



Experience and validation of snow products provided by



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Office of the Tyrolean Government (Amt der Tiroler Landesregierung)



Hydrological Service Tyrol

- Investigation of hydrological cycle
- Installation and maintenance of the national in-situ measurement network
- Data processing and analysis
- Hydrologic expert service in administrative proceedings
- Responsible for news service on floods and flood forecasts



Used Products of CryoLand

- **Fractional Snow Extent Service over Alps**
Webportal and GIS-data set:
Hydrological Analyses, Validation of forecast models
- **Statistical analyses of fractional snow cover**
for defined hydrological basins in the Alps and alpine lowlands



1. Hydrological Analyses

Usage of the statistical analysis for the hydrological basins :

- Temporal development of the snow coverage
- Area altitude distribution → melting snow

- enables a rapid overview on the current system conditions
- supports the estimation of the flow development (melting snow)
- unfortunately only a few usable acquisitions...



chart by amCharts.com

Basin Time Series

16.03.2013:

15.04.2013:

18.05.2013:

02.06.2013: flood
(nearly no snow melt)

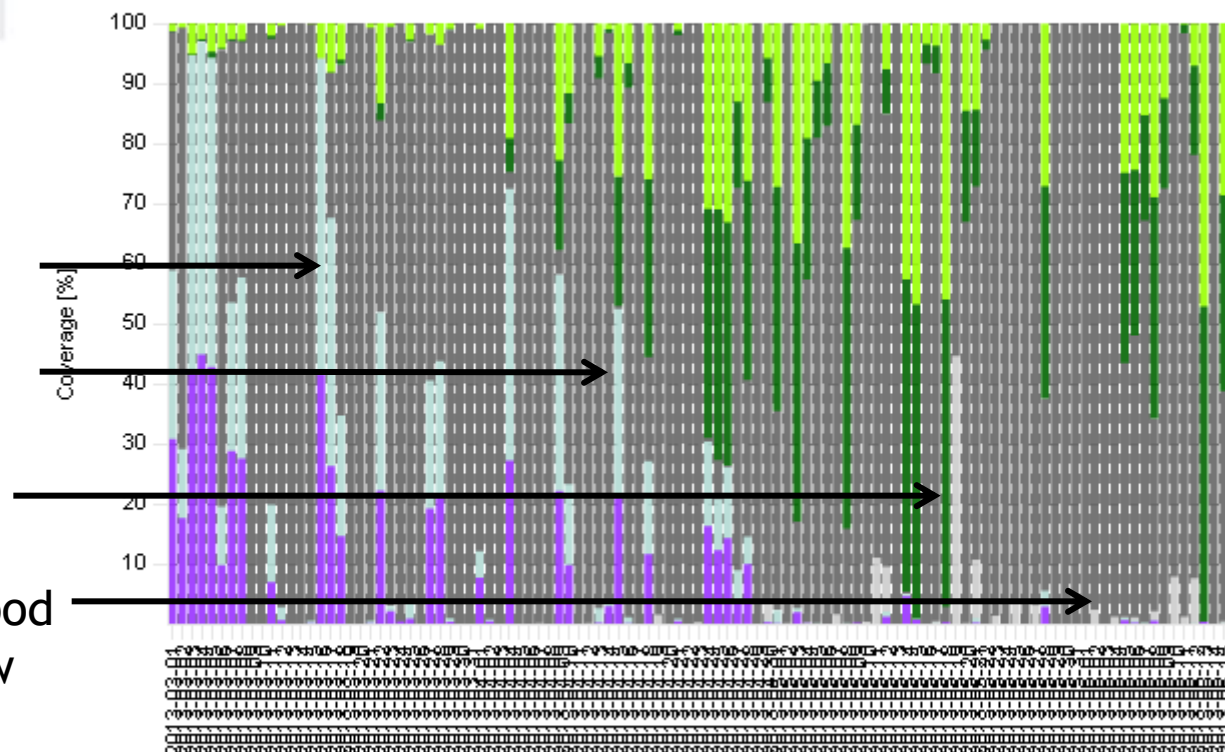
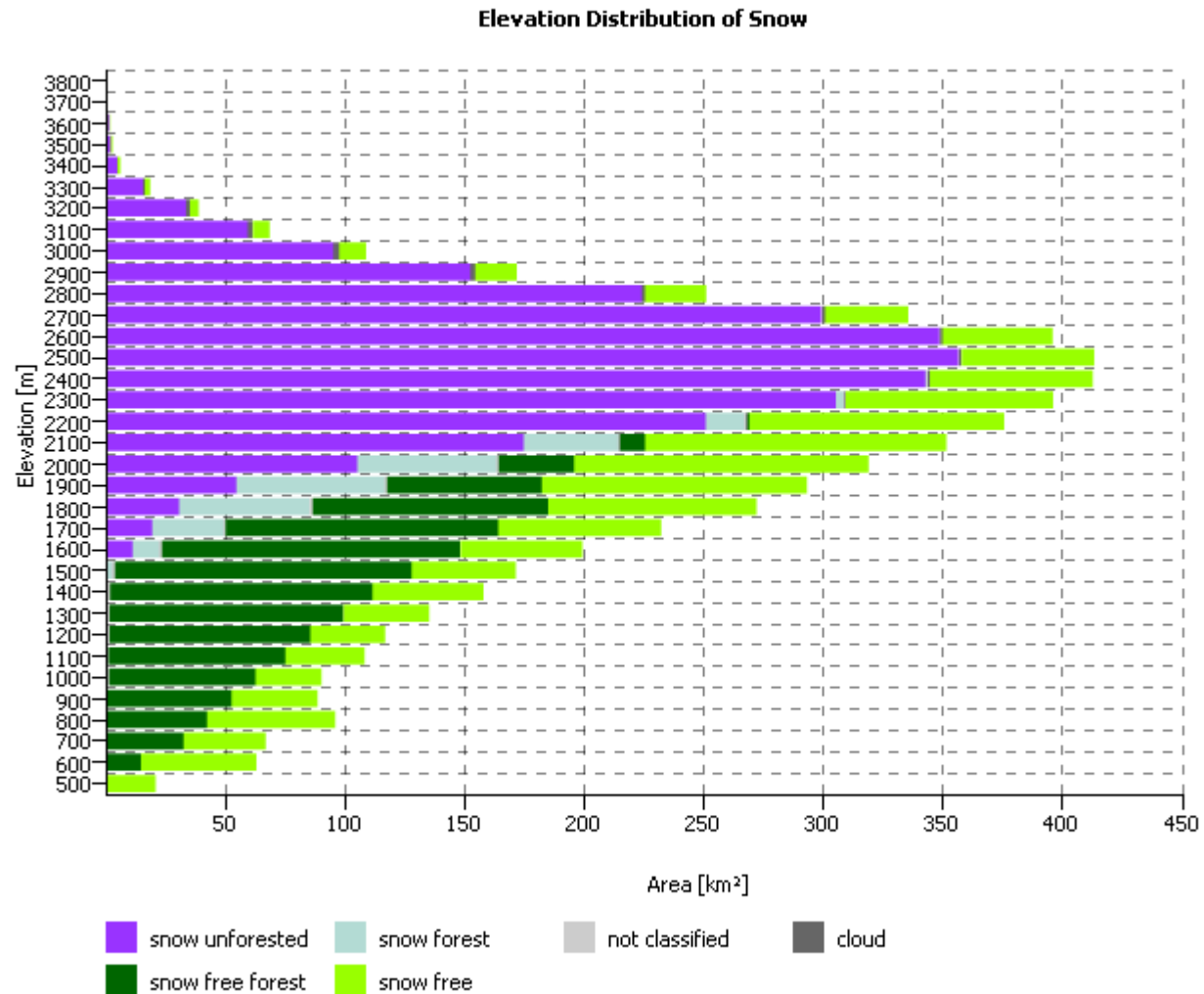


FOTO: ZOOM-TIROL



chart by amCharts.com



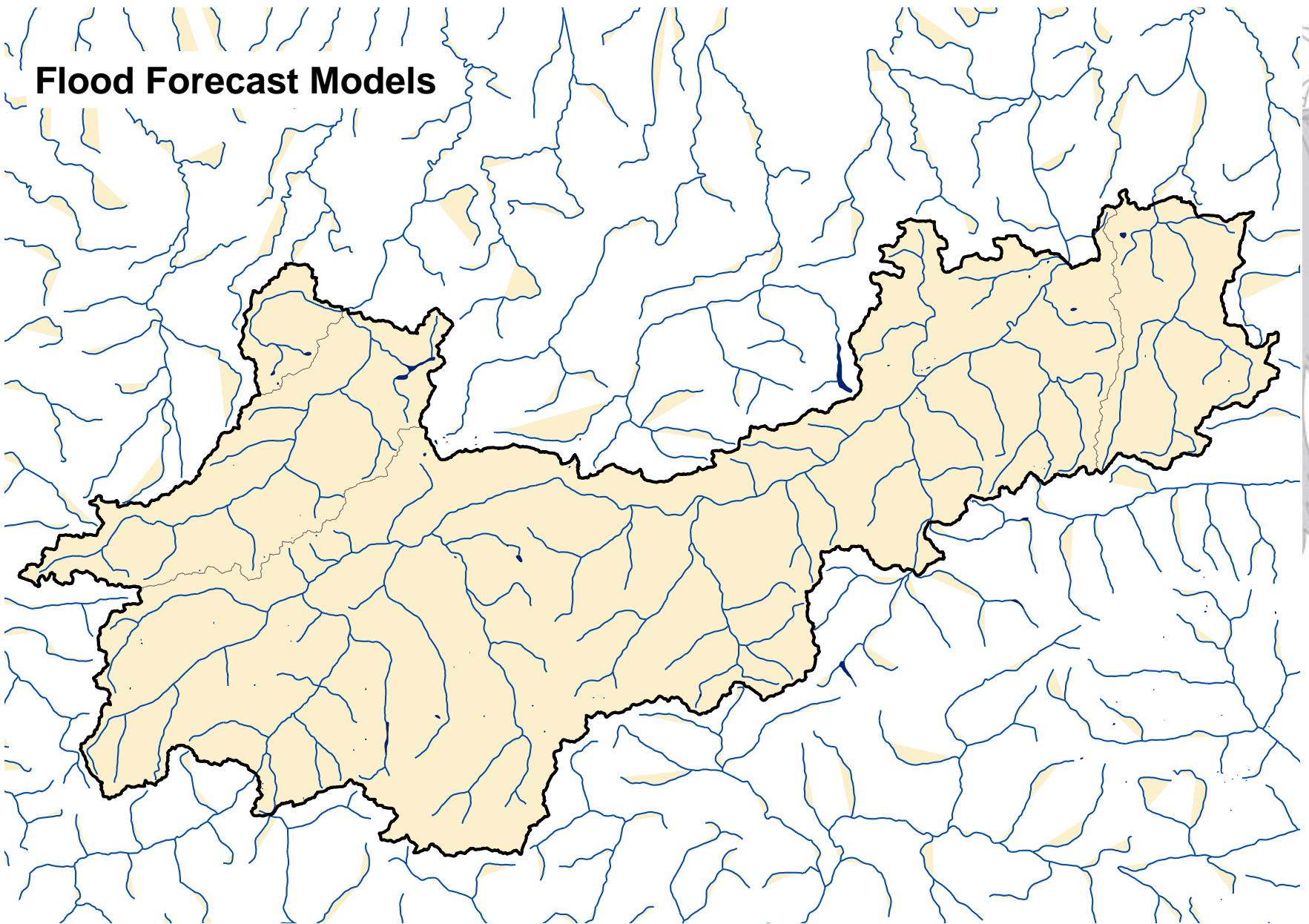


2. Validation for hydrological Modelling (Flood forecast):

Analysis of system status of flood forecast models:

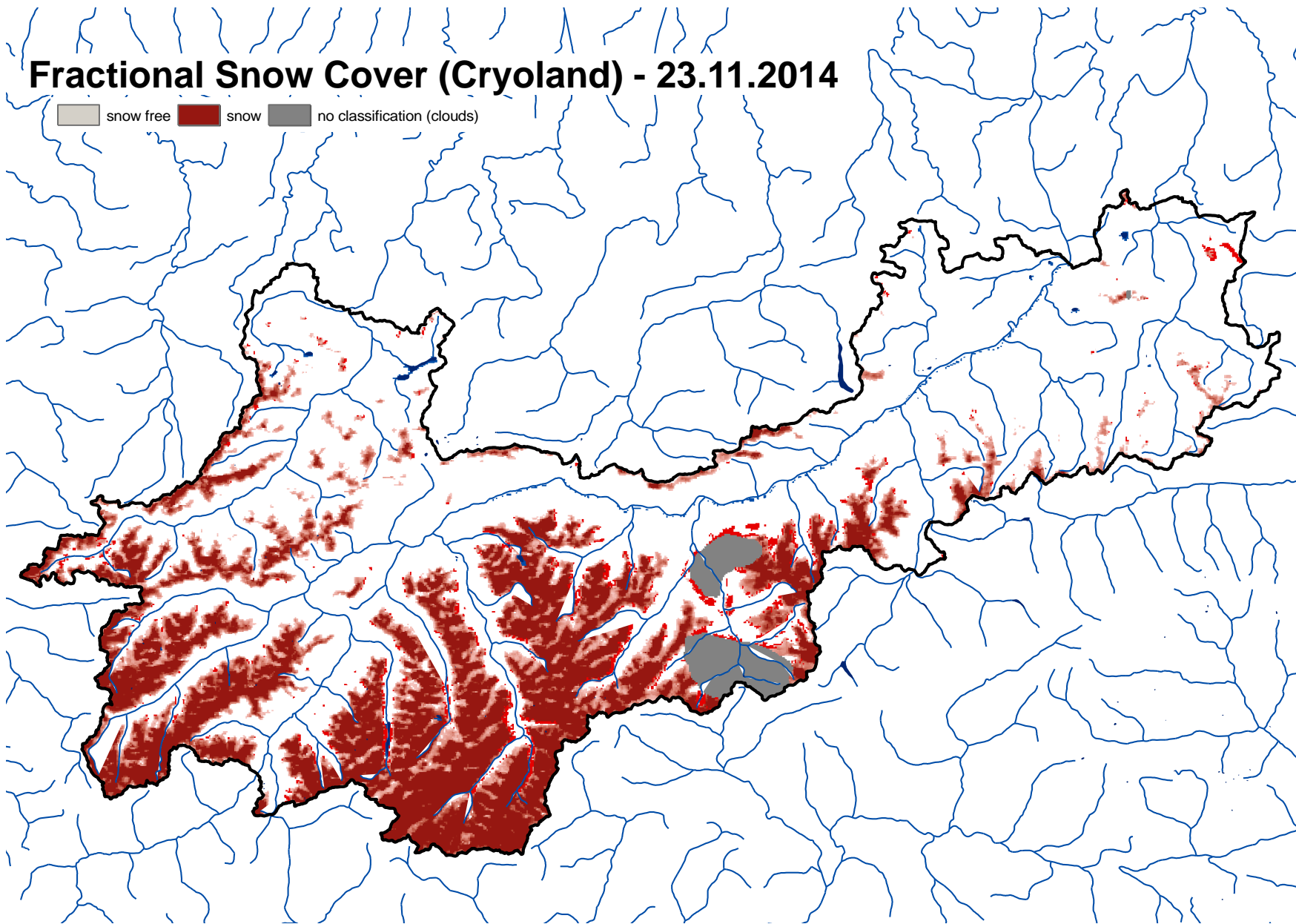
Fractional Snow Cover (from CryoLand) and Snow Water Equivalent (from flood forecast models)

Flood Forecast Models

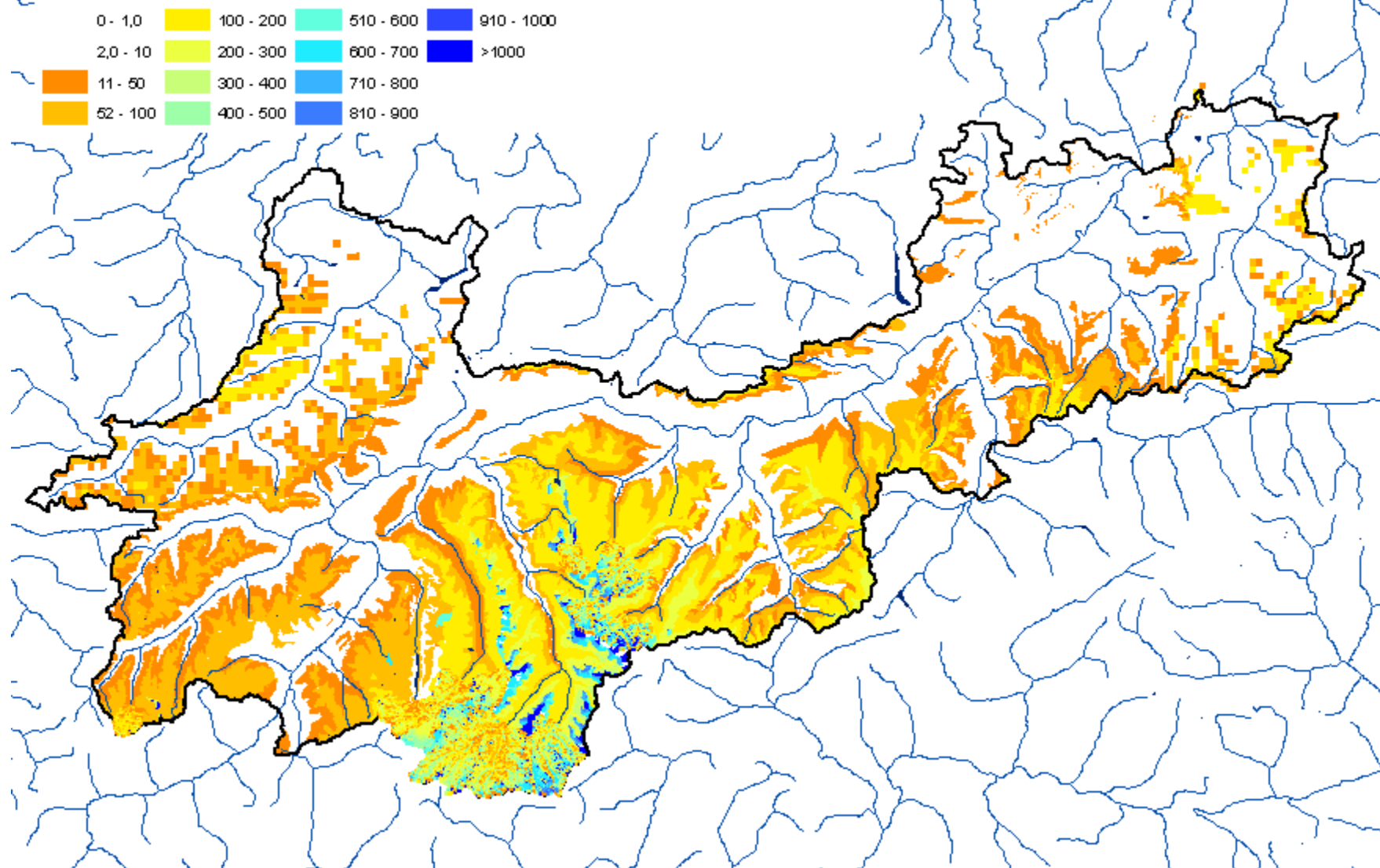


Fractional Snow Cover (Cryoland) - 23.11.2014

■ snow free ■ snow ■ no classification (clouds)



SWE [mm] (flood forecast models) - 23.11.2014





Requests for improvements / further developments:

- Marking of „good“ (nearly clear sky) Fractional Snow Cover products
→ clicking along the time line is sometimes time consuming
- higher resolution of snow cover products
- Additional Information about the current status of the melting snow
(e.g. % liquid water content)
- best input for flood forecast models: snow water equivalent



Thank you very much for the good collaboration!