

# Today's Space Weather & Weather on Google Earth

Download [this KML file](#), which is an animation of the past 24 hours Total Electron Content of the Ionosphere<sup>1</sup>.

Once you have downloaded this file and opened it in Google Earth (ideally the [new 4.3 version](#)), you will be able to use the time slider in the upper right part of the screen to animate the file and see the changes in the ionosphere's electron concentration.

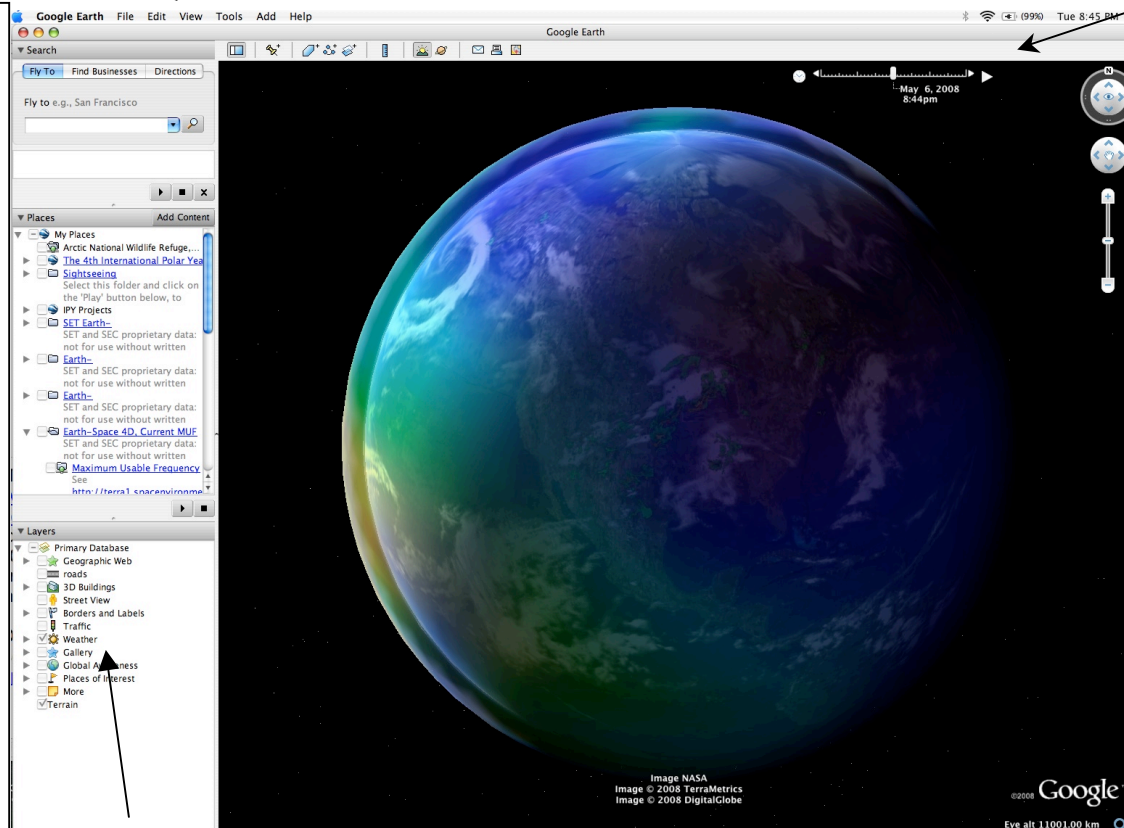
Under the View option of Google Earth, select on the "Sun" and "Atmosphere" options.

## Learning Tips

Ionization caused by extreme ultraviolet energy and X-rays occurs in the upper reaches of the atmosphere. This energy doesn't directly reach the Earth's surface.

Clouds and other manifestations of weather occur in the lower parts of the atmosphere and the surface of the Earth as near ultraviolet and visible energy heats the surface, causing evaporation, and long wave infrared energy radiated from the surface which heats the lower atmosphere.

What can you learn flying through the ionosphere and



Activate the timeline by clicking on the arrow on the right. If the timeline doesn't properly represent the past 24 hour period, make sure all other animation layers are turned off in "My Places" or "Temporary Files".

Also check to make sure the time is set to "Restrict time to currently selected folder" which is accessed by selecting on the left button on the timeline.

In the Layers options in the lower left part of the screen, select "Weather" and, by "Information" which will allow download of the 24 hour cloud animation file.

Need a tutorial on Google Earth? [Select here](#). There is also a special Google Earth [site for educators](#).

<sup>1</sup> TEC, or Total Electron Concentration of the ionosphere is, according to the [CAPS website](#) (a joint effort between [Space Environment Technologies](#) and [Space Environment Corporation](#)) "an indicator of the number of electrons that a radio signal must pass through. Maximum electron values are generally at the 200-300 km level and high TEC can indicate higher maximum altitudes with more densities," meaning less high frequency (HF) radio propagation. Changes in the ionosphere can have a major impact on radio communications especially over polar regions.