Ham researcher to investigate effects of solar eclipse

By Dan Romanchik, KB6NU

August 21 is a once-in-a-lifetime opportunity for many in the U.S. to see a total eclipse. It's also an opportunity for a team of Virginia Tech researchers to study the effects of the eclipse onchanges in the upper atmosphere that have an impact onHF propagation and the global positioning system (GPS). Backed by research funding from NASA and the National Science foundation, the team is headed by Dr. Greg Earle, W4GDE.

The Virginia Tech team plans to gather data from a variety of sources, including radar systems, transceivers, satellites, ham radio, and GPS receivers, in order to analyze the effects of the solar eclipse on the conductive region of the atmosphere.

“Whether military radar, or consumer GPS signals, the eclipse is going to have effects on the medium that we would like to understand better, so that we can either mitigate them or use them to our advantage,” said Earle.

Here are a couple of links to news stories on the research team and the experiments:

- Virginia Tech team prepares for special project during total solar eclipse
- Virginia Tech expert to study August solar eclipse effects on radar, ham radio,GPS

Let's party!

In conjunction with the eclipse, the HamSCI and the ARRL are sponsoring the Solar Eclipse QSO Party. (SEQP). According to an article in the August 2017 issue of *QST*, the goal of the SEQP is to "flood the airwaves with contacts, all measured by the automated receiver networks of the Reverse Beacon Network, PSKReporter, and WSPRNet." Once all the logs are in, researchers will analyze the data to see what effect the eclipse had on radio propagation.

A YouTube video of a presentation at Dayton on the SEQP can be found at https://youtu.be/3EviY2Cuxpo?list=PLihPo8xWmo8-xDYAtpP9BWX9QnhUoT7k4

The SEQP will run from 1400Z - 2200Z on Monday, August 21. This is well before the eclipse is due to begin on the West Coast. The reason it starts before the eclipse is to establish a baseline for radio propagation conditions.

SEQP organizers urge you to make as many contacts as you can on as many bands as you can operate. Like nearly every contest, contacts are not allowed on 60m, 30m, 17m, and 12m. CW, RTTY, and PSK31 are the preferred modes because automated receivers can record those contacts, but phone and other digital modes count, too.

An interesting twist to this contest is that, like Field Day, you can earn a number of bonus points, including:

- Operating outdoors (100 points)
- Operating in a public place (100 points)

- Operating a wide-band automated receiver at your station (100 points)

Hams have had a long history of supporting scientific research. They provided communications for some of the early polar explorations and listened for Sputnik as it flew overhead. The Solar Eclipse QSO Party continues this tradition, and it's going to be a lot of fun as well. Visit the HamSCI website for more information.

Dan Romanchik, KB6NU, blogs about amateur radio at KB6NU.Com, and is the author of the “No Nonsense” amateur radio license study guides and the CW Geek's Guide to Having Fun With Morse Code.” You can reach him by emailing cwgeek@kb6nu.com.