Introduction to WSPR

Weak Signal Propagation Reporter

Jon, WA9JBR
John, WA5MLF

WSPR Overview

WSPR implements a protocol designed for probing potential paths with low-power transmissions. Normal transmissions carry a station's callsign, Maidenhead grid locator, and transmitter power in dBm. ***e.g. WA9JBR EM40ji 37 dBm***

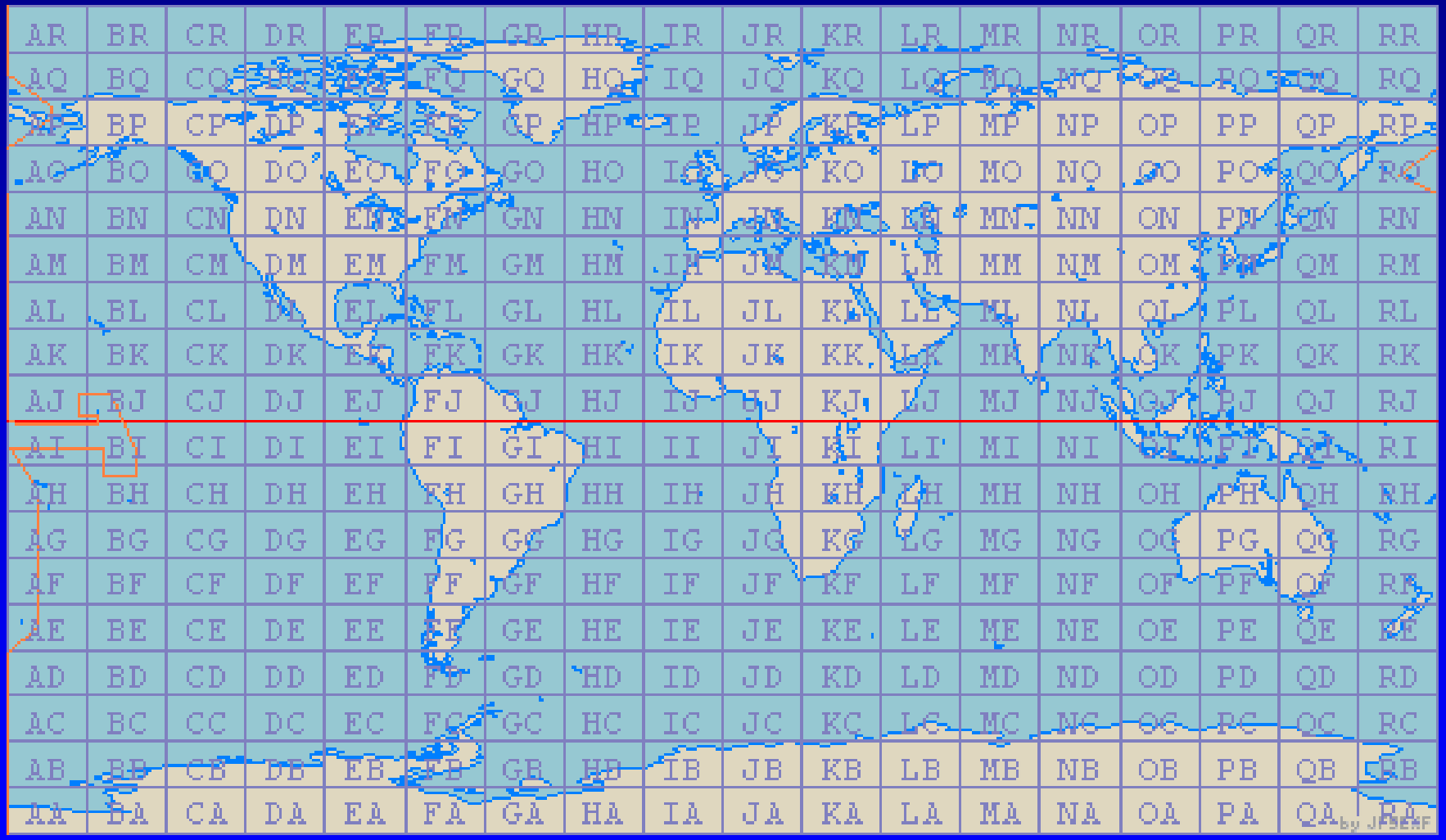
The program can decode signals with S/N as low as -28 dB in a 2500 Hz bandwidth. Stations with Internet access can automatically upload their reception reports to a central database called WSPRnet, which includes a mapping facility.

Joe Taylor, K1JT

Nobel Prize in Physics in 1993 for discovery of the first orbiting pulsar using radio astronomy

Author of the WSJT software package for long distance low power weak signal communications (includes FT8, FT4, WSPR, JT65, etc)

Maidenhead Locator Fields AA-RR



dBm to Watts equivalents

dBm	W	mW
0	0.001	1
10	0.01	10
20	0.1	100
30	1	1,000
40	10	10,000
50	100	100,000

Transmission Protocol

- *The digital protocol used by WSPR is based on the Manned Experimental Propagation Transmitter (MEPT) design by Murray Greenman, ZL1BPU*
- *The term "manned" distinguishes this mode from unattended beacons that are not permitted or are difficult to license in some parts of the world.*
- *The version adapted by Joe Taylor for WSPR adds his initials: MEPT-JT.*

WSPR Mode Description

RF carrier is shifted up by a tone between 1400-1599 Hz where it is modulated by continuous phase 4-tone frequency shift keying (FSK) *(F1D emission type)*

Bandwidth = 6 Hz

Each tone represents one symbol:

Symbol 0 = 0 Hz Symbol 1 = 1.465 Hz Symbol 2 = 2.93 Hz Symbol 3 = 4.395 Hz

Symbol rate is 1.465 baud

Each symbol represents 2 bits.

- *The first bit is from the 50 bits of message data (28 for callsign, 15 for grid square, 7 for power). The application of forward error correction expands these 50 bits to 162 bits.*
- *The second bit is from the pseudo-random sequence of 162 bits used for accurate time and frequency synchronization.*

Slow and Steady

Transmission starts 1 second into an even minute

Transmission lasts approximately 110 seconds

Most stations are set to transmit 20% of the time and receive for 80% of the time.

The 200 Hz band window allows 33 stations to transmit simultaneously. The randomized transmit times enable 165 stations to share the space during a 10-minute period.

Decodes S/N as low as -28 dB

WSPR Data Applications

1. ***Antenna Analysis***
2. ***Propagation Analysis***
3. ***Communication Circuit Evaluation***
   - Propagation path reliability
   - Equipment performance

Why WSPR Mode

Provides real-time propagation information

Spots uploaded to wsprnet.org

Antenna testing – low power requires efficiency

Low power allows operation from Solar energy

QRP equipment is ideal for implementation

It's something to play with.

Relative sensitivity of modes

Mode	*S/N Required*	*Power example*
WSPR	*-27 dB*	*5 W*
Olivia	*-17 dB*	*50 W*
PSK31	*-7 dB*	*500 W*
RTTY	*+5 dB*	*8,000 W*
SSB	*+10 dB*	*25,000 W*

WSPR Mapping

Receiving stations with Internet access automatically upload reception reports to a central database at http://wsprnet.org

The web site is written and maintained since 2008 by Bruce Walker, W1BW, to provide a central repository for WSPR reception reports.

500+ stations participating per day

WSPR Frequencies

The default USB dial frequencies (MHz):

0.136*, 0.4742*, 1.8366, 3.5926, 5.2872*,

7.0386, 10.1387, 14.0956, 18.1046,

21.0946, 24.9246, 28.1246, 50.293,

70.091*, 144.489, 432.300, 1296.500

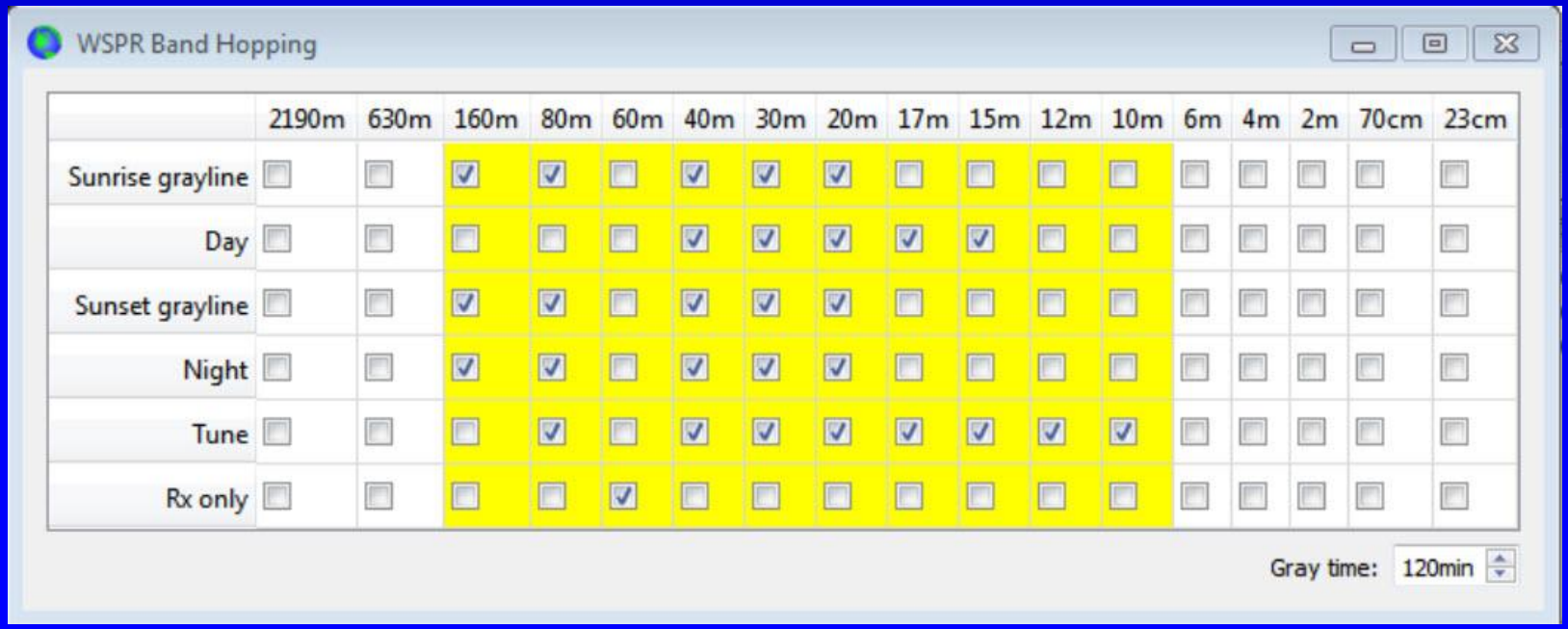
200 Hz segment in each band

**frequencies not authorized in U.S.*

Band Hopping

- WSPR mode allows those with CAT-controlled radios to investigate propagation on many bands without user intervention.
- Coordinated hopping enables a sizable group of stations around the world to move together from band to band, thereby maximizing the chances of identifying open propagation paths.

ref: WSJT-X User Guide v 2.7.0, sec 10.1



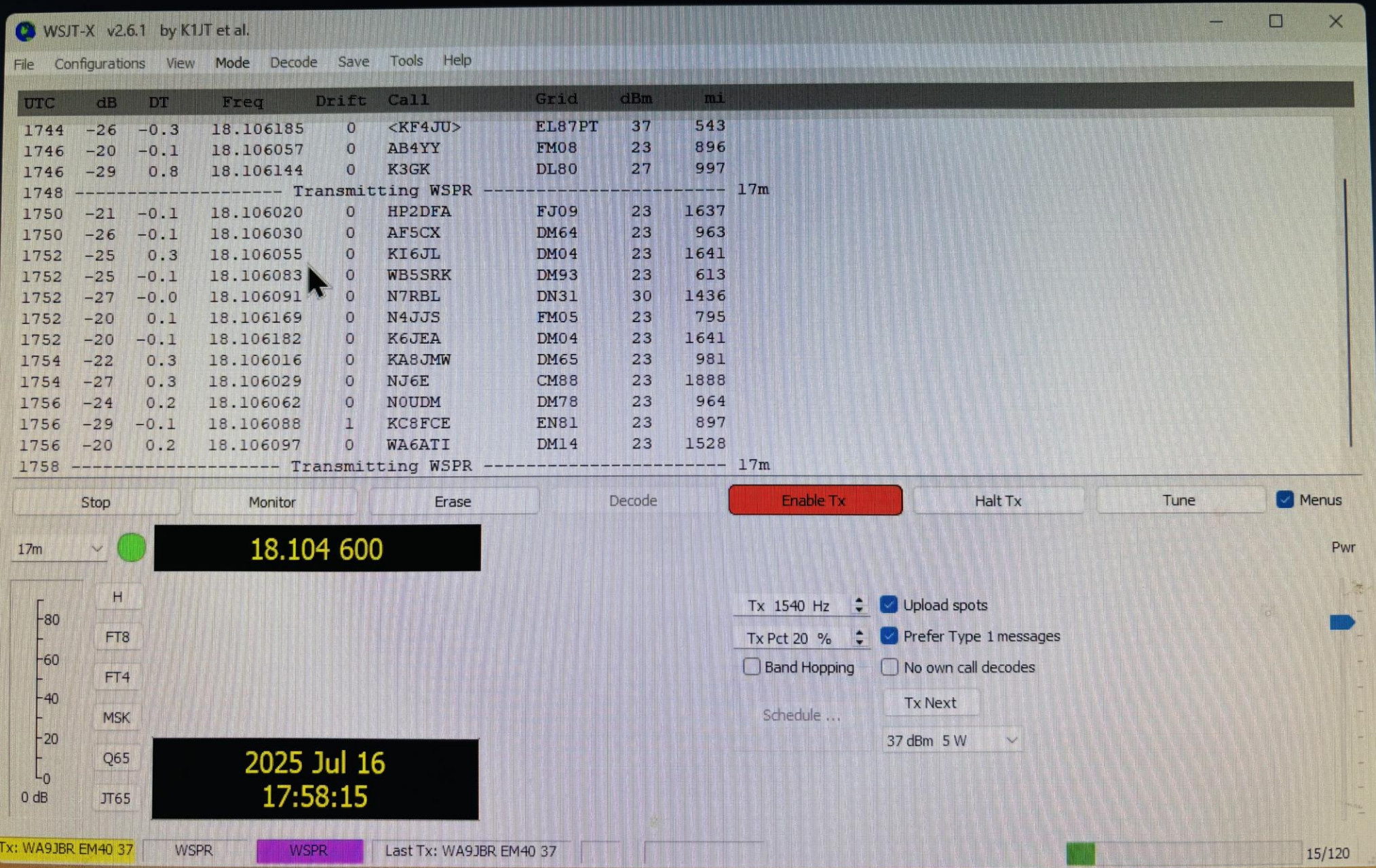
WSPR – Station requirements

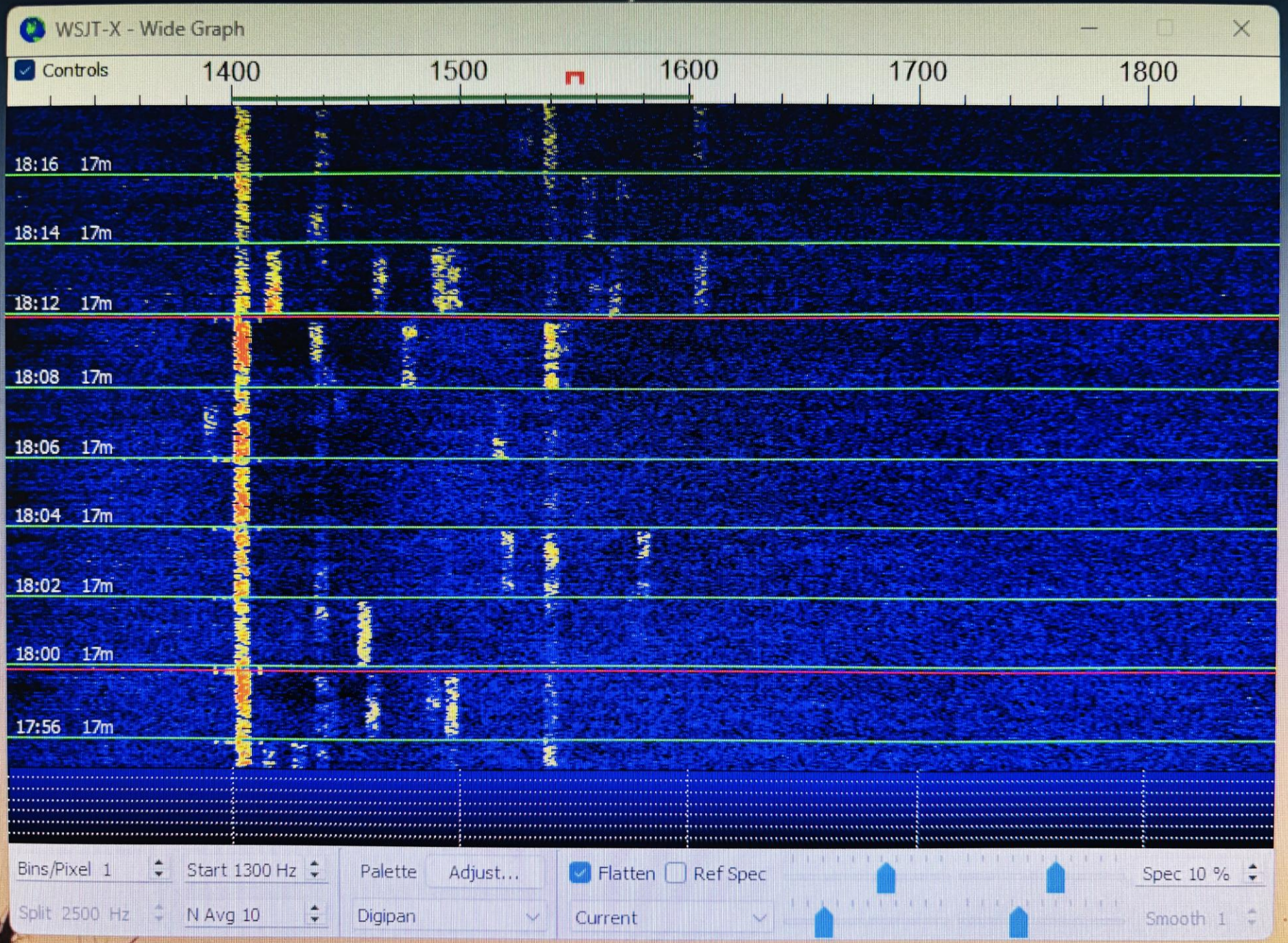
- *SSB receiver or transceiver and antenna*
- *Computer running the Windows, Linux, FreeBSD, or OS X operating system.*
- *1.5 GHz or faster CPU and at least 100 MB of available RAM*
- *Monitor with at least 800 x 600 resolution*
- *Sound card supported by your operating system and capable of 48 kHz sample rate*

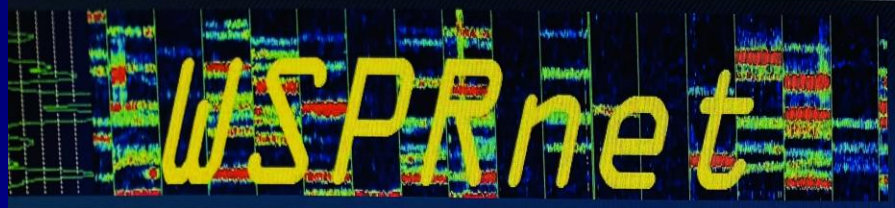
WSPR – Station requirements

- *If you will transmit as well as receive, an interface using a serial port to key your PTT line or a serial cable for CAT control. Alternatively, you can use VOX control.*
- *Audio connection(s) between receiver/transceiver and sound card*
- *A means for synchronizing your computer clock to UTC*

Demonstration


WSJT-X v2.6.1 by K1JT et al.
File Configurations View Mode Decode Save Tools Help
UTC dB DT Freq Drift Call Grid dBm mi
1744 -26 -0.3 18.106185 0 <KF4JU> EL87PT 37 543
1746 -20 -0.1 18.106057 0 AB4YY FM08 23 896
1746 -29 0.8 18.106144 0 K3GK DL80 27 997
1748 ---------- Transmitting WSPR ---------- 17m
1750 -21 -0.1 18.106020 0 HP2DFA FJ09 23 1637
1750 -26 -0.1 18.106030 0 AF5CX DM64 23 963
1752 -25 0.3 18.106055 0 KI6JL DM04 23 1641
1752 -25 -0.1 18.106083 0 WB5SRK DM93 23 613
1752 -27 -0.0 18.106091 0 N7RBL DN31 30 1436
1752 -20 0.1 18.106169 0 N4JJS FM05 23 795
1752 -20 -0.1 18.106182 0 K6JEA DM04 23 1641
1754 -22 0.3 18.106016 0 KA8JMW DM65 23 981
1754 -27 0.3 18.106029 0 NJ6E CM88 23 1888
1756 -24 0.2 18.106062 0 N0UDM DM78 23 964
1756 -29 -0.1 18.106088 1 KC8FCE EN81 23 897
1756 -20 0.2 18.106097 0 WA6ATI DM14 23 1528
1758 ---------- Transmitting WSPR ---------- 17m
Stop
Monitor
Erase
Decode
Enable Tx
Halt Tx
Tune
Menus
17m
18.104 600
Pwr
H
80
60
40
20
0
0 dB
FT8
FT4
MSK
Q65
JT65
2025 Jul 16
17:58:15
Tx 1540 Hz
Upload spots
Tx Pct 20 %
Prefer Type 1 messages
Band Hopping
No own call decodes
Schedule ...
Tx Next
37 dBm 5 W
Tx: WA9JBR EM40 37
WSPR
WSPR
Last Tx: WA9JBR EM40 37
15/120


WSJT-X - Wide Graph
Controls
1400
1500
1600
1700
1800
18:16 17m
18:14 17m
18:12 17m
18:08 17m
18:06 17m
18:04 17m
18:02 17m
18:00 17m
17:56 17m
Bins/Pixel 1
Start 1300 Hz
Palette
Adjust...
Flatten
Ref Spec
Spec 10 %
Split 2500 Hz
N Avg 10
Digipan
Current
Smooth 1



WSPRnet

Welcome to the Weak Signal Propagation Reporter Network

Activity | Map | Database

er login

Username *

Password *

Create new account
Request new password

Log in

Frequencies

USB dial (MHz): 0.136, 0.4742, 1.8366, 3.5686, 5.2872, 5.3647, 7.0386, 10.1387, 13.5539, 14.0956, 18.1046, 21.0946, 24.9246, 28.1246, 50.293, 70.091, 144.489, 432.300, 1296.500

3rd Party Maps and Data

- WSPR Rocks!
- M0XDK Map
- KB9AMG Monthly Stats
- WA2ZKD Spot Analysis
- DJ2LS WSPR Spot Heat Map
- LU7AA/LU7ABF Maps/Graphs

Activity

Stations active in the last 10 minutes. Frequencies are mean reported frequencies for each station during the interval.

Band	Count	Calls																					
LF	61	VK6MJM	0.137437	PA0SLT/4	0.137500R	VK6BSA	0.137500R	7L4IOU1	0.137500R	G6JTB	0.137500R	DJ6DK	0.137500R	G8HUH	0.137573R								
		G0TCY	0.137495	G0GHK/KIWI	0.137500R	PA0OCD/1	0.137500R	PA0RDT	0.137500R	DK0AUE	0.137500R	VK2AN	0.137500R										
		G4CLO	0.137520	EA3IHV	0.137500R	DL6OW-MH	0.137500R	7L4IOU2	0.137500R	OH2FTB	0.137500R	OE9RMV	0.137500R										
		KA4WIM	0.137567	N1VF/K	0.137500R	LA3EQ	0.137500R	JP1ODJ/SDR	0.137500R	OZ1KVB	0.137500R	SV8RV	0.137500R										
		G8OCV/SDR	0.137500R	VE6ARS	0.137500R	KG9DUK	0.137500R	7L4IOU4	0.137500R	PA0OCD	0.137500R	G4ZFQ	0.137500R										
		N6IO	0.137500R	7L4IOU3	0.137500R	EA5DOM	0.137500R	PA3GUK	0.137500R	VK5ZVS	0.137500R	I72000/VE	0.137500R										
		MM1PTT	0.137500R	DL4RU	0.137500R	UB1APE	0.137500R	VK5HW	0.137500R	URV06607	0.137500R	W0AIR	0.137500R										
		GM4DIJ	0.137500R	PA0SLT/3	0.137500R	ZP4KFX	0.137500R	IZ6QQTRX	0.137500R	EA4GHB	0.137500R	JA7KBR	0.137500R										
		LY4PR	0.137500R	SWL/FN11OD	0.137500R	DK8EE	0.137500R	VK5WA	0.137500R	VK5CV	0.137500R	KL7L	0.137500R										
		DM7BBH	0.137500R	DL6OW-WTM	0.137500R	DB0STB	0.137500R	NS8C	0.137500R	VK5FQ/W	0.137500R	F4FPR	0.137570R										
MF	154	OK0EMW	0.475603	K1BZ	0.475744	PA5KT-15	R	HB9TMC	R	OE9TAV	R	EI4HQ	0.475699R	DJ6DK	0.475700R	I55387FI	0.475700R	DK8EE	0.475700R	KG9DUK	0.475700R	JA7KBR	0.475
		VK6LX	0.475634	JA0HXV	0.475750	PG2A	R	HB9VQQ/RE	R	IZ7SLZ	R	G8OCV/SDR	0.475700R	LA8AV	0.475700R	DL4RU	0.475700R	DB0STB	0.475700R	K2ZN	0.475700R	SWL/FN11OD	0.475
		DK2DB	0.475639	F6CWA	0.475761	SWL/HU1UB	R	OE3GBB/Q	R	PA7EY/WD	R	PA3GUK	0.475700R	JA3TVF	0.475700R	M0XDK	0.475700R	VK3KHZ	0.475700R	EA3IHV	0.475700R	HB9AUR	0.475
		N4WLO	0.475645	DL0AO	R	JG3HGD/SDR5	R	PD0OHW	R	OH3LMN/KIWI	R	PA3GUK/P	0.475700R	SM3LNM	0.475700R	W1FRV	0.475700R	GM4DIJ	0.475700R	KC8QDR	0.475700R	VK5FQ/W	0.475
		5Q9T	0.475679	G0KTN	R	HB9VQQ/RS	R	PA1JMS	R	PA0SLT/A	R	F4ASK	0.475700R	F4DXU	0.475700R	LA3EQ/MW	0.475700R	G0GHK/KIWI	0.475700R	W0AIR	0.475700R	SM2DJK/15	0.475
		G3ZSE	0.475692	DL9SW	R	HB9VQQ/KL	R	PE0MJX	R	G4ZFQ	R	DF1VB	0.475700R	JP1ODJ/SDR	0.475700R	DK0AUE	0.475700R	URV06607	0.475700R	7L4IOU2	0.475700R	LY4PR	0.475
		IW3RMR	0.475700	HA3PMF	R	2E0ILY/KIWI	R	OE9GHV	R	F4VTQ	R	PA0SLT/4	0.475700R	7L4IOU4	0.475700R	VK5WA	0.475700R	PA1W/P	0.475700R	VE3HOA	0.475700R	G4MSA	0.475
		DL4XJ	0.475700	HA3PG	R	DC1RDB	R	ON5KQ	R	DC0DX	R	JH3XCU-2	0.475700R	PA0RDT	0.475700R	DL8BBY	0.475700R	DM7BBH	0.475700R	W7GAJ	0.475700R	G0VQH	0.475
		S52AB	0.475721	DK6UG	R	PI4THT	R	HB9VQQ	R	JA6SOQ	0.475286R	IW3HBX	0.475700R	W4WLO/2	0.475700R	DF6DBF	0.475700R	K6CRS	0.475700R	VK7TAZ	0.475700R	OH2FTB	0.475
		OE2UKL	0.475727	OE5IGP	R	OE3GBB/Q2	R	DD5FZ	R	N9MKC	0.475691R	DF9RB	0.475700R	W4WLO/1	0.475700R	G6AVK	0.475700R	NS8C	0.475700R	WW6D	0.475700R	DL6OW-WTM	0.475
160m	161	DL9GCW	1.838030	G4HSB	1.838070	G4VZO	1.838146	G8AOE	R	OE9GHV	R	PG2A	R	HB9VQQ/RE	R	DF1DR	R	G6UQZ	1.836600R	GM4JRT	1.838100R	VK3KHZ	1.838100R	TF1A	1.838100R
		PU7ZWT	1.838034	WB6YRW	1.838092	G4JQT/P	1.838190	DD5FZ	R	HB9VQQ	R	2E0ILY/KIWI	R	KFS	R	ON5KQ	R	KB0LQJ	1.836600R	OK2PYA	1.838100R	PH1MRF	1.838100R	PA0SLT/4	1.838100R
		SM0FKI	1.838037	M0OLS	1.838099	VK3YCQ	R	DC1RDB	R	PA1O	R	DD5XX	R	KD7EFG	R	DC7TO	R	DL1LSL	1.837500R	IW3HBX	1.838100R	DK0AUE	1.838100R	DN9DSF	1.838100R
		JA6SOQ	1.838040	VK7JJ	1.838100	G0KTN	R	OE3GBB/Q2	R	F4VTQ/M	R	PA0SLT/A	R	PA1JMS	R	KA7OEI-9	R	CT1ETL/1	1.837500R	VK2ZEE	1.838100R	G4MSA	1.838100R	G8URE	1.838100R
		SA7CND	1.838043	BV7YA	1.838111	VK2WF	R	VK5ARG	R	DK6UG	R	HB9VQQ/RS	R	OE9TAV	R	PA7EY/WD	R	AA1A	1.837561R	VK6KCH	1.838100R	DL1ECN-8	1.838100R	DL7TBR	1.838100R
		GM4HAM	1.838056	IW3RMR	1.838121	HA3PMF	R	OE3GBB/Q	R	SA6BSS/HL	R	KD7EFG-1	R	PD0OHW	R	DL0PF	R	DL3GAK	1.838054R	BV7AU	1.838100R	PA3GUK	1.838100R	PA1W/P	1.838100R
		EI7HZB	1.838060	VK2HL	1.838128	MM0ZBH	R	DK8FT	R	ON4RST	R	M7DOY	R	PI4THT	R	DF8OE	R	OK2BVG/RX1	1.838100R	DL4RU	1.838100R	G0DUB	1.838100R	DK3SS	1.838100R
		DL4IB	1.838065	VK3CYD	1.838133	HA5GB	R	OE3XOE	R	OH3LMN/KIWI	R	F4VTQ/S	R	KFS/OMNI	R	OK2IP	R	GM4DIJ	1.838100R	VK7TAZ	1.838100R	F70297	1.838100R	SM3LNM	1.838100R
		OZ7IT	1.838066	WB6CXC	1.838135	HB9VQQ/KL	R	KPH1	R	PA5KT-15	R	HB9TMC	R	PE0MJX	R	KFS/O	R	MM1PTT	1.838100R	DARCT13	1.838100R	DK7AM	1.838100R	G7CKX/SDR5	1.838100R
		PA2W	1.838067	KI7DX	1.838146	VK5ARG-2	R	KPH	R	SWL/HU1UB	R	F4VTQ	R	G4ZFQ	R	VK2AMA	R	VK5WA	1.838100R	G8OCV/SDR	1.838100R	PE1KHX	1.838100R	LX1LC	1.838100R
		LA4PGA	3.570007	DL8DX	3.570046	VK2EFM	3.570080	DF7PE	3.570102	KG4LDK	3.570119	G4MKR	3.570139	RU0LL	3.570162	S53EFI	3.570186	G0KTN	R	SWL-JN44	R	PA0SLT/A	R	W2NAF-3	R	W3USR-1	R	PL

eaking news
yan Routh foun...

Search

2:38 PM
9/23/2025

WSPRnet

Welcome to the Weak Signal Propagation Reporter Network

User login

Username *

Password *

Create new account
Request new password

Log in

Frequencies

USB dial (MHz): 0.136, 0.4742, 1.8366, 3.5686, 5.2872, 5.3647, 7.0386, 10.1387, 13.5539, 14.0956, 18.1046, 21.0946, 24.9246, 28.1246, 50.293, 70.091, 144.489, 432.300, 1296.500

3rd Party Maps and Data

WSPR Rocks!
M0XDK Map
KB9AMG Monthly Stats
WA2ZKD Spot Analysis
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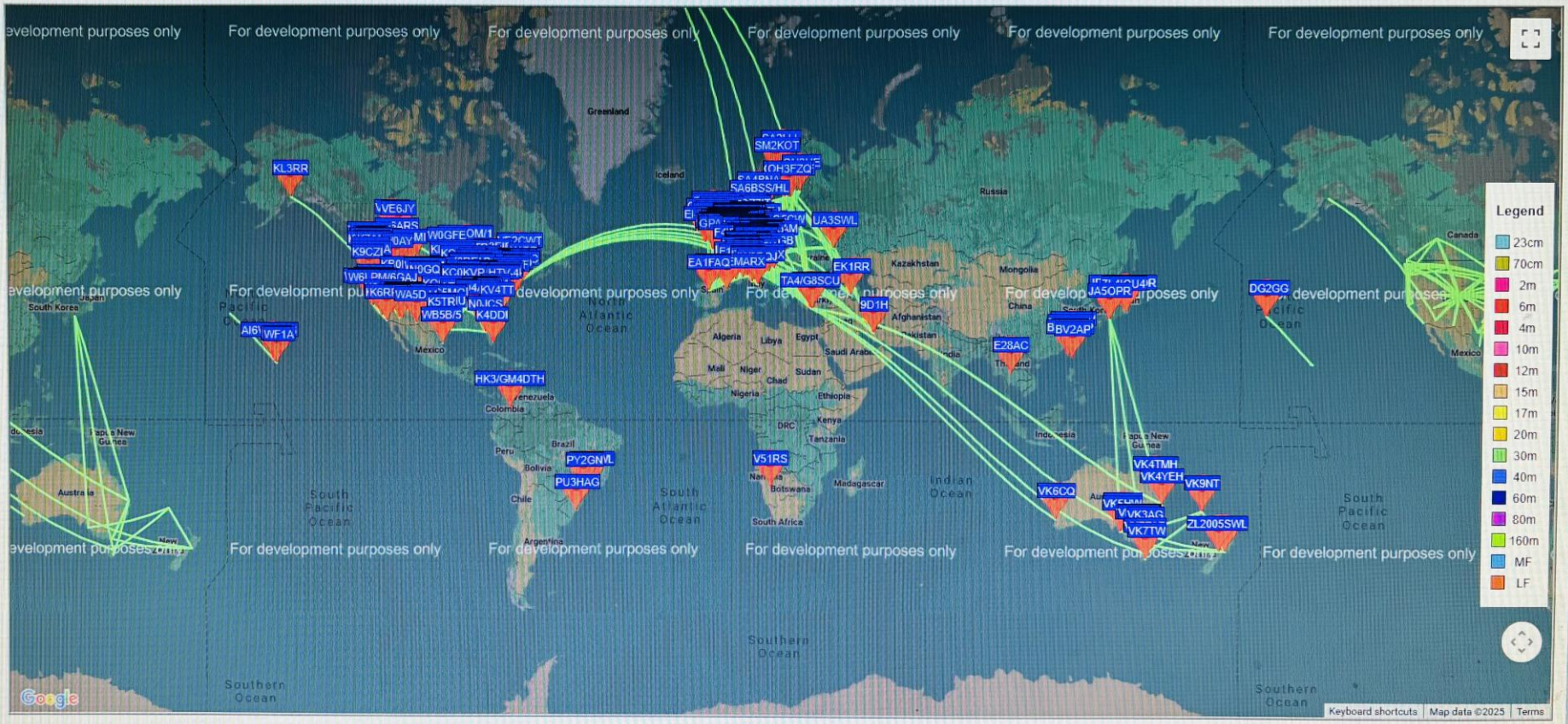
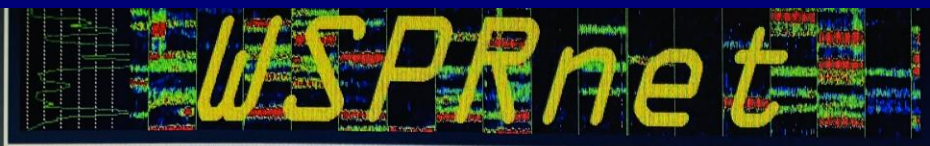
LU7AA/LU7ABF Maps/Graphs

Map



Maximum number of spots limit has been reached (500). Not all spots for the form limits have been returned



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3rd Party Maps and Data

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Database

Band
All
Show only spots on this band.

Mode
All
Filter by mode.

Count
50
Maximum number of spots to show (10000)

Call
WA9JBR
Only show spots of this callsign. Use * at the end (only) for wildcard searches.

Reporter

Only show spots reported by this call. If same as "Call", then show spots of this call OR heard by this call. Use * at the end (only) for wildcard searches.

In last
24 Hours
Consider spots only of this recent time period

Sort by
Timestamp
Field to sort by

☑ Reverse
Check to reverse sort order

☐ Unique
Check to show only unique call/reporter combinations

☑ Exclude Special Callsigns
Excludes calls starting with Q and 0, typically used for balloon telemetry

Update

For issues with this site, email the WSPRNET Admin Team or post to the site forum. Downloads and more information about WSPR program and the MEPT_JT mode, as well as other modes by Joe Taylor (K1JT), can be found at the WSJT Home Page.

WSPRnet

Weak Signal Propagation Reporter Network

Spot Count

156,966,993 total spots
164,503 in the last 24 hours
3,915 in the last hour

Frequencies

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KP4MD

- My account
- Create content
- Log out

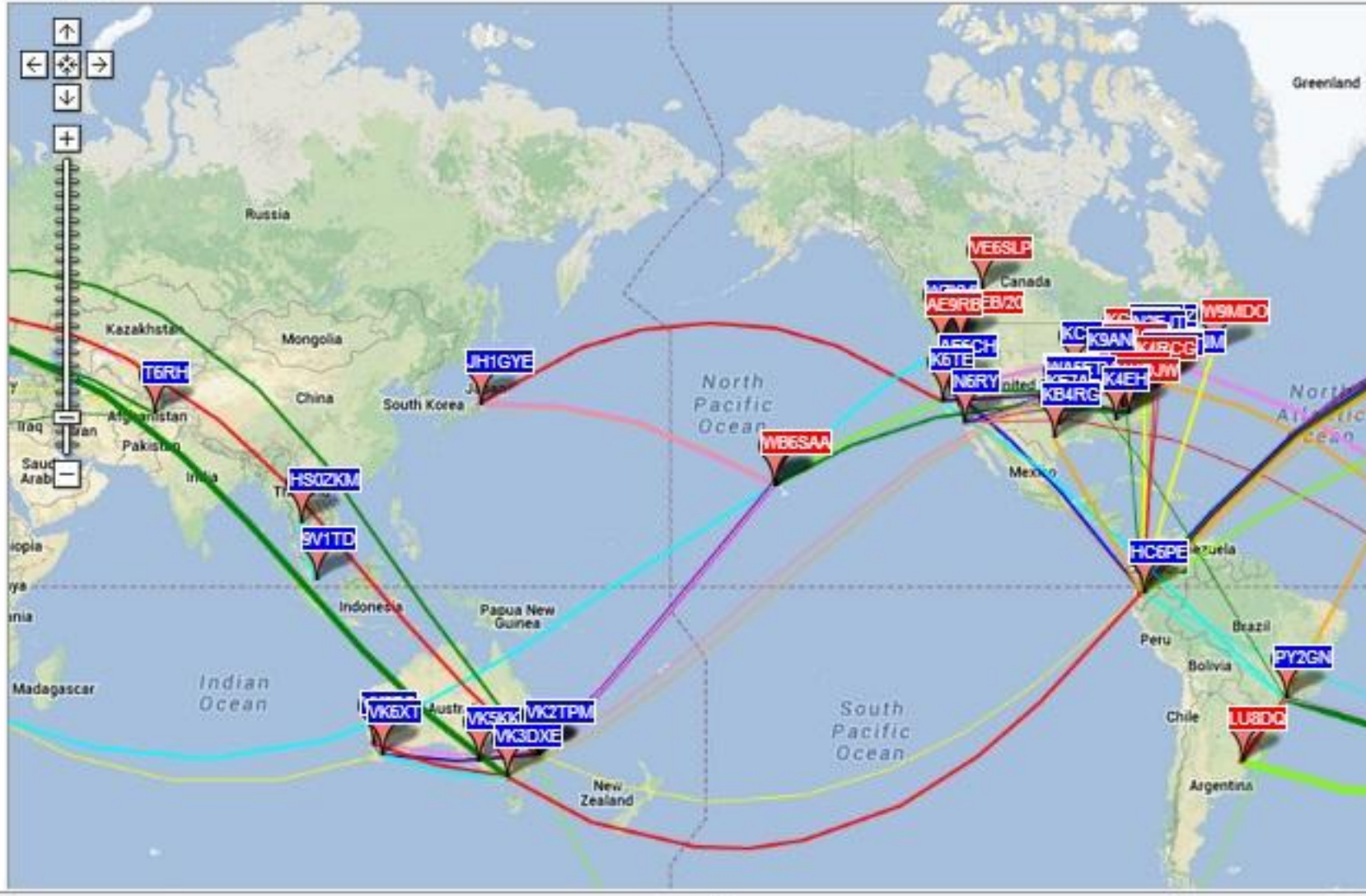
Who's online

There are currently *52 users* and *55 guests* online.

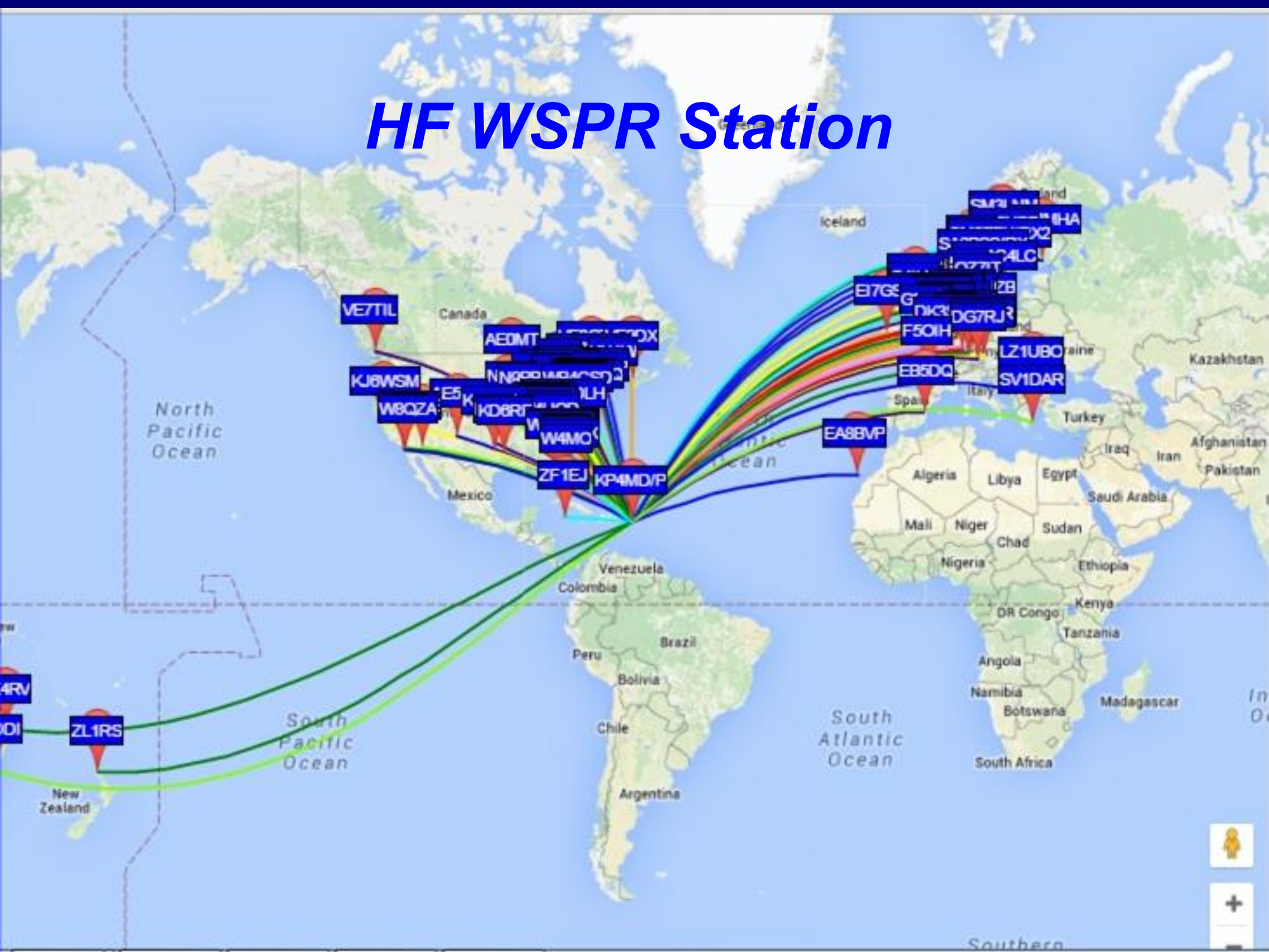
Online users

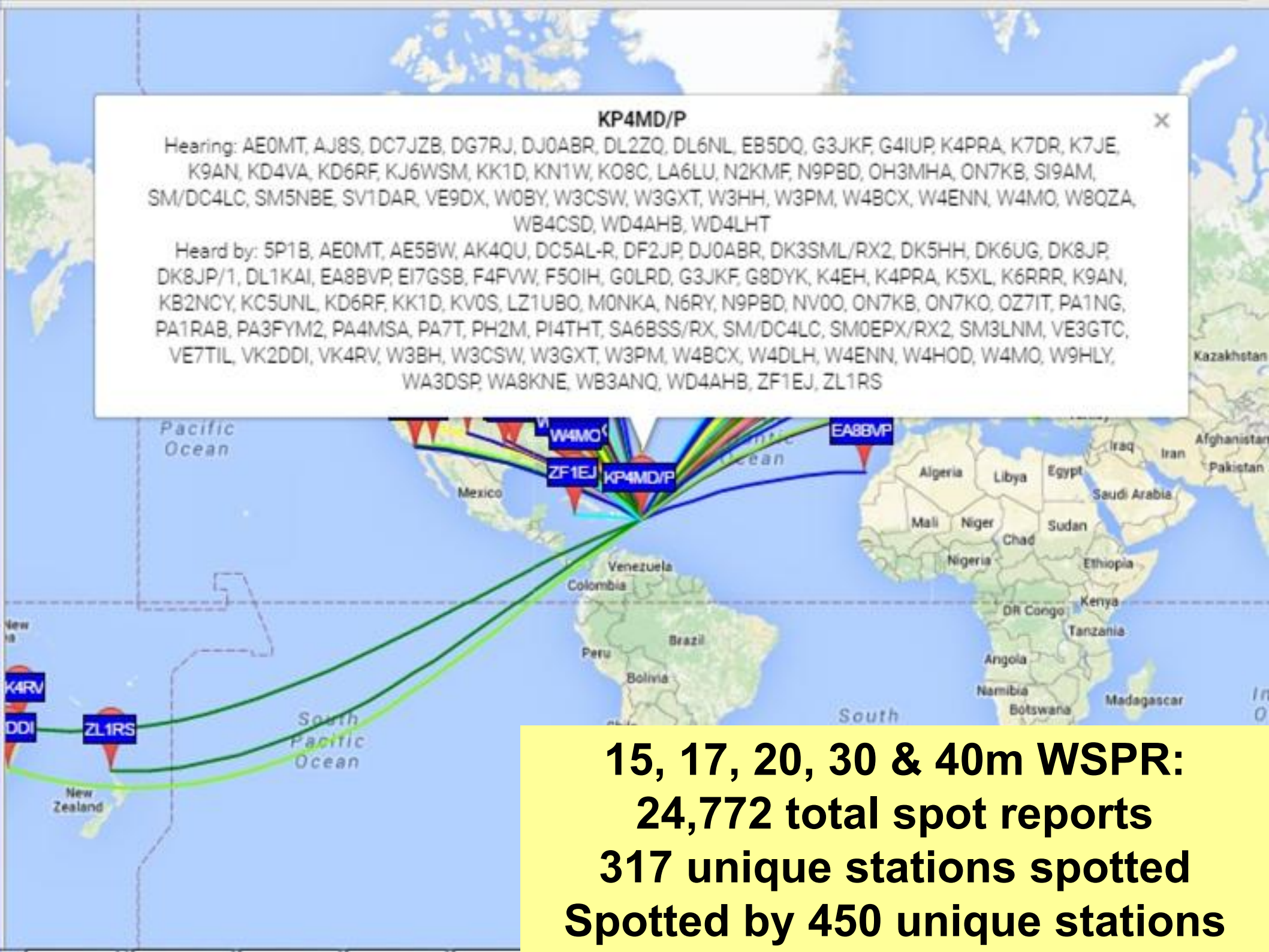
- KP4MD
- N2JR
- W4DJW

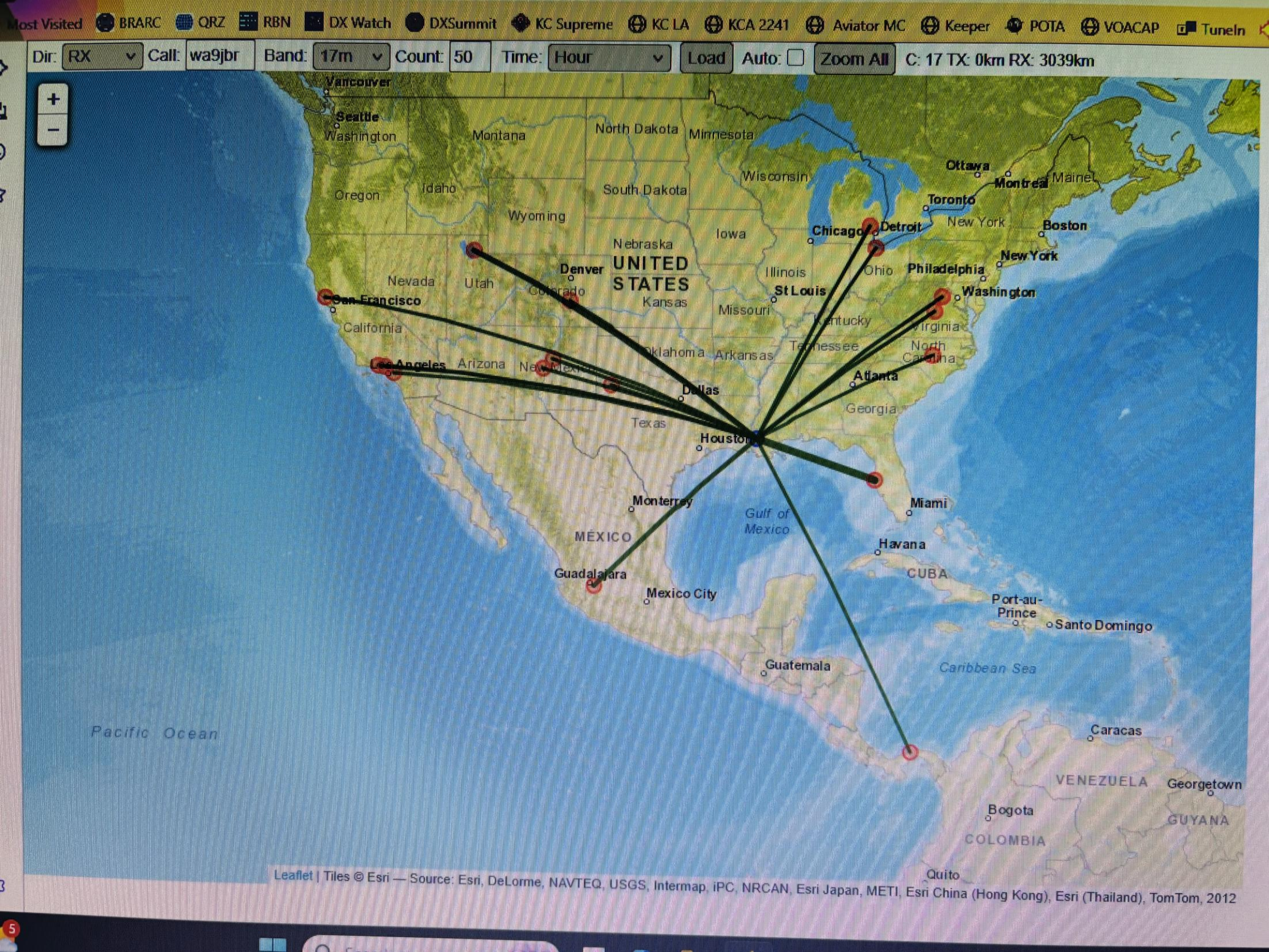
Propagation Map



HF WSPR Station




KP4MD/P
Hearing: AE0MT, AJ8S, DC7JZB, DG7RJ, DJ0ABR, DL2ZQ, DL6NL, EB5DQ, G3JKF, G4IUP, K4PRA, K7DR, K7JE, K9AN, KD4VA, KD6RF, KJ6WSM, KK1D, KN1W, KO8C, LA6LU, N2KMF, N9PBD, OH3MHA, ON7KB, SI9AM, SM/DC4LC, SM5NBE, SV1DAR, VE9DX, W0BY, W3CSW, W3GXT, W3HH, W3PM, W4BCX, W4ENN, W4MO, W8QZA, WB4CSD, WD4AHB, WD4LHT
Heard by: 5P1B, AE0MT, AE5BW, AK4QU, DC5AL-R, DF2JP, DJ0ABR, DK3SML/RX2, DK5HH, DK6UG, DK8JP, DK8JP/1, DL1KAI, EA8BVP, EI7GSB, F4FVW, F5OIH, G0LRD, G3JKF, G8DYK, K4EH, K4PRA, K5XL, K6RRR, K9AN, KB2NCY, KC5UNL, KD6RF, KK1D, KV0S, LZ1UBO, M0NKA, N6RY, N9PBD, NV0O, ON7KB, ON7KO, OZ7IT, PA1NG, PA1RAB, PA3FYM2, PA4MSA, PA7T, PH2M, PI4THT, SA6BSS/RX, SM/DC4LC, SM0EPX/RX2, SM3LNM, VE3GTC, VE7TIL, VK2DDI, VK4RV, W3BH, W3CSW, W3GXT, W3PM, W4BCX, W4DLH, W4ENN, W4HOD, W4MO, W9HLY, WA3DSP, WA8KNE, WB3ANQ, WD4AHB, ZF1EJ, ZL1RS
W4MO
ZF1EJ
KP4MD/P
EA8BVP
ZL1RS
Pacific Ocean
Mexico
Venezuela
Colombia
Peru
Brazil
Bolivia
South Pacific Ocean
New Zealand
Algeria
Libya
Egypt
Saudi Arabia
Mali
Niger
Chad
Sudan
Nigeria
Ethiopia
Kenya
DR Congo
Tanzania
Angola
Namibia
Botswana
Madagascar
Iraq
Iran
Afghanistan
Pakistan
Kazakhstan
15, 17, 20, 30 & 40m WSPR:
24,772 total spot reports
317 unique stations spotted
Spotted by 450 unique stations


Most Visited
BRARC
QRZ
RBN
DX Watch
DXSummit
KC Supreme
KC LA
KCA 2241
Aviator MC
Keeper
POTA
VOACAP
TuneIn
Dir: RX
Call: wa9jbr
Band: 17m
Count: 50
Time: Hour
Load
Auto:
Zoom All
C: 17 TX: 0km RX: 3039km
Vancouver
Seattle
Washington
Montana
North Dakota
Minnesota
Oregon
Idaho
South Dakota
Wisconsin
Ottawa
Montreal
Maine
Toronto
Wyoming
Chicago
Detroit
New York
Boston
Nebraska
UNITED STATES
Iowa
Denver
Illinois
Ohio
Philadelphia
New York
Nevada
Utah
Colorado
St Louis
Washington
San Francisco
Kansas
Missouri
California
Kentucky
Virginia
Oklahoma
Arkansas
Tennessee
North Carolina
Los Angeles
Arizona
Atlanta
Dallas
Georgia
Texas
Houston
Monterrey
Miami
Gulf of Mexico
MÉXICO
Havana
CUBA
Guadalajara
Mexico City
Port-au-Prince
Santo Domingo
Guatemala
Caribbean Sea
Pacific Ocean
Caracas
VENEZUELA
Georgetown
Bogota
GUYANA
COLOMBIA
Quito
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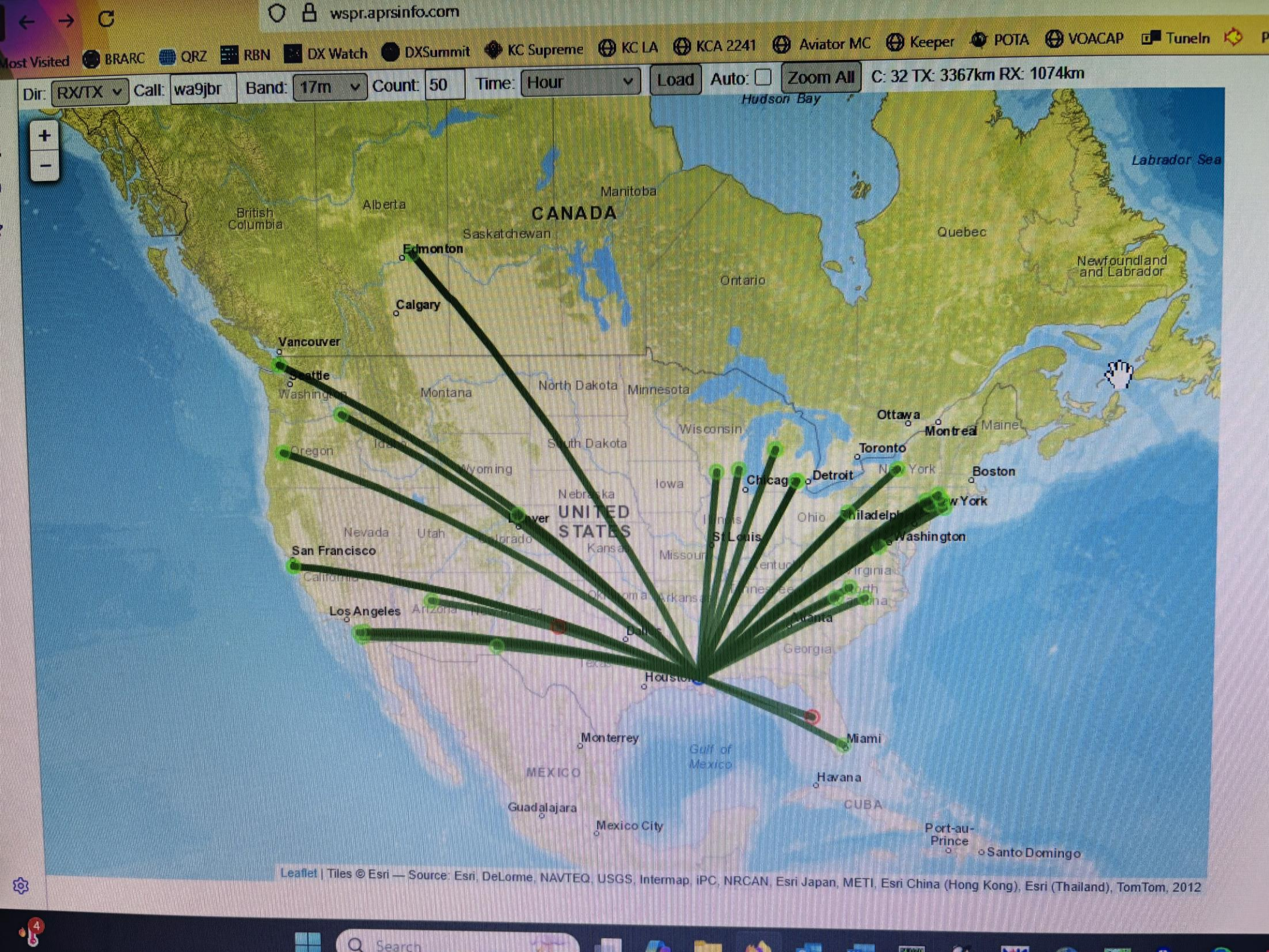
wspr.aprsinfo.com
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TuneIn
Dir: RX/TX
Call: wa9jbr
Band: 17m
Count: 50
Time: Hour
Load
Auto:
Zoom All
C: 32 TX: 3367km RX: 1074km
Hudson Bay
Labrador Sea
CANADA
British Columbia
Alberta
Manitoba
Saskatchewan
Ontario
Quebec
Newfoundland and Labrador
Edmonton
Calgary
Vancouver
Seattle
Washington
Montana
North Dakota
Minnesota
Wisconsin
Ottawa
Montreal
Maine
Toronto
Oregon
Idaho
Wyoming
South Dakota
Iowa
Chicago
Detroit
New York
Boston
Nebraska
UNITED STATES
Ohio
Nevada
Utah
Colorado
Kansas
Missouri
St Louis
Washington
San Francisco
California
Los Angeles
Arizona
Georgia
Houston
Monterrey
Miami
Gulf of Mexico
MEXICO
Havana
CUBA
Guadalajara
Mexico City
Port-au-Prince
Santo Domingo
Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

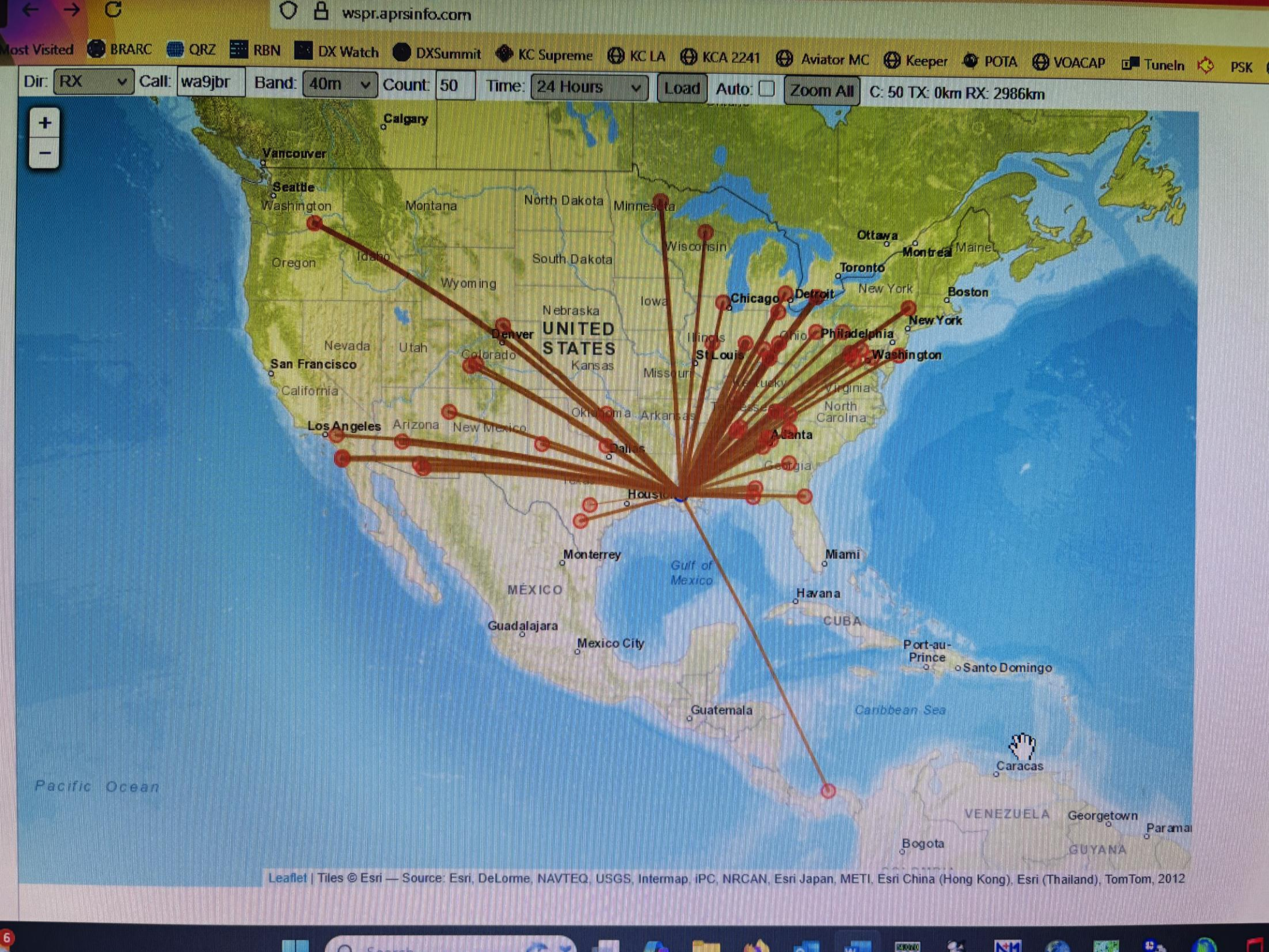
Applications

1. *Check propagation on desired bands*
2. *Compare performance of different antennas*

Investigation # 1

- *What is nighttime propagation like on 40 m during the summer at my QTH?*

- ***I copied 40 m WSPR beacons from 7pm to 7am.***
- ***Approximately 4,000 reports received***
- ***I analyzed RX reports for the following stations:***
  - HP2DFA (Panama @ 0.2W)
  - K7FTQ (WA @ 1.0W)
  - N9NIC (WI @ 0.2W)
  - N3EYQ (NY @ 0.5W)


wspr.aprsinfo.com
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RBN
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KC LA
KCA 2241
Aviator MC
Keeper
POTA
VOACAP
TuneIn
PSK
Dir: RX
Call: wa9jbr
Band: 40m
Count: 50
Time: 24 Hours
Load
Auto:
Zoom All
C: 50 TX: 0km RX: 2986km
Calgary
Vancouver
Seattle
Washington
Montana
North Dakota
Minnesota
Oregon
Idaho
South Dakota
Wisconsin
Ottawa
Montreal
Maine
Toronto
Wyoming
New York
Boston
Chicago
Detroit
Nebraska
Iowa
UNITED STATES
Denver
Illinois
Ohio
Philadelphia
New York
Nevada
Utah
Colorado
St Louis
Washington
San Francisco
Kansas
Missouri
California
Virginia
North Carolina
Oklahoma
Arkansas
Los Angeles
Arizona
New Mexico
Atlanta
Georgia
Houston
Monterrey
Miami
Gulf of Mexico
MÉXICO
Havana
CUBA
Guadalajara
Mexico City
Port-au-Prince
Santo Domingo
Guatemala
Caribbean Sea
Caracas
Pacific Ocean
VENEZUELA
Georgetown
Paramaribo
Bogota
GUYANA
Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

- *0002 -16 1.0 7.040051 0 WW0WWV DN70 30 1043*
- *0002 -25 -0.1 7.040060 0 <...> DM68HI 23 1074*
- *0002 -14 -0.4 7.040105 0 W4CVG EM78 37 666*
- *0002 -16 -0.1 7.040108 0 K0XG EM79 23 724*
- *0002 -30 0.0 7.040123 0 KB0EE DN70 23 1043*
- *0002 -33 -0.1 7.040159 0 HP2DFA FJ09 23 1637*
- *0002 -26 0.2 7.040179 0 WY8R EN82 23 955*
- *0002 -12 0.2 7.040185 0 KX4DQ EM66 23 491*
- *0004 -11 0.2 7.040002 0 WM4B EM82 23 510*
- *0004 -19 0.0 7.040007 0 WB5SRK DM93 23 613*
- *0004 -23 1.1 7.040051 0 WW0WWV DN70 30 1043*
- *0004 -21 0.2 7.040137 0 WR4I FM08 23 896*
- *0004 -22 -0.1 7.040156 0 N8FWG EN62 23 871*
- *0004 -27 -0.1 7.040159 1 W4MGA FM17 23 954*

Conclusion

- ***Best southern propagation (HP9DFA)***

  11pm – 5am CDT

- ***Best NW propagation (K7FTQ)***
  - 12am – 1am & 3am – 5am CDT
- ***Best northern propagation (N9NIC)***
  - 9pm – 5am
- ***Best NE propagation (N3EYQ)***
  - 12am – 7am CDT

Investigation #2

- *Compare effectiveness of my G5RV antenna to my 20 m dipole on 17 m*
- *for the afternoon.*

Method

- *For one hour in the afternoon*
- *(2000 – 2100 Z), transmit a 5 W beacon on 17 m and alternate between the two antennas. Compare signal reports from various stations.*

Antennas

G5RV

- 55 ft high
- Broadside east – west
- 4.1 SWR on 17 m

20 m Dipole

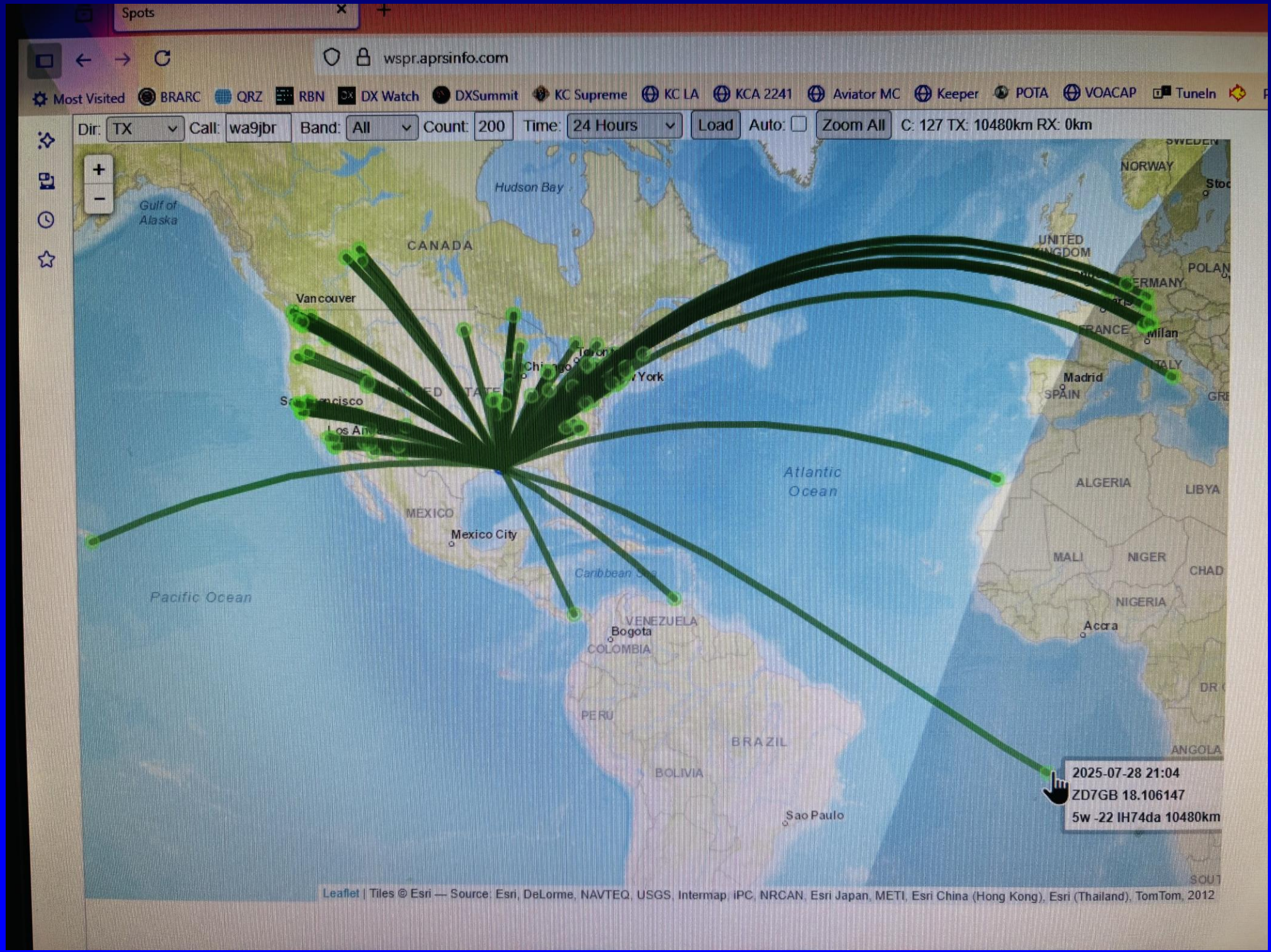
- 70 ft high
- Broadside north – south
- 4.6 SWR on 17 m

NA Station Reports

- *WC2L (NY)*
- *AC0G/ND (ND)*
- *AC0G/B1 (MO)*
- *VE6PDQ*
- *KB7GF (WA)*
- *WA7LNW (UT)*

DX Station Reports

- *ZD7GB (St. Helena)*
- *HB9VQQ (Switzerland)*
- *EA8BFK (Spain)*
- *ON5KQ (Belgium)*
- *OE9GHV (Austria)*


Spots
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BRARC
QRZ
RBN
DX Watch
DXSummit
KC Supreme
KC LA
KCA 2241
Aviator MC
Keeper
POTA
VOACAP
TuneIn
Dir: TX
Call: wa9jbr
Band: All
Count: 200
Time: 24 Hours
Load
Auto:
Zoom All
C: 127 TX: 10480km RX: 0km
Hudson Bay
Gulf of Alaska
CANADA
Vancouver
NORWAY
UNITED KINGDOM
GERMANY
FRANCE
Milan
Madrid
SPAIN
Atlantic Ocean
ALGERIA
LIBYA
MALI
NIGER
CHAD
NIGERIA
Accra
MEXICO
Mexico City
Caribbean Sea
Pacific Ocean
VENEZUELA
Bogota
COLOMBIA
PERU
BRAZIL
BOLIVIA
ANGOLA
Sao Paulo
2025-07-28 21:04
ZD7GB 18.106147
5w -22 IH74da 10480km
Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

Conclusion

- ***Based on 3dB or better signal for NA***
  - ***20 m dipole performed better to N & NE***
  - ***G5RV performed better to NW***

Conclusion continued

- *Comparing signals for DX stations*
  - *20 m dipole performed better to EU*
  - *G5RV performed slightly better to AF*
  - *No propagation to the Pacific*

Categories

Kit sets (2)

Kits (17)

Components (4)

GPS Modules (1)

Firmware (6)

Ultimate3S QRSS/WSPR kit

Product Code: U3S

Availability: 349

Price: $33.00

Available Options

* **LPF Band:**

--- Please Select ---

Add kits:

QLG1 GPS receiver (+$23.00)

Final Thoughts

- ***WSPR is a powerful tool for determining propagation to your QTH.***

- ***You can just monitor signals or transmit a beacon to see how well you are getting out.***