

Nowcasting: analysis and up to 6 hours forecast

Very high resolution in time and space

Better than NWP

Rapid update

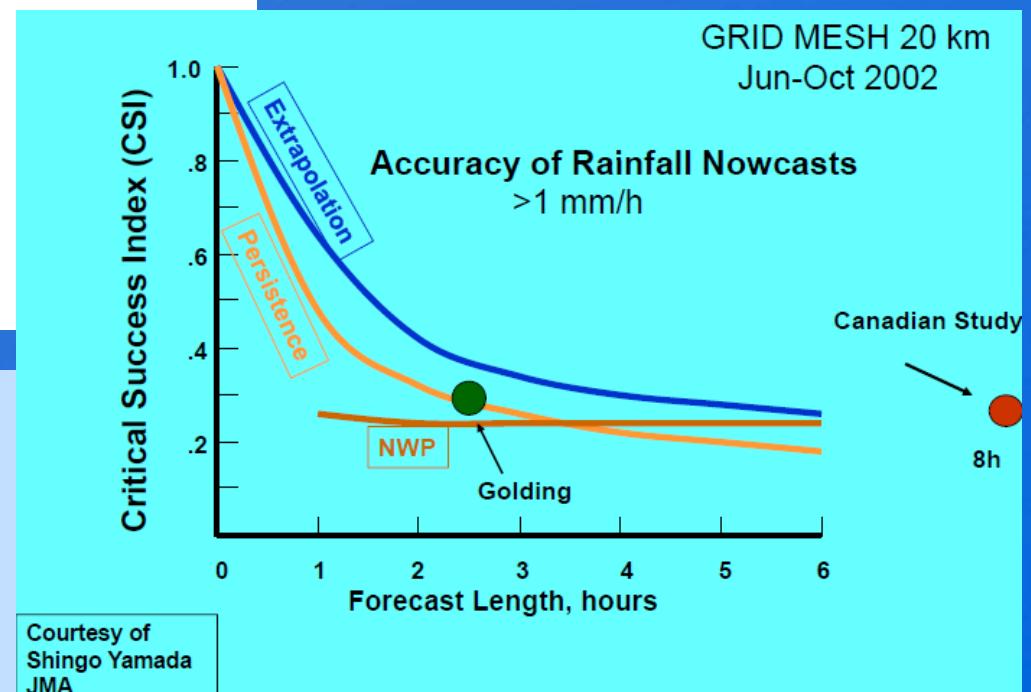
Application oriented

NWP problems for 0-6 forecast:

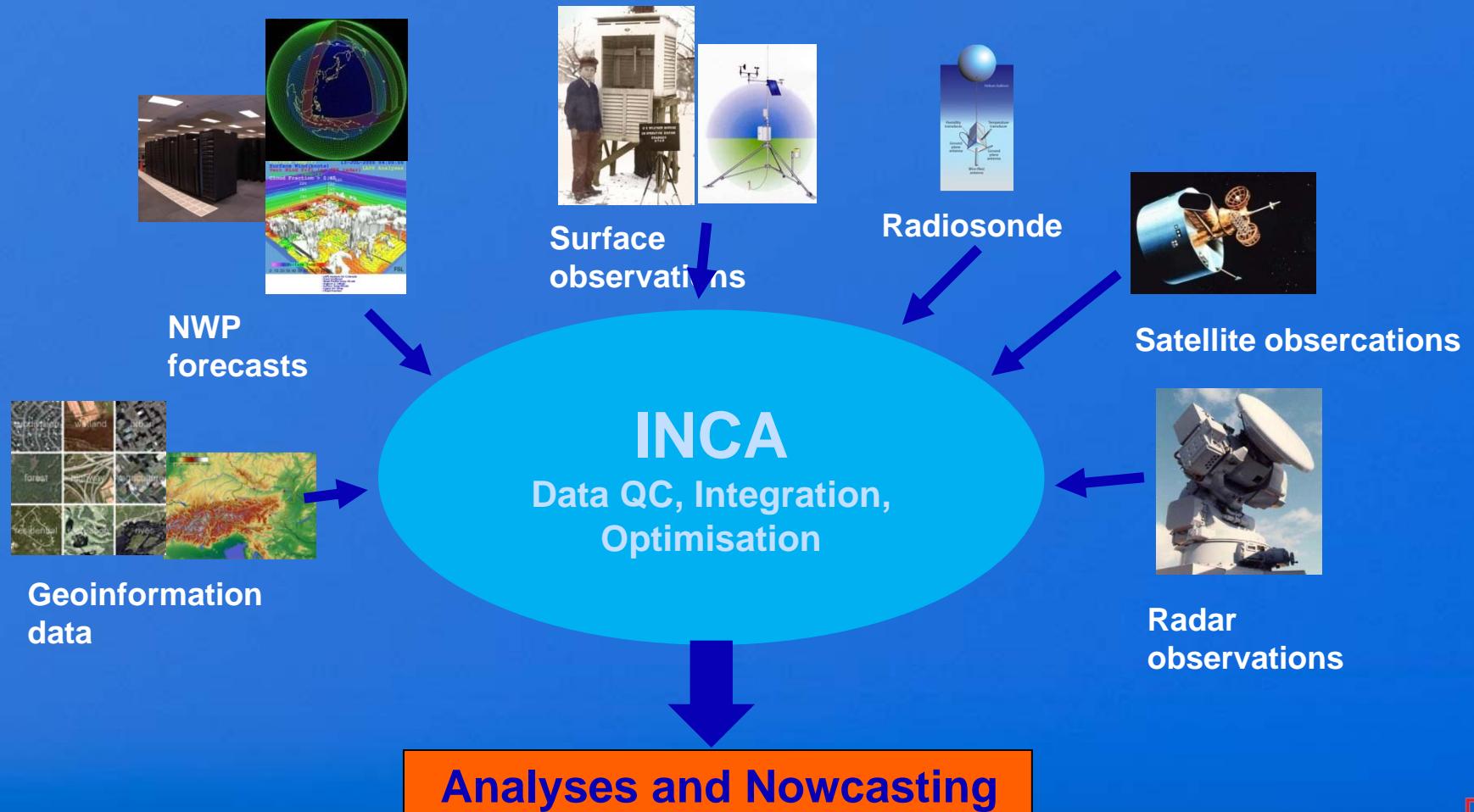
Incomplete physics

Resolution space and time

Data assimilation, spin-up



INCA: Integrated Nowcasting through Comprehensive Analysis

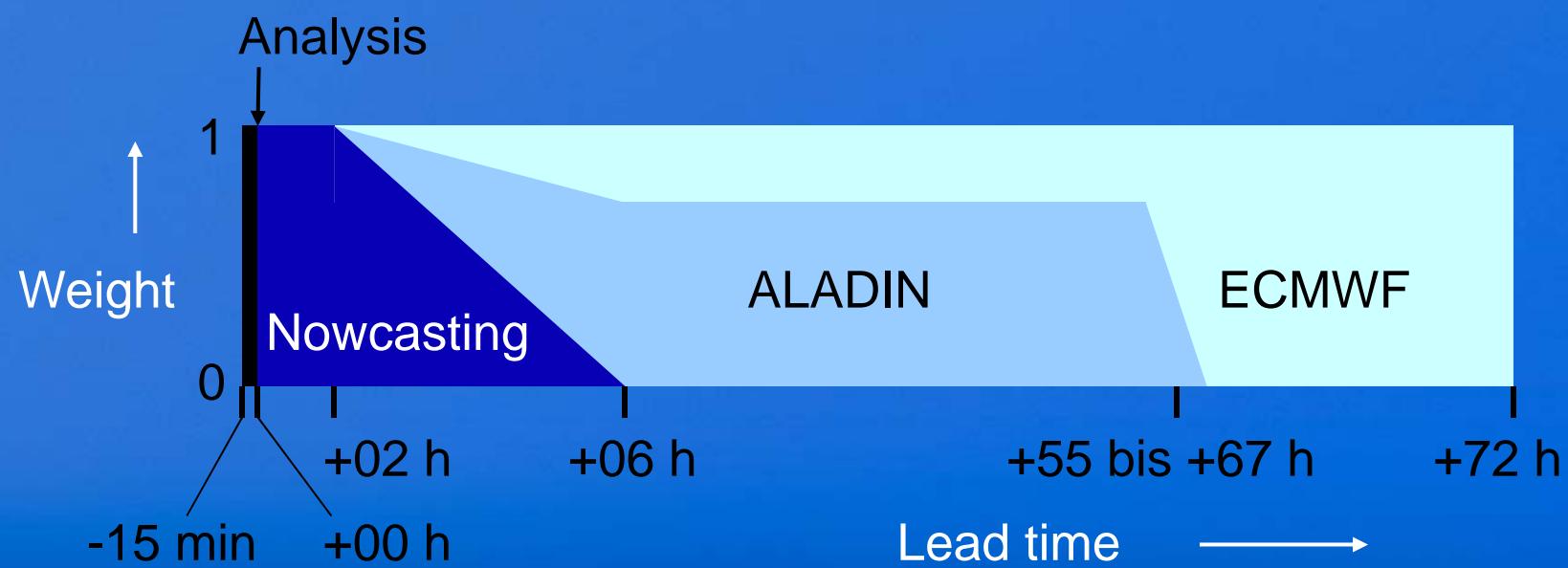


Key requirements for INCA

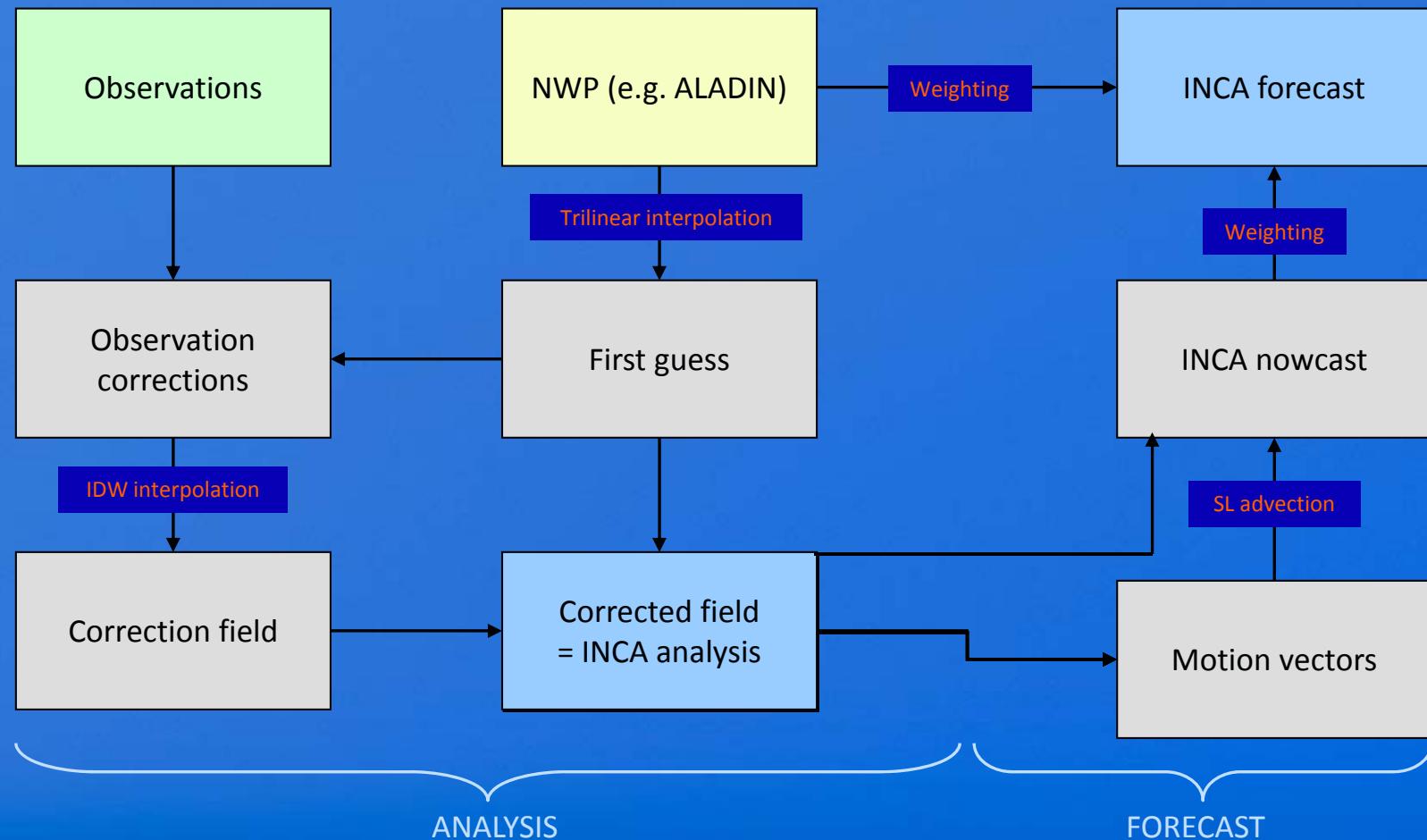
An operational nowcasting model:

Straightforward with quality

Efficient, stable, easy to maintain
application oriented



INCA system overview



Domain and Topography INCA-AT

Domain size

600 x 350 km

Elevation range

100 - 4000 m

Resolution

Horizontal: 1 km

Vertical: 150 m

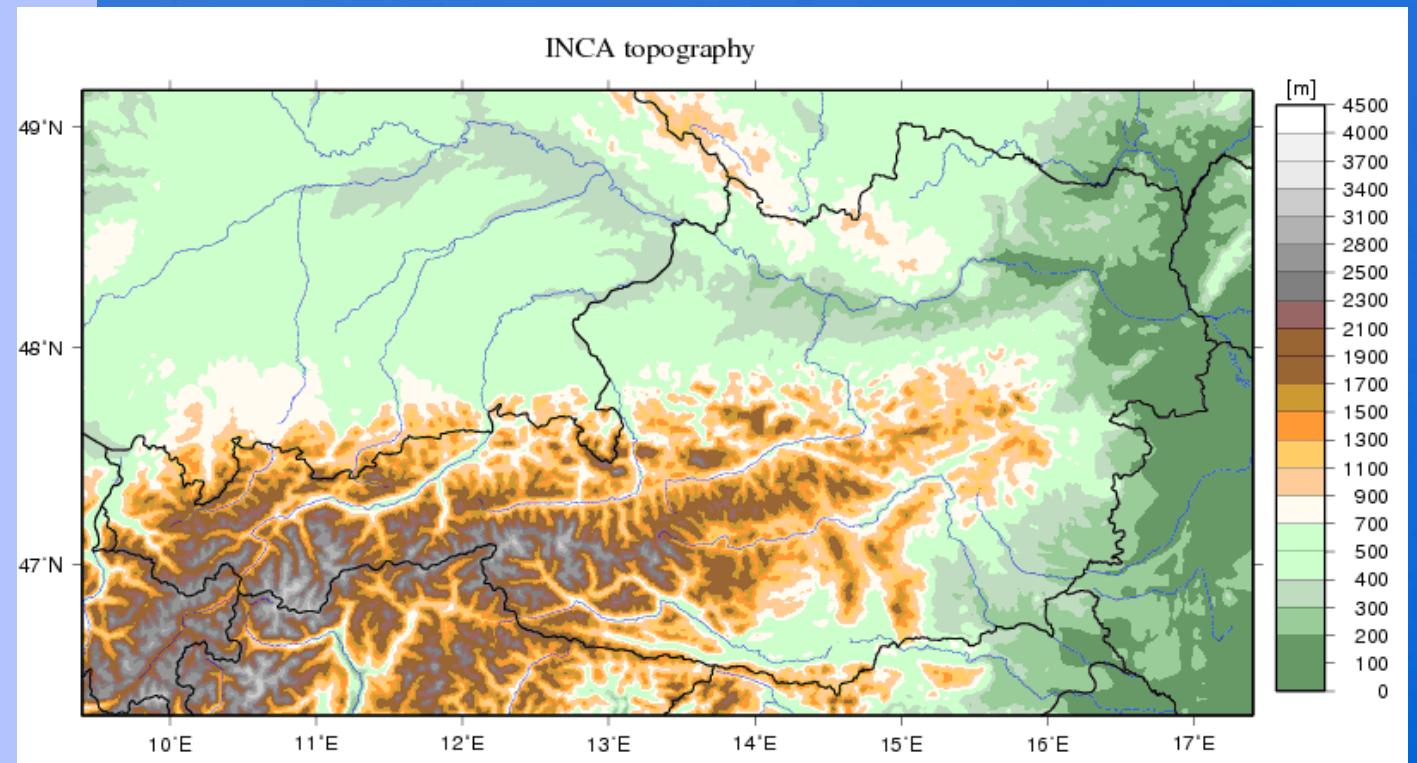
Time: 15 min – 1h

Update frequency

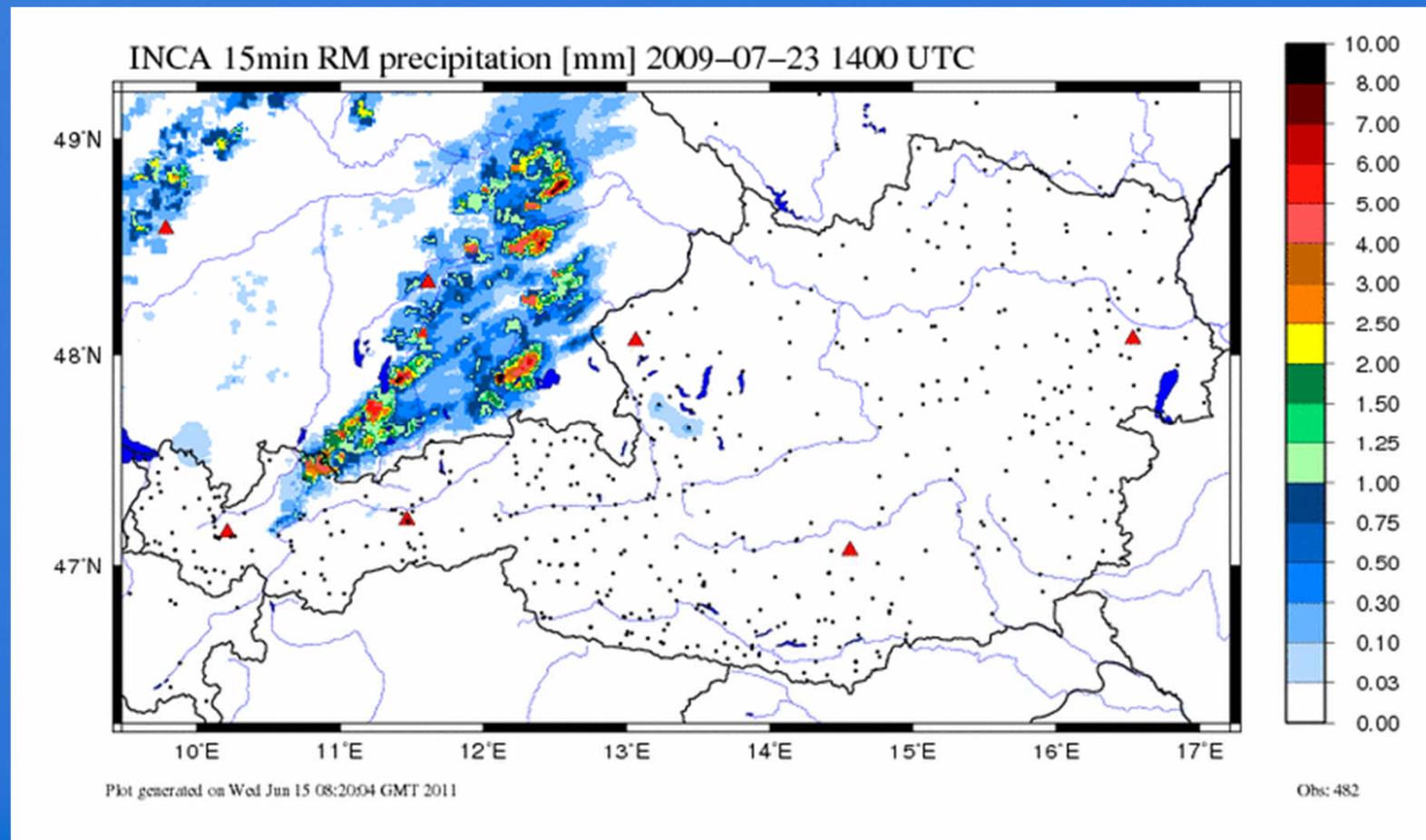
5 min – 1h

Availability

+ 20 min ... +30 min

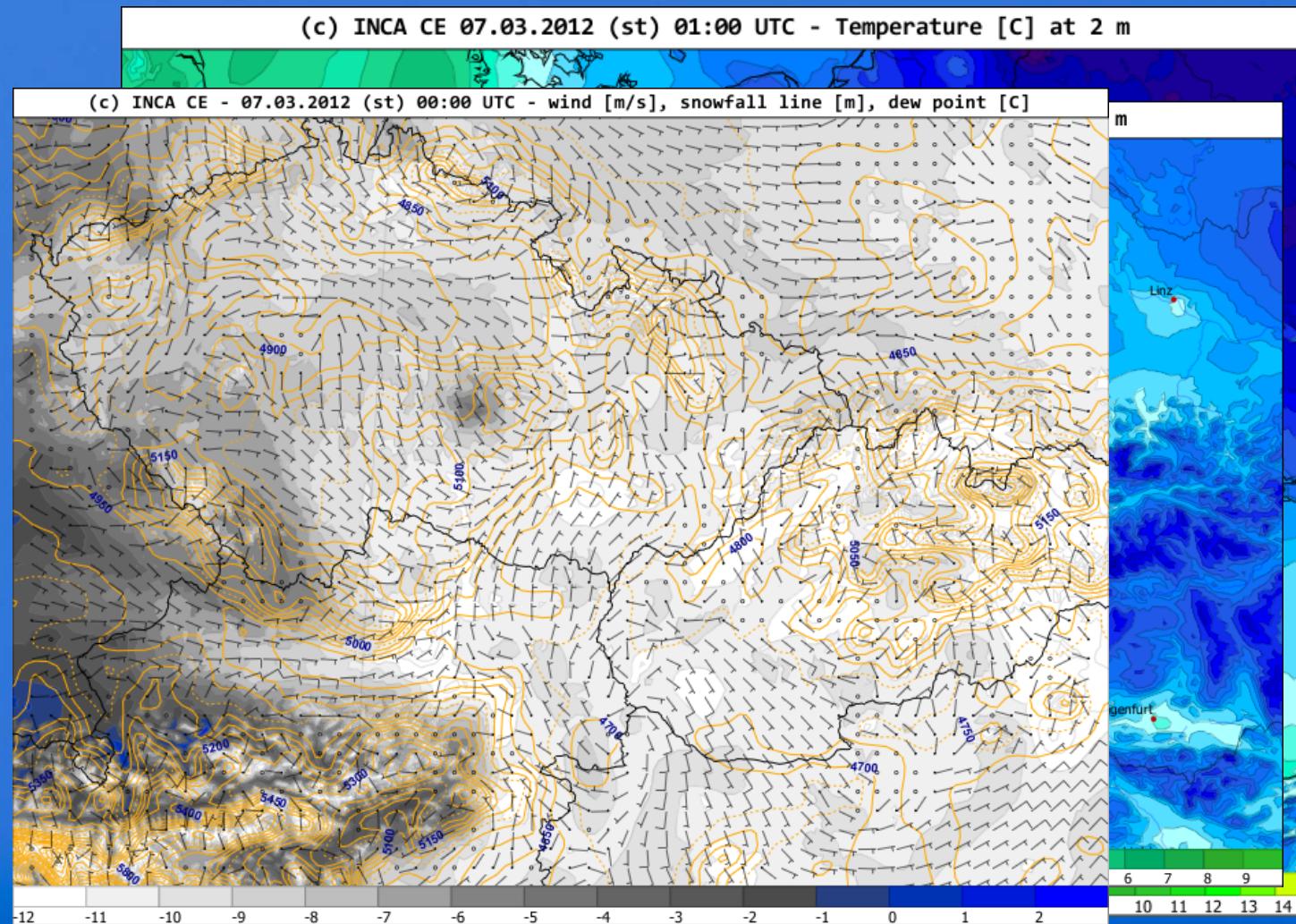


INCA precipitation analysis

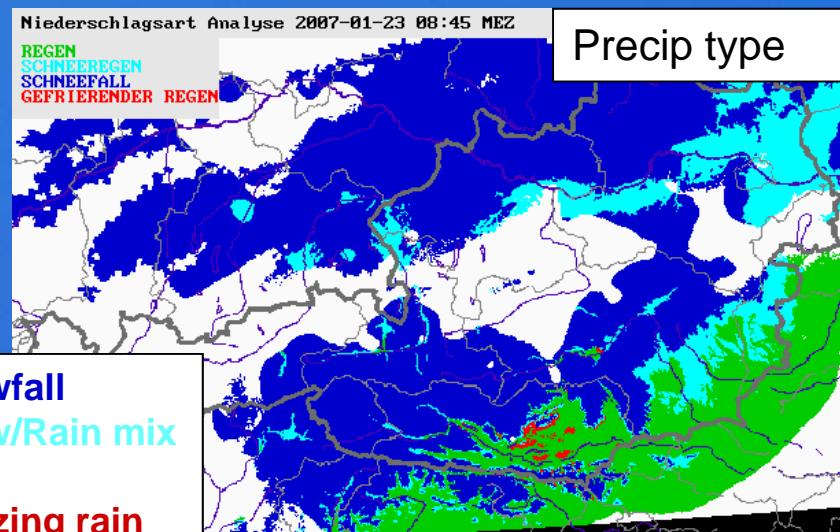
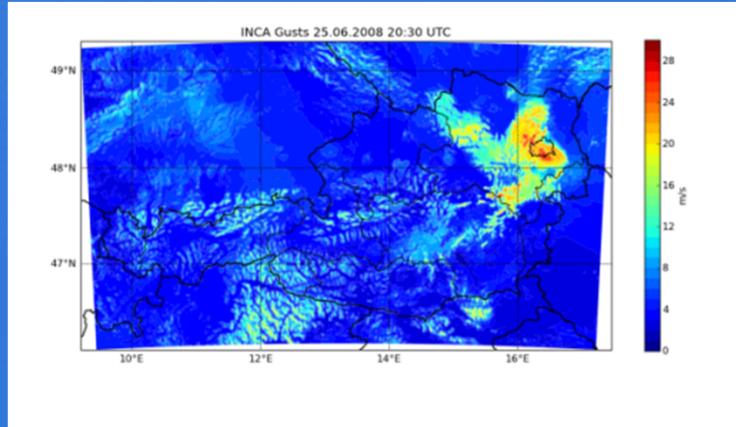




INCA forecast & analysis: wind, temperature, snowline,



INCA forecast & analysis: and many other variables



Cloud analysis

Wind gust

Road temperature

Icing potential

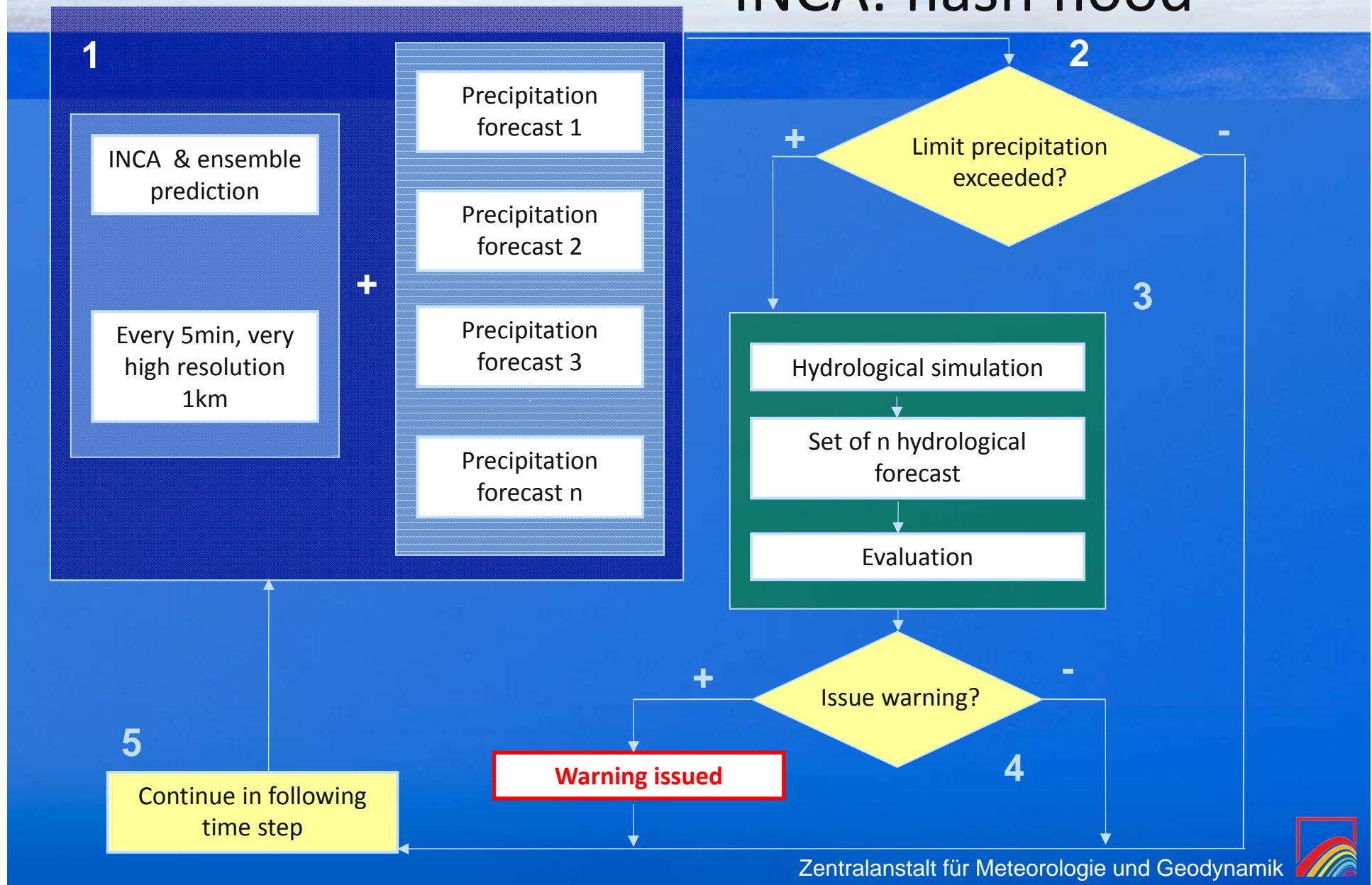
Global radiation

Visibility

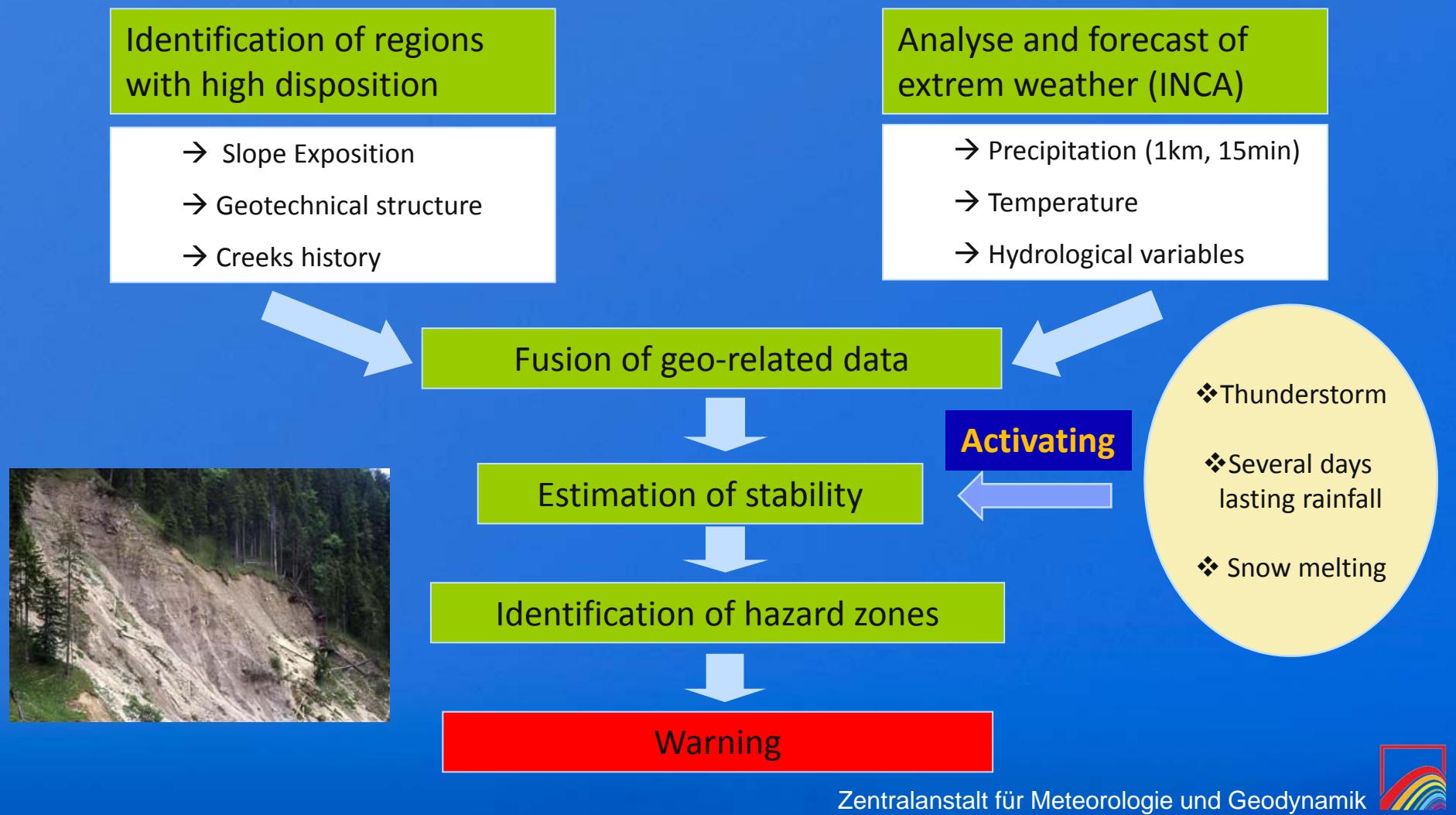
Convective index



INCA: flash flood

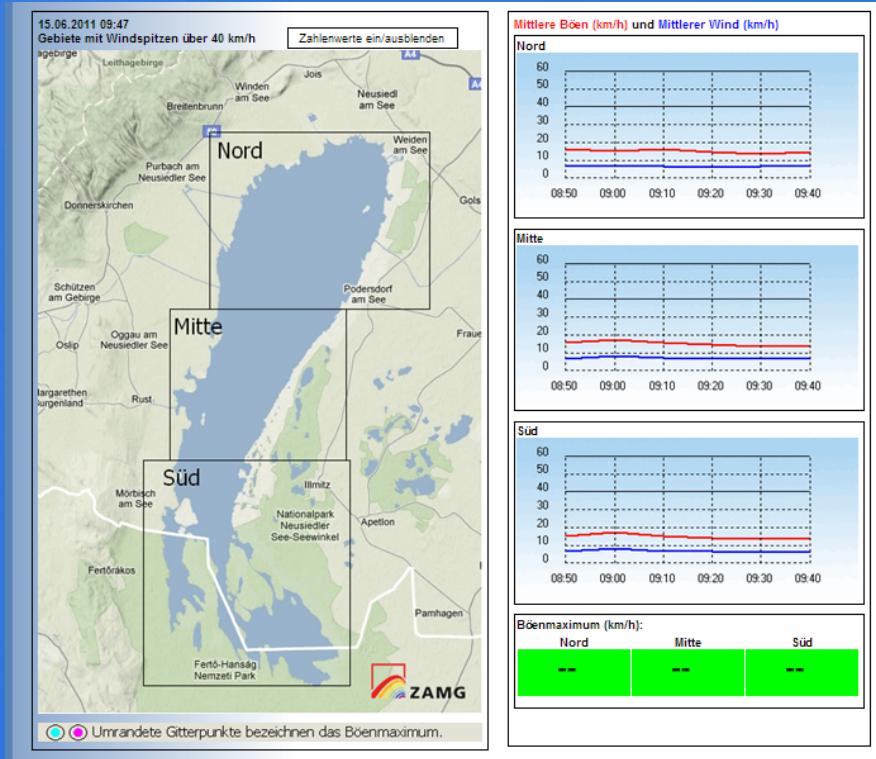


INCA: landslide warning



INCA: civil protection

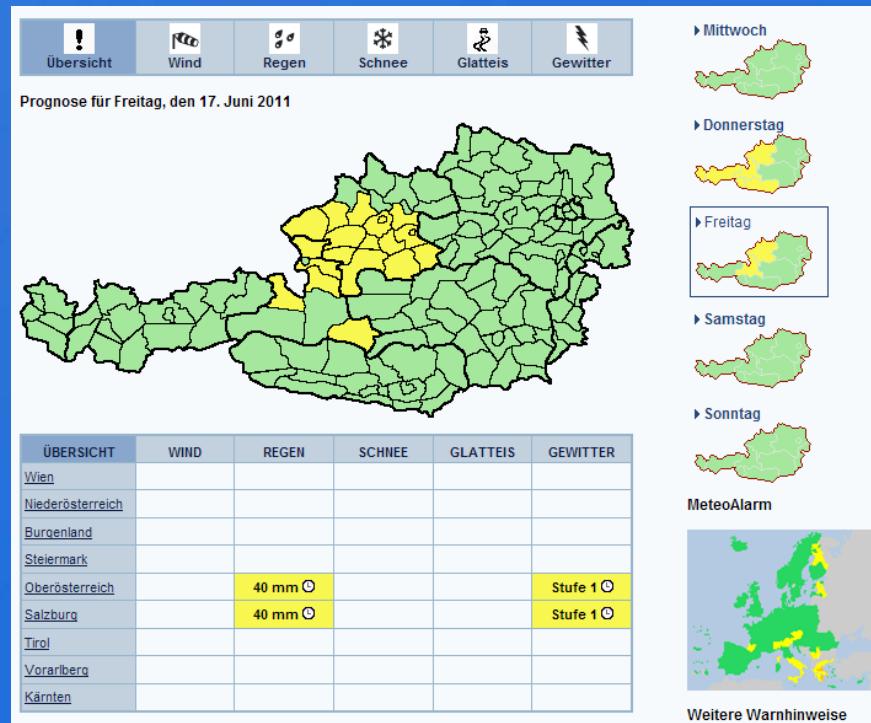
Automatic warnings for civil protection and for the general public



Gust monitor
Neusiedler lake



<http://www.interchalet.com>



Zentralanstalt für Meteorologie und Geodynamik

Severe weather
warnings



INCA-CE: Nowcasting for Central Europe



8 EU countries; 16 partners,
Funding: 3.3 m EURO



- Central Institute for Meteorology and Geodynamics
- Security Center Burgenland
- Provincial Government of Lower Austria - Fire Brigade and Civil Protection
- National Crisis and Disaster Management and Civil Protection
- Provincial Government of Lower Austria - Road Maintenance



- Czech Hydrometeorological Institute



- Fraunhofer-Institute of Optronics, System Technologies and Image Exploitation



- Hungarian Meteorological Service
- Disaster Management Directorate of Somogy County



- Regional Agency for Environmental Protection



- Slovak Hydrometeorological Institute



- Ministry of Interior of the Slovak Republic



- Environmental Agency of the republic of Slovenia



- CGS plus d.o.o. Innovative IT and Environmental Technologies



- Institute of Meteorology and Water Management



- Department for Crisis Management Poland

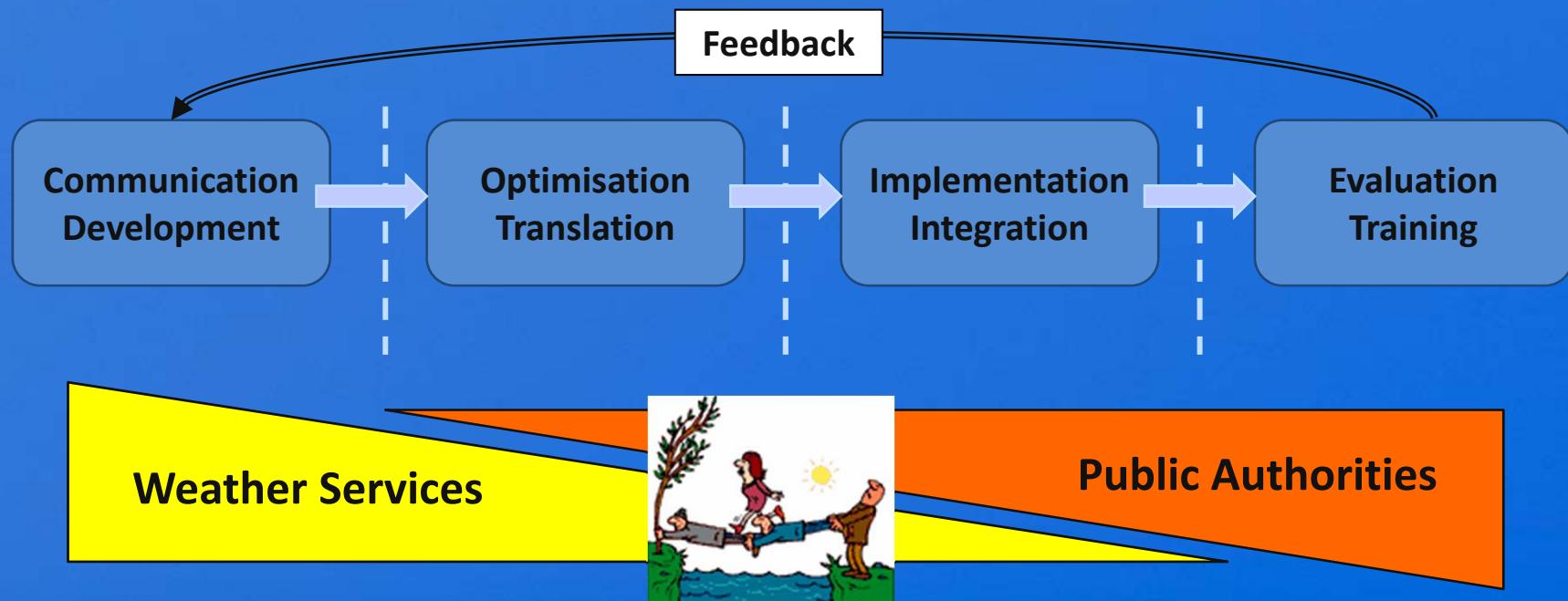


Zentralanstalt für Meteorologie und Geodynamik



INCA-CE project concept

Building bridge between nowcasting and crisis management





INCA: from Central European to Global

A Forecast Demonstration Project of World Meteorological Organization (WMO), World Weather Research Programme (WWRP)



Integrating Nowcasting with crisis management and risk prevention in a transnational framework



INCA: global player in nowcasting



**A state-of-the-art, very high-resolution
in time and space, application-oriented,
real-time analysis and nowcasting
system INCA**

**Operational
implementation at each
partner**

**Common efforts on
research and maintainence**



Summary

In the recent years, ZAMG and their partners have developed regional ensemble system ALADIN-LAEF.

ALADIN-LAEF provides encouraging results and is used in LACE.

INCA is a major global player in nowcasting, it can provide reliable results and is widely used in many application areas.



THANKS!

