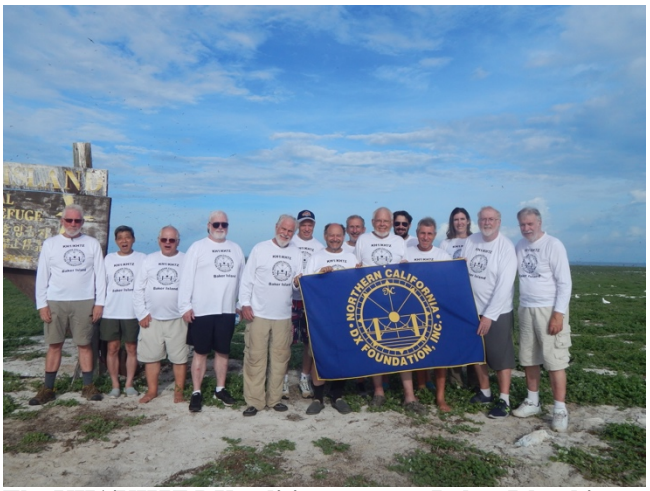
Special Edition – 2018 DXCC Year End Review – by Joe Reisert, W1JR – January 1, 2019

2018 Overview:
It was indeed a tough year for DXers. DX propagation took a very steep decline in 2018 especially on the upper HF bands as we approach Solar Minimum. There was activity from 2 of the 10 most wanted entities on the Club Log "DXCC Most Wanted List," KH1 and VK0M but only intermittent or short single operator activity from another 2 in the top 20, SV0/A and JD/M. There were approximately 288 DXCC entities activated, the same as 2017 with at least, 275 on CW.



The KH1/KH7Z DXpedition team on Baker Island in June/July 2018.

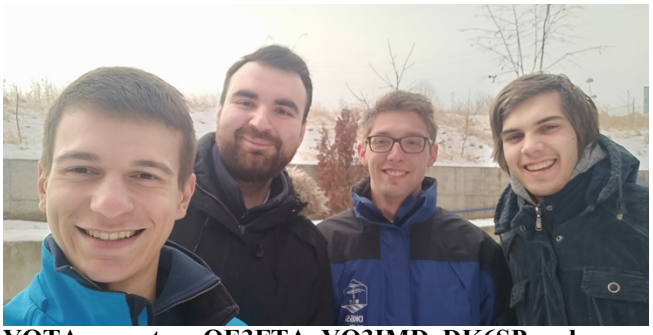
The Republic of Kosovo, Z6 was finally added to the DXCC entity list in January bringing the total to 340. A major DXpedition (3Y0Z) failed to land on Bouvet Island. Another big story in 2018 was the impact of the FT8 weak signal digital mode on DXing. More on these items later.

2018 in Review:
The DXCC Challenge and the CQ Magazine DX Marathon activity were high as usual. The ARRL 2018 Grid Square Challenge affected some DX activity. DX contesting is ever increasing and new regional contests are always popping up.

The "DXCC Most Wanted Survey" by Club Log (WWW.ClubLog.org) is very up to date. It just celebrated its 10th year. Michael, G7VJR at Club Log updates this list monthly based on users log entries. The end of December 2018 most wanted list is quite similar to December 2017. The latest 10 DXCC entities in order of rarity are: P5, 3Y/B, FT5/W, BS7H, CE0X, BV9P, KH7K, KH3, VK0M, and FT5/X. 2018 saw one notable DXpedition from the top 10 Most Wanted Survey, KH1/KH7Z. However many semi-rare entities were activated during the year as will be seen later. Club Log now has over 540 Million QSO records.

To say the least the cost and logistics to activate the rarest entities is getting prohibitive and in some cases can run up to $750,000 in the most extreme locations. "Who Pays for the New One" by N1DG in October 2018 QST show some interesting statistics. Unfortunately as frequently happens, at least one DXpedition, 3Y0Z (Bouvet I.) failed to land due to a motor failure on the ship and had to divert to ZS-land. Terrible high (35C) temperatures and humidity (85%) in Africa and Oceania were tough on operators. KH1/KH7Z and 9M0W were delayed. Some DXpeditions were shortened (TT8KO) or had to be rescheduled. For those who criticize DXpeditions, these are just a few of the problems they experienced in 2018 to give us a new entity.

Most of the larger DXpeditions (3 or more operators) activated in 2018 were available on SSB, CW and Digital modes including FT8. CW was as active as ever and often it netted the most contacts in DXpedition logs. **The new FT8 digital mode introduced in July 2017 is a Game Changer. It is a big advancement in the State of the Art of weak signal detection** making digital contacts in 1 minute possible versus the slower JT65 mode. Now many small stations can make contacts when the bands seem closed!



YOTA operators OE3FTA, YO3IMD, DK6SP and HA8RT were operating from Kosovo as Z66DH.

YOTA (Youngsters On The Air) as well as JOTA (Jamboree On The Air) activity is increasing especially in Europe and with IARU and ARRL assistance. Many of the DX foundations contributed to their success. They often use special recognizable call signs. Give them a call. We need to encourage these youngsters as we DXers age. As we will see later the DXer Silent Keys increased at an alarming rate in 2018.

Also don't forget CTU (Contest University) under the direction of Tim, K3LR. It is now in its 13th year having had over 7,500 students in 8 DXCC entities so far. There is also CWA (CW Academy) by CWops, a program to improve CW skills. "Improving Your CW" is another Morse Trainer by G4FON.

A Solar Review:
Solar Cycle 24 is definitely on the wane. Solar Weather Prediction Center (SWPC) predicts a decrease to at least December 2022, a 13 year versus the typical 11 year SC. There were 221 days with NO sunspots in 2018 and many long periods of same. This is the worst it has been since 2009 and many more spotless days are expected in 2019 and probably 2020.

Ionizing solar radiation is the primary generator of upper HF DX propagation especially on 10 through 15 meters. 2800 MHz solar flux—which has been below 80 all year—provides a reliable indirect measurement of the intensity of ionizing solar radiation. Improving propagation on 10 through 15 meters typically occurs when the solar flux exceeds 80 for at least a few days especially when the K Index is low (0-2). Dr. Tamitha Skov gives frequent "Space Weather" updates on the Internet and often addresses Amateur Radio.

There is still no consensus that SC25 will be weaker than SC24. Most forecasts are that SC25 will be about the intensity of SC24. Some experts are still telling us that SC 24 was the weakest SC in over 100 years and that SC25 may be the weakest in 200 years. Professor Valentina Zharkova has her own predictions and they aren't good. Dibyendu Nandy from India predicts a strong SC25. Let's see who is correct!

Band by Band Activity:
160 Meters: Activity improved somewhat as propagation on the upper HF bands decreased. Some Europeans received additional spectrum on the band. DXpeditions usually operate between 1810 and 1830 KHz. Digital modes, especially FT8 is increasing and usually around 1840. W8LRL is still the Top Band leader with 344 confirmed entities (including about 11 deletes). VE1ZZ (SK) will be sorely missed on 160. Try to avoid frequencies divisible by 5 (eg. 1820, 1825, 1830 etc.) since broadcast birdies are often there.

75/80 Meters: Activity is slowly increasing especially on CW when DXpeditions are active. The later often operate at either the low end of the band or near 3525 KHz. FT8 activity is also increasing around 3574 siphoning off some of the weak signal DX. 75 Meter SSB DX is often concentrated between 3790 and 3800

60 Meters: Several new entities have received permission to operate in this band although many are limited to 15 Watts EIRP and a narrow band centered around 5357. As a result there is lots of FT8 activity there and almost all DXing on 60 meters is now on FT8. The FCC is considering modifying the USA 5 channel operation to allow non-channelized operation in a small portion of the band to be more compatible with the rest of the world allocations. There have been over 190 DXCC entities active on 60 Meters but the ARRL DXCC program still does not recognize 60 Meters contacts.

40 Meters: It's still the go to band during the dark hours and especially during winter time. DXpeditions are often there on the lower end or at 7025 for CW. FT8 activity is increasing around 7074. SSB is mostly above 7100. Remember that USA stations cannot operate SSB below 7.125 mHz but best to stay above 7.128 for safety. Most of the world can now operate from 7000-7200.

30 Meters: 30 Meters is becoming more popular especially with DXpeditions and low power stations. The new FT8 mode as well as other digital modes are usually found between 10.135-10.150 MHz. 30 M is sometimes open 24 hours a day during the darker months. Remember that USA stations are limited to 200 Watts output power.

20 Meters is still the daytime breadwinner along with **17 Meters** where activity is increasing and there is less congestion. Signal strength on 17 Meters is often better than 20 Meters when both bands are open. **15 Meter** openings are decreasing with the lower solar flux. During this past year **12 and 10 Meters** were showing fewer and shorter openings as solar flux decreases..

6 Meters: Sporadic E propagation especially from mid-May through early August and in December often enhances HF and 6 Meters DX but this is not due to sunspots. Much of the 6 meter activity is now above 50.250 MHz so openings on the low end of the band are sometimes missed.

Other 2018 News on FT8
Ever since mid-July 2017 the new FT8 digital mode by K9FN and K1JT has taken the bands by storm. With the introduction of FT8 "You can't work them if you can't hear them" no longer applies! This mode is especially popular with operators with limited power and small antenna systems. The most notable activity is on 6-Meters where the propagation can be erratic. On 6 meters FT8 and similar weak signal digital modes usually operate above 50.250 MHz and often cause the lower portion of the band to be quiet even when DX propagation is prevalent! In mid-year a new DXpedition mode was introduced especially for the KH1 operation. It allows higher QSO rates using "Foxes" and "Hounds." Some stations are reporting that they have worked over 250 DXCC entities using FT8! It's important to update your software to WSJT-X 2.0.0 because previous versions are not compatible. See http://physics.princeton.edu/pulsar/k1jt/wstjx.html.

Pirates and Unauthorized Operations:
Pirates seem to be a perpetual problem. Nowadays many DXpeditions are reluctant to give out their call signs before commencing operation for fear that their call sign will be pirated. Frequent pirate call signs during this year were 3A/IK1AIR, JX7F, JX2WE, JX73EX, C6YL, P5/3Z9DX as well as upcoming DXpeditions such as 3B7A, 3Y0Z and 3Y0I to name a few. WFWL (work first, worry later) still applies but if you know it's a pirate, don't waste your time or $$ to support that activity. K9EL often lists pirate call signs on the CQ Magazine Marathon page.

Furthermore, **don't spot rare DX on the 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 and unnecessary worry. Finally, don't post rare calls to thank someone for a QSL etc. **No one watching cares or appreciates this type of boasting**.

IOTA:
The "Islands On The Air" program is arguably the most active DX program after the DXCC. Let's face it, many of the islands are DX and over 100 DXCC entities are already separate IOTAs. Chasing IOTAs can fill in the gap when an operator has worked all the active DXCC entities and wants to remain active on the bands.

The IOTA program website is WWW.IOTA-World.org. It is filled with info on the program and the almost 1,200 IOTAs that are available. So far only about 1,125 or so IOTAs have been activated. At least 36 IOTA chasers have achieved IOTA 1100 IOTA level. IOTA DXpeditions happened all year from the easy to the more difficult and rarer IOTAs. Several rare activations were H44R (OC168), 5C5AF (AF065), RI0B (Several Artic), TX0A (OC113), VK5CE/6 (Rare VK6s) etc. ATNO (All time new one) were EP6RRC (AS189) and EL2EL/4 (AF111). As a result of the addition of 6 new IOTAs, TX0M (OC297) and KP4/EI9FBB (NA249) were activated with the other 4 scheduled for 2019. Remember that QSLing can now be conducted for some IOTA operations using Club Log.

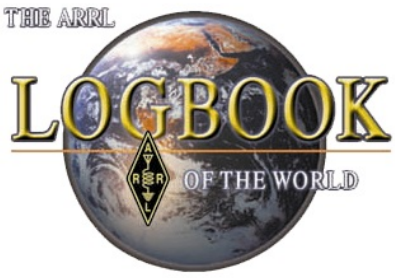
DX Contesting:
DX contests are everywhere using CW, SSB and Digital modes. The most popular DX contests seem to be the CQ Magazine SSB and CW as well as the ARRL CW and SSB. However there are many other DX contests sponsored by organizations around the world. As mentioned above, DXers should help out the youth to get involved in contesting, especially DX. Younger operators are showing interest especially since most contests require computer logging. Contest rates are slowly climbing with new software and more spotting websites despite poorer propagation. Logs are often required online usually within a few days after the contest. Contests often yield new band countries and modes sometimes even before the contest as stations test out their equipment. The WA7BNM Contest Calendar is a great source of contest activity.

Equipment and Technology:
New gear and computer programs are still showing up all the time. One of the best places to see what's new is at the Dayton HamVention now held in Xenia, Ohio in mid-May. ICOM, Yaesu, Kenwood and others all have new transceivers. Likewise SDR transceivers are becoming very popular from FLEX Systems and others. New antennae especially loops and low profile types are becoming popular. Also controllers to optimize performance from SteppIR. Keep an eye on the major Amateur magazines for new equipment offerings. Finally be sure to keep safe practices especially on tower and antenna work. The FCC and OSHA have recently announced a new free publication entitled "Communications Tower Best Practice Guide." This year well known DXer and contester Rev. Paul Bittner, W0AIH fell off one of his 50+ towers and was killed. This **reminds us that every tower climber death is preventable.**

Ham Radio and the Internet:
The Internet plays an important part in Amateur Radio be it DX Clusters, working groups, sending in contest logs, QSL info, LOTW (Log Book of the World), helpful hints etc. Club Log is becoming the go to place to see if you are in a log especially with DXpeditions. Some DXpeditions update their logs daily while others actually update logs continually. **Try to prevent duplicate QSOs on the same band and mode.** Each dupe may prevent someone else from making an ATNO or even a band slot or mode.

Don't forget to correctly spot call signs and frequencies on DX clusters. **Due to the addition of the FT8 mode, it is now important that digital signals be listed by their mode in the remarks column on the clusters (eg. FT8, BPSK, RTTY etc.).** Of course self-spotting is frowned upon. Just because a DX station is spotted doesn't always mean the call sign etc. is correct or that the station is really there! Working an incorrect call sign may result in a NIL (Not in Log) to your QSL request. **Obviously posting obscenities and negative comments on the DX Clusters is never acceptable.**

QSLing and DXpedition Costs:



Postage rates are going out of sight. LOTW (Logbook of the World) is very popular with DXers, especially those that don't want or need to collect QSL cards. Club Log and their OQRS (Online QSL Request Service) are also popular for those who prefer a paper QSL card. It is a method to obtain a QSL without having to send one (an added expense) and to guarantee that your request makes it to the proper source without theft. What could be better in this day of high and varying postal charges at home and abroad? I prefer paper QSLs since they may be needed for awards other than DXCC but I realize that I am now in the minority.

Most Amateur Radio societies have their own QSL bureau but often you have to be a member to use their service. The ARRL outgoing QSL Bureau or the QSL bureaus in many entities can lower QSLing cost. **LOTW** is extremely popular and the DXCC has been the prime user but other awards such as WAS, VUCC, Triple Play, and some CQ awards are now available. There are now over 1 billion LOTW QSO records, an increase of over 10% since 2017. There are almost 113,000 registered LOTW users. This trend continues to increase and

doesn't look like it will level off for many years. Furthermore, contesters are often uploading their logs immediately after the contest ends. Many DXpeditions are now using LOTW, sometimes while still on location!

DXpeditions to rare entities are getting more expensive and many cost $100,000 or more. They are experiencing difficulties obtaining transportation and raising the necessary funds etc. It now can cost well over $20,000 per operator to participate in large scale DXpeditions to rare DX entities. Low number of sunspots is also limiting the number of contacts especially on the higher bands. Most large DXpeditions are 50% funded by the operators and the rest from clubs, individuals and QSL donations. Please support DXpeditions directly or through organizations such as NCDXF, INDXA, CDXC and EUDXF Foundations etc. The NCDXF contributed over $156,000 to DXpeditions in 2018 alone!

Operating techniques:
A look at 2018 statistics on Club Log logs shows that the rarest DXpeditions had more CW than SSB contacts. Of course the "599 TU" QSOs on CW or "59 thank you" on SSB are still ever present especially with DXpeditions. Operating CW at high speed (30 WPM or higher) has caused problems perhaps due to computer receiving and processing and were very much in evidence although QRM can add to the problem. Serious DXers are definitely using the DX Clusters and Reverse Beacon Network (RBN) for spotting DX.

DQRM (Deliberate QRM) is still a major problem. Calling out of turn or calling continuously only slows down the pileup so fewer calls get into the log. IQRM (Ignorance QRM) is also a problem from lack of learning. Tuning up for long periods of time on a DX station is a big problem. There is always plenty of spectrum to tune up away from the DX operations. This subject has been beaten to death but we must do our best to speed up operations.

Again, make sure to review the DX Code of Conduct (www.dx-code.org). On CW some DX stations transmit at 30 to even 35 WPM and/or seldom sign their call signs or where they are listening. Some operators just can't copy their call sign that fast**.** Some of the problems may be the limitations of code readers especially for newer operators**. The old adage still applies: Listen Listen Listen before you start calling.**

Try not to rag chew or tie up frequencies frequented by rare DX such as 3.795, 14.025 and 14.195 MHz as well as 14.040 and 14.260 MHz for IOTA. Other suggested frequencies to avoid are listed in "The Daily DX." Transmitting on these frequencies will make it difficult for others who are experiencing poorer propagation than you are.

Silent Keys (SK):
Once again this was a bad year for Amateur Radio as many well known DXers and important Amateur Radio people became SKs. The SK column in QST has been listing over 200 per month. Other Radio Societies also have a rise.

The following is a partial list of notable DXers, contesters, designers or officials in Amateur Radio who became SKs in 2018. They include in no particular order: K3LP, N4KG, P43E, G3NUG, NP4B, HS0ZIA/N6BK, N8UG, F5CQ, F5ANO, PY1RO, AG6K, 3D2ER, ZL2HU/ZL4HU, K6KU, LA1VC (ex 3Y1VC), UA9AB, W6SZN, JA1AN, WA4WTG, SM0AGD, VE7IG, W3XO, VE1ZZ, K5MA, DL1BDF, K0ALL, W0AIH, K8OQL, YV5AJK, SM5DJZ, W4MYA, VP8WA, OK3DQ, TA3D and VE5SDH etc. May they rest in peace.

2018 DXCC and ARRL Matters:
The big news at ARRL is that they amended the DXCC rule that concerns criteria for Political Entities. Martti, OH2BH has been working tirelessly on this issue for almost 10 years. As a result The Republic of Kosovo became an official entity on January 21, 2018. Thus there are now 340 entities on the active DXCC list. This is the first new entity since Southern Sudan, Z8 was added in 2011.

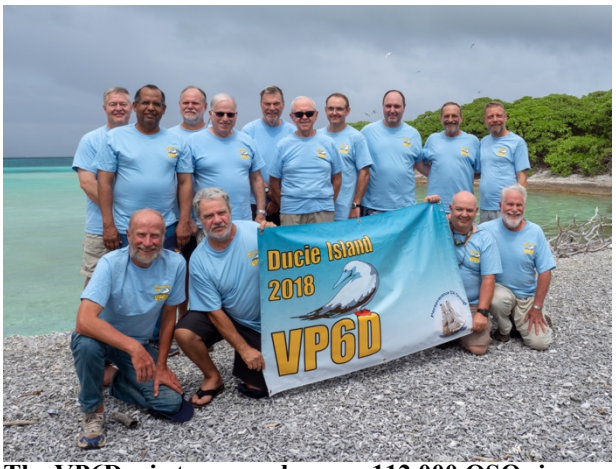
The 2019 ARRL Handbook, a great reference book, is now available. It was extensively rewritten and now is in several volumes! QST page count has been reduced from 160 to 140 pages. The DXCC Yearbook is still

available each year (usually near mid-year) but only on line. Remember that it now only includes a list of those individuals that increased their totals during the prior calendar year. For best accuracy, consult the online ARRL DXCC Standings on their website which is continuously updated.

Latest license figures in the USA are at an all time high with a gradual growth rate of just under 1%. LOTW input software was recently updated. LOTW now contains over 1 Billion QSOs listings. It looks like the QSL bureau is handling less QSLs as paper QSLs are decreasing.

2018 Month by Month DX Activity Sample:

January: It was a tough month propagation wise especially on long DX paths. Despite this, approximately 225 entities were active**.** Some notable rare to semi-rare stations active included: S01WS (active all year on all bands and modes), 6O0O (17KQ), E31A (33K), ATNO Z60A (90K), ZC4A and D68I (12K). The big disappointment was the failure of the 3Y0Z operation to land on Bouvet Island because of an engine failure on their boat.



The VP6Ducie team made some 112,000 QSOs in October

February: Active were 9X9PJ, Z81D, C5DX (9K), TY1TT (13K), VU4G (7.7K), 3C3W (30K).

March: Z2LA (4.6K), XR0YD (46.5K), 4B4B (XF4), 3C0W (54K), TN5R (62K), TJ2TT (51.5K), XX9B (11.6K), XZ2A, S92HP and YJ0CA.

A**pril:** A5A, 3B7A (71K), RI1FJ, SV2ASP/A, VK0AI (Macquarie), VK9X, 9L, T2AR and OJ0W were active as propagation improved by the end of the month.

May: KH9/N7NVK, Z6s

June, July and August: Summer is typically a slow DX time, especially in the Northern Hemisphere. None the less S9ZZ, H44XG, KH1/KH7Z, 4W6VA, A35, HC8/HC1HC, Austral I. TX5T (17.1K), S79LD and XT2BR were active.

September: A5A, A52SL, ZD9CW, TO6OK (FH), 9X0T, VK9XT

October: C21GJ (VHF), E6Y, TT8KO, 5A0YL, KH9/N7NVK, 6O1OO, VP6D (121K), VK9XG (25.6K).

November: KH8L**,** EP6RRC, A35EU (17K), 4W/HL1AHS, 5U9AMO.

December: T32NH, XT2BR, ET3YOTA, Z81D.

And now the Drum Roll:

There were approximately fifty two (52) entities that are NOT believed to have been active during 2018 as follows:*
Africa (12): 3X, 3Y/B, 9U, FT/G, FT/J, FT/T, FT/W, FT/X, FT/Z, TL, VK0H, and ZD8.
Antarctica (1): 3Y0 (Peter 1)
Asia (6): 7O, BS7H, BV9P, EZ, P5 and YK.
Europe (2): 1A0 and JX
North America (7): CY0, CY9, FO/C, KP1, KP5, TI9 and YV0.
Oceania (16): 3D2/C, FK/C, FO/M, FW, KH3, KH4, KH5, KH7K, KH8/S, T31, T33, VK9/M, VK9/W, ZK3, ZL8 and ZL9.

South America (8): CE0J, CE0/X, HK0/M, PY0/S, PY0/T, VP8 S. GA, VP8O S. Orkney and VP8 S. Sandwich.

*Please note that some rare entities may not be on this list for 2018 because some operations were short, set up schedules or only on VHF, EME (Earth-Moon-Earth) etc.

The DXCC entities that are not believed to have been activated in ten (10) or more years has increased and now includes: 3Y/P, BV9P, BS7H, CE0X, EZ, KH7K, KH3 and YV0. This means that an avid DXer working hard at DXCC may take at least 11 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 and FT5/W in that order.

Upcoming DXpeditions:
Here are a few announced DXpeditions for 2019. 3Y0I is possible from Bouvet Island in January/February by the Rebel DX Group. Other rare to semi-rare entities promised for 2019 include ZL7, V84SAA, XX9D, 9U5RI, T31EU, TT8RR, FW/G0VJG, VK9L/AI5P, VP6, ZK3 and CY9. Also several new IOTAs are promised. Stay tuned and check the Daily DX calendars at: http://www.dailydx.com/the-daily-dx-calendar/ for future operations.

Looking ahead to 2019 and Beyond:
SC 24 is definitely on its last legs. Solar activity will continue to decline between 2019-2021. From the predictions we've been hearing SC 25 may be even weaker. Believe it or not, the first sunspot for SC 25 occurred back on December 18, 2016 but it was only a short blip! The new FT8 weak signal digital mode should help when conditions are poor.

DX means different things to each DXer. Some DXers chase the DXCC Honor Roll, the DXCC Challenge or the DX Marathon. I'd estimate from the latest DXCC mixed listings on the ARRL "DX Standing" list that there are well over 2,000 persons worldwide that have confirmed all 340 on the present DXCC entities list. Fernando, EA8AK now has an amazing 3264 entities to lead the DXCC Challenge. More than 170 DXers have now achieved the very difficult DXCC Challenge 3000 level, 99 are in Europe, 51 in North America and 16 in Japan.

The top 6 meter station, LZ2CC now has an amazing 280 entities. There are only about 20 NA stations to break the 6 meter 150 entities level. W7GJ has worked 210 entities and both W7GJ and K2ZD have 204 confirmed. EME is being more frequently used by major DXpeditions and is now a very important factor for leading North American 6 meter DXers.

It's time to improve your 20 and 17 meter as well as your 80 and 160 meter antennas. 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 die for lack of activity. HF radio conditions on the mid-bands are still fair but improving on the lower bands. 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. Using DX publications and the Internet are a great way to keeping us up to date on what is happening now and in the future. Once again I am honored to be asked by Bernie, W3UR to write this review for the 14th year and for his valuable inputs and critique. Thanks also to John, K9EL, Frank, W3LPL and Rich, K2RR for their valuable inputs as well as my son Jim, AD1C for all his computer help! Also thanks to K1HTV, W1DIG, KG4W, K3WW and AA5AU for their FT8 inputs. Previous Reviews can be read on the K8CX Ham Gallery website.

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, W1JR. Best of DX to you in 2019. I'll see you in the pile ups.

73, Joe Reisert, W1JR