Österreichischer GEO Workshop, 10.12.2012

EUFODOS

European Forest Downstream Services - Improved Information on Forest Structure and Damages

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DI Klaus Granica, Joanneum Research

Inhalt

- Projektziele
- Vorstellung des Konsortiums, der Nutzer und der Nutzergemeinschaft
- Testgebiete
- Anwendungen und Produkte
- Erste Ergebnisse

- http://www.eufodos.info/

Ziele von EUFODOS

- Entwicklung von operationellen *Down Stream Services* für eine effektive Waldschadensfeststellung und eine automatisierte Ableitung von Waldparametern basierend auf *GMES* Land / Wald *Core* Produkten

- *Laufzeit: 1.1.2011 – 31.12.2013*

Konsortium

- **JOANNEUM Research (JR),** Österreich, Projekt Koordinator
- **GAF AG**, Deutschland
- **Technical Research Centre of Finland** (**VTT**), Finnland
- **Abteilung Fernerkundung und Landschaftsinformationssysteme FeLis**, Forstwissenschaftlichen Fakultät der Albert-Ludwigs-Universität Freiburg **(ALU-FR)**, Deutschland
- **RapidEye (RE)**, Deutschland
- **Europäische Akademie Bozen** (**EURAC**), Italien
- **Remote Sensing Application Centre** (**ReSAC**), Bulgarien
- **Umweltbundesamt GmbH (EAA)**, Österreich

EUFODOS Nutzer

- **Österreich** – Landesforstdirektion Steiermark
- **Deutschland** – Landesforstverwaltung Thüringen
- **Polen** - Local Forest Authority, Regional Directorate of State Forests Wrocław
- **Italien** – Amt für Forstplanung der Autonomen Provinz Bozen Südtirol
- **Bulgarien** - Executive Forest Agency
- **Finnland** - Stora Enso
- **Österreich** – Umweltbundesamt GmbH

UEB – EUFODOS Nutzergemeinschaft

Warum?

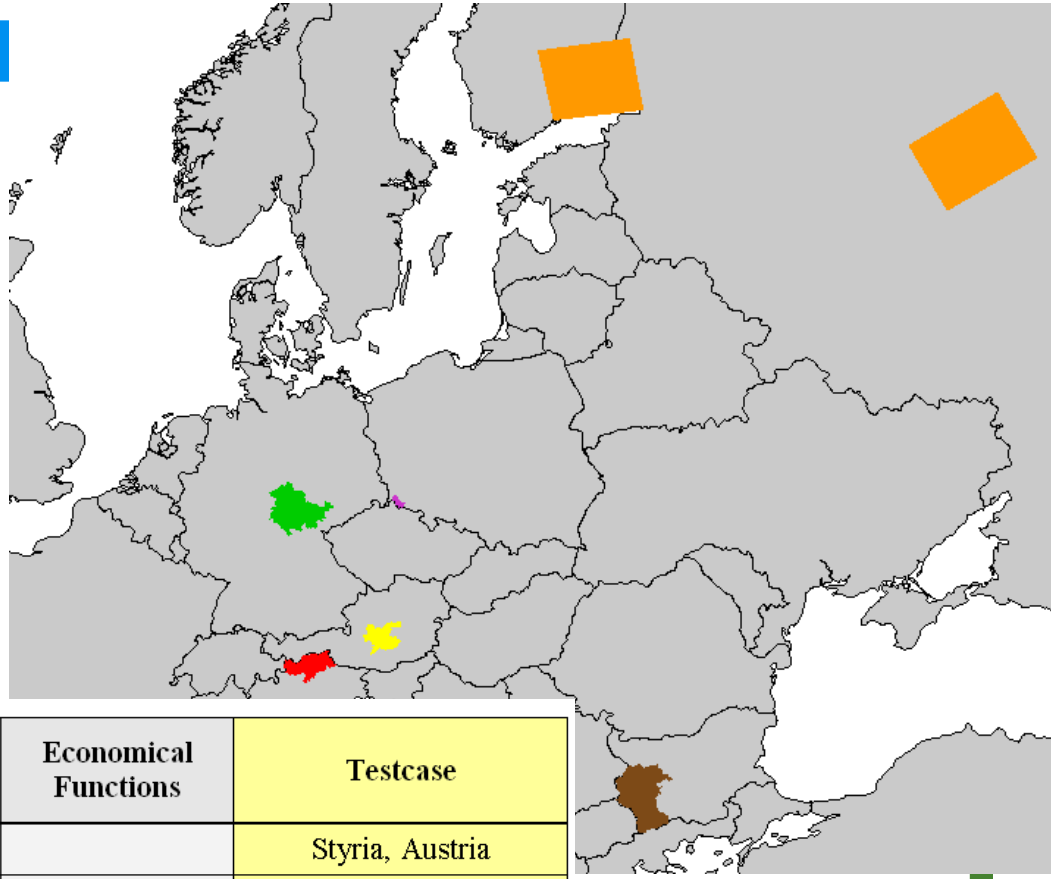
- Orientierung der Produktentwicklung an den Bedürfnissen der Anwender

Leistungen:

- Informationsaustausch
- Erhebung der Nutzer-Bedürfnisse und Brauchbarkeits-bewertungen
- Newsletter zur Präsentation aller Services und Ergebnisse

Testgebiete

- In der gemäßigten und der borealen Zone
- In 7 Ländern
- Für 7 Nutzer



Fast Storm Damage Assessment	Storm Damage Assessment	Assessment of Insect Infested Areas	Ecological Functions	Economical Functions	Testcase
	JR		JR		Styria, Austria
GAF	GAF	GAF			Thuringia, Germany
RE	RE	RE	RE		Swieradow, Poland
			EURAC		Bolzano, Italy
	RESAC		RESAC		Sofia, Bulgaria
				VTT	Finland & Russia

Anwendungen und Produkte

- Sturmschaden
- Waldbrand
- Schneebruch
- Insektenbefall
- Ökologische Parameter
- Ökonomische Parameter

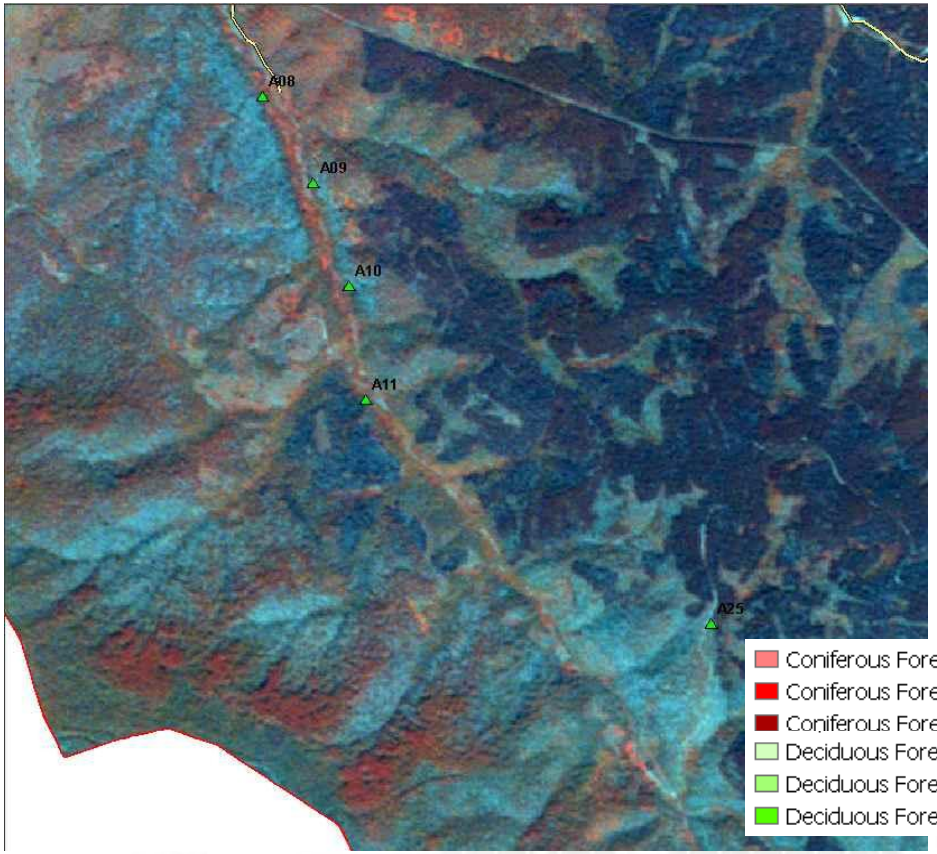
Forest Damage Assessment – Rush Services		
Service/Product Name	**SP**	**User Organisation**
Fast/Rapid Storm Damage Assessment	GAF	Thuringian State Institute for Forest, Game and Fishery
Forest Change Map for Windfall Areas	RapidEye	Local Forest Authority of the state forests in the Western Sudety mountains, Regional Directorate of State Forests Wroclaw
Rapid Mapping for Disaster Management	RESAC	The Executive Forest Agency (SFA), Sofia. SFA, Council of Ministers, Bulgaria
Forest Damage Assessment – Non-Rush Services		
Service/Product Name	**SP**	**User Organisation**
Event Maps	EURAC	Autonomous Province of Bolzano, Department of Forest Planning
After Event Monitoring Product	EURAC	Autonomous Province of Bolzano, Department of Forest Planning
Spatially explicit Forest Damage Information System	EURAC	Autonomous Province of Bolzano, Department of Forest Planning
Detailed Storm Damage Assessment	GAF	Thuringian State Institute for Forest, Game and Fishery
Insect Infested Damage Assessment	GAF	Thuringian State Institute for Forest, Game and Fishery
Forest Degradation Mapping	JR	Styrian Forestry Board
Ecological and Economical Functions / Forest Parameters		
Service/Product Name	**SP**	**User Organisation**
Base data on forest and potential risk on forest	EURAC	Department of Forest Planning - Autonomous Province of Bolzano
Impact of Forest Degradation on Forest Functional Indicators	JR	Styrian Forestry Board
Forest Vitality Map	RapidEye	Local Forest Authority of the state forests in the Western Sudety mountains, Regional Directorate of State Forests Wroclaw
Stem Volume Map with Tree Species	VTT	Stora Enso
Map and GIS database for the forest areas and forest area changes	ReSAC	The Executive Forest Agency (SFA), Sofia. SFA, Council of Ministers, Bulgaria
Map and GIS database for forest fire infrastructure	ReSAC	The Executive Forest Agency (SFA), Sofia. SFA, Council of Ministers, Bulgaria

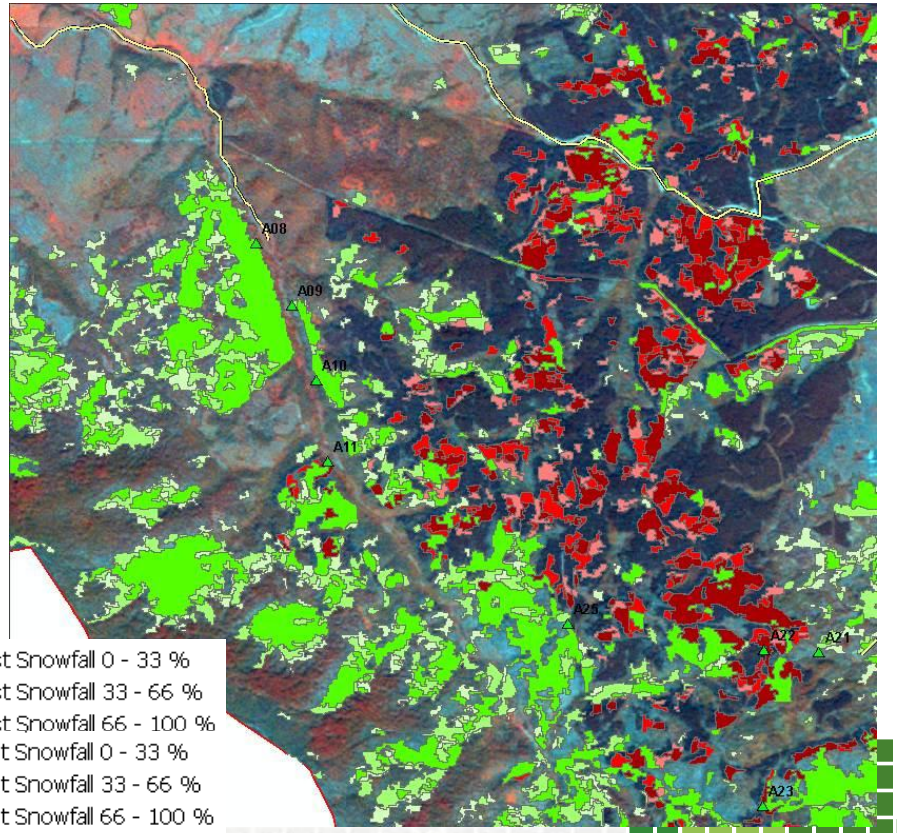
Anwendung der Produkte und Services

- Zur Schadensfeststellung und Einleitung von Folgemaßnahmen
- In der nachhaltigen Bewirtschaftung von Schutzwäldern
- In der nachhaltige Bewirtschaftung von Wirtschaftswäldern
- Für die Berichterstattung

Erste Ergebnisse - Schneebruch

- Schäden durch Schneebruch (0-100%) nach Waldtyp (Nadelwald und Laubwald)



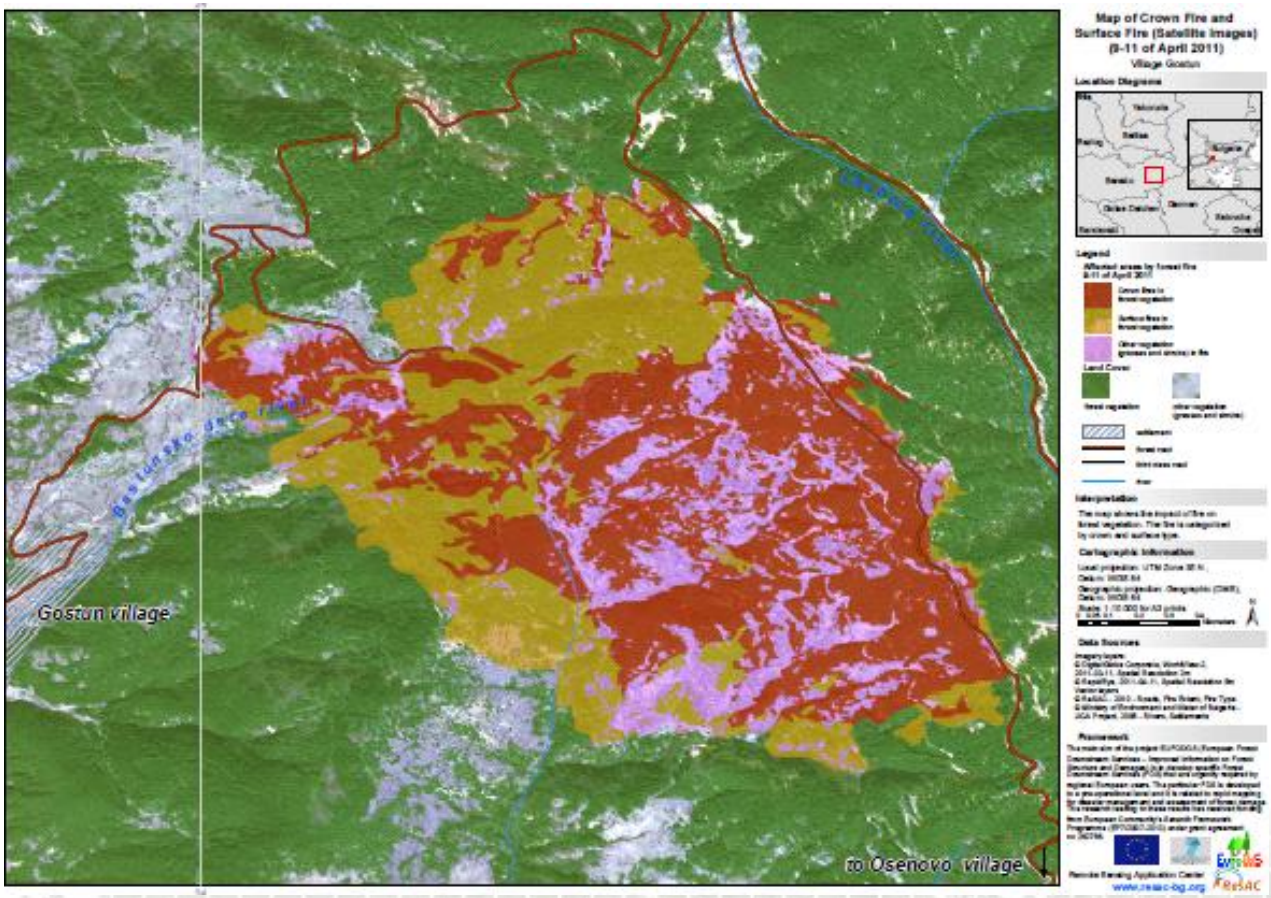


Satellitenbild vom 2. Mai 2012

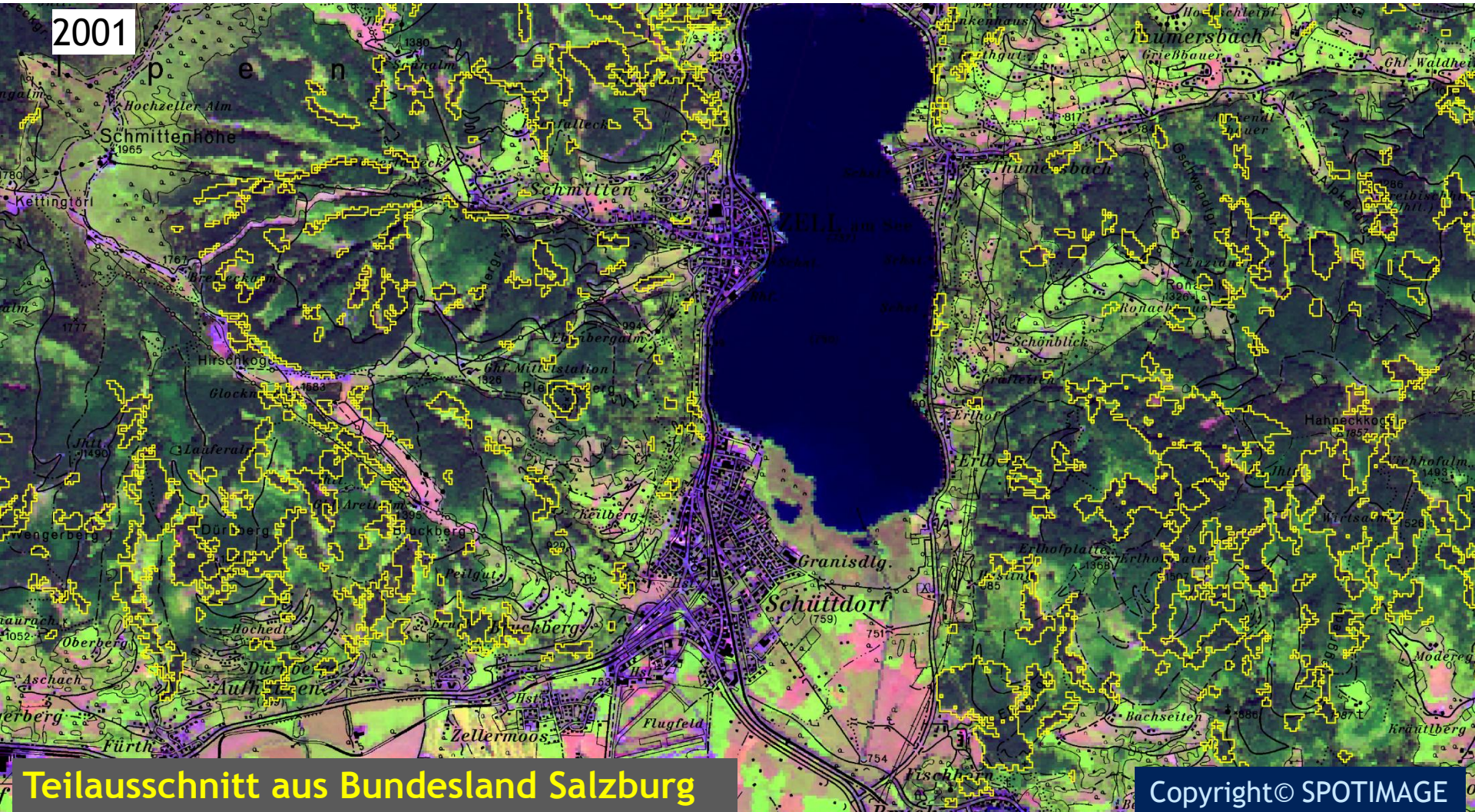
Auswertung der Schäden durch Schneebruch nach Waldtyp

Erste Ergebnisse - Waldbrand

Schäden durch Waldbrand nach Feuerart (Kronenfeuer, bodennahes Feuer)

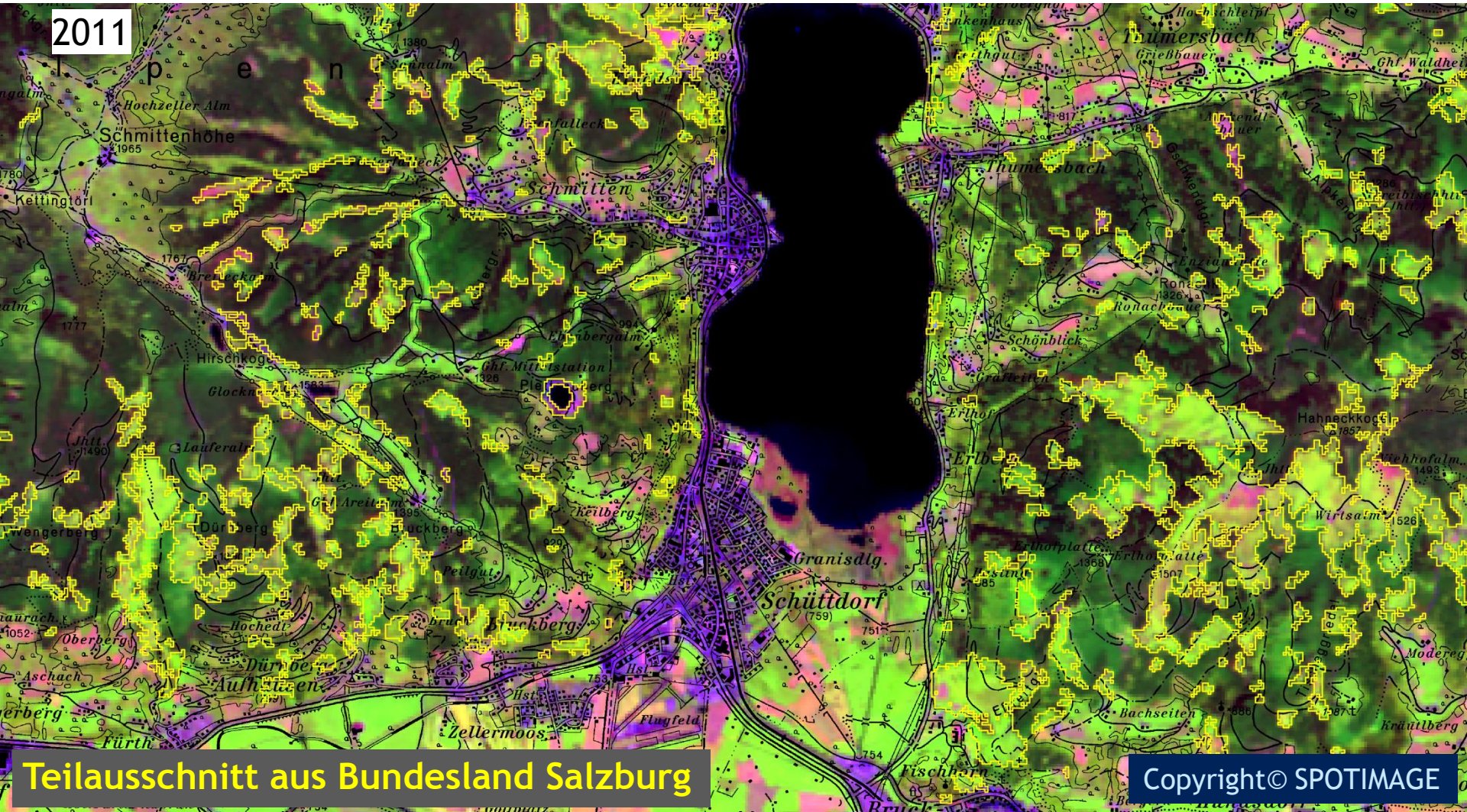


Erste Ergebnisse - Waldflächenveränderungen



Teilausschnitt aus Bundesland Salzburg

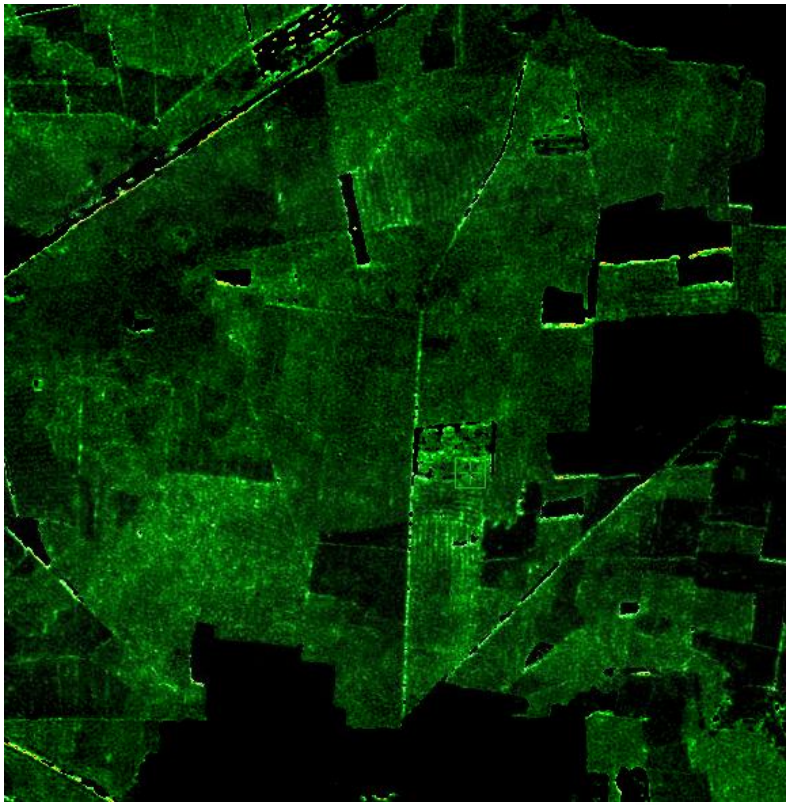
Erste Ergebnisse - Waldflächenveränderungen



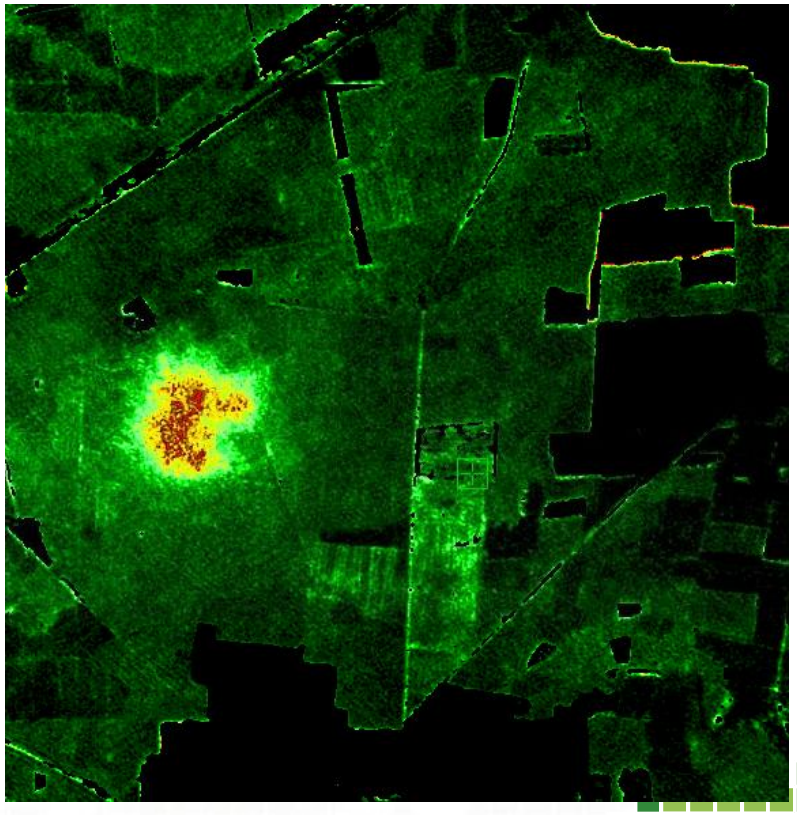
Teilausschnitt aus Bundesland Salzburg

Erste Ergebnisse - Insektenbefall

Befall von Nonne (*Lymantria monacha)* in Kiefernbeständen in Brandenburg 2011

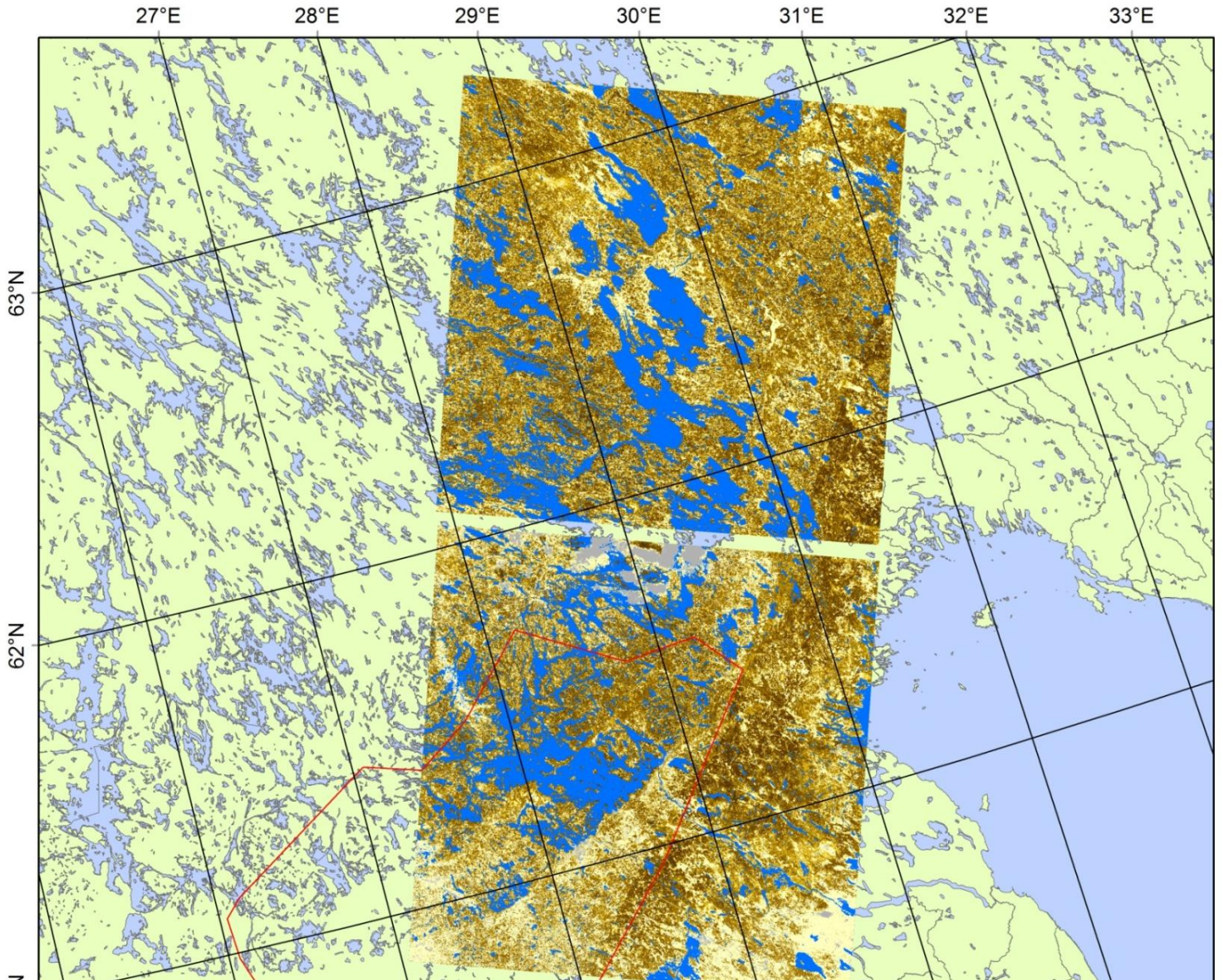


Referenzbild 23.8.2010



Befall erkennbar am 26.8.2011

Erste Ergebnisse - Ökonomische Parameter



EUFODOS Map ID: FI-P1-1200K-IRS-TOTVOL-2011

P1: Forest Stem Volume - Total 2011

South East Finland

Location Diagrams

Legend

Stem Volume (m3/ha)

250
1

Non-forest
Water
Clouds
ROI_StoraEnso

Cartographic Information

Map projection: ETRS 1989 LAEA , Datum: WGS 84

Scale: 1: 1 200 000 for A3 prints

N

Interpretation

The map consists of continuous stem volume values (m3/ha), non-forest and water areas. Cloud-infested regions with no thematic content have been excluded.

IRS-P6 LISS-3 multispectral imagery has been compiled into a mosaic. This mosaic has been interpreted with spectral classification assisted with ground data from the region.

Data Sources

Imagery layers:
IRS-P6_LISS3 - satellite: Resolution 25 m, dates range from xx/xx 2010 to xx/xx 2011

Background / Auxiliary layers:
ArcInfo Basemap (Terrain layer)
Target area borders (Shapefile)

Framework

Map produced in June 13, 2012 by VTT
© VTT

To get more information on this mapping go to:

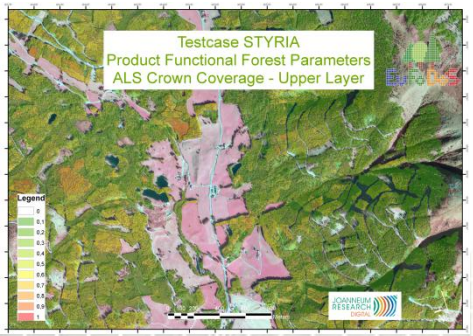
VTT

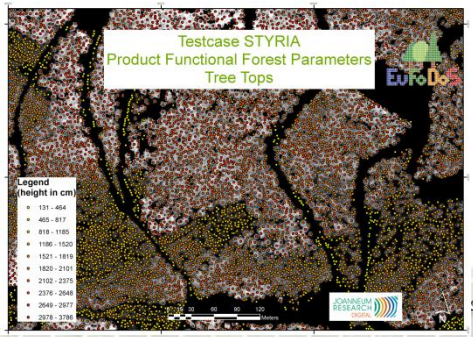
Erste Ergebnisse - Ökologische Parameter

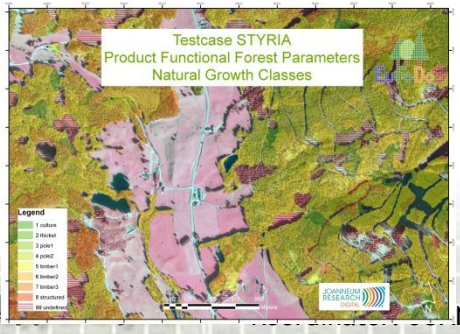
- **Von LIDAR Daten abgeleitete Parameter**

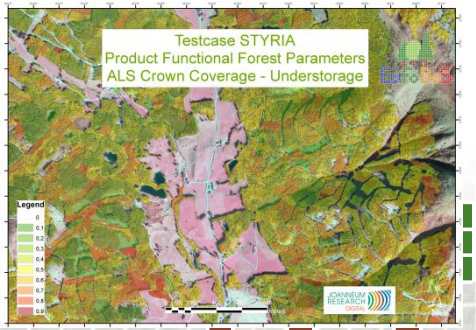
Testcase Styria – Alpine Environment

Forest parameter / indicators	Remote sensing data to be applied	Service status
Improved forest types	Combination of CS and satellite data	CS + new satellite data
Improved forest density	Combination of satellite data and LIDAR	DSS
Natural growth classes	Combination of satellite data and LIDAR	DSS
Tree / Stand height	LIDAR data	DSS
Vertical Stand Structure	LIDAR data	DSS
Crown / Canopy volume	LIDAR data	DSS
Understorage	LIDAR data	DSS
Natural regeneration > 1.3m	LIDAR data	DSS



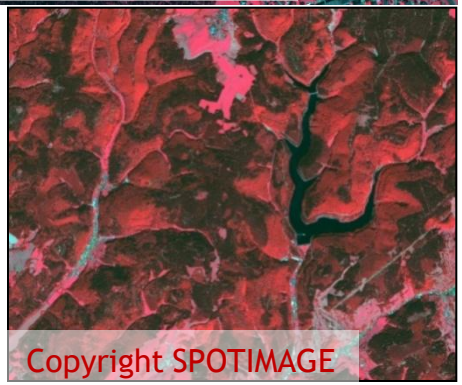


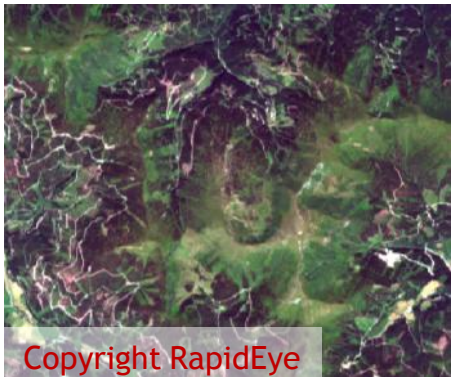


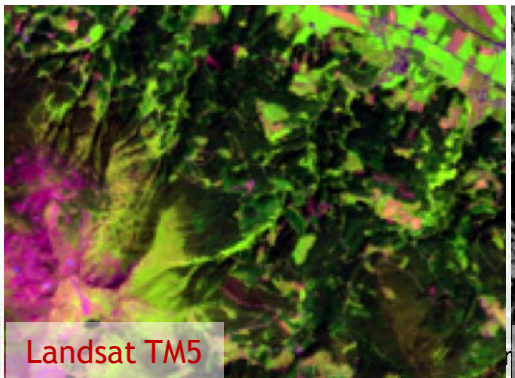


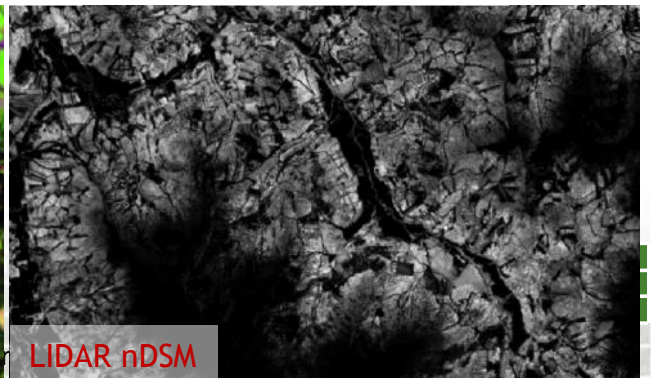
Fernerkundungsdaten

- RapidEye
- IRS P6
- SPOT 5
- IKONOS
- Quickbird
- Worldview2
- Formosat2
- Landsat
- MODIS
- *TerraSAR-X*
- *TanDEM-X*
- *CosmoSkymed*
- *LIDAR*









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