

```
015145 Tx 1817 ~ CQ NO0T DM88
015200 -20 0.5 2225 ~ NO0T ZL30Z -21
015215 Tx 1817 ~ ZL30Z NO0T R-20
015230 -23 0.5 2225 ~ NO0T ZL30Z RR73
015245 Tx 1817 ~ ZL30Z NO0T 73
015915 Tx 1817 ~ CQ NO0T DM88
```

6M “MAGIC BAND”

285 TECHCONNECT RADIO CLUB

MARCH 2023

WILLIAM THOMAS WT0DX

PAUL SOBON NO0T

3/3/23 VI.3

2 OVERVIEW

- Who is WT0DX
- Who is NO0T
- Radio Equipment
- Antennas
- 6M Propagation
- Modes
- Meteor Scatter
- Social / Awards / Contests
- Demo / Q&A

The screenshot displays the WSJT-X v1.9.1 interface. At the top, a waterfall plot shows frequency activity from 500 to 3000 kHz. Below the plot, a log window lists received messages with columns for UTC, dB, DT, Freq, and Message. The log shows several messages from stations like W0XX, W0QL, K5NZ, and CQ. The interface also includes a control panel with buttons for Log QSO, Stop, Monitor, Erase, Decode, Enable Tx, Halt Tx, and Tune. A central display shows the current frequency (50.313 000) and a digital readout (DR) of 2018 Jul 24 00:43:17. A list of messages is visible on the right side of the interface.

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
004300	2	0.1	1509	~ W0XX K7LV CW02	004050	-19	0.1	1160	~ W0ZKEM VE3TUK R-17
004300	11	0.1	1707	~ W0QL W9IIX R-16	004100	-10	0.2	2208	~ CQ VE3PV EN82
004300	5	-0.7	2022	~ K5NZ AA9RR EN62	004123	Tx	2208	~ VE3PV WT0DX DM79	
004300	-8	0.2	2153	~ CQ KY7M DM33	004130	-11	0.2	2208	~ CQ VE3PV EN82
004300	-7	-0.6	2362	~ AK2L WZ8DX EM79	004145	Tx	2208	~ VE3PV WT0DX DM79	
004300	-17	0.0	2417	~ CQ AS K0GU DN70	004215	Tx	2208	~ VE3PV WT0DX DM79	
004300	-15	0.0	2552	~ N7KSI AJ4F R-24	004200	-10	0.2	2208	~ WT0DX VE3PV +02
004300	0	0.1	1008	~ W3CP N7LKL CN85	004215	Tx	2208	~ VE3PV WT0DX R-10	
004300	-17	-0.5	1193	~ W0KIT K4CMC 73	004230	-11	0.2	2208	~ WT0DX VE3PV RRR
004300	-3	0.1	1757	~ CQ W8BART EM79	004245	Tx	2208	~ VE3PV WT0DX 73	
004300	1	0.3	2023	~ K5NZ N9CIW EN61	004300	-7	0.0	2209	~ WT0DX VE3PV 73
004300	-14	0.2	2150	~ CQ K9ZO EN50					

3 WHO IS WT0DX

- Licensed since 1968 - Extra class
- Evergreen QTH 2012 - 2019
- June 2019 Denver Remote Station
- 7859 6M contacts
 - FT8 4742
 - SSB 1902
 - MSK144 717
 - JT65 275
 - FT4 186
 - Q65 25
- WAS, 59 DXCC, 440 FFMA



4 WHO IS NO0T

- Licensed in 1964 as VE3FIB
- NO0T in 1982 – Extra Class
- Operated from many states...
- NO0T/P Platteville, CO
SDR receive site @ AA0RS
- New: NO0T Haswell, CO
@ DSES site K0PRT
- 5,000+ remote contacts



5 RADIO EQUIPMENT

- Transceivers
 - All modern transceivers have the 6M band
- SDR
 - SDRs make great 6M receivers: Airspy R2, SDRPlay, Nooelec NESDR SMARt (only \$35)
- Amplifiers
 - All modern amplifiers include 6M band
 - Commercial (Harris) TV Amplifier modules
- WSJT-X or JTDX for digital modes



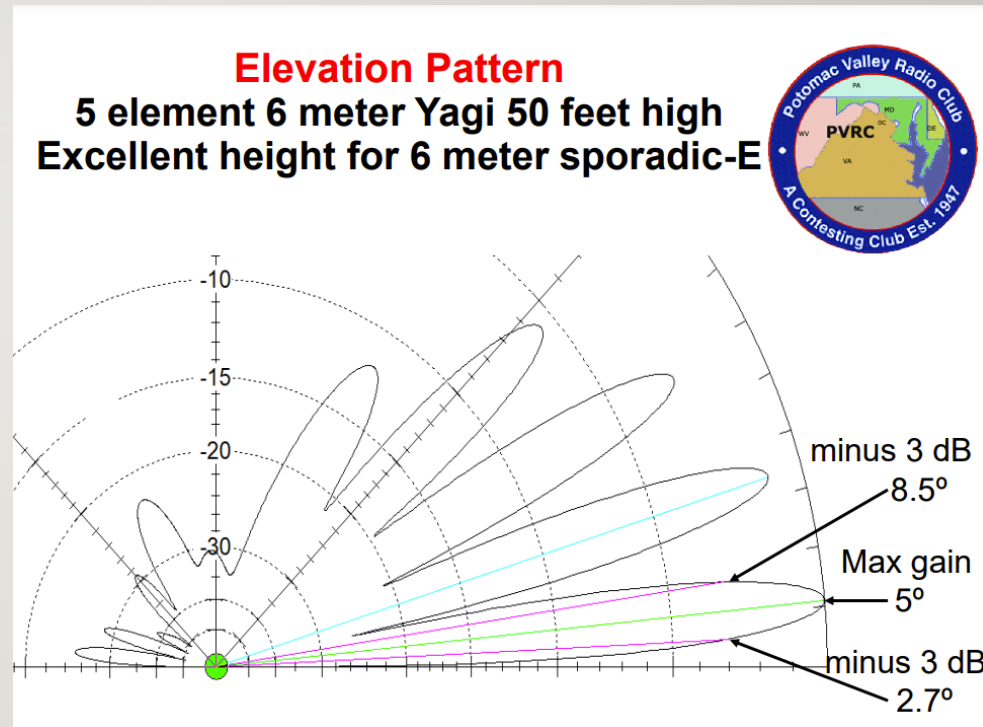
6 ANTENNAS

- 6M Yagis are preferred, but other antennas will work during “big openings”...
 - Moxon, Dipole, Mobile whip
- With noisy environments, LFA Yagis are the best solution
- Typical Yagi is 5-7 elements
- Use good feedline
- Pre-amps ?



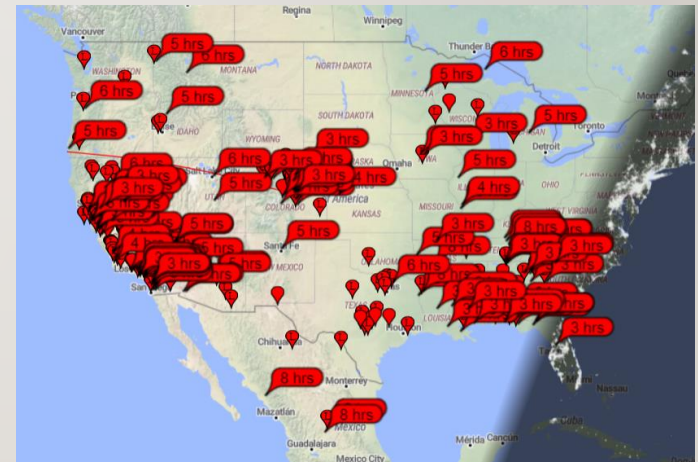
7 W3LPL OPTIMUM HEIGHT

- “Selecting, Constructing and Maintaining 6 Meter High Performance Yagis” by W3LPL Frank Donovan
- Antenna comparisons
- Installation tips



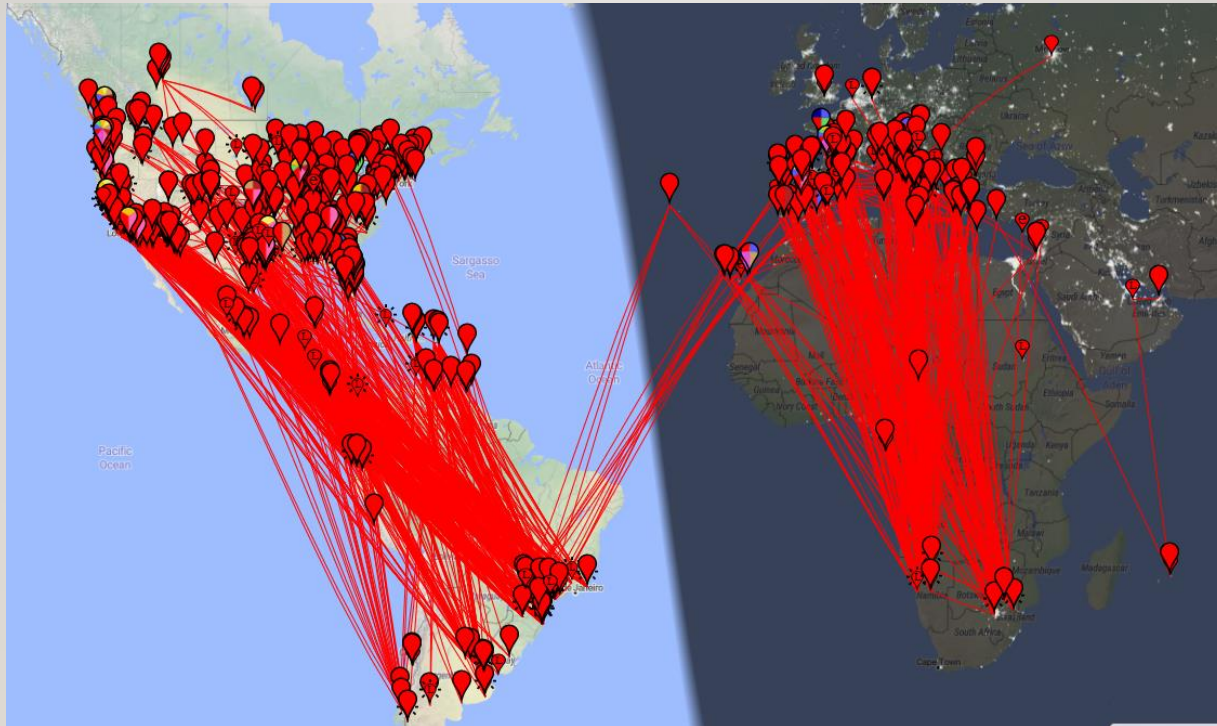
8 PROPAGATION

- This is what makes 6 Meters the “Magic Band”
 - E Skip (primarily in the summer)
 - Meteor Scatter (everyday)
 - TEP (Trans-Equatorial Propagation)
 - F2
 - Scatter
 - Tropo
 - EME
- Combinations of the above...



5/10/20

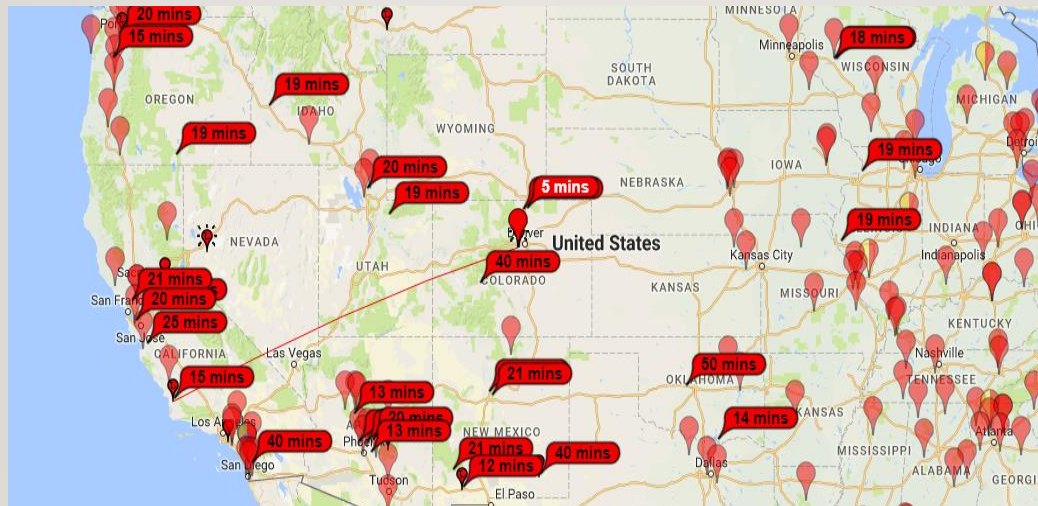
9 PROPAGATION



March 1, 2023 at 2010Z

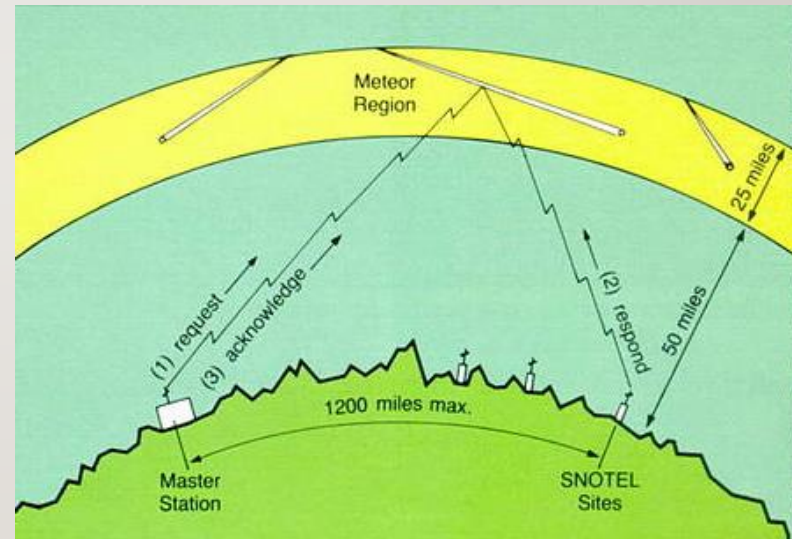
10 MODES

- Analog; SSB, FM and CW
 - SSB/CW mostly during big openings or contests
- Digital: FT8, MSK144, Q65 are the most popular
 - Spots on PSKReporter or DX Maps



II METEOR SCATTER

- 1000's of “meteors” burn up in the atmosphere each day
- Ham radio operators can send short messages using the ionization trails of these meteors
- 6 or 2 Meter bands



12 MSK144 MODE

- Meteor-scatter QSOs can be made any time on the VHF bands at distances up to about 2100 km (1300 miles).
- Completing a QSO takes longer in the evening than in the morning, longer at higher frequencies, and longer at distances close to the upper limit.
- But with patience, 100 Watts or more, and a single Yagi it can usually be done.
- MSK144 is a wide band audio signal centered at 1500Hz
- Software does real time decoding within 15 second intervals

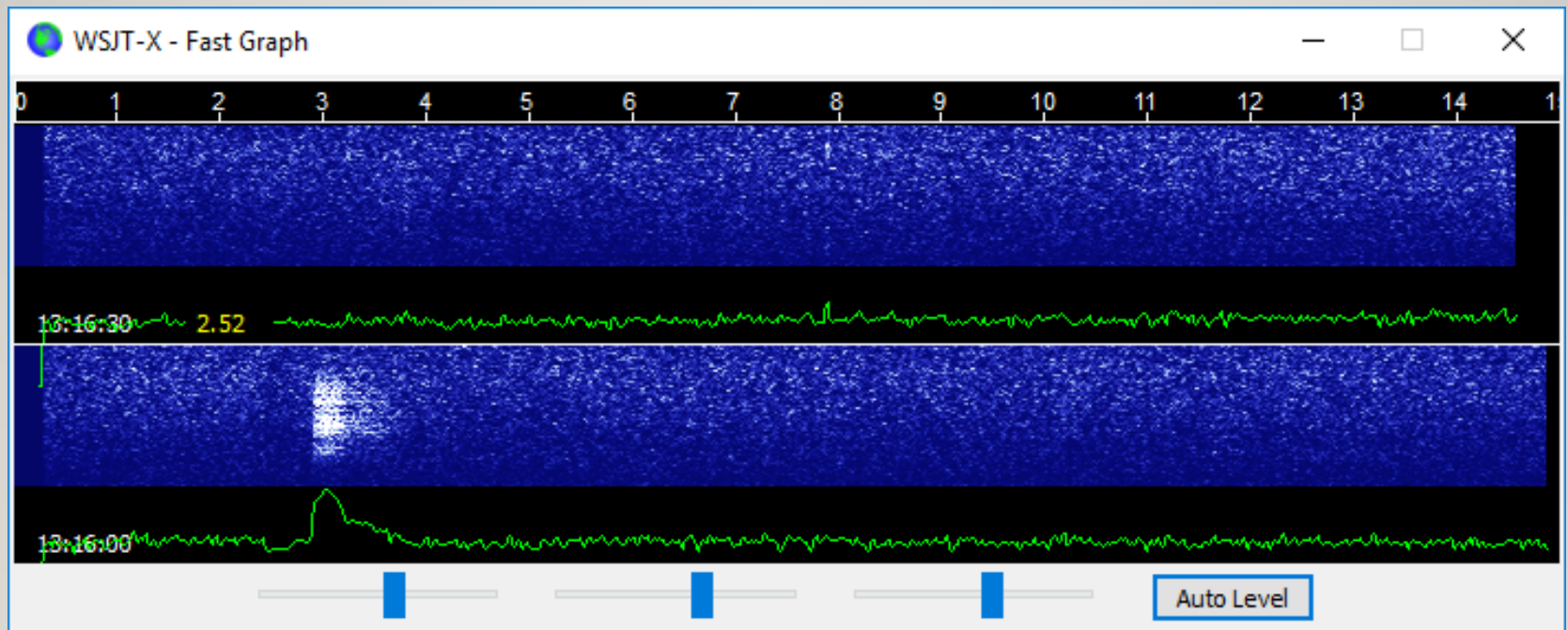
13 MS SOFTWARE

- WSJT-X software is used to send and receive messages
- Working Larry W5LDA in Mounds, OK
- WT0DX has made 700+ MSK144 contacts

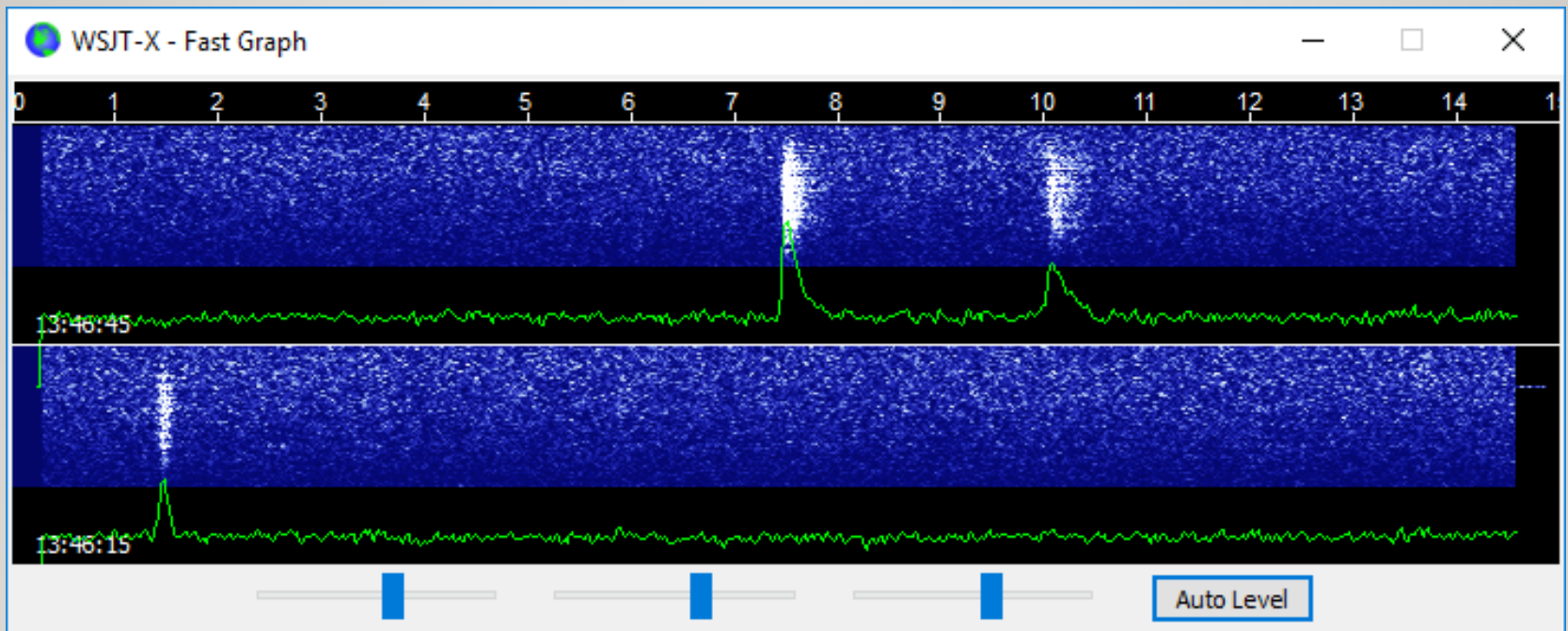
The screenshot displays the WSJT-X software interface. The top window, titled 'WSJT-X - Fast Graph', shows a waterfall plot with a prominent signal at 14:54:45. The bottom window, titled 'WSJT-X v1.9.0-rc3 by K1JT', shows a message log with two columns: 'Band Activity' and 'Tx Messages'. The 'Band Activity' column lists received messages with UTC, dB, T, Freq, and Message. The 'Tx Messages' column lists transmitted messages with UTC, dB, T, Freq, and Message. The interface also includes a control panel with buttons for 'Log QSO', 'Stop', 'Monitor', 'Erase', 'Decode', 'Enable Tx', 'Halt Tx', and 'Tune'. A status bar at the bottom shows 'Receiving 23%' and 'MSK144'.

Band Activity					Tx Messages				
UTC	dB	T	Freq	Message	UTC	dB	T	Freq	Message
144815	0	13.0	1494	& CQ W5LDA EM15	144845	1	11.0	1494	& CQ W5LDA EM15
144845	1	11.0	1494	& CQ W5LDA EM15	144900	Tx		1500	& W5LDA WT0DX DM79
144915	4	10.6	1497	& WT0DX W5LDA -02	144930	Tx		1500	& W5LDA WT0DX R+04
144945	-1	11.0	1492	& WT0DX W5LDA RRR	145000	Tx		1500	& W5LDA WT0DX 73
144945	1	14.5	1490	& WT0DX W5LDA RRR	145030	Tx		1500	& W5LDA WT0DX 73
144945	2	14.5	1491	& WT0DX W5LDA RRR	145100	Tx		1500	& W5LDA WT0DX 73
145015	1	0.3	1487	& WT0DX W5LDA 73					
145045	-5	14.4	1513	& N5OSK K2DRH R+02					
145415	0	1.0	1501	& CQ W5LDA EM15					
145445	3	1.5	1493	& CQ W5LDA EM15					
145445	16	10.3	1500	& CQ W5LDA EM15					

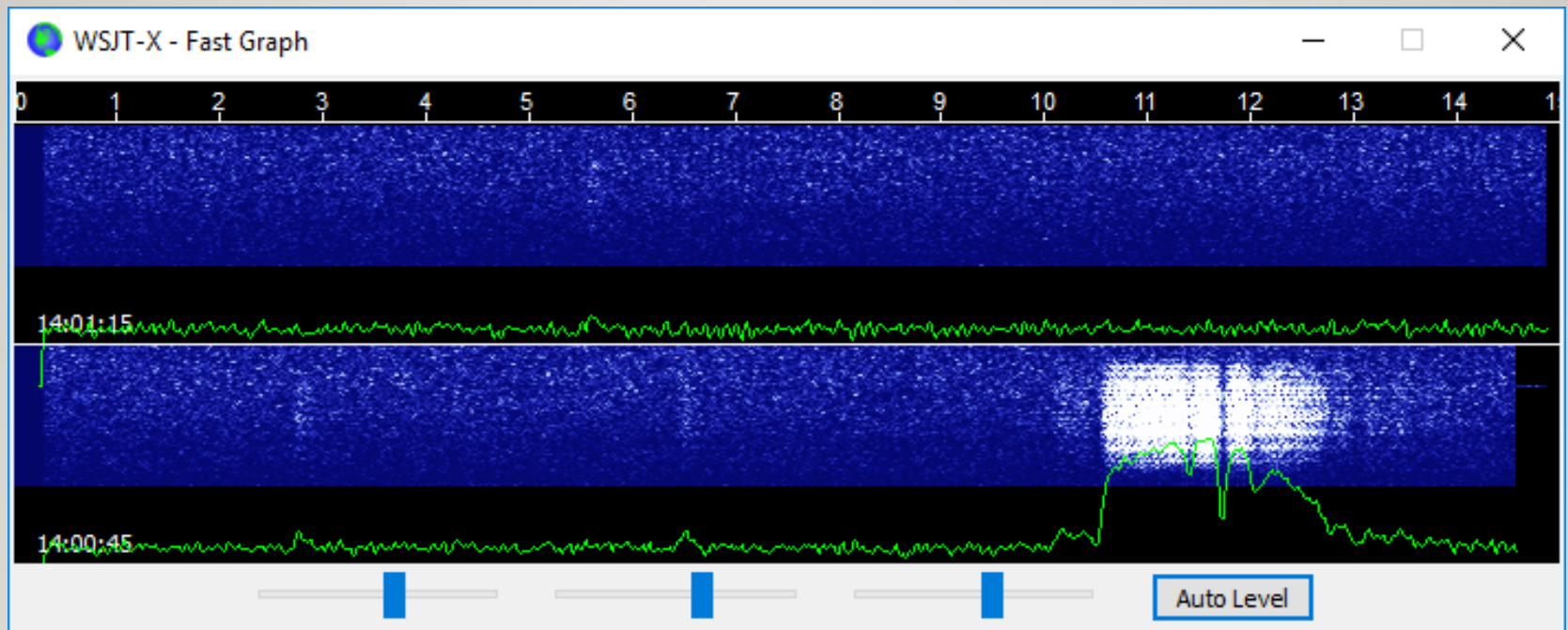
14 EXAMPLE TRACES



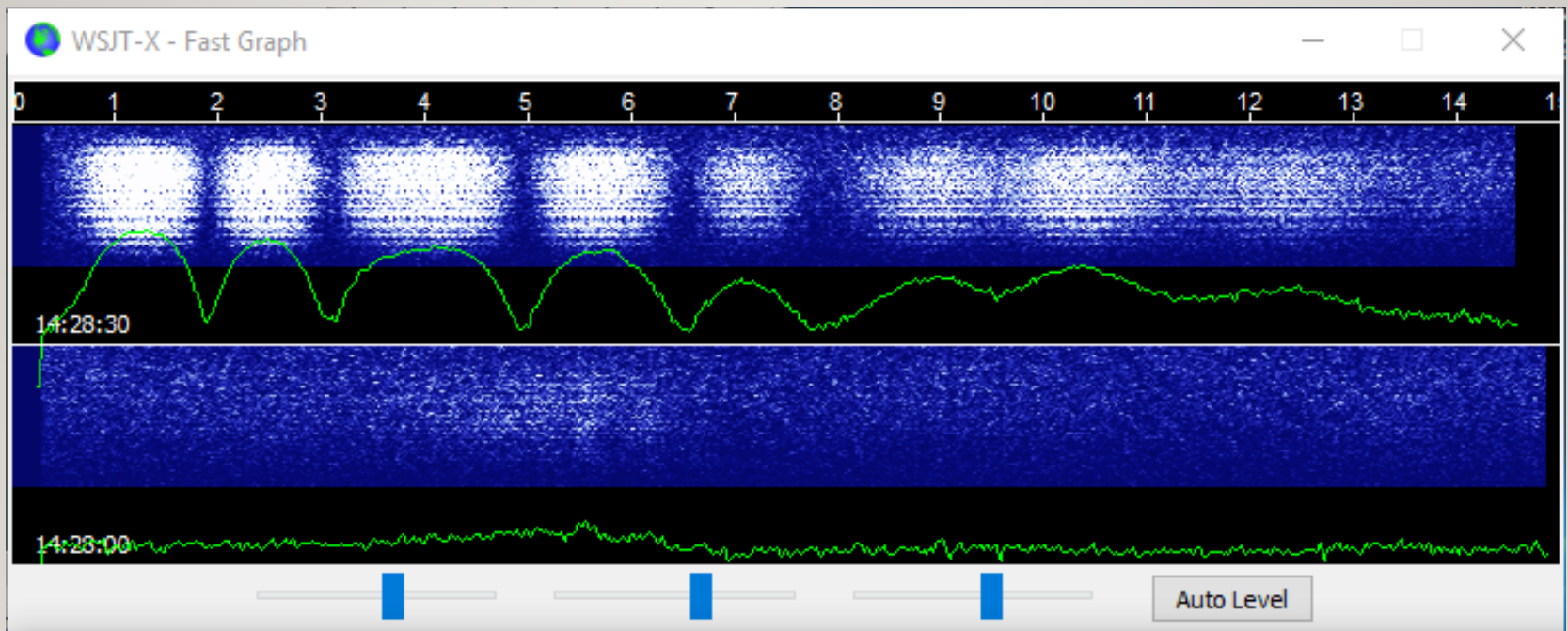
15 EXAMPLE TRACES



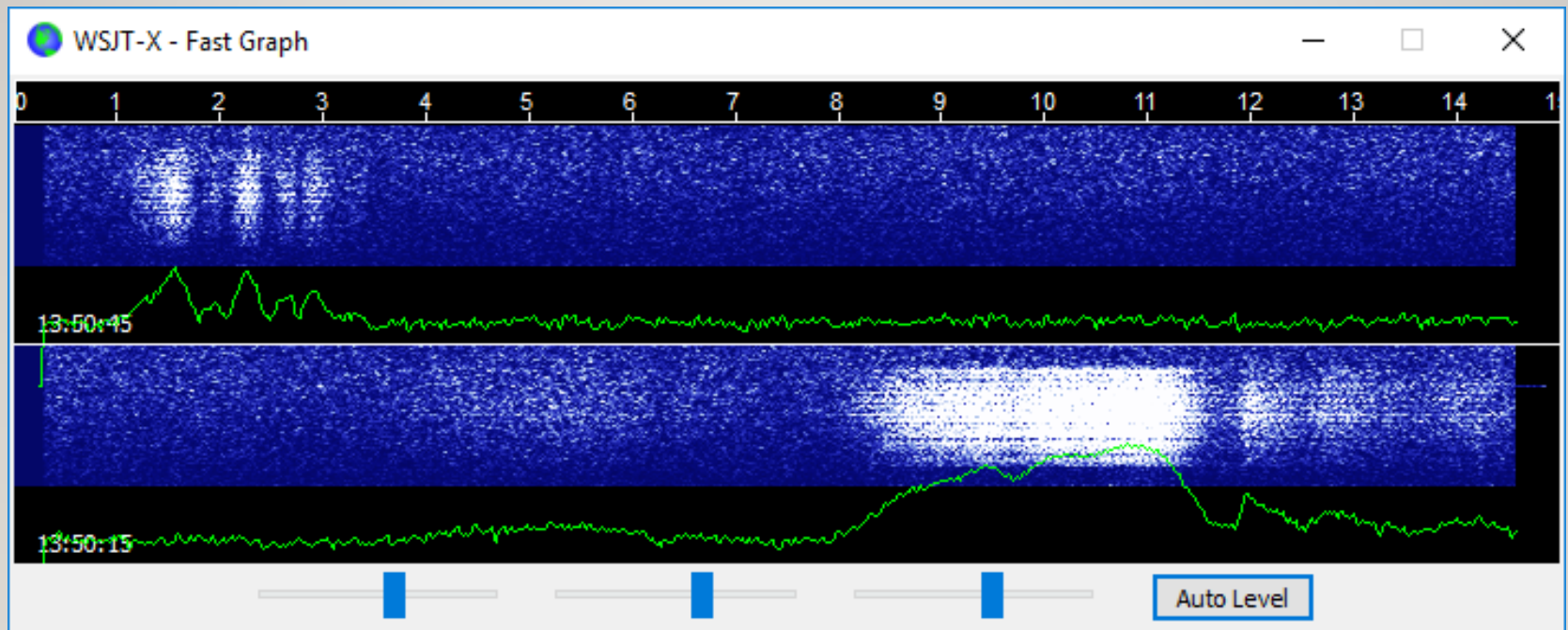
16 EXAMPLE TRACES



17 EXAMPLE TRACES



18 EXAMPLE TRACES



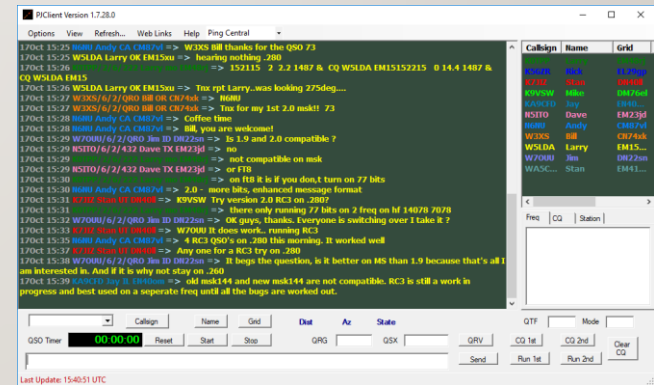
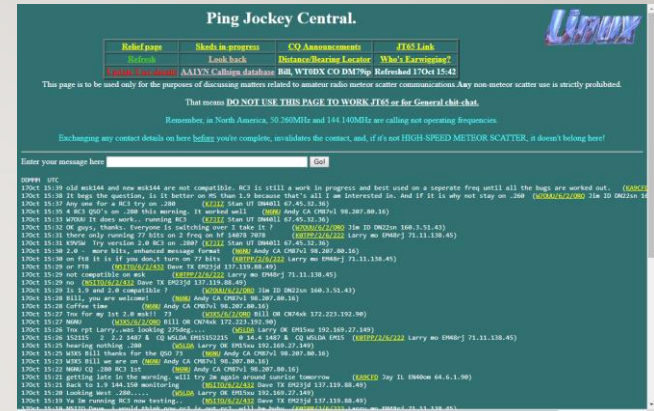
19 SOCIAL / AWARDS / CONTESTS

- Social
 - Facebook, Twitter
 - Ping Jockey, VHF-Chat
 - JTAlert Messaging
 - Front Range 6M Group
- Awards
 - WAS, DXCC, VUCC, FFMA (488 grids)
- Contests
 - ARRL VHF (Jan/June/Sept)
 - CQ VHF (July)



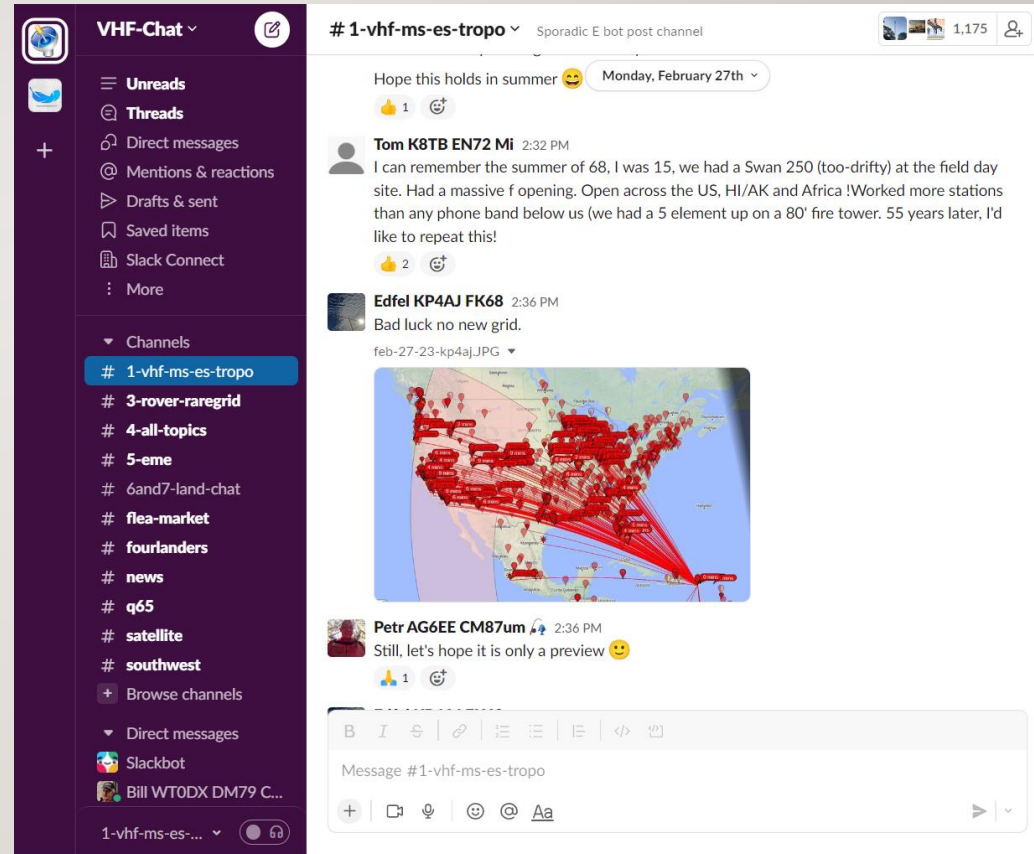
20 PING JOCKEY

- Ping Jockey chat room for MSK144
- Friendly group, set up skeds, confirm contacts, help...
- Website
- Windows client by N5TM



21 VHF-CHAT

- Popular Slack site for VHF operators
- Many “channels” of conversations
- Free application, need to be invited



The image shows a screenshot of a Slack workspace named "VHF-Chat". The left sidebar displays a list of channels, with "# 1-vhf-ms-es-tropo" selected. Below the channels list, there are options for "Direct messages" including "Slackbot" and "Bill WTODX DM79 C...".

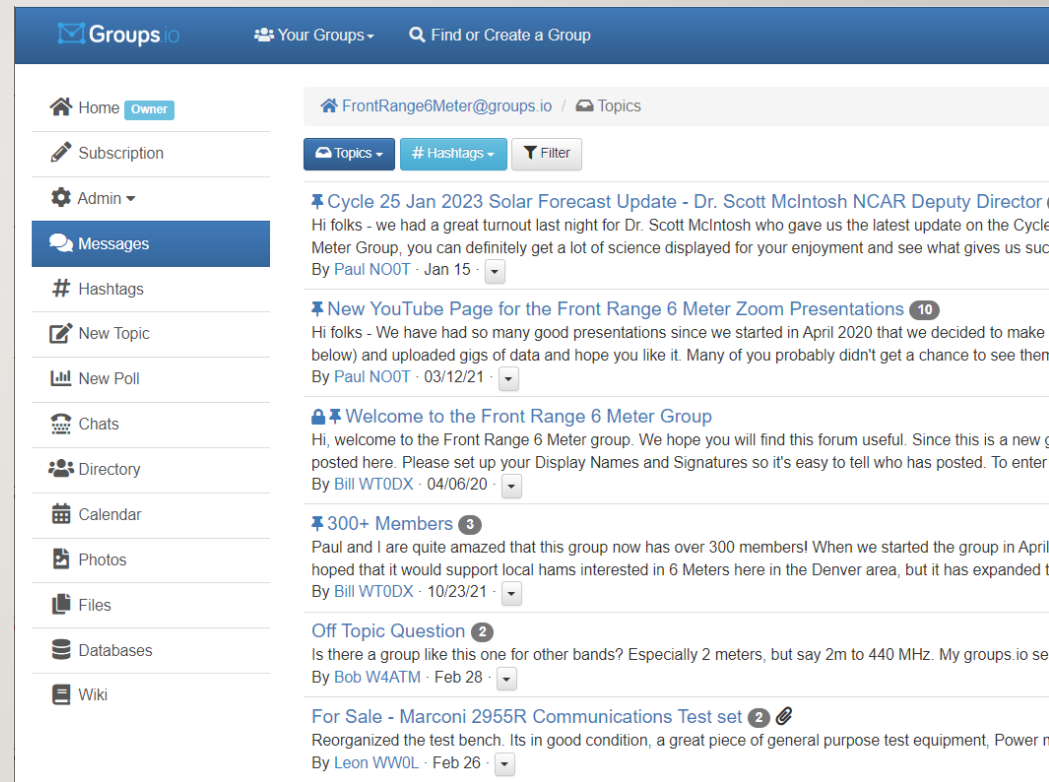
The main content area shows a message in the "# 1-vhf-ms-es-tropo" channel. The message is from "Tom K8TB EN72 Mi" and is dated "Monday, February 27th". The message text reads: "I can remember the summer of 68, I was 15, we had a Swan 250 (too-drifty) at the field day site. Had a massive f opening. Open across the US, HI/AK and Africa !Worked more stations than any phone band below us (we had a 5 element up on a 80' fire tower. 55 years later, I'd like to repeat this!". Below the text is a map of the United States with numerous red location pins and connecting lines, representing a field day log. The map is titled "feb-27-23-kp4aj.JPG".

Below the map, there is another message from "Petr AG6EE CM87um" dated "2:36 PM". The message text reads: "Still, let's hope it is only a preview 😊".

The bottom of the screenshot shows the Slack message input area with a text box containing "Message #1-vhf-ms-es-tropo" and various formatting and action icons.

22 FRONT RANGE 6M

- Founded in April 2020 by NO0T/WT0DX
- Now has over 350 members from around the world
- Some great video presentations (YouTube channel) and slide decks in Files



The screenshot shows the Groups.io interface for the 'FrontRange6Meter@groups.io' group. The left sidebar contains navigation options: Home (Owner), Subscription, Admin, Messages (selected), Hashtags, New Topic, New Poll, Chats, Directory, Calendar, Photos, Files, Databases, and Wiki. The main content area displays a list of posts:

- Cycle 25 Jan 2023 Solar Forecast Update - Dr. Scott McIntosh NCAR Deputy Director** (10 replies)
Hi folks - we had a great turnout last night for Dr. Scott McIntosh who gave us the latest update on the Cycle Meter Group, you can definitely get a lot of science displayed for your enjoyment and see what gives us such...
By Paul NOOT · Jan 15 · [dropdown]
- New YouTube Page for the Front Range 6 Meter Zoom Presentations** (10 replies)
Hi folks - We have had so many good presentations since we started in April 2020 that we decided to make a... (below) and uploaded gigs of data and hope you like it. Many of you probably didn't get a chance to see them...
By Paul NOOT · 03/12/21 · [dropdown]
- Welcome to the Front Range 6 Meter Group**
Hi, welcome to the Front Range 6 Meter group. We hope you will find this forum useful. Since this is a new group... posted here. Please set up your Display Names and Signatures so it's easy to tell who has posted. To enter...
By Bill WT0DX · 04/06/20 · [dropdown]
- 300+ Members** (3 replies)
Paul and I are quite amazed that this group now has over 300 members! When we started the group in April... hoped that it would support local hams interested in 6 Meters here in the Denver area, but it has expanded to...
By Bill WT0DX · 10/23/21 · [dropdown]
- Off Topic Question** (2 replies)
Is there a group like this one for other bands? Especially 2 meters, but say 2m to 440 MHz. My groups.io see...
By Bob W4ATM · Feb 28 · [dropdown]
- For Sale - Marconi 2955R Communications Test set** (2 replies)
Reorganized the test bench. Its in good condition, a great piece of general purpose test equipment, Power...
By Leon WW0L · Feb 26 · [dropdown]

23 USEFUL LINKS

- Front Range 6M Group: <https://groups.io/g/FrontRange6Meter>
- VHF-Chat (requires invitation), Slack Client : <https://slack.com/>
- Ping Jockey: <https://www.pingjockey.net/cgi-bin/pingtalk>
- N5TM Ping Jockey Client:
https://github.com/dbn5tm/PJClient_Scraper/tree/master/PJClient/..publish
- “Selecting, Constructing and Maintaining 6 Meter High Performance Yagis”
<https://groups.io/g/FrontRange6Meter/files/High%20Performance%206%20Meter%20Yagi%20Antenna%20Systems.pdf>
- W7GJ Website (many links): <http://www.bigskyspaces.com/>

24

DEMO / Q&A

