

FIGURE 1.1 Typical variation of temperature with altitude at mid-latitudes as a basis for the divisions of the atmosphere into various regions. Also shown is the variation of total pressure (in Torr) with altitude (top scale, base 10 logarithms) where 1 standard atmosphere = 760 Torr.

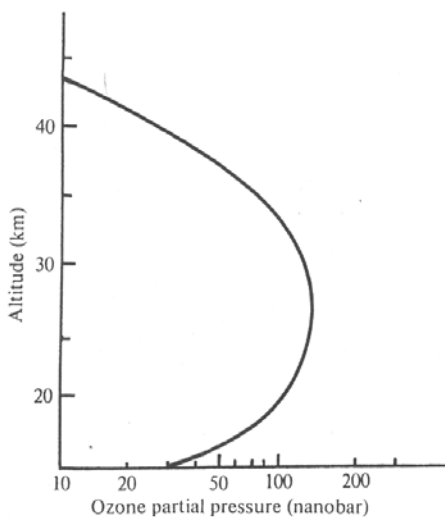


FIG. 1.2 Variation of atmospheric ozone concentration with altitude, as measured with instruments carried aloft by a balloon. (Hudson, R., ed.-in-chief, *The stratosphere 1981*. World Meteorological Organization, Geneva, 1981).

- Is there a(n) (anti)correlation between  $[O_3]$  and  $[ClO]$  in the Antarctic stratosphere?
- $O_3$ : Absorption of 254-nm light from a Hg lamp  
ClO: (1) Titration:  $ClO + NO \rightarrow Cl + NO_2$   
(2) Detection of Cl by resonance fluorescence (308-nm light from a laser)
- Fly an old spy plane (an ER-2)
- Raw Data  $\Rightarrow [O_3] \pm 5\%$  and  $[ClO] \pm 25\%$  as a function of latitude
- Anticorrelation between  $[O_3]$  and  $[ClO]$   
 $\Rightarrow$  The Molina and Rowland mechanism is correct
- 1992: Montreal Protocol--Banned CFC production