Get On the Air April 8 for the Solar Eclipse QSO Party

Contribute to ionospheric research while having fun on HF.

McKenzie Denton, KO4GLN

An extraordinary celestial event is set to occur over North America on Monday, April 8, 2024, where the sun and moon will align in a total solar eclipse! This date marks the next Solar Eclipse QSO Party (SEQP) for hams interested in HF operating or contributing to studies of the ionosphere (or both). Sponsored by Ham Radio Science Citizen Investigation (HamSCI, **https://hamsci.org**), the SEQP invites amateur radio operators to participate in an ionospheric research initiative, transforming routine radio exchanges into valuable scientific data. Operators of all experience levels, with stations small and large, are invited to make contacts on a variety of modes and bands during the SEQP. The contact data will help researchers unravel the mysteries of our planet's upper atmosphere and its interactions with the sun.

An Opportunity to Contribute to Radio Science

The 2024 SEQP is an event that no serious amateur radio enthusiast should miss because it's the last total solar eclipse visible from the contiguous United States until 2044. This event is a unique blend of scientific pursuits and radiosport. Amateur radio operators will have a chance to experience the changes to radio wave propagation when the moon's shadow temporarily reduces the amount of solar radiation reaching the ionosphere during the eclipse. This initiative is not just about radio contacts; it's also about building a vast repository of data relative to the time of the eclipse passing overhead, such as who contacted whom and when, where they were located, and on which bands their contacts occurred. Networks, such as the Reverse Beacon Network, PSKReporter, and WSPRnet, along with individual logs, will yield invaluable insights into the ionosphere's behavior to researchers. This event could be a transformative moment for amateur radio enthusiasts and scientific discoveries.

Paul Christy, NØGN, operated during the 2017 SEQP using solar power from the Rockford Lake State Recreation Area in Beatrice, Nebraska. [Denise Christy, KEØMVM, photo]

Amateur radio operators will submit logs that contain details such as frequency, mode, contact times, and signal reports to the HamSCI team after the SEQP. This information will be combined into a comprehensive database for preliminary analysis, which ensures completeness and consistency and identifies any anomalies. Then physicists, engineers, and other scientists collaborate to analyze this data pool rigorously. The focus is to observe the ionosphere's reaction to the solar eclipse by identifying shifts in signal propagation. Integrating the data with other sources, such as the Reverse Beacon Network, PSKReporter, WSPRnet, and other (non-amateur) data sources, can achieve a more detailed understanding of the ionosphere. The findings will be shared at conferences, published in scientific journals, and made available to the public, thus advancing global knowledge about the ionosphere and its impact on radio communications.

HamSCI's Recognition of Hams' Contributions to Science

As the solar eclipse nears, it's essential to acknowledge the valuable contributions of amateur radio op-

Denise Christy, KEØMVM, pictured at the campsite she shared with her husband, Paul Christy, NØGN, at the Rockford Lake State Recreation Area in Beatrice, Nebraska, during the 2017 SEQP. [Paul Christy, NØGN, photo]

erators in scientific exploration. Amateur radio has played a crucial role in advancing scientific knowledge for years, offering vital communication support and accurate data from the early days of radio. The upcoming eclipse is more than just a fascinating celestial event; it's a testament to the significance of amateur radio in scientific research. HamSCI's involvement highlights the importance of the data collected by amateur radio, validating its role in the scientific community.

As HamSCI continues to integrate and validate these contributions, it calls all amateur radio operators to be part of this momentous occasion. Operating in this event signifies more than personal achievement; it represents a collective effort in scientific discovery, where each contribution is a valuable piece of a much larger puzzle. Step into this event ready to contribute to a legacy that HamSCI and the scientific community deeply value with a sense of pride and purpose.

The HamSCI community is led by The University of Scranton Department of Physics and Engineering Amateur Radio Club, W3USR, in collaboration with Case Western Reserve University Amateur Radio Club, W8EDU, The University of Alabama, the New Jersey Institute of Technology Center for Solar-Terrestrial Research Amateur Radio Club, K2MFF, the MIT Haystack Observatory, Tucson Amateur Packet Radio in Arizona, additional collaborating universities and institutions, and volunteer members of the amateur radio and citizen science communities. We are grateful for the financial support of the United States National Science Foundation, NASA, and Amateur Radio Digital Communications. If you have questions regarding the SEQP or to learn more about HamSCI's many other eclipse-related events, please visit **https://hamsci.org/eclipse**.

Operate in the SEQP

Date and Time:
- April 8, 2024
- 1400 to 2400 UTC (may operate all 10 hours)

Station Requirements:
- Remote operation allowed with conditions
- Portable operation from a fixed location is encouraged (no mobiles or rovers)

Bands and Modes for Two-Way QSOs:
- Bands: 160, 80, 40, 20, 15, 10, and 6 meters
- Modes: CW, SSB, and digital (all types)

Exchange for Two-Way QSOs:
- Include signal report and 4-character grid square

Transmitting Digital Modes:
- Recommend *N1MM+* software with *WSJT* for FT8
- Configure software with station location into a 4-character grid square
- Enable PSKReporter to send received signal data

Scoring:
- Based on QSO points, multipliers, and bonus points (see rules, **https://hamsci.org/seqp-rules**)
- Duplicate contacts allowed after 10 minutes
- Cabrillo-formatted logs preferred, though ADIF logs, such as from *WSJT*, will be accepted

FAQs and complete contest rules can be found at **https://hamsci.org/contest-info**.

McKenzie Denton, KO4GLN, is a fervent science enthusiast and pre-med student at Old Dominion University. She is President of the ODU Amateur Radio Club. McKenzie was first licensed in 2020 and is now an Amateur Extra-class operator and Volunteer Examiner. Her profound passion for science has steered McKenzie to be a key member of the HamSCI team. She is active in the amateur radio community and involved with the Williamsburg Area Amateur Radio Club (WAARC) and the Potomac Valley Radio Club (PVRC). McKenzie is the ARRL Virginia Section Youth Coordinator, dedicating her efforts to inspiring young enthusiasts. She can be reached at **mckenziedenton15@gmail.com**.

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