

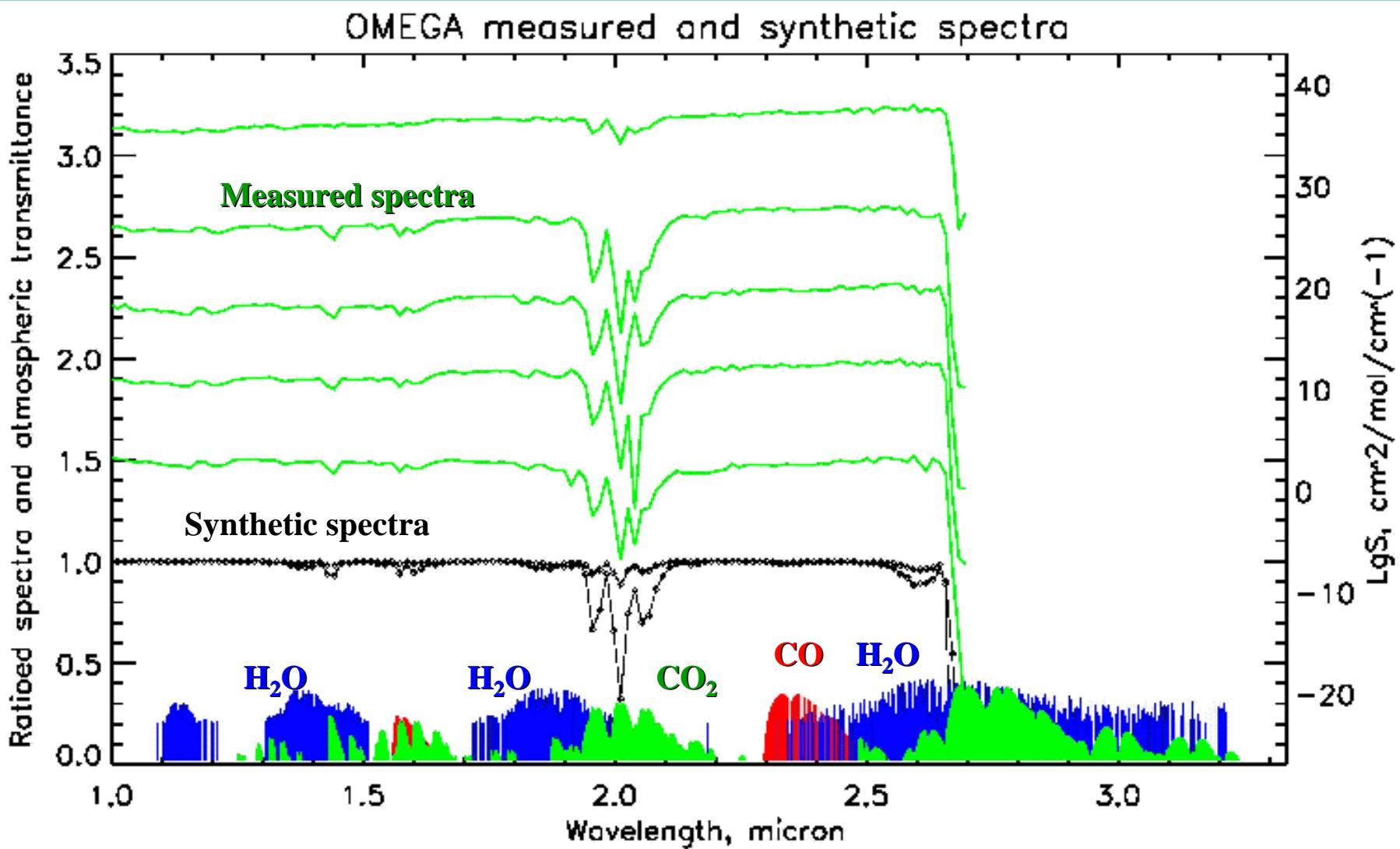
OMEGA observations of atmospheric H₂O and CO on Mars

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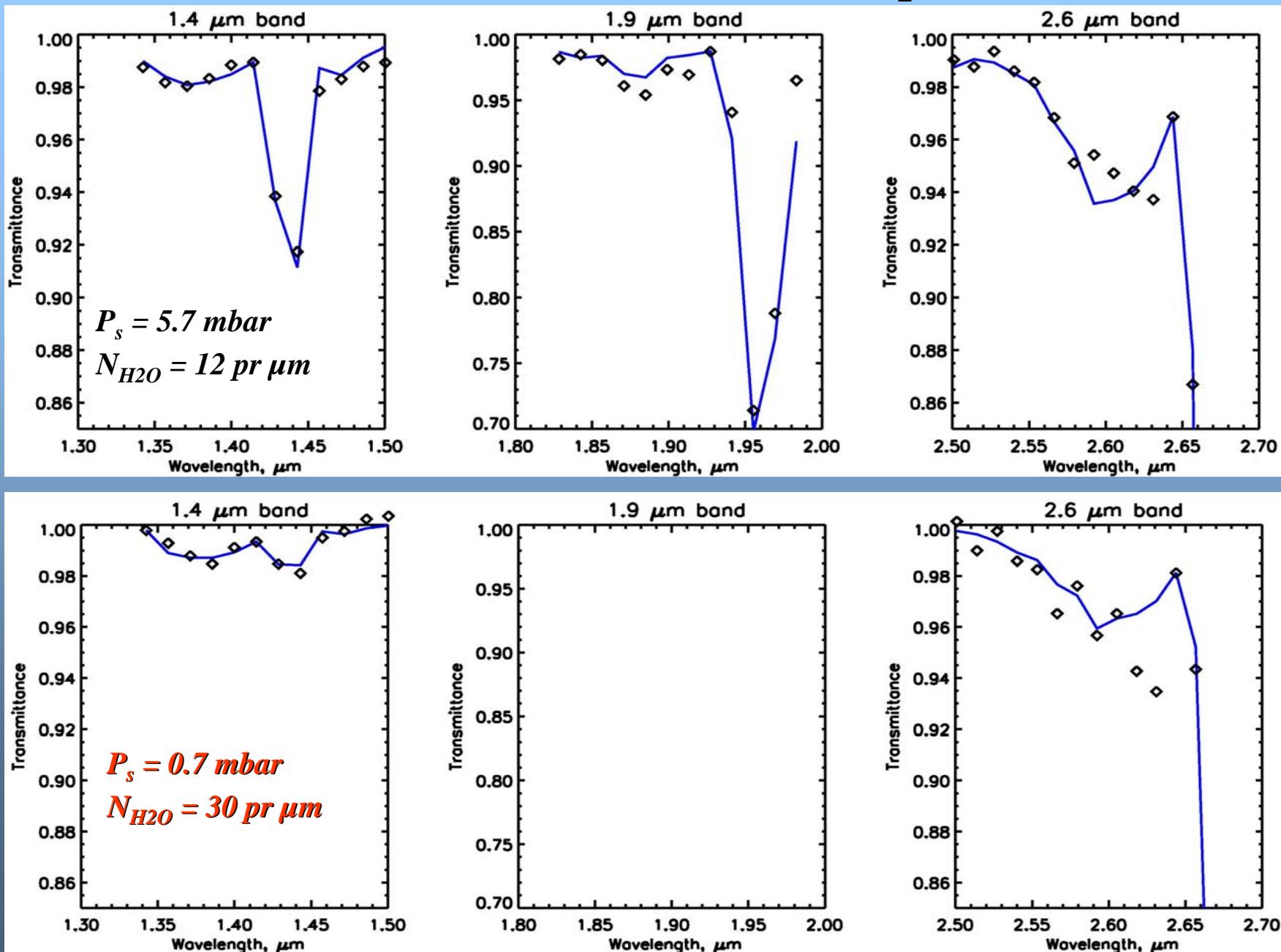
Approach to the data analysis

- First attempts – ISM approach
 - *Use of single spectel*
 - *Line model in synthetic spectra calculations*
 - *MOLA topography*
- Second step
 - *Line-by-line calculations of transmittance*
 - *Temperature and pressure are taken from EMCD*
 - *Use of individual absolute OMEGA spectra*
 - *“Manual” retrievals*

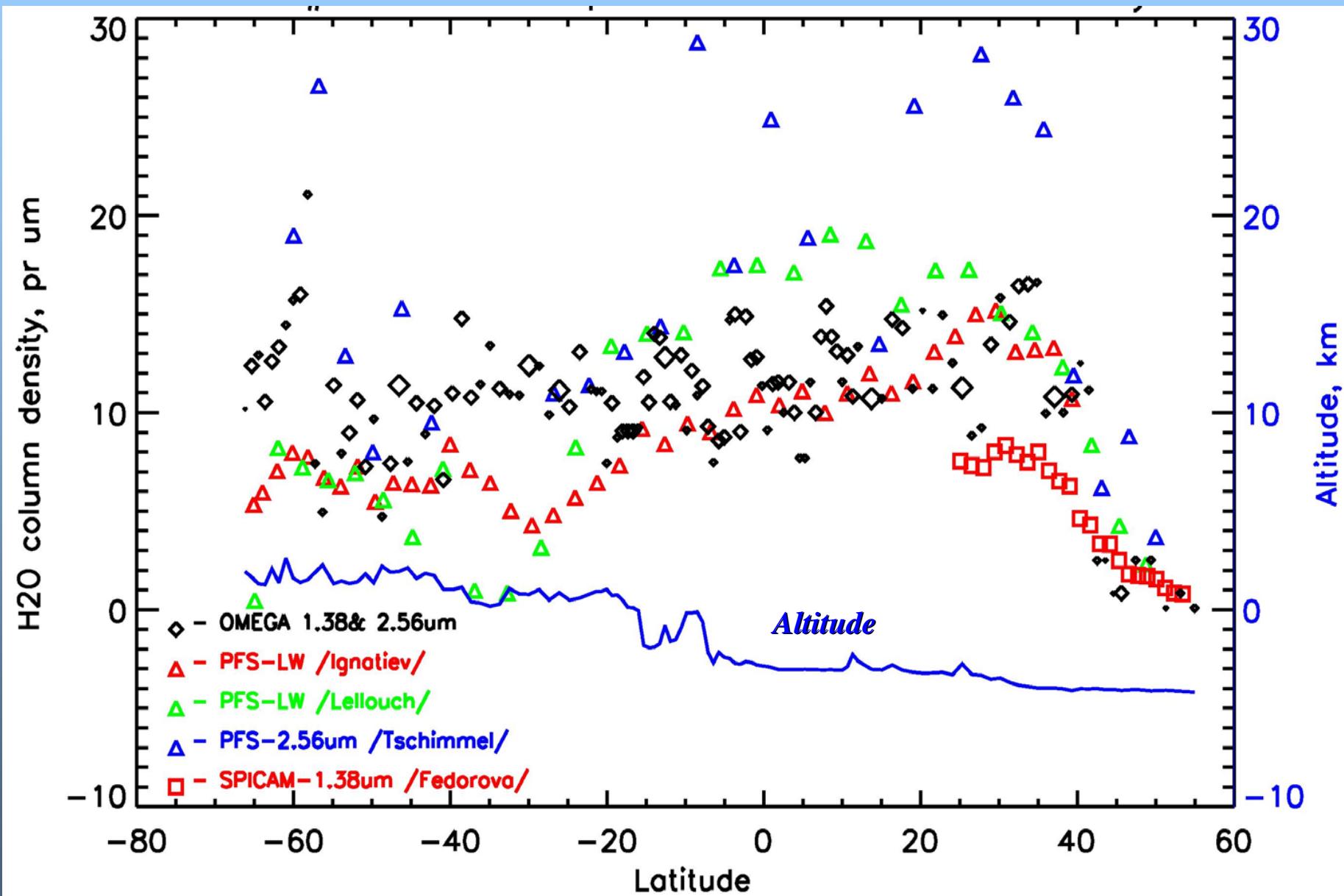
OMEGA measured and synthetic spectra



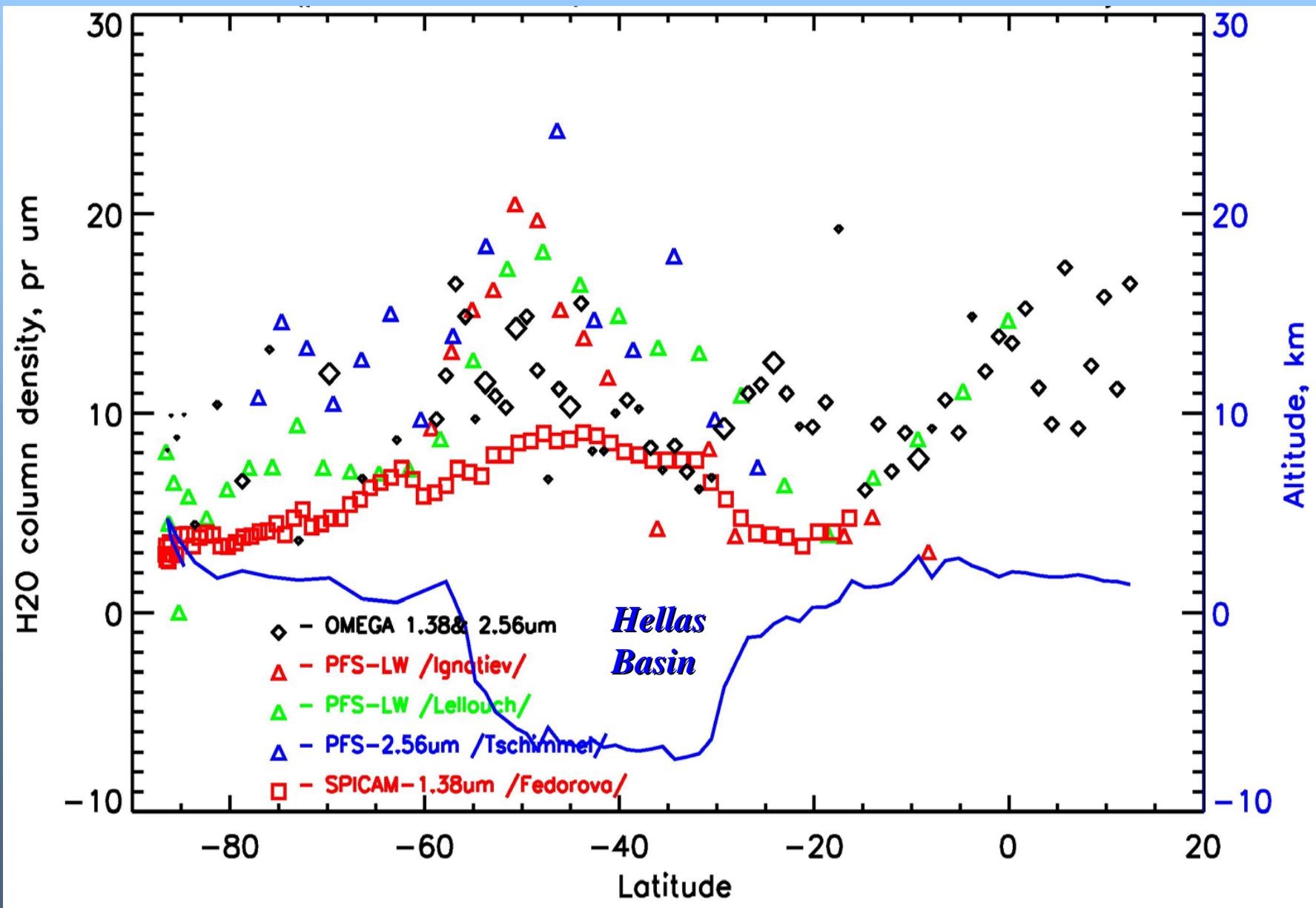
Examples of OMEGA spectra in H₂O bands



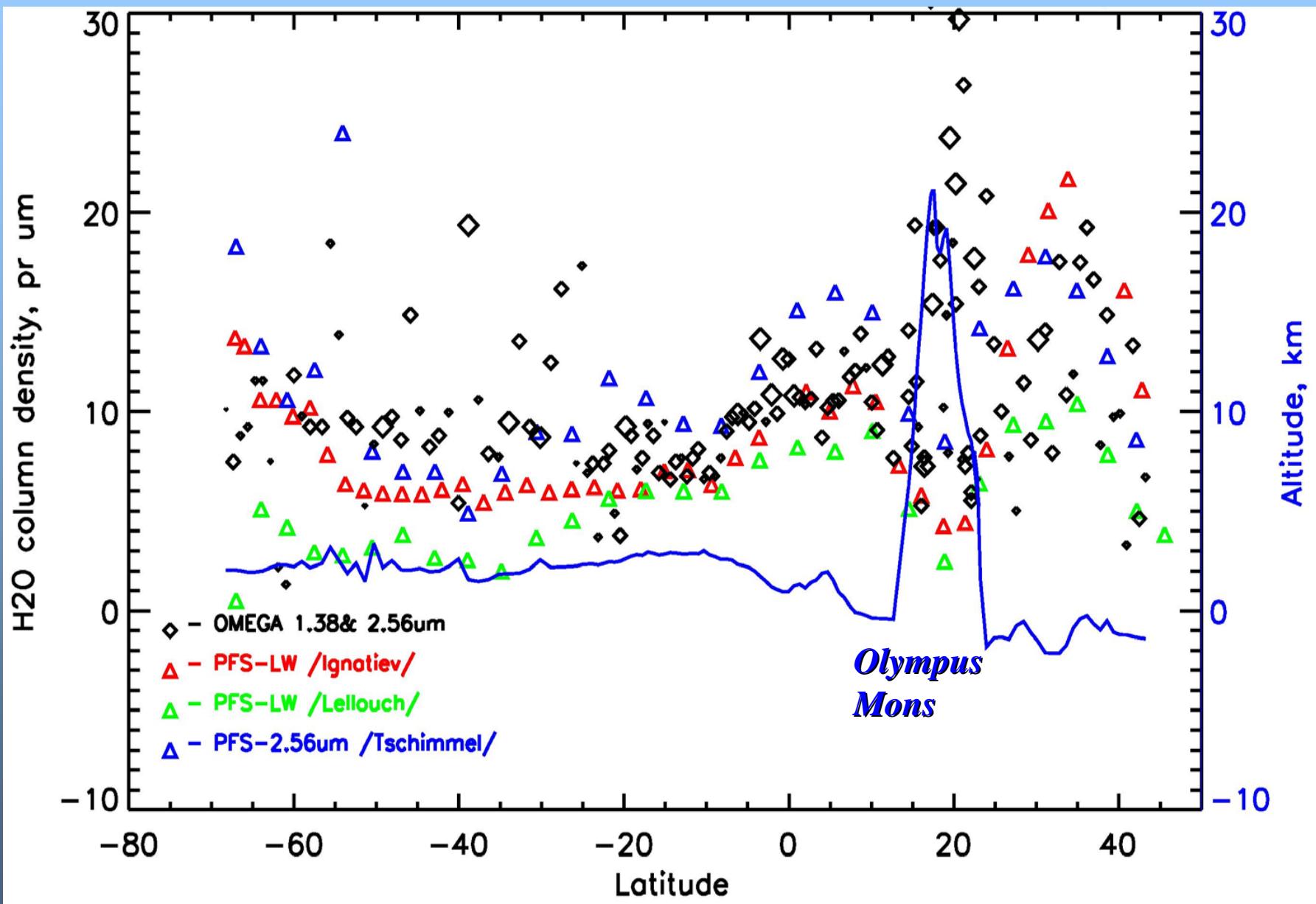
Orbit #24: latitude profile of H₂O column density



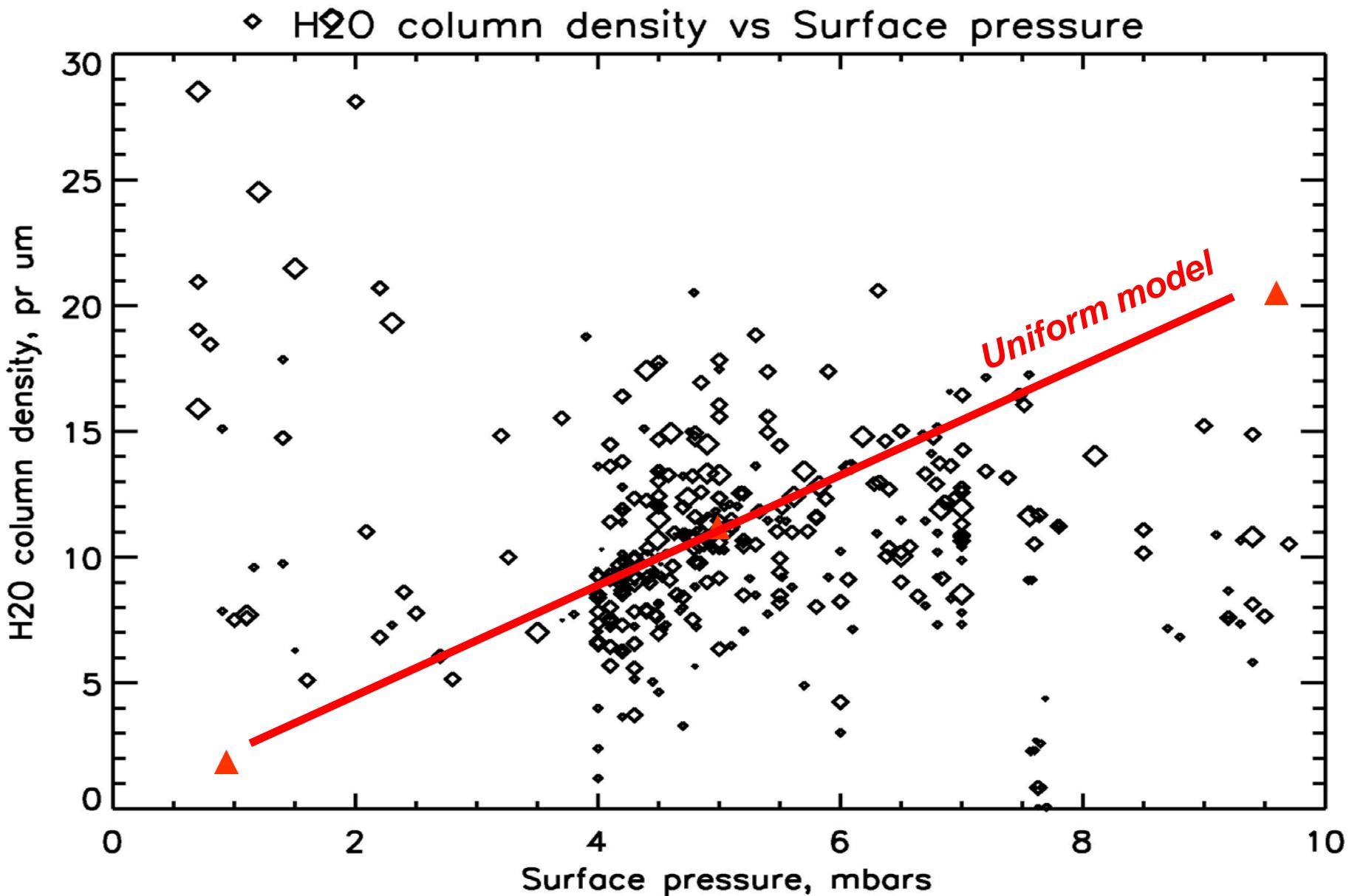
Orbit #30: latitude profile of H₂O column density



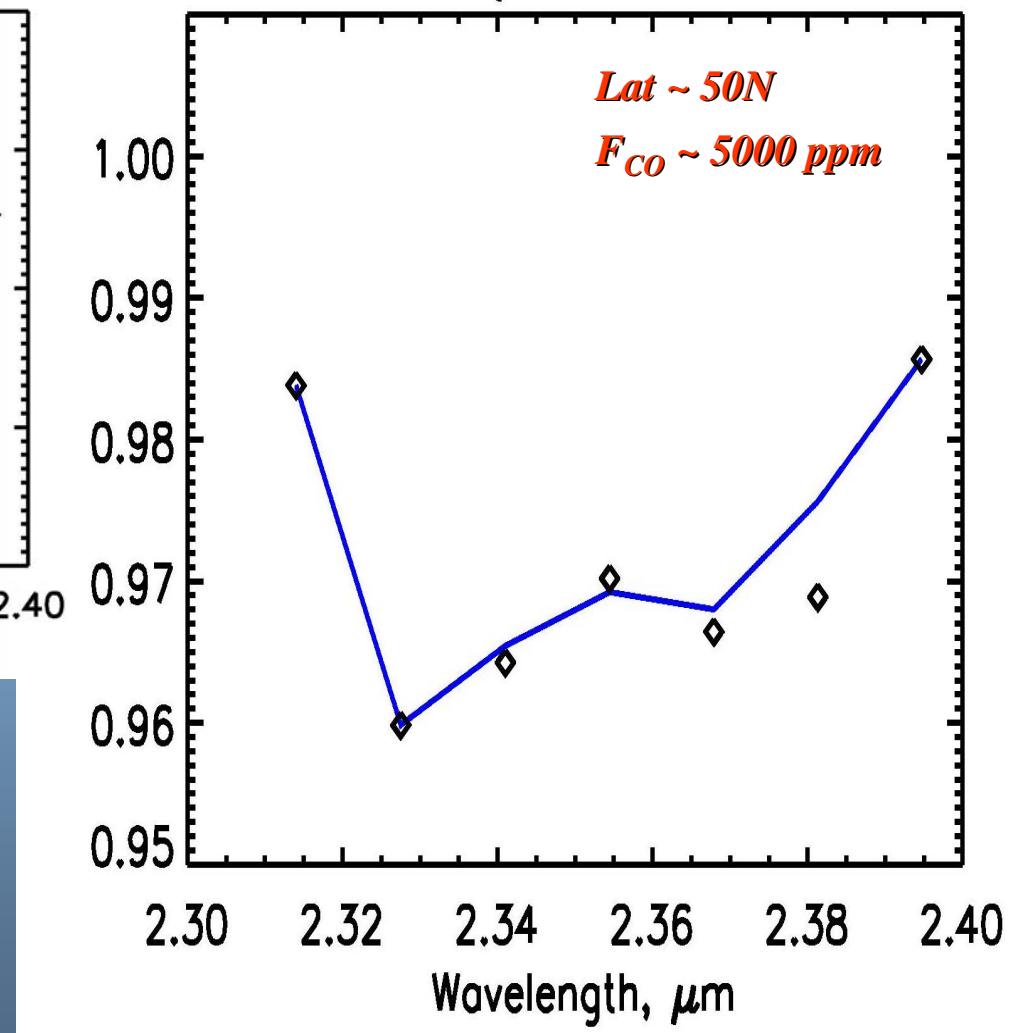
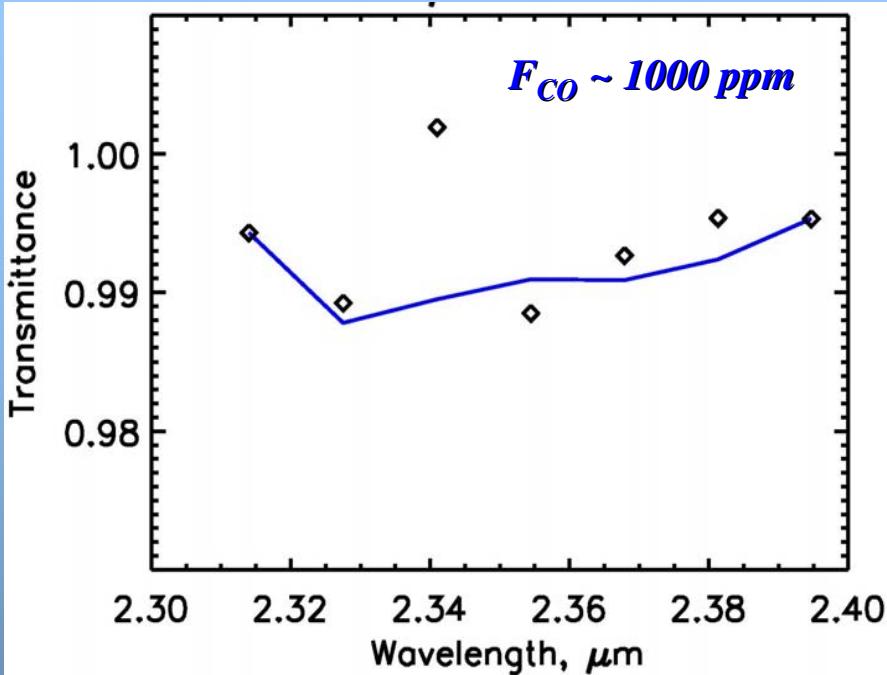
Orbit #37: latitude profile of H₂O column density



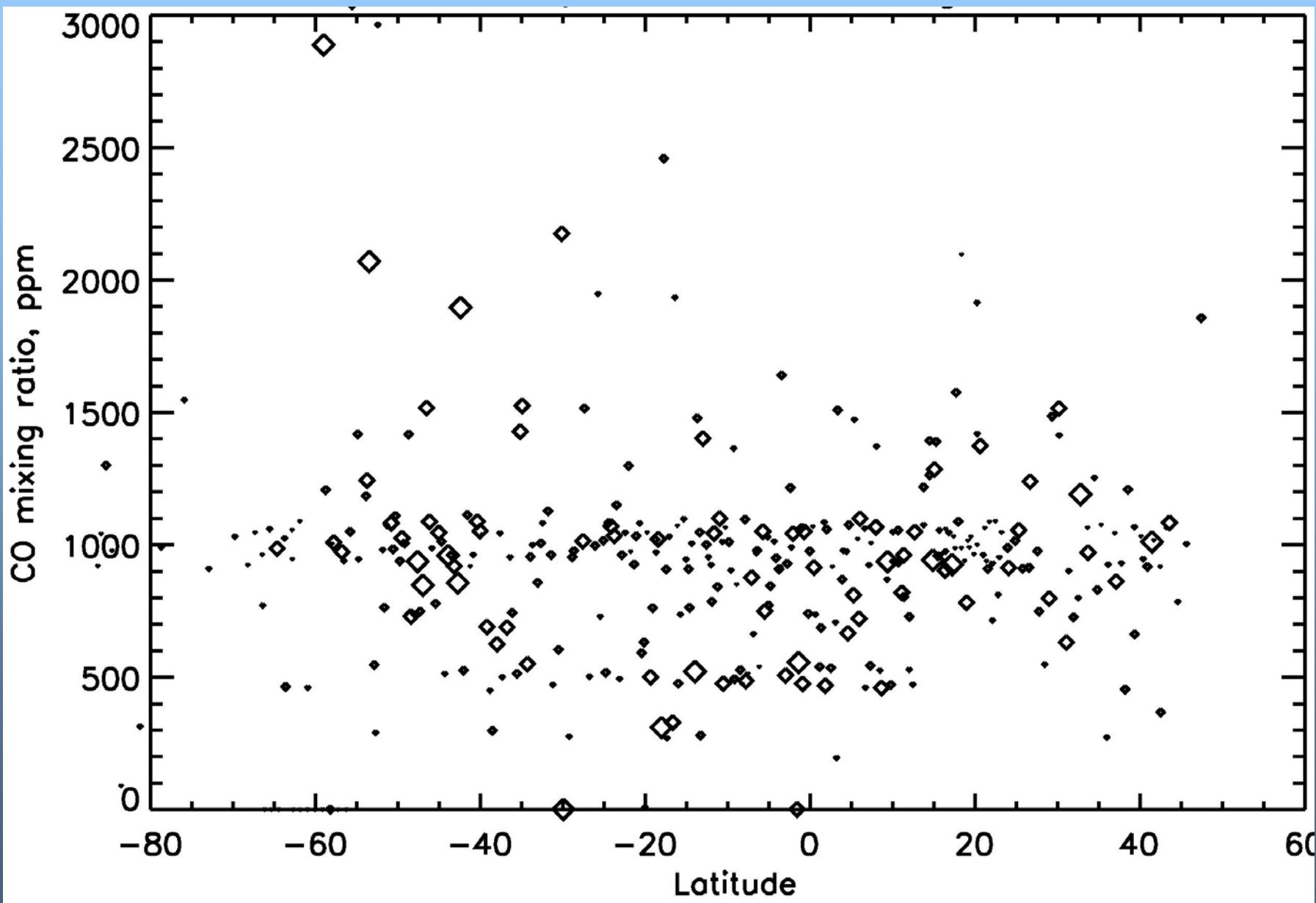
Non-uniformly mixed water ?



Examples of OMEGA spectra in the CO 2.35 μm band



CO latitude profile



Conclusions

- Water vapor
 - Mean value of $\sim 10 \text{ pr } \mu\text{m}$ with $\pm 5 \text{ pr } \mu\text{m}$ variations
 - Agreement with PFS-LW and SPICAM within $5 \text{ pr } \mu\text{m}$
 - Tentative evidence for non-uniformly mixed water
- Carbon monoxide
 - Mixing ratio: $1000 \pm 500 \text{ ppm}$
 - No latitude variability
 - Sometimes $F_{\text{CO}} \sim 5000 \text{ ppm} \text{ (!?)}$ was observed