



# Balloon Launching with Ham Radio

Presented by Walter Holmes, K5WH

Tech Net #29

April 6, 2026



# South Texas Balloon Launch Team

*To the Edge of Space!*

# Areas to Cover

- **History of South Texas Balloon Launch Team**
- **Large Balloons (poppers)**
- **Small Balloons (floaters)**
- **Current & Future Ideas on trackers**
- **Launch Sites**
- **Tracking sites**
- **Contact for Details**

# History of South Texas Balloon Launch Team

- Inspired by Bill Brown-WB8ELK
  - and Andy MacAllister W5ACM (sk)
- A loosely disorganized group of fun loving hams
  - Monthly dinner and Zoom meetings
- Launching balloons for nearly 30 years
- Launch 1 HAB High Altitude Popper Balloon per year
- Launch at least 2 floaters per month
  - Trying to keep at least 1 balloon in the air at all times



# Flight Rules

## FAA-101 Exemption

- Payload is less than four pounds each
- Or, Payload is less than six pounds and the smallest surface is more than 36 inches (6 inches by 6 inches)
- Multiple payloads must weigh less than 12 pounds total
- Any tethered line must separate with less than 50 pounds of force

# Large Balloons (poppers)

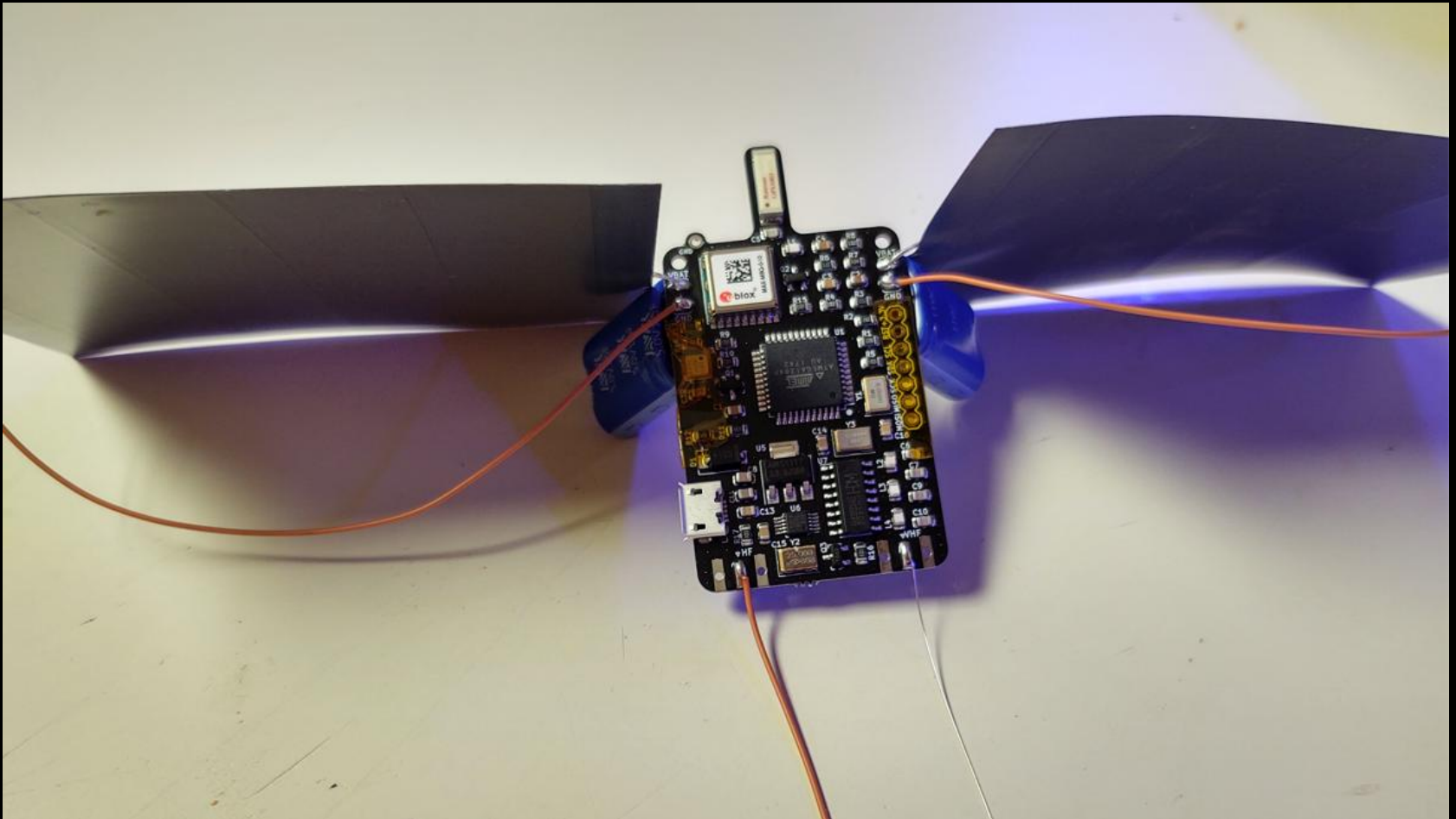


- **Typical HAB Payloads**
  - **APRS**
  - **VHF/UHF crossband analog repeater**
  - **DMR UHF Single Frequency Repeater (sfr)**
  - **DVB-T High-definition live ATV color video**
- **Highest altitude almost 120,000 feet**

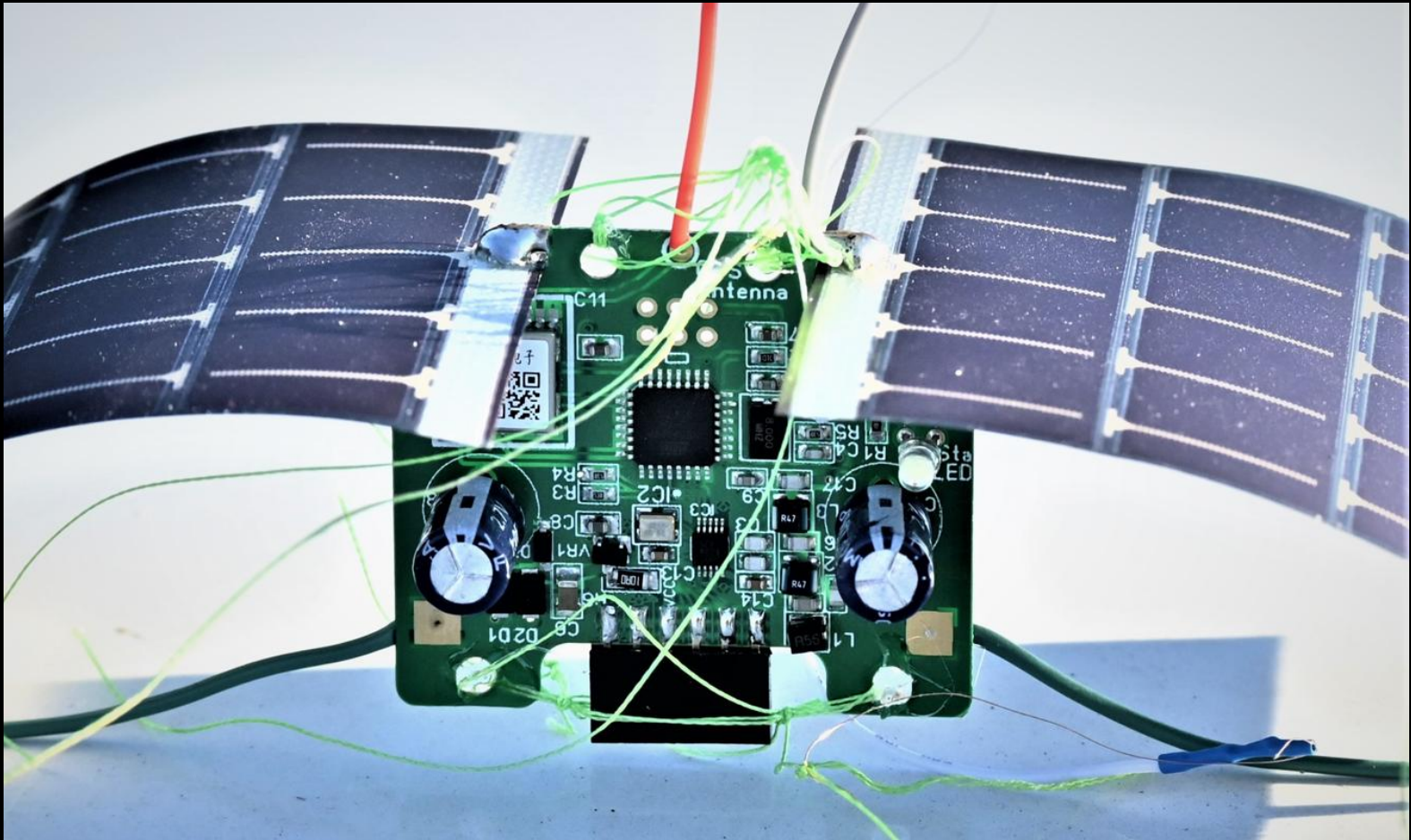
# Small Trackers (floaters)

- **Typical Floater Payloads**
  - CW beacon
  - APRS
  - WSPR
  - APRS & WSPR
  - Camera, with images sent over APRS
- **Several times around the world**

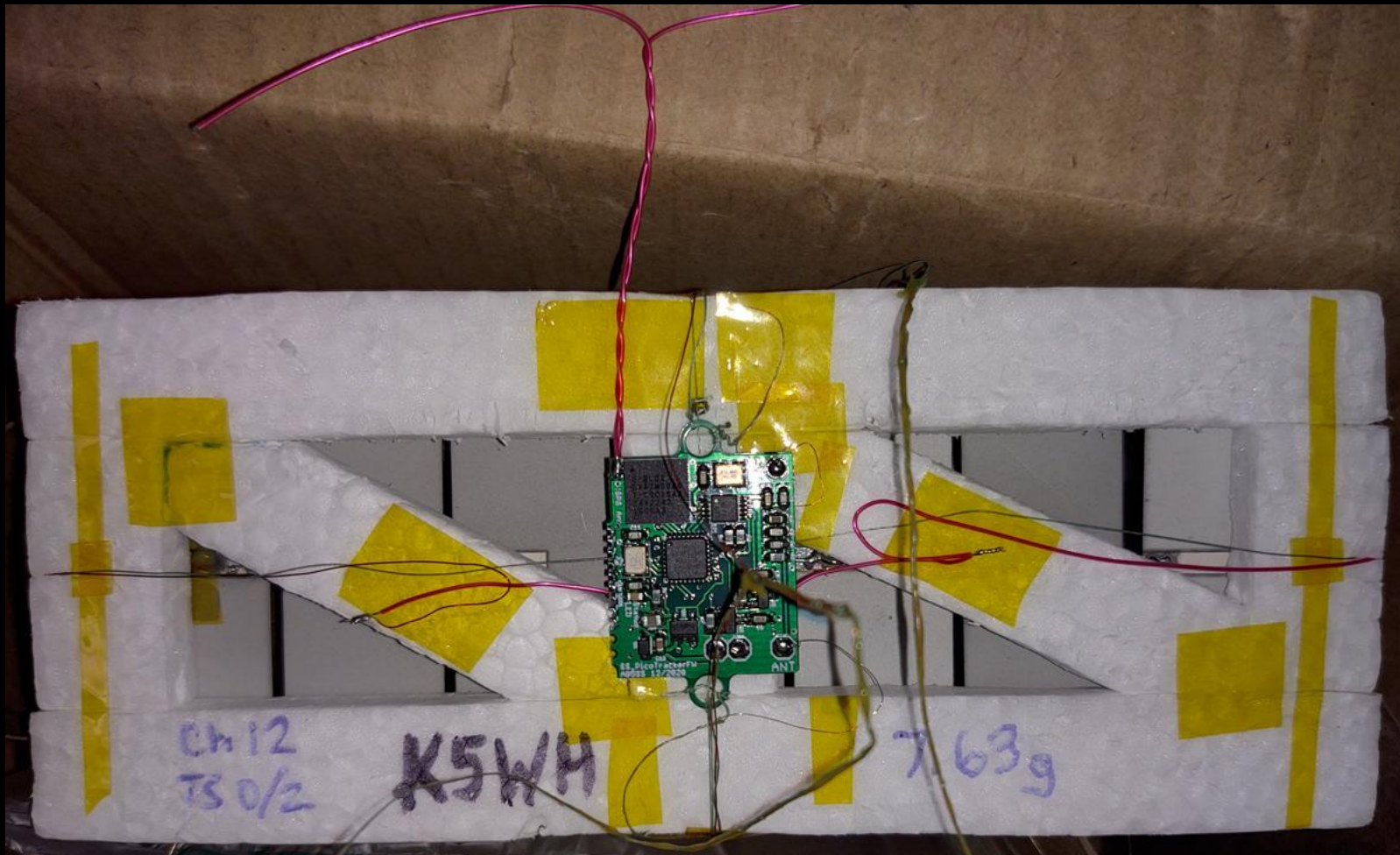
# Qrp-Labs Lightaprs



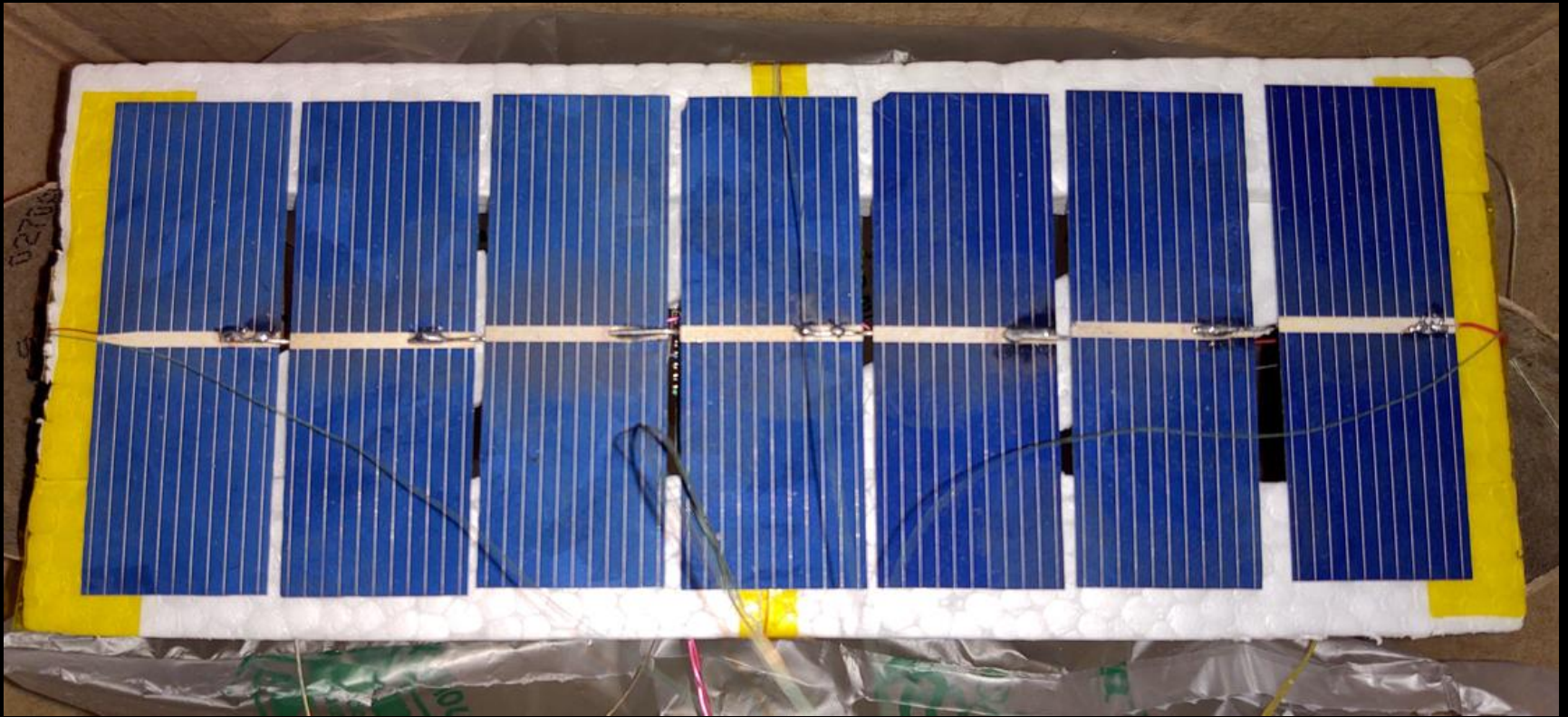
# Early ZachTek



# AB5SS Pico Tracker



# AB5SS Pico Tracker



# AB5SS Pico Tracker



# More Advanced Tracker Pecan 12a

- APRS with hi-res normal and zoom pictures



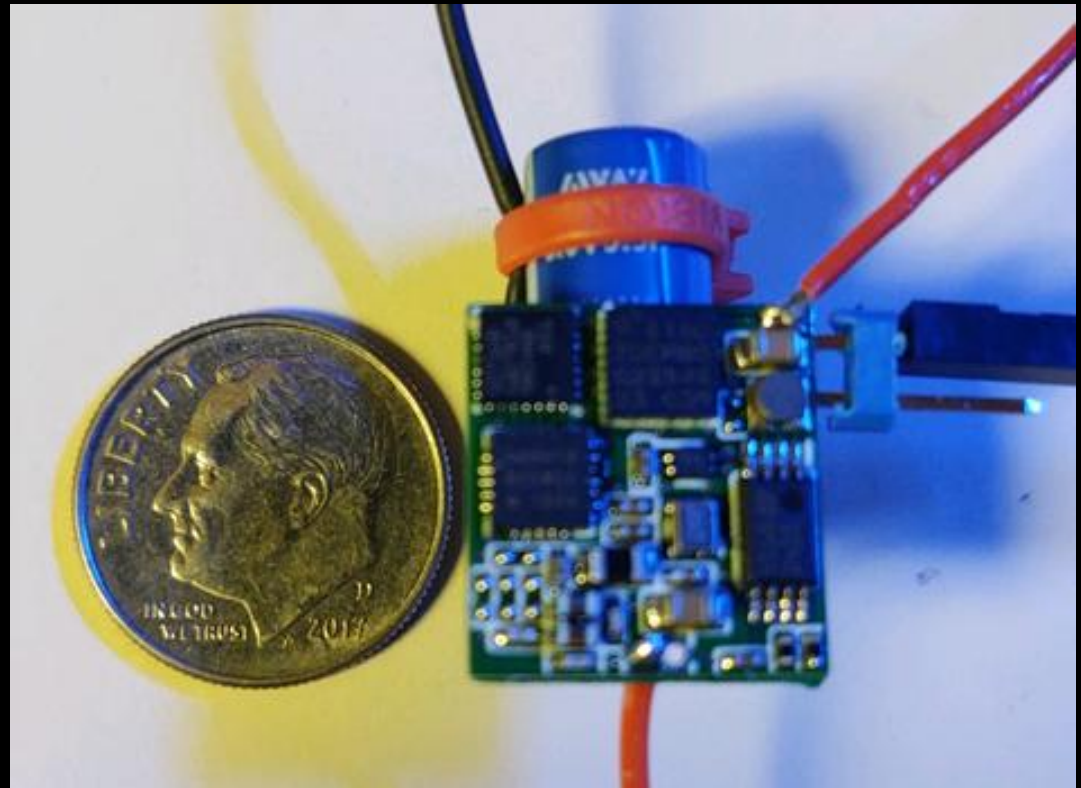
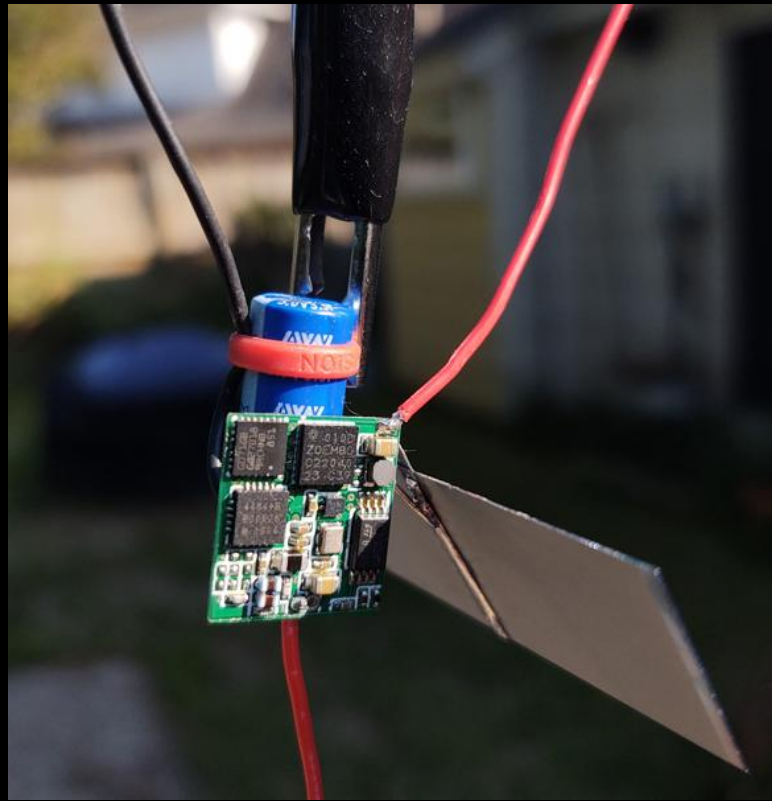
# Pecan 12a images



# Pecan 12a images



# Femto 5A





# Launch Sites

- **Wharton Airport, Wharton Texas (popppers)**
- **Scobie Field, George Bush Park, West Houston (floaters)**
- **Matzke Park, NW Houston (floaters)**

# Tracking Sites

- APRS: <http://aprs.fi>
- WSPR:  
[http://www.wsprnet.org/drupal/wsprnet/m  
ap](http://www.wsprnet.org/drupal/wsprnet/map)
- HabHub: <https://amateur.sondehub.org/>

# AMATEUR.SONDEHUB.ORG

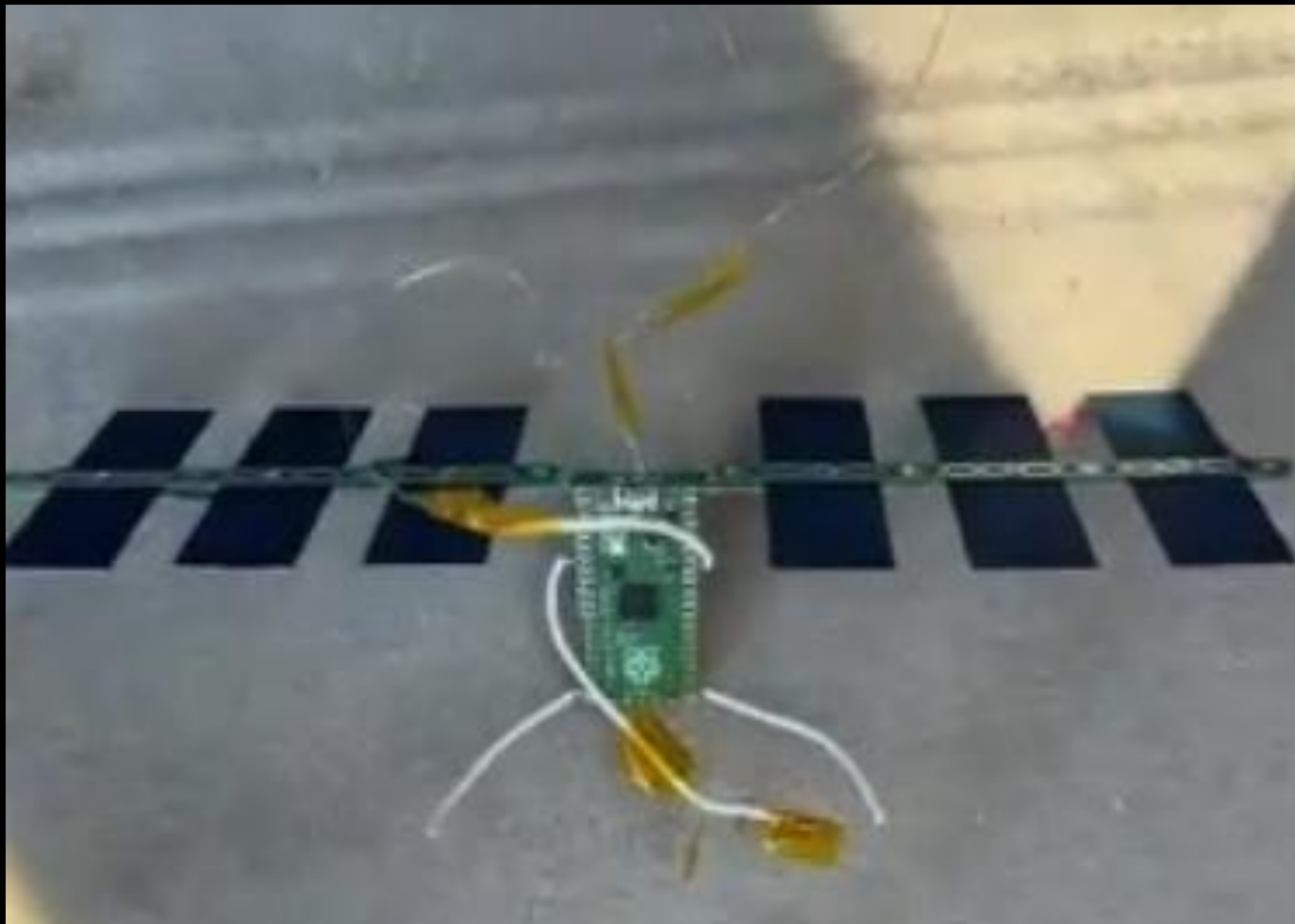
## 12 HOUR VIEW







**Launched 3/19/24  
W5MF BLT-129 WSPR**



**Launched 3/19/24  
W5MF BLT-129 WSPR**

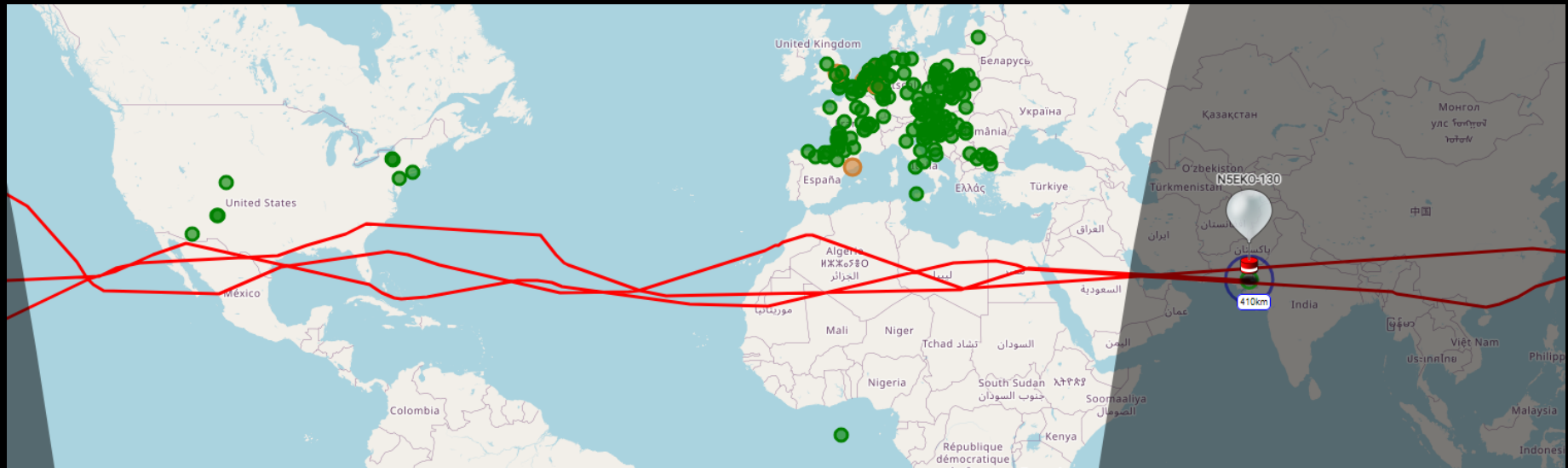




# Launched 3/19/24 W5MF BLT-129 WSPR



# Launched 3/5/24 N5EKO/E BLT-130 WSPR 3 ½ times around



# Greater Houston Hamfest

## Mar. 2025



# K5WH-9 BLT-151

## Apr. 2025



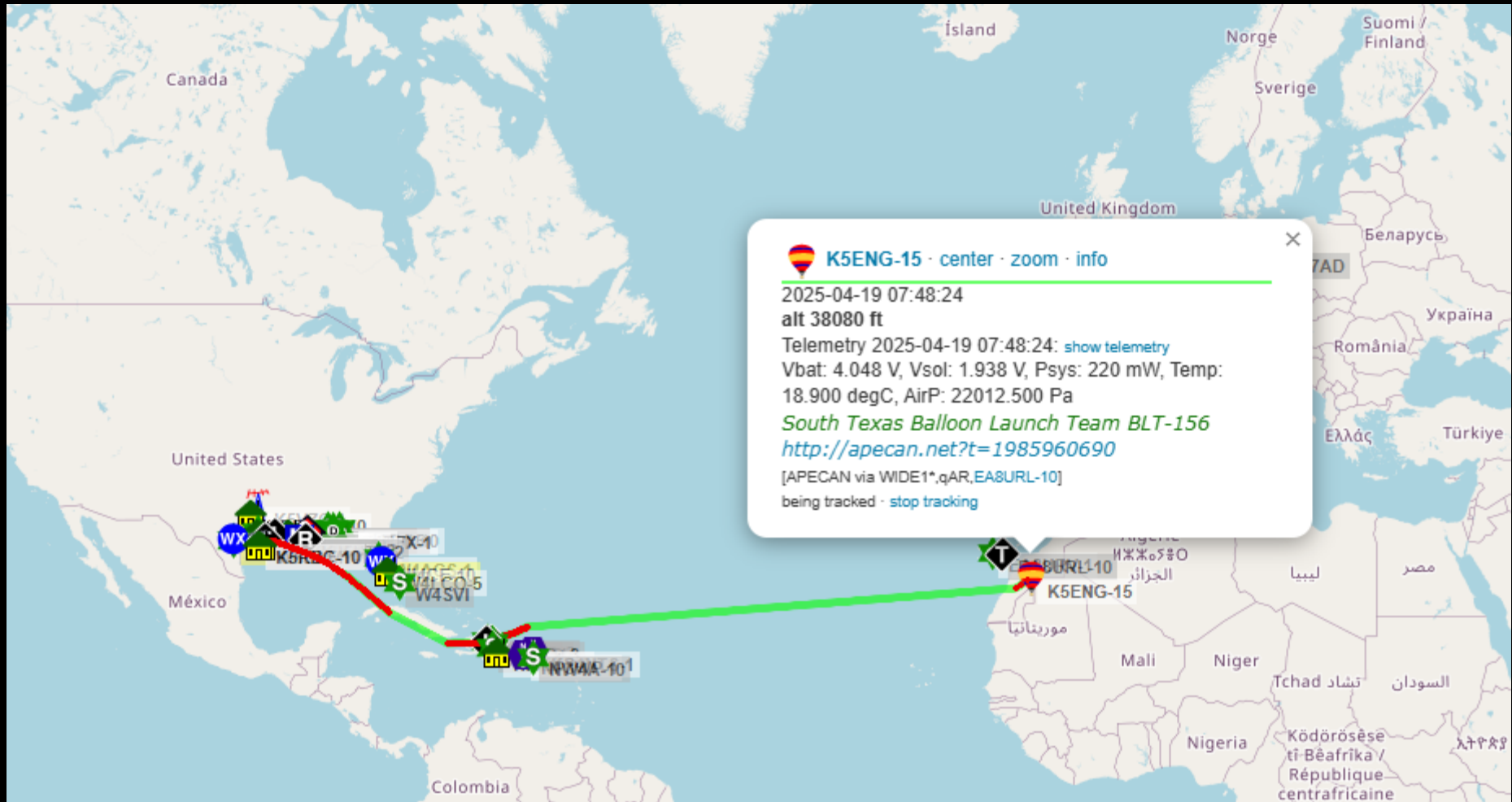
First/Last: 2025-04-11 17:05:42 - 17:27:24  
GNSS Position: N29.9661° W95.5807° 37m  
61 packets, 2 lost  
image\_id 97, server\_id 587  
Lost Packets: 19 53



First/Last: 2025-04-11 17:28:29 - 17:55:06  
GNSS Position: N29.8992° W95.6281° 1,592m  
77 packets, 0 lost  
image\_id 99, server\_id 589  
Lost Packets: none

# K5ENG-15 BLT-156

## Apr. 2025



# K5ENG-15 BLT-156

[http://apecan.net/telemetry.php?tracker\\_id=1985960690&call=k5eng-15](http://apecan.net/telemetry.php?tracker_id=1985960690&call=k5eng-15)

Tracker ID	76 5F 5A F2	Callsign	K5ENG-15	Map	Images	R
Callsign <b>K5ENG-15</b>		Tracker ID <b>76 5F 5A F2</b>				
Reset ID <b>10</b>	Packet ID <b>2,529</b>	Tracker Type <b>Hack Track 2b</b>				
Time UTC (arrived at server) <b>2025-04-19 13:18:23</b>		Time (SYS) <b>303,375s</b>				
Time lcl (arrived at server) <b>2025-04-19 08:18:23</b>						

Statistics

	<b>Last Packet</b>	<b>in 24h</b>
<b>Beacon</b>	2025-04-19 13:18:23z 39m34s ago	
<b>Directs</b>	2025-04-19 13:14:30z 43m27s ago	
<b>Image</b>	never	
<b>Log</b>	never	

Power Flow Diagram:

2.035 V → 1,039 mW → MPPT (η 71%) → 735 mW → 4.090 V → 222 mW → SYSTEM (3.300 V<sub>MCU</sub>)

0.012 V<sub>EXT</sub> (disconnected)

GNSS LOCKED, kept switched on

N26.0859° W011.4602° ↑ 11,608m

12 Sats, TTFF 2s, pDOP 1.30, Switched on 2s  
Time: 2025-04-19 13:18:16

# DL7AD-13 from Berlin 5,500 and 45,000 ft




First/Last: 2025-04-26 15:13:23 - 15:39:28  
GNSS Position: N52.4009° E13.3517° 1,432m  
67 packets, 2 lost  
image\_id 50, server\_id 1,713  
Lost Packets: 15 40



First/Last: 2025-04-27 14:40:46 - 16:13:00  
GNSS Position: N49.0417° E19.4317° 13,918m  
154 packets, 2 lost  
image\_id 118, server\_id 1,826  
Lost Packets: 44 99

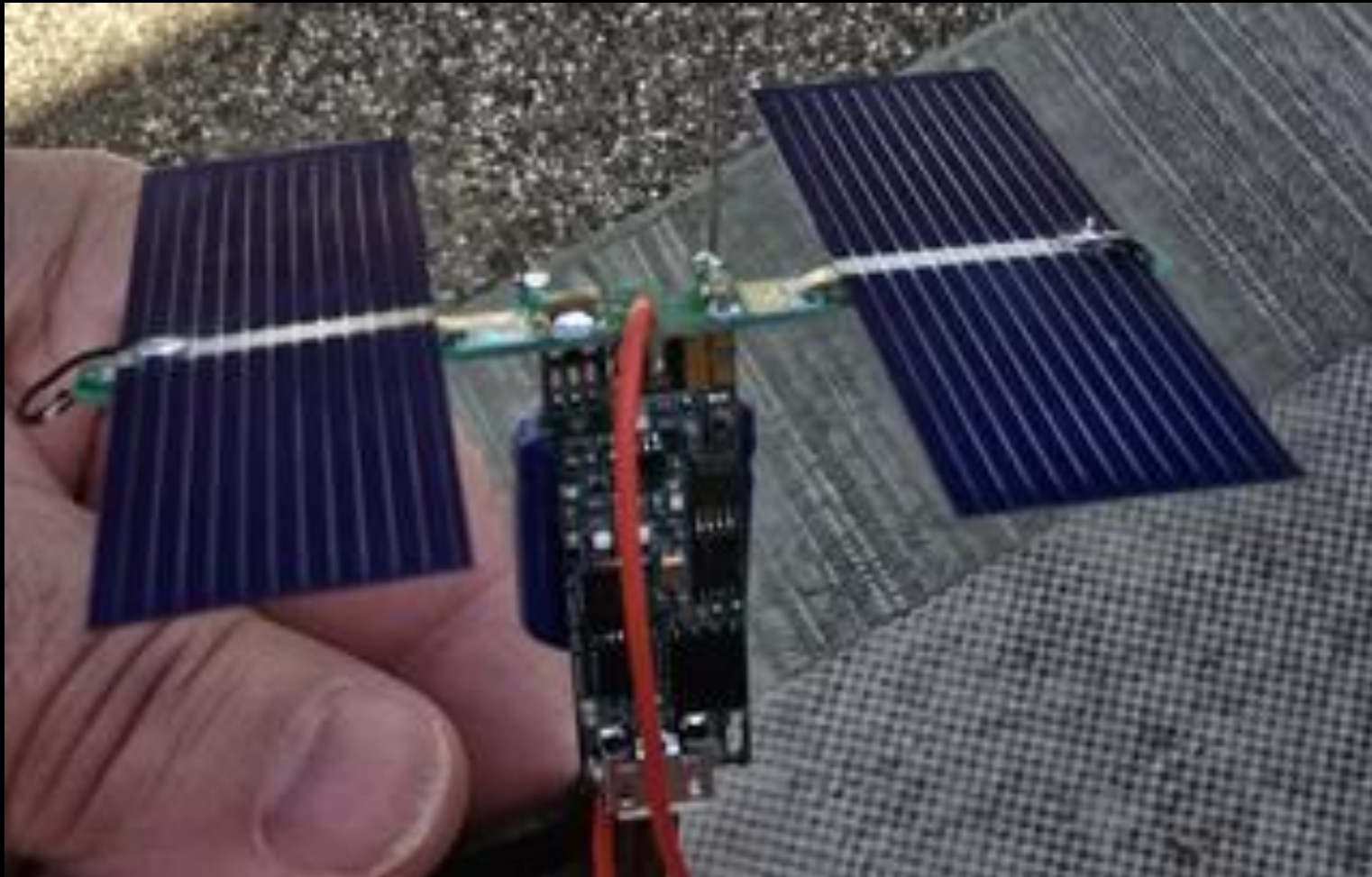
# K5WH-15 BLT-148 completing 1<sup>st</sup> trip around May 2025

 **K5WH-15** · center · zoom · info

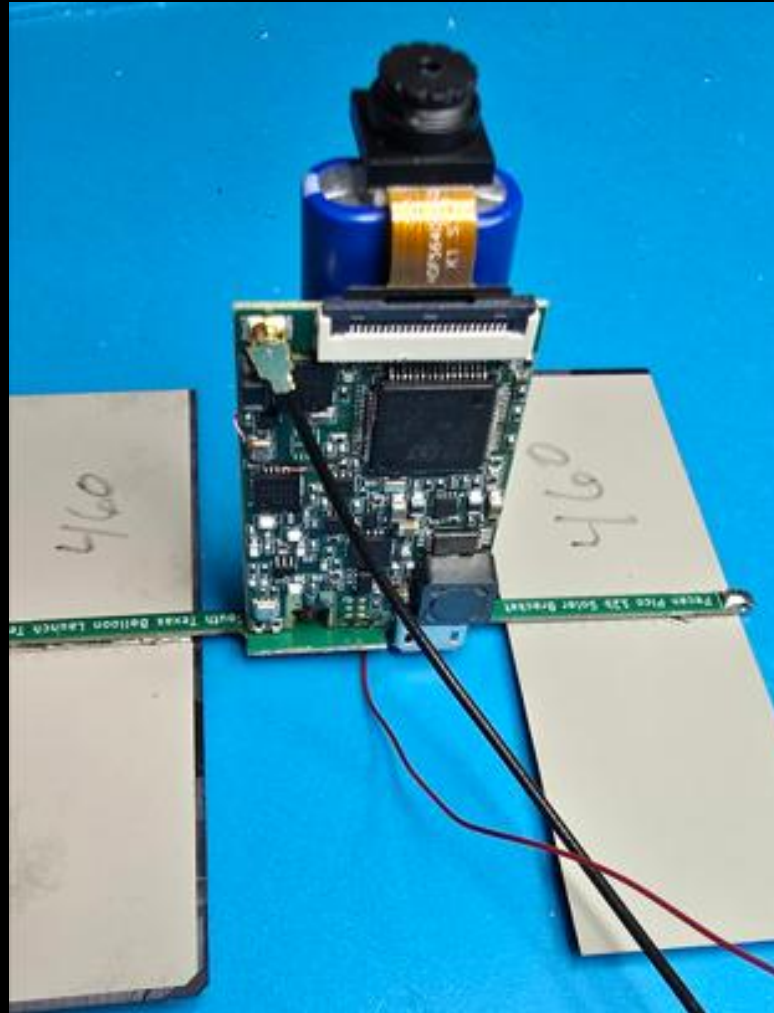
2025-05-30 16:32:56  
52 MPH alt 47536 ft  
Telemetry 2025-05-30 16:32:56: [show telemetry](#)  
Vbat: 4.290 V, Vsol: 1.057 V, Psys: 222 mW, Temp:  
-13.800 degC, AirP: 14400 Pa  
[IO1](#) [IO2](#) [IO3](#) [IO4](#) [IO5](#) [IO6](#) [IO7](#) [IO8](#)  
*South Texas Balloon Launch Team BLT-148*  
<http://apecan.net?t=3194905084>  
[APECAN via WIDE1-1.qAR,KH6JUZ-10]  
[being tracked](#) · [stop tracking](#)



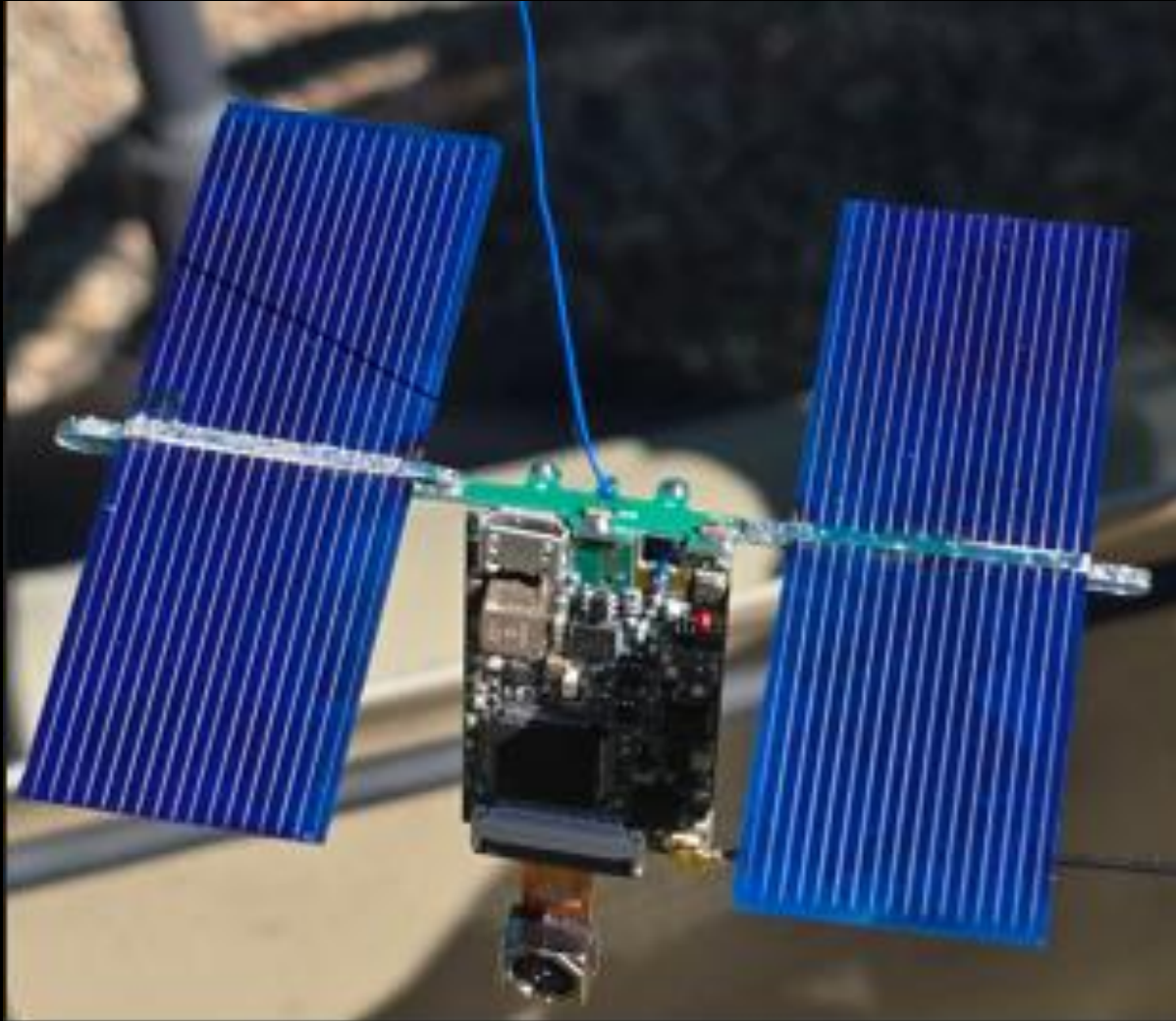
# W3FGP-15 BLT-159 Hack Track 2b



# AF5LI-9 Pecan 12b Tracker



# Pecan 12b



# AF5LI-9 Pecan Tracker



# AF5LI-9 Pecan Tracker



# AF5LI-9 Pecan Tracker



First/Last: 2025-09-17 18:25:42 - 19:00:48  
GNSS Position: N30.2195° W82.8430° 13,807m  
98 packets, 1 lost  
image\_id 186, server\_id 5,617  
Lost Packets: 8



First/Last: 2025-09-17 18:15:41 - 18:25:56  
GNSS Position: N30.1351° W82.9205° 13,814m  
98 packets, 0 lost  
image\_id 185, server\_id 5,616  
Lost Packets: none

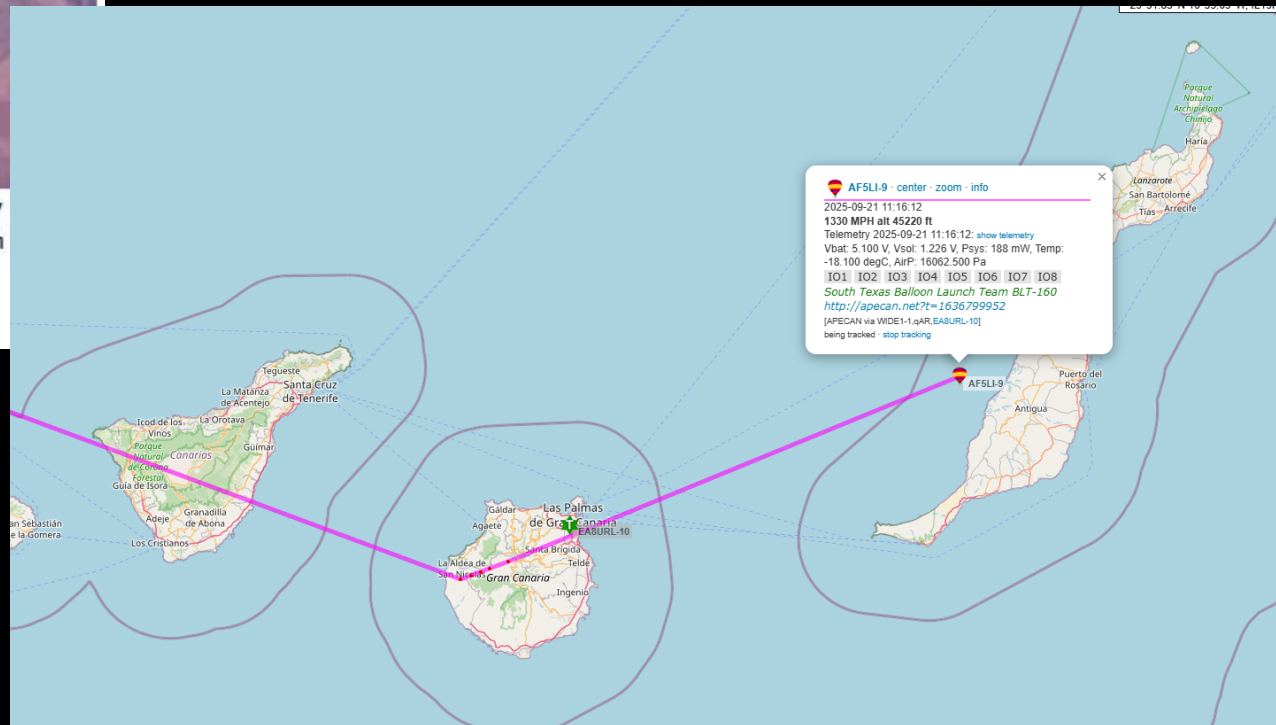


First/Last: 2025-09-17 18:27:05 - 18:35:54  
GNSS Position: N30.2195° W82.8430° 13,807m  
26 packets, 0 lost  
image\_id 187, server\_id 5,618  
Lost Packets: none

# AF5LI-9 Pecan Tracker



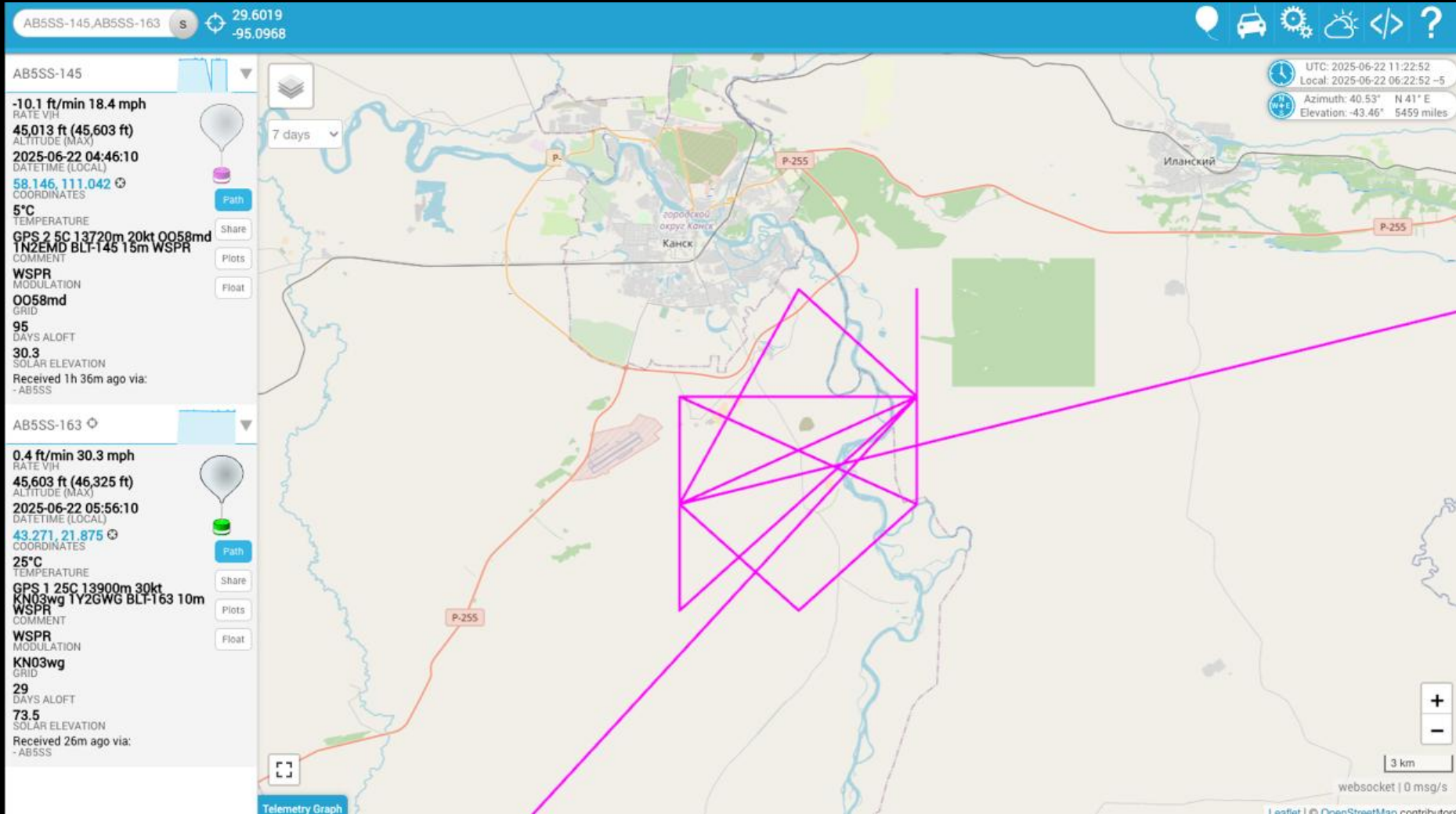
First/Last: 2025-09-21 16:29:05 - 16:48:17  
GNSS Position: N28.5063° W14.2349° 13,808m  
31 packets, 4 lost  
image\_id 73, server\_id 5,696  
Lost Packets: 3-4 11 26



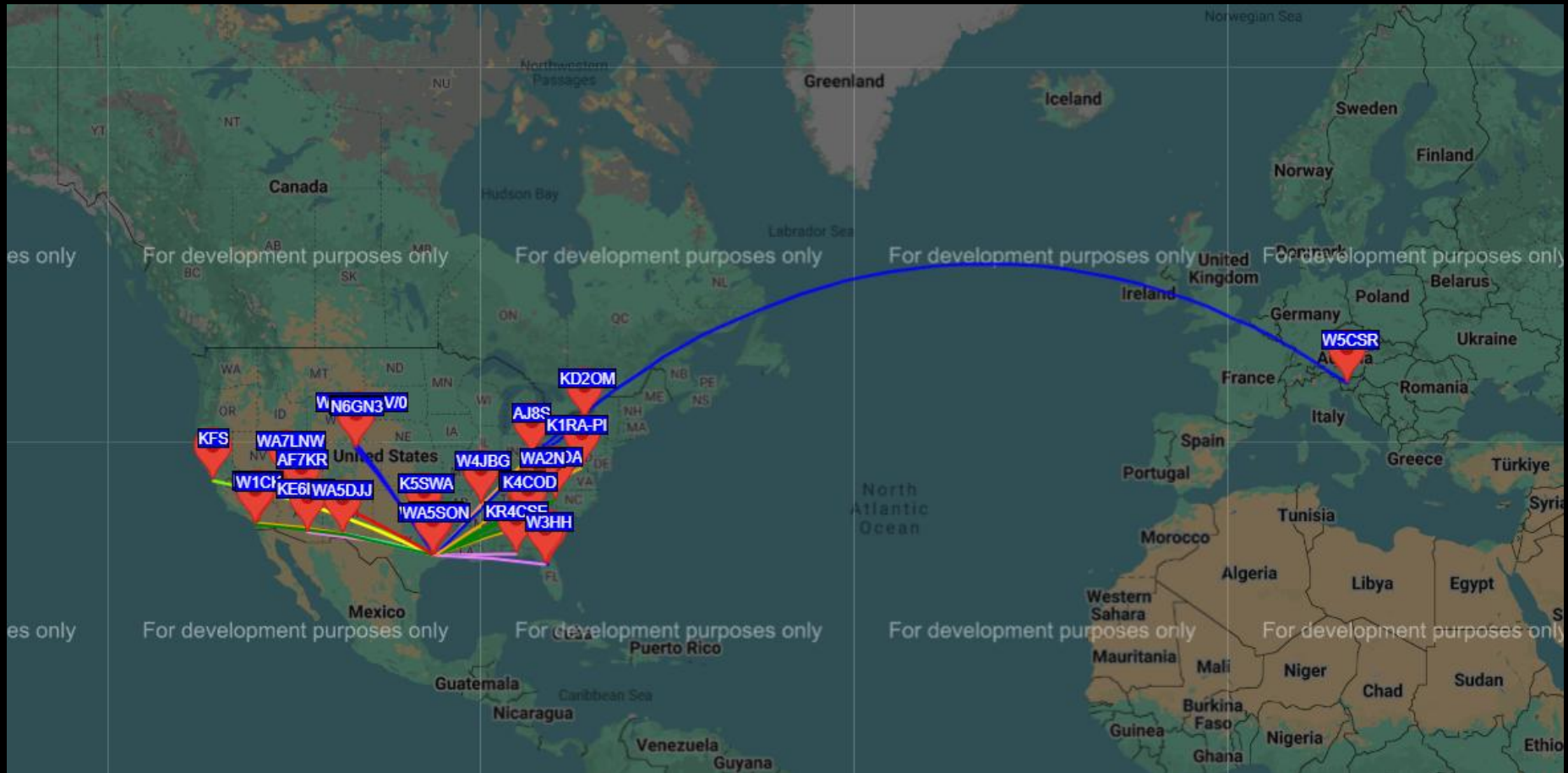
# AB5SS-145 BLT-145 September 2025



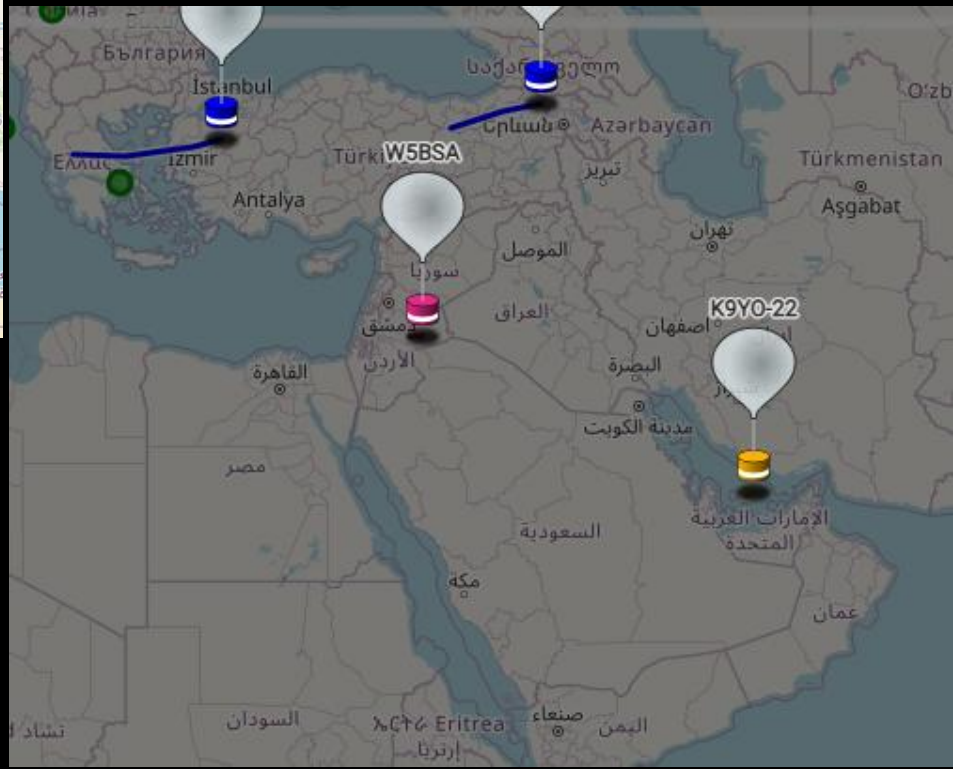
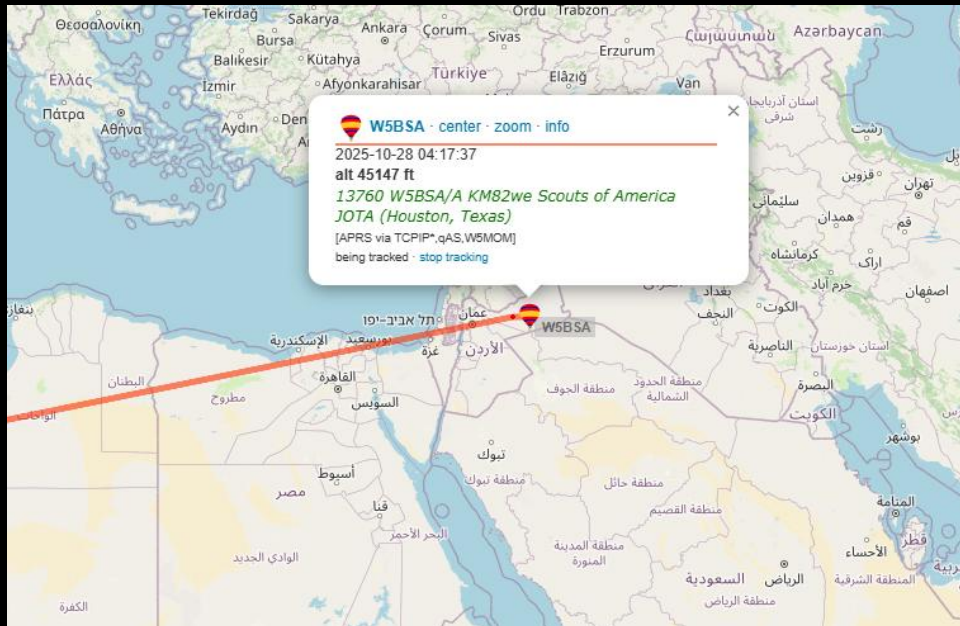
# AB5SS-163 BLT-163 GPS being spoofed



# W5BSA Launched for JOTA Oct. 2025



# W5BSA JOTA Oct.2025

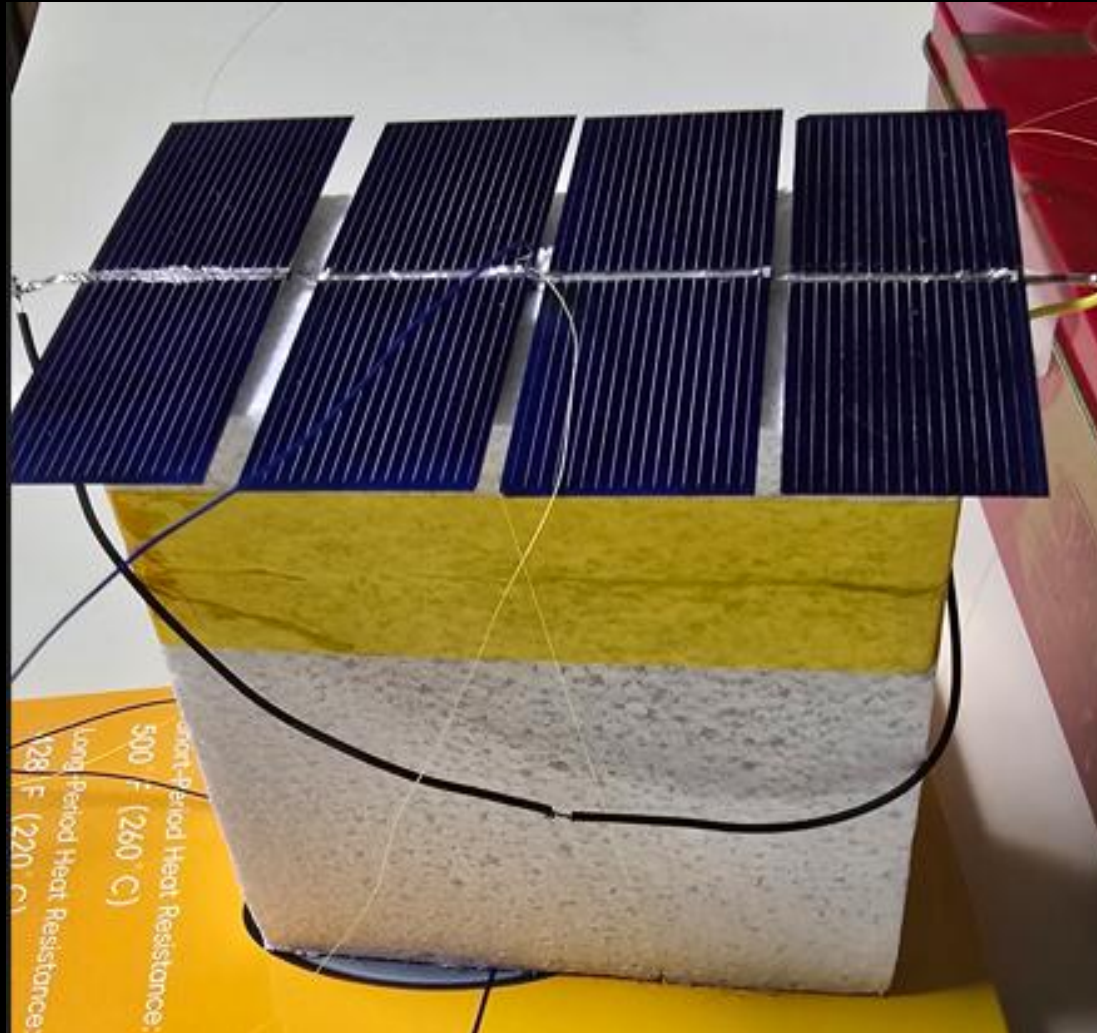


# W5LCR Cross Roads Hamfest Nov. 2025



# W5QZ-15 BLT-169

## Nov. 2025



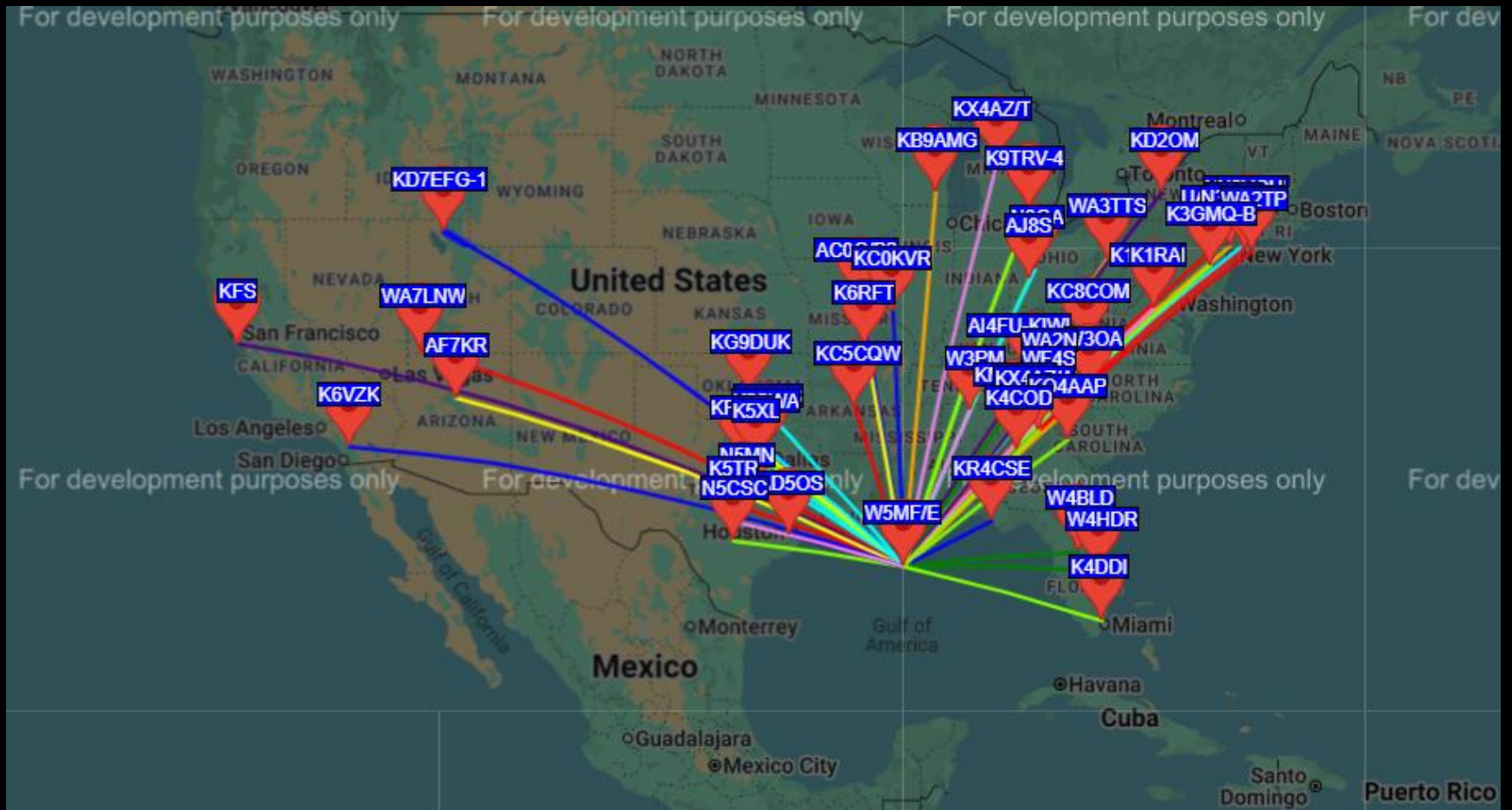
# Hack Track 2b



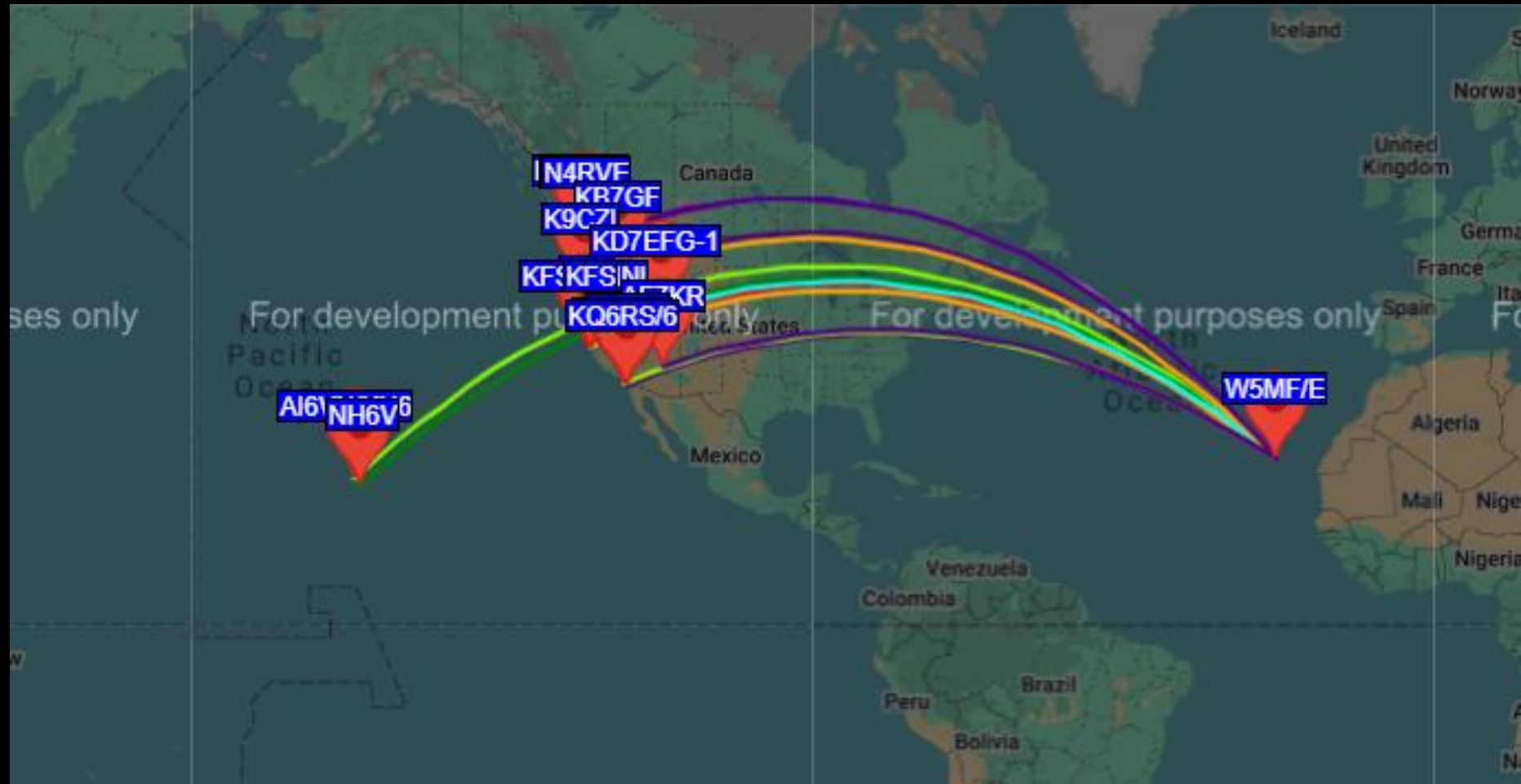
# Hack Track 2b



# W5MF-150 BLT-150 Dec. 2025



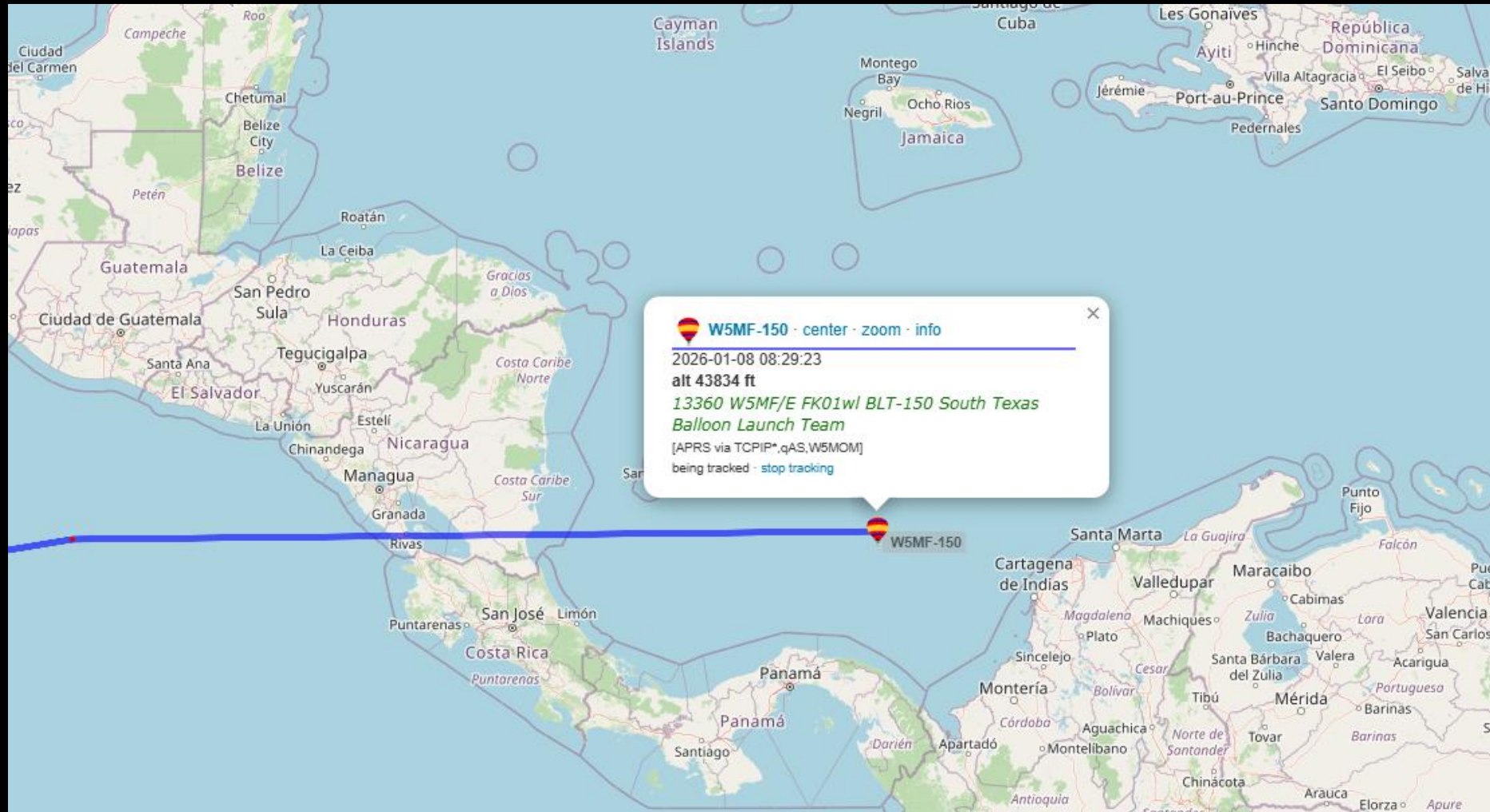
# W5MF-150 BLT-150 Dec. 2025



# W5MF-150 BLT-150 Dec. 2025



# W5MF-150 BLT-150 Dec. 2025 1<sup>st</sup> revolution



# W5MF-172 BLT-172 GHH 2026



# DL0PCN-11

## Berlin 4/26



# DL0PCN-11

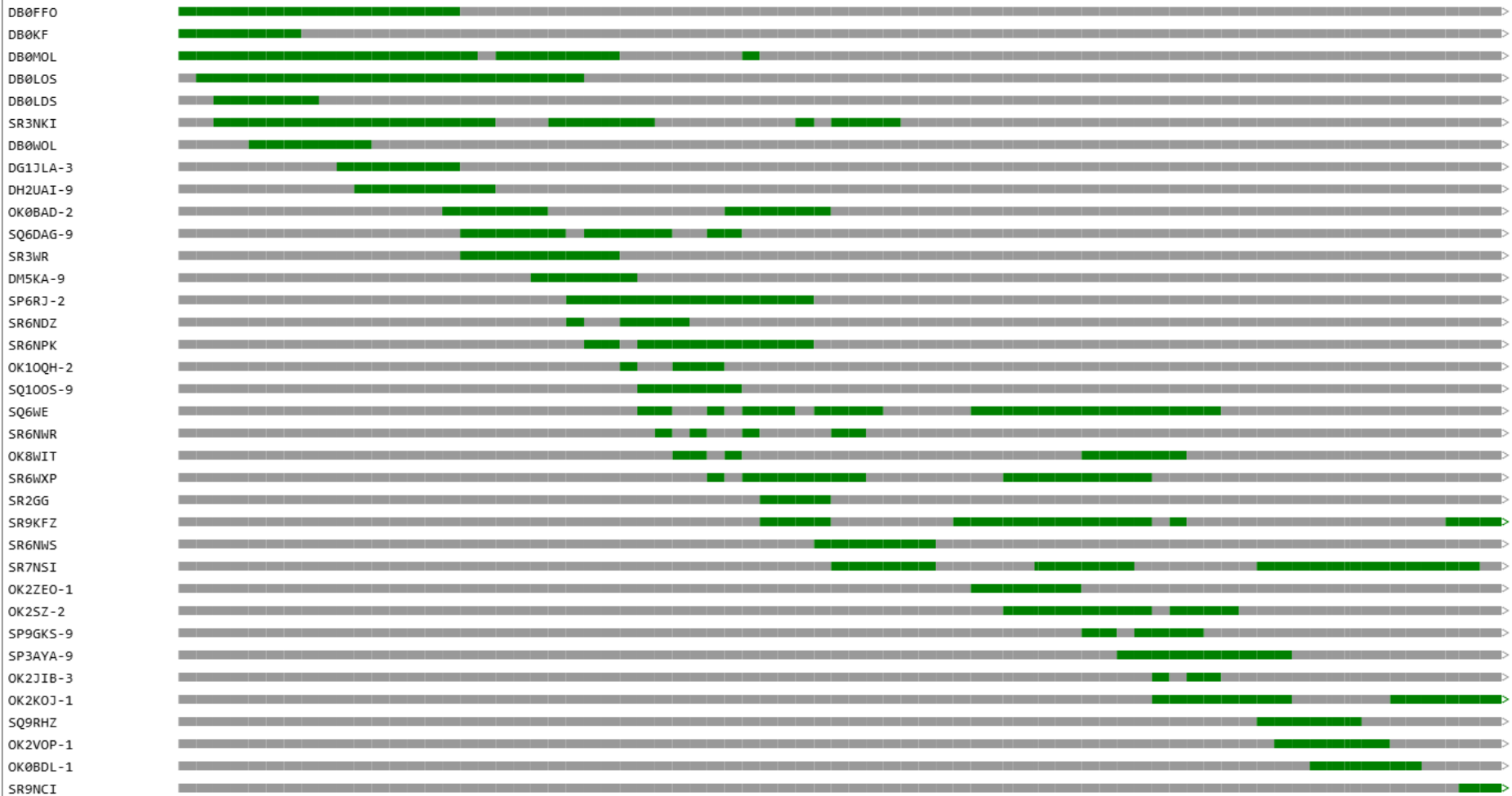
## Berlin 4/26



# DL0PCN-11

## Berlin 4/26

### Received Stations by Tracker (directs)



# DL0PCN-11

## Berlin 4/26

Tracker ID F2 0B D7 AA		Telemetry	Map	Images	Range: 10m 30m 1h 3h 6h 12h 24h 2d 3d 7d 14d 30d 60d 90d
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Callsign <b>DL0PCN-11</b>		Tracker ID <b>F2 0B D7 AA</b>	
Reset ID <b>10</b>	Packet ID <b>105</b>	Tracker Type <b>Pecan Pico 12b</b>	
Time UTC (arrived at server) <b>2026-04-06 16:09:14</b>		Time (SYS) <b>14,469s</b>	
Time lcl (arrived at server) <b>2026-04-06 11:09:14</b>			

Statistics			
	Last Packet		in 24h
Beacon	2026-04-06 16:09:14z 5h32m ago		141
Directs	2026-04-06 16:09:26z 5h32m ago		129
Image	2026-04-06 16:58:49z 4h43m ago		760
Log	2026-04-06 16:56:46z 4h45m ago		24

<b>G</b>	<b>LOW BATT during acquisition</b>
<b>N</b>	<b>N00.0000° E000.0000° ↑ 0m</b>
<b>S</b>	0 Sats, TTFF 0s, pDOP 0.00, Switched on 28s
<b>S</b>	Time: 1970-01-01 00:00:00

Leaflet | OpenFreeMap © OpenMapTiles Data from OpenStreetMap

● Current Position ● Received Balloon ● Received by Balloon | Filter: GNSS Spoofing (disabled)

# Contact Details

## K5WH on QRZ

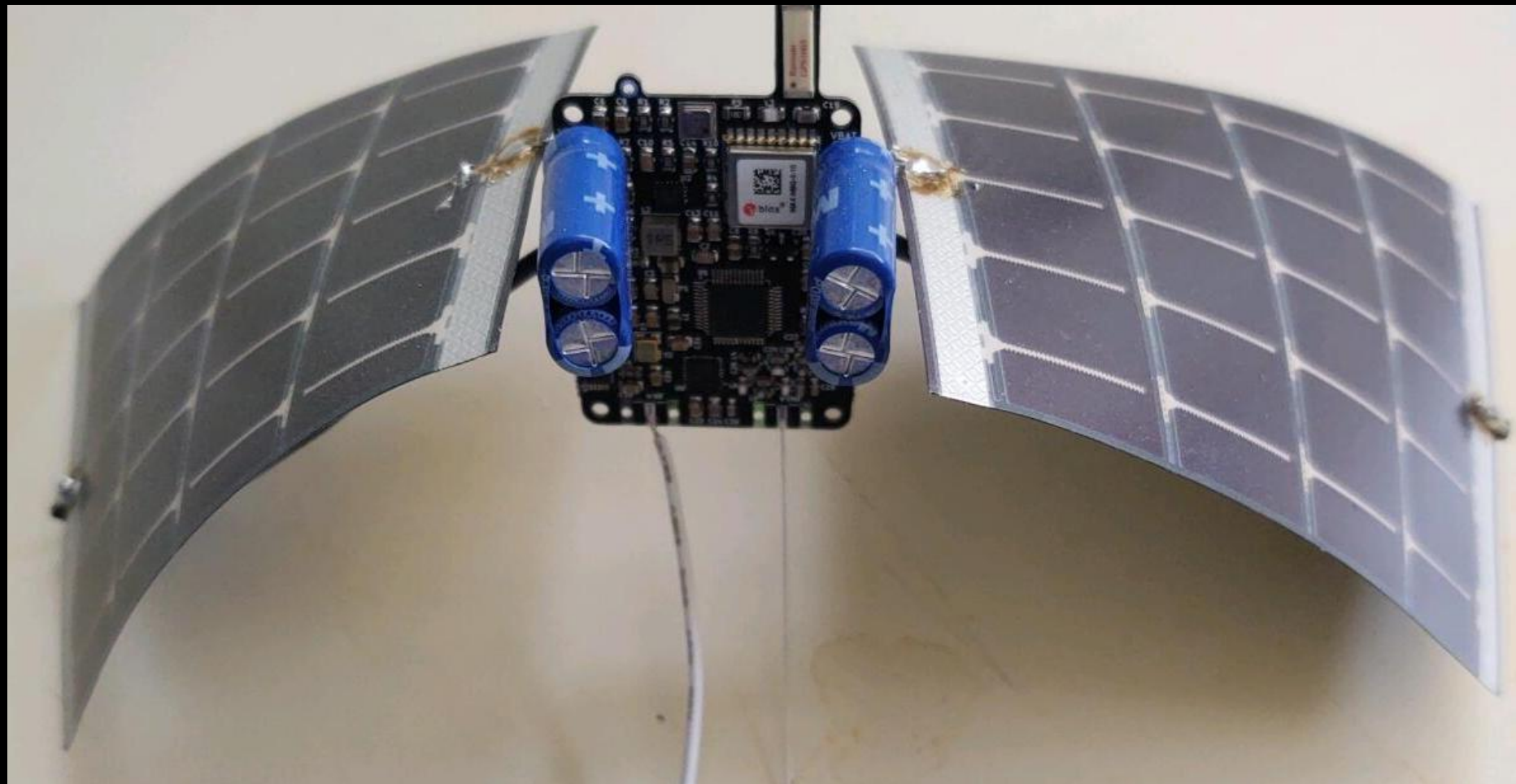
- Email: [walterh@k5wh.net](mailto:walterh@k5wh.net)
- BLT reflector <https://groups.io/g/BLT>
- Ham Radio Tech Notes reflector: <https://ham-radio-tech-notes.groups.io/g/main>
- DMR: Amsat-98006 talkgroup
- YSF Fusion: US-Amsat-11689 reflector
- DSTAR: REFSAT, DCSSAT, XRFSAT, XLXSAT, all on module C
- Zoom: Livestream: <http://www.k5wh.net/zoom/>



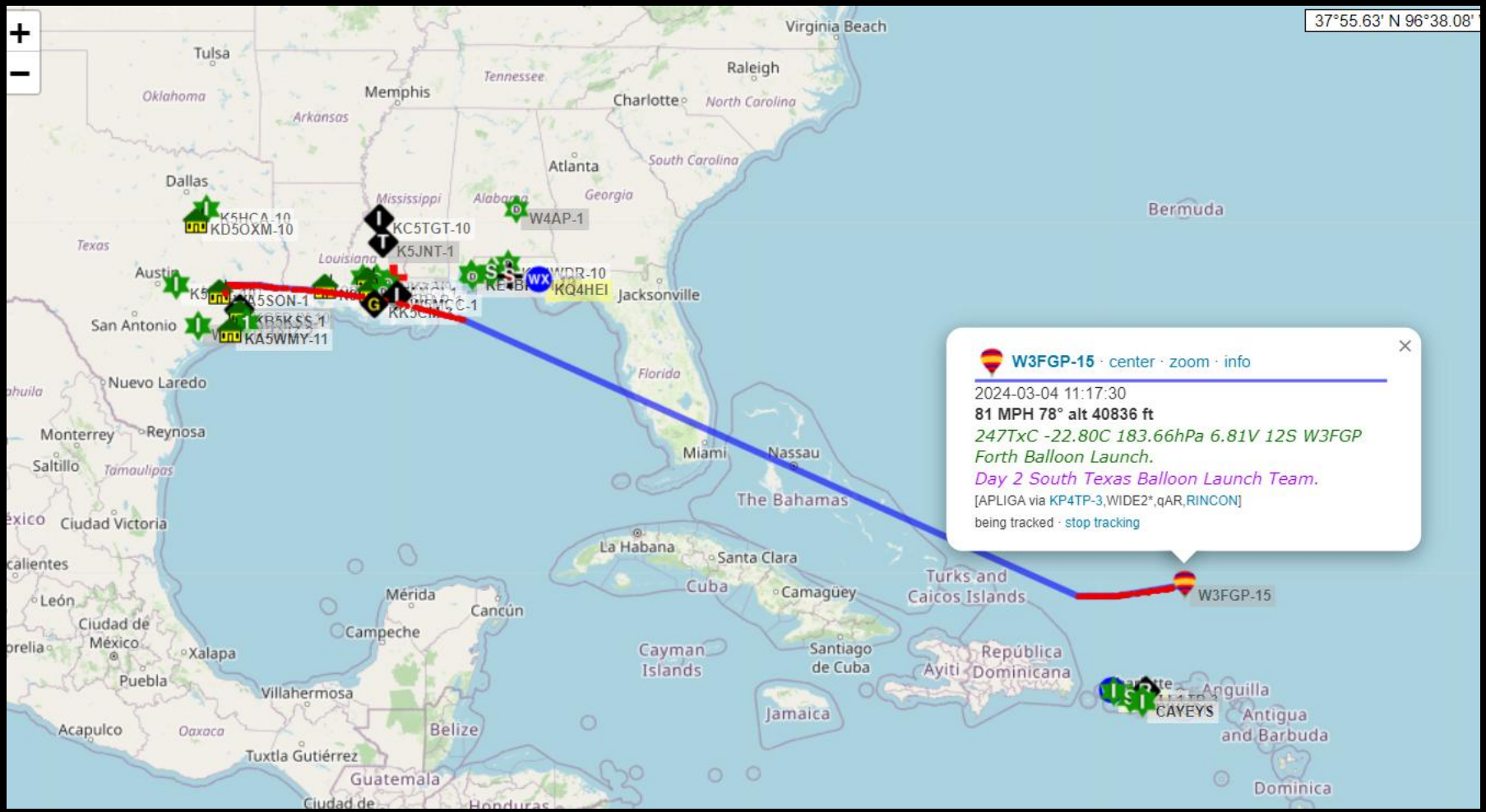
**Thank You for your Time**

**Any Questions?**

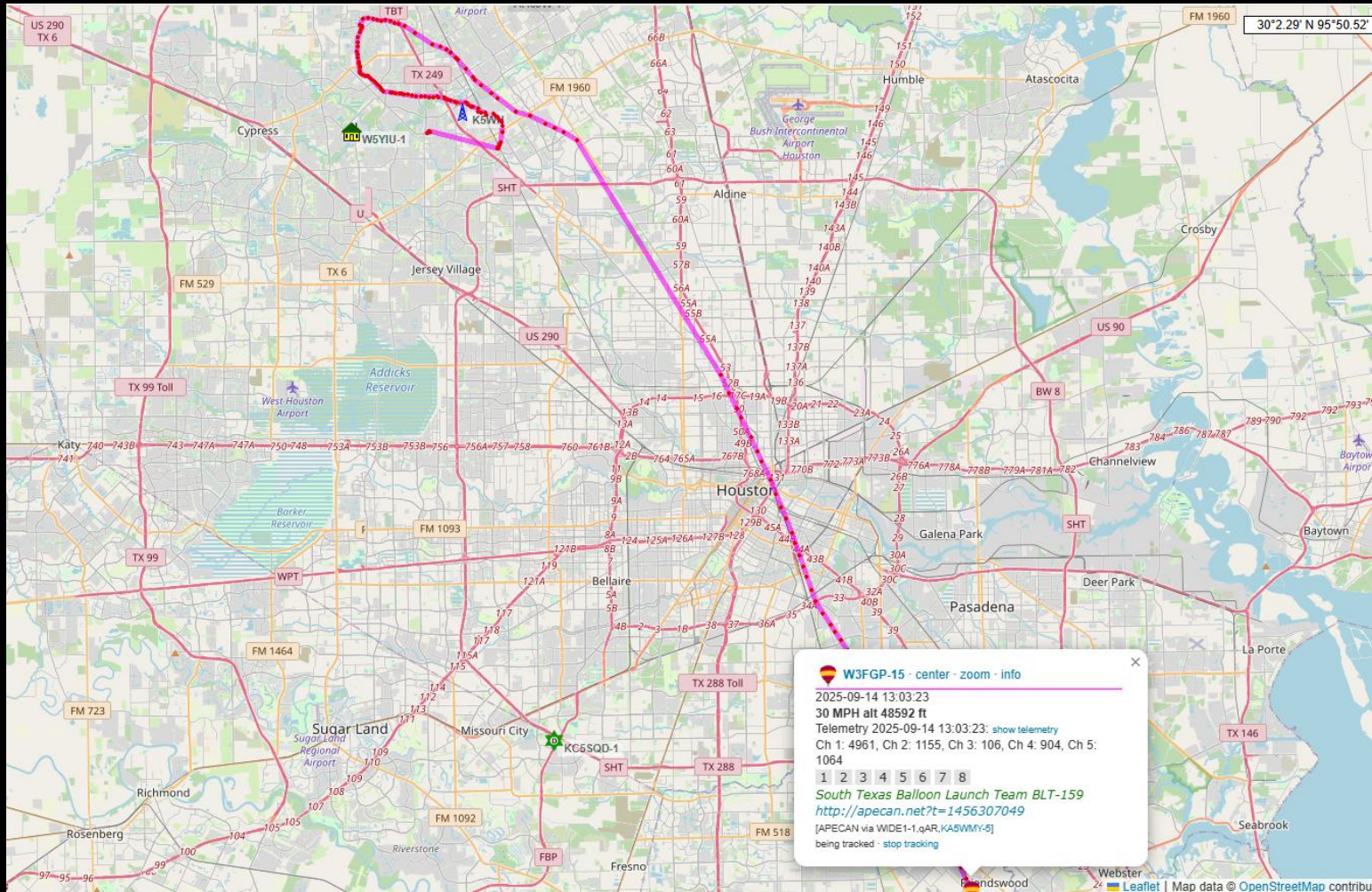
# W3FGP wspr W3FGP-15 aprs



# Launched 3/2/24 W3FGP-15 APRS



# W3FGP-15 BLT-159 September 2025



# W5QZ-15 BLT-169 Nov. 2025

