Deutscher Wetterdienst
Wetter und Klima aus einer Hand

NinJo – Recent developments

Sibylle Haucke, EGOWS 2010
Deutscher Wetterdienst

NinJo – recent developments

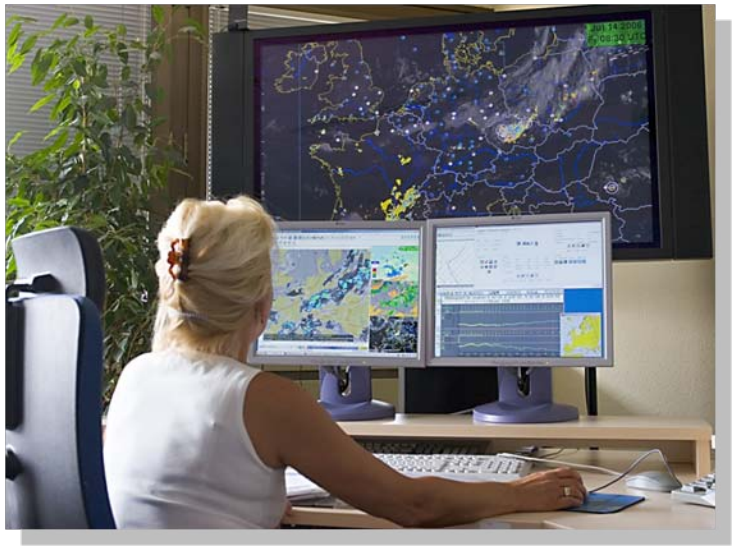
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Deployment - updates
- Agile project management in NinJo
- New Features
- OGC

NinJo Deployment at DWD

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- 350 Clients, 90 Servers
- WAN 1 GBit/s and 155 MBit/s
- LAN 1 GBit/s
- Operational at all sites since 2007
- Current version: NinJo 1.3.5



NinJo usage at German Armed Forces

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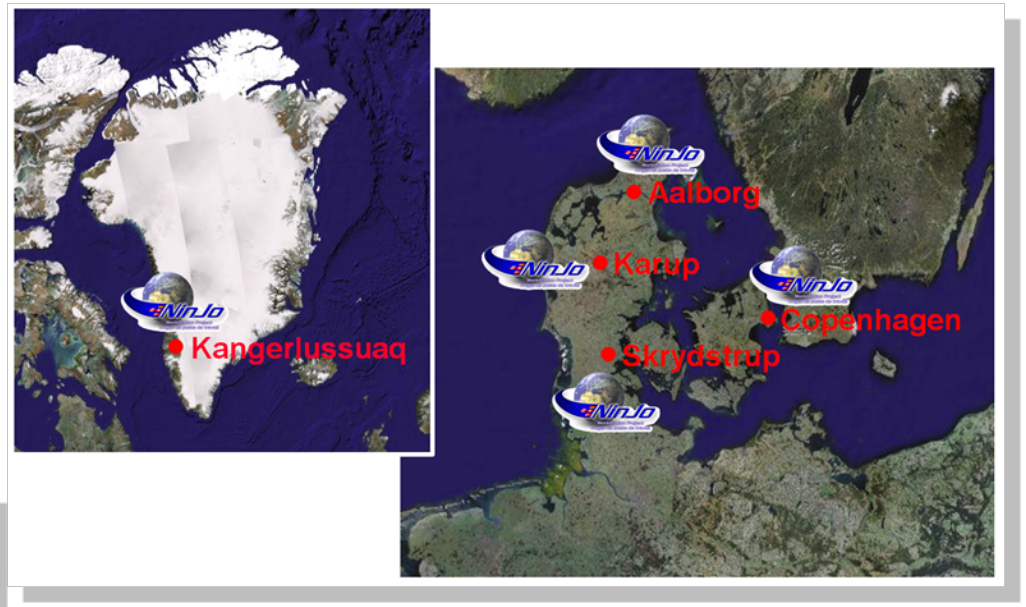
- 56 stationary versions (1 server, 2 clients)
- 16 single-user versions (1 server, 1 client)
- 10 mobile versions (1 server, 1 client)
  e.g. Afghanistan, Kosovo, Uzbekistan, ...
- WAN 2,5 MBit/s (SAT)
- LAN 100 MBit/s and 1GBit/s
- Operational at all sites since 2007

NinJo Deployment at DMI

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- 20 Clients, 10 Servers
- WAN 10 MBit/s
- LAN 1 GBit/s
- Operational usage since 2007
- Current version: NinJo 1.3.4



NinJo Deployment at MeteoSwiss

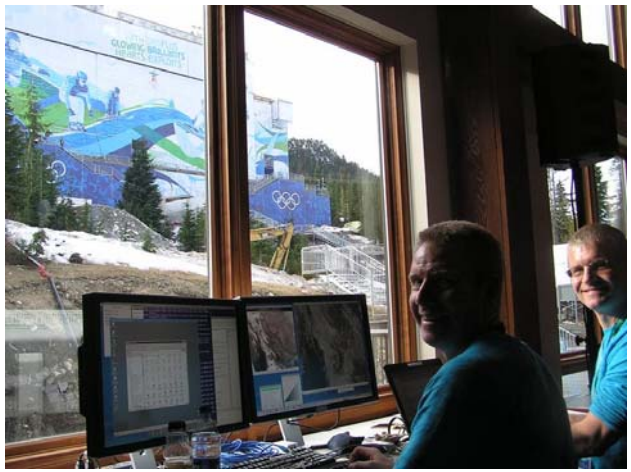
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- 25 Clients, 5 Servers
- WAN 10-30 MBit/s
- LAN 1 GBit/s
- Operational usage since 2007
- Current version 1.3.4

NinJo Deployment at MSC

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- 134 Clients, 65 Servers
- 10 MBit/s WAN, 1 GBit/s LAN
- Operational version 1.3.4
- 1.3.5 goes operational June 2010
- Government of Canada commitment to support Haiti
  - NinJo is going to be used there too
- NinJo 1.3.4 used for Olympic Games



NinJo – recent developments

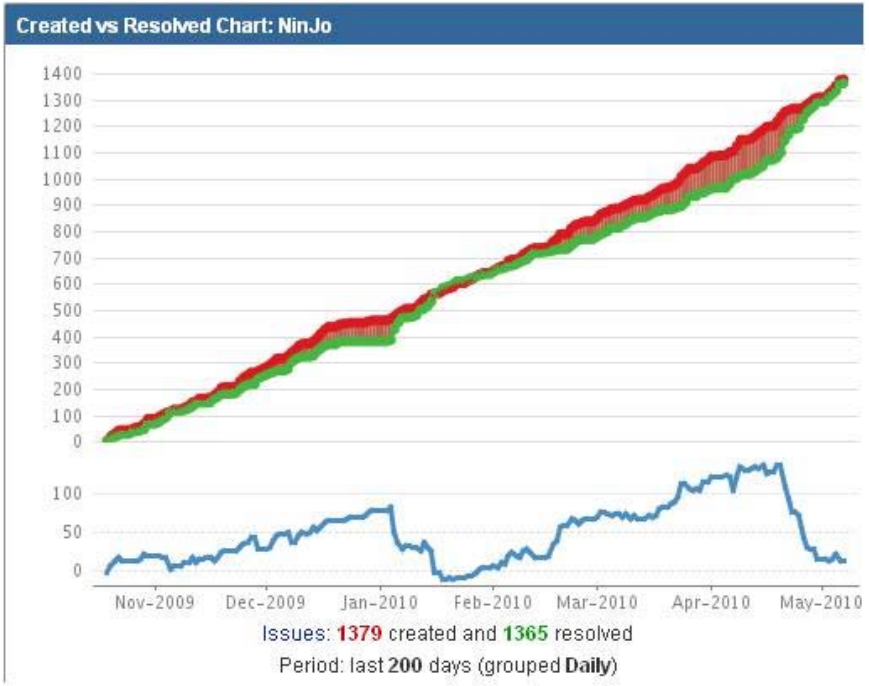
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Deployment
- Agile project management in NinJo
- New Features
- OGC

Agile project management in NinJo

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- 2-3 releases per year
- 1379 new issues versus 1365 resolved issues in 200 days
  - Up to 200 new features for each release
  - + fixing of up to 800 bugs, improvements
- coordinating with 60+ involved developers and evaluators
- On 12+ locations
- How to?



NinJo – project management

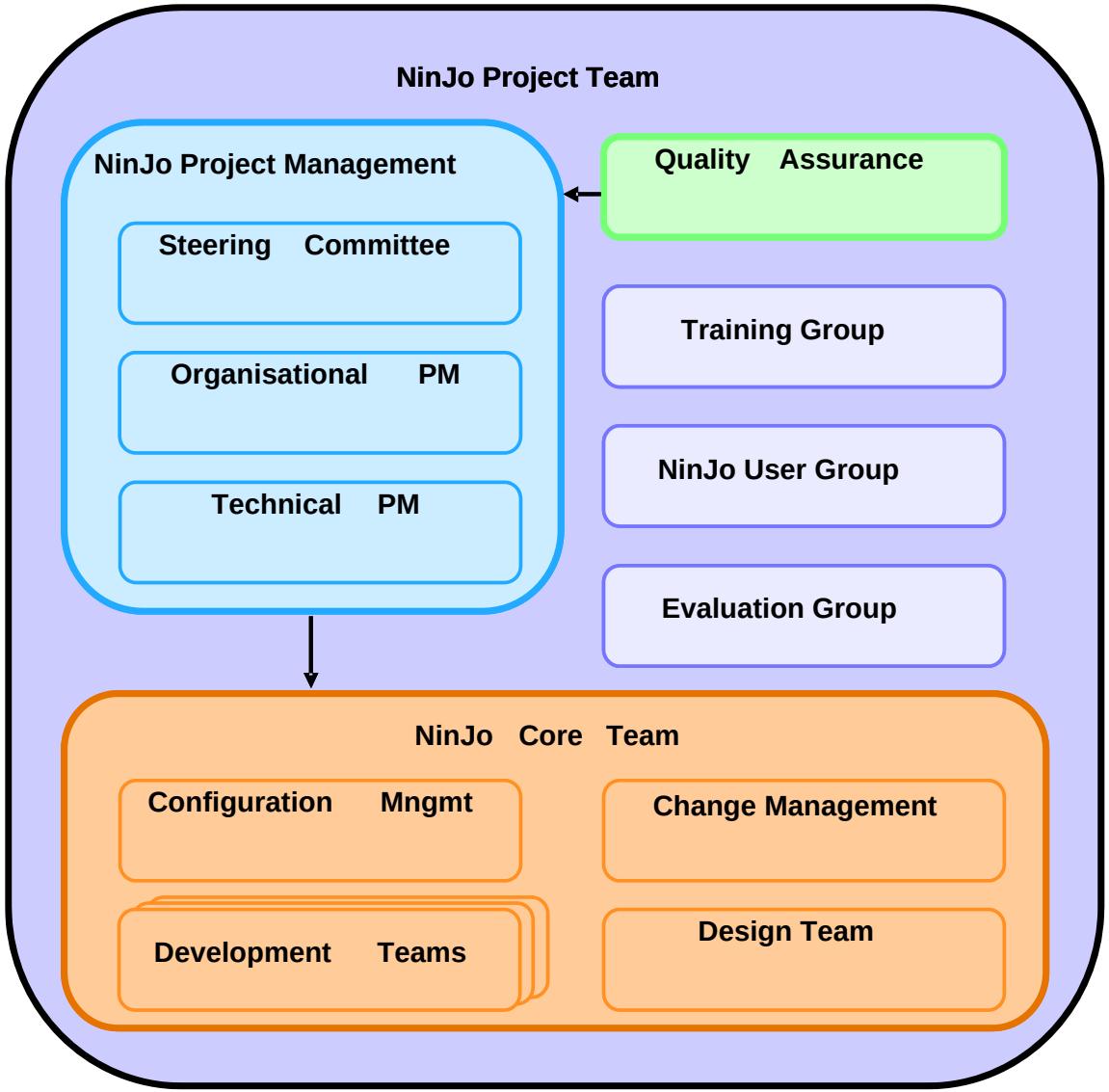
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Agile project management in NinJo

- User groups
- workflows and change request management
- development cycles

NinJo Project Organisation

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



NinJo User Group

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Members:

- ➔ Representatives from each Consortium member
- ➔ At least one member of each licensee

Tasks:

- ➔ Collaboration of Consortium members and licensees on user level
- ➔ Sharing information about
  - "How to use NinJo", "How to create individual configurations"
  - "How to improve forecasting and warning process using NinJo"
- ➔ 1. NUG Workshop November 2007, Offenbach (25 participants)
- ➔ 2. NUG Workshop May 2008, Copenhagen (30 participants)
- ➔ 3. NUG Workshop June 2009, Montreal (63 participants)
- ➔ 4. NUG Workshop June 2010, Zurich

NinJo Evaluation Group 2010

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Members:

- ➔ Representatives from each Consortium member
- ➔ Project management, technical project lead

Tasks:

- ➔ Evaluate NinJo versions
- ➔ Define priorities for new features for next versions
- ➔ Discuss and agree new requirements, discuss ideas and concepts

Workshop 2010

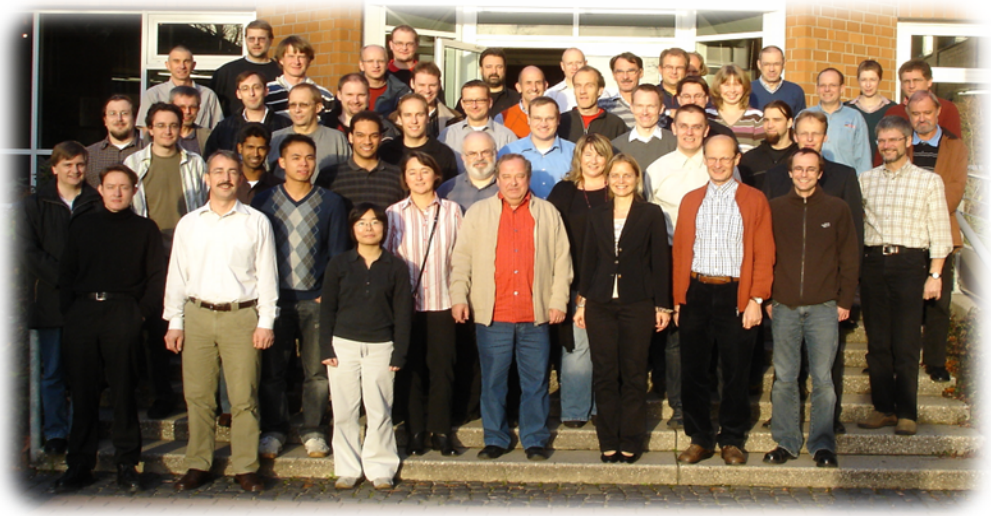
- ➔ April 2010, Offenbach, some participants from DMI and MSC missing due to flight cancellations
- ➔ Online discussion and priorization in JIRA
- ➔ >90 issues discussed and agreed

NinJo Development Teams 2010

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Locations:

- Germany: Offenbach, Potsdam, Hamburg, Euskirchen, Darmstadt
- Switzerland: Zürich
- Denmark: Kopenhagen
- Canada: Toronto, Montreal, Vancouver, Edmonton, Winnipeg, Calgary
- Consultants: Capgemini and Eumetsys
  - Developers also work in Poland and Pakistan



- Develop Frameworks, IDE and Tools for all teams
- Coordinate teams work
- Release and Quality management
- Discuss and agree technical concepts
- Implement NinJo Components
- Ensure backward compatibility of frameworks
- Ensure backward compatibility of configurations
- Organize rollout of releases in all organizations
- Support daily operations

NinJo – project management

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

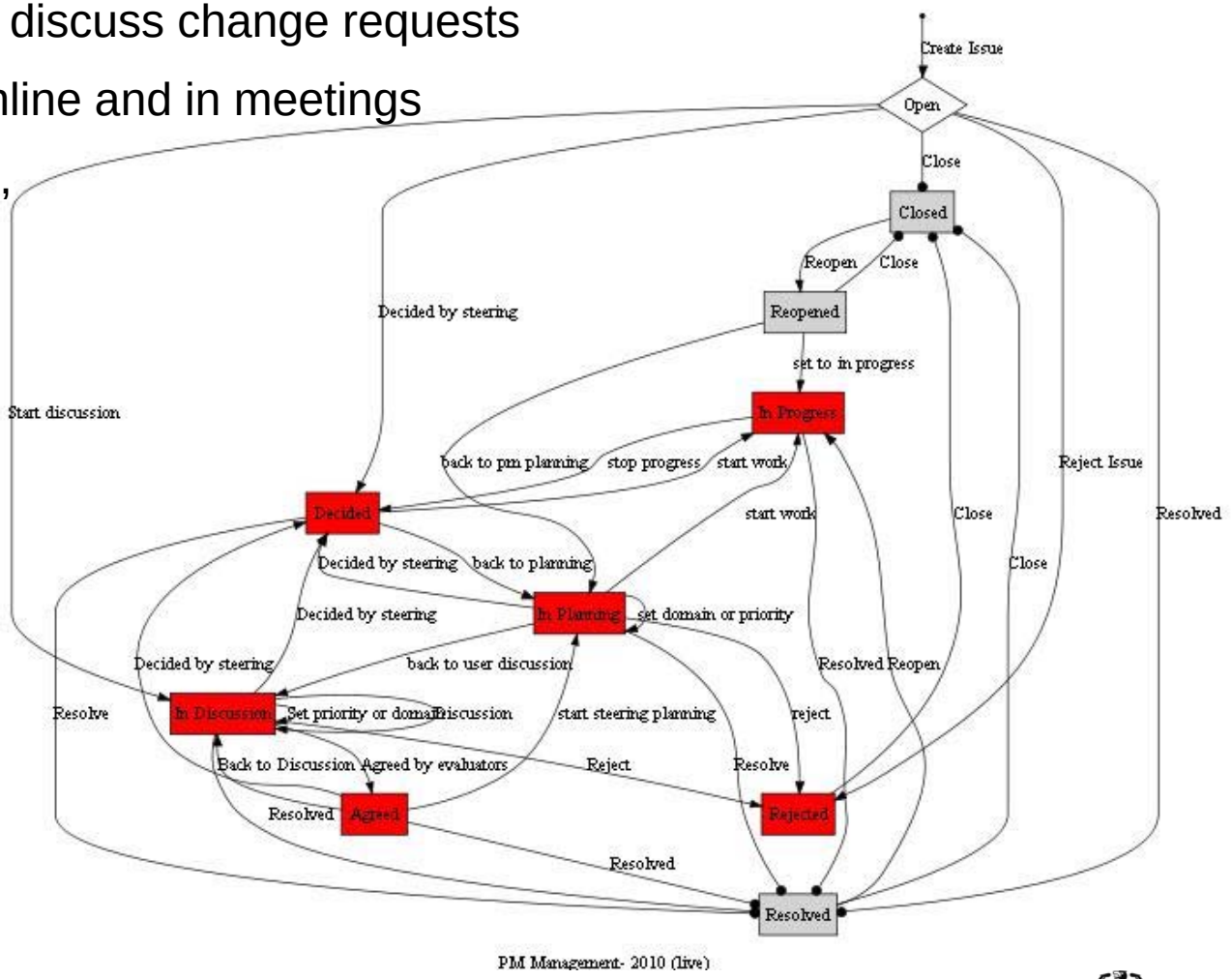
➔ Agile project management in NinJo

- User groups
- workflows and change request management
- development cycles

Agile project management in NinJo

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

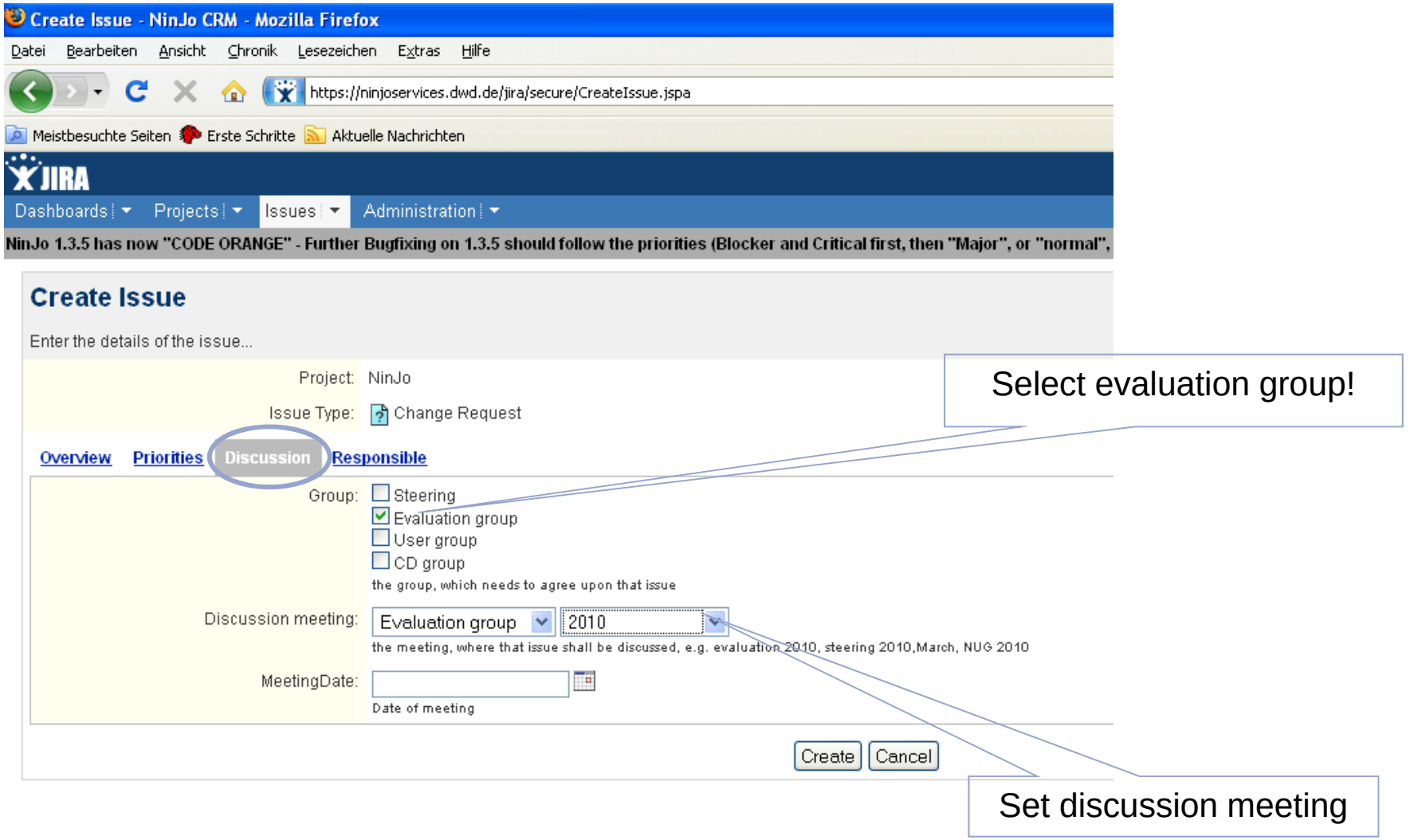
- Workflows for different issue types and involved groups are well defined
- Users can create and discuss change requests
- CRs are discussed online and in meetings
- CR's get type, priority, detailed information

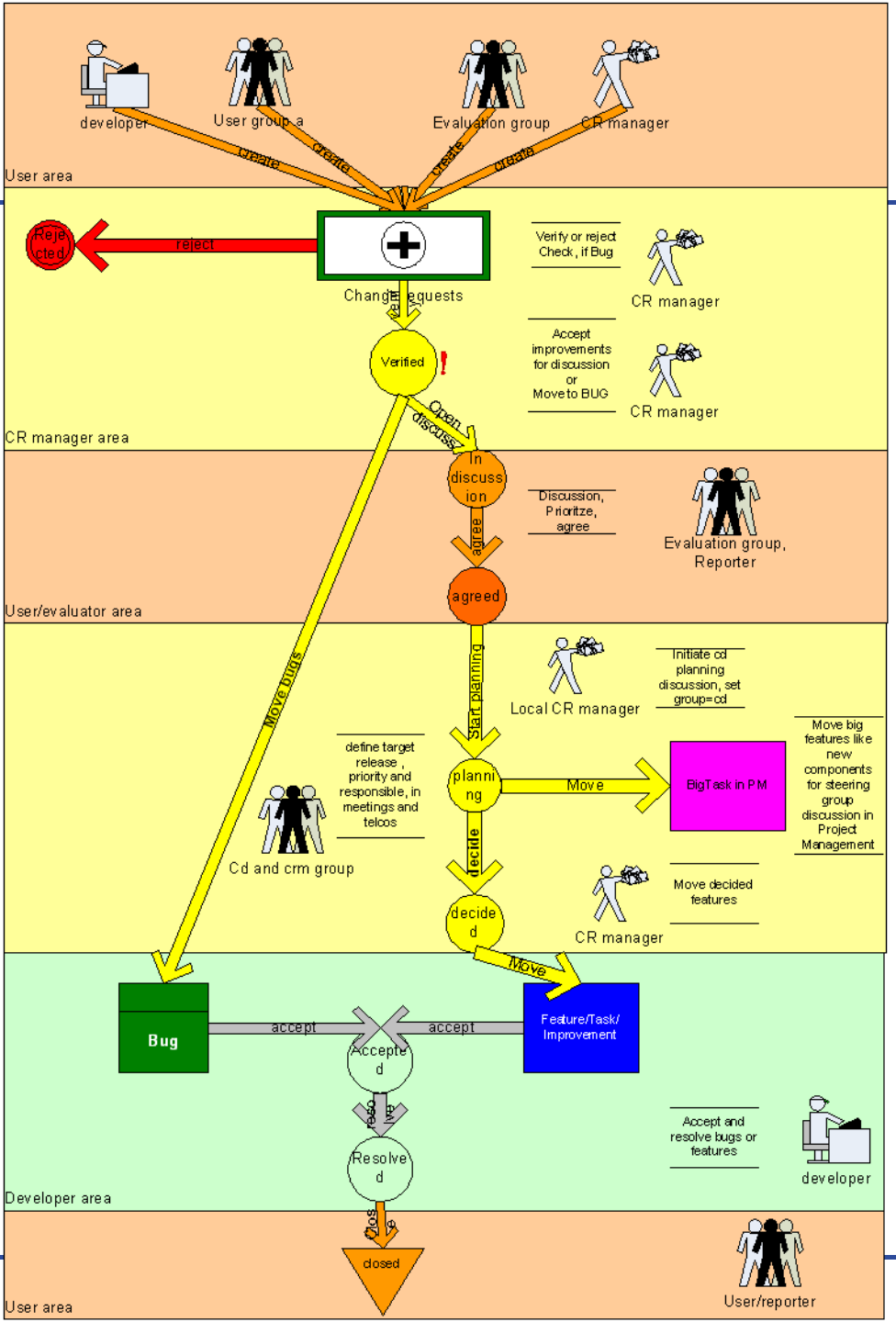


PM Management- 2010 (live)

Create new issue (for evaluation group)

Deutscher Wetterdienst
Wetter und Klima aus einer Hand





CRM Workflow

- User/evaluators create issues
- CRM verifies issue type and component and may reject an issue,
- bugs are directly moved on
- Evaluators discuss issues->agree priorities
- CRM-group defines target release
- CRM moves to feature/improvement
- Developers accept issues
- Developers resolve issues
- Users close resolved issues

Jira – automated reports

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Steering group discusses „BigIssues“ for planning

[JIRA] Subscription: 0-PM-Steering-ToBeDiscussed - Nachricht (Nur-Text)

Antworten | Allen antworten | Weiterleiten

Datei Bearbeiten Ansicht Einfügen Format Extras Aktionen ?

Die unnötigen Zeilenumbrüche des Nachrichtentextes wurden automatisch entfernt.

Von: CRM@mailhub.dwd.de
Gesendet: Fr 12.03.2010 19:01
An: Sibylle.Haucke@dwd.de
Cc:
Betreff: [JIRA] Subscription: 0-PM-Steering-ToBeDiscussed

```
Issue Subscription
Filter: 0-PM-Steering-ToBeDiscussed (37 issues) tasks, to be discussed, prioritized etc. in steering group base for
resource commitments
Subscriber: adminshaucke

Key          Components                    Status         Summary

PM-135                                     In Planning    Create SigWX-Visualisation Layer
             https://ninjoservices.dwd.de/jira/browse/PM-135

PM-129                                     In Planning    A convenient Editor for Editing the NinJo-Config-Files is
needed.
             https://ninjoservices.dwd.de/jira/browse/PM-129

PM-128                                     In Planning    Development of a Test-Suite for NinJo-Batch-Products to ensure
an unchanged Batch production with newer NinJo-Releases
             https://ninjoservices.dwd.de/jira/browse/PM-128

PM-124                                     In Planning    test for a PM issue from eval group2
             https://ninjoservices.dwd.de/jira/browse/PM-124

PM-123                                     In Planning    test for a PM issue from eval group
             https://ninjoservices.dwd.de/jira/browse/PM-123
```

NinJo – project management

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Agile project management in NinJo

- User groups
- workflows and change request management
- development cycles

Agile project management

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- After users defined priorities:
- Development teams and steering committee discuss effort and resources
- Team leads of locations make detailed planning
- Now the CRs get a target release
- Now the developers start working
- Teams work on parallel code branches
  - 1 branch (next release) for final release preparation
  - 1 main line (next but one release) : development
  - Old release branches (maintenance)
- Branches get color codes for different SW process phases on different releases
  - Code green = “free” development
  - Code red = “final” release preparation, only confirmed bug fixing
  - 1 release may have code red, while another one still is on code green

Working in parallel branches

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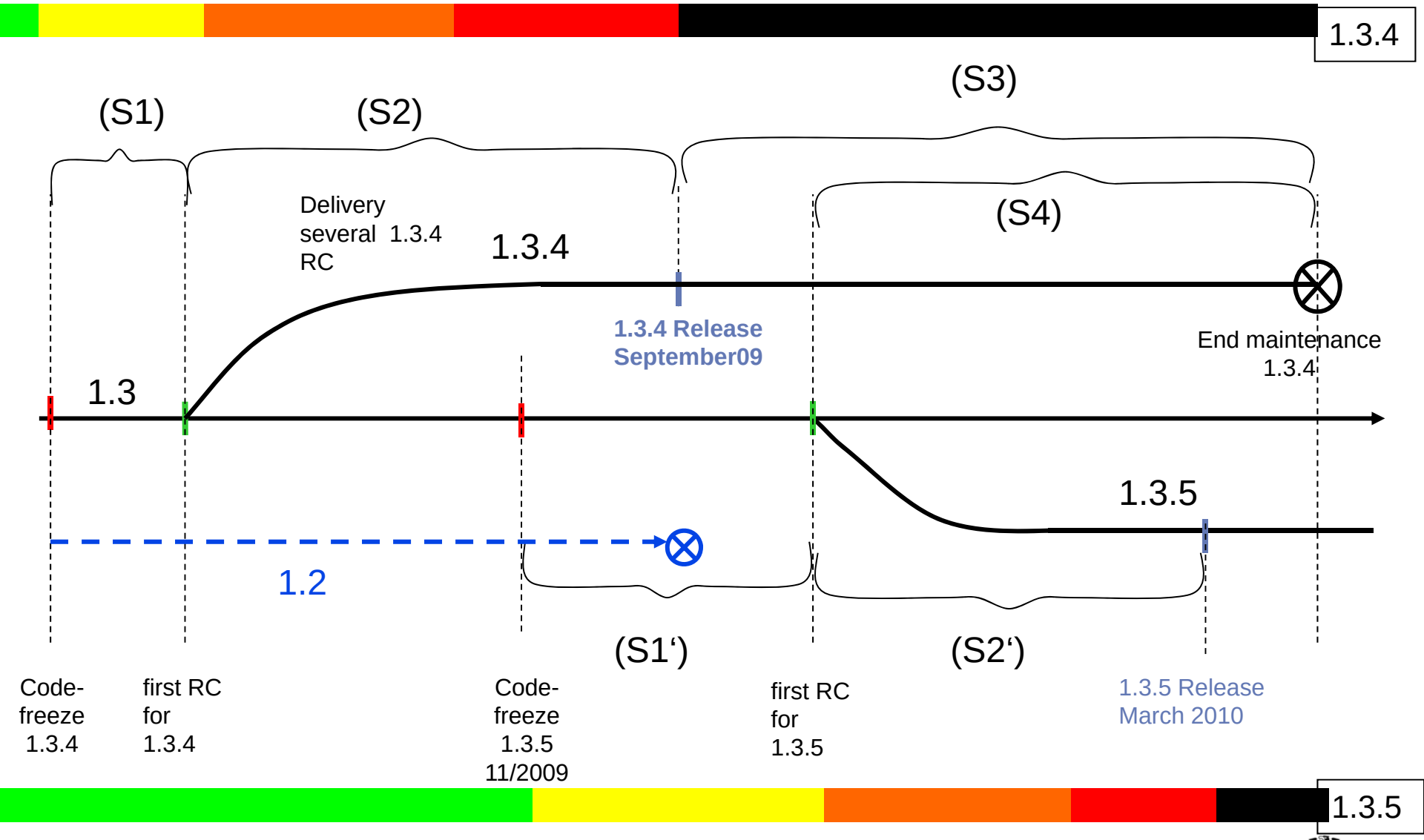
Wetter und Klima aus einer Hand



Agile project management

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Developers work only on JIRA confirmed issues
- Jira banner and Wiki inform about current SW process phase (e.g. “code red” on 1.3.5)
- According to color code, developers know, which changes are allowed on what branch
  - Example:
    - With code Orange: fix only bugs with priority major or higher
    - With code Red: ask CD, if you are allowed to fix a certain blocker bug
    - With Code Black: Do not touch the code at all. Any bugfix will lead to a patch delivery, so every single bugfix needs agreement by CD

NinJo – recent developments

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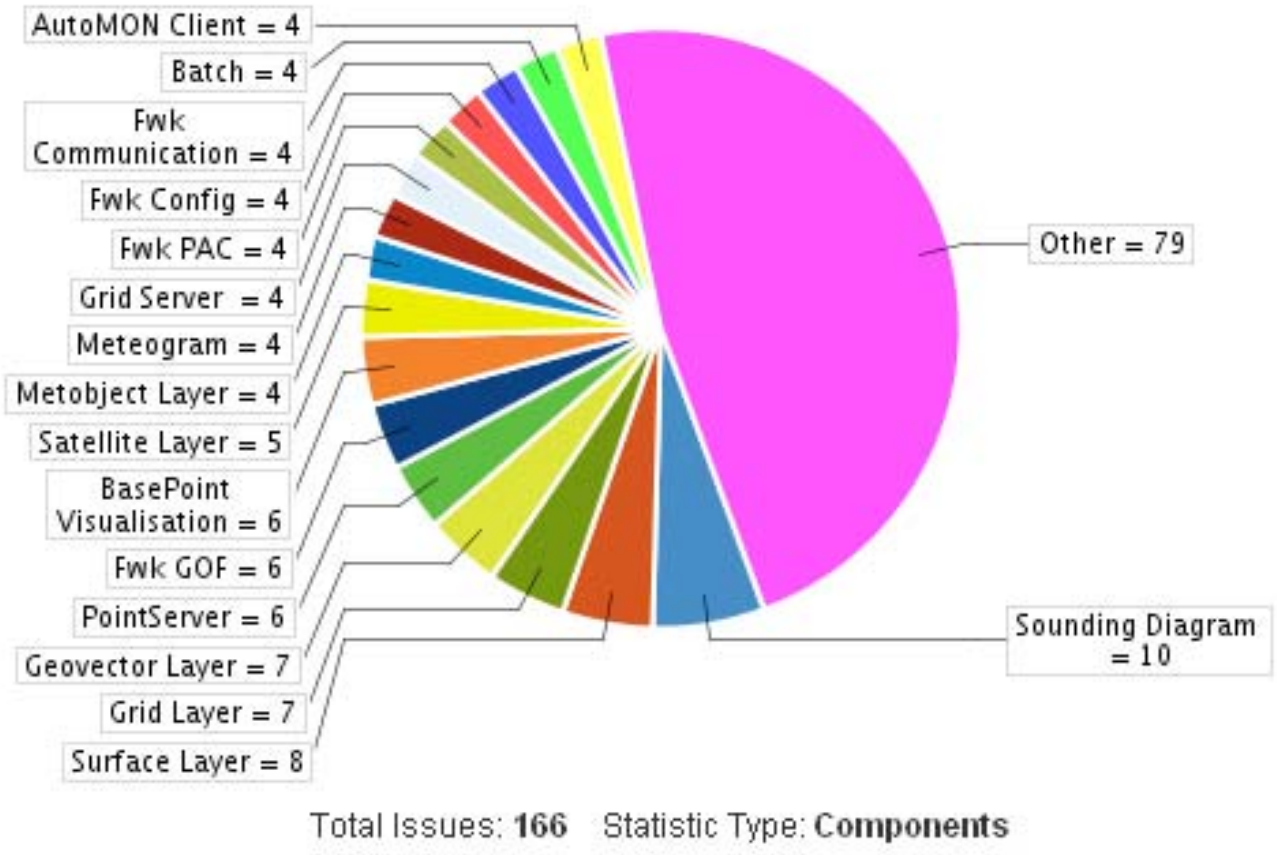
Wetter und Klima aus einer Hand

- Deployment
- Agile project management in NinJo
- New Features
- OGC

New features in NinJo

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ 166 features delivered for 1.3.5



Surface layer: media display

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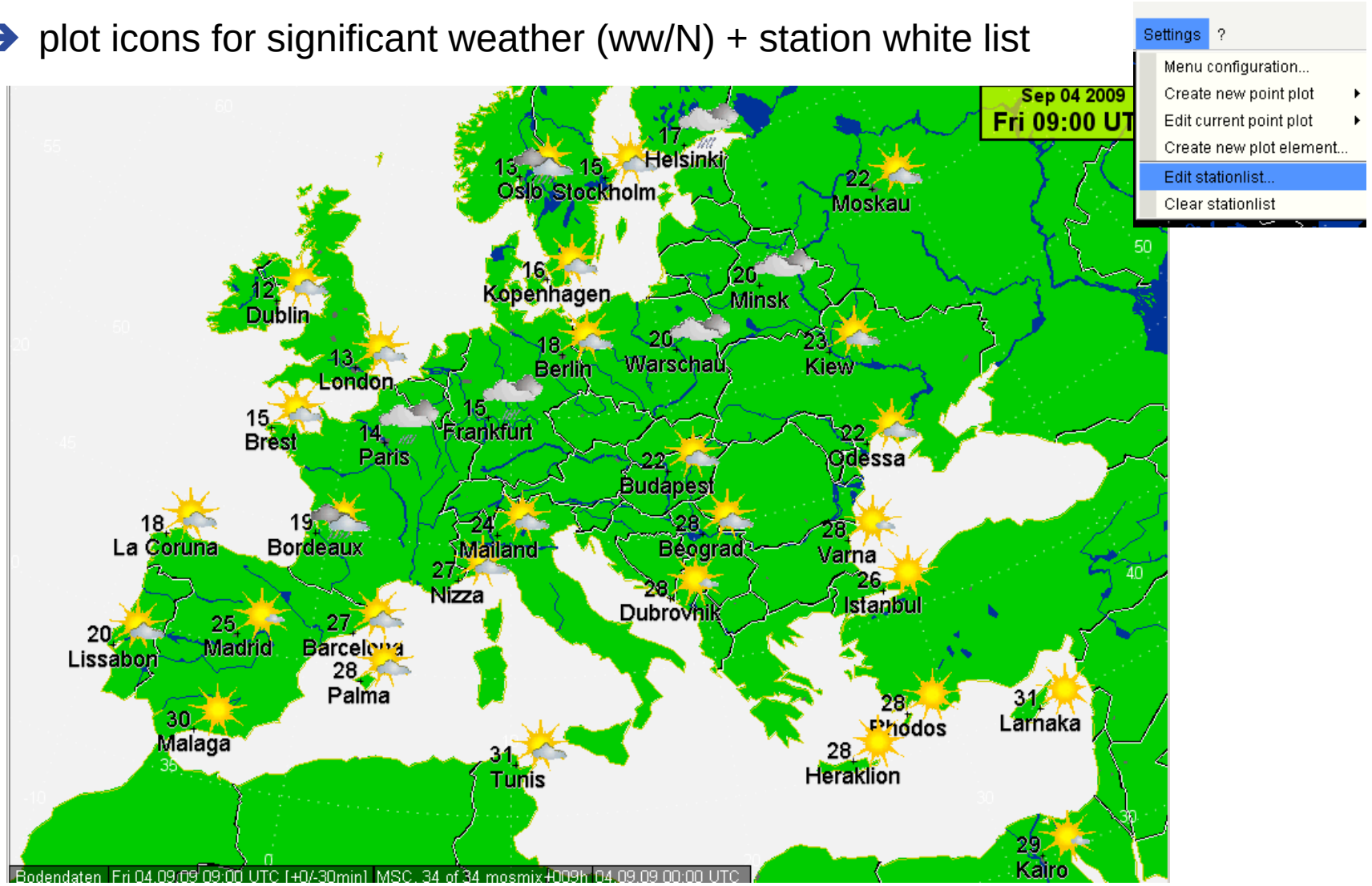
Wetter und Klima aus einer Hand

➔ plot icons for significant weather (ww/N) + station white list



Production Tools operational

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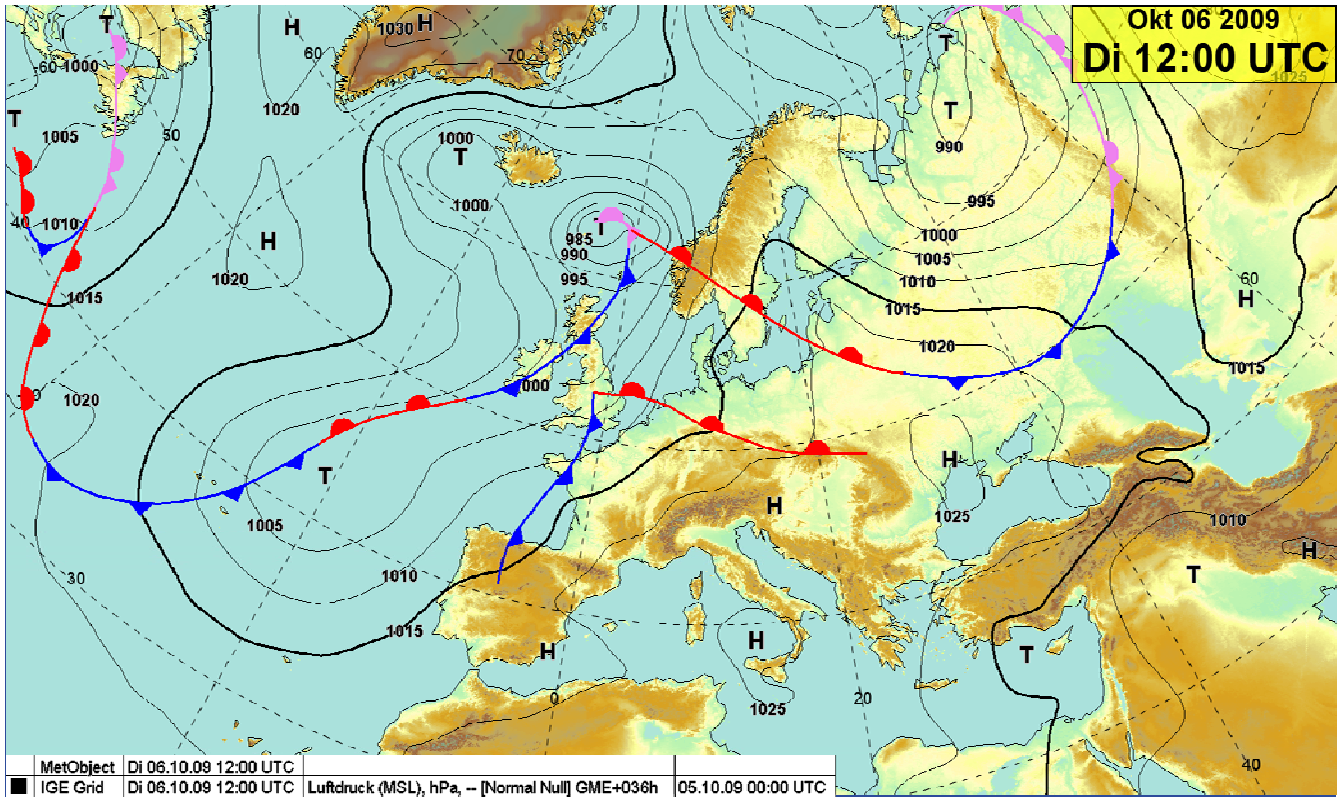
Wetter und Klima aus einer Hand

- DWD- TKB (surface forecast chart) from NinJo, operational since May 4th 2010
- Field modification surface pressure
- Isoline and fronts: graphical objects editing



NinJo TV- production

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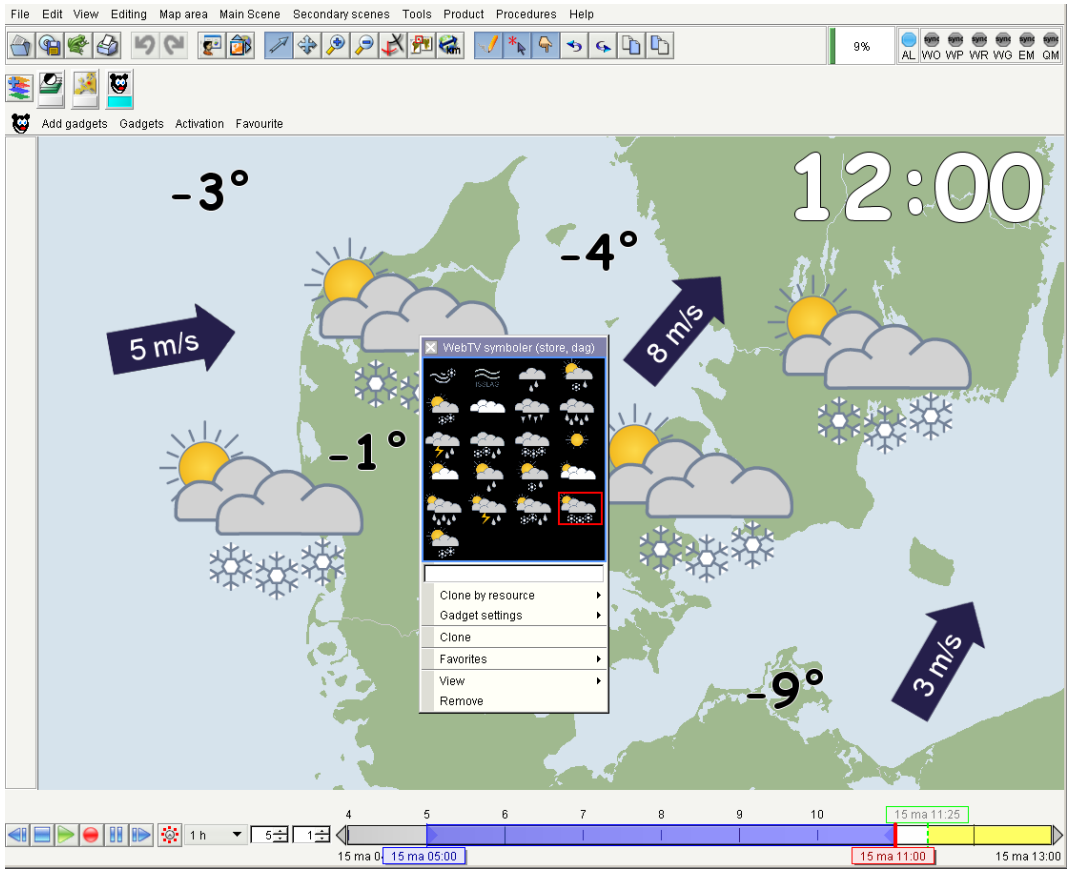
Wetter und Klima aus einer Hand

- Free object adding
- Image “gadgets”
- Combine with batch graphics
- Include internet resources
- Live TV-weather-show using NinJo in DK



Radar Layer

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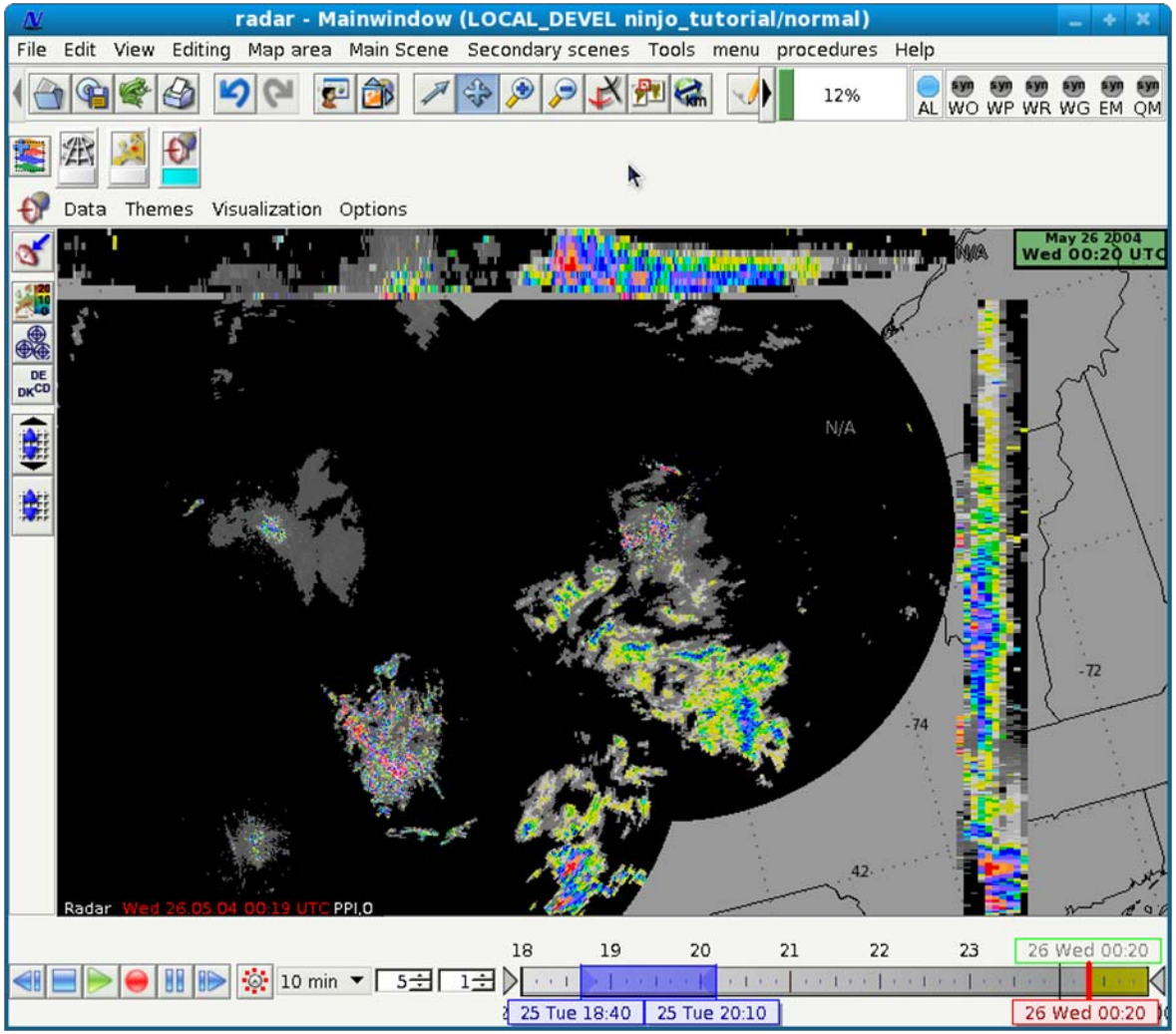
➔ Dynamic Lateral Views



Cellview

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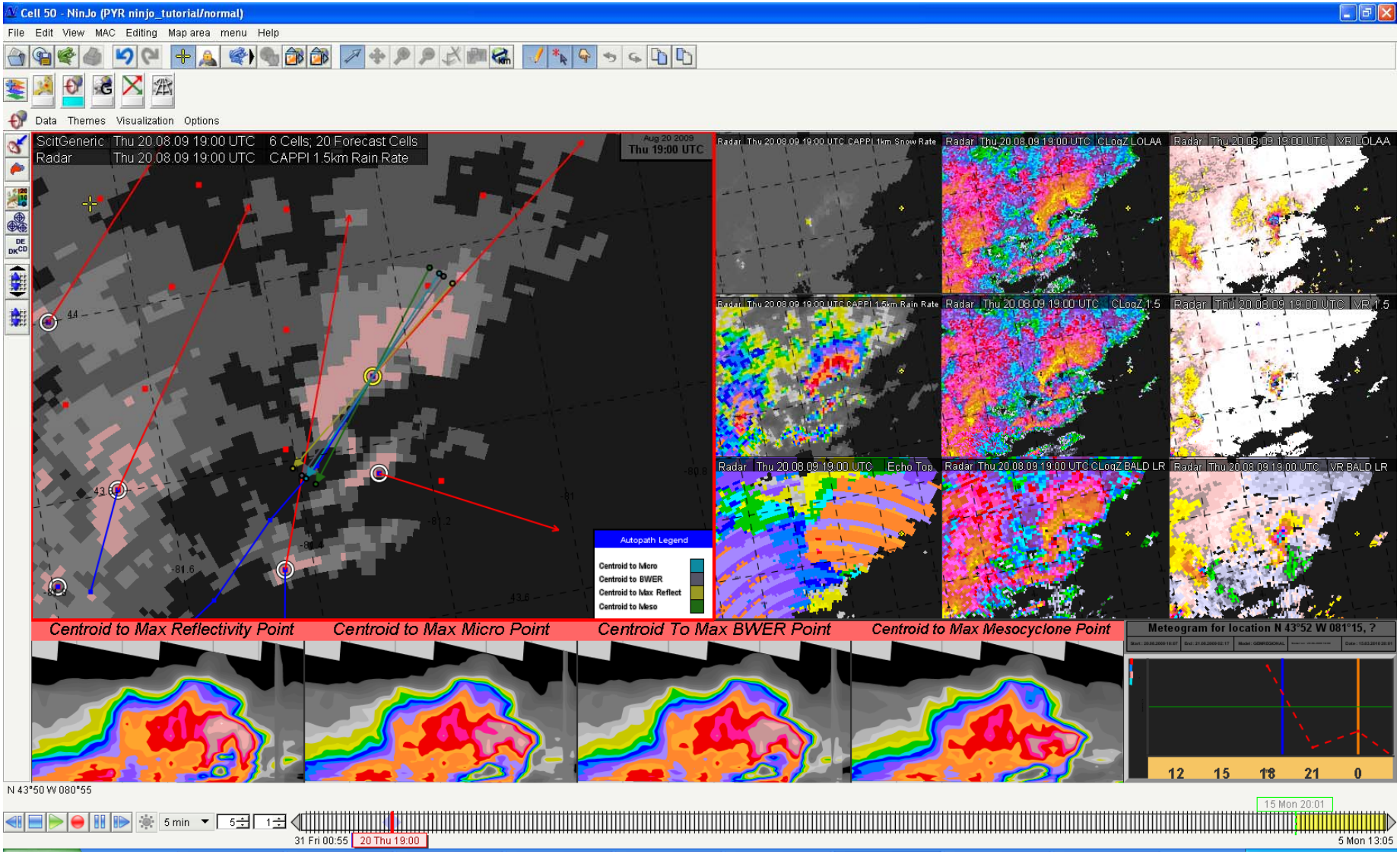
Wetter und Klima aus einer Hand



Editable Soundings

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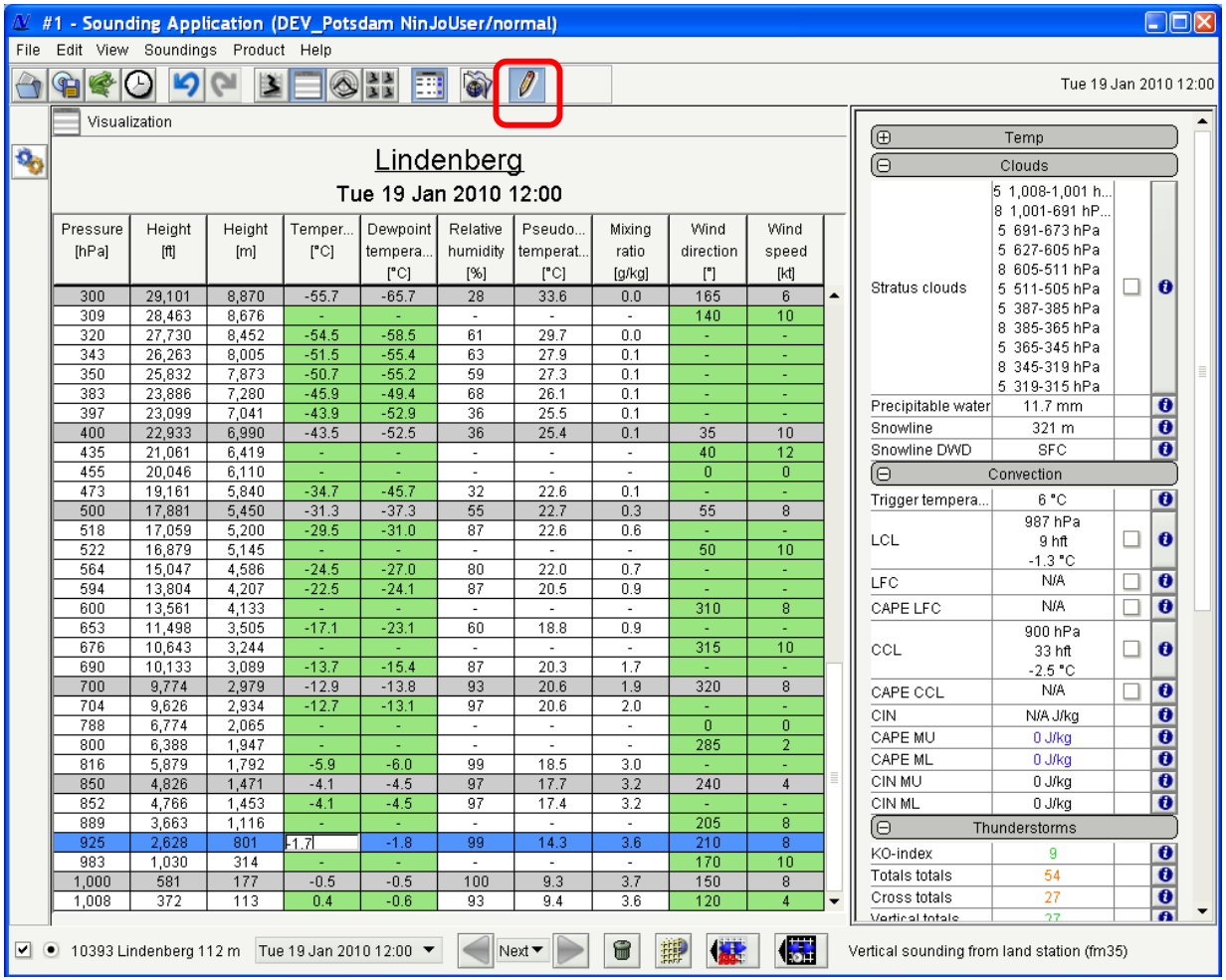
Wetter und Klima aus einer Hand

➔edit mode has to be activated.

➔The reported values (temperature, dewpoints, wind directions and wind speeds) can then be altered.

➔Derived and calculated values are recalculated

➔Next step will be graphically editing the curve



Parcel lift diagnosis tool

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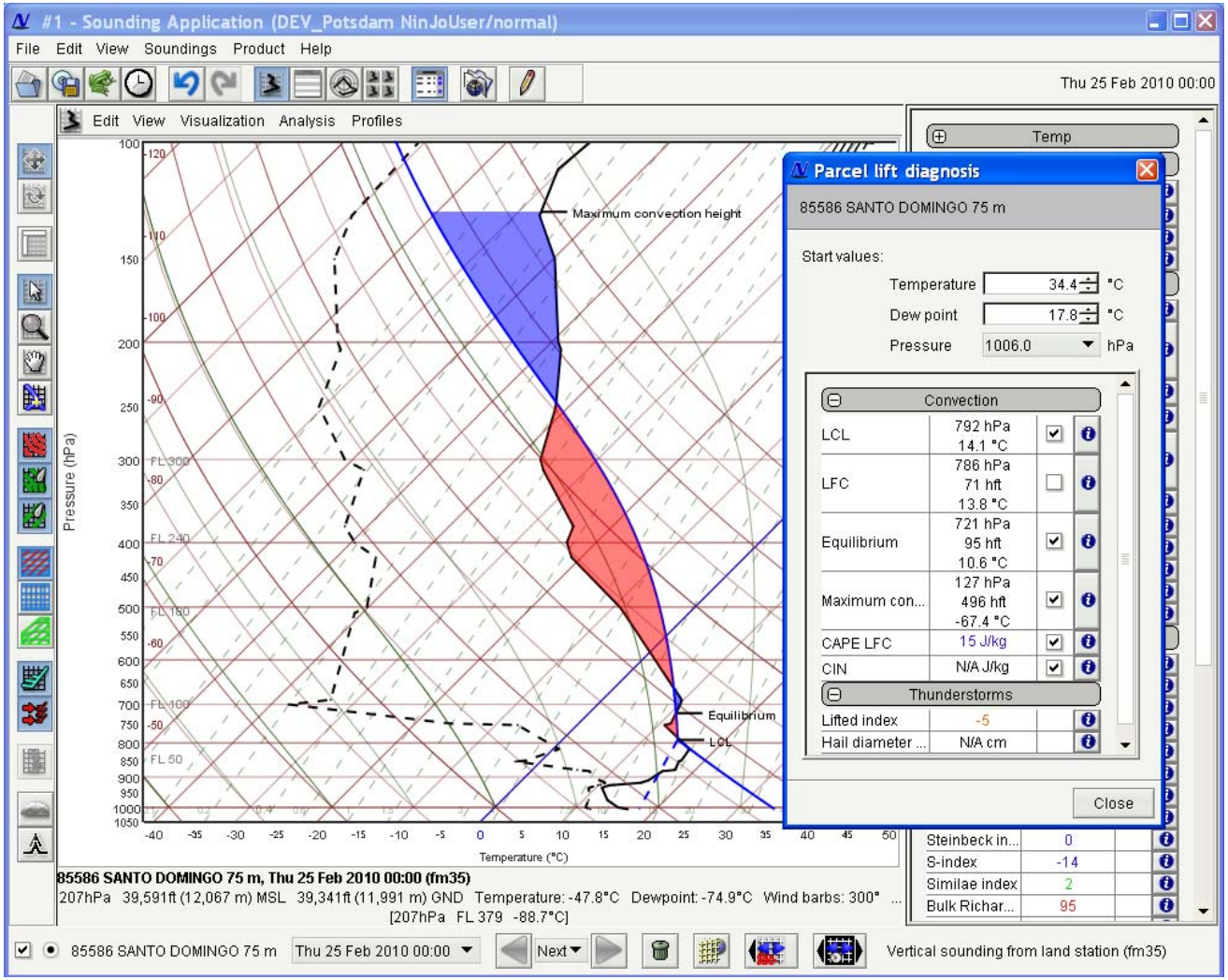
Wetter und Klima aus einer Hand

➔The calculated **results are visualized** in the sounding diagram if the checkbox in the table is selected

➔The visualization updates also **instantanously** as soon as a start value changes



Visualization of ensemble fields

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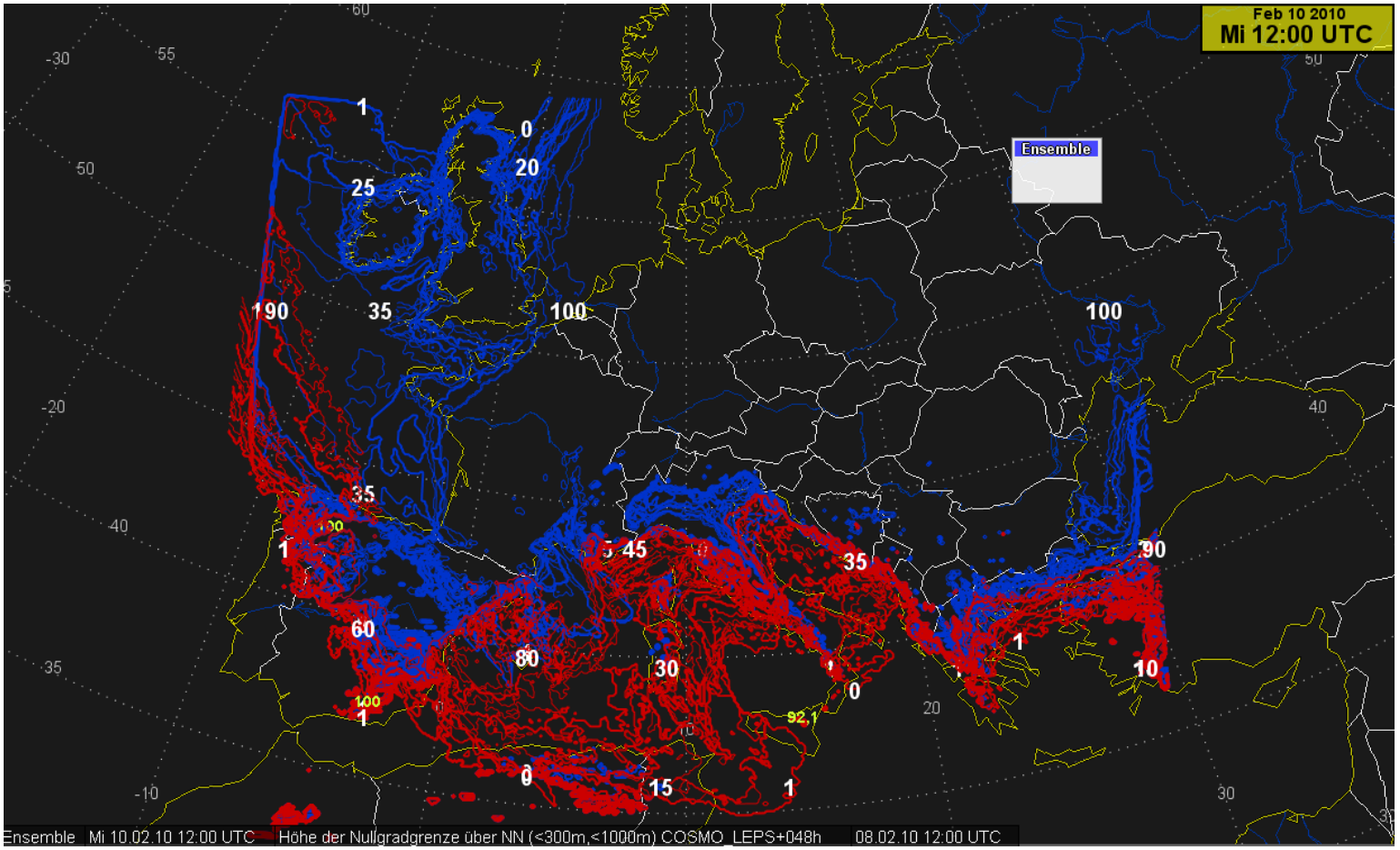
Wetter und Klima aus einer Hand

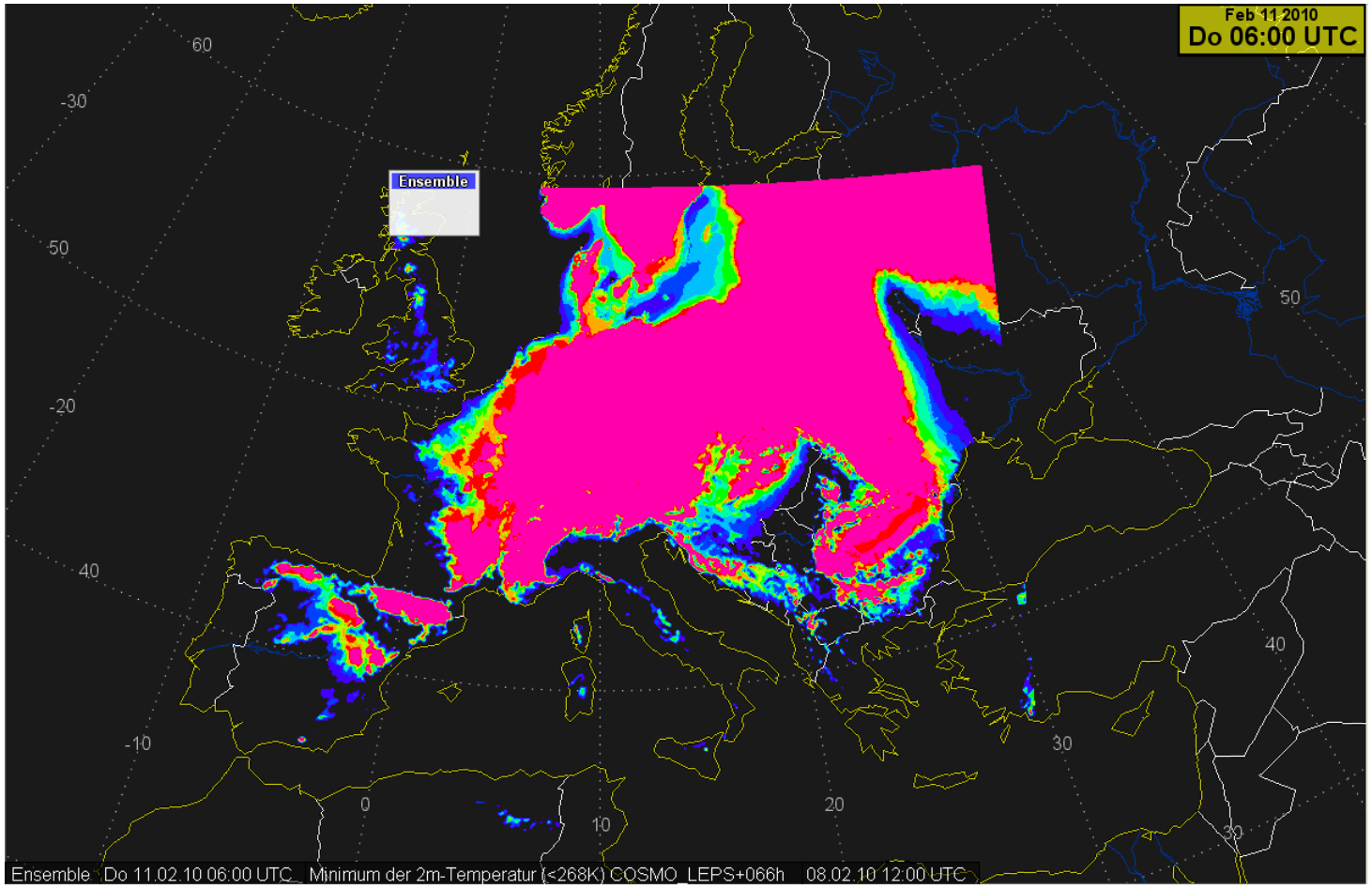
- ECMWF, COSMO-DE, COSMO_LEPS,PEPS
- Visualization of 1-n products of an element in a single layer



Visualization of ensemble fields

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Or visualization of e.g a single probability



Visualization of EPS meteograms

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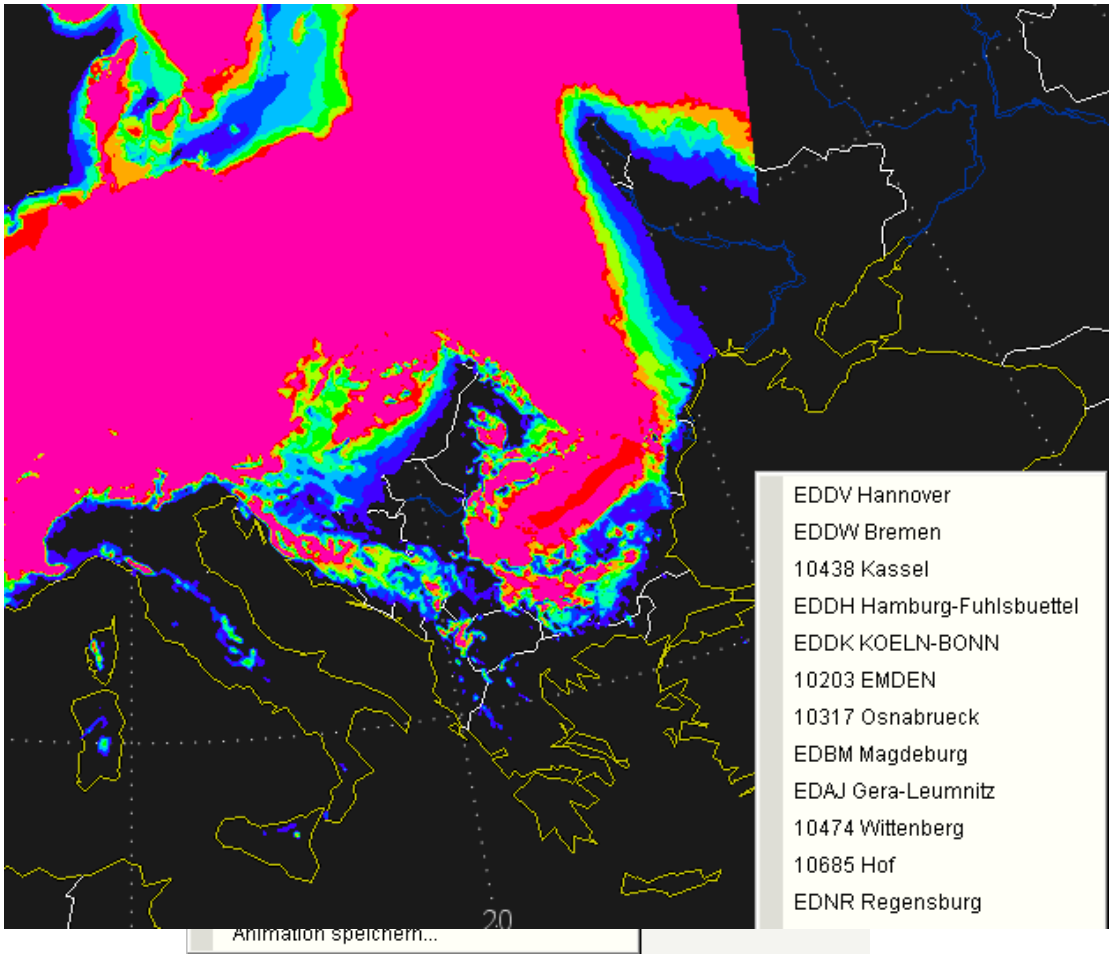
Wetter und Klima aus einer Hand

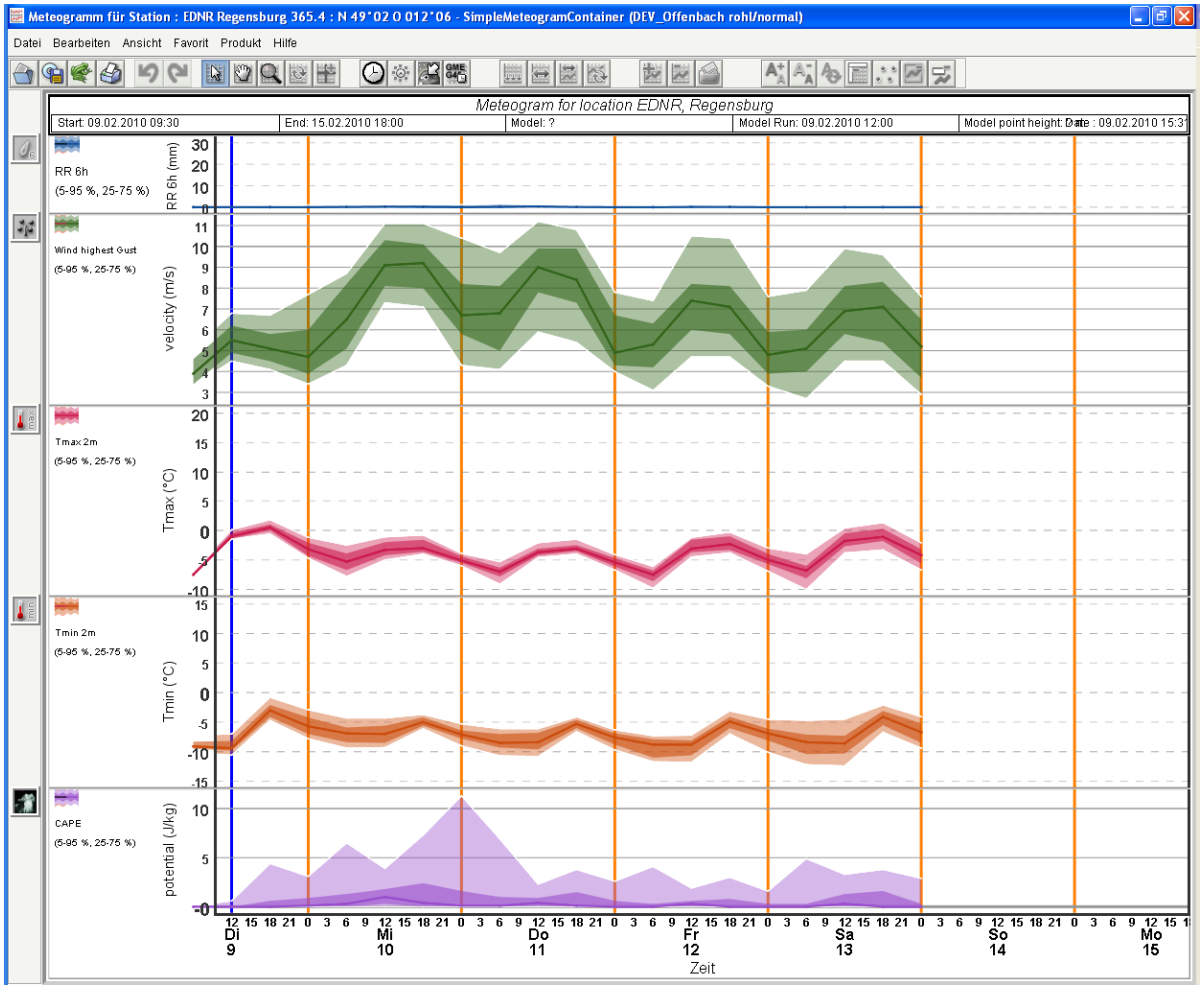
➔ Selection of a station from a given list



Visualization of EPS meteograms

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

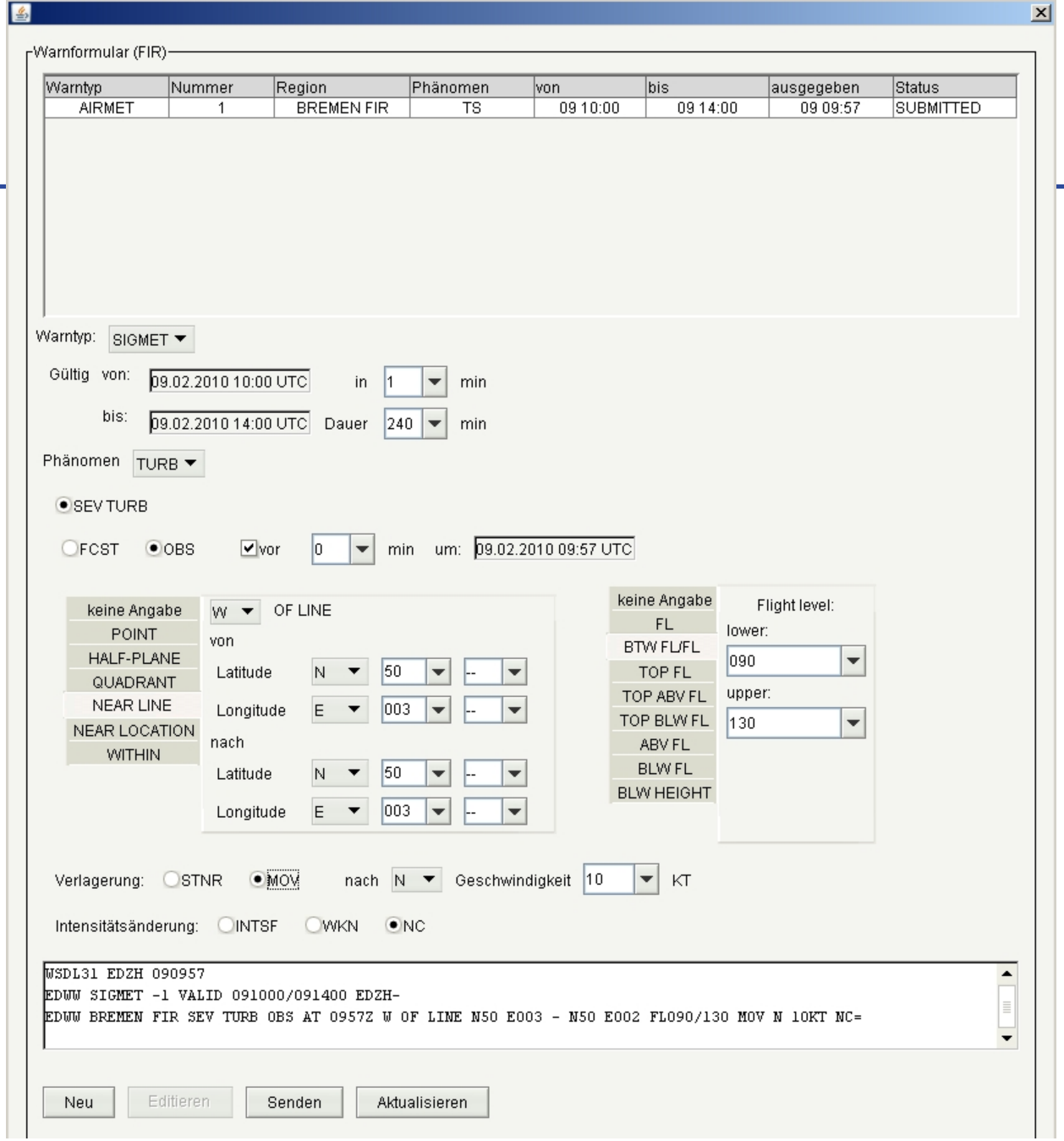
➔ Visualization of EPS plumes in a meteogram



Aviation-EPM

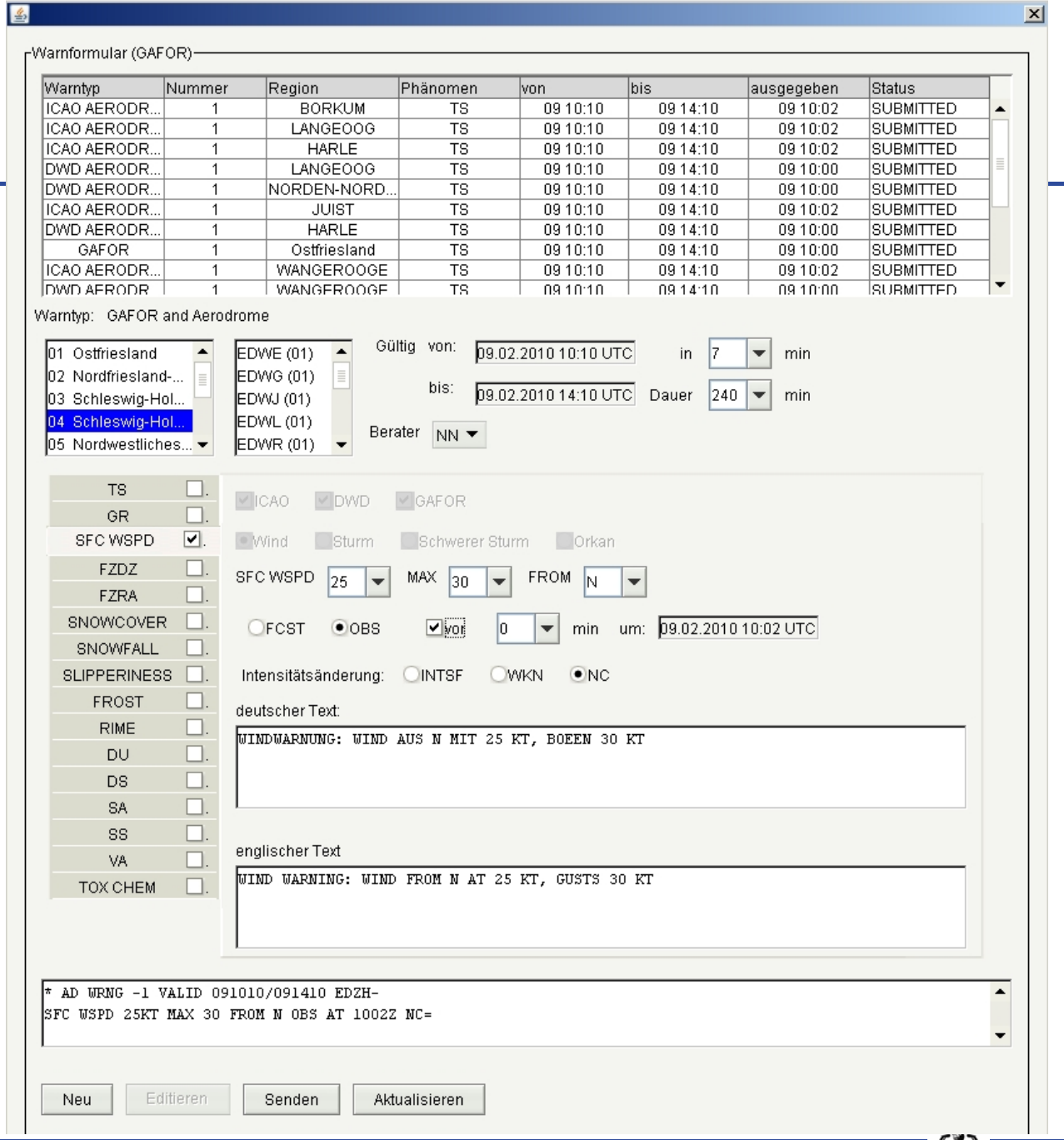
- Syntax safe generating of aviation warning reports, e.g. SigMET, Airmet, Gafor area warnings, aerodrome warnings
- Comfortable selection lists etc, no typo errors possible
- Diplay the same warnings in NinJo aviation layer for monitoring

- Example: template for editing SIGMET/AIRMET



Aviation-EPM

- template for editing GAFOR area warnings and aerodrome warnings



SCIT Layer : RDT data

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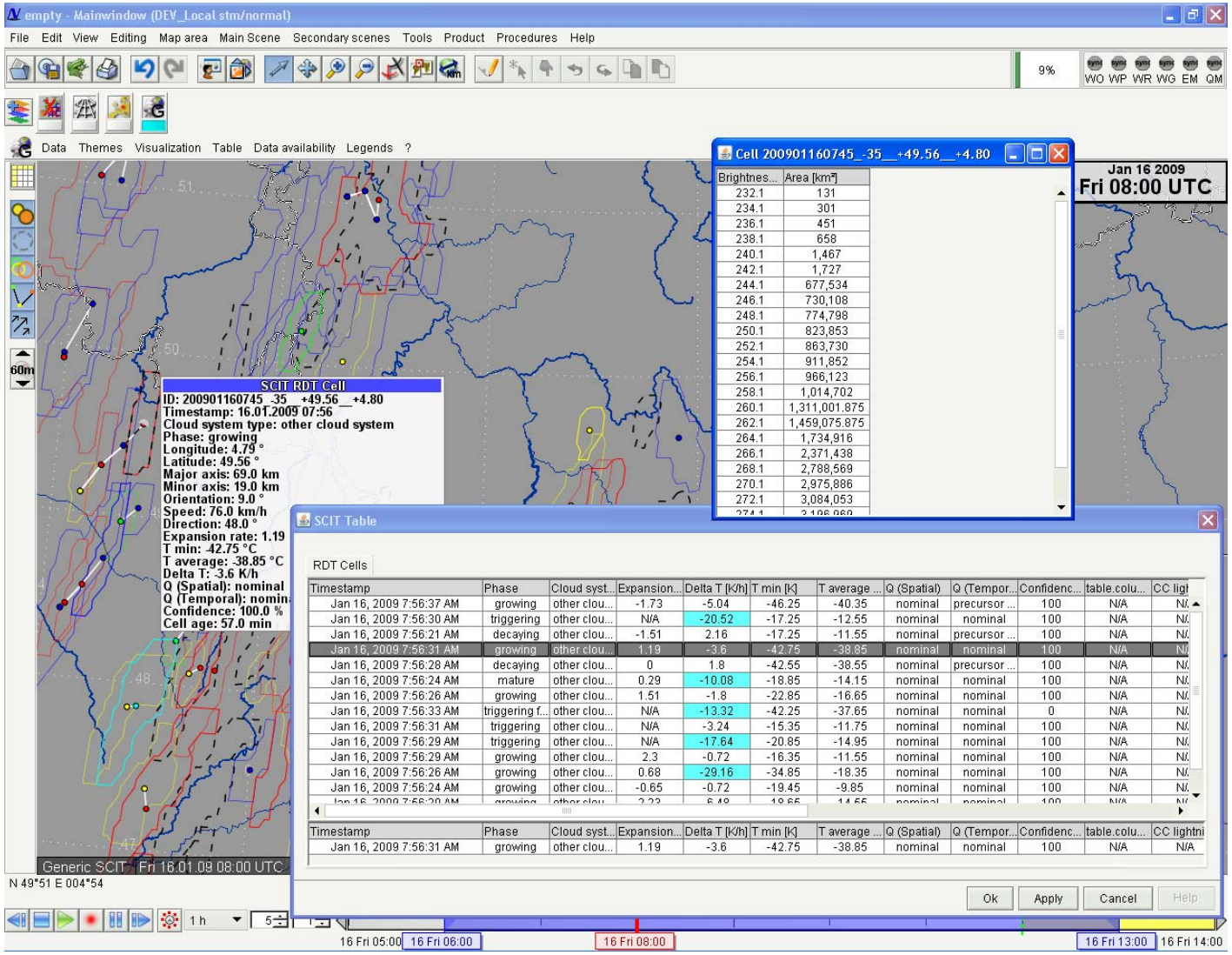
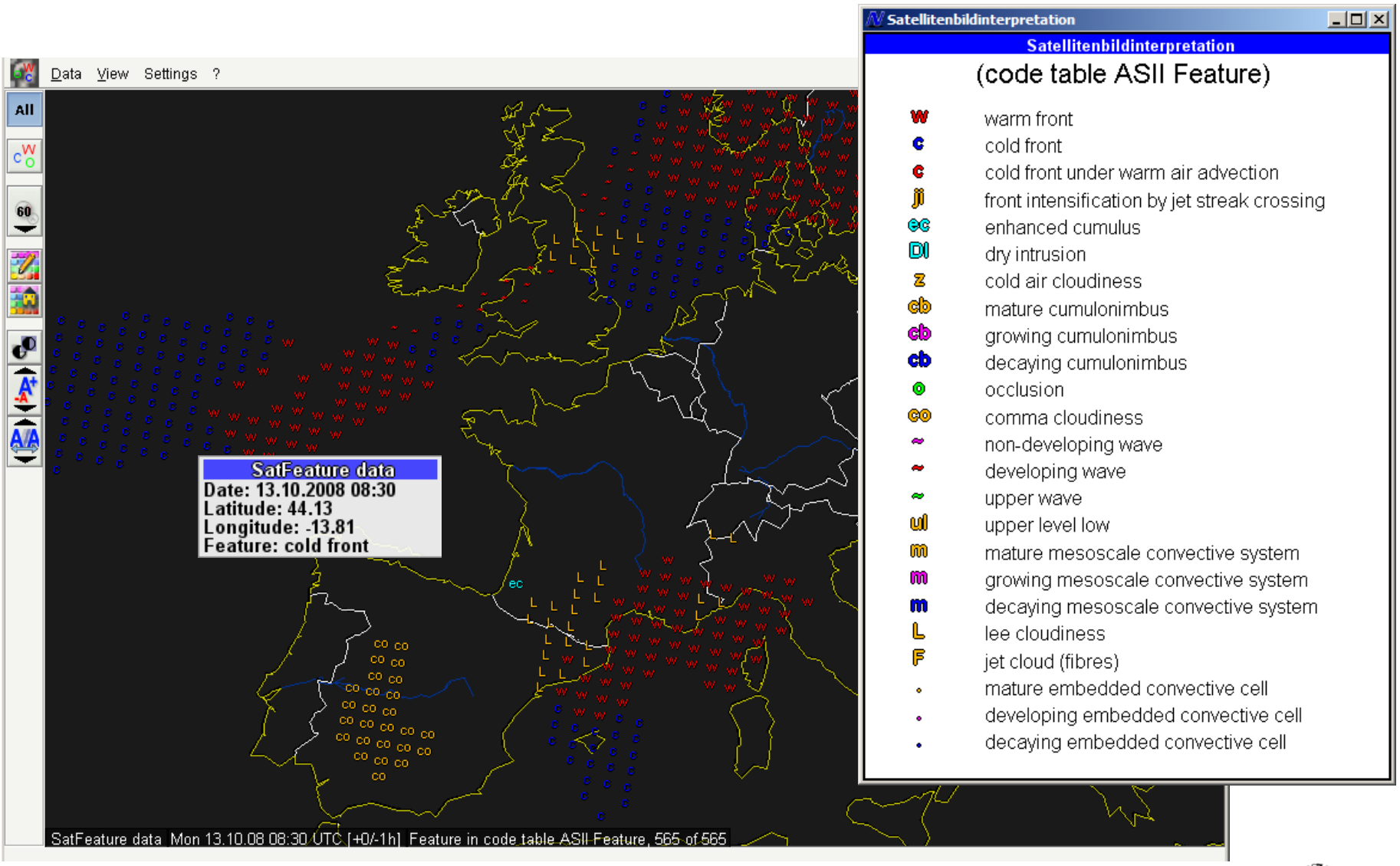
Wetter und Klima aus einer Hand



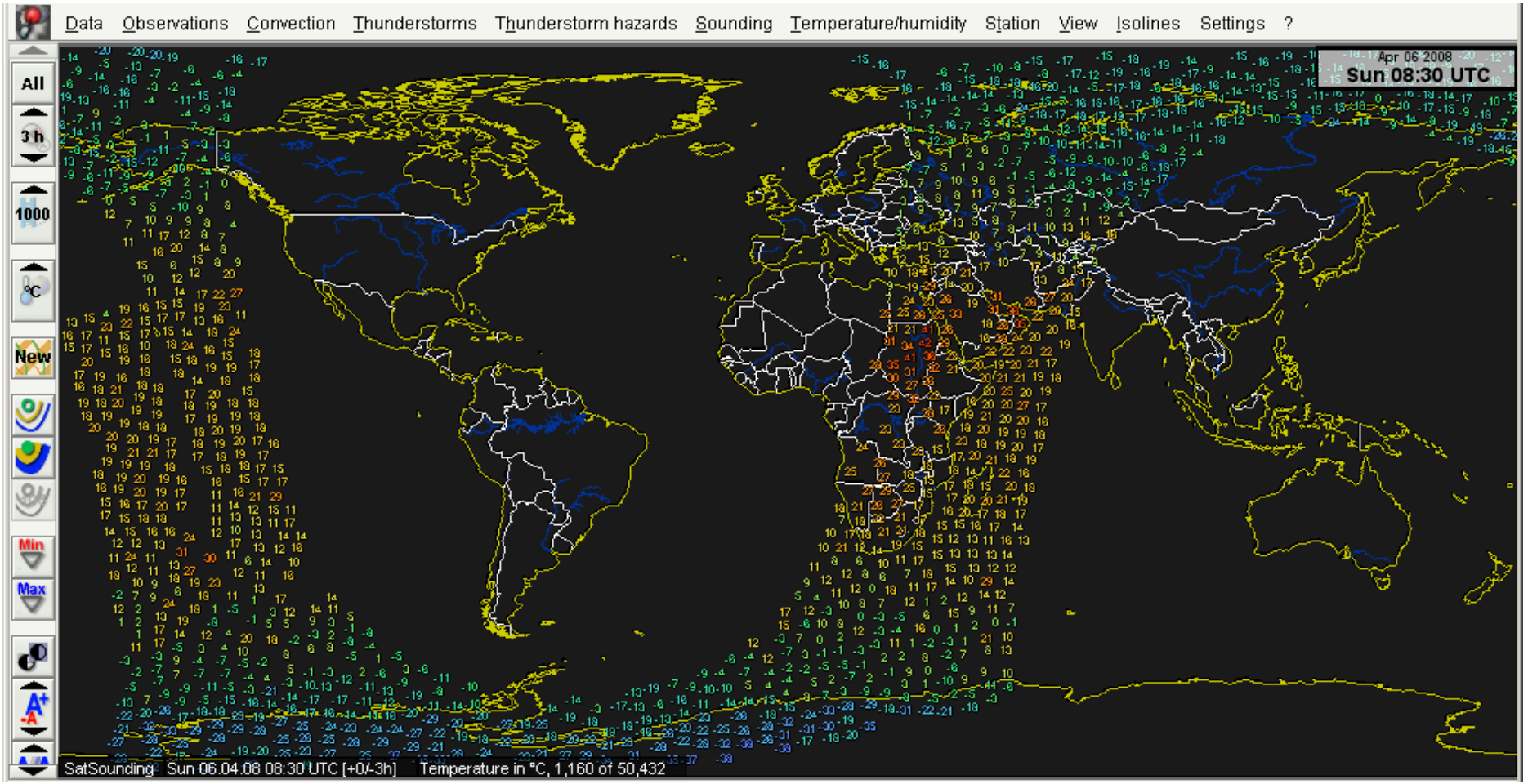
SatFeature Layer

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



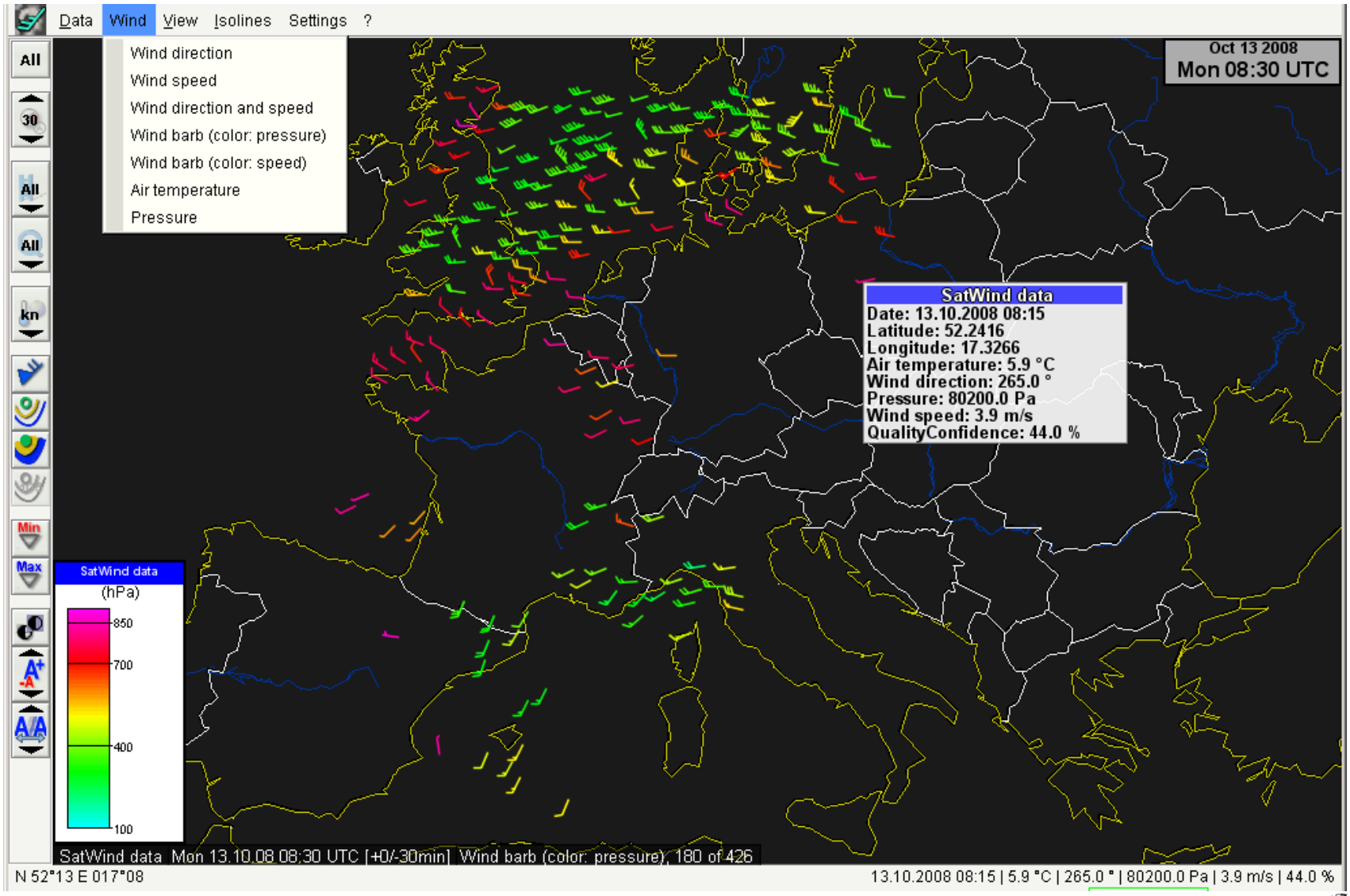
SatSounding Layer

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



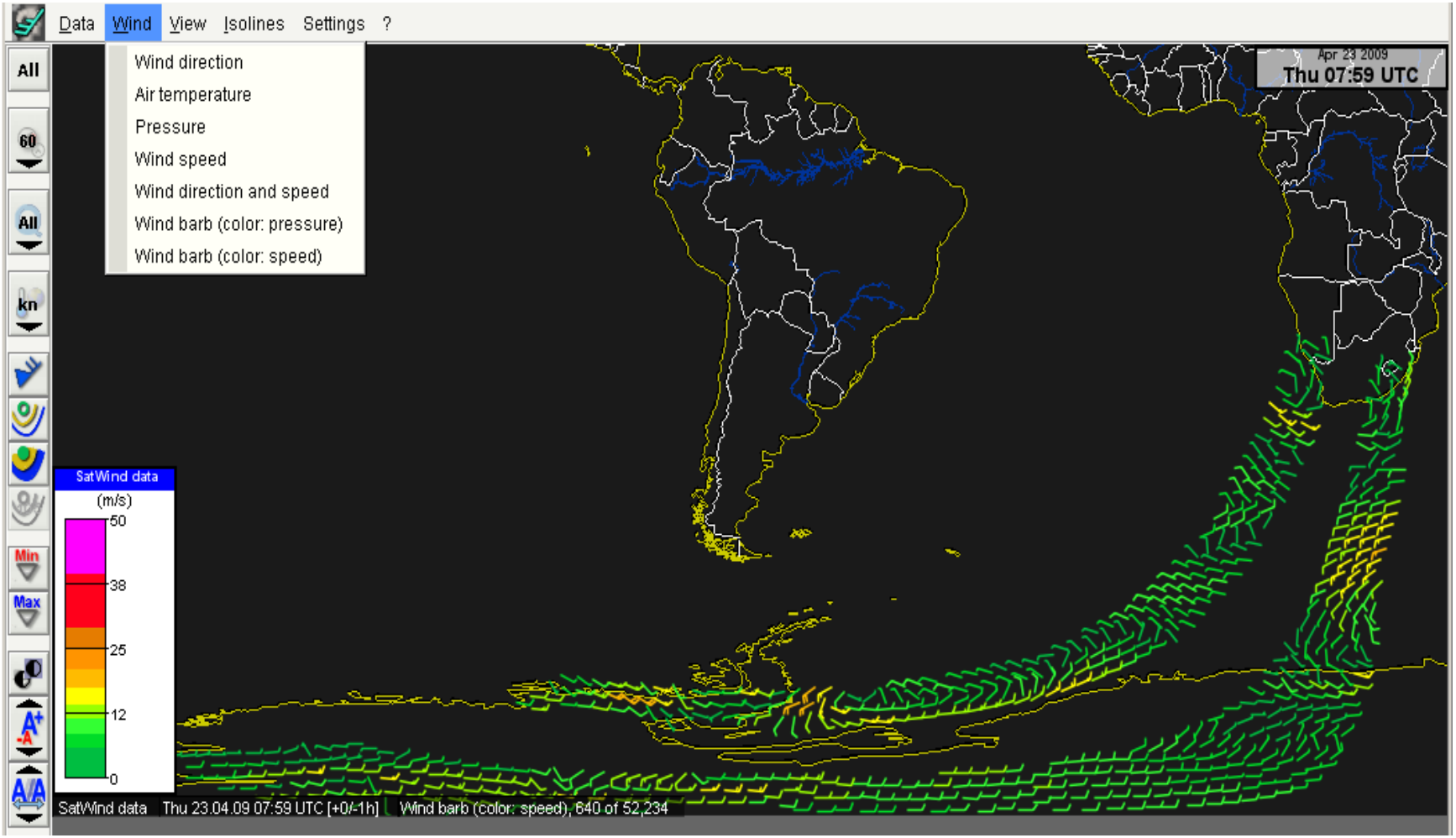
SatWind Layer - HRW

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



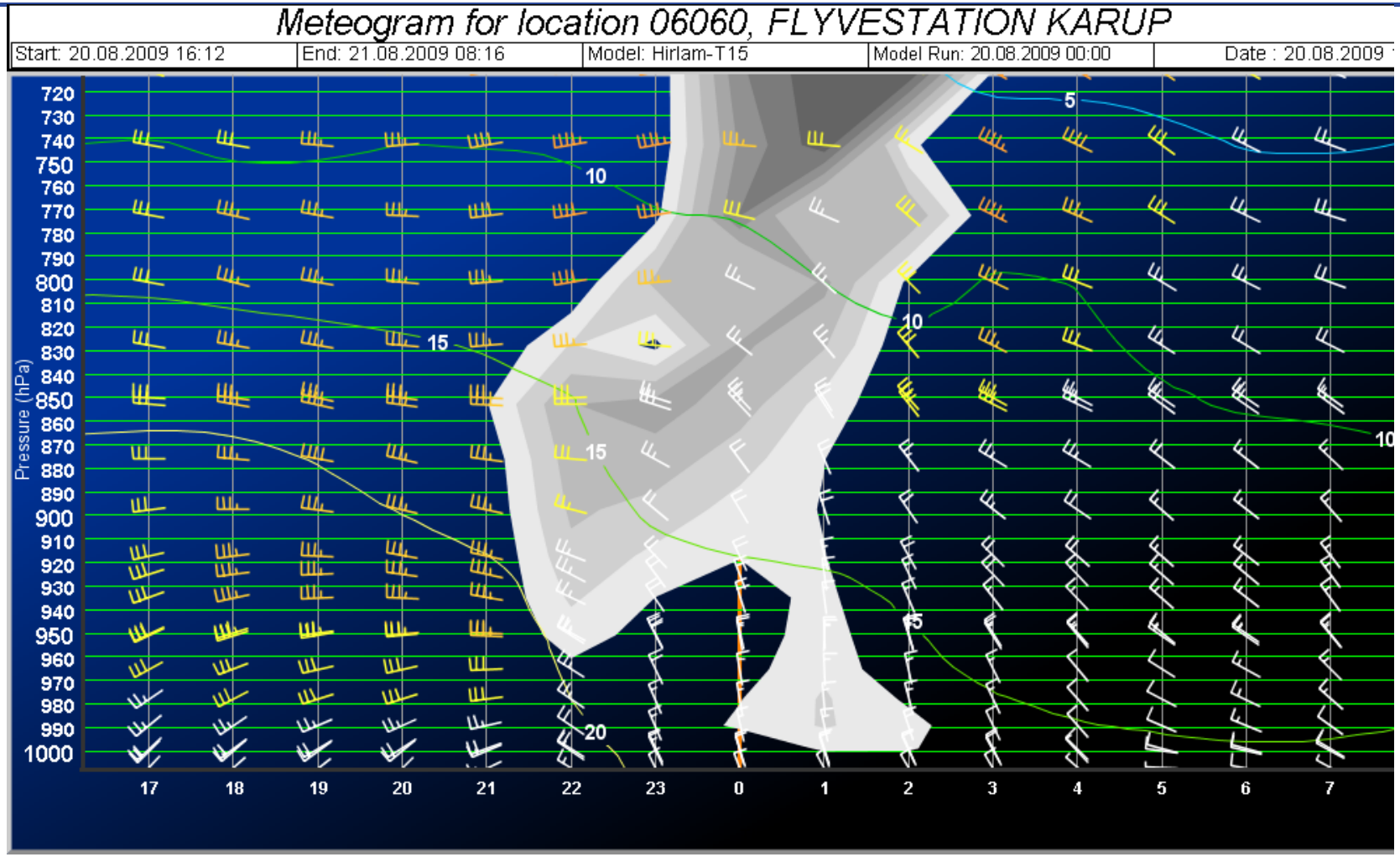
SatWind Layer - Scatterometer

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



Meteograms– New time/height profile data series

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

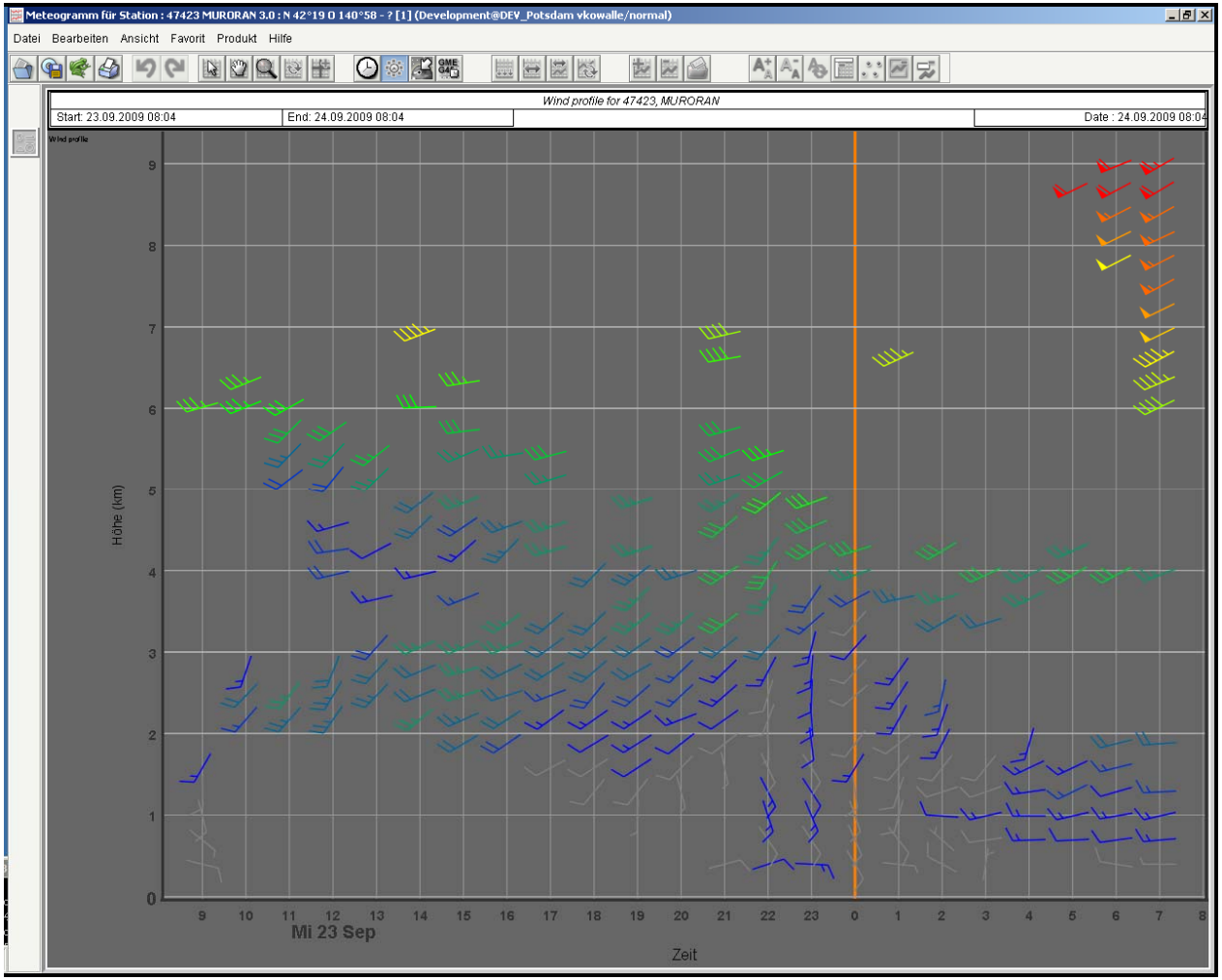


An example of a forecast time/height profile with wind barbs, temperature and total cloud cover data series

Sounding Layer: Windprofilers

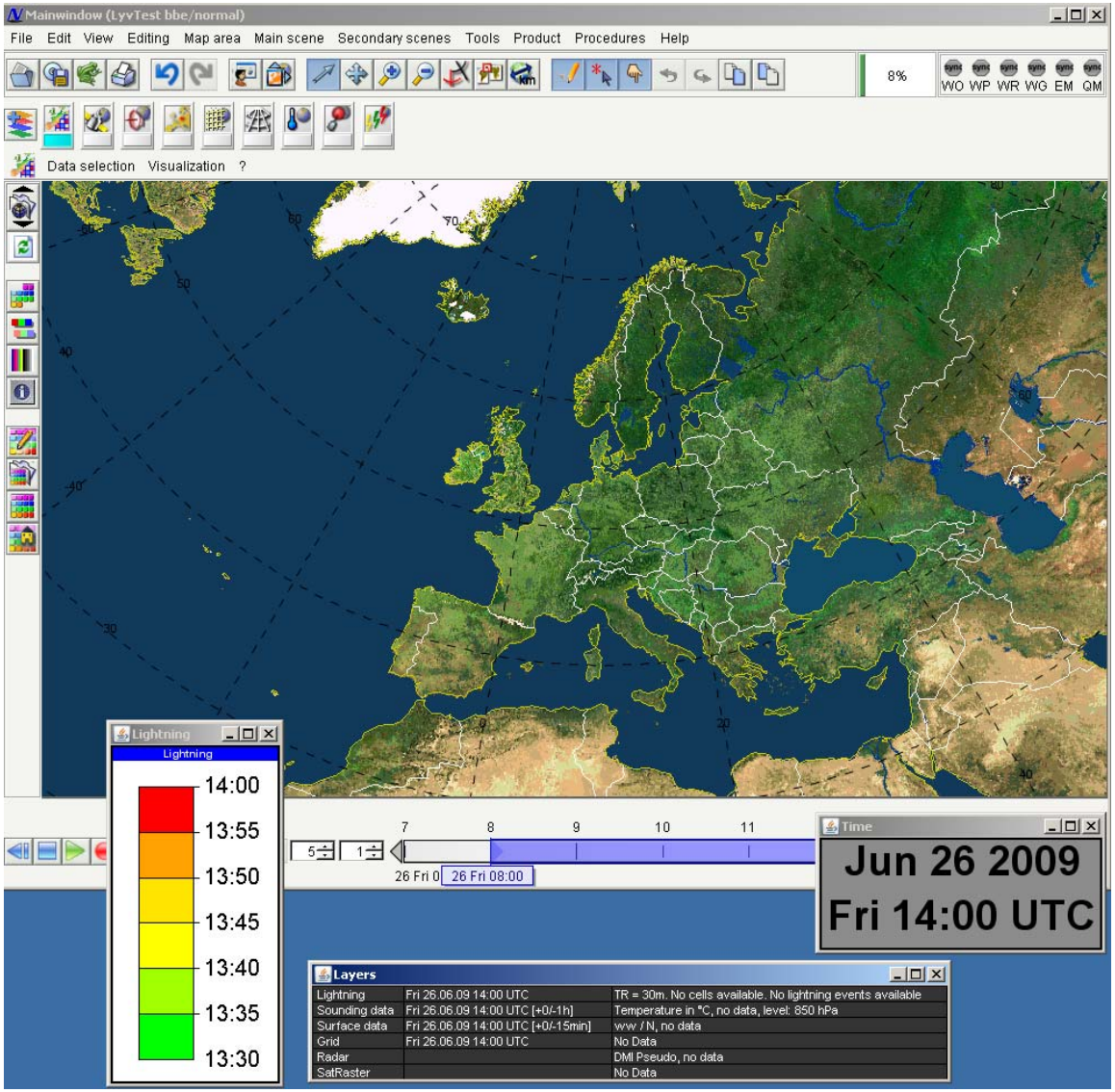
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Decoding and Display of international Windprofilers



Legends – Legend tear off

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



Legends – iconified legends

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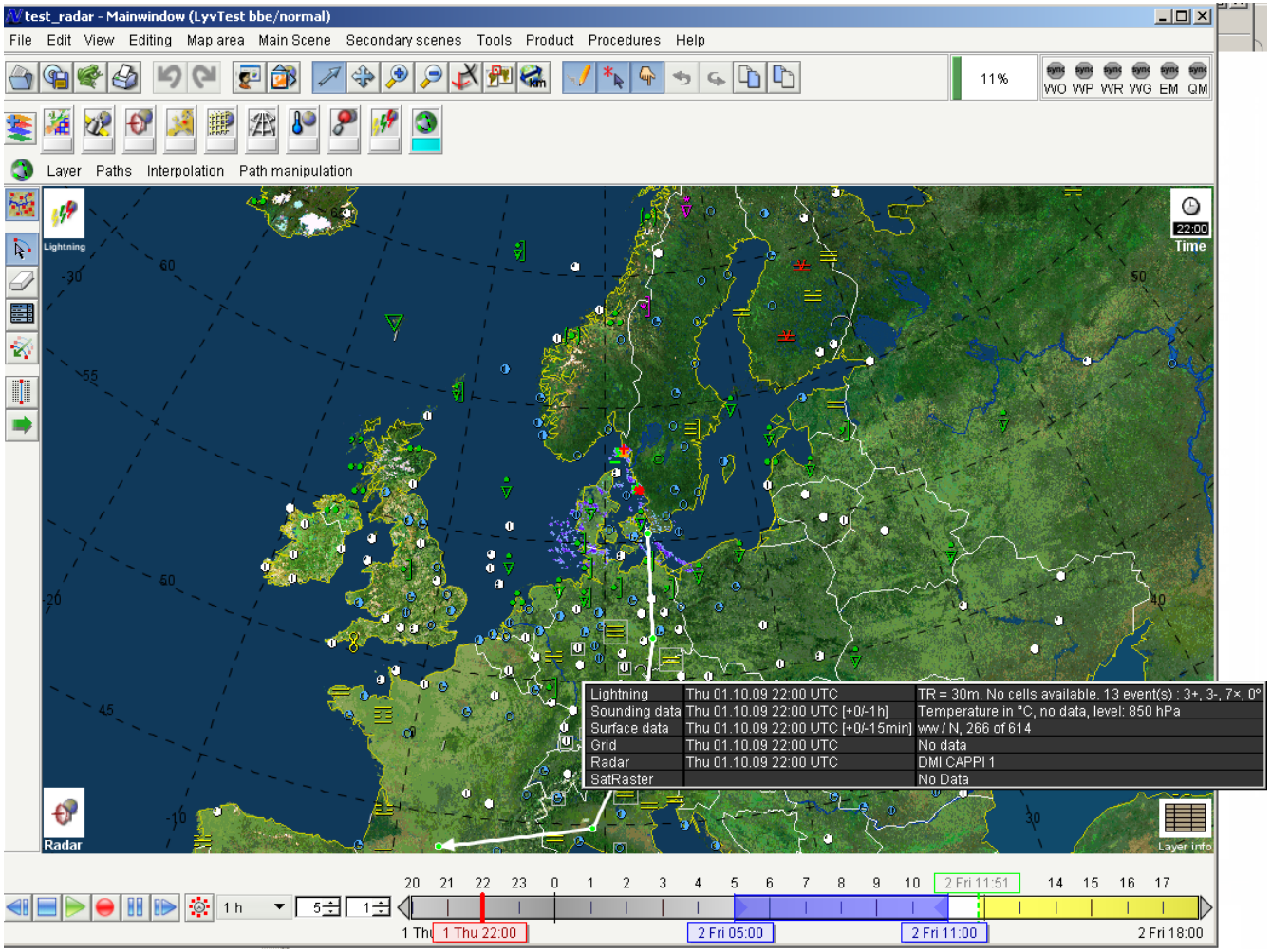

Example of a layer container with all legends iconified and the layer legend icon has been touched so the legend popup appears

NinJo Batch

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Operational in DWD since fall 2009
- Produces many thousand products daily
- All customer products are being migrated to NinJo batch
- Legacy applications are replaced by NinJo batch (Radar products first, model products follow)
- Production results (SWC, TKB maps, produced by NinJo) are combined with other data in NinJo batch

Batch – Architectural Overview

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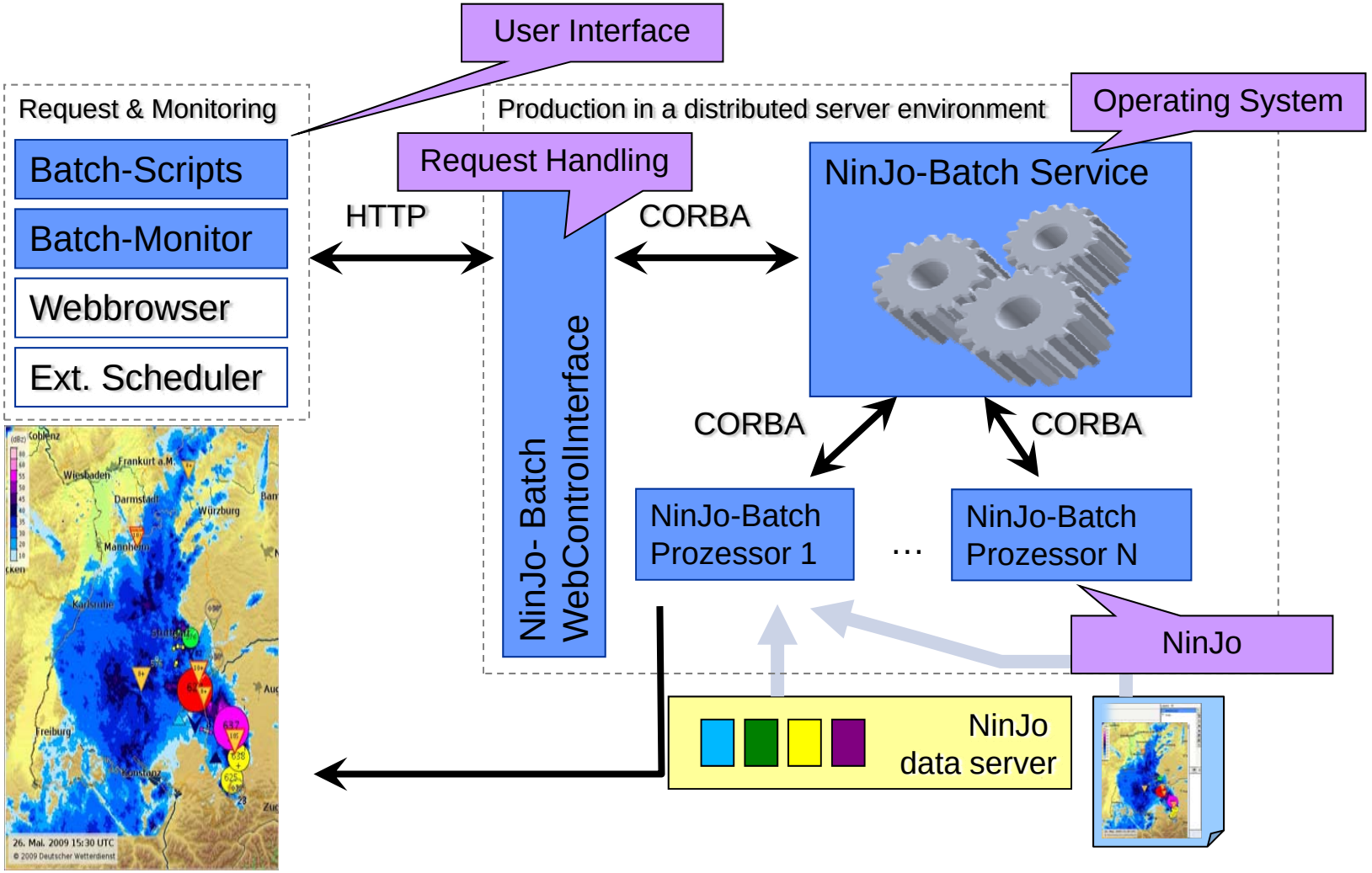

How to Create Batch Products

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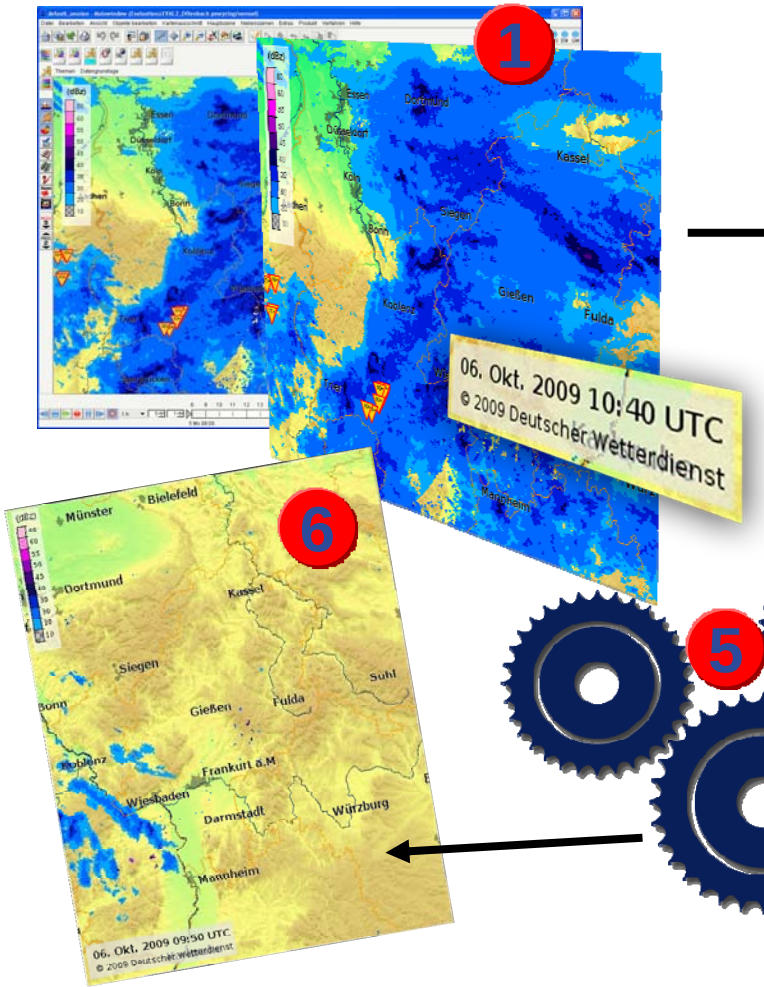
Wetter und Klima aus einer Hand



1. Create a NinJo scene
2. Start Batch Designer
3. Create Batch favourite including the scene
4. Add Batch legend(s)
5. Schedule Batch favourite
6. Enjoy the results

Multi Map Plot Products

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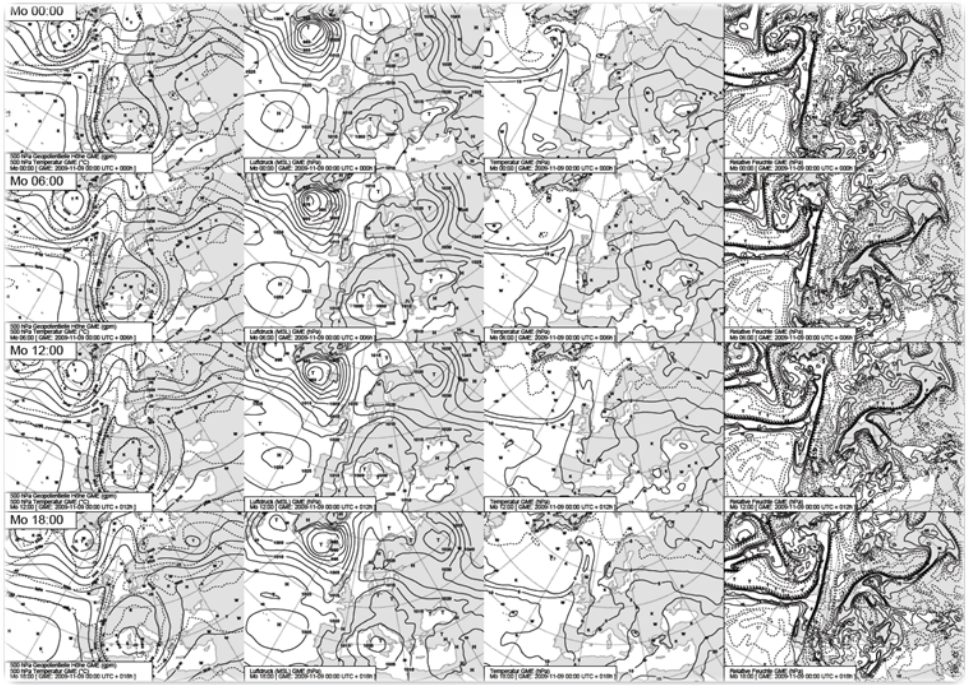
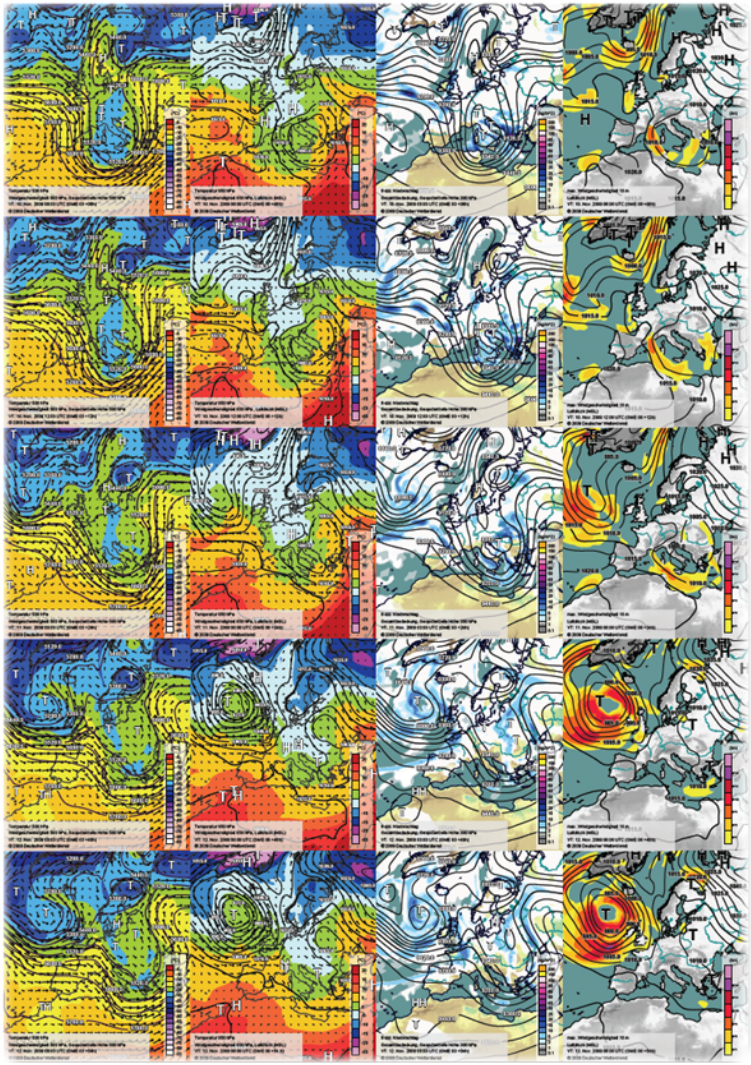
- Allows variation of parameters
  - time, map, element, height level, station (for meteograms), ...





Animations

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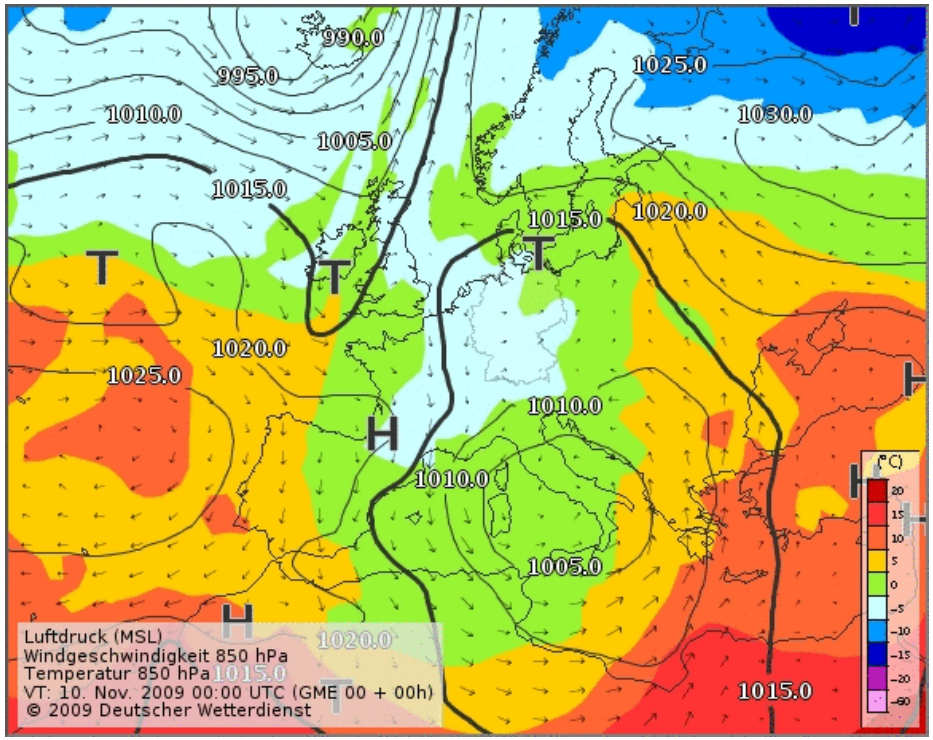
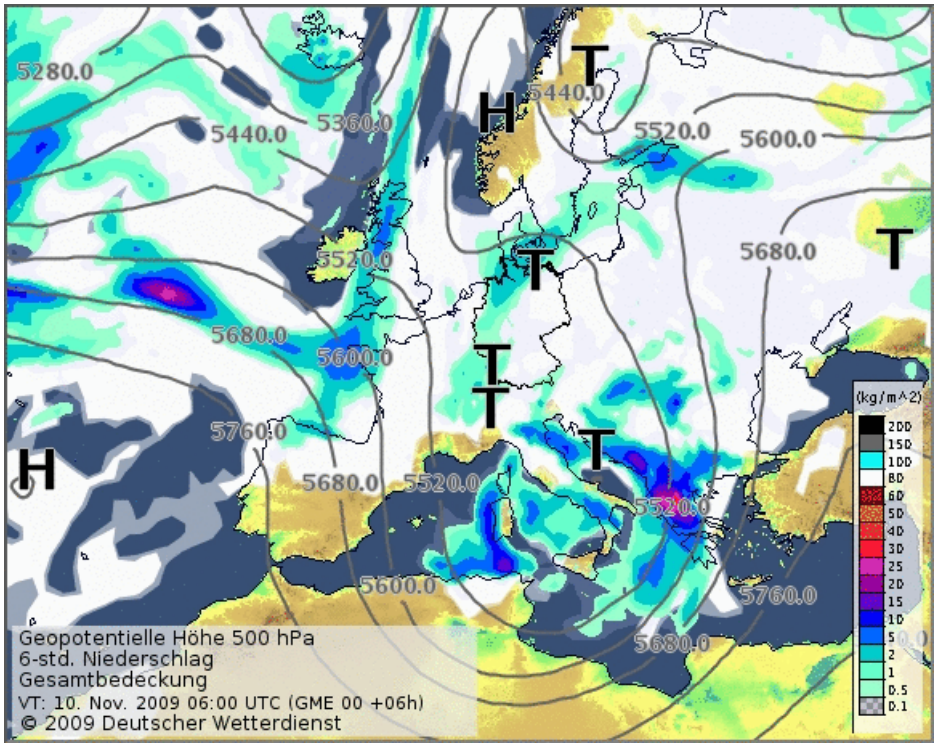
➔ Animation as post production

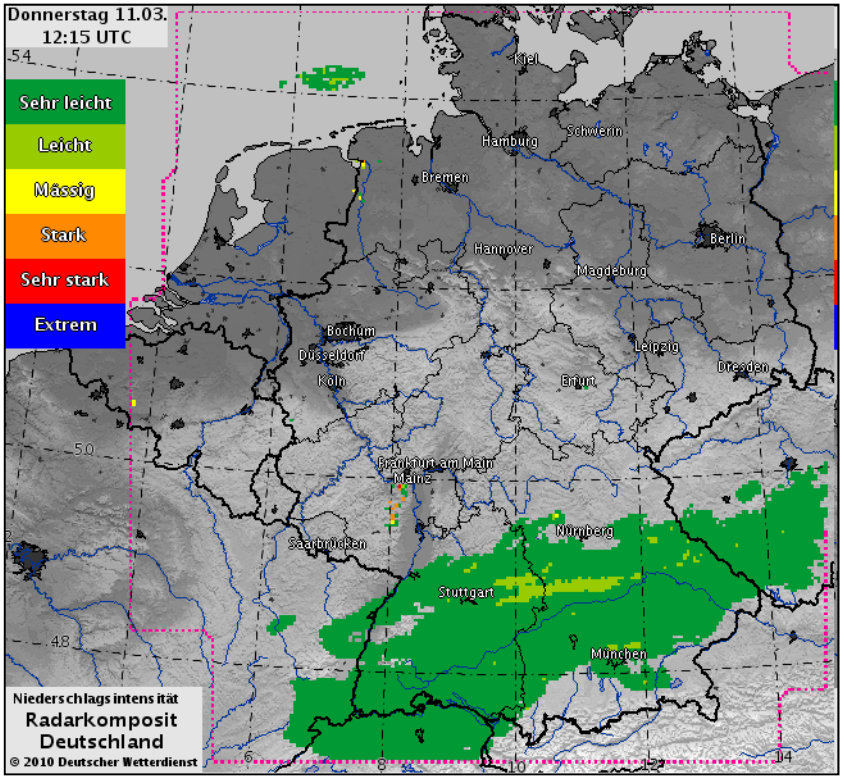


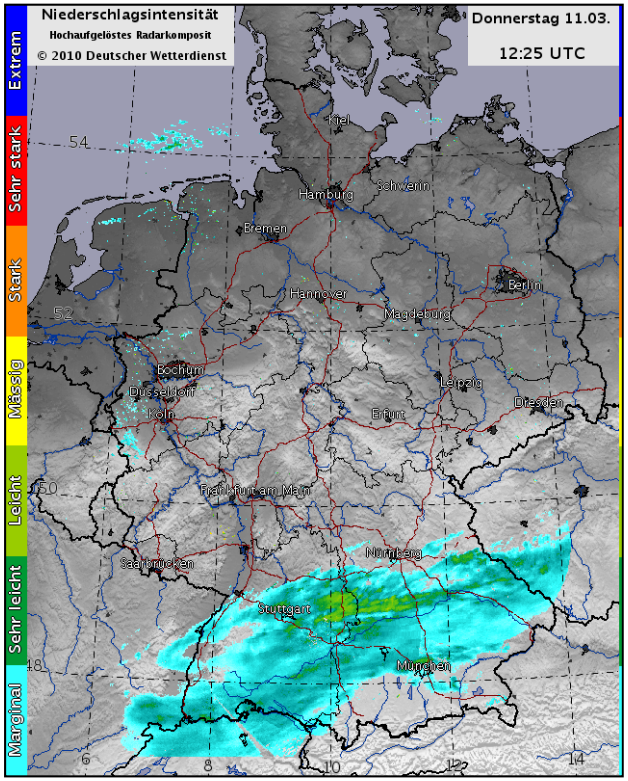


Batch: Operational Products

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Radar composite Germany (PC): every 15 minutes
- Radar composite Germany (RX): every 5 minutes (two resolutions)

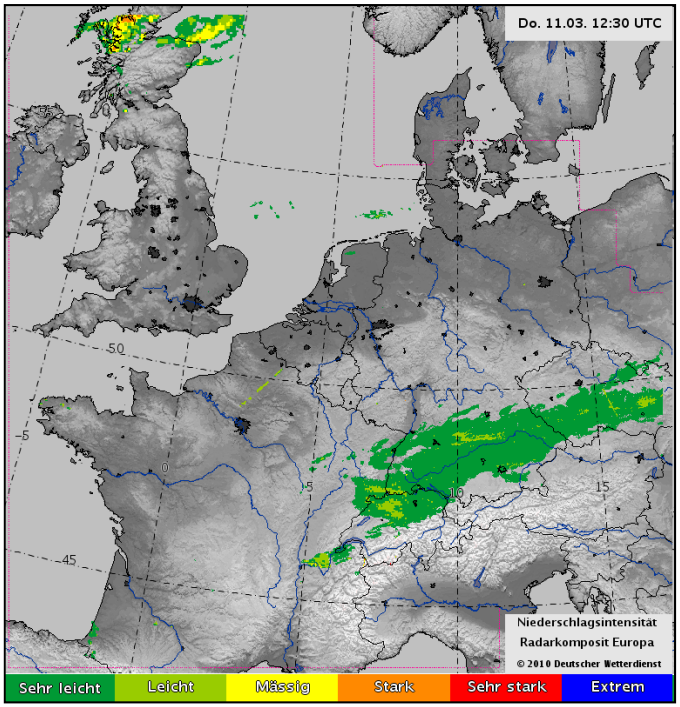


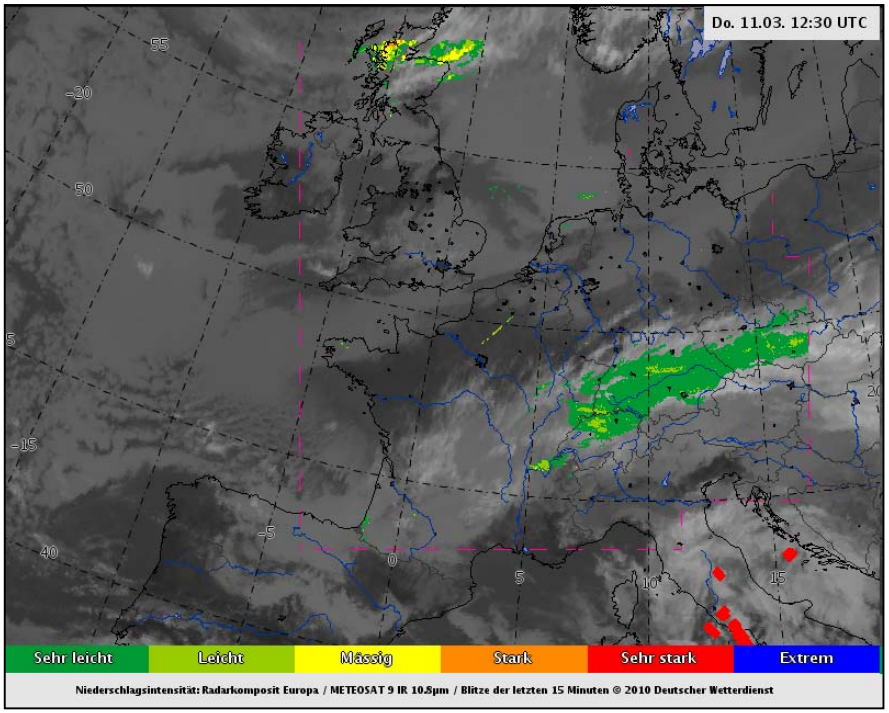


Batch: Operational Products (II)

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Radar composite Europe (PM): every 15 minutes (two resolutions)
- Radar / lightning / satellite composite Europe: every 15 minutes (two resolutions)

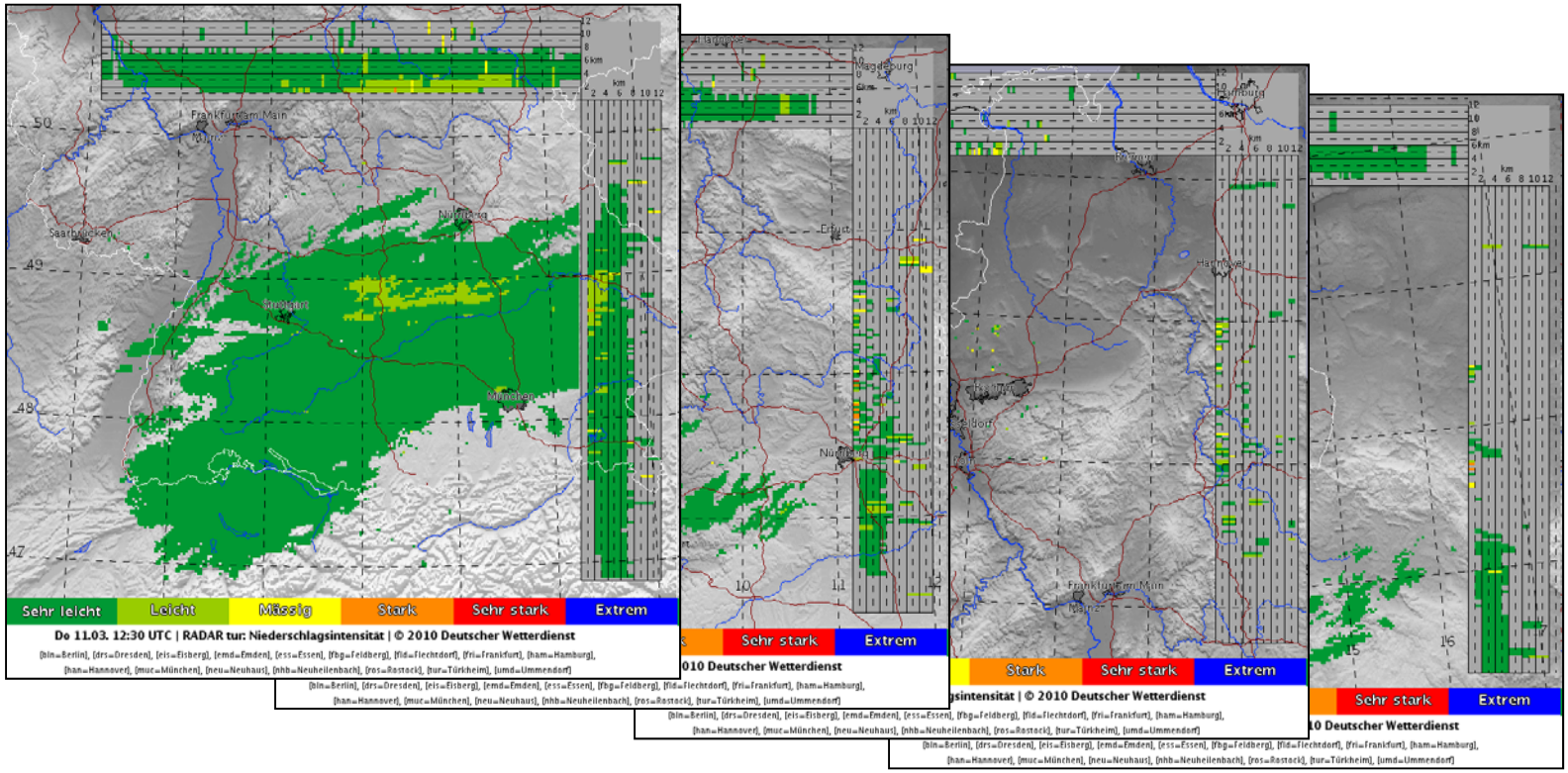




Batch: Operational Products (III)

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

➔ Single radar drilldowns for 16 locations (PL): every 15 minutes



Batch: Operational Products (IV)

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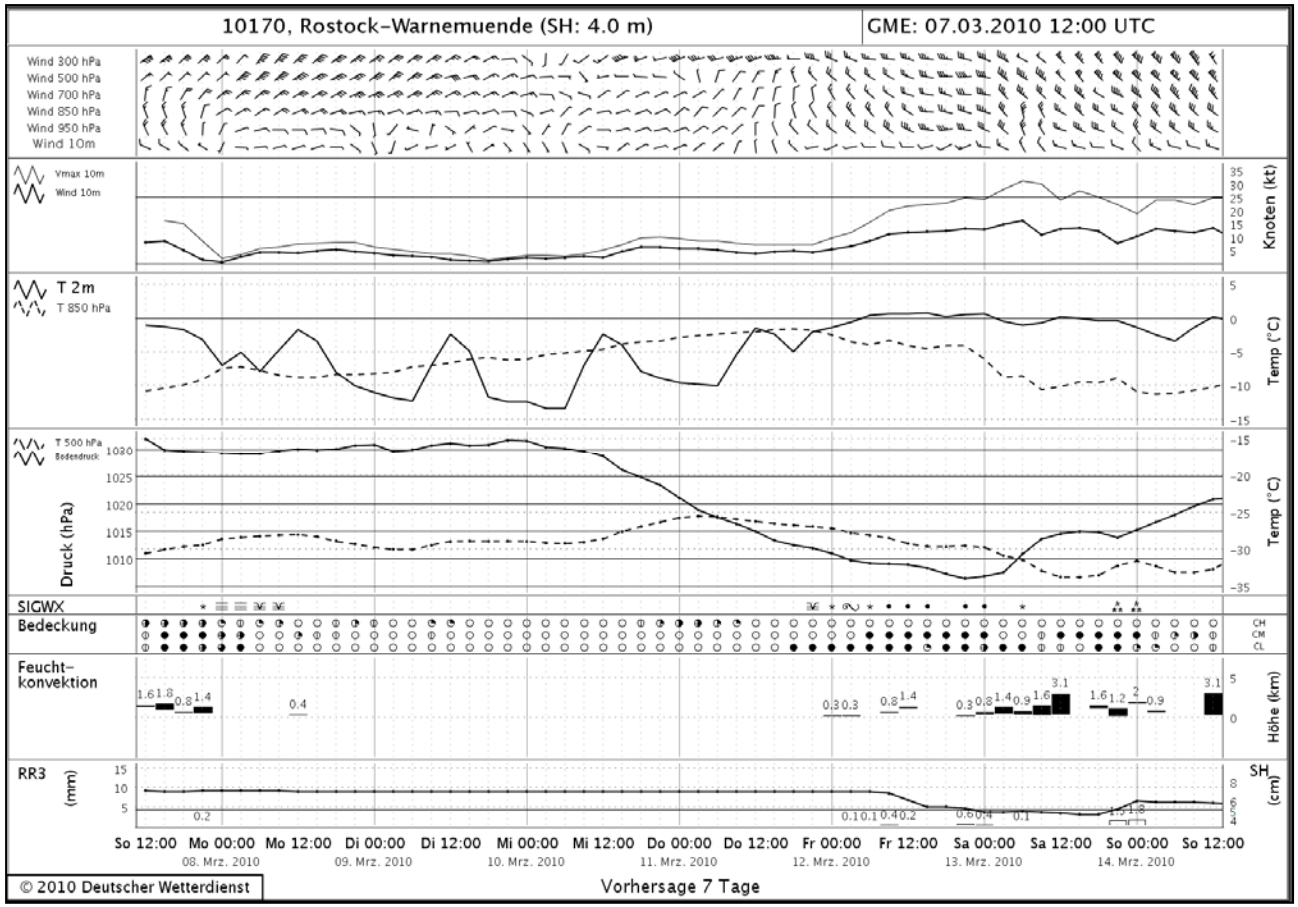
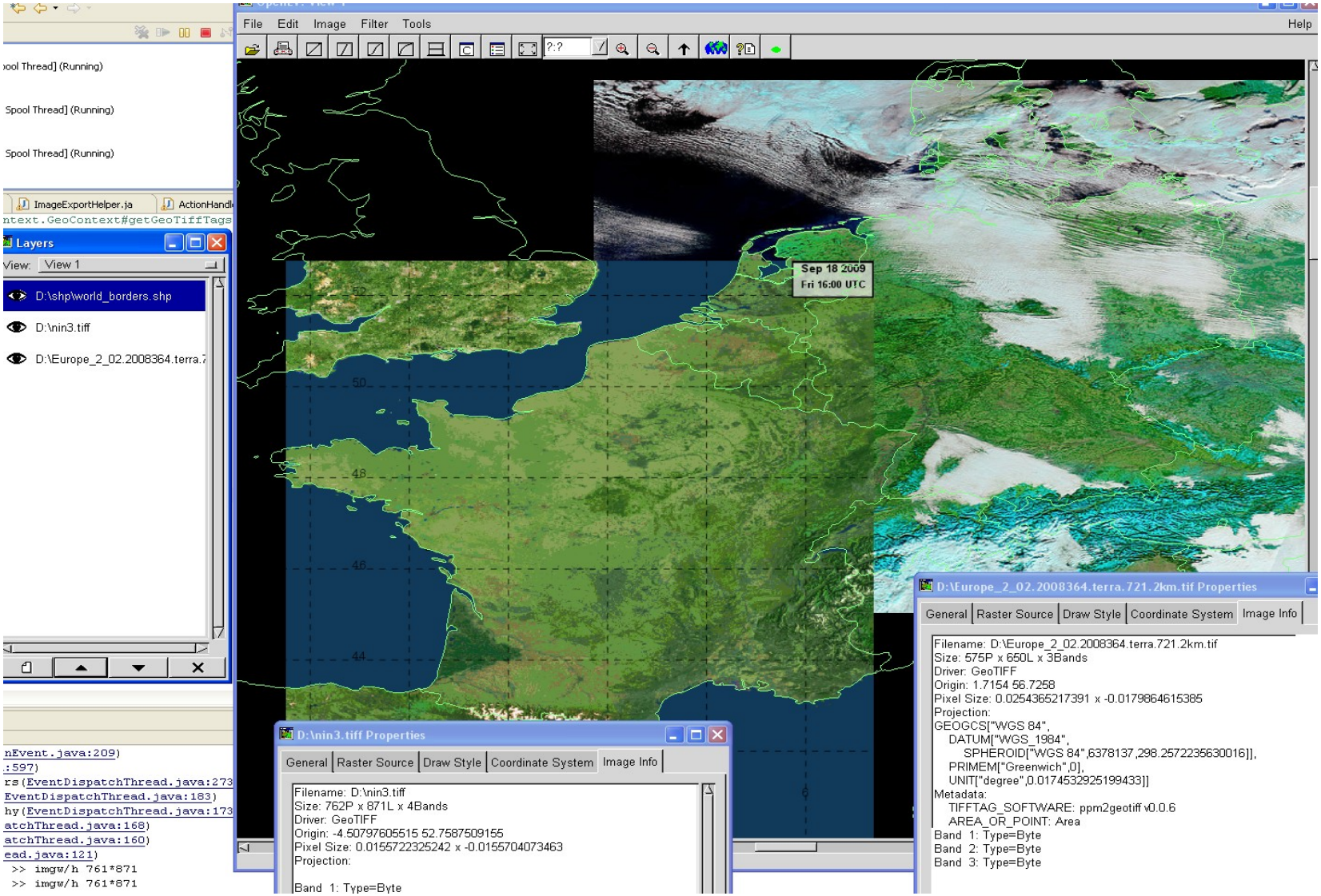
➔ Last but not least: meteograms (GME), every 12 hours for 250 locations

➔ In total: ~3100 images/day.



GOF Batch – GeoTIFF export

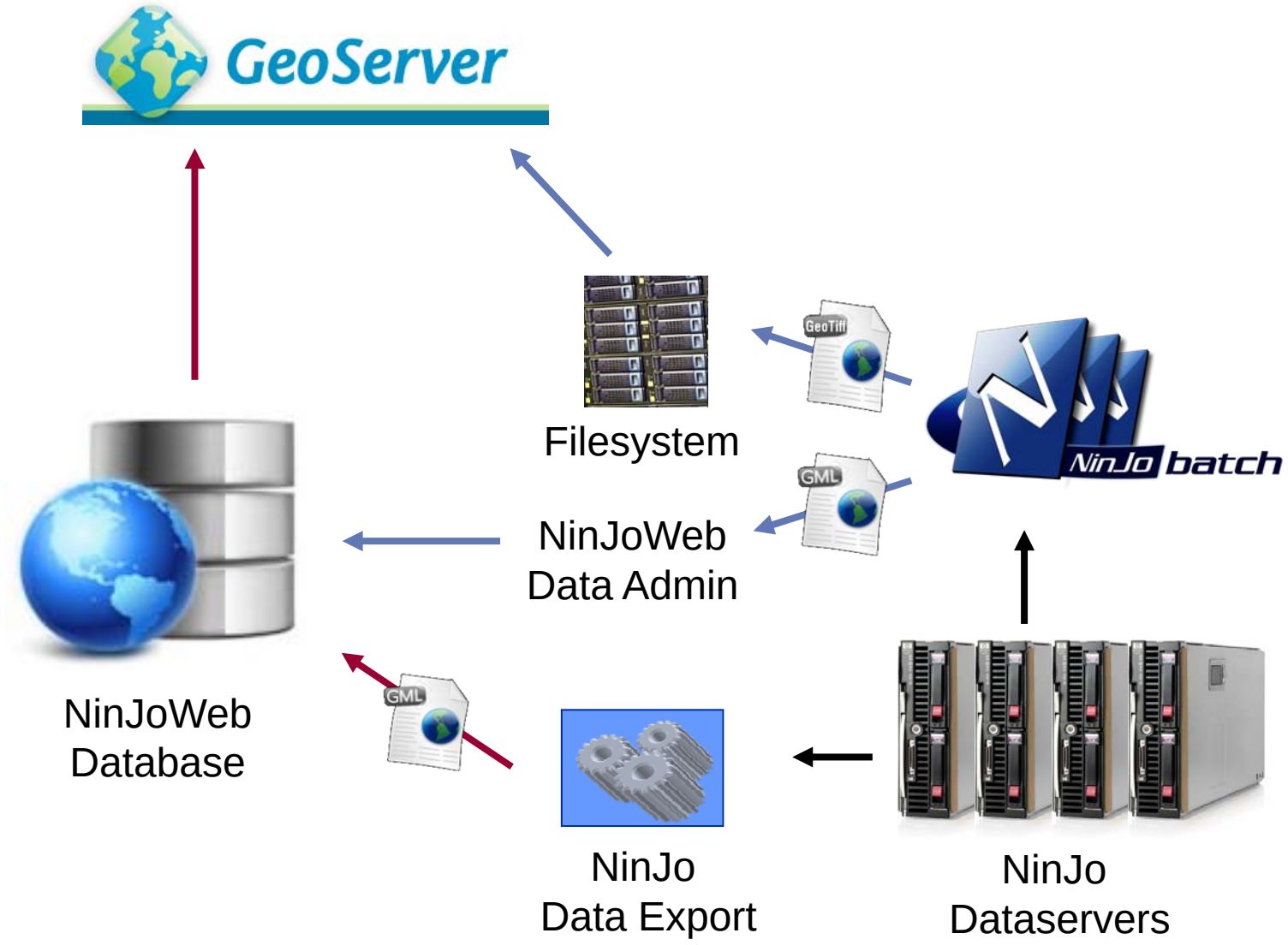
Deutscher Wetterdienst
Wetter und Klima aus einer Hand



NinJo – recent developments

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

- Deployment
- User groups, international discussion
- Project management ,workflows development cycles
- New Features
- NinJo Batch
- OGC

OGC <-> NinJo Prototyping

Deutscher Wetterdienst
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