What is the Aurora?

A planet needs three things to have an aurora: the *solar wind*, a *magnetic field*, and *an atmosphere*.

The sun emits a constant stream of particles, called the *solar wind*. Some of these particles get caught in Earth's *magnetic field* and move toward the poles. When the particles enter the *atmosphere*, they crash into gases. This excites the gases, and they give off light like a neon sign. This creates colorful aurora lights!

Different gases in Earth's atmosphere create different colors of the northern lights. Red light is caused by oxygen high in the atmosphere, green by oxygen in the middle of the atmosphere, and purple by nitrogen lower in the atmosphere.

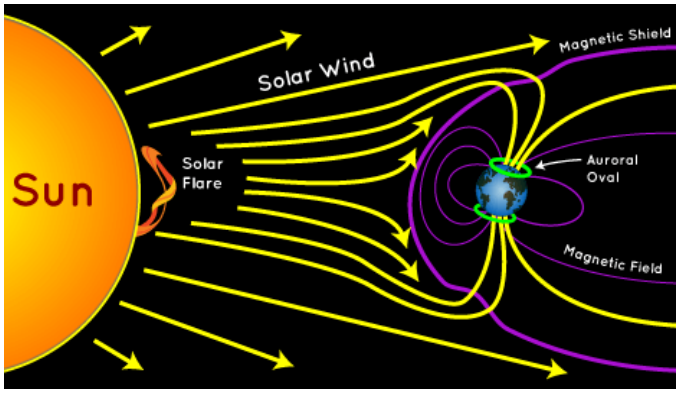
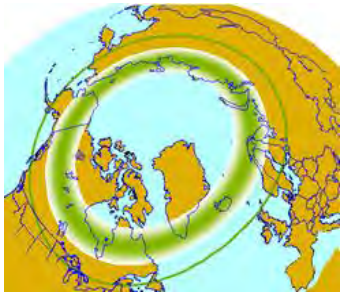


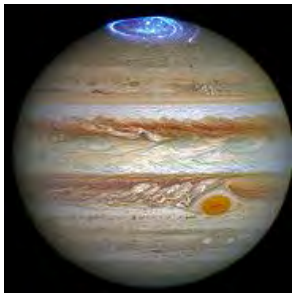
Image: NASA Space Place.

Image: NASA/James Spann.

Because of the shape of the Earth's magnetic field, the aurora forms in ovals over the magnetic North and South Poles. In the Northern Hemisphere, it is called the *aurora borealis*, or the northern lights; in the Southern Hemisphere, it is called the *aurora australis*, or the southern lights.



Northern aurora oval. *Image: UAF Geophysical Institute.*



Aurora on Jupiter. *Image: NASA/ESA/J. Nichols.*

The aurora can also form on other planets in our Solar System. Earth, Jupiter, Saturn, Uranus, and Neptune all have the interaction with the solar wind, a magnetic field, and an atmosphere, so they all experience aurora lights.

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