



The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 262786 EUFODOS

A message from the coordinator

By Mathias Schardt, Joanneum Research

EUFODOS is currently in an intensive phase, because the project ends by the end of 2013. Thus, all partners are engaged to finalise their downstream services in time. Many meetings with the users take place in this phase. Besides, the partners are busy to initialise a Pan-European service based on the technologies implemented within EUFODOS. We expect to present you some more results within the next few weeks. Finally, we are looking forward to our final meeting on 2nd December in Brussels.

Forest Downstream Services development for South Tyrol

By R. Sonnenschein, M. Zebisch, R. Remelgado, EURAC and G. Unterthiner, Department of Forest Planning, Autonomous Province of Bolzano

The Institute for Applied Remote Sensing of the European Academy of Bolzano (EURAC), Italy is developing satellite based Forest Downstream Services to assess forest damages caused by storm, snow, insects and droughts. These services use existing HR Forest CORE services as a reference input and evaluate their importance for timely, accurate and cost-efficient mapping of damaged areas.

In this issue

- Message from the coordinator
- Forest Downstream Services development for South Tyrol

Contact

Secretariat,
EUFODOS UEB
Stefanie Linser
stefanie.linser@umweltbundesamt.at

Within the framework of the EUFODOS project, EURAC is working in close cooperation with the Department of Forest Planning of the Autonomous Province of Bolzano (South Tyrol), Italy. Forest covers about 50% of South Tyrol and plays an important role for the rural economy but has also an important protection function against landslides and avalanches and a recreation function in one of the major tourist destinations in the Alps. Until now, forest damages in the province of Bolzano (South Tyrol) are only broadly geo-located and documented by local foresters in the field but a consistent and spatially explicit mapping of the damage extents required to support forest management actions is missing. Moreover, the Department of Forest Planning lacks a geo-information system to store and manage all forest damages and their causes.

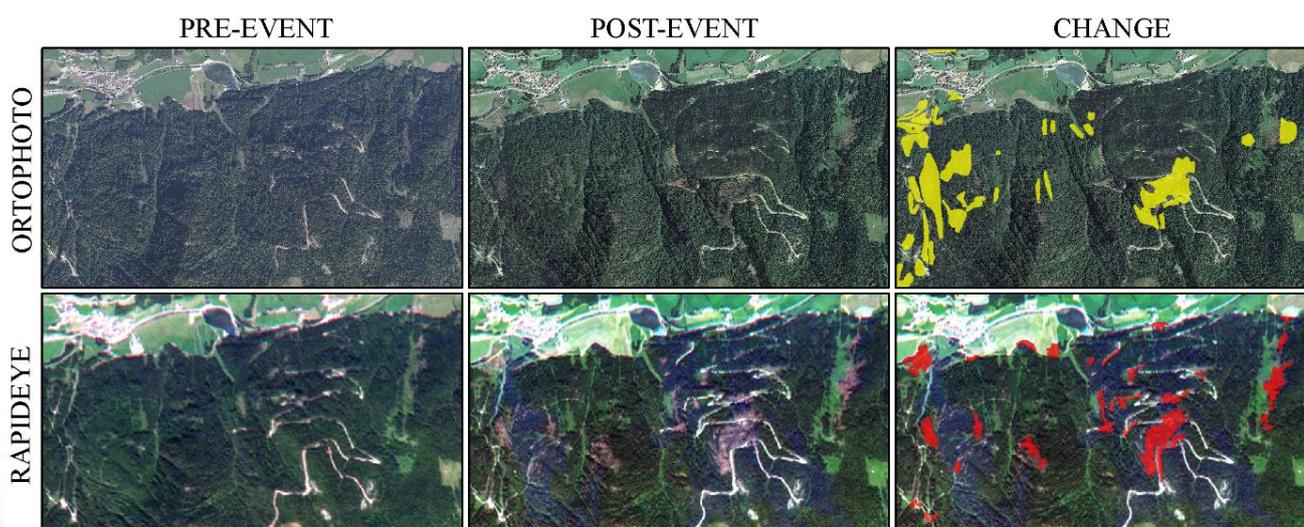
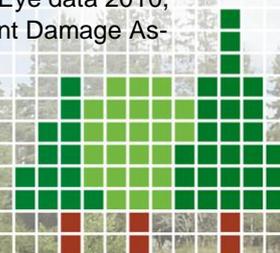


Figure 1: Images before and after the storm event (top: Orthophoto mosaic 2008, 2011, bottom: RapidEye data 2010, 2011). The right column shows the damages registered by the foresters (top) and detected by the Event Damage Assessment Service (bottom) (Source: EURAC).





The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 262786 EUFODOS

EURAC is developing tailor-made services for the Autonomous Province of Bolzano to address these two major issues by providing services to map forest damages and to establish a Forest Damage Information System (FODIS).

Event Damage Assessment Service

The development of the Event Damage Mapping Service was driven by a storm event causing severe damages in the eastern part of South Tyrol on the 22.06.2011. Overall, 85 damages were registered within three different forest stations by local foresters (Figure 1). Satellite data (RapidEye) covering the affected area and surroundings were acquired by EURAC before and after the storm event and an automatic and data independent procedure to derive damaged areas was established, meeting the specific user requirements. Thereby, the HR Forest CORE Layer Forest Mask is used to mask all changes outside the forested area and only those areas with a minimum mapping unit of 0.1 ha are considered.

Annual Damage Assessment Service

During the project time of the EUFODOS project, the Event Damage Assessment Service was enhanced to an Annual Damage Assessment Service as the results of the service example of the storm event clearly outperformed the mapping attempts of the foresters (Figure 1). This Annual Damage Assessment indicates all forest changes on a yearly basis and has been established for the period 2009-2013 using RapidEye data (Figure 2). This service has been developed to make changes comparable among years and to allow a regional assessment using image mosaics comprising of multiple images per year.

Forest Damage Information System Service

The main objective of the Forest Damage Information System Service is the development and implementation of a geo-information system to store and manage all forest damages and their causes in the Department of Forest Planning. This system will be accessible by the local foresters who will feed the system with damages in their forest stations by using standard editing GIS tools (reading of GPS tracks, digitizing, labelling). A major component of the Forest Damage Information System is the integration of the Event Damage Assessment and the Annual Damage Assessment Services. The visualization of these services as a base damage layer will ease and support the foresters work.

The Forest Damage Information System Service and the integrative Damage Services will be permanently sustained after the EUFODOS project time. This will allow the development of further remote sensing based services in the future where ground information was lacking until now (e.g. insect infestations) by exploring the damage database as a reliable and spatially explicit in-situ reference source. Moreover, as the land monitoring CORE services are now operationally produced on a European scale with frequent updates (GMES Initial Operations), the developed Downstream Services can easily be extended to other regions.

Upcoming event

EUFODOS Final Meeting, 2-3 December 2013 in Brussels, Belgium. **Open for all interested stakeholders.** Contact: eufodos@joanneum.at, <http://www.eufodos.info/>

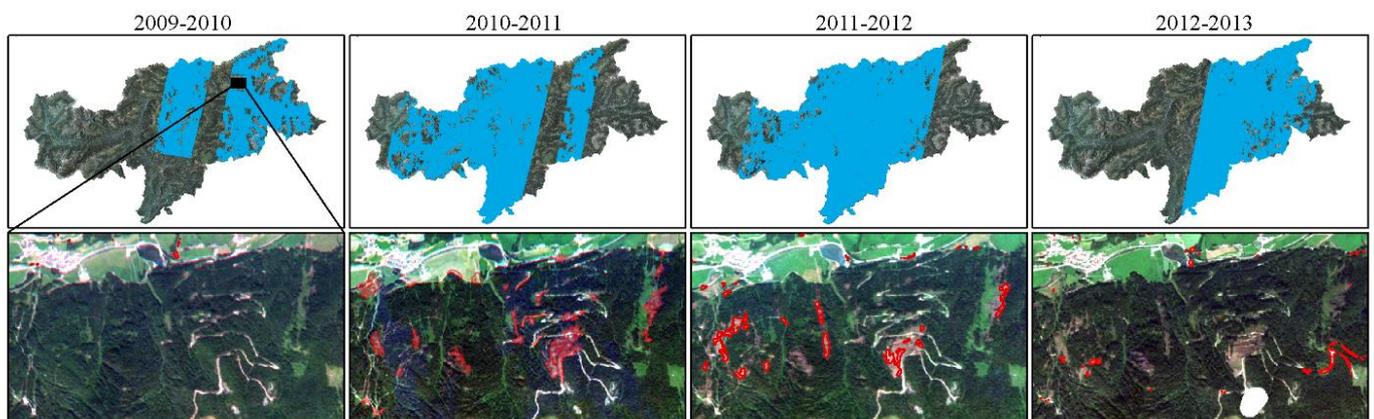


Figure 2: Overlapping areas between the subsequent years in the period 2009-2013 (top) and bi-annual changes detected by the Annual Damage Assessment Service (bottom) (Source: EURAC).