

2025 December 25 Thursday Night Net Solar Announcements

***** Solar Report ***** [K9JU]

Unless otherwise noted, the following information comes from <https://solarham.com/>. Other sources may include <https://www.wm7d.net/>, <https://spaceweather.com/> and <https://www.spaceweatherlive.com/>. See those websites for further details. All times are EST (UTC - 5).

- The Solar Flux Index (SFI) ¹ at 1500 ET (2000 UTC) is 163 (+29 from yesterday).
- The Wolf (or Sunspot or Zurich) Number ⁽²⁾ is 103 (-3 from yesterday) from 7 Active Regions at the time of publishing the number (7 at 0830 AM). Number of individual sunspots = Wolf number - [10 * (number of ARs)] or, 103 - [7 * (10)] = 33. The sunspots are distributed in both in the hemispheres of the sun and near the equator which occurs at the end of the solar cycle.
- X-ray solar flare ⁴ activity has more or less subsided with C-class flares only being observed. [NOTE: A-, B-, and C-class flares do not cause Radio Blackouts (RBO). but may add to the SFI. For further developments, keep an eye on <https://solarham.com/>, <https://spaceweather.com/> and, for much more up to date solar conditions, visit <https://www.spaceweatherlive.com/> (click “Solar activity” and then “Real-time Solar activity” on the drop down menu).
- At 1830 ET, the geomagnetic field was quiet with a $K_p^{(3)} = 1.33$. The Hp30 ¹⁽²⁾ index was 2.00 (unsettled).
- The solar wind ⁽⁹⁾ parameters: the wind speed has decreased to 555 km/sec at 1830 ET, (the background average is ~300 km/s) and the density is just about ~1.4 protons/cm³ (~3.14 p/cm³). The B_z component of the Interplanetary Magnetic Field ¹⁶ is north pointing. The B_z has been slightly + most of the last 4-hours after 10-hours in negative territory. For an explanation of what parameter values might lead to geomagnetic storms, see footnote (*) below.
- A relatively large Coronal Hole ⁽⁷⁾ in the southern hemisphere of the sun is lined up with center sun. We will be dealing with the side splash and possibly another bout of high speed solar wind in 1 to 2 days.
- Summary: The high values of SFI and SN, radio propagation conditions for daytime DX should be good to on the higher HF bands (20M to 10M). Nighttime DX should be good 40M and 30M; DX on 160M and 80M conditions should be improving as we approach the winter solstice (~12/22).

As the maximum of Solar Cycle 25 has been approached, conditions will, for the most part, range from good to very good especially those months between the Autumnal Equinox (09/22), through the winter solstice and until mid to late May next year (***). Enjoy these HF DX conditions as they won't last forever! The solar minimum is forecast to be in 2030, just over 4-years away.

For up to date info, stay tuned to <https://www.solarham.net/>, <https://spaceweather.com/> and <https://www.spaceweatherlive.com/>

¹ Solar Flux Index (SFI): See https://glossary.ametsoc.org/wiki/Solar_flux

- ² Wolf [Sunspot] Number: See https://en.wikipedia.org/wiki/Wolf_number and <https://ngdc.noaa.gov/stp/solar/ssndata.html>. From brief research on the time of day the number is published, it appears the time is 1230 UTC (8:30 AM ET). The number also appears to be based upon multiple observations throughout a 24-hours day.
- ³ K_p is the planetary K-index. See <https://www.swpc.noaa.gov/products/planetary-k-index> and <https://seetheaurora.com/kp-index-explained>.
- ⁴ Solar flare definition and classes at <https://www.spaceweatherlive.com/en/help/what-are-solar-flares.html#:~:text=A solar flare is defined as a sudden%2C,up in the solar atmosphere is suddenly released>. Also, read <https://www.space.com/solar-flares-effects-classification-formation>.
- ⁵ Radio Black Out categories may be found at the SMARC website under “Files” and “Presentations.”
- ⁶ Geomagnetic Storm categories may be found at the SMARC website under “Files” and “Presentations.”
- ⁷ Coronal Holes (CH): See <https://www.swpc.noaa.gov/phenomena/coronal-holes>
- ⁸ Tamitha Skov, WX6SWW, <https://www.spaceweatherwoman.com/>
- ⁹ Solar wind parameters at <https://www.solarham.net/solarwind.htm> and explanations of the parameters at <https://hypertextbook.com/facts/2005/RandyAbbas.shtml>
- ¹⁰ CME (Coronal Mass Ejection): See: https://en.wikipedia.org/wiki/Coronal_mass_ejection
- ¹¹ Carrington Event: See https://en.wikipedia.org/wiki/Carrington_Event. YouTube video explaining in simple terms the Carrington Event and solar storms: <https://www.youtube.com/watch?v=85-p9EIEVUA> [thank you to Joe, WB9VVH - *ed*].
- ¹² Hp30 and Hp60 Indexes: See <https://kp.gfz-potsdam.de/en/hp30-hp60>
- ¹³ CIR (Co-rotational Interactive Region): See [https://www.swpc.noaa.gov/news/coronal-hole-high-speed-streams-ch-hss#:~:text=Persistent coronal holes are long-lasting sources for high,forms%2C known as a co-rotating interaction region \(CIR\)](https://www.swpc.noaa.gov/news/coronal-hole-high-speed-streams-ch-hss#:~:text=Persistent coronal holes are long-lasting sources for high,forms%2C known as a co-rotating interaction region (CIR))
- ¹⁴ Solar Dynamics Observatory Helioseismic and Magnetic Imager (SDO HMI): https://en.wikipedia.org/wiki/Solar_Dynamics_Observatory
- ¹⁵ Magnetic Filaments: <https://spaceweather.com/glossary/filaments.html>.
- ¹⁶ Interplanetary Magnetic Field (IMF): <https://www.spaceweatherlive.com/en/help/the-interplanetary-magnetic-field-imf.html>
- ¹⁷ Solar filaments or prominences: https://en.wikipedia.org/wiki/Solar_prominence

¹⁸ SWPC: Space Weather Prediction Center: <https://www.swpc.noaa.gov/>.

¹⁹ Parker Spiral: https://en.wikipedia.org/wiki/Heliospheric_current_sheet.

The following explanations are reproduced from The Daily DX (by Bernie McClenny, W3UR) Propagation Forecast by Frank Donovan, W3LPL. Permission to reproduce the information was granted by Frank and all credit for the content is his. Thank you, Frank.

(*) Thermally driven high velocity thermospheric winds at F2 region altitude blow from the high temperature dayside hemisphere to the lower temperature nightside hemisphere reducing the volume of neutral atomic oxygen available to be ionized in the F2 region during daytime hours, lowering the MUF for F2 propagation crossing the northern hemisphere to mostly less than 24 MHz through mid-September and mostly less than 28 MHz through late September.

(**) Sustained southward orientation (-Bz) of the north-south component of the interplanetary magnetic field (IMF) plays a crucial but unpredictable role in triggering all geomagnetic storms. Brief minor to moderate geomagnetic storms may be gradually triggered when the IMF is sustained in a southward orientation (-Bz) with an IMF field strength of about -5 nanoteslas or less for at least a few hours coincident with the influence of a geoeffective coronal hole high speed stream or CME. More frequent, longer duration, minor to severe geomagnetic storms may be triggered suddenly and unpredictably when the IMF is sustained in a southward orientation (-Bz) with IMF field strength of about 5 nanoteslas or more for a period of several hours or more coincident with the influence of a geoeffective CME and solar wind speed of about 500 km/second or more.

(***) Comment and information belong to Frank Donovan, W3LPL, and all credit for the content is his.

For an explanation of the processes involved when a CME hits the magnetic field of the earth, watch <https://www.youtube.com/watch?v=j59pEqkPkLE>. Thanks to Joe, WB9VVH, for the link.

***** DX *****

The following information is from several sources including DX World <https://www.dx-world.net/>, DXNews <https://dxnews.com/>, the ARRL DX Bulletin <http://www.arrl.org/w1aw-bulletins-archive-dx> and/or personal experience. Most, if not all, DXpeditions will operate SPLIT; refer to the operating manual for your radio for instructions. Do NOT call on the frequency of the DXpedition as they are not listening on their own frequency! NOTE: Following the call of the DXpedition, in parenthesis, are the principal prefix, the general location plus latitude/longitude, beam heading (°) from East TN, and the ClubLog Most Wanted list standing out of 340 for the country/entity. The Most wanted, #1, is P5, North Korea and least needed, #340, is the USA.

- N5J, Jarvis Islands is over. For QSL more information, see <https://jarvisisland2024.com/qs1-info-log-search/log-oqrs>.
- CY9C, St. Paul Island (CY9, island near Nova Scotia, Canada at 47N/60W, 50°, #50), 08/26 until 09/05. Operations 160M to 6M using CW, SSB and FT8 ¹. For more information, see <https://t-rexsoftware.com/cy9c/index.htm>.

¹ F/H (Fox and Hound or DXpedition) mode. See <https://www.onallbands.com/using-the-ft8-dxpedition-mode-a-k-a-fox-and-hound/>. Keep in mind, you are the hound.

² MSHV (Multi Stream HV) mode. See <http://lz2hv.org/node/10>.

³ Find a PDF user guide in the Version 2.7.0-rc6 section <https://wsjt.sourceforge.io/wsjtx.html>. Scroll down to the “Candidate Release: WSJT-X 2.7.0-rc6” section.

⁴ Download the Win 64-bit software at <https://sourceforge.net/projects/wsjt/files/wsjtx-2.7.0-rc6/wsjtx-2.7.0-rc6-win64.exe/download>. Versions for Mac O/S and Linux are also available.

For a bar graph of DXpeditions, on a per month basis, go to <https://www.dx-world.net/>.

Remember: Technician Class Amateur Radio Operators have (somewhat limited) operating privileges to use phone (**only** SSB) and digital modes on the 10M band using up to 200-Watts PEP output power. Your segments are digital from 28.000-MHz to 28.300-MHz (stay near the digital mode frequencies above 28.070-MHz out of courtesy to CW operations) and SSB from 28.300-MHz to 28.500-MHz. You are not authorized to use FM mode as it is above your phone cutoff frequency. 10M has experienced exceptional propagation to all parts of the world during day light hours. The conditions should continue for another 2- to 3-years. A simple 10M dipole is only 16’ in length and can be fed in the center with cheap RG-6/U. “But it ain’t 50-Ohms coax?” So what! The SWR is only 1.5:1 which any HF radio should handle. The loss characteristics are better than RG-8X. Get on 10 and have fun! You just might get the DX bug and upgrade to General Class. A win-win situation for you.

For more DXpeditions, from DX Waorld, <https://www.dx-world.net/>, please see <http://www.hamradiotimeline.com/timeline/dxwSouth Pacific Ocean at timeline 1 1.php>.

***** ARRL Letter *****

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- The ARRL podcast, “On The Air,” is new with Joe, NJ1Q, W1AW Station Manager, tells us ways to “Practice Code with W1AW” code practice sessions. The podcasts with iTunes for iOS, Stitcher for Android and blubrry for desktop computers.]
- New editions of the ARRL Audio News,” a summary of the top news for the week of ham radio and the ARRL, appear every Friday. All editions of the Audio News are available at the blubrry website, <https://blubrry.com/arrlaudionews/>. The latest Audio News may be heard locally on the W4KEV repeater (Knoxville), 145.370-MHz, on Fridays, Saturdays and Sundays at 8:30 AM and 10:00 PM ET.
- ARRL has now expanded access to the publications archives to members of the League. Both QEX (technical - 1981 to 2011) and NCJ (National Contest Journal) - 1973 to 2011) are available under “ARRL Periodicals Archive and Search.”
- Processing of DXCC award applications, whether paper, online or LoTW, is still stalled. In the last communications from the League, there is no known date for return to processing DXCC award applications. In the meantime, you can upload your contacts to LoTW. This has to do with the method of combining paper (QSL cards), online DXCC and LoTW applications into the Master DXCC listings. The process does not effect WAS and VUCC applications and certificate issuances.

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