

Experiences using time extent in WMS services

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Specialized WMS map services for:

- n Weather forecasts
- n Weather observations
- n Vessel tracking using AIS
- n Satellite tracking of fishing vessels
- n Electronic Fish Catch Reporting
- n Response time
- n Fleet management
- n C-Map charts
- n Emergency Resources
- n Drift simulations (oil, ship and objects)
- n Incident Management
- n Aqua culture

MetOc server

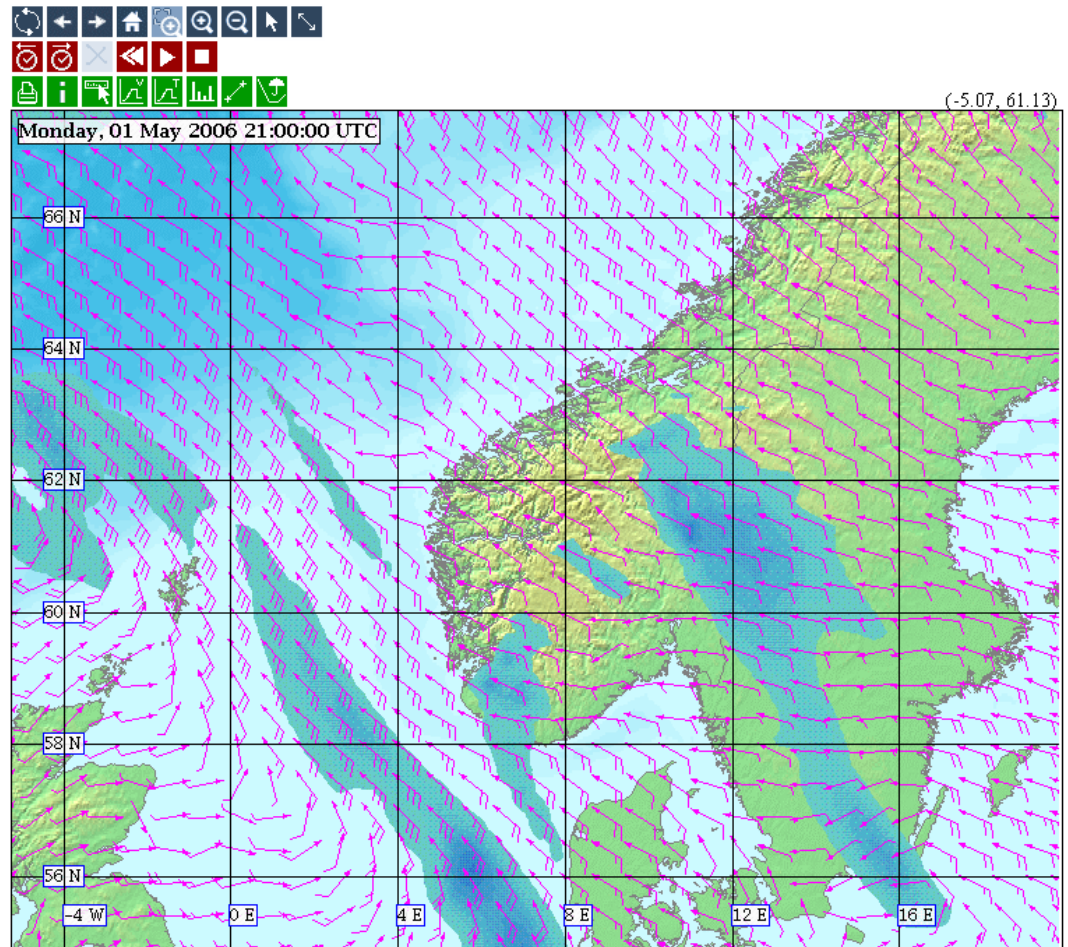
- Server for handling meteorological and oceanographic information
 - Forecasts
 - Grib
 - NetCDF
 - Observations (altimeter, synop)
- Multipurpose
 - Map overlays
 - Time series, profiles and cross sections
 - Data export
 - Weather along route
- Initially developed for the Norwegian Defense Research Establishment in collaboration with Met.no

MetOc server

- Distribute
 - XML data for snitt, profiles, time series
 - Some special formats
- GRIB import
 - Automatic updated with new GRIB files
- NetCDF support
- GRIB export
 - Can generate and export extracts of GRIB files

Weather forecasts

Background map	World Map
METOC	met.no-NEu
Time	2006-05-01T
[Progress bar]	
METOC Layers	
<input type="checkbox"/> 1) Magnitude Wind	default
<input type="checkbox"/> 1) Temperature	default
<input checked="" type="checkbox"/> 1) Wind	default
<input type="checkbox"/> 1) Total cloud cover	default
<input checked="" type="checkbox"/> 1) Total precipitation, 3 hr	default
<input type="checkbox"/> 1) Data coverage	positions
<input type="checkbox"/> 2) Pressure reduced to MSL	default
<input type="checkbox"/> 2) Data coverage	positions
<input checked="" type="checkbox"/> Graticule lines	

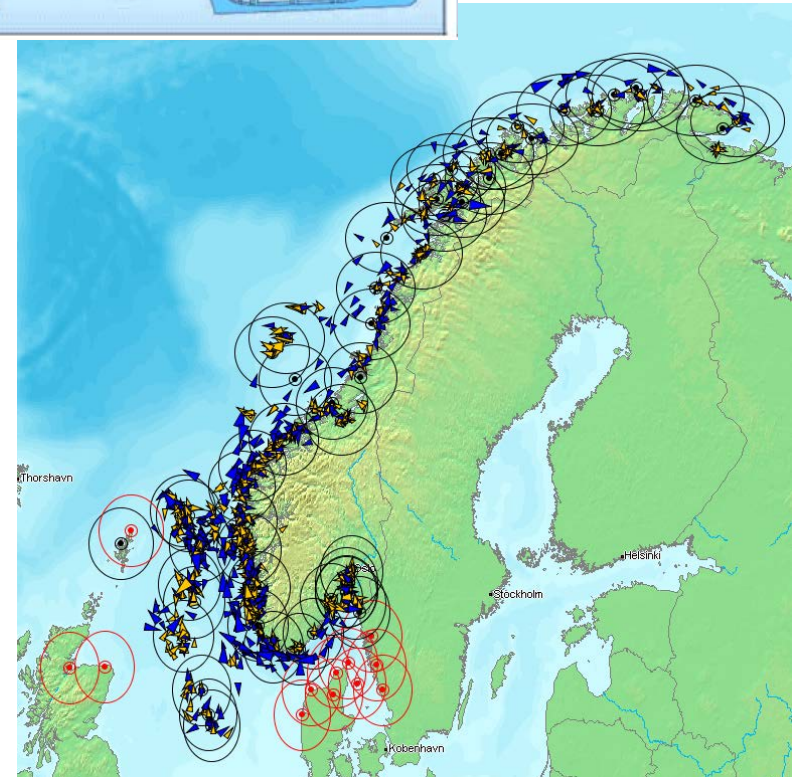
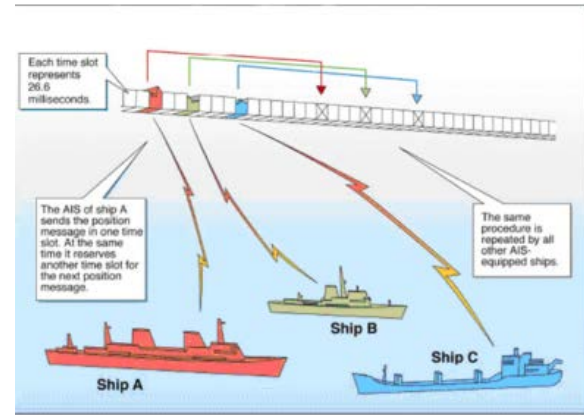


AIS /Track server

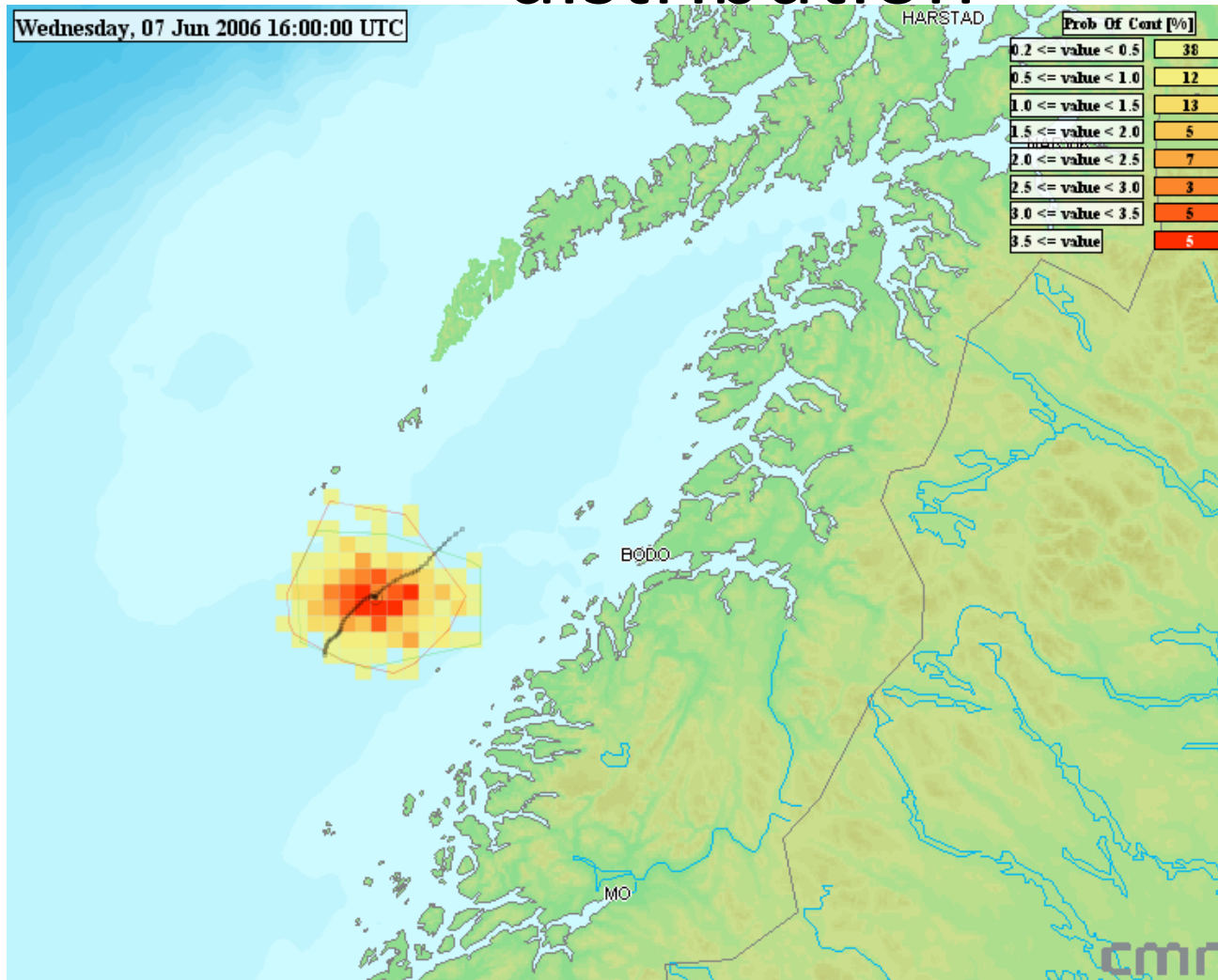
- «Real time» monitoring system for ship traffic
- Handle large data sets
- Long timespan
 - 2-3 years of traffic data
 - Optimized for getting

What is AIS

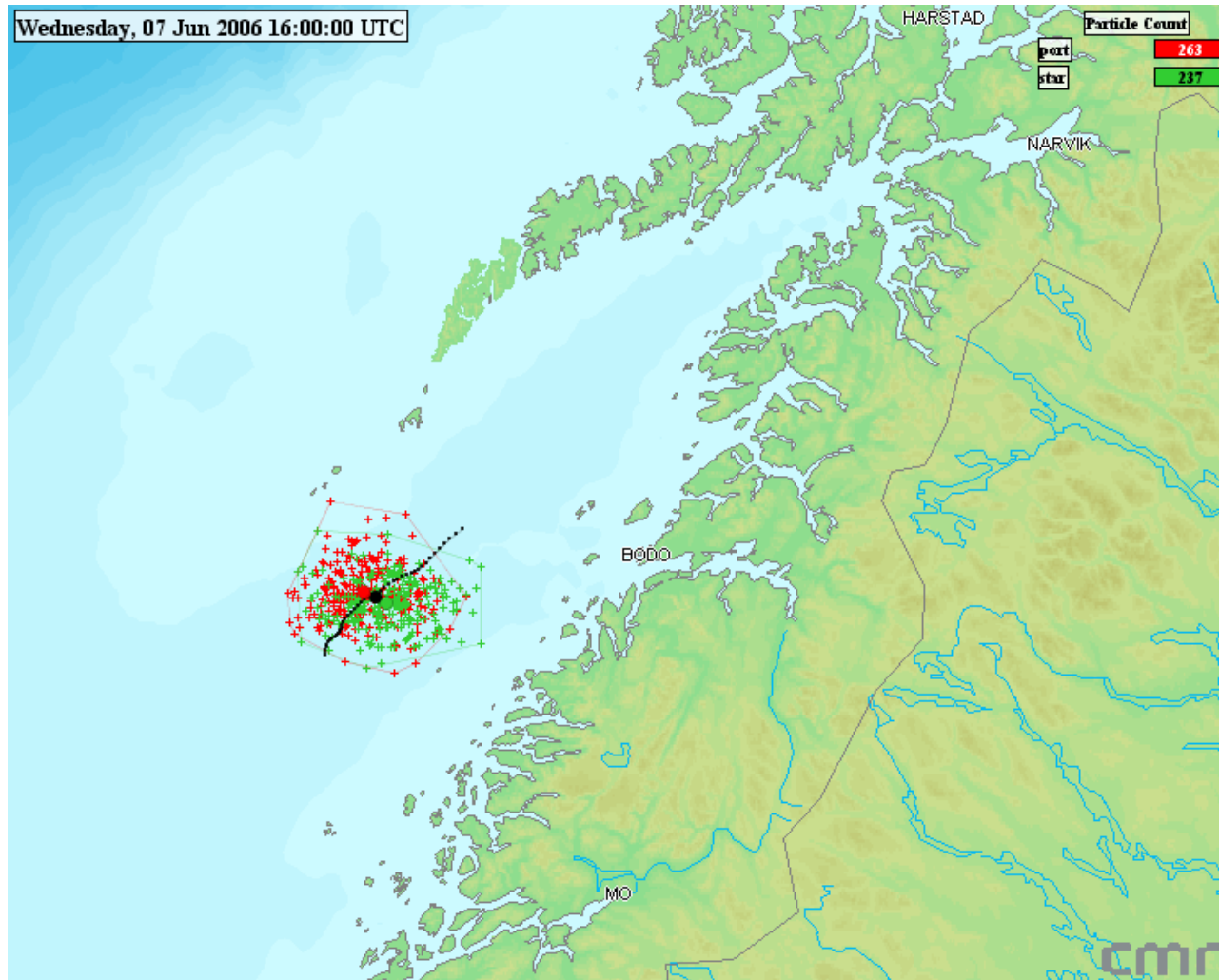
- n Originally an anti collision system for ships
- n Mandatory for all vessels (gt>300)
- n Ships transmit position and identification using VHF
- n Positions transmitted every 10th second (on average)
- n Also used for coastal surveillance by collecting AIS messages from ships using shore based base-stations
- n Other platforms for AIS receivers is also used



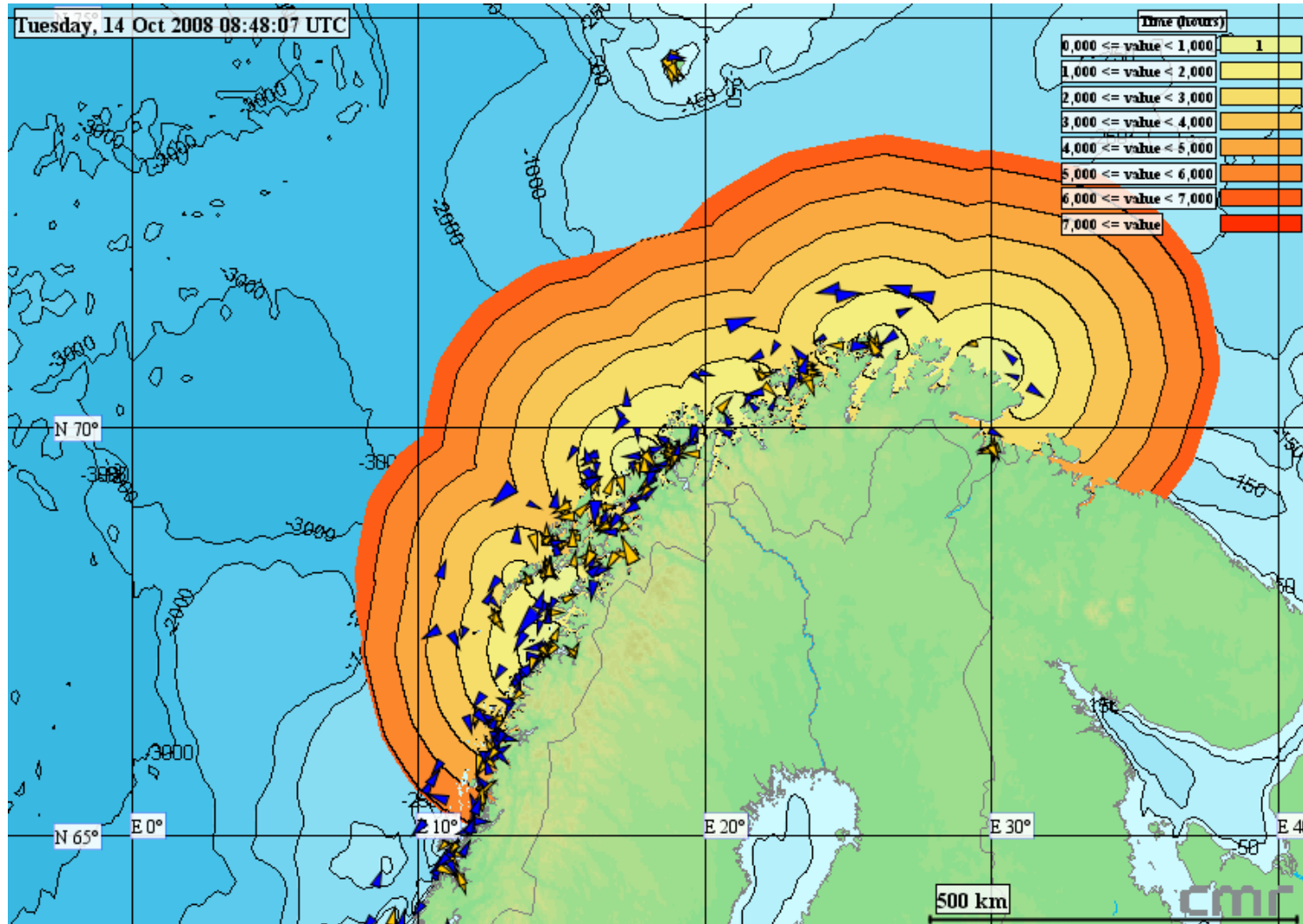
Drifting objects – probability distribution



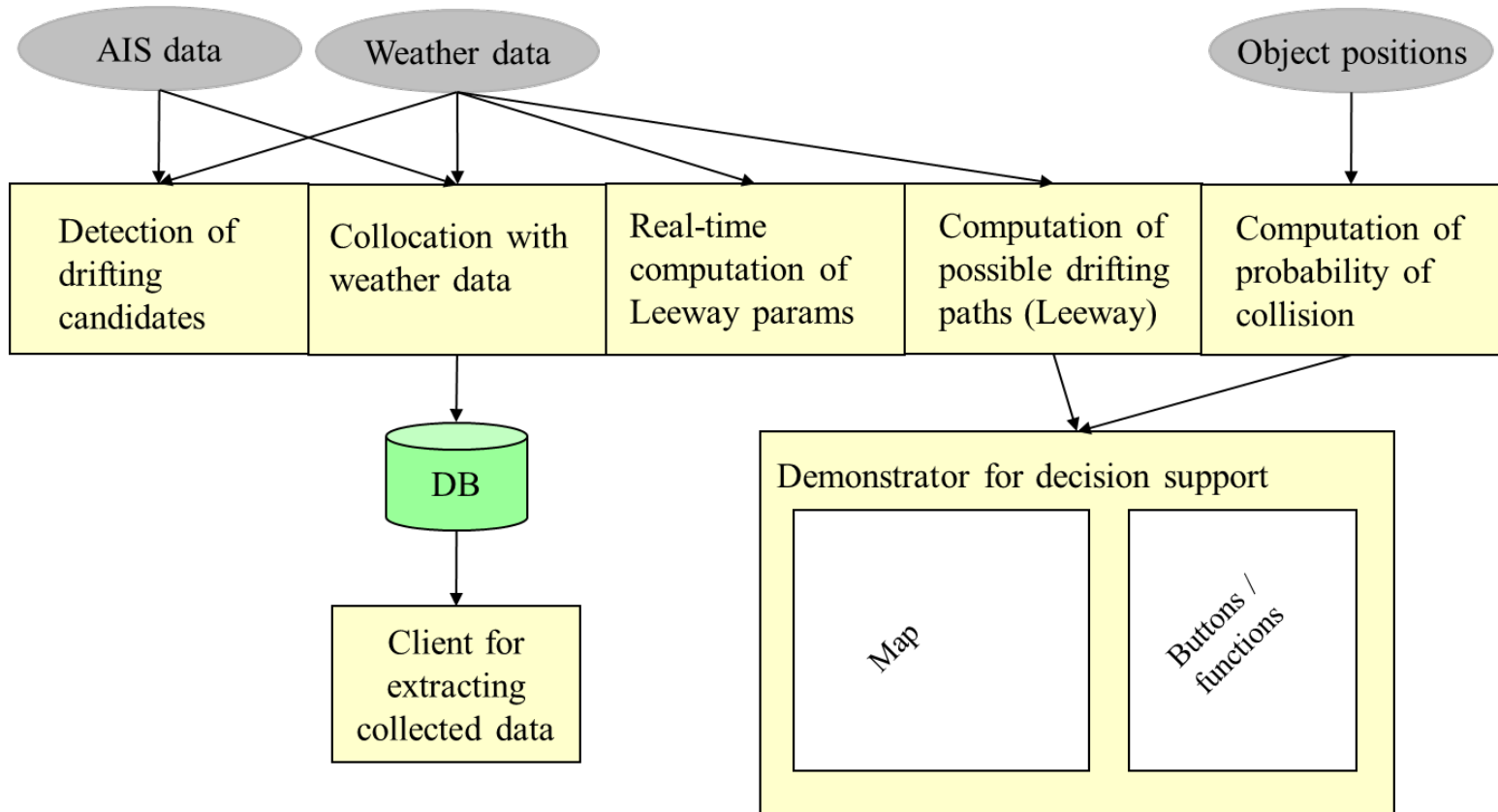
Drifting object - particles



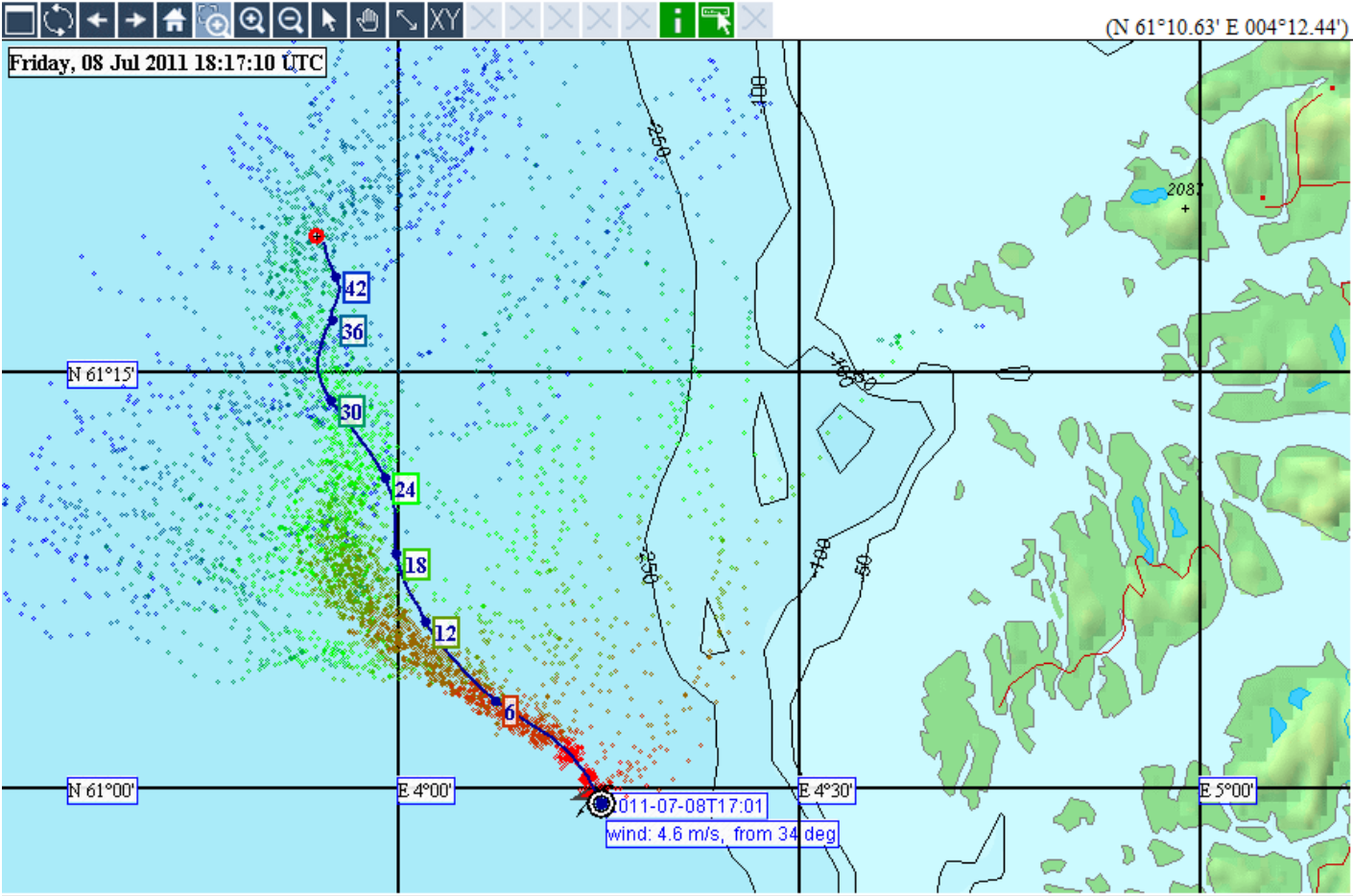
Emergency Response



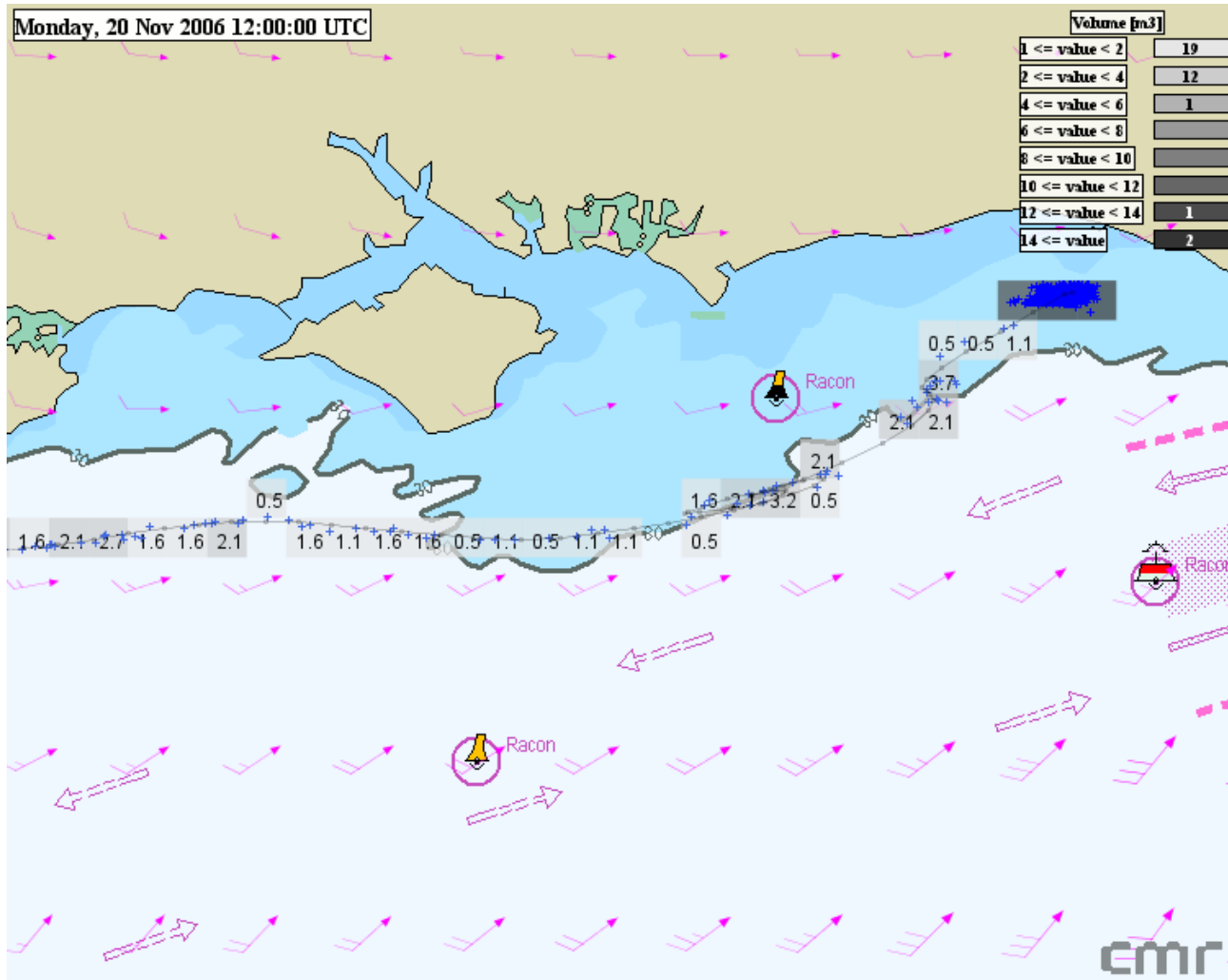
Shipdrift detection and simulation



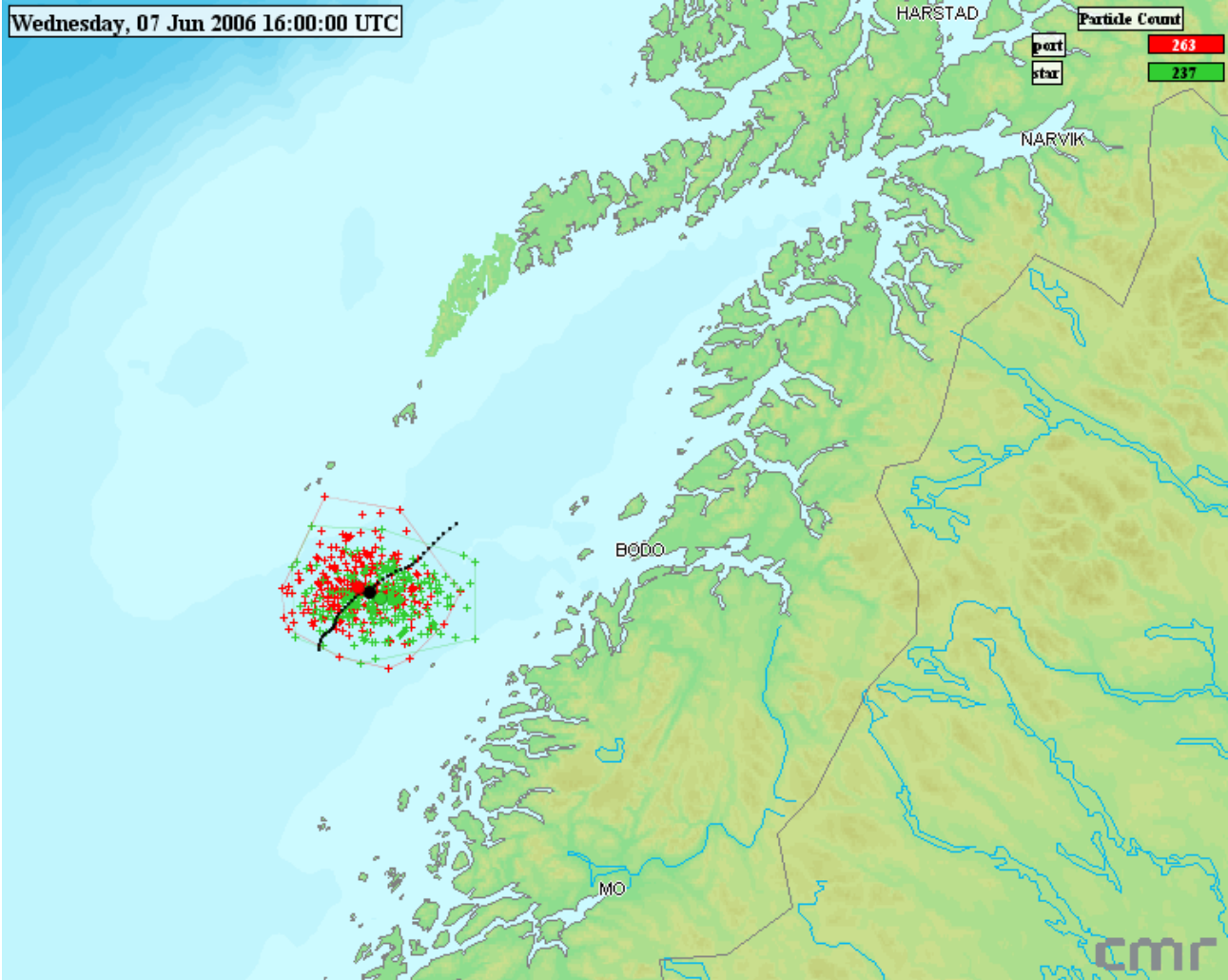
Simulated drift



Oildrift



Drift simulations (oil, ship and objects)

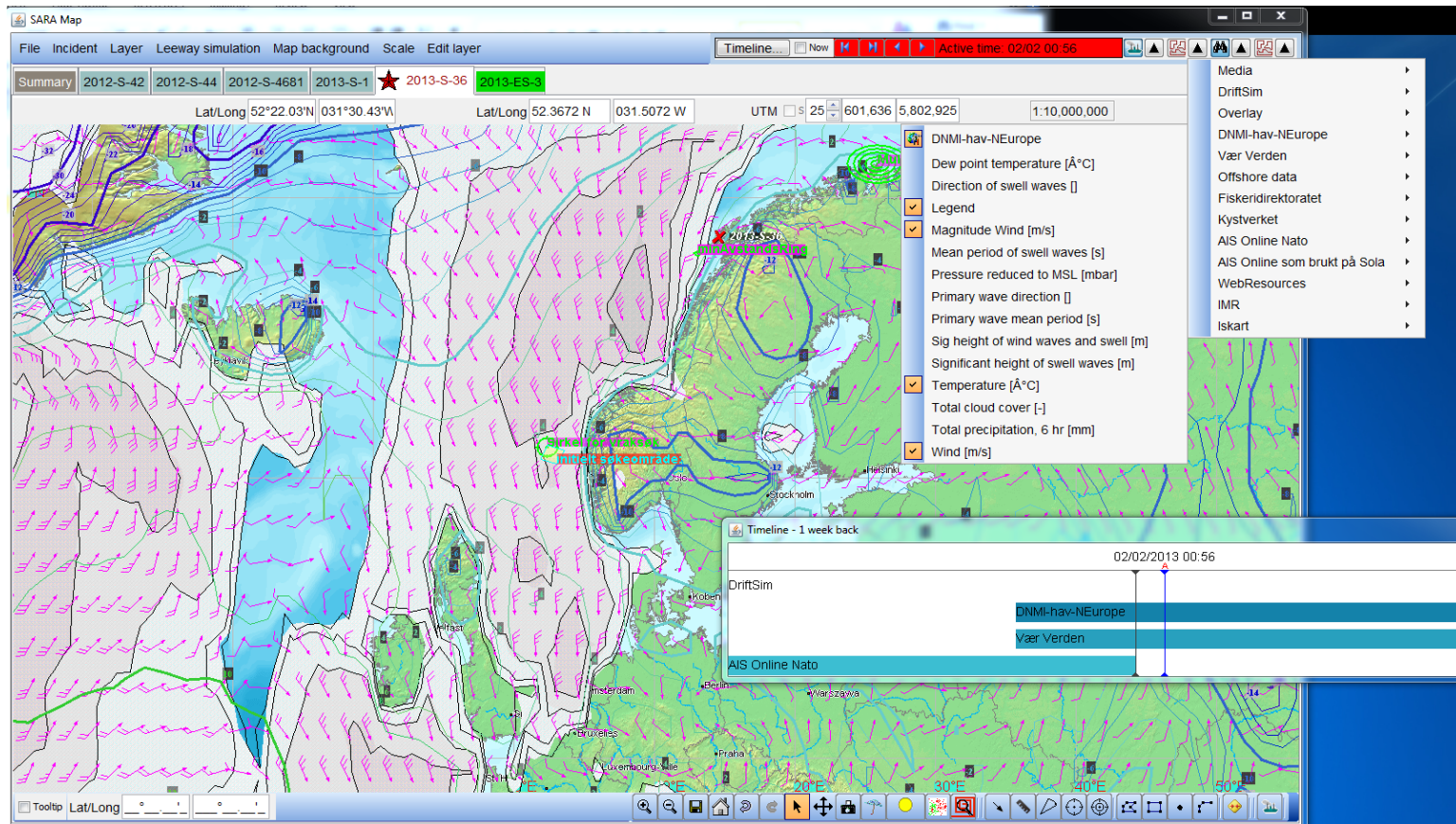


Client side time handling

- Putting it all together
- Different time resolutions
- Different time span



Client side time handling – Search And Rescue Application



Client side time handling – Web Client

Map tools

Coordinates

The screenshot displays the CMR web client interface. On the left, a vertical menu lists: Menu, Statistics, Help, Map Help, Edit Area, Background, Sjøkartverket, GeoNorge, Kystverket, AIS, Refresh Rate, Search, Color by, AIS layers, and AIS filters. The main map area shows a map of Europe with AIS data points. A toolbar at the top contains navigation and map tools. A coordinate display at the top right shows (N 55°48' 89" E 011°40' 91"). A legend is located on the right side of the map. A scale bar at the bottom right indicates 3,000 km. A date and time stamp 'Wednesday, 25 Mar 2009 13:20:00 UTC' is visible at the top of the map area.

Scale





VISUALIZATION

DATA ANALYSIS

DECISION SUPPORT

MODELLING AND SIMULATION

VISUAL

— INTELLIGENT INSIGHT