

## ICA CMC Workshop Banff 2014

### Geo-Communicating Avalanche Relevant Information – EAWS SnoProfiler

Department of Geography and  
Regional Research

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## Objectives

- Avalanche Warning Center websites
  - [www.avalanches.org](http://www.avalanches.org)
  - [www.avalanche.org](http://www.avalanche.org)
  - [www.avalanche.ca](http://www.avalanche.ca)
  - [www.avalanche.net.nz](http://www.avalanche.net.nz)
- **communicate** and visualize **avalanche relevant information** in a spatial, temporal and thematic content

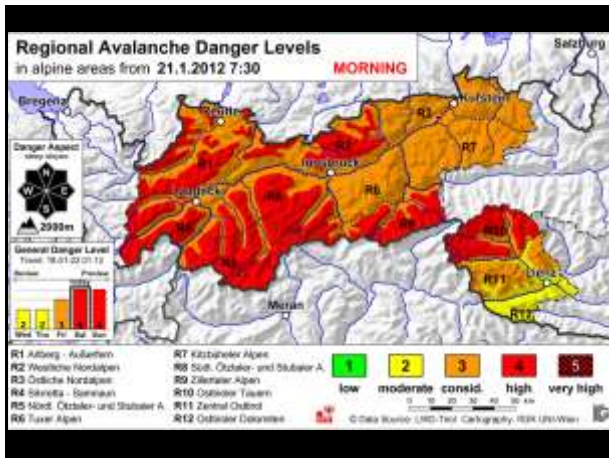
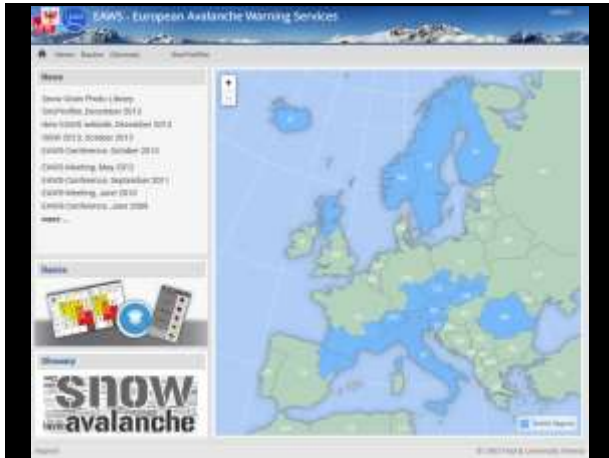
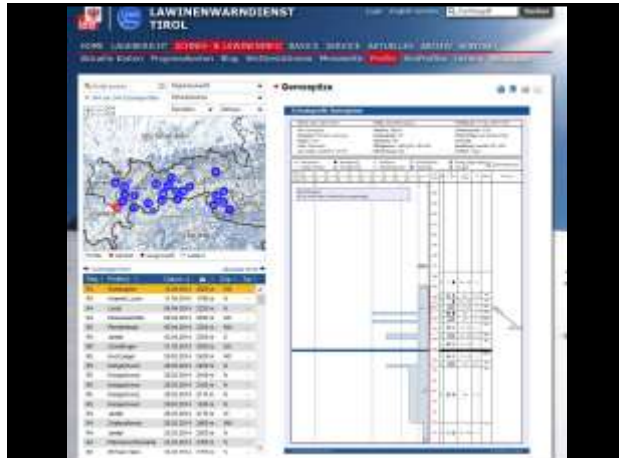


Photo realistic map perspectives



Perspective slope maps

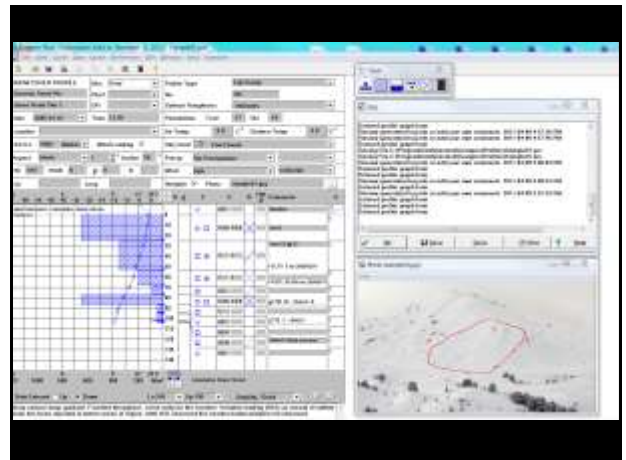
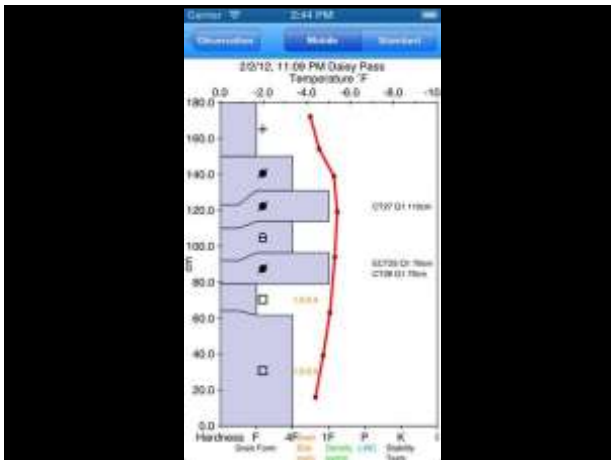
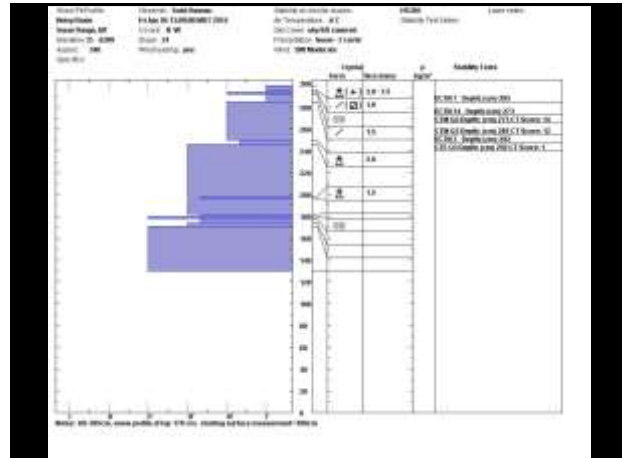
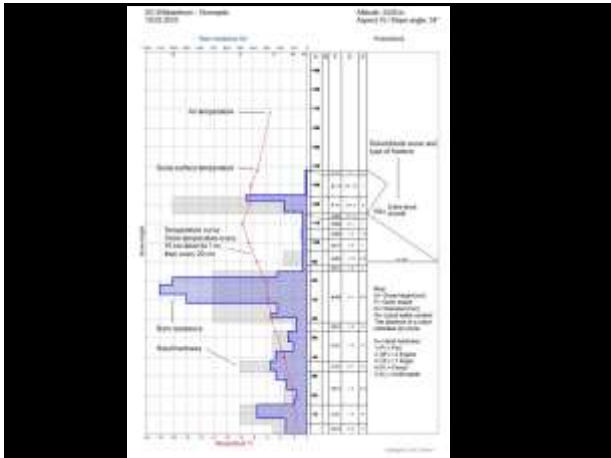


## Snow Profiles

- Essential for the **interpretation** and **analysis** of snow cover in mountainous areas
- Serve as an **assessment tool** for the prediction of potential avalanche hazards
- **Analog/online processing** of snow profiles
  - capture, draw and publish surveyed data.
- Data comprises highly topical content, which needs to **reach users quickly**

## Snow Profile Structure

- **Diagrams** of hardness, stability and temperature of the snow pack
- Stacked bar charts of **snow layers**, in combination with a graph of the **temperature**
- Similar across avalanche warning services, however **no standardized representation**
- **Rules for representation** based on the conventions of CAAML (Canadian Avalanche Association Markup Language)



## SnoProfiler

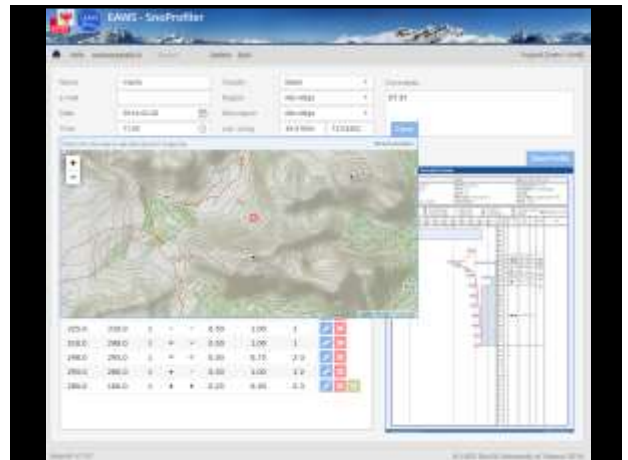
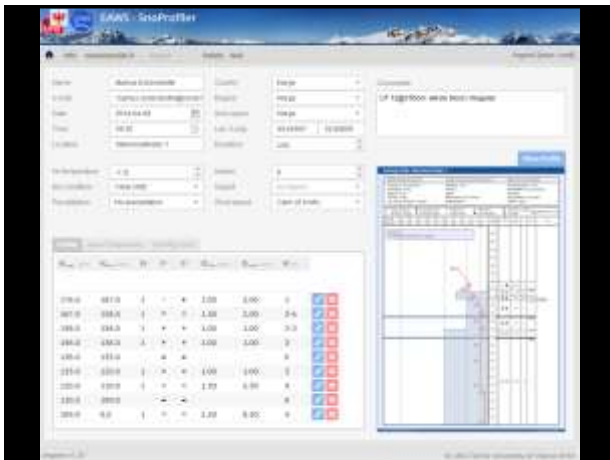
- **Free accessible online application** for processing of snow profiles
- Goal to **communicate and visualize** avalanche relevant information to **experts** as well as to the **general public** with a strong cartographic spatial focus
- **Cooperation** between Avalanche Warning Center of **Tyrol** and the University of **Vienna**

## SnoProfiler

- Enables users to enter **qualitative** as well as **quantitative information**, surveyed in the field
- **Geo-tagged data** stored in a DB and reproduced automatically as vector (PDF) and raster images
- **Snow layer** height, temperature and meta-data
- **Snow pack hardness** and height drawn on the x- and y-axis of the chart

## SnoProfiler

- **Additional information** like grain shape and size, moistness or rivets
- Air **temperature** and temperature inside the snow pack
- Information on potential **snow pack stability**
- **Meta-data**
  - user data, spatial, regional and temporal data, information about the weather conditions and user-comments



## Challenge and Outlook

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- **Content relevant presentation** of abundant available information
- Communication within a **geographical context**
- Exclusion of non-relevant information
- **Esthetically pleasing**
- Flexibility, scalability and **reliability**
- Legend with **standardized symbolization**
- **Multi-lingual** capability
- **Knowledge requirements** - user education

## Conclusion

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- Development of a **framework** that can focus on how users interact with the system in an efficient and sustainable way in order to satisfy their needs and **support avalanche awareness**

[www.avalanches.org/snoprofiler](http://www.avalanches.org/snoprofiler)

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