Basic Properties of Terrestrial Atmospheres

Earth:

- Major Atmospheric Constituents:
  - N_2 (77%), O_2 (21%), H_2O (1%)
- Surface Pressure = 1 bar
- Average Surface Temperature = 288 K.

Mercury:

- Major Atmospheric Constituents:
  - He (42%) , Na (42%), O (15%)
- Surface Pressure = 10^{-13} bar
- Average Surface Temperature = 440 K.

Venus:

- Major Atmospheric Constituents:
  - CO_2 (96%), N_2 (3.5%)
- Surface Pressure = 90 bar
- Average Surface Temperature = 730 K.

Mars:

- Major Atmospheric Constituents:
  - CO_2 (95%), N_2 (2.7%), Ar (1.6%)
- Surface Pressure = 0.007 bar
- Average Surface Temperature = 218 K.

Properties of Outer Planet Atmospheres

Jupiter

H (81%), He(18%) atmosphere

Other components NH_3, CH_4 , H_2O

Saturn

H (88%), He(11%) atmosphere

Other components NH_3, CH_4 , H_2O

Uranus

H (84%), He(14%), CH_4 (1%) atmosphere

Other components: hydrocarbons

Neptune

H (84%), He(13%), CH_4 (2%) atmosphere

Other components: hydrocarbons

[B 11-8; Smith (1989) Fig 9]

Pluto

CH_4 (?%) or CO (?)

Surface temperature 58K.

[Elliot et al. Fig 4]

Titan

N_2(82-99%), CH_4(1-6%),Ar(0-12%), + hydrocarbons

Surface P, T: 1.5 bar, 95K

Liquid N_2 , C_2H_6, CH_4 on surface??

[H Fig 12-31]