

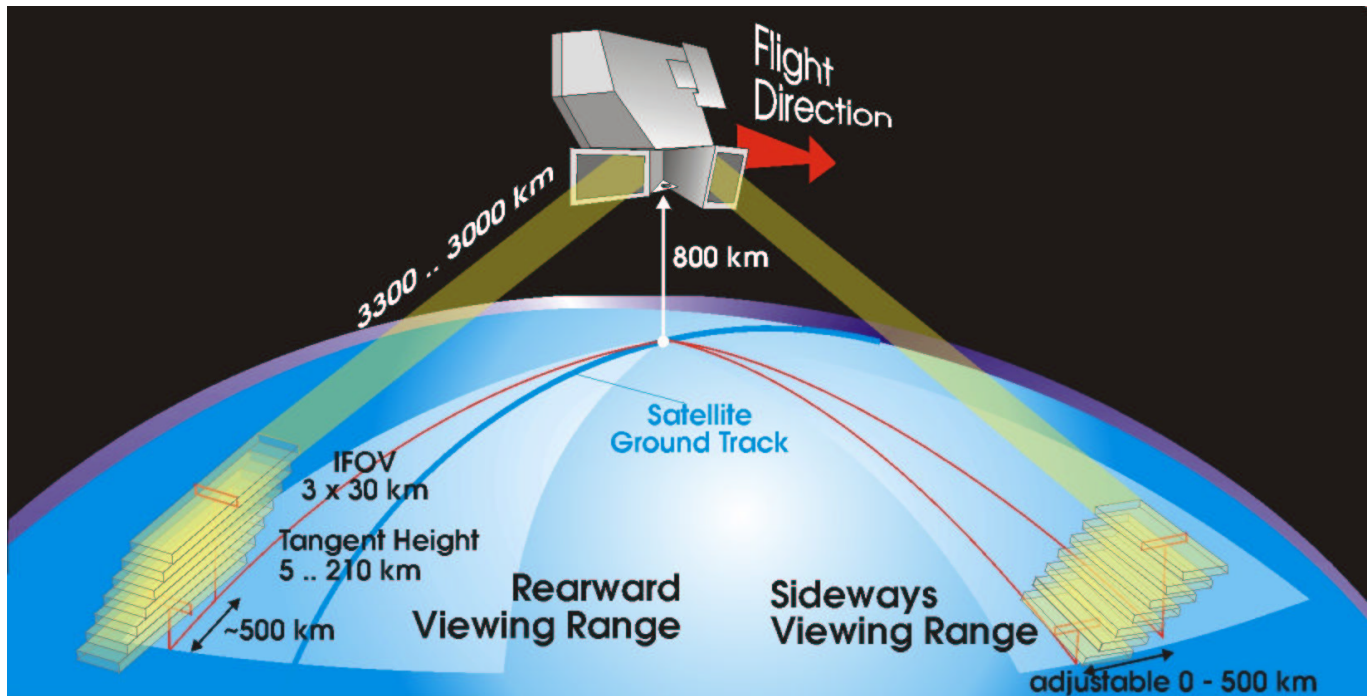
Measurements of upper tropospheric and lower stratospheric parameters with MIPAS/Envisat

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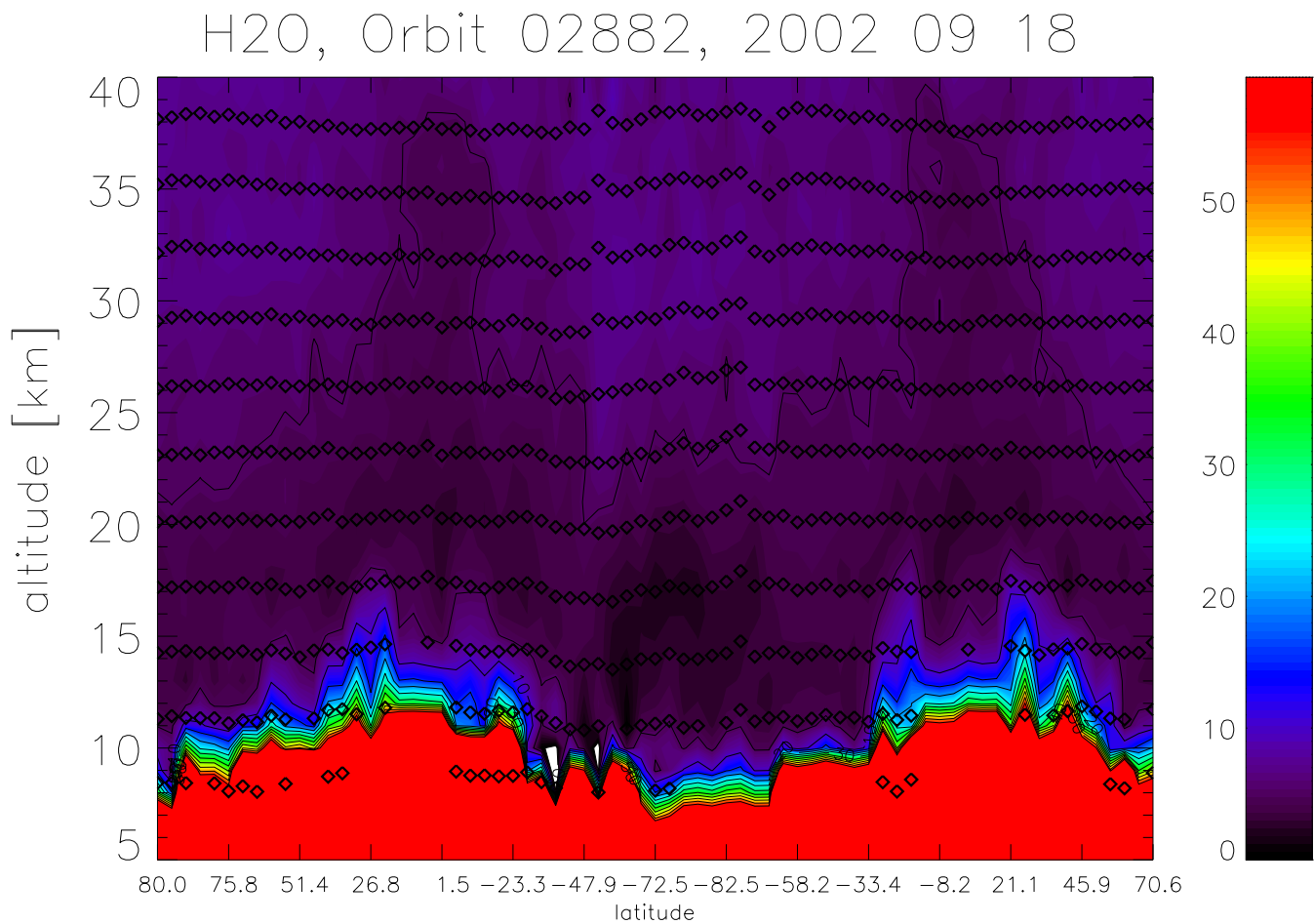
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Michelson Interferometer for Passive Atmospheric Sounding – MIPAS

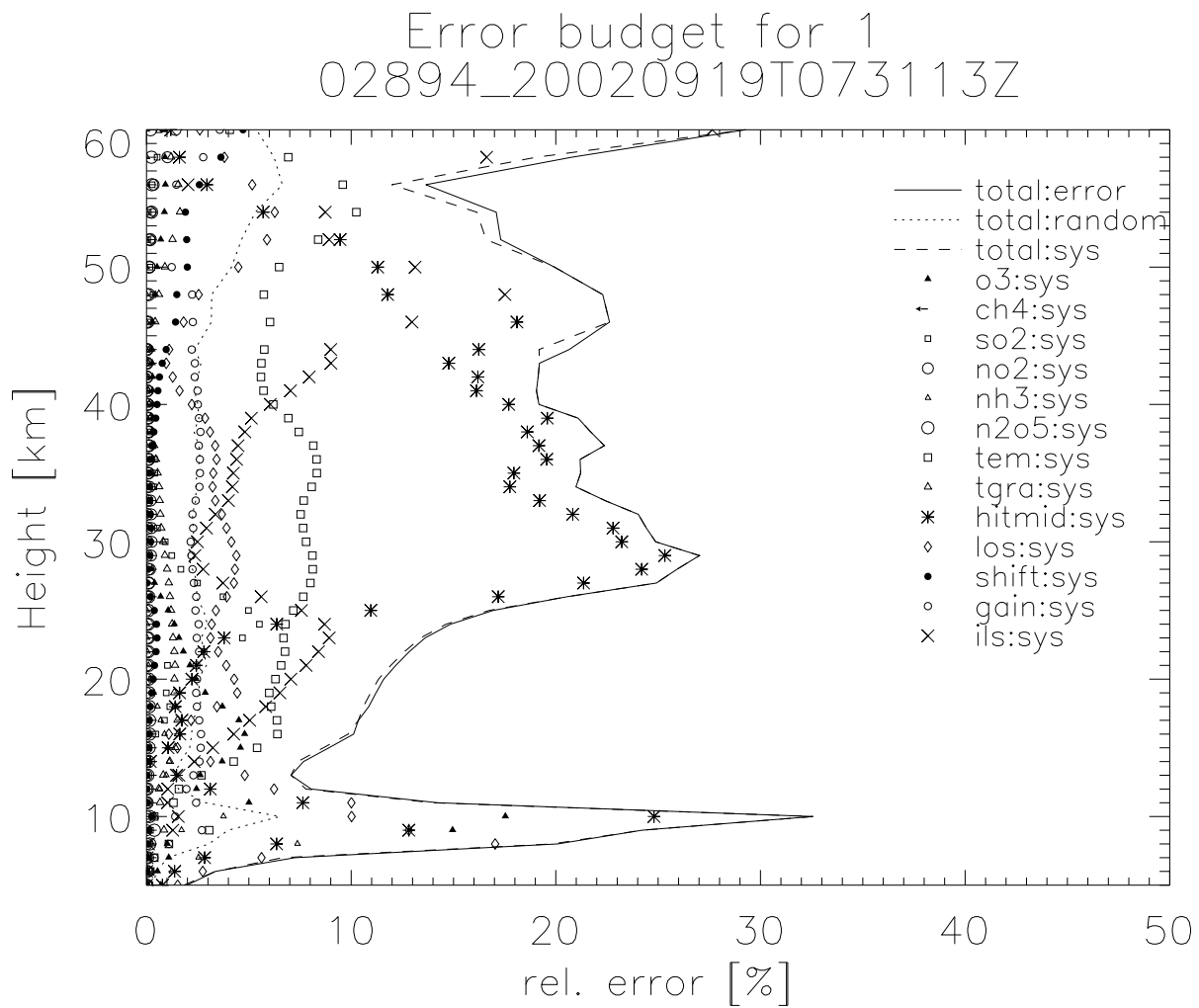


- Core payload on ESA-Envisat
- Limb sounding Fourier transform spectrometer
- Spectral range: $685 \text{ cm}^{-1} - 2410 \text{ cm}^{-1}$
($14.6 \mu\text{m} - 4.15 \mu\text{m}$)
- Field of view: ca. 3 km (vert.) x ca. 30 km (horiz.)
- Coverage: vertical: 6 - 68 km,
horizontal: $90^\circ \text{ S} - 90^\circ \text{ N}$

Water vapor for orbit 02882



Error Assessment for water vapor



IMK MIPAS Results

- IMK: retrieval processor for scientific use.
- MIPAS spectra contain signatures of several trace species
- retrievals have been performed for: T, O₃, H₂O, N₂O, CH₄, HNO₃, N₂O₅, ClO, CFC-11 (Sep.-Oct. 2002)
- sophisticated retrieval approaches for different requirements and conditions (microwindows, regularisation, etc).
- retrieval grid: 1 km spacing in UTLS region (ESA: 3 km grid (on tangent heights))
- UTLS mode with 2 km tangent altitude spacing and high horizontal resolution (ca. 150 km) for selected scans.

Conclusion

- MIPAS measures water vapor in the LS with good accuracy.
- lowest reliable retrieval height depending on atmospheric state (clouds).
- efforts at IMK to improve H₂O retrievals in the troposphere and lower stratosphere.
- further parameters are retrieved by IMK (O₃, Temperature, etc.).
- validation with satellite, ground based, balloon and field measurements is under progress.