



A new direct-broadcast facility at Deutscher Wetterdienst (DWD)

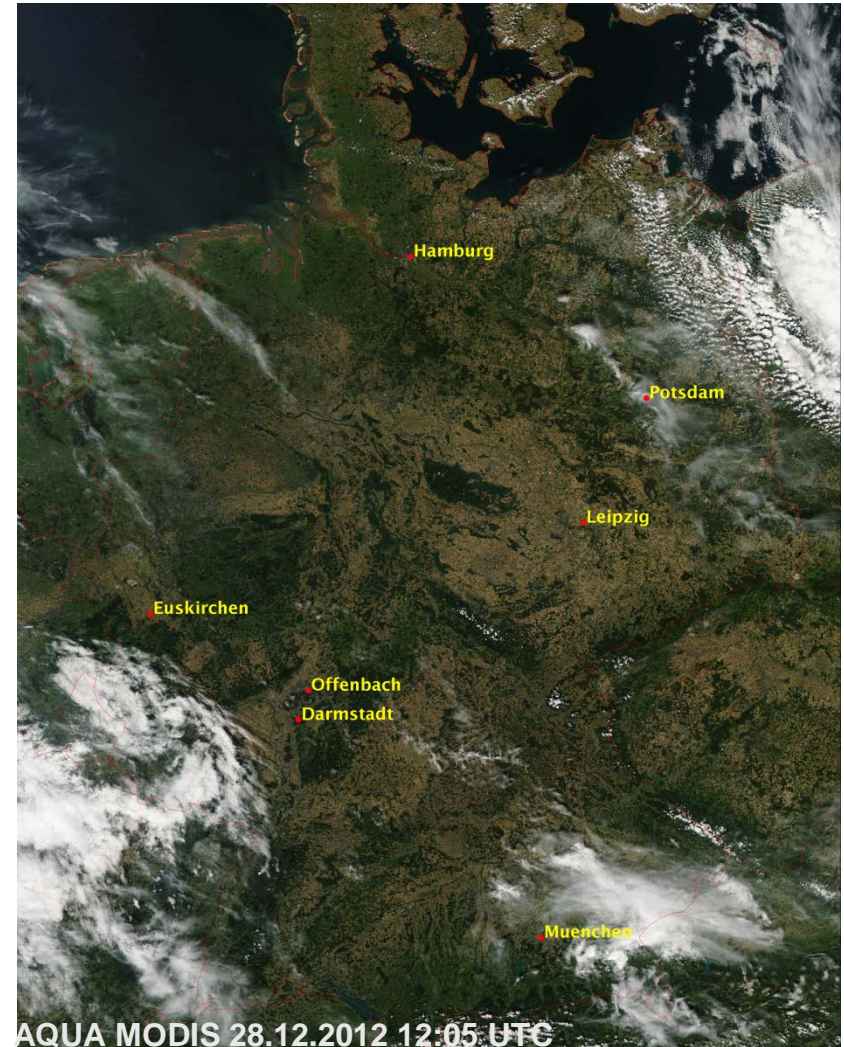
K. Hungershoefer, C. Müller, J. Popp, J. Asmus

Deutscher Wetterdienst, Offenbach, Germany

- Introduction
- Acquisition and operation of the new dual band antenna
- Processing with CSPP and Polar2grid
- First experiences and feedback
- Summary and next steps

Some facts about DWD

- DWD is a public institution with partial legal capacity under the Federal Ministry of Transport and Digital Infrastructure
- DWD is responsible for meeting meteorological requirements arising from all areas of economy and society in Germany as laid down in the Law on the Deutscher Wetterdienst.
- Headquarters in Offenbach am Main, 6 branch offices, 5 regional climate offices, 6 advisory centres for aviation, 17 weather radar sites, 2 observatories
- 2300 employees throughout Germany



Data reception
in Offenbach

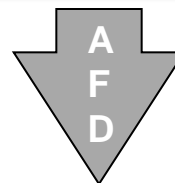


EUMETCast



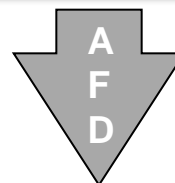
Direct
reception

TI 15



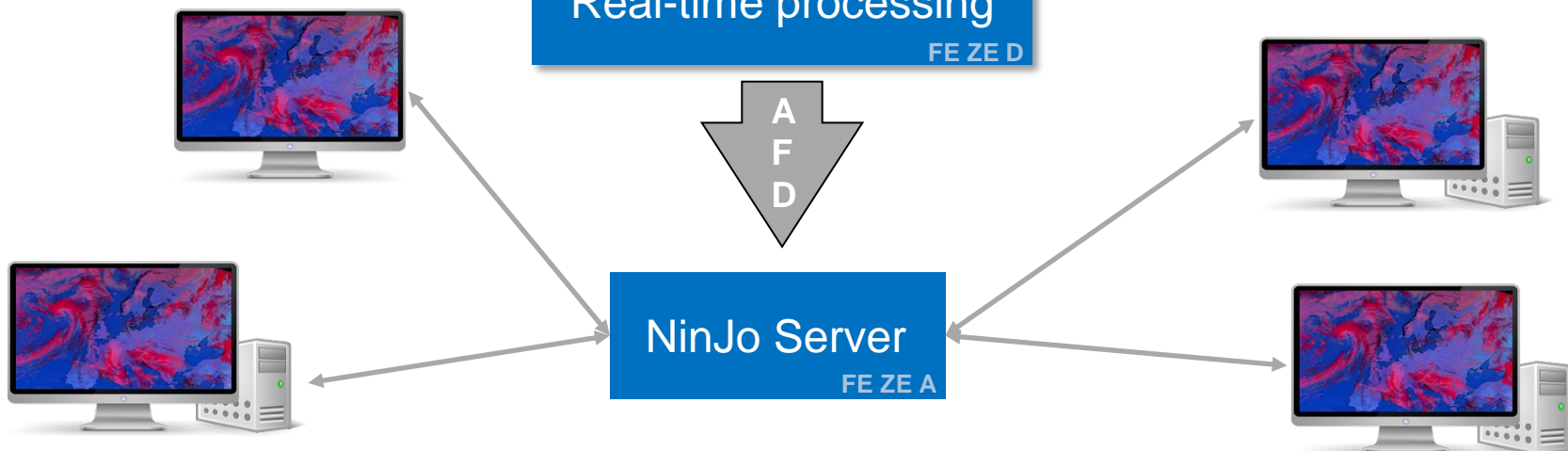
Real-time processing

FE ZE D



NinJo Server

FE ZE A



NinJo is an ultramodern meteorological workstation system with

- multi-window technology
- layer-based visualisation of different data types
- easily integrates geographic map displays
- diagrams, such as meteograms, cross-sections and tepigrams
- animation and graphical export capabilities
- a flexible client/server architecture
- a high degree of configurability
- multi-lingual (engl/french/german)



The manifold configuration and visualization possibilities turn NinJo into an excellent tool for routinely generation of forecasts and warnings.

NinJo Deployment at DWD

- Operational at all sites since 03/2006
- 350 Clients, 90 Servers
- Current NinJo version 1.8.4
- WAN 1 GBit/s and 155 MBit/s
- LAN 10 GBit/s



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- Roadshow (1st /2nd quarter 2013)

- Preparation of Invitation to tender and study of cost-effectiveness (1st /2nd quarter 2013)

- Release of European Invitation to tender (Summer 2013)

- Contract (Sep. 2013)

- Installation (scheduled for Feb./March 2014 -> delayed to Nov. 2014)

Installation Nov. 2014



Comparison of the old and new system



- Since Oct. 2002
- L-band only
- 2.4 m dish
- El/Az-System
- Manufacturer: SCISYS / Bochum



- Since Nov. 2014
- L- Band & X- Band
- 2.8 m dish
- X/Y-System
- Manufacturer: SCISYS / Bochum

System Components



Tracking Antenna



Motor Control Unit - MCU



Tracking PC



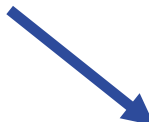
DSR II



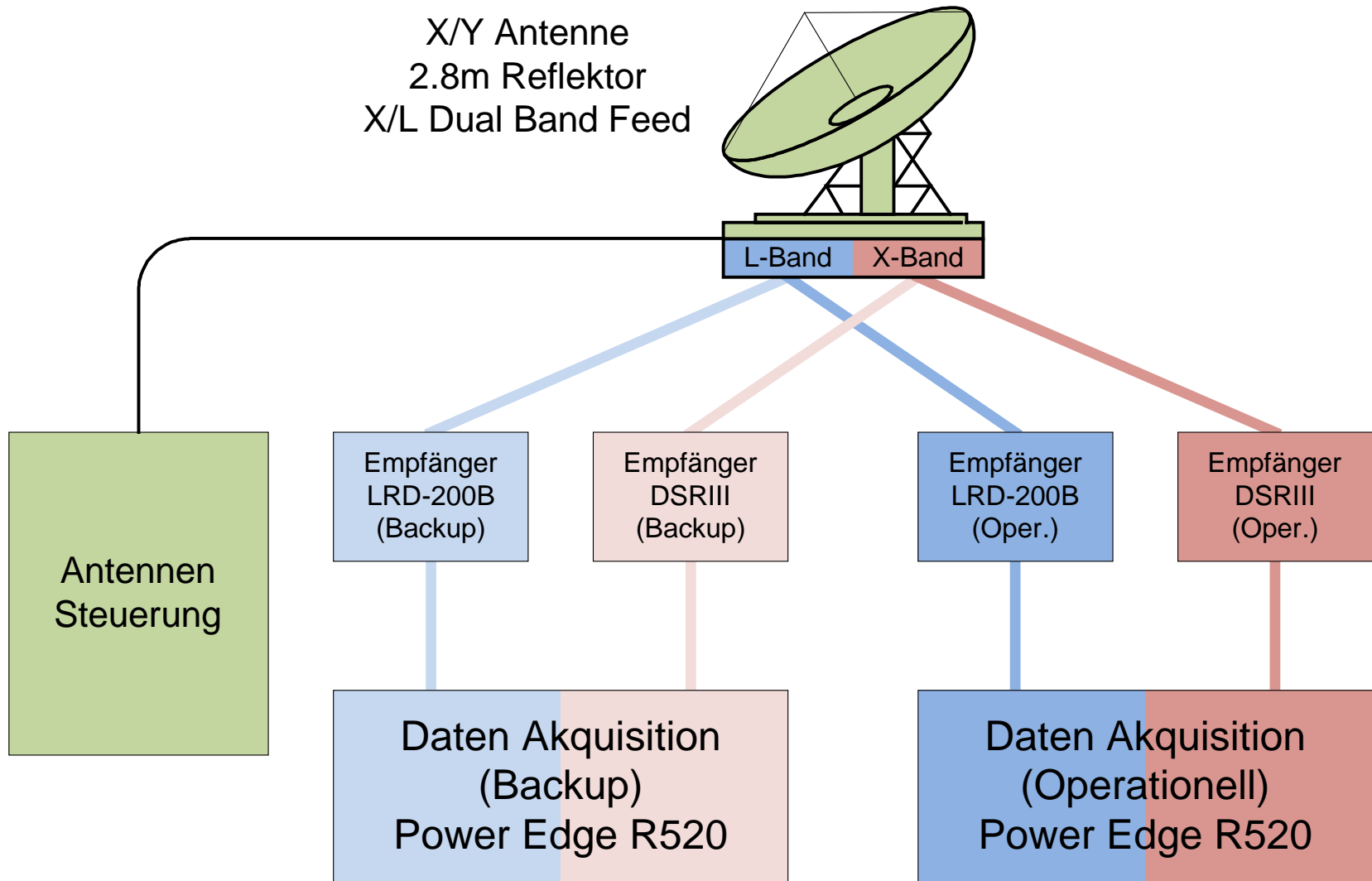
DSR III



Acquisition Server



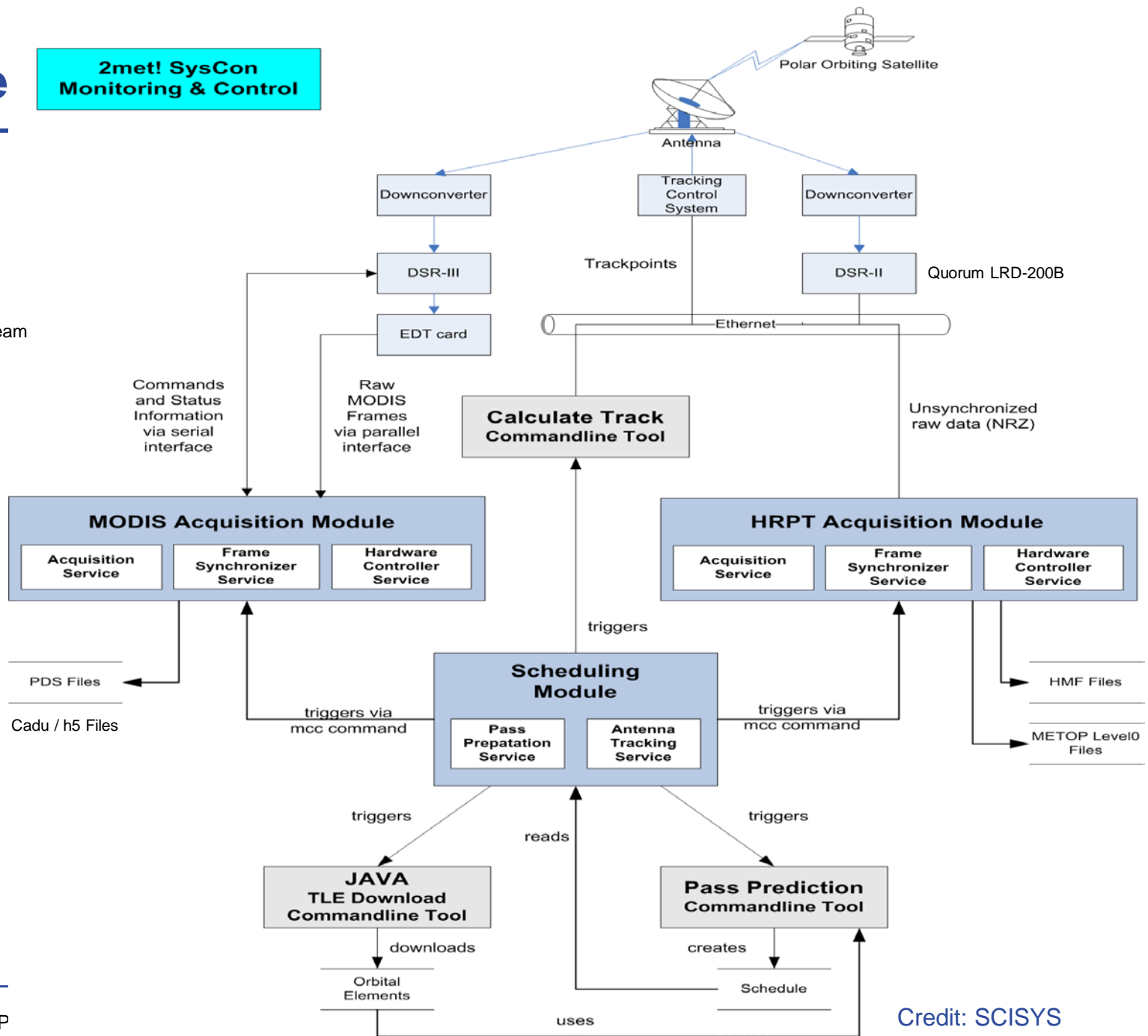
X/L-Band System - Block Diagram



Software

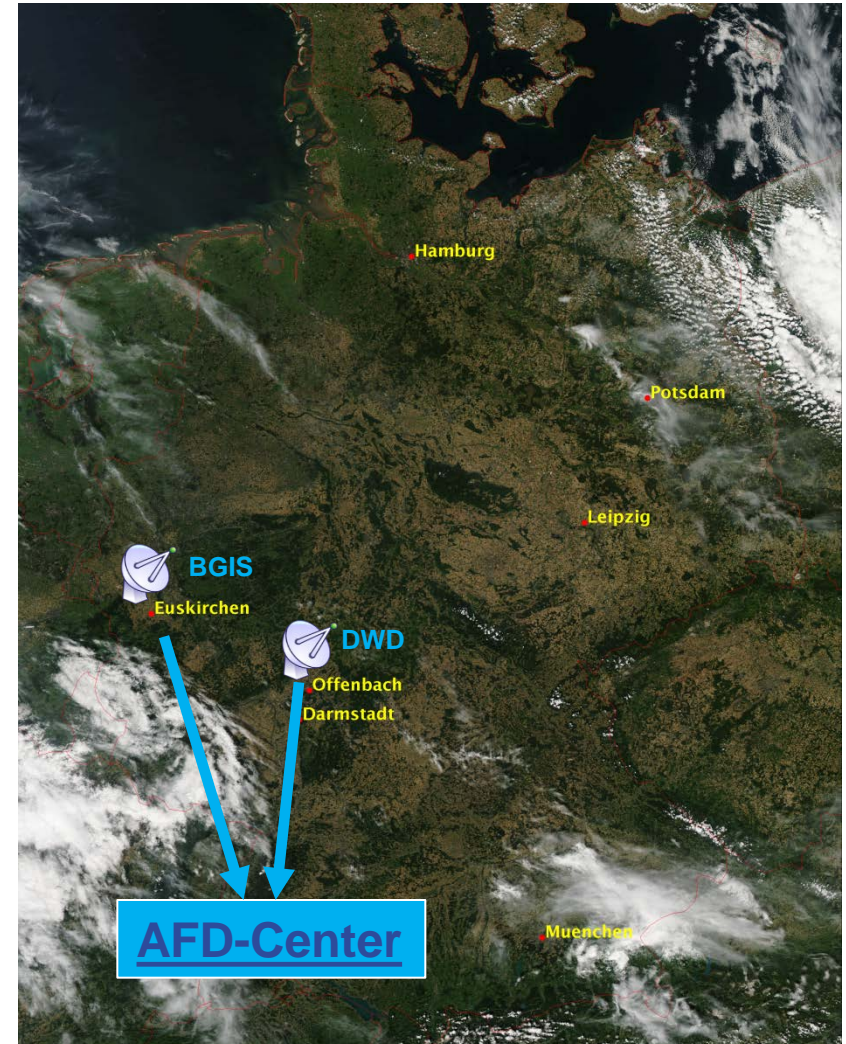
2met! SysCon Monitoring & Control

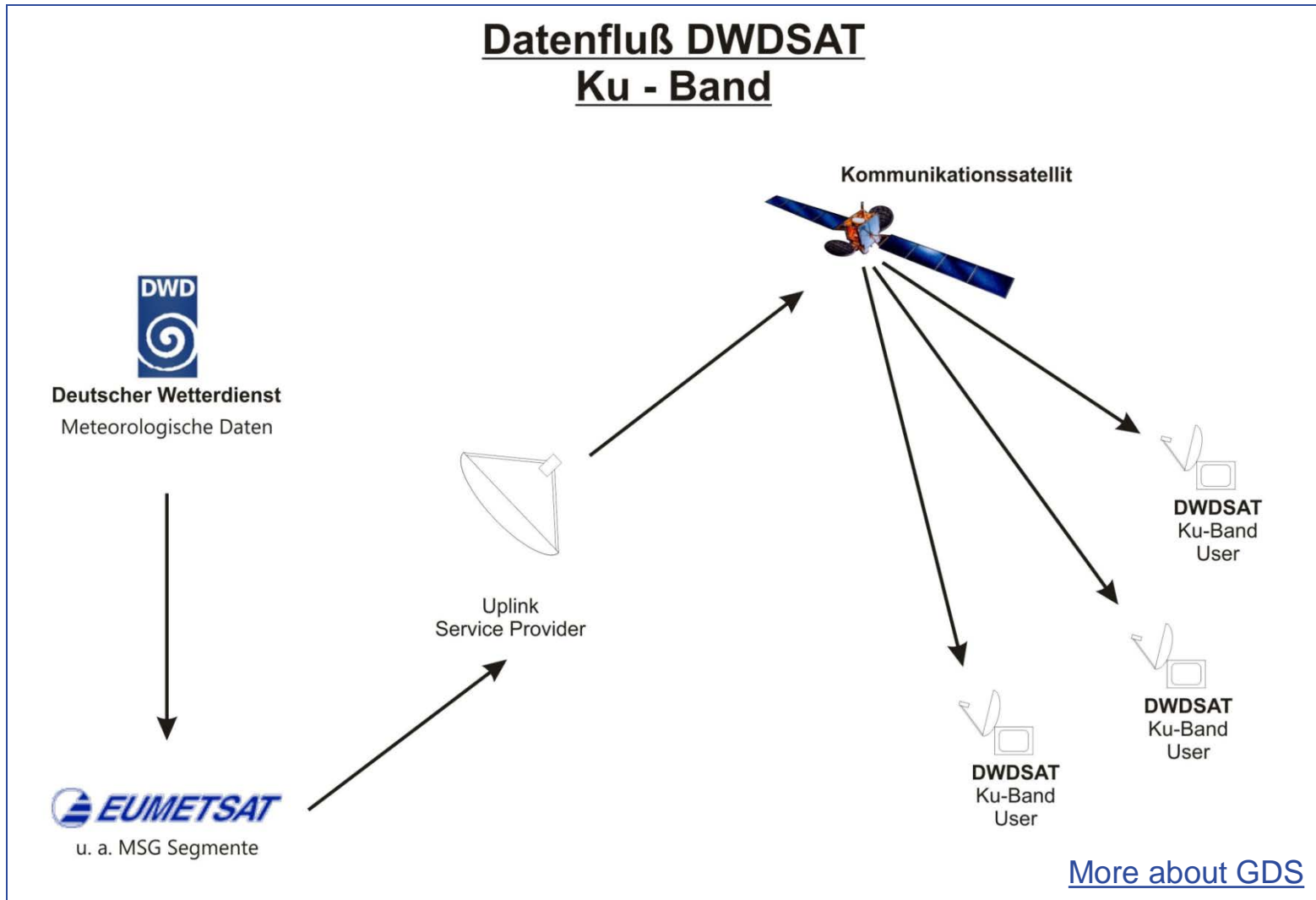
Engineering Design Team
I/O Card

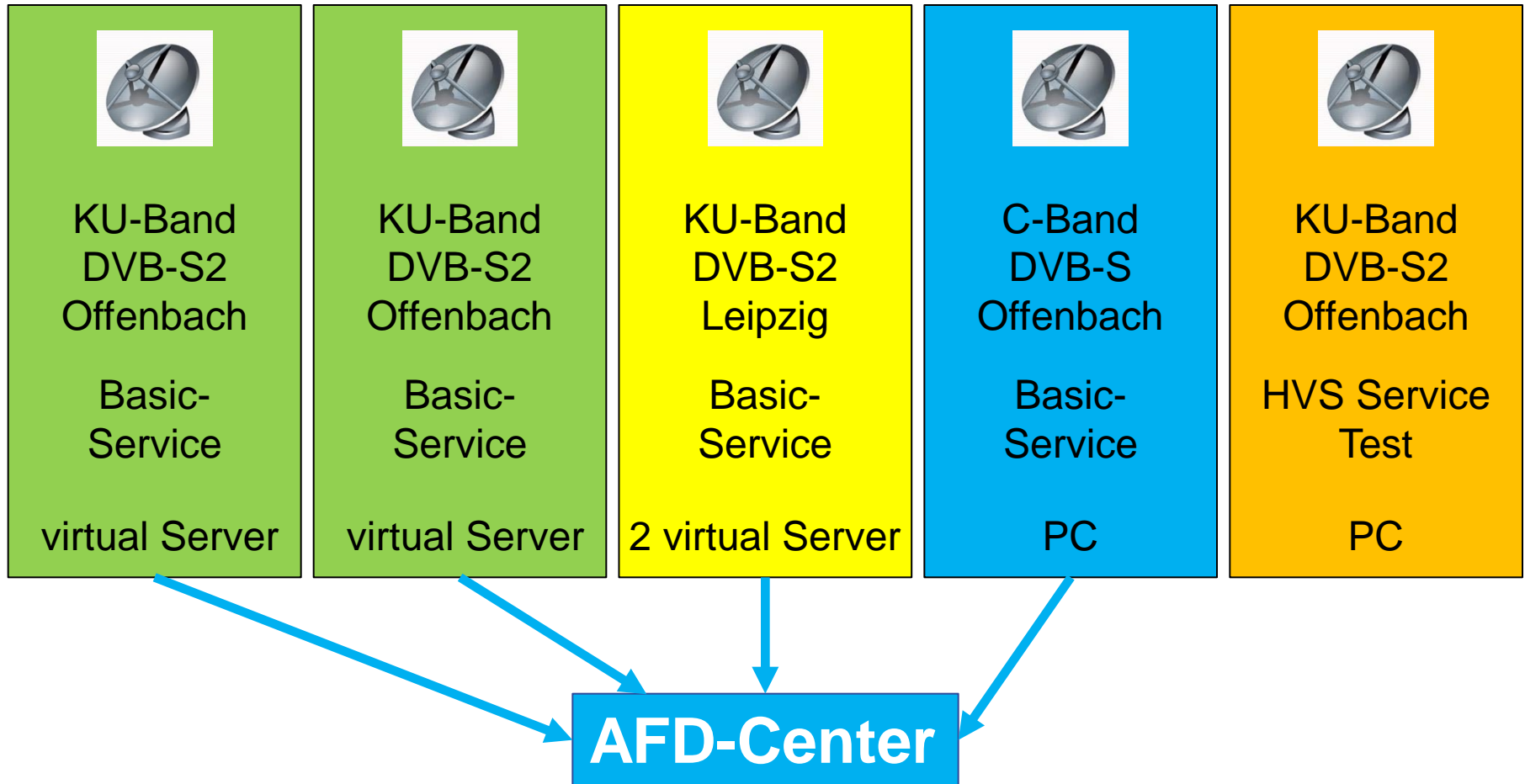


Backup reception station: BGIS

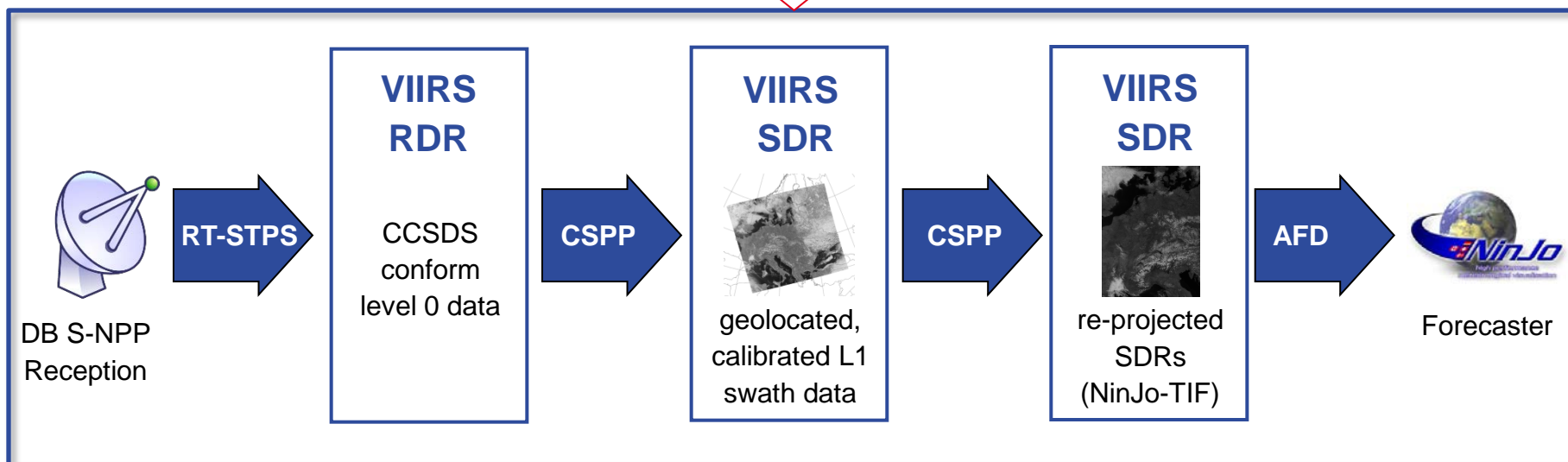
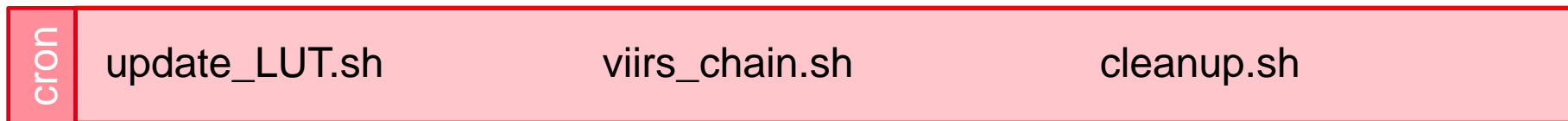
- The **Bundeswehr Geoinformation Service (BGIS)** of the German Federal Armed Forces operates a weather satellite reception system in Euskirchen.
- Equipment
 - EUMETCast (BS/HVS)
 - L/X-Band (SciSys)
- Backup:
DWD and BGIS operate as mutual backup system





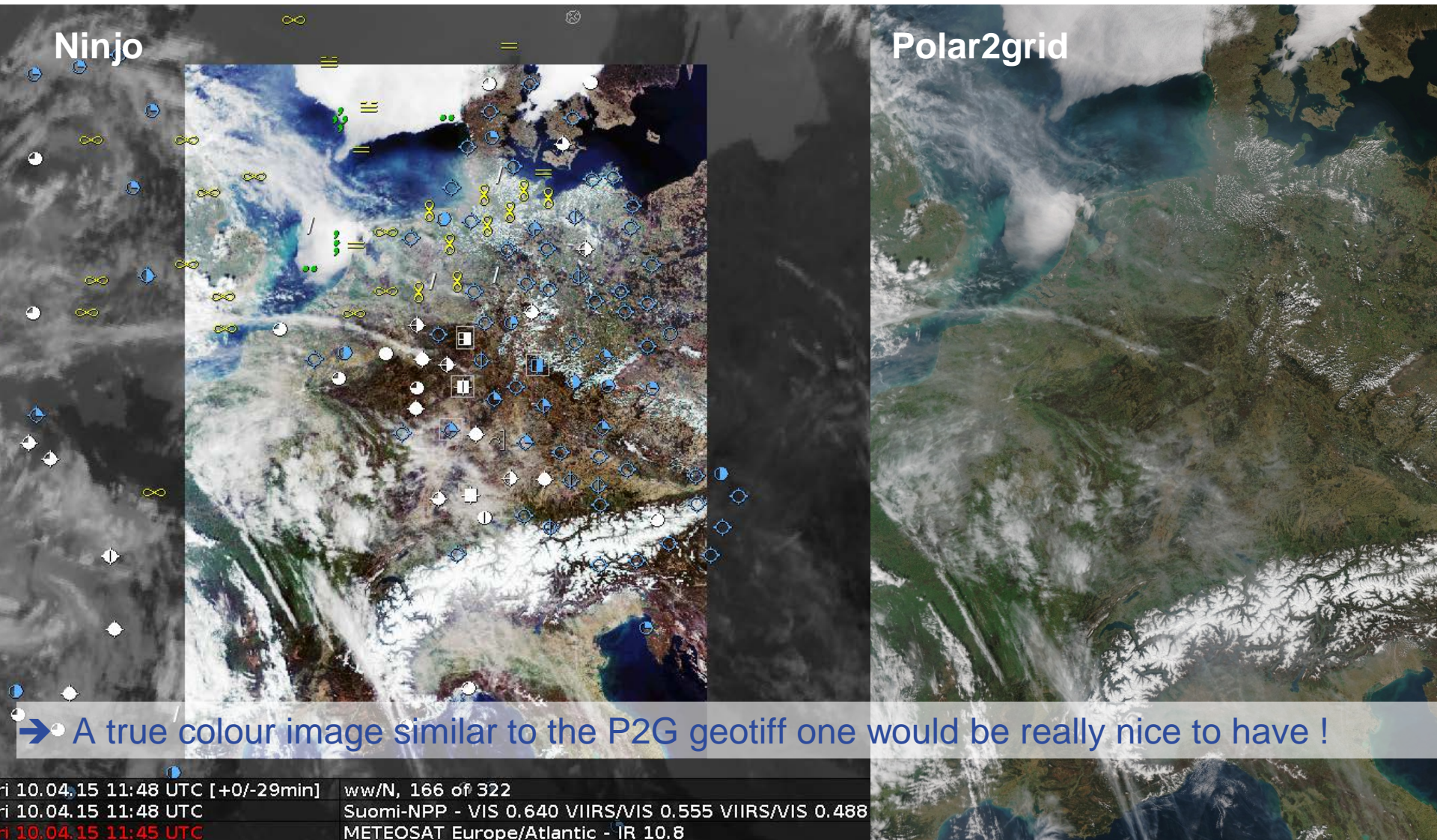


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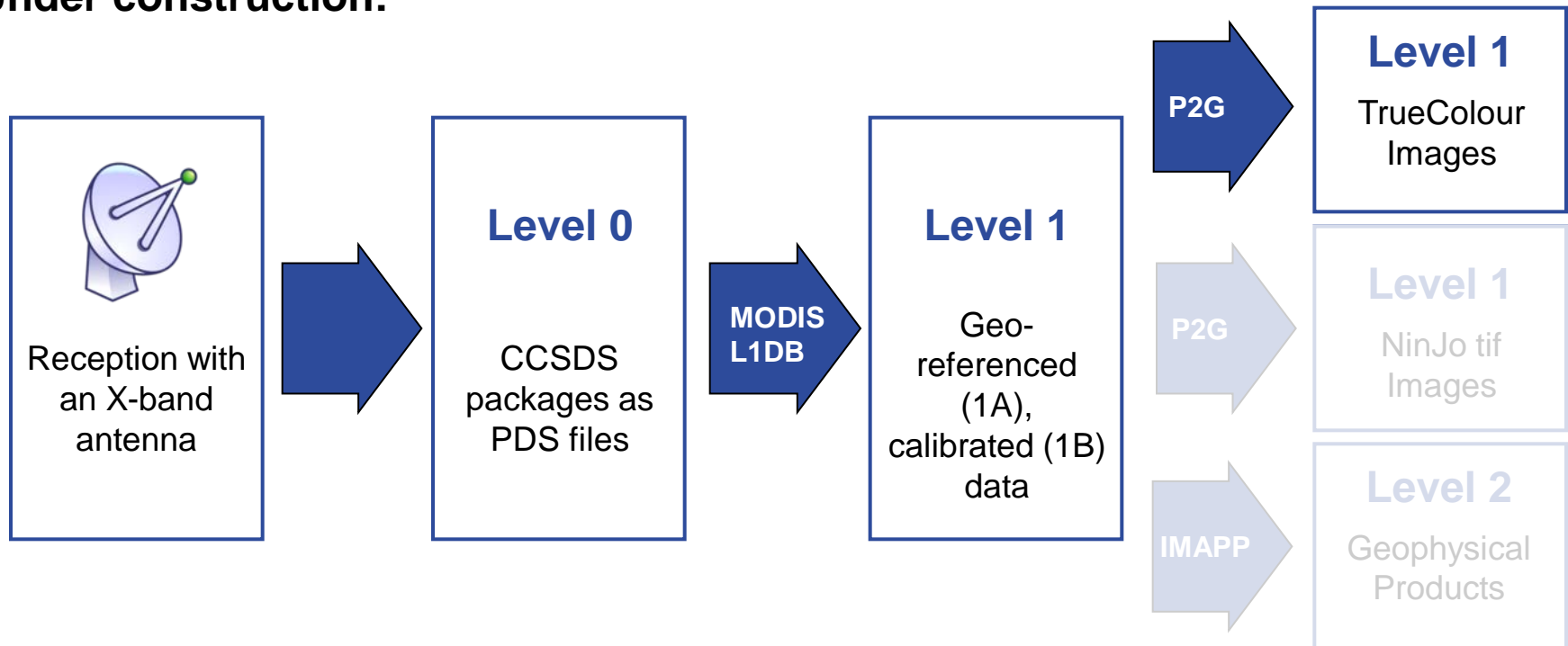
- ➔ CSPP SDR version 2.0.1 runs operationally without problems
- ➔ Using a RAM disk (30 GB) speeds up the CSPP SDR processing
- ➔ CSPP/IMAPP VIIRS and MODIS reprojection Polar2grid software version 1.2
- ➔ Log files are used to monitor the status

S-NPP VIIRS image in NinJo



10.04.15 11:48 UTC [+0/-29min] ww/N, 166 of 322
10.04.15 11:48 UTC Suomi-NPP - VIS 0.640 VIIRS/VIS 0.555 VIIRS/VIS 0.488
10.04.15 11:45 UTC METEOSAT Europe/Atlantic - IR 10.8

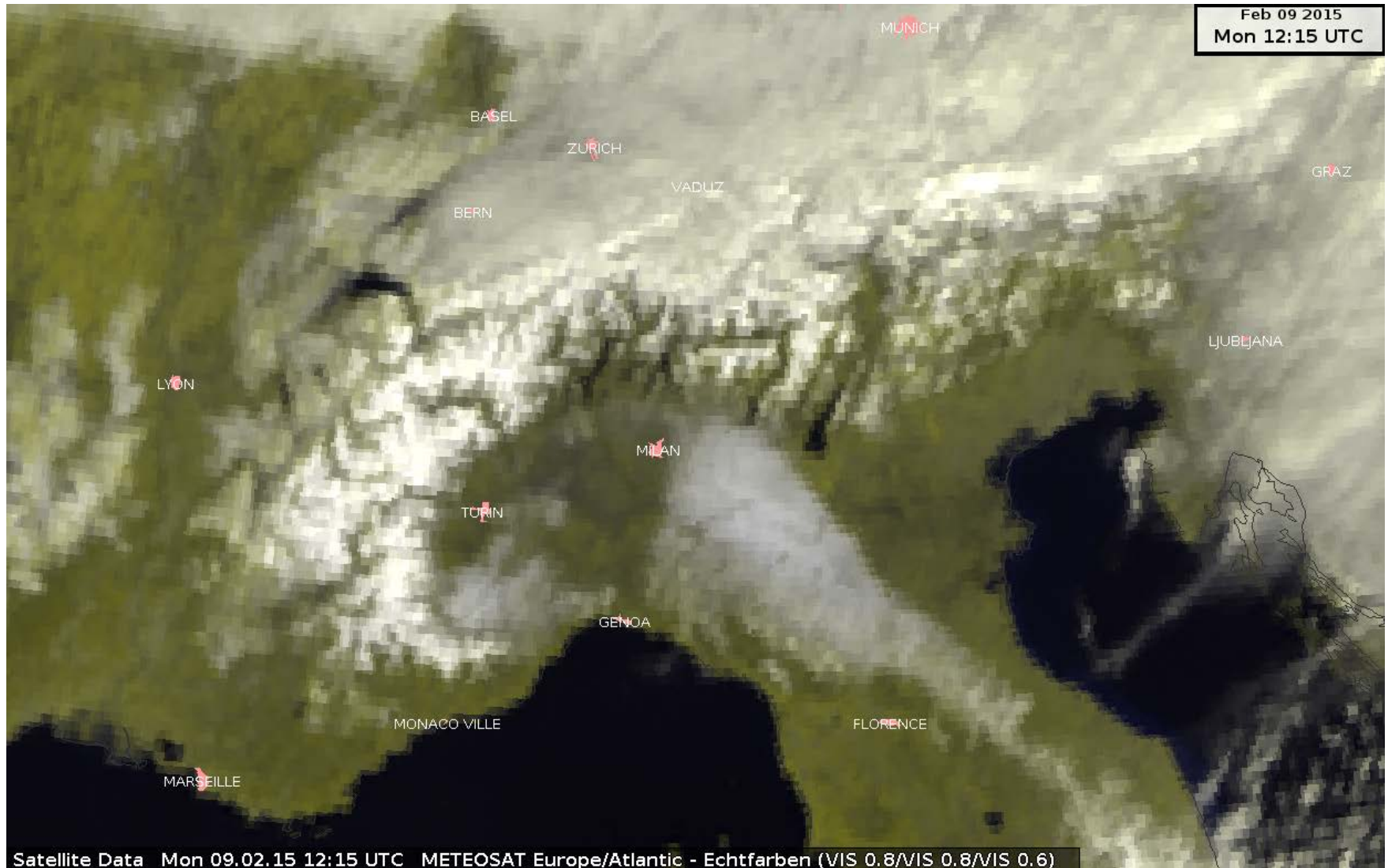
Under construction:



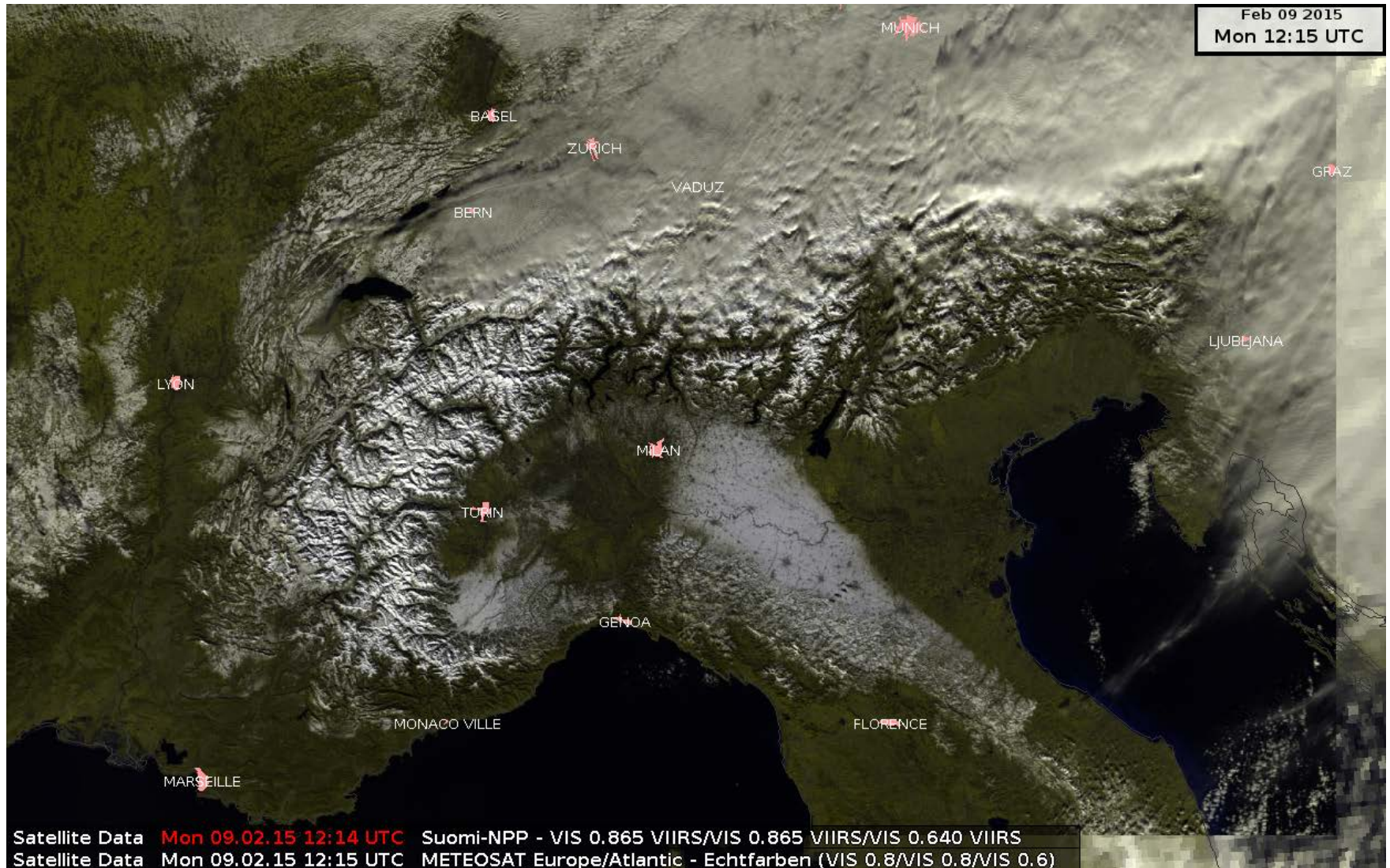
- ➔ The MODIS processing chain is still under construction.
- ➔ The NinJo interface for single channels and the true colour image is missing.
- ➔ Next: IMAPP software (level 2 and overshooting tops)

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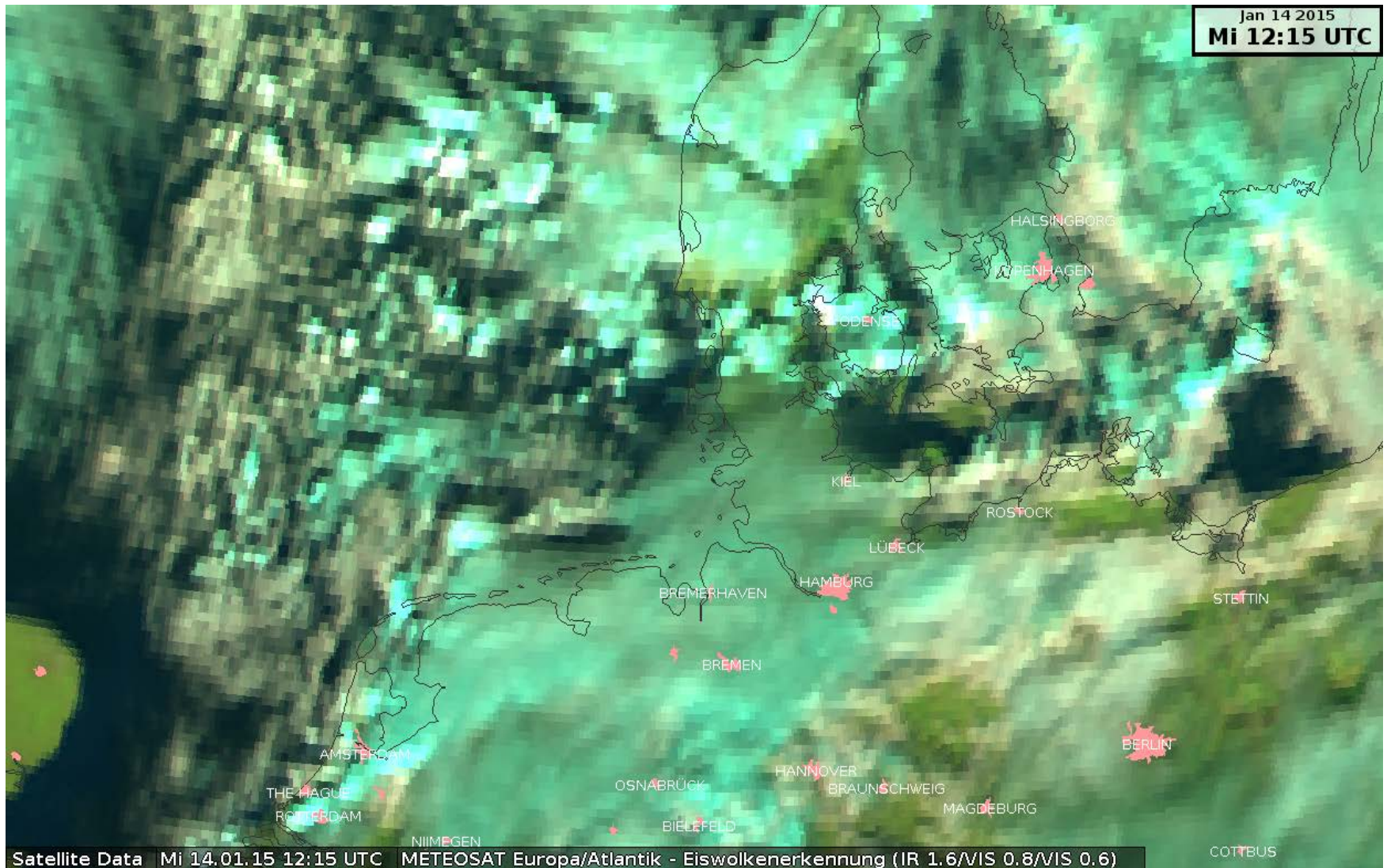
Snow 09.02.2015



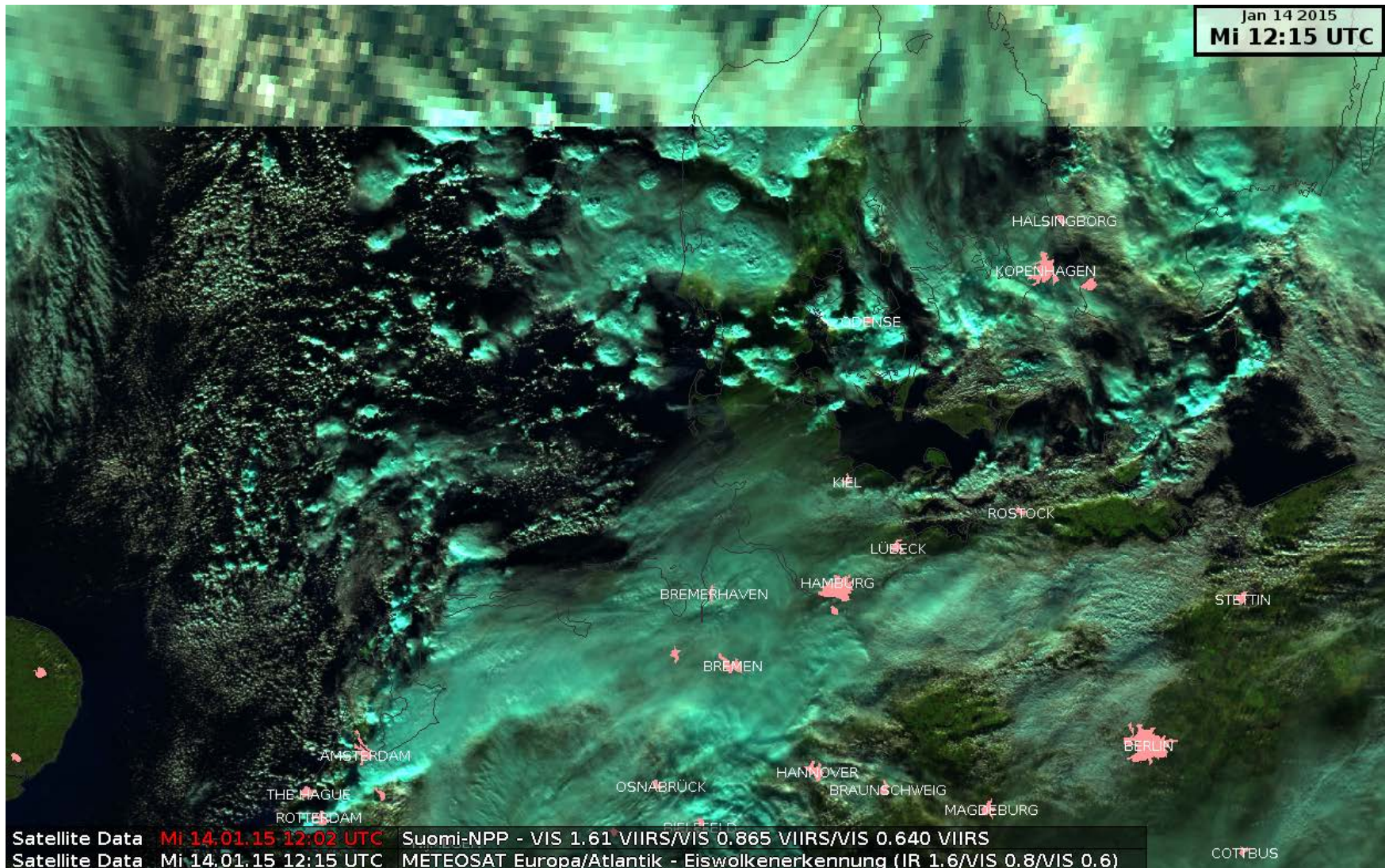
Snow 09.02.2015



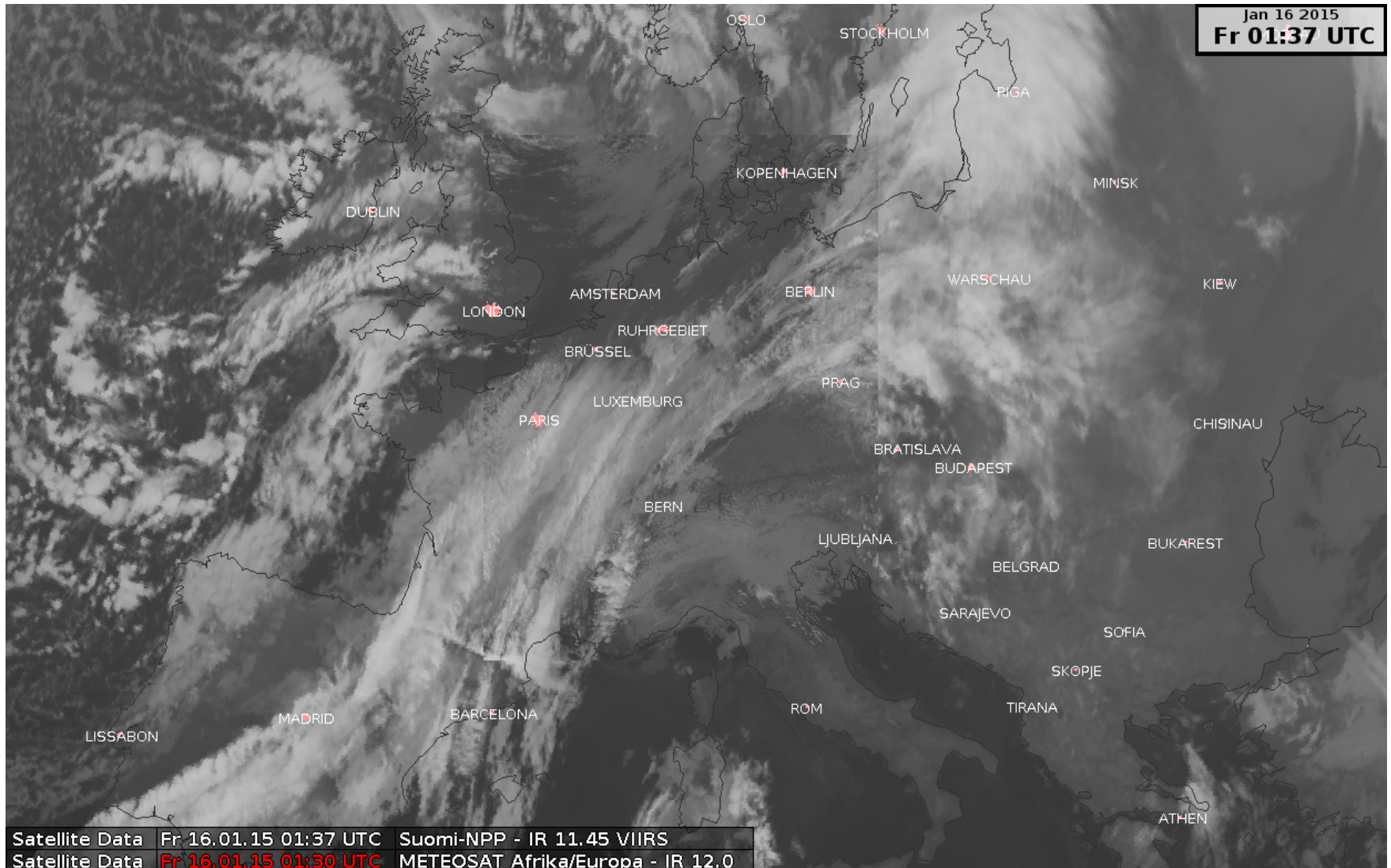
Convection 14.01.2015 12:15 UTC



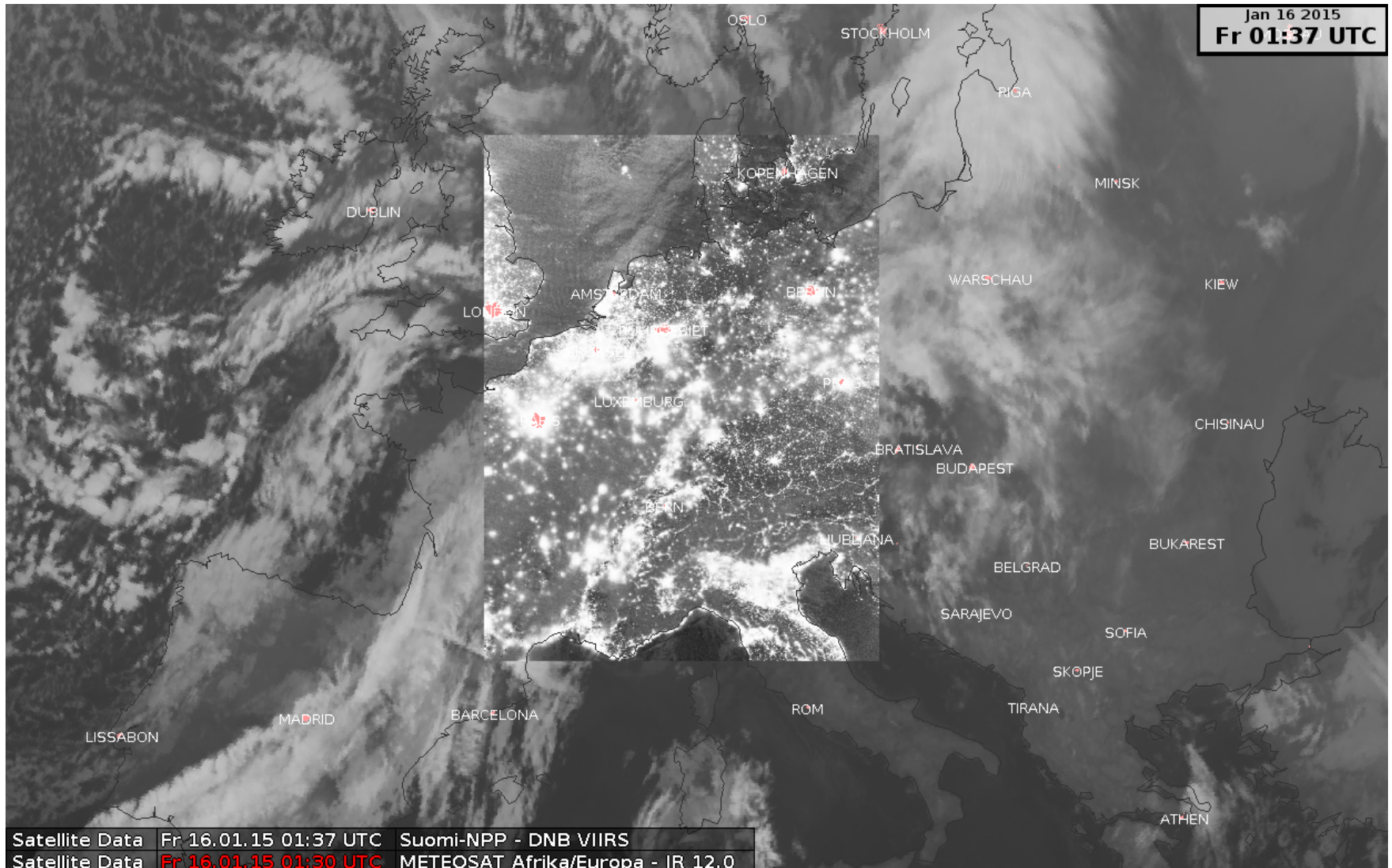
Convection 14.01.2015 12:15 UTC



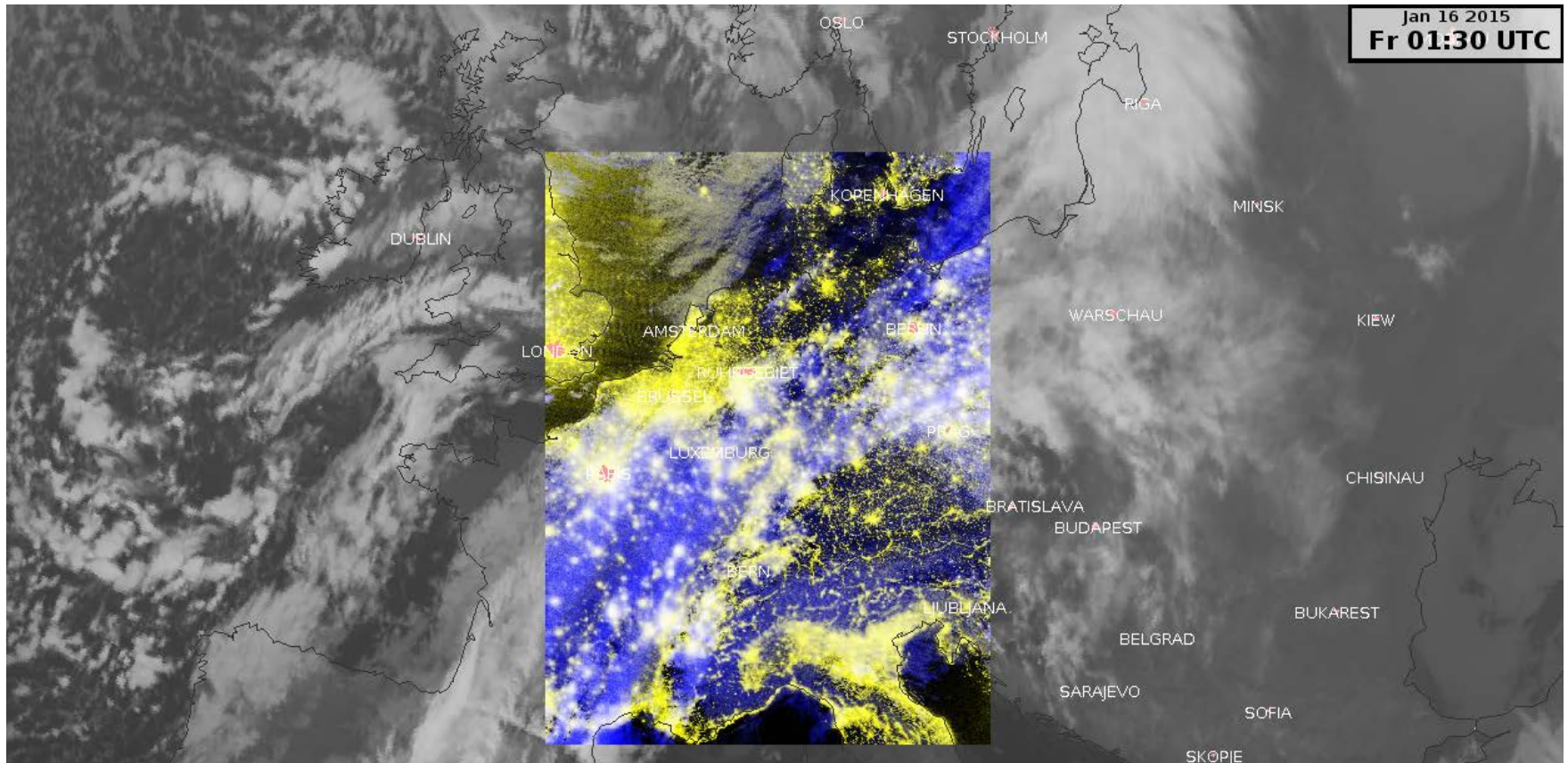
DNB Example: 16.01.2015 01:37 UTC



DNB Example: 16.01.2015 01:37 UTC



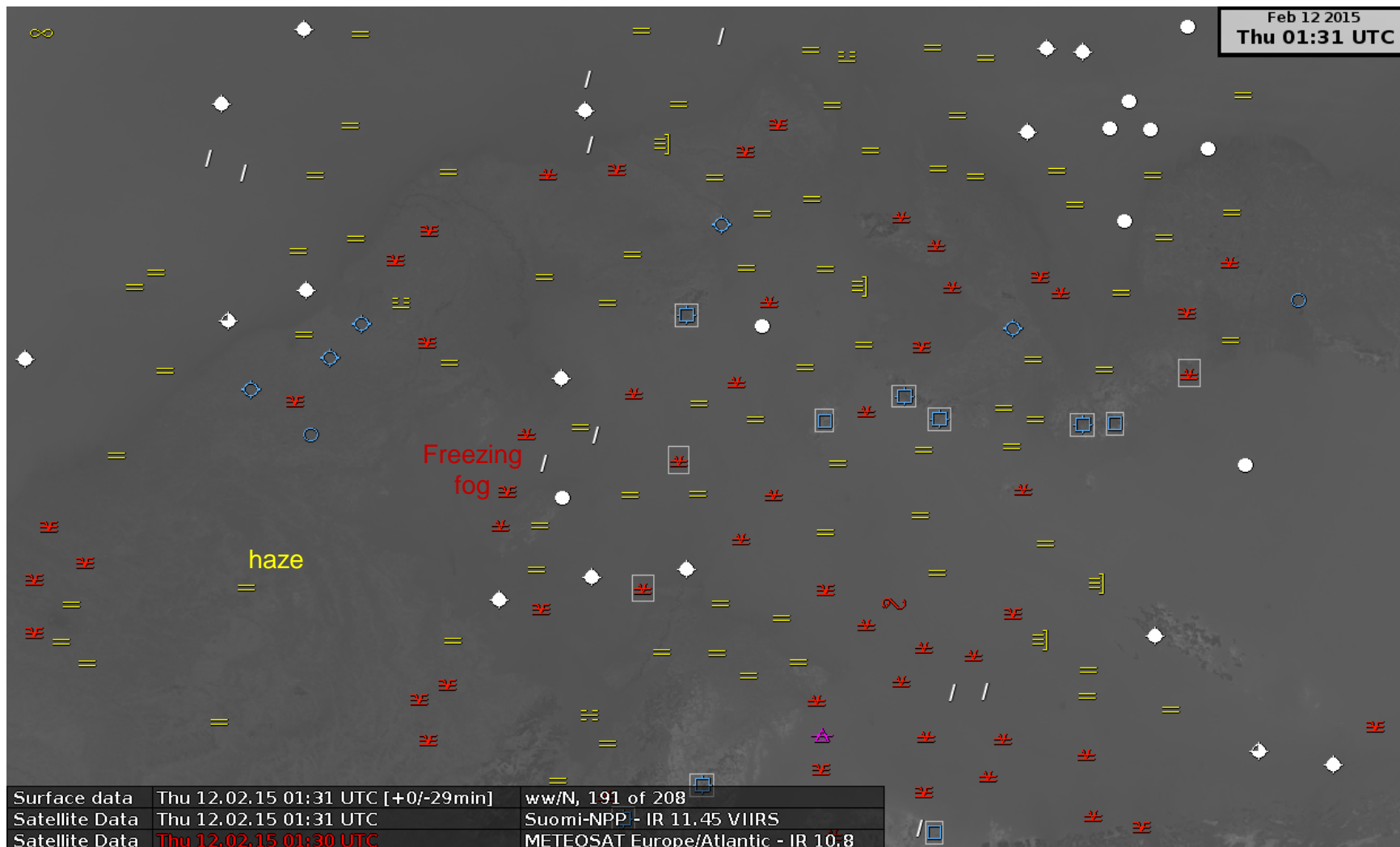
DNB Example: 16.01.2015 01:37 UTC



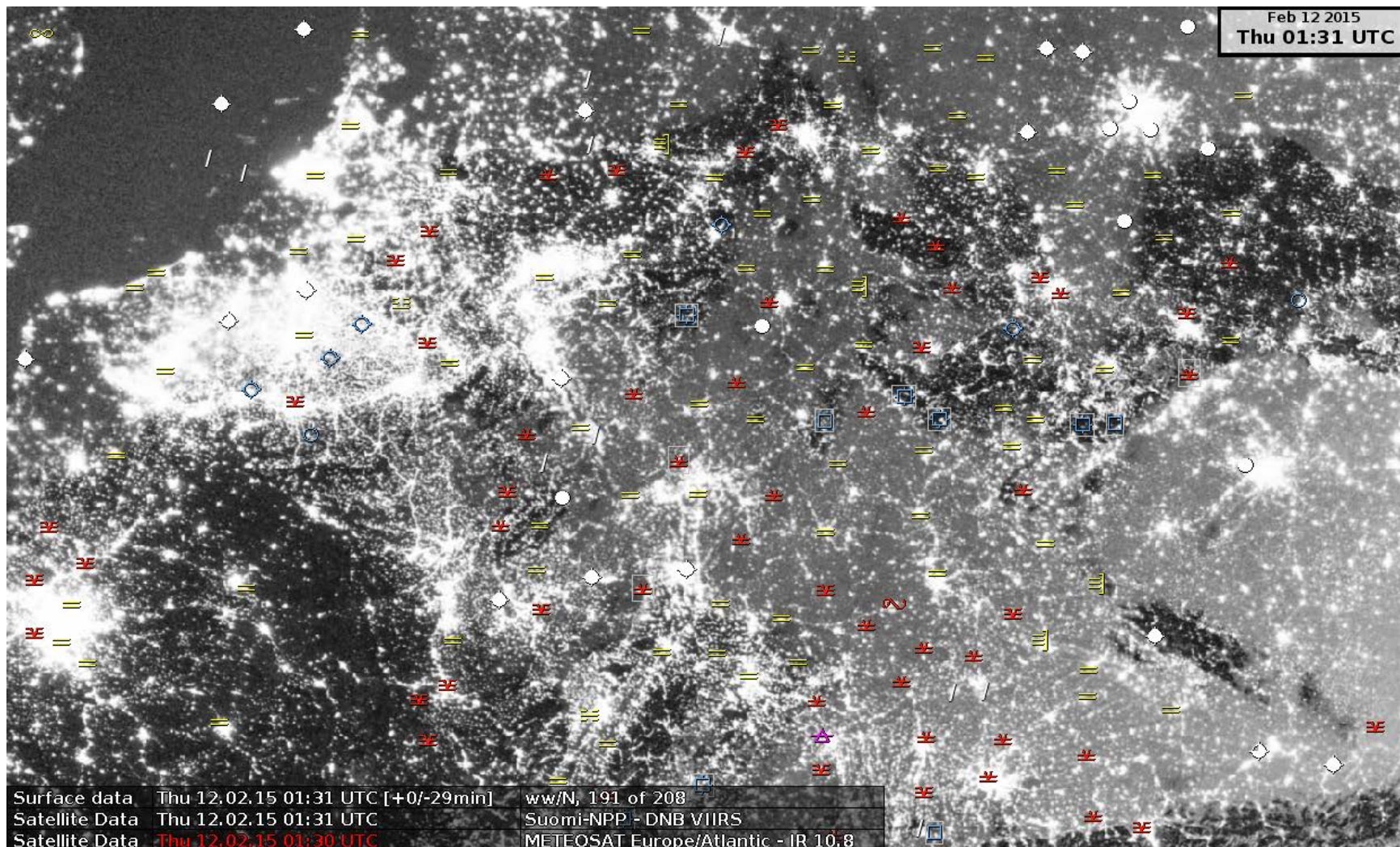
➔ Forecasters are not convinced of the usefulness of the DNB for their work yet. Useful examples are needed.

Satellite Data **Fr 16.01.15 01:37 UTC** Suomi-NPP - DNB VIIRS/DNB VIIRS/IR 11.45 VIIRS
Satellite Data **Fr 16.01.15 01:30 UTC** METEOSAT Afrika/Europa - IR 12.0

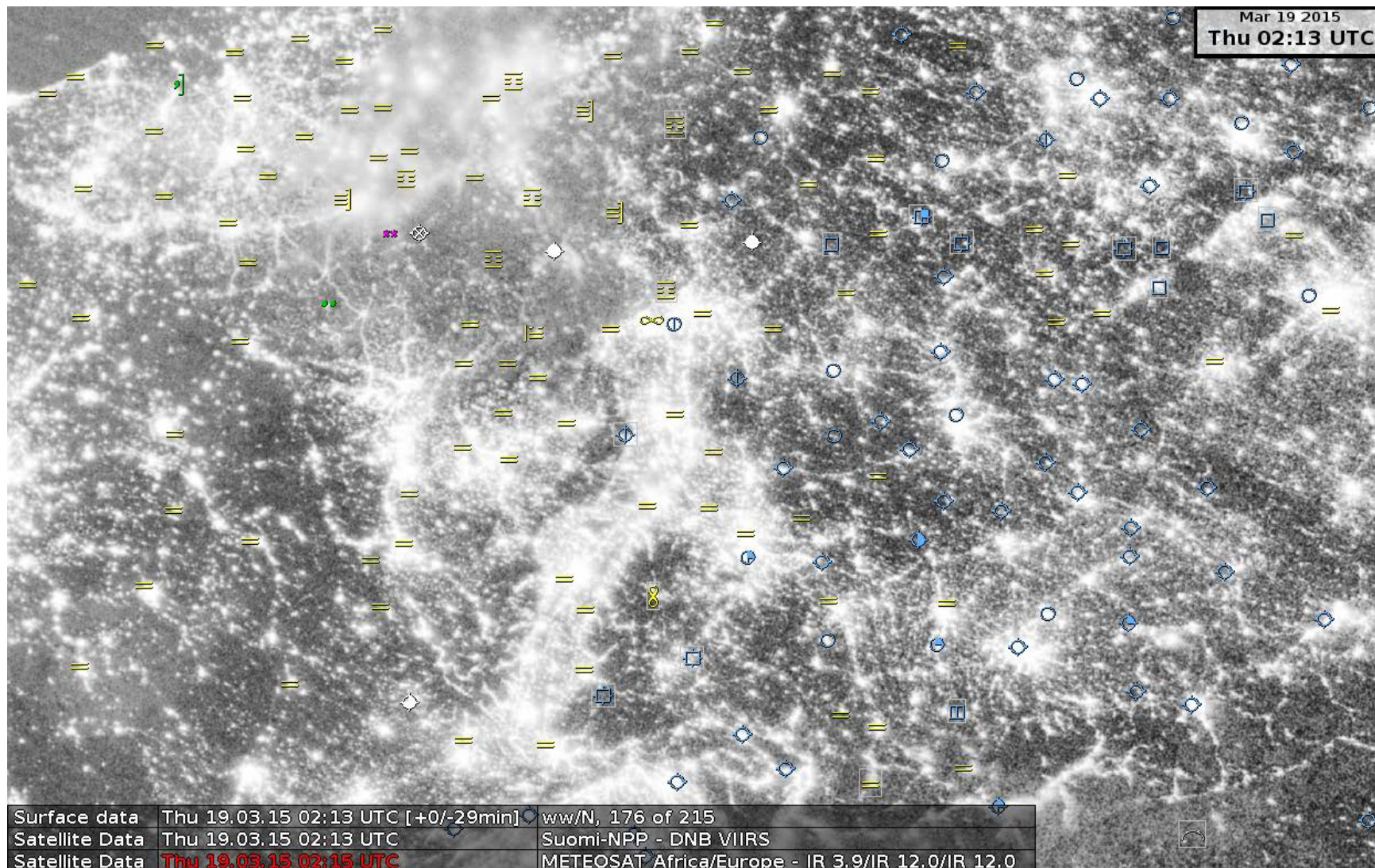
Low Stratus 11.02.2015: SEVIRI IR10.8



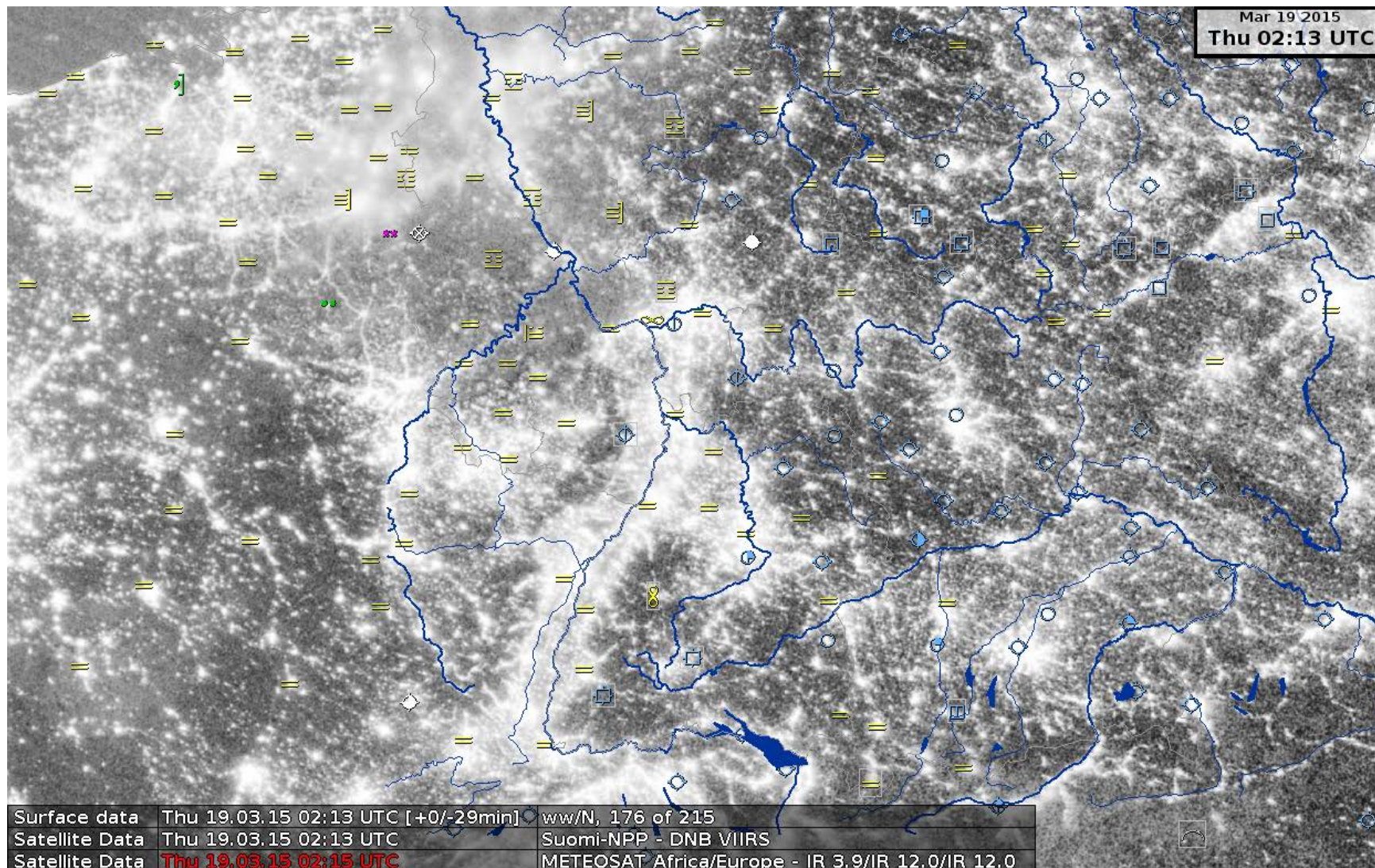
Low Stratus 11.02.2015: SEVIRI IR10.8



Low Level Humidity 19.03.2015 02:30 UTC



Low Level Humidity 19.03.2015 02:30 UTC



- A channel selection of VIIRS bands in Ninjo is a benefit and very welcome
- The better spatial resolution of S-NPP VIIRS provides more information.
- True colour images in Ninjo would be very nice and desirable.
- The true colour images are also interesting for in-house training as well as social media.
- Forecasters are not convinced of the usefulness of the DNB for their work yet. Useful examples are needed.

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- The acquisition of the new L/X-band antenna took longer than expected.
- CSPP SDR v2.0.1 is processing the S-NPP VIIRS data operationally.
- CSPP Polar2Grid is extremely helpful to get S-NPP data into NinJo, a meteorological visualization system used by several met services.

**Thank you very much,
CSPP-Team!!!**

- Operational MODIS processing
- P2G MODIS and VIIRS true colour RGBs for NinJo
- P2G MODIS ninjo tiff for channels
- IMAPP MODIS Level 2 products
- IMAPP MODIS Overshooting Top Detection Software

Questions ?

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