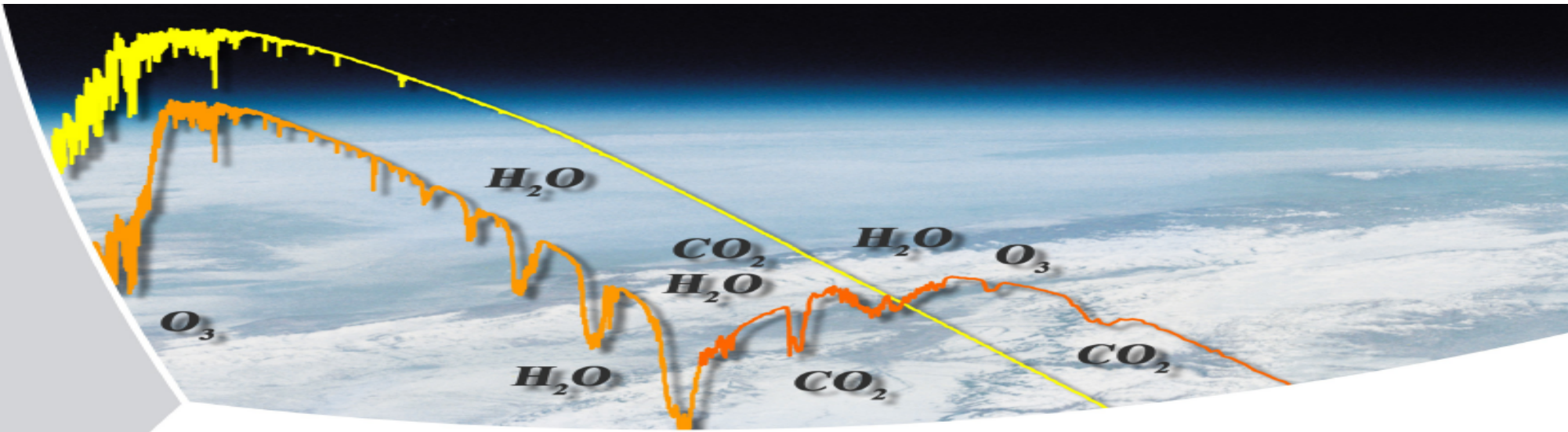


Tropospheric *BrO*: current status

[1]German Aerospace Center (DLR), Remote Sensing Technology Institute, Oberpfaffenhofen, GERMANY

[2]Belgian Institute for Space Aeronomy (IASB-BIRA), Bruxelles , BELGIUM

22 September 2015

Test data

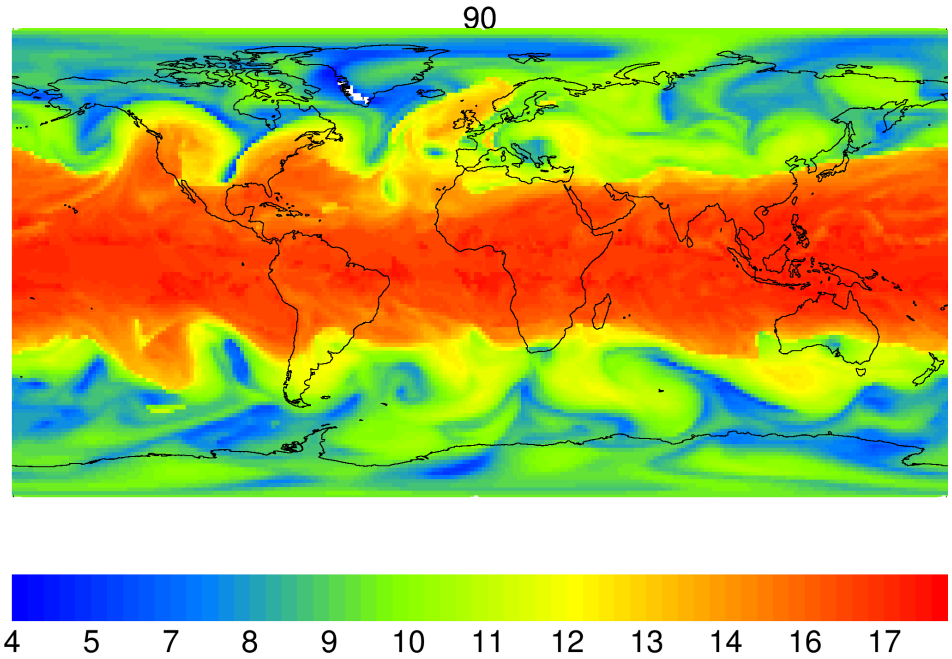
- **all shown DLR data processed by the prototype (NOT THE PROCESSOR)**
- test day - 20 April 2008

Work done:

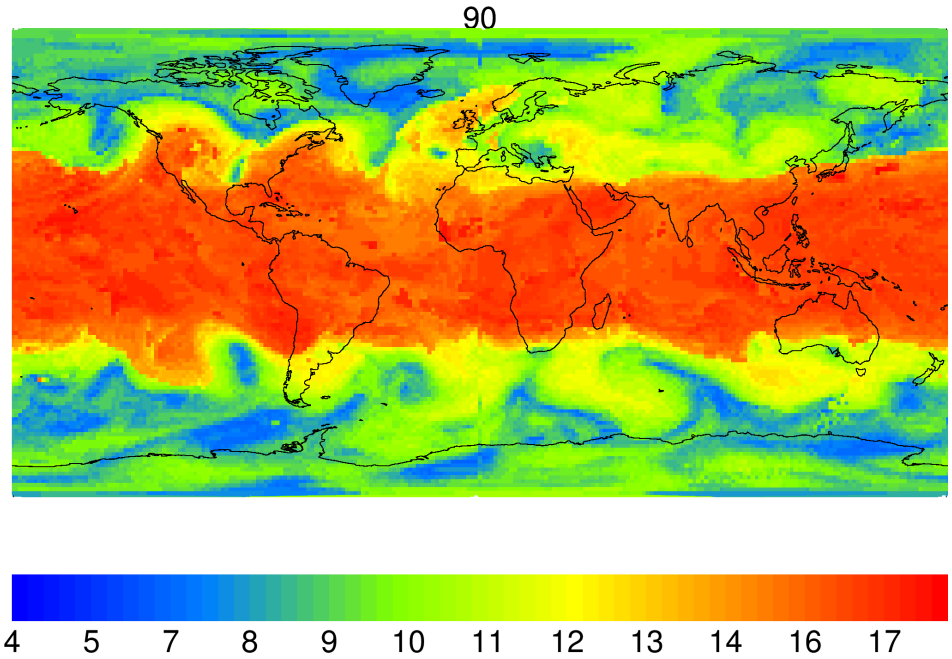
- algorithm description and all auxiliary data (LUTs containing the BrO^{STRATO} climatology, weighting functions, intensities) are delivered by BIRA
- DLR is actively supported by BIRA in all implementation steps: loads of the intermediate results have been produced and delivered by BIRA to check up that everything is done properly at the DLR side
- *BrO VCD*^{TROPO} - final result - is already retrieved by the processor prototype (results below)

23 October 2007

TROPOPAUSE HEIGHT, BIRA, 23 OCTOBER 2007



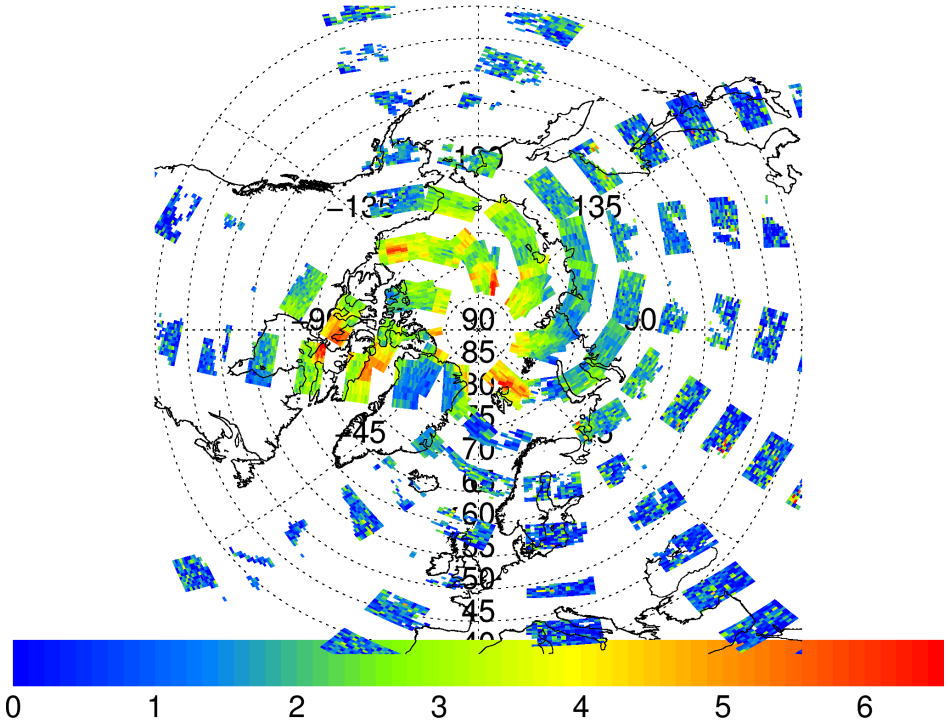
TROPOPAUSE HEIGHT, DLR, 23 OCTOBER 2007



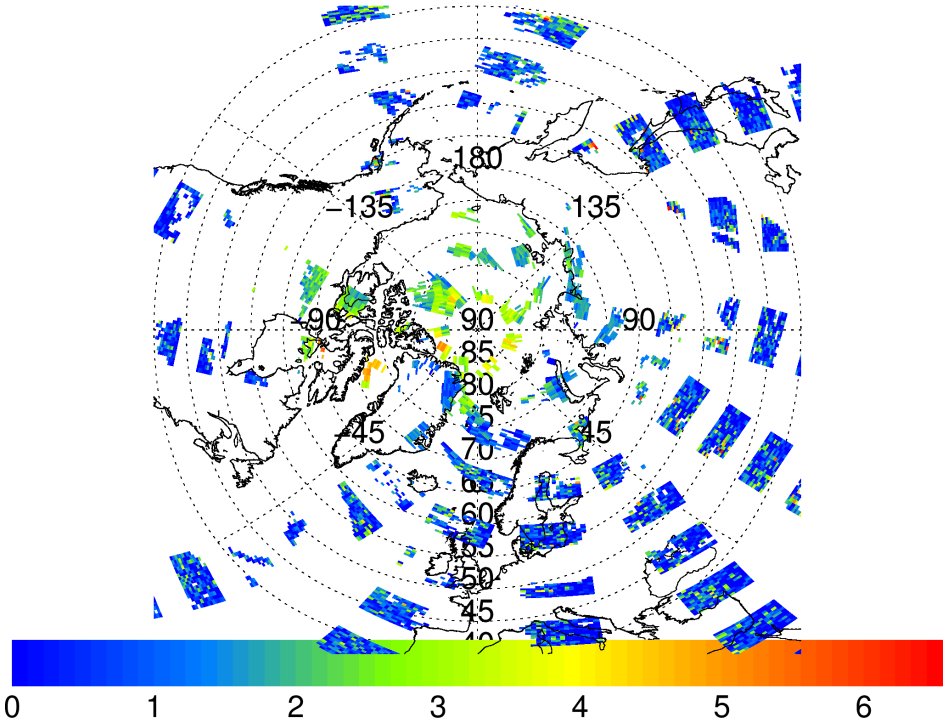
- after comparisons and iterations with BIRA is was agreed that the *TropopauseHeights* climatology already used for NO_2^{TROPO} retrieval (generated by IUP, based on ECMWF ERA-Interim re-analysis) will be used also for the BrO^{TROPO}

BrO VCD^{TROPO} comparison

BrO VCD_{TROPO} (BIRA FILTERED) [10^{13} MOLEC CM^{-2}], 20 APRIL 2008



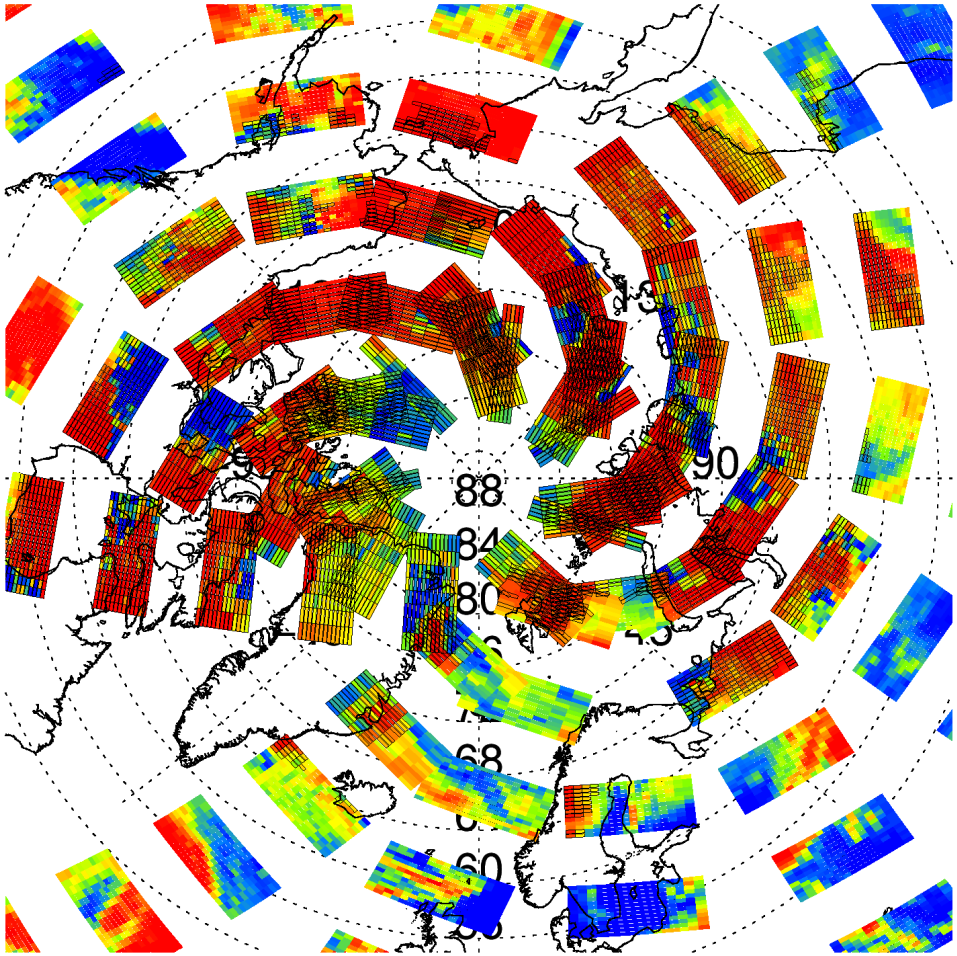
BrO VCD_{TROPO} (DLR) [10^{13} MOLEC CM^{-2}], 20 APRIL 2008



- filtering criteria: $CF < 0.4$, $SZA < 80°$
- different cloud products are used: BIRA uses FRESCO, DLR - OCRA/SACURA
- as OCRA retrieves higher $CF \Longrightarrow$ much more pixels in the DLR data are filtered out

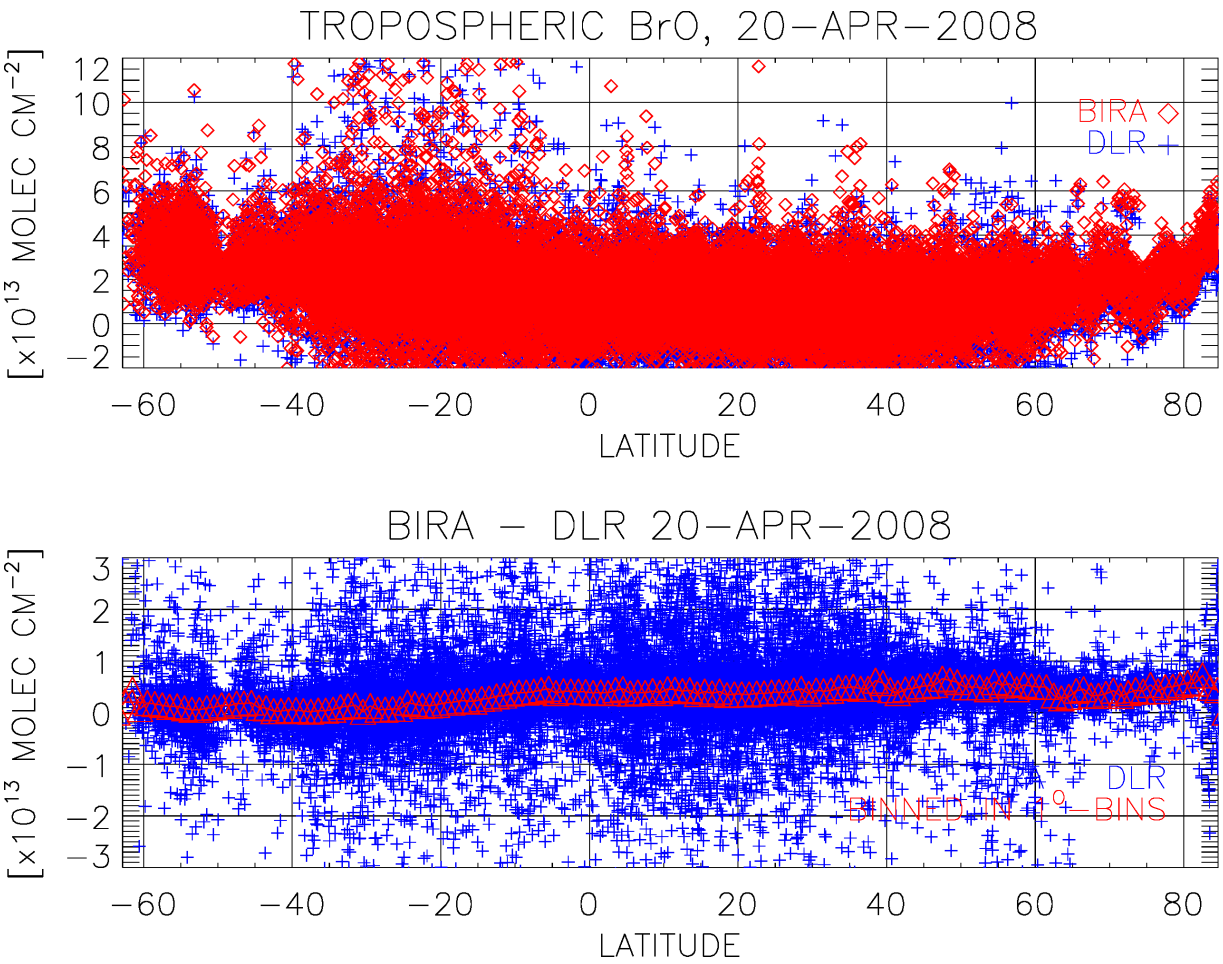
FRESCO detects snow/ice much better

CLOUD FRACTION (OCRA), ICE (FRESCO), 20 APRIL 2008



- all pixels with $CF < 0.4$ would be filtered out (see previous slide)
- clear issue with ice in OCRA, SPICI or both
- solution yet to be found:
  - check whether OCRA and SPICI interact properly (bug in the SGP?)
  - if not, use snow/ice climatology or ...find another way to keep snow/ice pixels

BrO VCD_{TROPO} current status: DLRvsBIRA



- agreement is good
- but, as described above the most interesting pixels (above snow/ice-covered surfaces in Arctic) are filtered out
- apart from the ice/snow problem, different cloud parameters (*CF*, *CTH*) affect AMF_{TROPO} and $\Longrightarrow$ VCD_{TROPO} (reason for the differences)

Next steps:

- (first priority) find a way to keep snow/ice pixels:
  - check OCRA, SPICI and an interaction between them
  - use the snow/ice climatology
- check albedo data sets used at the scientific and the operational sides
- implement everything in the SGP!!!!!