

# DXing/Contesting



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# Why are we here ????

*“Give a man a fish, and you’ll feed him for a day.  
Teach a man to fish, and you’ve fed him for a lifetime.”*  
- Chinese Proverb



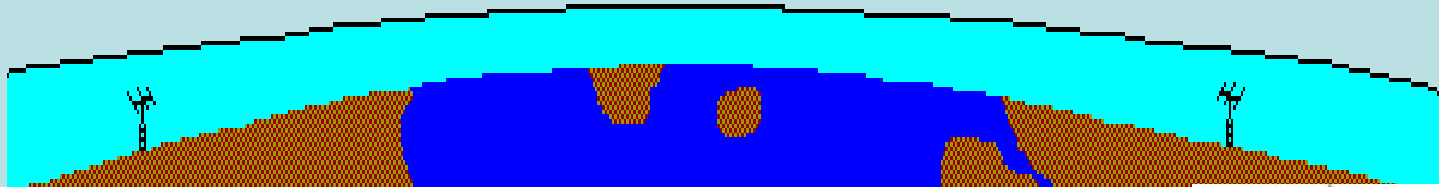
Today, a fishing (DX) lesson

# Topics

- DX IS ????
- Location, Location, Location
- Basic Station Equipment
- Bands, Frequencies, Modes
- FTx Digital Modes
- Solar Cycle 25
- QSL Cards & Tips
- Awards & Wallpaper
- Tips That Work
- Contests
- Admin Tools
- References
- Questions

# DX IS ????

- DX = Distance Communications
  - **Generically** – Making contacts with stations outside of the country, usually over long distances such as Europe, Asia, Australia, Africa, etc



- **Relative** – 2000+ miles on HF, 200 miles on VHF/UHF, 20 miles on microwave
- **Adventure** – Allows to travel around the globe without leaving our shacks
- **Infectious** – DXers don't have normal sleep patterns...some don't sleep at all
- **Exciting** – Working an all time new one can be like bagging that 10-point buck

# Location, Location, Location

- **Countries** can be traditional (Canada, Spain, France, Japan, etc) or geographical/political “entities”, i.e. Clipperton Island, Conway Reef, United Nations Building, etc



There are currently 340 “entities” on the ARRL DXCC List



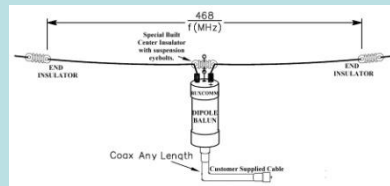
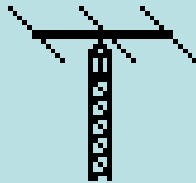
Scarborough Reef

# Basic Station Equipment

- License with HF privileges
  - All levels have SOME HF privileges, but General Class or higher is better
- An HF Transceiver, Microphone, CW Key, and/or Digital Interface



- An Antenna or 2 or 3 or .....



Does NOT need to be elaborate  
Simple wire antennas will work

- The Desire
  - The “intangible”... can’t be bought... something (perhaps defective) inside us
- A Network of like minded friends and mentors (ELMERS).....

# Big or Small

- Big Gun
  - W0AIH - <https://www.qth.com/w0aih/towerlist.php>
- Little Pistols

**Folks like you and  
me, for the most part!!!**

**The single most important  
station element is YOU,  
The Operator**

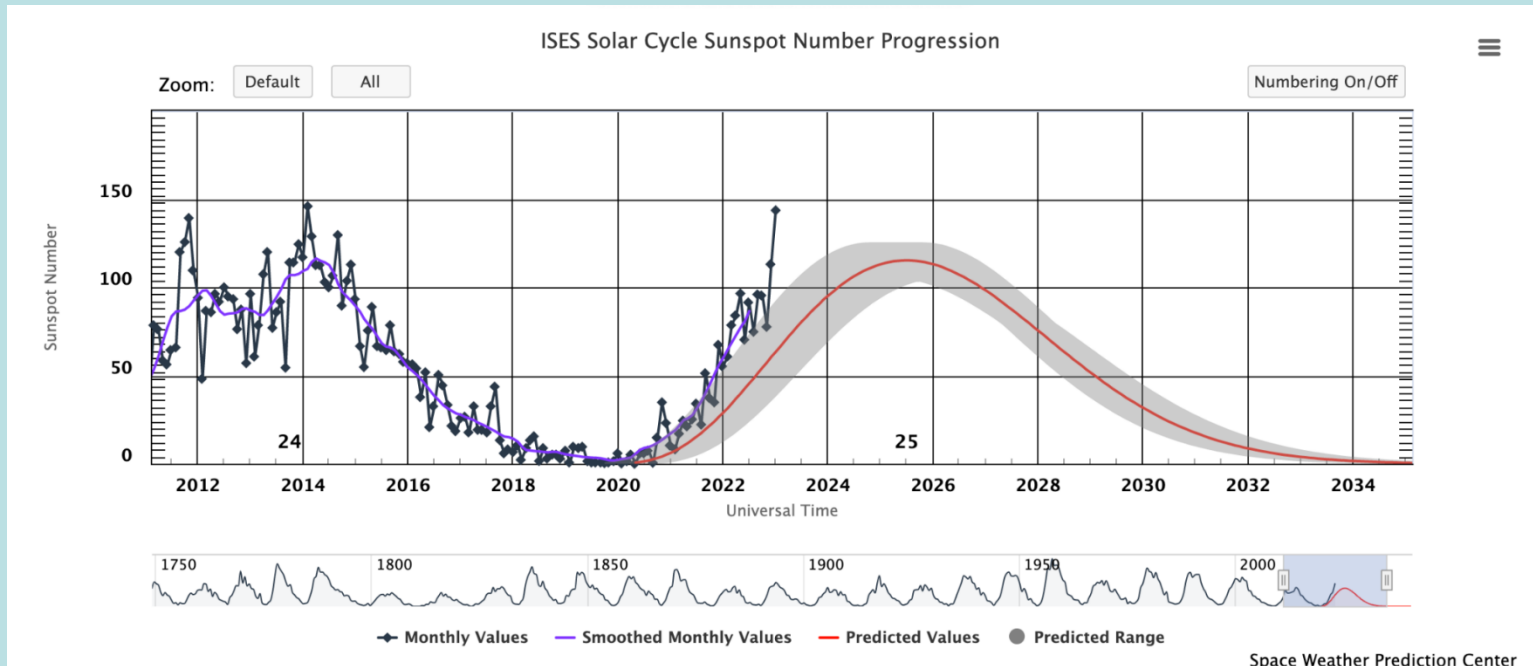
# Bands, Frequencies, Modes

- On the HF (High-Frequency) bands, you'll find DX signals on all modes including SSB, CW, digital (FT4/8, RITTY, Pactor, Amtor, Packet), Slow Scan TV (SSTV) and Amateur TV (ATV), and even perhaps FM.
- Band Characteristics
  - 160m Late evening/night; best in winter 1820-1850 kHz. (CQWW 160m CW Contest Now!)
  - 80/75m Late evening/night, early morning; best in winter CW: 3500-3530; SSB: 3.795
  - 40m Early evening until early morning; Fall through Spring CW: 7000-7030; SSB: 7.125-7.200
  - 30m Sometimes like 40, sometimes like 20. Try it! CW and digital only; mixed anywhere
  - 20m Open ABOUT 24 hours, just about year round CW: 14.000-14.040; SSB: 14.150-14.250
  - 17m Sometimes like 20, sometimes like 15. Days/Eve. CW: 18.068-18.100; SSB: 18.110-18.168
  - 15m AM to Noon: EU/AF; Midday to Evening: JA/AS CW: 21.000-21.050; SSB: 21.150-21.350
  - 12m Sometimes like 15, Sometimes like 10. Try it! CW: 24.090-24.930; SSB: 24.930-24.990
  - 10m Lots of surprises! Dawn & Dusk...follow the sun! CW: 28.000-28.100; SSB: 28.300 & up
  - 6m Like a fire alarm!...tends to catch you off guard. CW/SSB: 50.100 – 50.250, FT8: 50.313

A good DXer is a good Short Wave Listener FIRST.  
Listen, Listen, Listen! Tune, Tune, Tune!



# Solar Cycle 25



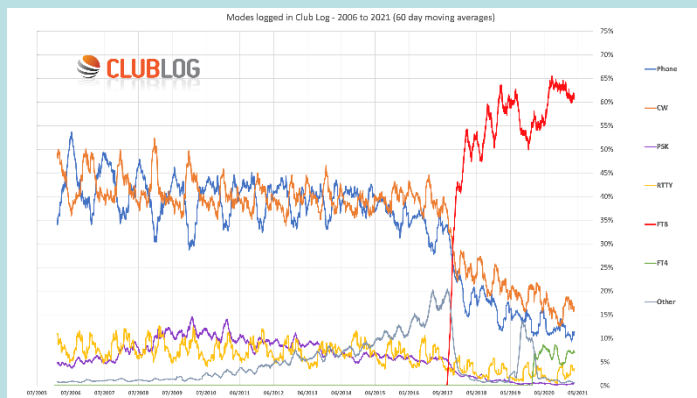
- Sunspots = GOOD for DXers
- Thus far, Cycle 25 is exceeding original predictions
- We have seen a dramatic increase in DX propagation, particularly on high HF bands (20m-17m-15m-12m-10m)
- It's a good time to be a Dixer!!!

# FTx Digital Modes

- Joe Taylor, K1JT, announced on June 29, 2017, the availability of a new mode in the WSJT-X software, FT8. FT8 stands for "Franke-Taylor design, 8-FSK modulation" and was created by Joe and Steve Franke, K9AN. It is described as being designed for "multi-hop Es where signals may be weak and fading, openings may be short, and you want fast completion of reliable, confirmable QSO's".
  - Controversial, especially in the early days. Many felt that this moved the human too far from the QSO.
  - However, it was quickly embraced by a very large number of hams worldwide and has grown exponentially in popularity.
  - Software was made available as "open-source" and others have developed variations of WSJT-X. Notably, JTDX by UA3DJY/ES1JA and MSHV by LZ2HV. JTDX includes several additional decode options to improve weak signal decode ability and MSHV is a multi-answer version that allows a user to respond to multiple callers on the same cycle.
  - In 2019 Joe Taylor, et al introduced FT4 to WSJT-X. FT4 is a protocol which is similar to FT8 but has a shorter T/R sequence length for faster contest exchanges. FT4 has not grown as fast for routine QSOs as FT8 but it is used extensively in digital contests.

# Why FT Modes?

- First, and perhaps foremost, it's where the DX is. Consider the following chart from QSO data available in ClubLog from 2005-2021.



Notice what happened in 2017 when FT8 was added to WSJT-X

FT8 almost immediately accounted for >40% of all QSOs in ClubLog and rose to >60% in 2021. The upward trend continues today. 6M is ~85% FT8.

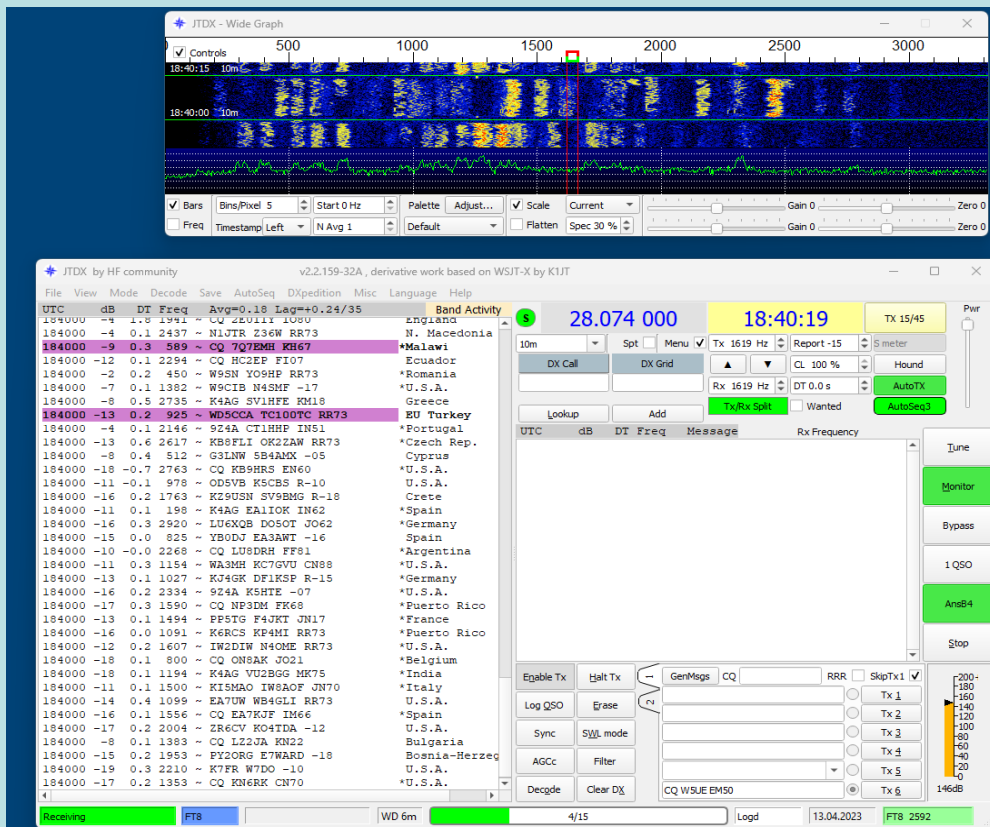
- Several hams have accomplished DXCC in 7 days or less using FT8 only!!! DR4K did it in slightly over 7 days with a small station running 50 watts and longwire-antenna.
- As seen above, requires only a basic station. WSJT-X/JTDX can run on Windows, Linux or Raspberry Pi OS environments with minimal H/W requirements. For better or worse, it is a point and click operation.

# Why FT Modes?

In this one recent 30 second FT8 receive interval there were 21 DX entities decoded by W5UE on 10M!!!

Most digital operators utilize ARRL's Logbook of the World (LoTW) so confirmations are generally quick and easy.

Provides a method for the mic-shy or CW adverse to enjoy the thrill of DXing with modest equipment.



Try it, you'll like it!!!

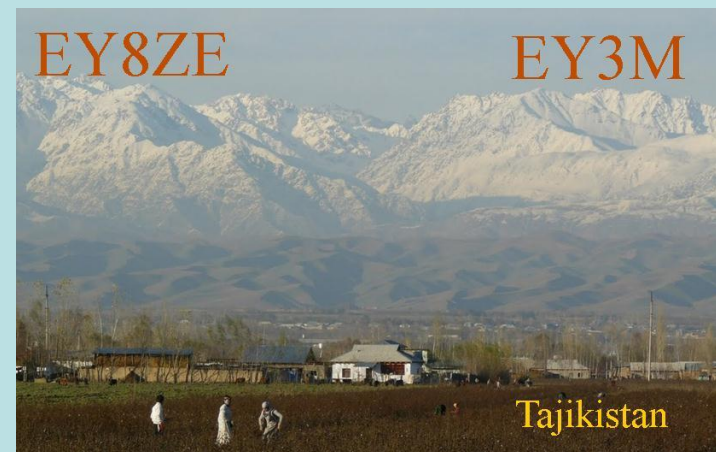
# Memories (QSL Cards)

- **QSL Cards** – Written confirmation from the station you contacted verifying that you had a successful QSO. Confirmation is required for award submissions



A QSL card for station YA5T. The top left features the Northern California DX Foundation logo. The top center has "AFGHANISTAN" in black and "YA5T" in large red letters. The top right includes logos for "AY THE DX Magazine" and "ICOM". Below the call sign, it lists "CQ ZONE 21" and "ITU ZONE 40". A table of operators is provided: Mats Persson, SM7PKK/5X1Z; Robert Kasca, S53R/AP2ARS; Mark Demeuleneere, ON4WW; Peter Casier, ON6TT/AP2ARS; Mark Tell, VK4KMT; and Karen Barsamian, EK6KB. A table of QSO details shows: Date 01-Jun-2002, UTC 02:51, Band 15m, RST 599, 2X CW. A circular stamp reads "QSO'D KUBC VERIFIED". Text at the bottom explains that six operators work for the World Food Programme (WFP) in Afghanistan, and the QSL is from The QSL MAN® - W4MPY.

A QSL card for station A52A. The top left features the Northern California DX Foundation logo. The top center has "Kingdom of Bhutan" in black and "A52A" in large red letters. The top right includes the International DX Association logo. Below the call sign, it lists "CQ ZONE 22 • ITU ZONE 41 • GRID: NL57". A table of operators is provided: Mats Persson, SM7PKK/5X1Z; Robert Kasca, S53R/AP2ARS; Mark Demeuleneere, ON4WW; Peter Casier, ON6TT/AP2ARS; Mark Tell, VK4KMT; and Karen Barsamian, EK6KB. A table of QSO details shows: Date 11-May-00, UTC 2019, Band 15, RST 599, 2X CW. A circular stamp reads "verified qso wpa!". Text at the bottom includes "Thanks QSL" and logos for ICOM and CUSHCRAFT COMMUNICATIONS ANTENNAS. A note at the bottom states "QSLs furnished courtesy of the QSLMAN® - W4MPY".

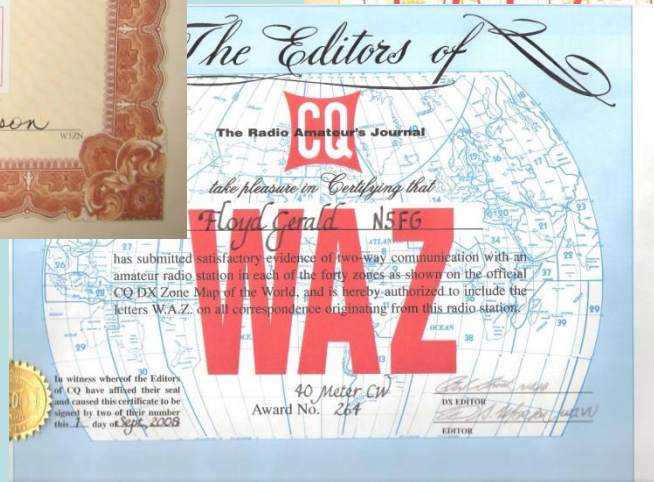
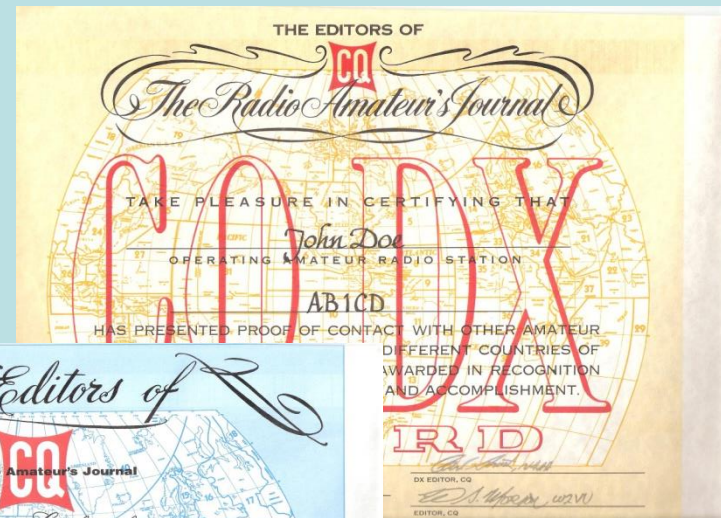
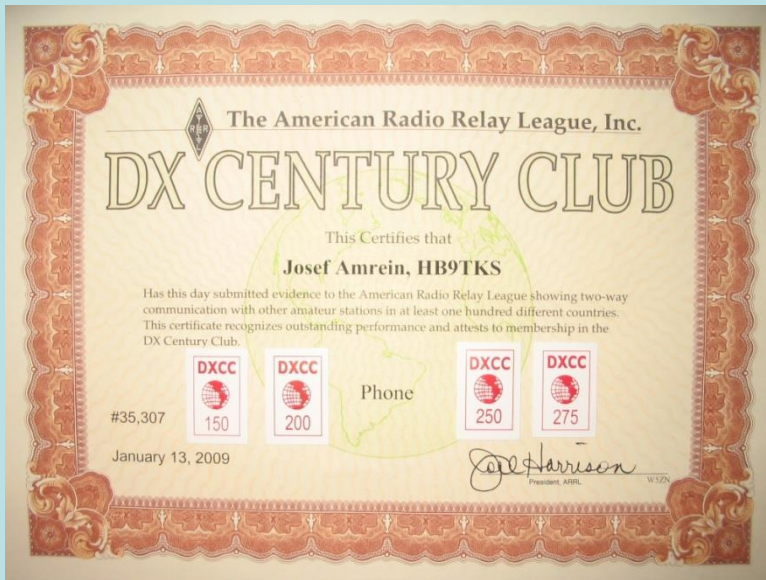


# QSLing – Methods and Tips

- **Direct:** Traditional method of obtaining paper QSLs
  - PROs – Written confirmation, attractive wallpaper, more personal, good for ANY award
  - CONs – Can be slow, expensive, can become an administrative burden
  - Either direct to DX station or their QSL manager (if he/she has one)
- **ARRL Bureau:** ARRL provides incoming/outgoing bulk QSL service
  - PROs – More economical than direct, suitable for non-critical QSLs
  - CONs – SLOOOOW, not 100% reliable, not all hams use
  - Incoming service free to all (you have to send SASEs to bureau manger)
  - Outgoing fee based to ARRL Members
- **Electronic:** Widely accepted/used today
  - PROs – Quick, reliable, economical
  - CONs – Impersonal, not accepted for all awards, not all hams use
  - Examples: LoTW, eQSL, QRZ.COM, ClubLog
- **Tips:** Do your homework!!!
  - W5UE - <https://w5ue.net/qs1-slide1.html>
  - AC6V - <https://www.ac6v.com/qs1tips.htm>
  - **ALWAYS** check station info on QRZ.COM, web site, newsletters, etc for specific instructions – not all stations exchange QSLs the same or by all of the above methods

# Operating Rewards (Wallpaper)

- **Operating Awards** – ARRL DX Century Club (DXCC), CQ DX Award. etc – for awards, you must also obtain confirmation of the contact (QSL cards and/or electronic)



# A Few Proven Tips That Work

- **Goals:** Always have at least one current goal...measurable/trackable
- **Listen:** Spend at least twice as much time listening vs transmitting
- **Study:** DX stations have operating habits...use DX Summit search
- **Tune:** Spin that dial...go shopping...DX stations like to call CQ
- **Catfish:** Check the bottom 5 kHz of each band for bottom feeders
- **Volume:** Weak signals are often better at low volume...less QRM/N
- **Dual Receive:** There are two sides to every story...and split QSO
- **3-2-1 Go:** Delay your transmit a second or two during DX pileups
- **Explore Digital:** FT8/FT4 presents an “easy in” to DX for new hams
- **Recorders:** Memory keyers/voice recorders outlast most humans
- **WARC Bands:** 17 SSB by day and 30 CW by night...elbow room
- **Learn CW:** It's not going away and 3B8CF operates 99.9% CW
- **Low SWR:** Use antennas that are resonant...every watt counts
- **NEWS:** North, East, West, South...use beam headings/check LP
- **Contests:** Enter ones where MS is multiplier...you will be popular



# Contests...A DXer's Friend

- They come in 12-hour, 24-hour, 48-hour flavors
- Major ones are DX oriented but some are USA only
- More than a competition
- Opportunities exist to achieve:

## 100 Entities In 48 Hours

W5UE - CQWW CW 2011				
Band/Mode	Worked	Confirmed	Cards	LoTW
Mixed	119	100	10	96
CW	119	100	10	96
160	0	0	0	0
80	37	29	6	23
40	77	59	6	56
20	66	44	2	42
15	86	69	3	66
10	88	72	7	68
Bands/Countries	354	273	24	255

## 50 States in 24 Hours

W5UE - ARRL SS 2012			
Band/Mode	Worked	Confirmed	LoTW
Mixed	50	45	45
CW	50	45	45
160	0	0	0
80	19	16	16
40	40	32	32
20	36	30	30
15	29	24	24
10	9	6	6
Bands/States	133	108	108

– Note QSL success rate using LoTW

# Contests Calendars

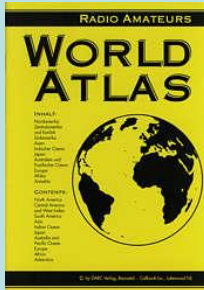
- **ARRL**
  - <https://www.arrl.org/contest-calendar>
- **CQ**
  - [https://www.cq-amateur-radio.com/cq\\_contests/cq\\_annual\\_contest\\_calendar/cq\\_annual\\_contest\\_calendar.html](https://www.cq-amateur-radio.com/cq_contests/cq_annual_contest_calendar/cq_annual_contest_calendar.html)
- **WA7BMN Contest Calendar**
  - <https://www.contestcalendar.com/>
- **General**
  - <https://www.arrl.org/files/file/Contest%20Corral/2013-01-Vertical.pdf>

Don't fear contests, we all start somewhere!!!  
MS QSO Party is a great place to get your feet wet,  
First weekend in April

# Administrative Tools

- Basic Toolbag

- World Maps/Entity Lists



- DX Cluster

- Available via 2M (in most areas) or Internet (telnet/web)
- Most logging software contains built-in packet cluster window
- Web (DX Summit) <http://www.dxsummit.fi/#/>
- Reverse Beacon Network [https://www.reversebeacon.net/beacons/beacons\\_ncdx.php](https://www.reversebeacon.net/beacons/beacons_ncdx.php)
- PSK Reporter Map <https://pskreporter.info/pskmap.html>

- Daily/Weekly Bulletins

- Daily DX Bulletin (\$49/year): <https://www.dailydx.com/>
- 425 DX Bulletin (FREE): <https://www.425dxn.org/>
- Ohio/Penn DX Bulletin (FREE): <https://www.papays.com/opdx.html>
- ARRL DX Bulletin (FREE): <https://www.arrl.org/w1aw-bulletins-archive-dx>
  - Also available via email to ARRL members

# Administrative Tools

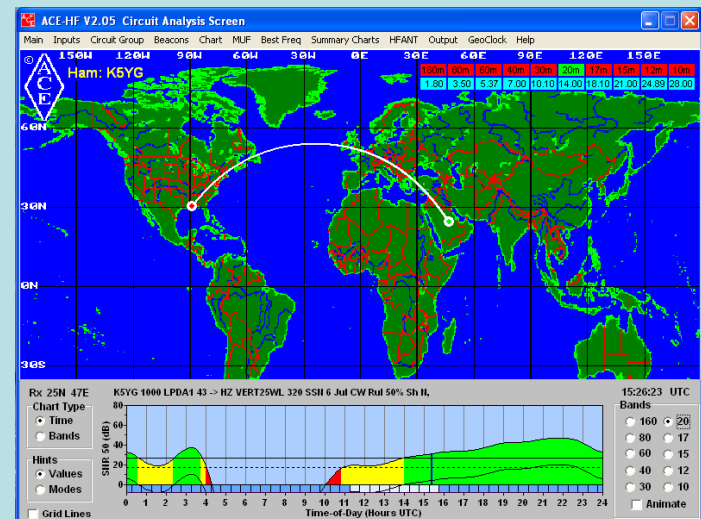
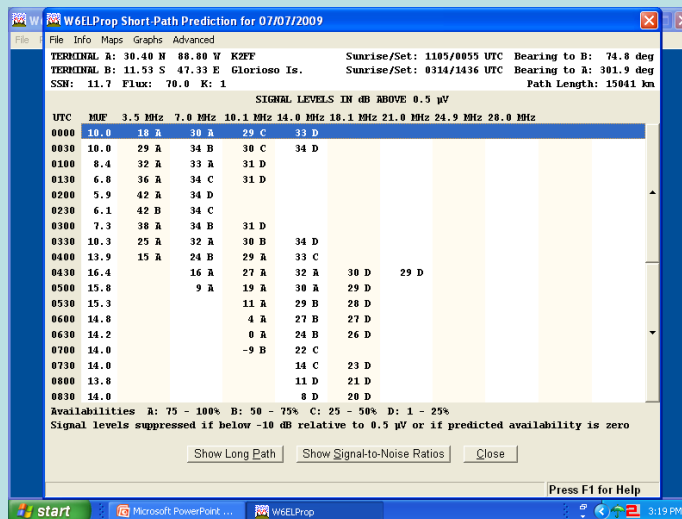
- Basic Toolbag
  - Logging Software
    - **General Logging**
    - XMLog <http://www.xmlog.com>
    - Ham Radio Deluxe <https://www.ham-radio-deluxe.com/>
    - Easy Log <https://www.easylog.com/>
    - LOGic <https://www.hosenose.com/>
    - WriteLog <https://www.writelog.com/>
    - DX4Win <https://www.dx4win.com/>
    - WinLog32 <http://www.winlog32.co.uk/>
    - **Contest Logging**
    - N3FJP's Amateur Radio Software <https://www.n3fjp.com/>
    - N1MM Logger+ <https://n1mmwp.hamdocs.com/>
    - Win-Test <http://www.win-test.com/>
    - TRLOG <https://www.trlog.com/>

# Administrative Tools

- Basic Toolbag

- Propagation

- The W6ELProp <https://www.qsl.net/w6elprop/>
    - ACE-HF Pro <http://hfradio.org/ace-hf/>
    - Solar-Geophysical Forecast: <https://www.swpc.noaa.gov/products/report-and-forecast-solar-and-geophysical-activity>
    - Dynamic collection of propagation information <https://dx.qsl.net/propagation/>
    - NW7US propagation information [https://hfradio.org/lastminute\\_propagation.html](https://hfradio.org/lastminute_propagation.html)
    - NCDXF/IARU Beacon Transmission Schedule <https://ncdxf.org/beacon/beaconschedule.html>



# Administrative Tools

- Basic Toolbag
  - Tracking Tools

## DXCC Tracking

DXCC STATS														5/23/2009						
Ph	Country	SP	LP	1	5	10	12	15	17	20	30	40	80	100	W	C	SSB	CW	RTTY	N
1A	Soviet Military Order Malta	50	230				C	C	C	C	C	C	C		X	X	C	C		
1B	Spratzly Islands	330	150		C	C	C	C	C	C	C	C	C		X	X	C	C		
3A	Morocco	50	230		C		C	C	C	C	C	C	C		X	X	C	C		
3B7	Agallega & St Brandon	65	245				C	C	C	C	C	C	C		X	X	C	C	C	
3B8	Mauritius Island	80	260		C		C	C	C	C	C	C	C		X	X	C	C		
3B9	Rodriguez Island	75	255		C	C	C	C	C	C	C	C	C		X	X	C	C		
3C	Equatorial Guinea	65	265		C	C	C	C	C	C	C	C	C		X	X	C	C		
3C0	Annobon	65	265		C	C	C	C	C	C	C	C	C		X	X	C	C		
3D2C	Conway Reef	255	75		C	C	C	C	C						X	X	C	C		
3D2F	Fiji Islands	255	75		C	C	C	C	C	C	C	C	C		X	X	C	C		
3D2R	Rotuma	260	80		C	C	C	C	C	C	C	C	C		X	X	C	C		
3D5A	Swadland	110	285		C		C	C	C	C	C	C	C		X	X	C	C		
3V	Tunisia	55	235		C	C	C	C	C	C	C	C	C	C	X	X	C	C		
3W	Vietnam	335	155				C	C	C	C					X	X	C	C		
3X	Guinea	90	270		C	C	C	C	C	C	C	C	C		X	X	C	C		
3YB	Bouvet Island	140	320		C	C	C	C	C	C	C	C	C		X	X	C	C		
3YF	Pitcair Island	180	0		C	C	C	C	C	C	C	C	C		X	X	C	C	C	
4J	Azerbaijan	30	210		C	C	C	C	C	C	C	C	C		X	X	C	C		
4L	Georgia	35	215		C	C	C	C	C	C	C	C	C		X	X	C	C		
4O	Montenegro	40	220				C	C	C	C	C	C	C	C	X	X	C	C		
4B	St Lucia (Cayon)	20	200				C	C	C	C	C	C	C		X	X	C	C		
4UHB	ITU Geneva Switzerland	45	225		C	C	C	C	C	C	C	C	C		X	X	C	C		
4UHS	UN Headquarters NY	45	225		C	C	C	C	C	C	C	C	C	C	X	X	C	C		
4W	East Timor	300	115		C		C	C	C	C	C	C	C		X	X	C	C		
4X	Iran	45	225		C	C	C	C	C	C	C	C	C		X	X	C	C		
5A	Libya	55	235		C		C	C	C	C	C	C	C		X	X	C	C		
5B	Cyprus	45	225		C		C	W	C	C	C	C	C		X	X	C	C		
5H	Tanzania	75	255		C		C	C	C	C	C	C	C		X	X	C	C		
5N	Nigeria	65	265		C	C	C	C	C	C	C	C	C		X	X	C	C		
5R	Madagascar	65	265		C		C	C	C	C	C	C	C		X	X	C	C		
5T	Mauritania	80	260		C	C	C	C	C	C	C	C	C		X	X	C	C	C	
5U	Niger	80	260		C	C	C	C	C	C	C	C	C		X	X	C	C		
5V	Togo	65	265		C	C	C	C	C	C	C	C	C		X	X	C	C		
5W	Western Samoa	255	75		C	C	C	C	C	C	C	C	C		X	X	C	C		
5X	Uganda	70	250		C		C	C	C	C	C	C	C		X	X	C	C		
5Z	Kenya	70	250		C	C	C	C	C	C	W	C	C		X	X	C	C		
6W	Senegal	65	265		C	C	C	C	C	C	C	C	C	C	X	X	C	C		
6Y	Jamaica	135	315		C	C	C	C	C	C	C	C	C	C	X	X	C	C		
7D	Yemen	55	235		C		C	C	C	C	C	C	C		X	X	C	C		X
7P	Lesotho	105	285		C		C	C	C	C	C	C	C		X	X	C	C		
7Q	Malawi	65	265		C		C	C	C	C	C	C	C		X	X	C	C		
7X	Algeria	55	235		C	C	C	C	C	C	C	C	C		X	X	C	C		
8P	Barbados	120	300		C	C	C	C	C	C	C	C	C	C	X	X	C	C		

## DXPedition Tracking

Dxpedition XYZ (1-10 July)			
Band	CW	SSB	RTTY
160m	0600z/7July		
80m	0433z/6July		
40m		1045z/4July	
30m			
20m			
17m	1815z/3July		
15m			2123z/1July
12m			
10m			

# References

- Some Basic DX Resources
  - ARRL DXCC Page <https://www.arrl.org/awards/dxcc/>
  - 599 DXA Web Site <https://www.599dxa.org>
  - AC6V DX Page <https://ac6v.com/dx.php>
  - Logbook of the World (LoTW) <https://www.arrl.org/logbook-of-the-world>
  - eQSL <https://www.eqsl.cc/qsldata/Index.cfm>

QUESTIONS  
&  
THANK YOU

The logo consists of the text "DX IS" in a bold, dark green, sans-serif font. The letters are slightly slanted to the right. The text is centered within a white rectangular box.

**DX IS**