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The Meteorological Workstation NinJo and its Production Tools

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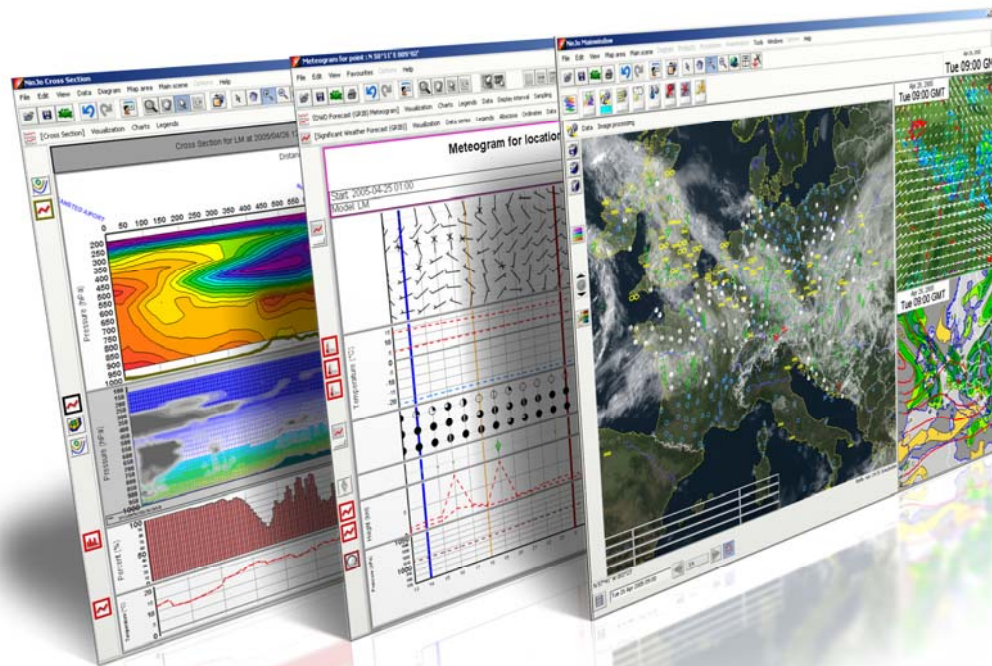
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Email: bernhard.reichert@dwd.de

- ◆ Introduction and Goals of NinJo
- ◆ NinJo Client Layers and Applications
- ◆ NinJo Production Tools
- ◆ Current Status and Future Planning

The Meteorological Workstation NinJo



- Joint project between Weather Services from Germany, Switzerland, Denmark, Canada, and German Military Service
- Replacement of several older workstation systems
- Provide a unified environment to support the entire meteorological process

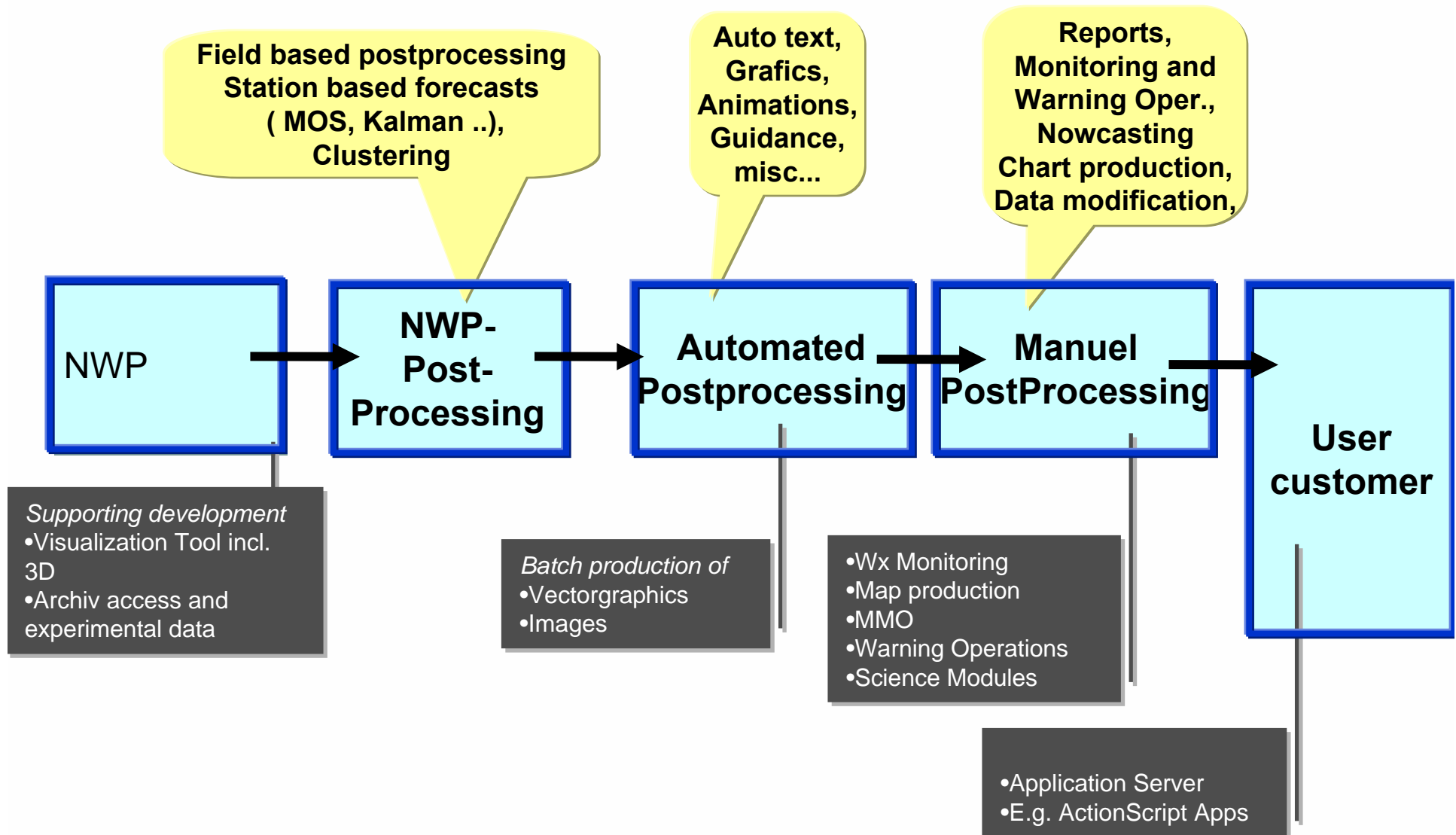
Meteorological Goals

- **Support the entire forecast and warning process**
 - **Interactive visualization of all meteorological data**
 - **Interactive product generation**
 - **Batch production**
 - **Automatic weather monitoring and alerting using observational, nowcasting, and model data; warning management**

- **Support other workflows** (lower priority)
 - **Research department**
 - **Meteorological training**

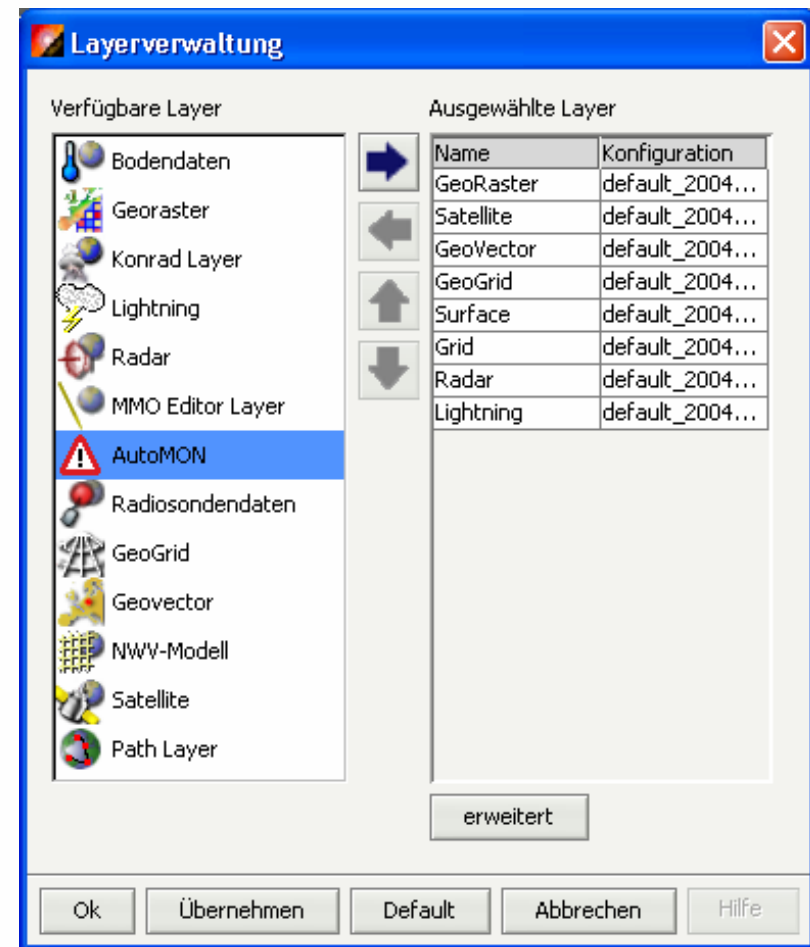
- **Access to standard infrastructure (archives)**

Support of the Entire Forecasting Process



What is NinJo?

- **A building kit in order to assemble applications**
 - ranging from satellite viewers to full workstations
 - **A flexible programming model**
 - to allow partners to develop their own application
 - **A highly configurable tool**
 - Partners build their “own” NinJo
- ⇒ **A generic Meteorological Workstation**



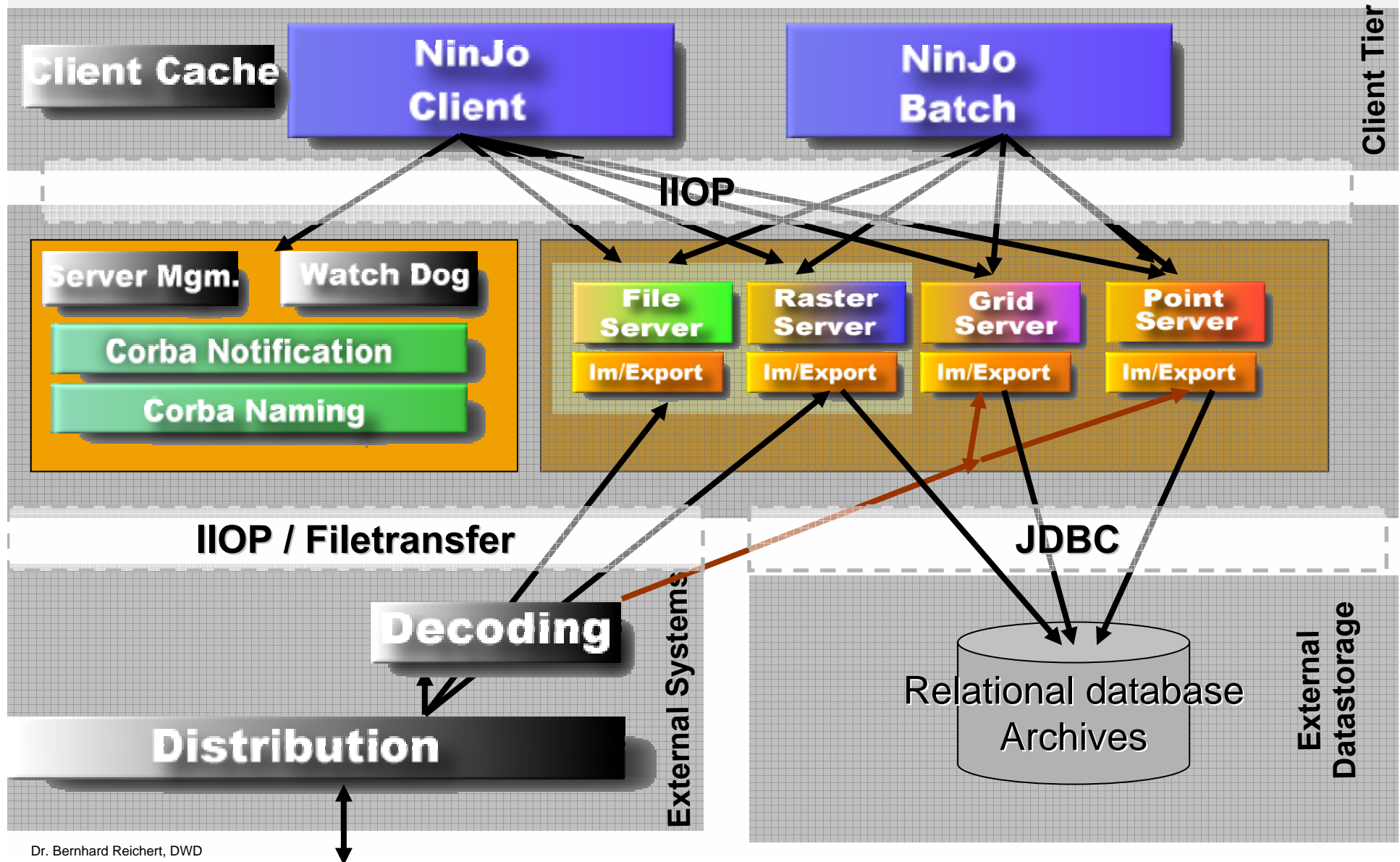
Architecture

- **The architecture of NinJo is open and portable**
- **It's written completely in Java**
- **It can be adopted easily to the needs of organizations involved**
 - **different hardware and OS-infrastructure**
 - **different configuration of clients**
 - **different primary data storage mechanisms: files or database**
 - **different data supply and backend systems**
 - **different communication and middleware infrastructures**
- **It can be easily extended**
 - **new data types**
 - **new storage types (data sources)**

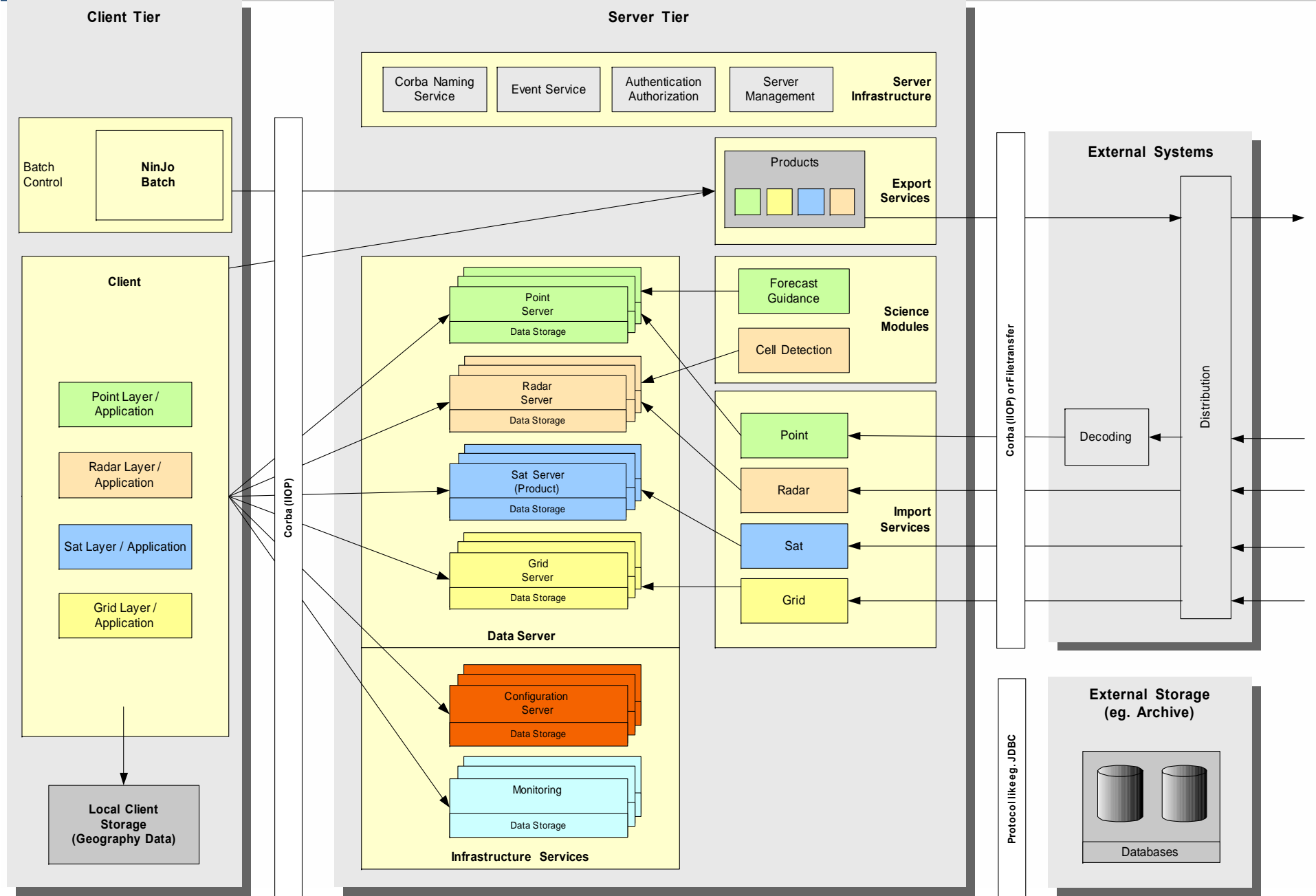
Introduction and Goals of NinJo



Architecture: The NinJo Tiers



NinJo Architecture

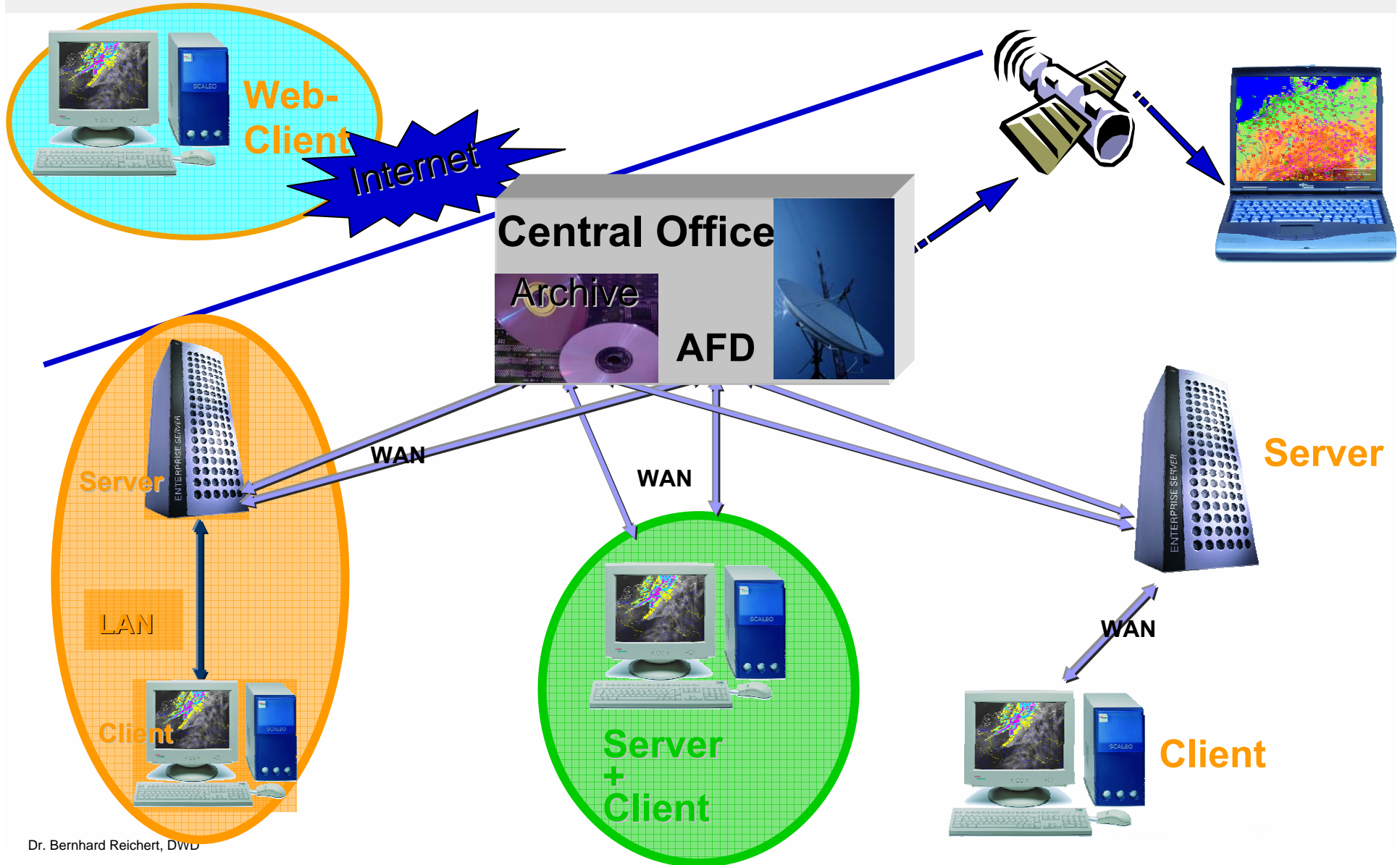




Introduction and Goals of NinJo

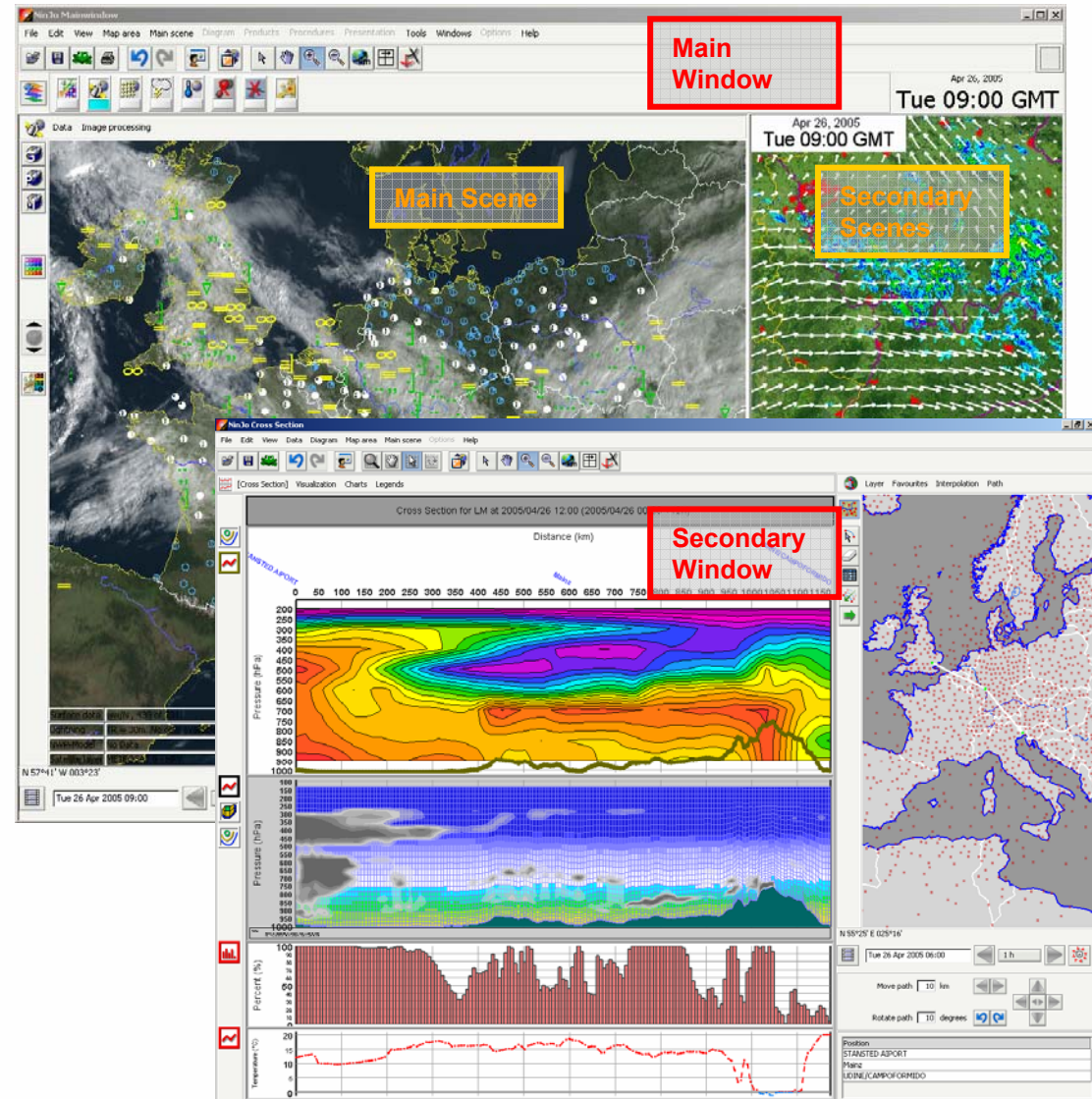


NinJo Communication



The NinJo Client

- **Main Window**
 - One main scene and up to three secondary scenes
- **Several secondary Windows**
 - mostly specialized applications
 - e.g. Meteograms, Cross-Sections, Aerological Diagrams, 3D ...
- **Basic Functionality**
 - Geographical visualization of data with panning and zooming
 - Overlaying of different layers
 - Animation, automatic update
 - Context menus



Introduction and Goals of NinJo: Basic Functionality



The screenshot displays the NinJo software interface. At the top, a menu bar includes File, Edit, View, Map area, Main scene, Diagram, and Product. Below it is a toolbar with various icons. A yellow box labeled "Basic Operations" highlights the top toolbar, and another yellow box labeled "Layerbar" highlights the layer selection icons. The main map area shows a weather map with yellow isobars and various data points. A yellow box labeled "Layerspecific menu" points to a vertical toolbar on the left side of the map. Another yellow box labeled "Layerspecific Toolbar" points to a toolbar at the bottom of the map area. On the right side, there is a panel with a date and time display (May 27, 2004, 12:00 UTC) and a context menu with options like "Change to main scene", "Delete scene", "Favourites", "Background color", "Full screen", "Clip map", "Zoom in", "Pan", "Zoom out", and "set scene name ...". At the bottom, there is a status bar with coordinates (N 57°30' W 046°47') and a time display (Thu 27 May 2004, 12:00) with navigation buttons.

Layer	Source	Time
Satellite	METEOSAT 8 - IR 10.8	May 27, 2004 12:00:00 PM
GeoGrid		May 27, 2004 12:00:00 PM
Grid	SI-M 5/27/04 12:00 PM +0H Pressure reduced to MSL -- [mean sea level]	May 27, 2004 12:00:00 PM
Surface	WMO radial wind	May 27, 2004 12:00:00 PM
Radar	LOW LEVEL CAPPI	May 27, 2004 12:00:00 PM
Lightning	IR = 30m. 1 cel(s)/66 stroke(s) : 11 +, 31 -, 3 C-C, 21 NPA	May 27, 2004 12:00:00 PM

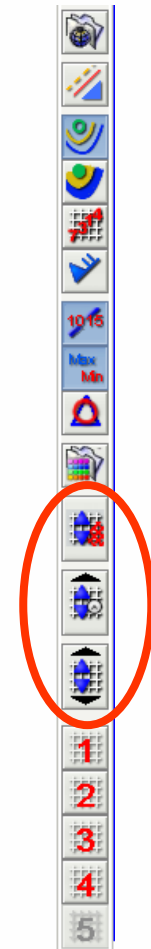
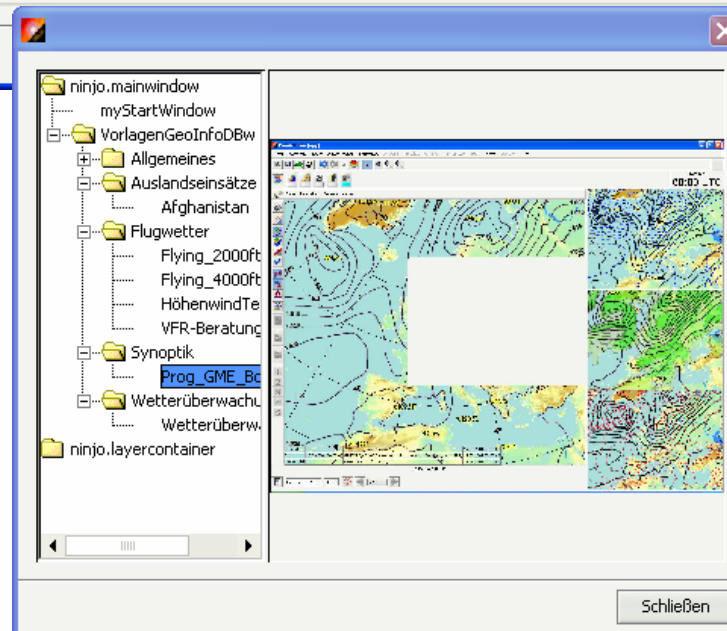
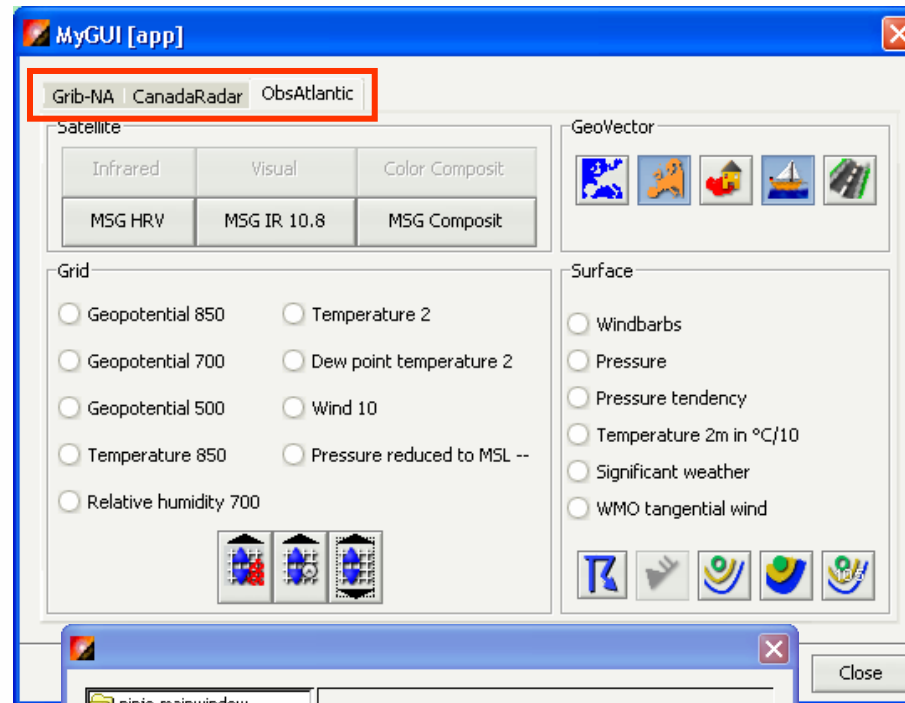
myGUI

- Every layer provides a panel with most important use cases

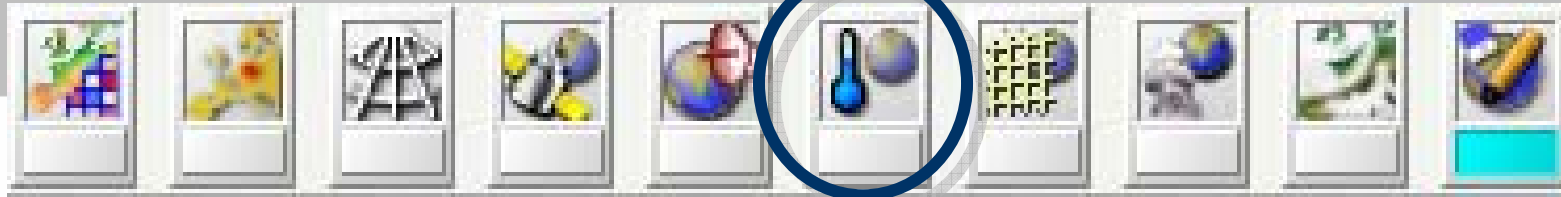
Favorites

- workspace
- scenes
- animations and diagrams later

Spinner Buttons

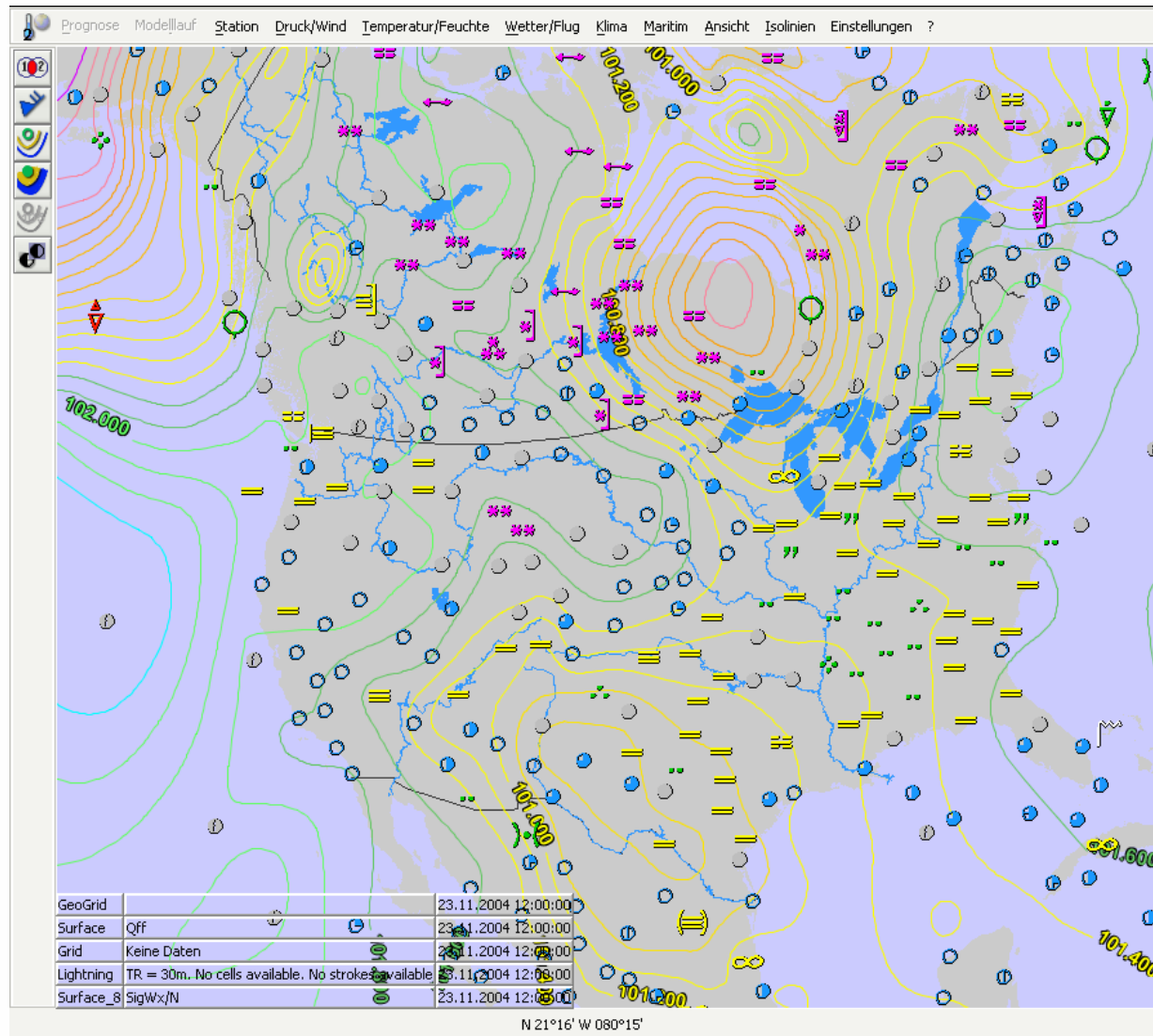


- ◆ Introduction and Goals of NinJo
- ◆ NinJo Client Layers and Applications
- ◆ NinJo Production Tools
- ◆ Current Status and Future Planning

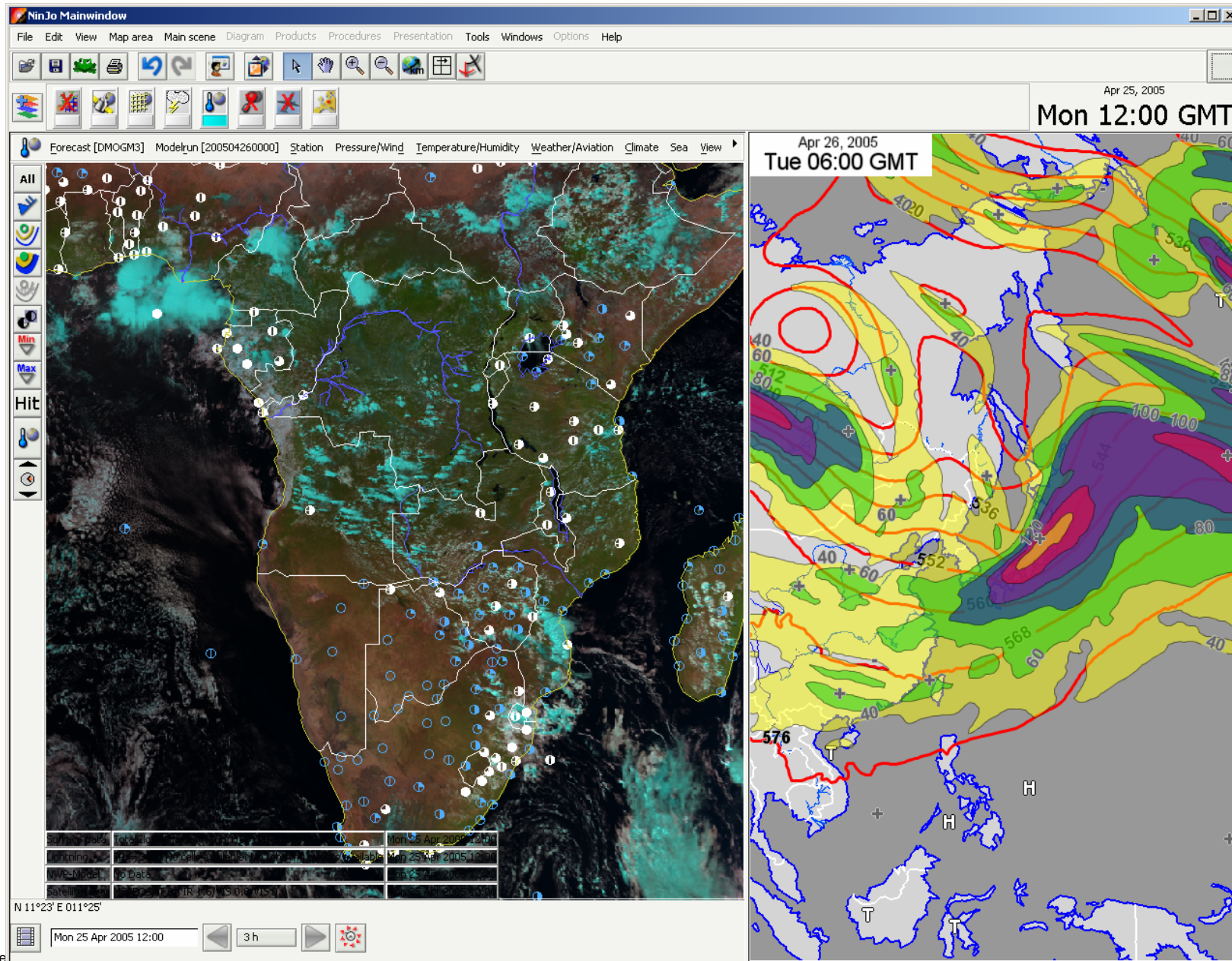


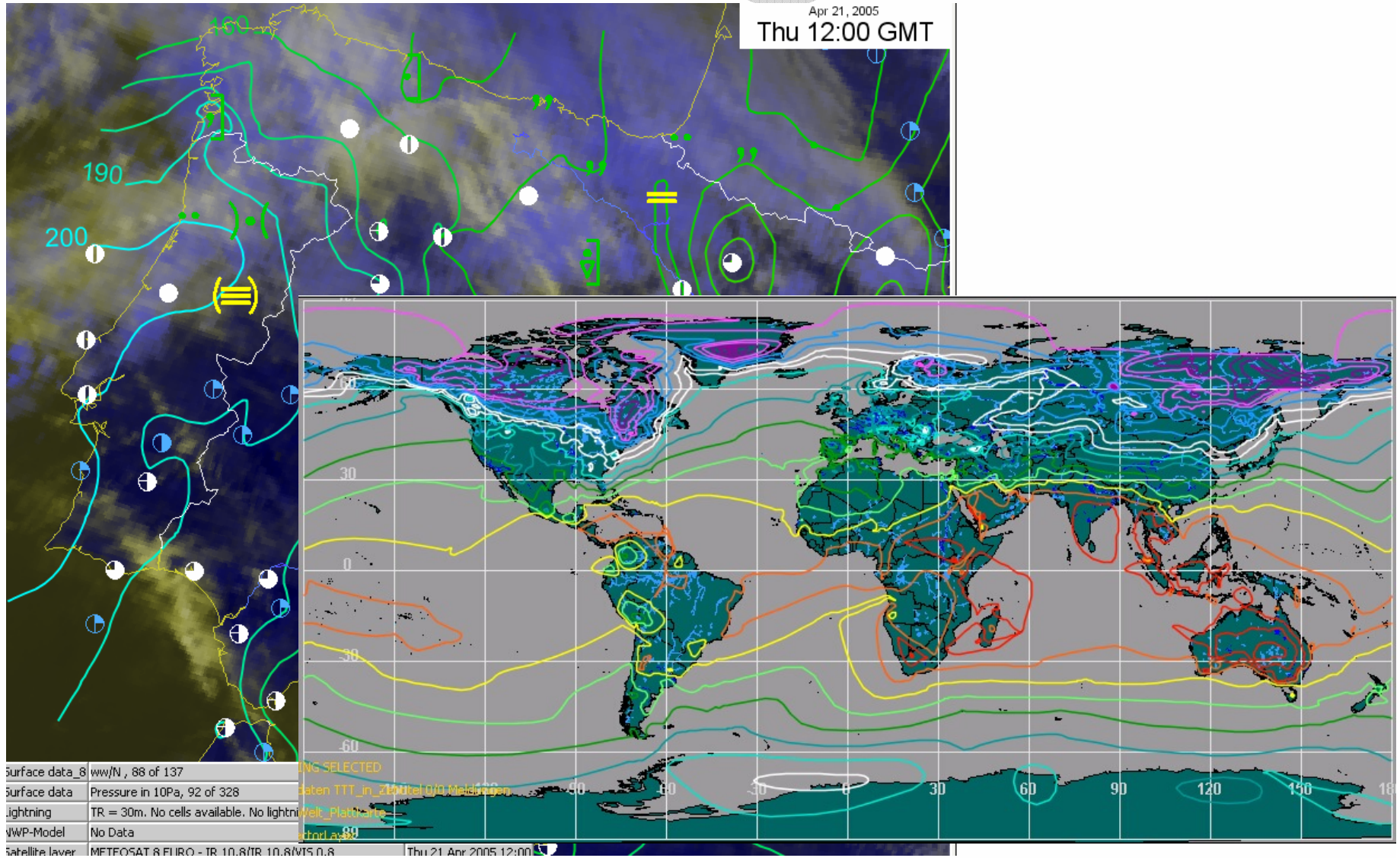
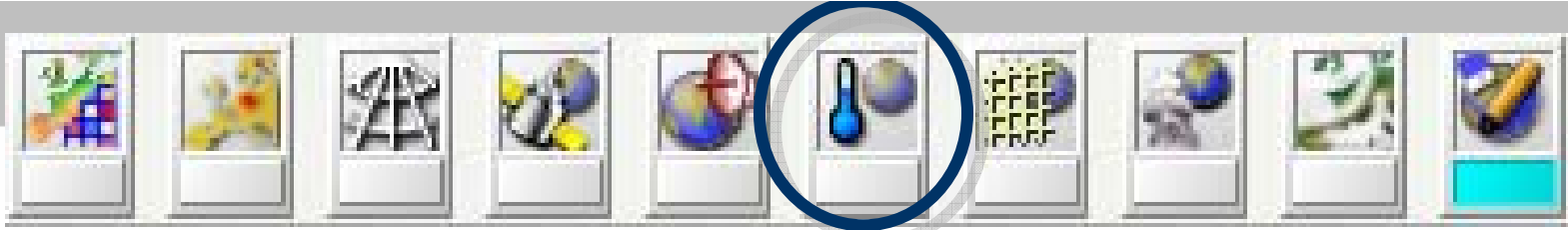
Surface Layer

- Displays surface observations
- analysis based on triangulation
 - Won't miss extremes
- Sorting algorithms
 - Min/Max only
 - rating
 - Later: formula support
 - Hit lists
- Original bulletin (left clicking on Station)



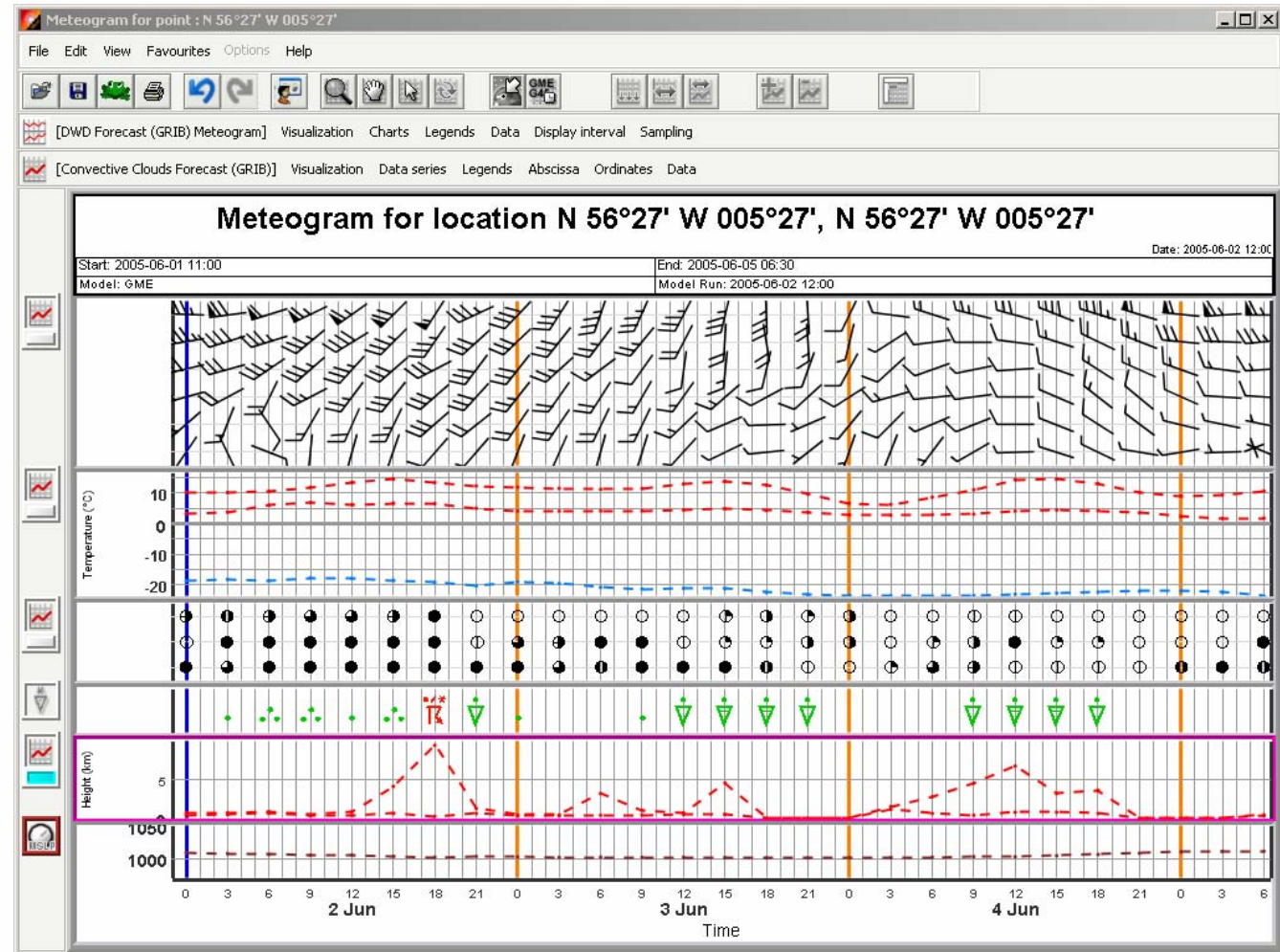
Surface Layer





Meteograms display

- Surface Observations
- Statistically processed Point forecasts
- GRIB parameters of available models
- Highly configurable

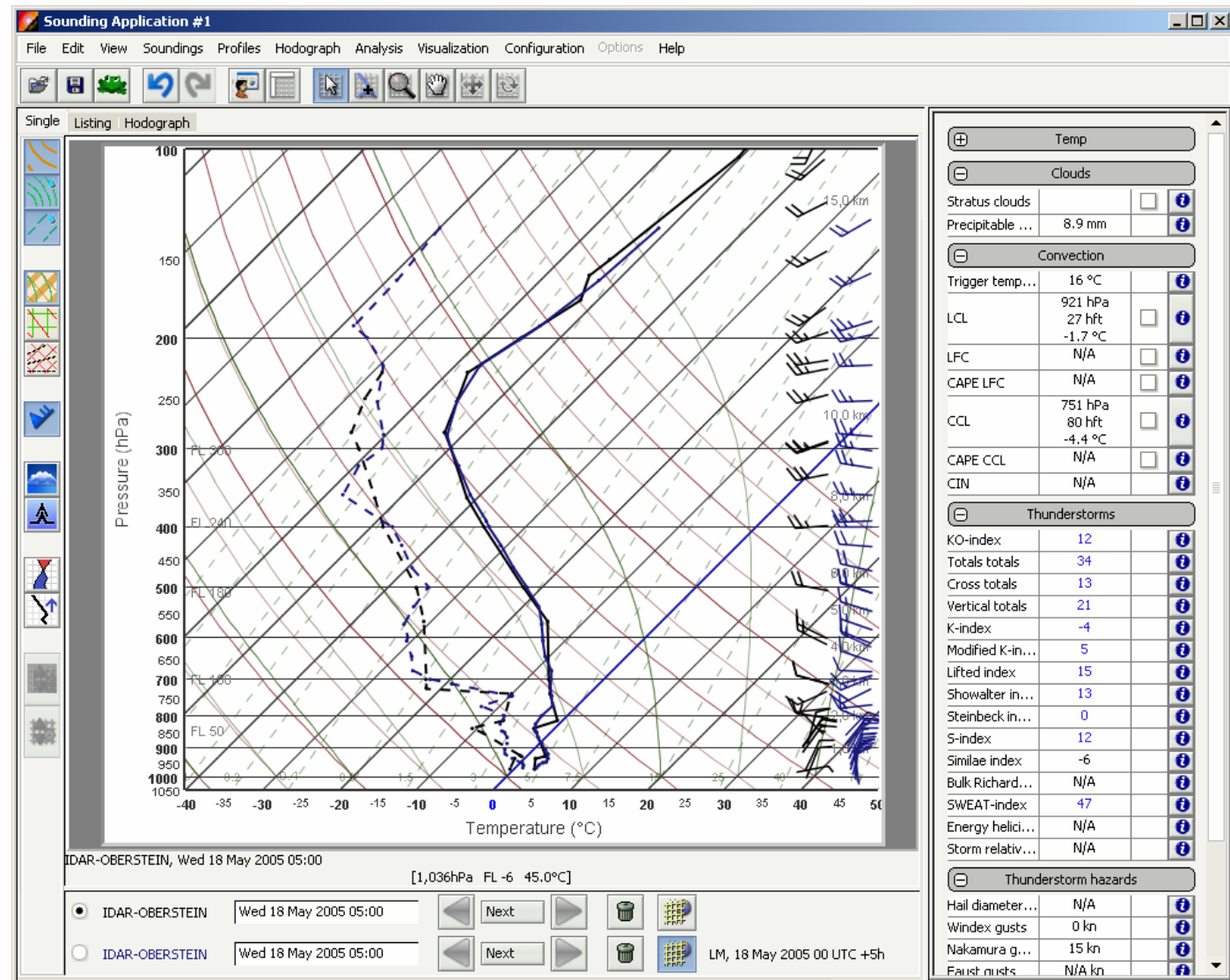


Meteogram of DWD's global model GME

Aerological Diagrams



- Multiple soundings in one diagram or multiple diagrams
 - Profile view
- Table View
- Hodograph
- Many algorithms available
- Both observation and model

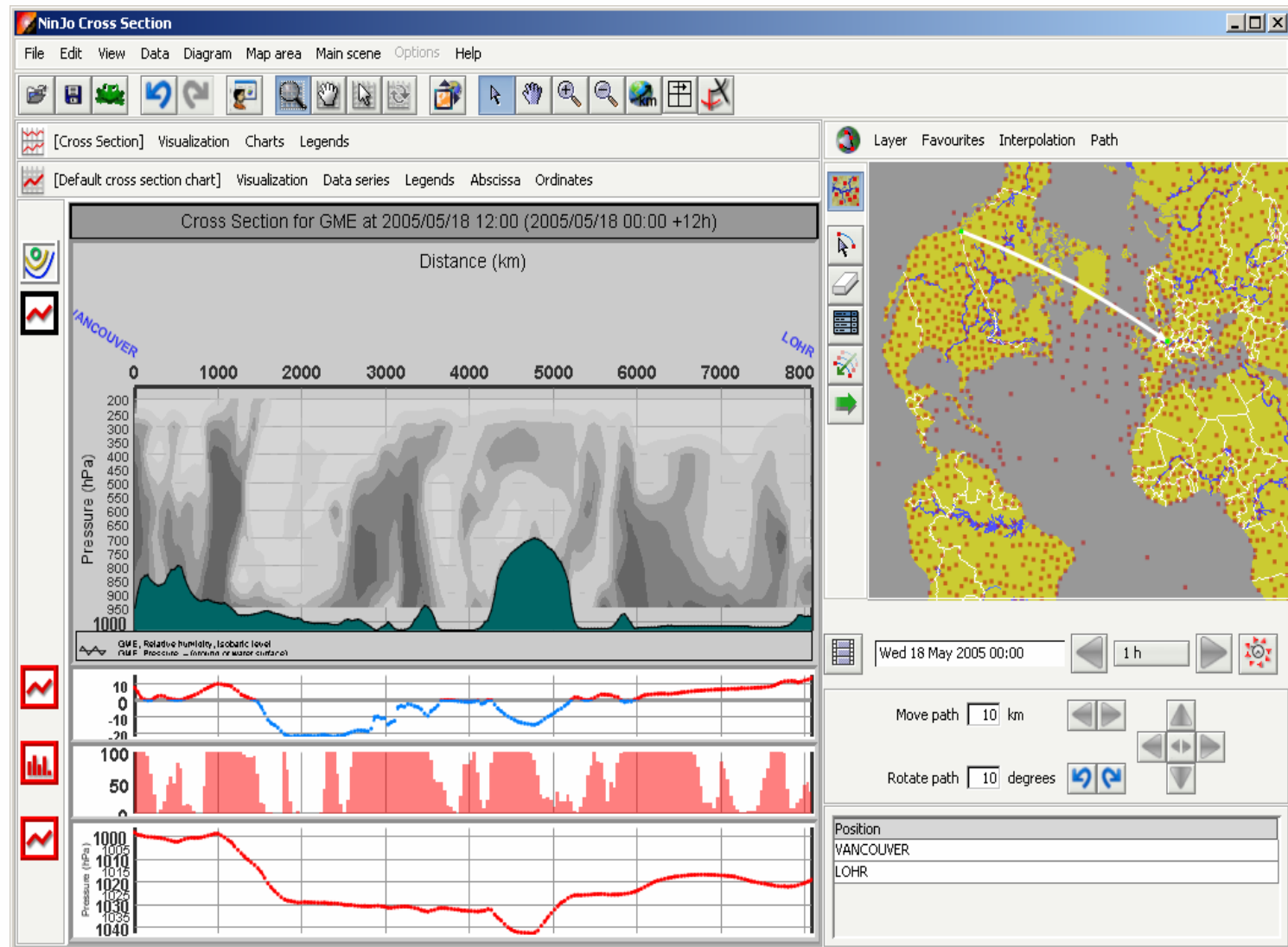


Sounding diagram with observation and model profile

Cross Sections



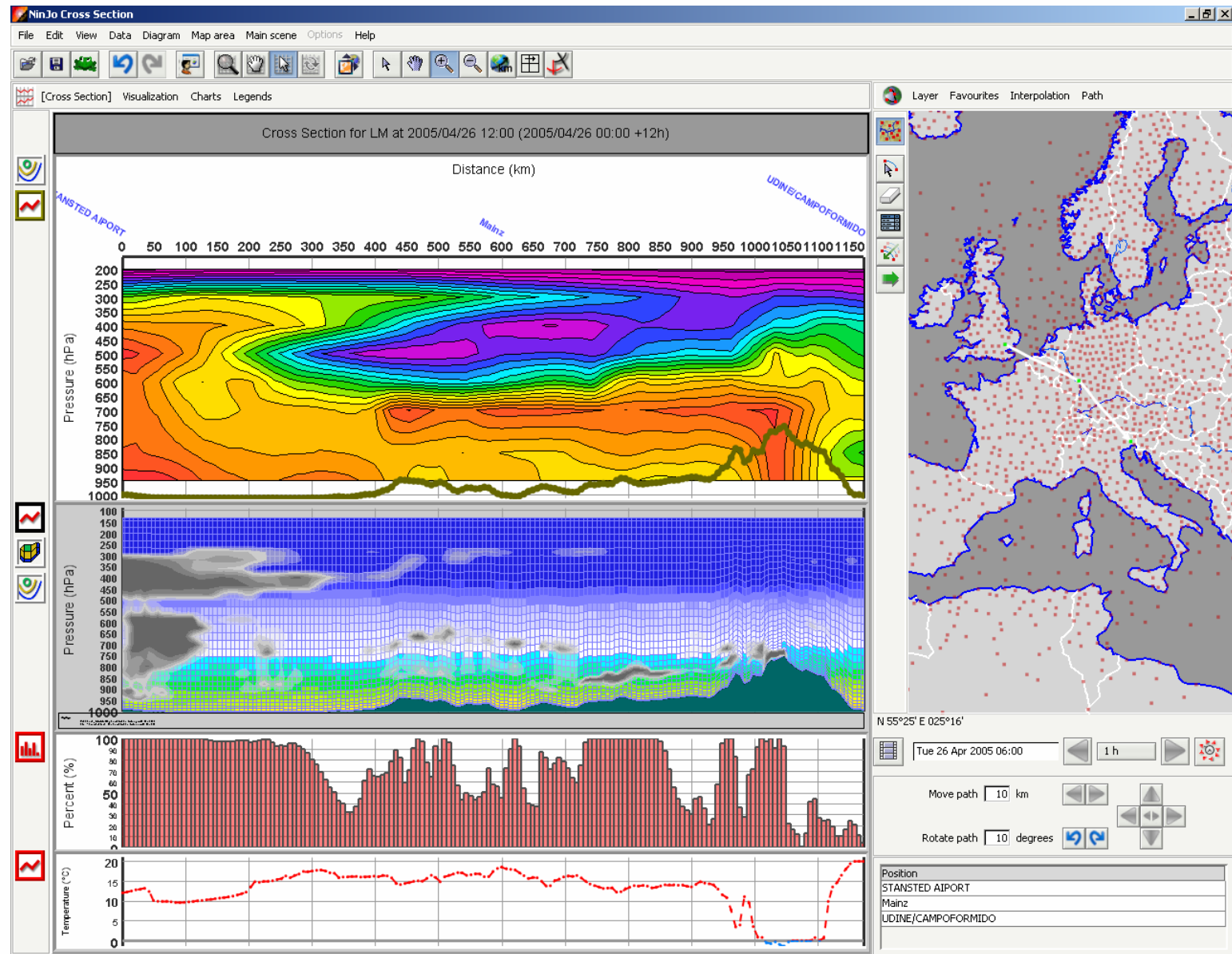
- Work both with model and p-levels
- Relatively Fast
- Channels and time cross section



Cross Sections



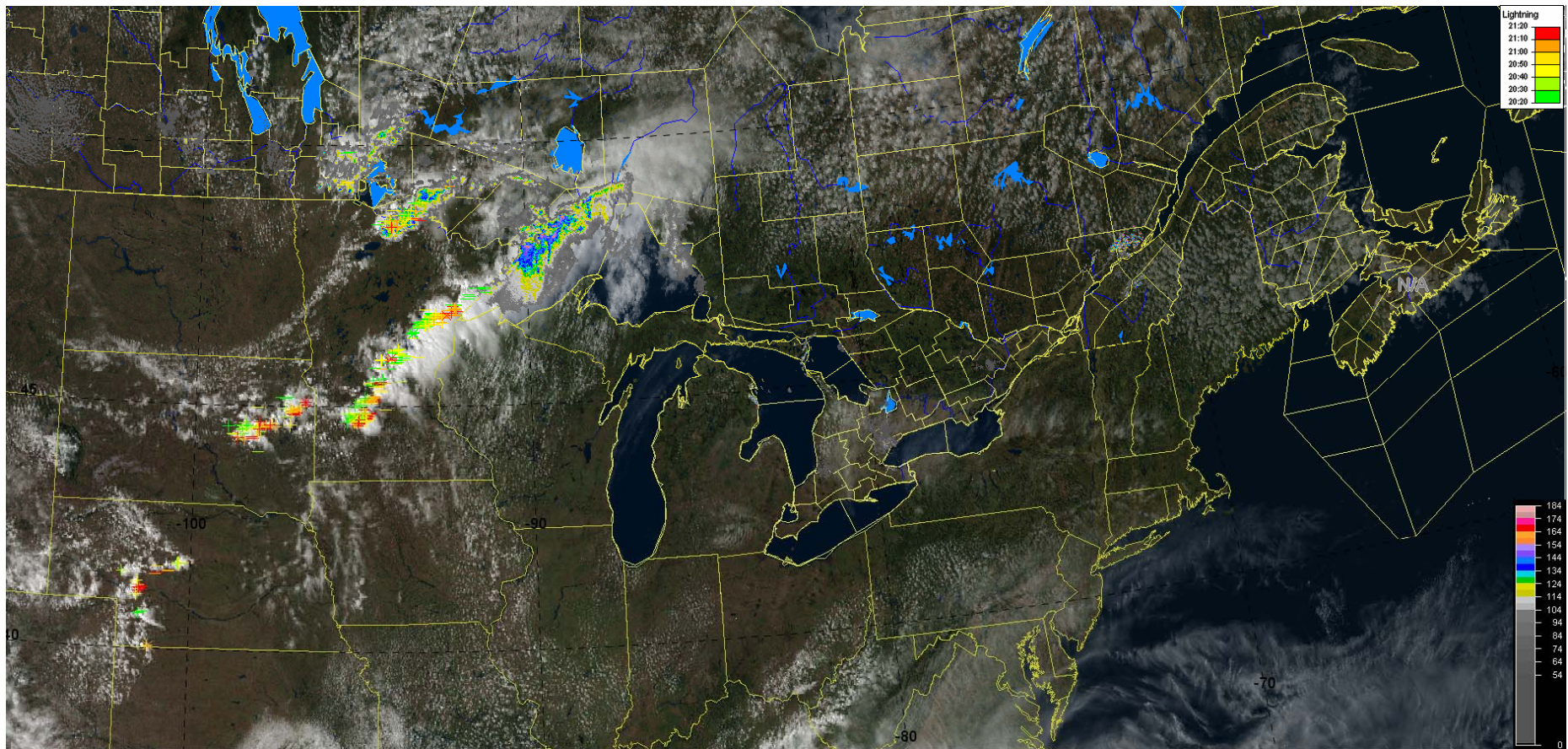
- Work both with model and p-levels
- Relatively Fast
- Channels and time cross section





Radar Layer

- Handles cartesian and polar radar data
- Single radar drill down, single cell drill down

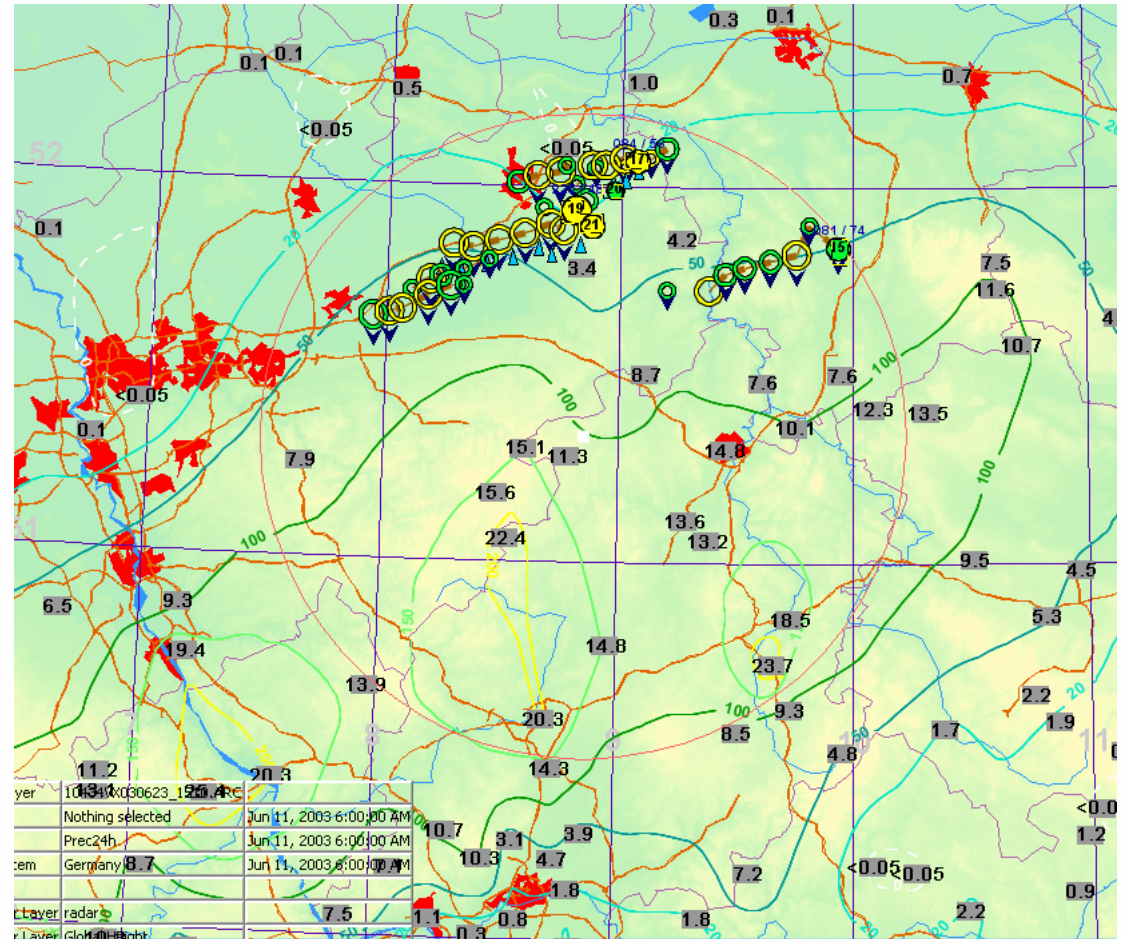




SCIT - Layer

Storm Cell Identification and Tracking

- Displays the output of cell based radar algorithms
 - tracks
 - properties
 - treated as point data
- In NinJo 1.1
 - Konrad-Composite DWD
 - MSC SCIT
 - Meteosuisse-TRT,
 - (SAF RDT product)
 - Table view

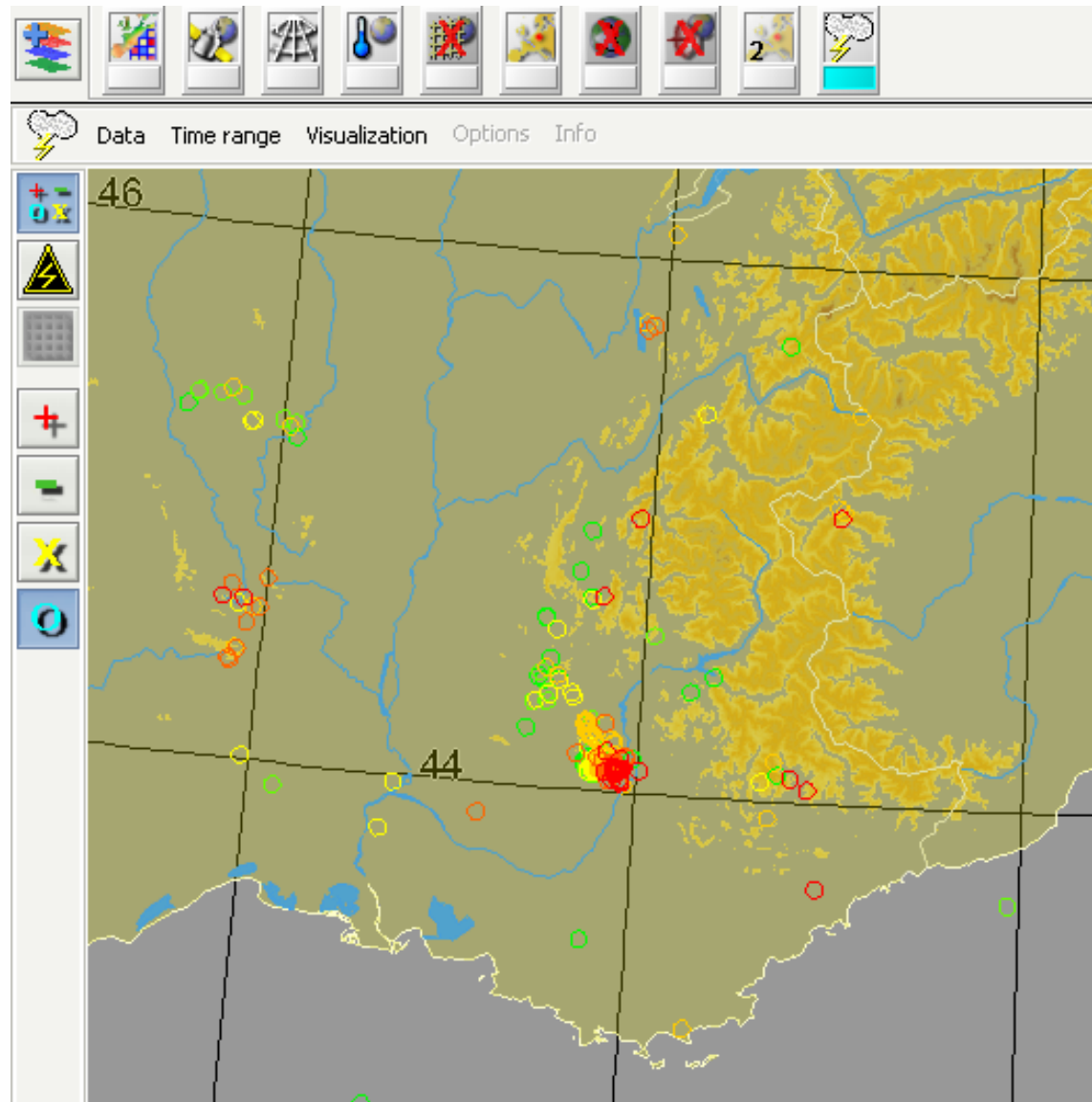


Konrad and Synop-Precipitation incl. Analysis

Lightning Layer



- Several lightning detection systems implemented
- Different time ranges and visualizations available





Satellite Layer

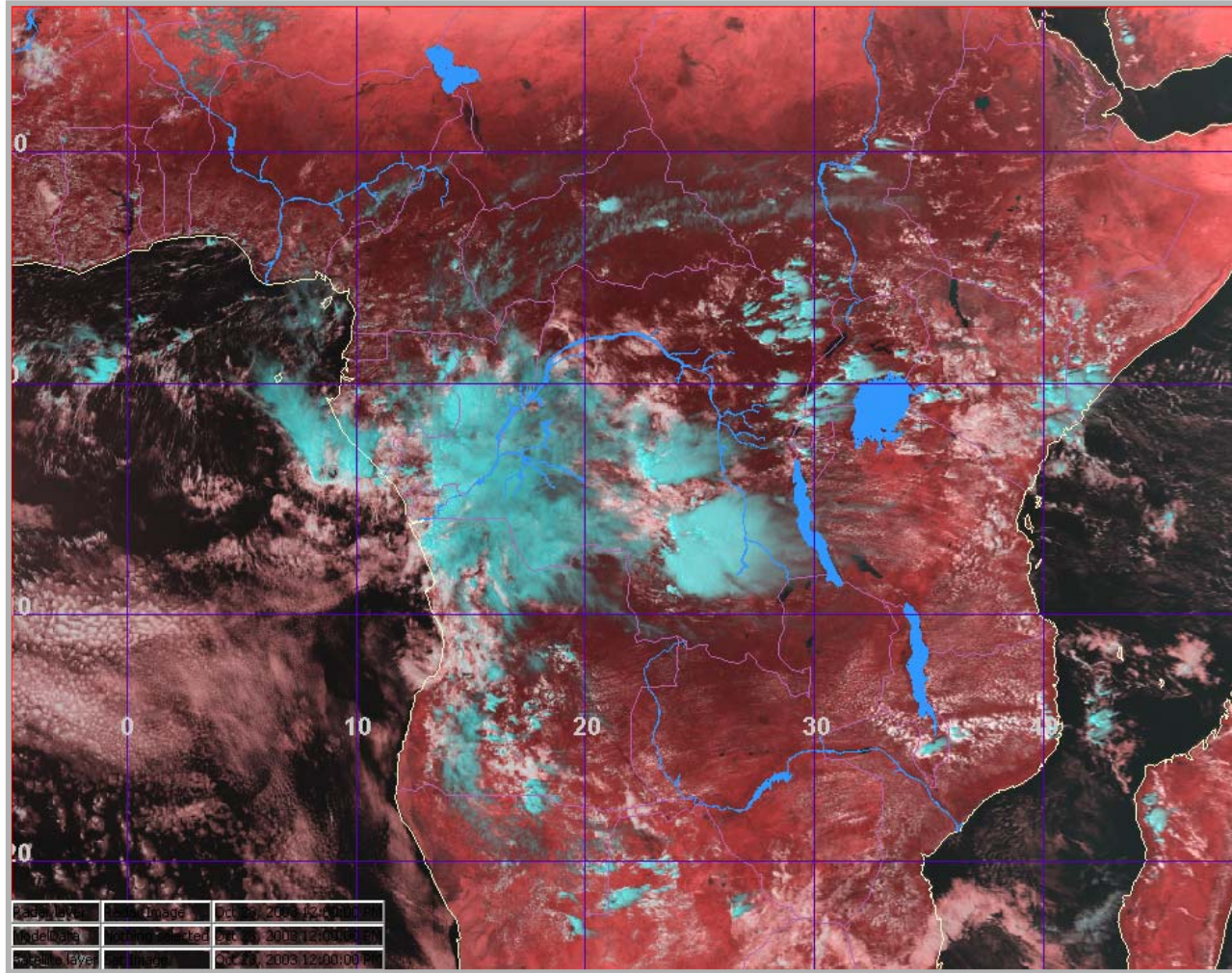
- All geostationary satellites including MSG
- Polar Orbiters
- Mosaic
- Color scheme editor
- Base data stored in multi-resolution-multi-tile-Geotiffs

Wählen Sie die darzustellenden Daten aus

Termine	Kanal	Farbkomposit
Wed Nov 24 06:27:00 UTC 2004 (NOAA 15)	IR 12.0	
Wed Nov 24 05:38:00 UTC 2004 (NOAA 12)	VIS 0.6	
Wed Nov 24 04:47:00 UTC 2004 (NOAA 15)	VIS 0.8	
Wed Nov 24 03:58:00 UTC 2004 (NOAA 12)	IR 1.6	
Wed Nov 24 03:03:00 UTC 2004 (NOAA 16)	IR 3.9	
Wed Nov 24 01:22:00 UTC 2004 (NOAA 16)	IR 10.8	
Tue Nov 23 22:17:00 UTC 2004 (NOAA 17)		
Tue Nov 23 20:36:00 UTC 2004 (NOAA 17)		
Tue Nov 23 18:58:00 UTC 2004 (NOAA 17)		
Tue Nov 23 18:17:00 UTC 2004 (NOAA 15)		
Tue Nov 23 17:30:00 UTC 2004 (NOAA 12)		
Tue Nov 23 16:36:00 UTC 2004 (NOAA 15)		
Tue Nov 23 15:47:00 UTC 2004 (NOAA 12)		
Tue Nov 23 14:58:00 UTC 2004 (NOAA 15)		

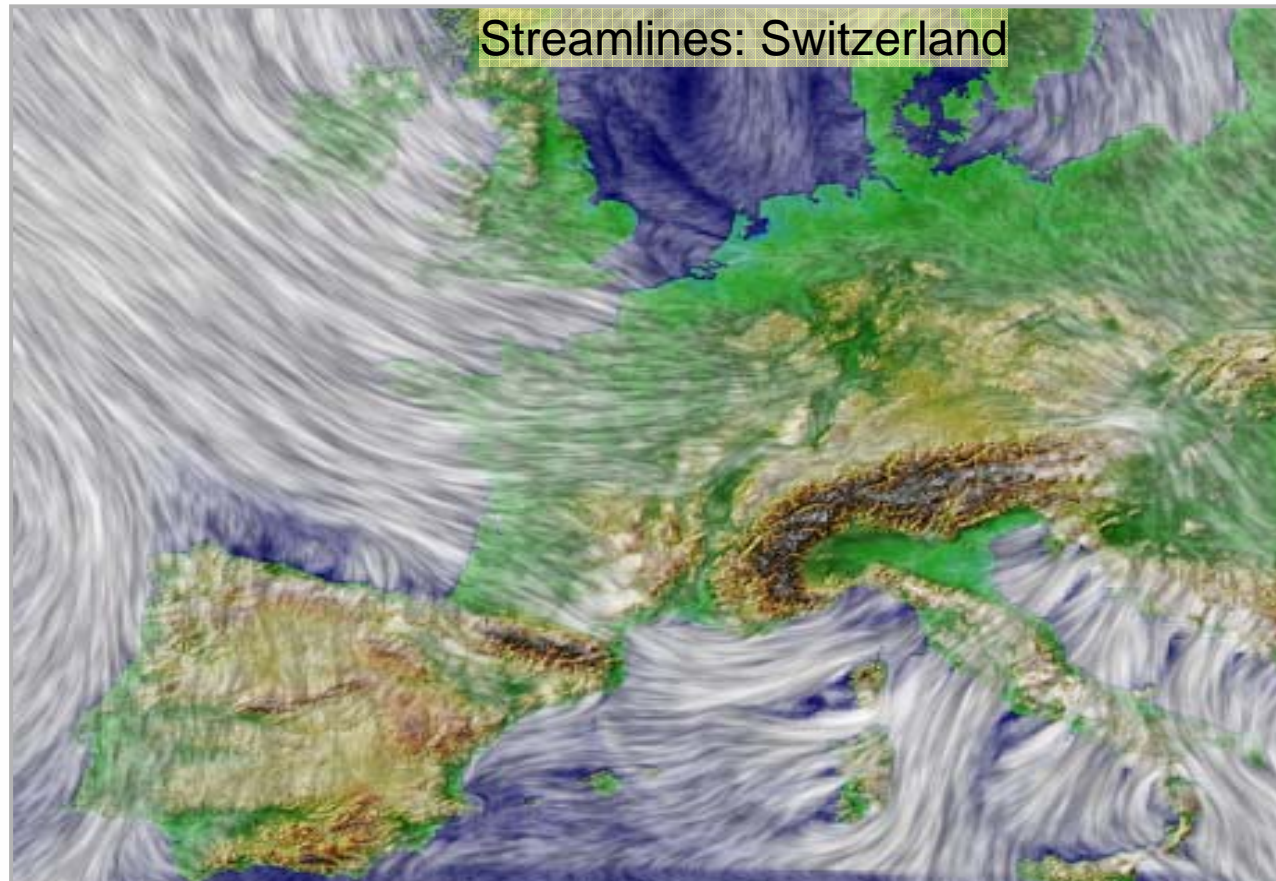


Satellite Layer

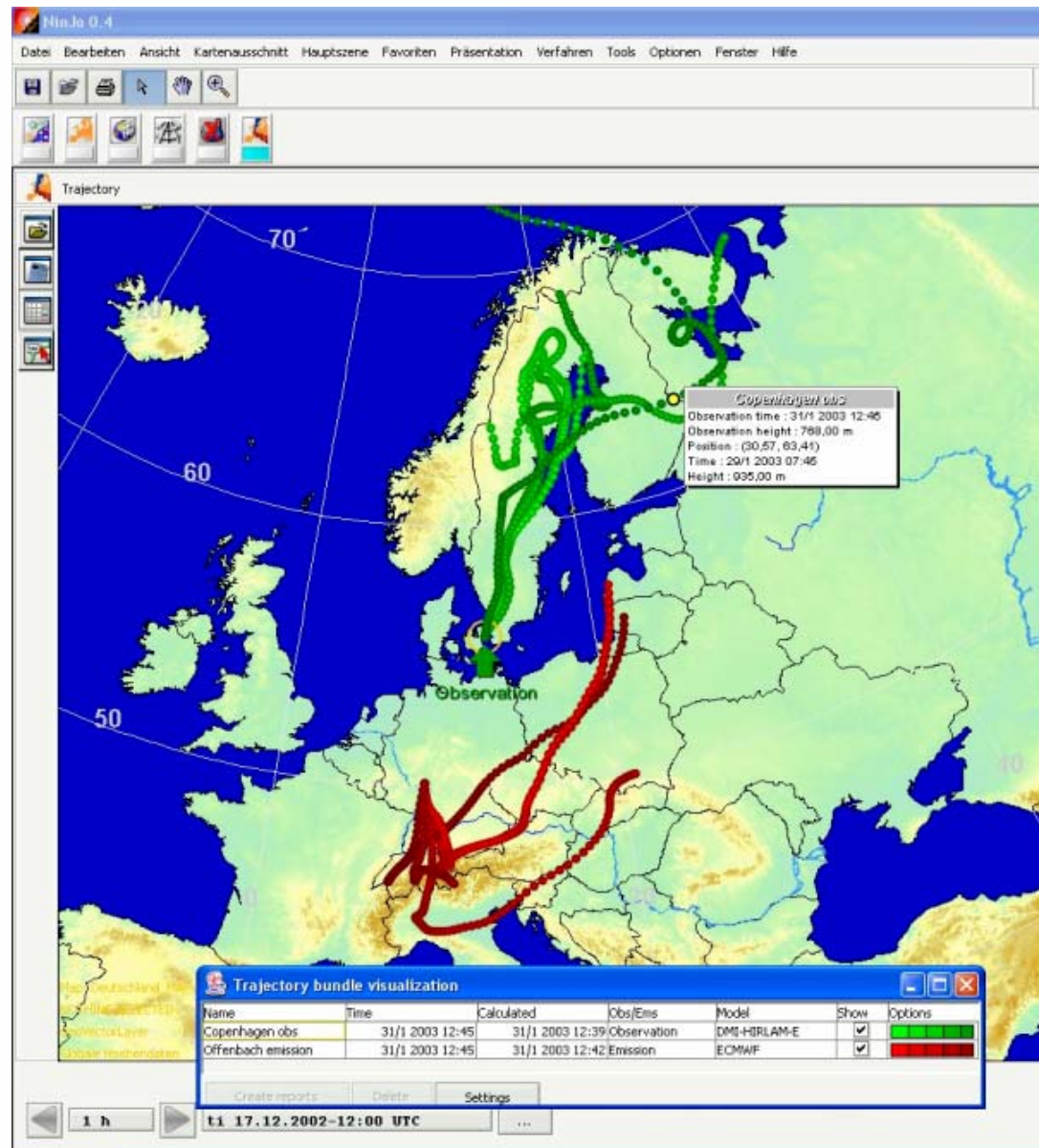


MSG 3 channel composite , Mercator

Prototype: Streamlines



Prototype: Trajectories

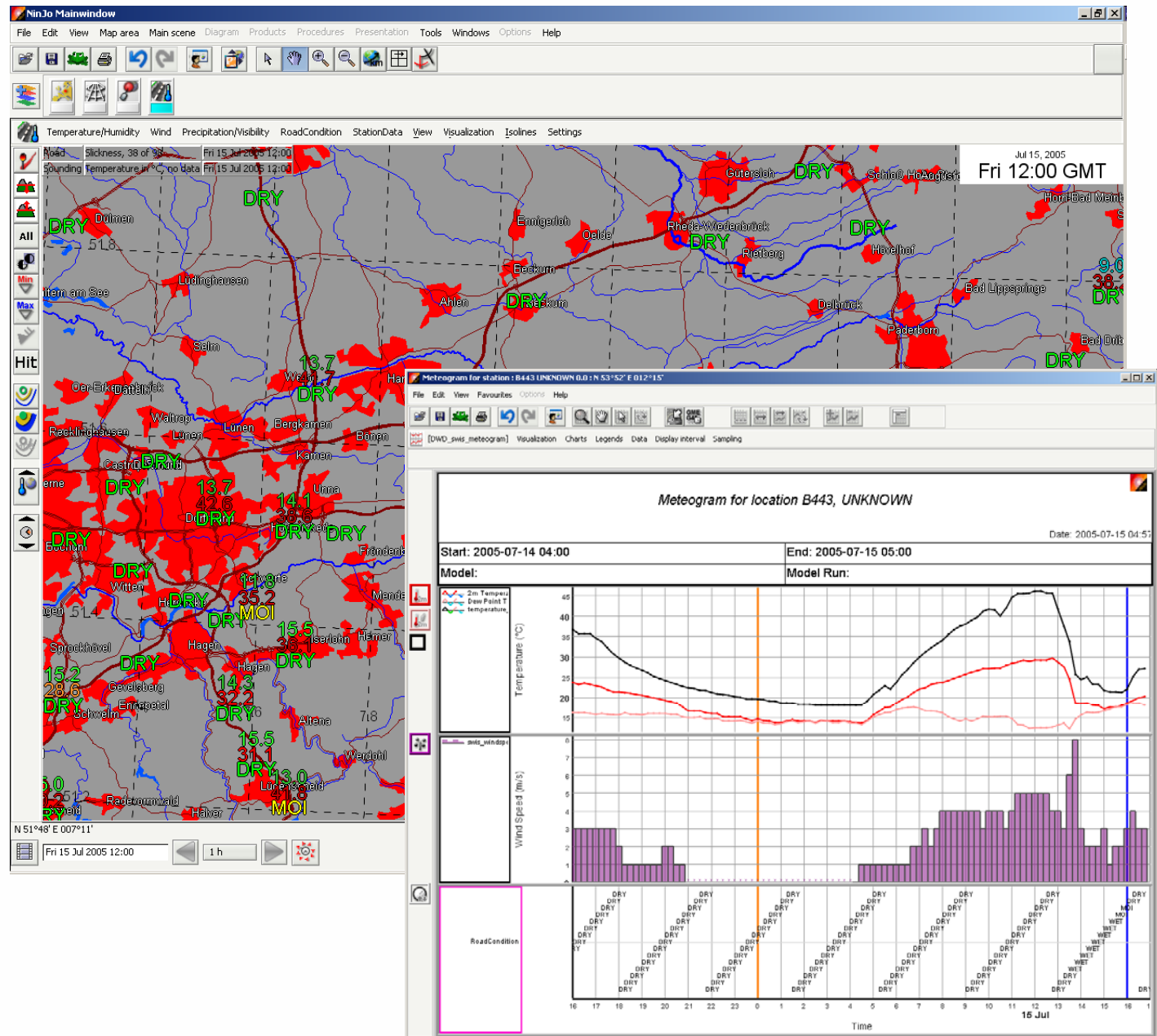


Prototype: Road Weather Information system



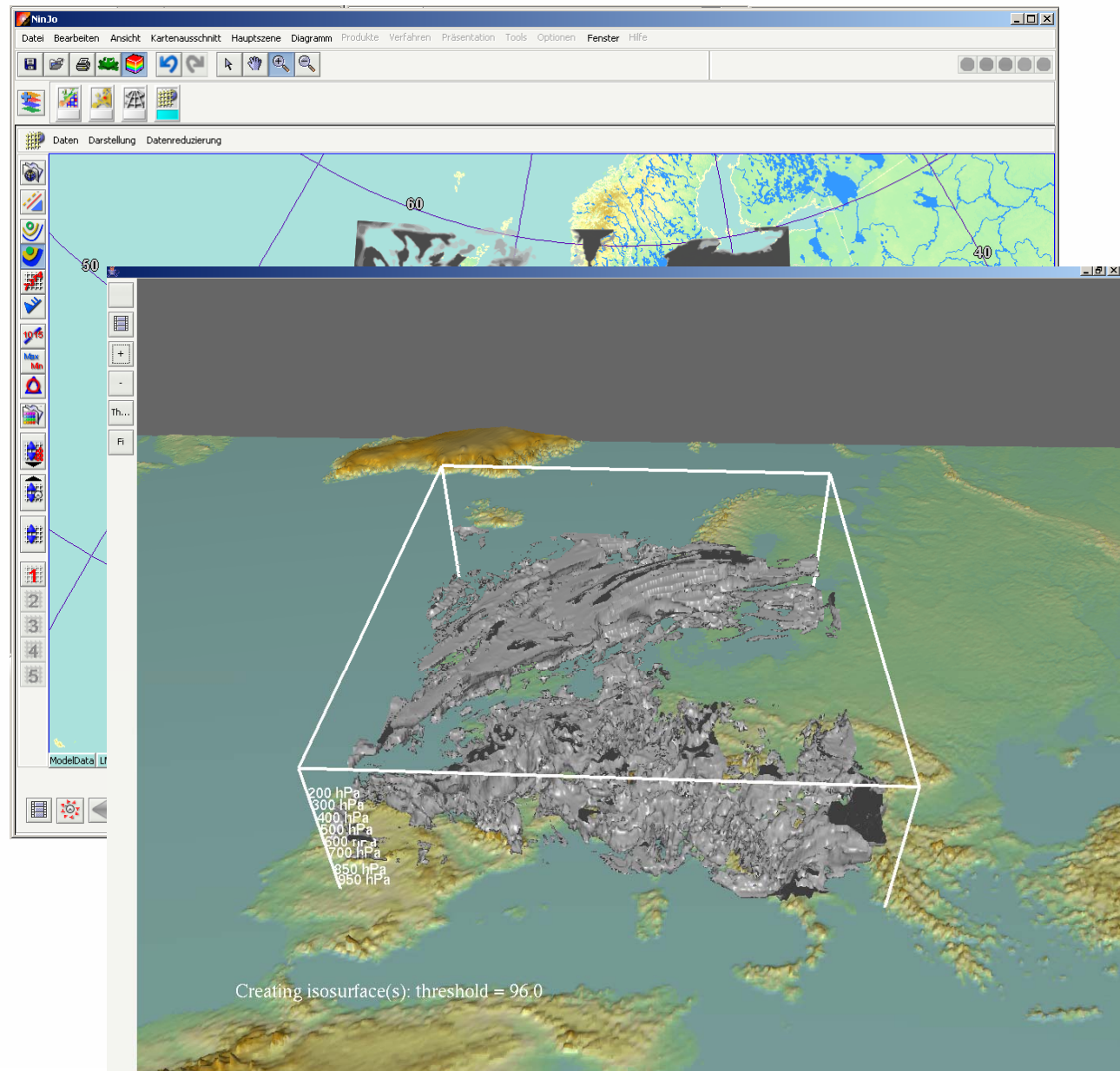
Road weather

- Layers and Meteograms



Instant 3D

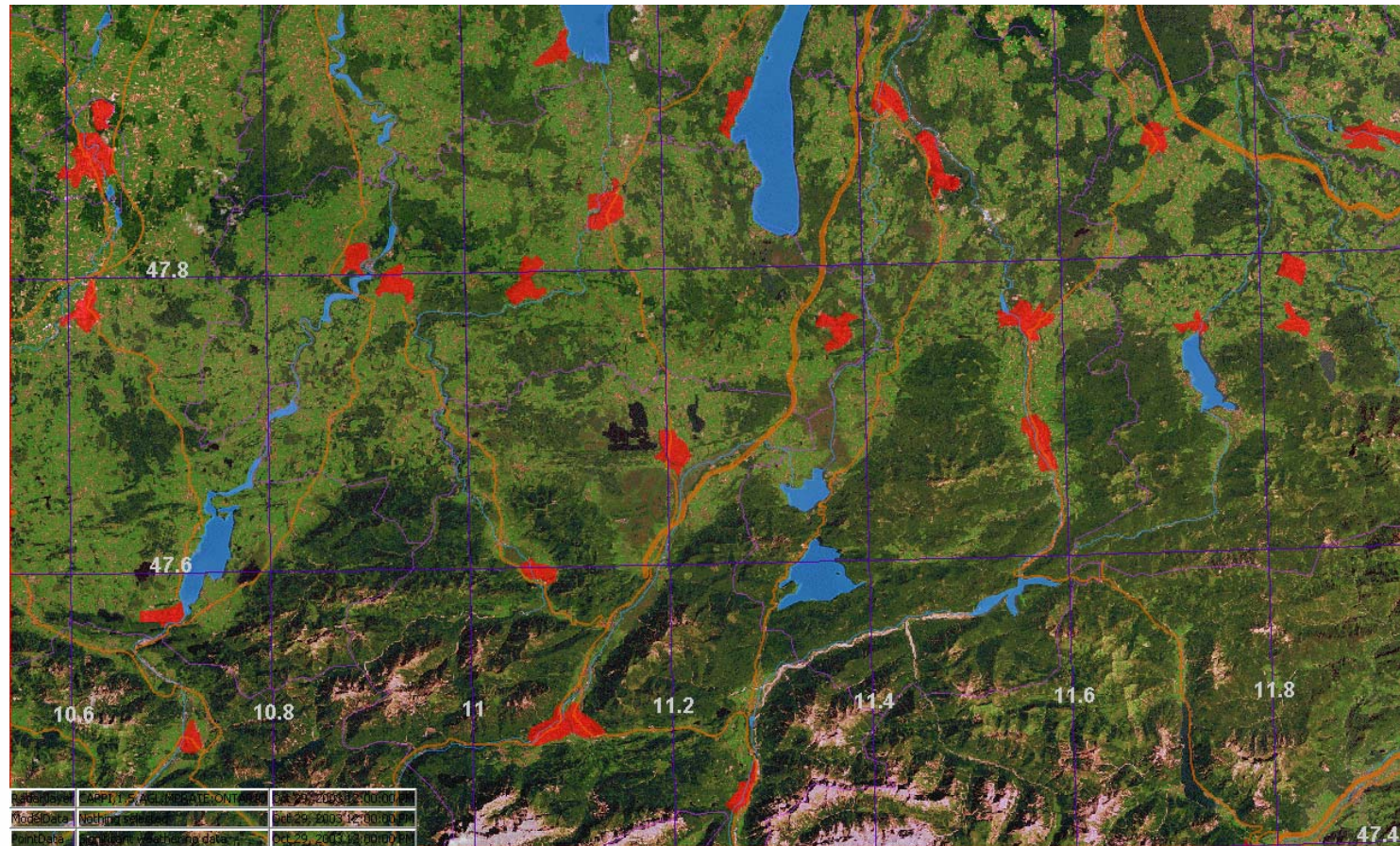
- First prototype
- automated mapping of 2D-Parameters on a 3D-Scene





Georaster

- Based on multi resolution - multi tile Geotiff imagery
- Data ranges from elevation data to street maps or aerial photographs
- Data is static.
- High quality data mostly not available for free

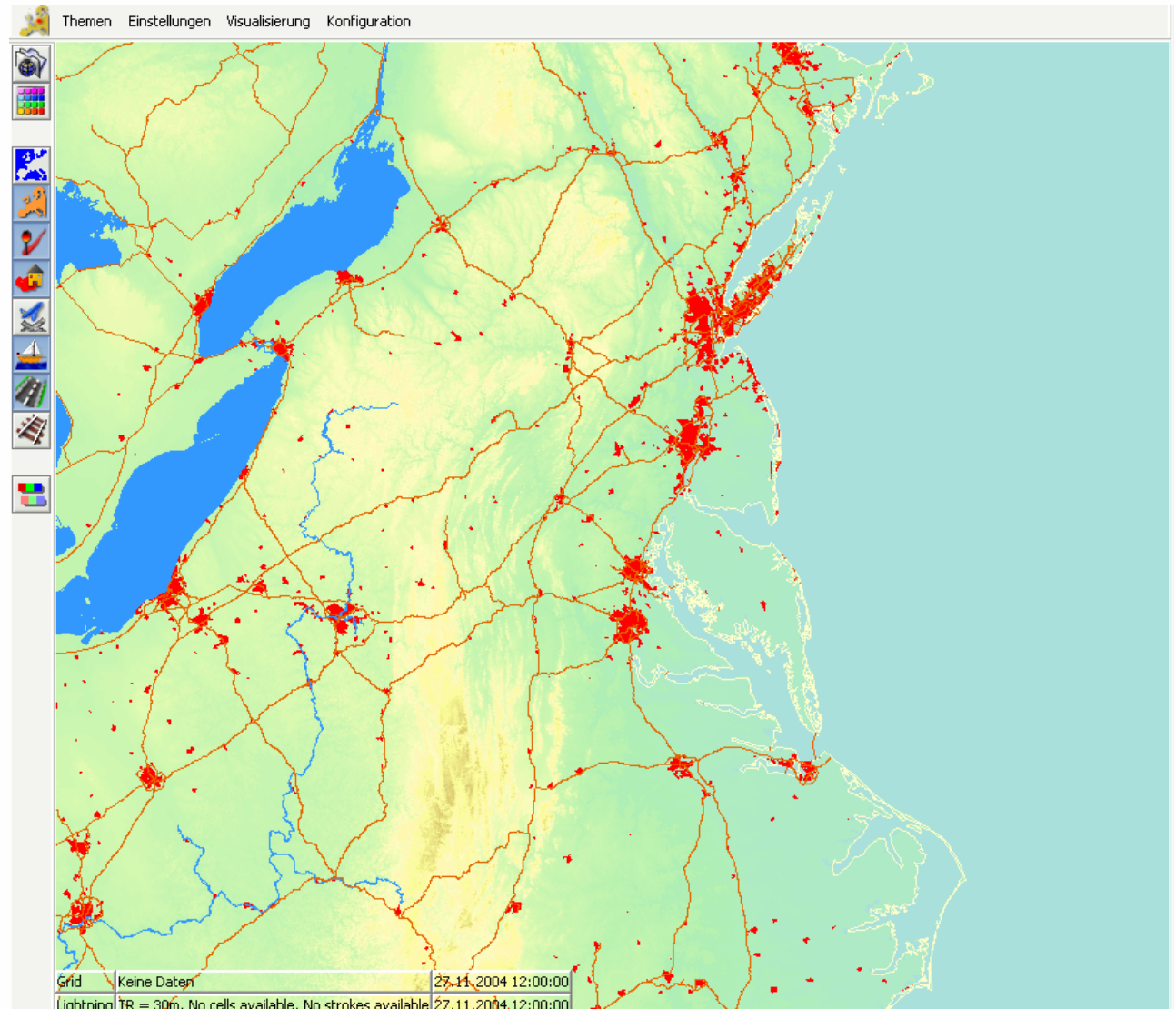


Landsat (50m Resolution), with geovector data



Geovector

- Vector based geo data.
- Data has different priority and accuracy
- Manual preprocessing based on shape files to create accuracy and priority hierarchy
- Depending on the scale of the map the most appropriate resolution and number of objects will be displayed
- Several themes provided: coastlines, rivers, borders, roads, airfields, FIRs...
- But high quality data usually comes from local mapping agency
- Static data set



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Overview

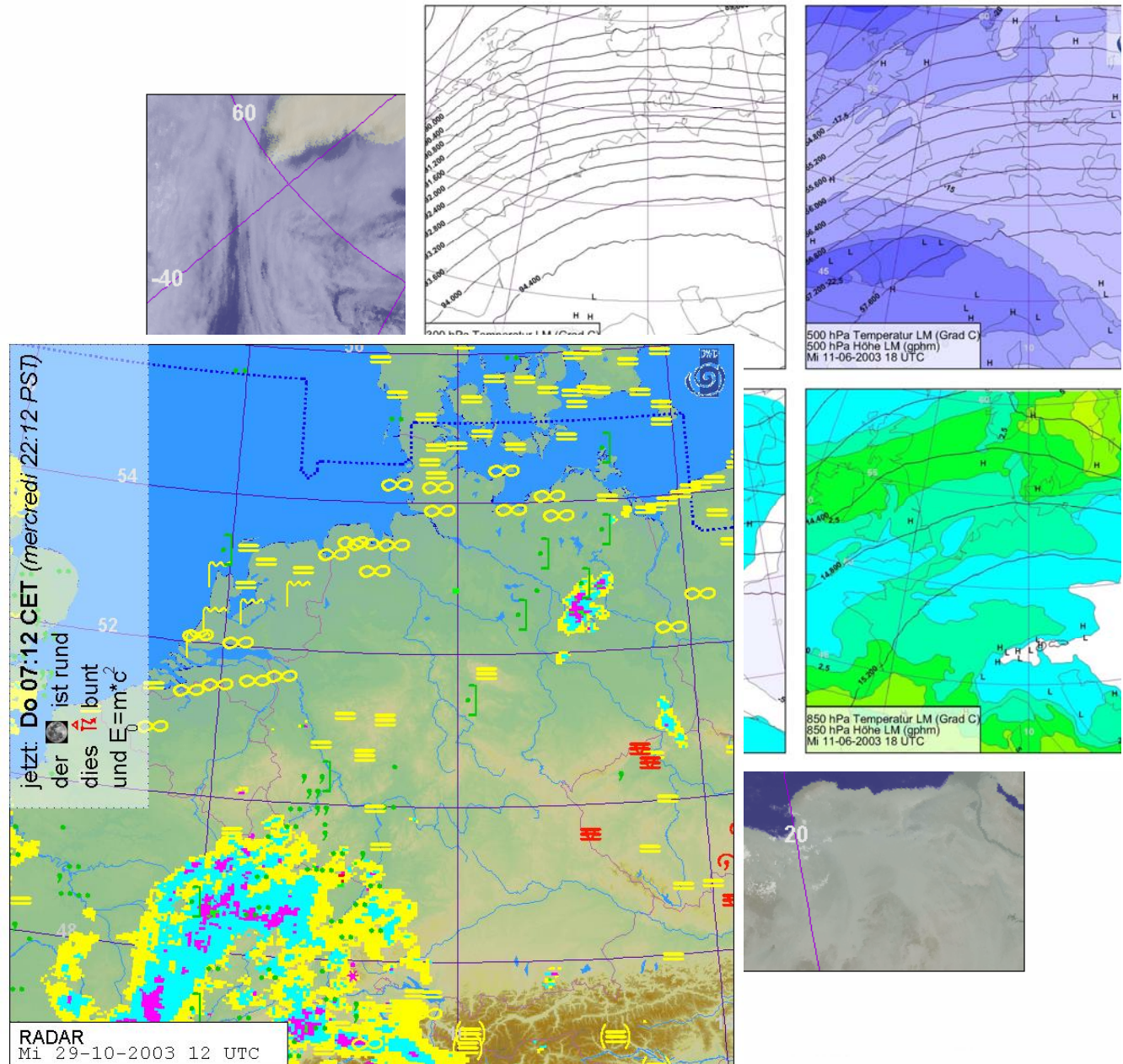
■ NinJo Batch

- NinJo Web Application Server
- NinJo Meteorological Object Layer
- NinJo On Screen Analysis
- NinJo Monitoring and Alerting (AutoMon)
- NinJo Warning Creation (EPM)
- NinJo Point Data Modification (MMO)

Prototype: NinJo Batch Production



- Image and vector products can be created
 - jpg, png, tiff...
 - PDF, SVG, FLASH, PS incl. Animations
- Flexible legend with html-style language
- ECMWF's SMS-based scheduling
- Sophisticated layout and NinJo scheduler
- Basis for application serving (NinJo 1.2)



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- **Graphics and text data produced by the NinJo BatchServer displayed with portlets**
 - Prerendered products
 - Interactively requested products

- **Simple clients show „Static“ products:**
 - RADAR and satellite images and movies
 - Standard prognostic charts and diagrams

- **Interactive clients should allow for**
 - toggling the visibility of data layers
 - zooming and panning
 - Selecting paths for cross sections on demand

Prototype: Web Application Server Example



NinJo Aviation Portlet

By clicking to one of the menu entries you can change to another topic. The selected topic will be marked with the appropriate symbol. To hide or view the subordinated menu entries you have to click at the appropriate symbol button.

- Images
 - Meteosat IR
 - Meteosat VIS
 - RADAR DL
 - RADAR EU
 - Lightning map EU
- Common weather maps
 - + Analysis
 - Soil forecast
 - Soil forecast with weather
- Height forecast
 - FL050
 - FL100
 - FL180

Area parameter

Continent: Country: City: Postal code:

Meteosat (infrared-spectrum)

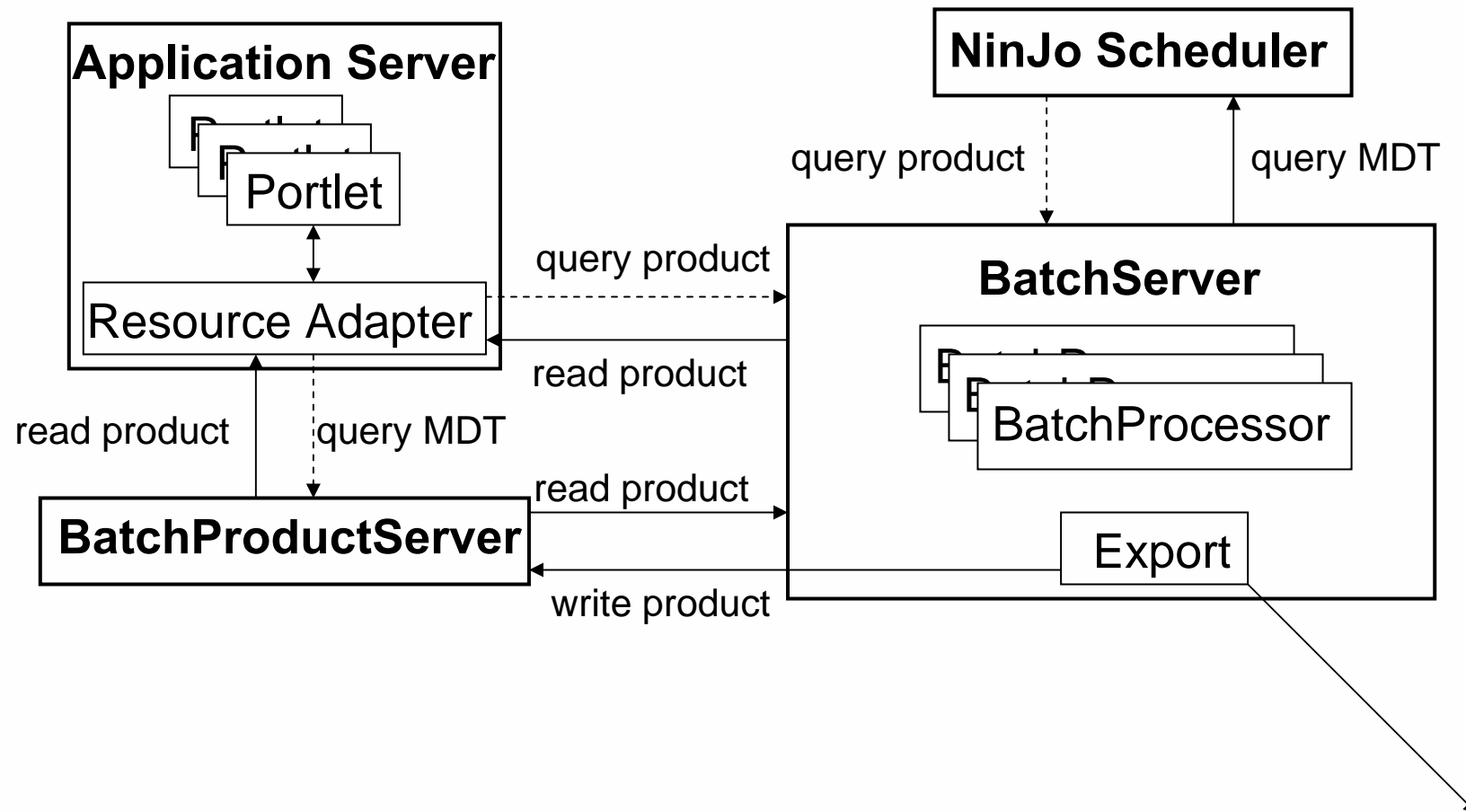
Jun 14, 2005
Thu 10:00 GMT

Time parameter

Date:

Time:

Web Application Server Architecture



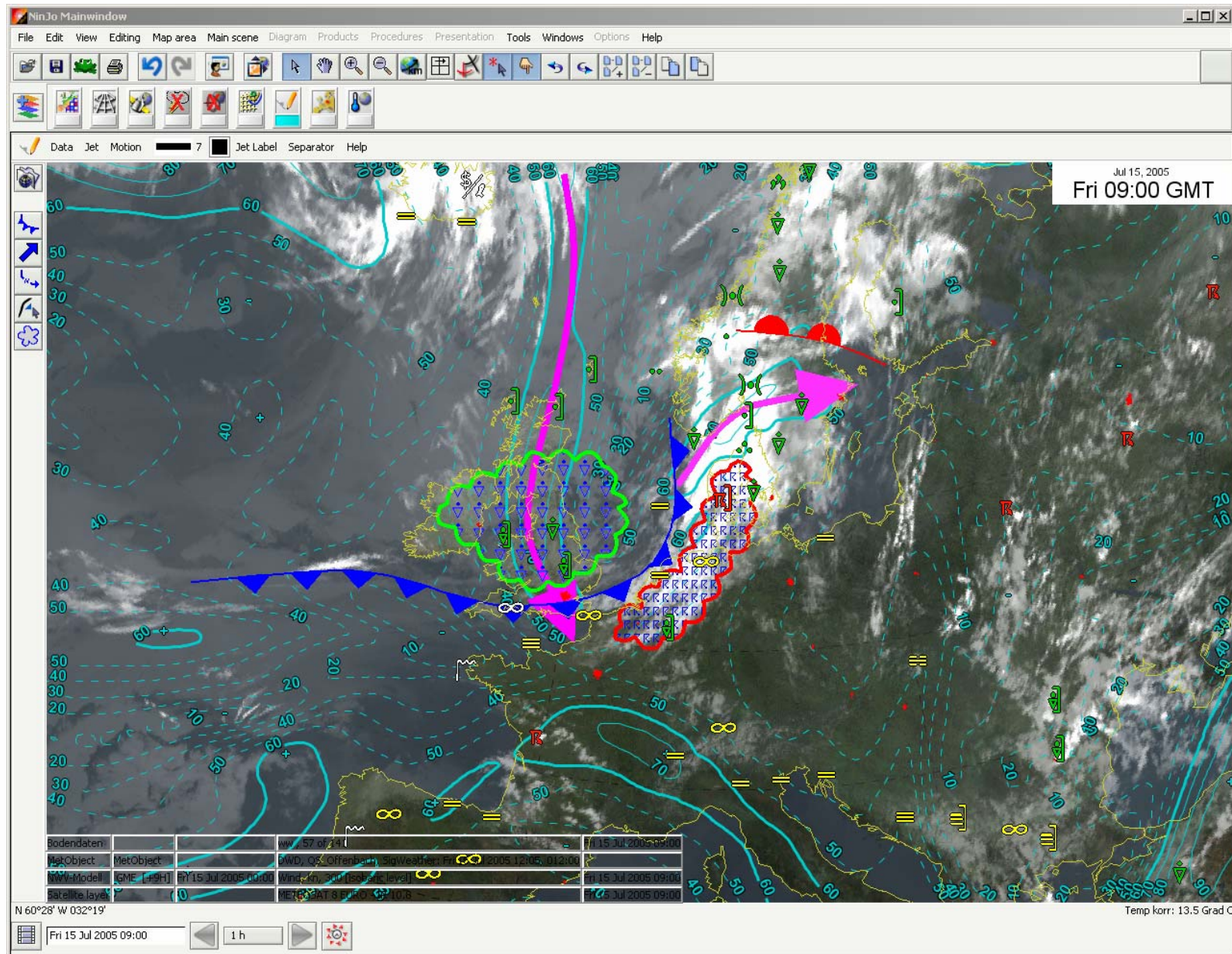
Overview

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Goals

- **Primary objective is the creation and modification of Graphical products**
- **Graphical products are made up of graphical meteorological objects**
 - **Objects can be created, deleted, moved and grouped**
- **Graphical objects are stored on servers and may be shared between products**
 - **even among weather offices**
- **Future direction: Multiple product generation from one instance of a graphic**
 - **The display of shared objects may differ (graphical attributes)**

Met Object Layer - Examples



Met Object Layer - Saving Objects



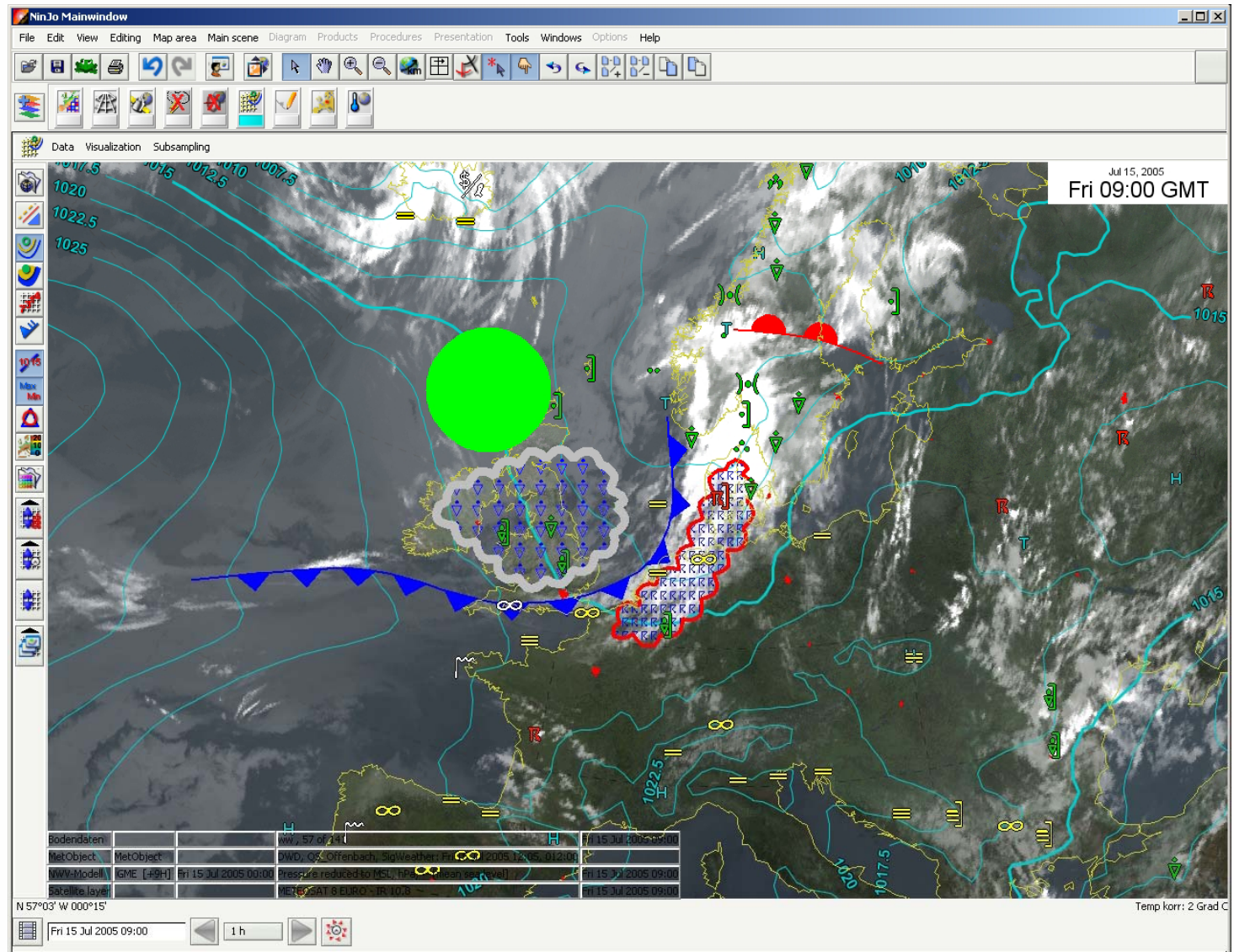
The screenshot shows the NinJo software interface. The main window displays a satellite weather map of Europe with various meteorological features overlaid, including a red jet stream arrow, a green cloud cluster, and blue front lines. A 'Load Data [MetObject]' dialog box is open on the right, allowing users to configure the loading of meteorological objects. The dialog includes several dropdown menus for Type, Origin Chart, Issue Time, Prognosis Step, Sub Type, Domain, Site, and Status. The 'Information' section indicates that 4 objects will be loaded. The bottom status bar shows the current time as 'Fri 15 Jul 2005 12:00' and a temperature of 'Temp korr: 5.5 Grad C'.

Bodendaten	ww, 76 of 160	Fri 15 Jul 2005 12:00
MetObject	DWD_QS_Offenbach_SigWeather_Fri 15 Jul 2005 12:22, 012:00	
WWV-Modell	No Data	
Satellite Layer	METEOSAT 8 - IR_10.4	Fri 15 Jul 2005 12:00

Met Object Layer - Editing Objects



- **Line features**
 - Fronts with symbols and movement
- **Isolines/areas**
- **Jet axes**
 - Jets with Jet line labels and hyphen
- **Frame area**
- **Hatched areas**
 - Raster and symbol hatching
- **Indexed Areas**
 - with borders , labels and legends
 - SWC's as the most complex case
- **Station plots**
 - Including icons and pictograms



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- **NinJo Point Data Modification (MMO)**

Modifying a model first guess to replace handish analysis

■ Situation:

- A map has to be drawn including fronts and other MetObjects
- The models analysis is used as a first guess

■ Modification

- Interaction is based on ingestion of point data
 - Actual observation are available
 - Bogus observations can be used as well
 - Observations will me merged with the first guess field
 - This approach is considered as the most natural approach by our forecasters
 - Modifications performed on a grid
 - Grid gets stored on servers and graphics handed over to the MOL

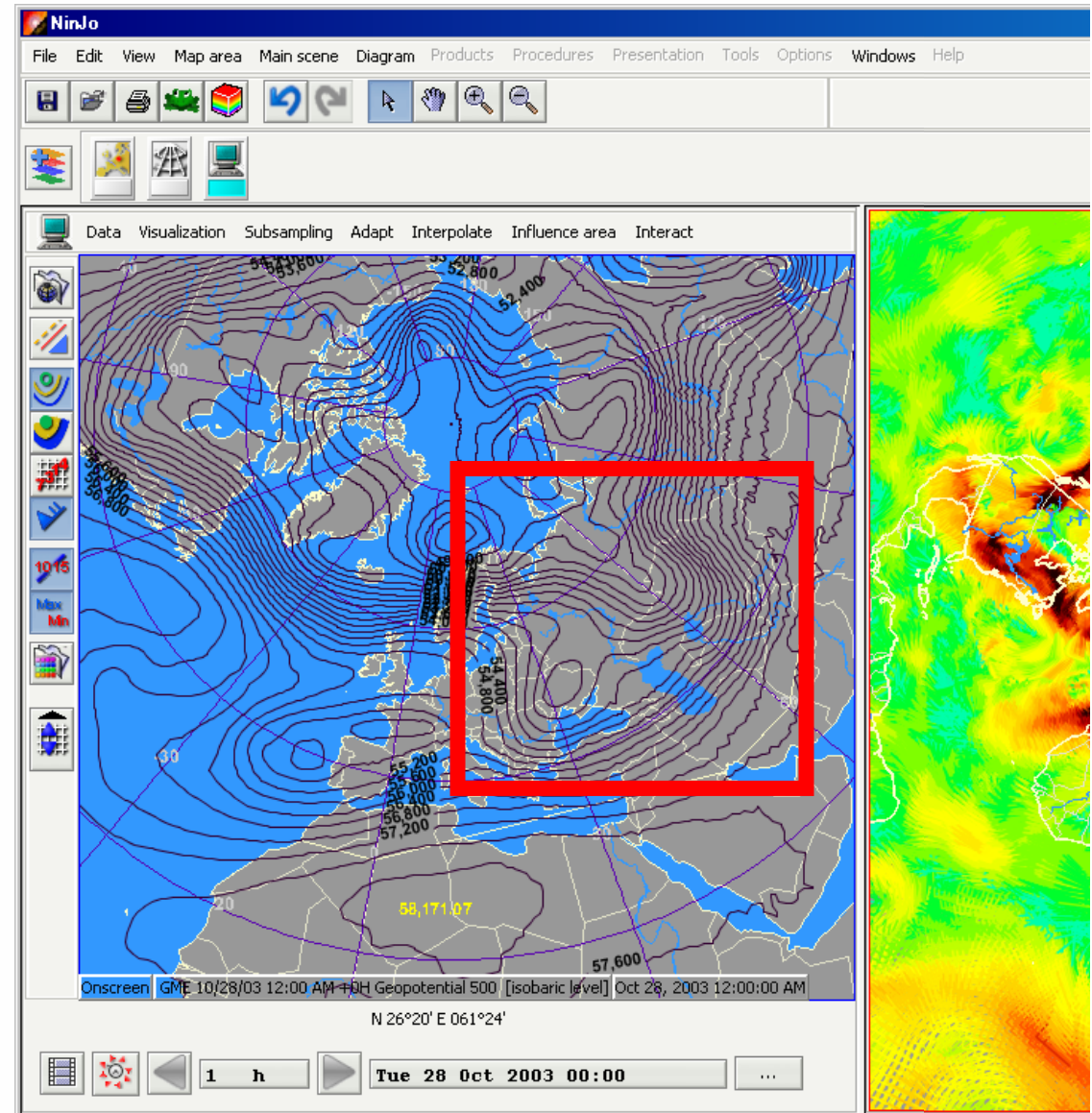
■ Beautifying of the modified field with the Met object layer

- The modified graphics will get “beautified” by bending of iso-lines, moving labels, adding front kinks...
- Results can be saved as vector or pixel graphics only

Prototype: On-Screen-Analysis



- **Modification of GRIB Fields**
- **Point Values**
 - inject values
 - force use of an individual or a set of observations
- **To be achieved: consistency in the vertical / with other parameters**



Overview

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AutoMON Objectives

- **Weather monitoring:** Direct support of the shift-working Forecaster working in warning service through permanent, automatic monitoring of current and forecasted significant weather events
 - **Quality monitoring:** Permanent monitoring of the quality of model forecasts and issued products, i.e. the continuous monitoring of deviations from observations
 - **Alerting:** The Forecaster is alerted when significant events occur and may react appropriately (e.g. by issuing a weather warning)
- ⇒ Help forecaster to cope with enormous amount of data available, filter out relevant information for forecast and warning process

AutoMON: Automatic Monitoring and Alerting



Warning Indicators

- Permanently monitors incoming observational-, radar-, lightning-, and model data
- Alerting based on thresholds, rules, and combinations of thresholds for configurable areas
- Status: operational in NinJo 1.1

Kriterium	Klasse	Station	Parameter, Datent...	Wert	Gebiet	Meldungszeit	Eintreffzeit	...
☹ Sichtweite unter 150m	Sichtweite	10557 NEUHAUS A.R.	VV, synop (fm12)	10.0 m	Sonneberg, Thüringen	11.11.05 11:00:00	11.11.05 11:00:30	---
☹ Sichtweite unter 150m	Sichtweite	10544 WASSERKU...	VV, synop (fm12)	0.0 m	Fulda, Kassel, Hessen	11.11.05 11:00:00	11.11.05 11:00:29	---
☹ Windböen	Wind	10578 FICHELBERG	FX, synop (fm12)	54.0 km/h	Annaberg, Chemnitz, Sachsen	11.11.05 11:00:00	11.11.05 11:00:29	---
☹ Sichtweite unter 150m	Sichtweite	10427 K.ASTEN	VV, synop (fm12)	0.0 m	Hochsauerlandkreis, Arnberg, Nordr...	11.11.05 11:00:00	11.11.05 11:00:29	---
☹ Windböen	Wind	10131 CUXHAVEN	FX, synop (fm12)	50.4 km/h	Cuxhaven, Lüneburg, Niedersachsen	11.11.05 11:00:00	11.11.05 11:00:29	---

The NinJo monitoring application with the possibility to set filters. Tabular and map based display of alerts.

Data Types Monitored

■ Weather Monitoring („Threshold Values“)

- Observational Data (e.g. SYNOP, METAR, SPECI, MREP, SWN, Lightning)
- Radar reflectivity and significant cells from SCIT/KONRAD cell tracking system
- Point Forecasts from statistically processed NWP model output (e.g. GME MOS), WarnMOS-Data (Spatial probabilities)
- Direct NWP gridpoint model output (e.g. LM, GME)

■ Quality Monitoring („Deviations Model – Reality“)

- Deviations between the current state of issued weather warnings and current observations
- Deviations between Point Forecasts from statistically processed NWP output and observations
- Deviations between synthetic satellite images from the Limited-Area Model LM and observed satellite images

AutoMON: Monitoring of current Warning Status



AutoMON Hauptfenster

Datei Bearbeiten Ansicht Ansicht Kartenausschnitt Hauptszene Favourit Optionen Hilfe

Ereignisse: 000004

WO WP WR QP QW QS

Ereignisdichte: 100% 50% 20%

Thema Wettermonitoring: WM Beobachtungen WM Punktvorhersage WM Radar

Thema Qualitätsmonitoring: QM Punktvorhersage QM Warnstatus QM SynSat

Klassen: Alle Gewitter Regen Wind

Kategorien: Alle Extreme Ereignisse Starke Ereignisse Markante Ereignisse Einfache Ereignisse

Höhenstufen: Alle -200 200-400 400-600 600-800 800-1000

Datentypen: Alle WM Beobachtung lightning metar profile

Anzeigezeitraum: Alle unbestätigten Ereignisse Unbestätigte Ereignisse der letzten 30 min. Ereignisse im folgenden Zeitraum: 1 h von: 08.08.2005 14:00:00 bis: 08.08.2005 16:00:00

Kriterium	Klasse	Station	Parameter, Dat...	Wert	Ge...	Meldungszeit	Eintreffzeit	Bemerkung
EPM: Warnung vor Windböen unzureichend!	METAR	10633 Wiesbaden	Wiesbaden RZ Offenbach	105 km/h	17:33:39	30.04. 1426		
EPM: Warnung vor Windböen unzureichend!	SYNOP	10637 Frankfurt/Rhein-Main	Frankfurt/M. RZ Offenbach	111 km/h	17:39:03	30.04. 1428		
EPM: Warnung vor Starkregen unzureichend!	SYNOP-AUT.	10635 Kl. Feldberg/Taunus	Hochtaunuskreis RZ Offenbach	20 mm in 1h	17:27:12	30.04. 1427		
EPM: Warnung vor Dauerregen unzureichend!	SYNOP-AUT.	10635 Kl. Feldberg/Taunus	Hochtaunuskreis RZ Offenbach	53 mm in 12h	16:22:22	30.04. 1425		

Konfiguration Ereignisse bestätigen

Activation and Assignment of Warning Criteria

AutoMON Konfiguration

Aktivierung Warnkriterien

Combined Criteria

Kriterium	Wertebereich	Symbol	Klasse	Besitzer	...
<input checked="" type="checkbox"/> Alle					...
<input checked="" type="checkbox"/> Extremes Unwetter Ergiebiger Dauerregen		⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Extremes Unwetter Ergiebiger Dauerregen / 12 Std. [mm]	70.0 <= x [mm]	⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Extremes Unwetter Ergiebiger Dauerregen / 24 Std. [mm]	80.0 <= x [mm]	⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Schweres Gewitter mit heftigem Starkregen		⚡	Gewitter	Palmer	...
<input checked="" type="checkbox"/> Gewitter	91.0 <= x < 99.01 [code table 4677]	⚡	Gewitter	Palmer	...
<input checked="" type="checkbox"/> Heftiger Starkregen / 1 Std. [mm]	25.0 <= x [mm]	⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Heftiger Starkregen / 1 Std. [l/m^2]	25.0 <= x [l/m^2]	⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Extremes Unwetter Ergiebiger Dauerregen / 12 Std. [mm]	70.0 <= x [mm]	⚡	Regen	Palmer	...
<input checked="" type="checkbox"/> Extremes Unwetter Ergiebiger Dauerregen / 24 Std. [mm]	80.0 <= x [mm]	⚡	Regen	Palmer	...

Only for authorized users

Kriterium:

Bearbeiten
Löschen
Neu
Neue Verknüpfung

Zuordnung Warnparameter zu Kriterium:

- metar (fm16, fm15)
- profile (fm38, fm39, fm36, fm40, fm33, fm37, fm35, fm32, fr)
- ptfc (dmogm3, mosgme3, fimos, mosgme1, oog, mmo, dmolr)
- scit_sac_grp (scit_sac)
- scit_trt_grp (scit_trt)
- station (msc_sc, bw_sc, icao_sc, dwd_sc_cli, dwd_sc_dmo, s)
- swis (sh10, sh70)
- synop (fm14, nsd, mrep, fm13, swn, fm12)

Zuordnung Warngebiete zu Kriterium:

- DWD D-Format EUROPA NAT
- Deutschland Nord
- Deutschland Sud
- RZ-Gebiete
- GAFOR-Gebiete (Luftfahrt)
- Landkreise
 - Main-Taunus Kreis
 - Kreis und Stadt Munchen
 - ...
 - ...
 - ...
 - ...

Gebiet:

Bearbeiten
Löschen
Neu

Warning Areas

Abbrechen Speichern

AutoMON: Automatic Monitoring and Alerting



Warning Indicators

- Permanently monitors incoming observational-, radar-, lightning-, and model data
- Alerting based on thresholds, rules, and combinations of thresholds for configurable areas
- Status: operational in NinJo 1.1

The screenshot shows the NinJo Mainwindow interface. At the top, there is a menu bar and a toolbar. A red circle highlights the warning indicators: WO (red), WW (red), WM (yellow), QP (red), QW (blue), and OS (blue). Below the toolbar is a map of Europe with several yellow warning markers. The AutoMON Filter dialog box is open, showing various filter settings for classes, themes, categories, and datatypes. The AutoMON Ereignis Tabelle window is also visible, displaying a table of events.

Kriterium	Klasse	Station	Datent...	Wert	Ge...	Zeit/Datum
Extremes Unwetter Orkanböen	Wind	10633 Wiesbaden	synop	31.709517	0	08.02.05 16:56:51
Heftiger Starkregen / 1 Std. [mm]	Regen	10637 Frankfurt	synop	58.11959	0	08.02.05 16:56:51
Schweres Gewitter mit heftigem Starkregen	Gewitter	10635 Kl. Feldberg/Taunus	synop	44.892757	0	08.02.05 16:56:51
Extremes Unwetter Orkanböen	Wind	10633 Wiesbaden	synop	56.23603	0	08.02.05 16:56:51
Schweres Gewitter mit heftigem Starkregen	Gewitter	10635 Kl. Feldberg/Taunus	metar	54.464554	0	08.02.05 16:56:51
Heftiger Starkregen / 1 Std. [mm]	Regen	10637 Frankfurt	metar	46.91495	0	08.02.05 16:56:51

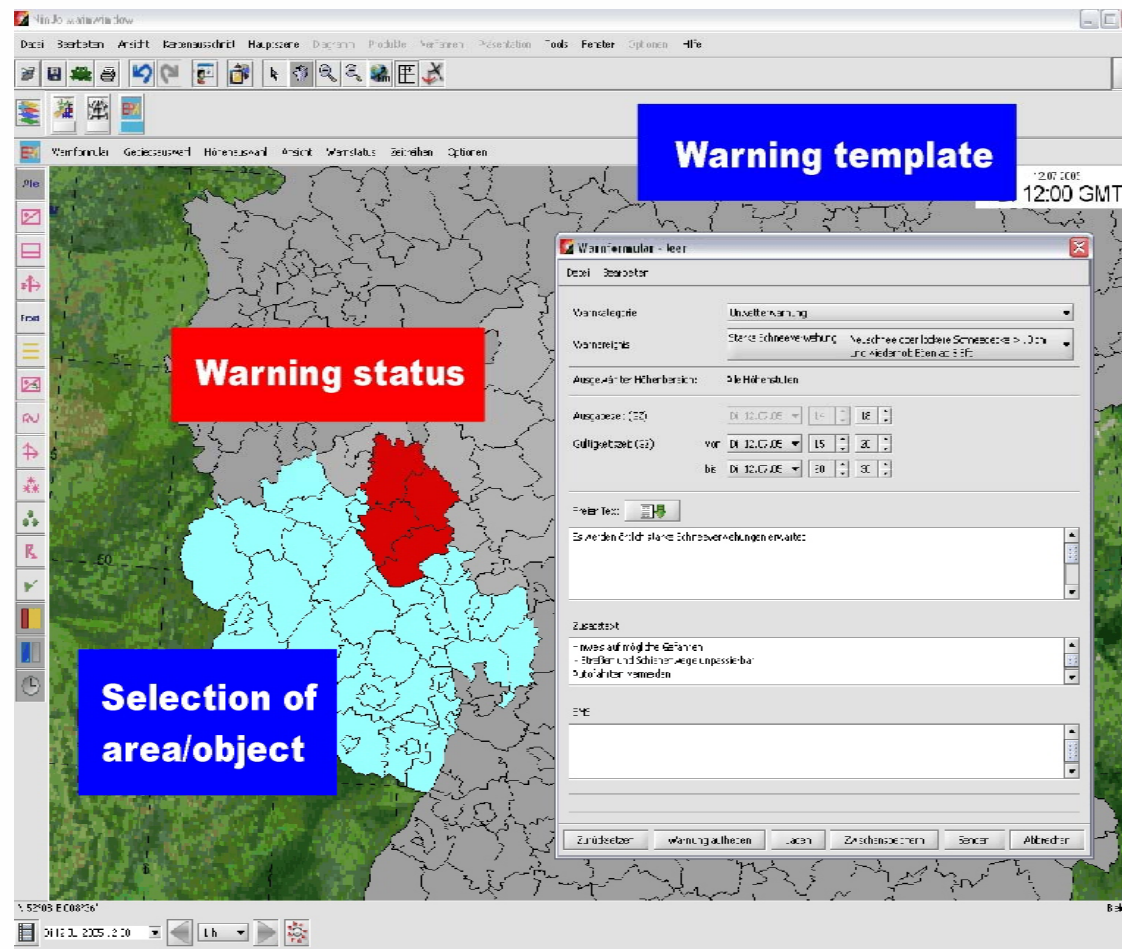
The NinJo monitoring application with the possibility to set filters. Tabular and map based display of alerts.

Overview

- **NinJo Batch**
- **NinJo Web Application Server**
- **NinJo Meteorological Object Layer**
- **NinJo On Screen Analysis**
- **NinJo Monitoring and Alerting (AutoMon)**
- **NinJo Warning Creation (EPM)**
- **NinJo Point Data Modification (MMO)**

NinJo Warning Creation (EPM)

- Graphical/
alphanumerical
selection of
areas/objects
- Editing of a
warning template
- Production of
warning content
(dissemination to
OMEDES)
- Production of
warning status data
(dissemination to
AutoMON)
- Monitoring of
warning status
(warnings issued)



- Warning category
- Warning event
- Time of issuing
- valid time
- Free worded text/
standard text
- Additional text
- SMS

Overview

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Point Data Modification (MMO)



The screenshot displays the MMO Editor software interface. The main window shows a weather map of Europe with temperature data points. A date and time stamp reads "Nov 07 2005 Mo 14:00 UTC". The MMO Editor window is open, showing the following configuration:

- Wetter Parameter**
 - Kategorie Temperatur
 - Temperatur (2m)
 - Taupunkt (2m)
 - Relative Feuchte
 - Bodentemperatur (5cm)
 - Min. Temperatur
 - Max. Temperatur
 - Kategorie Wetter
 - Kategorie Wind
 - Kategorie Bedeckung
 - Kategorie Strahlung

Temperatur (2m) Configuration:

- Daten Laden
- Gebiets- und Zeitauswahl
- Karteneditor
- Datenart (1-42 h): MOSMIX Mo 7.11 0:00 UTC
- Datenart (45-168 h): MOSMIX3 Mo 7.11 0:00 UTC
- Zeitpunkt: Mo 7.11 14:00 UTC
- Interpolation: keine
- Höhenintervall: 0 - 1100 m
- Modus: Relativ Kategorisch Prozentual
- Keine Interpolation
- Temperatur (2m): °C
- Gleichzeitige Änderung von: Taupunkt (2m) Relative Feuchte
- Buttons: Undo, Redo, Reset, Check, Meteogramm
- Footer: Wetter Parameter \ Konsole \
- Bottom right: Reset All, Senden, Beenden

- ◆ Introduction and Goals of NinJo
- ◆ NinJo Client Layers and Applications
- ◆ NinJo Production Tools
- ◆ Current Status and Future Planning

Basic Concept

■ **Currently: Parallel operation NinJo 1.0 and MAP** (legacy workstation)

- **Both workstations running in parallel on the desk of the forecaster**
 - **Getting acquainted in the operational environment**
- **Make NinJo stable in a distributed regionalized environment**
 - **Detect and solve issues that might pop [We don't know of any at the moment :-)]**

■ **NinJo 1.1 (January 2006)**

- **Will replace MAP on those seats that need only to view data**
 - **Approximately 50% of the MAP workstations will be decommissioned**
 - **After approval by forecasting department**
- **Interactive components will be tested in the operational and distributed environment.**
 - **Especially important for those components with regionalized responsibilities (EPM, MMO)**
- **Enhance and stabilize interactive components**

■ **NinJo 1.2 (Summer 2006)**

- **Will replace MAP completely**
- **Final Approval by Forecasting Department**

NinJo 1.0 Features (Since April 2005)

■ Servers

- Point data incl. Lightning & TAF
- Grid
- Radar
- Satellite incl. Polar orbiters

■ Layers

- GeoVector and GeoRaster
- Point data incl. Metars
- Grid incl. Adwice
- Satellite incl. Polar orbiters and Mosaics
- Radar incl. Mosaics
- Sounding layer
- Lightning
- Automatic Monitoring (AutoMON) for Observational Data (DWD CFO only)
- Prototype of the Interactive graphical editor MOL (no point data)
- Prototypes of EPM, MMO, OOG

■ Secondary window application

- Meteograms
- Soundings
- Cross Sections

■ GUI - Components: myGUI, Favorites, Navigator

NinJo 1.1 Features (January 2006)

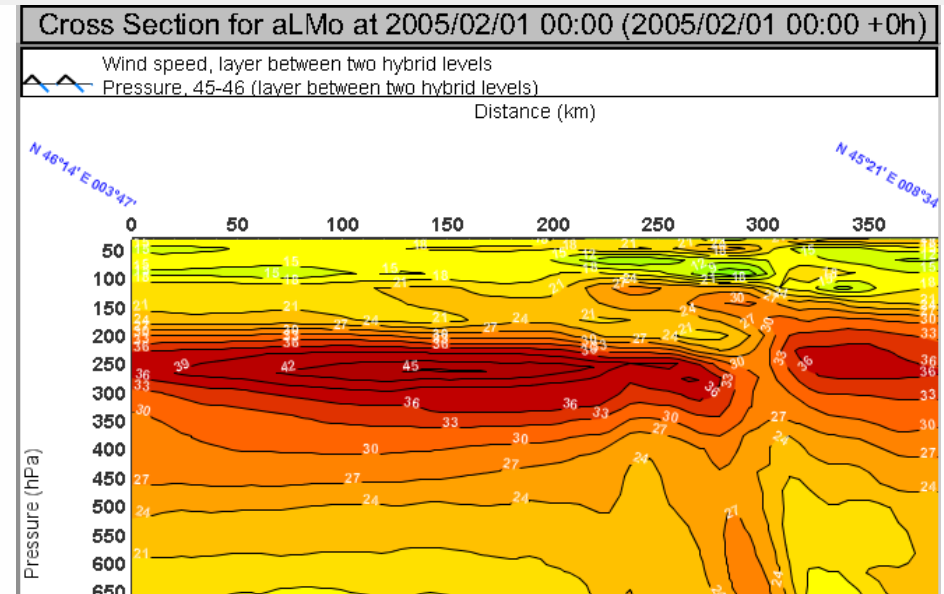
- **Met Objects Layer (Graphical editor, but no editing of point data)**
- **Surface Layer**
 - **Interactive WMO-Plotmodel, Complex Rating**
- **Automatic monitoring and alerting (AutoMON)**
- **Ready for operational evaluation**
 - **MMO**
 - **EPM**
 - **OOG**
 - **On Screen Analysis**

- **Satellite**
 - **Eumetsat Nowcasting SAF**
- **Radar**
 - **Enhanced BUFR-Format to handle volume data, prototype of cell drill down**
- **SCIT-Layer**
- **Aviation Layer**
 - **TAF, Metar, Gafor, flight routes...**
- **Formula Editor**
 - **Complete formula language for complex calculations with meteorological data**

NinJo 1.1 Features (continued)

■ Formula Editor

- Complete formula language for calculations with meteorological data
- Prototype implemented for cross sections



```
<gridMergeConfig>                                <!-- compute Wind speed -->
  <mergeEntry outputID="Wind speed" replace="false">
    <element id=" u wind "/>
    <element id=" v wind "/>
    <formula>
      uwind = grid1.getData();
      vwind = grid2.getData();
      mag = sqrt(uwind*uwind + vwind*vwind);
      return new Field(mag, grid1.getGrid(), grid1.getProp());
    </formula>
  </mergeEntry>
</gridMergeConfig>
```


Milestones

06.07.2005 **Start of parallel operations NinJo 1.0 –date depends clients**

30.10.2005 **Acceptance NinJo 1.0 by business area WV**

30.10.2005 **Start of test NinJo 1.1 by CFO Frankfurt and AFO Frankfurt
(only for the non-interactive components)**

1.12.2005 **Start decommissioning of the old SGI workstations.
Start of test NinJo 1.1 interactive components**

30.01.2006 **End Bugfix of the interactive components in NinJo 1.1.**

30.01.2006 **Start testing revised/bugfixed interactive components**

03.05.2006 **Installation NinJo 1.2**

21.05.2006 **Acceptance of NinJo 1.1 by business area WV - including the
interactive components of NinJo 1.1**

24.05.2006 **MAP completely decommissioned**

Milestones

