Level 2 near real time analysis of MIPAS measurements on ENVISAT: updated performance assessment

Piera Raspollini & the ORM team

ORM team

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- J. Remedios, R. Spang - University of Leicester - U.K.
- J.-M. Flaud - LPPM - France

Optimised Retrieval Model (ORM)

➢Scientific code for the **near real time** Level 2 analysis of MIPAS measurements (basis of the code implemented in the ENVISAT Ground Segment)

➢Starting from the calibrated and geolocated spectra of each scan, ORM retrieves vertical profiles of:

- **Tangent altitude correction** and **temperature** (p,T retrieval)
- VMR of minor constituents (**H_2O**, **O_3**, **HNO_3**, **CH_4**, **N_2O** and **NO_2**)

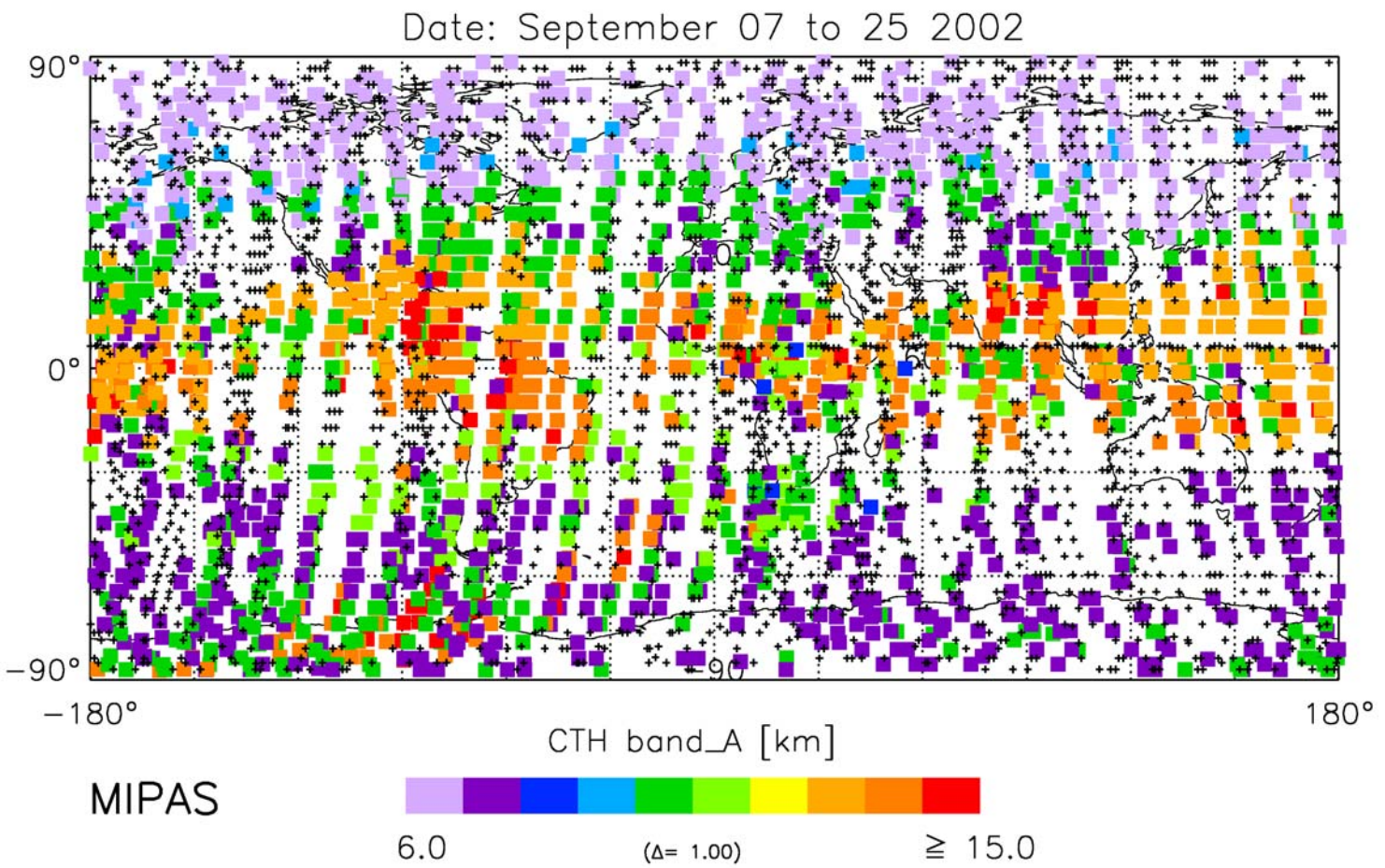
Outline

- Recommended upgrades from ENVISAT Validation Workshop
  - Use cloud filtering
  - Perform retrievals on the whole MIPAS measurement range (6-68 km)
  - Use new spectroscopic database
- Results with the new upgrades
- Monitoring
  - Monitoring of χ^2
  - Monitoring of the ILS
  - Monitoring of frequency shift
- Concluding remarks

Cloud filtering

•A cloud detection algorithm will soon be implemented in MIPAS Level 2 pre-processor that detects the presence of clouds in the line of sights and excludes from the analysis the sweeps that are affected by clouds.

Cloud filtering



See Poster EAE03-A-06361

'Observations of clouds by the MIPAS instrument on ENVISAT',

J.Remedios and al.

Extension of the retrieval range

Current approach is based on a species customised retrieval altitude range

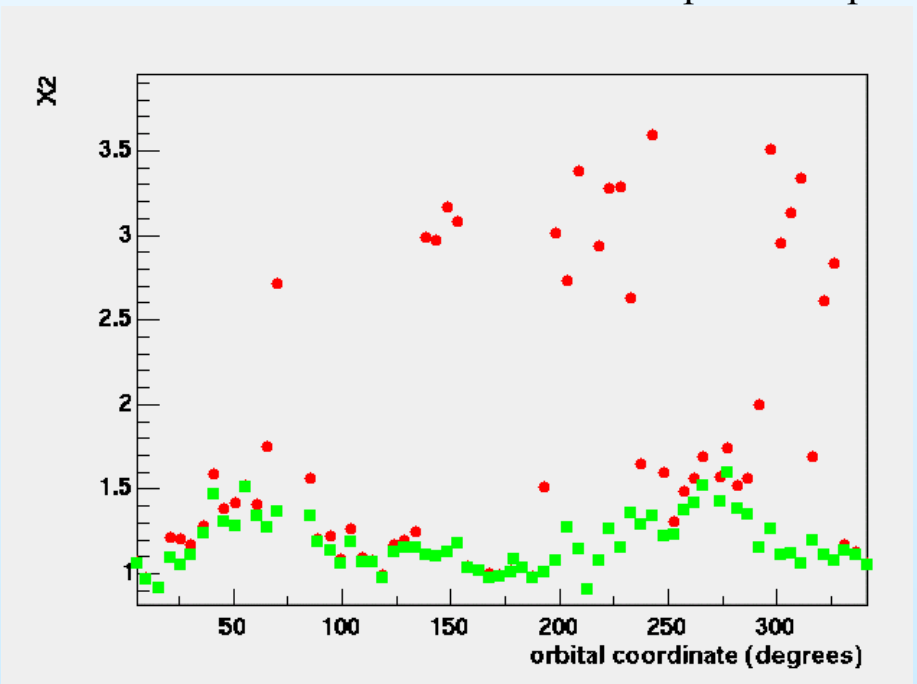
PT	H2O	O3	HNO3	CH4	N2O	NO2
12-68	12-60	12-60	12-42	12-60	12-47	24-47

Exploitation of full altitude range for all species is desirable provided that instabilities are not introduced.

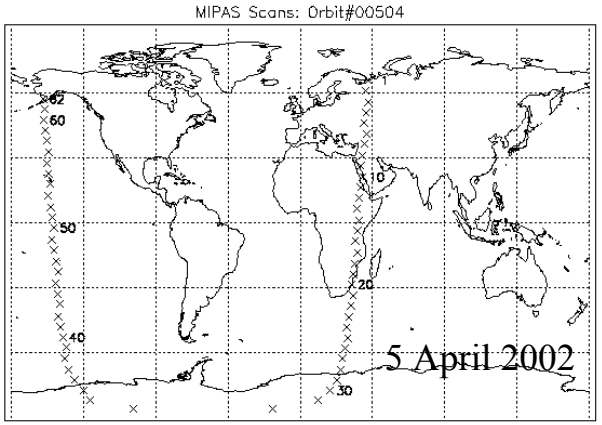
New spectroscopic database

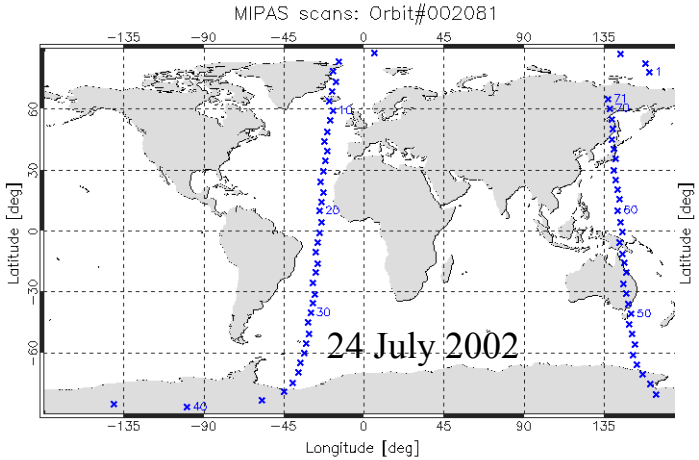
- Version 3.2 of MIPAS spectroscopic database has been released
- Main modifications in HNO_3

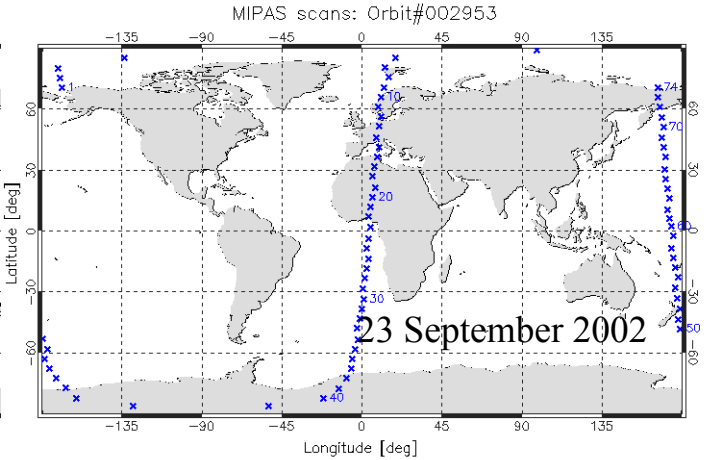
HNO_3 χ^2 vs orbital coordinate with old and new spectroscopic database for orbit # 5415

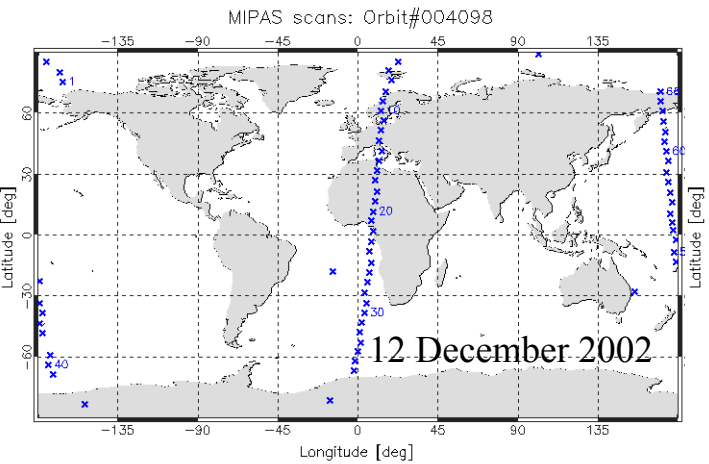


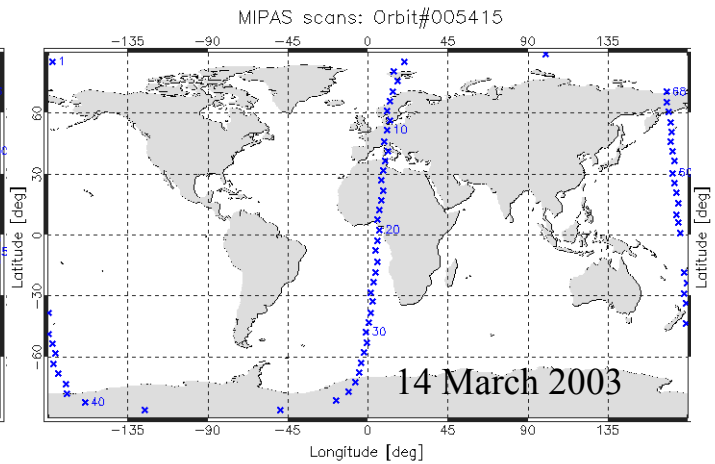
RESULTS
Analysed orbits and their geolocation

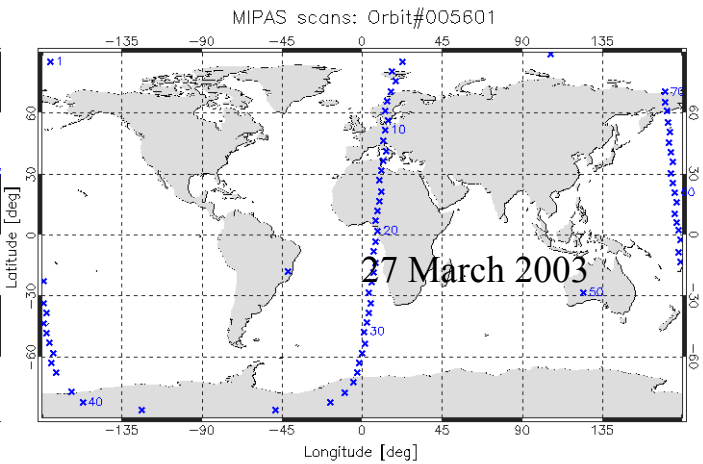












Temperature

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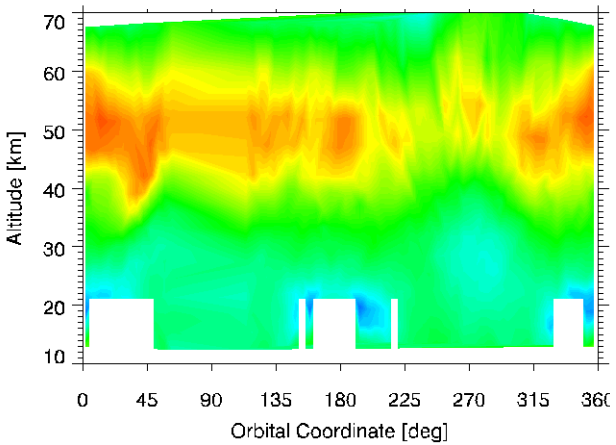

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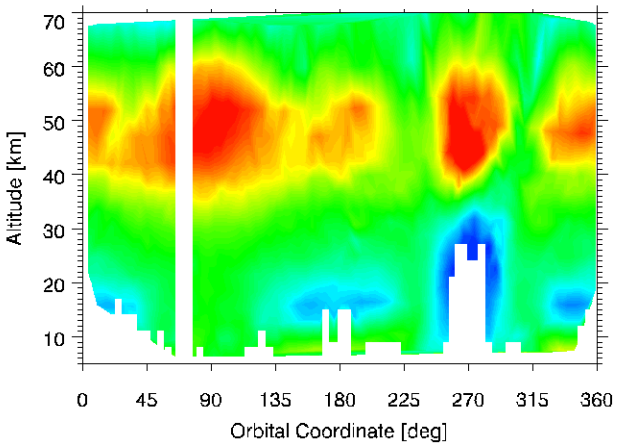

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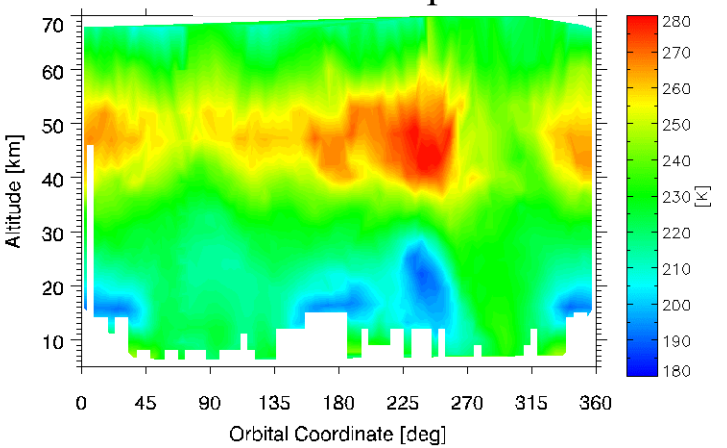

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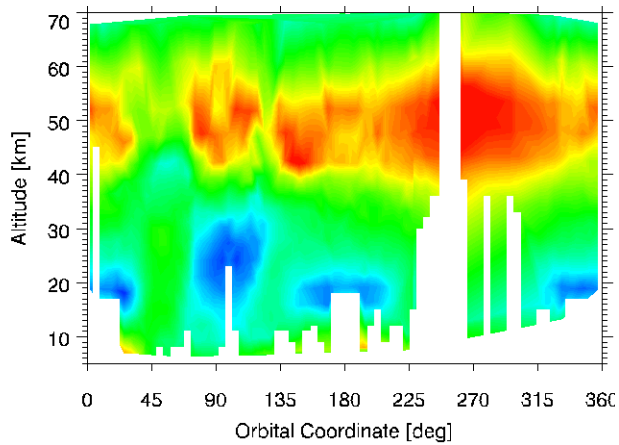

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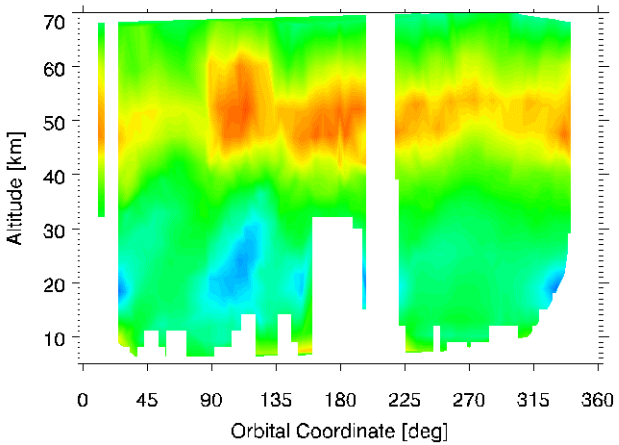

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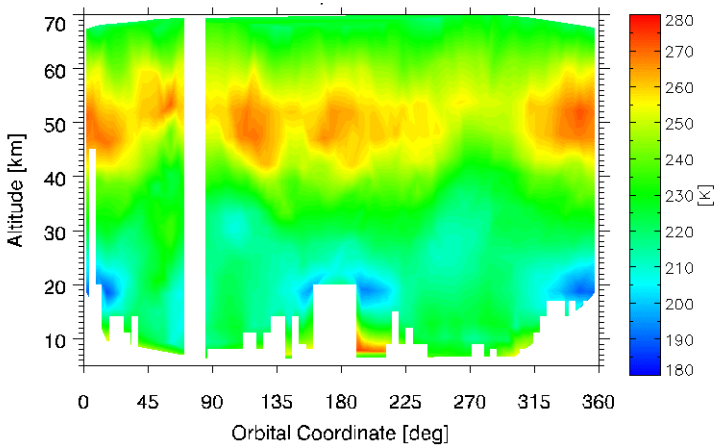

H2O

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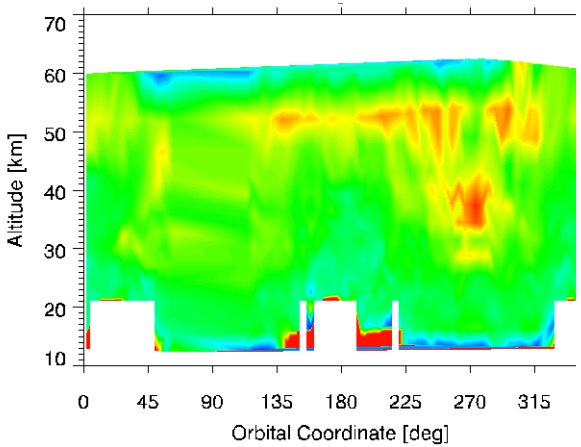

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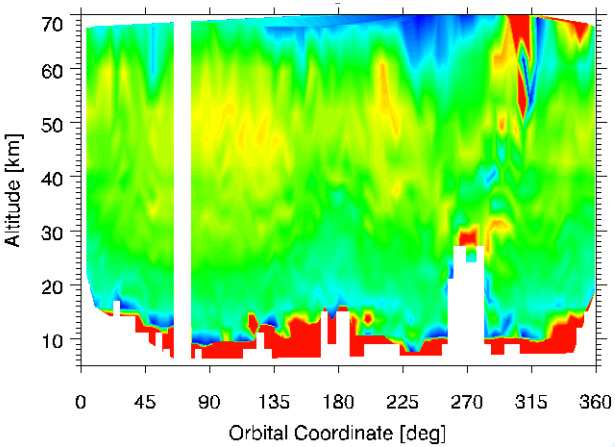

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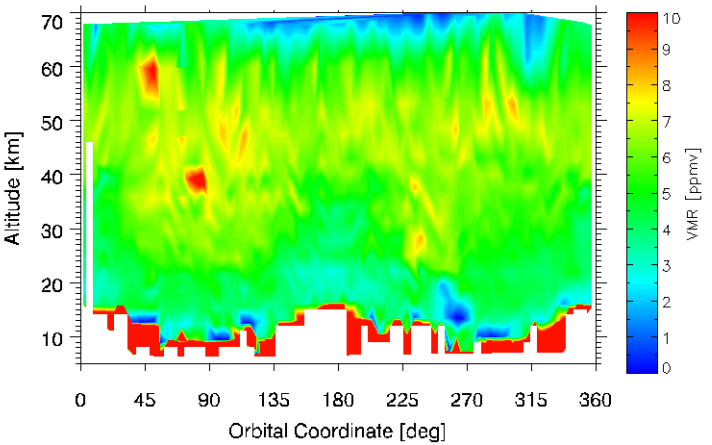

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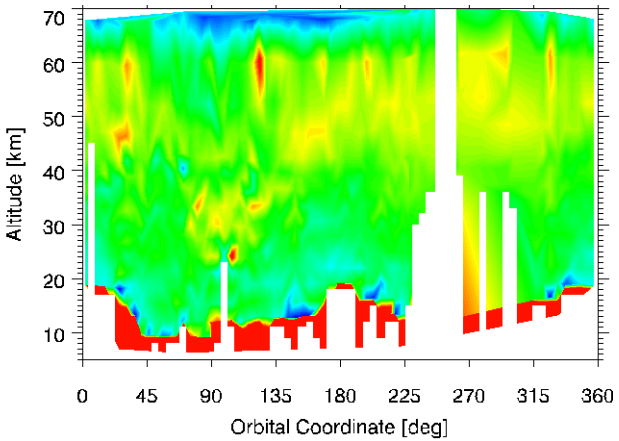

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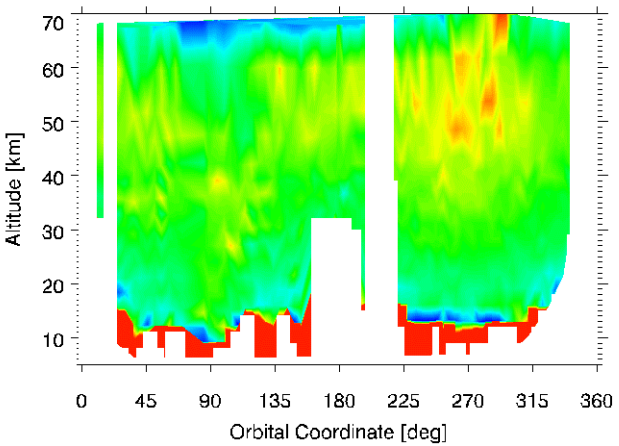

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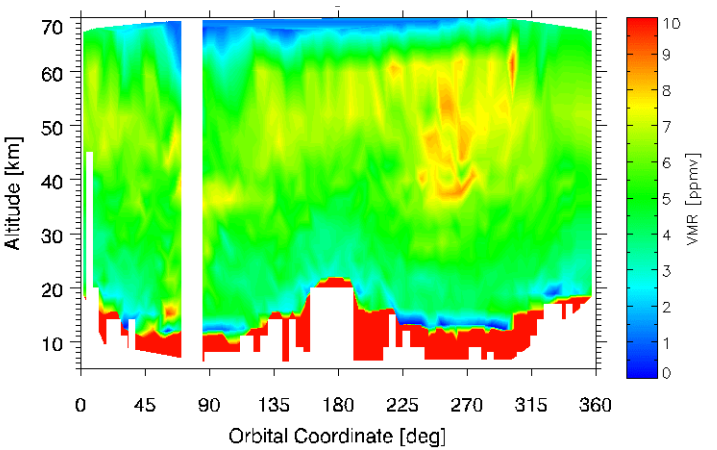

O3

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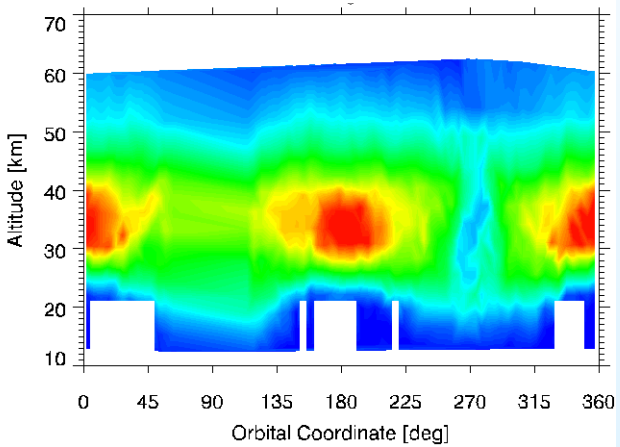

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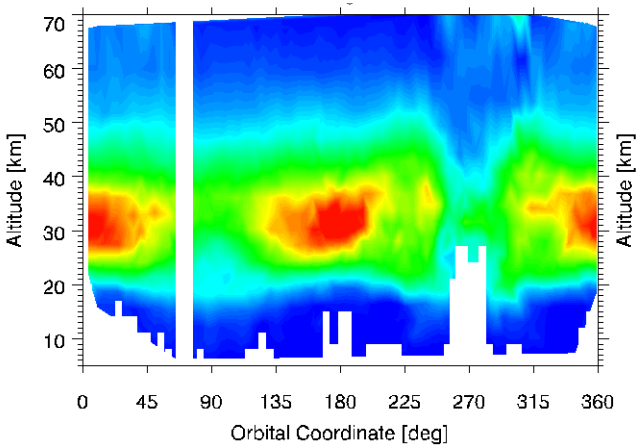

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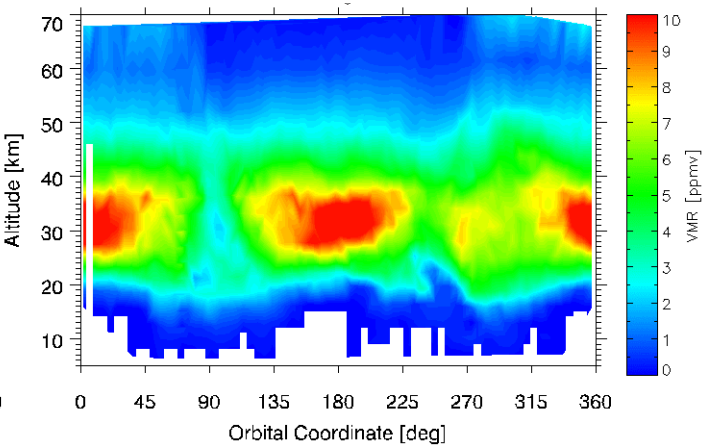

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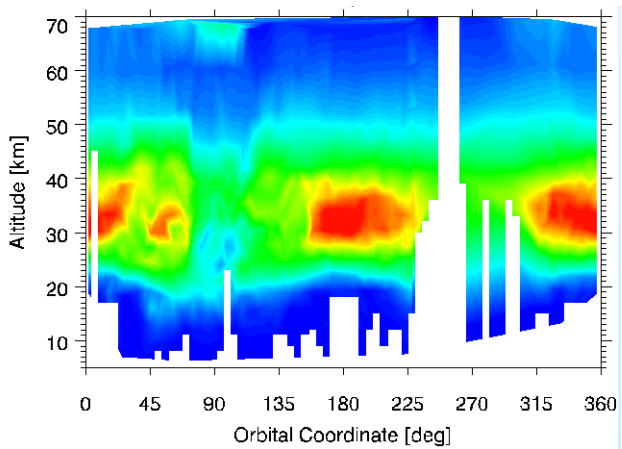

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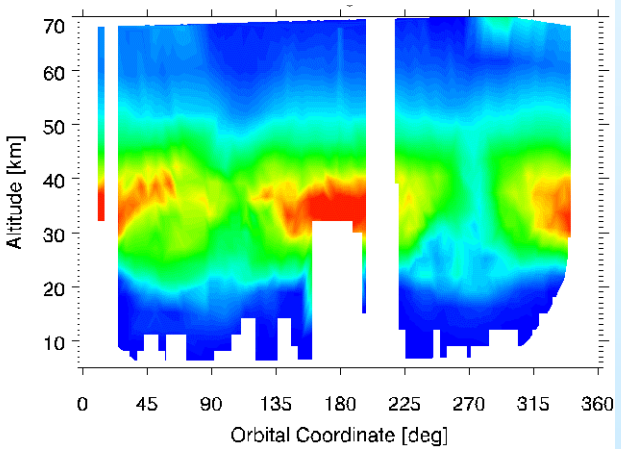

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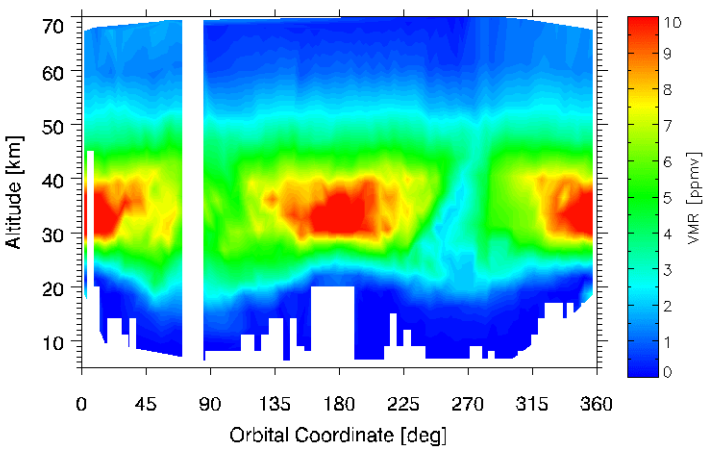

HNO3

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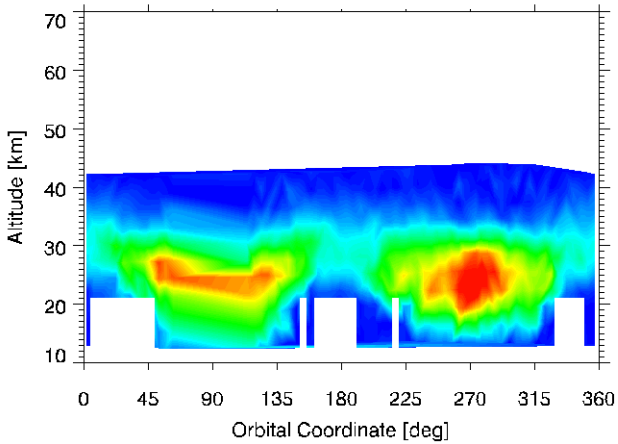

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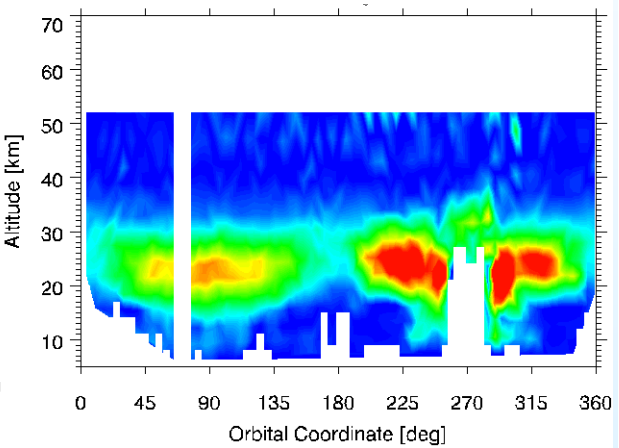

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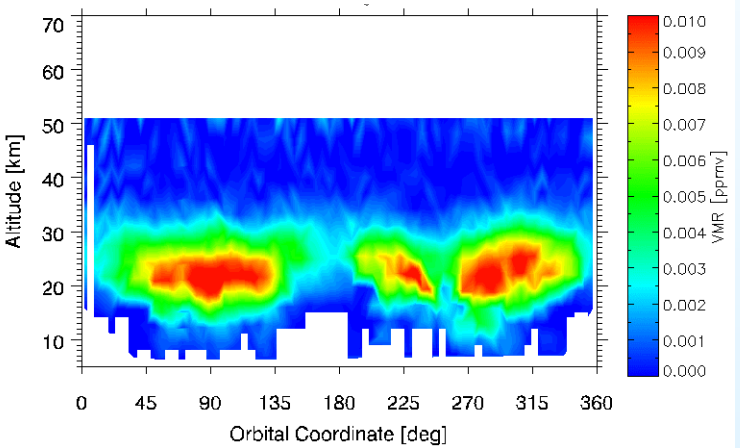

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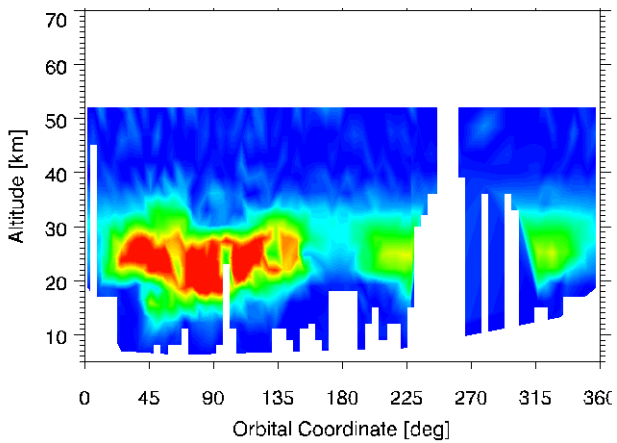

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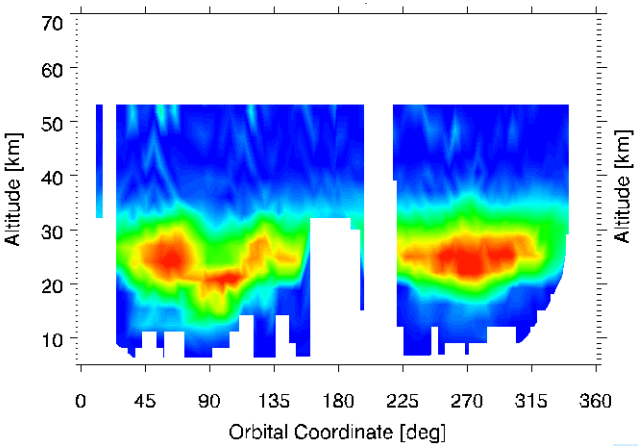

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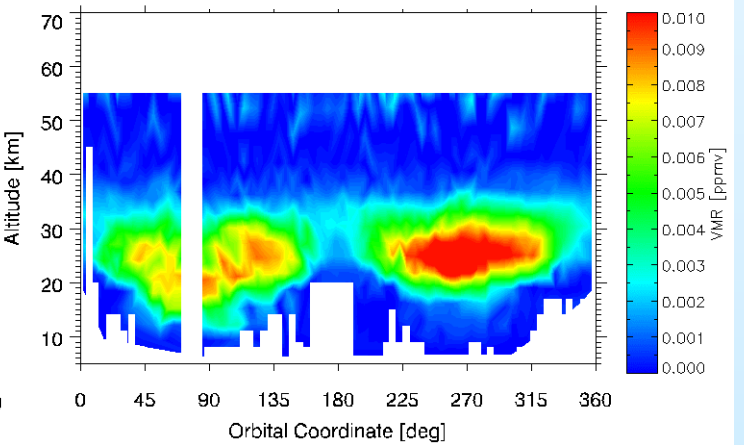

CH4

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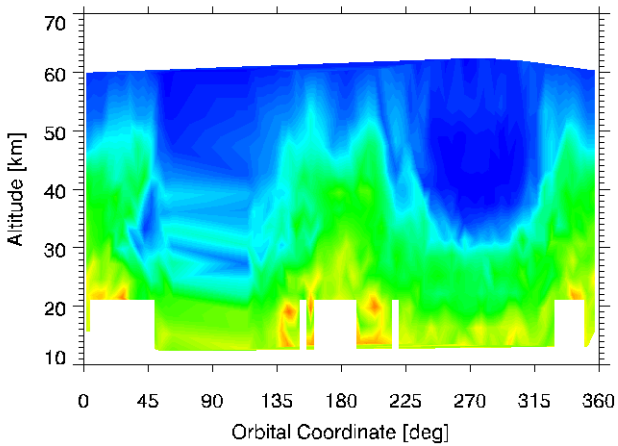

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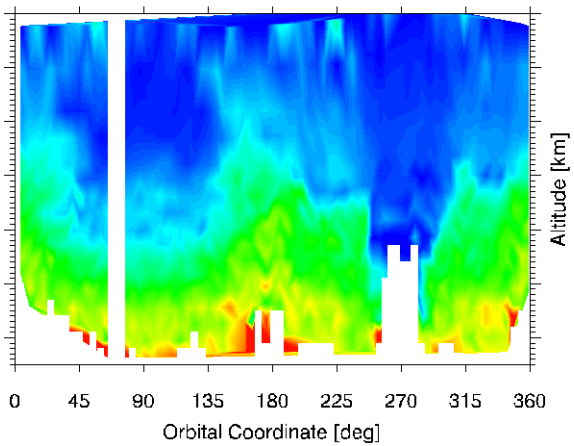

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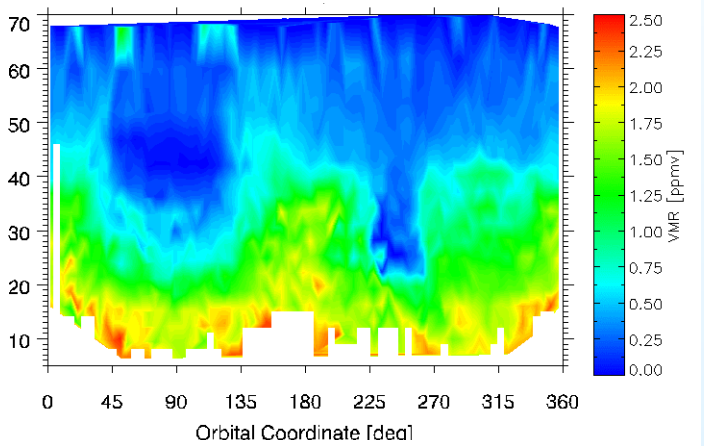

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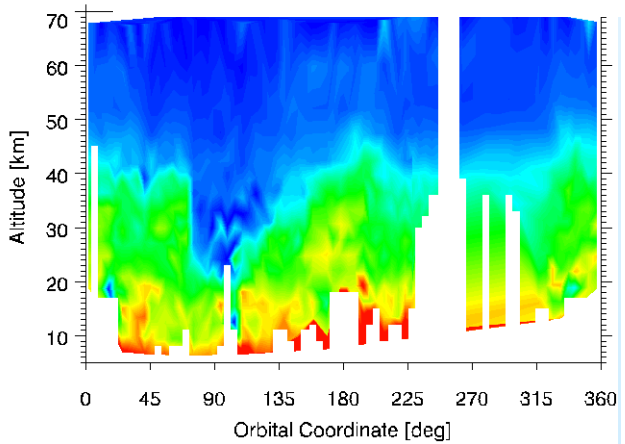

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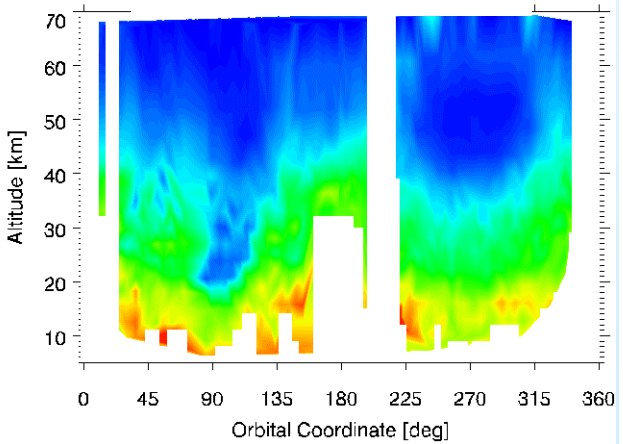

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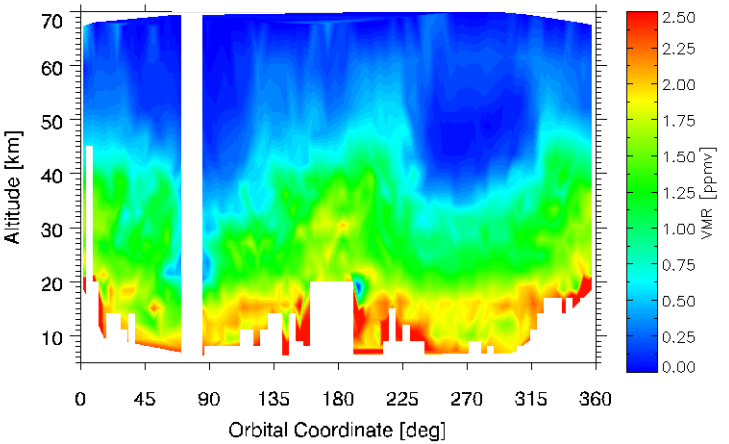

N2O

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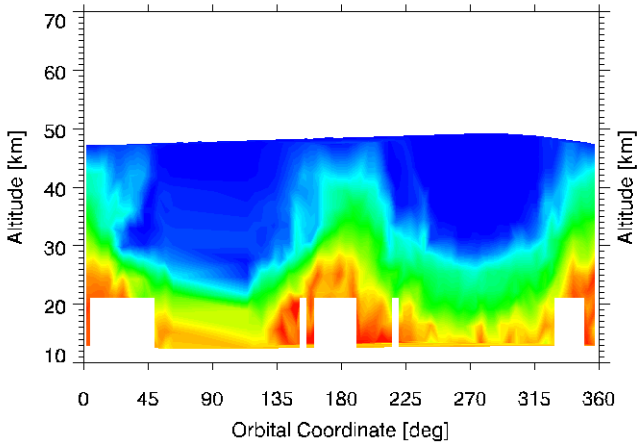

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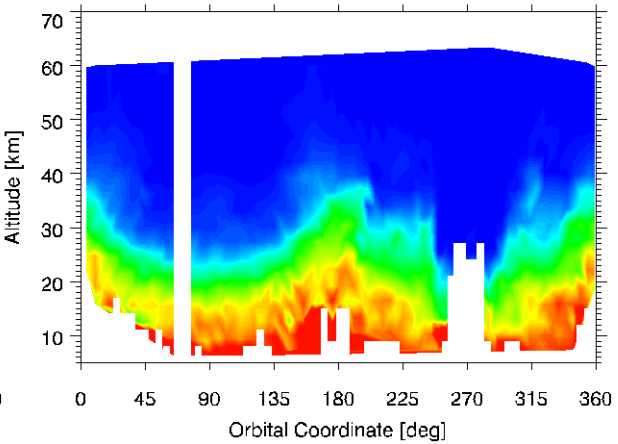

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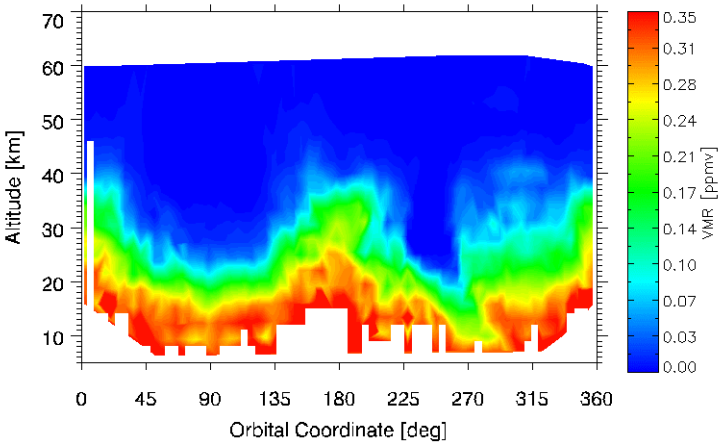

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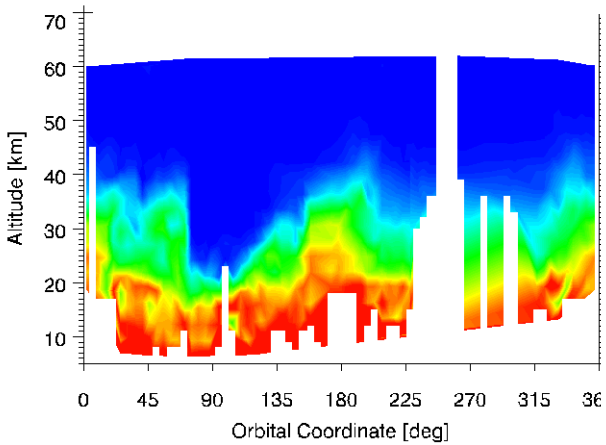

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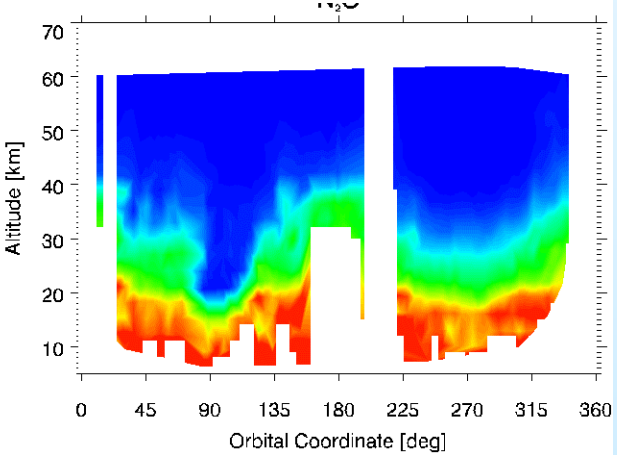

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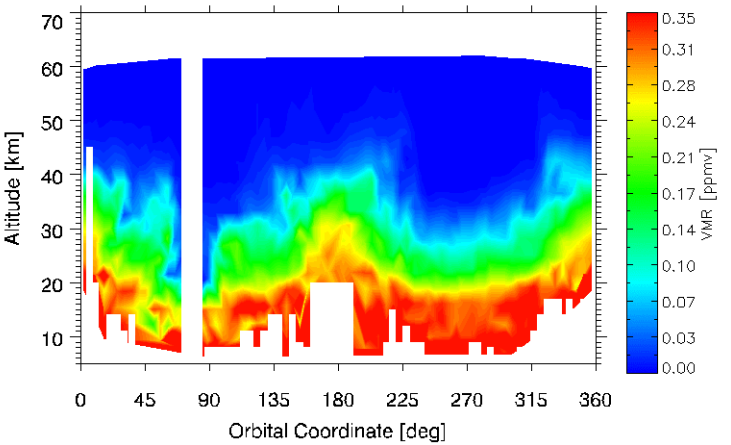

NO2

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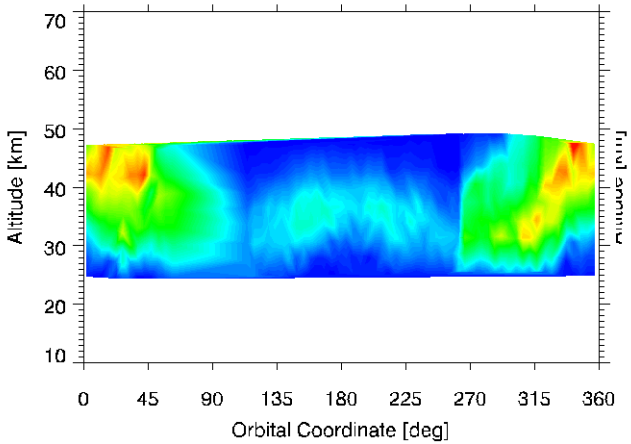

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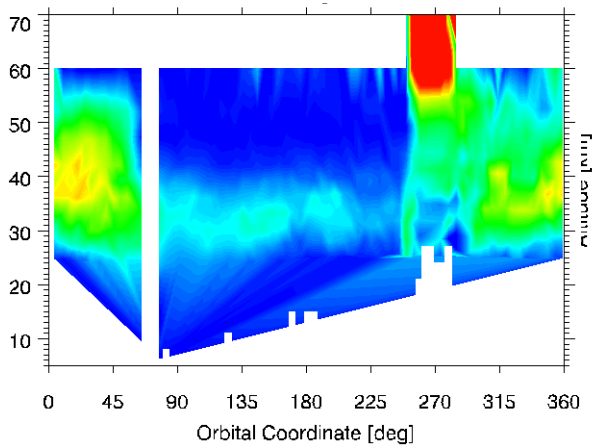

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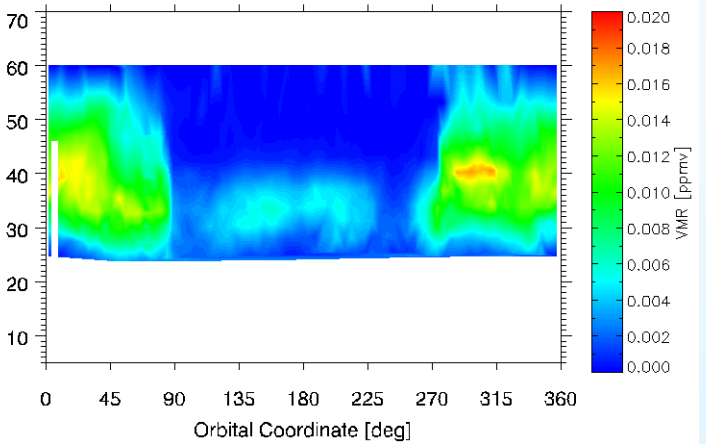

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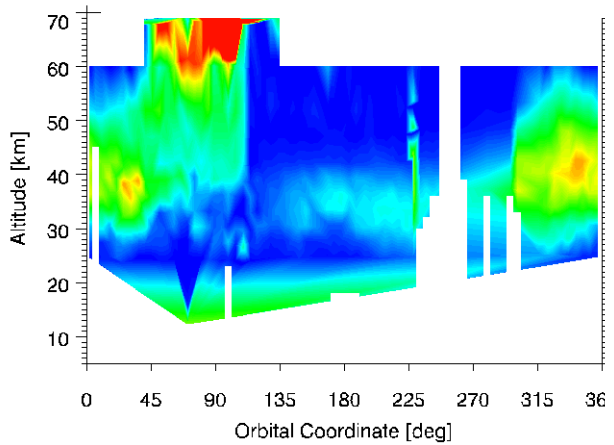

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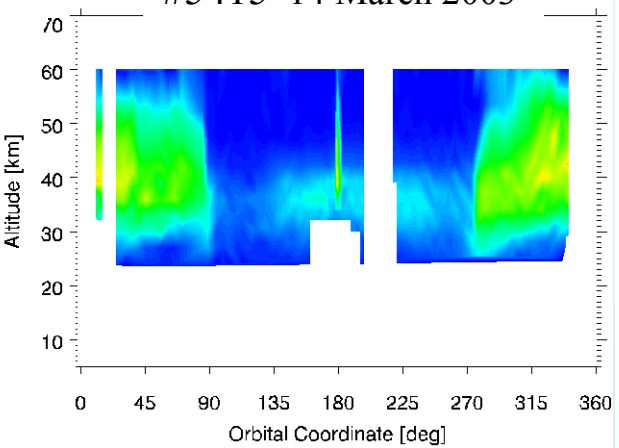

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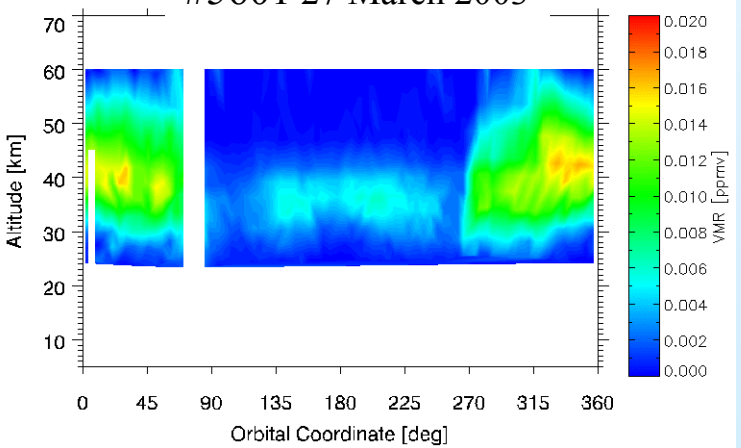
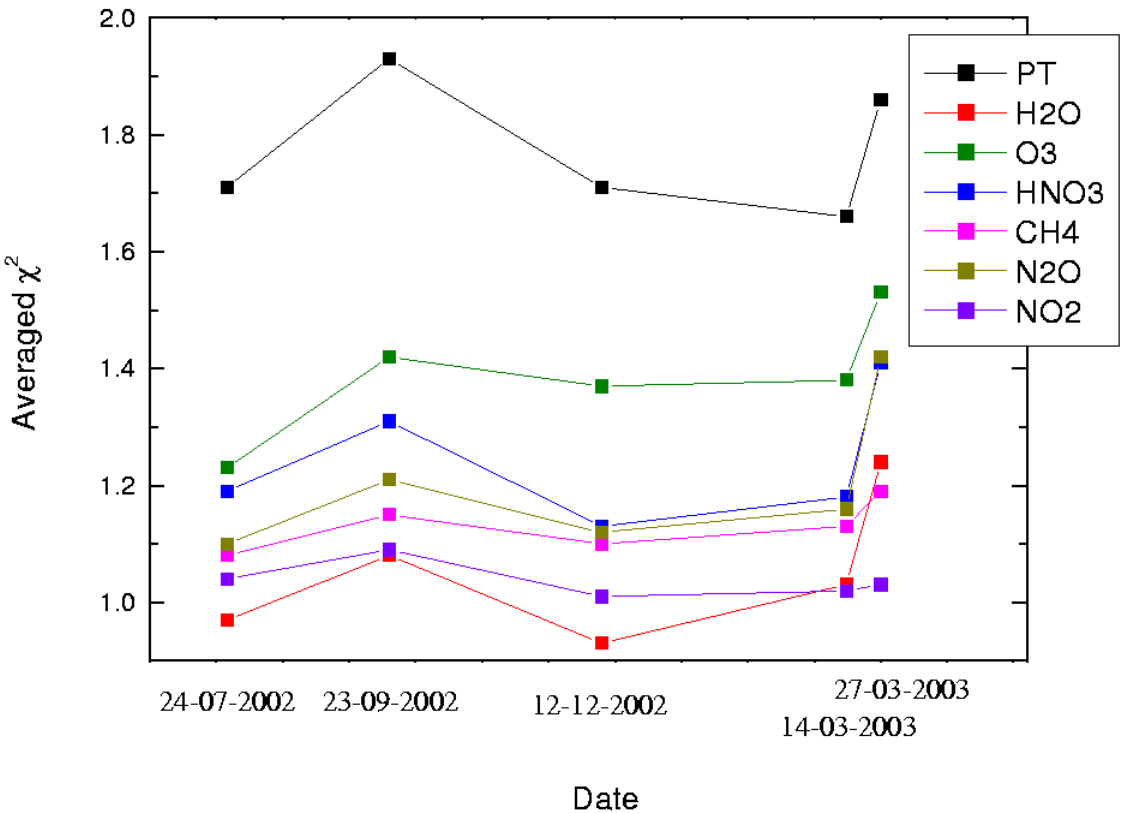
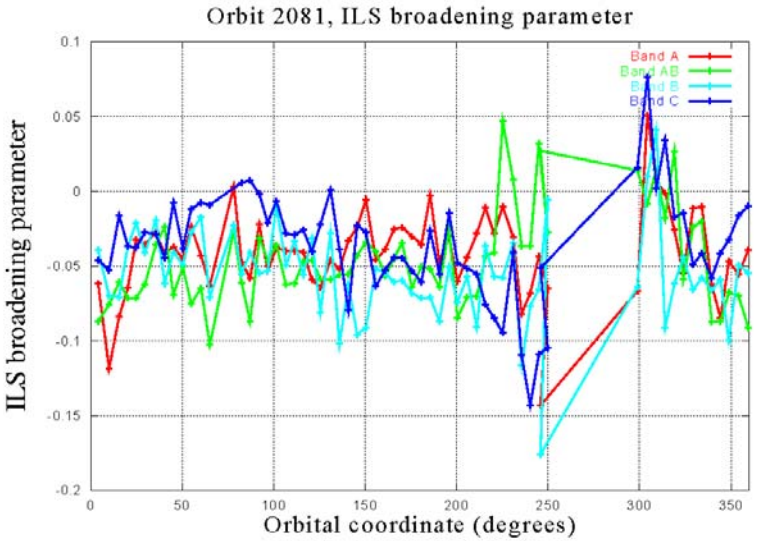
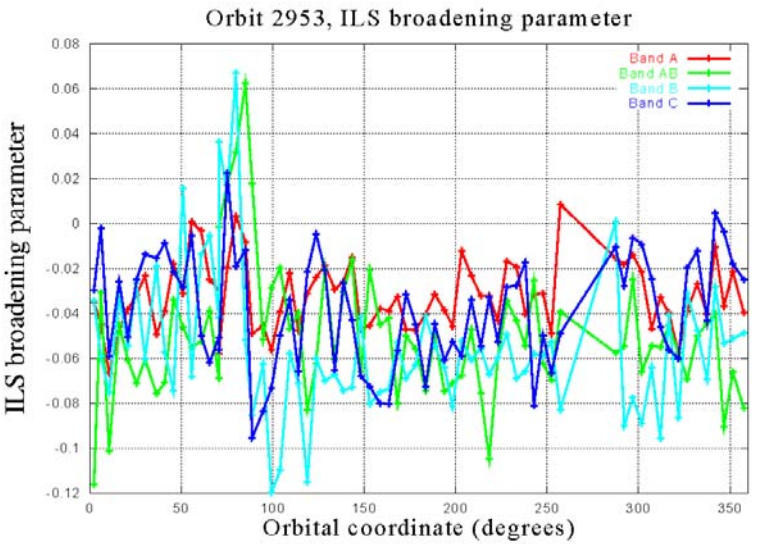


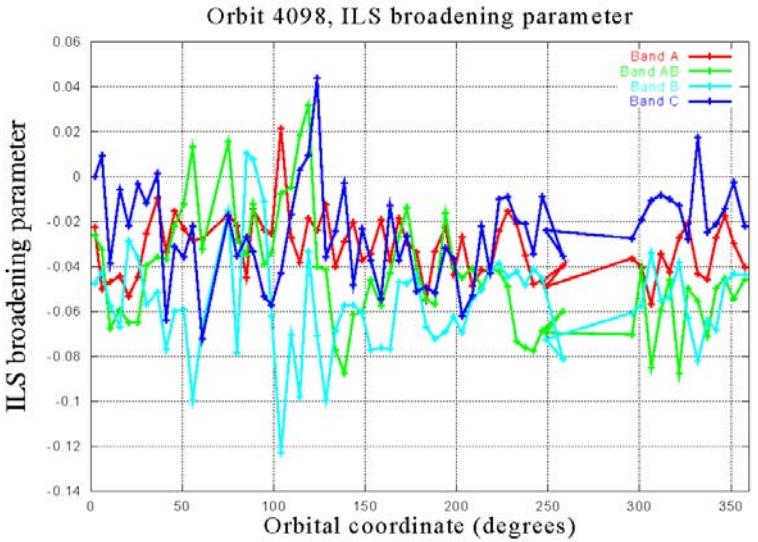
Monitoring of χ^2

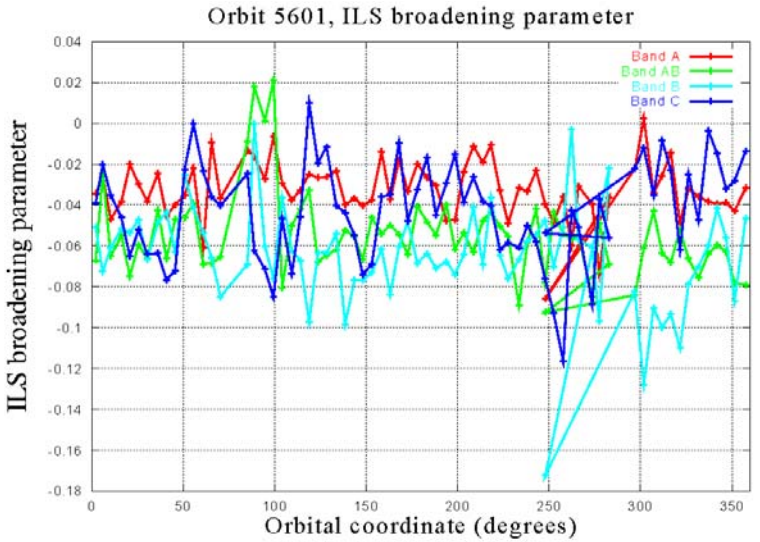


Monitoring of the ILS

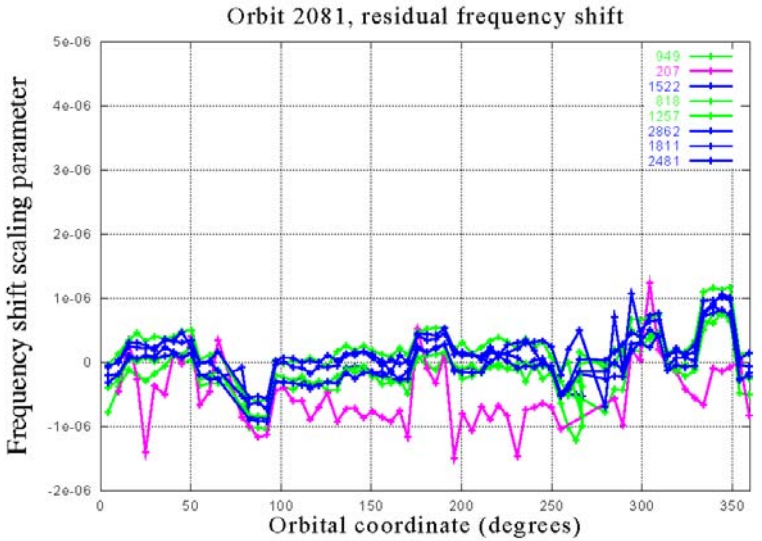


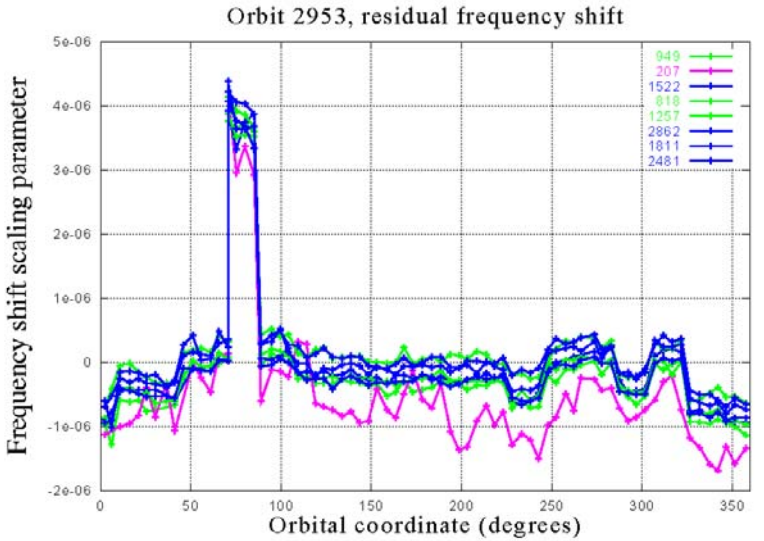


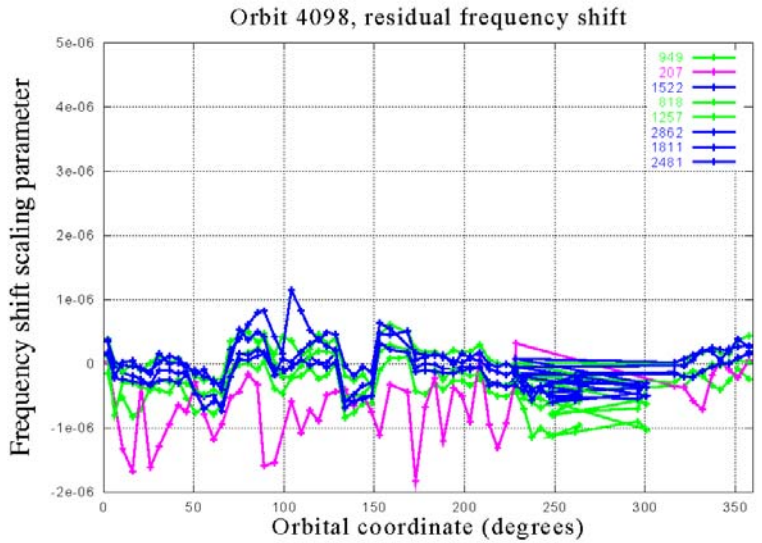


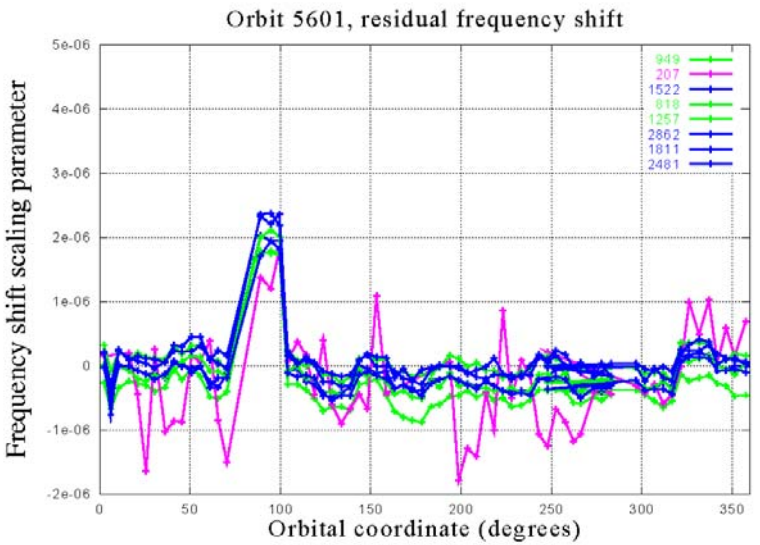


Monitoring of frequency shift

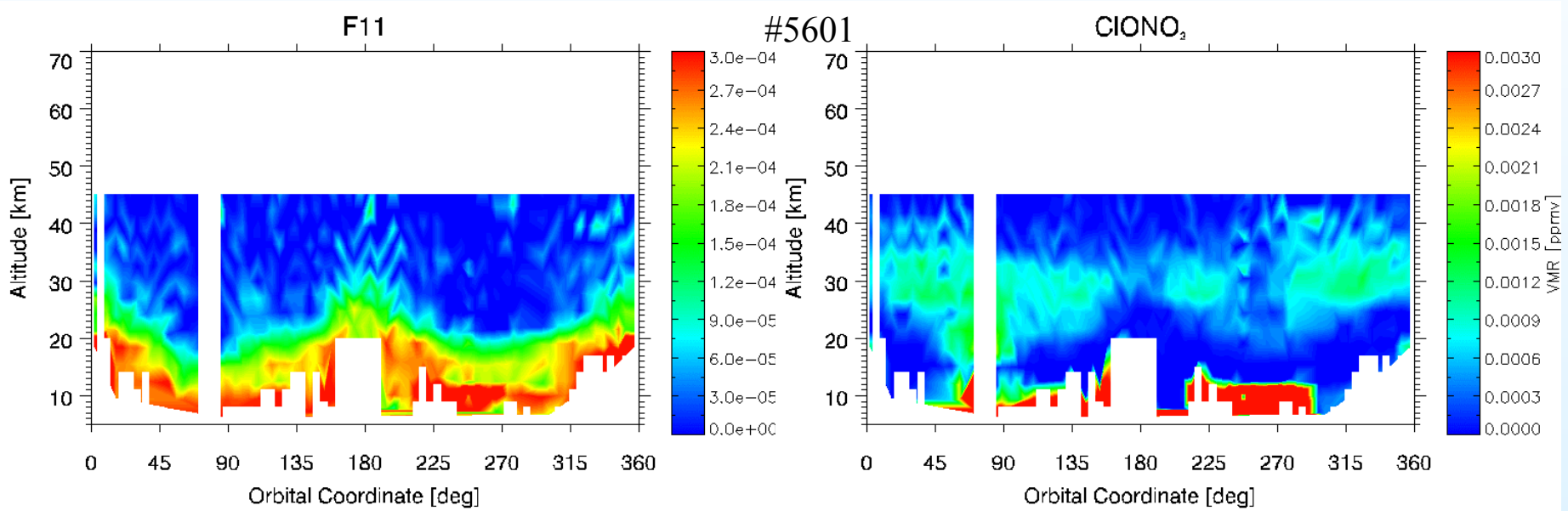








Concluding remarks



- Several further actions are desiderable for improving both the quality and the number of the near real time products