



WSPR (WSJT X)

WSPR

Weak Signal Propagation Reporting

Presentation 6:e maj 2021 för SSA distrikt 0
SM0EPX Micke



WSPR (WSJT X)

Allmänt/Ändamål

- Quasi-beacon mode, EJ QSO:n, helt utan operatörsinblandning
- Vem som helst sänder – vem som helst lyssnar/rapporterar på web
- Live, nu och över tid (statistik)
- Alla rapporter publika på wsprnet.org
- Digital överföring av Signal, QTH, PWR
- Meddelanden är:
 - Långsamma (2 min/pass)
 - Smalbandiga (ca 6 Hz)
 - Felkorrigerade, ej frlflia



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Teknik

- 110.6 sek kontinuerlig bärvåg
- Frekvens skiftar mellan 4 toner varje 0.683 sek
- Toner separeras av 1.46 Hz
- Total bandbredd är ca 6 Hz
- Lågt SNR
- 50 bitar information packeteras i 162 bitars meddelanden med Forward Error Correction
- Sändning inleds alltid 1 sek efter jämn minut



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Digital signalbehandling

- Sample Rate: 48 kHz
- FFT Size: 2^{16} samples (1.365 sec)
- FFT Step: $1/8$ FFT Size (0.171 sec) ($1/4$ tone duration)
- FFT Resolution: 0.366 Hz / pixel ($1/4$ tone separation)



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Utrustning

- SSB-mottagare
- SSB-sändare (PTT eller VOX)
- Dator med ljudkort
- WSPR software
- DIY Dedicated WSPR TX, Ulf SM5FXK 12 maj 19:00
- Exakt tid (sekund-noggrannhet via Internettid, typ netTime eller GPS-tid)



WSPR (WSJT X)

Historik

- Upphovsman K1JT, Joe Taylor
Nobelpristagare i Fysik
- WSPR loggat sedan 2008
- Nu ca 1 million spots per månad

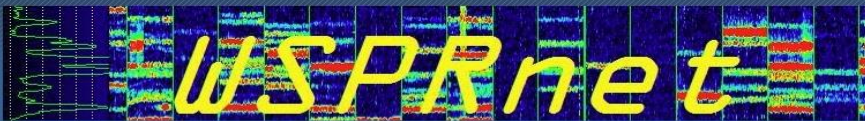


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wsprrnet.org



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WSPRnet
Welcome to the Weak Signal Propagation Reporter Network

[Activity](#) | [Map](#) | [Database](#) | [Forum](#) | [Downloads](#)

User login

Username *

Password *

Create new account
Request new password

Frequencies

USB dial (MHz): 0.136, 0.4742, 1.8366, 3.5686, 5.2872, 5.3647, 7.0386, 10.1387, 14.0956, 18.1046, 21.0946, 24.9246, 26.1246, 50.293, 70.091, 144.489, 432.300, 1296.500

Navigation

► [Forums](#)

3rd Party Maps and Data

VK7JJ Site
MDXDK Map
KB9AMG Monthly Stats
WA2ZKD Spot Analysis
DJ2LS WSPR Spot Heat Map

Who's online

There are currently 88 users online.

- VK2KRR
- on7kb
- DJ2LS

The Weak Signal Propagation Reporter Network is a group of amateur radio operators using K1JT's MEPT_JT digital mode to probe radio frequency propagation conditions using very low power (QRP/QRPp) transmissions. The software is open source, and the data collected are available to the public through this site.

Submitted by WIGJM
on Sun, 2020/10/18 - 15:00

Site changes for new WSPR FST4W modes

Forums:
[WSPRnet.org Site](#)

Since around version 2.1.1 wsjt-x has been uploading a `mode` value that WSPRNet has not been consuming. With the advent of new FST4W quasi-beacon modes we will now consume that value. Going forward we will process the `mode` according to 4 values:

- "2"
- "15" for the current WSPR modes -2 & -15
- "5"
- "30" for the FST4W modes 300 & 1800

This change applies to the manual upload too, i.e. WSPRNet will support an **11th column** `mode` which can be one of these above 4 values.

[Read more](#) [Log in or register](#) to post comments

Submitted by WIGJM
on Thu, 2018/07/26 - 15:14

[From Admins] Map issue -- a fix of sorts

Forums:
[WSPRnet.org Site](#)

The issue with the Google Maps is related to the change Google made on July 16th, 2018 that severely curtails the free API limits. WSPRNet will be transitioning to an alternative mapping solution as soon as possible. In the interim I have added a new field to the User Profile form for storing your own Google Maps API Key, if you want to get back to the way things were. You can get your own API Key by following the link below and I would strongly encourage you to read the Q&A down the page.

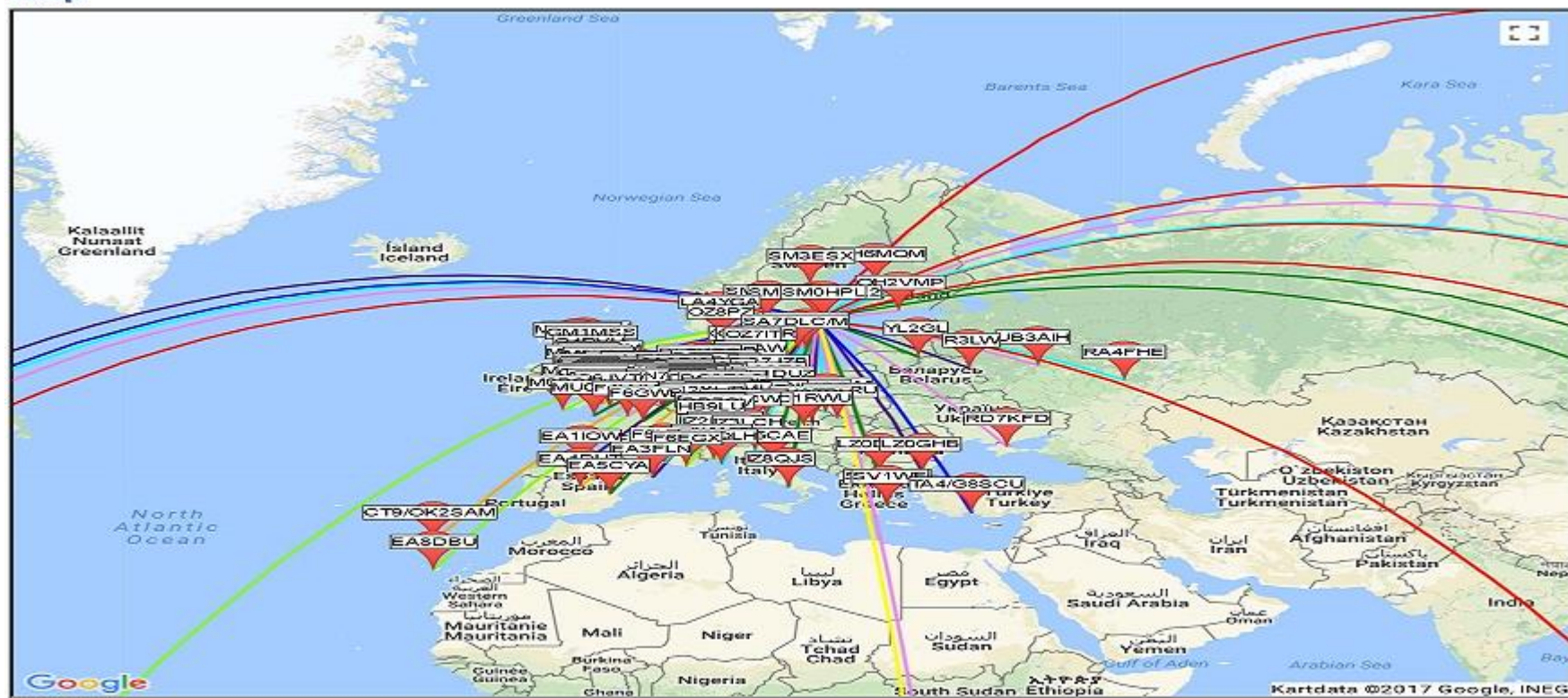
[Read more](#) [Log in or register](#) to post comments

Remember 4-Meter WSPR QRG in DL/Europe: 70.151 MHz!



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Map



Update

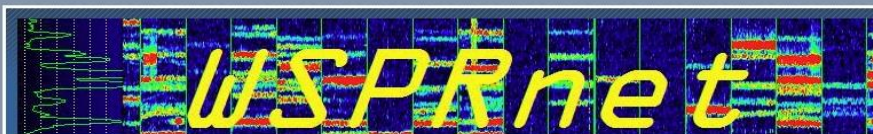
Band

30m

Show only spots on this band.



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Who's online

There are currently 96 users
online.

- NV4X
- W6JWW

Database

Band

30m

Show only spots on this band.

Mode

All

BETA: Filter by WSPR mode. 5 and 30 are FST4VV MFLF

Count

50

Maximum number of spots to show (10000)

Call

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

Reporter

SM0EPX/RX2

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

Hour

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

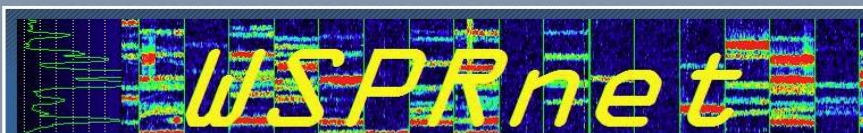
☒ Exclude Special Callsigns

Excludes calls starting with Q and O, typically used for balloon telemetry

[Update](#)



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- VK5GF
- ZB2YN

Spot Database

Specify query parameters

25 spots:

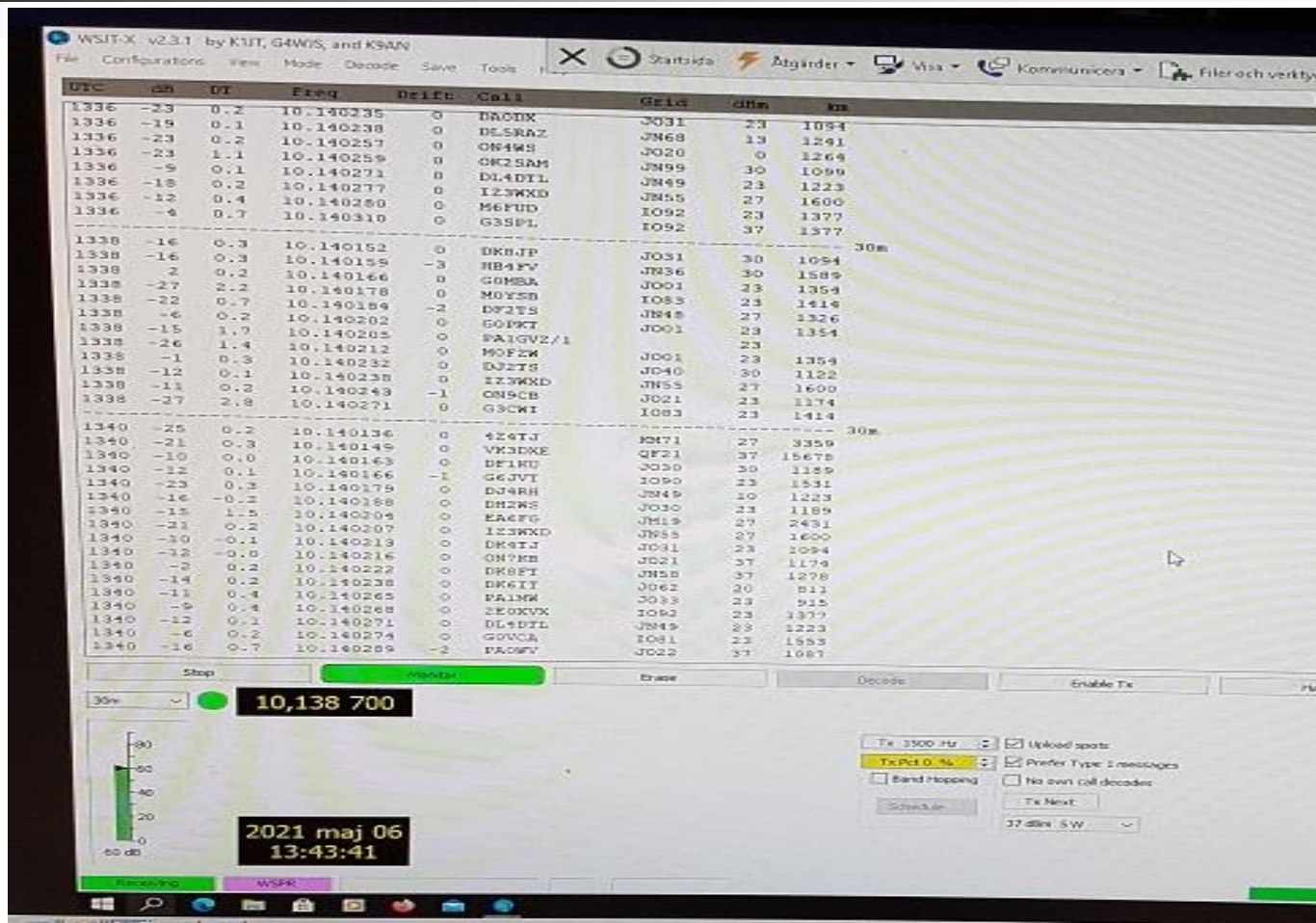
Timestamp	Call	MHz	SNR	Drift	Grid	Pwr	Reporter	RGrid	km	az	Mode	# Spots
2021-05-06 12:22	DG5DH	10.140225	-10	0	JO41ds	5	SM0EPX/RX2	JO89si	1022	31	2	6
2021-05-06 12:22	HB9AK	10.140285	-22	0	JN36pv	0.5	SM0EPX/RX2	JO89si	1541	22	2	4
2021-05-06 12:22	DB7GV	10.140171	-21	-4	JN47fs	0.2	SM0EPX/RX2	JO89si	1418	21	2	1
2021-05-06 12:18	PA1W	10.140153	-13	0	JO21	0.2	SM0EPX/RX2	JO89si	1178	37	2	4
2021-05-06 12:16	M0MVA	10.140215	-22	-1	IO81	1	SM0EPX/RX2	JO89si	1557	48	2	1
2021-05-06 12:08	2M0WHX	10.140125	-19	0	IO75wv	5	SM0EPX/RX2	JO89si	1339	64	2	4
2021-05-06 12:08	DL4XJ	10.140162	-8	0	JO42un	1	SM0EPX/RX2	JO89si	898	30	2	1
2021-05-06 12:04	I25MMH	10.140194	-24	-1	JN53ib	0.01	SM0EPX/RX2	JO89si	1871	12	2	1
2021-05-06 12:04	DL1DUZ	10.140306	-21	0	JO61tb	0.02	SM0EPX/RX2	JO89si	954	13	2	1
2021-05-06 12:02	G4GCI	10.140148	-20	0	IO90gu	5	SM0EPX/RX2	JO89si	1525	44	2	4
2021-05-06 12:02	DC1RDB	10.140158	-20	0	JN58ss	0.5	SM0EPX/RX2	JO89si	1239	16	2	6
2021-05-06 12:02	EU7FBB	10.140270	-10	-1	KO43nd	1	SM0EPX/RX2	JO89si	992	319	2	3
2021-05-06 12:00	SM5FLM	10.140229	-29	1	JO79	0.2	SM0EPX/RX2	JO89si	147	94	2	2
2021-05-06 12:00	OH6FSG	10.140267	-25	-2	KP23rb	0.1	SM0EPX/RX2	JO89si	591	229	2	1
2021-05-06 12:00	DM1AC	10.140182	-23	0	JO30iw	0.2	SM0EPX/RX2	JO89si	1163	32	2	4
2021-05-06 11:58	G4FDL	10.140243	-33	0	IO83	0.01	SM0EPX/RX2	JO89si	1417	54	2	1
2021-05-06 11:58	R4FBA	10.140245	-22	0	LO23	0.01	SM0EPX/RX2	JO89si	1793	302	2	2
2021-05-06 11:58	135GJS	10.140275	-22	0	JO02	1	SM0EPX/RX2	JO89si	1280	47	2	2
2021-05-06 11:56	M0AJJ	10.140261	-22	0	IO80xr	0.2	SM0EPX/RX2	JO89si	1564	45	2	3
2021-05-06 11:56	DM3FML	10.140265	-4	0	JO60ux	2	SM0EPX/RX2	JO89si	962	13	2	6
2021-05-06 11:54	K1WVY	10.140222	-13	0	FN31ps	5	SM0EPX/RX2	JO89si	6132	38	2	2
2021-05-06 11:54	MOXYM	10.140229	-15	0	JO01	0.2	SM0EPX/RX2	JO89si	1358	43	2	4
2021-05-06 11:54	DF6HE	10.140237	-18	0	JO52	0.2	SM0EPX/RX2	JO89si	867	26	2	1
2021-05-06 11:52	DL4RU	10.140224	-17	0	JN69cr	0.2	SM0EPX/RX2	JO89si	1123	16	2	3
2021-05-06 11:52	VK2EFM	10.140262	-15	0	QF56oq	5	SM0EPX/RX2	JO89si	15573	325	2	2

Query time: 0.052 sec

[Link to old database interface](#)



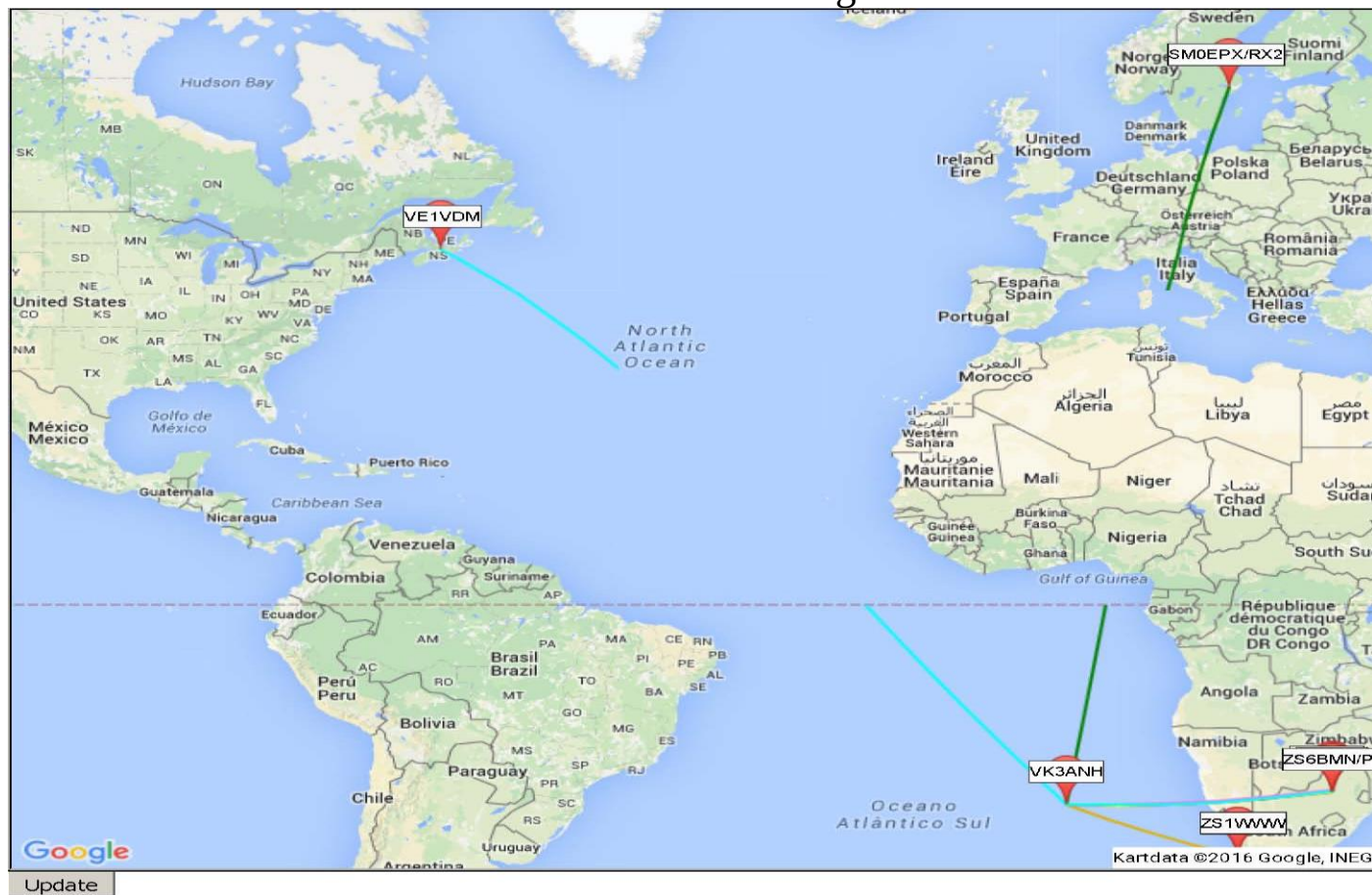
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VK3ANH Ballong

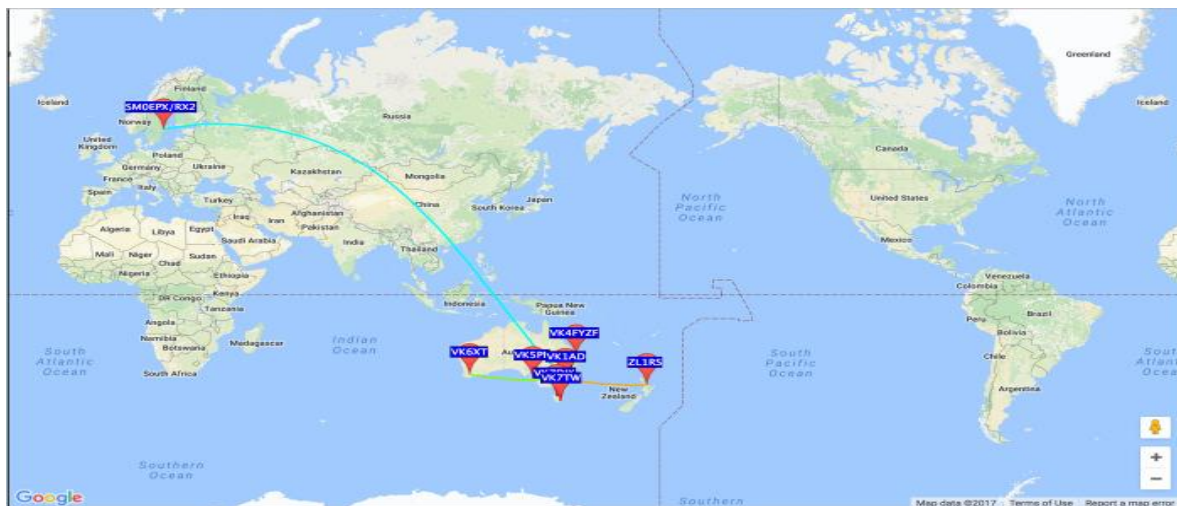




WSPR (WSJT X)

VK1AD – WSPRLite 200 mW to Sweden on 30m

- **Andrew VK1AD** / 01/03/2017
- Another record for WSPRLite 200 mW transmitter this time on 30m (10 MHz)
- Today at 06:54 UTC, SM0EPX near Stockholm Sweden detected my 200 mW WSPR signal on 30m. That's 24,391 km long path or 15,640 km short path which may equate to 78,150 km or 124,655 km per watt. My antenna is a 40m OCF with the feed point 8 metres above ground level. Impedance matching (50 ohms) is achieved using a small homebrew QRP Z-Match. Of course the actual power radiating from the antenna will be less than 200 mW due to losses in the Z-Match unit followed by losses in the coax feed line.





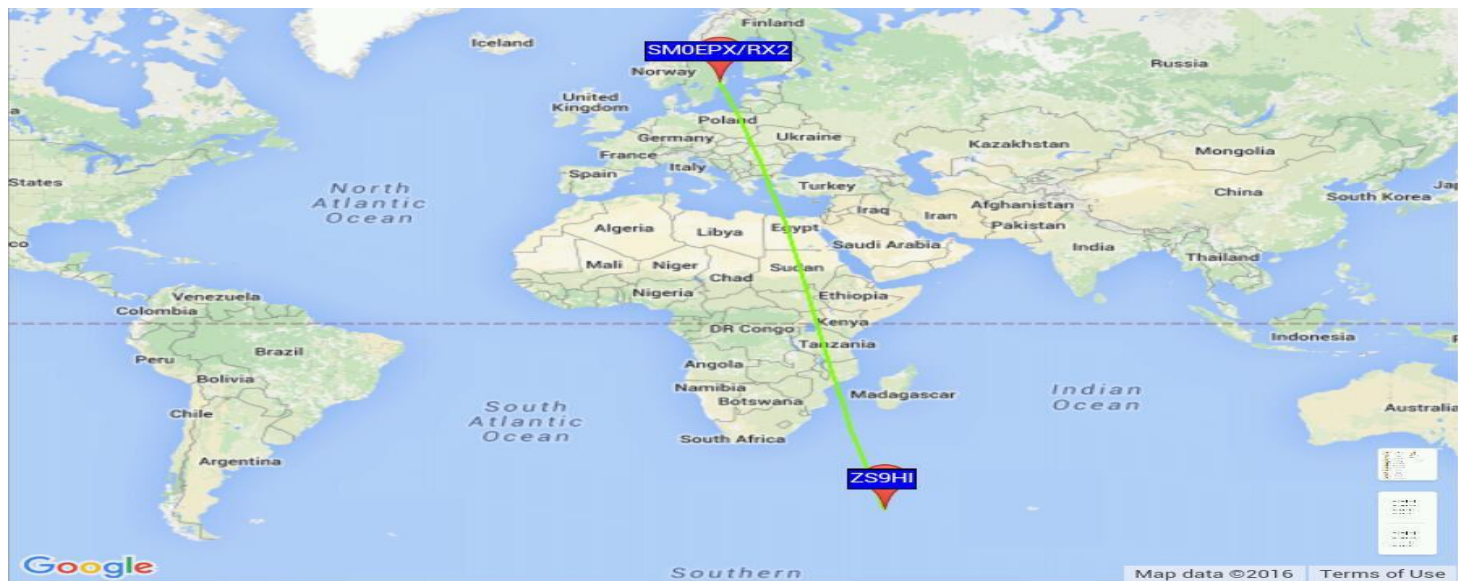
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VK0EK Heard Island expedition

As we have mentioned in several of the “How to Work Us” articles, the Grey Line is your Best Friend. Especially if you are a “little pistol”. Please see the articles for more detail on that.

<https://vk0ek.files.wordpress.com/2016/03/wspr-sm0epx-rx2-17-march-2016.jpg>

We have our new farthest WSPR spot – by SM0EPX and captured and shared by Jan, ZS6BMN,





WSPR (WSJT X)

Lägsta W/km

- 10 MHz, USA med 10 mW

Lägsta mottagna SNR

- Under -30 dB

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Relative sensitivity of modes

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



WSPR (WSJT X)

Och nu.....

- Vidga dina vyer
- Alla kan lyssna/sända
- WSJT-X
 - Flertaler QSO-moder, alla ingår i paketet



WSPR (WSJT X)

**Tack för uppmärksamheten
och lycka till.....**

Micke – SM0EPX