What we'll cover tonight:

History of the Technician License
Privileges on the various bands
Modes
Activities
Resources for the Technician License holder
and those interested in earning their license

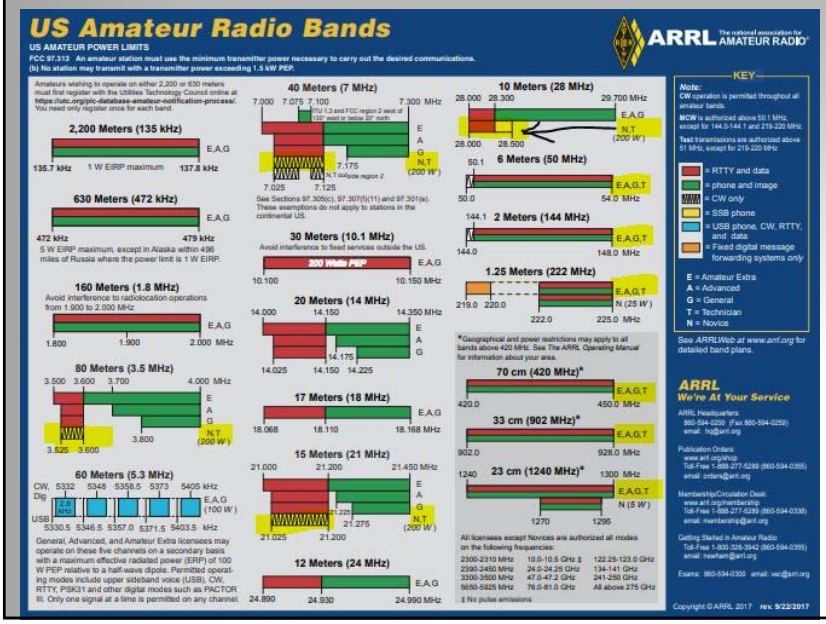
A bit of history on the Technician license

- **Currently the entry-level license for amateur radio. (Two other licenses issued are General and Amateur Extra)**
- **Hasn't always been entry level. There were other classes of licenses (e.g., Novice). Intent of Tech license was to experiment with UHF after WWII and not interfere with**
- **1951 – major overhaul of Licenses and privileges.**
- **1991 – Morse code aspect of test was dropped.**

As of 2018: License breakdown (total 755,430 licensees)

Technician = 384,135 (51%), General = 175,949 (23%) AE = 147,369 (19%)

Technician class privileges



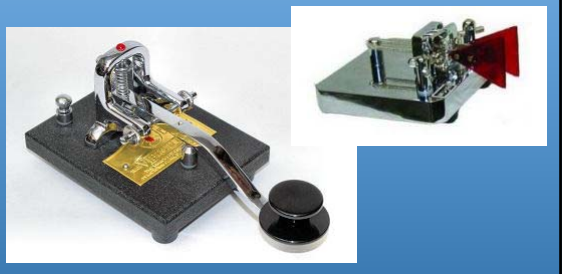
Basically open to all amateur radio frequencies above 30 MHz (VHF, UHF) plus limited access to some HF bands.

VHF & UHF modes and frequencies permitted to Technician licensees

- **23cm** - RTTY, data, phone, image from 1240 MHz to 1300 MHz (shared with all other license types)
- **33cm** - RTTY, data, phone, image from 902.0 MHz to 928.0 MHZ (shared with all other license types)
- **70cm** - RTTY, data, phone, image from 420.0 MHz to 450.0 MHz (shared with all other license types) *Very commonly used*
- **1.25**m - RTTY, data, phone, image from 222.000 MHz to 225.000 MHz (shared with all other license types)
- **2m** – CW 144.000 MHz to 144.100 MHz; RTTY, data, phone, image from 144.100 MHz to 148.000 MHz (shared with all other license types) *Very commonly used*

6m & HF modes and frequencies permitted to Technician license holders

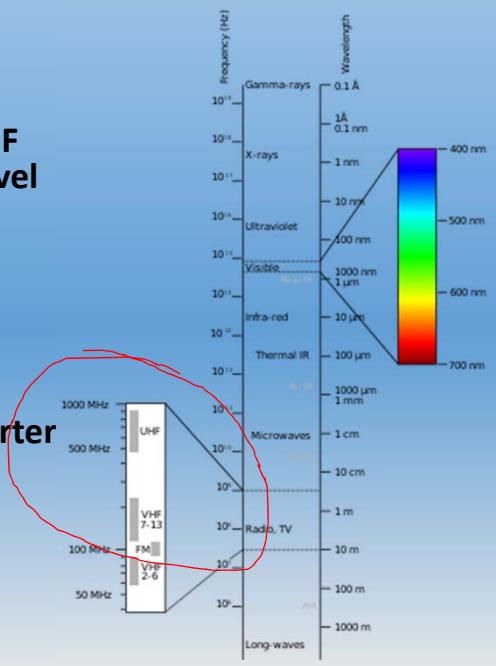
- **6m** – CW 50.000 MHz to 50.100 MHz; RTTY, data, phone, image from 50.100 MHz to 54.000 MHz (shared with all other license types)
- **10m** – RTTY and data, 28.000 MHz to 28.300 Mhz; also SSB phone 28.300 MHz to 28.500 MHz
- **15m** - CW only, 21.025 MHz to 21.200 MHz
- **40m** - CW only, 7.025 MHz to 7.125 MHz
- **80m** – CW only, 3.525 MHz to 3.600 MHz



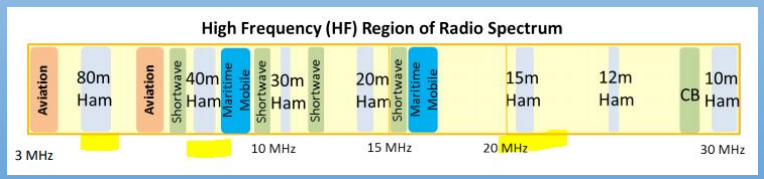
HF, VHF, and UHF

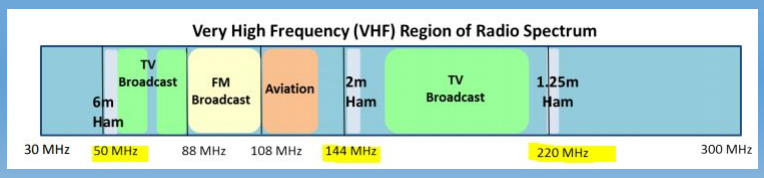
- **HF (High Frequency) = compared to VHF and UHF, much longer frequencies, travel far. Can bounce of ionosphere, long distance! (limited access to Technician licensees…CW only)**
- **VHF (Very High Frequency) = shorter wavelengths, still good range.**
- **UHF (Ultra High Frequency) = even shorter wavelengths, good for short distances, inside buildings, waves travel through walls well.**

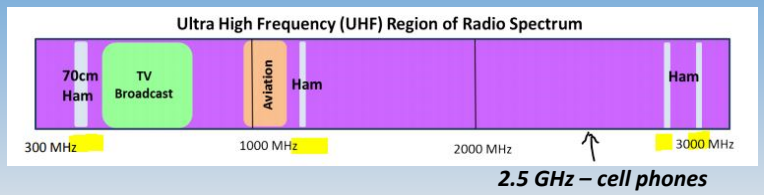
Common as handheld radios "HT's"



Bits of the Spectrum: HF, VHF, UHF







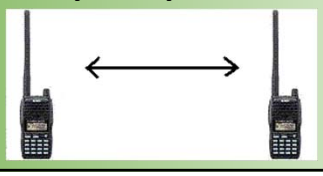
2.5 GHz – cell phones

Modes and more modes!

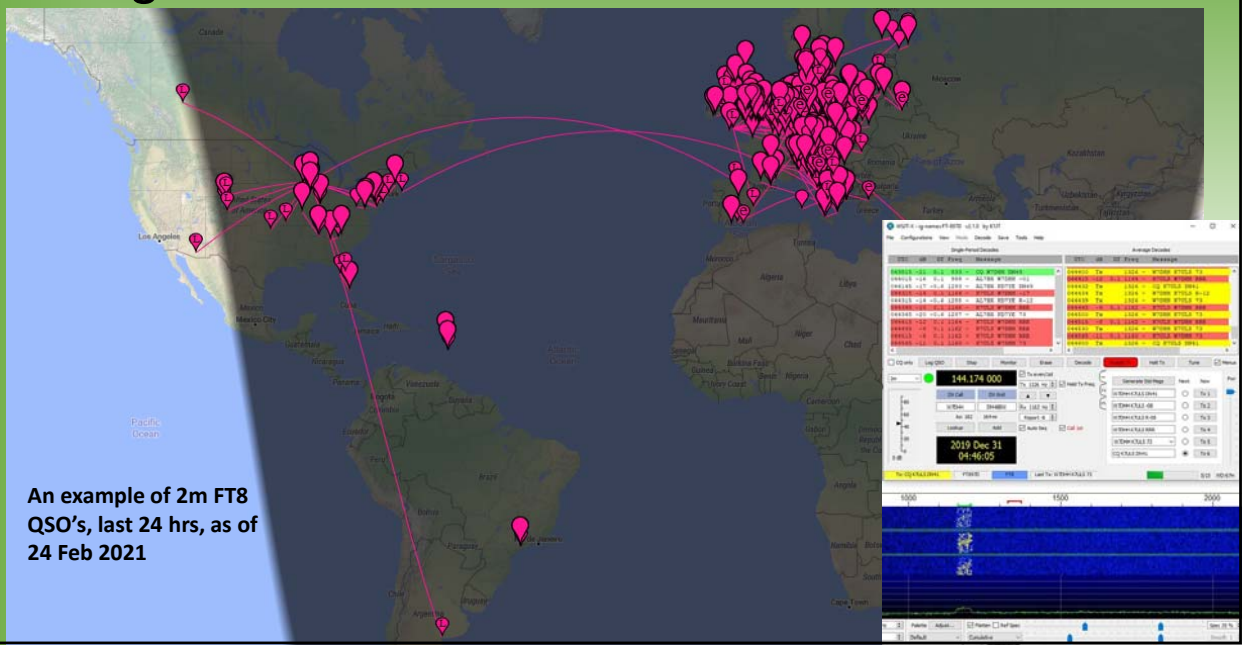
- CW – Continuous Wave, a.k.a. Morse Code
- Analog Voice (phone) – simplex and repeaters
- Digital Voice (phone) – simplex and repeaters
- MFSK (JY65, FT8, FT4, etc.)
- RTTY, Packet, data (APRS, etc.)
- Image (ATV)

CW keyers: Straight key and paddles

Simplex operation



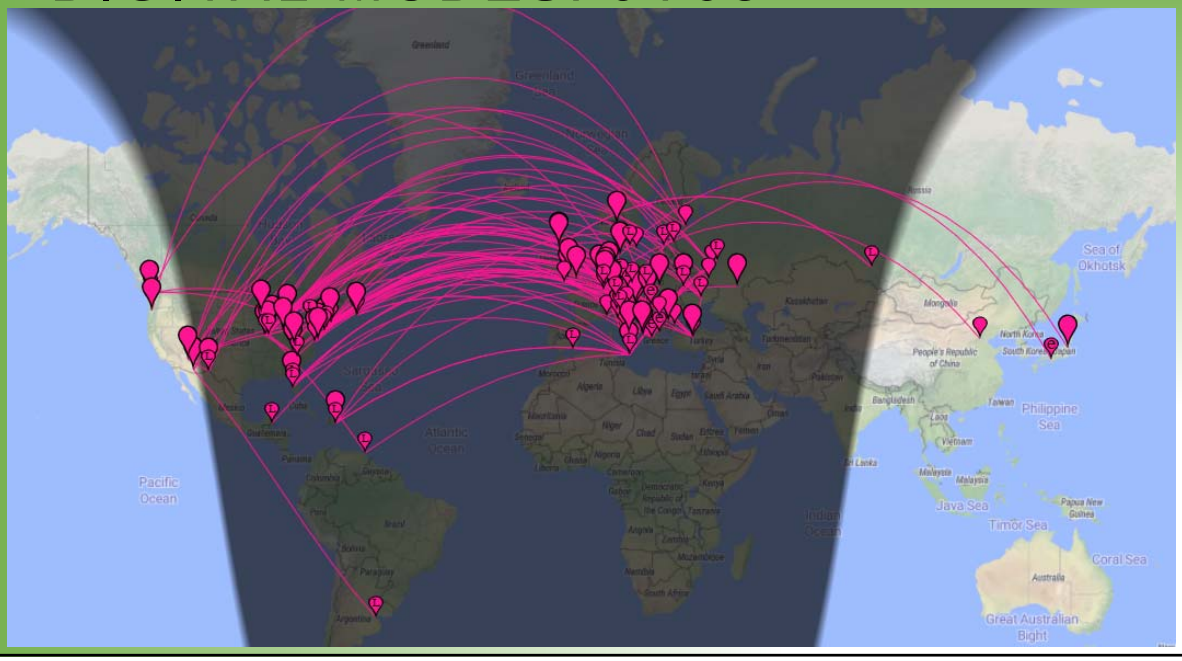
Digital modes: FT8 (2m freq. = 144.174 MHz)



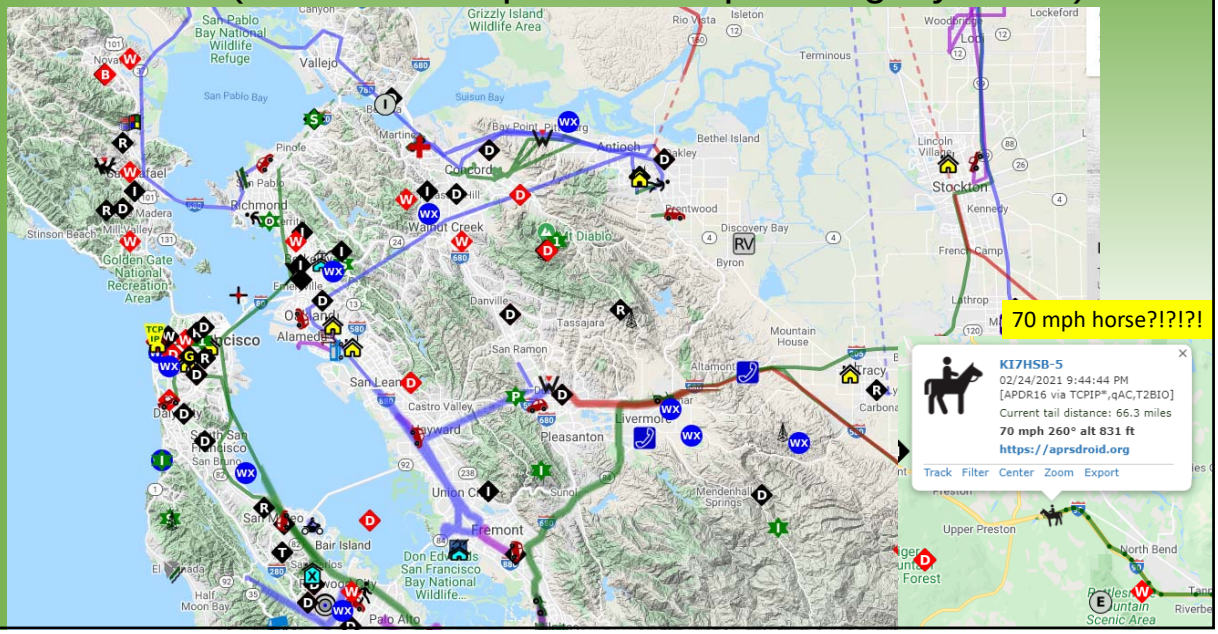
An example of 2m FT8 QSO's, last 24 hrs, as of 24 Feb 2021

DIGITAL MODES: JT65

An example of JT65 QSO's, Last 24 hrs as of 24Feb2021



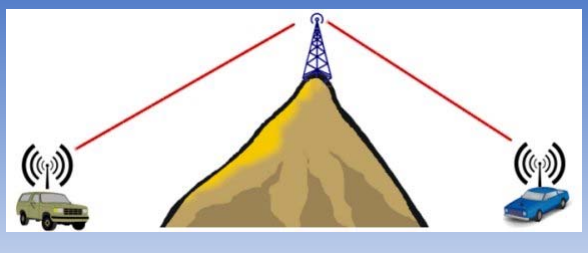
APRS (Automatic packet reporting system)



Activities!

- **Rag chewing (talkin' with the pals)**
- **Checking into weekly or daily nets**
- **Emergency Communications**
- **Community Service**
- **Contesting**
- **Amateur TV (ATV)**
- **QRP (low power) – *current record is Oregon to Alaska on 1 microwatt!***
- **IOTA, SOTA, etc. Islands on the Air, Summits on the Air, etc.**
- **Exchanging QSL Cards to confirm radio contacts**
- **Satellites**
- **Earth-Moon-Earth, a.k.a. "moon bounce"**
- **Meteor Scatter**
- **I'm sure I've forgotten others! What did I miss?**

FM Repeaters



Emergency Communications (EmComm)

ARES
Amateur Radio Emergency Service

AMATEUR RADIO EMERGENCY COMMUNICATIONS

LOCAL

Storm spotters using ham radios

The National Weather Service will use the information
operators report when issuing or canceling warnings

Ham radio operators to the rescue after Katrina

For the past week, amateur radio operators have been instrumental in helping residents in the hardest hit areas including saving stranded flood victims in Louisiana and Mississippi.

Viasat amateur radio operators on the front line during emergencies

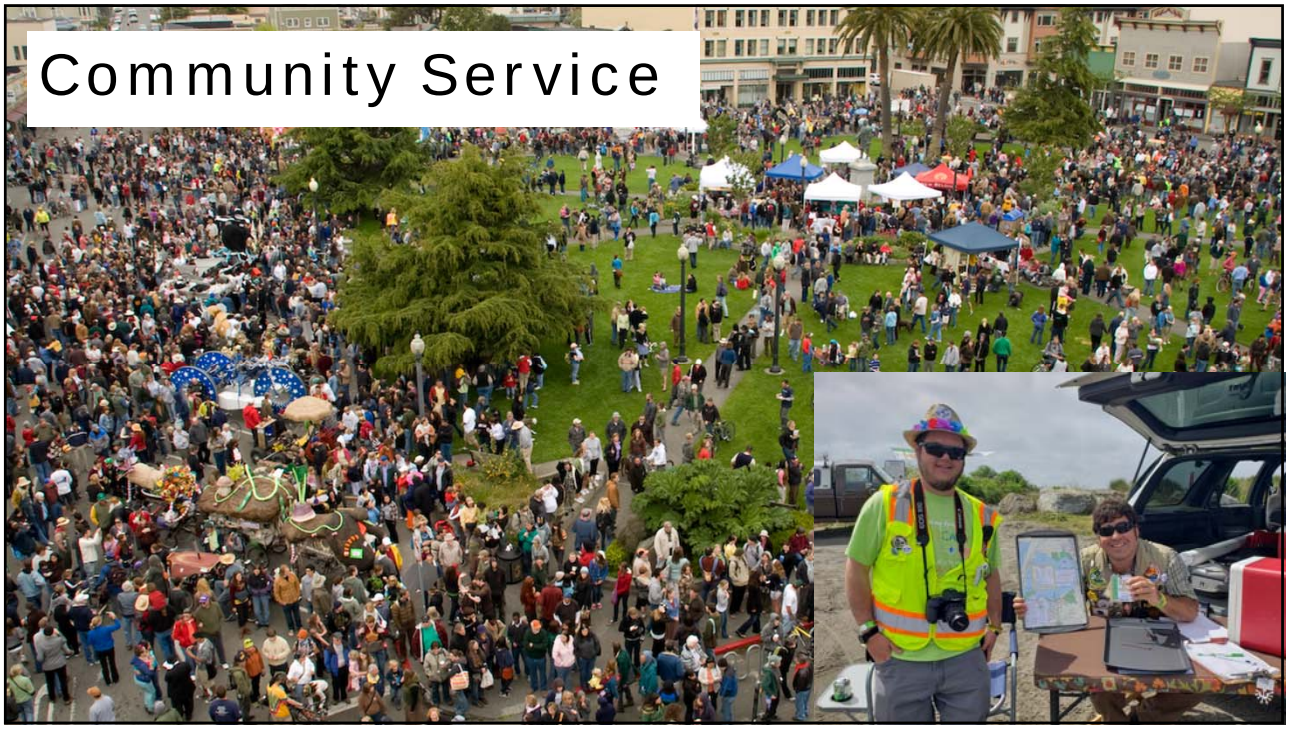
NEWS

Local amateur radio operators aid in emergency communications

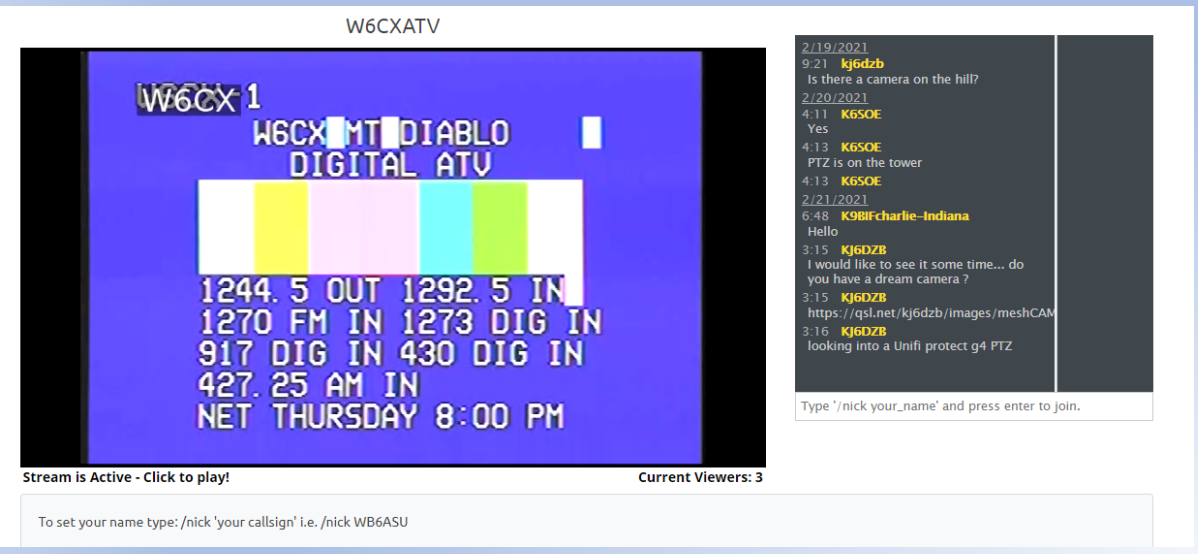
Amateur radio operators or hams work with the National Weather Service to report storm damage a
with local agencies.

Ham Radio Hobbyists Are Connecting the Caribbean After Hurricane Maria

Community Service



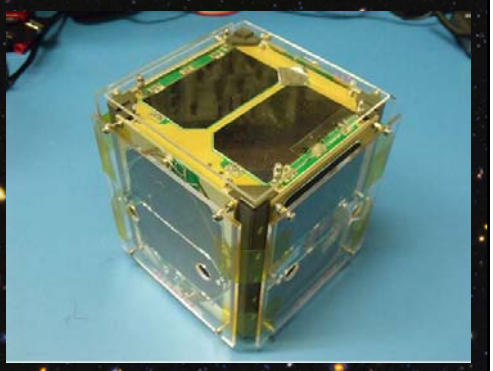
Amateur TV



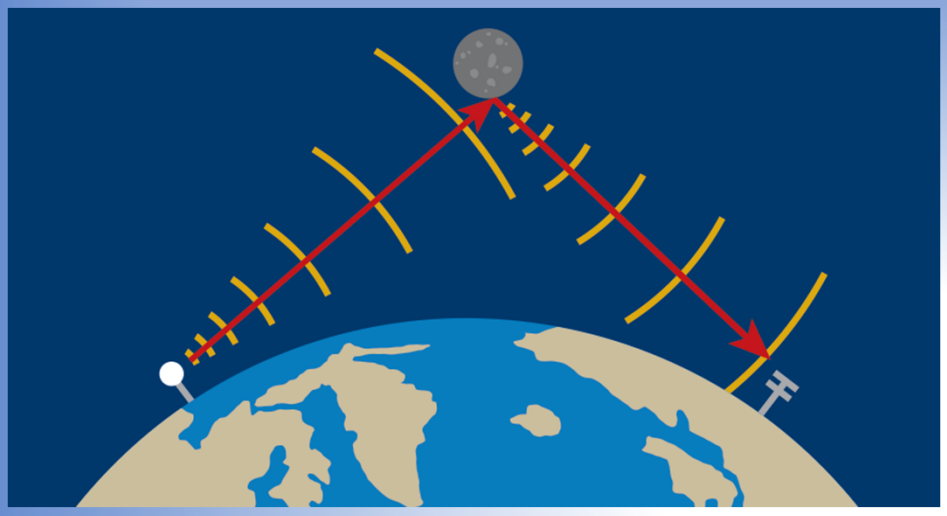
Exchanging QSL cards with fellow hams (for all licensed amateurs)

Satellites!

International Space Station, Satellite Repeaters

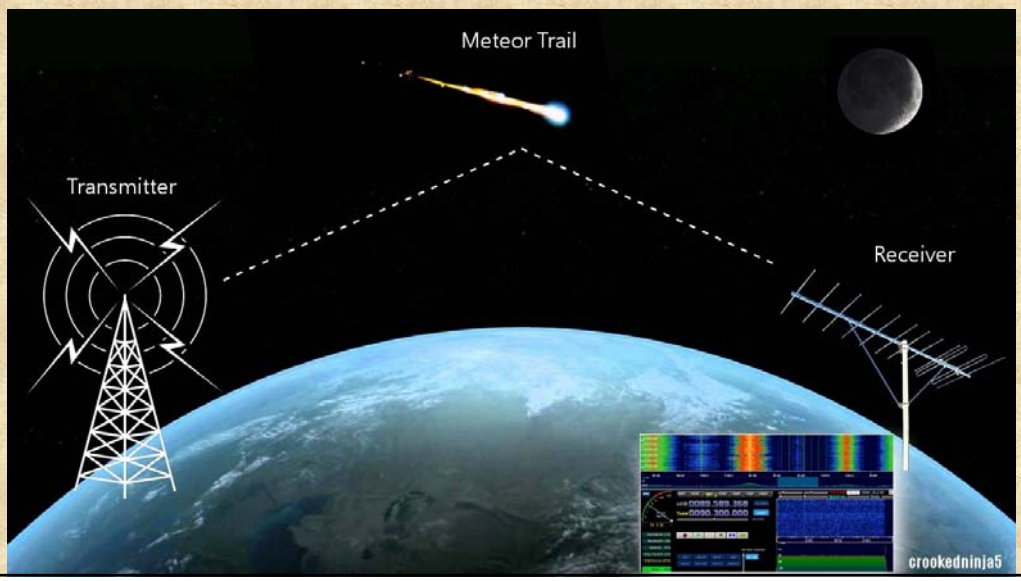


Earth-Moon-Earth (EME, a.k.a. "moonbounce")



Meteor Scatter

- Extremely short communications on VHF, often just a few seconds or less



Resources, Links

- **American Radio Relay League:** http://www.arrl.org/
- **Prep for tests (note MANY resources online, e-Books, etc.)** https://hamexam.org/
- **Online remote license testing (during pandemic)** https://kl7aa.org/vec/remote-testing/
- **Frequency Bands Chart** http://www.arrl.org/graphical-frequency-allocations
- **Intro to working Amateur Radio Satellites:** https://www.amsat.org/introduction-to-working-amateur-satellites/
- **International Space Station Contacts:** https://www.ariss.org/contact-the-iss.html
- **Amateur radio satellites:** https://amsat-uk.org/satellites/hamtv-on-the-iss/
- **Meteor Scatter procedure** http://www.astrosurf.com/luxorion/qsl-meteor-scatter.htm
- **Packet radio, an example of one type: APRS** http://www.aprs.org/
- **History of License changes** https://ema.arrl.org/a-history-of-amateur-radio-license-changes/

Questions? Discussion?

- **When in doubt, ask a fellow ham operator! We're here to help!**