Supplement of

Airborne limb-imaging measurements of temperature, HNO₃, O₃, ClONO₂, H₂O and CFC-12 during the Arctic winter 2015/2016: characterization, in situ validation and comparison to Aura/MLS

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Explanation for the following figures:

First rows: Cross section of retrieved quantity (the flight altitude is marked with a grey line, the ECMWF potential vorticities of 2 and 4 PVU are marked with magenta dashed lines). Middle row (for HNO$_3$ and O$_3$): Cross section of MLS trace gas data interpolated to the GLORIA tangent points and above the aircraft. Regions with no corresponding GLORIA measurement are marked by fainter colors. Last row: Cross sections of total estimated error, vertical resolution and comparison of the GLORIA measurements of the retrieval grid point closest to flight altitude (green) to the corresponding in-situ measurement (blue).

The flight day is written on the top left plot and the retrieved quantity is marked at the colorbar of this plot.
(a) 2016-01-25 GLORIA

(b) 2016-01-25 MLS

(c) 09:00 to 12:00

(d) 09:00 to 12:00

(e) 09:00 to 12:00
Figure (a) shows a time-latitude profile of the GLORIA data from 2016-02-02, with a color scale indicating ClONO2 VMR (ppbv) values.

Figure (b) displays the altitude profile at 17:00 UTC with a color scale indicating total error (pptv).

Figure (c) presents the vertical resolution (km) at 17:00 UTC with a color scale.

Figure (d) compares VMR ClONO2 (pptv) from AIMS and GLORIA over time (UTC), with data points marked by different colors.

Note: The figures do not provide specific numerical data or detailed analysis; they serve to visualize the data trends and error distributions.
2016-02-02 GLORIA

(a) Latitude (° N) vs. Time (UTC)

(b) Altitude (km) vs. Time (UTC)

(c) Total error (pptv) vs. Time (UTC)

(d) VMR CFC-12 vs. Time (UTC)

Key:
- GHOST
- GLORIA

Color bars indicate:
- Altitude (km)
- CFC-12 VMR (pptv)
- Total error (pptv)
- Vertical resolution (km)
(a) 2016-02-26 GLORIA

(b) 150

(c) 1.5

(d) VMR CFC-12 (pptv)