

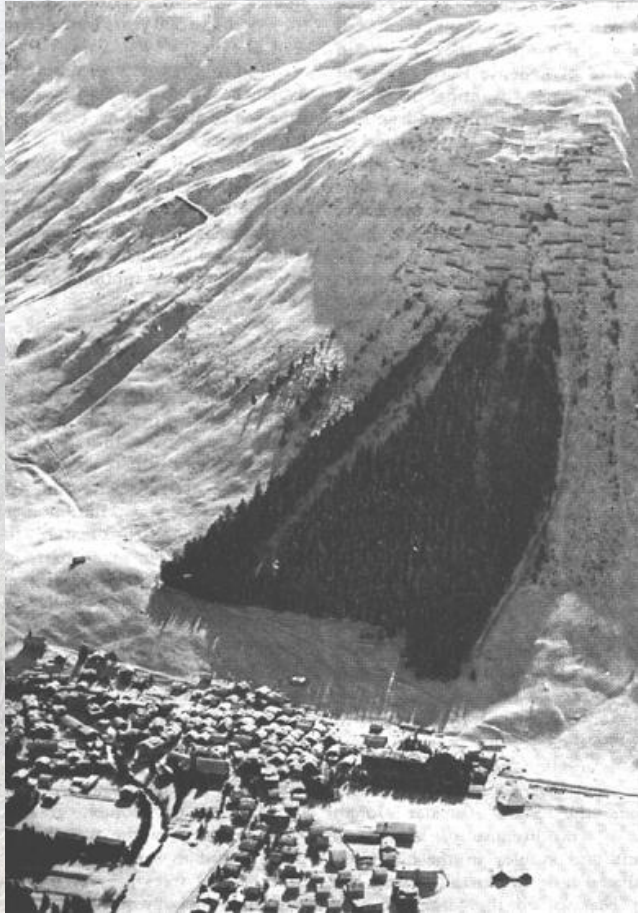
Il progetto ROCKtheALPS: dal masso alle Alpi

Emanuele Lingua

Dip.TESAF, Università degli Studi di Padova



Foreste di protezione



Valanghe

**Frane
superficiali**

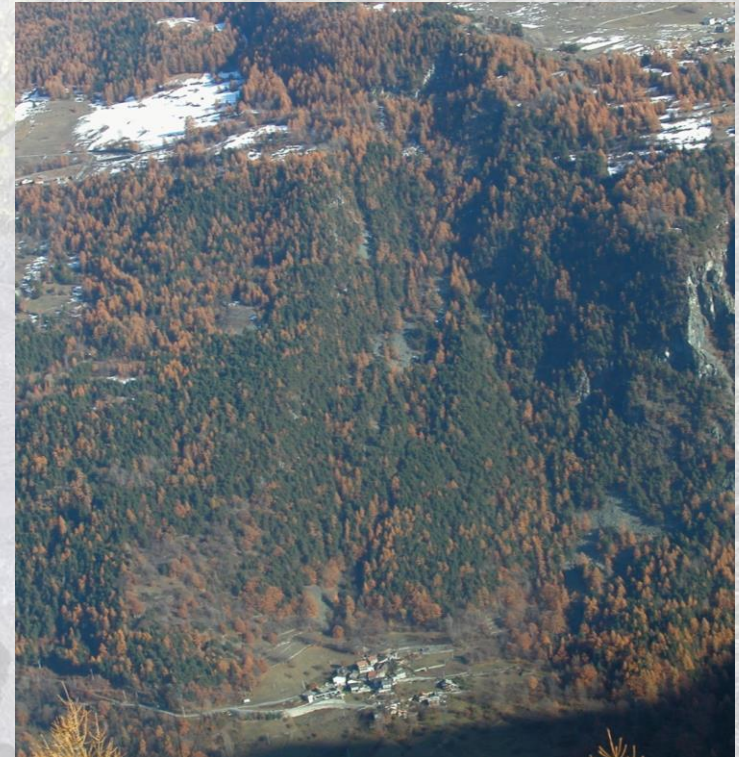
Caduta massi

Foreste di protezione - caduta massi

Zona di transito



Zona di distacco



Zona di deposito

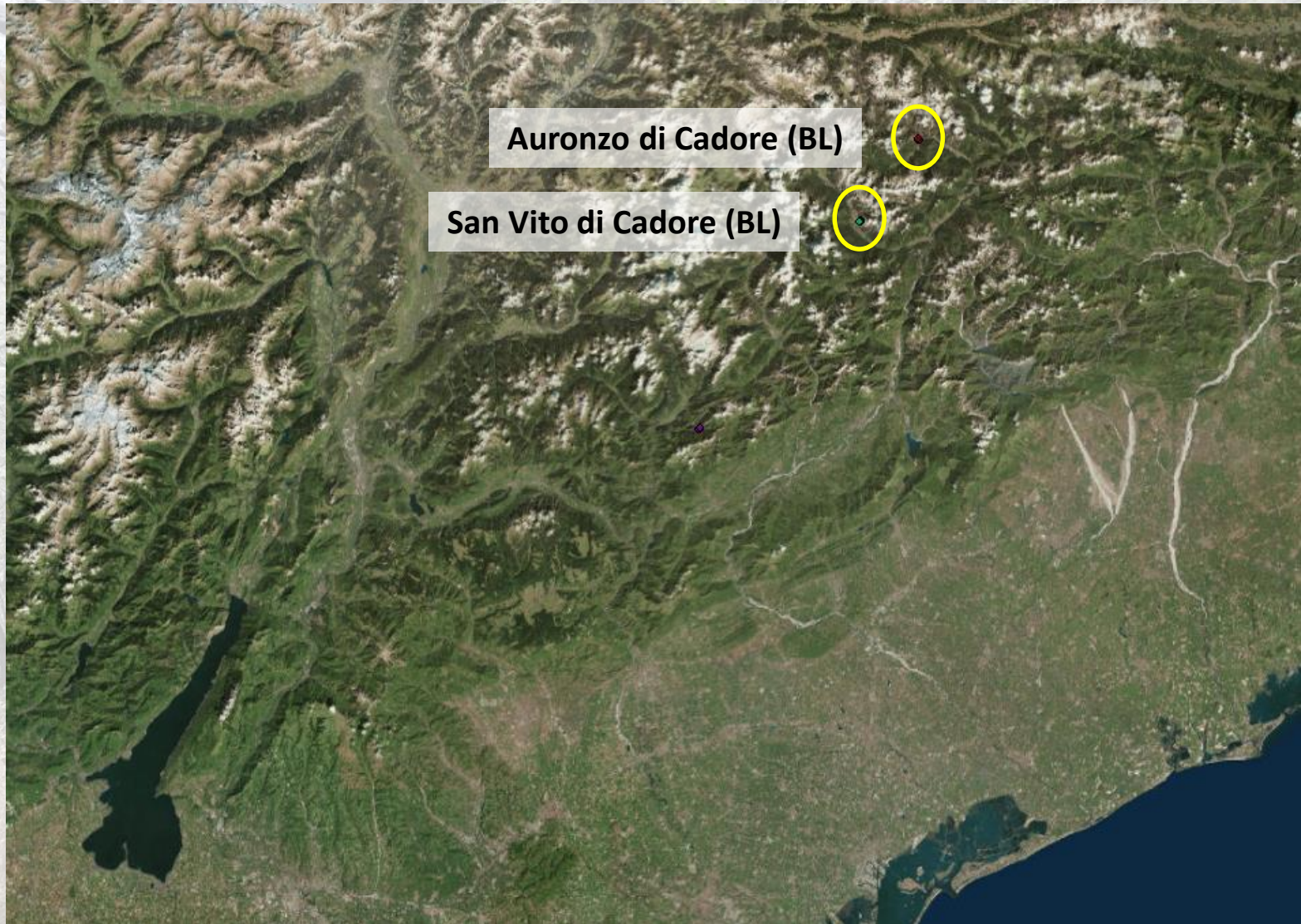
Foreste di protezione



C'è consapevolezza sul ruolo protettivo delle foreste?

Ci rendiamo conto del pericolo solo dopo che si è già manifestato?

Un piccolo aneddoto...



....in bosco....



....in bosco....



....in bosco....



Rilievo posizione massi

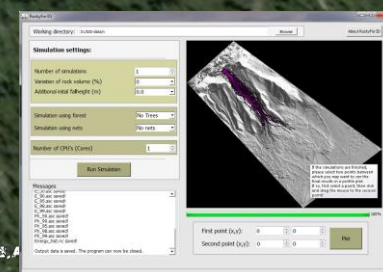
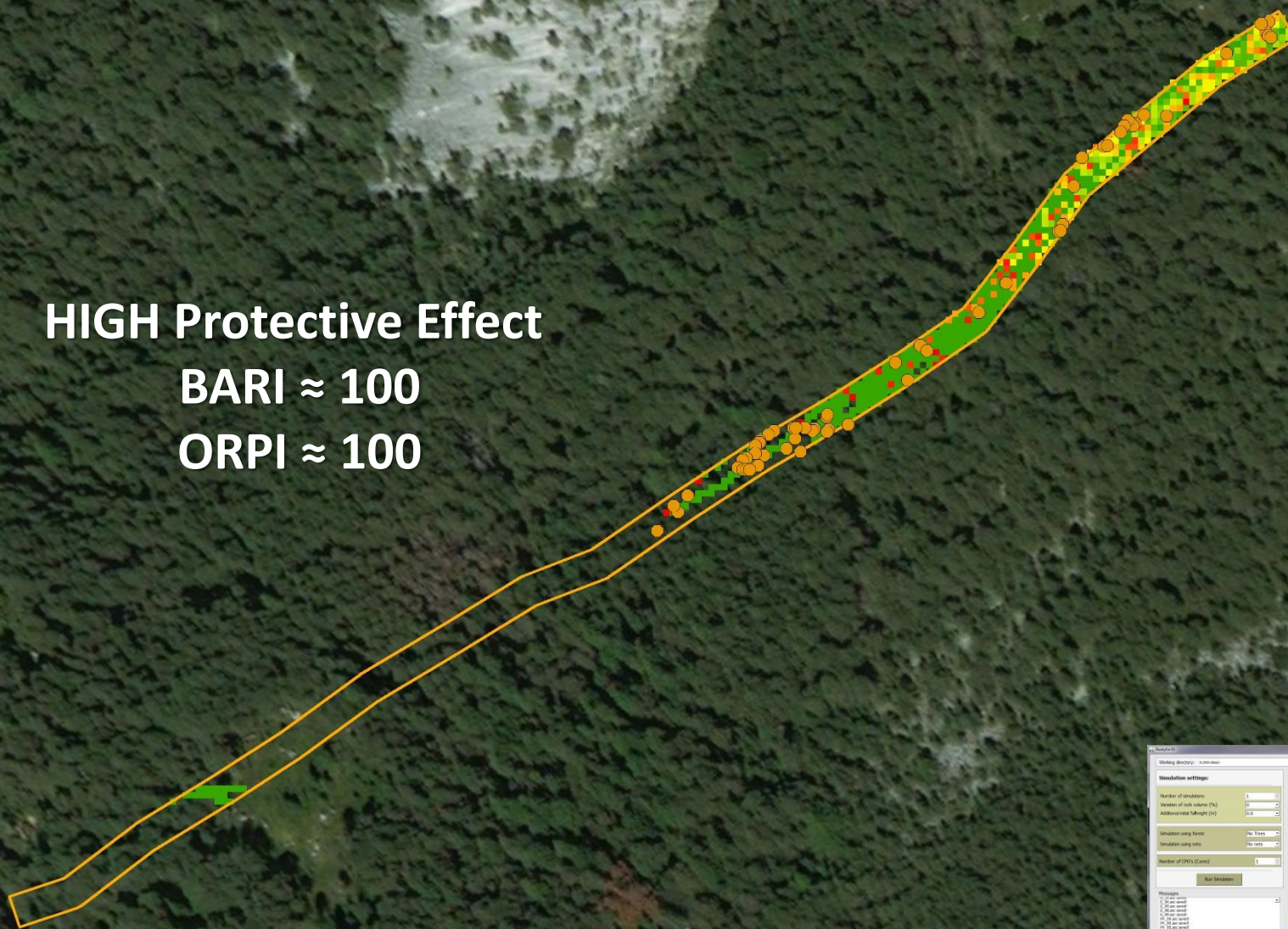


Simulazione

HIGH Protective Effect

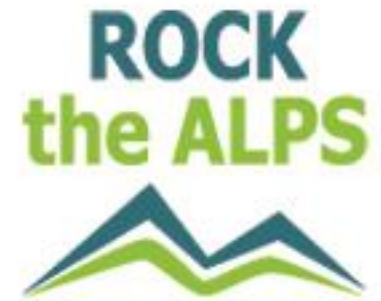
BARI ≈ 100

ORPI ≈ 100



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, SIA, User, 2011

Interreg Alpine Space



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LIVEABLE

Funding

Total eligible costs:	2.184.523 EUR
ERDF grant:	1.856.844 EUR

Duration

Project start date:	01/11/2016
Project end date:	31/10/2019

The
RockTheAlps
project



Interreg Alpine Space



The Partners

IRSTEA

- + National research institute of science and technology for environment and agriculture, Grenoble regional centre
- + <http://www.irstea.fr/en/institu>

BRGM

- + French Geological Survey
- + Regional directorate of Provence-Alpes-Côte d'Azur
- + <http://www.brgm.eu/>

Alp'Géorisques

- + www.alpgeorisques.com

PAT-SFF

- + AUTONOMOUS PROVINCE OF TRENTO – FOREST AND WILDLIFE DEPARTMENT
- + FOREST AND WILDLIFE DEPARTMENT
- + www.foreste.provincia.tn.it

SFS

- + Slovenian Forest Service
- + <http://www.zgs.si/eng/events/>

UL

- + University of Ljubljana, Biotechnical Faculty, Department for Forestry and Renewable Resources
- + <http://www.bf.uni-lj.si/en/deans-office/news/>

SFI

- + Slovenian Forestry Institute
- + Department of Forest and Landscape Planning and Monitoring
- + <http://en.gozdis.si/home/>

UNIPD

- + University of Padova
- + TESAF – DEPARTMENT OF LAND, ENVIRONMENT, AGRICULTURE AND FORESTRY
- + <http://www.tesaf.unipd.it/en/>

DISAFA

- + Department of Agricultural, Forest and Food Sciences, University of Turin
- + Forestry sector
- + <http://www.disafa.unito.it/do/h>

ERSAF

- + Regional Agency for Services in Agriculture and Forest – Lombardia Region
- + Department knowledge and development of innovation in AgroForestry
- + www.ersaf.lombardia.it

POLITO

- + Politecnico di Torino
- + DIATI – Department of Territory, Land and infrastructure Engineering
- + <http://www.polito.it/index.php?lang=en>

BFW

- + Federal Research and Training Centre for Forests, Natural Hazards and Landscape
- + Department of Natural Hazards, Unit for Water Balance in Alpine Catchments
- + <https://bfw.ac.at/rz/bfwcms.wdok=4905>

Interreg
Alpine Space



ROCK the ALPS

BMLFUW

- + Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management
- + Forest Department (FD) section III/4
- + <https://www.bmlfuw.gv.at/eng>

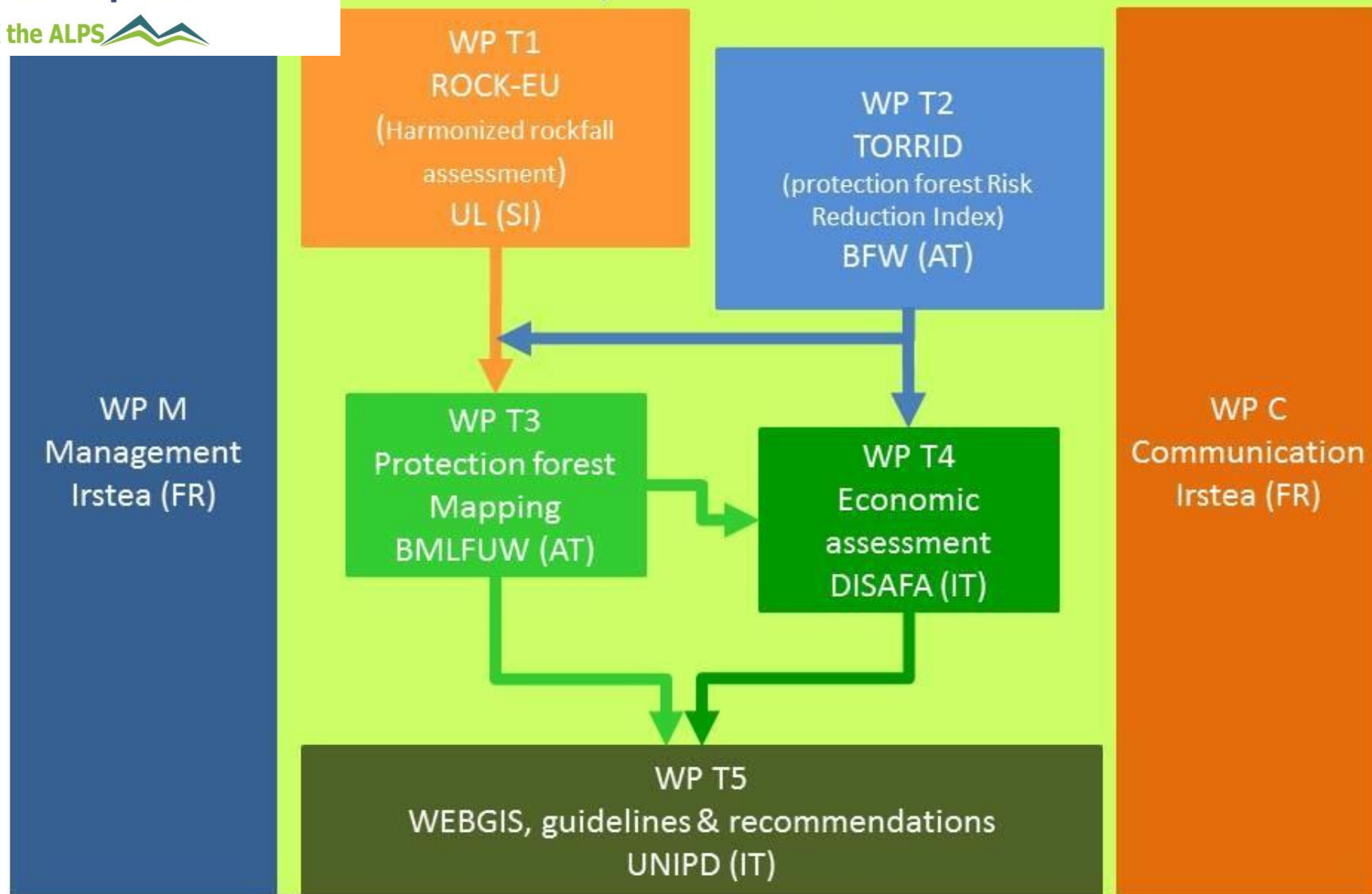
LWF

- + Bavarian State Institute of Forestry
- + Department of silviculture and mountain forest
- + www.lwf.bayern.de/

BFH - HAFL

- + Bern University of Applied Sciences / HAFL
- + Department of Forest Sciences
- + <https://www.hafl.bfh.ch/en/consulting-services/forest-science.html>
- +

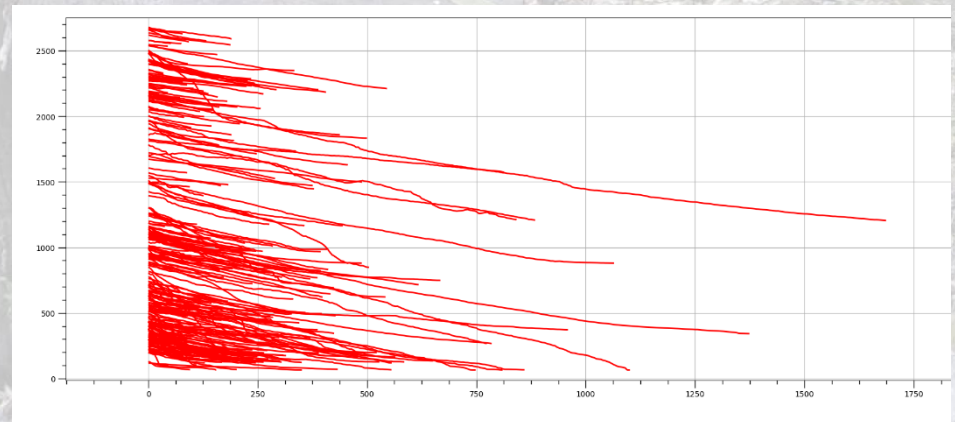
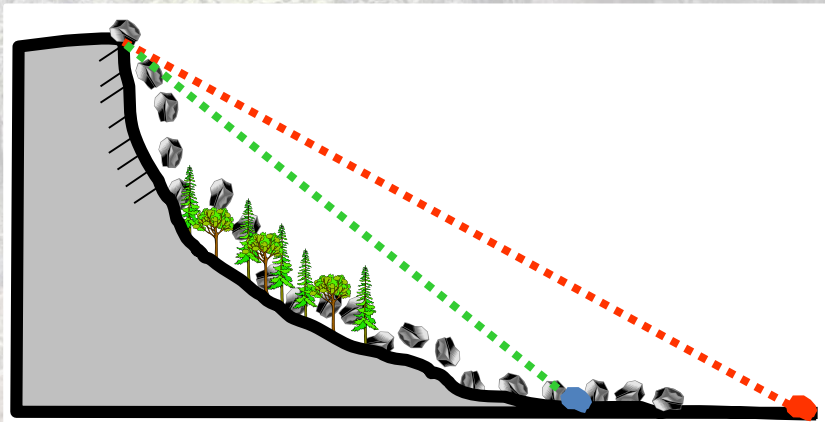
Alpine Forests



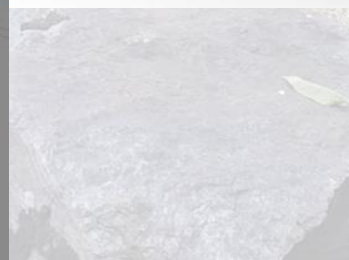
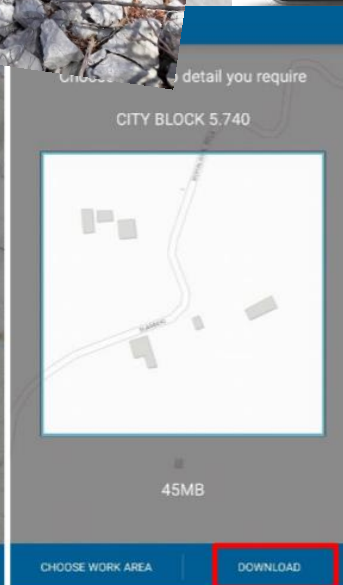
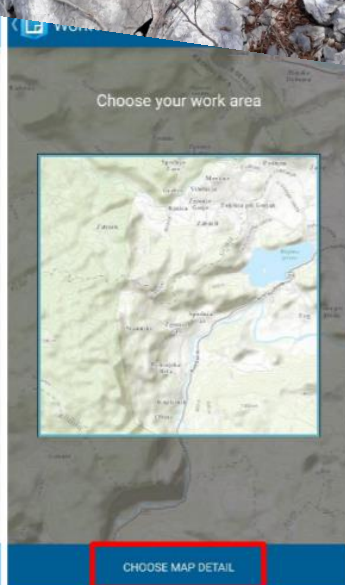
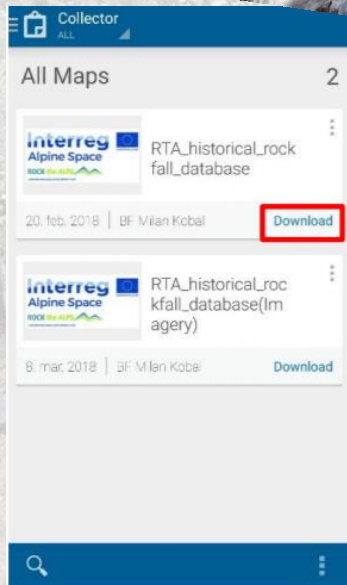
WPT1

ROCK-EU

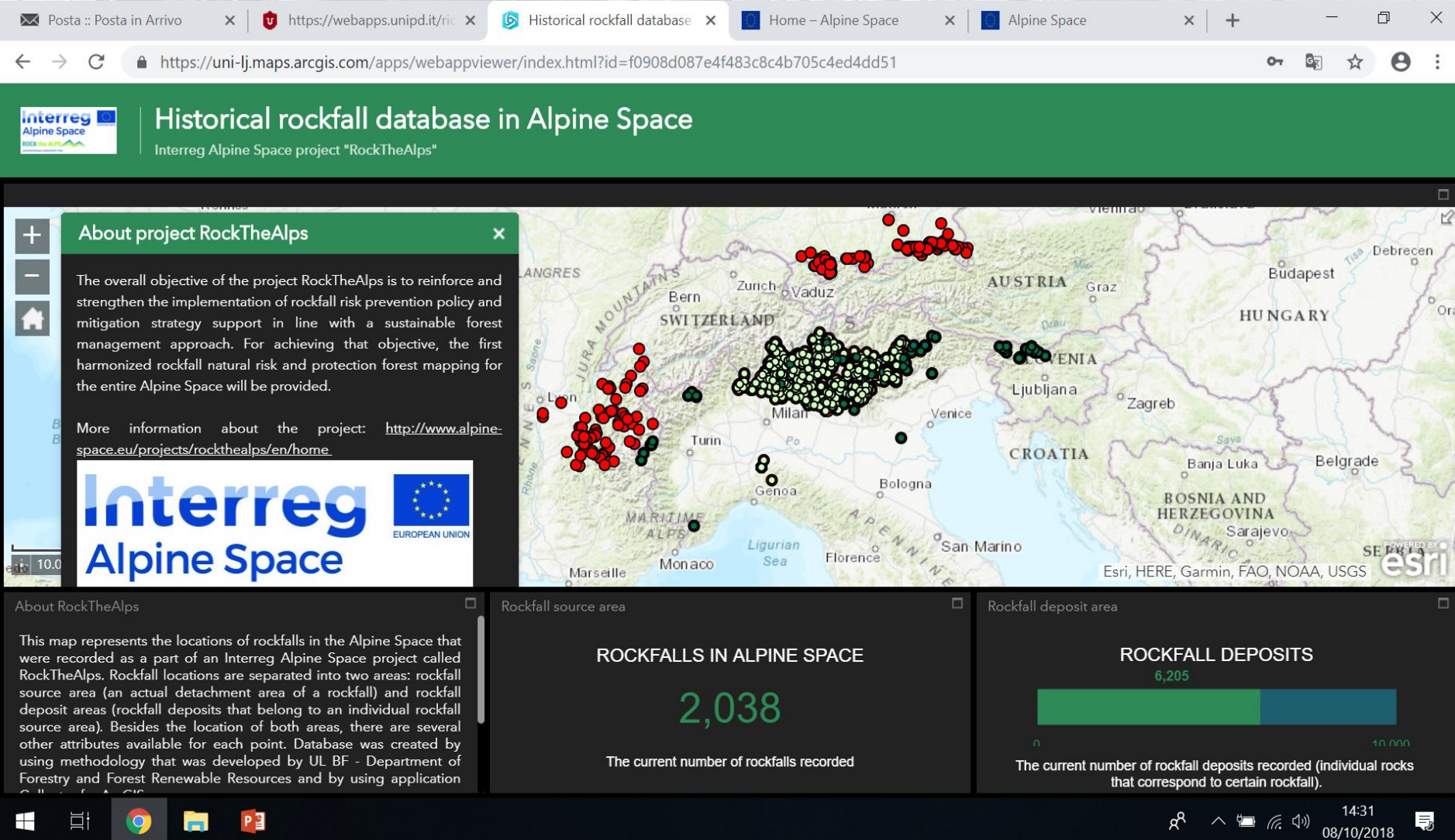
Development of an innovative AS rockfall assessment methodology using harmonized criteria and objective data.



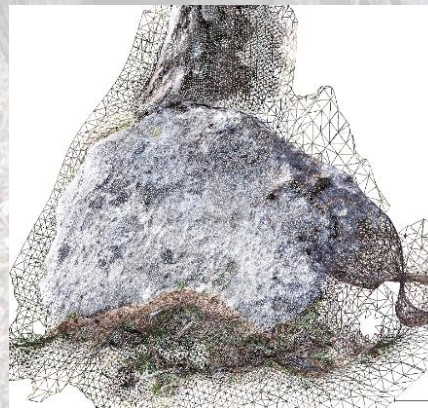
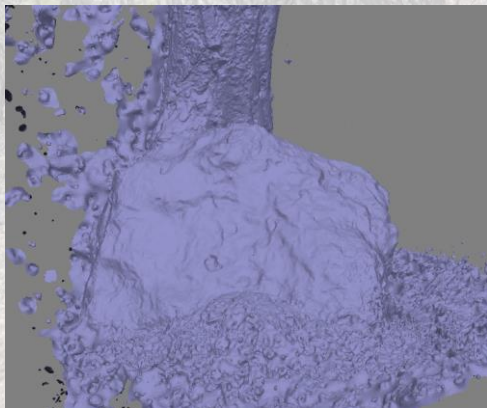
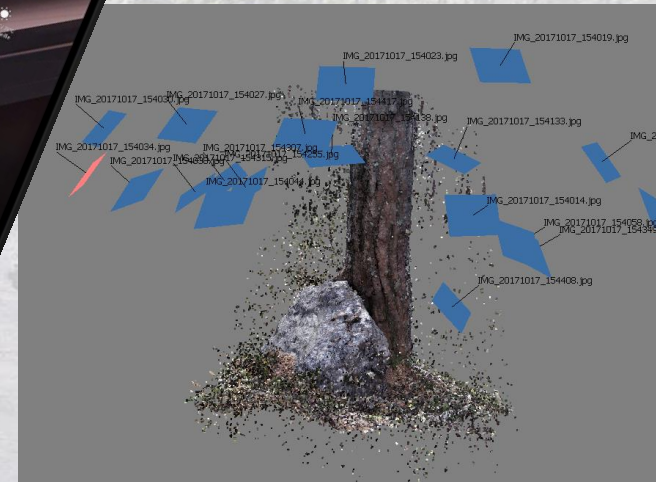
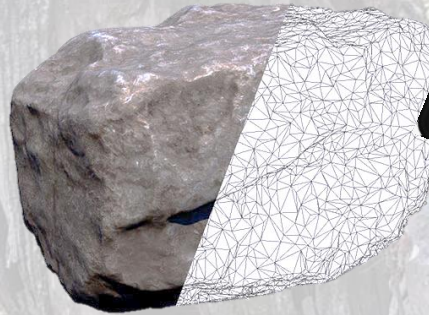
Crowd sourcing



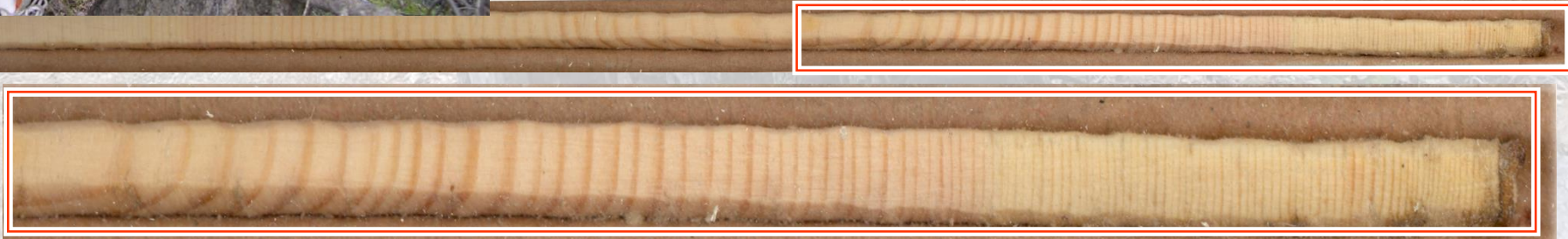
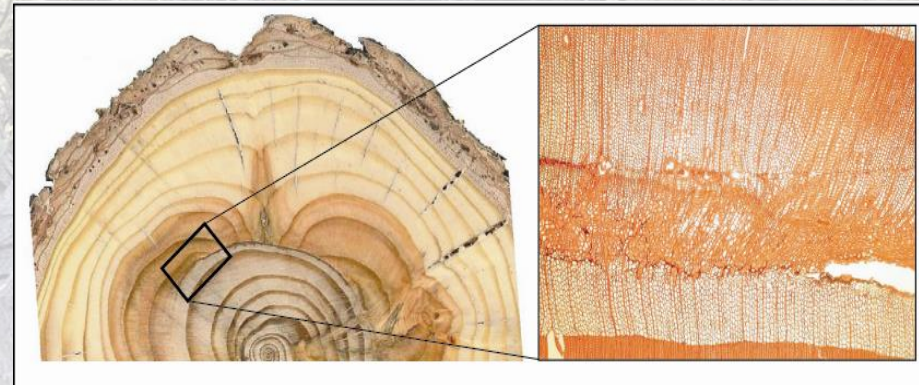
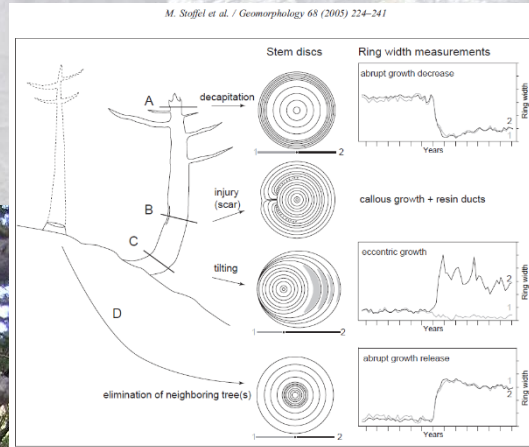
WEBGIS - Geo database



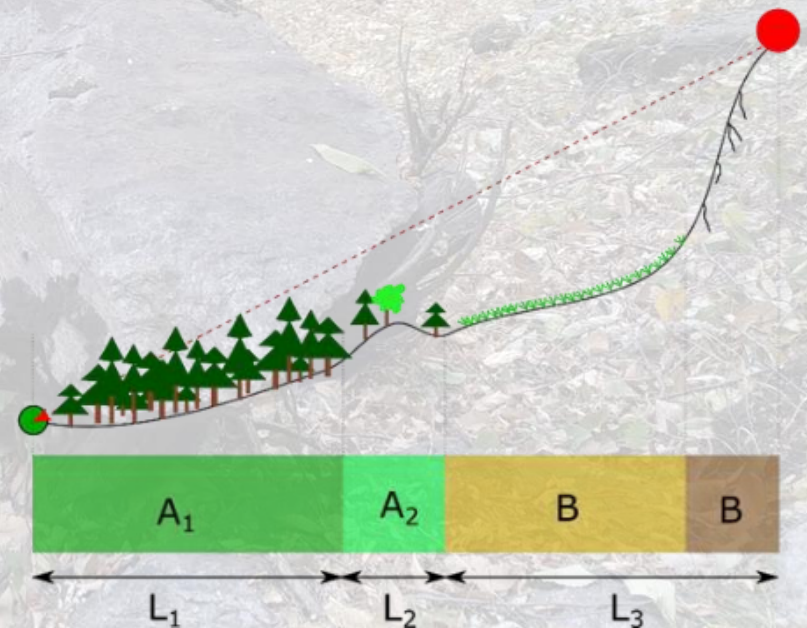
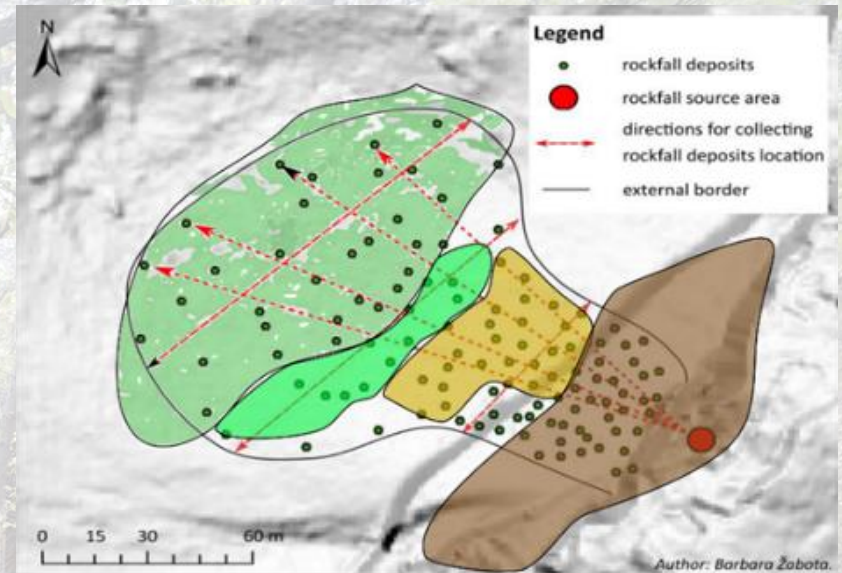
Modelli 3D



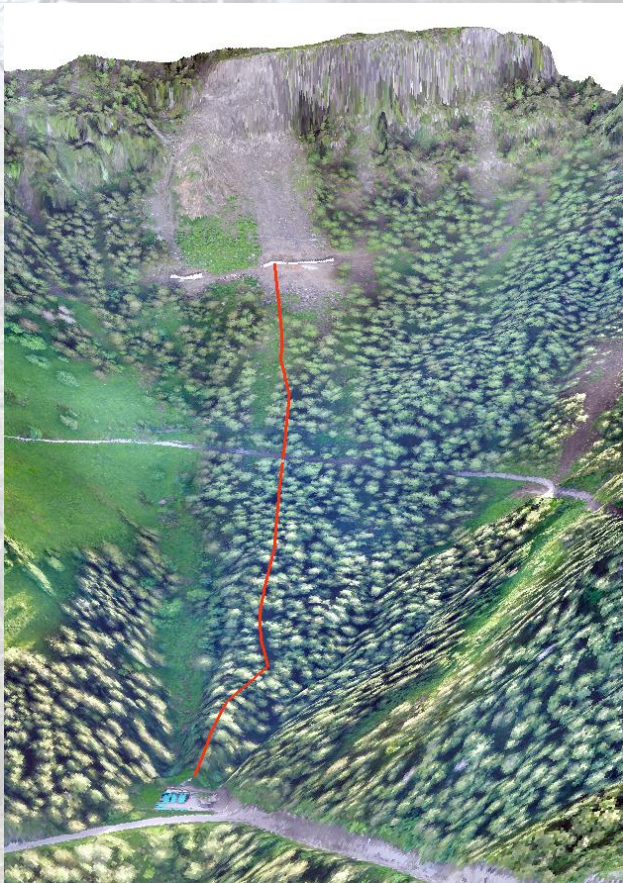
RetroRock



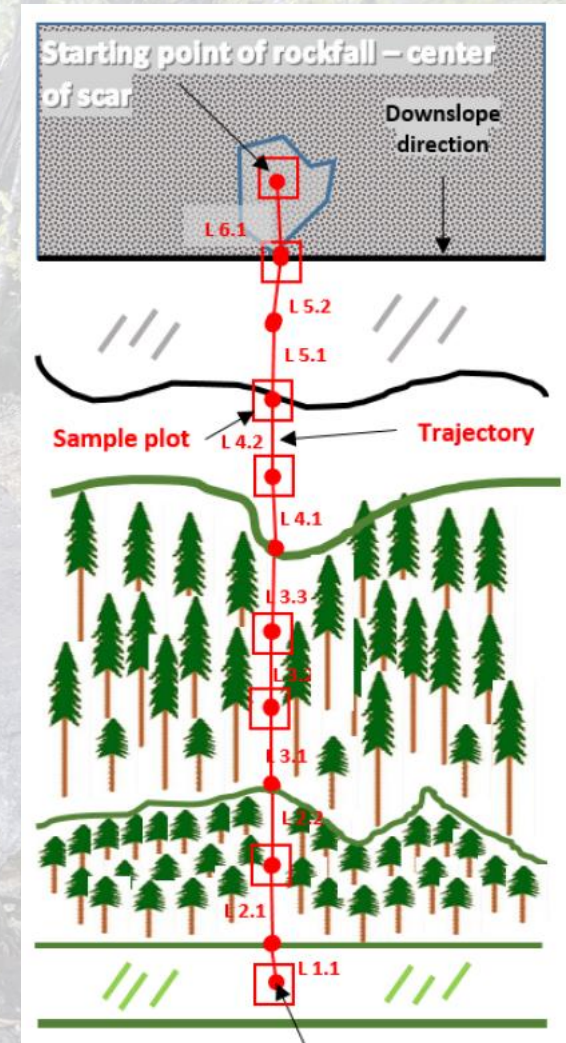
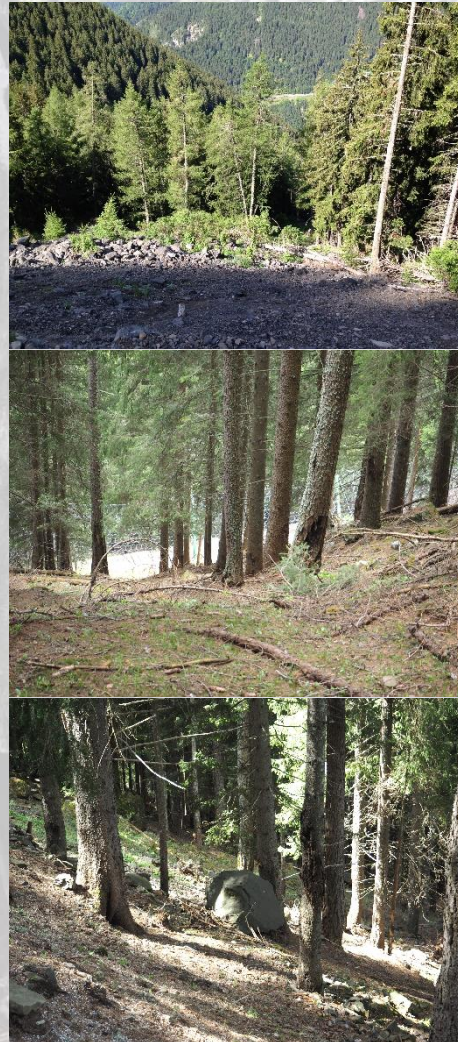
Construction of the first AS Toolbox for assessing the protective effect of forests against rOckfall and expressing the protective role in a Risk Reduction InDex



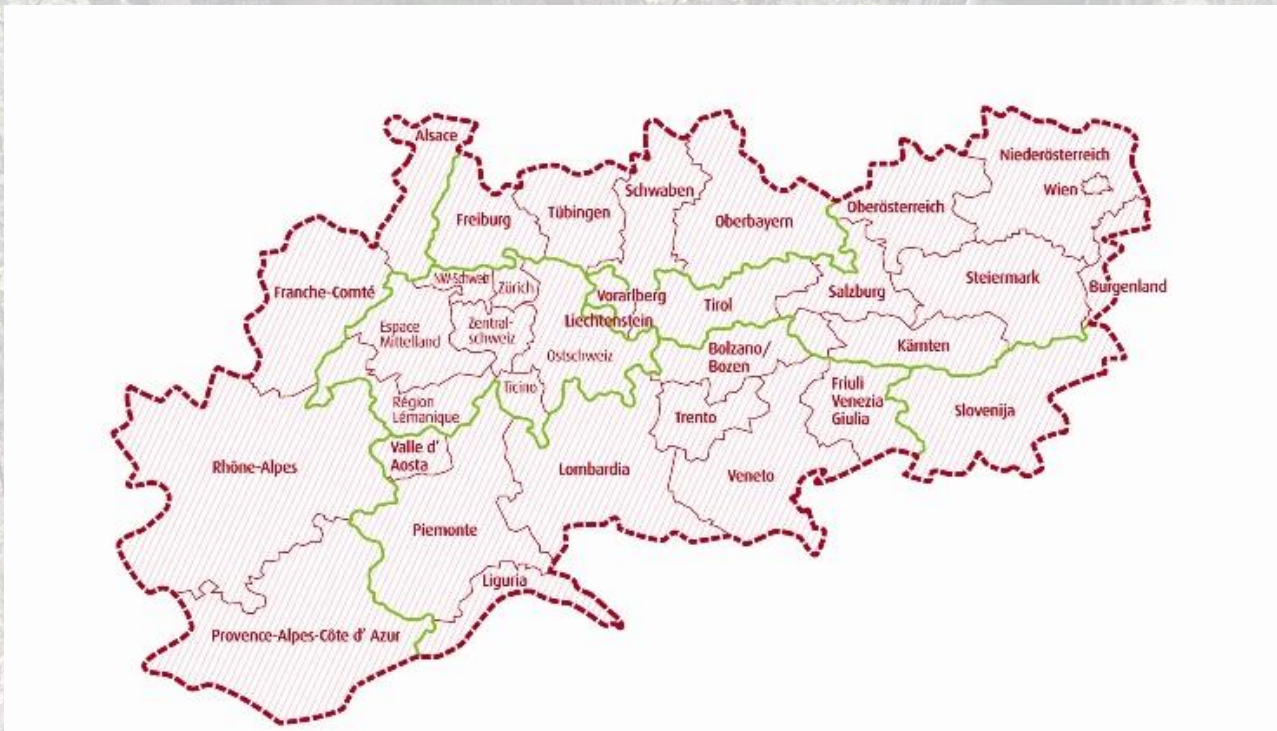
WPT2



Colcuc (Colle Santa Lucia, BL)

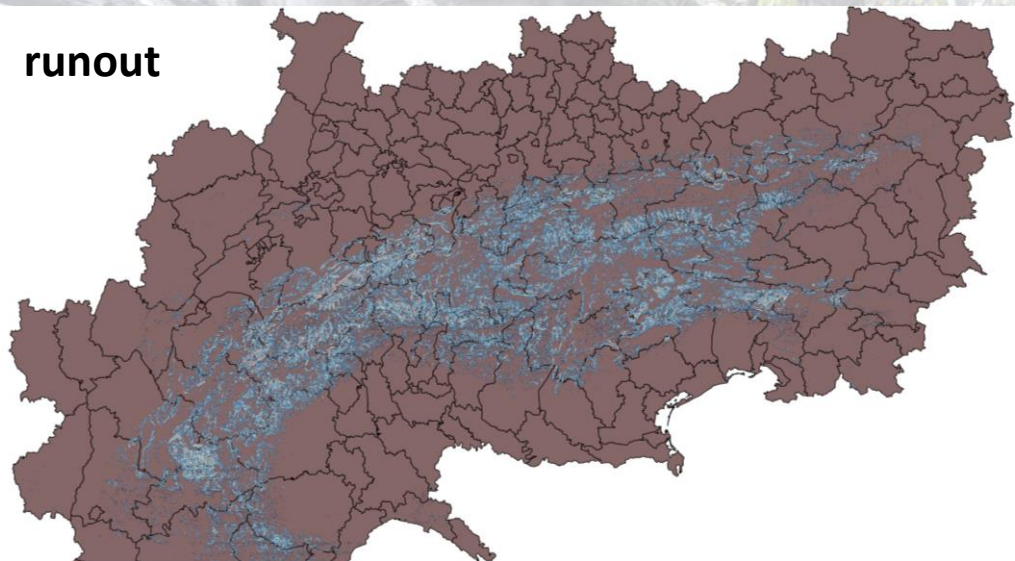


Production of the first harmonised map of protective services of forest ecosystems against rockfall for the entire AS

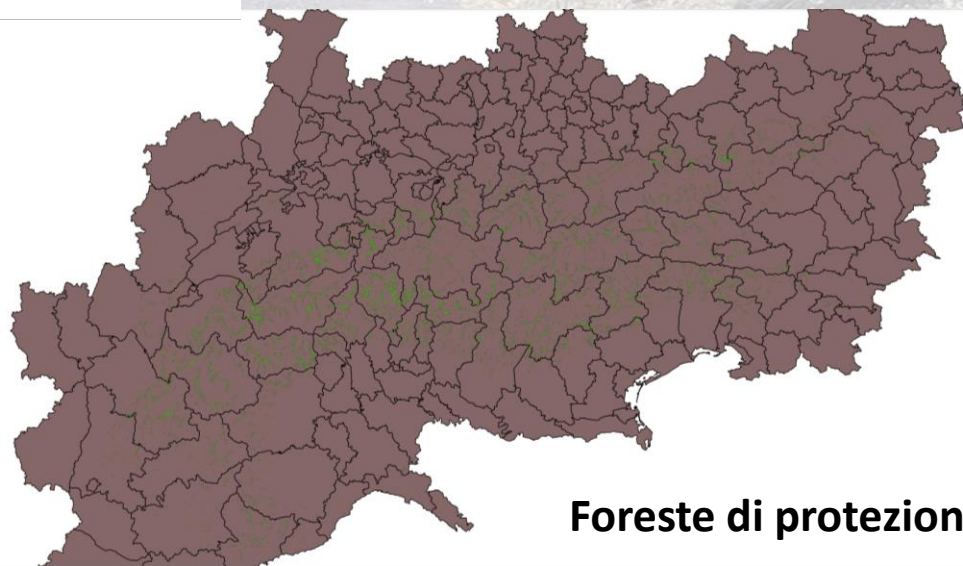


Carta delle foreste di protezione

runout



Beta version 1.0



Foreste di protezione

WPT4

From the implementation of an economic model to the economic assessment of rockfall protection forest ecosystems services

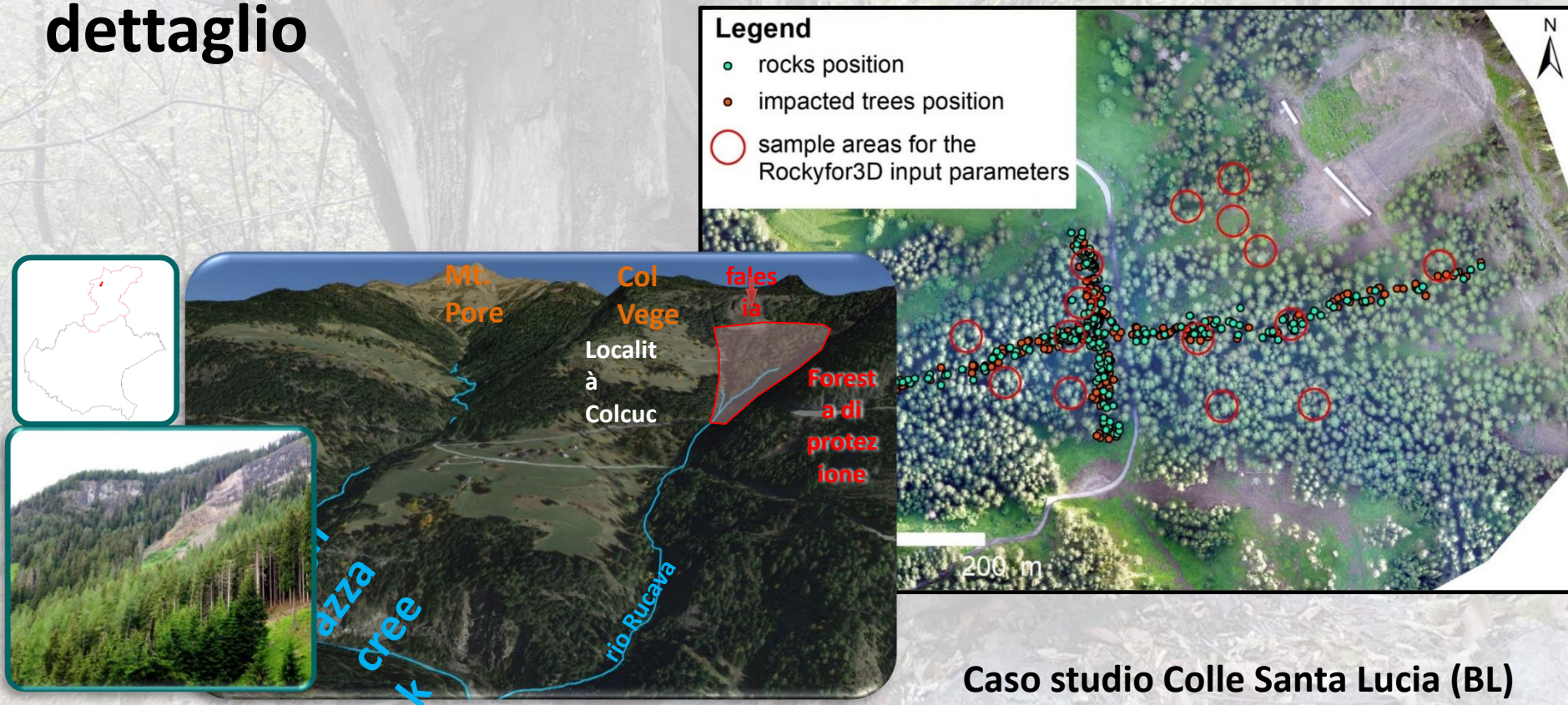
ASFORESEE

AS harmonized methodology for Economical assessment of protection forest ecosystems service



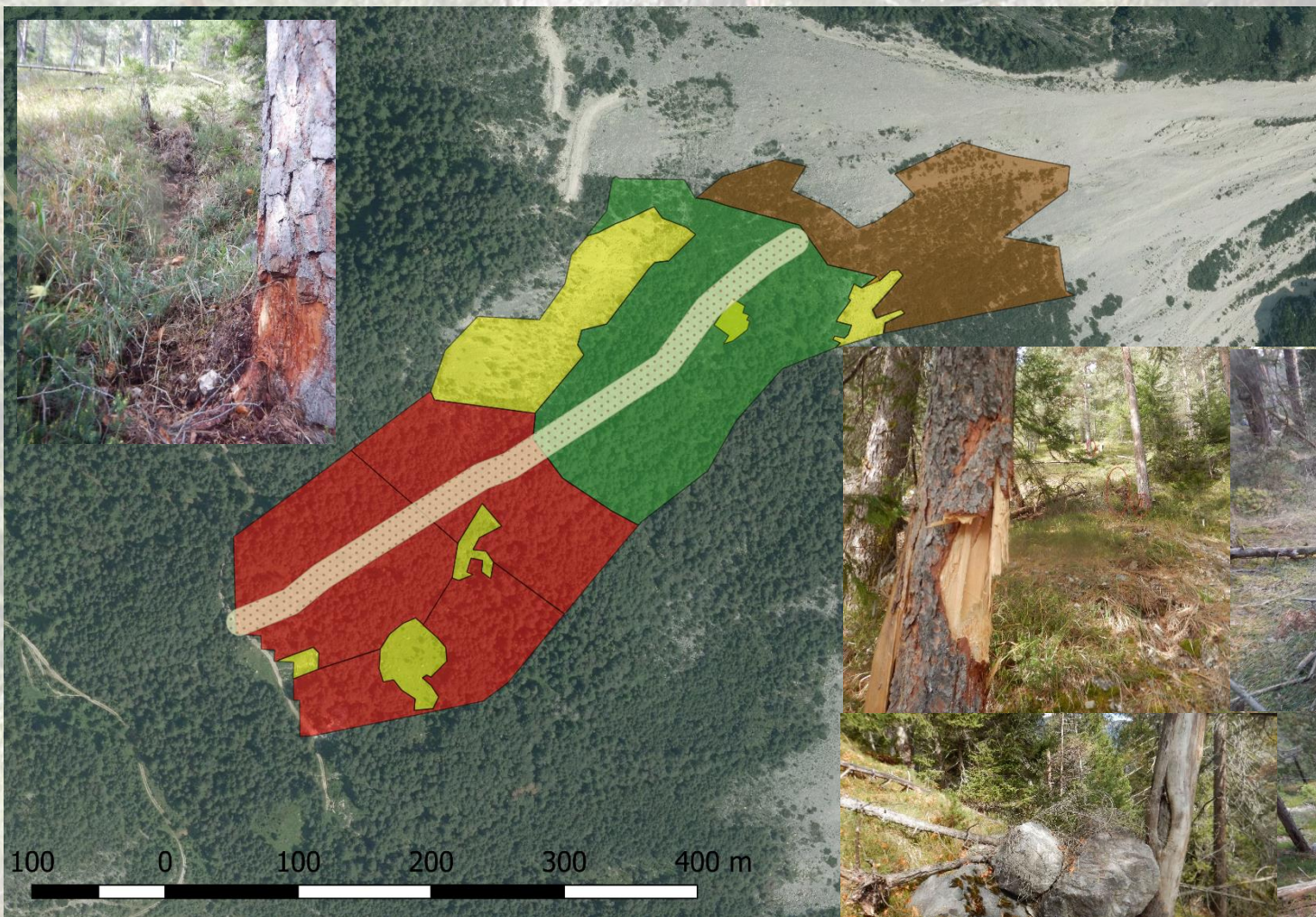
Casi studio

Rete di casi studio per la validazione dei risultati su scala locale e simulazioni numeriche con dati di dettaglio



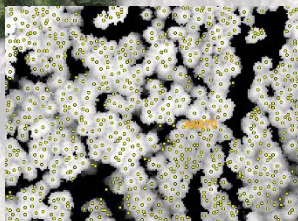
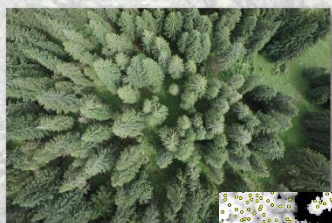
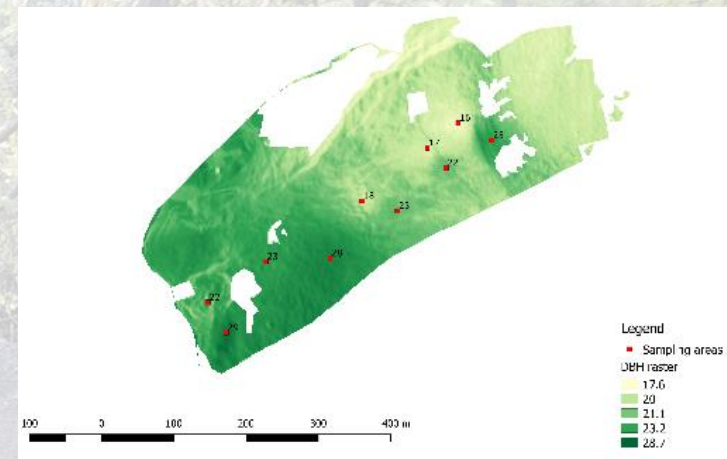
Caso studio Colle Santa Lucia (BL)

Rilievi in campo



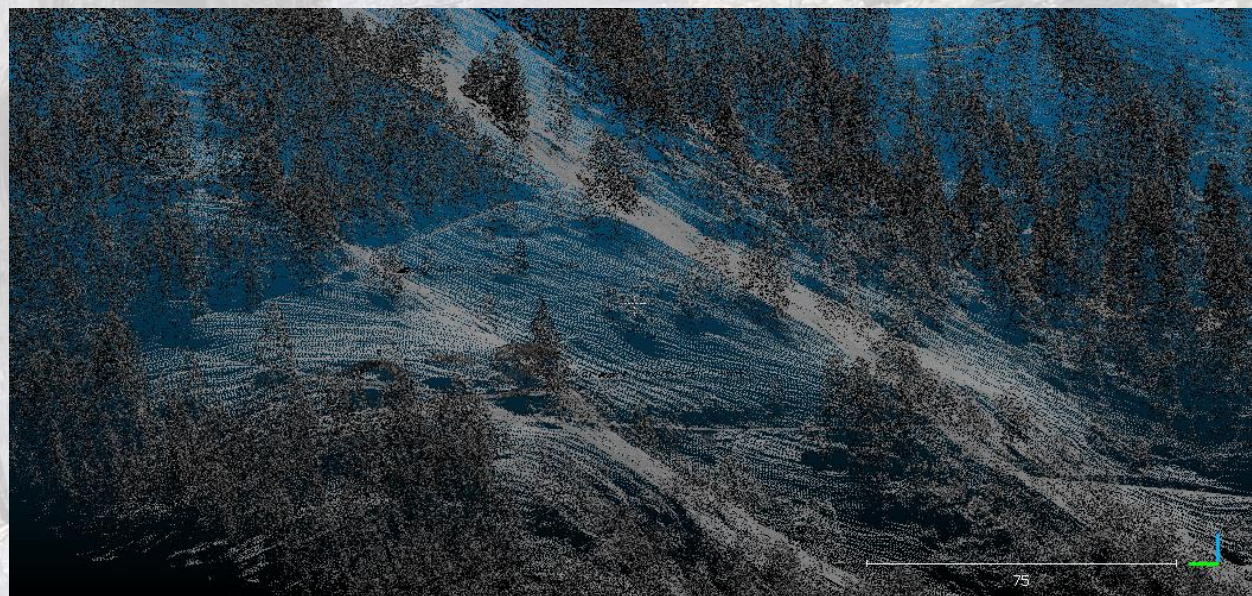
Dati telerilevati

Spazializzazione Interpolazione dati



LiDAR

UAV



Simulazione numerica

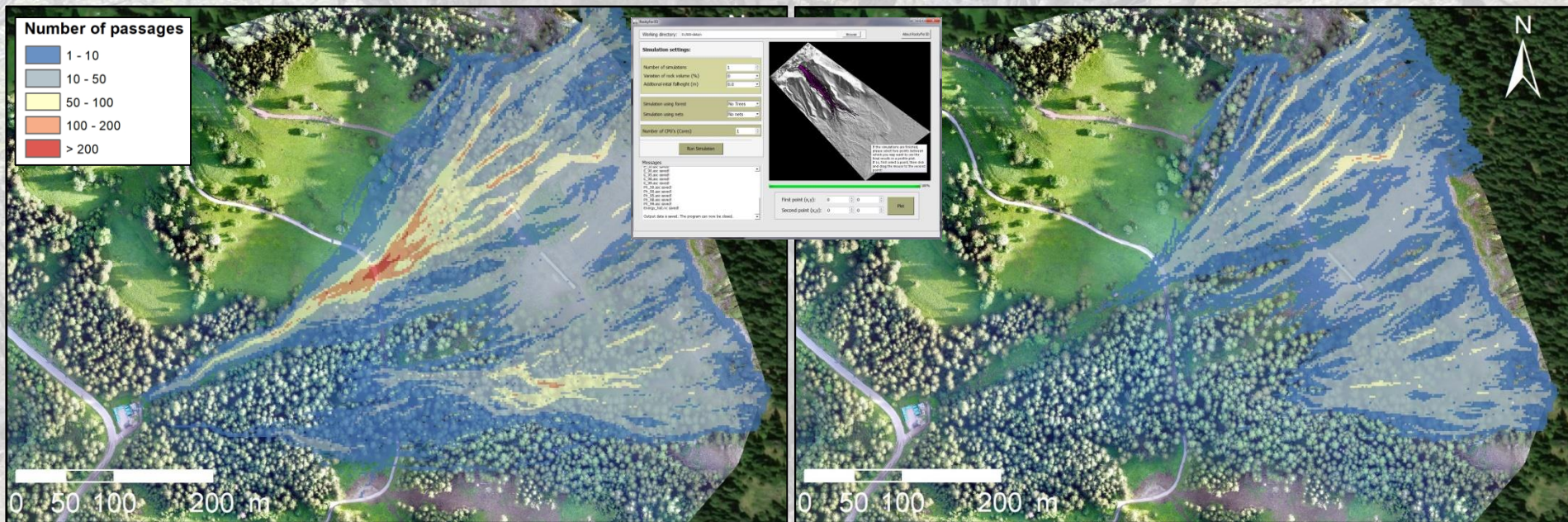


Effetto di
protezione

BARI (effetto barriera)
MIRI (riduzione dell'energia)
ORPI (protezione generale)

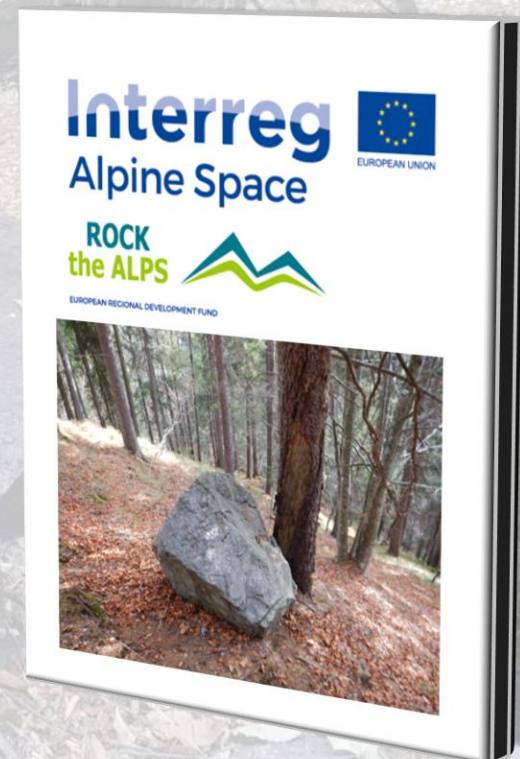
Senza foresta

Con foresta

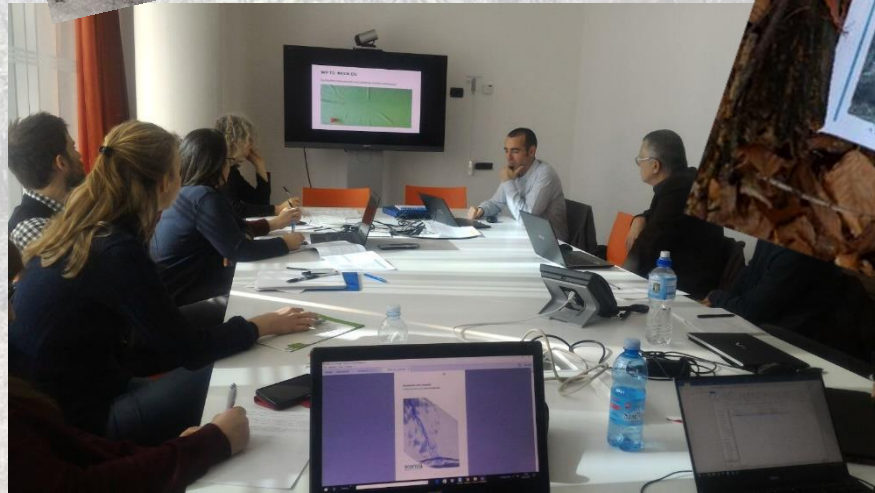


WPT5

Implementation of guidelines, a Territorial Information System and recommendations for sustainably valorise rockfall protection forest ecosystems services



Sharing the knowledge

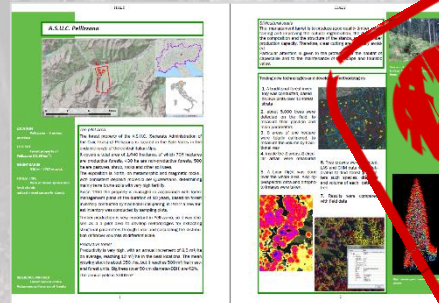


Linee guida

Managing Protection Forests in the Alps

State of the arts

Silvicultural guidelines



ROCKtheALPS SUMMER SCHOOL



Luglio 2019

11/02/2018

ROCKtheALPS - midterm conference italiana - Milano



22-27 Luglio 2019

ROCKtheALPS Menu

7 days

Protection forests

Field surveys

UAV

Softwares

Data analysis

team work

final project presentation

Alpine space countries

EU countries

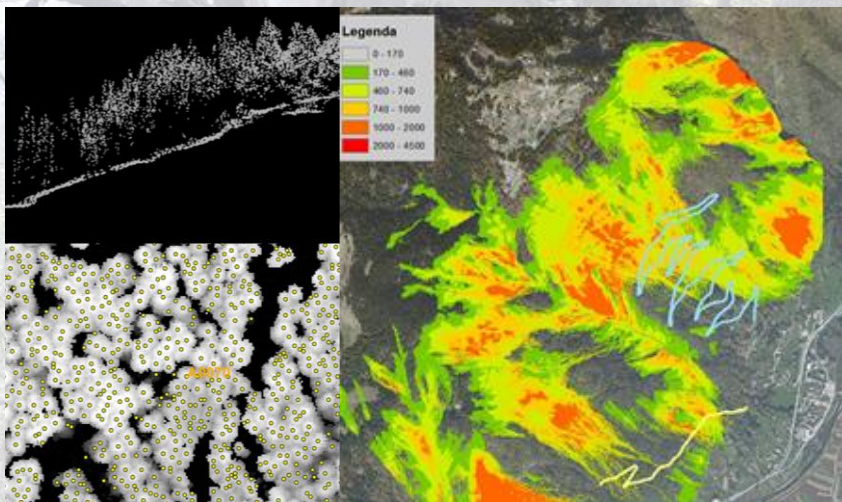
extra EU countries

SAVE THE DATE

11/12/2018

ROCKtheALPS - midterm conference italiana - Milano

Workshops



Incendi Piemonte 2017

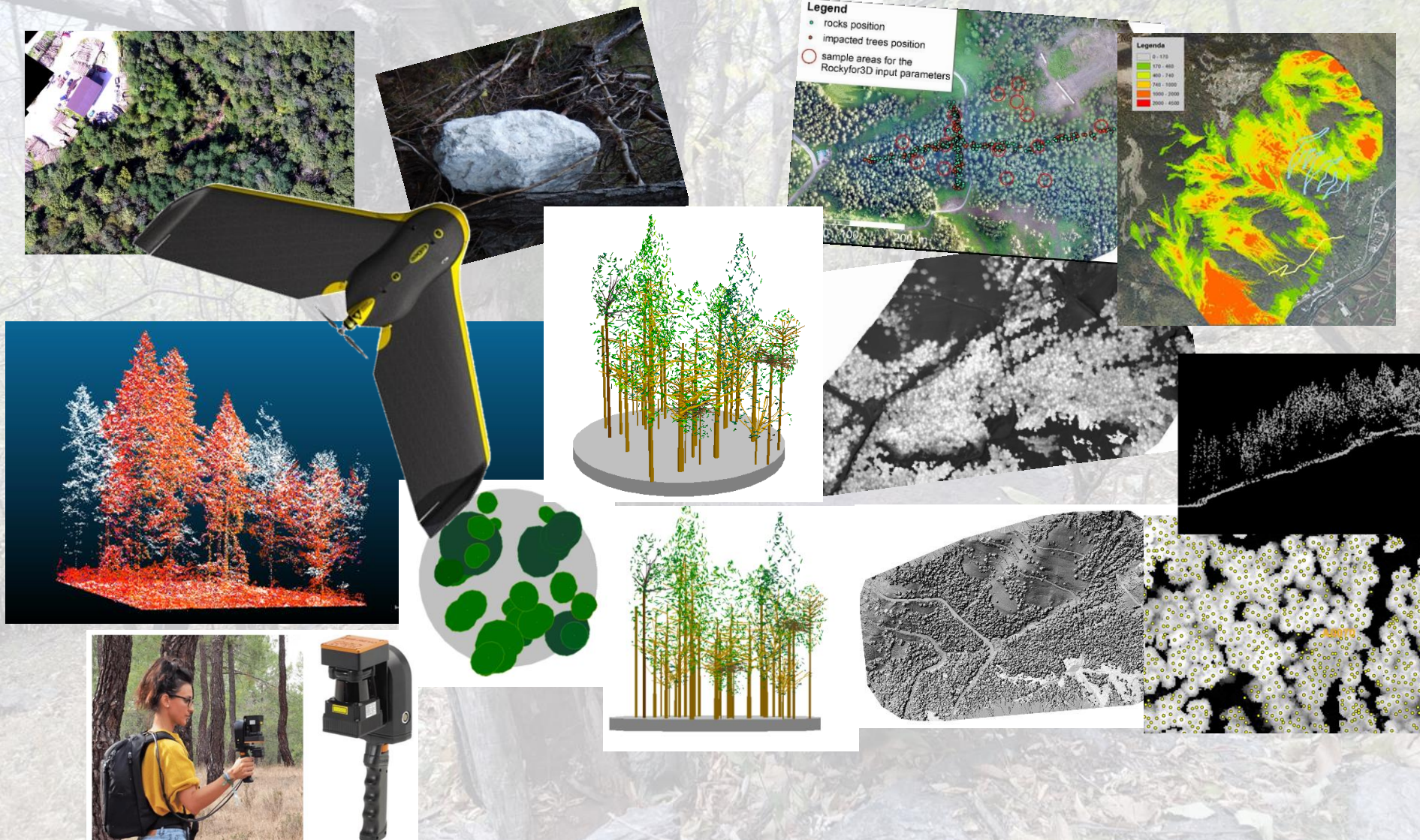


Tempesta Vaia 2018

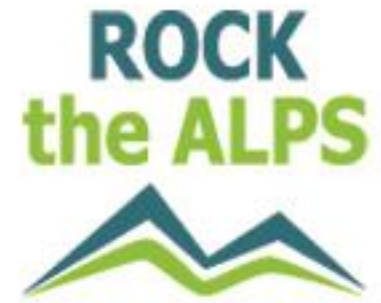
Caso studio Col Cuc (Colle S.Lucia, BL) – post Vaia



This is just a Mid-Term Conference.....



Interreg Alpine Space



and thanks to all the Project Partners....