The MONALISA project: monitoring Key environmental parameters

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Project area and description

Provincia di Bolzano
MONALISA project
August 2013 - December 2016

Geospatial Sensor Webs - from data to information in the Sensor Web
August 28 – 30, 2017
Environmental monitoring by different technologies: Satellite, UAV, in-situ
Project main purpose

- Remote Sensing
- Proximal Sensing
- Ground Sensing
- Field Data Logger
- Non-destructive Technologies

Data Life Cycle (acquisition, quality check, management, dissemination, etc.)
Project main purpose

Monitoring Key environmental parameters

Vegetation: Leaf Area Index, NDVI, Phenology, Tree height and structure
Water: Soil moisture, Evapotranspiration, Snow
Weather: Air temperature, Wind

Pastures - Grassland
Orchards (apple)
Forests
Technical issues and needs

What we need

**Tools to view, compare and analyze different data sources**
Remote Sensing, UAV, ground stations, Laboratory

**Data organization**
To Collect all datasets coming from different platform and from laboratory

Acquire skills in observation organization
Technical issues and needs

How to handle millions of records from different sensors of different formats?

Common data model

Automation of the Data Life Cycle

- Acquire
- Share
- Harmonize
- Analyze
- Organize
Project results

MONALISA DATA SERVICE

The MONALISA (Monitoring key environmental parameters in the Alpine environment involving Science, Technology and Applications) project's main goal is the development of multi-scale monitoring approaches for key environmental parameters and production processes using innovative monitoring technologies and non-destructive methods in the application field of agriculture.

Lead partner: eurac research
Funding scheme: Special Research Area (Autonomous Province of Bolzano)
Period of project: 08/2013 – 07/2016
Scientific Partners: Free University of Bozen-Bolzano, Innovation, Development and Marketing, Lakeura Research Centre for Agriculture and Forestry, University of Innsbruck
Industrial companies: GEOcurrence, Territorial Online, GISNA, MOUNTAIN-EDRAG

METADATA
DATASETS DESCRIPTION
DATA License

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http://monalisasos.eurac.edu/sos/

- + 30,000,000 record collected
- 31 monitoring stations (feature of interest)
- 80 sensors
- 75 environmental parameters + 10 laboratory measurements
SOS permits to organize environmental data as well as laboratory quality analysis following OGC standards.
The apple story:
• Quality at the harvest
• Quality after archive (in different conditions)
• Growing conditions
Project results

Geospatial Sensor Webs - from data to information in the Sensor Web
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MONALISA DB ACCESS:

52N° SOS web interface and Helgoland client

R code using SOS api

Shiny web interface to run R code
Future work

Geospatial Sensor Webs - from data to information in the Sensor Web August 28 – 30, 2017

- 500 sensors
- 30 stations
Future work

• We need to improve our modelling data skills to acquire laboratory data (SF Specimen)

• More Tutorials and Examples from OGC or 52° North - Sensor Web Community (nice to have)

• To simplify and speed up sensors registration and observations uploading

• SensorThings API testing

• To develop a WEB-APP to view and query both Raster Time-Series, UAV based acquisitions and O&M datasets
Thank you for your attention

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