

What is the Aurora Borealis or Northern Lights



The aurora borealis or northern lights are one of the major attractions that make Alaska a popular travel destination. However, if you wish to see them, you need to plan your trip carefully. Although the aurora borealis or northern lights aurora is active all year round, they can only be seen when the Alaska's night sky is dark enough. Although, this usually happens between late August and early April, it may be different in specific regions of Alaska.

The aurora borealis or northern lights are a phenomenon that is not completely understood. The aurora gets its name from the Roman goddess of dawn. An Eskimo tale tells us that the lights are sprits in the sky playing catch with a walrus skull. Another legend describes the lights as flaming torches carried by travelers to the afterlife.

On a more scientific level, it was once thought that the aurora borealis was produced by sunlight reflected from polar snow and ice, or refracted light similar to the light that produces rainbows. However, the more recent research suggests that the aurora is caused by radiation, which is emitted as light from atoms in the upper atmosphere as they are hit by swiftly moving electrons and protons. The type of atom determines the color. The sun also seems to have an influence since auroras become brighter, more distinctive, and widespread following two days of intense sunshine.

So, what is so special about the northern lights that thousands of people go out of their way to plan specific aurora borealis vacations? Imagine this. You look up and see the undulating, multi-colored ribbons of light dance across the sky. They display visual patterns far more intricate than the most talented artist could create. People take aurora borealis vacations to witness these miracles of nature.

In order to best appreciate the northern lights, many people decide to take aurora borealis tours. This is advisable if you are truly keen on seeing this marvelous phenomenon. A knowledgeable guide can tell you the best times and locations for viewing the aurora borealis. Some aurora borealis tours have specific themes, such as photography, and others are combined with winter sports.

One of our most popular aurora borealis tours, The Iditarod & Northern Lights Tour is offered by Planet Earth Adventures. The tour travels from Anchorage to Talkeetna and north to Fairbanks. Fairbanks is world renown for being one of the best places in the world to see the Northern Lights. If you want to combine your northern lights viewing with the excitement of the famous Iditarod Dog Race or the "Last Great Race on Earth", we would suggest this tour. Whatever type of aurora borealis trip you decide to take, expect to be totally amazed!

When do they occur?

The aurora is a near daily occurrence somewhere on Earth and there is almost always an aurora in the sky (both day and night, but in the daytime it is out-shined by sunlight). However, the following factors can increase your chance of seeing them:

Time of Day: Because the intensity of the light in an aurora is low, it can only be seen at night. Furthermore, the most active and brilliant displays usually occur near midnight. Therefore, the best time to observe the aurora is, on average, between 11 p.m. and 2 a.m.

Season: In the northern hemisphere, the best time to view an aurora is during the winter. At latitudes where auroras are common, it is typically light all night in the summer, so you rarely have warm weather and a good aurora. Furthermore, in most Polar Regions, the weather tends to be clear during the middle of winter, so often the best time to see an aurora is also the coldest.

Sun Rotation: It takes the sun 27 days to rotate one time around its axis, so 27 days after an aurora display, the active region on the sun that caused the aurora will face Earth again. Although solar activity in that region on the sun might have decreased in the mean time, there is still a greater chance of aurora 27 days after the last period of increased auroral activity.

Solar Activity: Auroral activity also correlates with the activity of the sun, which changes according to an 11-year solar cycle. In general, the more active the sun, the greater the number of auroras. Thus, auroral displays are more likely around the time of the solar maximum (when solar activity is high). Aurora displays remain frequent and strong for several years around solar maximum. During solar maximum, the auroras are not only more frequent and more active, but they also can come further south away from the poles (it should be noted, however, that bright and active auroras can be observed at any time during the solar cycle).

Weather: the full moon, and light pollution also affect your ability to see aurora. Your best bet for seeing aurora is to get as close as you can to the position of the auroral oval, and as far away as you can from sources of artificial light and overcast skies.

Where do they occur?

Auroras form in an oval band centered at each magnetic pole. The width of the band is approximately 1,900 miles from the magnetic pole during quieter solar periods. If you live near this oval, you will see the aurora on most clear, dark nights. In the northern hemisphere, for example, prime viewing locations include Fairbanks, Alaska, many locations in northern and middle Canada, and in the northern parts of Russia and Scandinavia. As auroral activity increases, the aurora not only increases in brightness, but it also tends to move further towards the equator. Auroral activity is directly linked to disturbances in Earth's magnetic and electrical current system. These increases in activity are known as Geomagnetic storms. People in the northern United States and northern Europe may see the aurora a few times in a decade, while people in southern Europe, the southern United States, and even Mexico, may see the aurora only once-in-a-lifetime. It should be noted that the auroral oval does not follow lines of equal latitude, so people on the East Coast of the United States have a higher likelihood of seeing aurora than those at the same latitude on the West Coast.

Geomagnetic storms and the resulting auroral activity, vary unpredictably throughout the year. Because geomagnetic activity often results from events on the sun, it can be predicted by looking at the sun and solar flares. For this reason, auroral forecasts can only be made two or three days in advance. Please visit the University of Alaska Fairbanks [Geophysical Institute webpage](#) for aurora forecasts and other information.



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