



*Supplement of*

**Airborne limb-imaging measurements of temperature,  $\text{HNO}_3$ ,  $\text{O}_3$ ,  $\text{ClONO}_2$ ,  $\text{H}_2\text{O}$  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  $\text{HNO}_3$  and  $\text{O}_3$ ): 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



























































































































































































































