

Solar Radiation



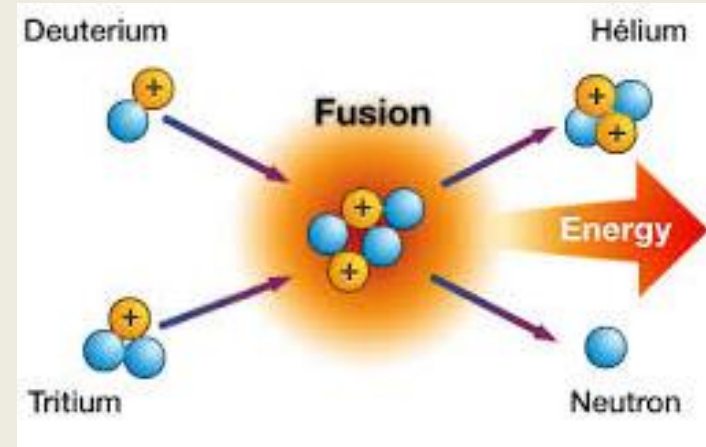
Our Sun

- . . . is a medium-sized star.
- . . . produces energy (solar radiation) via nuclear reactions (like all stars).



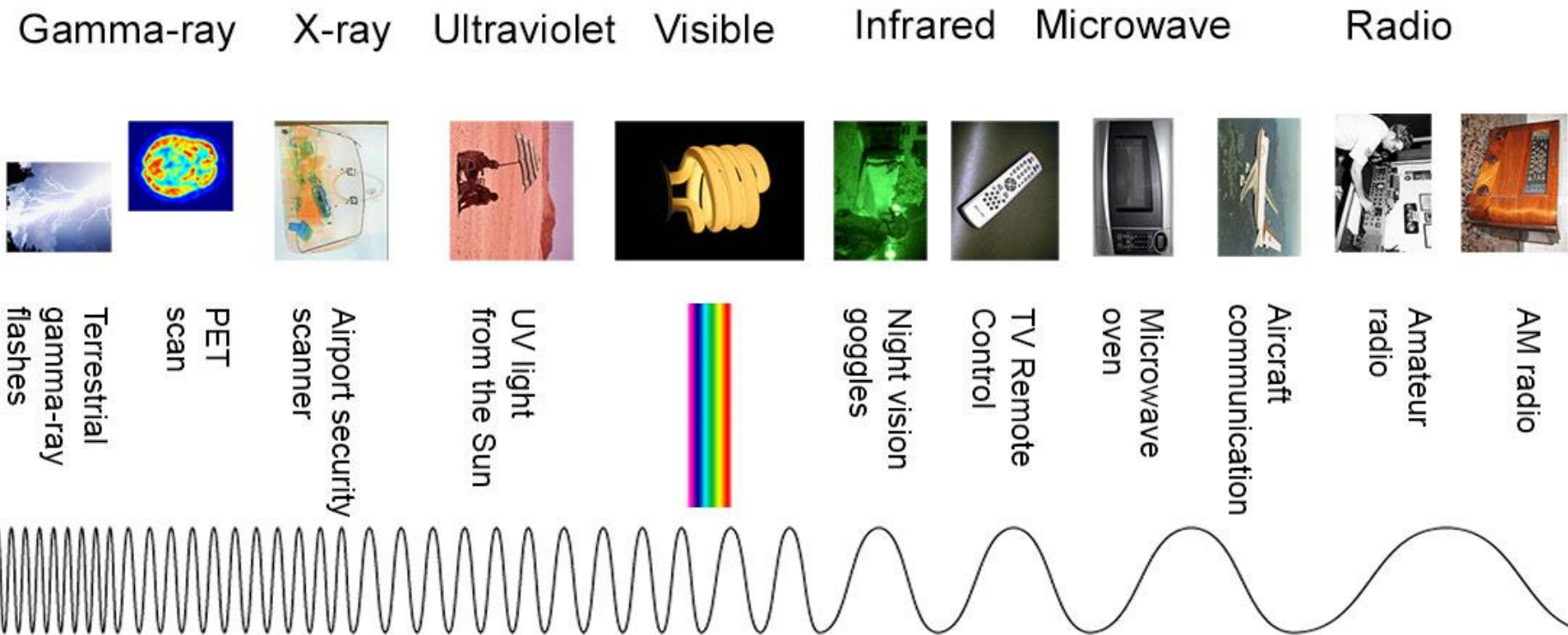
Our Sun and Energy Production: Nuclear Fusion

- Our sun produces energy via fusion.
 - Joins two or more smaller atoms to create 1 large atom
 - Releases an extremely large amount of energy
 - Fuses two types of hydrogen (deuterium and tritium) to make helium atoms



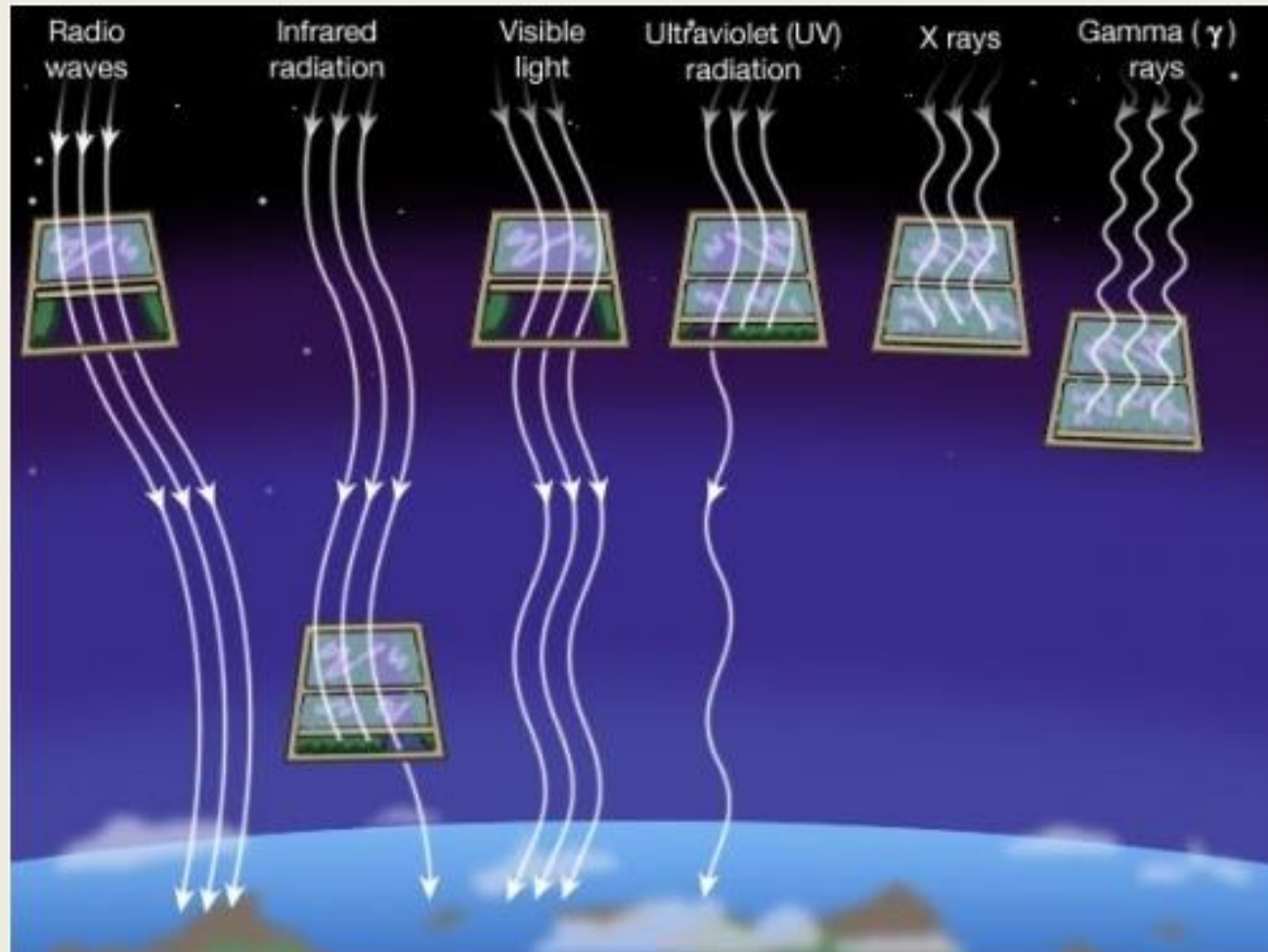
Types of Energy: Electromagnetic Spectrum

- An array of all types of radiation
- Organized by wavelength (distance from crest to crest) of the energy wave



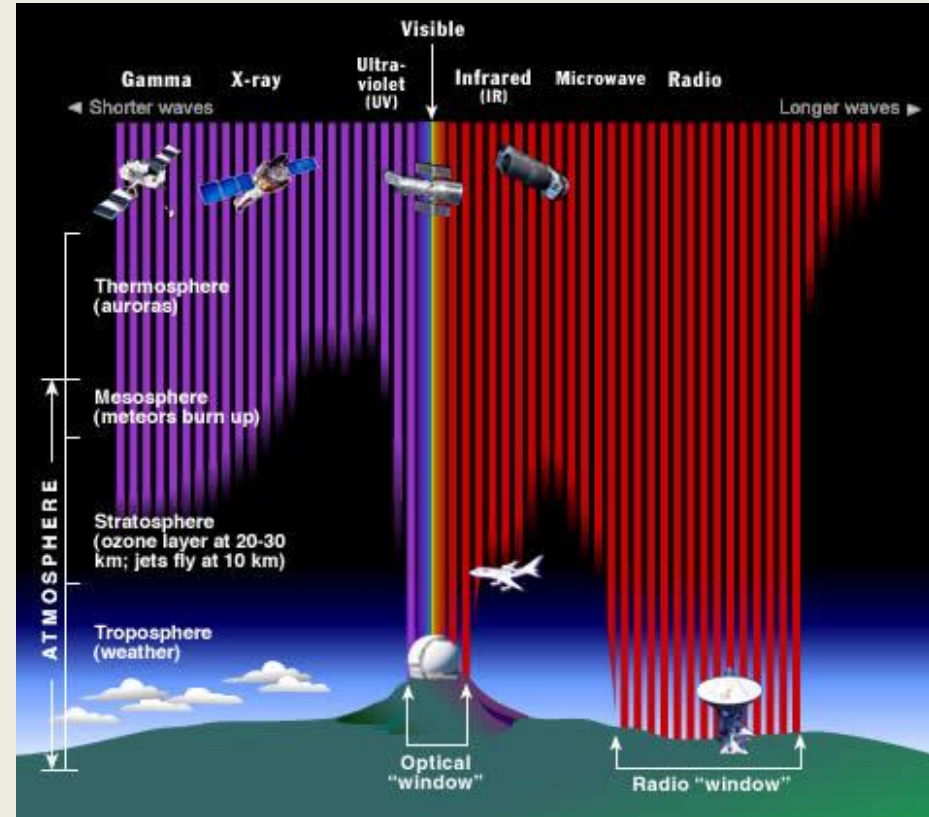
Solar Radiation Heads to Earth

- While the sun emits all types of energy, only certain types get to Earth:
 - UV
 - Visible
 - Infrared
 - Radio



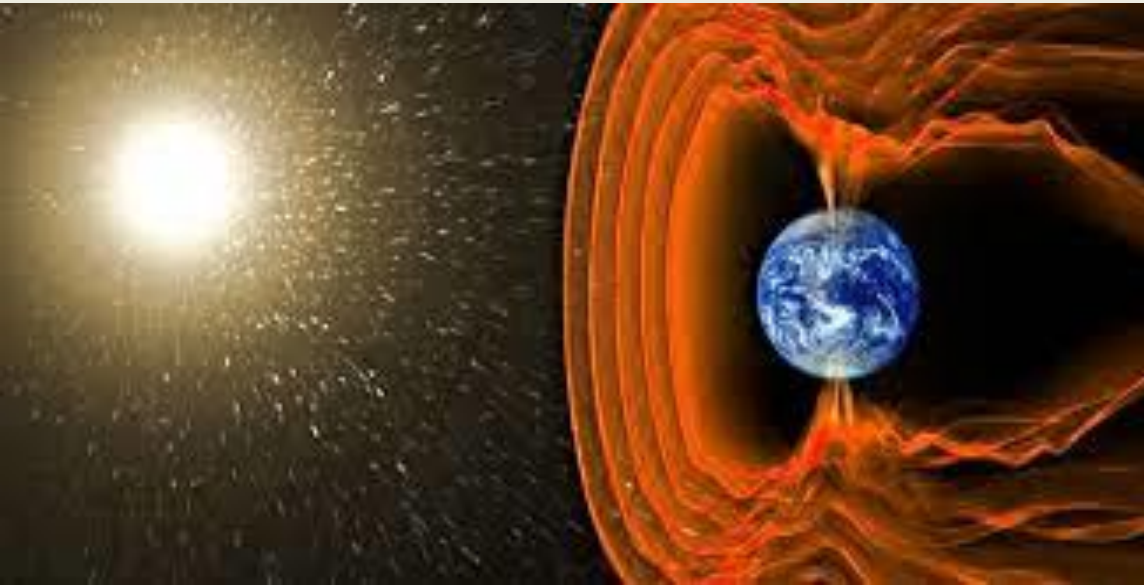
How Earth Blocks Solar Radiation: Earth's Atmosphere

- Upper layers of atmosphere block most high energy waves (X-rays & high energy UV rays)
- Ozone layer (in stratosphere) absorbs most gamma & infrared rays



How Earth Blocks Solar Radiation: Earth's Magnetic Field

- The magnetic field (produced in the core) surrounds the planet.
- This deflects plasma (high energy particles) from the sun.



Solar Radiation and Earth's Surface

- Energy from sun drives
 - Water cycle through evaporation (Unit 4)
 - Movement of air in atmosphere through temperature differences (Unit 6)
 - Photosynthesis (Unit 8)

