The Aviation Layer of NinJo

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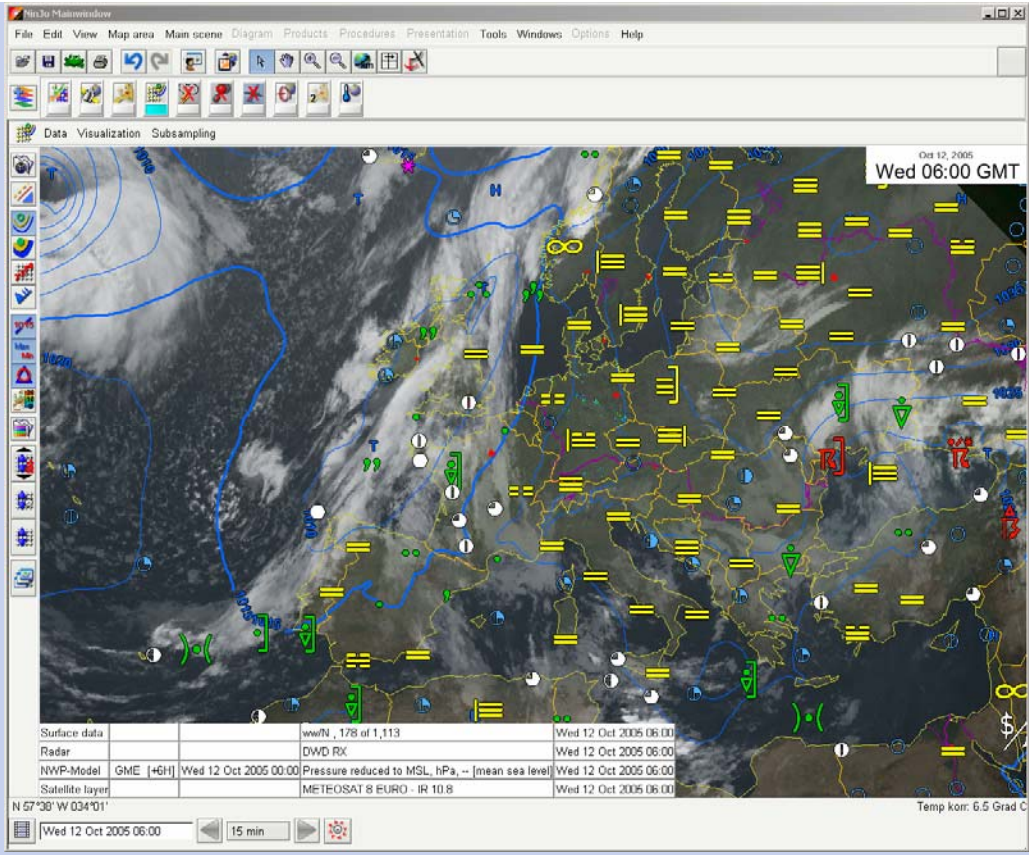
Overview of the NinJo Project

Generell Features of NinJo

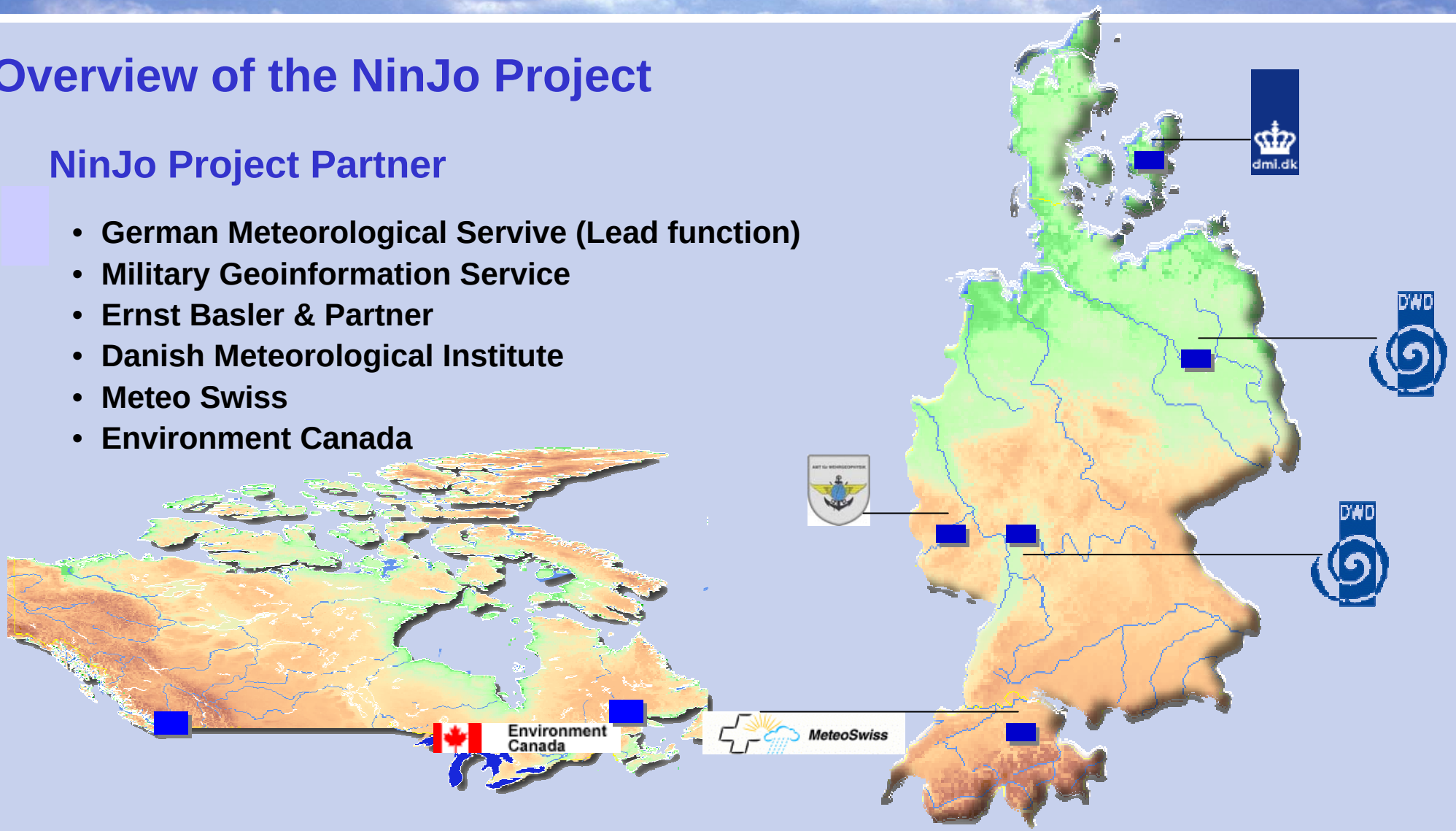
- Presentation and processing of meteorological data types
- Interactive and time steered data processing
- Map based presentation
- Diagram based presentation
- Presentation of data in different levels
- Integrated 3D visualisation
- Time steering with animation and automatic data update
- Operation logic similar to Windows



Overview of the NinJo Project

NinJo Project Partner

- German Meteorological Servive (Lead function)
- Military Geoinformation Service
- Ernst Basler & Partner
- Danish Meteorological Institute
- Meteo Swiss
- Environment Canada



Overview of the NinJo Project

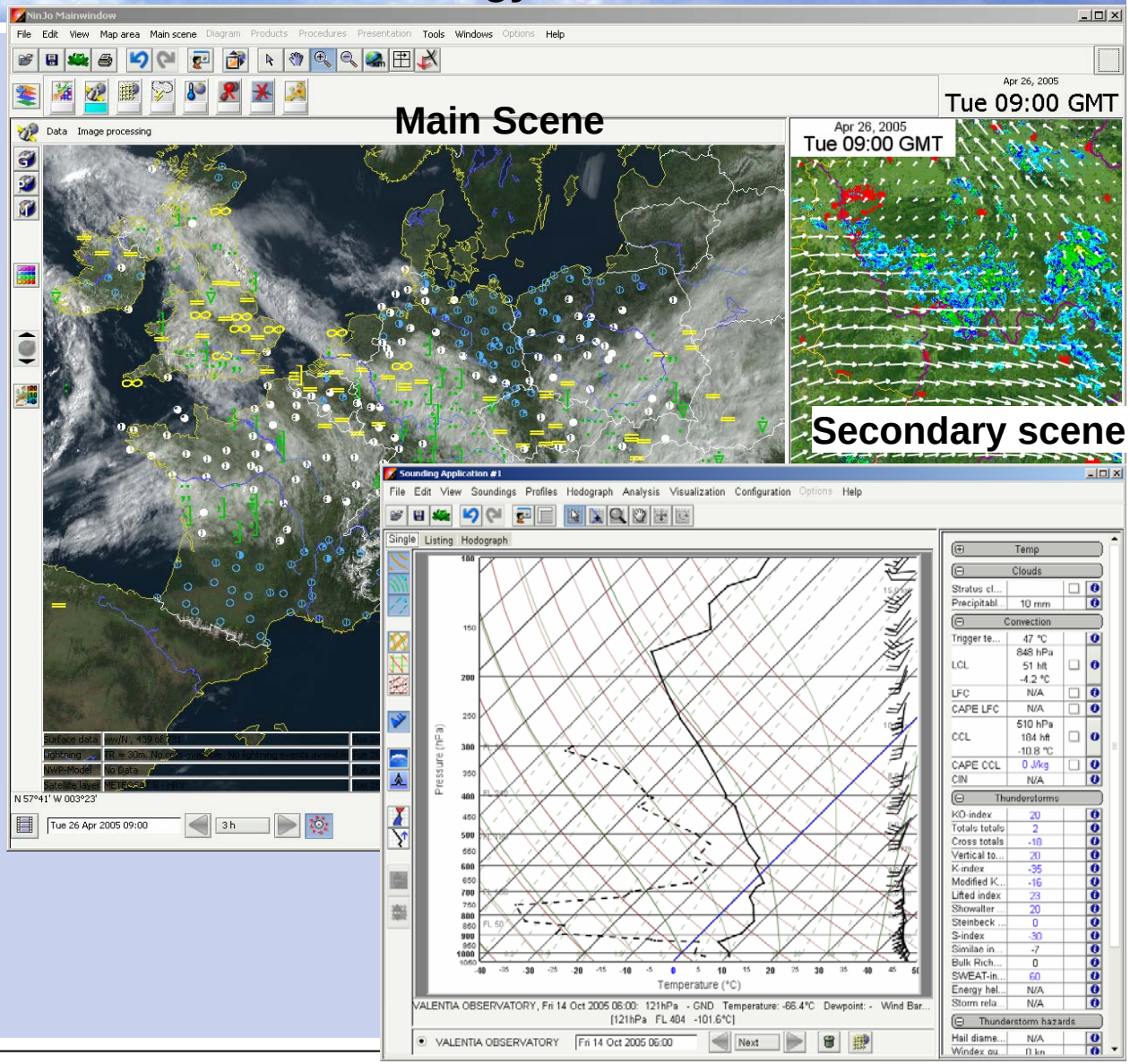
Example of a presentation

Main Scene:

- One main scene with up to 3 secondary scenes

Different secondary applications:

- Aerological diagrams
- Meteograms



Aviation Specified Layers of NinJo

Motivation / Advantages

- **Better support of the operational aeronautical meteorological service**
- **Production of aeronautical meteorological forecasts with higher quality**
- **More effectivity as well as efficiency**

Aviation Layer of NinJo

Features (I)

- **Aeronautical Meteorological Warnings:**
  - ✍ **SIGMET**
  - ✍ **AIRMET together with GAMET**
  - ✍ **Surface Warnings (GAFOR-area warnings and aerodrome warnings)**

- **Aeronautical Meteorological Area Forecasts:**
  - ✍ **GAFOR**
  - ✍ **AutoGAFOR**
  - ✍ **Night Vision Goggle Forecast (presented as area forecast for GAFOR areas)**

Aviation Layer of NinJo

Features (II)

- **Aeronautical Point Forecasts:**

TAF products:

- TAF (together with METAR)

- TAF Guidance

- AutoTAF

TREND products:

- TREND

- AutoTREND

Aviation Layer of NinJo

Features (III)

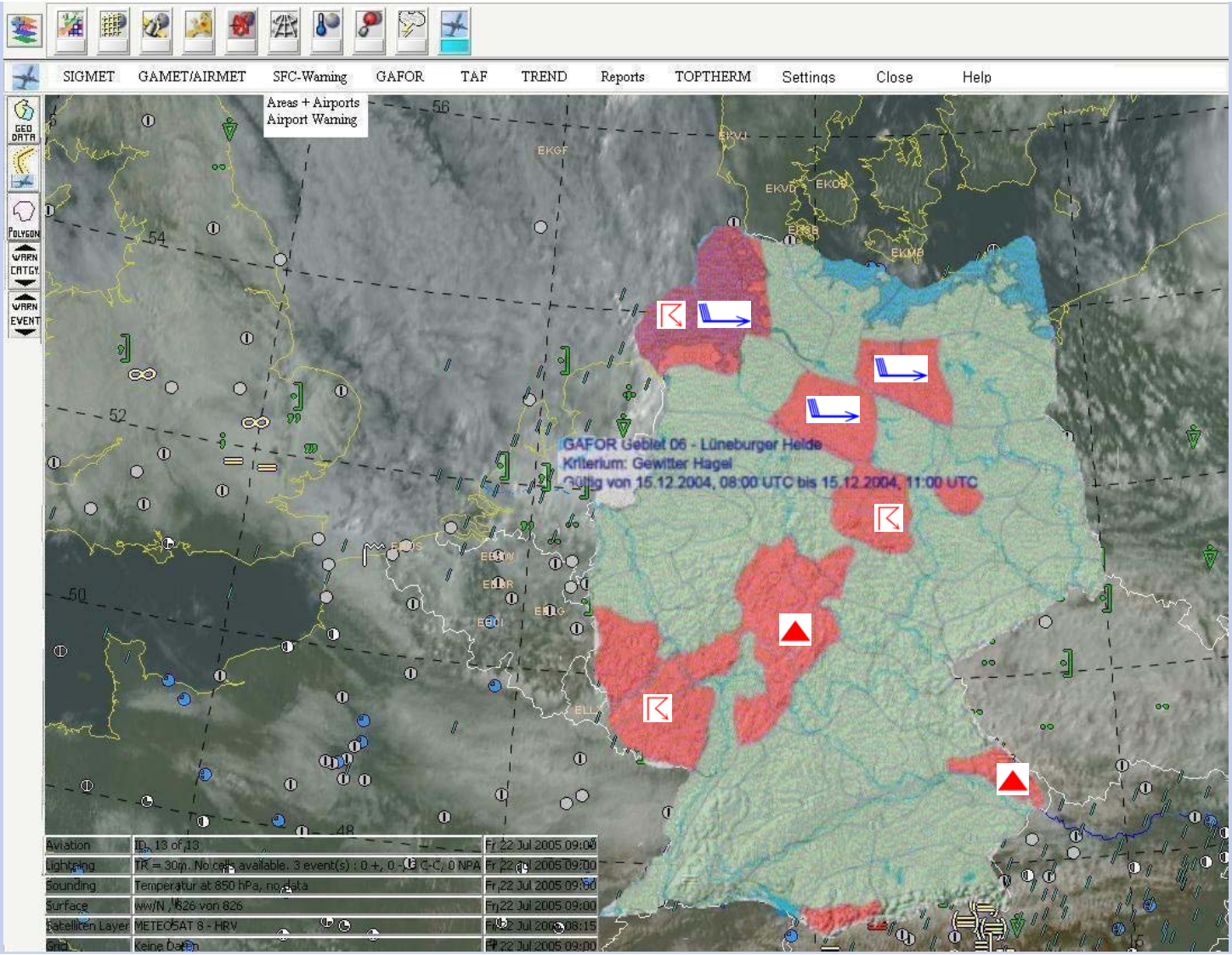
- **Aeronautical Weather Reports:**
  - ✍ **PIREP (Pilot Report)**
  - ✍ **ARS (Air Report Special)**

- **Special Visualisation and Selection Tools:**
  - ✍ **Polygone Line Selection**
  - ✍ **Flight Route Selection**

Aeronautical Meteorological Warnings

Warned areas are coloured red;

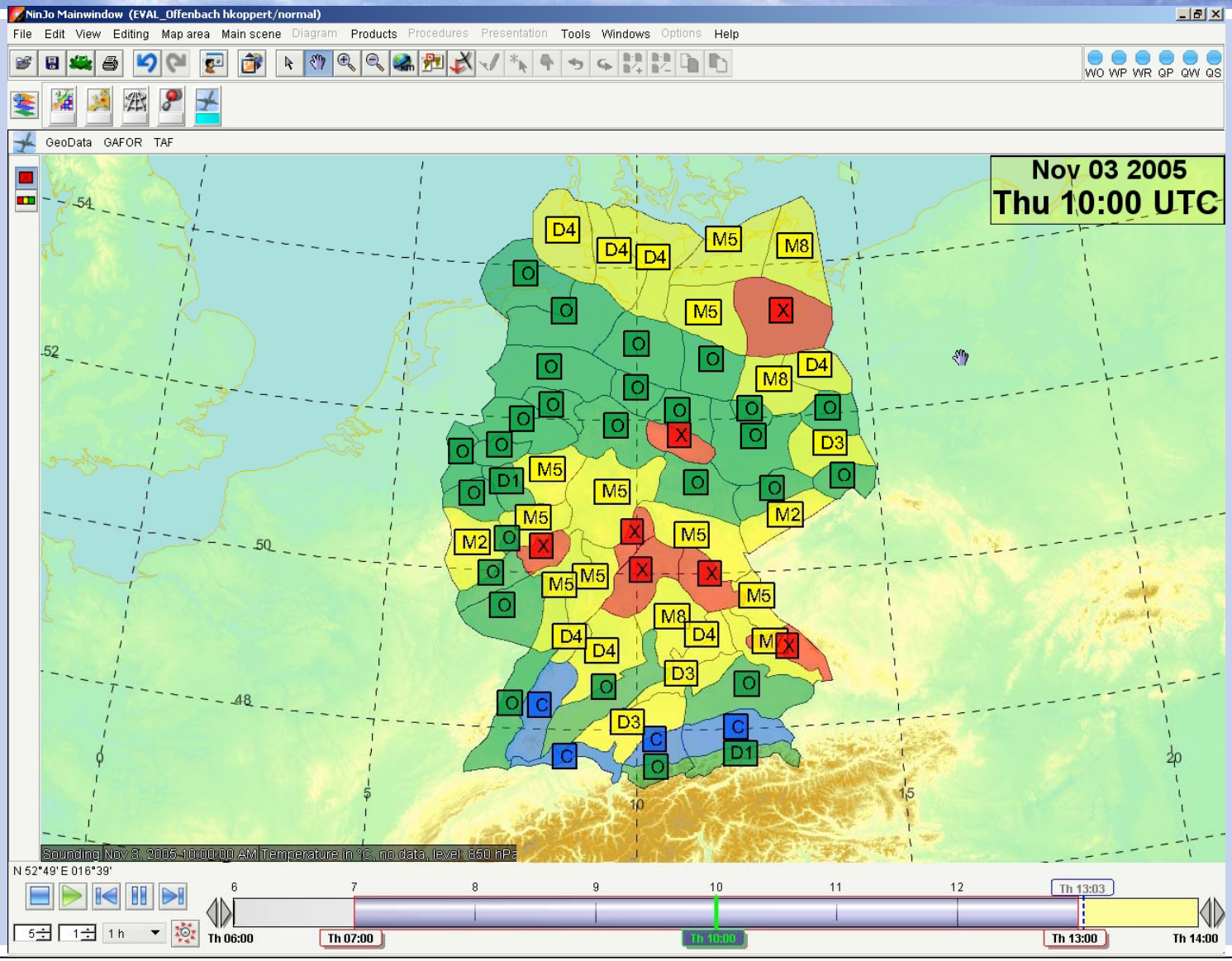
Warning event is shown by the weather symbol.



Aviation Layer of NinJo

GAFOR Germany

2-hourly forecast

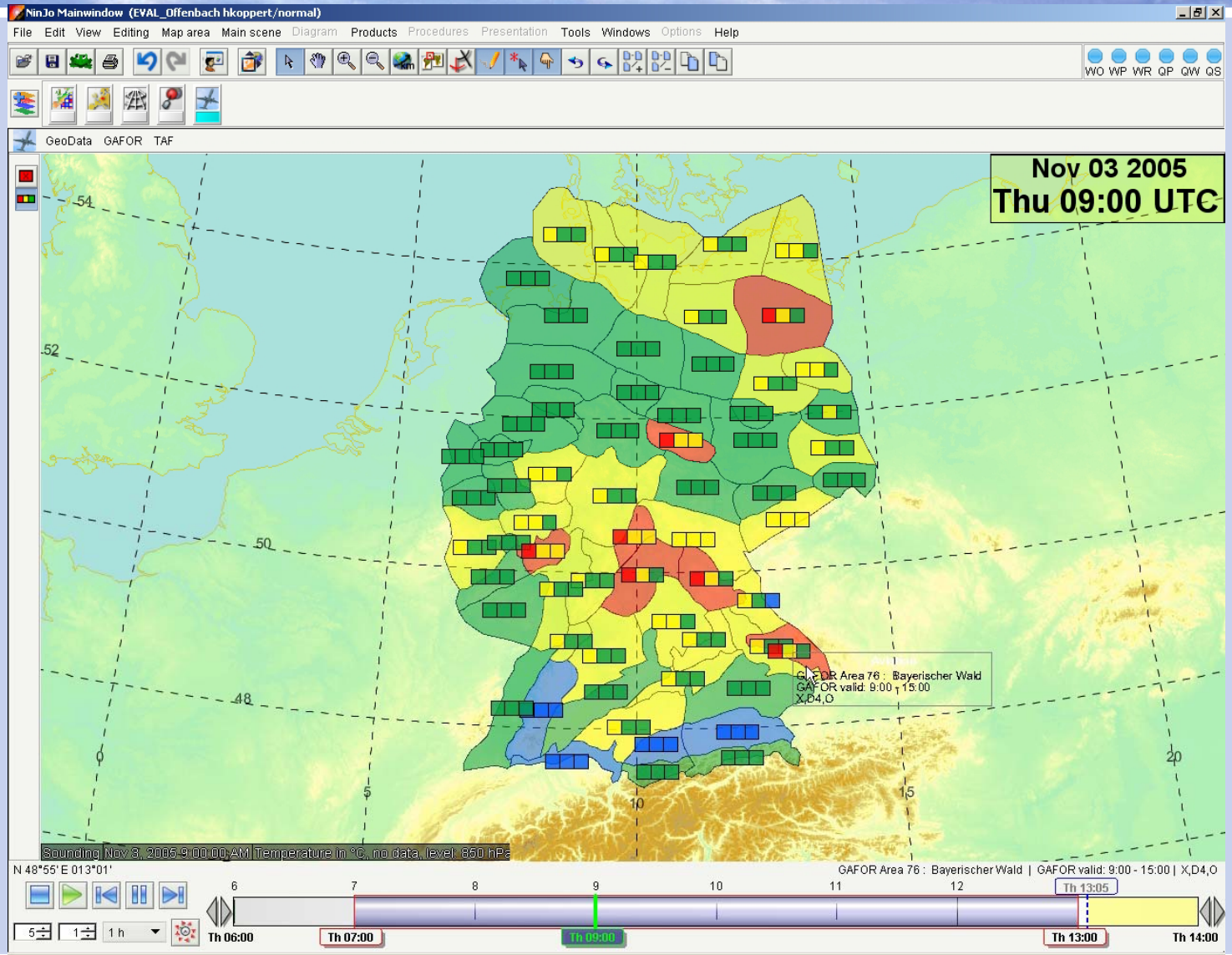


Aviation Layer of NinJo

GAFOR Germany

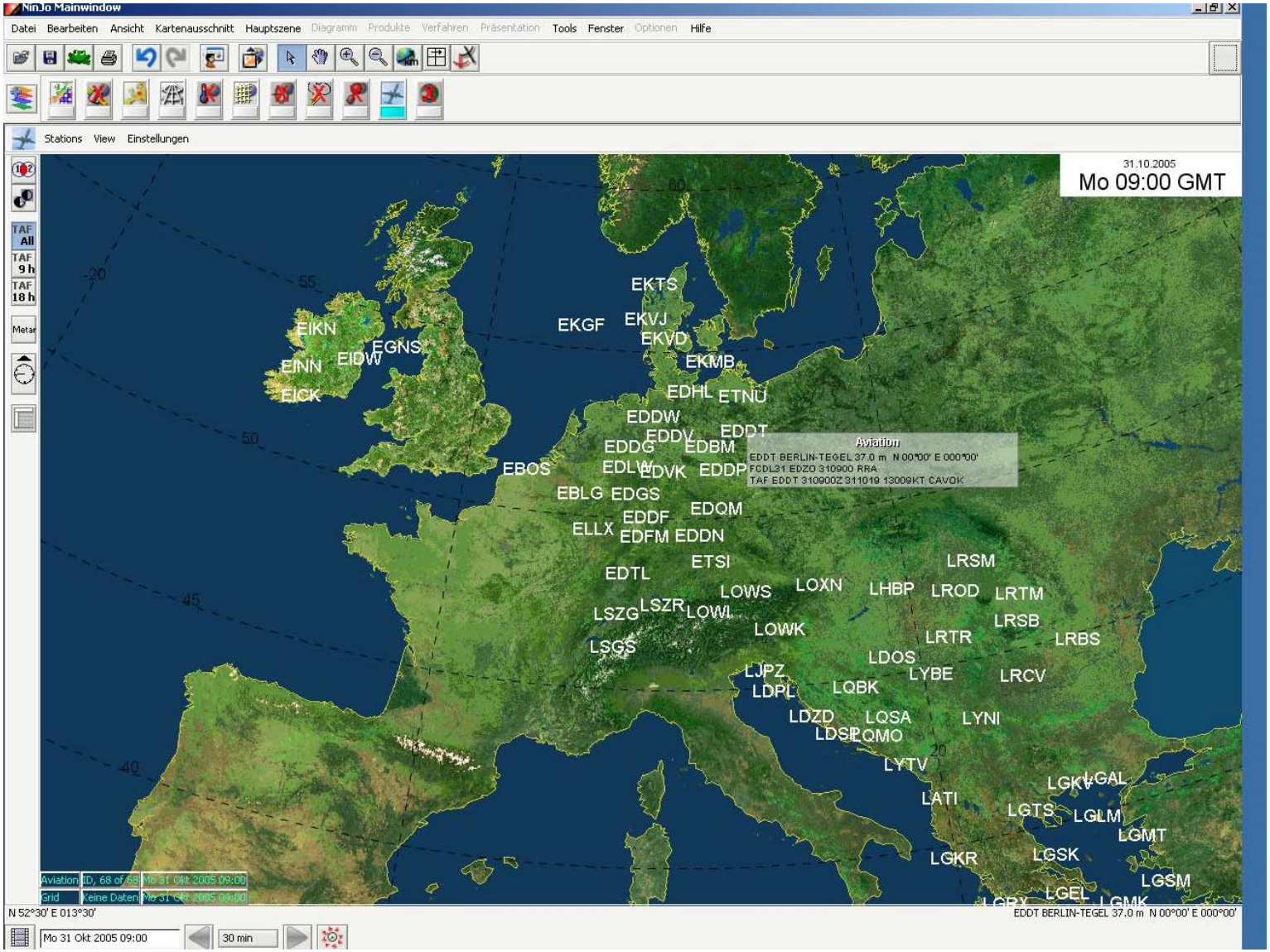
Boxes:
three 2-hourly forecasts

GAFOR area:
current 2-hourly forecast



Aviation Layer of NinJo

TAF
+ METAR



Aviation Layer of NinJo

TAF *uncoded presentation*

Uncoded TAF presentation with WMO meteorological station circle is planned in later Aviation Layer versions:

1 hourly resoluted presentation of meteorological station circle

1) Maximum weather conditions
2) Minimum weather conditions

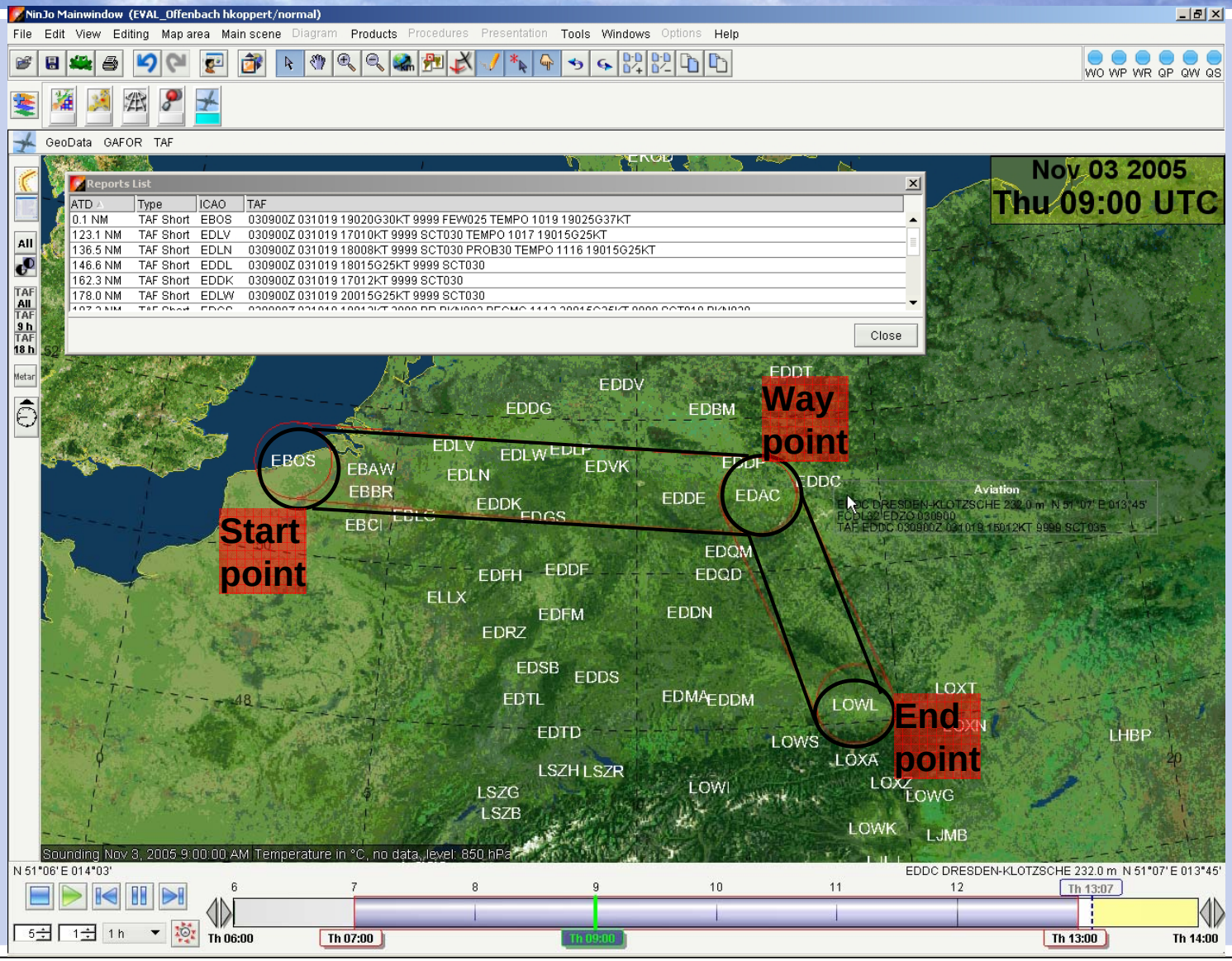
at forecast time point based on all available TAF groups like prevailing, FM, BECMG, TEMPO, PROBxy

Aviation Layer of NinJo

Flight Route Selection

Example for TAF + METAR selection

Informations within the chosen air lane are selected and presented in the table



Aviation EPM

Modul for Edition, Production and Monitoring of Aviation Warnings

Tasks:

1. **Edition**
   - **Selection of warning category,**
   - **Selection of area or aerodrome,**
   - **Edition of warning text**

2. **Production**
   - **Production of the warning**

3. **Monitoring**
   - **Suitable presentation of the warnings**

Aviation EPM

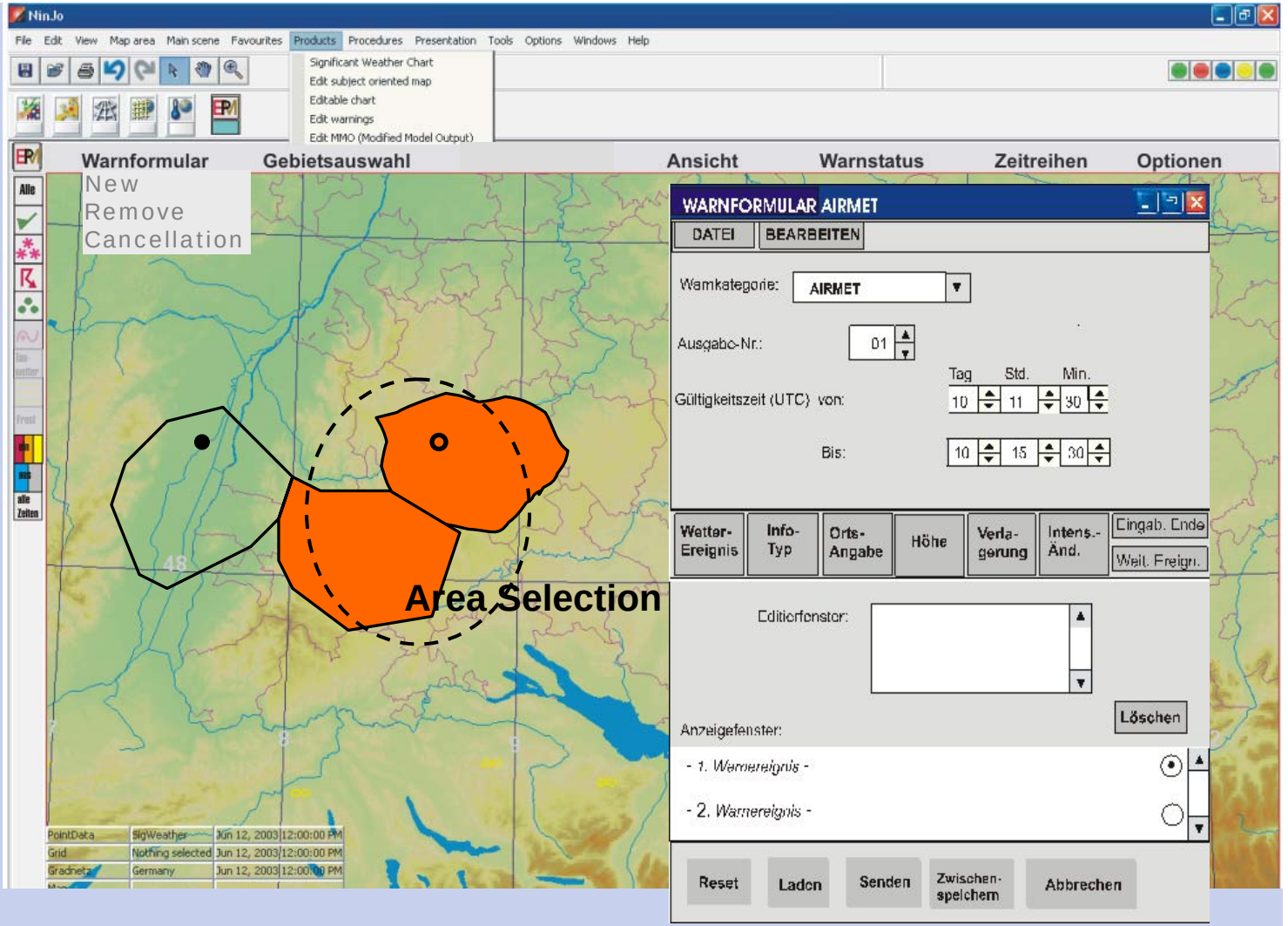
Edition

Area selection:

- **Mouse click on area**
- **Polygone line method**
- **Alphanumerical**

Warning text modules are offered by pulldown menus

Warning text specifications are conform with ICAO ANNEX 3



Aviation EPM

Warning Categories and Areas

Category:	Area:	Type:
SIGMET	UIR / FIR	(ICAO ANNEX 3)
AIRMET	FIR	(ICAO ANNEX 3)
Aeorodrome Warning	International Aerodromes	(ICAO ANNEX 3)
Wind Shear Warning	International Aerodromes	(ICAO ANNEX 3)
GAFOR-Area Warning	GAFOR-Areas	(DWD Warning)

Aviation EPM

Monitoring

Warning status is available

- **for every warning category and warning event**
- **for all warning areas and aerodromes**

Warning status is shown as

- **spacial (in map coloured areas and aerodromes)**
- **as time series (time series in a dialoug window)**

Aviation EPM

Monitoring

Example for time series presentation

Conclusion

- NinJo is worldwide one of the most advanced systems for working with meteorological data types
- Improved support to the weather forecast -
  Aviation specified layers: particulary with regard to the aeronautical service
- Improved quality of aviation forecast products are expected with NinJo