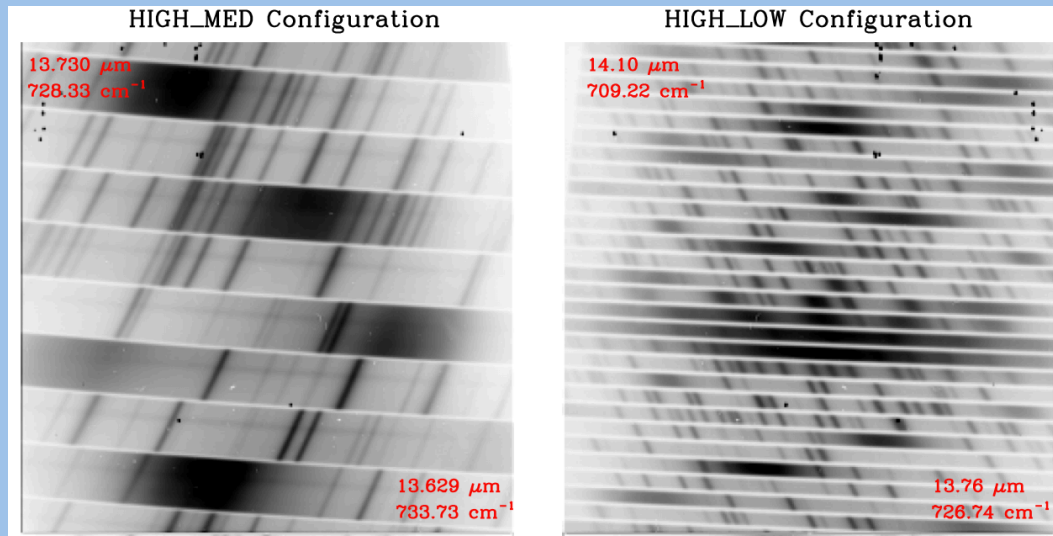
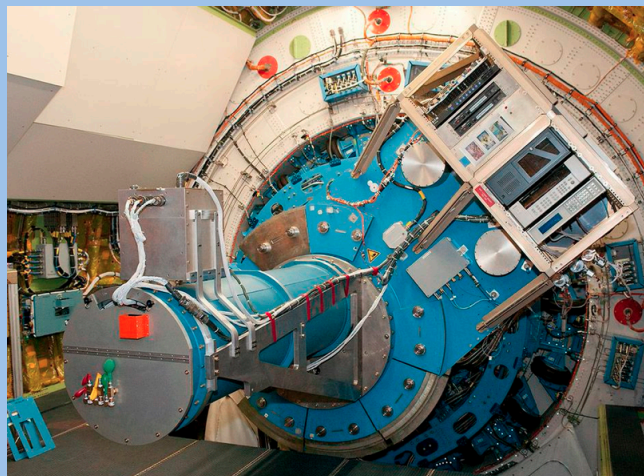


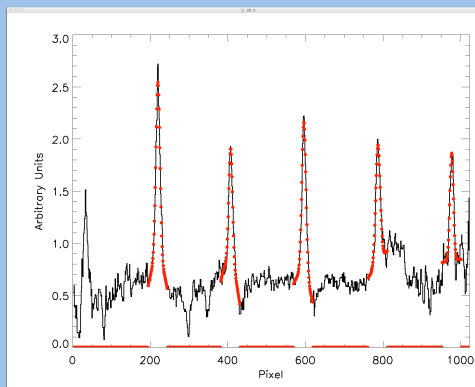
EXES: High-Resolution Mid-IR spectroscopy from SOFIA



23" slit length, 0.7% coverage

4" slit length, 2.5% coverage

- 4.5 μm – 28.3 μm , Cross-dispersed spectroscopy
- $R=60,000-100,000$
- Spectral coverage of 0.7% or 4%



$$R = \lambda / \Delta\lambda = 75000$$

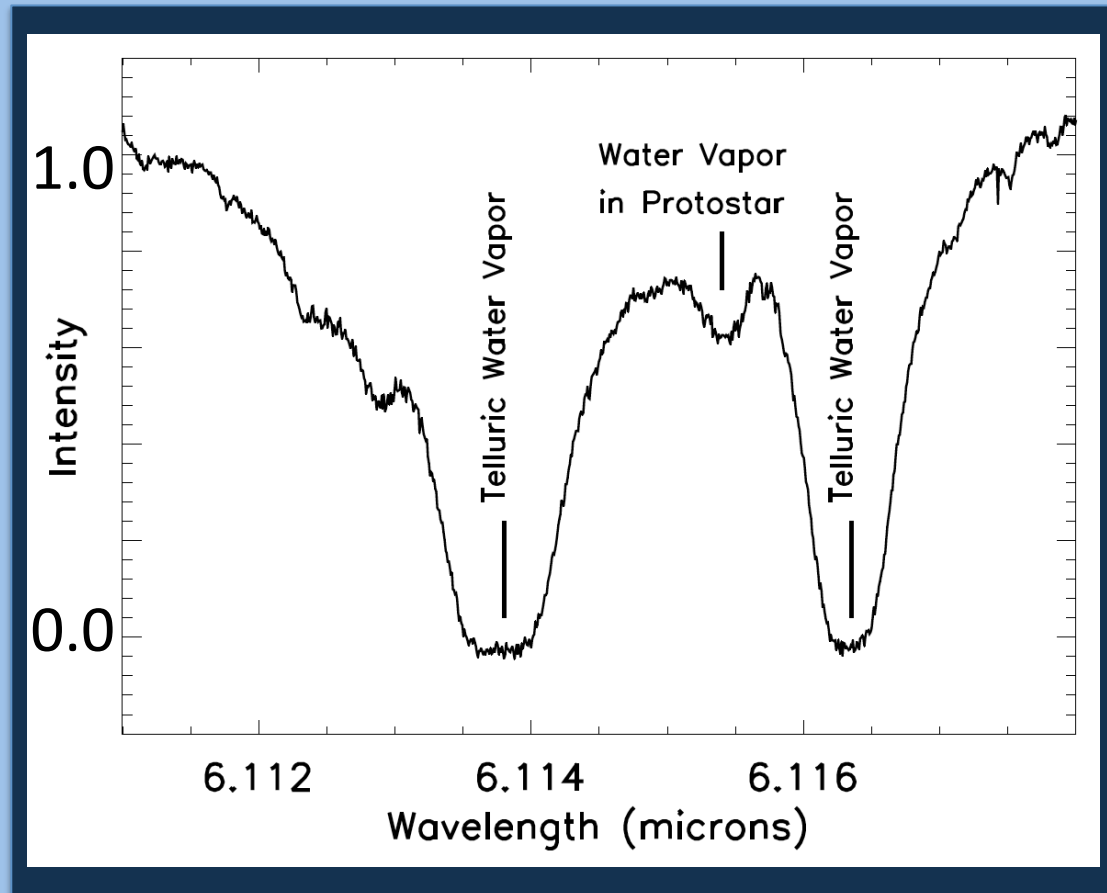
Unresolved Jovian C_2H_2 lines at 13.7 μm , 1.9" slit.; 4/9/14

Commissioning Science 1: Water Vapor in AFGL 2591

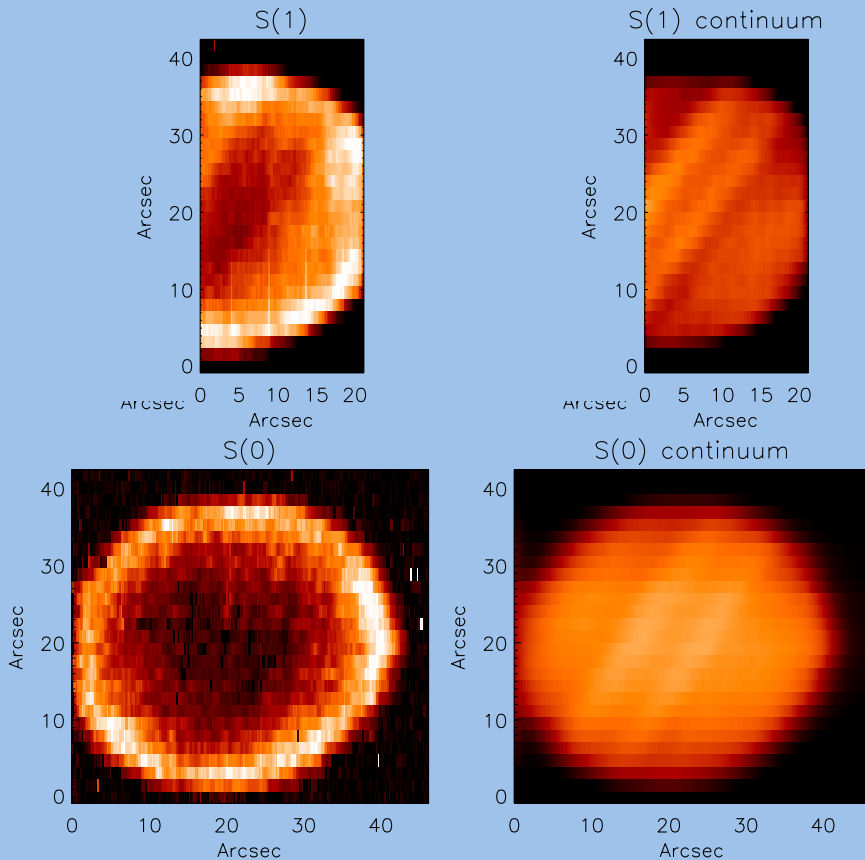
- 10 solar-mass protostar in Cygnus region
- H₂O detected with R=2000 ISO satellite
- Water vapor is probably from by evaporation of grain mantles
- Ground state H₂O transition and other H₂O lines; T= 500 K



NIRI/Gemini, C. Aspin et al.



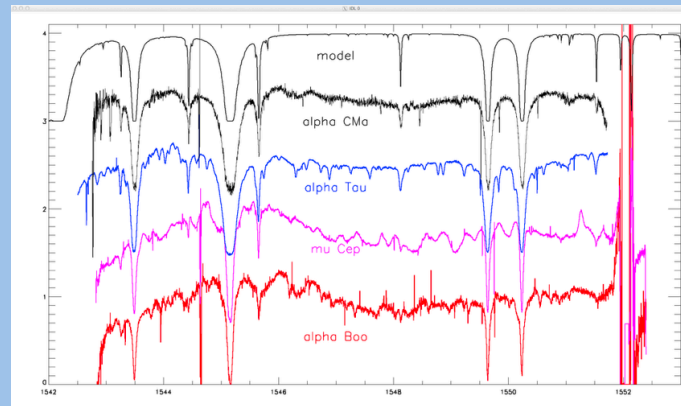
Commissioning Science 2: Ortho/para H_2 maps on Jupiter



- Spectral maps by stepping slit position across extended sources
- Stratospheric emission from H_2 ; limb brightening
- S(0) at 28.3 μ m is unobservable from ground.
- S(1)/S(0) gives temperature, with long latency
- Combined with other temperature measures, maps convective motion into the stratosphere and circulation

More details @ Poster 418.04 (Thu)

- Cycle 3 Availability
- Online Exposure Time Calculator
- Other spectral modes, More Science!



The Team:

PI: Matthew Richter (UC Davis)

Curtis DeWitt (UC Davis), Kristin Kulas (NASA Ames)

Mark McKelvey (NASA Ames), Michael Case (UC Davis)

Jeffrey Huang (NASA Ames), Melanie Clarke, William Vacca (USRA)

Science Team: Thomas Greathouse (SwRI), David Neufeld & Nicholas Indriolo (JHU), Joan Najita (NOAO), Therse Encrenaz (Obs Paris – Meudon), Graham Harper (Trinity College Dublin), Nils Ryde (Lund Observatory), Adwin Boogert (USRA), Andreas Seifahrt (Univ of Chicago), Dan Jaffe (UT Austin)

