

Zukunft des Einsatzes von Fernerkundungsprodukten in der
Entwicklungszusammenarbeit

Cloud based early warning system for monitoring forest disturbances in Ecuador



Desarrollo e implementación piloto del Sistema de Alertas Tempranas (SATA) del Sistema Nacional de Monitoreo de Bosques de Ecuador

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**Objectives:**

Design and implementation of a pilot for a early warning system (Sistema de Alertas Tempranas = SATA)

- alerts of deforestation and on active fires
- provide information in NRT of less than 15 days
- validate in selected provinces
- to be rolled out to national level

Context:

National Forest Monitoring System
incl. LU Change Monitoring System,
Degradation Monitoring System

Client:

Ministry of Environment Ecuador (MAE)

Funding:

Kreditanstalt für Wiederaufbau (KfW)

Implementation period:

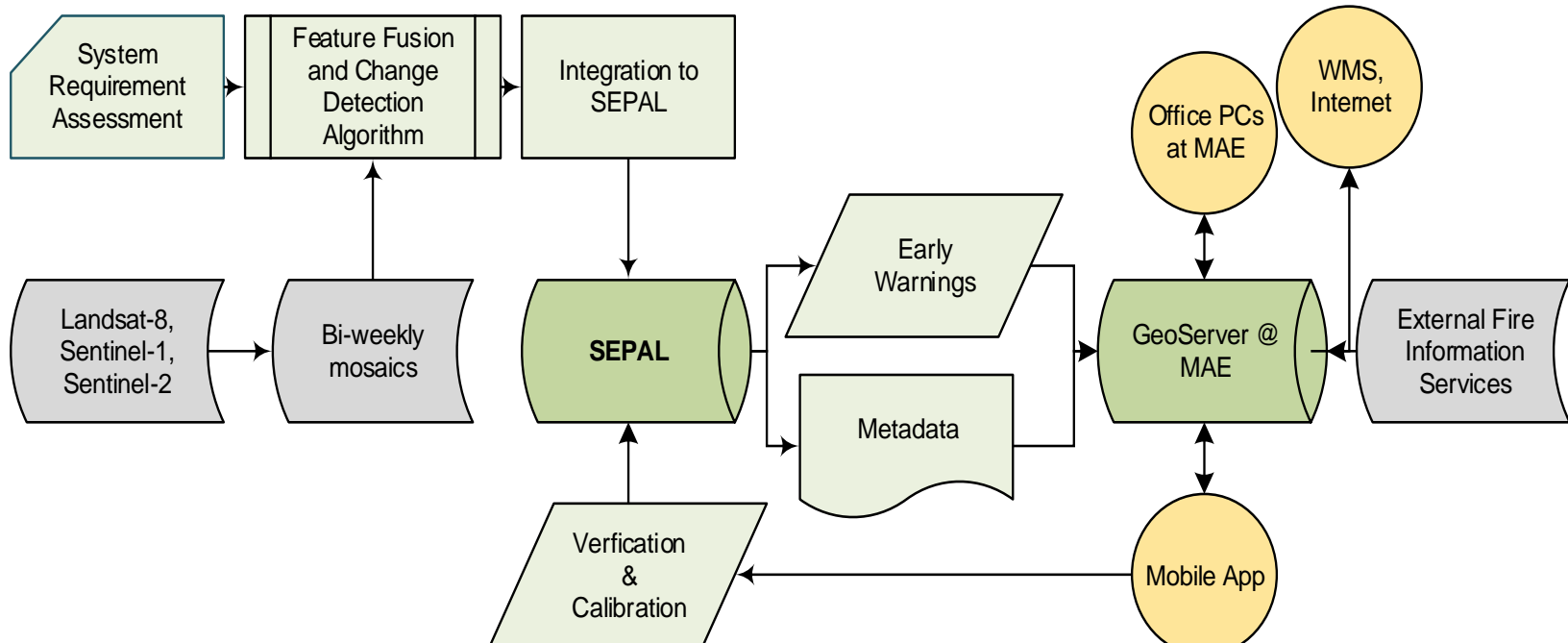
from 01 July to 31 December 2018

Funding volume:

600,000 USD

Activities:

- Design the architecture of SATA and its components to monitor deforestation and fires in near-real time based mainly on **Sentinel-1 (S-1)**, **Sentinel-2 (S-2)** and **Landsat** satellite mission data.
- Develop and implement the chain of canopy disturbance detection in quasi-real time operating in automated mode in the SEPAL integrating it with the monitoring of active fires by external services.
- Built a Geo-Server that hosts and distributes the deforestation and fire alerts offering OGC services (e.g. WFS, WMS).
- Develop a mobile application linked to different information systems of MAE for collection, measurement, and reporting of observations on territory, which are fed back to the Geo-Server.
- Develop early warning management models for different sectors (forest sector, conservation, Socio Bosque Program, fire management) and validate them through pilot tests in the Orellana and Morona-Santiago provinces.
- Train the technical team of the MAE in the operation and maintenance of SATA.



Status – experiences – preliminary conclusions:

- Dense time series analysis
 - increases mapping accuracy,
 - compensates for data gaps caused by cloud coverage
 - improves analysis of human induced changes
 - makes early detection of deforestation and forest degradation events possible
- .. can only be done efficiently in cloud setting
- Results are produced and put on MAE geoserver - MMU: 0,5 - 1ha
- Focus on optical data (S2 and Landsat), SAR less useful in setting where mostly gradual deforestation without pronounced clearcuts
- Priority on 3 monthly updates with better quality than on 15 day NRT information (cloud cover issue)
- Validation is currently ongoing (5 local staff involved...)



Danke für die Aufmerksamkeit

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