
Special Edition – 2022 DXCC Year End Review – by Joe Reisert, W1JR – January 1, 2023

DX in 2022 was quite improved over 2021. Solar activity is on the rise mainly affecting the upper HF bands, especially 10 and 12 meters. Covid (CV) and its variants are still out there and causing problems but many DXers found workarounds. Despite CV, some DXpeditions were successful during the year although many others were postponed or cancelled due to flight problems and various personal reasons. FT8 is filling in the gaps as we'll see later.

2022 in Review: I dedicate the 2022 DXCC Year End Review to the memory of JH1AJT, Zorro-san (Little Fox) Miyazawa who became a Silent Key in March 2022 at age 73. Zorro was the founder of FGC (Foundation for Global Children) in 2010. Along with his travelling he organized many DXpeditions to rare and semi-rare DXCC entities such as E3, A5, XZ and XU to name a few.



JH1AJT, Zorro (R), with the Prince of Bhutan (L)

About 270 entities were active during 2022, about the same as in 2021. The only entity active on the top 10 on the **Club Log DXCC Most Wanted List** (In order of rarity: P5, 3Y/B, FT/W, BS7H, CE0X, BV9P, KH7K, KH3, 3Y/P & FT/G) was FT8WW. The only other entity active in the top 20 was VK0MQ on Macquarie Island. Some semi-rare DXCC entities such as 3B9FR, 4U1UN, 9N7AA, S01WS, ST2NH, TR8CA, TT8SN, TZ4AM, and VK9DX(N) were active off and on during most of the year. CW activity decreased except during contests. Meanwhile FT8 activity at times averaged over 75% of the stations on the DX bands.

Some recent DX gatherings and conferences were cancelled due to CV or were on Zoom such. Others will resume in 2023 such as the International DX Convention (Visalia) in April. The Dayton Hamvention will be in May as usual. However, the former Crown Plaza in Dayton, the gathering spot for many DXers closed in October 2021.

The Arecibo Observatory 1,000 ft. (305 Meter) diameter dish antenna sometimes used for Amateur Radio purposes was destroyed in 2020. Now the National Science Foundation has decided not to rebuild the antenna but instead replace it with an education center concentrating on STEM (Science, Technology, Engineering and Mathematics etc.)

Ham Radio and the Internet: There is no doubt that the Internet has had a profound influence on DXing. The DX Cluster Network is made up of many DX Cluster nodes. Many DX Cluster nodes such as DX Summit, DXHeat, VE7CC and the RBN (Reverse Beacon Network) etc. are great resources for timely DX spot activity and DX info.

When spotting DX on the DX Clusters, **make sure to show the mode of operation such as CW, SSB, FT8, FT8/FH** especially when the frequency spotted is not in the expected frequency spectrum. Please don't ask for skeds etc. Most DXpeditions aren't watching the DX Cluster and most users don't appreciate these interruptions.

Radio Propagation: The only known day of 0 (zero) sunspots was on June 8th. DX radio propagation was fair in early January with solar flux near 100 but improved to around 125 by early February and reached 150 by the end of March. It peaked again in mid-April and reached 165 in mid-May. Near mid-September solar flux started to average around 150. By the end of the year it averaged 110-165. Check **[DX.QSL.net/propagation](https://dxqsl.net/)**.

As guidelines radio propagation is usually best when the A index is <15, the K index is <4, the solar wind is <375 kms and solar flux is >125. The solar flux should improve as the sun heats up during solar cycle (SC) 25. Remember that Frank, W3LPL is now reporting up to date timely HF propagation in every issue of The Daily DX based on the NOAA/SWPC web pages.

Also check out **QSO Today** which has been interviewing many prominent and interesting people in ham radio who talk about the hobby, radio propagation etc.

Recent solar forecast papers say an early peak above projections portends an earlier and higher SC peak. So far this has been happening. Check [SWPC Solar Cycle Progression](#). Watch for long path propagation to improve. We'll just have to wait and see. It still remains to be seen if there is a link between the four Jovial planets - Jupiter, Saturn, Neptune and Uranus to the long term solar cycle as some writers have proposed.

Band by Band Activity in 2022 (Frequencies in MHz):

160 Meters: DX activity was low to moderate especially on CW except during contests when activity filled the band. The cancellation of many planned DXpeditions due to CV really hurt 160 DX. FT8 activity has increased around 1.840. Try to avoid using frequencies on 160 meters that are divisible by 5 (e.g., 1.820, 1.825, 1.830 etc.) since broadcast birdies are often present.

75/80 Meters: Nowadays DX activity has been low to moderate on these bands except during contests and DXpeditions. DX was also hurt by the cancellation of many DXpeditions due to CV. On the other hand FT8 activity has increased around 3.573.

60 Meters: More entities have now received permission to operate on this band albeit many are often limited to 15 watts and a dipole antenna. Well over 250 DXCC entities have been active on 60 meters. Most DX activity is now concentrated around channel 3 at 5.357 and almost entirely on FT8. The FCC is still considering non-channelized operation near channel 3 for USA stations. The ARRL awards program does not recognize 60 meter contacts for awards. **USA stations on 60 Meters are limited to 100 watts output power and a dipole antenna.** Use of gain antennas requires reduced transmitter power.

40 Meters: 40 meters is still the workhorse band during night time and in local winter. Much activity has shifted to the FT8 mode around 7.074. CW and SSB DX activity are especially high during contests. **USA stations cannot operate SSB below 7.125 so it is best to stay above 7.128 for safety.**

30 Meters: 30 meters is still very popular especially for low power stations. This band is usually open a few hours before sunset to after sunrise but it can be open almost all day during local winter. There is lots of FT8 activity around 10.136. **The USA power limit is still 200 watts transmitter output power.**

20 Meters: It is still the go-to DX band especially during daylight although much of the CW activity has moved to the digital modes near 14.074. SSB activity is still high. As radio propagation improves some of this activity may move to the higher HF bands.

17 Meters: Low sunspot activity had really hurt the higher HF bands especially before October. However, 17 meters has been less affected and often opens shortly after 20 meters. There is lots of FT8 activity around 18.100. All modes seem to be doing well on this band.

15 meters: With increasing sunspots 15 meters is starting to open and support worldwide DX. FT8 activity near 21.074 is high.

10 and 12 Meters: These bands are beginning to support good DX. Vigilant DXers are taking advantage of the improved radio propagation. There is activity during the summer months when F2 propagation is poor but is often assisted by sporadic E propagation. 10 Meters was wide open from October through December especially during DX contests.

6 Meters: In recent years DX seems to have gone mostly digital. MSK144 is popular all year around 50.260 while FT8 is most popular around 50.313 and 50.323 during band openings. EME (Earth Moon Earth) DX using digital modes such as Q65 is becoming very popular during local moonrise and moonset.

TEP (Trans-Equatorial Propagation) and other related propagation associated with the equatorial ionospheric anomaly are increasingly common with increased sunspot activity. K6MIO released a report on TEP explaining its mechanisms (ref. 1).



Over 200 stations contacted TO7GJ (FH) during a recent EME DXpedition. Three top 6 meter DXers have confirmed 280 or more entities and three North American DXers confirmed 200 or more.

W7GJ, Lance, during his September 2022 TO7GJ 6 Meter EME DXpedition to Mayotte Island. He hopes to go to ZD9 in 2023.

2022 Month by Month DX Activity Sample:

January: This January was very productive even on the upper HF bands with over 210 entities active. Notable semi-rare stations included CE0YHO, VK9DX(N), 3X2021, SV2RSG/A, 3B9FR and XV1X to name a few.

February: Likewise February saw Z21A, TU5PCT, Z81D and HV0A. As usual there was lots of DX contest activity.

March: Solar flux increased DX on 15 Meters and above. DX wise FH/K6ZO, FH/FR5DX, TZ1CE, 9N7AA, FJ/KP4DO, 9X4X, 5UA99WS, 7Q7M, 5X4E, FJ/DK6AS, C56DF, D60AB, FW1JG, XX9ET and TY2CP were all active.

April: This month did not disappoint with YJ8RN, XT2MAX, JX/LB4MI, HC8MD, TX5N (FO/A 54K), VP2V/N2EIN (10.5 K), 9N7AA, 9N7CI, 9N7WE, FW1JG, C91AHV and E51WL (N).

May: A special operation was VU4W (Andaman I.) working 33.5 K with 57% being FT8. Also active were HK0/PY8WW, 4U1ITU, C5C and 6O1OO.

June: This was also an active month with 9X2AW, JG8NQJ/JD1 (JD1/M), VK0MQ (Macquarie 5.5K), D2UY, Z21RU (53K), XZ2B, 7O/DL7ZM, 5A1AL, OJ0MR and FP/KV1J (3.6K).

July: 7Q7RU, PY0FUN, Z66X (2.6 K), 3A/F6EXV, 3A/PB9DX (20 K) and K7K (NA070-11K) were all active.

August: As usual this was a quiet DX month but H44MS as well as 4W/JH2EUV were active.

September: Activity increased with J5JUA, E41MS, ZL7/K5WE (18.5K), FH/OK1M, VK9XX, 5J0DX and FO/F6BCW (FO/M).

October: 3C3CA, D60AE, TX7G (FO/M), TY0RU (124 K), P29RO (OC240) and FJ/SP9FUY were very active.

November: This month it was reported that for one week over 230 entities were reported as active. Activity started with 5V7RU, VK9CM, A35GC, T33T, T88WA (29K), K8H (KH8-14 K), TY5AF, J5JUA, TL8AA/TL8ZZ, 4U1ITU, VK9XX and 3D2AG/P (3D2/R).

December: YOTA call signs were everywhere from dozens of countries. Also 9M6NA, H44SHD, VK9WX (W), XT2AW, S21DX (10K), 3D2AG/P (14.5K) and FT8WW were active.

Unauthorized Operations: During the year many so called pirate operations were prevalent including but not limited to YK9R, FT5XU, YI1BGD (now QRT), 1A0UN, JW6VDA, VQ9LT, RI1FJ, ZL8AC and ZL9HR etc. DXpedition call signs such as FT8WW (sometimes during activation) were often pirated. Many EZ call signs were spotted (probably E7 stations copied incorrectly) but EZ operation has been unauthorized since 2006. Also many call signs were busted or copied incorrectly and posted on the DX Clusters. WFWL (work first, worry later) still applies so don't waste your time and \$\$\$ working suspected pirates.

The CQ Marathon website maintains a large list of [incorrectly spotted call signs](#). Many thanks to John, K9EL who is stepping down after many years running this website and turning it over to Mark, WC3W.

DXpeditions: They are the lifeblood of working the rare to semi-rare DX entities. They usually have obstacles since these entities are often in remote locations that makes travel difficult. Permission to operate from these locations can sometime be difficult to obtain and travel can be very costly. Despite this, some EME DXpeditions took place at semi-rare locations.

This year was no exception with many delays and cancellations. Hurricanes and severe storms damaged antennas on some DXpeditions. Temperatures above 35C (95F) along with high humidity and critters were sometimes a problem. Power outages and local RF interference sometimes made it difficult to copy weak signals.

Operating techniques: The [INDEXA Summer 2022 newsletter](#) discussed many operating tips. This past year was a tough one worldwide. Needless to say, the RST report on CW is now almost always 599 and 59 on SSB! FT4 and FT8 and especially the F/H (fox & hound) mode are more complex.

The [DX Code of Conduct](#) is a great operating guide. Don't tune up your transmitter on the common DX frequencies or on top of a DXpedition station. Split frequency operation on rare DX stations is almost always a must. Unfortunately many stations call right on the DX station frequency or tune up on same which causes panic. **Deliberate QRM is always forbidden.** The old adage still applies. Always **Listen, Listen, Listen** before you start to transmit!

Also **don't spot rare DX on the DX Cluster unless you know it's legit and surely don't spot rare DX call signs for test purposes.** It causes lots of bells to ring worldwide and unnecessary worry. Finally, don't post rare

call signs to thank someone for receiving a QSL etc. Those watching the cluster do not appreciate this type of boasting.

Digital Operations: RTTY hasn't died but activity except during RTTY contests is fading. WSJT-X is often the dominant DX mode with sometimes 75% of all DX activity. WSJT-X is managed by K1JT and his development team. It can often decode signals that are barely audible. FT8 sensitivity is up to 10 dB better than CW. The developers of WSJT-X have just announced availability of candidate release WSJT-X 2.6.0-rc5. General availability release 2.6 is likely early in 2023.

FT8 can be a band opener during times of poor propagation. It also allows smaller stations to participate in DXing. The use of a panadapter is highly recommended and assists in observing where the activity is concentrated. A recent mode known as Q65 became available. It is highly recommended for EME, ionospheric scatter, and other weak signal work on VHF, UHF and the microwave bands.

According to mode analysis by Club Log, FT8 was often the dominant DX mode at 75-80% of communications outside of contests and during weekly CW Ops Tests (CWT). DXpeditions often use the F/H (Fox and Hound) split frequency mode several KHz above or below the normal FT8 channels.

Operating FT8 has a learning curve. Since most of the activity on the channel is displayed, it is fun to see many well-known DXers now operating FT8.

DX Contesting: DX contests as usual were everywhere this year and lit up the sometimes quiet bands using CW, SSB and digital modes. **CWops** have been busy all year and were honored to receive the Yasme Excellence Award.

Early reports are that it was a normal contest year with greatly increased 10 meter DX activity especially from October through December. The [WA7BNM Contest Calendar](#) is a great source of contest activity. The **ARRL Contest Update** is a monthly newsletter that often has interesting tidbits on upcoming contests and operating etc. Remember that contesters should stay healthy so you can operate long hours of continuous activity in the contest. The next [Contest University \(CTU\)](#) is scheduled for the [Hamvention](#) in May 2023.

When spotting DX on the DX Clusters, **make sure to show mode of operation** such as CW, SSB, FT8, FT8/F/H especially when the frequency spotted is not in the expected frequency spectrum. Please don't ask for skeds etc. Most DXpeditions aren't watching the DX Clusters.

DXCC and ARRL Matters: There are many interesting resources on the ARRL website including [Contest Update](#) the K7RASolar Update the DX Bulletin and The Propagation Forecast Bulletin. They are worth checking out on a regular basis. The **ARRL DXCC List** is a very helpful publication for DXers and is available at a cost of less than \$6.00. New publications were published in 2022 which were primarily aimed at improving technology and assisting newcomers to the hobby such as licensing manuals. The 100th edition of the ARRL Handbook was substantially revised. The ARRL QSL bureau is another service for ARRL members.

LOTW (Logbook of the World) is operated by ARRL and is becoming very popular worldwide. It now has over 1.6 billion records with over 165,000 users. Contacts are constantly being uploaded. You can check out if your QSO has been logged on LOTW.

There are now over 1,600 persons that have qualified for the top of the [ARRL DXCC- Honor Roll](#). Over 220 persons have reached the [ARRL DXCC Challenge](#) 3,000 level. You can see the latest ARRL DXCC Standings [here](#).

Participants in ARRL contests using the low power category will now be limited to 100 Watts (instead of 150 Watts).

Finally, reports in the news media tell us that Bougainville, an autonomous region in Papua New Guinea (P29), has voted to become an independent nation in 2027. If this happens, it could be added to the active DXCC list.

QSLing: Postage costs and shipping costs have gone through the roof. USA rates are increasing in January 2023 and also in other countries. DXpeditions are often asking for \$3.00 and sometime up to \$5.00 for a QSL confirmation. A few countries are still not accepting mail. The USPS announced in mid-December that it is temporarily suspending mail service to over 15 countries. Paper QSLs can often be ordered either by email, web sites or several OQRS services (Online QSL Requests Service). Paper QSLs are becoming a lost art form. LOTW can often be used by those operators who don't require a paper QSL.

Club Log is also a great resource for log checking and QSLing info especially OQRS. Some DXpeditions upload their logs often so you can verify your QSO and hence eliminate duping. Nowadays most contests require log submission to the contest sponsor shortly after the contest is over.

Technology: The state-of-the-art is constantly improving our equipment. Receivers and transceivers are becoming more sophisticated and can better handle strong signals both with improved filtering and software. It is interesting to note that this is the 75th anniversary of the invention of the transistor which had a profound effect on the design of our receivers and transmitters. More vacuum tube power amplifiers are being replaced with solid state amplifiers.

Accessories are a necessary part of operating. Nowadays building is often being replaced by buying. Many commercial sources are available. Likewise electronic flea markets and hamfests are often a great source of inexpensive equipment and accessories.

One of the areas constantly changing is antennas. As solar cycle 25 continues its rise more emphasis will be concentrated on gain and multiband antennas for the upper HF bands. These antennas do not need to be as large and placed as high as antennas in the lower HF region.

Variations of hex and spider beams are now becoming common since they are relatively small. These antennas are already being widely used by recent DXpeditions. Even a simple half wave dipole at 25 feet AGL or higher can be very effective on the upper HF bands. Remember to keep transmission lines losses low since coax losses increase as frequency increases.

Another technical subject is the problem of RF feedback, powerline radiation and radiation from antenna feedlines. These are discussed in detail in ref. 2 and ref. 3. Recent videos and papers by N6MTS are very informative in describing how to use a vector network analyzer such as the NanoVNA to check out the performance of common mode current chokes (check the Internet).

A more recent area of concern is RFI from the switching power supplies used on solar power arrays and is addressed in ref. 4. A new solar power array installation nearby my home has severely impacted my operating and overloading large sections of the HF spectrum, especially 30 meters. Thus it is limiting my weak signal operation.

RIB (Rig in a Box) is now being tested and upgraded by C6AGU/AA7JV. This is a small remote station that can be left on land when there are environmental restrictions. It is operated remotely from a boat or via the Internet.

IOTA: Poor radio propagation and CV just about shut down travel to most rare and new IOTA (Islands on the Air) activity. A few exceptions were RI50WS (AS104), K7K (NA070), RI0QQ (AS092), P29RO (OC240), XF1S (NA169) and S21DX (AS140). The IOTA website is www.iota-world.org. An IOTA dinner will be held in Visalia in April 2023.

YOTA (Youngsters on the Air): This is very important for the future of our hobby. Many operators are allowing youth to operate from their own station especially during the SSB contests, on the digital modes such as FT8 and some even on CW. Several groups have introduced CW training such as CWops with CW Academy, the Long Island CW Club and K1USN that transmit slow speed CW for practice.

December this year was designated YOTA month with numerous stations sporting call signs with YOTA from around the world. Several scholarships are now available to youth under 25 years of age such as WROF, NCDXF, the ARRL Foundation and ARISS. YOTA camp is scheduled for July 16-21, 2023 in Ottawa, Canada.

Safety: This can never be stressed enough. With many hams confined to working at home there is a need for antenna and tower repair. As hams are aging, it is most important to employ professional expertise for antenna work especially when tower climbing is required. Climbing harnesses are mandatory and should never be disconnected from the tower. Old school safety belts are no longer considered safe.

Silent Keys (SK): This is always a tough subject to discuss. The CV pandemic has also been a factor. Many prominent DXers and major contributors to our technology and success of our hobby have died this past year, some from CV. The Silent Key listing in the latest QSTs has recently decreased but I wonder if this is due to under reporting.

The following is a partial list of SK DXers and others that contributed to our hobby. They are generally listed in the order as they have departed us during this past year: F2YT, XW1A, W7CD, YV1OD, JH1AJT, DL7UXG (DXNL), KC6AWX, W7LR, W3TMZ, OK1PD, LA1EE, G3LIK, G3SXW, DJ9ZB, RZ3CC, DL1DA, V31MD, HI8X, CO2LP, HZ1AN, UA0SE, K6TA, K2QMF, GI4FUM, W4EA/W4ETO (ETO), HS1YL, ZL1AIH, UT5UGW, W2HD, CN8KD, W9WU, K7NV, DJ2BW, EA5BYP, OH5NQ, V85SS, UR8GX, G3JUL, W1YL, AA5B, W7OM, N6OJ, K5YJ and W9EVT.

And now the Drum Roll: DX is still affected by travel restrictions due to CV. There were approximately 70 entities that were NOT believed to have been active during 2022*.

Africa (19): 3B6, 3C0, 3Y/B, 9Q, 9U, E3, FT/G, FT/J, FT/T, FT/X, FT/Z, S9, TJ, TN, VK0/H, VQ9, ZD8, ZD9 and ZS8.

Antarctica (1): 3Y0/P.

Asia (10): 1S, A5, BQ9P, BS7H, EZ, P5, T6, VU7, XU and YK.

Europe (2): 1A0, and R1F.

North America (9): CY0, CY9, FO/C, KG4, KP1, KP5, TI9, XF4 and YV0.

Oceania (21): 3D2C, C2, E6, FK/C, H40 (Temotu), KH1, KH3, KH4, KH5, KH7K, KH8/S, KH9, T2, T30, T31, T32, VK9M, VP6D, ZK3, ZL8 and ZL9.

South America (8): CE0/X, CE0Z, HK0/M, PY0/S, PY0/T, VP8/G VP8/O and VP8/S.

*Please note that some rare entities may not be on this list for 2022 because operations were short, set up schedules or only on VHF, EME (Earth-Moon-Earth) etc.

Those DXCC entities that are not believed to have been activated in ten (10) or more years have increased and now includes: 3Y/B, 3Y/P, BQ9P, BS7H, CE0X, EZ, FT/G, HK0M, KH3, KH7K, KH8S, KP5, YK, YV0 and ZL8. This means that an avid DXer working hard at DXCC may take well over 10 years to make it to the DXCC Honor Roll. This list also serves as a guide to those planning DXpeditions to rare entities. As for me, the top of my need list for the DX Challenge has not changed in many years and not surprisingly goes to P5, BS7H, FT/W and BQ9P in that order.

Upcoming DXpeditions: The 3Y0J DXpedition to Bouvet Island is planned by a Norwegian group in January 2023. CY0 (Sable I.) is hoping to be QRV early in March 2023. Also TN, 9U, 3B7, 1S and others are all promised for early in 2023 but delays to some of these have already been announced.

Remember to stay tuned and check the www.ng3k.com/misc/adxo.html for future operations.

Looking ahead to 2023 and Beyond: As stated above, solar cycle 25 should be really cranking up in 2023. DX has really changed in the last few years with FT8. Some DXers chase the ARRL DXCC Honor Roll, the DXCC Challenge or the CQ DX Marathon. Well over 1,600 DXers worldwide have confirmed all 340 on the present DXCC entities list. More than 230 DXers have now achieved the very difficult DXCC Challenge 3000 level. Fernando, EA8AK now has an amazing 3271 entities and still leads the DXCC Challenge.

It's time to improve or repair if necessary your 10 thru 15 meter antennas as well as keeping your 80 and 160 meter antennas in repair. Then there are the never ending DX Contests, DX Marathon, DXCC Challenge and IOTA chasing. There are lots of things to do. Don't let the airways slow down for lack of activity. HF radio conditions on the higher HF bands are improving. Try to stay active and join the fun. Also don't forget to support the various DX foundations around the world that help make DXpeditions possible!

Finally: We hope this review has been informative especially for historical purposes. I have tried to rearrange the subjects this year. Any suggestions are appreciated. Most prior year editions can be viewed on the "[K8CX Ham Gallery](#)." They are listed on the Table of Contents.

Once again I am honored to be asked by Bernie, W3UR to write this review for the 18th year and for his valuable inputs and help. Thanks also to John, K9EL for his inputs and especially to Frank, W3LPL for his many helpful comments and inputs. Finally thanks to my son Jim, AD1C for his computer help!

Happy New Year and best of DX in 2023.

73, Joe Reisert, W1JR

NOTE: Obviously all the opinions etc. expressed are solely mine as are any errors that I have made. This End of Year Review is copyrighted. Therefore copies or use of this review MUST first be approved by Bernie, W3UR and then a courtesy copy of the reprint sent to Joe@Reisert.org.

References:

1. "[F-Region Propagation and the Equatorial Ionospheric Anomaly](#)" by K6MIO
2. "[Common-Mode Chokes](#)" by W1HIS
3. "[A Hams Guide to RFI, Ferrites, Baluns, and Audio Interference](#)" by K9YC
4. "Can Home Solar Power and Amateur Radio Exist" by K1KP, QST, April 2016.