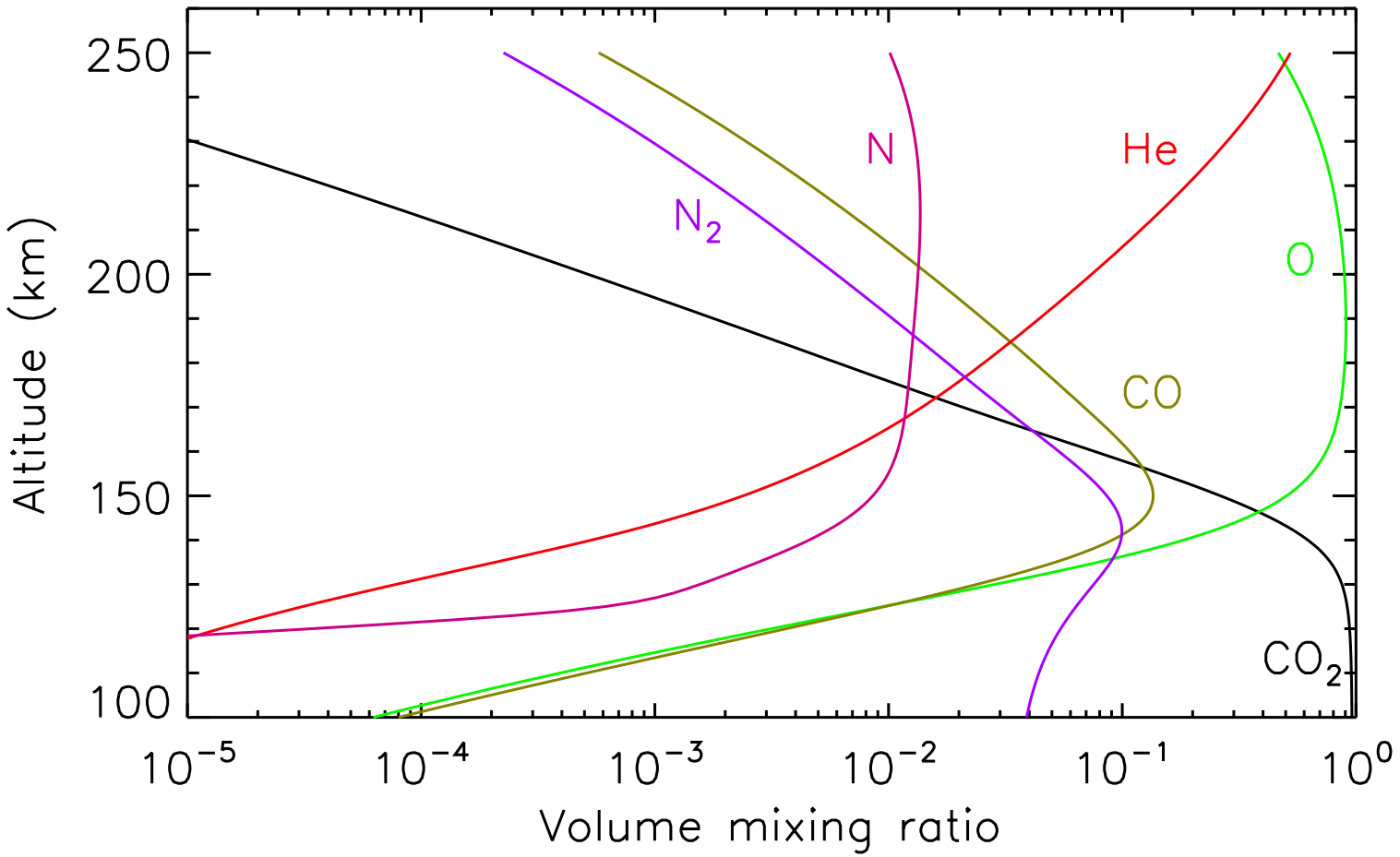
PTYS544

Physics of the High Atmosphere

Basic details

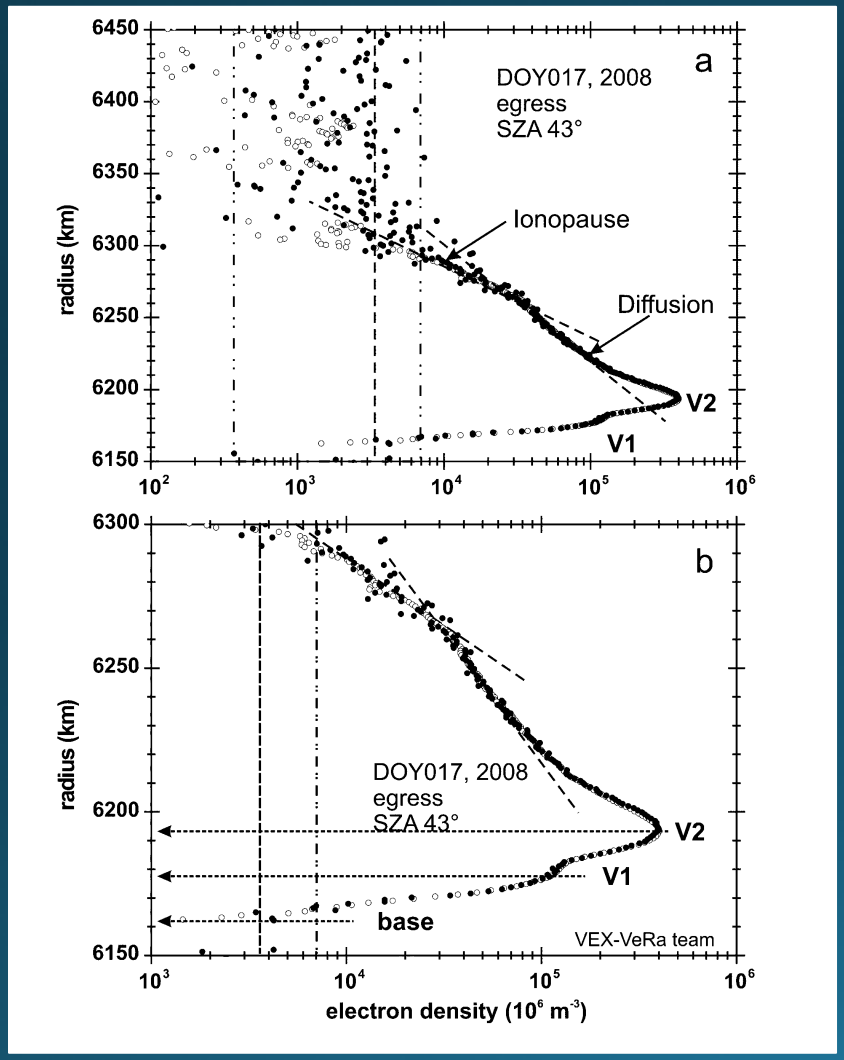
- Location / Time
  - Tuesday & Thursday, 12:30 – 13:45
  - Kuiper Space Science (KSS)
- Instructor
  - Tommi Koskinen, KSS 421
  - tommik@email.arizona.edu

Mean neutral density profiles (Hedin+1983)



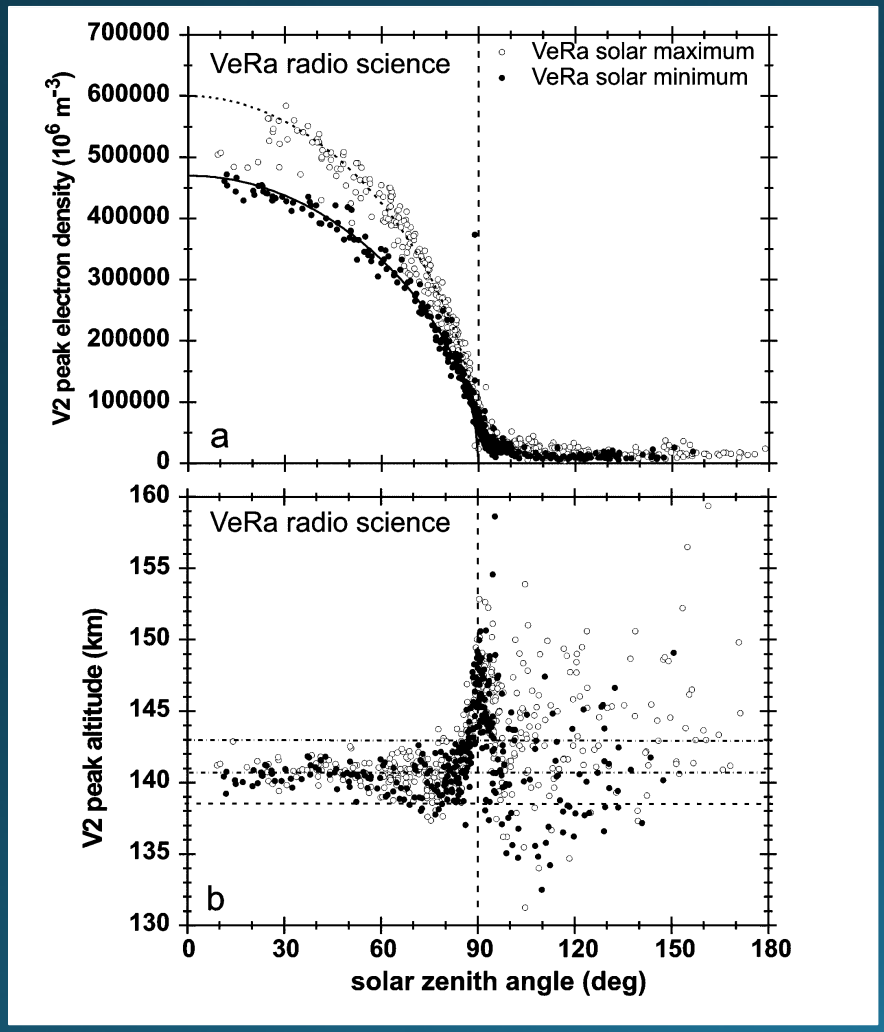
Venus ionosphere

Electron densities



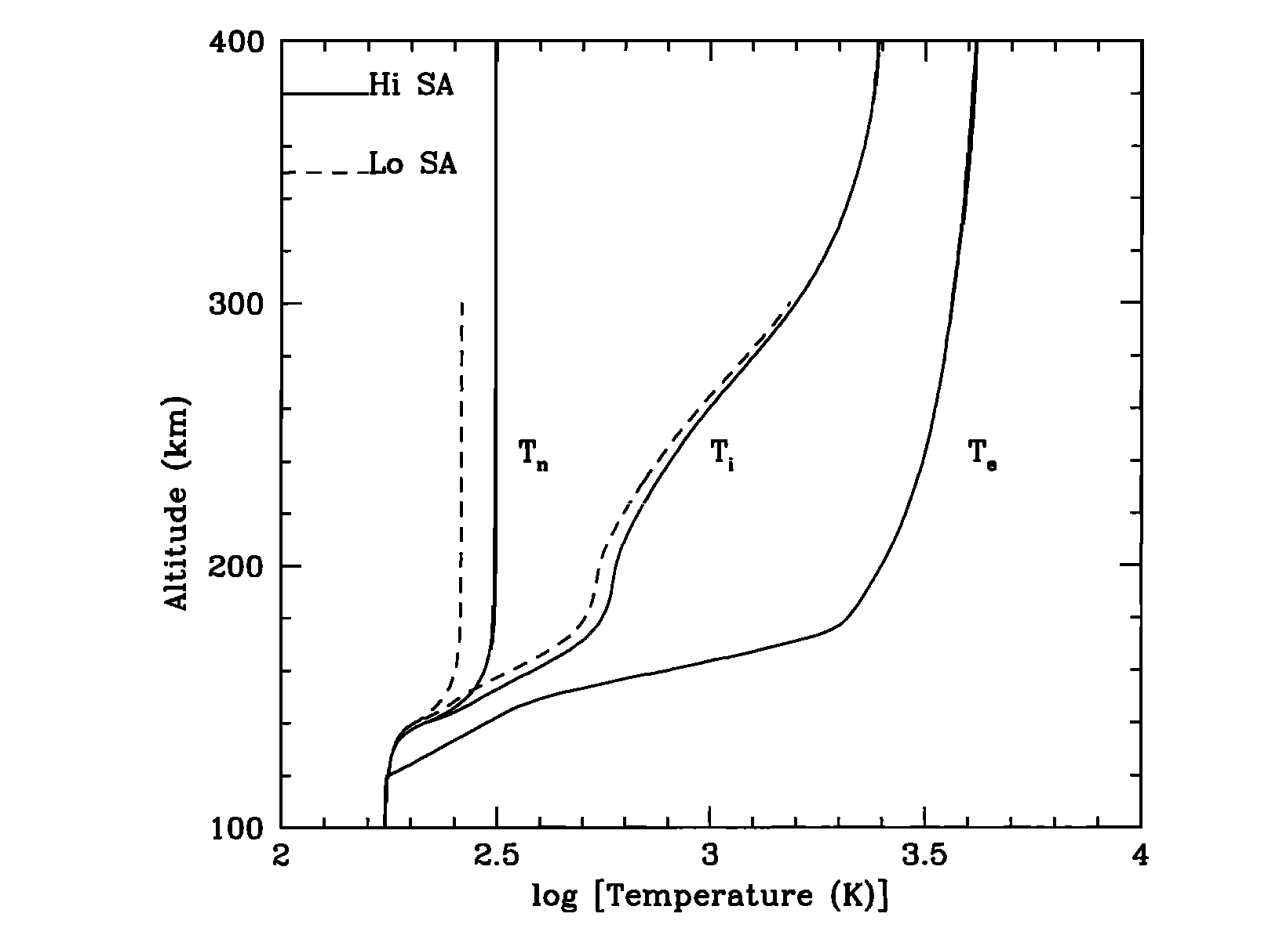
Electron densities from VEX radio occultations (Gerard et al. 2017). V2 layer from photoionization, V1 layer produced mostly by photoelectron impact ionization. Third layer likely containing meteoritic ions Mg^+ and Fe^+ seen sporadically below the V1 layer.

Variation with solar zenith angle



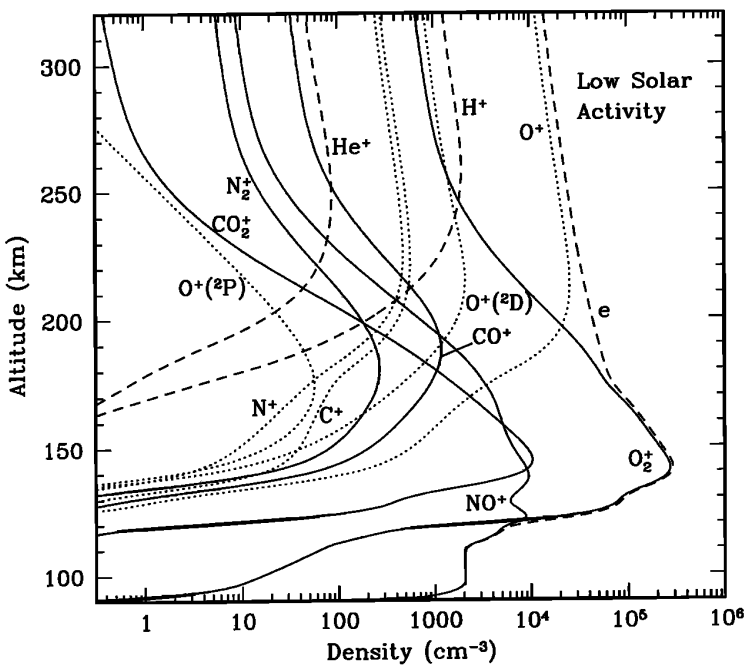
The main ionospheric peak (V2) follows an ideal Chapman model with solar zenith angle (Gerard et al. 2017).

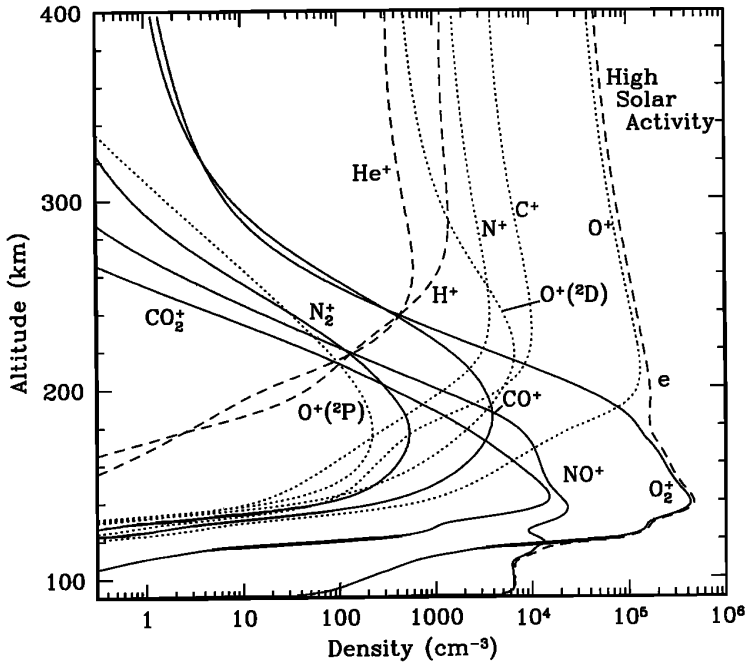
Neutral, electron and ion temperatures



Fox and Sung (2001)

Ionosphere composition





Ion densities from the Fox and Sung (2001) model: Dominant ions are, from top to bottom, O^+, O_2^+ and NO^+.