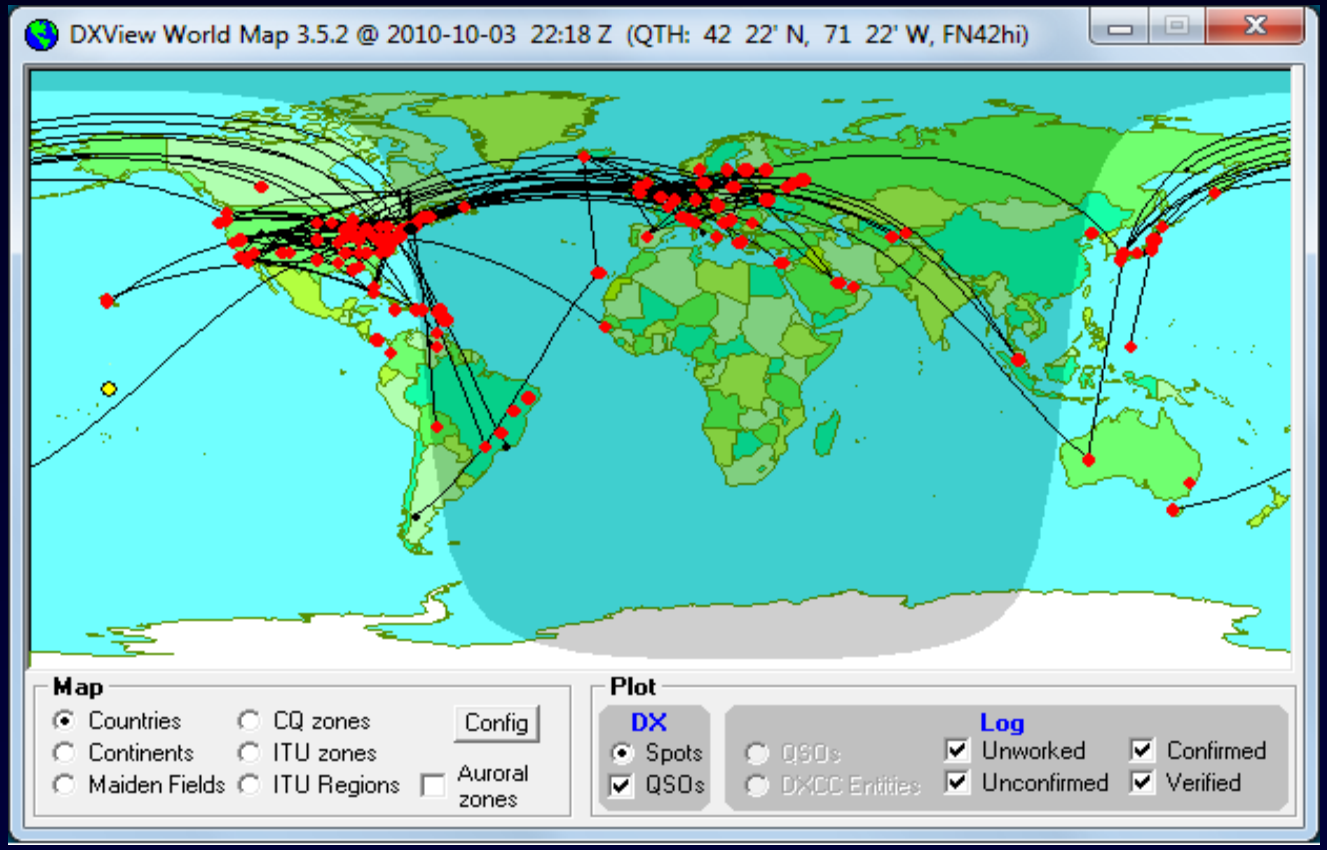
DXing with DXLab

v17 2024-02



Better DXing Through Software

DXing

The art and science

of making two-way contacts

with distant amateur radio stations

using phone, CW, or digital modes

DXLab: Better DXing Through Software

1. Automates QSL wrangling and award submissions to liberate more time for DXing

2. Makes time spent DXing more productive by helping you

   - Find the DX you need

   - Work the DX you need

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1. Automates QSL wrangling and award submissions to liberate more time for DXing

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DXing With DXLab

- Introduction to the DXLab Suite
  - Drivers
  - Architecture
  - Multiple Views of Active DX
- Finding the DX You Need
- Working the DX You Need

Drivers

1. User-driven iterative development
   - Online group with 5900+ participants
   - Defect repairs get highest priority; goal is < 24 hours
   - Public enhancement lists
   - Frequent releases (several per month)

2. Powerful and Easy to Use
   - Primarily for DXers
   - Secondarily for casual operators

3. Runs on Windows NT, 2000, XP, Vista, 7, 8, 10, and 11
   - and Mac in a virtual machine
   - and Linux in a virtual machine

the DXLab Suite

Eight free applications that run individually

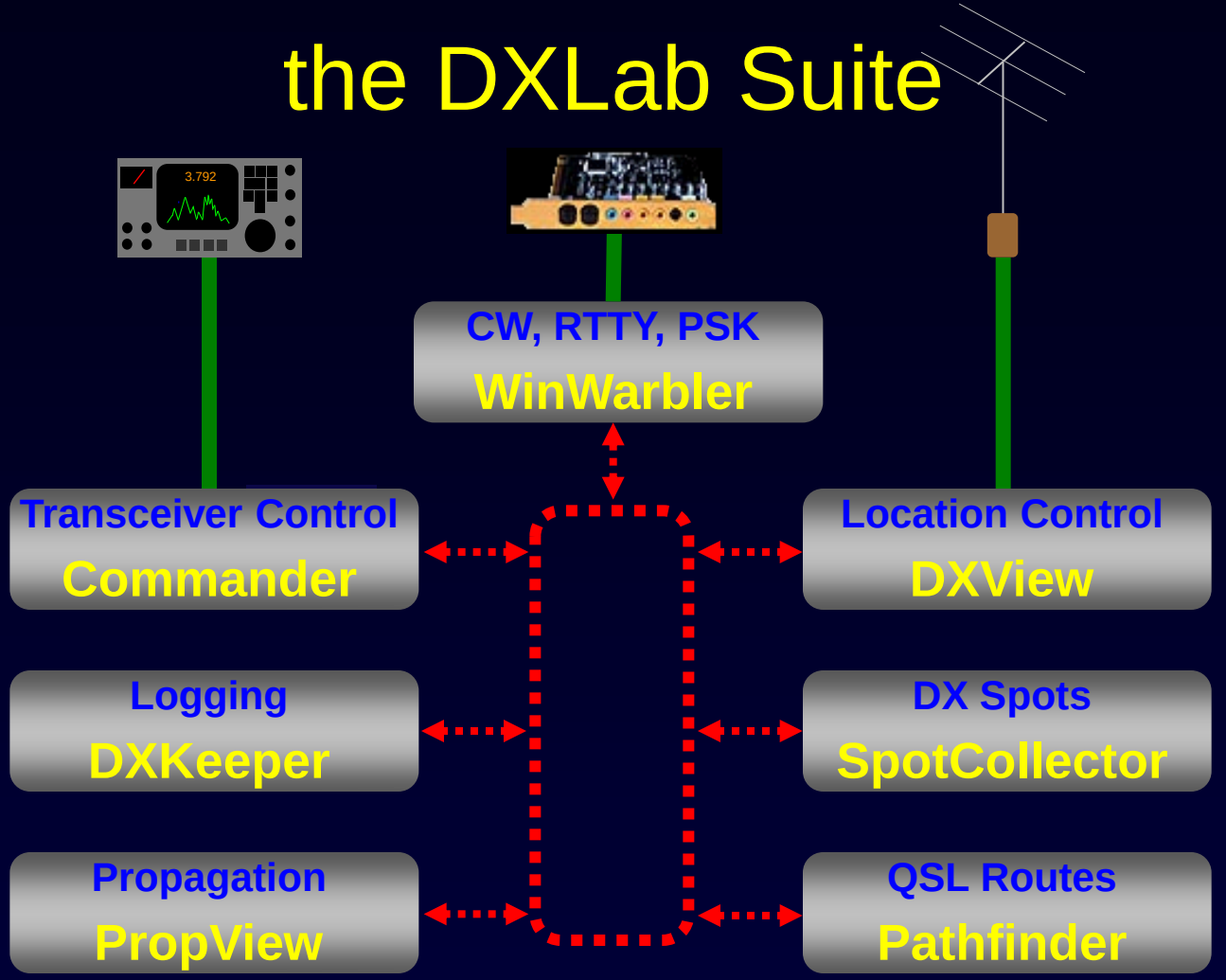
but

when run simultaneously sense each other's presence

and

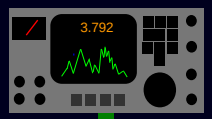
interoperate automatically

the DXLab Suite



- Modular
- Loosely-coupled

the DXLab Ecosystem



MMTTY

CW, RTTY, PSK
WinWarbler

2Tone

SatPC32

S. A. T.

Transceiver Control
Commander

Location Control
DXView

DX Atlas

Google Earth

LogPublisher

Logging
DXKeeper

DX Spot Analytics
SpotCollector

SpotSpy

VOACAP

Propagation
PropView

QSL Routes
Pathfinder

CW Skimmer

CWGet

FLDigi

JT-Alert

MixW

MMSSTV

MultiPSK

Gritty

MRP40

Sim_PSK

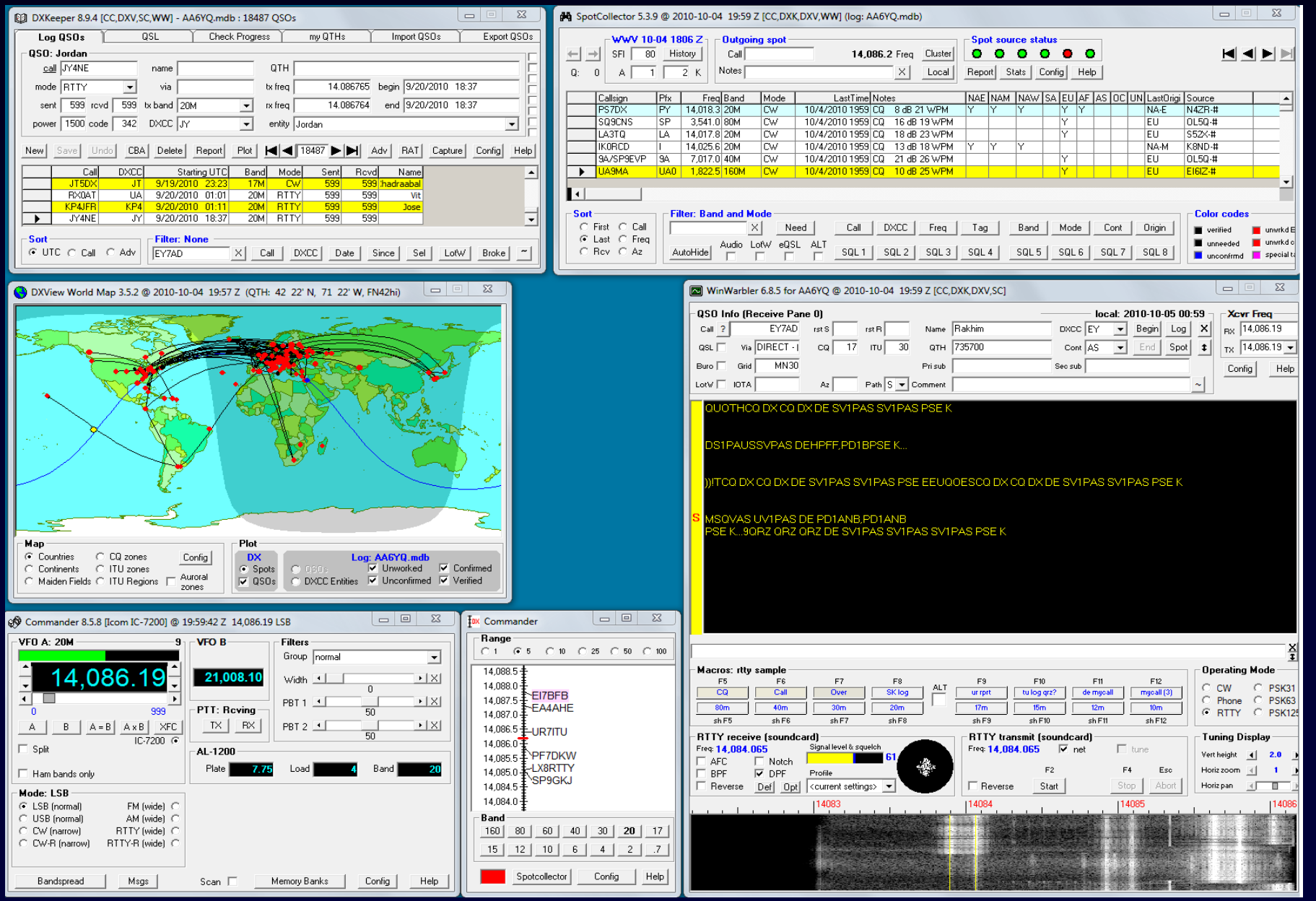
WSJT-X

N1MM+

MMVARI

Win4*Suite

A Suite of DXing Applications



Single Point of Control: DXLab Launcher

- Installation
- Upgrade
- Startup
- Shutdown

DXing With DXLab

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  - Drivers
  - Multiple Views of Active DX
- Finding the DX You Need
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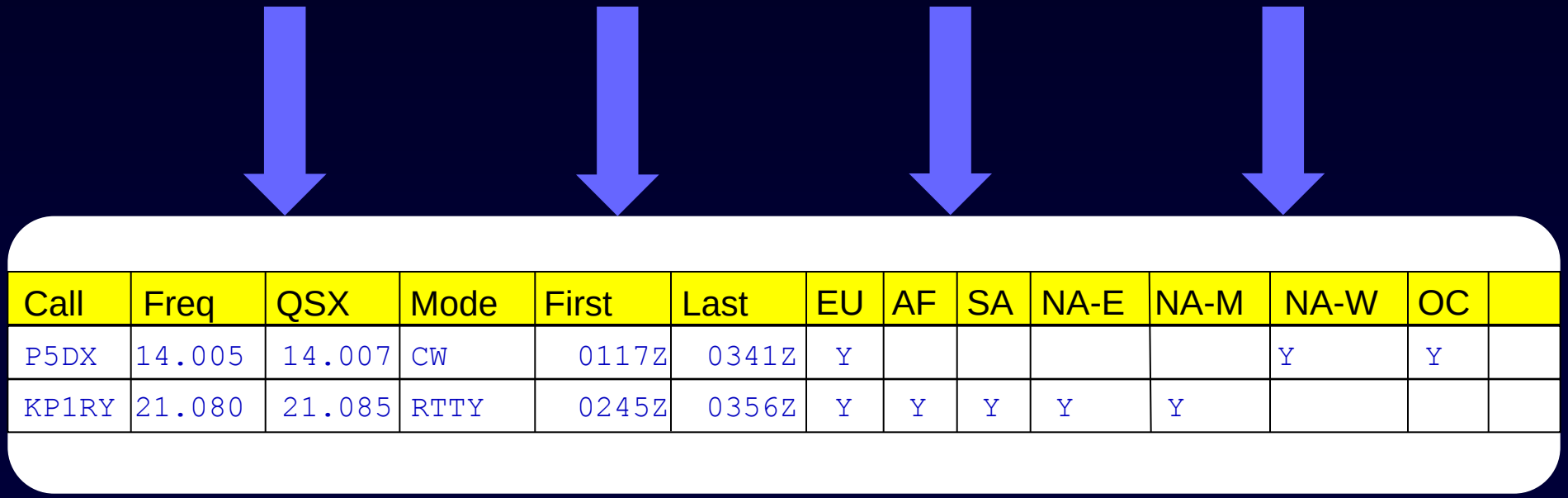
Active DX Database

Telnet Clusters

Reverse Beacon Network

DX Summit

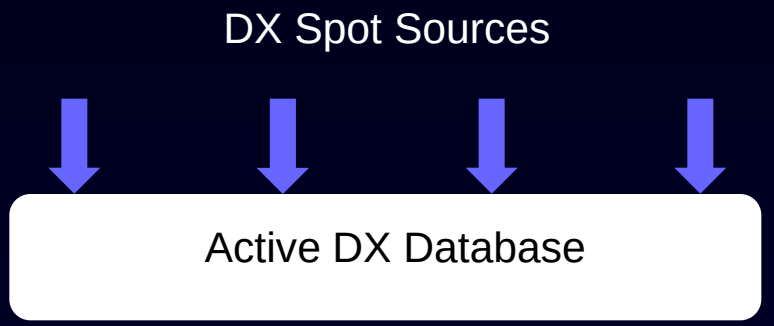
WSJT-X



Call	Freq	QSX	Mode	First	Last	EU	AF	SA	NA-E	NA-M	NA-W	OC	
P5DX	14.005	14.007	CW	0117Z	0341Z	Y					Y	Y	
KP1RY	21.080	21.085	RTTY	0245Z	0356Z	Y	Y	Y	Y	Y			

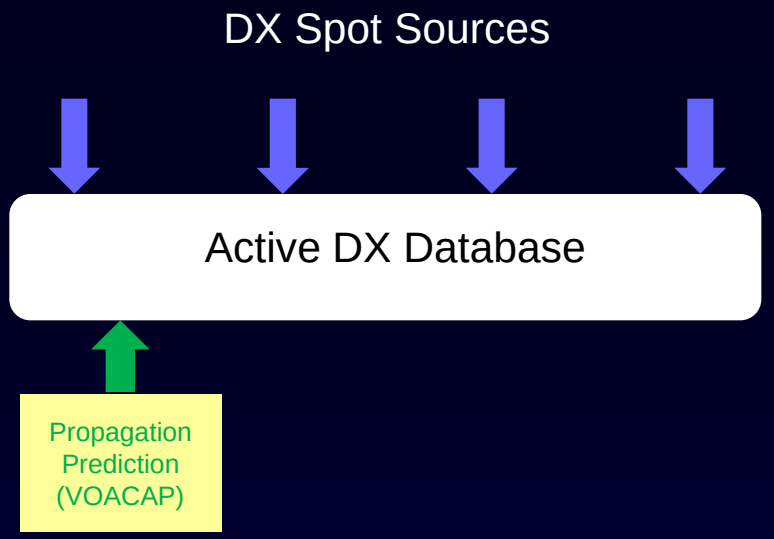
Active DX Database

Multiple Views of Active DX



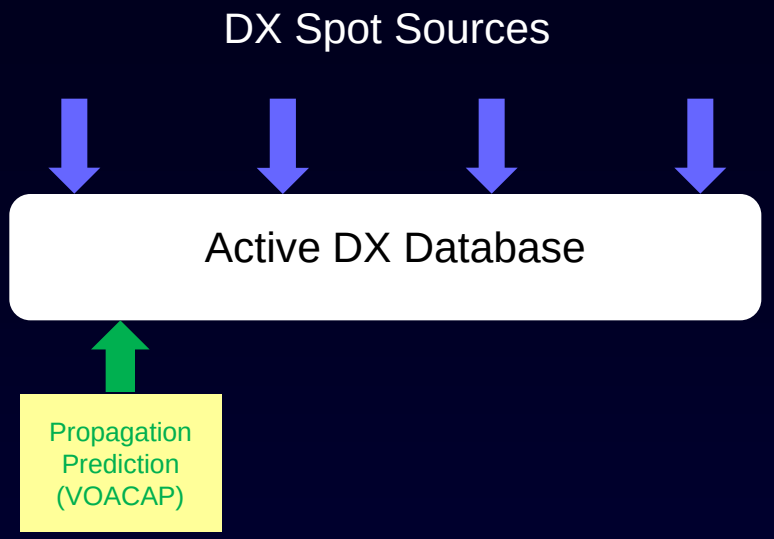
What DX stations are QRV ?

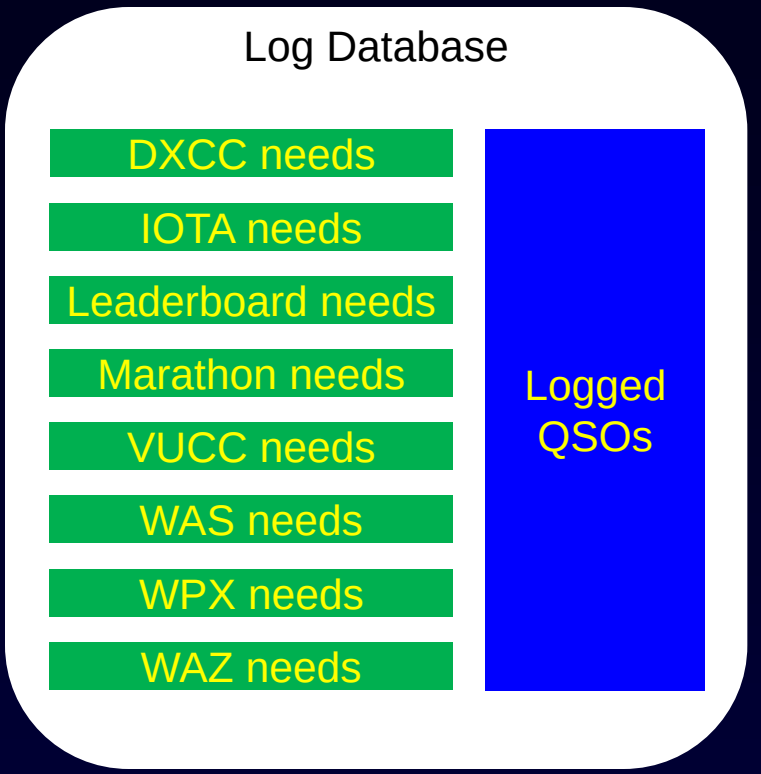
Multiple Views of Active DX



Which DX stations can I likely copy ?

Multiple Views of Active DX

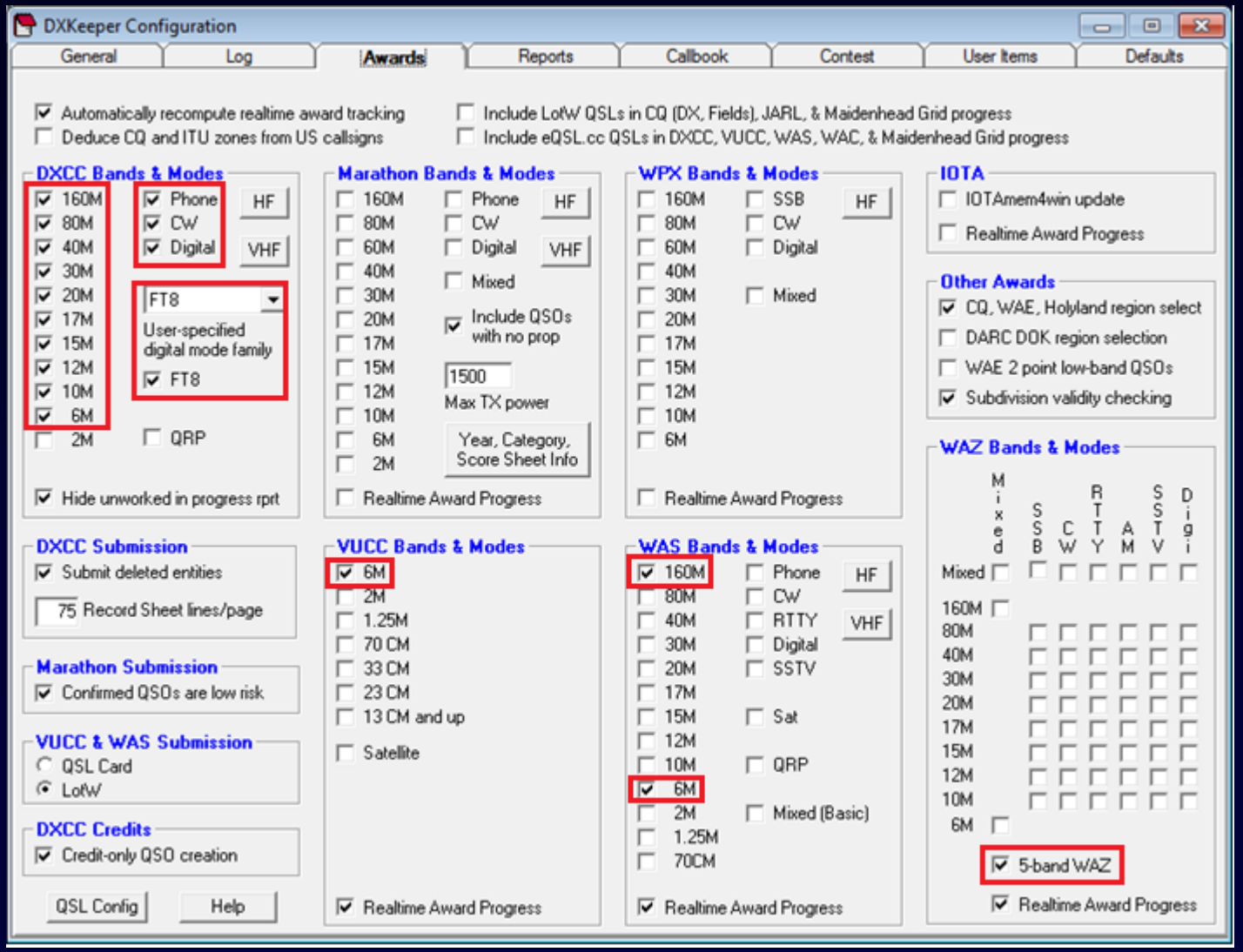




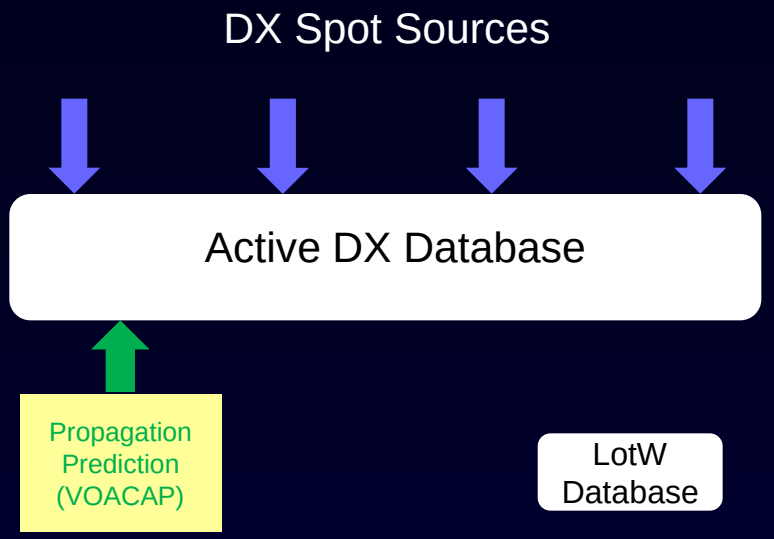
What QSOs and QSLs are "Needed" for the awards I'm pursuing on the bands and modes I've specified ?

Specifying DXing Objectives

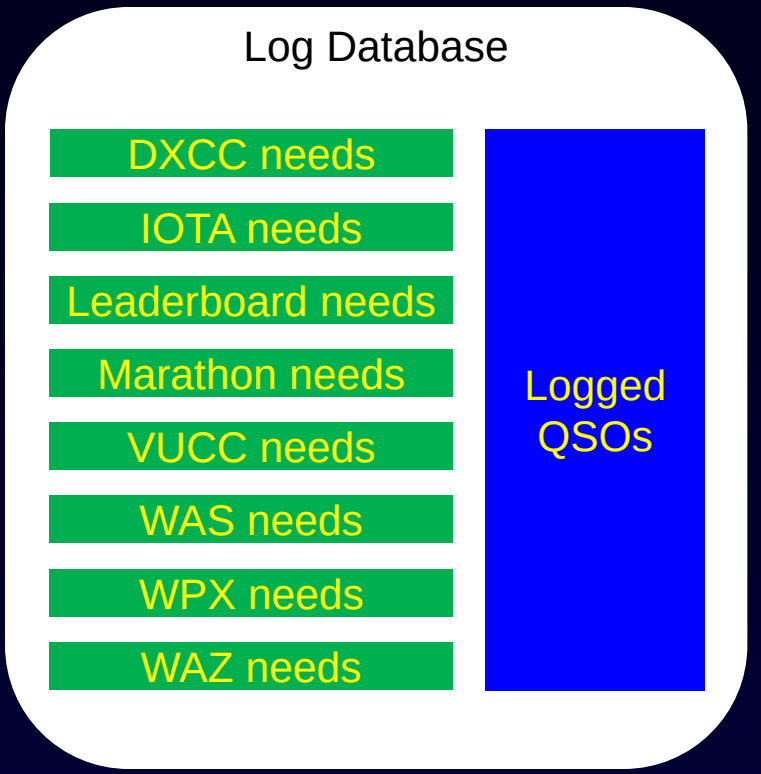
You can specify the bands and modes you are pursuing for each of DXCC, IOTA, Marathon, VUCC, WAS, WAZ, and WPX



Multiple Views of Active DX



What DX stations QSL via LotW and eQSL ?



Tabular View of Active DX

DX Spot Sources

Active DX Database

Propagation Prediction (VOACAP)

LotW Database

eQSL AG Database

View Generator

Log Database

DXCC needs

IOTA needs

Leaderboard needs

Marathon needs

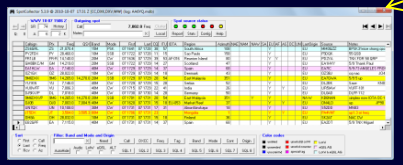
VUCC needs

WAS needs

WPX needs

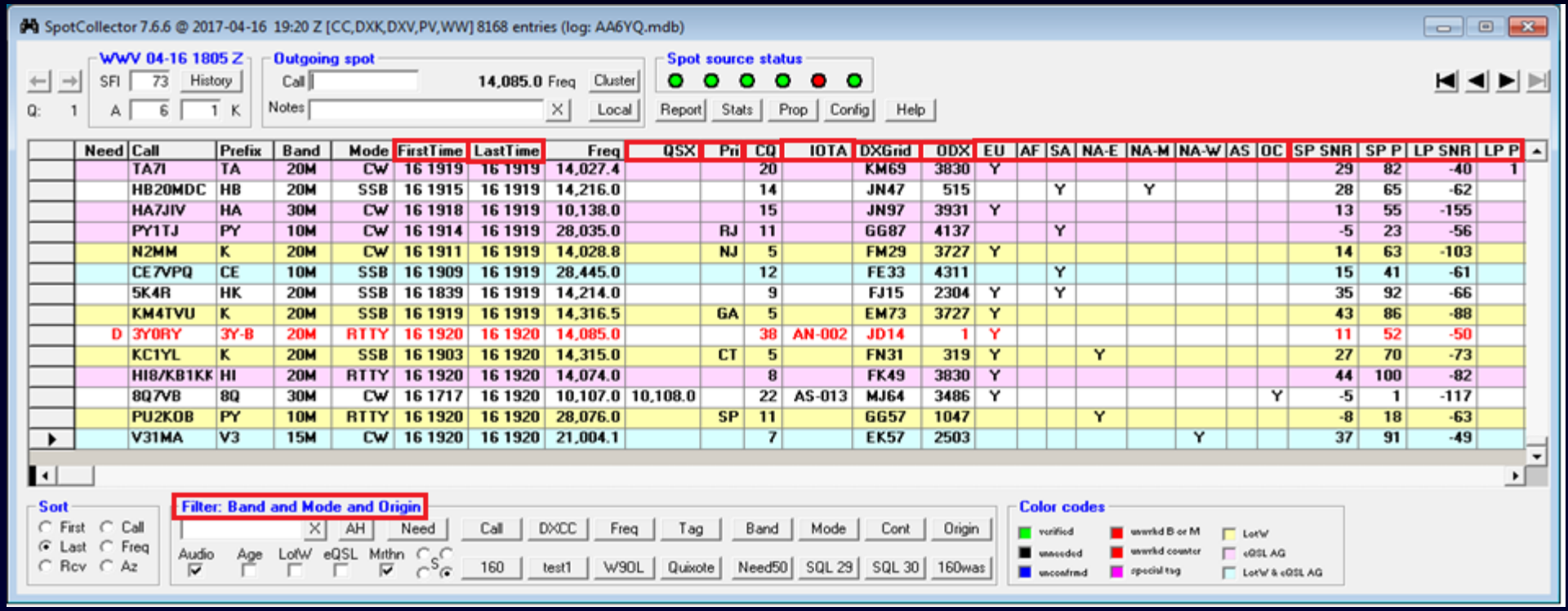
WAZ needs

Logged QSOs



Tabular

Tabular View of Active DX



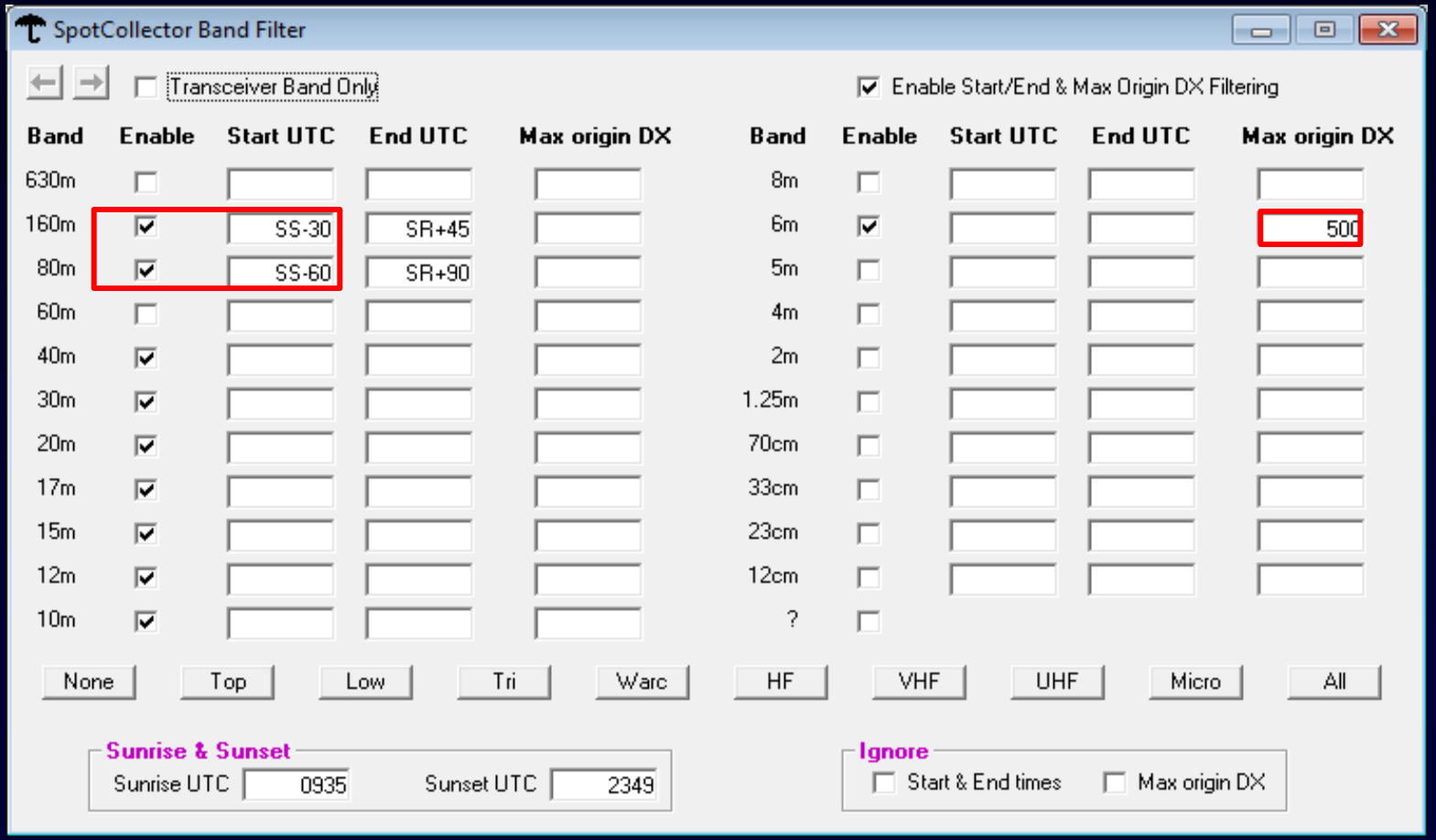
On 80m through 10m, PropView computes Short Path & Long Path SNR and probability

Font color indicates “needed” DX stations

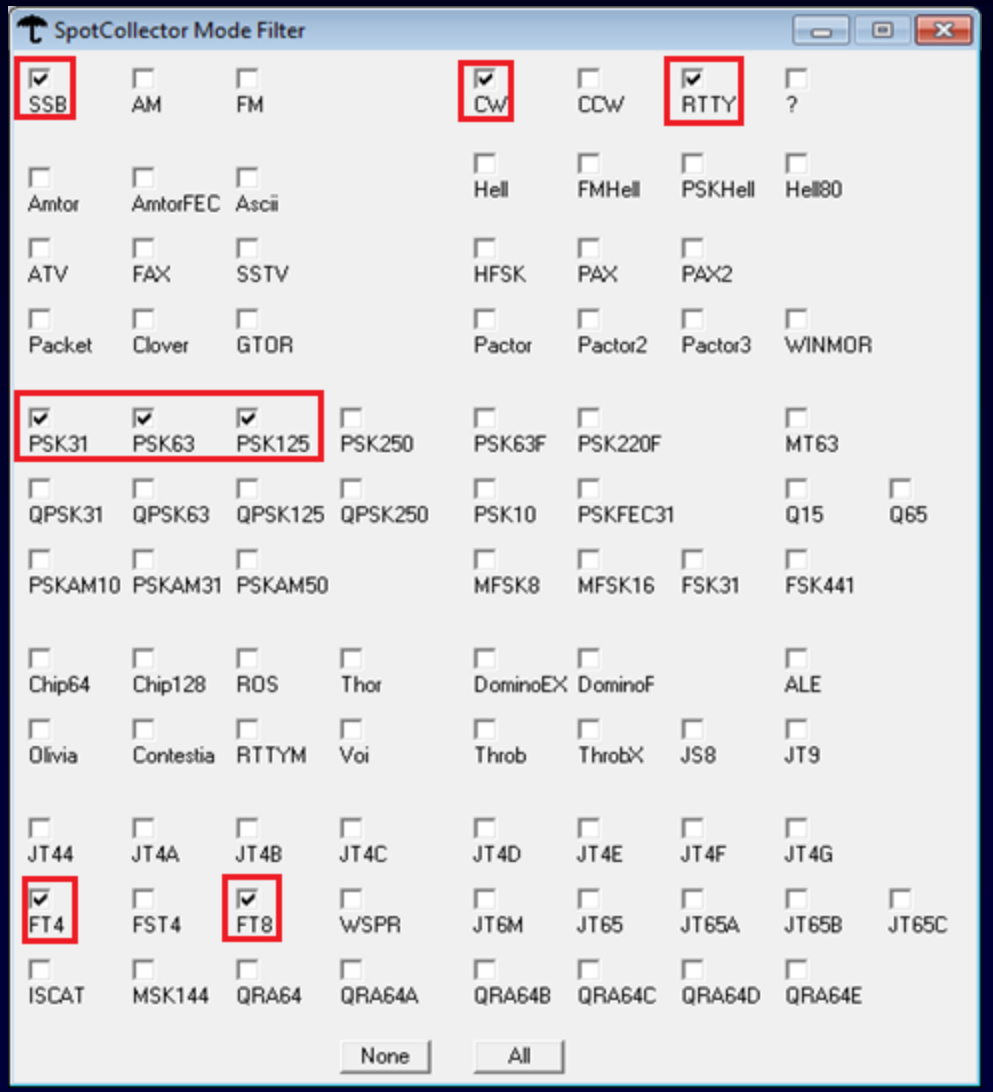
Background color indicates LotW and eQSL participation

This view is *filtered* by Band, Mode, and Origin

Band Filter

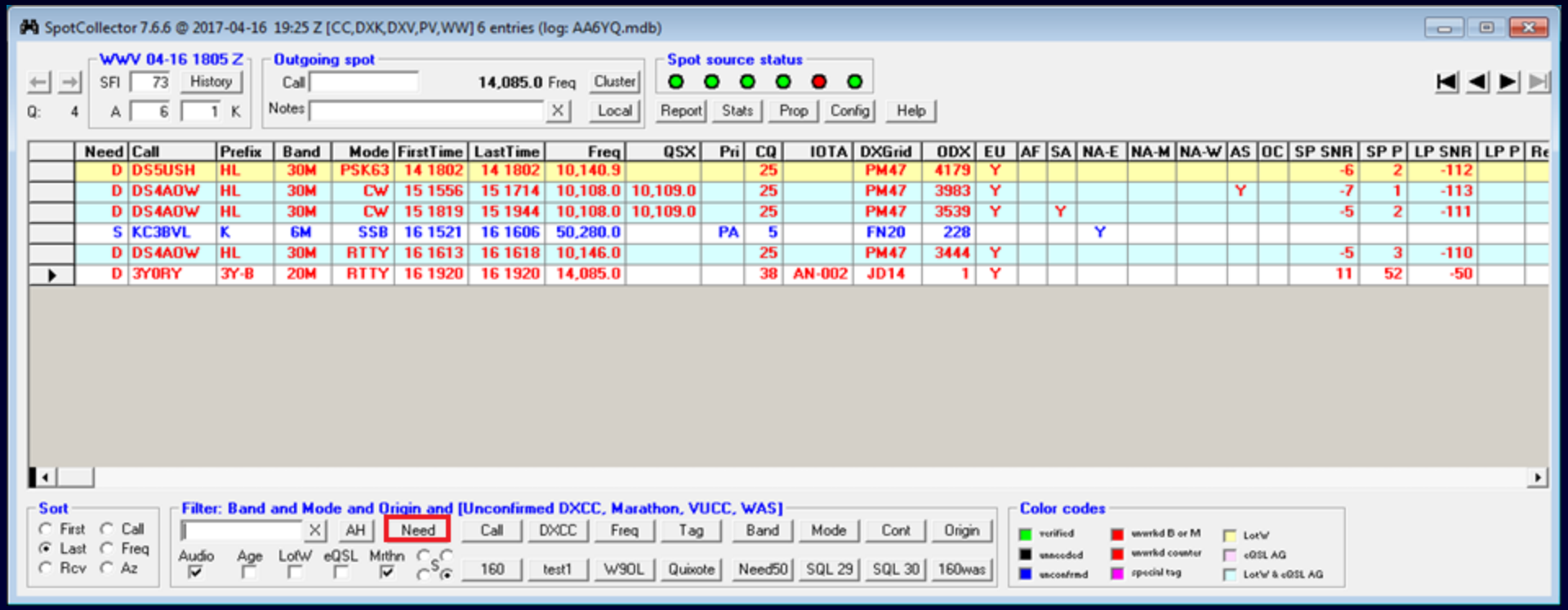

SpotCollector Band Filter
Transceiver Band Only
Enable Start/End & Max Origin DX Filtering
Band
Enable
Start UTC
End UTC
Max origin DX
630m
160m
SS-30
SR+45
80m
SS-60
SR+90
60m
40m
30m
20m
17m
15m
12m
10m
8m
6m
500
5m
4m
2m
1.25m
70cm
33cm
23cm
12cm
?
None
Top
Low
Tri
Warc
HF
VHF
UHF
Micro
All
Sunrise & Sunset
Sunrise UTC
0935
Sunset UTC
2349
Ignore
Start & End times
Max origin DX

Mode & Origin Filters



Tabular View of Active DX

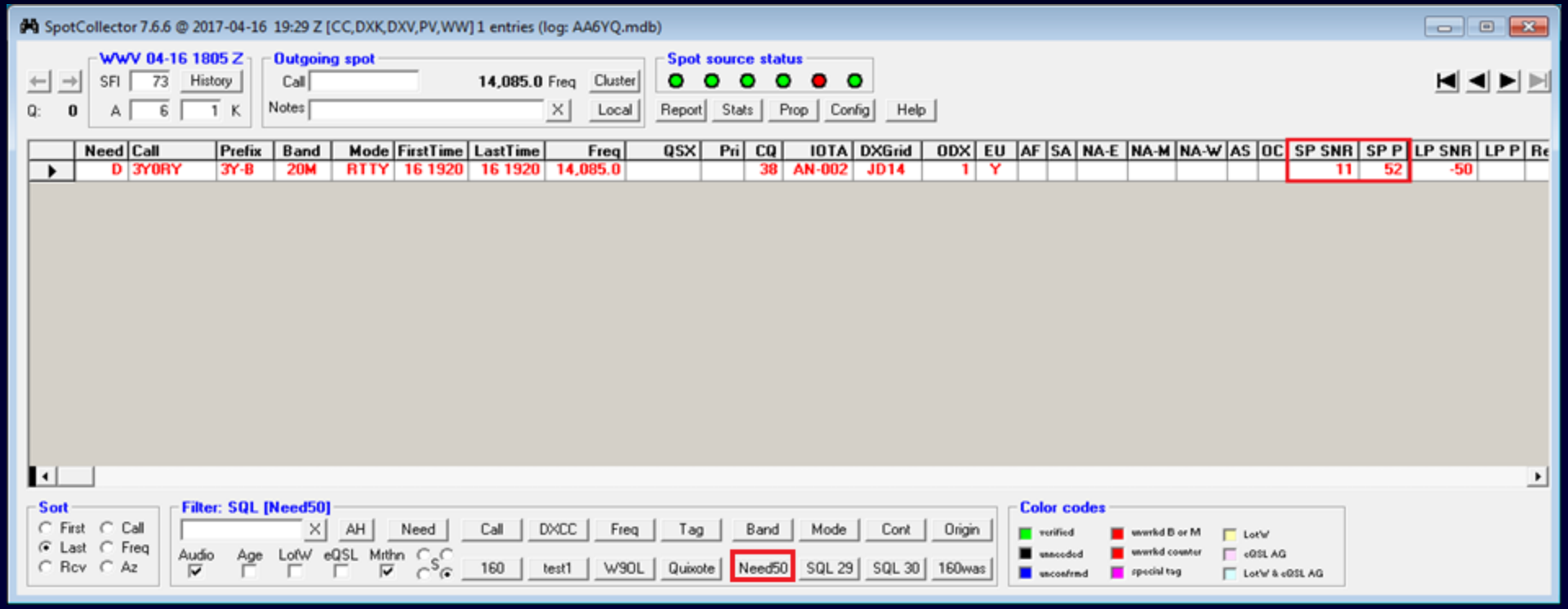
Needed DX on Selected Bands and Modes



Tabular View of Active DX

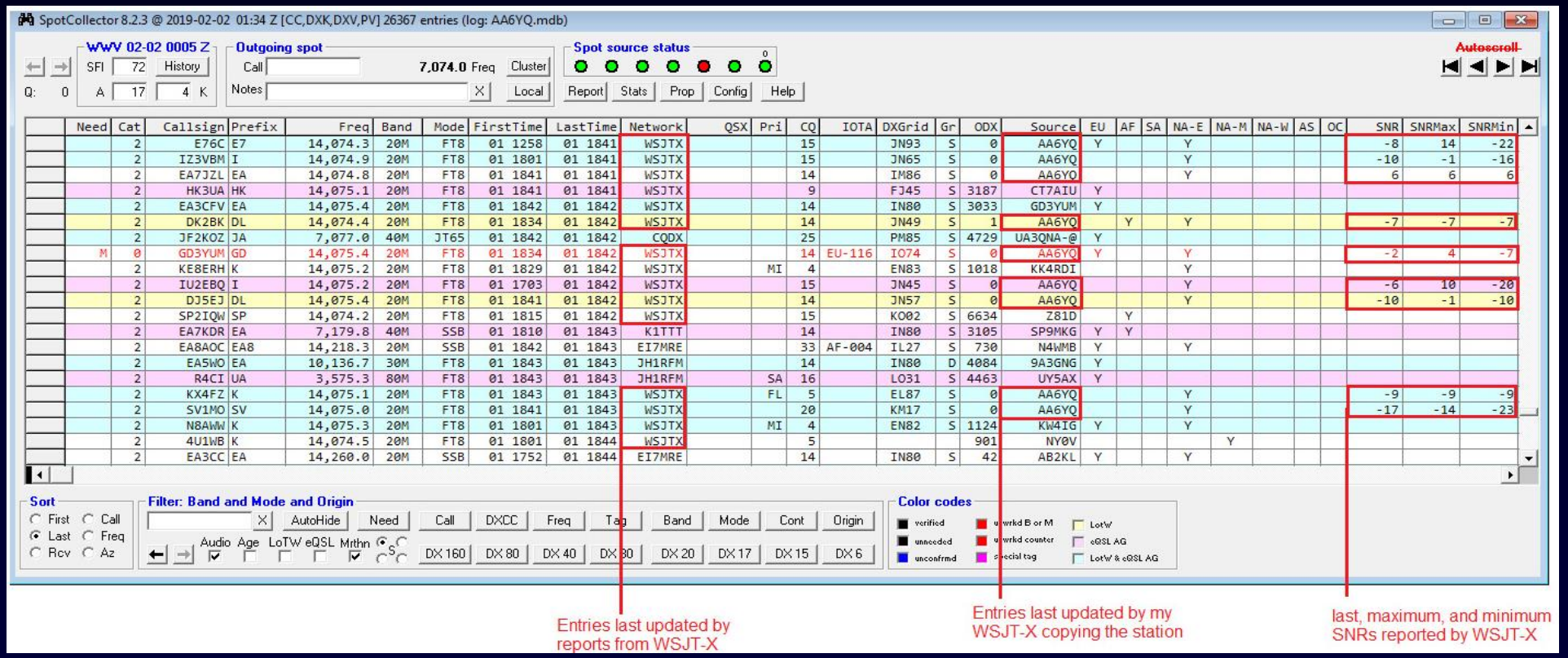
Needed DX on Selected Bands & Modes with SP Prob > 50%

<NEEDFILTER> and <BANDFILTER> and <MODEFILTER> and <ORIGINFILTER> and (SPProb>50)

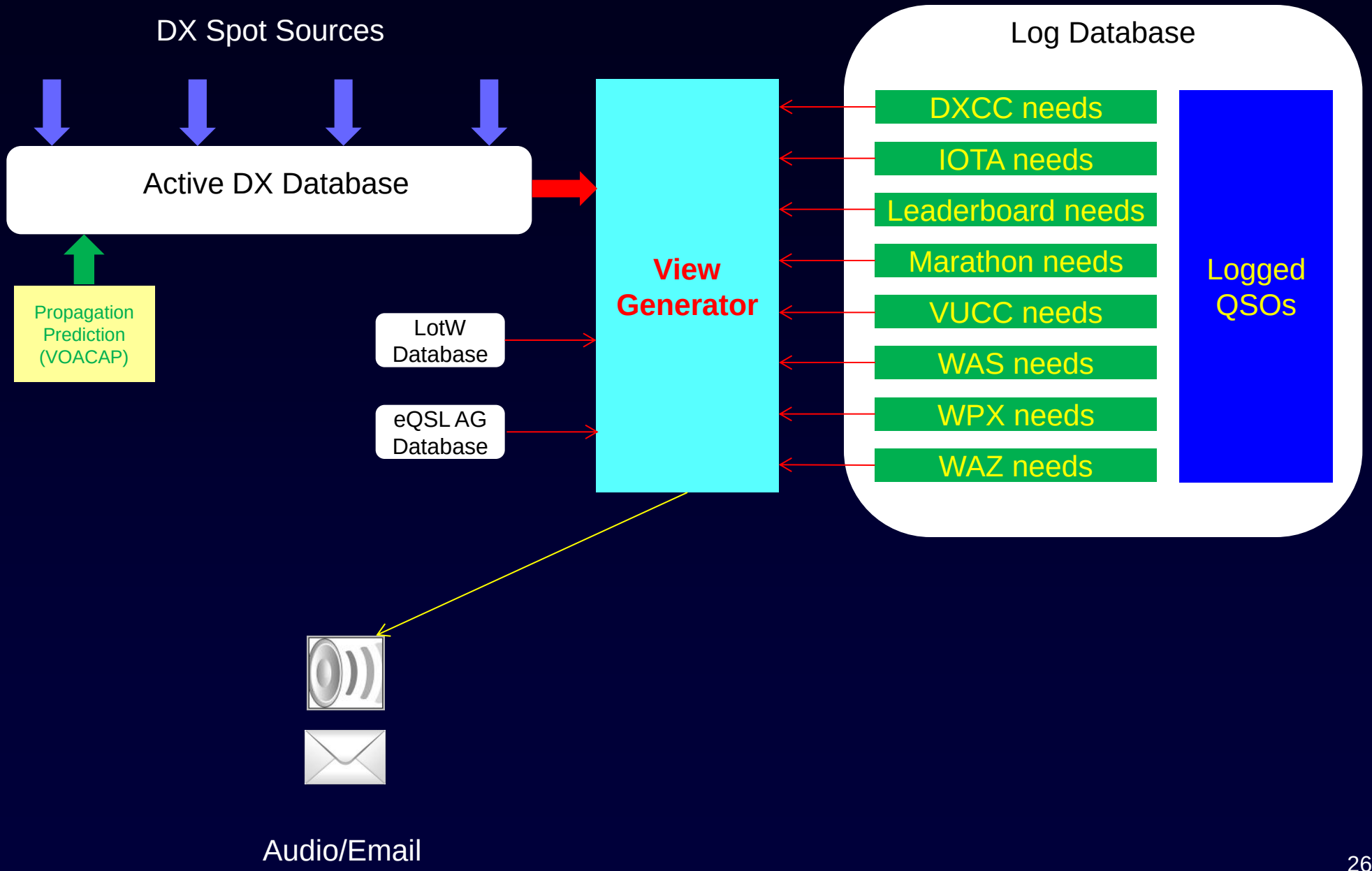


Tabular View of Active DX

Entries for K1JT modes show last SNR, max SNR, min SNR



Audio and Email Views of Active DX

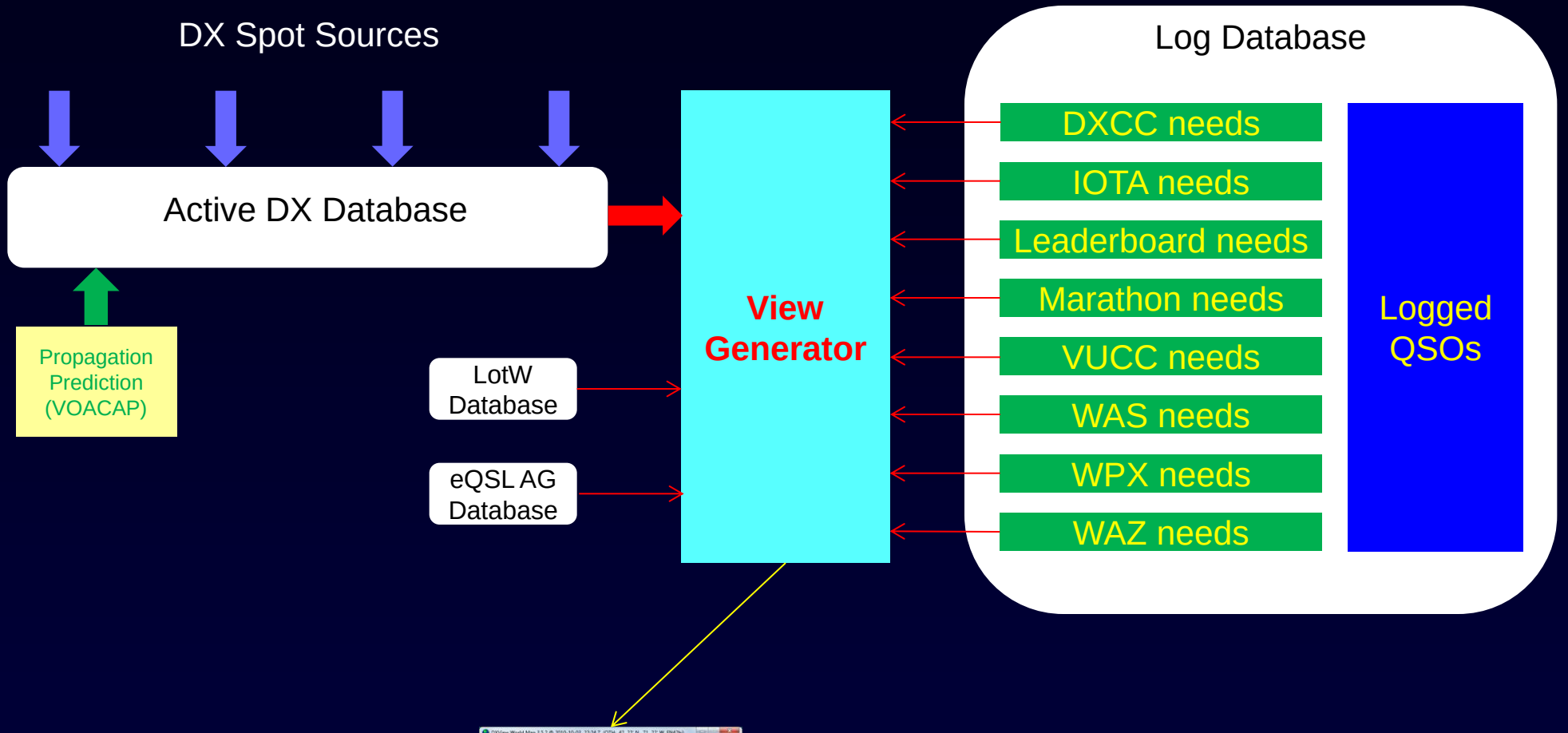


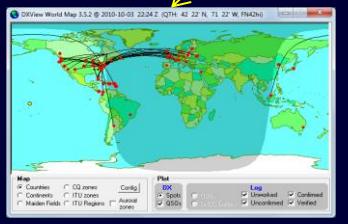
Audio and Email Views of Active DX

Creation of a new Active DX Database Entry for a needed DX station can trigger

- an audio announcement (callsign, “counter”, band, mode)
- an outgoing email message (which can initiate a text message)

World Map View of Active DX

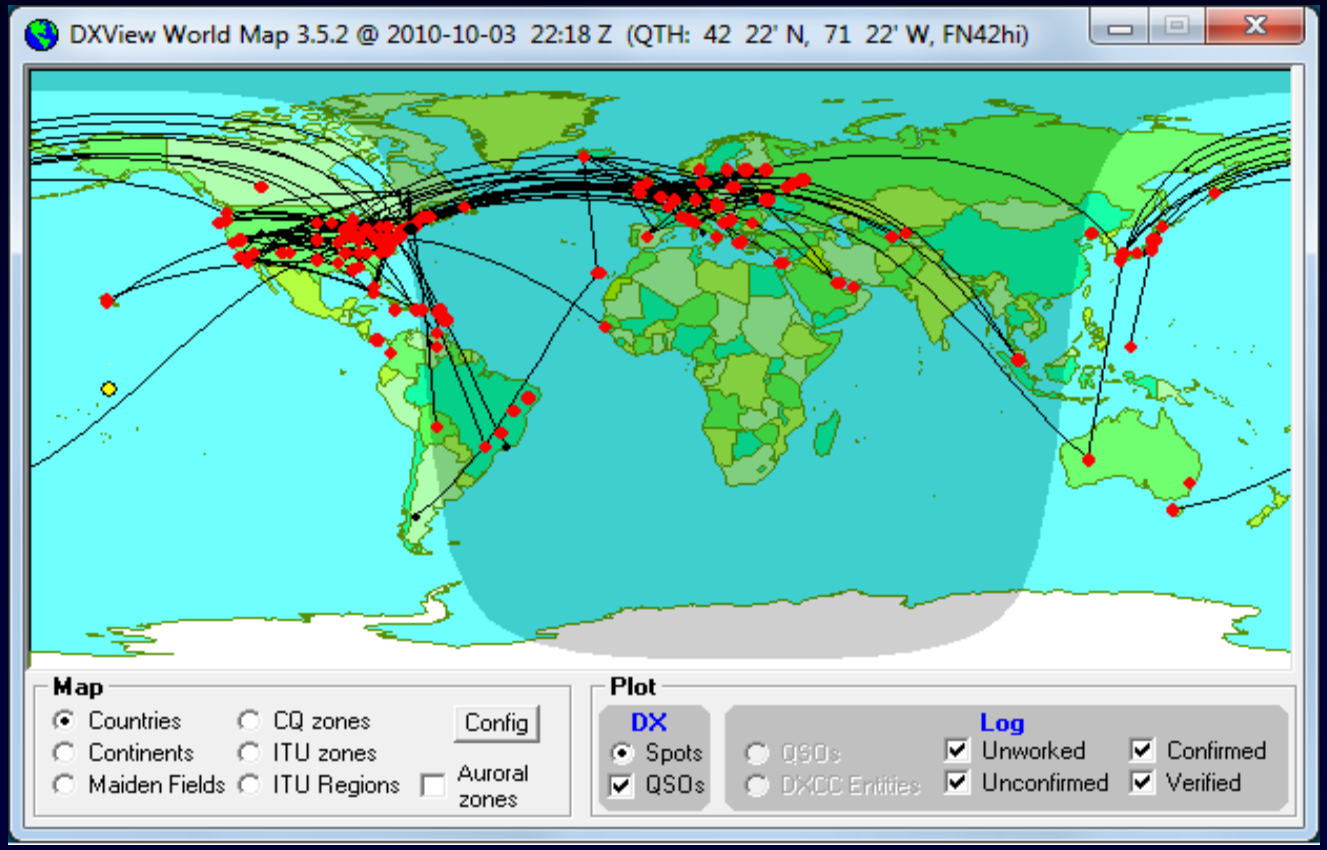




World Map

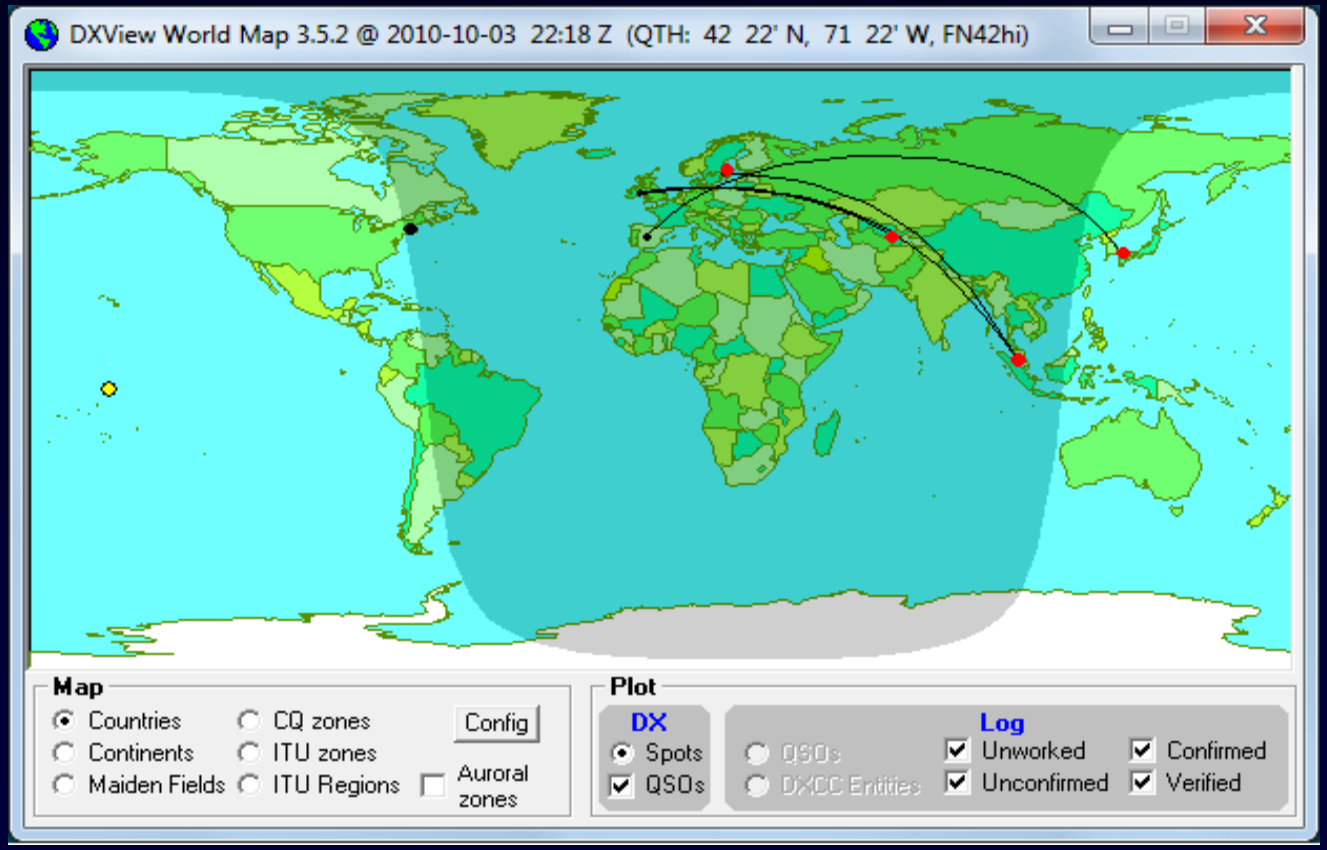
World Map View of Active DX

"Active DX on Selected Bands"

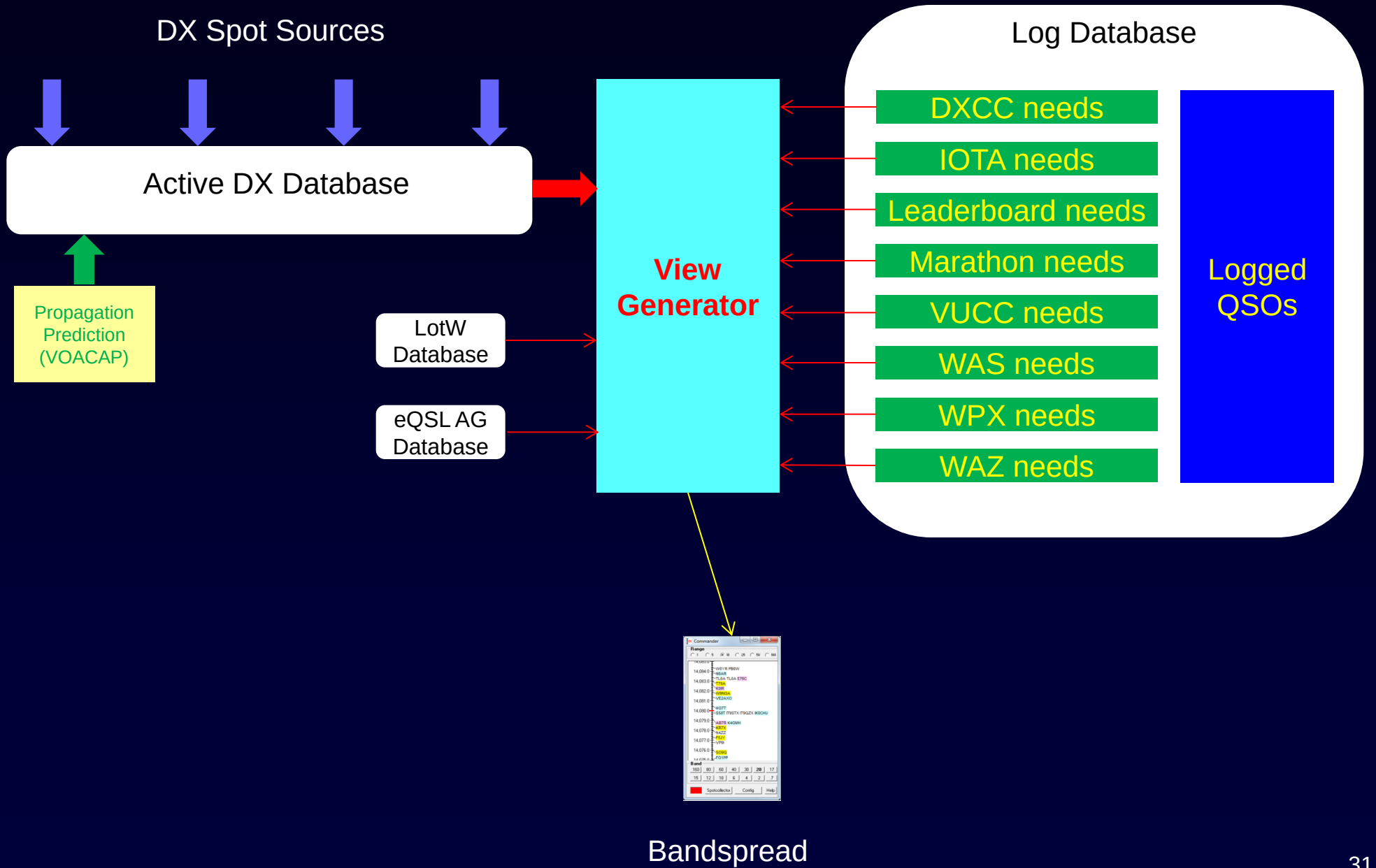


World Map View of Active DX

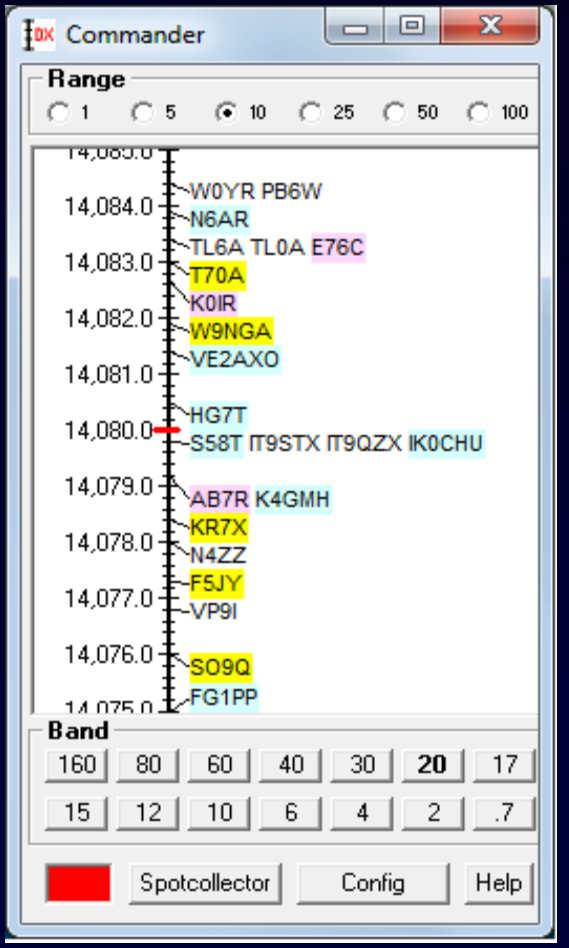
"160m"



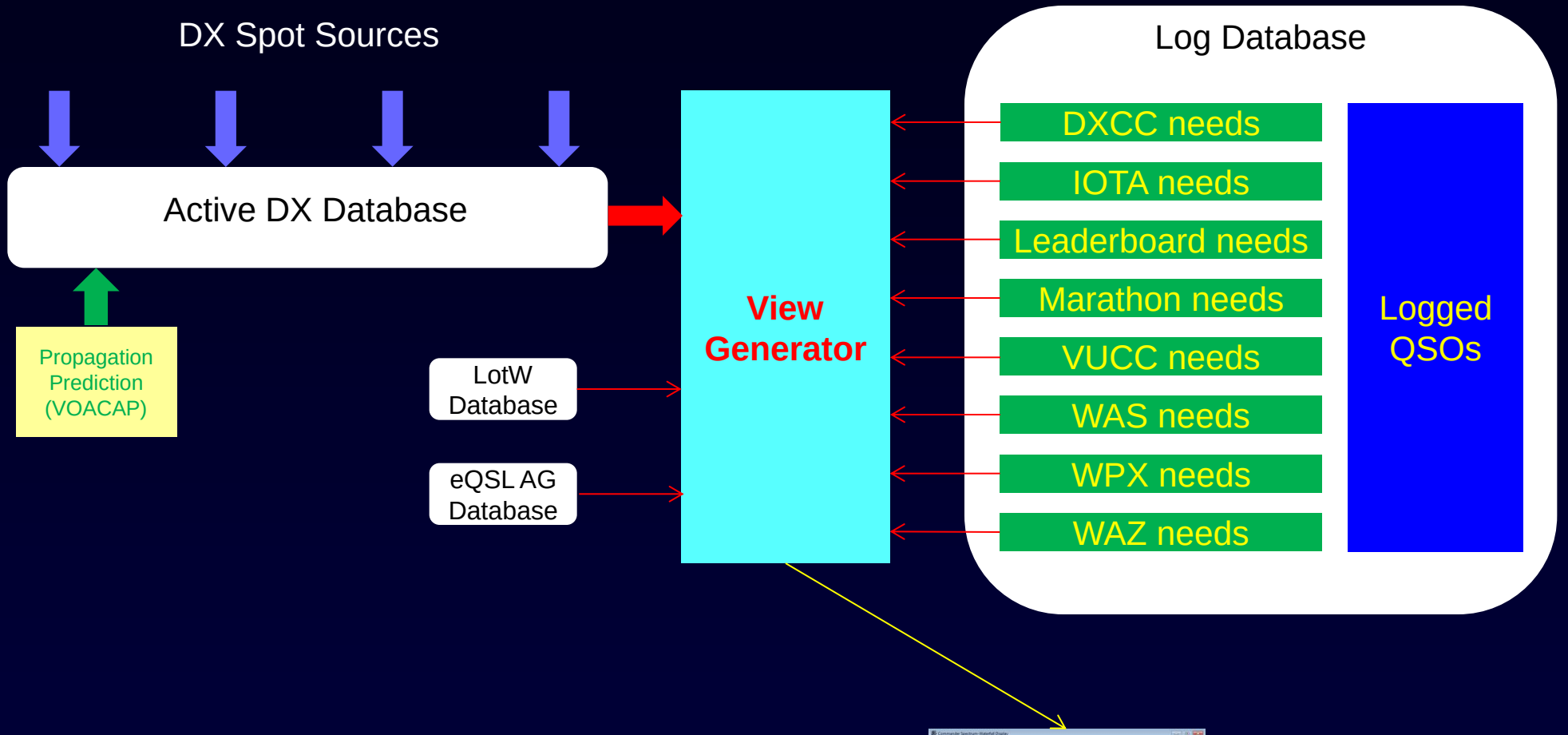
Bandspread View of Active DX

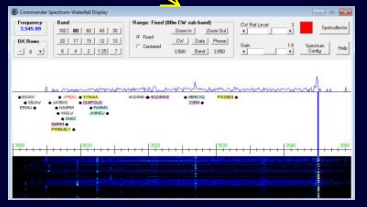


Bandspread View of Active DX



Spectrum-Waterfall View of Active DX

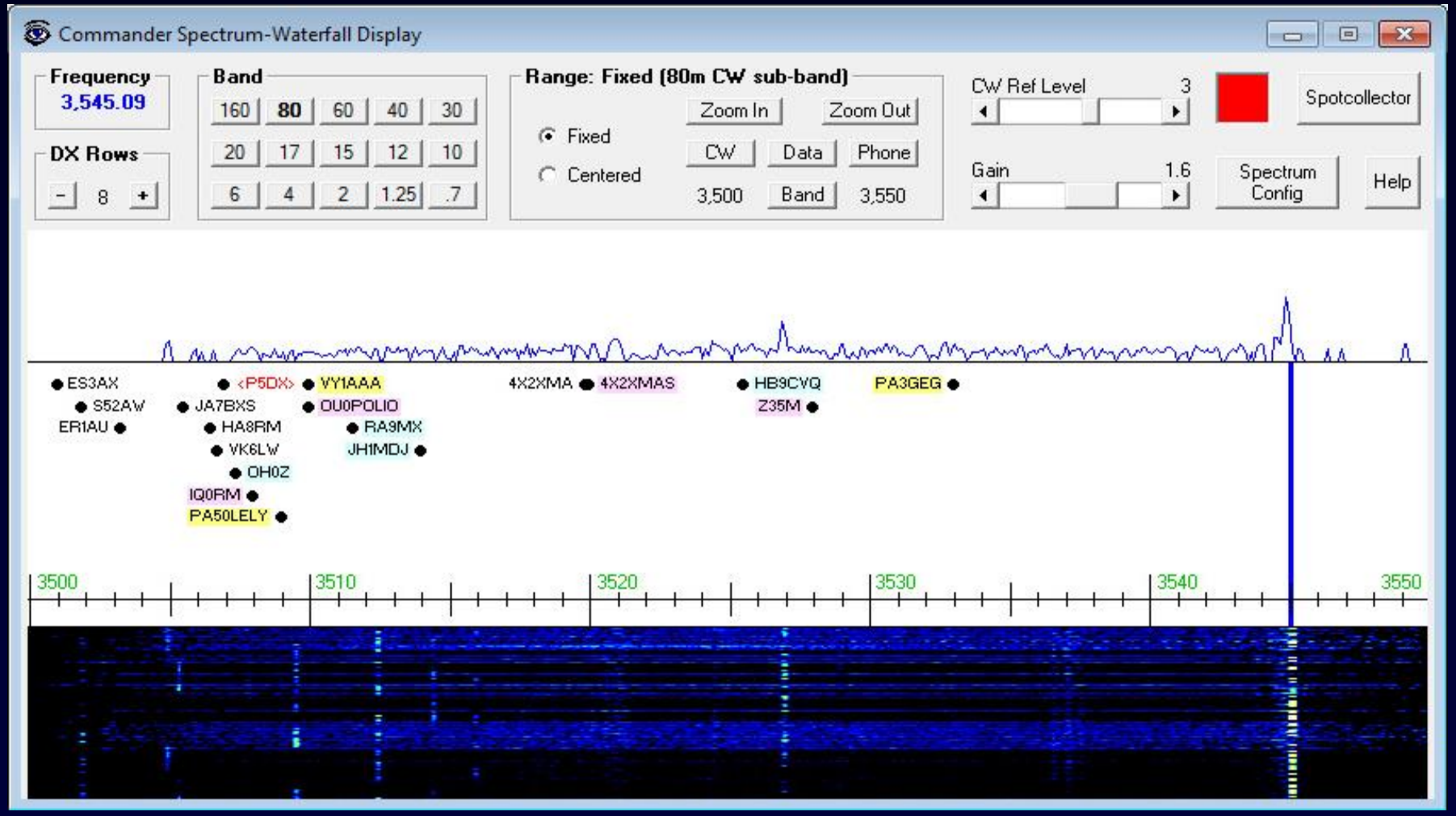




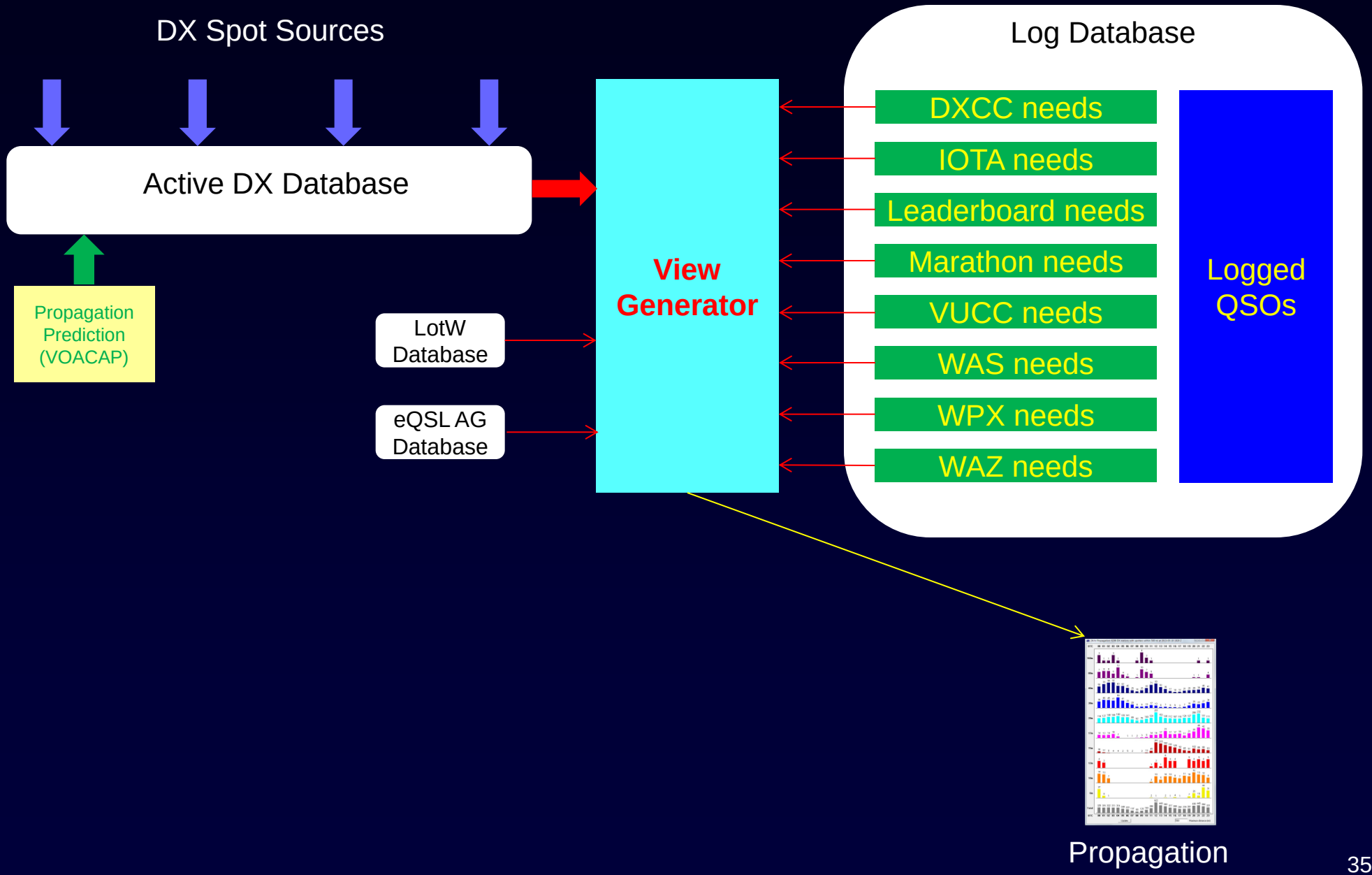
Spectrum

Spectrum-Waterfall View of Active DX

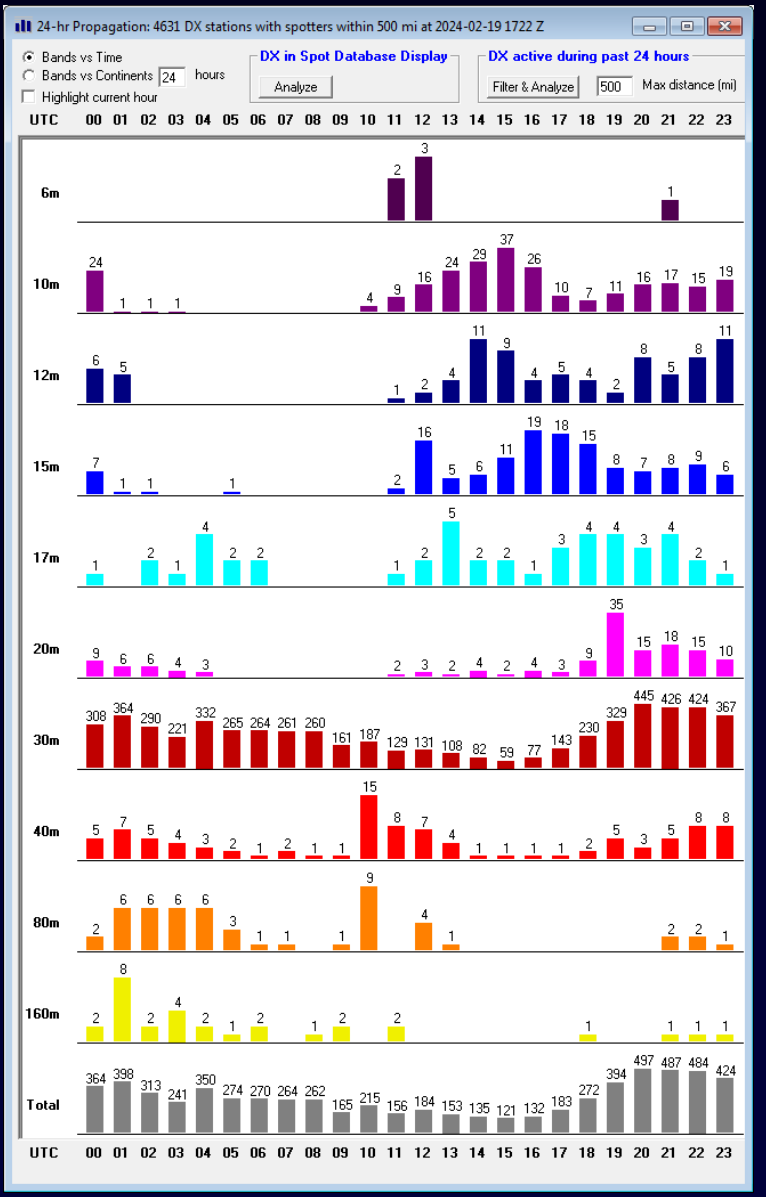
Icom 705, 7300, 7610, 7850, 7851, 9700; Elecraft K4



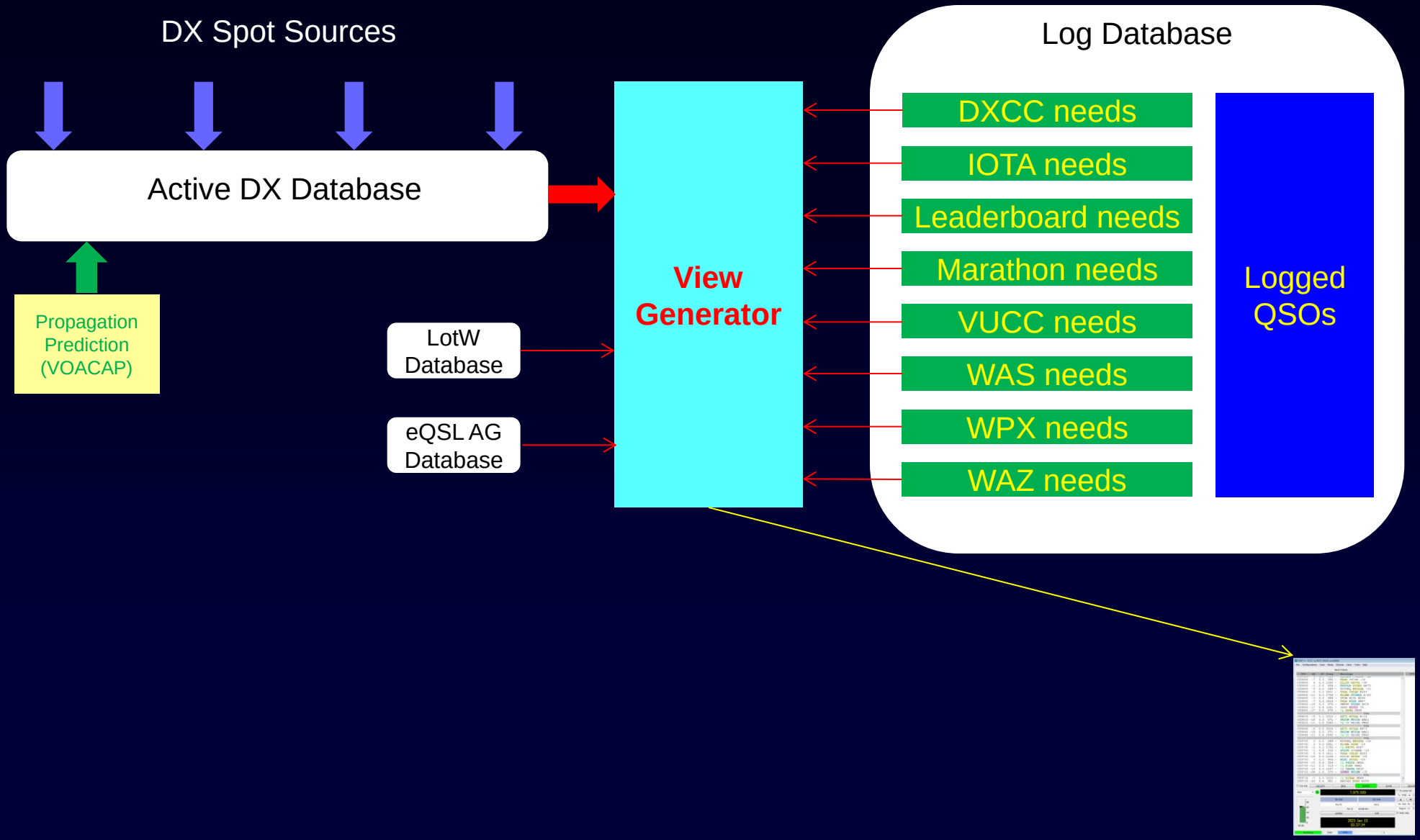
Propagation View of Active DX



Propagation View of Active DX

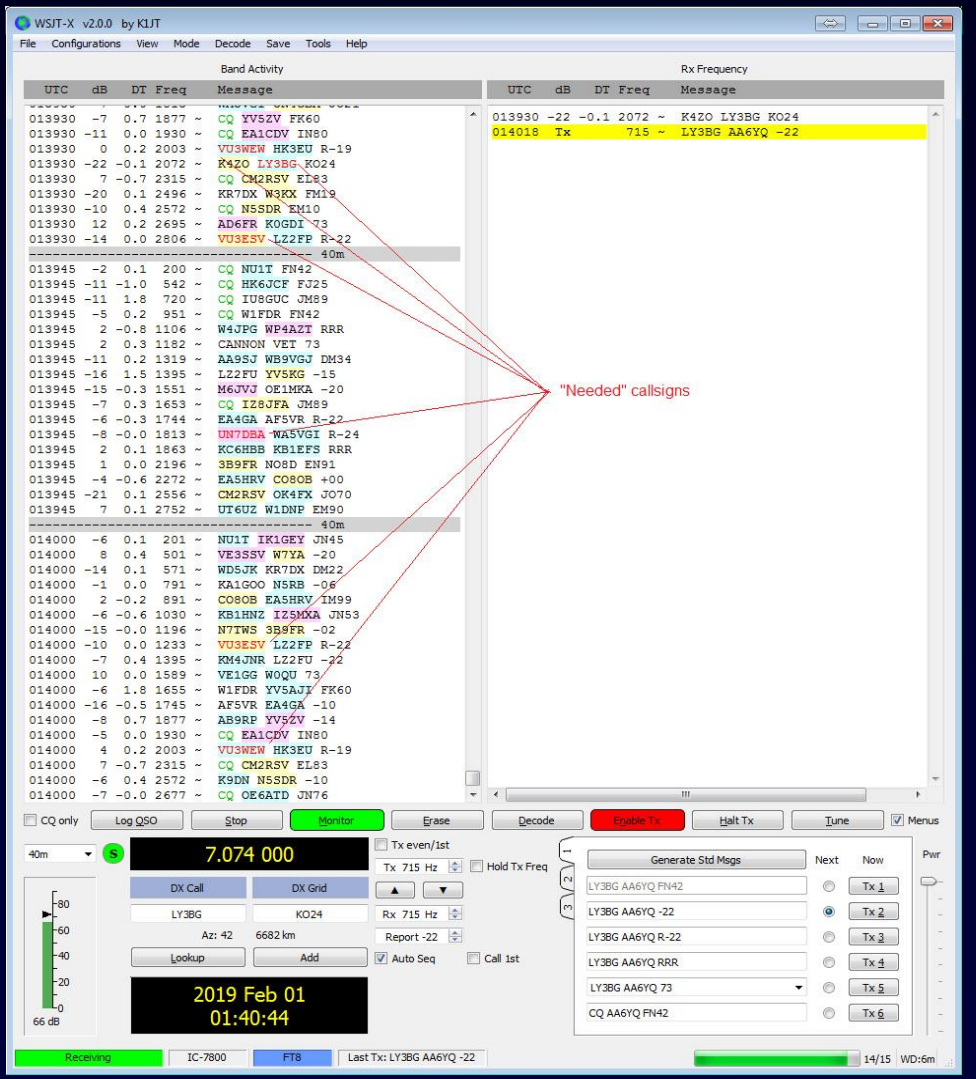


WSJT-X View of Active DX



WSJT-X View of Active DX

Log Database



Multiple Views of Active DX

DX Spot Sources

Active DX Database

Propagation Prediction (VOACAP)

LotW Database

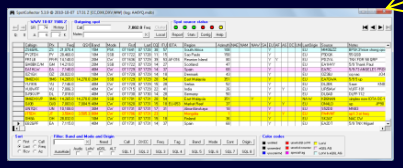
eQSL AG Database

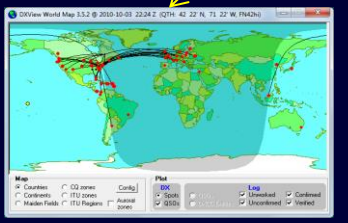
View Generator

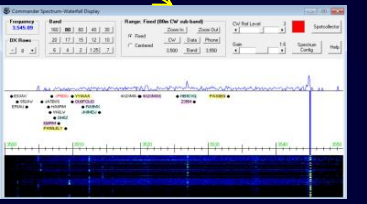
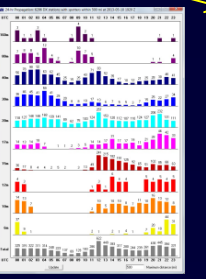
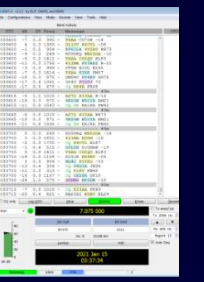
Log Database

- DXCC needs
- IOTA needs
- Leaderboard needs
- Marathon needs
- VUCC needs
- WAS needs
- WPX needs
- WAZ needs

Logged QSOs



Tabular Audio/Email World Map Bandspread Spectrum Propagation WSJT-X

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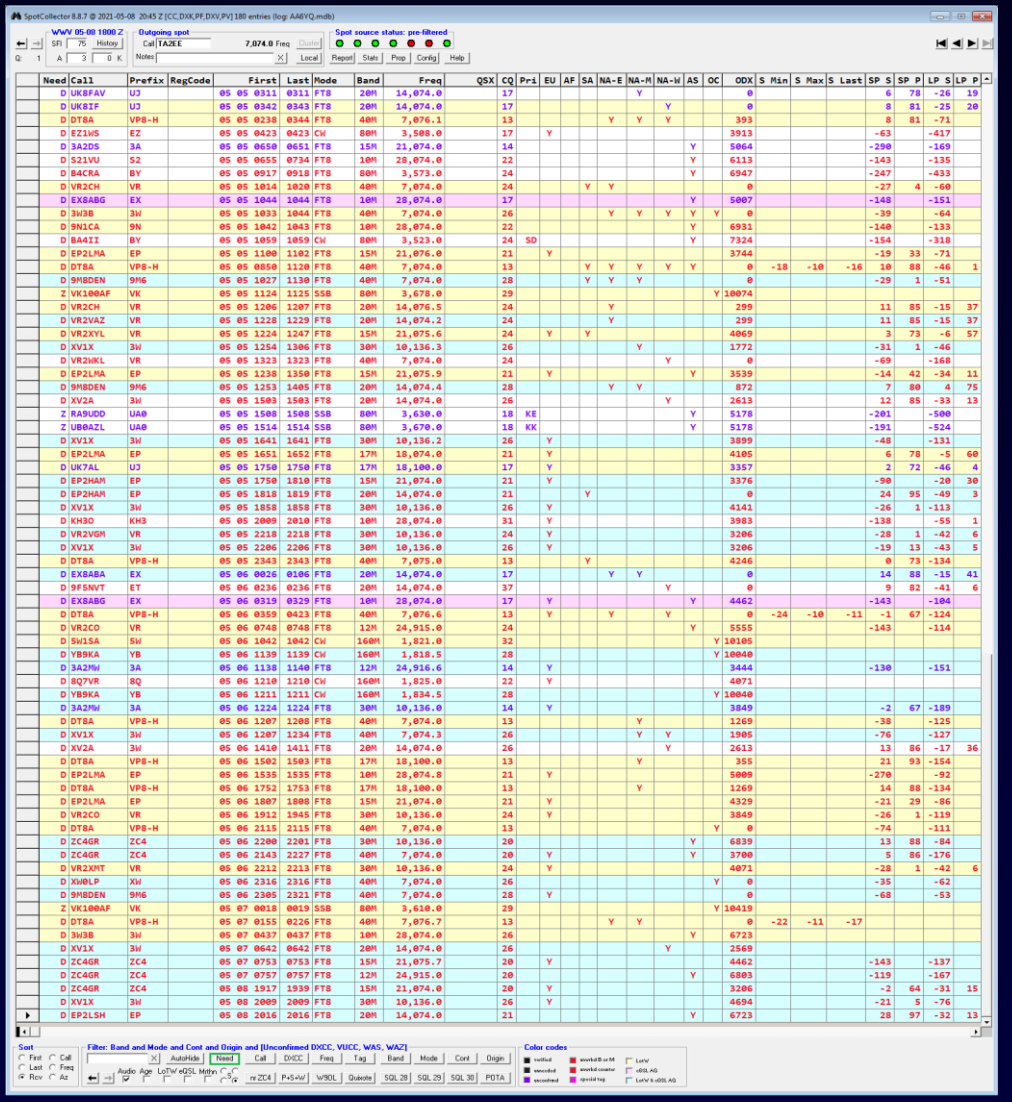
- Introduction to the DXLab Suite
  - Architecture
  - Development Drivers
  - Multiple Views of Active DX
- Finding the DX You Need
- Working the DX You Need

Finding and Working Needed DX

What is QRV that I Need?



Need	Call	Prefix	RegCode	First	Last	Mode	Band	Freq	QSX	CQ	Pri	EU	AF	SA	NA-E	NA-M	NA-W	AS	OC	ODX	S Min	S Max	S Last	SP S	SP P	LP S	LP P
D	UK8FAV	UJ		05 05 0311	0311	FT8	20M	14,074.0		17						Y				0				6	78	-26	19
D	UK8IF	UJ		05 05 0342	0343	FT8	20M	14,074.0		17							Y			0				8	81	-25	20
D	DT8A	VP8-H		05 05 0238	0344	FT8	40M	7,076.1		13					Y	Y	Y			393				8	81	-71	
D	EZ1WS	EZ		05 05 0423	0423	CW	80M	3,508.0		17		Y								3913				-63		-417	
D	3A2DS	3A		05 05 0650	0651	FT8	15M	21,074.0		14									Y	5064				-290		-169	
D	S21VU	S2		05 05 0655	0734	FT8	10M	28,074.0		22									Y	6113				-143		-135	
D	B4CRA	BY		05 05 0917	0918	FT8	80M	3,573.0		24									Y	6947				-247		-433	
D	VR2CH	VR		05 05 1014	1020	FT8	40M	7,074.0		24				Y	Y					0				-27	4	-60	
D	EX8ABG	EX		05 05 1044	1044	FT8	10M	28,074.0		17									Y	5007				-148		-151	
D	3W3B	3W		05 05 1033	1044	FT8	40M	7,074.0		26					Y	Y	Y	Y	Y	0				-39		-64	
D	9N1CA	9N		05 05 1042	1043	FT8	10M	28,074.0		22									Y	6931				-140		-133	
D	BA4II	BY		05 05 1059	1059	CW	80M	3,523.0		24	SD								Y	7324				-154		-318	
D	EP2LMA	EP		05 05 1100	1102	FT8	15M	21,076.0		21		Y								3744				-19	33	-71	
D	DT8A	VP8-H		05 05 0850	1120	FT8	40M	7,074.0		13				Y	Y	Y	Y	Y		0	-18	-10	-16	10	88	-46	1
D	9M8DEN	9M6		05 05 1027	1130	FT8	40M	7,074.0		28				Y	Y	Y				0				-29	1	-51	
Z	VK100AF	VK		05 05 1124	1125	SSB	80M	3,678.0		29										Y 10074							
D	VR2CH	VR		05 05 1206	1207	FT8	20M	14,076.5		24					Y					299				11	85	-15	37
D	VR2VAZ	VR		05 05 1228	1229	FT8	20M	14,074.2		24					Y					299				11	85	-15	37
D	VR2XYL	VR		05 05 1224	1247	FT8	15M	21,075.6		24		Y		Y						4069				3	73	-6	57
D	XV1X	3W		05 05 1254	1306	FT8	30M	10,136.3		26						Y				1772				-31	1	-46	
D	VR2HKL	VR		05 05 1323	1323	FT8	40M	7,074.0		24							Y			0				-69		-168	
D	EP2LMA	EP		05 05 1238	1350	FT8	15M	21,075.9		21		Y							Y	3539				-14	42	-34	11
D	9M8DEN	9M6		05 05 1253	1405	FT8	20M	14,074.4		28					Y	Y				872				7	80	4	75
D	XV2A	3W		05 05 1503	1503	FT8	20M	14,074.0		26							Y			2613				12	85	-33	13
Z	RA9UDD	UA0		05 05 1508	1508	SSB	80M	3,630.0		18	KE								Y	5178				-201		-500	
Z	UB0AZL	UA0		05 05 1514	1514	SSB	80M	3,670.0		18	KK								Y	5178				-191		-524	
D	XV1X	3W		05 05 1641	1641	FT8	30M	10,136.2		26		Y								3899				-48		-131	
D	EP2LMA	EP		05 05 1651	1652	FT8	17M	18,074.0		21		Y								4105				6	78	-5	60
D	UK7AL	UJ		05 05 1750	1750	FT8	17M	18,100.0		17		Y								3357				2	72	-46	4
D	EP2HAM	EP		05 05 1750	1810	FT8	15M	21,074.0		21		Y								3376				-90		-20	30
D	EP2HAM	EP		05 05 1818	1819	FT8	20M	14,074.0		21				Y						0				24	95	-49	3
D	XV1X	3W		05 05 1858	1858	FT8	30M	10,136.0		26		Y								4141				-26	1	-113	
D	KH3O	KH3		05 05 2009	2010	FT8	10M	28,074.0		31		Y								3983				-138		-55	1
D	VR2VGM	VR		05 05 2218	2218	FT8	30M	10,136.0		24		Y								3206				-28	1	-42	6
D	XV1X	3W		05 05 2206	2206	FT8	30M	10,136.0		26		Y								3206				-19	13	-43	5
D	DT8A	VP8-H		05 05 2343	2343	FT8	40M	7,075.0		13				Y						4246				0	73	-134	
D	EX8ABA	EX		05 06 0026	0106	FT8	20M	14,074.0		17					Y	Y				0				14	88	-15	41
D	9F5NVT	ET		05 06 0236	0236	FT8	20M	14,074.0		37							Y			0				9	82	-41	6
D	EX8ABG	EX		05 06 0319	0329	FT8	10M	28,074.0		17		Y							Y	4462				-143		-104	
D	DT8A	VP8-H		05 06 0359	0423	FT8	40M	7,076.6		13		Y			Y		Y			0	-24	-10	-11	-1	67	-124	
D	VR2CO	VR		05 06 0748	0748	FT8	12M	24,915.0		24									Y	5555				-143		-114	
D	5W1SA	5W		05 06 1042	1042	CW	160M	1,821.0		32										Y 10105							
D	YB9KA	YB		05 06 1139	1139	CW	160M	1,818.5		28										Y 10040							
D	3A2MW	3A		05 06 1138	1140	FT8	12M	24,916.6		14		Y								3444				-130		-151	
D	8Q7VR	8Q		05 06 1210	1210	CW	160M	1,825.0		22		Y								4071							
D	YB9KA	YB		05 06 1211	1211	CW	160M	1,834.5		28										Y 10040							
D	3A2MW	3A		05 06 1224	1224	FT8	30M	10,136.0		14		Y								3849				-2	67	-189	
D	DT8A	VP8-H		05 06 1207	1208	FT8	40M	7,074.0		13						Y				1269				-38		-125	
D	XV1X	3W		05 06 1207	1234	FT8	40M	7,074.3		26						Y	Y			1905				-76		-127	
D	XV2A	3W		05 06 1410	1411	FT8	20M	14,074.0		26							Y			2613				13	86	-17	36
D	DT8A	VP8-H		05 06 1502	1503	FT8	17M	18,100.0		13						Y				355				21	93	-154	
D	EP2LMA	EP		05 06 1535	1535	FT8	10M	28,074.8		21		Y								5009				-270		-92	
D	DT8A	VP8-H		05 06 1752	1753	FT8	17M	18,100.0		13						Y				1269				14	88	-134	
D	EP2LMA	EP		05 06 1807	1808	FT8	15M	21,074.0		21		Y								4329				-21	29	-86	
D	VR2CO	VR		05 06 1912	1945	FT8	30M	10,136.0		24		Y								3849				-26	1	-119	
D	DT8A	VP8-H		05 06 2115	2115	FT8	40M	7,074.0		13									Y	0				-74		-111	
D	ZC4GR	ZC4		05 06 2200	2201	FT8	30M	10,136.0		20									Y	6839				13	88	-84	
D	ZC4GR	ZC4		05 06 2143	2227	FT8	40M	7,074.0		20		Y							Y	3700				5	86	-176	
D	VR2XMT	VR		05 06 2212	2213	FT8	30M	10,136.0		24		Y								4071				-28	1	-42	6
D	XW0LP	XW		05 06 2316	2316	FT8	40M	7,074.0		26									Y	0				-35		-62	
D	9M8DEN	9M6		05 06 2305	2321	FT8	40M	7,074.0		28		Y								0				-68		-53	
Z	VK100AF	VK		05 07 0018	0019	SSB	80M	3,610.0		29										Y 10419							
D	DT8A	VP8-H		05 07 0155	0226	FT8	40M	7,076.7		13					Y	Y				0	-22	-11	-17				
D	3W3B	3W		05 07 0437	0437	FT8	10M	28,074.0		26									Y	6723							
D	XV1X	3W		05 07 0642	0642	FT8	20M	14,074.0		26							Y			2569							
D	ZC4GR	ZC4		05 07 0753	0753	FT8	15M	21,075.7		20		Y								4462				-143		-137	
D	ZC4GR	ZC4		05 07 0757	0757	FT8	12M	24,915.0		20									Y	6803				-119		-167	
D	ZC4GR	ZC4		05 08 1917	1939	FT8	15M	21,074.0		20		Y								3206				-2	64	-31	15
D	XV1X	3W		05 08 2009	2009	FT8	30M	10,136.0		26		Y								4694				-21	5	-76	
D	EP2LSH	EP		05 08 2016	2016	FT8	20M	14,074.0		21									Y	6723				28	97	-32	13

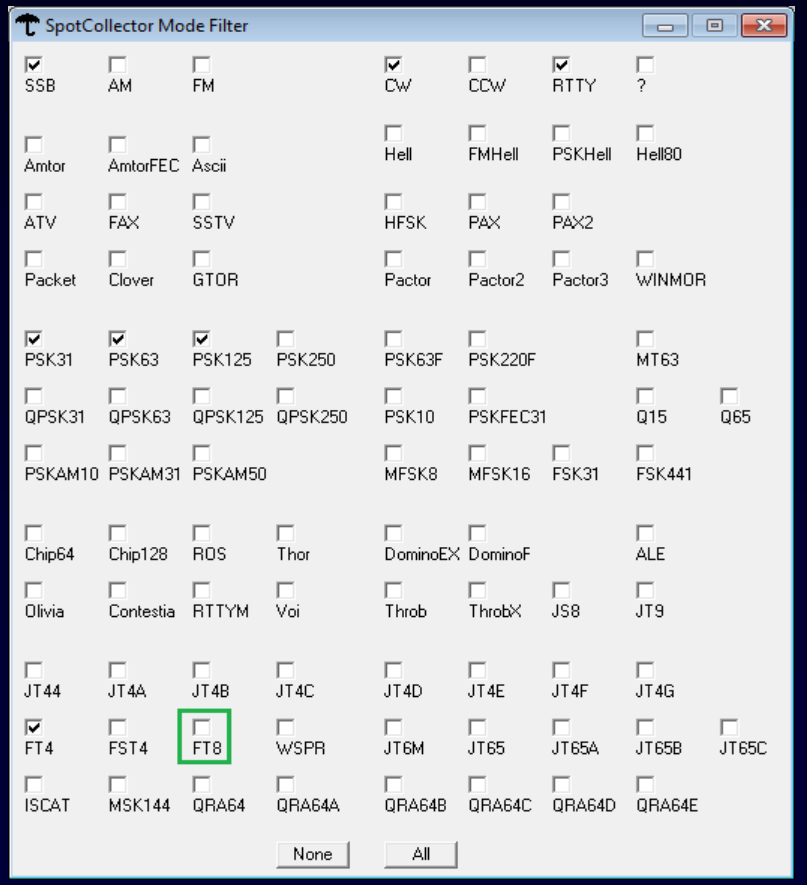
Interesting Targets

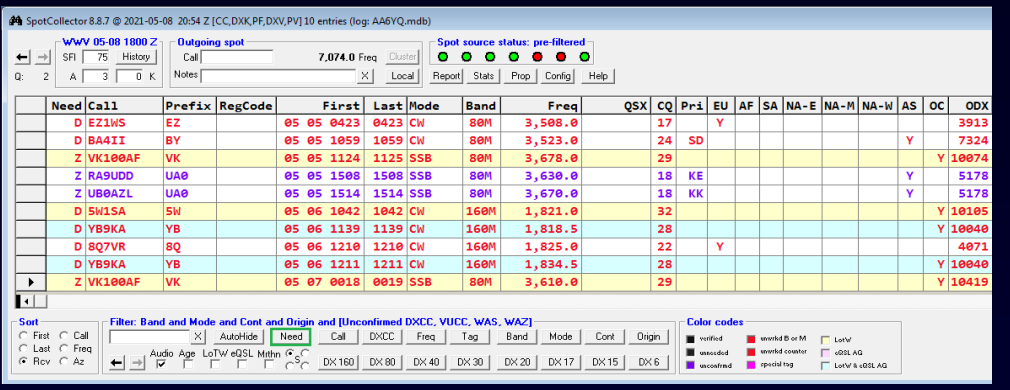
- 3W
- 5W
- 9M8
- 9N
- BA
- EP2LMA
- VP8-H
- VR
- XV
- YB
- ZC4

Almost All FT8 !

Finding and Working Needed DX

What is QRV in other than FT8 that I Need?

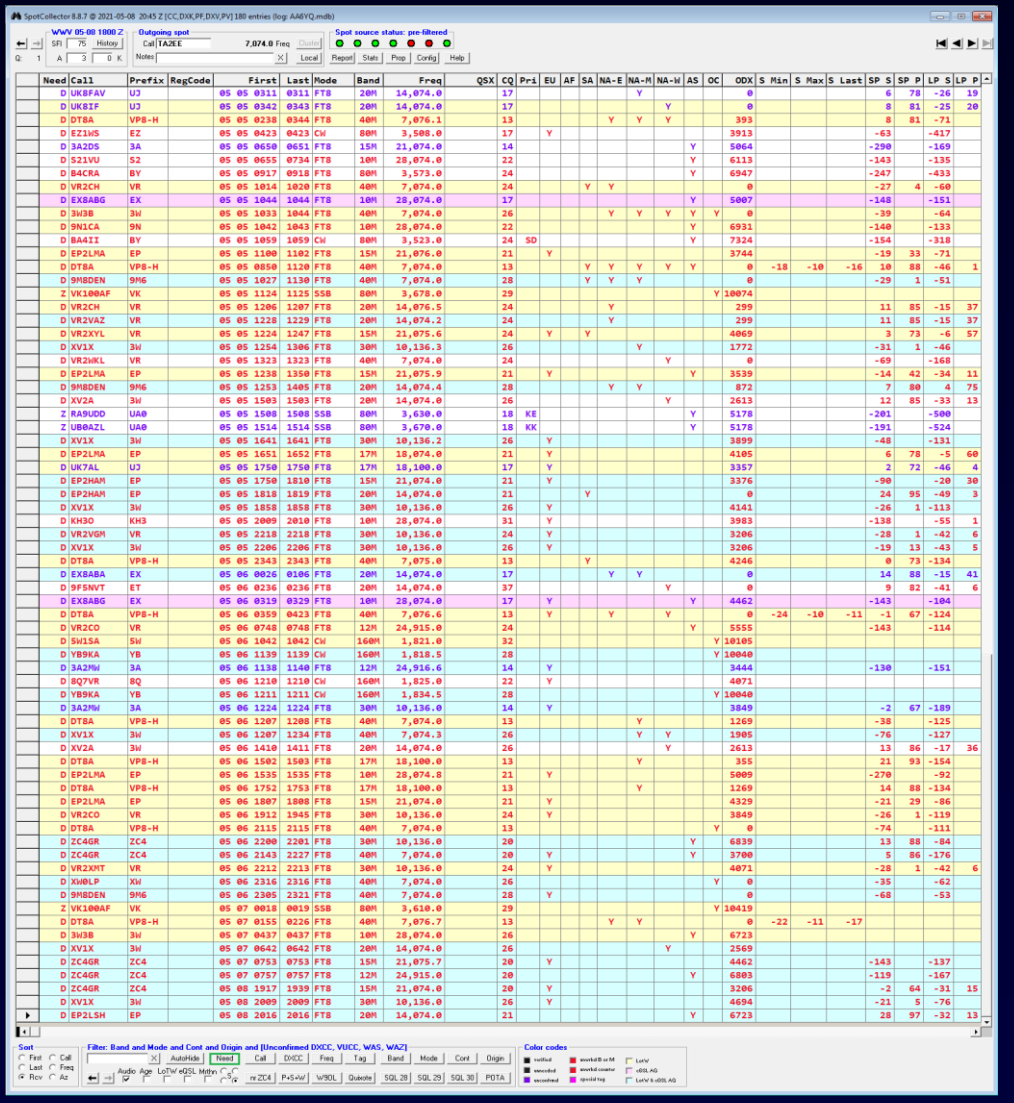




- Stations on 160m and 80m
  - EZ1WS not valid for DXCC
  - VK1000AF is in SSB, and is only needed for WAZ
  - The rest were spotted after my 1030Z sunrise

Finding and Working Needed DX

What is QRV that I Need?



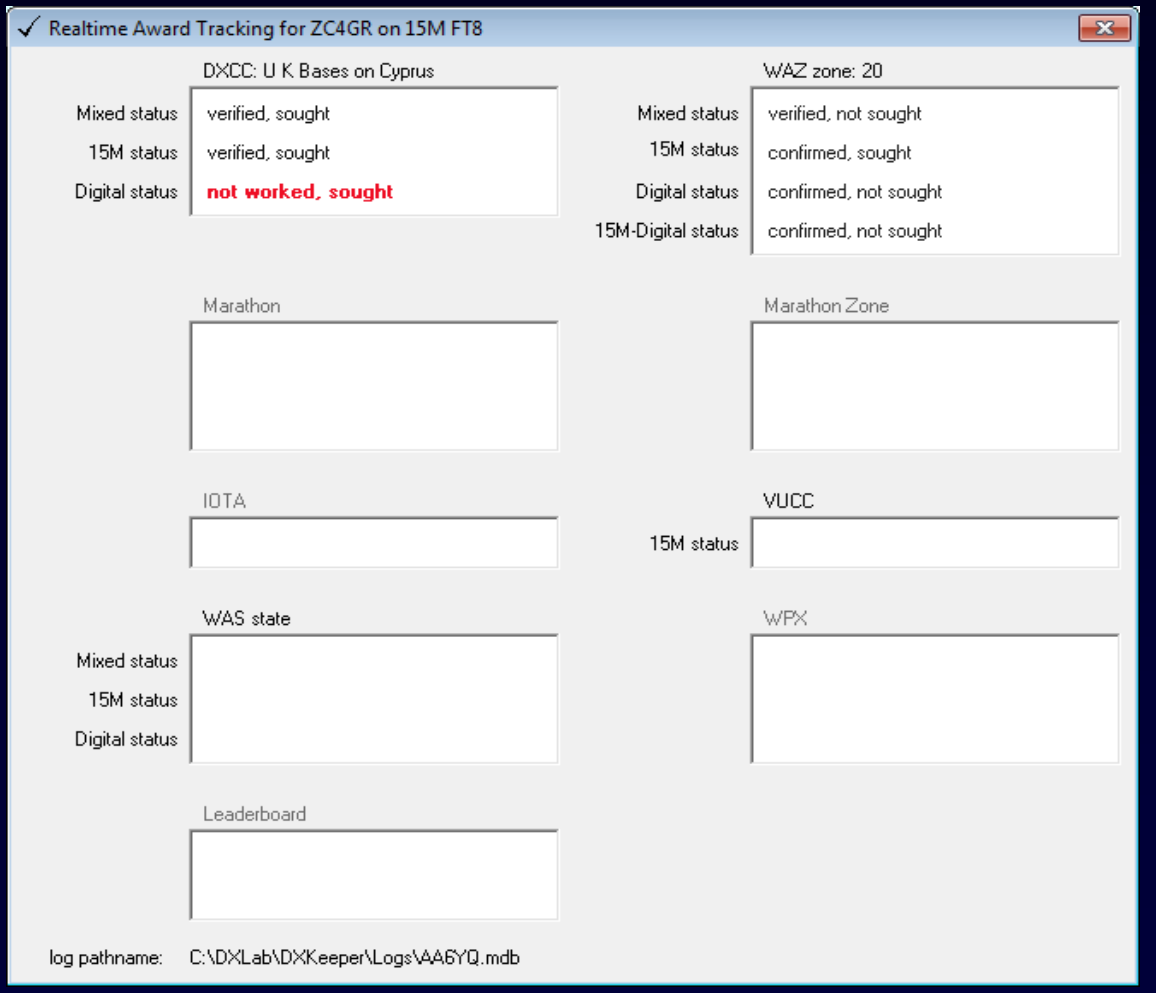
Need	Call	Prefix	RegCode	First	Last	Mode	Band	Freq	QSX	CQ	Pri	EU	AF	SA	NA-E	NA-M	NA-W	AS	OC	ODX	S Min	S Max	S Last	SP S	SP P	LP S	LP P
D	UK8FAV	UJ		05 05 0311	0311	FT8	20M	14,074.0		17						Y				0				6	78	-26	19
D	UK8IF	UJ		05 05 0342	0343	FT8	20M	14,074.0		17							Y			0				8	81	-25	20
D	DT8A	VP8-H		05 05 0238	0344	FT8	40M	7,076.1		13					Y	Y	Y			393				8	81	-71	
D	EZ1WS	EZ		05 05 0423	0423	CW	80M	3,508.0		17		Y								3913				-63		-417	
D	3A2DS	3A		05 05 0650	0651	FT8	15M	21,074.0		14									Y	5064				-290		-169	
D	S21VU	S2		05 05 0655	0734	FT8	10M	28,074.0		22									Y	6113				-143		-135	
D	B4CRA	BY		05 05 0917	0918	FT8	80M	3,573.0		24									Y	6947				-247		-433	
D	VR2CH	VR		05 05 1014	1020	FT8	40M	7,074.0		24				Y	Y					0				-27	4	-60	
D	EX8ABG	EX		05 05 1044	1044	FT8	10M	28,074.0		17									Y	5007				-148		-151	
D	3W3B	3W		05 05 1033	1044	FT8	40M	7,074.0		26					Y	Y	Y	Y	Y	0				-39		-64	
D	9N1CA	9N		05 05 1042	1043	FT8	10M	28,074.0		22									Y	6931				-140		-133	
D	BA4II	BY		05 05 1059	1059	CW	80M	3,523.0		24	SD								Y	7324				-154		-318	
D	EP2LMA	EP		05 05 1100	1102	FT8	15M	21,076.0		21		Y								3744				-19	33	-71	
D	DT8A	VP8-H		05 05 0850	1120	FT8	40M	7,074.0		13				Y	Y	Y	Y	Y		0	-18	-10	-16	10	88	-46	1
D	9M8DEN	9M6		05 05 1027	1130	FT8	40M	7,074.0		28				Y	Y	Y				0				-29	1	-51	
Z	VK100AF	VK		05 05 1124	1125	SSB	80M	3,678.0		29										Y 10074							
D	VR2CH	VR		05 05 1206	1207	FT8	20M	14,076.5		24					Y					299				11	85	-15	37
D	VR2VAZ	VR		05 05 1228	1229	FT8	20M	14,074.2		24					Y					299				11	85	-15	37
D	VR2XYL	VR		05 05 1224	1247	FT8	15M	21,075.6		24		Y		Y						4069				3	73	-6	57
D	XV1X	3W		05 05 1254	1306	FT8	30M	10,136.3		26						Y				1772				-31	1	-46	
D	VR2HKL	VR		05 05 1323	1323	FT8	40M	7,074.0		24							Y			0				-69		-168	
D	EP2LMA	EP		05 05 1238	1350	FT8	15M	21,075.9		21		Y							Y	3539				-14	42	-34	11
D	9M8DEN	9M6		05 05 1253	1405	FT8	20M	14,074.4		28					Y	Y				872				7	80	4	75
D	XV2A	3W		05 05 1503	1503	FT8	20M	14,074.0		26							Y			2613				12	85	-33	13
Z	RA9UDD	UA0		05 05 1508	1508	SSB	80M	3,630.0		18	KE								Y	5178				-201		-500	
Z	UB0AZL	UA0		05 05 1514	1514	SSB	80M	3,670.0		18	KK								Y	5178				-191		-524	
D	XV1X	3W		05 05 1641	1641	FT8	30M	10,136.2		26		Y								3899				-48		-131	
D	EP2LMA	EP		05 05 1651	1652	FT8	17M	18,074.0		21		Y								4105				6	78	-5	60
D	UK7AL	UJ		05 05 1750	1750	FT8	17M	18,100.0		17		Y								3357				2	72	-46	4
D	EP2HAM	EP		05 05 1750	1810	FT8	15M	21,074.0		21		Y								3376				-90		-20	30
D	EP2HAM	EP		05 05 1818	1819	FT8	20M	14,074.0		21				Y						0				24	95	-49	3
D	XV1X	3W		05 05 1858	1858	FT8	30M	10,136.0		26		Y								4141				-26	1	-113	
D	KH3O	KH3		05 05 2009	2010	FT8	10M	28,074.0		31		Y								3983				-138		-55	1
D	VR2VGM	VR		05 05 2218	2218	FT8	30M	10,136.0		24		Y								3206				-28	1	-42	6
D	XV1X	3W		05 05 2206	2206	FT8	30M	10,136.0		26		Y								3206				-19	13	-43	5
D	DT8A	VP8-H		05 05 2343	2343	FT8	40M	7,075.0		13				Y						4246				0	73	-134	
D	EX8ABA	EX		05 06 0026	0106	FT8	20M	14,074.0		17					Y	Y				0				14	88	-15	41
D	9F5NVT	ET		05 06 0236	0236	FT8	20M	14,074.0		37							Y			0				9	82	-41	6
D	EX8ABG	EX		05 06 0319	0329	FT8	10M	28,074.0		17		Y							Y	4462				-143		-104	
D	DT8A	VP8-H		05 06 0359	0423	FT8	40M	7,076.6		13		Y			Y		Y			0	-24	-10	-11	-1	67	-124	
D	VR2CO	VR		05 06 0748	0748	FT8	12M	24,915.0		24									Y	5555				-143		-114	
D	5W1SA	5W		05 06 1042	1042	CW	160M	1,821.0		32										Y 10105							
D	YB9KA	YB		05 06 1139	1139	CW	160M	1,818.5		28										Y 10040							
D	3A2MW	3A		05 06 1138	1140	FT8	12M	24,916.6		14		Y								3444				-130		-151	
D	8Q7VR	8Q		05 06 1210	1210	CW	160M	1,825.0		22		Y								4071							
D	YB9KA	YB		05 06 1211	1211	CW	160M	1,834.5		28										Y 10040							
D	3A2MW	3A		05 06 1224	1224	FT8	30M	10,136.0		14		Y								3849				-2	67	-189	
D	DT8A	VP8-H		05 06 1207	1208	FT8	40M	7,074.0		13						Y				1269				-38		-125	
D	XV1X	3W		05 06 1207	1234	FT8	40M	7,074.3		26						Y	Y			1905				-76		-127	
D	XV2A	3W		05 06 1410	1411	FT8	20M	14,074.0		26							Y			2613				13	86	-17	36
D	DT8A	VP8-H		05 06 1502	1503	FT8	17M	18,100.0		13						Y				355				21	93	-154	
D	EP2LMA	EP		05 06 1535	1535	FT8	10M	28,074.8		21		Y								5009				-270		-92	
D	DT8A	VP8-H		05 06 1752	1753	FT8	17M	18,100.0		13						Y				1269				14	88	-134	
D	EP2LMA	EP		05 06 1807	1808	FT8	15M	21,074.0		21		Y								4329				-21	29	-86	
D	VR2CO	VR		05 06 1912	1945	FT8	30M	10,136.0		24		Y								3849				-26	1	-119	
D	DT8A	VP8-H		05 06 2115	2115	FT8	40M	7,074.0		13									Y	0				-74		-111	
D	ZC4GR	ZC4		05 06 2200	2201	FT8	30M	10,136.0		20									Y	6839				13	88	-84	
D	ZC4GR	ZC4		05 06 2143	2227	FT8	40M	7,074.0		20		Y							Y	3700				5	86	-176	
D	VR2XMT	VR		05 06 2212	2213	FT8	30M	10,136.0		24		Y								4071				-28	1	-42	6
D	XW0LP	XW		05 06 2316	2316	FT8	40M	7,074.0		26										Y 0				-35		-62	
D	9M8DEN	9M6		05 06 2305	2321	FT8	40M	7,074.0		28		Y								0				-68		-53	
Z	VK100AF	VK		05 07 0018	0019	SSB	80M	3,610.0		29										Y 10419							
D	DT8A	VP8-H		05 07 0155	0226	FT8	40M	7,076.7		13					Y	Y				0	-22	-11	-17				
D	3W3B	3W		05 07 0437	0437	FT8	10M	28,074.0		26									Y	6723							
D	XV1X	3W		05 07 0642	0642	FT8	20M	14,074.0		26							Y			2569							
D	ZC4GR	ZC4		05 07 0753	0753	FT8	15M	21,075.7		20		Y								4462				-143		-137	
D	ZC4GR	ZC4		05 07 0757	0757	FT8	12M	24,915.0		20									Y	6803				-119		-167	
D	ZC4GR	ZC4		05 08 1917	1939	FT8	15M	21,074.0		20		Y								3206				-2	64	-31	15
D	XV1X	3W		05 08 2009	2009	FT8	30M	10,136.0		26		Y								4694				-21	5	-76	
D	EP2LSH	EP		05 08 2016	2016	FT8	20M	14,074.0		21									Y	6723				28	97	-32	13

Interesting Targets

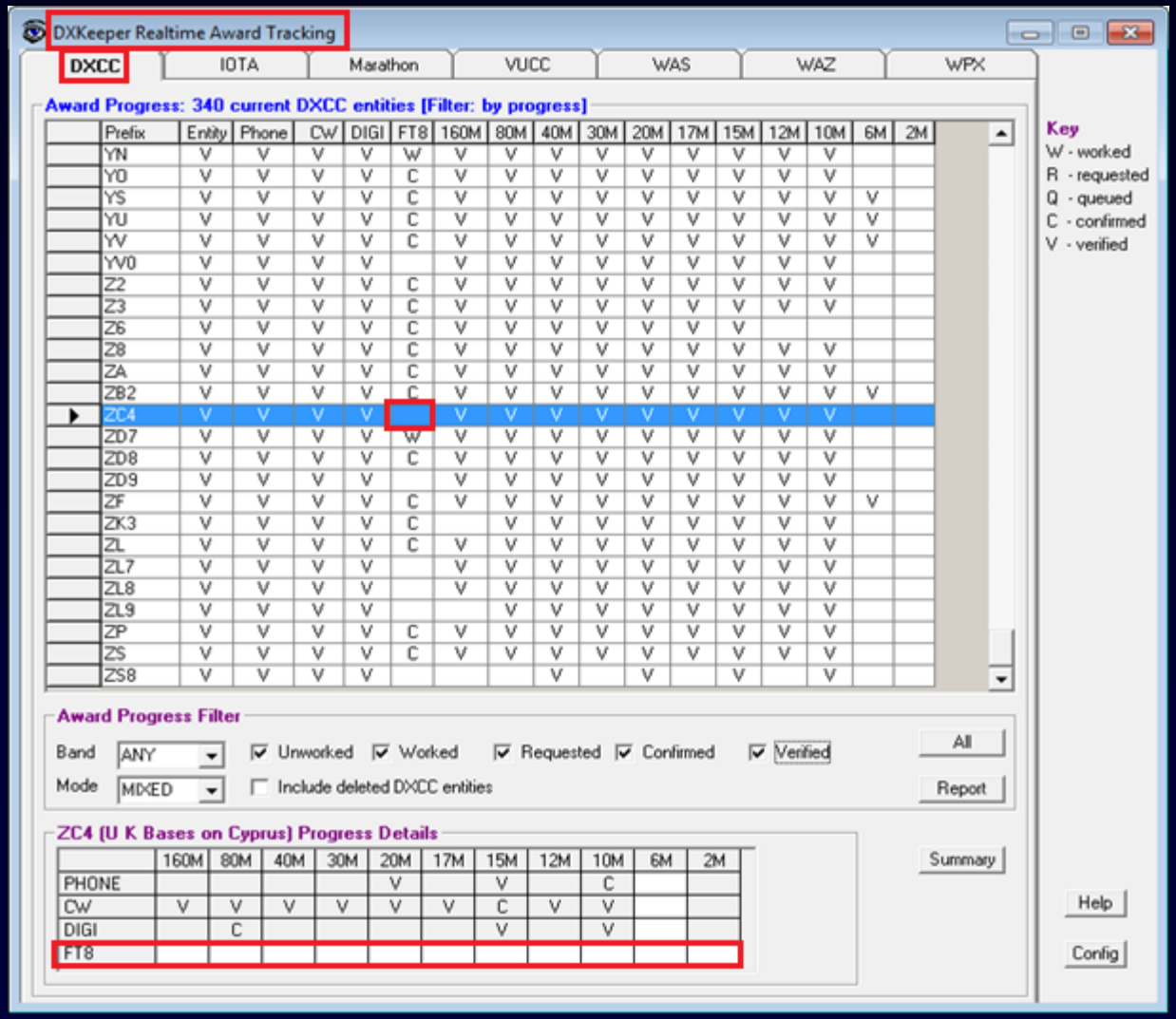
- 3W
- 5W
- 9M8
- 9N
- BA
- EP2LMA
- VP8-H
- VR
- XV
- YB
- ZC4

Almost All FT8 !

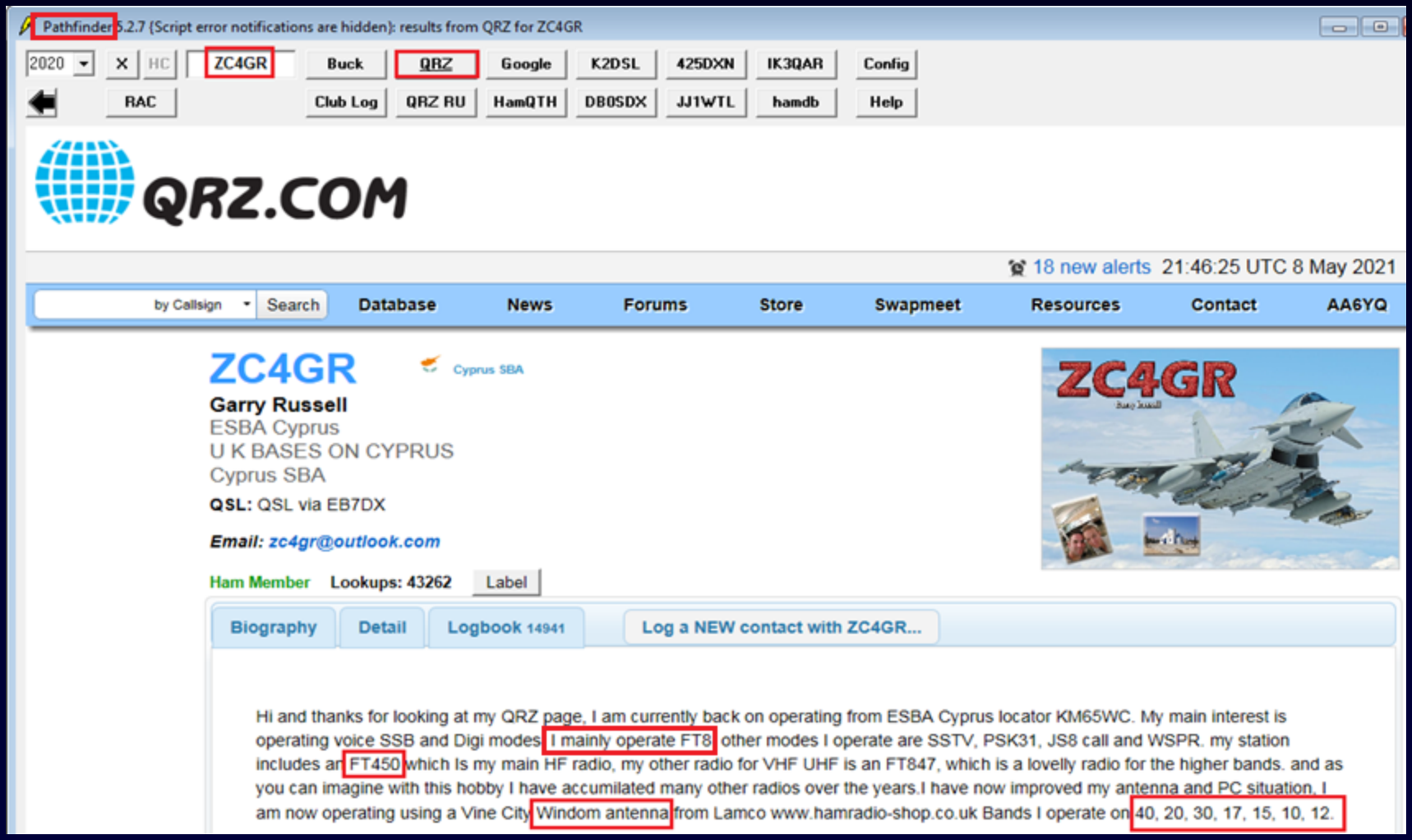
Award Tracking for ZC4GR on 15m FT8



DXCC Award Tracking for ZC4GR

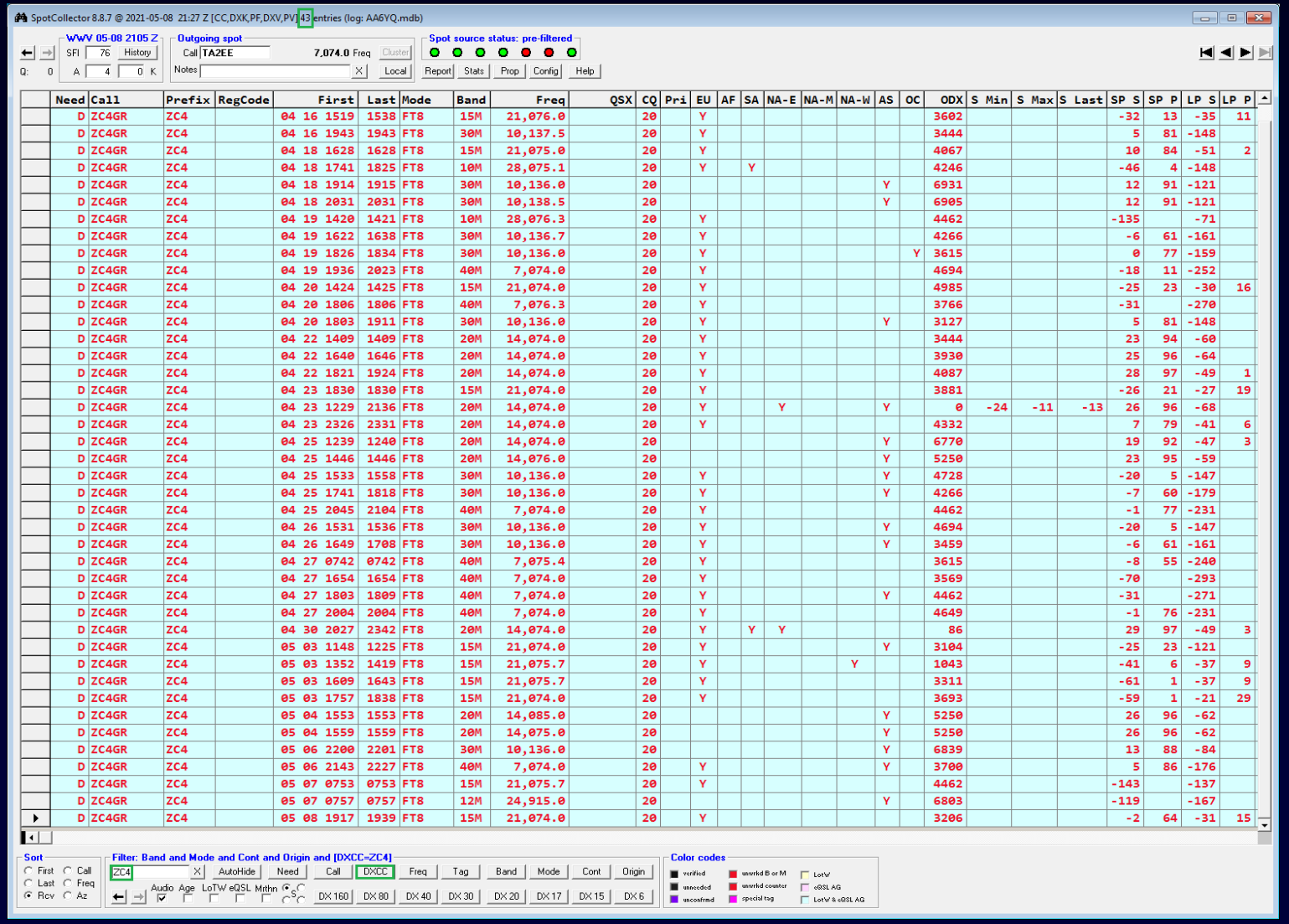


ZC4GR on FT8 Looks Challenging



ZC4GR on FT8 Looks Challenging

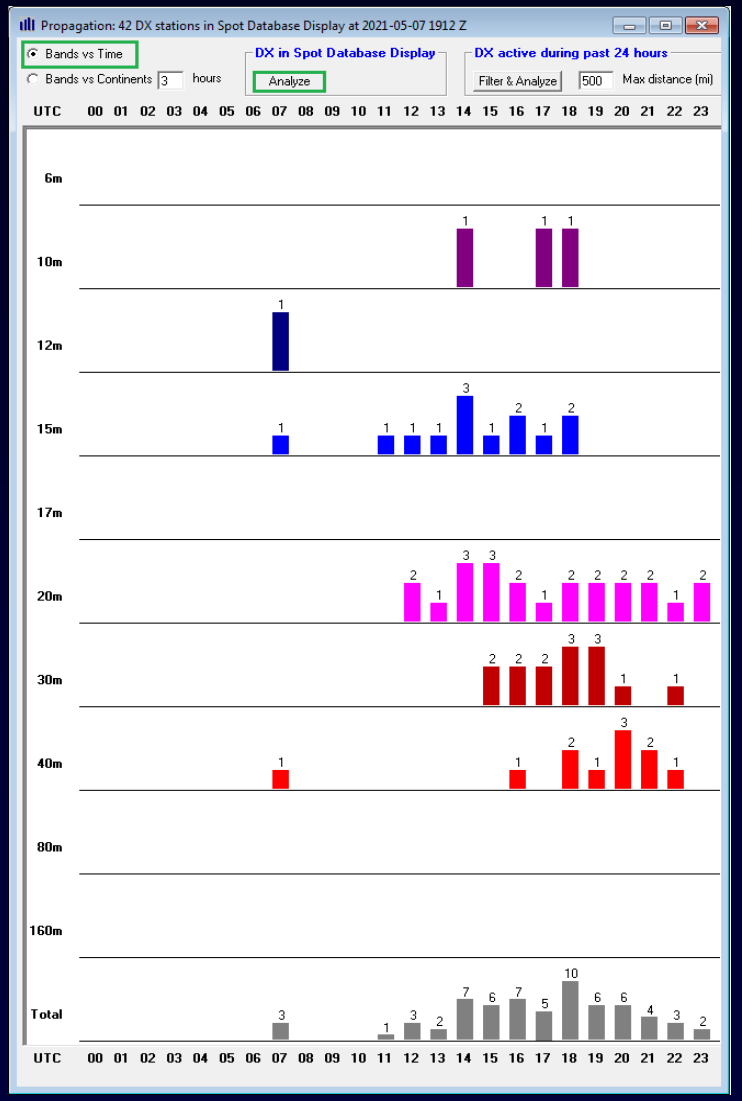
Check for Recent Activity: 43 Entries from April 16 through May 8



Need	Call	Prefix	RegCode	First	Last	Mode	Band	Freq	QSX	CQ	Pri	EU	AF	SA	NA-E	NA-M	NA-W	AS	OC	ODX	S Min	S Max	S Last	SP S	SP P	LP S	LP P
D	ZC4GR	ZC4		04 16 1519	1538	FT8	15M	21,076.0		20		Y								3602				-32	13	-35	11
D	ZC4GR	ZC4		04 16 1943	1943	FT8	30M	10,137.5		20		Y								3444				5	81	-148	
D	ZC4GR	ZC4		04 18 1628	1628	FT8	15M	21,075.0		20		Y								4067				10	84	-51	2
D	ZC4GR	ZC4		04 18 1741	1825	FT8	10M	28,075.1		20		Y		Y						4246				-46	4	-148	
D	ZC4GR	ZC4		04 18 1914	1915	FT8	30M	10,136.0		20								Y		6931				12	91	-121	
D	ZC4GR	ZC4		04 18 2031	2031	FT8	30M	10,138.5		20								Y		6905				12	91	-121	
D	ZC4GR	ZC4		04 19 1420	1421	FT8	10M	28,076.3		20		Y								4462				-135		-71	
D	ZC4GR	ZC4		04 19 1622	1638	FT8	30M	10,136.7		20		Y								4266				-6	61	-161	
D	ZC4GR	ZC4		04 19 1826	1834	FT8	30M	10,136.0		20		Y							Y	3615				0	77	-159	
D	ZC4GR	ZC4		04 19 1936	2023	FT8	40M	7,074.0		20		Y								4694				-18	11	-252	
D	ZC4GR	ZC4		04 20 1424	1425	FT8	15M	21,074.0		20		Y								4985				-25	23	-30	16
D	ZC4GR	ZC4		04 20 1806	1806	FT8	40M	7,076.3		20		Y								3766				-31		-270	
D	ZC4GR	ZC4		04 20 1803	1911	FT8	30M	10,136.0		20		Y						Y		3127				5	81	-148	
D	ZC4GR	ZC4		04 22 1409	1409	FT8	20M	14,074.0		20		Y								3444				23	94	-60	
D	ZC4GR	ZC4		04 22 1640	1646	FT8	20M	14,074.0		20		Y								3930				25	96	-64	
D	ZC4GR	ZC4		04 22 1821	1924	FT8	20M	14,074.0		20		Y								4087				28	97	-49	1
D	ZC4GR	ZC4		04 23 1830	1830	FT8	15M	21,074.0		20		Y								3881				-26	21	-27	19
D	ZC4GR	ZC4		04 23 1229	2136	FT8	20M	14,074.0		20		Y			Y			Y		0	-24	-11	-13	26	96	-68	
D	ZC4GR	ZC4		04 23 2326	2331	FT8	20M	14,074.0		20		Y								4332				7	79	-41	6
D	ZC4GR	ZC4		04 25 1239	1240	FT8	20M	14,074.0		20								Y		6770				19	92	-47	3
D	ZC4GR	ZC4		04 25 1446	1446	FT8	20M	14,076.0		20								Y		5250				23	95	-59	
D	ZC4GR	ZC4		04 25 1533	1558	FT8	30M	10,136.0		20		Y						Y		4728				-20	5	-147	
D	ZC4GR	ZC4		04 25 1741	1818	FT8	30M	10,136.0		20		Y						Y		4266				-7	60	-179	
D	ZC4GR	ZC4		04 25 2045	2104	FT8	40M	7,074.0		20		Y								4462				-1	77	-231	
D	ZC4GR	ZC4		04 26 1531	1536	FT8	30M	10,136.0		20		Y						Y		4694				-20	5	-147	
D	ZC4GR	ZC4		04 26 1649	1708	FT8	30M	10,136.0		20		Y						Y		3459				-6	61	-161	
D	ZC4GR	ZC4		04 27 0742	0742	FT8	40M	7,075.4		20		Y								3615				-8	55	-240	
D	ZC4GR	ZC4		04 27 1654	1654	FT8	40M	7,074.0		20		Y								3569				-70		-293	
D	ZC4GR	ZC4		04 27 1803	1809	FT8	40M	7,074.0		20		Y						Y		4462				-31		-271	
D	ZC4GR	ZC4		04 27 2004	2004	FT8	40M	7,074.0		20		Y								4649				-1	76	-231	
D	ZC4GR	ZC4		04 30 2027	2342	FT8	20M	14,074.0		20		Y		Y	Y					86				29	97	-49	3
D	ZC4GR	ZC4		05 03 1148	1225	FT8	15M	21,074.0		20		Y						Y		3104				-25	23	-121	
D	ZC4GR	ZC4		05 03 1352	1419	FT8	15M	21,075.7		20		Y					Y			1043				-41	6	-37	9
D	ZC4GR	ZC4		05 03 1609	1643	FT8	15M	21,075.7		20		Y								3311				-61	1	-37	9
D	ZC4GR	ZC4		05 03 1757	1838	FT8	15M	21,074.0		20		Y								3693				-59	1	-21	29
D	ZC4GR	ZC4		05 04 1553	1553	FT8	20M	14,085.0		20								Y		5250				26	96	-62	
D	ZC4GR	ZC4		05 04 1559	1559	FT8	20M	14,075.0		20								Y		5250				26	96	-62	
D	ZC4GR	ZC4		05 06 2200	2201	FT8	30M	10,136.0		20								Y		6839				13	88	-84	
D	ZC4GR	ZC4		05 06 2143	2227	FT8	40M	7,074.0		20		Y						Y		3700				5	86	-176	
D	ZC4GR	ZC4		05 07 0753	0753	FT8	15M	21,075.7		20		Y								4462				-143		-137	
D	ZC4GR	ZC4		05 07 0757	0757	FT8	12M	24,915.0		20								Y		6803				-119		-167	
D	ZC4GR	ZC4		05 08 1917	1939	FT8	15M	21,074.0		20		Y								3206				-2	64	-31	15

Working ZC4GR on FT8

Propagation View: Band vs. Time-of-Day Analysis of Recent Activity

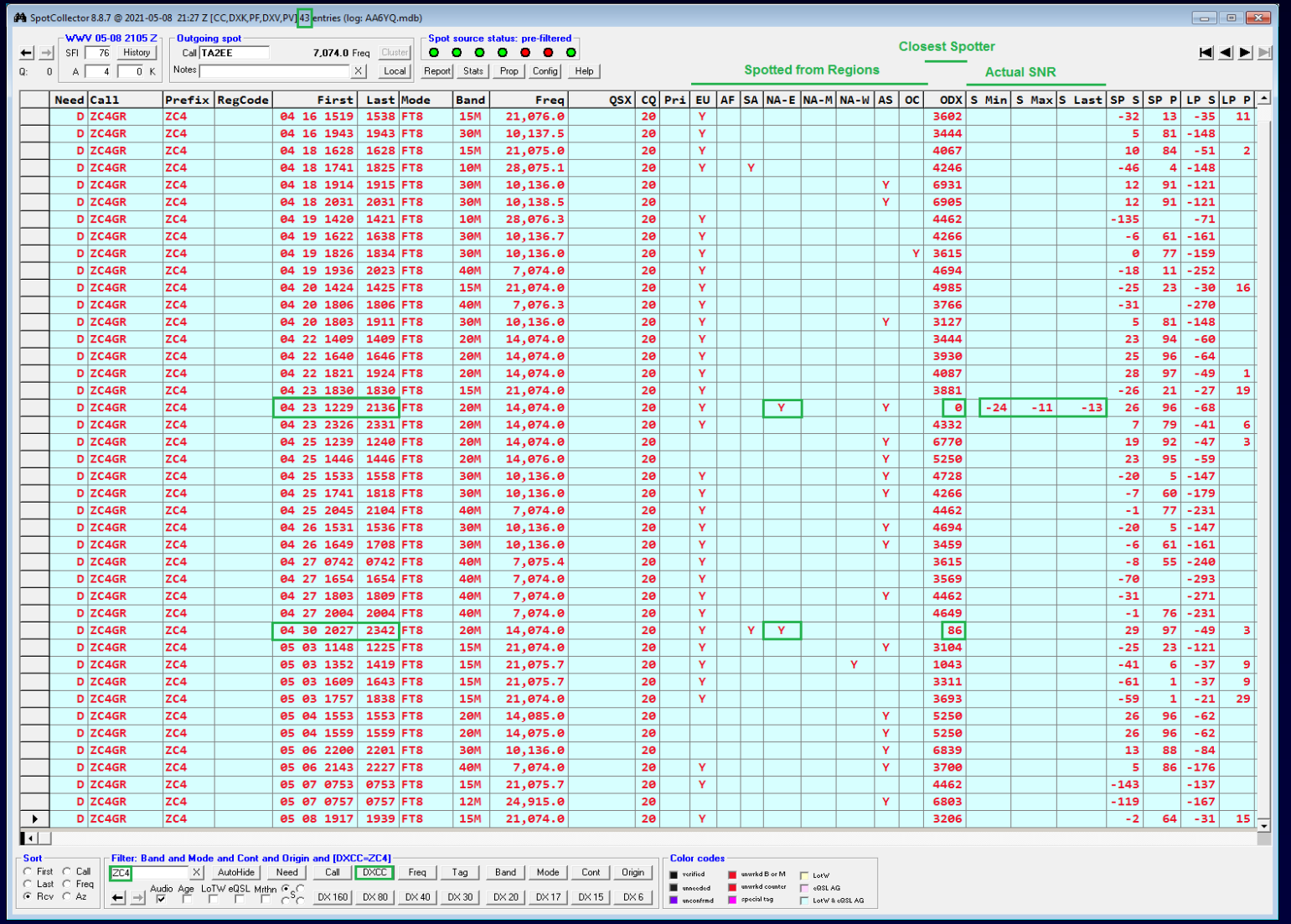


When QRV?

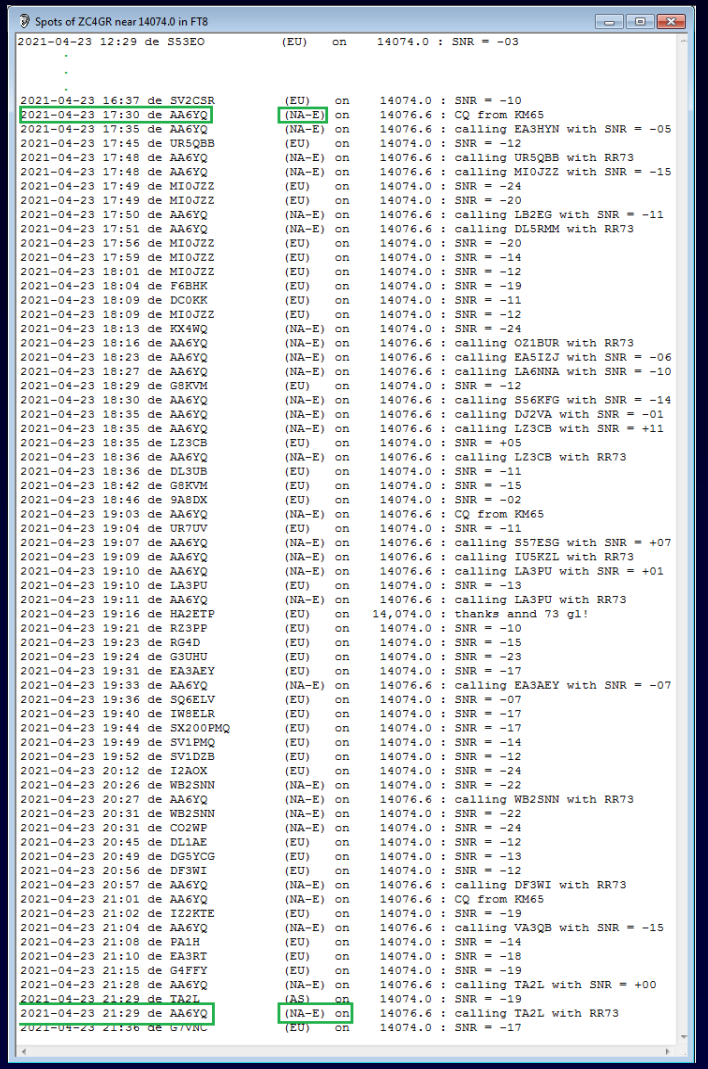
- 15m: 11Z to 18Z
- 20m: 12Z to 23Z
- 30m: 15Z to 20Z
- 40m: 16Z to 21Z

Working ZC4GR on FT8

- No “Fox/Hound” frequencies
- Spotted from NA-E on 4/23 and 4/30
- Copied on 4/23



20m ZC4GR Spots on 4/23 @ 1229Z

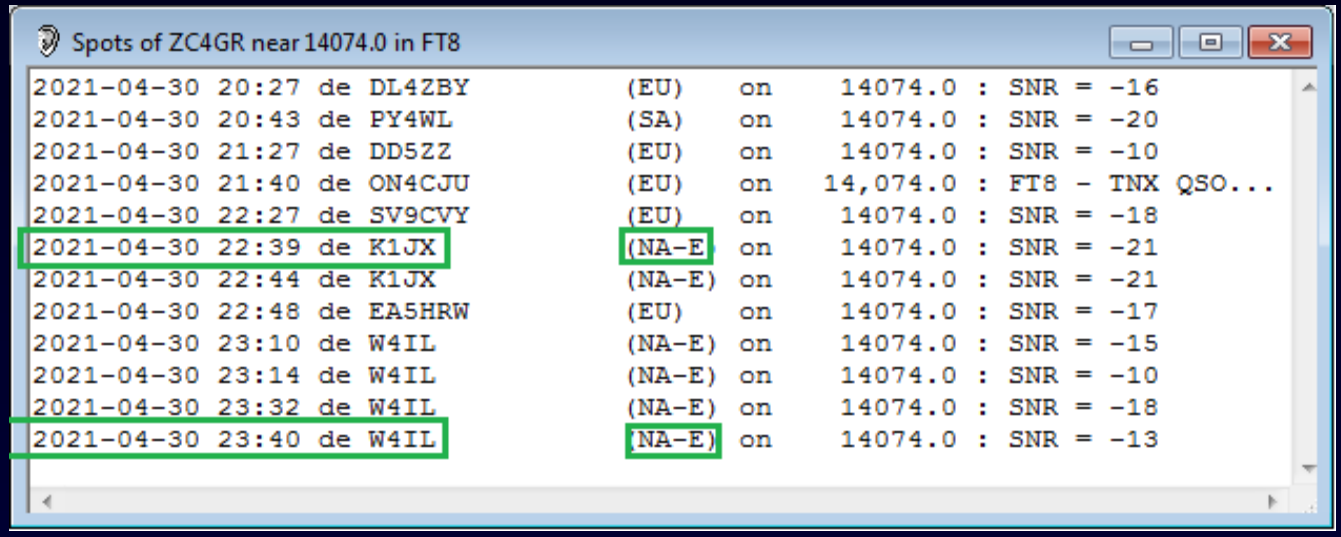


Spots of ZC4GR near 14074.0 in FT8

```
2021-04-23 12:29 de S53EO          (EU)    on    14074.0 : SNR = -03
      .
      .
      .
2021-04-23 16:37 de SV2CSR         (EU)    on    14074.0 : SNR = -10
2021-04-23 17:30 de AA6YQ          (NA-E)  on    14076.6 : CQ from KM65
2021-04-23 17:35 de AA6YQ          (NA-E)  on    14076.6 : calling EA3HYN with SNR = -05
2021-04-23 17:45 de UR5QBB         (EU)    on    14074.0 : SNR = -12
2021-04-23 17:48 de AA6YQ          (NA-E)  on    14076.6 : calling UR5QBB with RR73
2021-04-23 17:48 de AA6YQ          (NA-E)  on    14076.6 : calling MI0JZZ with SNR = -15
2021-04-23 17:49 de MI0JZZ         (EU)    on    14074.0 : SNR = -24
2021-04-23 17:49 de MI0JZZ         (EU)    on    14074.0 : SNR = -20
2021-04-23 17:50 de AA6YQ          (NA-E)  on    14076.6 : calling LB2EG with SNR = -11
2021-04-23 17:51 de AA6YQ          (NA-E)  on    14076.6 : calling DL5RMM with RR73
2021-04-23 17:56 de MI0JZZ         (EU)    on    14074.0 : SNR = -20
2021-04-23 17:59 de MI0JZZ         (EU)    on    14074.0 : SNR = -14
2021-04-23 18:01 de MI0JZZ         (EU)    on    14074.0 : SNR = -12
2021-04-23 18:04 de F6BHK          (EU)    on    14074.0 : SNR = -19
2021-04-23 18:09 de DC0KK          (EU)    on    14074.0 : SNR = -11
2021-04-23 18:09 de MI0JZZ         (EU)    on    14074.0 : SNR = -12
2021-04-23 18:13 de KX4WQ          (NA-E)  on    14074.0 : SNR = -24
2021-04-23 18:16 de AA6YQ          (NA-E)  on    14076.6 : calling OZ1BUR with RR73
2021-04-23 18:23 de AA6YQ          (NA-E)  on    14076.6 : calling EA5IZJ with SNR = -06
2021-04-23 18:27 de AA6YQ          (NA-E)  on    14076.6 : calling LA6NNA with SNR = -10
2021-04-23 18:29 de G8KVM          (EU)    on    14074.0 : SNR = -12
2021-04-23 18:30 de AA6YQ          (NA-E)  on    14076.6 : calling S56KFG with SNR = -14
2021-04-23 18:35 de AA6YQ          (NA-E)  on    14076.6 : calling DJ2VA with SNR = -01
2021-04-23 18:35 de AA6YQ          (NA-E)  on    14076.6 : calling LZ3CB with SNR = +11
2021-04-23 18:35 de LZ3CB          (EU)    on    14074.0 : SNR = +05
2021-04-23 18:36 de AA6YQ          (NA-E)  on    14076.6 : calling LZ3CB with RR73
2021-04-23 18:36 de DL3UB          (EU)    on    14074.0 : SNR = -11
2021-04-23 18:42 de G8KVM          (EU)    on    14074.0 : SNR = -15
2021-04-23 18:46 de 9A8DX          (EU)    on    14074.0 : SNR = -02
2021-04-23 19:03 de AA6YQ          (NA-E)  on    14076.6 : CQ from KM65
2021-04-23 19:04 de UR7UV          (EU)    on    14074.0 : SNR = -11
2021-04-23 19:07 de AA6YQ          (NA-E)  on    14076.6 : calling S57ESG with SNR = +07
2021-04-23 19:09 de AA6YQ          (NA-E)  on    14076.6 : calling IU5KZL with RR73
2021-04-23 19:10 de AA6YQ          (NA-E)  on    14076.6 : calling LA3PU with SNR = +01
2021-04-23 19:10 de LA3PU          (EU)    on    14074.0 : SNR = -13
2021-04-23 19:11 de AA6YQ          (NA-E)  on    14076.6 : calling LA3PU with RR73
2021-04-23 19:16 de HA2ETP         (EU)    on  14,074.0 : thanks annd 73 gl!
2021-04-23 19:21 de RZ3PP          (EU)    on    14074.0 : SNR = -10
2021-04-23 19:23 de RG4D           (EU)    on    14074.0 : SNR = -15
2021-04-23 19:24 de G3UHU          (EU)    on    14074.0 : SNR = -23
2021-04-23 19:31 de EA3AEY         (EU)    on    14074.0 : SNR = -17
2021-04-23 19:33 de AA6YQ          (NA-E)  on    14076.6 : calling EA3AEY with SNR = -07
2021-04-23 19:36 de SQ6ELV         (EU)    on    14074.0 : SNR = -07
2021-04-23 19:40 de IW8ELR         (EU)    on    14074.0 : SNR = -17
2021-04-23 19:44 de SX200PMQ       (EU)    on    14074.0 : SNR = -17
2021-04-23 19:49 de SV1PMQ         (EU)    on    14074.0 : SNR = -14
2021-04-23 19:52 de SV1DZB         (EU)    on    14074.0 : SNR = -12
2021-04-23 20:12 de I2AOX          (EU)    on    14074.0 : SNR = -24
2021-04-23 20:26 de WB2SNN         (NA-E)  on    14074.0 : SNR = -22
2021-04-23 20:27 de AA6YQ          (NA-E)  on    14076.6 : calling WB2SNN with RR73
2021-04-23 20:31 de WB2SNN         (NA-E)  on    14074.0 : SNR = -22
2021-04-23 20:31 de CO2WP          (NA-E)  on    14074.0 : SNR = -24
2021-04-23 20:45 de DL1AE          (EU)    on    14074.0 : SNR = -12
2021-04-23 20:49 de DG5YCG         (EU)    on    14074.0 : SNR = -13
2021-04-23 20:56 de DF3WI          (EU)    on    14074.0 : SNR = -12
2021-04-23 20:57 de AA6YQ          (NA-E)  on    14076.6 : calling DF3WI with RR73
2021-04-23 21:01 de AA6YQ          (NA-E)  on    14076.6 : CQ from KM65
2021-04-23 21:02 de IZ2KTE         (EU)    on    14074.0 : SNR = -19
2021-04-23 21:04 de AA6YQ          (NA-E)  on    14076.6 : calling VA3QB with SNR = -15
2021-04-23 21:08 de PA1H           (EU)    on    14074.0 : SNR = -14
2021-04-23 21:10 de EA3RT          (EU)    on    14074.0 : SNR = -18
2021-04-23 21:15 de G4FFY          (EU)    on    14074.0 : SNR = -19
2021-04-23 21:28 de AA6YQ          (NA-E)  on    14076.6 : calling TA2L with SNR = +00
2021-04-23 21:29 de TA2L           (AS)    on    14074.0 : SNR = -19
2021-04-23 21:29 de AA6YQ          (NA-E)  on    14076.6 : calling TA2L with RR73
2021-04-23 21:36 de G7VNC          (EU)    on    14074.0 : SNR = -17
```

- QRV from 1229Z to 2136Z
- WSJT-X copied from 1730Z to 2129Z

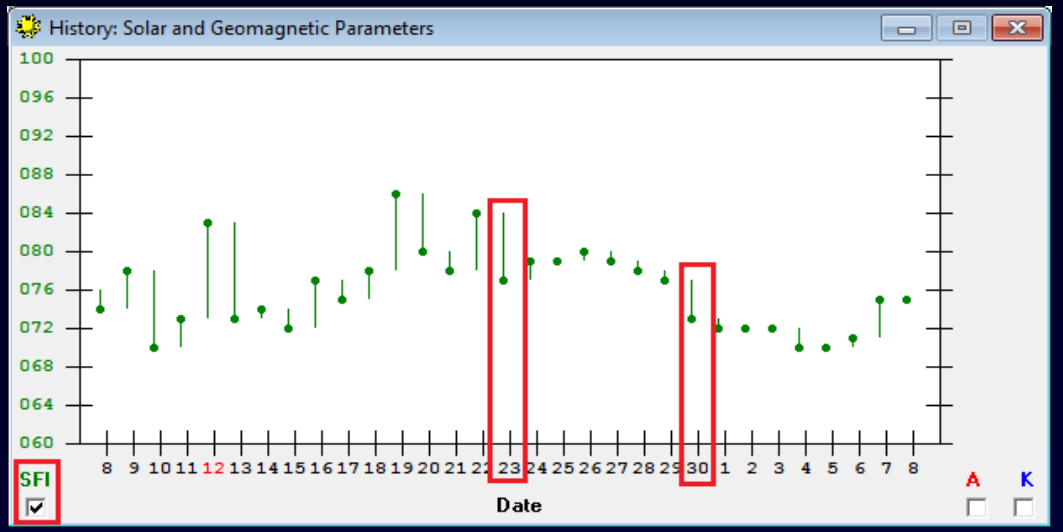
20m ZC4GR Spots on 4/30 @ 2027Z



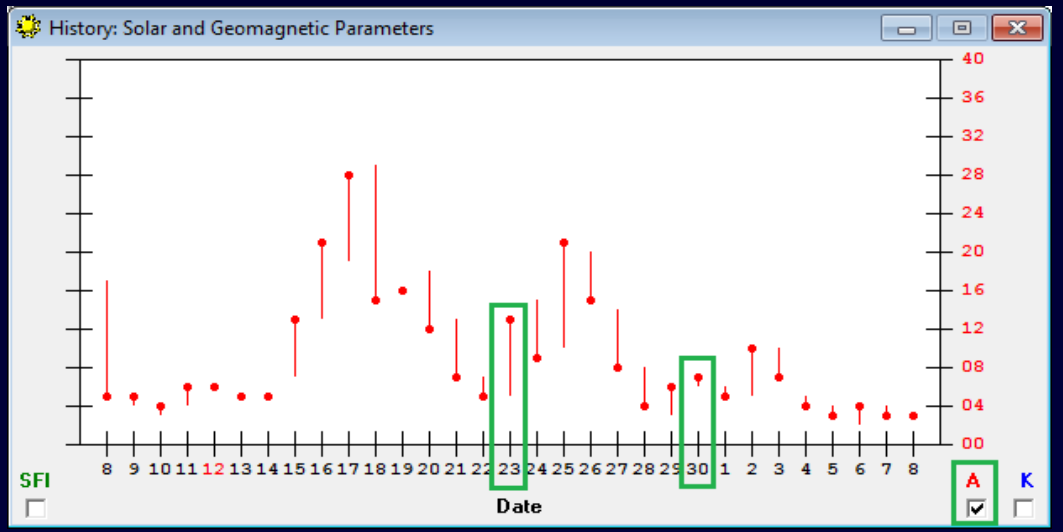
Propagation Conditions

SpotCollector collects “WWV spots” and maintains a 31-day history of SFI, A, and K

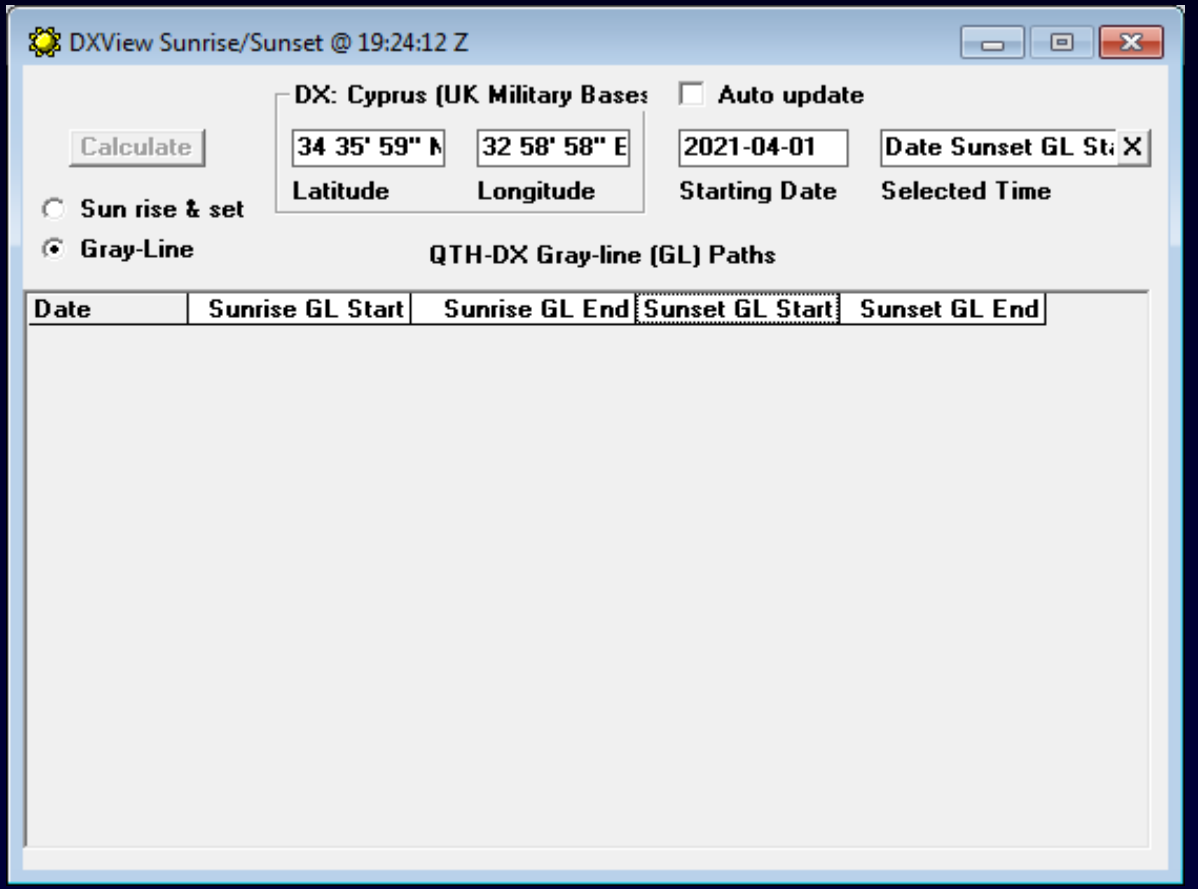
Solar Flux Index



Geogmagnetic A Index



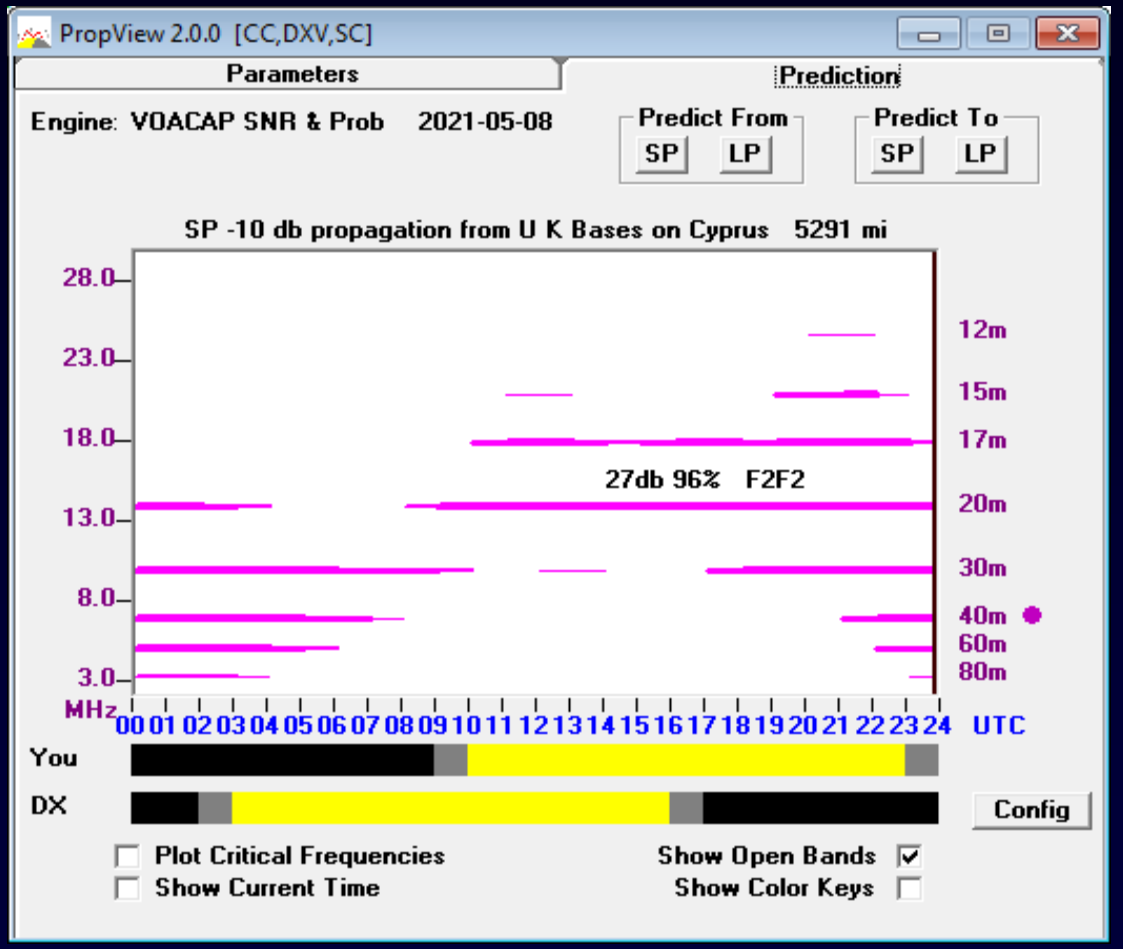
Check for Gray-Line Enhancement



None!

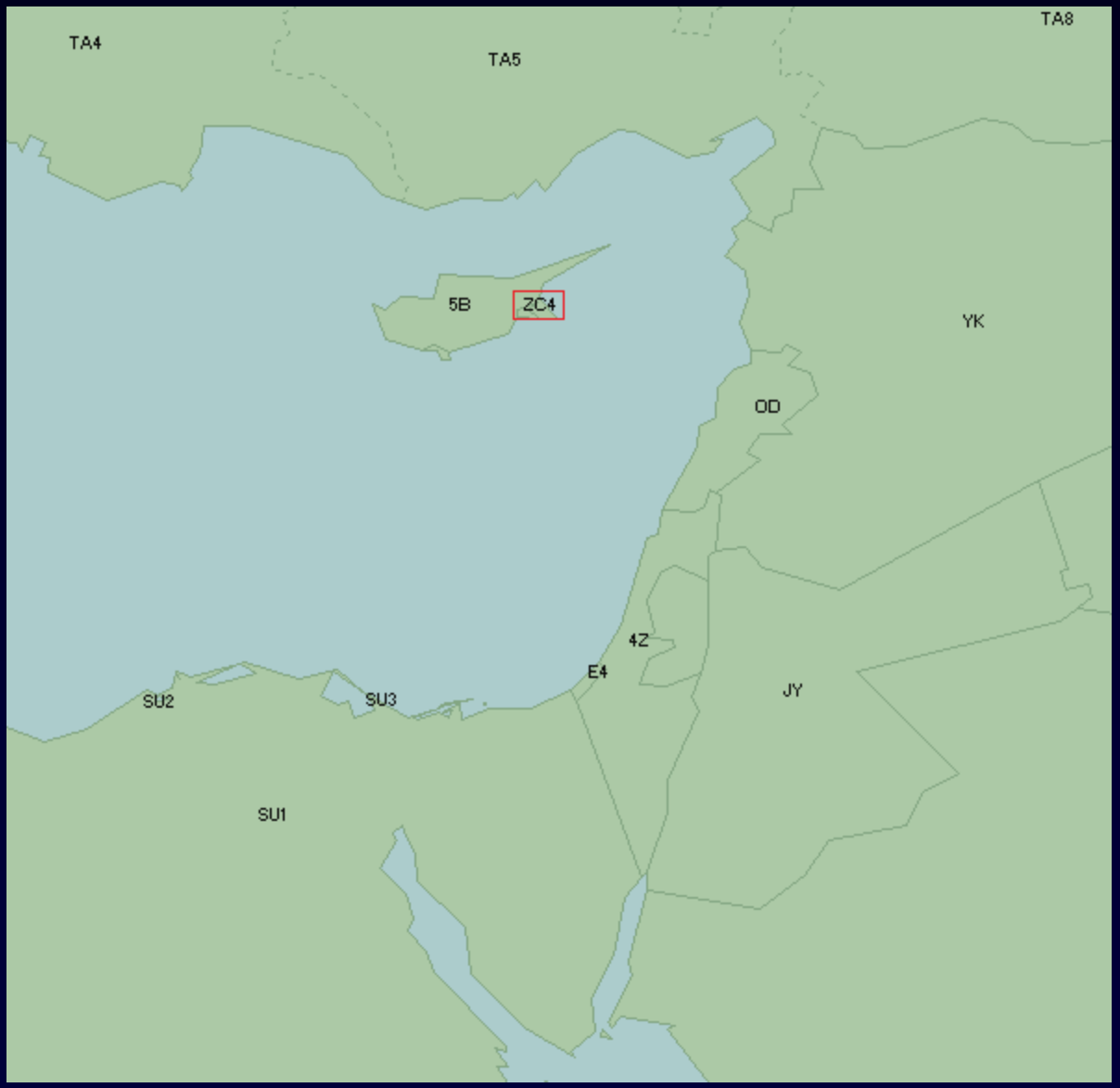
20m Propagation Forecast to ZC4

Solar Flux Index = 75, DX running 100 watts



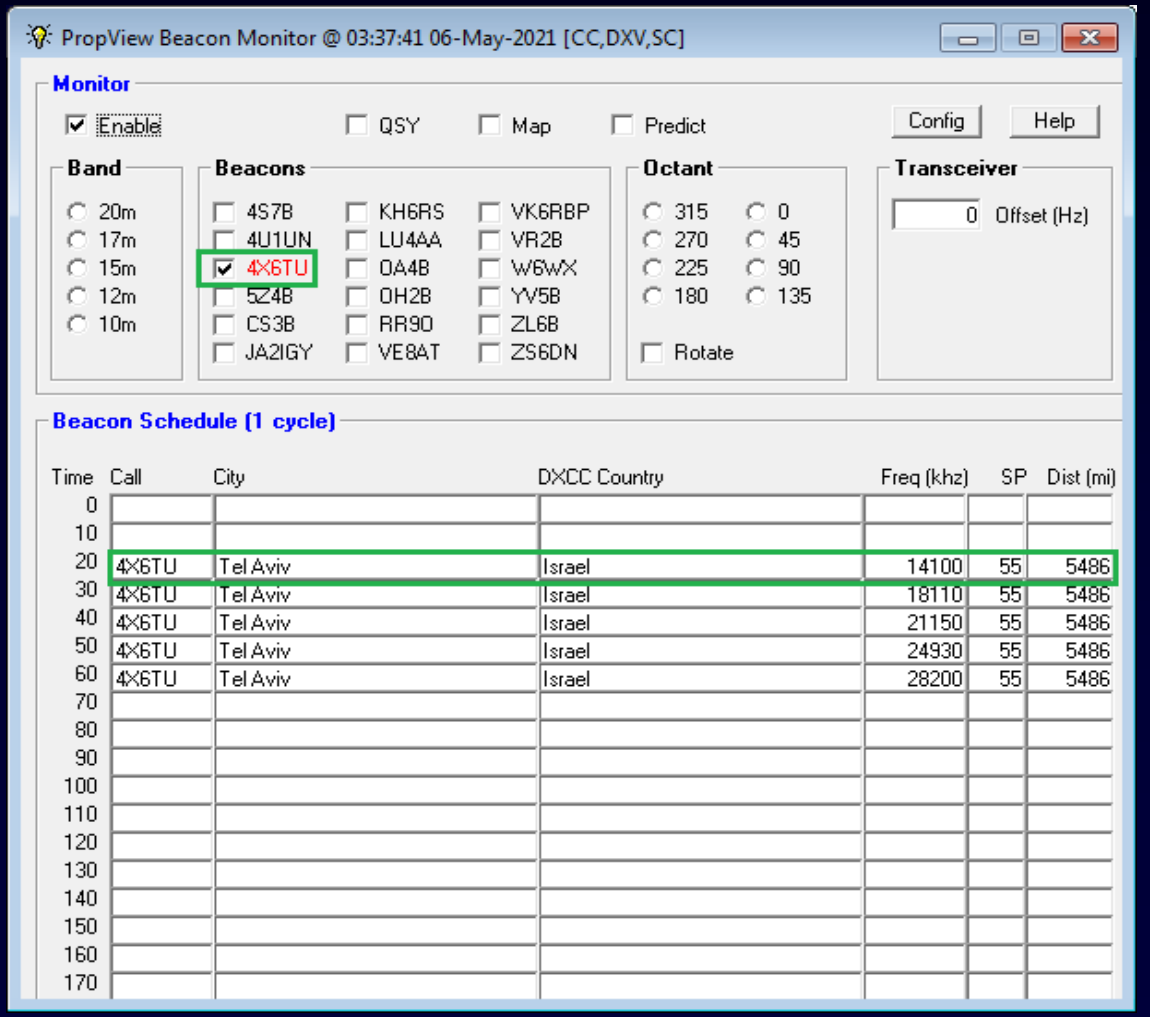
17m, 20m, 30m, and 40m look feasible

Check “Actual” Propagation



Check “Actual” Propagation

NCDXF 4X6TU Beacon is ~230 miles from ZC4



Check “Actual” Propagation

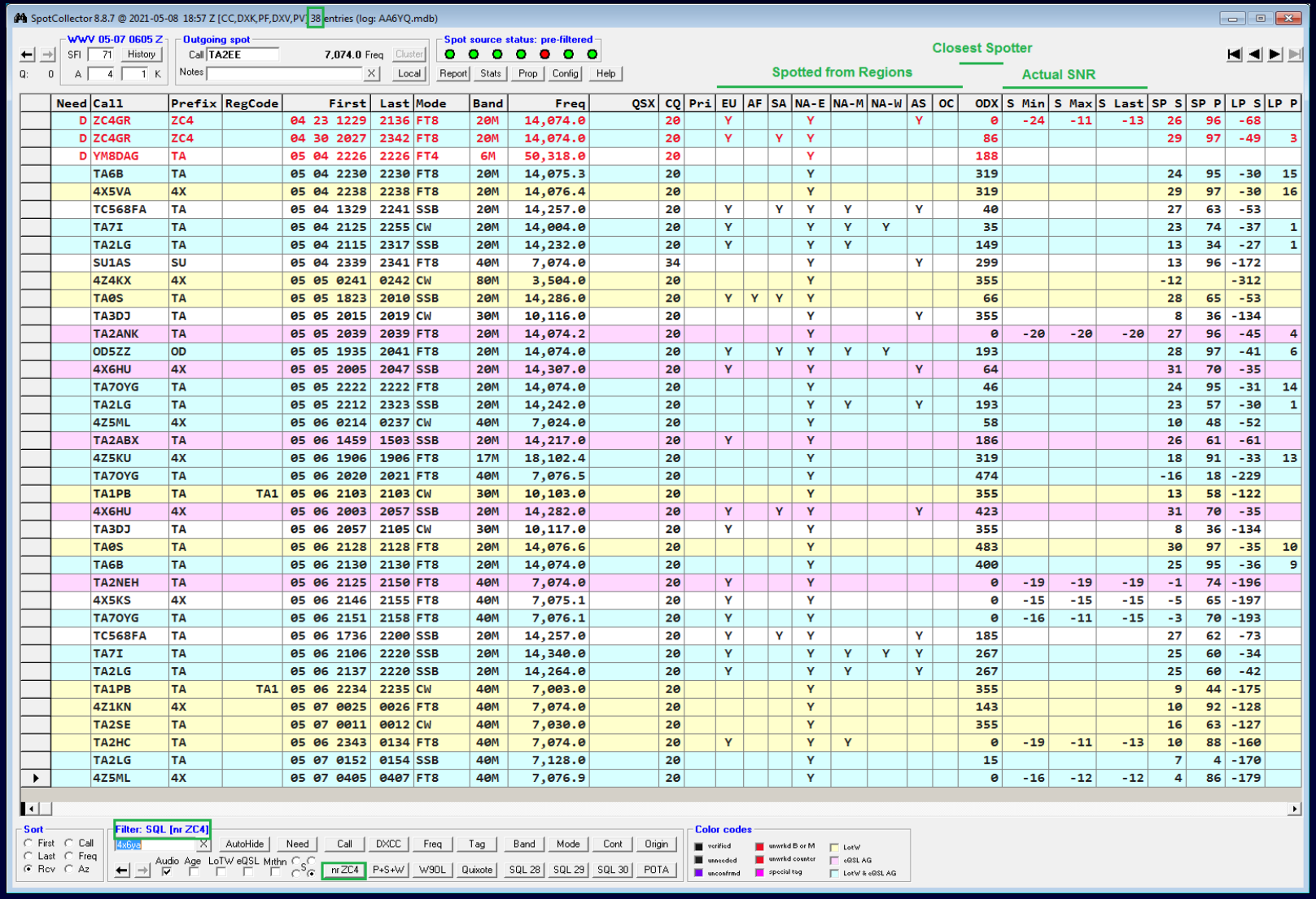
Who Near Me has been Spotting Stations Near ZC4?

Define a “near ZC4” filter to show stations

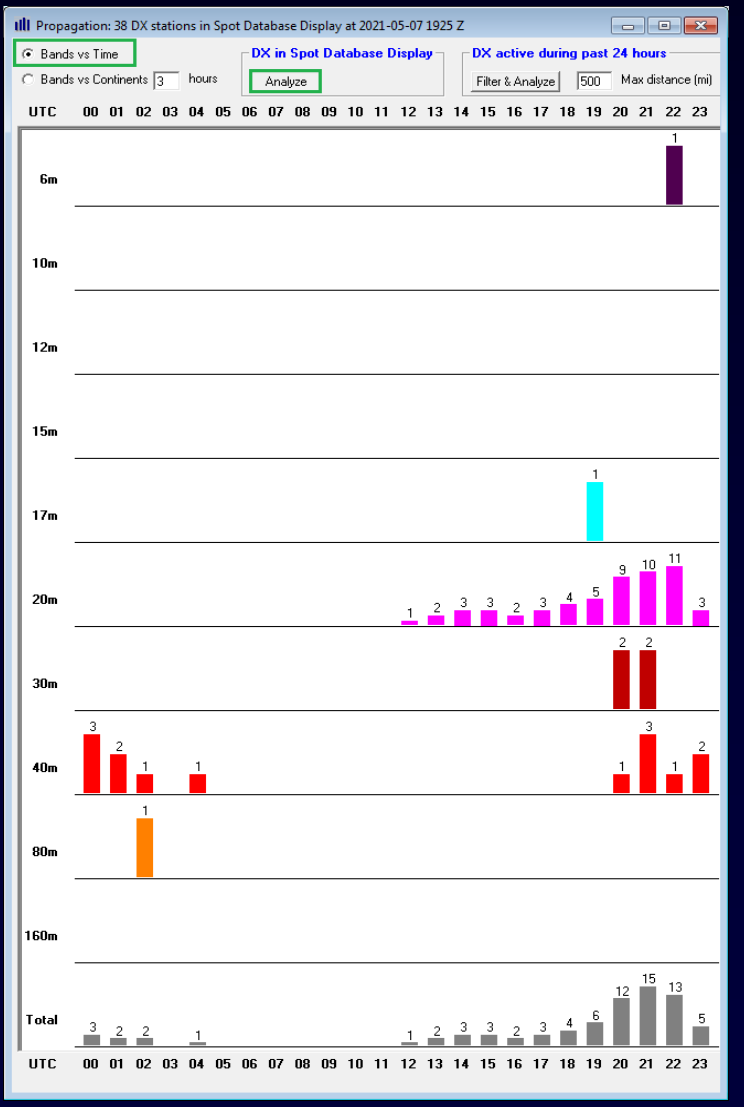
- In ZC4, 5B4, TA, OD, 4X, SU
- spotted by stations less than 500 miles from my QTH

Propagation from “Near Me” to “Near ZC4”

Stations in ZC4, 5B4, TA, OD, 4X, SU
spotted by stations within 500 miles of my QTH



Propagation from “Near Me” to “Near ZC4”

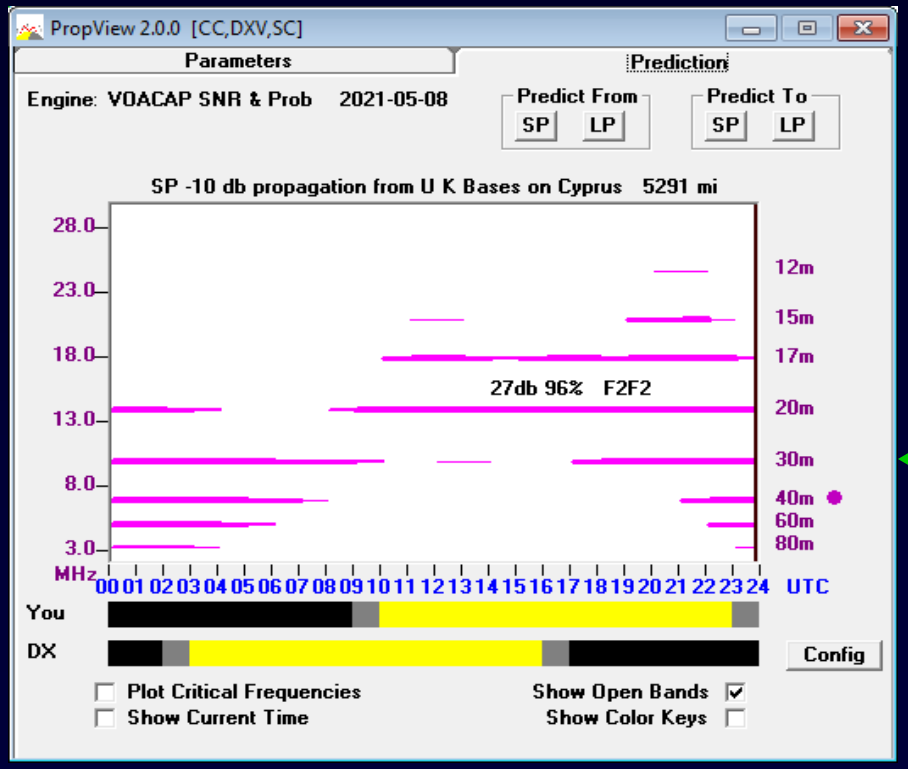


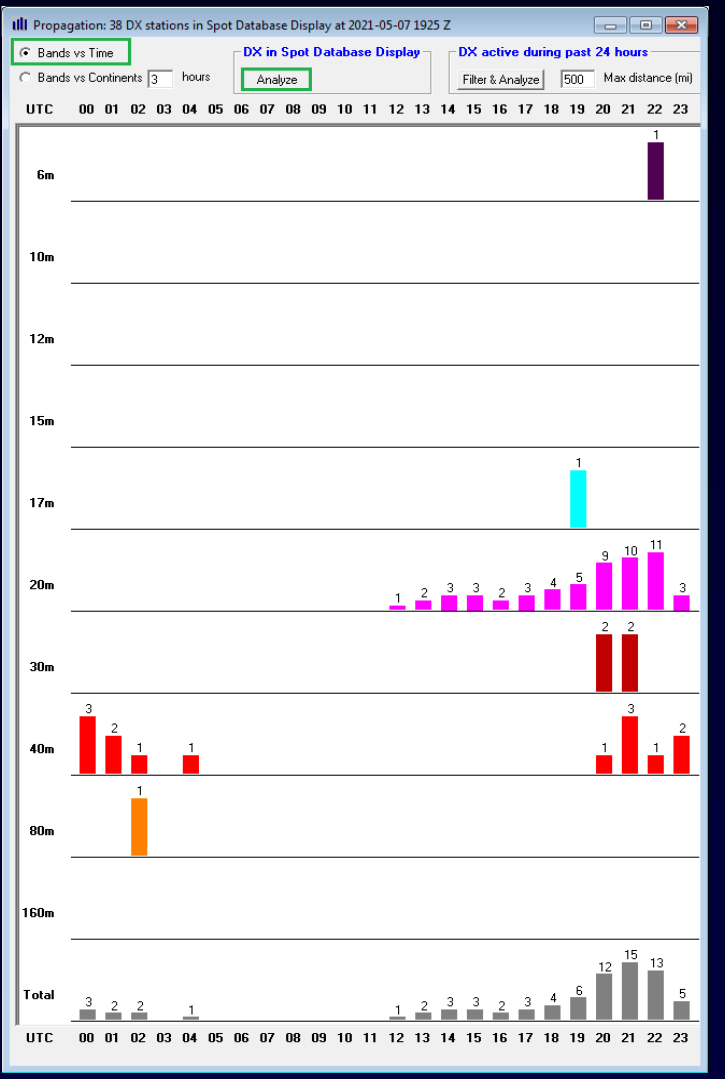
Propagation Openings?

- 20m: 12Z to 23Z
- 30m: 20Z to 21Z
- 40m: 20Z to 01Z

Compare Forecast & Actual Propagation

Solar Flux Index = 80, DX running 100 watts





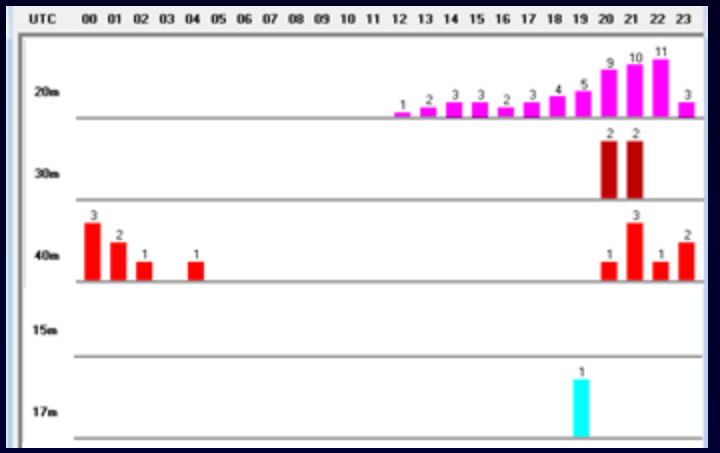
ZC4GR: The Plan

When QRV?

- 15m: 11Z to 18Z
- **20m: 12Z to 23Z**
- 30m: 15Z to 20Z
- 40m: 16Z to 21Z

Propagation Openings?

- **20m: 12Z to 23Z**
- 30m: 20Z to 21Z
- 40m: 20Z to 01Z

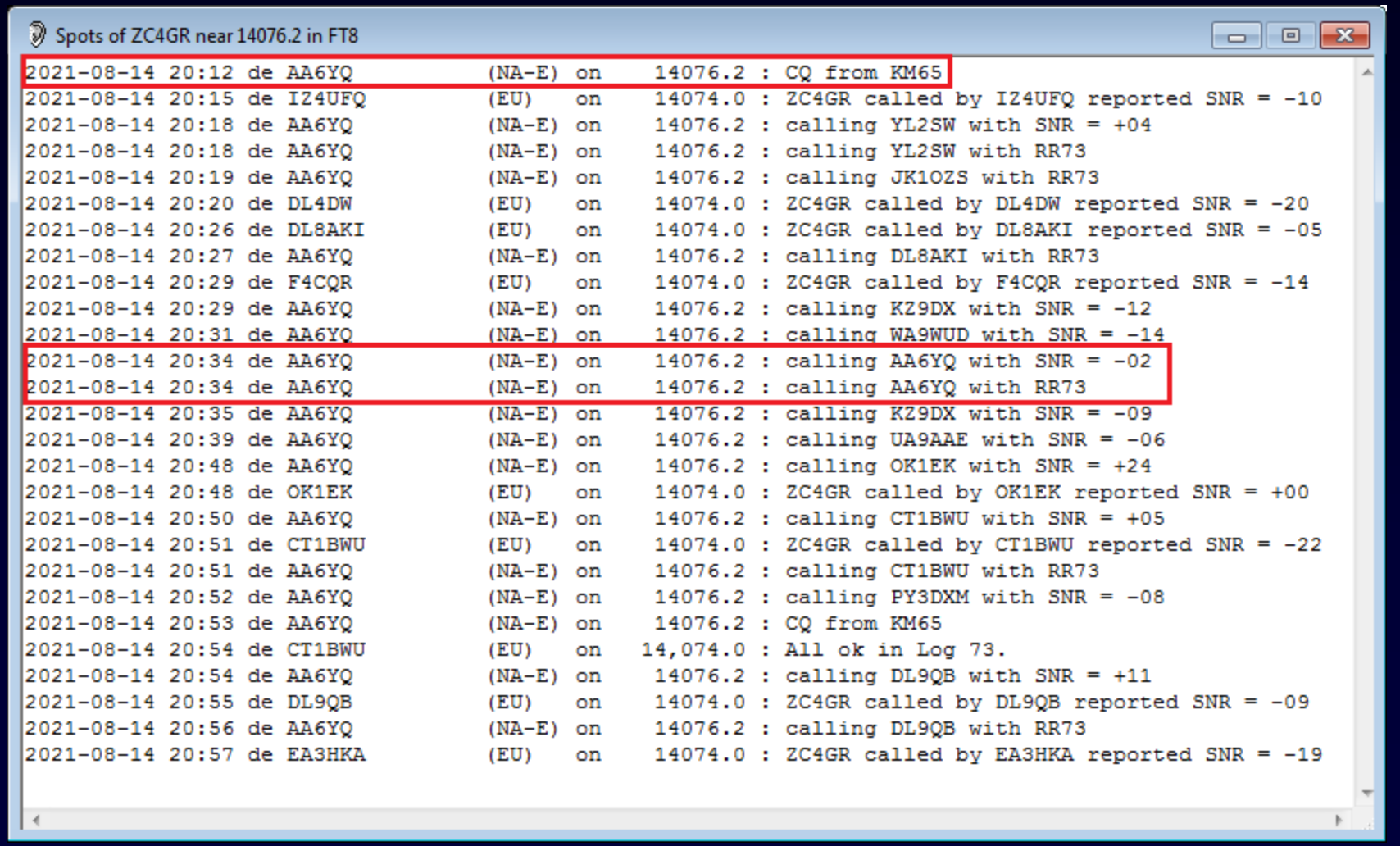


Monitor the 20m FT8 sub-band from 19Z through 23Z, especially

- when the Solar Flux Index is 75 or above
- when the NCDXF 4X Beacon can be copied

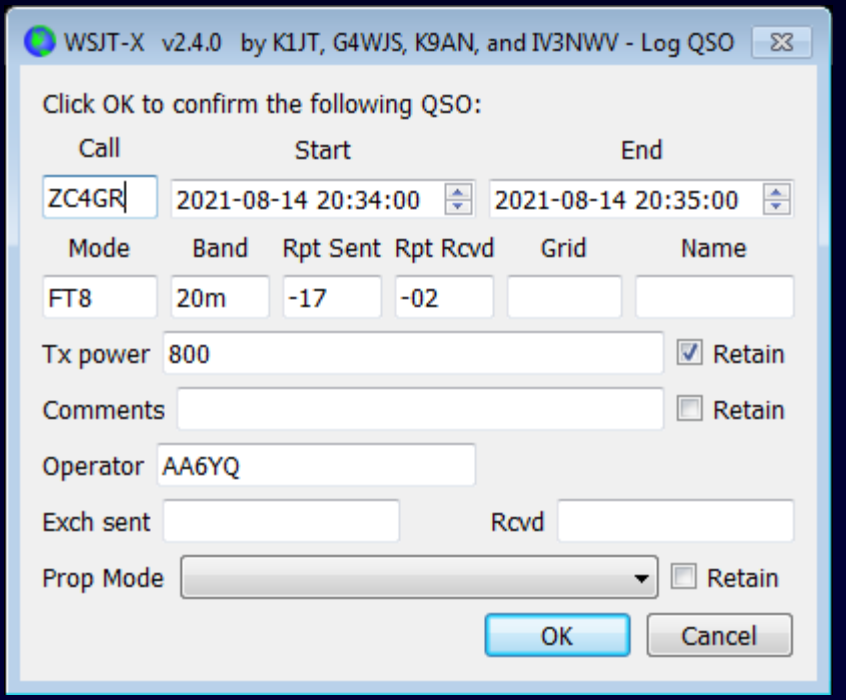
ZC4GR: Success!

20m FT8 @20:12Z

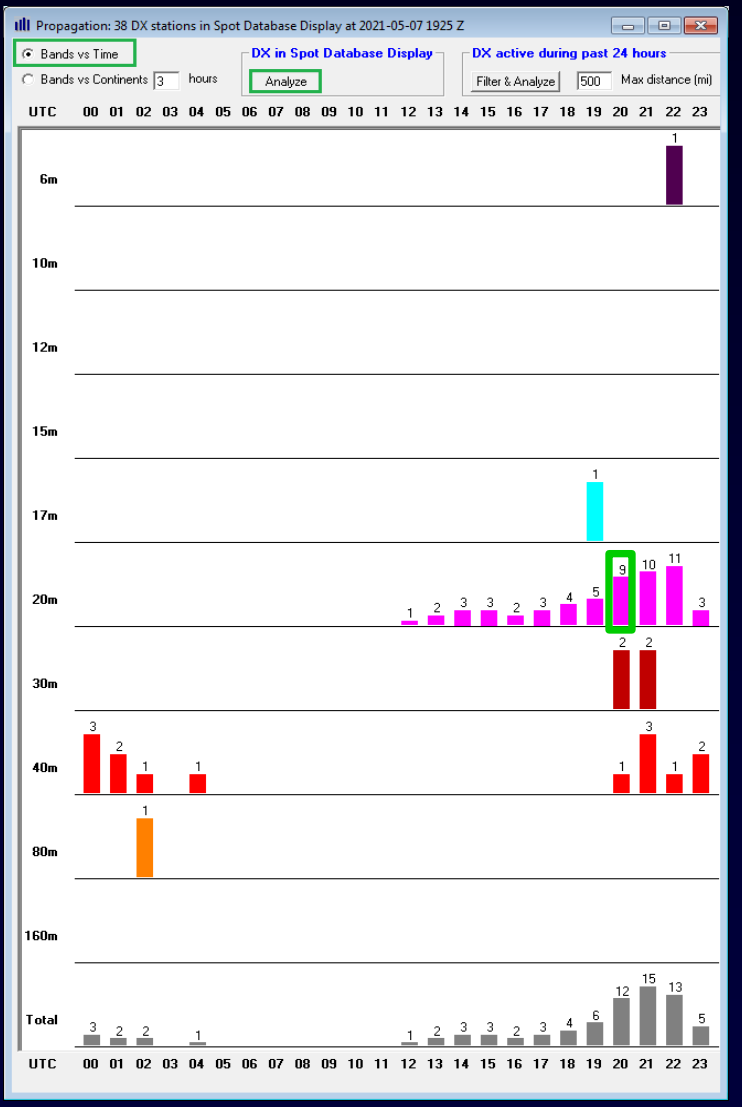


ZC4GR: Success!

```
----------------------------------- 20m
203415 -17  0.3 2193 ~  AA6YQ ZC4GR -02
203415  -6  0.3  500 ~  CQ HB9LBC JN47
203415  -4  0.4 2922 ~  PJ4EVA 5X3R 73
203415  15  0.3 2565 ~  CQ HA7TM JN97
203415 -10  0.3  659 ~  SM5FQQ PF1B R-01
203415 -16  0.3  203 ~  PY2BMX 2E0ELA -20
203415  12  0.3 2414 ~  LU6XQB OG2A KP11
203415   2  0.5 1275 ~  5B4AHL F5RRS -06
203415   3  0.6 1491 ~  K4FW PA3EPP -14
203415  -2  0.3  398 ~  5B4AHL EB3JT JN01
203415   4  0.6  976 ~  KS3F IT9SSI 73
203415  -9  0.4  606 ~  MW7FRN LA3BUA JP77
203415  -7  0.3 1639 ~  PC2K EA3EDU R-21
203415 -15  0.7  810 ~  6Y5DW N0DOW EN26
203415  -2  0.4  745 ~  GJ0KYZ KA2NFG R-03
203415   4  0.7 1998 ~  AA6YQ UA3LSX KO65
203415  -7  0.7 1145 ~  HA1RB IK8BDA JM78
203415 -10  0.3 2279 ~  G3VMW KN4CNU EM75
203415  -5  0.4 1426 ~  CQ SV2STE KN00
203415  -3 -1.7 1834 ~  KP4JFR RC1C 73
203415  -1  0.3 1761 ~  K4MM W4HKJ R-11
203415 -15  0.2  333 ~  CQ 9A7PBV JN85
203415  -7  1.3 2084 ~  CQ UW5KW KO30
----------------------------------- 20m
203445 -13  0.3 2193 ~  AA6YQ ZC4GR RR73
203445  -8  0.4  500 ~  CQ HB9LBC JN47
203445   4  0.5 1491 ~  K4FW PA3EPP RR73
203445  -8  0.4  606 ~  MW7FRN LA3BUA R-15
203445  -5  0.5 2922 ~  K6VVK 5X3R -12
203445  -7  0.3  659 ~  SM5FQQ PF1B 73
203445  17  0.3 2565 ~  CQ HA7TM JN97
203445  -8  0.3 2084 ~  PP5TI UW5KW KO30
203445  -6  0.7 1144 ~  HA1RB IK8BDA JM78
203445  13  0.3 2415 ~  LU6XQB OG2A KP11
203445  -8  0.3 1639 ~  PC2K EA3EDU 73
203445  -1  0.3  398 ~  5B4AHL EB3JT JN01
203445   5  0.6  976 ~  CQ IT9SSI JM78
203445 -16  0.3  202 ~  PY2BMX 2E0ELA -20
203445   0  0.3 1703 ~  SV9RGI N5OB -15
203445 -18  0.5  871 ~  <KP4JFR> TK/F4HVZ/P
203445  -8  0.3  748 ~  5B4AHL PA1EL JO22
203445   1  0.5 1275 ~  5B4AHL F5RRS RR73
```



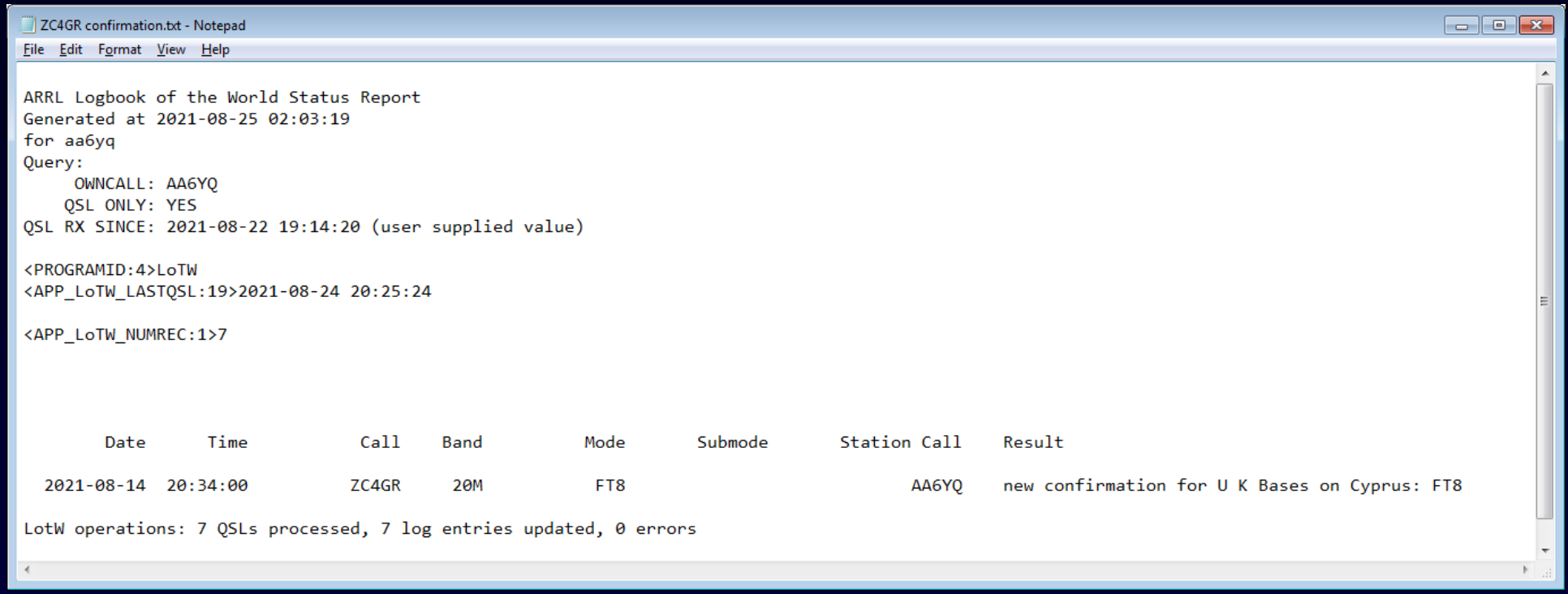
ZC4GR: Success!



Propagation Openings?

- 20m: 12Z to 23Z
- 30m: 20Z to 21Z
- 40m: 20Z to 23Z

ZC4GR: Success!


ZC4GR confirmation.txt - Notepad

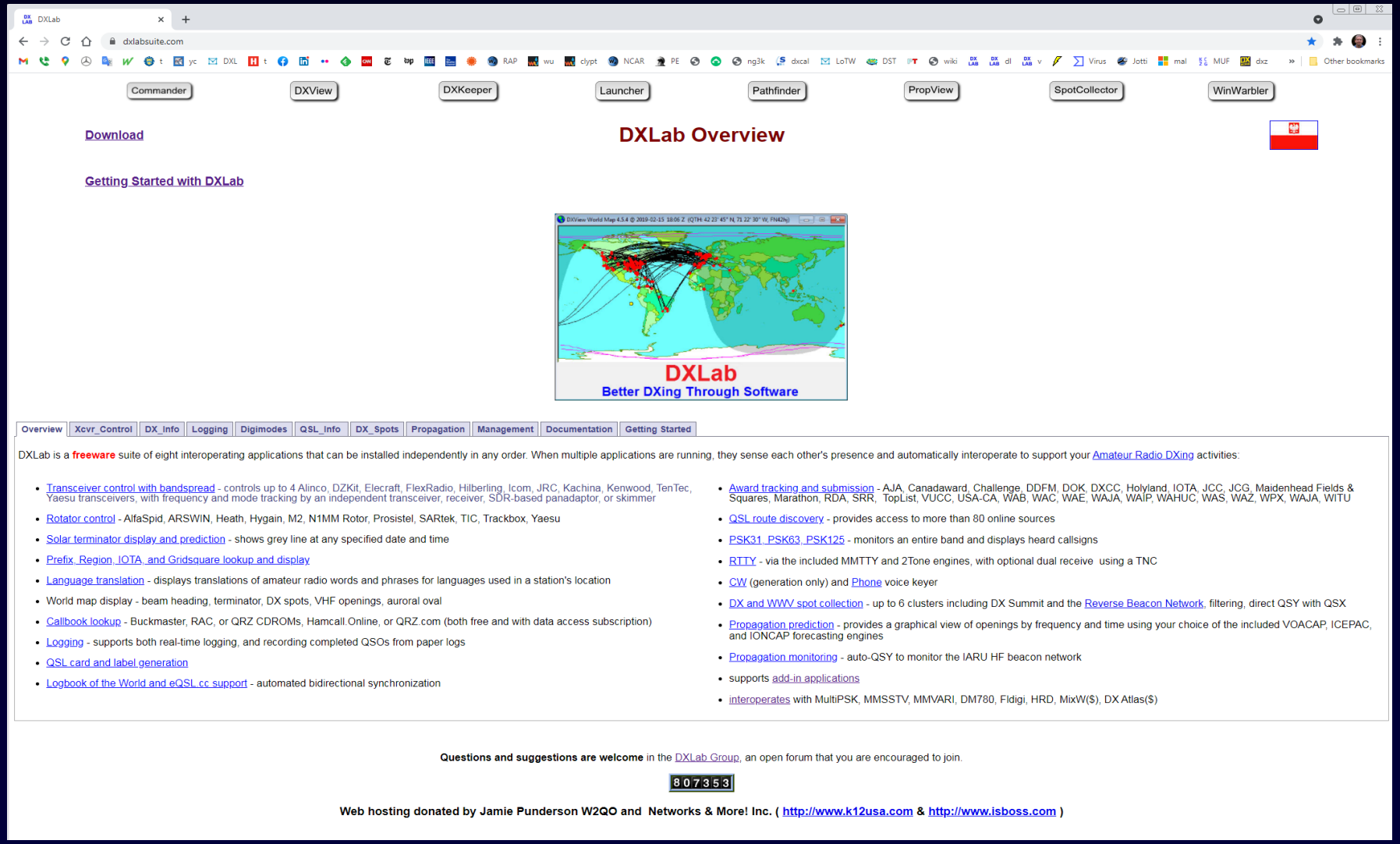
File Edit Format View Help

```
ARRL Logbook of the World Status Report
Generated at 2021-08-25 02:03:19
for aa6yq
Query:
     OWNCALL: AA6YQ
    QSL ONLY: YES
QSL RX SINCE: 2021-08-22 19:14:20 (user supplied value)

<PROGRAMID:4>LoTW
<APP_LoTW_LASTQSL:19>2021-08-24 20:25:24

<APP_LoTW_NUMREC:1>7



        Date       Time           Call     Band          Mode       Submode       Station Call    Result

  2021-08-14   20:34:00          ZC4GR      20M           FT8                           AA6YQ    new confirmation for U K Bases on Cyprus: FT8

LotW operations: 7 QSLs processed, 7 log entries updated, 0 errors
```

DXing With DXLab

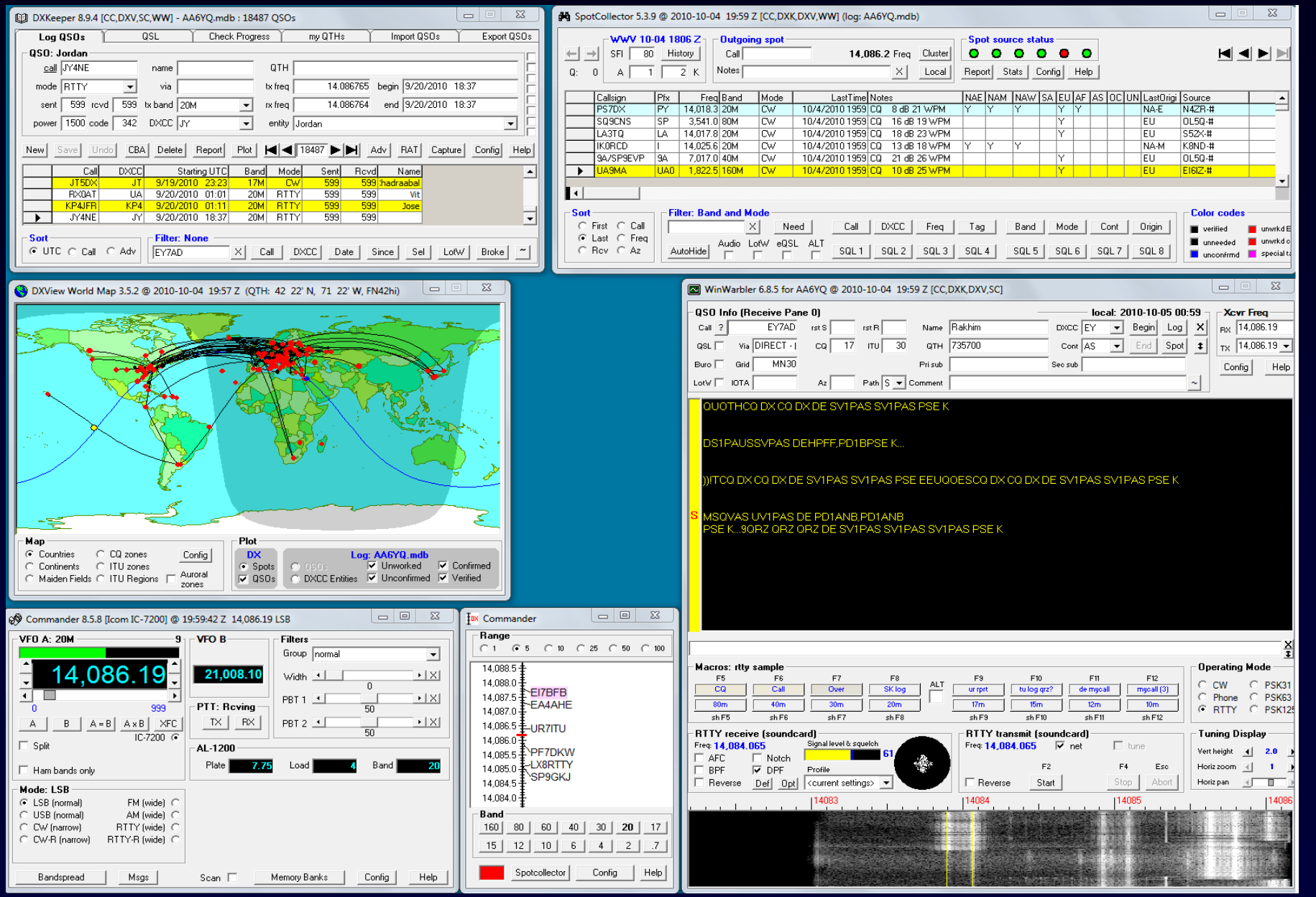
- Introduction to the DXLab Suite
  - Architecture
  - Development Drivers
  - Multiple Views of Active DX
- Finding the DX You Need
- Working the DX You Need

www.dxlabsuite.com

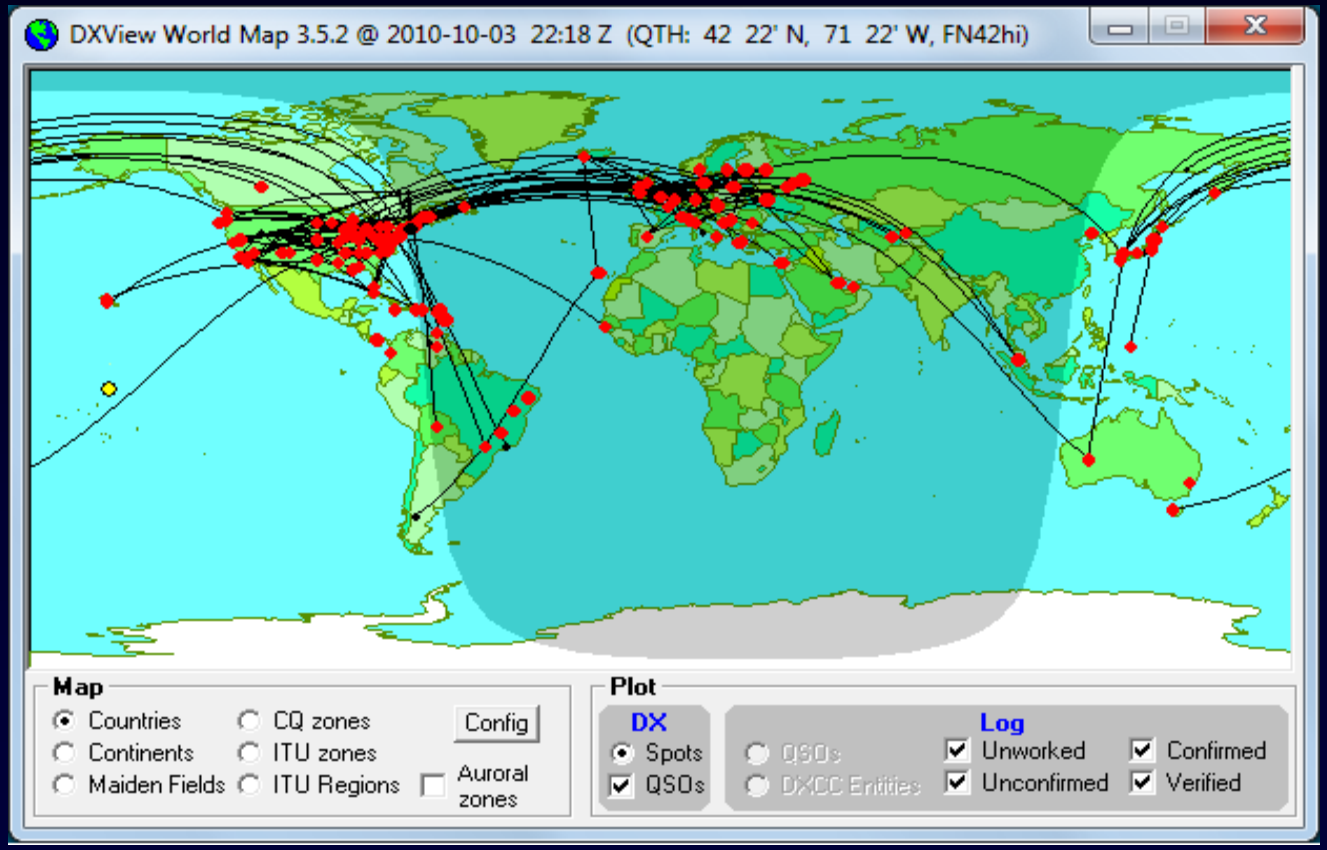


www.dxlabsuite.com

Better DXing Through Software



DXing with DXLab



Better DXing Through Software