

Pressure variations in OMEGA observations; possible detection of lee waves

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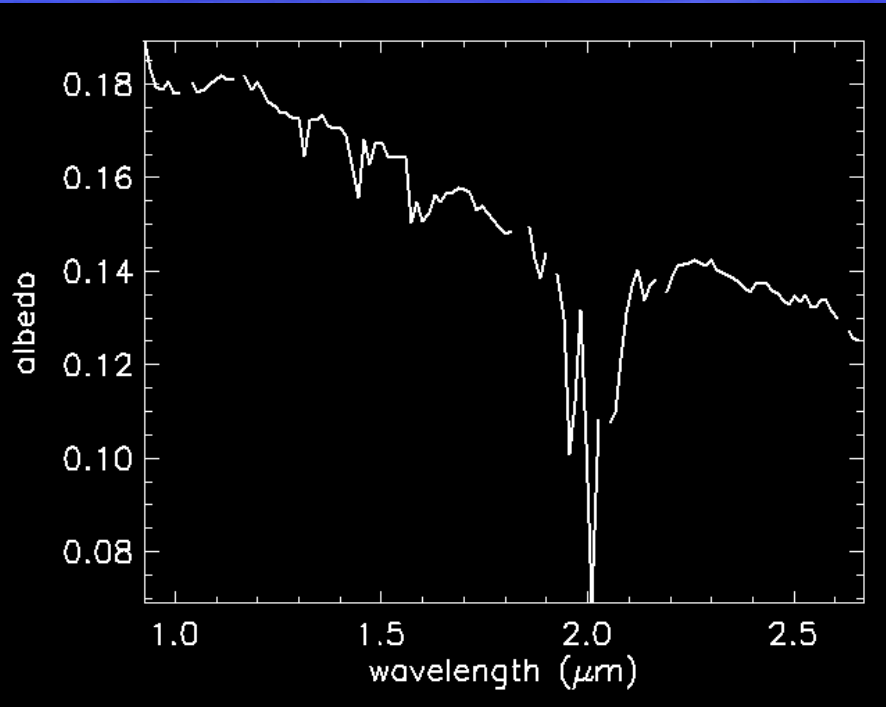
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Observatoire pour la Minéralogie, l'Eau, la Glace et l'Activité



2 instruments VIS-IR
(0.4 – 1.) (1. - 2.7) (2.3 – 5.) μm

Spectral resolution ~ 13 nm

IFOV 1.2mrad $\sim 400\text{m}$

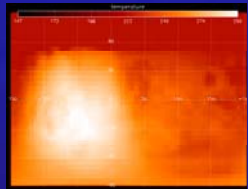
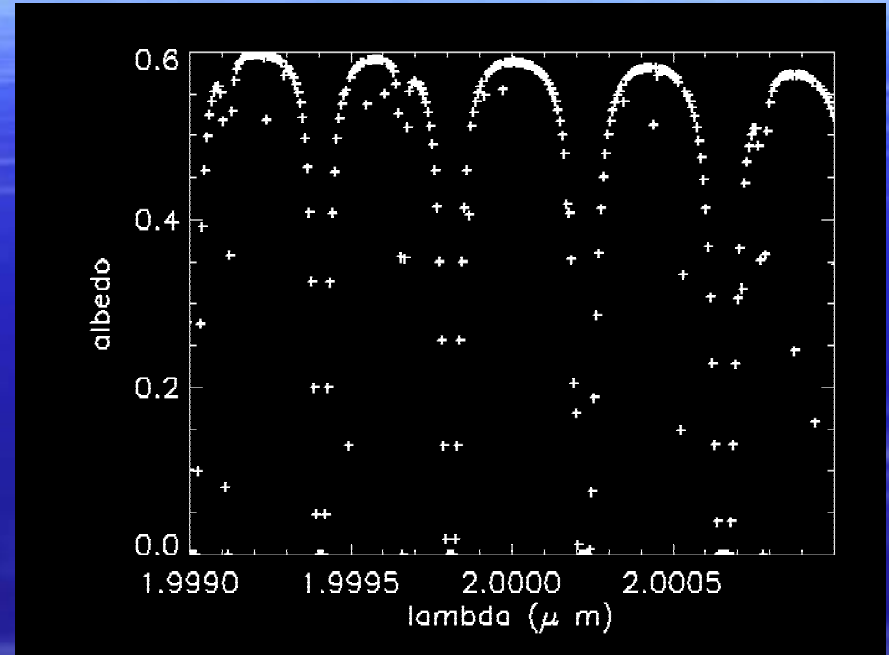
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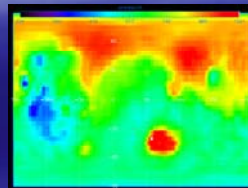
Line by line model

Molecule	# of lines	Mixing ratio
CO ₂	40743	0.95
CO	2676	7.5 10 ⁻⁴
H ₂ O	48400	1-50 μppt

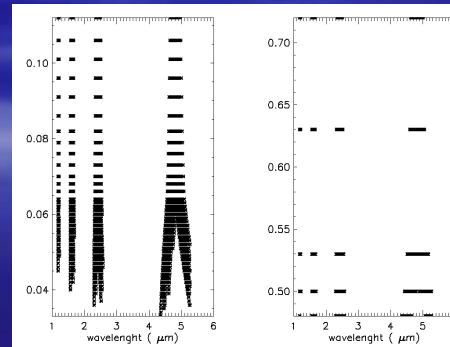


Ground Temperature &
Vertical Profile

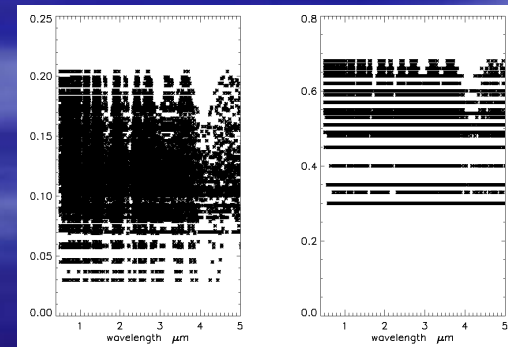
GCM-LMD



Ground Pressure



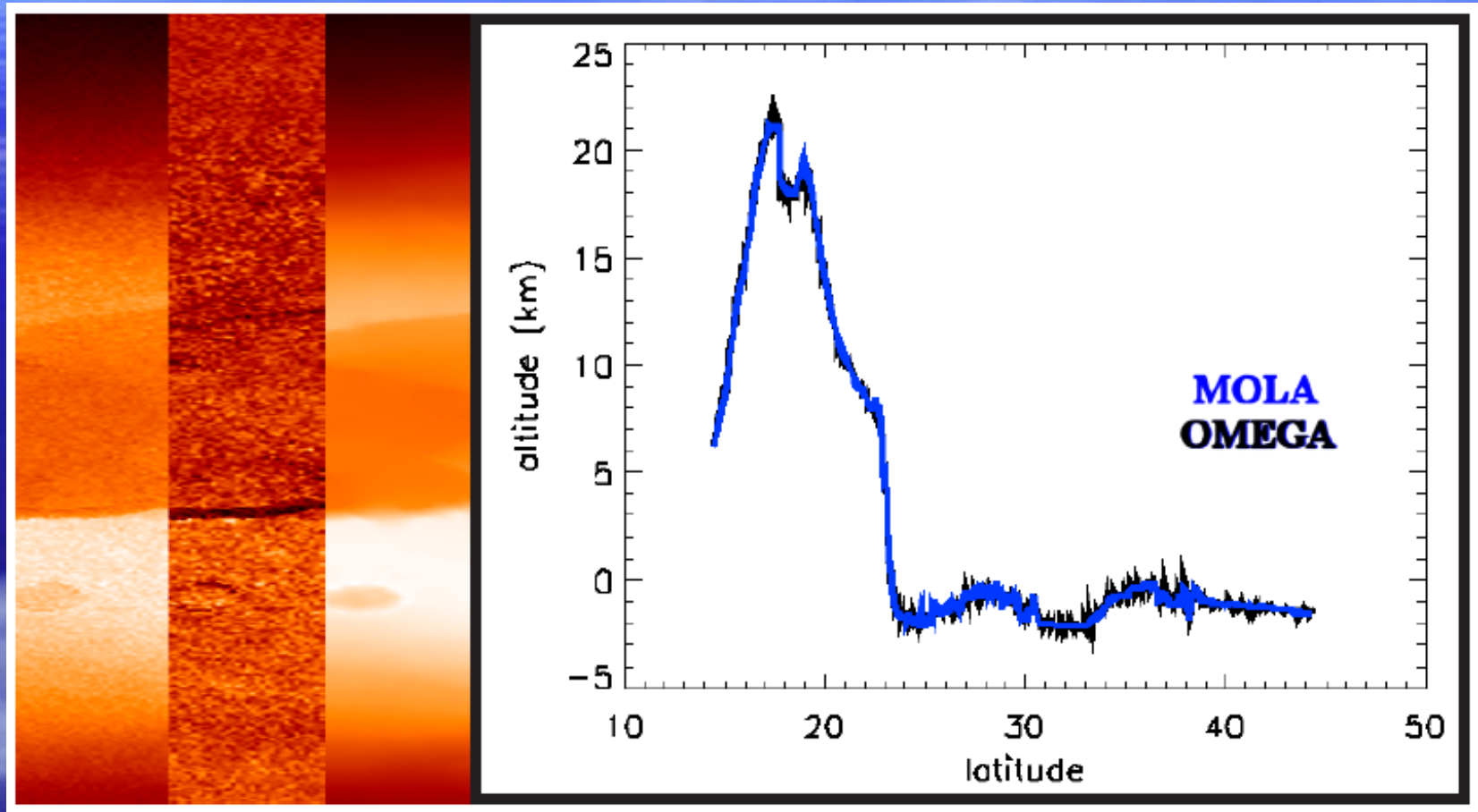
CO 0.08 – 0.6



H₂O 0.12 – 0.5

CO₂ 0.1 - 0.75

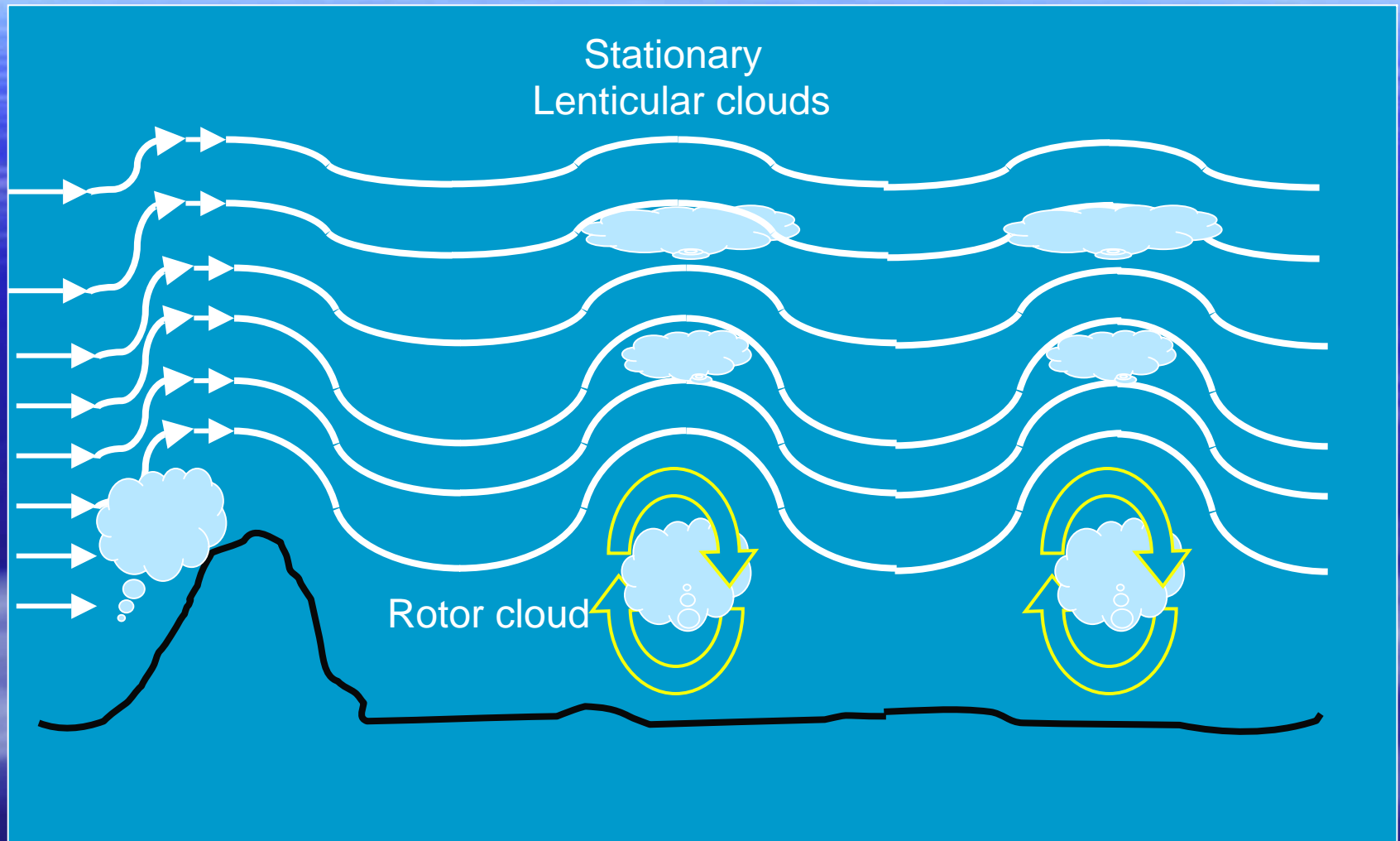
Comparison with MOLA



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Lee waves

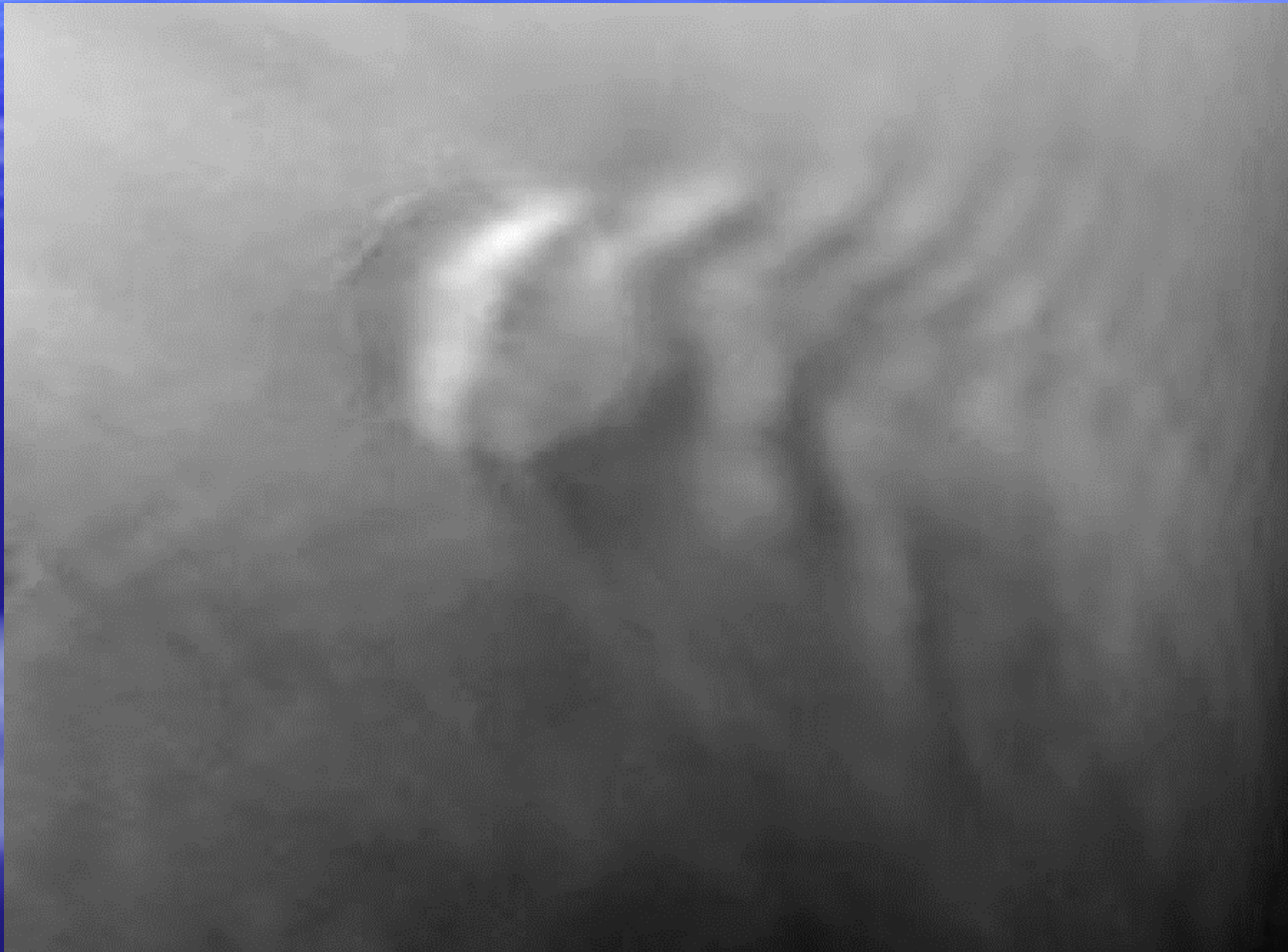


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Lee waves on Mars



Clouds generated by a lee wave on the Milankovic crater (55N,148W, diam 110 km) Ls=234. (MOC-WA image M08/07249).

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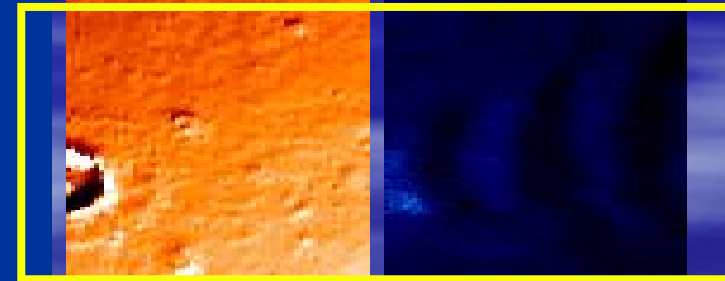
- Orbit 0018 session 4
 - 324° E longitude
 - 50° N latitude
 - LS 333
 - Local time 14:00

 - Undulatory patterns in the Martian atmosphere as seen by the OMEGA instrument
- F. Altieri et al.*

59°

MOLA

2μm omega

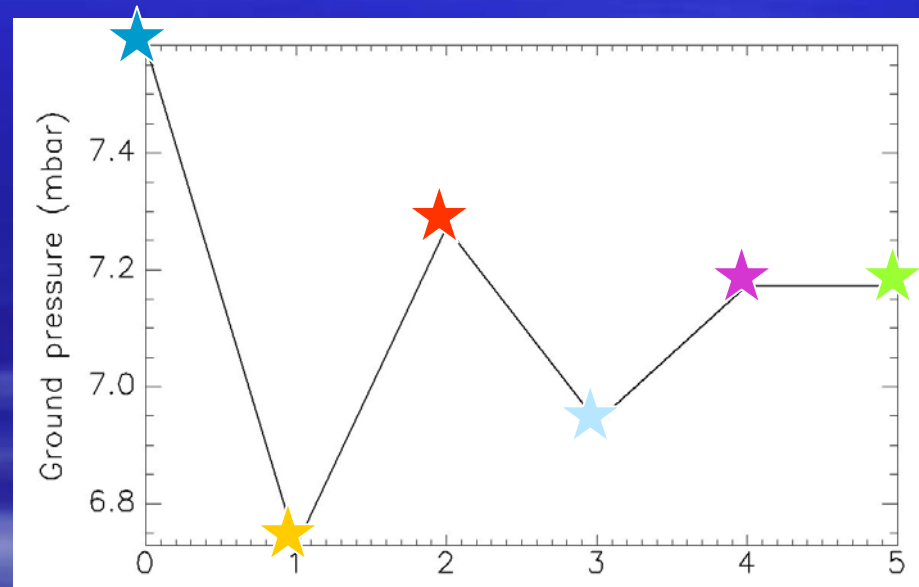
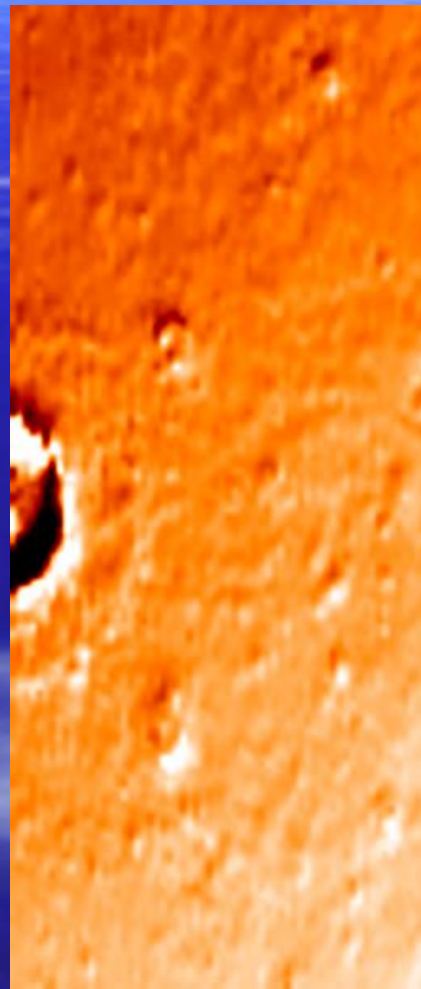
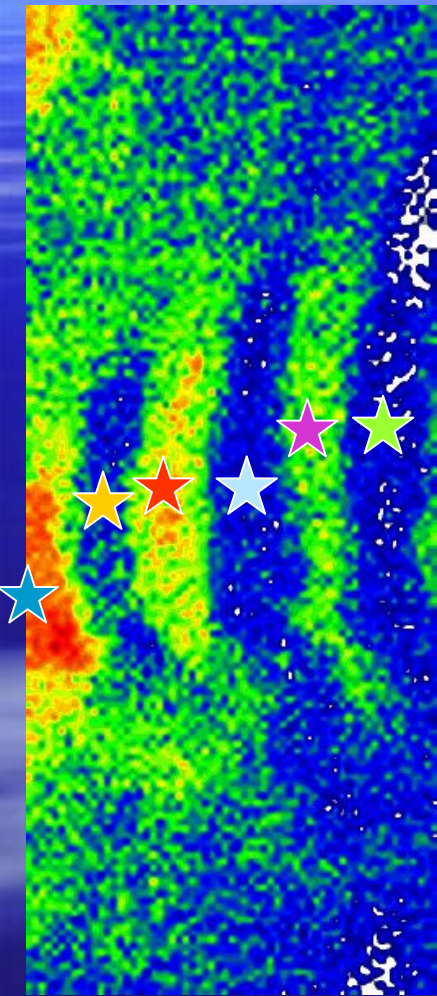


48°

322°

326°

Pressure variation of a lee wave?



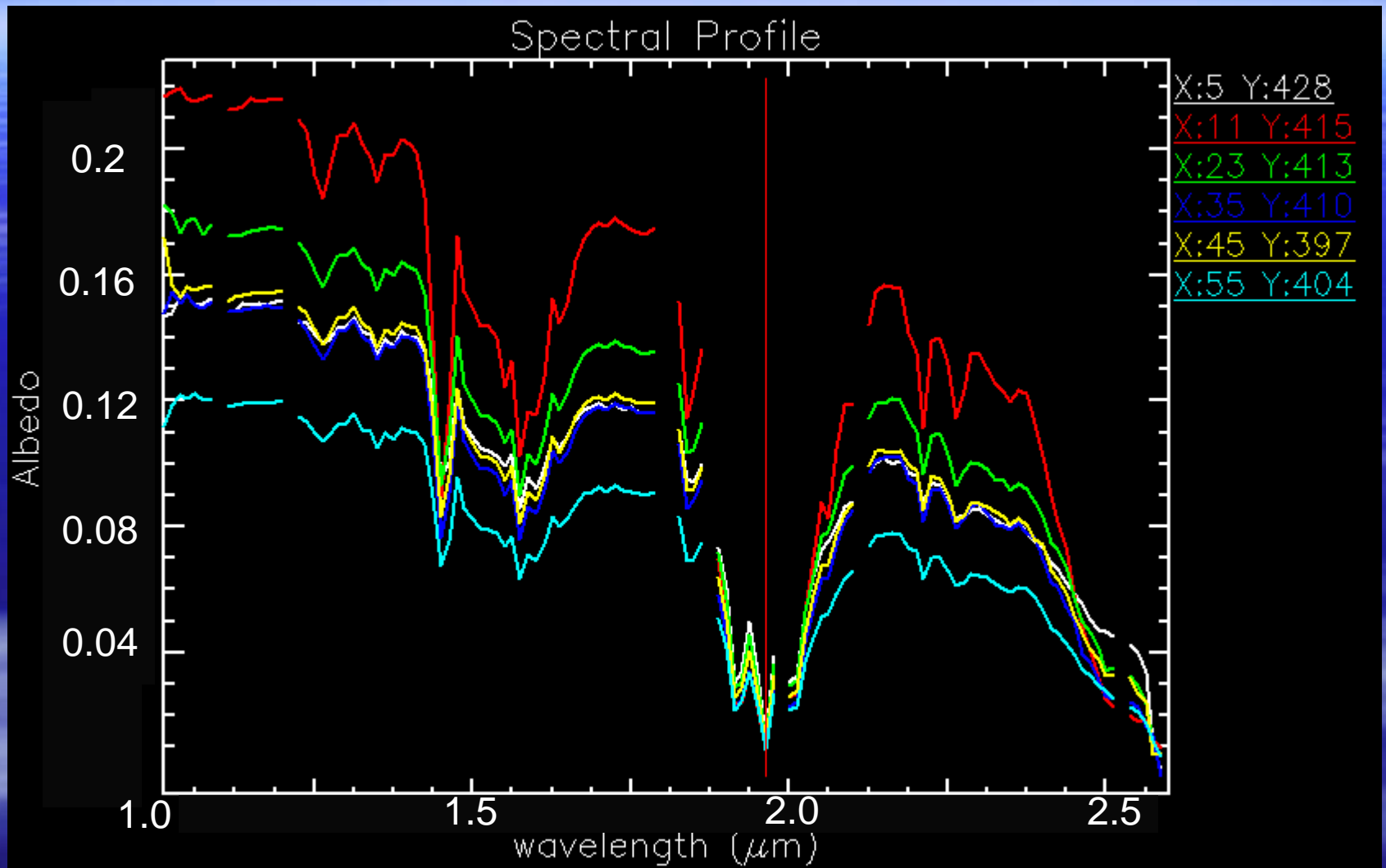
2.0μm OMEGA

MOLA

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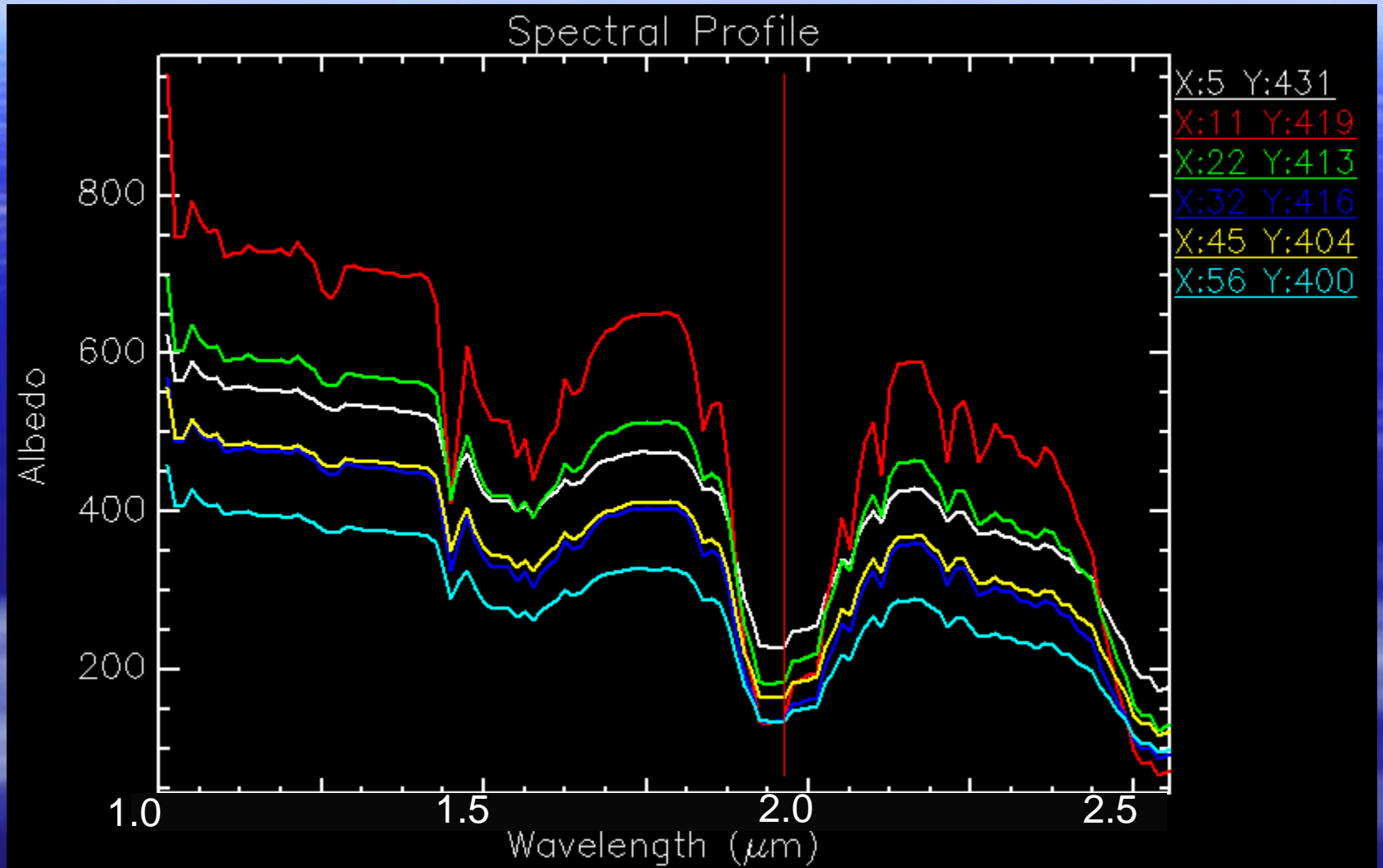
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Perspectives

- Search for lee waves without clouds contribution
- Study of icy clouds formation in lee waves
- Detection of low scale atmospheric features