

Chippewa Valley Astronomy Update Leader Telegram June 16, 2023

The northern lights display in the Chippewa Valley last April was captured in this image, which shows both green and red auroral bands. Northern lights are not frequently seen at our latitude. Image credit: **Emmett Kyle**, current president of the Chippewa Valley Astronomical Society



Northern Lights on the Rise Again - Essay by Lauren Likkel.

I was excited to see the Northern Lights twice this spring in the Chippewa Valley! It's been a few years since we were treated to such a good display of the Aurora Borealis (the Northern Lights).

Auroral light is from molecules of Earth's air glowing when they are struck by charged particles from the sun. The particles get trapped and spiral around along Earth's magnetic field lines, crashing through the Earth's atmosphere near the north and south poles. The aurorae are most often seen at latitudes near the poles, but sometimes at our latitude.

"Coronal mass ejections" hurl enormous amounts of material from the sun into space. If the material is headed directly toward Earth, it may spark northern lights even at our latitude. Depending on the speed of the ejection, we have a day or two warning – the time for it to travel the 93 million miles to Earth.

Oxygen atoms produce most of the color in the aurora, red from the higher altitudes and the more common green from "only" about 60 miles up. However, the northern lights may look white or gray because our eyes only see shades of gray for dim light levels. Northern lights often look like strange thin white clouds, ones that change shape rapidly and may seem to pulse or ripple.

I expect more Northern Lights here in the next year because the sun is entering the most active stage in its 11-year sunspot cycle. When the sun has more sunspots it also has more flares that eject particles that can result in auroras. The sun has been in the "quiet" part of the sunspot cycle for a few years, so we have had fewer auroras. The "11-year cycle" is not all that regular, but the sun is now more active and should reach "sunspot maximum" in only a year or two.

Auroras are getting harder to see even in smaller cities like Eau Claire or Chippewa Falls due to the increased “light pollution”. Light pollution is the glow in the otherwise dark night sky due to electric lights that shine light upward or light reflected upward. City-dwellers most likely to be able to see an aurora live in cities that encourage good outdoor lighting (only light where and when needed, and shining only downward). With the development of previously rural areas in the Chippewa Valley, plus the advent of cheap LED lighting, the nighttime glow from electric lights is increasingly placing a veil between us and the aurora.

To make sure you hear about a northern lights prediction, set a smart phone app like Aurora to notify you if there is a chance of an aurora in the area. And tell your friends if it is OK to call you at midnight for a northern lights display. Then if you go outside and see the “shifting clouds” that are the hallmark of northern lights, head out to a dark area East or West of the city to enjoy the display.

--Lauren Likkell is a member of the Chippewa Valley Astronomical Society