

## WEEK 1 Important Information

NASA Space Weather Action Center:

<http://sunearthday.nasa.gov/swac/>

Endeavor Resource page:

<http://www.us-satellite.net/shortcourses/endeavor/sonlinks.html>

NASA Explanation of Heliophysics Content:

<http://science.nasa.gov/heliophysics/>

Current NASA Missions:

[http://www.nasa.gov/mission\\_pages/sdo/main/index.html](http://www.nasa.gov/mission_pages/sdo/main/index.html)

NOAA's Space Weather Prediction Center:

<http://www.swpc.noaa.gov/>

- "The Weekly"

NASA's Solar Dynamics Observatory:

<http://sdo.gsfc.nasa.gov/>

## 5 – 12 Curriculum Topics STEM

### Science

Wave Characteristics, Doppler Effect, Electromagnetic Spectrum, Wave Particle Duality of Light, Magnetic Fields, Fusion and Thermonuclear Reactions, Layers of Sun : Layers of Earth's Crust / Atmosphere (Earth Science), Sunspots and Changes in Temperature, Auroras – Electron Energy Levels & Spectral Lines, Transmission of Energy, phases of matter, and Conservation of Energy.

### Technology

The Transmission of Data to be Studied.

The Development of Resources to Study Sun

### Engineering

The Development of Satellites.

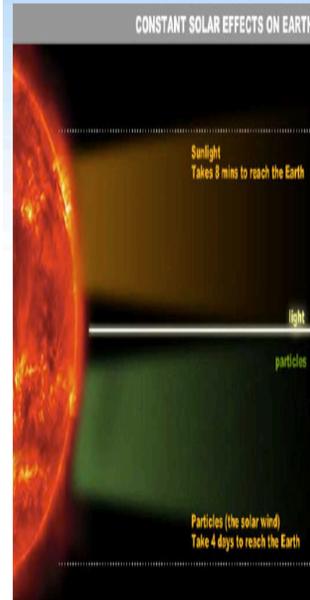
The Development of Instruments to Study Sun

### Mathematics

Energy and Wave Equations:  $E = mc^2$ ;  $E = hf$ ;  $v = \frac{d}{t}$ ;  $v = f\lambda$

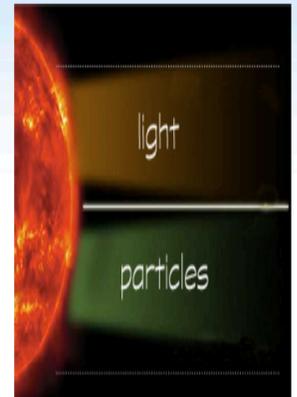
Interpretation of Graphical Information.

## Time To Reach Earth



## Radiation *Sun to Earth*:

speed = 300,000 km/s & time = 500 s



## Plasma *Sun to Earth*:

speed = 470 km/s  
& time = 3 - 4 days

## Space Weather Action Center



SUNSPOT REGIONS	STORM SIGNALS	MAGNETOSPHERE	AURORAS
<ul style="list-style-type: none"> <li>HAlpha Full Disk Image of the Sun: (Live Data) - (Tutorial)</li> <li>Helioseismic and Magnetic Imager (HMI Intensitygram) (Live Data)</li> <li>Helioseismic and Magnetic Imager (HMI Magnetogram) (Live Data)</li> <li>Atmospheric Imaging Assembly (Live Data) - (Tutorial)</li> <li>Large Angle and Spectrometric Coronagraph (Live Data) - (Tutorial)</li> <li>Additional Data</li> <li>Coral High-Resolution Helioseism: (Live Data) - (Tutorial)</li> <li>Achieve Region Monitor (Live Data) - (Tutorial)</li> <li>SDO Home (Live Data) - (Tutorial)</li> </ul>	<ul style="list-style-type: none"> <li>Radiative Activities: (Live Data) - (Tutorial)</li> <li>GOES X-ray Flux (5 min base): (Live Data) - (Tutorial)</li> <li>Additional Data</li> <li>Wind Waves: (Live Data) - (Tutorial)</li> <li>Latest Events: (Live Data) - (Tutorial)</li> <li>SDO CME Archives: (Live Data) - (Tutorial)</li> <li>Latest Events Archive: (Live Data) - (Tutorial)</li> <li>RISESS Light Curves: (Live Data) - (Tutorial)</li> <li>RISESS Images: (Live Data) - (Tutorial)</li> </ul>	<ul style="list-style-type: none"> <li>10 Index Estimated Planetary K-index: (Live Data) - (Tutorial)</li> <li>Magnetosphere Graph: (Live Data) - (Tutorial)</li> <li>Additional Data</li> <li>Torres, Norway: (Live Data) - (Tutorial)</li> <li>Alaska: (Live Data) - (Tutorial)</li> <li>Tide Bay, Russia: (Live Data) - (Tutorial)</li> <li>ACE Bz Archive: (Live Data) - (Tutorial)</li> <li>ACE Solar Wind Archive: (Live Data) - (Tutorial)</li> <li>More ACE: (Live Data)</li> <li>GOES Satellite: (Live Data)</li> </ul>	<ul style="list-style-type: none"> <li>Aurora Activity of Earth - NOAA PCOE: (Live Data) - (Tutorial)</li> <li>Kuona All-Sky camera: (Live Data) - (Tutorial)</li> <li>Additional Data</li> <li>The Aurora Today - Ground View From Alaska: (Live Data)</li> <li>Polar Pal Alaska Camera: (Live Data)</li> <li>SDO RealTime Data All-Sky Camera: (Live Data)</li> <li>Polar Satellite: (Live Data)</li> <li>Polar VIS: (Live Data)</li> <li>TIMED GUVI: (Live Data)</li> <li>IMAGE FLW Archive: (Live Data)</li> </ul>

## My Recommendations To Collect Data:

- GOES X-Ray
- Latest Events
- Latest Events Archive
- KP Index