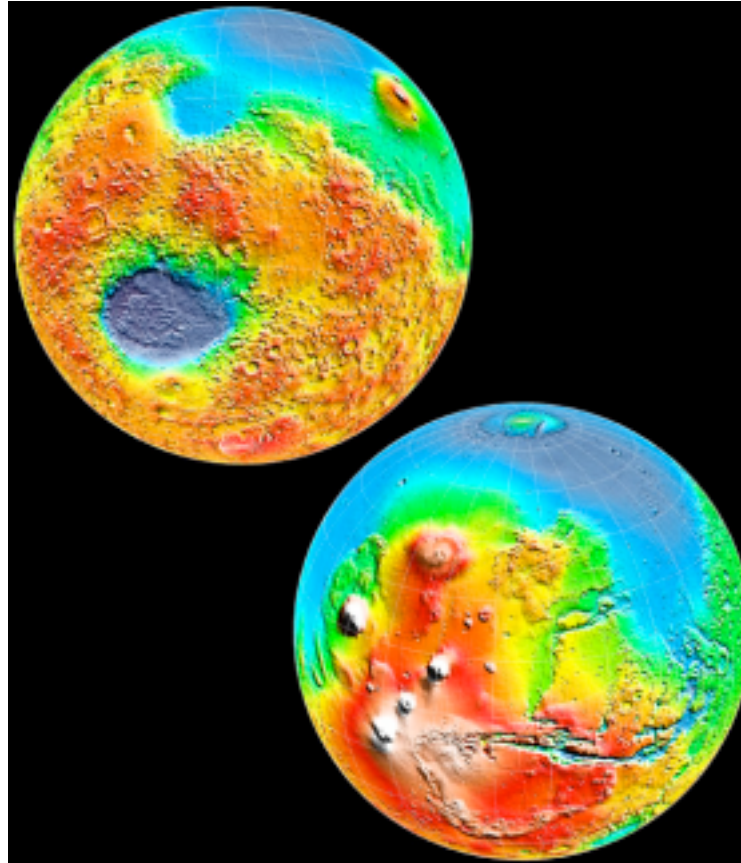


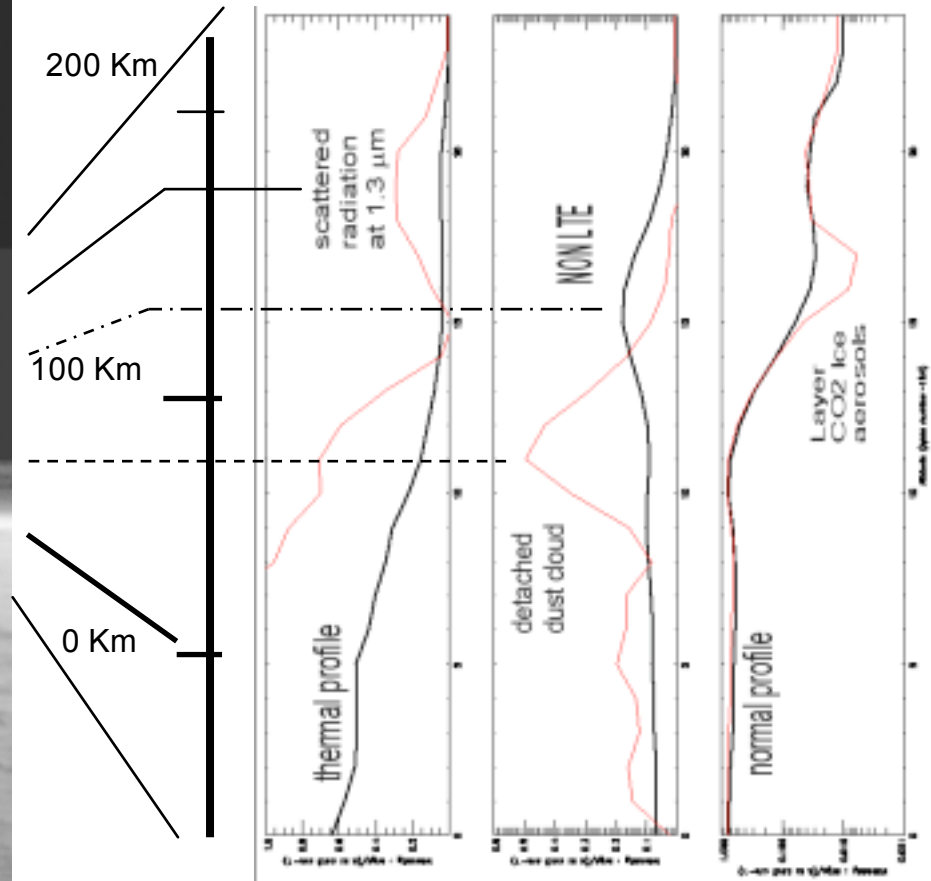
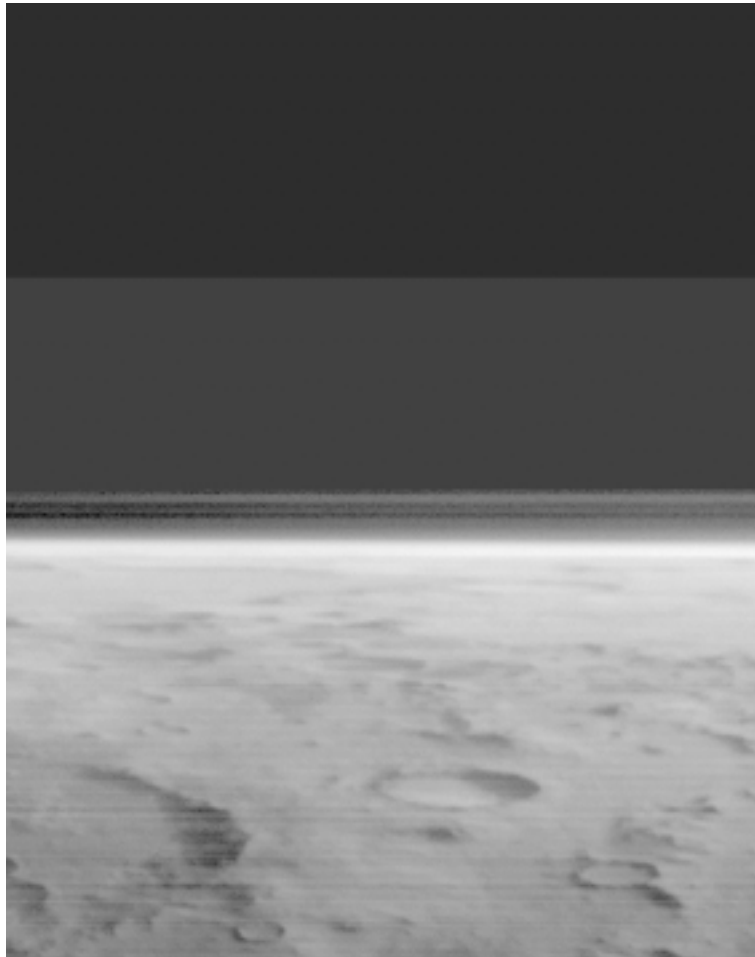
MAJOR RESULTS FROM THE PLANETARY FOURIER SPECTROMETER

V.FORMISANO AND PFS TEAM

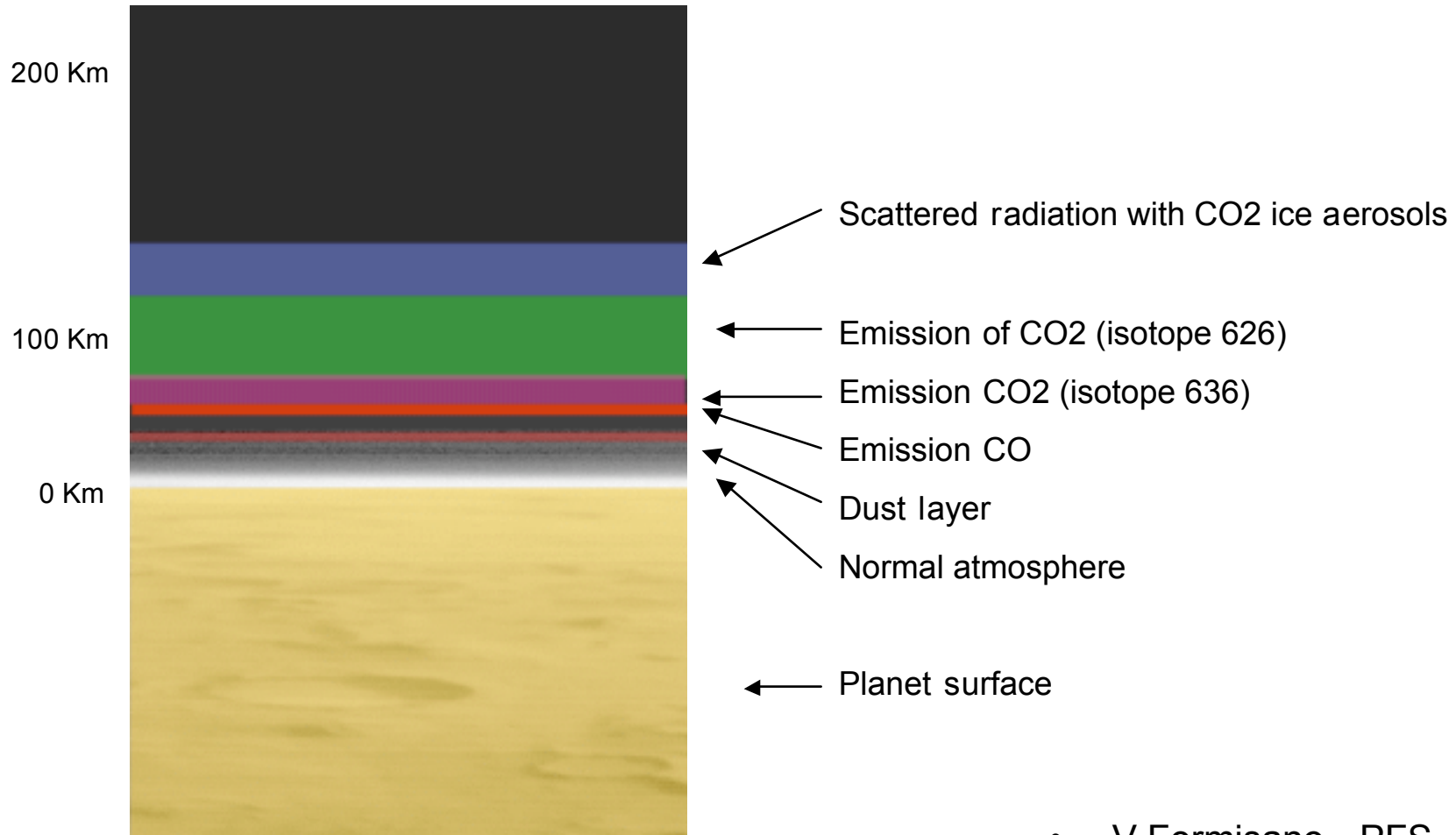
- ◆ Structure and properties of the atmosphere
- ◆ The search for life on Mars



Structure of the atmosphere



Structure of the atmosphere



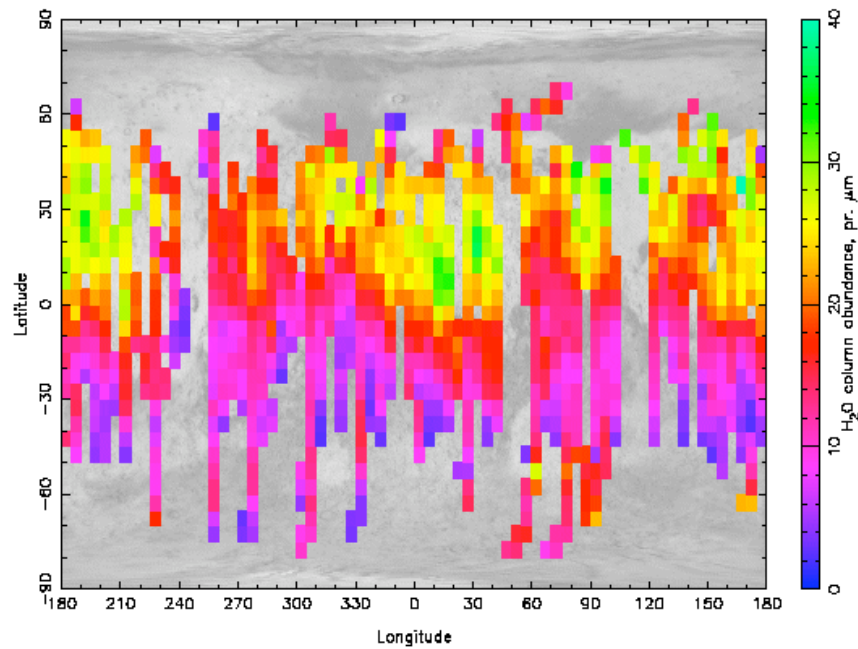
• V. Formisano - PFS

The search for life on Mars

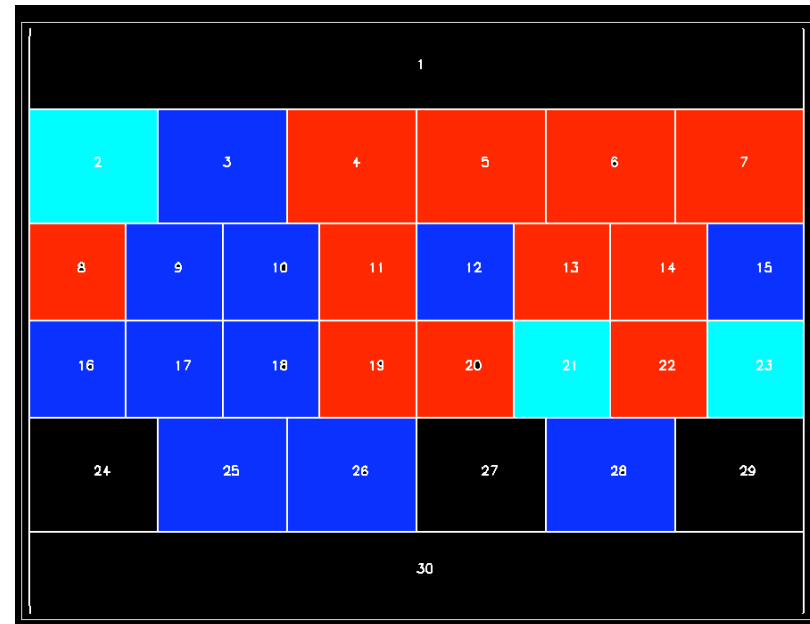
- We have found methane and formaldehyde in the atmosphere of Mars. **Methane can be a biomarker**
- The map of water vapour close to the surface largely matches the methane map.
- Methane is correlated with formaldehyde, which should be simply considered as oxidised methane (iron oxides are efficient chatalisers)
- The correlation between water vapour, methane and possible underground aquifers (Mars Odyssey) points to a common underground source for water and methane.

	Methane	Formaldehyde
abundance	11 ppb	130 ppb
variability	0-35 ppb	0-250 ppb
lifetime	300-600 years	7.5 hours
source	150 ton/year	2 500 000 ton/year
On Earth	500 million ton/year	

Correlation water-methane maps



blue: low water vapour
green: high water vapour



blue: low methane
red: high methane

Hints for life on Mars

If we consider formaldehyde as oxidised methane, then hints for life become stronger, because it requires a lot of methane.

Due to the short lifetime of formaldehyde, the observed spatial variations are easily explained.

Less efficient local oxidation can occasionally allow larger quantities of methane to be observed.

Conclusions

A new view of the atmosphere.

A basic question: is there life on Mars TODAY?