New Ham Book

Rick Gilmore W3TM

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1 About

This book is about amateur (ham) radio, a hobby that is both old school and new cool. It's designed to live on the web so that we can make use of the fabulous resources that exist online. It's also designed to supplement but not replace an existing outstanding set of materials for learning about the hobby.

1.1 Origins

This book originated when a group of Penn State students expressed interest in a licensing class. In starting with the Technician question pool provided by HamStudy.org Rick Gilmore W3TM realized just how much there is to explain! So, he started jotting down ideas about how to make the process easier in a web-book form that he uses in his teaching at Penn State and in his research.

1.2 Philosophy

Most hams agree that getting their "ticket" or license was the start of the journey, not the destination. In fact, for many hams, much of the material that must be mastered to pass one of the licensing exams only really makes sense in the specific context of operating or doing something related to operating. So, our philosophy with this book is to emphasize hands-on activities, operating practices, and especially *listening*. Other hams may have other ideas about the right approach. We think that there are many good ways to go forward, and this one particularly appeals to us.

In the U.S., you don't need a license to listen, and even if you are an active operator, you'll spend most of your time listening. Many hams started out as shortwave listeners (SWLs) back when the airwaves were full of shortwave stations that broadcasted programs in the ham bands or adjacent to ham bands. And listening to other hams operate is one of the best ways to learn what to do, and sometimes, what not to do.

1.3 Acknowledgements

While he would deny any involvement in this project, I want to give thanks to my main Elmer, Woody Brem K3YV.

Part I

Hands-on hamming

There as many types of hams as there are people. Some rarely get on the air, and others are on all the time. Some home-brew all their own gear, others buy theirs. The common thread is that ham radio is about doing things, building, listening, transmitting, and learning about radio in all of its many facets.

Naturally, there are many more radio-related activities a person can enjoy with a radio. But you might be surprised to know that there are a number of radio-active experiences, to borrow a phrase used by the ARRL, a person can enjoy *without any radio at all.* This section describes these in the form of a set of 'quests' that focus on a particular operating mode or facet of the hobby. They're meant to give the quest-or a taste of what that part of ham radio is about. Try one, or try them all. And if you have ideas about how any of these quests could be improved, let me know.

Quest: WebSDR

Listening to radio over the web

Thanks to the widespread availability of inexpensive software-defined radios (SDRs), it's possible to listen to the ham bands over the internet from sites located all over the world. Yes, that means that your internet-connected phone, tablet, or computer can be your first ham radio receiver.

In this quest, we'll check-in on the bands and listen to some [HF] [QSO]s.

Here are some other web-based SDRs you might try:

http://kiwisdr.com/public/

http://www.maghull-scene.co.uk/radio.htm

Visit the WebSDR site at https://websdr.org.

You will see a screen like the following:

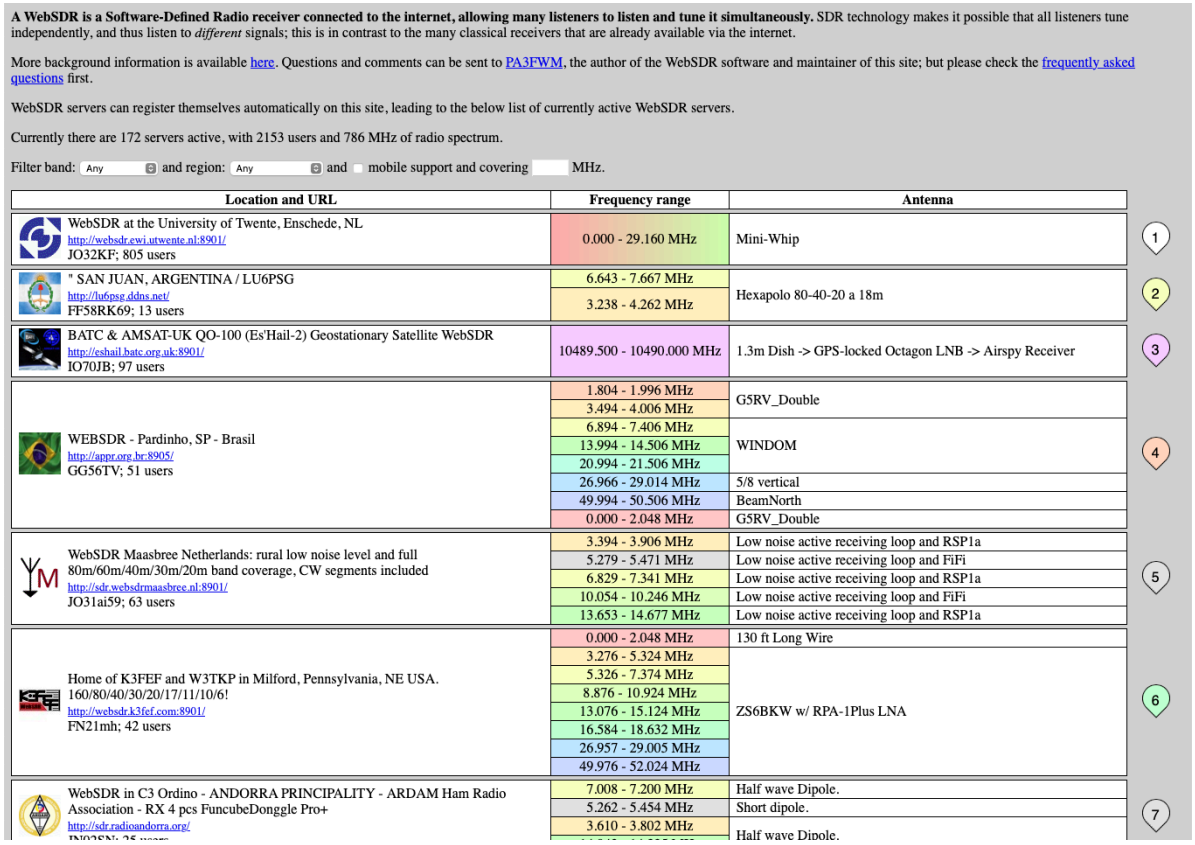
Scroll down to see all of the places around the world where there are webSDR stations to listen to. You can pick any one you like, but we'll focus on one in the U.S. that we use often because it's close to our location.

Visit the K3FEF web SDR

Go to http://websdr.k3fef.com. This station is located in Milford, Pennsylvania on the Delaware River. It's the closest one to Penn State. So, it's often one to consult for listeners in our area.

Here is a screenshot of the K3FEF control panel.

The dark blue area at the top depicts the band activity at the time you visit. The figure shows radio signals being heard by K3FEF from about 3300 kHz (3.3 MHz) below the 80m ham band to 5300 kHz (5.5 MHz) in the 60m ham band.



A WebSDR is a Software-Defined Radio receiver connected to the internet, allowing many listeners to listen and tune it simultaneously. SDR technology makes it possible that all listeners tune independently, and thus listen to *different* signals; this is in contrast to the many classical receivers that are already available via the internet.

More background information is available here. Questions and comments can be sent to PA3FWM, the author of the WebSDR software and maintainer of this site; but please check the frequently asked questions first.

WebSDR servers can register themselves automatically on this site, leading to the below list of currently active WebSDR servers.

Currently there are 172 servers active, with 2153 users and 786 MHz of radio spectrum.

Filter band: Any and region: Any and mobile support and covering MHz.

Location and URL	Frequency range	Antenna	
WebSDR at the University of Twente, Enschede, NL http://websdr.ewi.utwente.nl:8901/ JO32KF; 805 users	0.000 - 29.160 MHz	Mini-Whip	1
" SAN JUAN, ARGENTINA / LU6PSG http://lu6psg.ddns.net/ FF58RK69; 13 users	6.643 - 7.667 MHz 3.238 - 4.262 MHz	Hexapolo 80-40-20 a 18m	2
BATC & AMSAT-UK QO-100 (Es'Hail-2) Geostationary Satellite WebSDR http://eshail.batc.org.uk:8901/ IO70JB; 97 users	10489.500 - 10490.000 MHz	1.3m Dish -> GPS-locked Octagon LNB -> Airspy Receiver	3
WEBSDR - Pardinho, SP - Brasil http://appr.org.br:8905/ GG56TV; 51 users	1.804 - 1.996 MHz 3.494 - 4.006 MHz 6.894 - 7.406 MHz 13.994 - 14.506 MHz 20.994 - 21.506 MHz 26.966 - 29.014 MHz 49.994 - 50.506 MHz 0.000 - 2.048 MHz	G5RV_Double WINDOM 5/8 vertical BeamNorth G5RV_Double	4
WebSDR Maasbree Netherlands: rural low noise level and full 80m/60m/40m/30m/20m band coverage, CW segments included http://sdr.websdrmaasbree.nl:8901/ JO31ai59; 63 users	3.394 - 3.906 MHz 5.279 - 5.471 MHz 6.829 - 7.341 MHz 10.054 - 10.246 MHz 13.653 - 14.677 MHz	Low noise active receiving loop and RSP1a Low noise active receiving loop and FiFi Low noise active receiving loop and RSP1a Low noise active receiving loop and FiFi Low noise active receiving loop and RSP1a	5
Home of K3FEF and W3TKP in Milford, Pennsylvania, NE USA. 160/80/40/30/20/17/11/10/6! http://websdr.k3fef.com:8901/ FN21mh; 42 users	0.000 - 2.048 MHz 3.276 - 5.324 MHz 5.326 - 7.374 MHz 8.876 - 10.924 MHz 13.076 - 15.124 MHz 16.584 - 18.632 MHz 26.957 - 29.005 MHz 49.976 - 52.024 MHz	130 ft Long Wire ZS6BKW w/ RPA-1Plus LNA	6
WebSDR in C3 Ordino - ANDORRA PRINCIPALITY - ARDAM Ham Radio Association - RX 4 pcs FuncubeDonggle Pro+ http://sdr.radioandorra.org/	7.008 - 7.200 MHz 5.262 - 5.454 MHz 3.610 - 3.802 MHz	Half wave Dipole. Short dipole. Half wave Dipole.	7

Figure 1.1: websdr.org

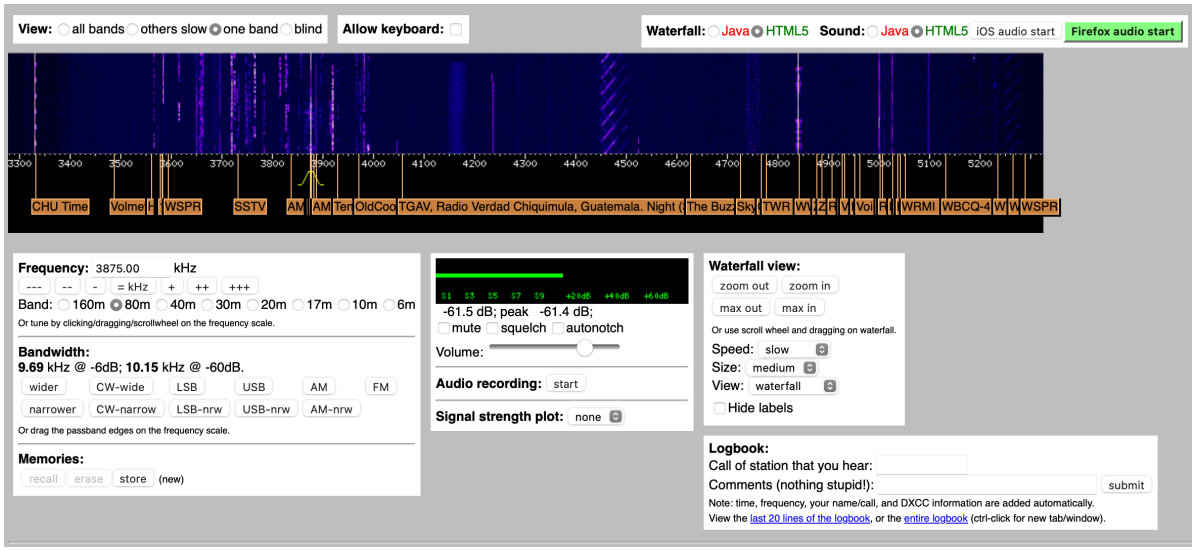


Figure 1.2: K3FEF webSDR at http://websdr.k3fef.com

If you are watching this on the web, you will see upwards motion. This is how the webSDR depicts the time series or history of recent signals. So, time is on the vertical axis of this two-dimensional figure. Sometimes this type of frequency-over-time display is called a waterfall. Except this waterfall falls upward.

Below the figure are some orange 'flag' or labels that other listeners have added. These identify the specific transmissions. If you look especially closely, you'll also see a yellow 'hump' around 3875 kHz. That's the specific frequency this SDR defaulted to when we opened it up. We'll explain what the yellow hump means a bit later.

In the static figure above, you'll notice a lot of activity between about 3550 kHz and 4000 kHz. The 80m and 75m ham bands occupy 3500-4000 kHz, so those are hams communicating. The figure was taken about 8:00am EDT (1200 UTC). These bands are usually open from evening to mid-morning.

Let's focus on the white panel below the waterfall.

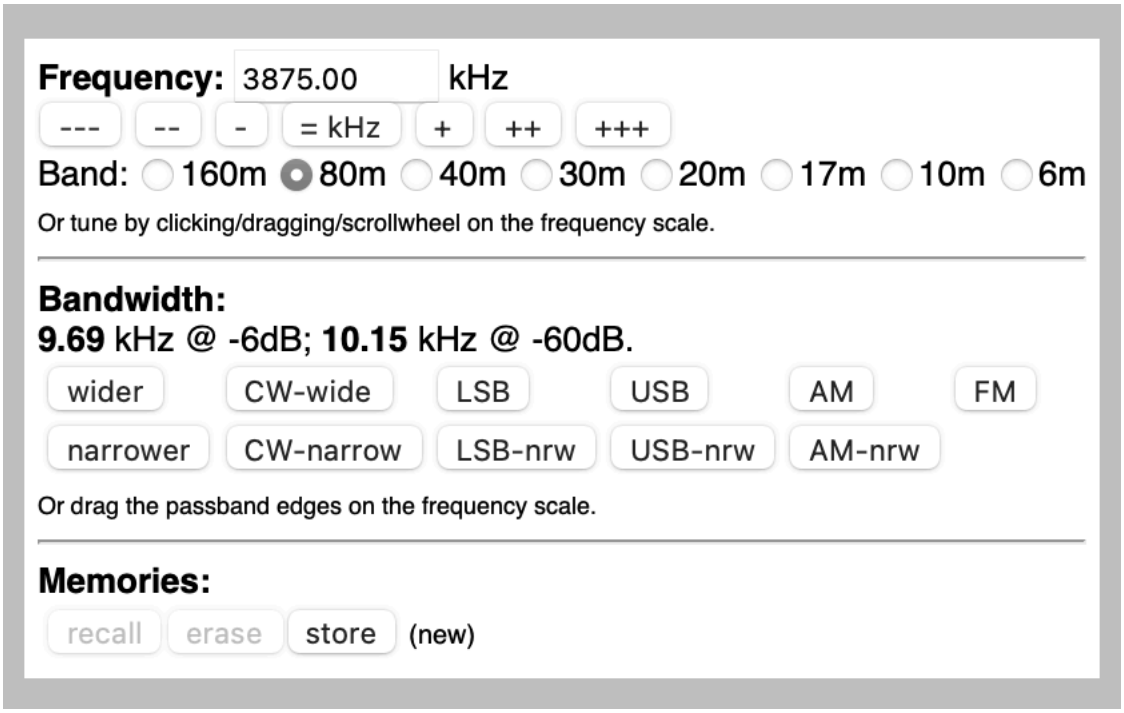


Figure 1.3: K3FEF webSDR at http://websdr.k3fef.com

The panel's **Frequency** control tells us that our radio is tuned to 3875 MHz, right in the middle of the 80/75m band, the phone (voice) portion. There are some controls to change the frequency, then below that, a set of buttons to change the band. The highlighted button confirms that we are in the 80/75m band[1].

[1]Why is it called the 80m band and also the 75m band and sometimes the 80m/75m band? Well, 300/3.5=r

Notice that the K3FEF webSDR covers ham bands up through 6m. It does not cover the 15m or 12m bands, though.

Below the **Frequency** control is a set of buttons that control **Bandwidth**. No, bandwidth is not the size of your favorite jazz combo. Bandwidth means how much of the frequency spectrum the webSDR is capturing at this moment, centered on the 3875 [kHz] frequency we just mentioned. Different types of radio transmissions (voice vs. Morse code/[CW] for example) have different bandwidths. We often want to adjust our bandwidth to match the type of signal. If the bandwidth is much wider than the signal, we're just adding noise. If the bandwidth is much narrower than the signal, we can lose information. Voice transmissions have wider bandwidth than Morse code/[CW]. And different types of voice signals have different bandwidths. [FM] is the widest, for example; [AM] is in the middle; and single sideband [SSB] the narrowest.

Our bandwidth is 9.69 [kHz] @ -6 [dB] [2]. That's wide, except for broadcast FM stations. We can adjust the bandwidth incrementally using the *wider/narrower* buttons or adjust the bandwidth to match a specific type of signal: *CW-wide/CW-nrw* (narrow), *LSB-wide/LSB-nrw*, *USB-wide/USB-nrw*, *AM-wide/AM-nrw*, and *FM*. We can also adjust the bandwidth manually.

Find a signal to listen to

Click on the green *Firefox audio start* button in the upper right hand of the screen. Be ready to adjust the volume on your computer downward! Or adjust the volume in the panel or even mute it (see the figure below).

Chances are that you'll just hear static since we're on a random frequency.

To fix that, look at the **Waterfall view** panel. Zoom *in* by clicking on the button a couple of times. Sometimes zooming moves window beyond the frequency where you are currently tuned. If that happens, you won't see the yellow 'hump' anymore.

But you can find it again by clicking on the blue/purple area in the waterfall and dragging to the left or the right to put your current frequency–3875 kHz for our example–in the middle of the panel.

In our case, there's a very strong signal around 3810 kHz.

`300/3.5` and 300/4.0=`r 300/4.0`. So, the approximate speed of light (in millions of meters per second) divided by the frequency in MHz gives us the approximate wavelength of radio waves. It's a single 0.5 MHz (500 kHz) chunk of frequency reserved exclusively for amateurs that roughly bracket ~80-75m.

[2] This means that if we look at the peak signal at 3875 kHz and calculate the point on both sides of 3875 kHz where the signal drops by 6 decibels (db) or about 4-fold, we're left with 9.69 kHz of signal. The *width* of the yellow 'hump' in the waterfall display shows us this bandwidth visually.

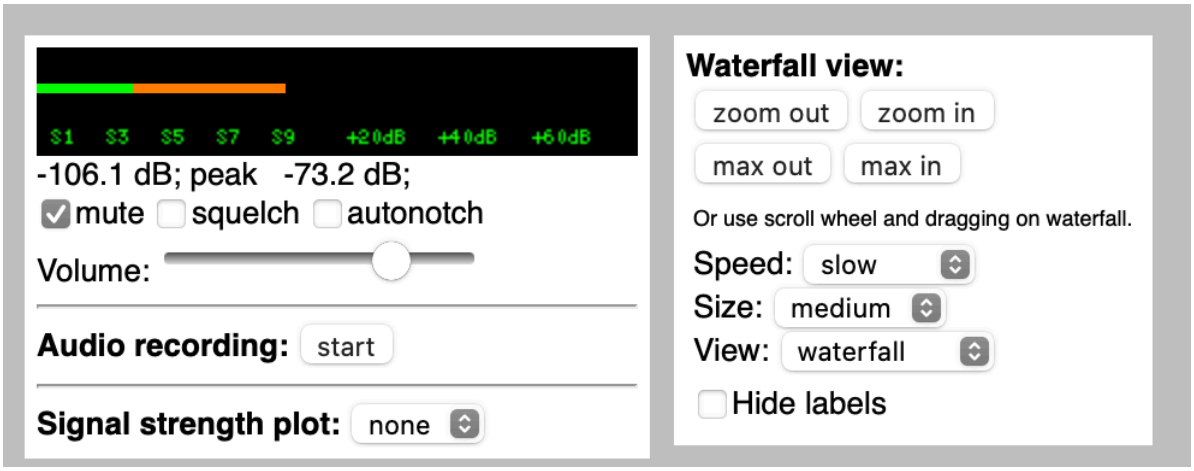


Figure 1.4: K3FEF webSDR at http://websdr.k3fef.com

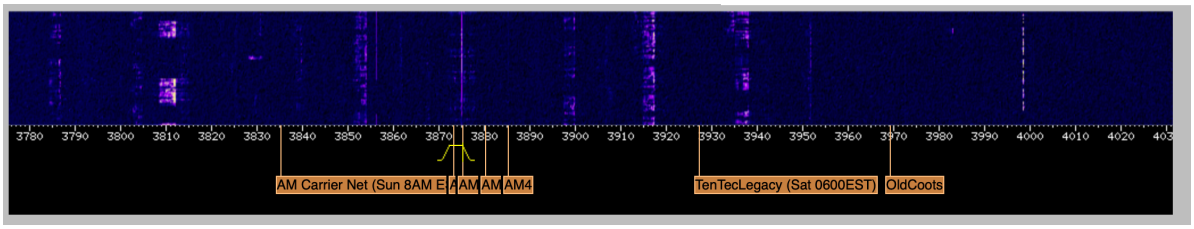


Figure 1.5: K3FEF webSDR at http://websdr.k3fef.com

Notice that most of the signal around 3810 kHz (3.810 MHz) lies *below* 3810. That's because on 75m and 80m, hams use Lower Sideband ([LSB]) for [phone] transmissions. To see another example of what LSB and upper sideband ([USB]) signals look like, see figure below.

Going further

Now that you've gotten familiar with the K3FEF WebSDR, you might be curious to know what else there is to listen to, and equally important, *when*. I say when because the high frequency (HF) bands change their propagation characteristics–how far and how well they convey radio signals–based on the time of day, season of the year, and phase of the 11-year sunspot cycle, among other characteristics. We'll do a deeper dive on these topics in the Band Conditions quest. For now, here are some general rules of thumb about *where* to listen and *when*:

75m/80m: These bands provide long distance (DX) communication at night, especially in the winter months, and regional communication in the early morning hours.

40m: This band also provides long distance communication at night and more reliable regional communication in the daylight hours.

20m: This band supports long distance communication during daylight hours.

17m: This band supports long distance communication during daylight hours.

15m: This band supports long distance communication during daylight hours.

12m: This band supports long distance communication during daylight hours during the peak times of the sunspot cycle. It is often closed at the depth of that cycle.

10m: This band supports long distance communication during daylight hours during the peak times of the sunspot cycle. It is often closed at the depth of that cycle.

Now, you might be interested to know what's worth listening to or for. My recommendation would be for you to listen to established nets that have published schedules. For example, you can search for a net that meets specific criteria on the ARRL website at www.arrl.org/arrl-net-directory-search. You may also want to try the NetFinder site.

> **Note**
>
> It would be good to add some information about some SWL stations that are easy to hear.
> Also, there are some nets that are good examples, e.g., the M-Su Rooster Net on 3.990 MHz and the YSL System Nets, and some frequencies that are *not* good examples, e.g., 7.200 MHz and 14.313 MHz.

Quest: DMR

> Tip
>
> These activities are relevant to the following Technician license pool questions: T2B12; T4B07; T8D02; T8D07.

You can listen to Digital Mobile Radio ([DMR]) transmissions across the globe on the web without having to log in or have a ham radio license.

In this quest, we'll listen in on some conversations using DMR.

Remember, as a ham, all of our communications except those controlling aircraft or satellites are presumed public.

Visit the Brandmeister Network

The Brandmeister Network is one of the largest organizations providing DMR services. The Brandmeister Network maintains a hoseline site that shows all of the DMR traffic going through the Network.

You will see something like the following:

This shows all of the stations connected to the Brandmeister network in the entire world.

Click on an active QSO

To listen in on one of these [QSO]s, click on an active QSO. Active QSOs will be outlined in red.

You can also listen in on specific talkgroups. A talkgroup is like a repeater, except that it repeats signals from stations connected via the internet. There is often traffic on talkgroup 91 (Worldwide) or talkgroup 93 (North America), so let's listen in on those.

Click the PLAYER button in the upper right hand corner.

This will open a small panel where you can select what talkgroups to listen to or which stations to monitor.

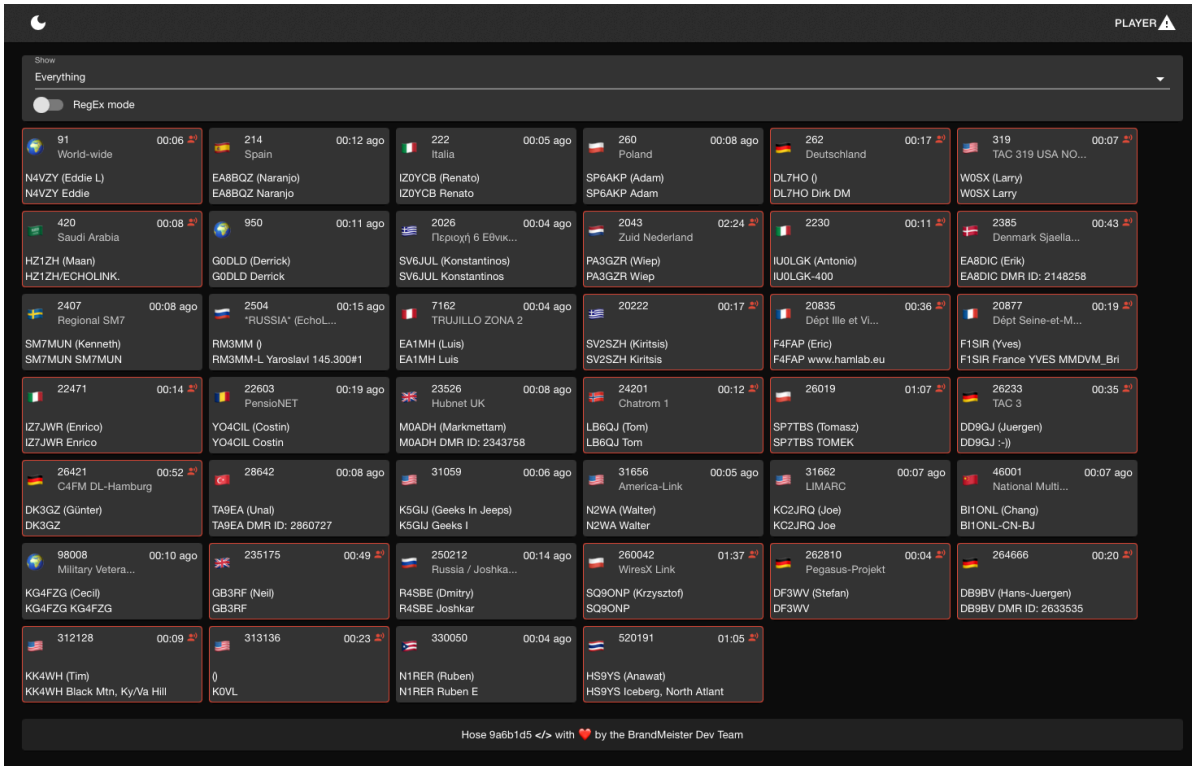
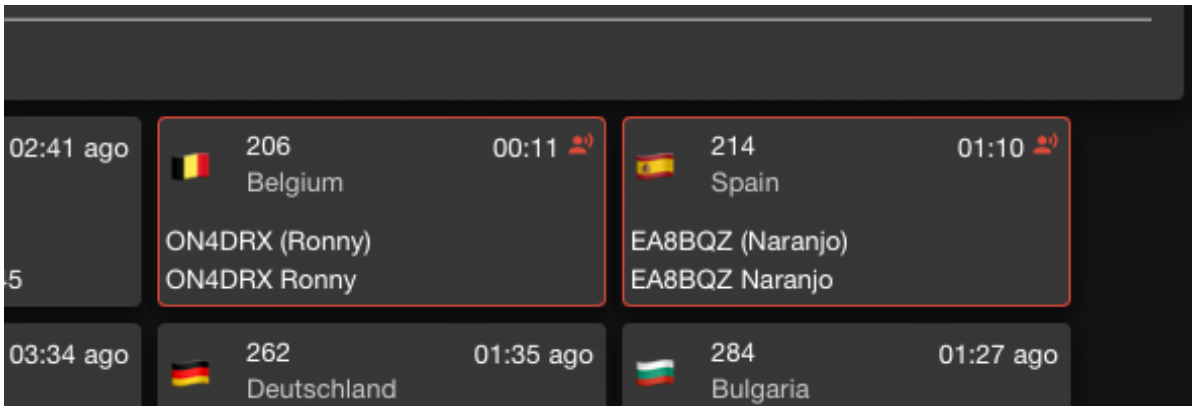


Figure 1.6: Brandmeister DMR hoseline as of 2023-04-03 about 1745Z



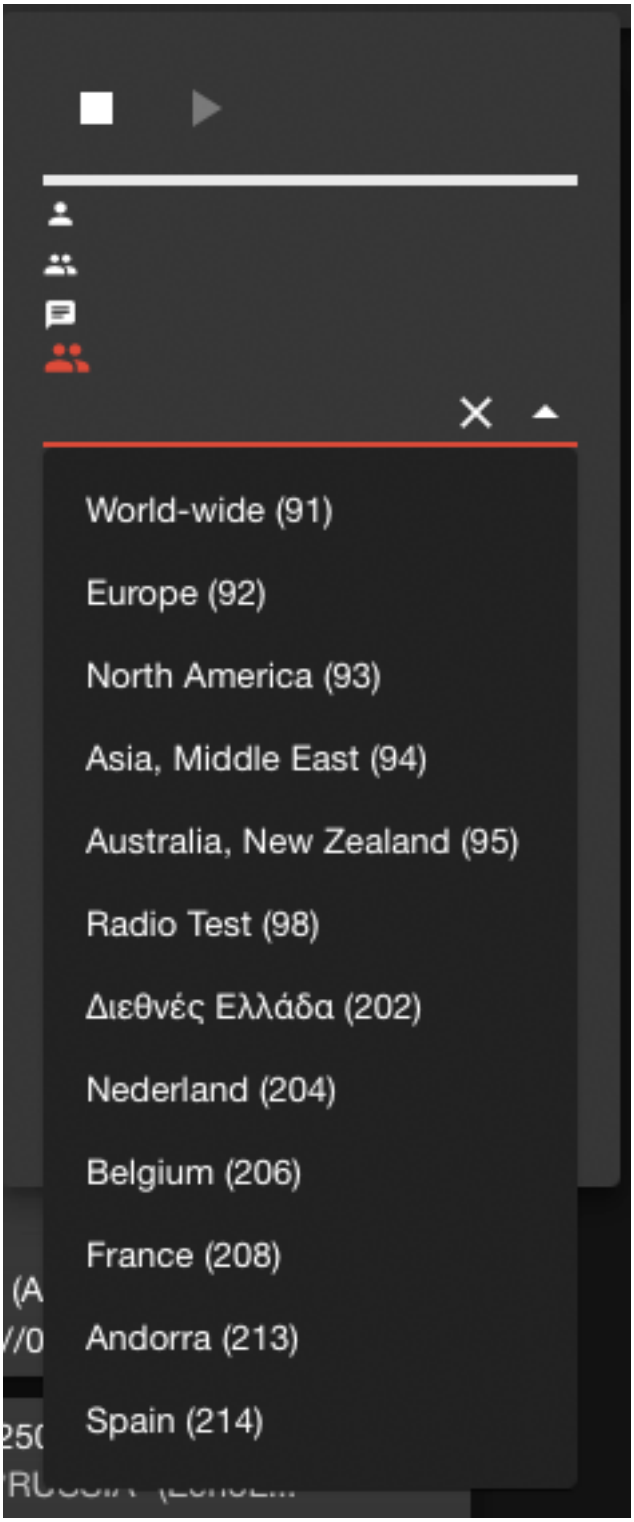


Figure 1.7: PLAYER panel from hose.brandmeister.network

Quest: APRS

In this quest, we'll check-in on the Automatic Packet Reporting System (APRS) where hams across the world provide real-time information about their locations and exchange messages, including weather reports.

Visit APRS.fi

The first time you visit this site, it may show you a view of APRS activity near the APRS.fi website author's home in Finland (hence the .fi web domain).

Feel free to scroll out using the minus (-) button in the lower right hand corner and then click and drag to another location. For example, here is a view near Philadelphia, PA.

Notice that some of the symbols look like vehicles and have a track that appears to show where they've been.

Get more info

Mouse over one of those symbols.

You should see a set of lines connecting the vehicle symbol to another one on the map. The lines show where the RF signal from the vehicle traveled before being heard and sent over the Internet to the APRS.fi site.

The figure shows the station K2WB connecting to a home-based relay station N2IVN and the relayed signal from N2IVN being heard by KD2DVW-1.

Click on a mobile (moving) station

Click on a mobile (moving) station's icon.

A small window will open with information about that station.

Click on the info button in the small window.

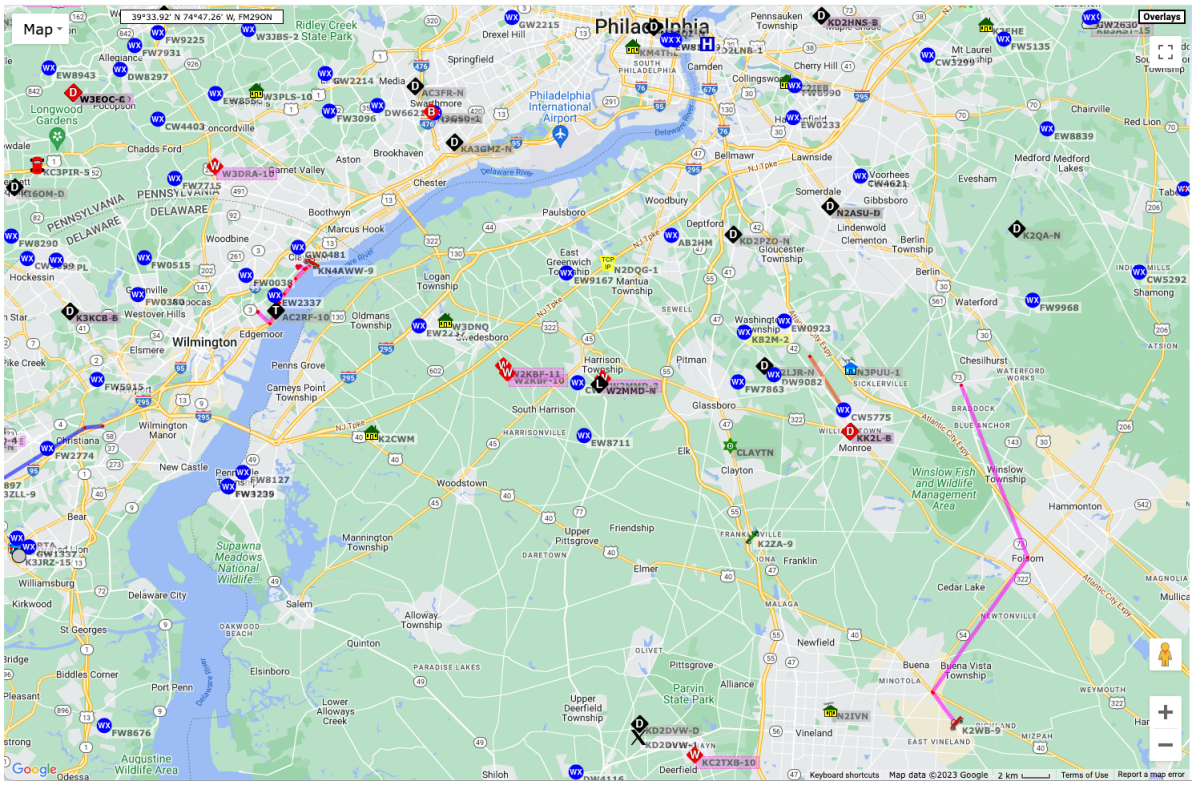


Figure 1.8: APRS activity near Philadelphia, PA on 2023-04-05

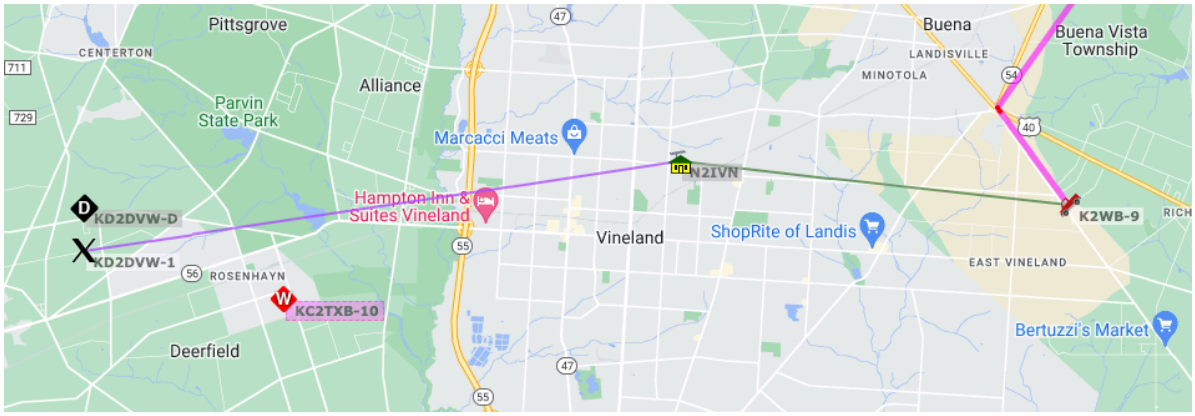
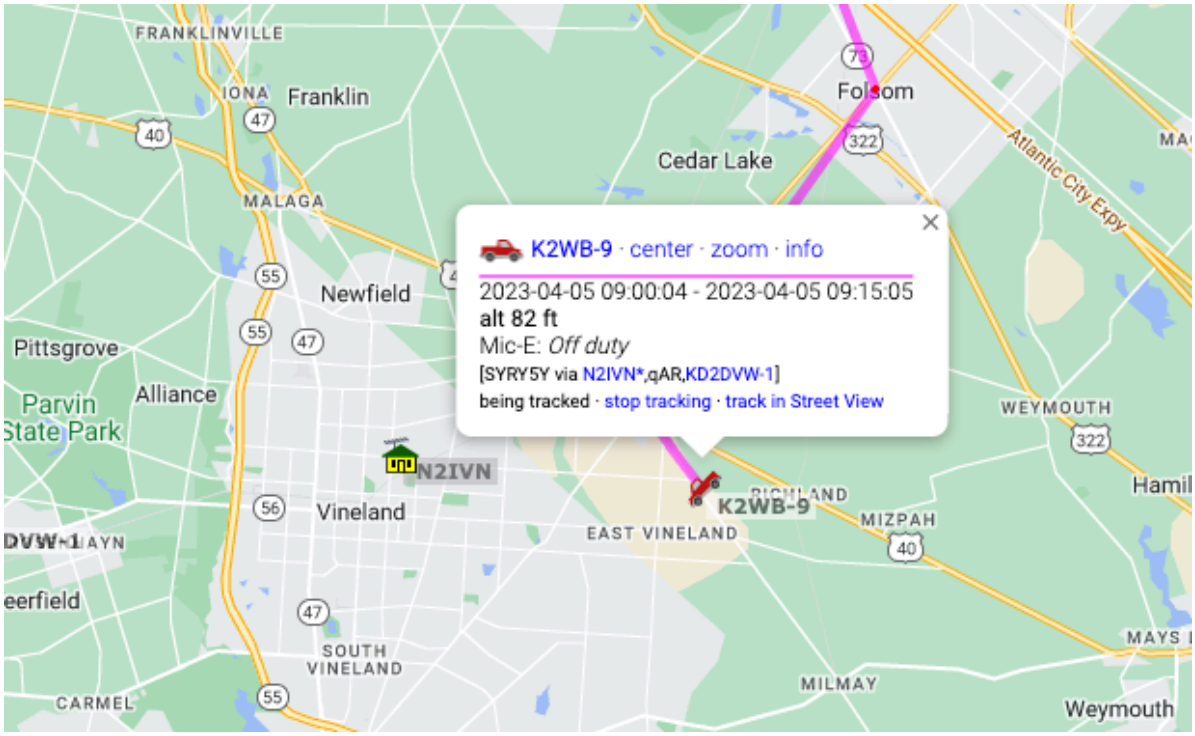


Figure 1.9: APRS track of moving vehicle K2WB-9.



Find the International Space Station (ISS)

The International Space Station has an APRS beacon! So, if you have an APRS-enabled radio set up you can hear the ISS when it passes near your location (and you are listening on the ISS APRS frequency of 144.825 MHz in the 2m band).

Enter `ISS` in the "Track callsign:" window in the upper right of the aprs.fi site.

I did this on the morning of 2023-04-05, and here was the result.

```
knitr::include_graphics("include/img/aprs-iss-2023-04-05.png")
```

Station info - map view · info · telemetry · weather · raw · status · beacons · messages · bulletins · browse · moving · my account

Callsign, ship name or locator: K2WB-9 Search Clear **Completed generating statistics (took 0.026 s).**

It is possible to search using wildcards (*?) after a prefix. Example: OH*

APRS station **K2WB-9** - show graphs

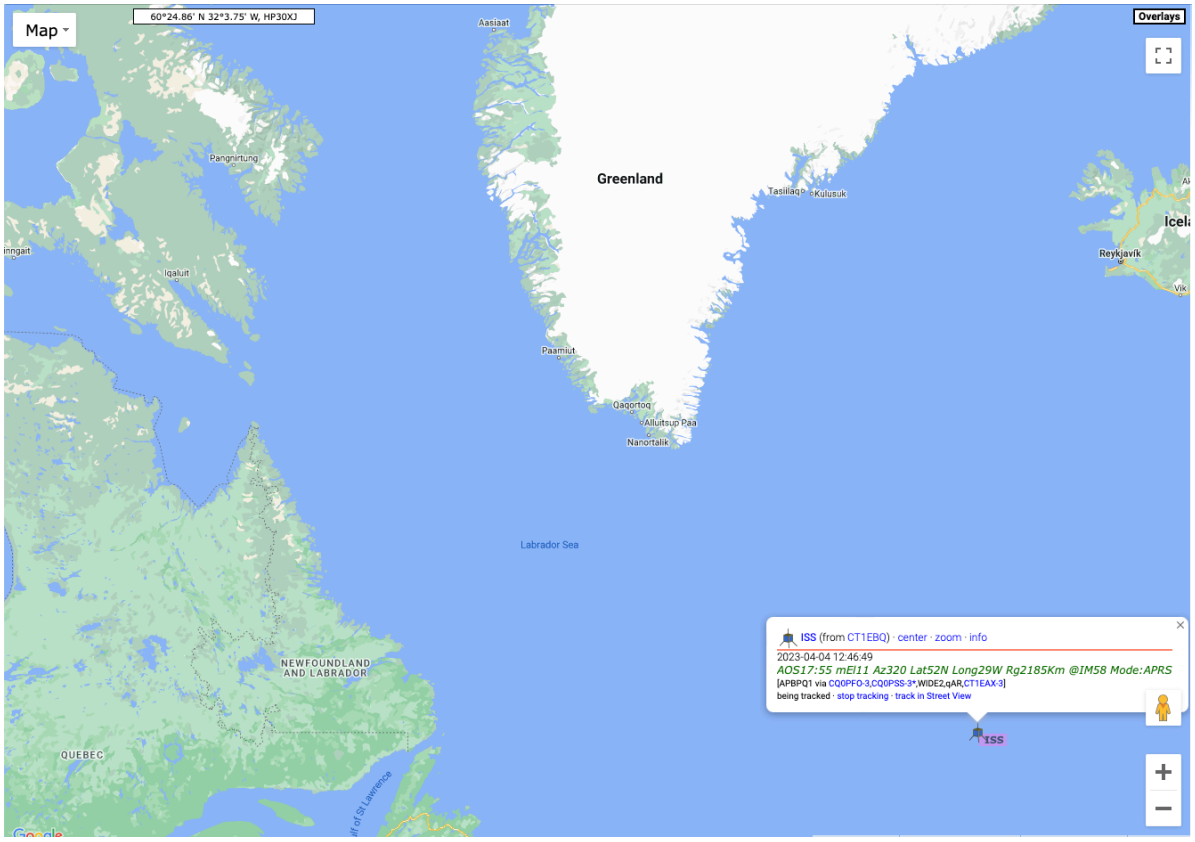
Mic-E message: *Off duty*
Location: 39°29.59' N 74°54.30' W - locator FM29NL18JI - **show map**
6.5 miles East bearing 86° from Vineland, Cumberland County, New Jersey, United States [?]
7.4 miles Southeast bearing 120° from Newfield, Gloucester County, New Jersey, United States
34.6 miles Southeast bearing 156° from Philadelphia, Philadelphia County, Pennsylvania, United States
84.2 miles Southwest bearing 209° from Staten Island, Richmond County, New York, United States
Last position: 2023-04-05 09:15:05 EDT (13m55s ago)
2023-04-05 09:15:05 EDT local time at Vineland, United States [?]
Altitude: 82 ft
Course: 219°
Speed: 0 MPH
Device: Yaesu: FTM-400DR (rig)
Last path: K2WB-9>SYRY5Y via N2IVN*,qAR,KD2DVW-1 ***Good path!***
Positions stored: 29177
Packet rate: 518 seconds between packets on average during 3625 seconds.

Stations near current position of **K2WB-9** - show more

callsign	distance	last heard - EDT	callsign	distance	last heard - EDT
N2IVN-9	5.7 miles 277°	2023-04-02 19:03:54	**N2IVN**	5.8 miles 276°	2023-04-05 09:24:56
PHIMWSNqA	9.1 miles 42°	2023-04-01 20:03:29	W2JAZ-D	9.4 miles 226°	2023-04-02 12:35:06
DW2738	9.6 miles 106°	2023-04-05 09:22:57	**N2JIE-9**	10.6 miles 258°	2023-04-05 09:28:37
K2ZA-1	10.8 miles 314°	2023-03-24 22:32:46	K2ZA-7	10.8 miles 314°	2023-04-03 20:03:28
N3RJV B	11.1 miles 291°	2023-04-05 01:26:15	N3RJV-B	11.1 miles 291°	2023-04-05 01:26:25
N3RJV G	11.1 miles 291°	2023-04-05 01:26:35	N3RJV-G	11.1 miles 291°	2023-04-05 01:26:45
KC2TXB-10	11.8 miles 264°	2023-04-05 09:16:48	**K2MFW-N**	11.9 miles 231°	2023-04-05 09:13:58
FW7263	12.0 miles 81°	2023-04-05 09:27:02	**MAYLDG**	12.4 miles 108°	2023-04-05 09:19:35
N2JIE	12.7 miles 263°	2023-03-21 22:44:15	N2JIE	12.7 miles 263°	2023-03-10 23:14:55
W2WCC-1	13.1 miles 345°	2023-03-11 19:43:07	WN9Q-N	13.7 miles 100°	2023-03-18 10:59:29

Stations which heard **K2WB-9** directly on radio – 2023-04

callsign	pkts	first heard - EDT	last heard	longest	(tx => rx)	longest at - EDT
KC2QVT-15	3	2023-04-03 18:38:42	2023-04-04 18:05:09	FM29NO > FM29QX	27.6 miles 23°	2023-04-04 08:06:35
N2IVN	5	2023-04-03 08:39:11	2023-04-05 09:15:05	FM29NL > FM29LM	5.8 miles 276°	2023-04-05 09:15:05
KD2DVW-1	1	2023-04-05 08:56:32	2023-04-05 08:56:32	FM29MM > FM29JL	13.6 miles 261°	2023-04-05 08:56:32



The ISS was somewhere over the North Atlantic Ocean. I say *was*, because if you look closely, you'll see that the last time the ISS was heard on APRS was on 2023-04-04, about 20 hours before the time I took this screenshot. The APRS beacon goes on and off from time to time.

Quest: Satellite tracking

Hams have launched satellites that permit communication across large areas, and the International Space Station (ISS) has ham radio equipment on board.

Visit https://www.n2yo.com/space-station/

The window in the upper left will show a map of the current location of the ISS.

The window in the upper right will show the current live video feed from the ISS. If it's dark, that's probably because the ISS is on the night side of the Earth.

Visit the Amateur Satellite Corporation (AMSAT)

The Amateur Satellite Corporation (AMSAT) also maintains a tracking site.

Here you can choose to track a number of amateur satellites.

The site will calculate the next time a satellite will pass over your location. You need to give it your latitude and longitude or your grid square for this to work.

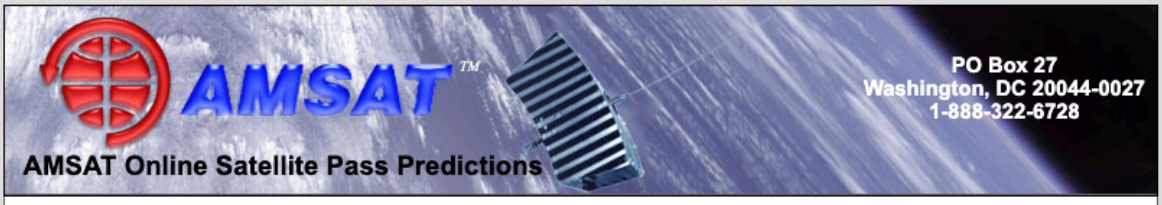
What's a grid square? Well every part of the Earth has been assigned a code that is a combination of letters and numbers. The codes are part of the Maidenhead Locator System.

By Mysid - Self-drawn in Inkscape., Public Domain, Link

See the following two figures from Wikipedia.

By User:Denelson83 - <a rel="nofollow" class="external free" href="http://visibleearth.nasa.gov/view_rec.php Public Domain, Link

By Oona Räisänen (Mysid) - Base map from Image:Blank map of Europe (polar stereographic projection) cropped.svg; Grid drawn in Inkscape and based on the (public domain) output of Great Circle Maps v2.3., CC BY-SA 3.0, Link



AMSAT Online Satellite Pass Predictions

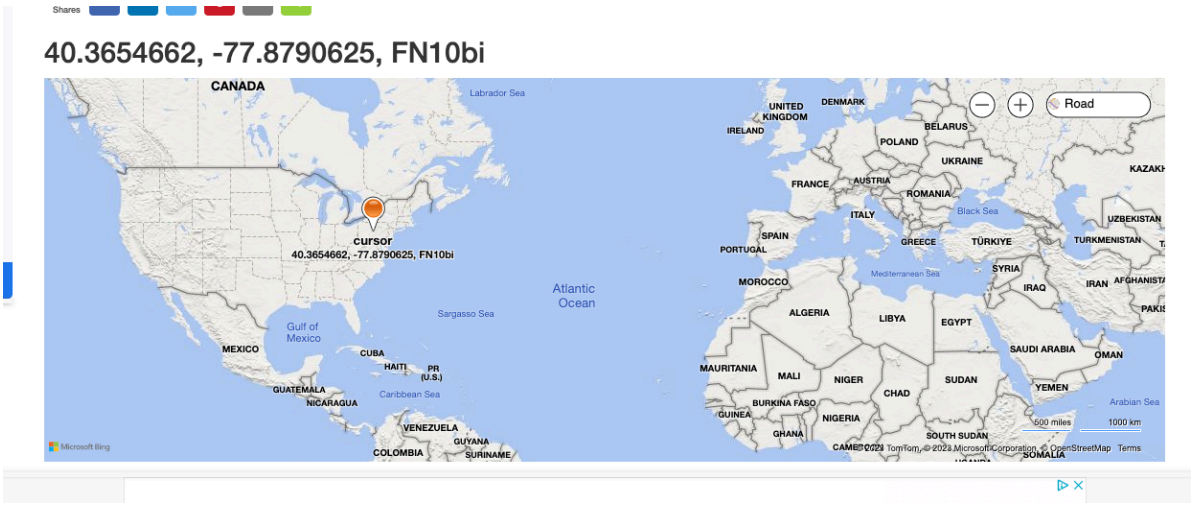
Please select a satellite and provide your latitude, longitude and elevation or calculate them from your grid square. If you choose we will save your position information in a cookie on your system for future predictions.

Show Predictions for: ISS ***for Next*** 10 ***Passes***	
Calculate Latitude and Longitude from Gridsquare:	Calculate Position
Or	
Enter Decimal Latitude:	North
Enter Decimal Longitude:	West
Elevation in meters AMSL:	
Predict	
Save my location for later use	

For the best in full featured tracking software visit The AMSAT Store

Based on the Predict engine, courtesy of John Magliacane, KD2BD
2023 Mar 31 01:49:22 UTC

To find out your particular grid square, visit https://www.karhukoti.com/maidenhead-grid-square-locator. The site gives you both your latitude and longitude and grid square. The figure below shows my approximate location and grid square, FN10.



Notice that grid squares can be increasingly precise. For our purposes now, the four character grid square is sufficient. Hams who operate digital modes like FT8 and FT4 using the WSJT-X software use grid squares, too. And some hams "collect" contacts in different grid squares. For now, we'll use our grid square to calculate when the ISS will pass over our grid square.

When will the ISS pass over you next?

Enter your grid square in the AMSAT Tracking site.

Hit "Calculate Position" to let the site calculate your latitude and longitude, then hit the "Predict" button.

The results show the next several passes of the [ISS] over my grid square. Yours will be different, even if you live in my grid square, because the ISS is always moving.

AMSAT Online Satellite Pass Predictions - ISS

View the current location of ISS

Date (UTC)	AOS (UTC)	Duration	AOS Azimuth	Maximum Elevation	Max El Azimuth	LOS Azimuth	LOS (UTC)
05 Apr 23	15:46:43	00:09:59	201	21	142	65	15:56:42
05 Apr 23	17:22:49	00:10:41	248	42	343	50	17:33:30
05 Apr 23	19:00:43	00:09:18	287	14	347	49	19:10:01
05 Apr 23	20:38:29	00:09:18	309	13	9	69	20:47:47
05 Apr 23	22:15:15	00:10:30	311	33	44	106	22:25:45
05 Apr 23	23:51:57	00:10:07	298	26	243	153	00:02:04
06 Apr 23	14:57:10	00:08:55	185	12	125	73	15:06:05
06 Apr 23	16:32:24	00:10:48	236	75	325	53	16:43:12
06 Apr 23	18:09:57	00:09:48	277	17	337	48	18:19:45
06 Apr 23	19:47:55	00:09:07	305	12	5	61	19:57:02

Quest: POTA/SOTA hunting

About

In this quest, you will "hunt" hams who are operating using portable stations from one of several thousand parks around the world as part of the Parks on the Air (POTA) system.

Visit Pota.app

The site shows hams who are active on the air *right now* and on what frequencies and using which modes.

Choose a station to "hunt"

By hunt, of course, we mean try to hear on the radio. Once you're licensed with appropriate privileges, you can try to make contact. For now, let's just try to hear the station.

You have some decisions to make. Which mode, CW, FT8, or phone? Which band?

Unless you have already set up a receiver to copy and decode FT8, you can eliminate stations using [FT8] or [FT4]. Phone is the easiest, but also requires the best band conditions.

Here are some rules of thumb to guide your choices:

1. The lower frequency (higher wavelength) bands (160m, 80m/75m, 60m, and 40m) propagate longer distances at night than during the day. During the early morning hours, 80m/75m might support regional propagation, meaning you can hear stations within several hundred miles of your location. 60m and 40m might also work for regional communication throughout the day.
2. The higher bands (30m, 20m, 17m, 15m, 12m, and 10m) are long distance (DX) bands and are most active during the day and under good solar conditions.

Once you've chosen a station to hunt, you can try to hear them on a WebSDR.

Open WebSDR

If you pick a WebSDR near your location, then you'll need to consider the rules of thumb above.

If you pick a WebSDR somewhere else, you'll have to think like a ham in one of those locations: What bands are open to hams and to what parts of the world from that location?

Tune to the POTA station frequency

If the station is still active on the frequency and propagation to the WebSDR location is good, you should see a signal in the waterfall. Try to copy the station? Can you hear the callsign? Can you hear any stations trying to call.

Quest: Identify the signal

About

In this quest, you'll use WebSDR or an SDR receiver to try to find and identify various signals found on the HF and VHF/UHF bands.

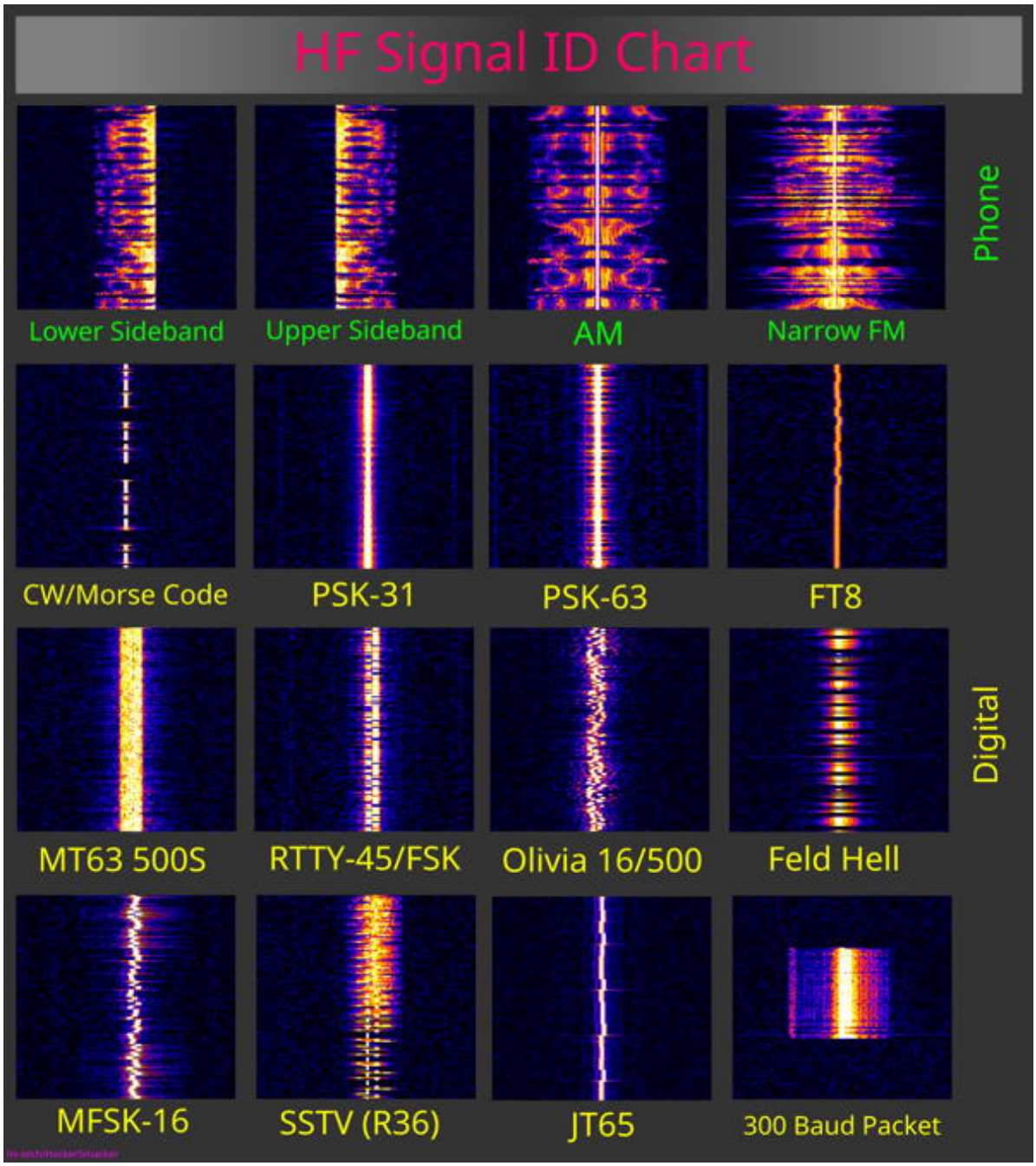


Figure 1.10: HF signal chart from https://www.reddit.com/r/amateurradio/comments/12ota0q/hf_signal_iden

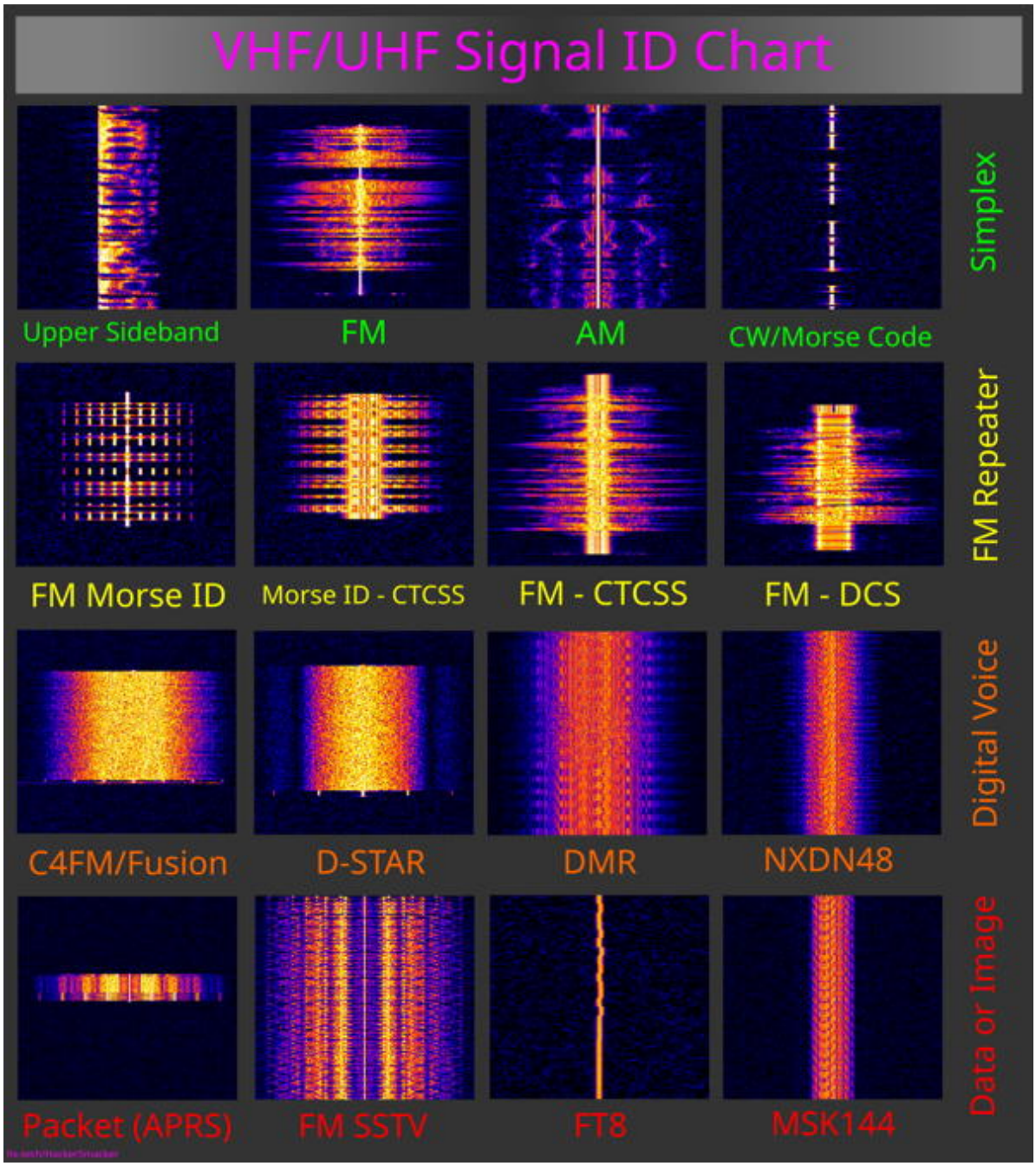


Figure 1.11: VHF signal chart from https://www.reddit.com/r/amateurradio/comments/12okhb4/i_whipped_u

Quest: Find hams in your area

About

The FCC amateur radio license database is public. That's why some hams prefer to use a post office (P.O.) box as their permanent surface mailing address for their license. However, the fact that the database is public makes it easy to find hams in your geographic area.

Open the Amateur Radio License Map application

Visit https://haminfo.tetranz.com/map

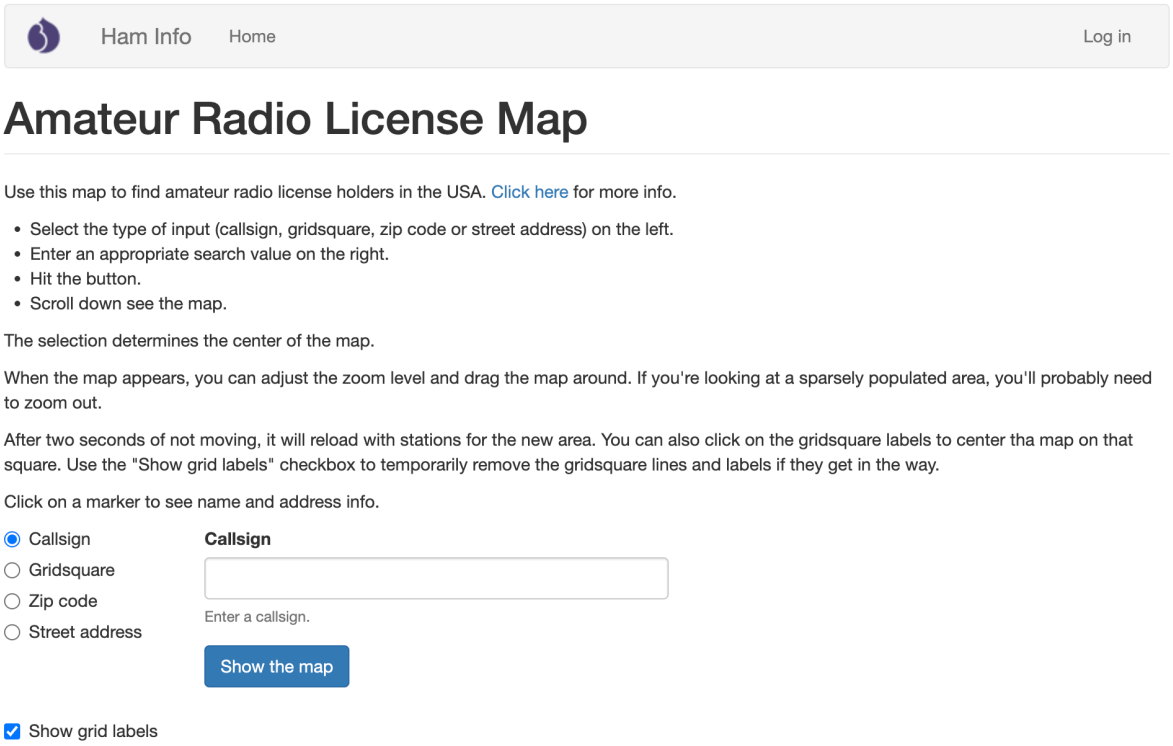


Figure 1.12: https://haminfo.tetranz.com/map

Search for hams in your current Zip code

I live in 16801. Here is a zoomed-out view of all the hams whose home addresses in the FCC database list 16801.

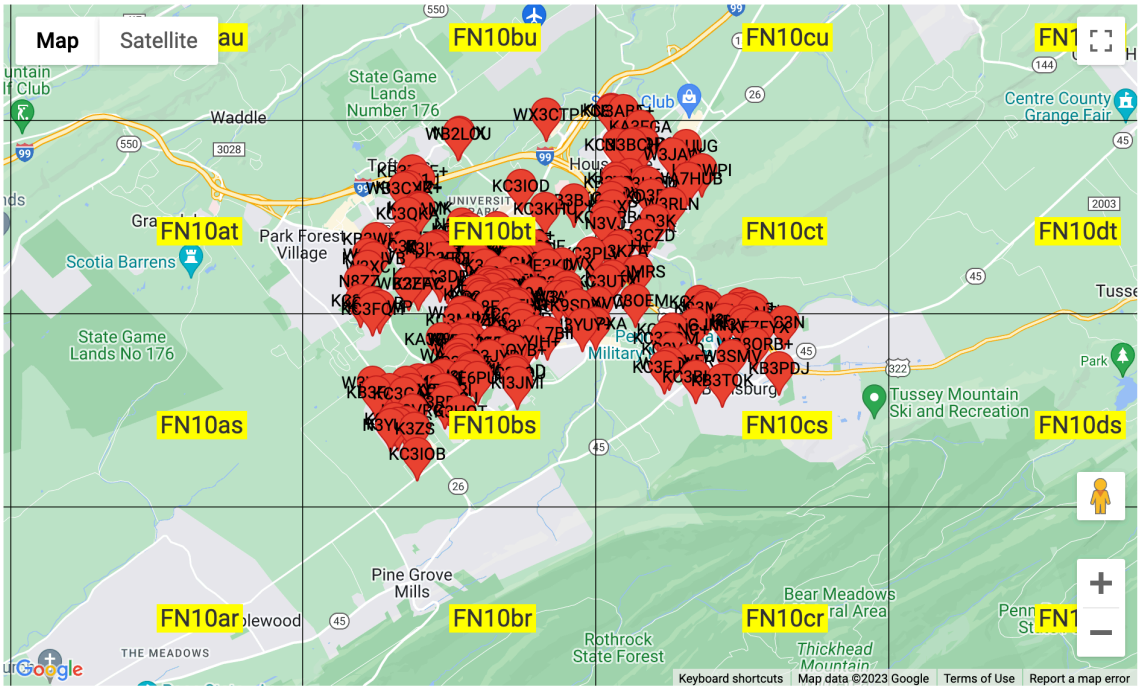


Figure 1.13: Hams in Zip code 16801 from https://haminfo.tetranz.com/map

If you check the "Show grid labels" checkbox you will see that the map shows the 6-character [grid square] designator. Some hams "collect" QSOs from different grid squares. Many hams operating [FT8] or [FT4] exchange grid squares, as do those who operate amateur satellites, see the satellite quest.

Search for a specific callsign

If you know a ham's callsign, enter it in the Callsign box.

Here is the map of licensed hams near to the mailing address for K3CR, the Penn State Amateur Radio Club's callsign.

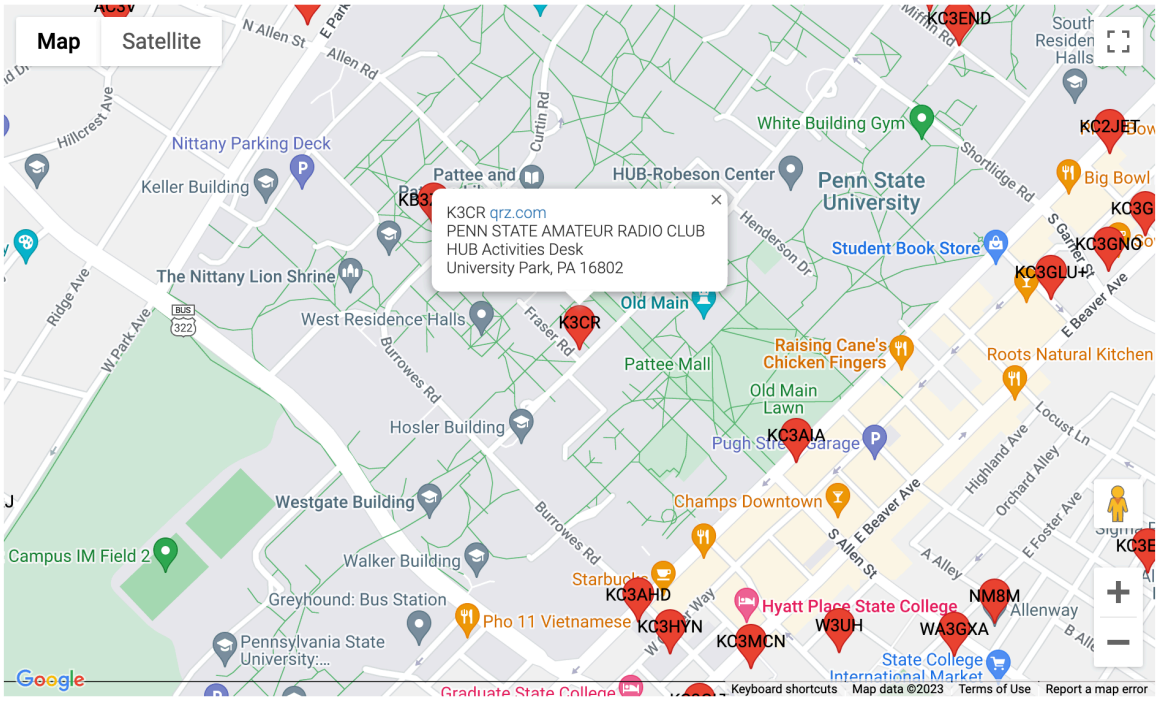


Figure 1.14: Hams near K3CR from https://haminfo.tetranz.com/map

> **Note**
>
> You *must* maintain a valid address with the FCC and that address is public. Some hams who prefer not to have their physical address publicly available rent a post office (PO) box and use that for their address in the FCC database. This is perfectly acceptable.