

# Amateur Radio Club

## SOLAR ACTIVITY

Perhaps you've been hearing about the increased levels of solar activity over the past several months. Those involved with amateur radio certainly have taken notice because the sun can dramatically affect our ability to communicate through the ionosphere, either benefiting communications or preventing them. It all depends on the level of the activity emanating from the sun: too much is bad, while a little can greatly improve long distance communications.

There are 2 types of solar events that concern us. First, **Solar Flares**, which run in 11 year cycles, are violent eruptions from the Sun's surface and typically last only a few minutes to an hour. The result is that the Earth's ionosphere gets ionized and are a ham's delight because long distance communications are suddenly greatly improved. However, if a stronger flare ionizes the lower ionosphere, then ham's are generally blocked from long distance communications. The effects of a solar flare can remain in the Earth's atmosphere for several days even though the flare itself has subsided.

A much greater risk comes from **Coronal Mass Ejections (CME's)**. If a solar flare is exceptionally strong, it may result in a massive discharge of particles from the surface of the sun, although a CME can occur on its own without initiation from a solar flare. Large CME's will not only disrupt communications, but can shut down a country's power grid, cable networks, ATMs, cellular communications, as well as burn out home appliances. These are serious and small compensation is that for short periods of time during the CME, communications can actually be enhanced. CME's are the cause for the colorful auroras in our Northern and Southern latitudes. In recent memory massive CME's have shut down large portions of Brazil's power grid as well as the power grids in some Canadian cities. The entire province of Quebec had an electrical blackout in 1989 due to a CME. However, CME's won't affect the Earth unless directed toward us. CME's peak at about 2 to 3 per day when there is maximum sunspot activity and drop to about 1 per week during minimal sunspot activity. Unfortunately, we are currently near the peak of the sun's 11-year activity cycle. There isn't much we can do except hope for the best.

The Amateur Radio club meets at 10 Am in the Lodge Card room .

Our website is [w6fsb.com](http://w6fsb.com).

Pete Hersey, KD6NRR