



*Norwegian  
Meteorological Institute  
met.no*

**IOMASA activities and plans at met.no**

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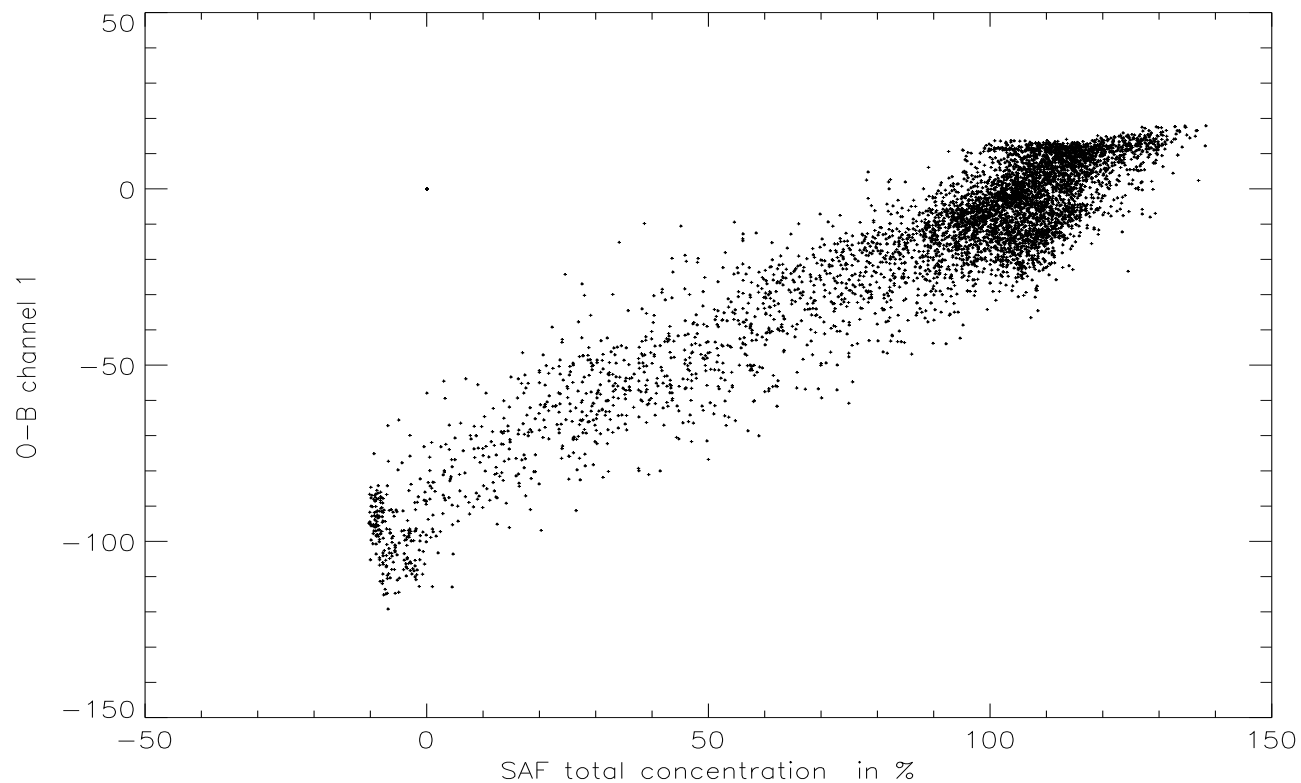
## Overview – NWP assimilation activities

- Goal: Improve utilization of sounding data over the Arctic
- Arctic is a data sparse area – higher potential for impact of satellite observations
- SMHI: AMSU-B moisture data,  
*met.no: AMSU-A temperature data*
- Improve use of lower tropospheric channels by ice surface emissivity modelling using prior ice information in forward model
- Set up HIRLAM 3D-VAR with a system for this. Perform impact studies.



## Simple emissivity predictors

- Previous work: Utility of FY and MY ice fractions from OSI-SAF as emissivity predictors in linear relations





## Approach – surface emissivity

- Start with simple approach
- Later in project more advanced emissivity models for the temperature sounding channels (outcome of other work package)

## Quality control, cloud contamination

- Temperature and moisture data may be contaminated by the presence of clouds
- A strategy for handling this will be developed



## Status – WP 2.1 “Prepare NWP activities”

Delivery of NWP fields for use by project partners:

- Code and script to extract 2 years (2003-2004) of NWP data implemented
- Not fully tested yet

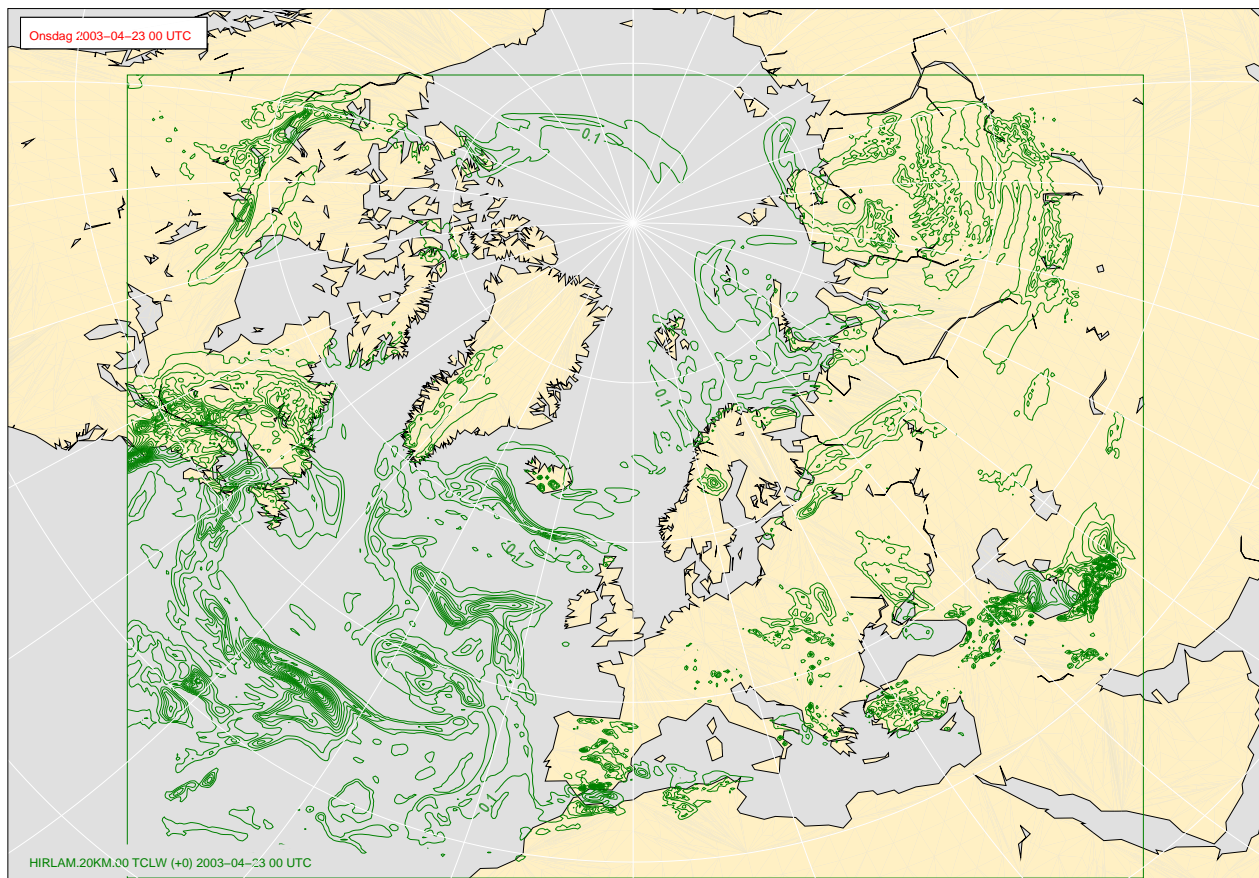
Extracts data from HIRLAM 20 of:

- Total cloud liquid water
- Total column water vapour (“precipitable water”)
- 2 m temperature
- 10 m wind

4 analyses daily (00, 06, 12, 18 UTC)



# HIRLAM 20km grid area





## Output of NWP fields

- One daily GRIB file containing the 4 fields (3 scalars, 1 vector) for the four times (00, 06, 12, 18)
- Good, open GRIB documentation and software is available on internet (several sites)
- Approximate file size 6 Mb (can be gzip'ed to ~50%)
- Grid is rotated spherical with meshwidth  $0.2^\circ$
- Simple conversion subroutine (FORTRAN) to/from lat/lon has been prepared (working on single position or array of positions)
- Data up to now in 2003 will be regenerated and can be delivered soon. Will probably generate data monthly (?)
- External access to the dataset in the project?



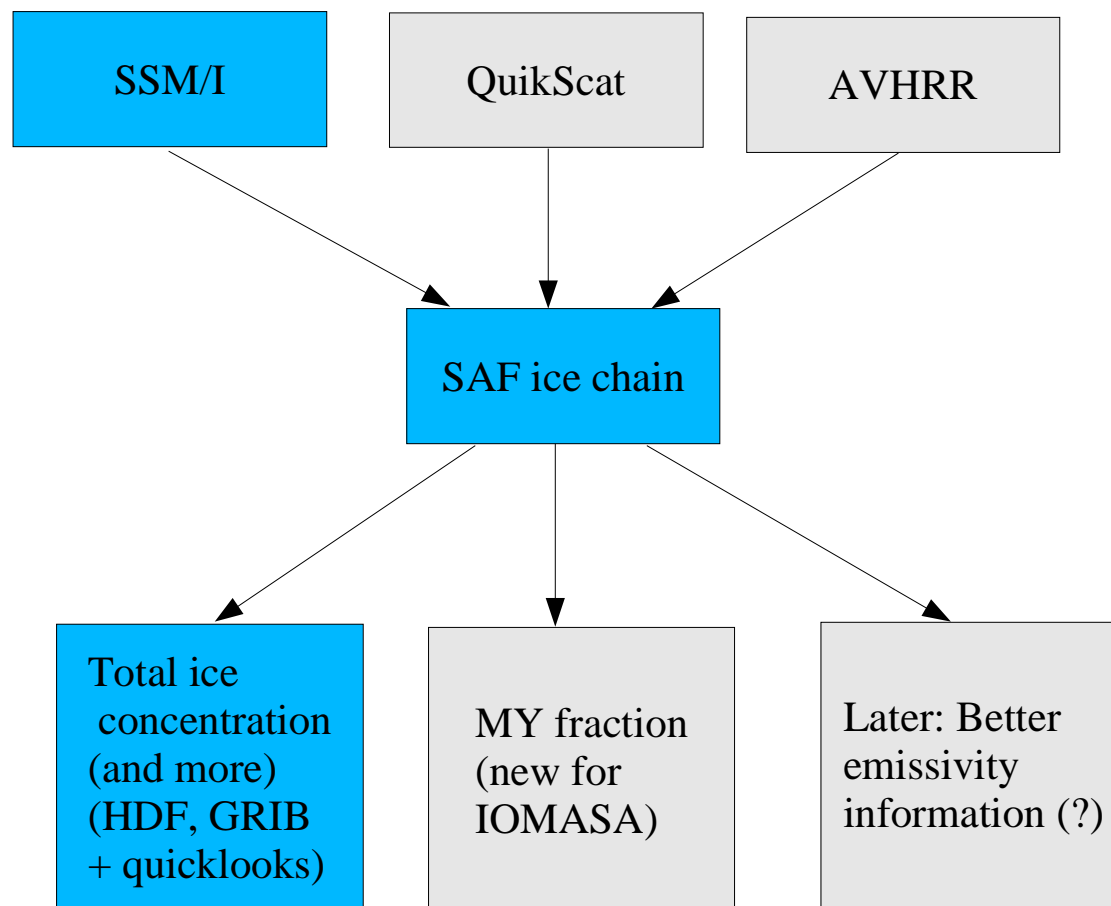
## Setup of operational data stream for assimilation

- Will set up experimental OSI SAF chain for production of additional ice products for IOMASA (MY ice fraction is not operational)
- Develop interface subroutine to import SAF ice data at AMSU footprints
- Implement processing chain for near-real-time production of colocation files with AMSU-A level 1c, HIRLAM data and SAF sea ice data (for statistics, experimentation and assimilation)



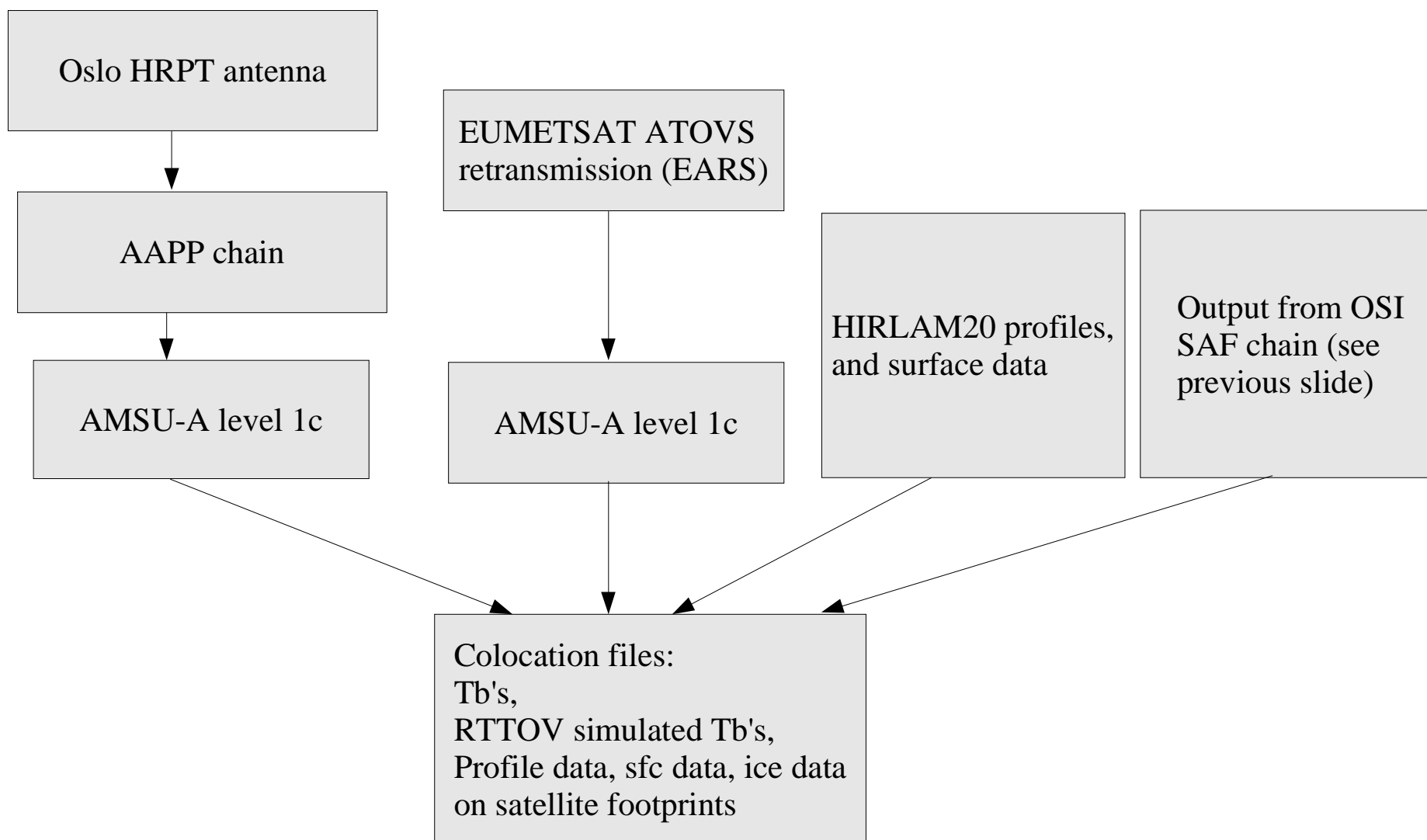


# SAF chain (additional experimental items)

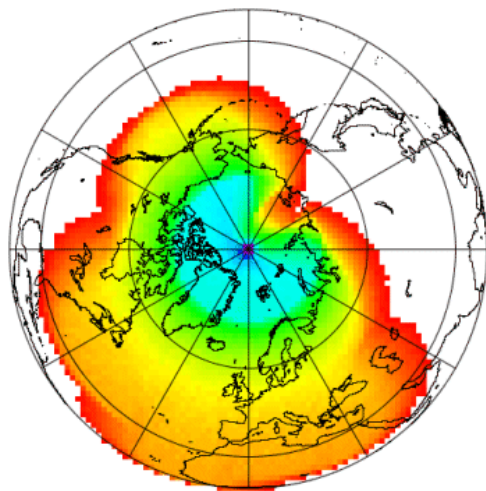




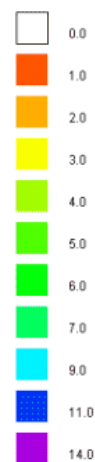
# AMSU-A collocation chain



# EARS (EUMETSAT ATOVS retransmission service)

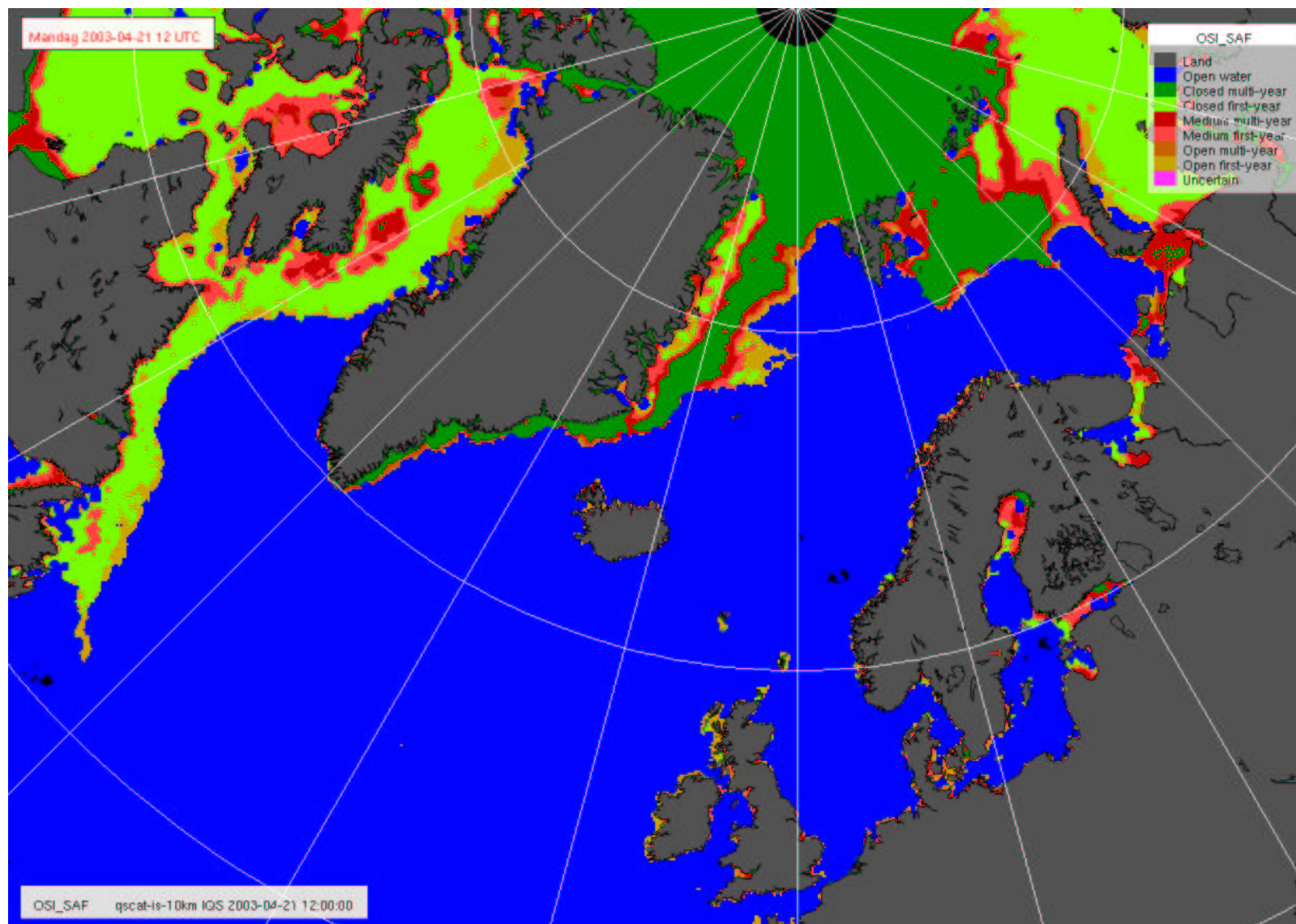


Number of passes

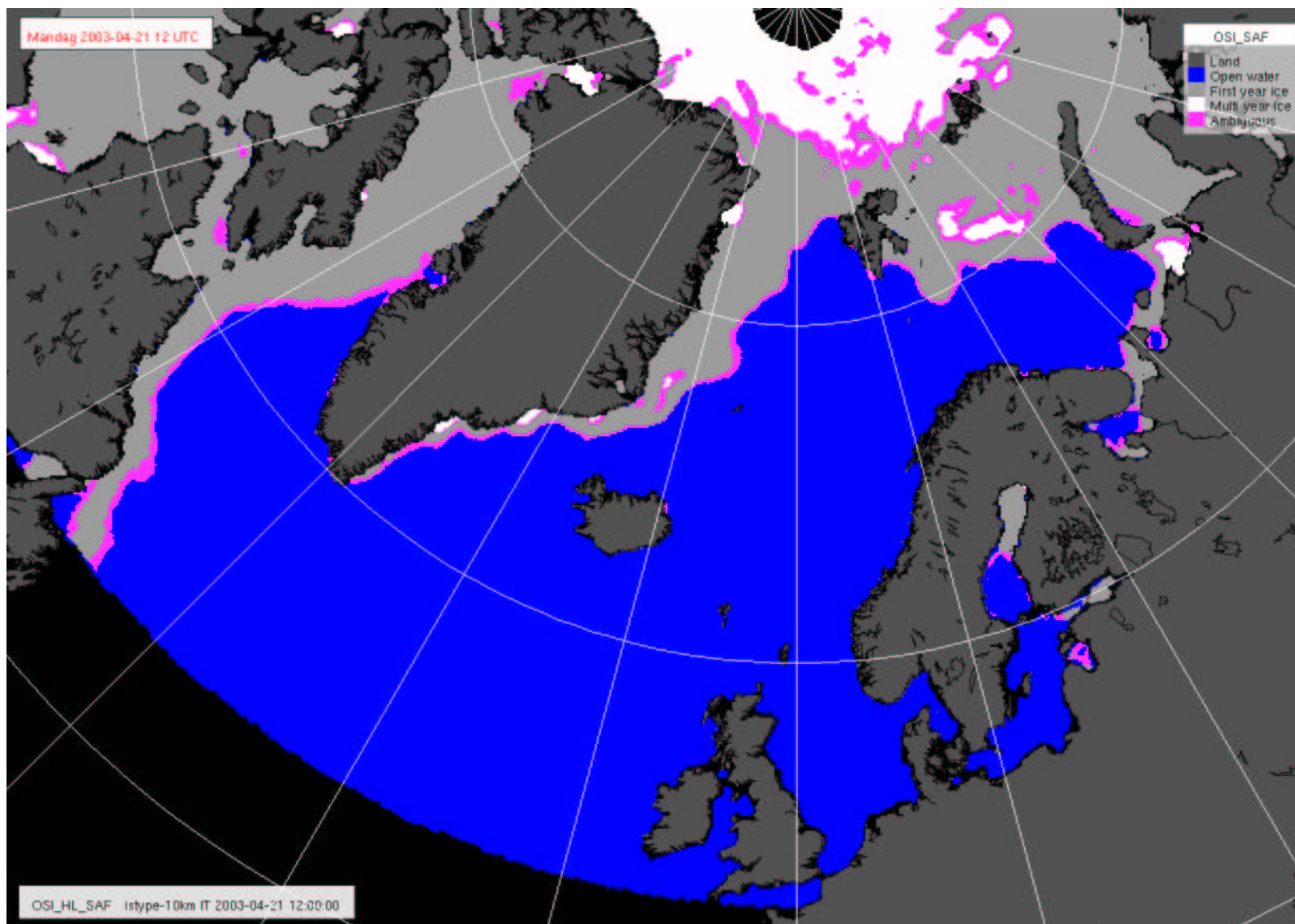


- 3 reception stations operational (Greenland, Canary Islands, Tromsø), availability within 30 minutes (?)
- Reception facilities installed and AMSU-A level 1c files received at met.no
- Work with interfacing ongoing (in parallel with change of operating system at met.no): cross-platform ASCII transfer, BUFR coding, production of colocation files etc.

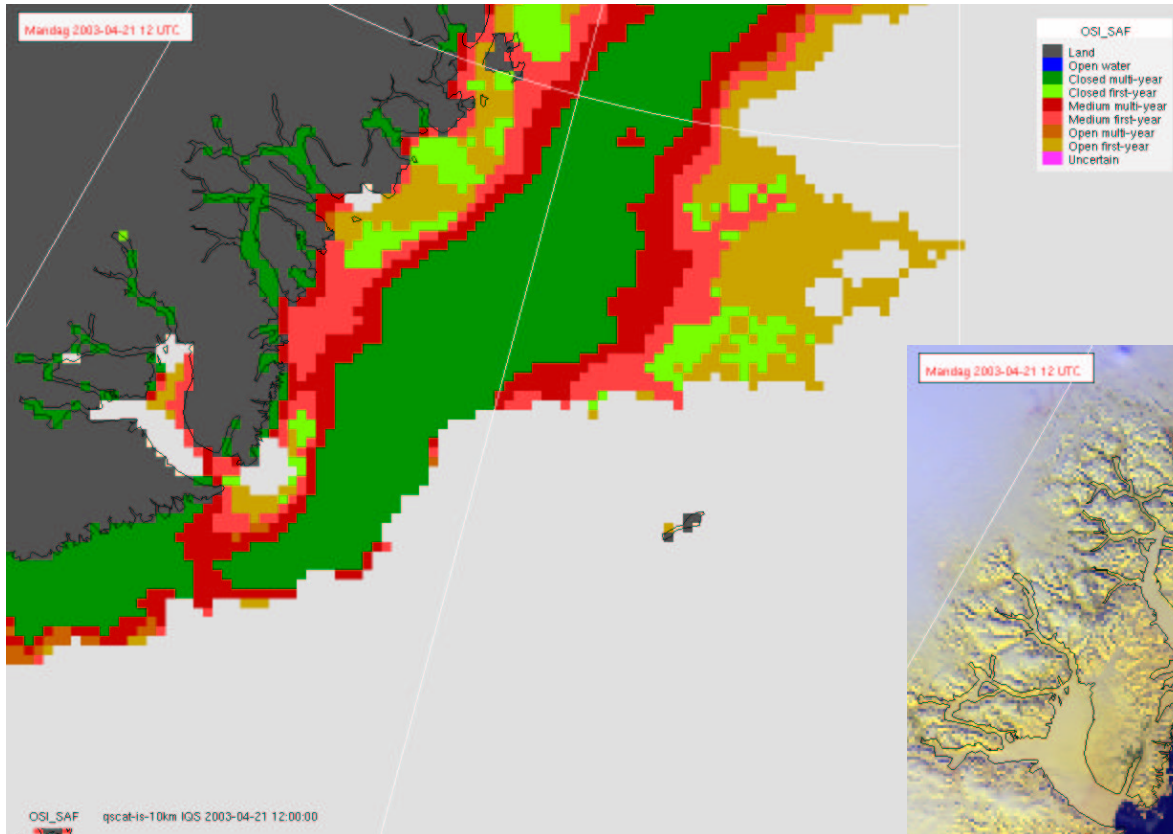
# QuikScat ice analysis – example



# OSI SAF (SSM/I) ice analysis – example



# More detail in Qscat than in SSM/I:



← QuikScat

AVHRR →

