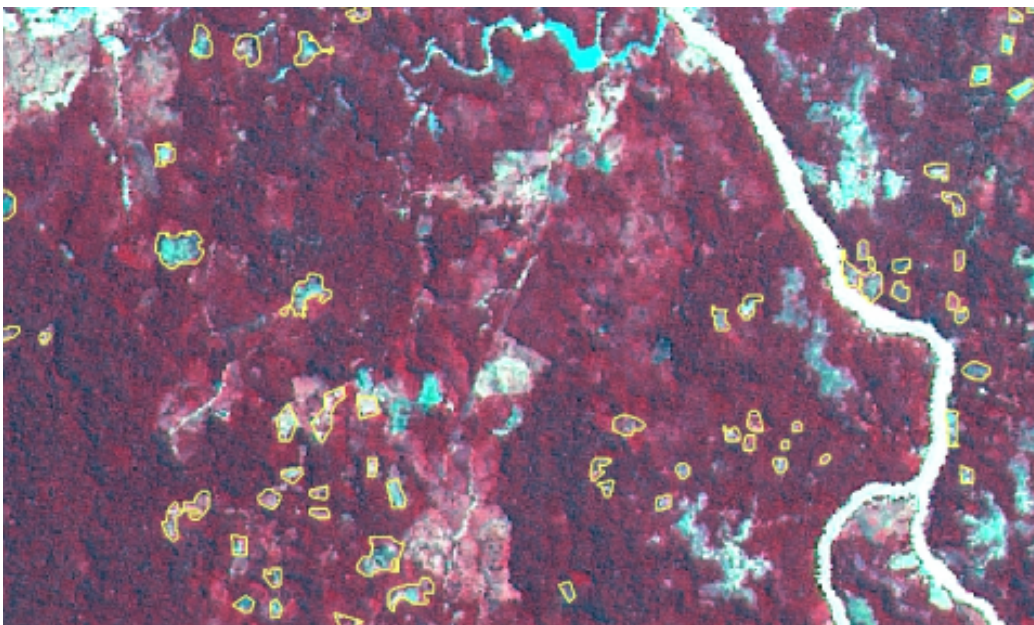
Back in 1999 the United Nations programme charged with reducing illicit drugs began creating its own satellite monitoring system to identify the cultivation of narcotics in the major source countries. A more accurate assessment of the illicit drugs being cultivated should provide a universally accepted benchmark against which countries' promises to reduce drug production could be measured. More intensive satellite surveillance would also expose the so-called balloon effect in which illicit crops reduced or eradicated in one region or country tend to shift to another.

Producer countries' governments may also benefit from tools to monitor illicit drug-growing, focusing specifically on coca and opium cultivation, and the international community may have instruments to control also remote and warfare regions and eventually boost alternative development.



Experience has in fact shown that projects must be complemented by law enforcement measures and drug demand-reduction programmes if they are to produce lasting benefits: in this sense monitoring crop cultivation through ground surveys and satellite reconnaissance to ensure that old crops are not being replaced by new ones.

Other applications of satellite imagery to crop detection let authorities identify illegal genetically modified cultivations or contribute to the general surveillance system to detect any unexpected adverse effects of genetically modified crops, measuring developments in vegetation dynamics. Those data can also be used to identify and monitor unwanted infesting plants, diminishing the need for chemical pesticides, and making farming both cost-efficient and more environment-friendly.



VHR and HR optical data are used and sometimes complemented with VHR radar data to overcome cloud coverage issues. The European FP7 project G-MOSAIC provided for example potential areas of coca and poppy cultivation maps in Colombia and Peru and Mature Coca Index expressing the extent of mature coca plants on the ground.

Colombia potential coca fields (outlined in yellow), SPOT 4.  
Credits: G-MOSAIC

References

<https://www.un.org/ga/20special/featur/crop.htm>  
<http://www.gmes-gmosaic.eu/>

Products

Products	Ext. Source	Descriptions	Product Standards	Ref. Project
illicit crops	<a href="#">G-MOSAIC</a>	<ul style="list-style-type: none"><li>• Potential areas of coca cultivation maps (Colombia) using optical or radar data which provides indicative locations of potential coca plantations.</li><li>• Potential areas of poppy cultivation maps (Peru) using optical data, which provides indicative locations of potential poppy plantations.</li><li>• Mature Coca Index (MCI) using optical data is an index expressing the extent of mature coca plants on the ground.</li><li>• Phenological analysis, detecting anomalous decreases in vegetation vigour as an indicator of illegal activities.</li></ul>		<a href="#">G-Mosaic</a>
Illicit crops	<ul style="list-style-type: none"><li>• <a href="#">Federal Criminal Police Office</a></li><li>• <a href="#">Cuerpo de Asistencia para el Desarrollo Alternativo</a></li><li>• <a href="#">European External Action Service</a></li></ul>	<ul style="list-style-type: none"><li>• Potential areas of coca cultivation maps (Colombia) using optical or radar data</li><li>• Potential areas of poppy cultivation maps (Peru) using optical data</li><li>• Mature Coca Index (MCI) using optical data</li><li>• Phenological analysis</li><li>• <a href="#">service portfolio</a></li></ul>		indra gisat astrium JRC

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References

Topic	Description	Key words	References