Norwegian
Meteorological Institute
met.no

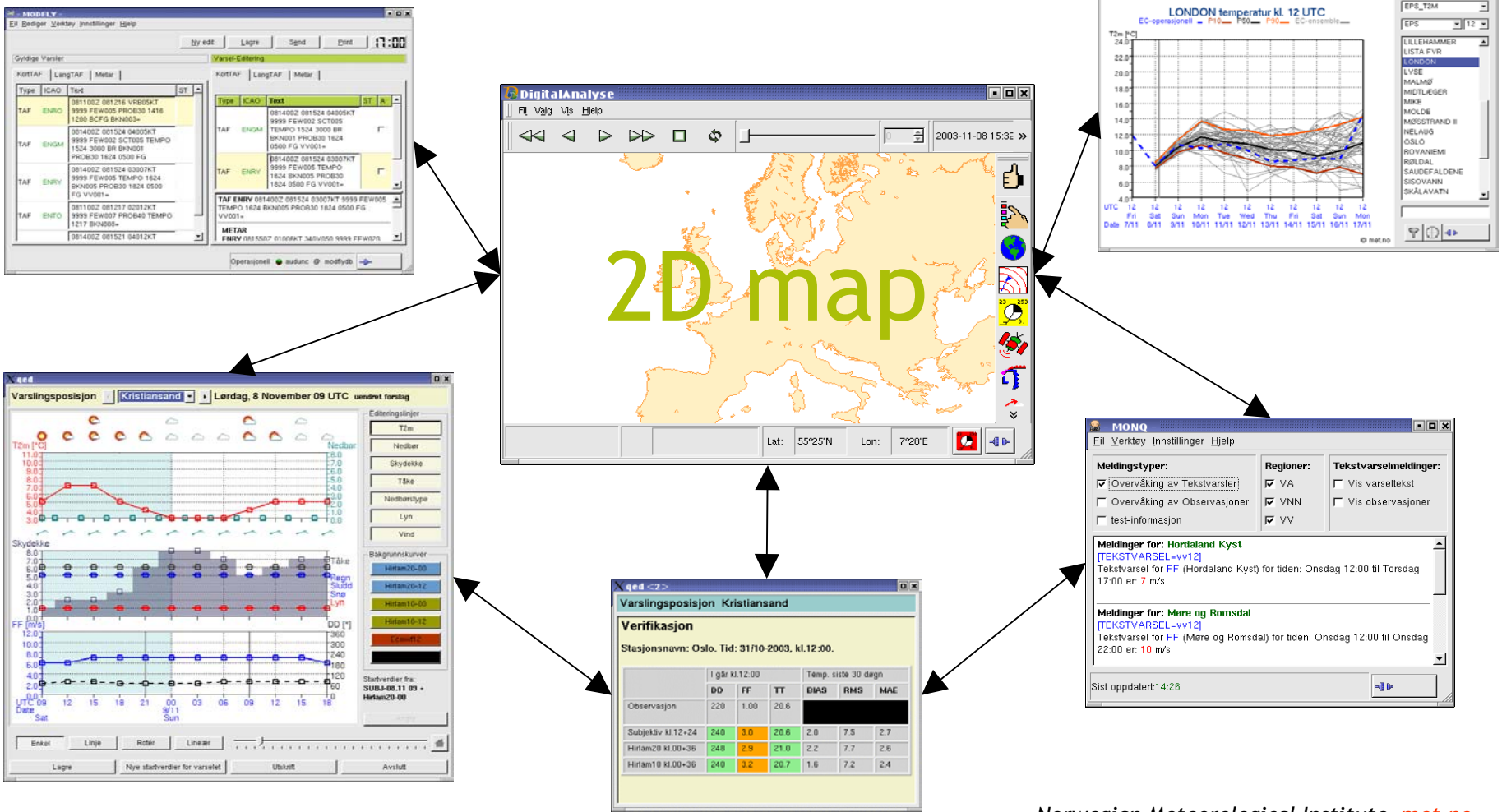
Operational visualisation systems at met.no

Audun Christoffersen and Eivind Martinsen

Overview

- Development of visualisation systems at met.no
- DIANA
  - Production tools
  - Uses in connection with other data views

Visualisation model



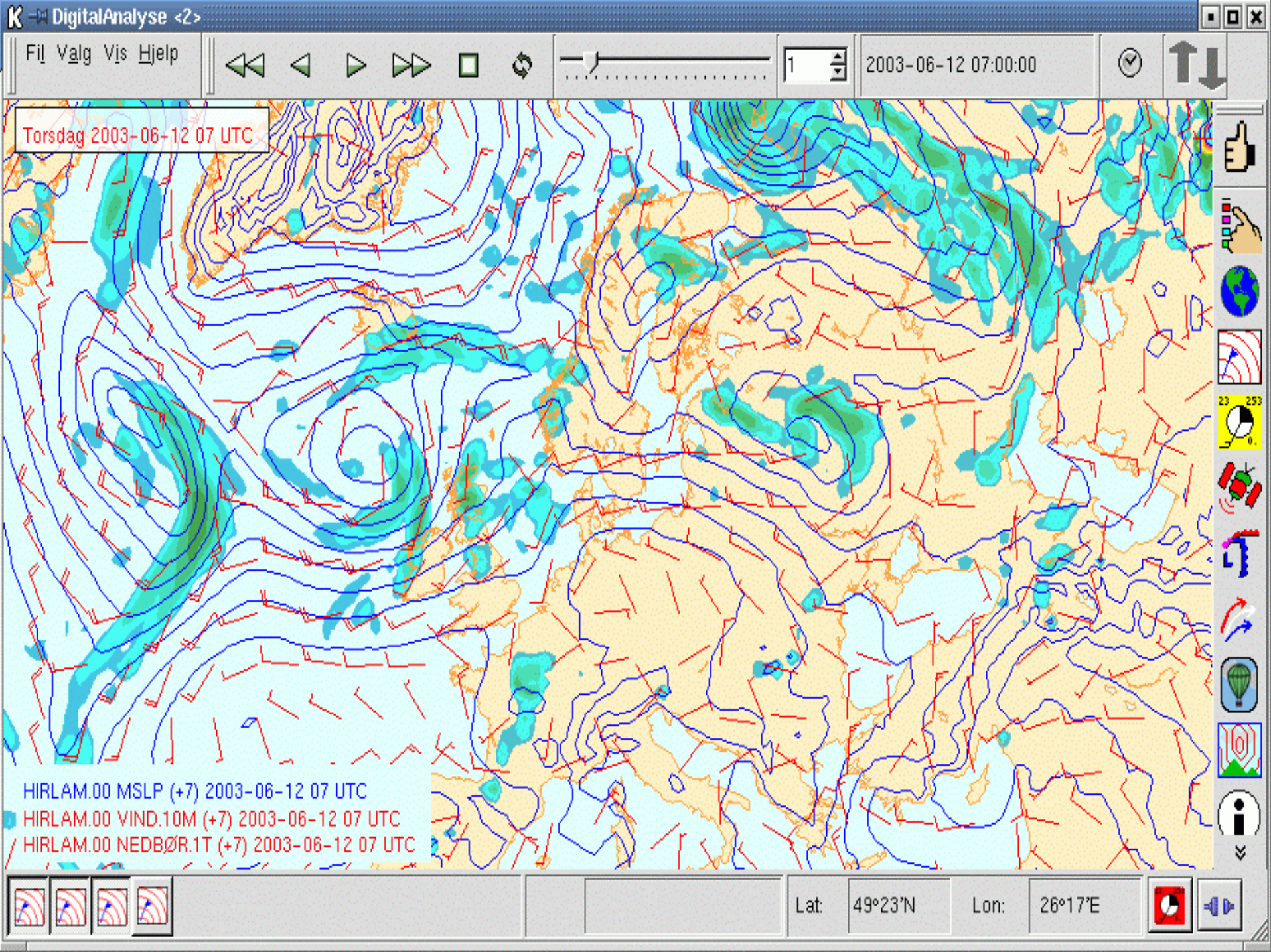
Technical Standards

- Linux (Irix)
- C/C++
- Mesa (Open GL)
- Qt
- Freeware components

DIANA (DIgital ANAlysis)

Visualisation

- Fields
- Satellite and radar images
- Surface observations
- Soundings
- Cross Sections
- Forecast products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1
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Torsdag 2003-06-12 07 UTC
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HIRLAM.00 VIND.10M (+7) 2003-06-12 07 UTC
HIRLAM.00 NEDBØR.1T (+7) 2003-06-12 07 UTC
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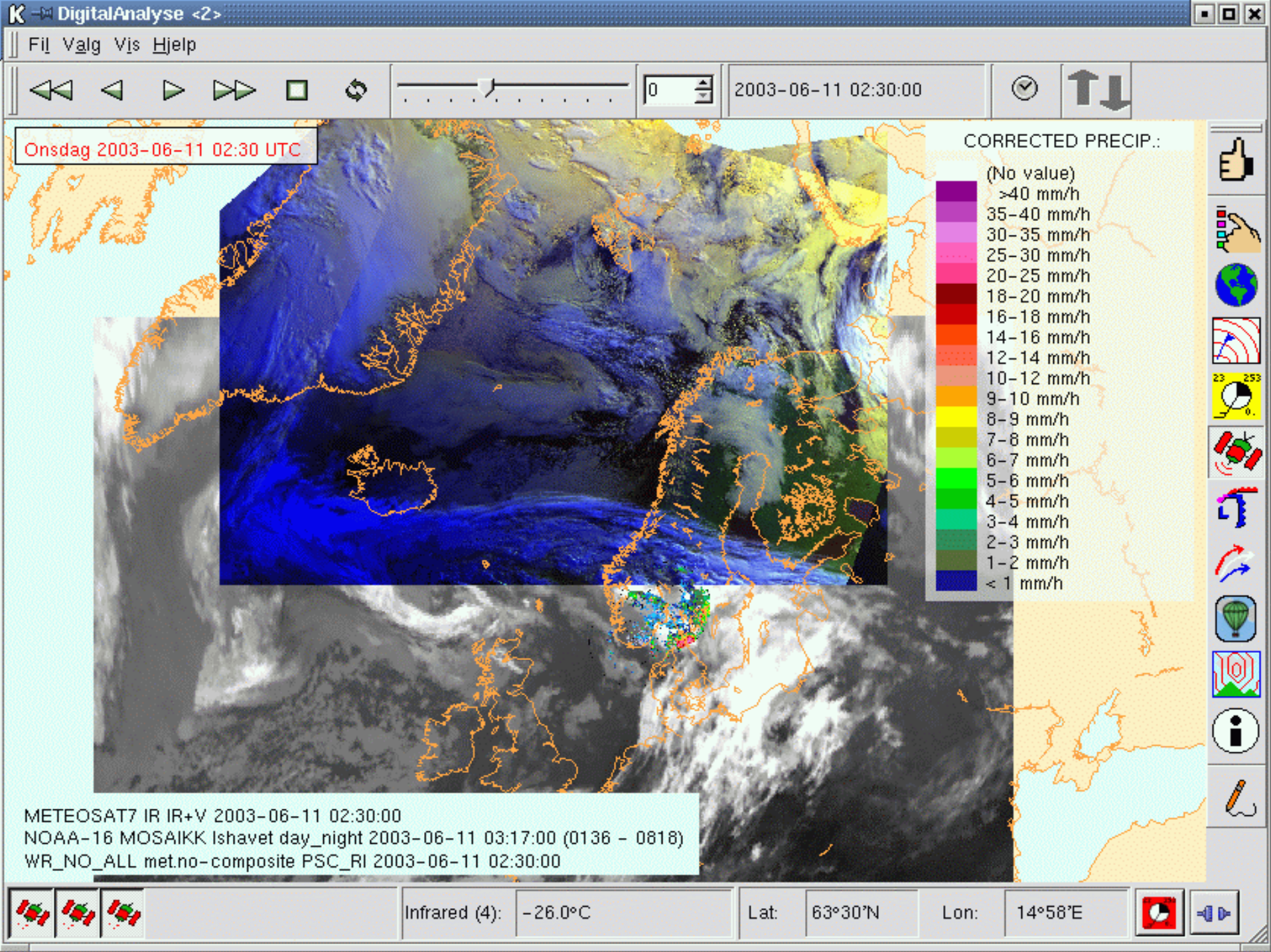
Lon: 26°17'E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Onsdag 2003-06-11 02:30 UTC
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35-40 mm/h
30-35 mm/h
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4-5 mm/h
3-4 mm/h
2-3 mm/h
1-2 mm/h
< 1 mm/h
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NOAA-16 MOSAIKK Ishavet day_night 2003-06-11 03:17:00 (0136 - 0818)
WR_NO_ALL met.no-composite PSC_RI 2003-06-11 02:30:00
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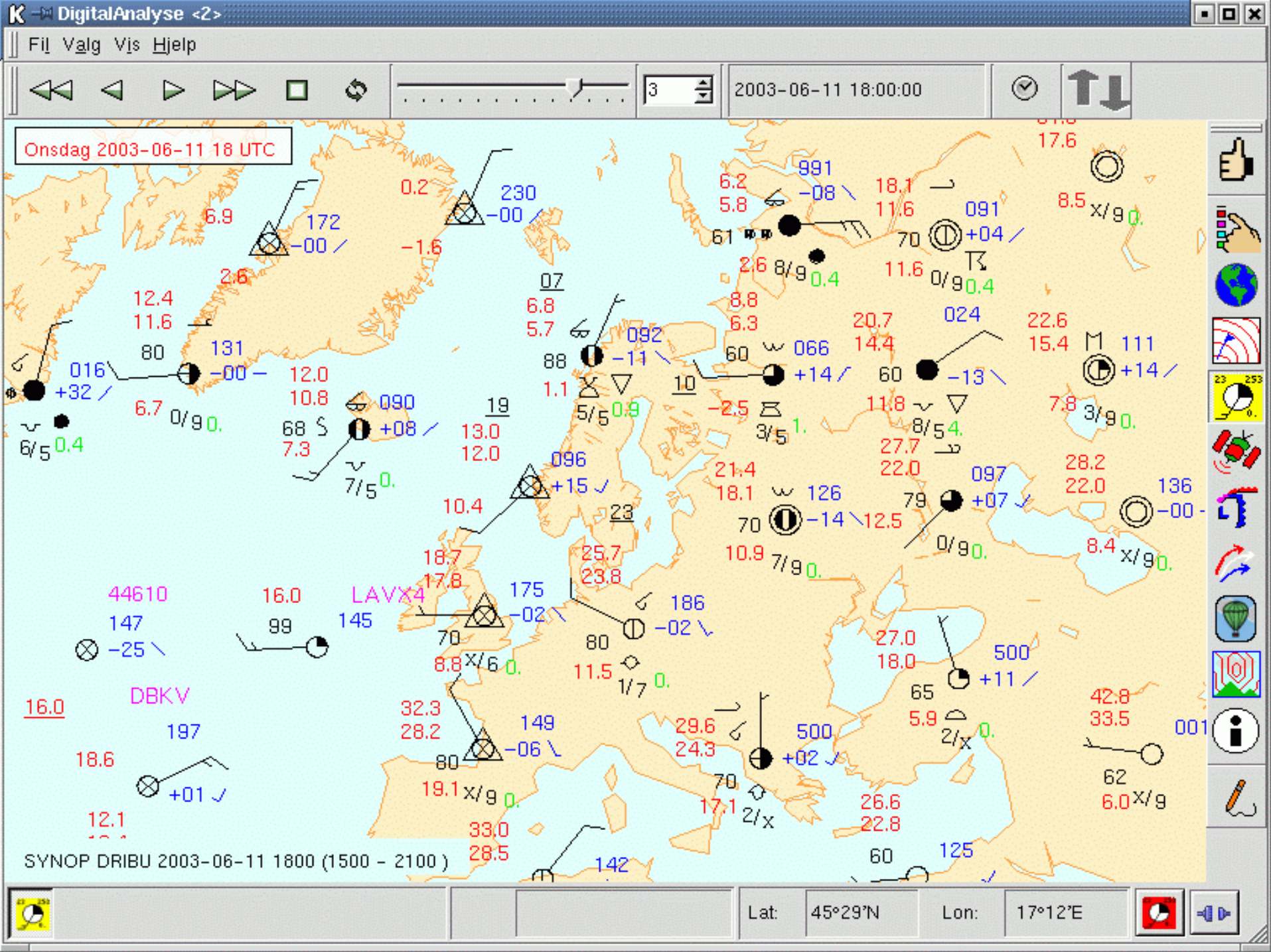
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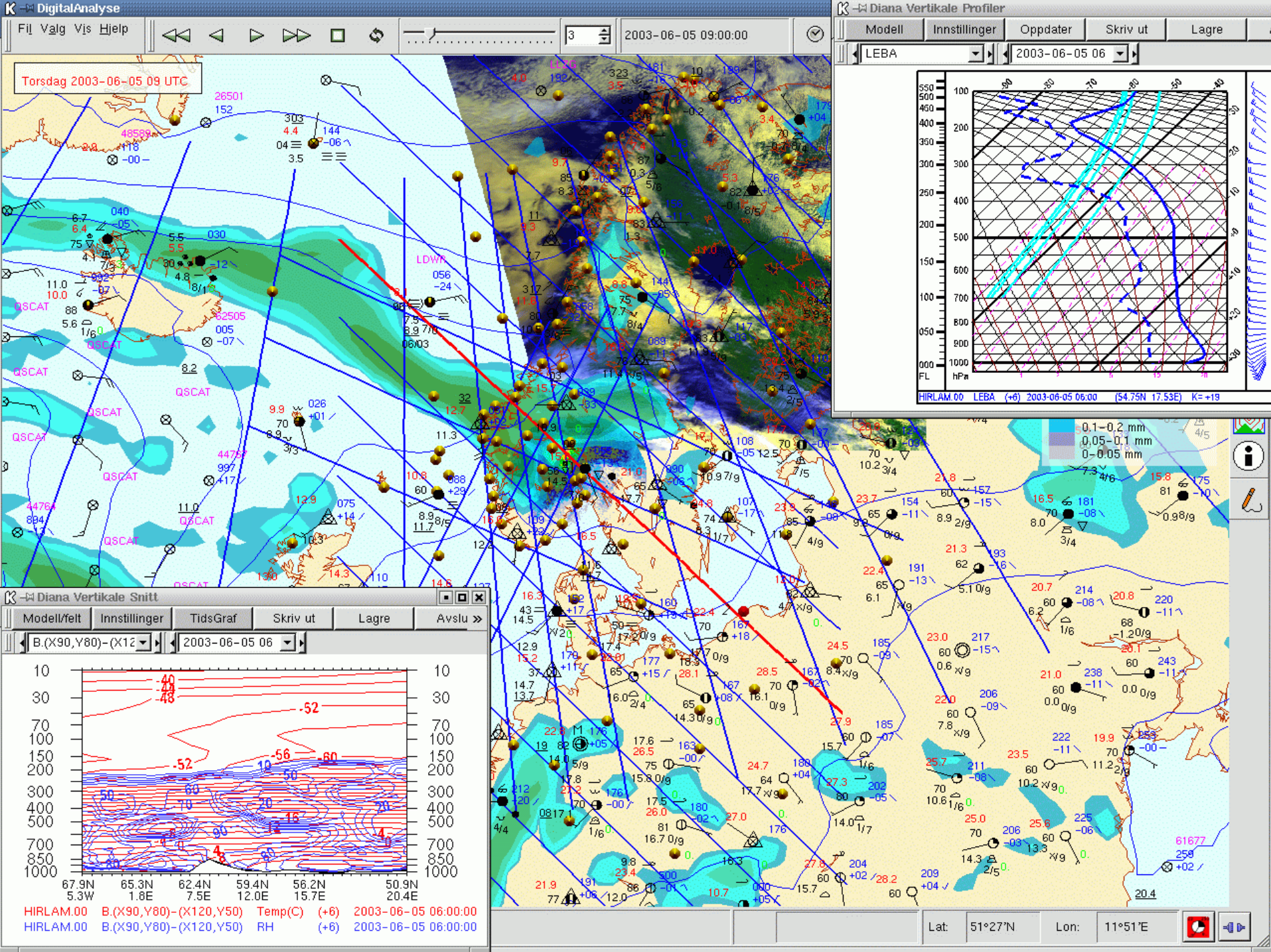
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2003-06-05 09:00:00
Torsdag 2003-06-05 09 UTC
Diana Vertikale Profiler
Modell
Innstillinger
Oppdater
Skriv ut
Lagre
LEBA
2003-06-05 06
HIRLAM.00 LEBA (+6) 2003-06-05 06:00 (54.75N 17.53E) K= +19
0.1-0.2 mm
0.05-0.1 mm
0-0.05 mm
Diana Vertikale Snitt
Modell/felt
Innstillinger
TidsGraf
Skriv ut
Lagre
Avslu
B.(X90,Y80)-(X12
2003-06-05 06
67.9N 5.3W
65.3N 1.8E
62.4N 7.5E
59.4N 12.0E
56.2N 15.7E
50.9N 20.4E
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HIRLAM.00 B.(X90,Y80)-(X120,Y50) RH (+6) 2003-06-05 06:00:00
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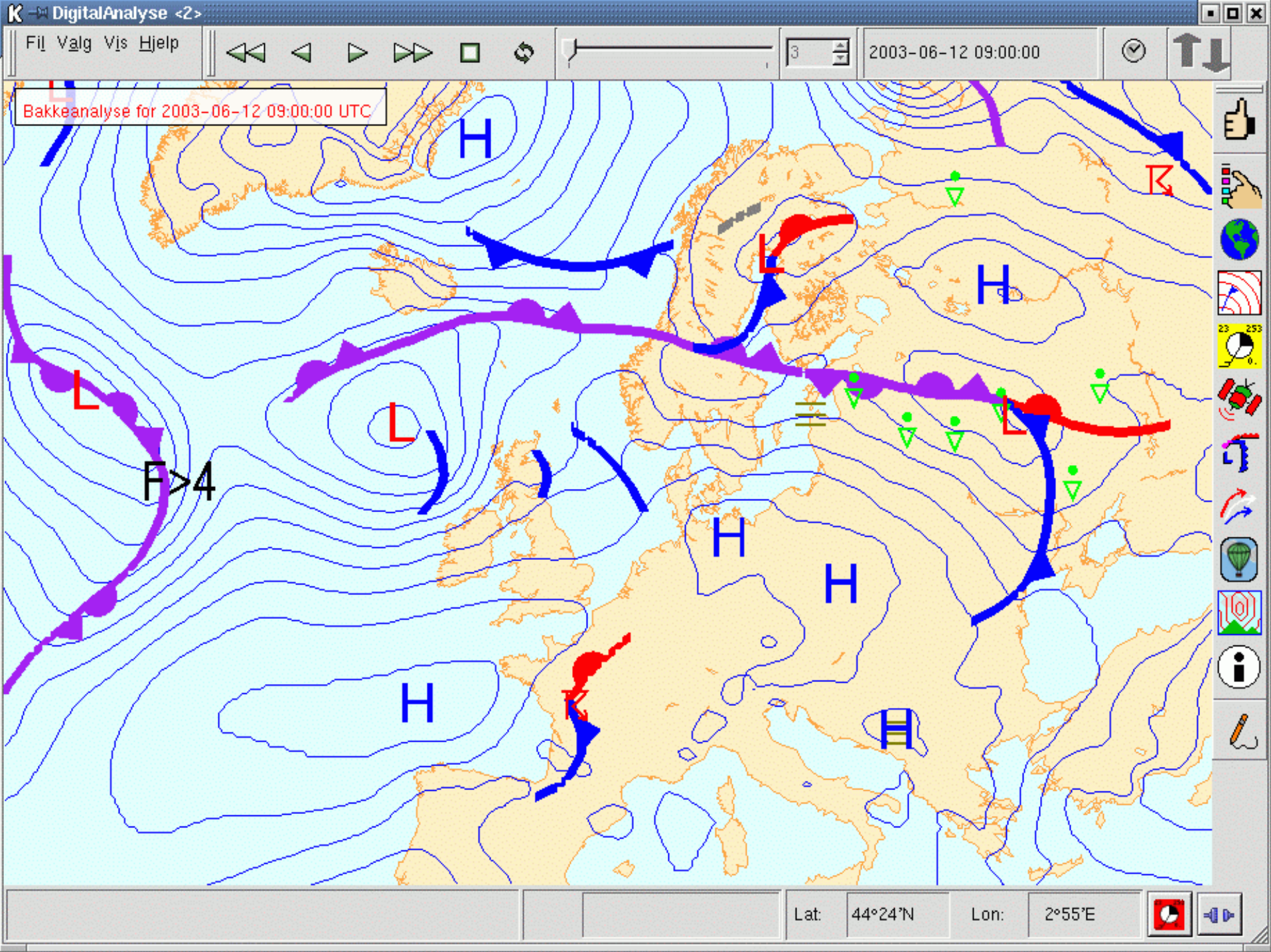
DIANA

Interactive tools

- Scalar field modification
- Drawing of fronts, significant weather symbols, etc.
- Combination of products from regional centers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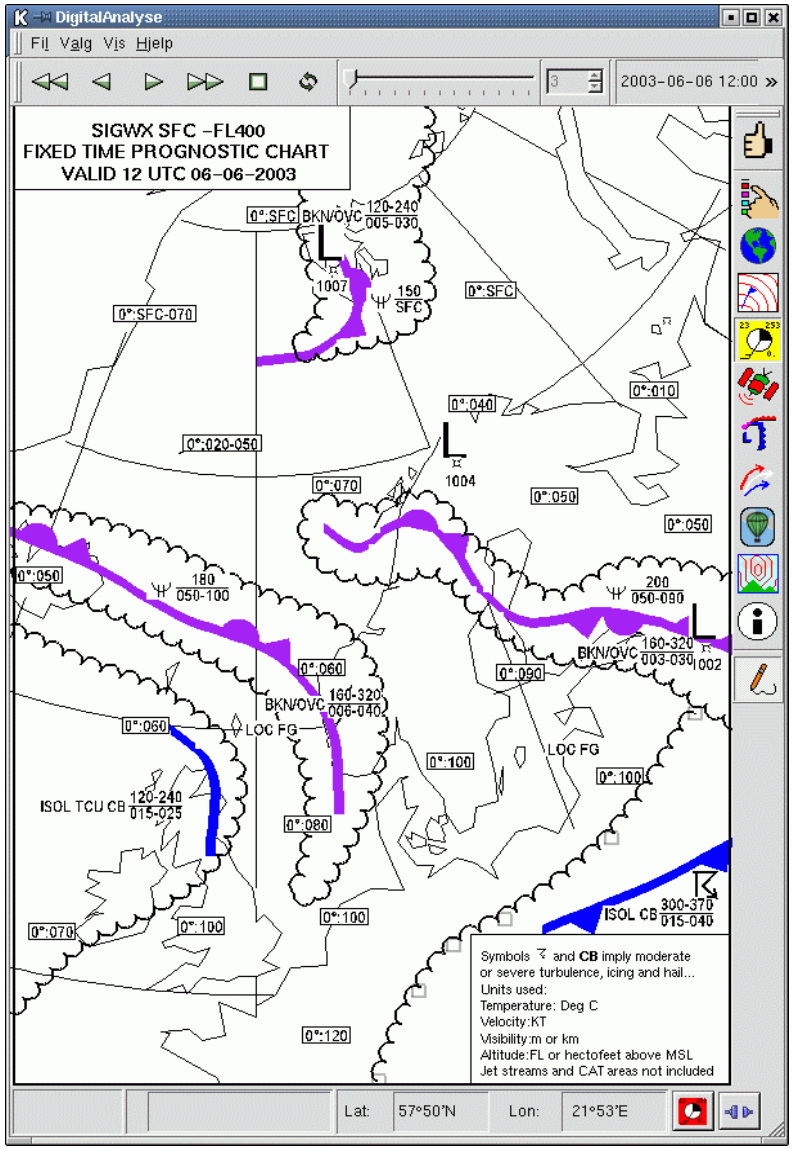
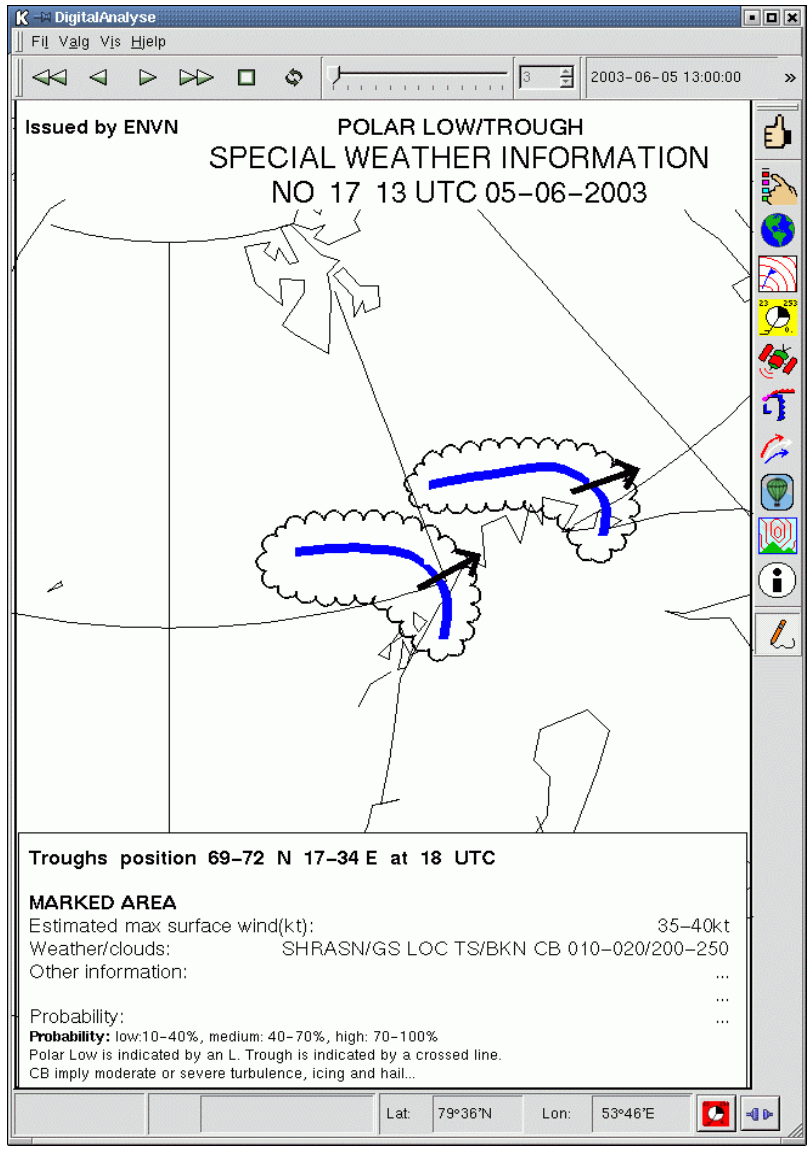
2003-06-12 09:00:00
Bakkeanalyse for 2003-06-12 09:00:00 UTC
H
L
F>4
Lat:
44°24'N
Lon:
2°55'E

Significant weather

Polar low



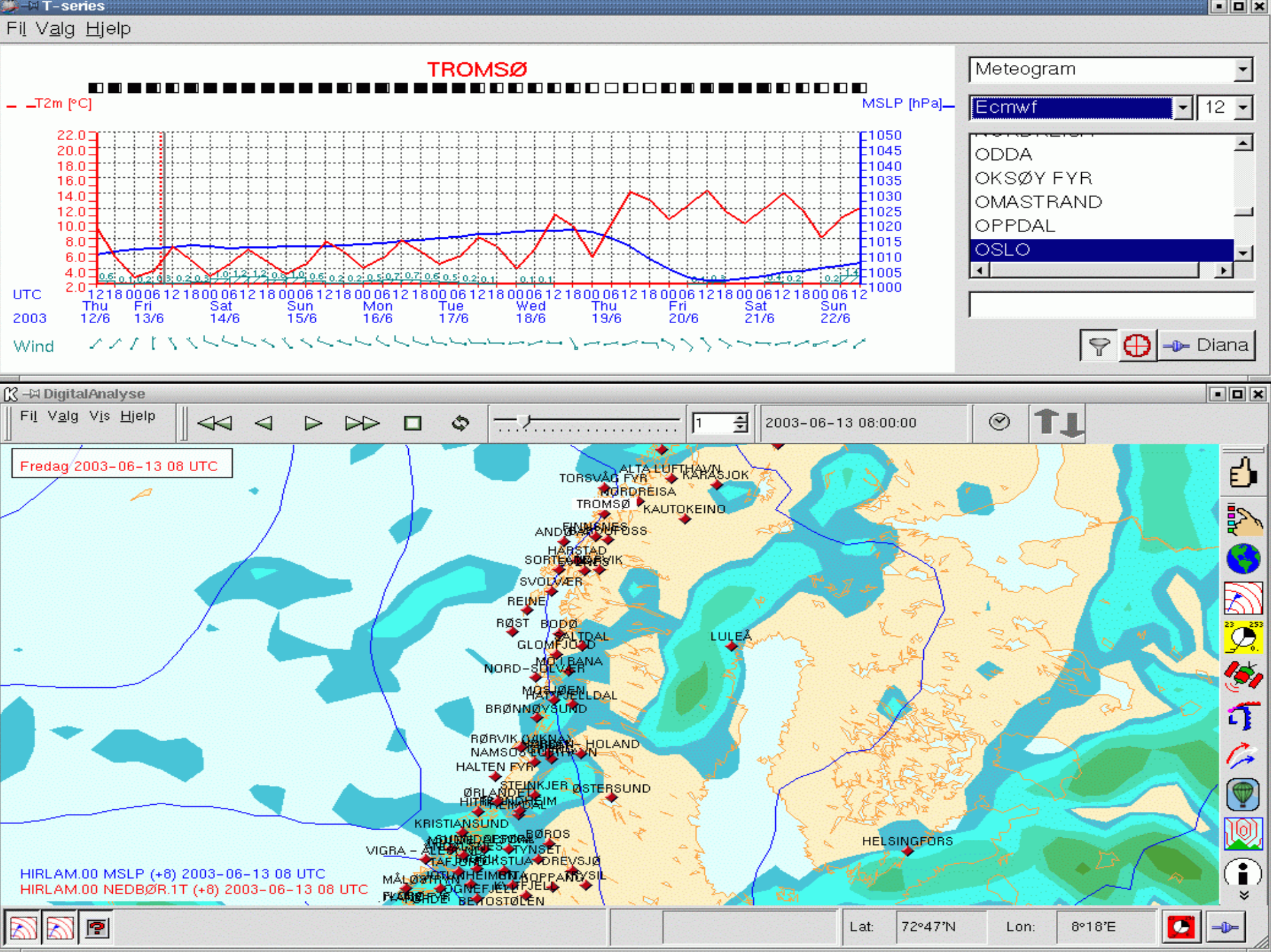


Middleware – connecting applications

Sockets (QSockets from the Qt toolkit)

Separate server application

Communication is based on text


T-series
Fil Valg Hjelp
TROMSØ
T2m [°C]
MSLP [hPa]
UTC
2003
Thu 12/6
Fri 13/6
Sat 14/6
Sun 15/6
Mon 16/6
Tue 17/6
Wed 18/6
Thu 19/6
Fri 20/6
Sat 21/6
Sun 22/6
Wind
Meteogram
Ecmwf
12
ODDA
OKSØY FYR
OMASTRAND
OPPDAL
OSLO
Diana
DigitalAnalyse
Fil Valg Vis Hjelp
2003-06-13 08:00:00
Fredag 2003-06-13 08 UTC
ALTA LUFTHAVN
KARASJOK
TORSVÅG FYR
NORDREISA
TROMSØ
KAUTOKEINO
HARSTAD
SVOLVÆR
REINE
RØST
BODØ
GLOMFJORD
LULEÅ
BRØNNØYSUND
HALTEN FYR
STEINKJER
ØSTERSUND
KRISTIANSUND
BØRØS
HELSINGFORS
HIRLAM.00 MSLP (+8) 2003-06-13 08 UTC
HIRLAM.00 NEDBØR.1T (+8) 2003-06-13 08 UTC
Lat: 72°47'N
Lon: 8°18'E

- MODFLY -

Fil Rediger Verktøy Innstillinger Hjelp

Ny edit | Lagre | Send | Print | 11 56

Gyldige Varsler

KortTAF | LangTAF | Metar

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TAF	ENML	050800Z 050918 25012KT 9999 -RA SCT020 BKN040 PROB30 TEMPO 0912 4000 TSRA BKN012CB=	
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TAF	ENFG	050800Z 050917 VRB05KT 0500 FG VV002 TEMPO 0912 4000 SHRA BR BKN010 BECMG 1214 24012KT 9999 FEW010 BKN030=	
TAF	ENFL	050800Z 050918 19018KT 9999 -SHRA FEW006 BKN015CB TEMPO 0912 3000 -DZ BR BKN006 =	
TAF	ENGM	050800Z 050918 18012KT 2000 BR BKN002 TEMPO 0912 0500 FG BECMG 1012 24008KT 9999 SCT015 BKN020 PROB40 1215 4000 TSRA BKN012 SCT015CB=	
TAF	ENGC	050800Z 050918 26020KT 9999 SCT010 PROB30 0918 3000 BR BKN005=	
TAF	ENRY	050800Z 050918 21010KT 6000 SCT005 BKN015 TEMPO 0915 1500 SHRA BR BKN003 SCT015CB PROB30 0912 0800 TS FG=	

Varsel-Editering

KortTAF | LangTAF | Metar

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TAF	ENHF	050800Z 050915 14010KT CAVOK=		

TAF ENBV 050800Z 050915 05010KT 9999 SCT015 BKN030 PROB40 TEMPO 0915 SCT008 BKN012=

METAR

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ENBV 050920Z 07009KT 9999 SCT015 BKN030 03/M01 1020=

Test-database norway @ monsoon.oslo.dnmi.no | Diana

Fil Valg Vis Hjelp

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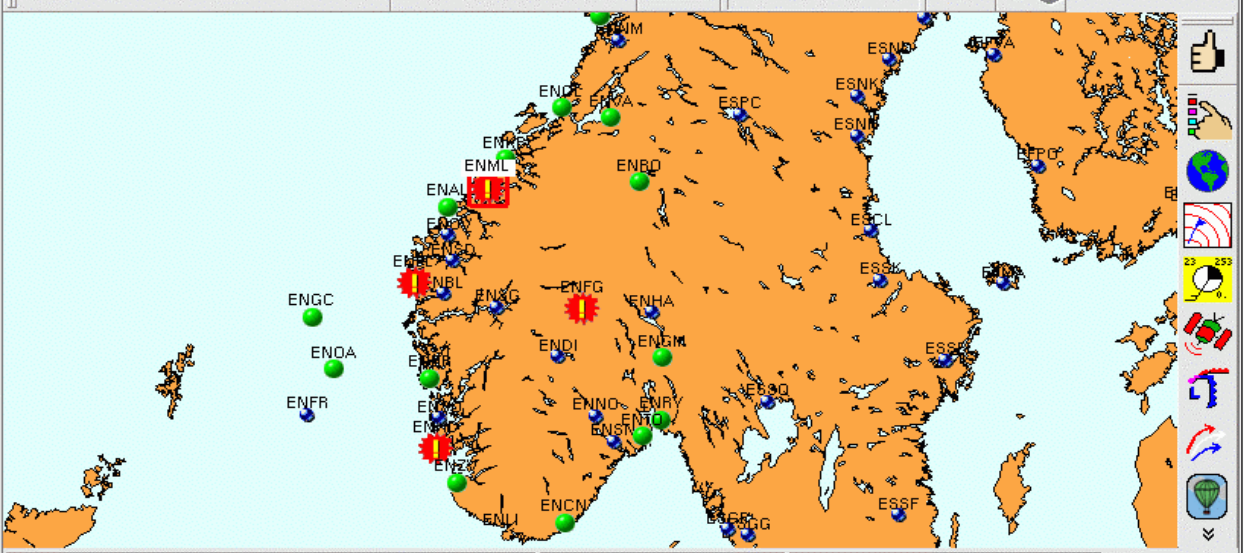

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diana

Molde/årø

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METAR

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modfly

ENML

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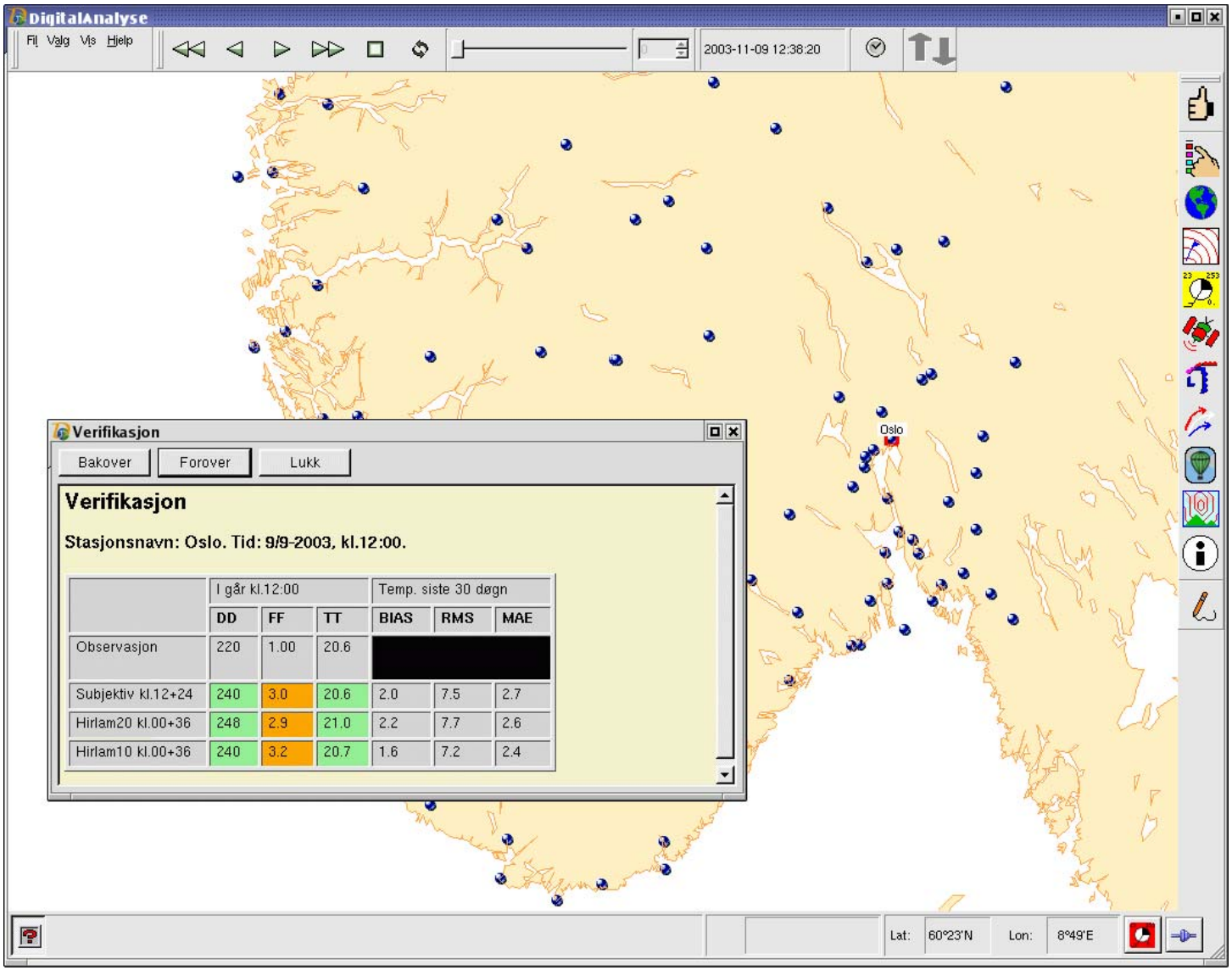
Avbryt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Oslo
Verifikasjon
Bakover
Forover
Lukk
Verifikasjon
Stasjonsnavn: Oslo. Tid: 9/9-2003, kl.12:00.
I går kl.12:00
Temp. siste 30 døgn
DD FF TT BIAS RMS MAE
Observasjon 220 1.00 20.6
Subjektiv kl.12+24 240 3.0 20.6 2.0 7.5 2.7
Hirlam20 kl.00+36 248 2.9 21.0 2.2 7.7 2.6
Hirlam10 kl.00+36 240 3.2 20.7 1.6 7.2 2.4
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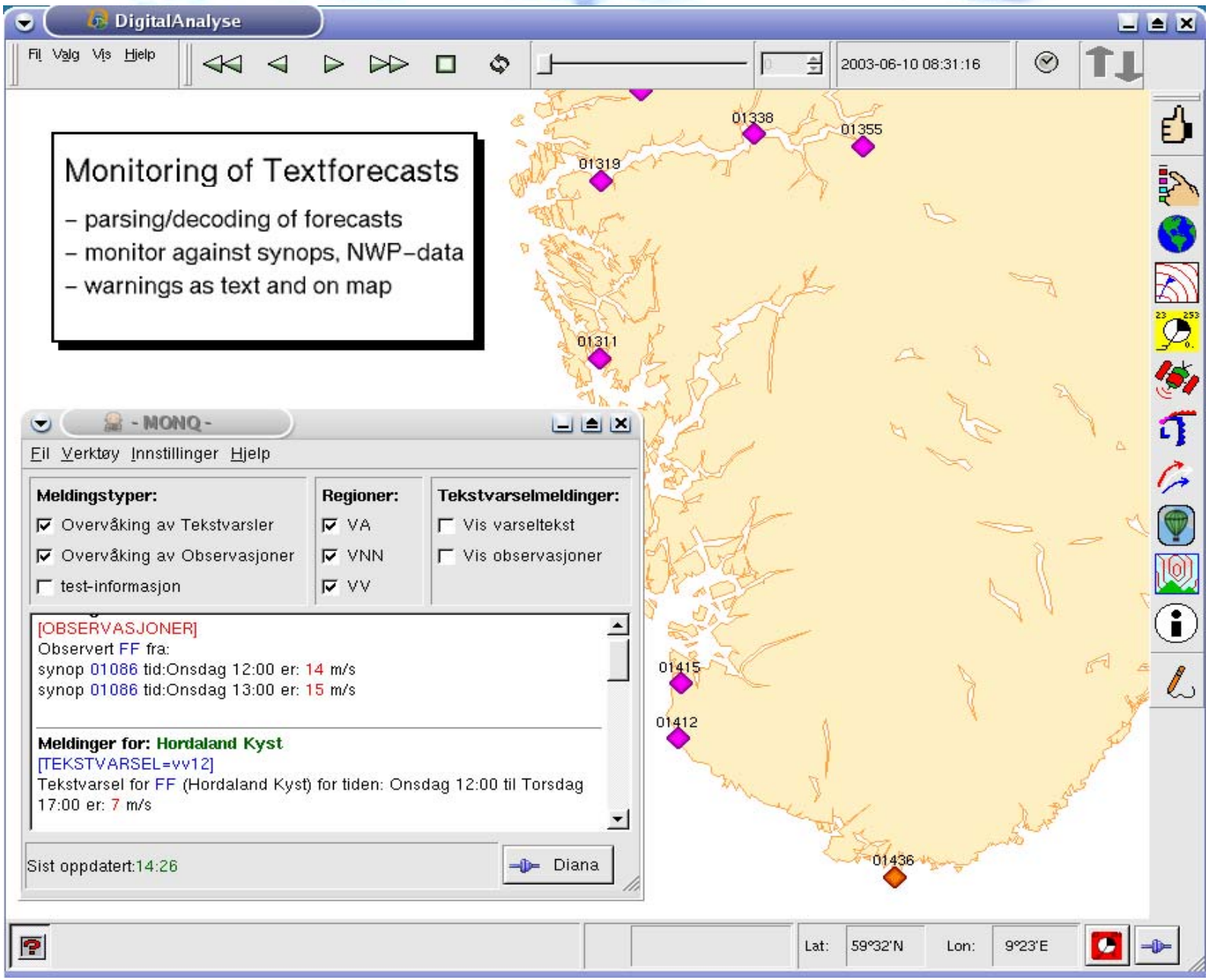
Lon: 8°49'E


DigitalAnalyse
Fil Valg Vis Hjelp
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Monitoring of Textforecasts
– parsing/decoding of forecasts
– monitor against synops, NWP–data
– warnings as text and on map
01338
01355
01319
01311
01415
01412
01436
- MONQ -
Fil Verktøy Innstillinger Hjelp
Meldingstyper:
Overvåking av Tekstvarsler
Overvåking av Observasjoner
test-informasjon
Regioner:
VA
VNN
VV
Tekstvarselmeldinger:
Vis varseltekst
Vis observasjoner
[OBSERVASJONER]
Observert FF fra:
synop 01086 tid:Onsdag 12:00 er: 14 m/s
synop 01086 tid:Onsdag 13:00 er: 15 m/s
Meldinger for: Hordaland Kyst
[TEKSTVARSEL=vv12]
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Sist oppdatert:14:26
Diana
Lat: 59°32'N
Lon: 9°23'E

DIANA - interfaces

- Macros
  - Predefined (products for specific tasks)
  - User defined
- Full GUI control set
- Batch version – identical code base

DIANA

- Developed for operational use
- Fast development cycle - monthly updates
- Small development crew in close cooperation with forecasters
- Increased usage by researchers
- New applications (HQC)