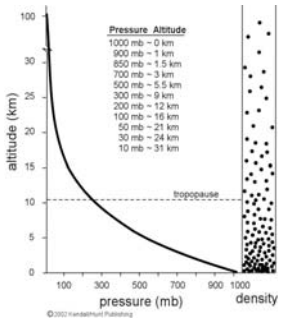
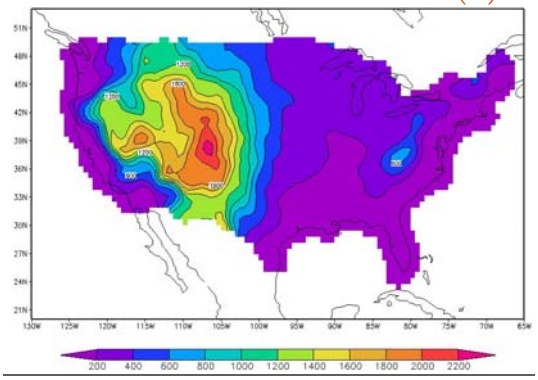
Pressure Always Decreases with Height

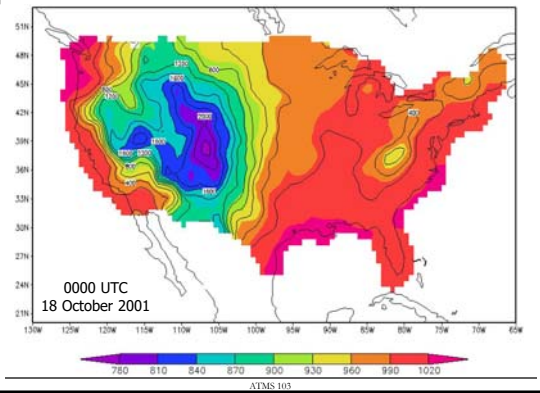
- Large differences over small area in vertical
  - ~700 mb drop over 9 km
- Much smaller differences in horizontal
- Must correct surface pressures to a mean height
  - → Mean sea-level pressure (MSLP)
- Density also decreases with height



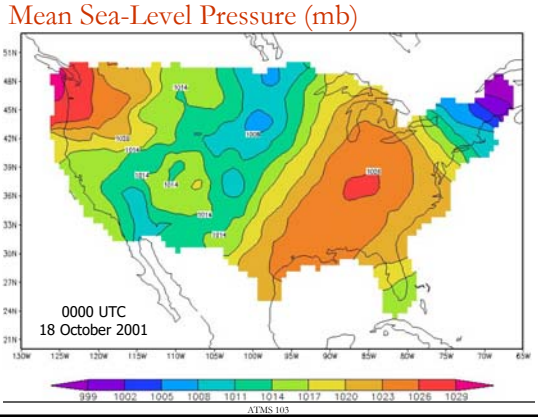
United States Elevation Above MSL (m)



Station Pressure (mb, colors) and Terrain (m, contours)

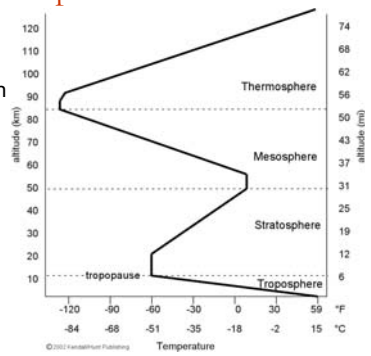


Mean Sea-Level Pressure (mb)



The Vertical Temperature Profile

- Temperature DECREASES with height in the troposphere
- Temperature INCREASES with height in the stratosphere



The height of the troposphere varies with latitude