



August, 2017

Accurate, Reliable Emergency Communications for our Community

Volume 17, Number 8

## Eclipse QSO Party

August 21st, 1400-2200 UTC

Join the fun at the Solar Eclipse QSO Party (<http://hamsci.org/seqp>), where you can participate by making contacts and reporting your observations, contributing to understanding propagation.

On-air participation can take several forms. Use of logging software will allow you to report your activity in a format most useful to eclipse investigators.

Recent versions (v1.0.6585 or later) of N1MM Logger+ support the event using the SEQP contest name. Other ways you can observe radio-related phenomena: Try operating with JT65, JT9, or FT8 digital modes on 'nighttime' bands like 160 and 80 meters during the event, and make sure you're automatically uploading reception information to the PSKreporter website (<https://www.pskreporter.info/>), by turning on that feature in the WSJT-X Settings->Reporting tab.

Not operating? Watch the PSKreporter website (<https://www.pskreporter.info/>) for reports on these bands. You could also watch the spots on the Reverse Beacon Network (<http://www.reversebeacon.net/main.php>).

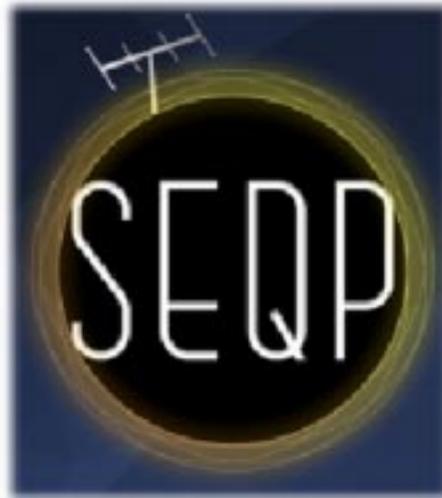
During the interval of 1400-2200z on August 21, the RBN will accept as many spots as frequently as possible from participating RBN reporting stations. Normally, when a station is spotted by the RBN, it is not spotted again for 10 minutes. That 'respot interval' will be reduced or eliminated by some RBN reporting nodes for the eclipse. RBN stations are also

being encouraged to collect the local logs created by their RBN software, since the timestamps have to-the-second resolution. If you operate an RBN node, you should make some configuration is required ahead of time. Read the complete

information at: (<http://dayton.contesting.com/pipermail/skimmertalk/2017-August/001968.html>)

N1MM Logger+ has at least one major new feature that might deserve some of your summer attention. The Spectrum Display Feature (<http://n1mm.hamdocs.com/tiki-index.php>) works in conjunction with some recent radios to show signals currently occurring in the radio's passband and in a Waterfall Bandmap display format. Signals can be identified by call sign data gleaned from packet spots, or entered locally via the operator(s). It might be a helpful new way to increase your situational awareness. The Spectrum Display feature is still evolving, but it looks like another way to keep your eyes on the logging program and the rate up.

**Solar Eclipse** *cont'd on page 2*



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The ARES COMMUNICATOR is published for the benefit of Amateur Radio Operators in Scott County and other interested individuals.

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## ARES Activities

**Weekly Net Monday 7 PM 146.535 mhz (s)**

**Breakfast Saturday, September 9th**

**Digital Monday, September 11th**

### ARES Nets

MN ARES Phone Net

6:00PM Sunday Freq: 3.860 mhz

ARRL MN Phone Net

12:00p, 5:30p CST Daily Freq: 3.860 mhz

ARRL MN CW Net

6:30p, 9:50p CST Daily Freq: 3.568 mhz

### NETS WITH OUR NEIGHBORS

North Dakota: Daily 3.937 mhz 6:30pm

South Dakota: Daily 3.860 mhz 6:00pm

Wisconsin: Daily 3.985 mhz 5:30pm

Iowa: Daily 3.970 mhz 12:30/5:30pm

# Solar Eclipse - cont'd from page 1

Okay, let's get down to the nitty gritty of operating the SEQP during the eclipse period, 21 Aug 2017 1400 – 2200 UTC.

Operation will be on the following bands only: 160, 80, 40, 20, 15, 10, and 6 meter. Remember 160, 80, and 40M are expected to experience the greatest chance of some eclipse effect.

Pick your favorite operating mode: The SEQP accepts CW, digital (all varieties), and phone QSOs.

The contest information exchange follows the order: Call Sign, Signal Report, 6-Character Grid Square. Don't know your Grid Square? No problem, just point and click on the map here: <http://qthlocator.free.fr/index.php> You can find more information about the grid square on the ARRL site at: <http://www.arrl.org/grid-squares>

Accurate reporting of received signal strength is an important part of the data needed for the study.

Reporting on CW/Phone: The strength (S) value of RS(T) signal reports should represent the approximate peak S meter reading. (Readings greater than S9 should be sent as S9.)

Reporting on Digital: The preferred digital signal report is the SNR in dB as provided by the digital mode software. Alternatively, give the operator-determined RSQ (Readability - Strength - Quality) value. Note that you can enter SNR values directly into the N1MM+ Snt and Rcv signal report entry boxes directly. Researchers will assume any CW or digital signal report not in three-digit RST/RSQ format is an SNR [dB] value.

Many digital mode packages such as Fldigi program and Ham Radio Deluxe have options for automatically sending spots

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to PSKReporter. For information to utilize PSK Reporter refer to the website: <https://pskreporter.info/>

The requirements for submitting log data specify the following info: Frequency, Mode, Date, Time (UTC, not local), Sent Call, Sent Signal Report, Sent Grid, Received Call, Received Signal Report, Received Grid. Probably the easiest way to produce the required log info is to use the free N1MM logging software available here: <https://n1mm.hamdocs.com/tiki-index.php> (click on the "Files" tab and download the latest version.)

Now all that remains is to hope that 'summer Monday Flu' doesn't get worse by Monday the 21st and force you to stay home from work!

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**Drive  
Safely!**

**School Begins Soon!**

## NBEMS Current Versions

The current version of the Fldigi manual is available at NBEMS Info page at [www.scottares.org](http://www.scottares.org). Look under the 'Help Sheets' heading.

Now is a good time to check to your digital software to make sure you are running the newest versions. You can find the most recent versions posted at both: [www.w1hkj.com/download.html](http://www.w1hkj.com/download.html) and <http://www.scottares.org/NBEMS.htm>

Here are the most recent releases as of August 18, 2017.

Software	Version
Fldigi	4.0.7
Flwrap	1.3.4
Flmsg	4.0.3
Flamp	2.2.03



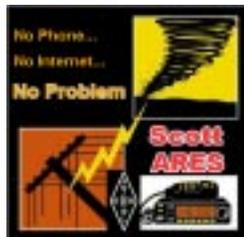
The Monday evening training net is a great place to have your digi questions answered and problems solved! Join the Scott ARES group on 146.535 MHz simplex at 7:00pm on Monday evenings.

### Scott County ARES Contacts

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## Amateur Radio License Exam

Want to become a ham? Want to upgrade your license? You can find information and resources to success in ham radio at this page: <http://www.scottares.org/License Info.htm>

If you want to ask questions or find a local Elmer (Mentor) just drop an email to: [newhaminfo@scottares.org](mailto:newhaminfo@scottares.org)

The hams in Scott ARES gather for breakfast the first Saturday of the month at the Perkins Restaurant in Savage. Bring you ham radio questions and talk to local amateur radio operators.

Now that you have done the work to study for your upgrade, here is where to find a convenient exam session near you. There is a VE exam search engine at: [http://www.arrl.org/exam\\_sessions/search](http://www.arrl.org/exam_sessions/search)

Walk-ins allowed at most sessions however it is always best to check the details at the specific session you are planning to attend. Below is a list of scheduled sessions close to Scott County. Good Luck!

### August 19, 2017 Saturday 9:00 AM

Sponsor: SEMARC  
Daniel M. Franz (651) 769-0358  
Email: [wd0gup@hotmail.com](mailto:wd0gup@hotmail.com)  
Location: Zion Lutheran Church  
8500 Hillside Trail South  
Cottage Grove MN 55016  
Walk-ins allowed, Pre-reg requested

### August 21, 2017 Monday 6:00 PM

Sponsor: SMARTS  
Dale A. Blomgren (952) 402-2155  
Email: [kdzerob@aol.com](mailto:kdzerob@aol.com)  
Location: Carver County Library  
7711 Kerber Blvd  
Chanhassen MN 55317  
Walk-ins allowed, Pre-reg requested

### September 3, 2017 Saturday 10:00 AM

St Paul Radio Club  
Leon H. Dill (651) 688-9964  
Email: [w0coo@arrl.net](mailto:w0coo@arrl.net)  
Location: Ramsey Co Library Maplewood  
3025 Southlawn Dr  
Saint Paul MN 55109-1577  
Walk-ins allowed, Pre-reg requested

### September 13, 2017 Wednesday 7:00 PM

Sponsor: VARC  
James C. Rice (612) 384-7709  
Email: [jrice@danpatch.org](mailto:jrice@danpatch.org)  
Location: Perkins Restaurant & Bakery  
17387 Kenyon Avenue  
Lakeville MN 55044-4459  
Walk-ins allowed, Pre-reg requested

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## Take a Dip in the General Pool

Time to test your knowledge of the information covered by the General Class license exam. Each month we'll take a look at a selection from the question pool.

Strap on your thinking cap and see what you can recall. Here is this month's sample:

1. What unit is used to measure impedance?  
A. Volt  
B. Ohm  
C. Ampere  
D. Watt
2. A two-times increase or decrease in power results in a change of how many dB?  
A. Approximately 2 dB  
B. Approximately 3 dB  
C. Approximately 6 dB  
D. Approximately 12 dB
3. Which of the following is an important characteristic for capacitors used to filter the DC output of a switching power supply?  
A. Low equivalent series resistance  
B. High equivalent series resistance  
C. Low Temperature coefficient  
D. High Temperature coefficient

*(Check next month's issue of the ARES Communicator for the answer.)*

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## July General Pool Answers

1. What is the approximate open-circuit voltage from a modern, well-illuminated photovoltaic cell?  
B. 0.5 VDC
2. What unit is used to measure reactance?  
B. Ohm
3. Which of the following describes one method of impedance matching between two AC circuits?  
A. Insert an LC network between the two circuits

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cont'd from col 1

### September 23, 2017 Saturday 7:30 AM

Sponsor: SMARTS & Eden Prairie Clubs  
Dale A. Blomgren (952) 402-2155  
Email: [kdzerob@aol.com](mailto:kdzerob@aol.com)  
Location: SMARTS Ham Fest  
1211 Village Pkwy  
Cologne MN 55322-9248  
Info: [smartsfest.org/ve-exams/](http://smartsfest.org/ve-exams/)

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## SEQP Data Recordings

### HamSCI looking for help

Total solar eclipses are known to cause changes to the ionosphere and high frequency propagation. During the 2017 American Total Solar Eclipse, numerous HF radio sources will be on the air to help study these effects.

Some of the topics being investigated with amateurs help include:

- How does the 2017 Total Solar Eclipse affect HF propagation paths?
- How much of the ionosphere is affected by a solar eclipse?
- For how long is the ionosphere affected by a solar eclipse?

Hams can help answer these questions by participating in the Solar Eclipse QSO Party during the time of the eclipse by logging on-air contacts, rapid-fire contest style, during the eclipse period. This QSO data will help by documenting changes in HF propagation caused by the eclipse by making recordings of large portions of the HF band from multiple locations, most importantly across the North American continent.

The SEQP operating period covers the entire time period of the eclipse across the United States on August 21st. The operating time period is 21 August 2017, 1400 – 2200 UTC. Partial eclipse begins 21 Aug 2017 at about 1600 UTC in Oregon ends at 21 Aug 2017 at about 2015 UTC in South Carolina.

Amateur radio stations capable of making wideband (e.g., 192k or higher sample rate) digital HF recordings are requested to participate in this experiment and publish their data to the HamSCI community (<http://hamsci.org/2017-eclipse-hf-wideband-recording-experiment>) on the open-data sharing site zenodo.org.

The frequencies expected to be most strongly influenced by the eclipse are especially the lower frequencies. This consists of the standard HF contest bands (see table below). In addition, we welcome observations from as much of the LF, MF, and HF spectrum as possible.

SEQP Frequencies	
Band	Freq
160 m	1.800 - 2.000 MHz
80 m	3.500 - 4.000 MHz
40 m	7.000 - 7.300 MHz
20 m	14.000 - 14.350 MHz
15 m	21.000 - 21.450 MHz
10 m	28.000 - 29.700 MHz

Interested in data recording? Check out the HamSCI website at: [hamsci@hamsci.org](mailto:hamsci@hamsci.org) for more details.

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## Eclipse and Solar Power?

As solar eclipse-chasers are gazing up at the sky later this month, grid operators and energy companies will be anxiously staring at their monitors as they work to compensate for a temporary loss of solar power.

The Aug. 21 eclipse slated to cross the United States from Oregon to South Carolina will cause problems for thousands of utility-scale solar power plants in the United States but is not likely to dent the reliability of the country's power system, according to analysis from the U.S. Energy Information Administration.

The eclipse will obscure sunlight at approximately 1,900 solar plants, but only a small portion of the country's solar capacity — 17 facilities, mostly in eastern Oregon — is in the 73-mile-wide path of totality, where the sun will be completely obscured, the EIA report says.

Solar plants outside the path of totality will be less affected, depending on how much of the sun is blocked in different regions.

"Hundreds of plants totaling about 4.0 gigawatts of capacity — mostly in North Carolina and Georgia — will be at least 90 percent obscured. Another 2.2 GW and 3.9 GW of capacity are in areas that will be at least 80 percent and at least 70 percent obscured, respectively," EIA wrote. EIA analyst Michelle Bowman said customers probably will not notice any changes. And that's primarily due to the advance preparations by grid operators.

"They had to do a lot of planning ahead and have a lot of agility with backup power sources on standby," Bowman said.

**Eclipse Solar Power** *cont'd on page 5*

## First Thursday Net

### Metro District Hospital Net

The Association of Emergency Radio Organizations (AERO) sponsors a Metro District ARES net held on the first Thursday of each month. The purpose of the net is to provide an opportunity to exercise Dual-band xcvrs installed at hospitals and clinics in the metro area. The net is open to all amateur radio ops and provides the opportunity to participate in a directed net and practice directed net procedures.

Everyone is welcome!

- First Thursday of each month
- 12:30PM (lunch time)
- 146.700 - (PL118.8)



# RSQ Reporting System

## Signal reporting for NBEMS modes

The conventional Readability / Signal voice mode reporting system has some shortcomings when used to report digital modes i.e. PSK, RTTY, MT62, etc.

Several amateurs took on the challenge to propose a more relevant signal reporting system and developed the Readability/Strength/Quality reporting system. The RSQ system has similarities to the voice RST system making the learning curve for digital operators very low.

### RSQ Readability:

The new descriptive table has a corresponding range of percent readable text. This is consistent with the common practice of providing a percentage figure during a QSO or when responding to the inevitable “HW CPY?” at the end of an over. Currently, a percent readable text figure is often provided to the other station to clarify its readability after the traditional RST report has been sent.

### RSQ Strength:

Most HF digital mode programs provide a broad band waterfall or spectrum receive display. As a result, it is common practice for operators to monitor and even decode multiple signals when working a narrow band digital station. Under these conditions, a visible measure of signal trace relative to noise is more meaningful than an S meter reading that averages the strength of all signals in the pass band.

spurious emissions and provides a basis for assessing the quality of digital mode signals. The traditional RST Tone report being designed to evaluate CW signals for the presence of audible hum, key clicks, chirping etc is simply not relevant to digital modes.

Setting up your equipment to maximize the receiving station’s RSQ report of your signal will result in cleaner signals an more enjoyable operating for everyone.

Okay, how do you go about that? Glad you asked. Keep the following quick checklist in mind when tuning up for digi mode operation:

1. Tune the rig for normal output on CW
2. Change to the appropriate sideband setting (**USB** for PSK is standard)
3. Turn off the speech processor and leave it off
4. Set the audio control of the rig as you would for normal SSB operation
5. Set the PSK software to Transmit, with no data being transmitted
6. Adjust the audio output from the soundcard so that the RF power output from the rig is no more than 25% of the cw output. (e.g. 25 watts for a 100 watt rig) This will provide approx. 50W average output during QSO. There should be **no ALC indication** at this power level.

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## Surf's Up!

Surfing the web for interesting topics related to radio, building, computing, and anything else interesting along the way.

## Radios! Radios! Radios!

[www.qrz.com](http://www.qrz.com) - search “W9EVT”

Calling George Ulm’s collection extensive is a real understatement. This gives new meaning to the Ham Shack

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## Eclipse Solar Power - cont'd from page 4

Possibly the highest stakes are in California, which has 8.8 GW of utility-scale solar. The state’s grid operator has estimated that California will lose nearly half of that capacity, 4.2 GW, during the eclipse, which is expected to affect the state for nearly three hours in the morning. The state, however, is outside the path of totality.

To compensate, California is planning to use more energy from hydroelectric and natural gas plants, according to the California Independent System Operator. The operator is not anticipating any outages. “We will ramp up generation to compensate for lost solar production, and there is plenty of capacity to meet need. It is not unusual for the ISO grid operators to manage ramps this large on certain days,” CAISO wrote in a FAQ.

**Eclipse Solar Power cont'd on page 6**

READABILITY	
R5	95%+ Perfectly readable
R4	80% Practically no difficulty, occasional missed characters
R3	40% Considerable words distinguishable
R2	20% Occasional words distinguishable
R1	0% Undecipherable

STRENGTH	
S9	Very Strong trace
S7	Strong trace
S5	Moderate trace
S3	Weak trace
S1	Barely Perceptible trace

QUALITY	
Q9	Clean Signal - no visible unwanted sidebar pairs
Q7	One barely visible pair
Q5	One easily visible pair
Q3	Multiple visible pairs
Q1	Splatter over much of the spectrum

### RSQ Quality:

The presence of additional unwanted trace modulation observed on the waterfall or spectrum indicates possible



The Scott ARES net meets every Monday evening at 7:00 PM either on 146.535 simplex or on the first Monday of the month the WBORMK repeater 147.165 (PL 107.2).

The net is in a directed net format and provides the opportunity to practice working in an emergency net style.

There is help available in setting up and using NBEMS digital messaging software and generally a weekly digital message for practice.

Everyone is welcome to check in and contribute two cents worth!

## Test Your NIMS Knowledge

This month we begin our review of ICS-200. This course is designed to enable personnel to operate efficiently during an incident or event within the Incident Command System (ICS). ICS-200 provides training on and resources for personnel who are likely to assume a supervisory position within the ICS.

Check your recall of the course material with this question.

1. Who is responsible for determining the appropriate tactics for an incident?

- A. The Safety Officer
- B. The Operations Section
- C. The Planning Section
- D. The Deputy Incident Commander

*Check next month's ARES Communicator for the solution*

## July NIMS Knowledge Solution

1. An individual assuming the role of the Deputy Incident Commander must:

- D. Be equally capable of assuming the Incident Commander role



### ARES Breakfast

Saturday  
September 9th 2017  
7:30AM

**Hy-Vee Market Grille,  
6150 Egan Dr, Savage, MN**

## Eclipse Solar Power - cont'd from page 5

North Carolina is also preparing for a significant drop in solar output, from 2.5 GW to 0.2 GW, during the eclipse. But solar makes up only 3.1 percent of the state's electricity generation. And only a small portion of the state's mountainous southwest corner will be within the path of totality.

Duke Energy, which manages more than 75 percent of the solar power produced in North Carolina, will have natural gas ready to step in and predicts it will be able to meet customer demand, according to a blog post.

Bowman said solar generation right now contributes only a very small percentage of energy in the United States. But that's a trend that's changing — a May EIA report found, for example, that utility-scale solar has grown rapidly over the last five years.

"We are seeing it really take off lately," she said. "So the next time we have an eclipse, we might see a much bigger impact."

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## NECOS Schedule August 2017

The first Monday or the month the net is held on the WBORMK repeater, Carver. You will find WBORMK here: [147.165/765 PL 107.2](https://www.facebook.com/WBORMK)

Date	NECOS
Aug 21st	N0BHC Bob
Aug 28th	WA0DGW John
September 2017	
Sep 4th	KD0UWZ Chad -First Monday
Sep 11th	N0BHC Bob
Sep 18th	WA0DGW John
Sep 25th	KD0UWZ Chad