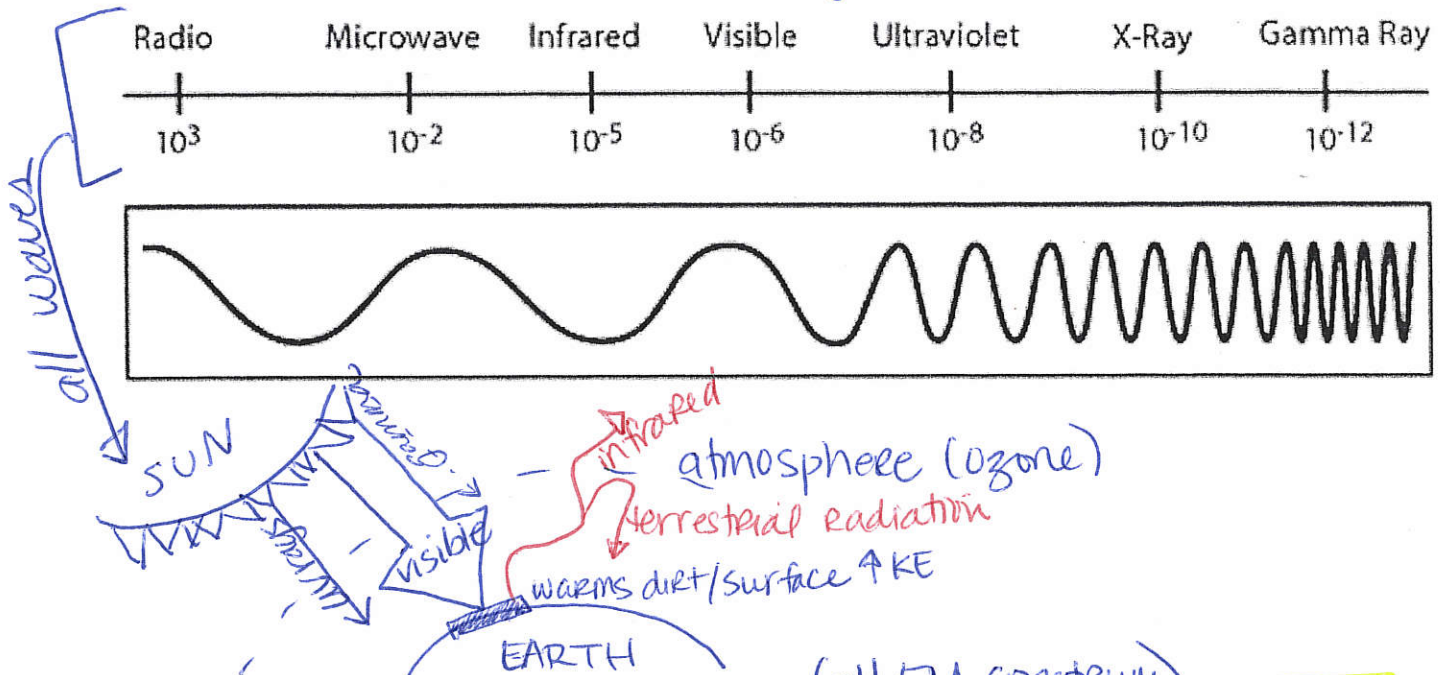


3. Radiation: heat transfer by electromagnetic waves

- Radiation is the fastest means of heat transfer because it doesn't involve any molecules (can move in a vacuum!)  
speed of light  $3.0 \times 10^8$  m/s

any substance with temp  $> 0$  kelvin emits radiation  
 higher temp =  $\uparrow$  energy = shorter  $\lambda$



The Sun is very hot therefore it emits radiation of many wavelength including visible light, few UV rays + few gamma rays

The Earth is relatively cool therefore it emits radiation with infrared (aka: terrestrial radiation) (waste heat)

Reflects (Visible light) = ALBEDO

Absorbers

- heat up slowly
- light color
  - ocean (still, calm)
  - snow
  - ice
  - deserts
  - beach

- heat up + cool quickly
- black / dark
- trees
- dirt
- mountain
- cities