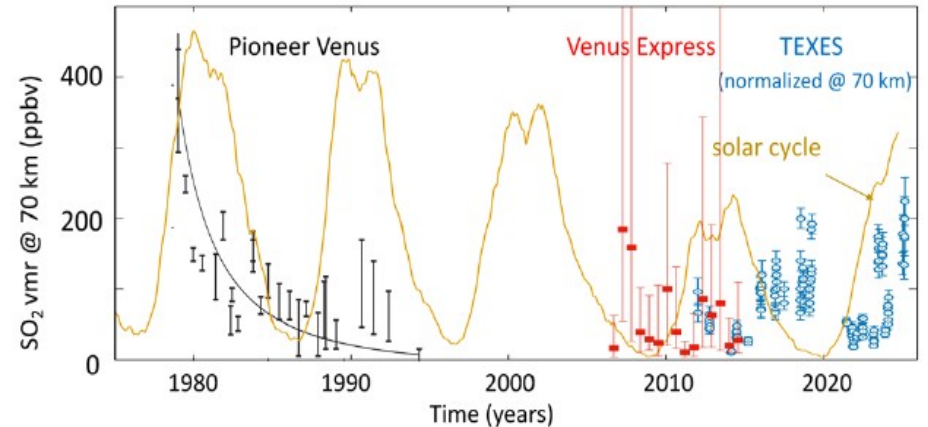
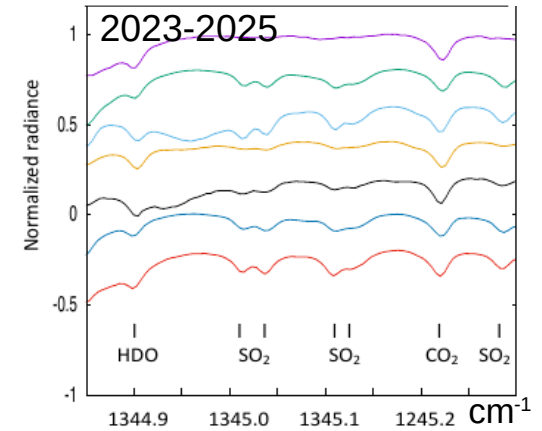
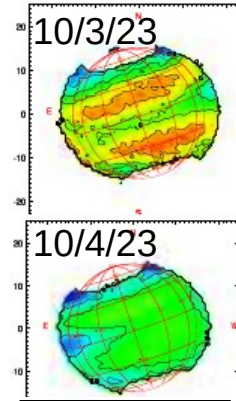


HDO and SO₂ Maps of Venus

Water and sulfur dioxide drive **Venus atmospheric chemistry**, e.g., formation sulfuric acid and aerosols.

- Regular monitoring with IRTF/TEXES 2012-now
- Different transitions trace different altitudes: clouds (~62 km) and slightly above and below
- H₂O spatially constant, but SO₂ not.
- SO₂ abundance varies on time scales of **hours, to days, months, years and decades**
- Clouds dynamics causes short-term plumes
- Longer term (2012-2023) **anti-correlation with solar cycle**. Physical cause still unclear.
- Not well understood: variations since 2023, local time dependence.
- **IRTF/TEXES supports Venus space missions.**



Encrenaz+, A&A 703, 219, 2025