

Jeep + Ham Radio

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Ham Radio Enthusiast

What is Ham Radio?

- Radio for Fun
- Radio for Emergencies
- Better than CB radio!
- NOT
 - Broadcasting Music or Talk Radio
 - As nerdy as you think







ISS018E011703



RUBICON

Jeep
UNLIMITED



NEVADA
ERROR

RENO4X4.COM

KE7VQE



RUBICON

Jeep

Ham Radio and Jeeping?

- Longer Range, Clearer Comms than CB and FRS
- Use of repeaters sends signal even further
- Cheap Handhelds and Mobile rigs work together
 - Makes recovery comms easier
- Other awesome features like APRS (position reporting and messaging)
- Fun side-activities...maybe a new hobby?
 - HF radio, Summits on the Air,

Getting on the Air (Equipment)

- Handheld units - [\\$25 on Amazon](#)
 - 5 Watts, about same range as FRS/GMRS
 - Kinda hard to program
 - Can connect to external antenna, speaker/mic for better range & ease of use
 - \$150 for Yaesu FT-60R, best dualband handheld in existence
- Mobile Units - \$100 to \$300
 - 50 watts, much higher range, up to 10 mi in forest, 60 miles on hillcrests
 - Same size as CB units
 - APRS built-in units \$400-600, like [TM-D710A](#), [FTM-400](#)
- Antenna
 - Magmount whips - [\\$23 on Amazon](#)
 - More \$ for slightly better range, but most amateur antennas are rigid (and breakable)



GPSmap 60CSx

Totl Ascent 1641 Max Elev 3089

Elevation 1871

GARMIN

VHF

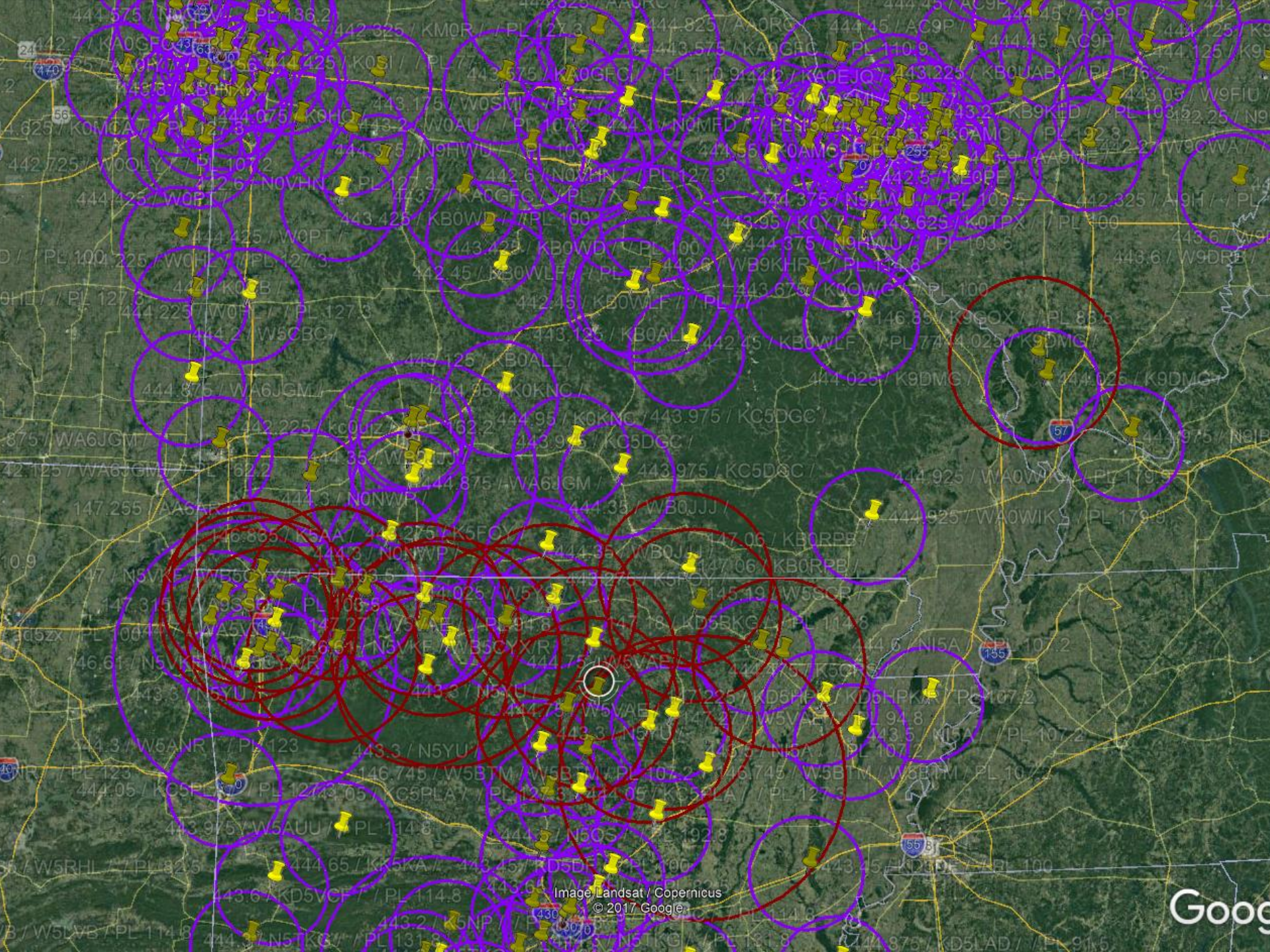
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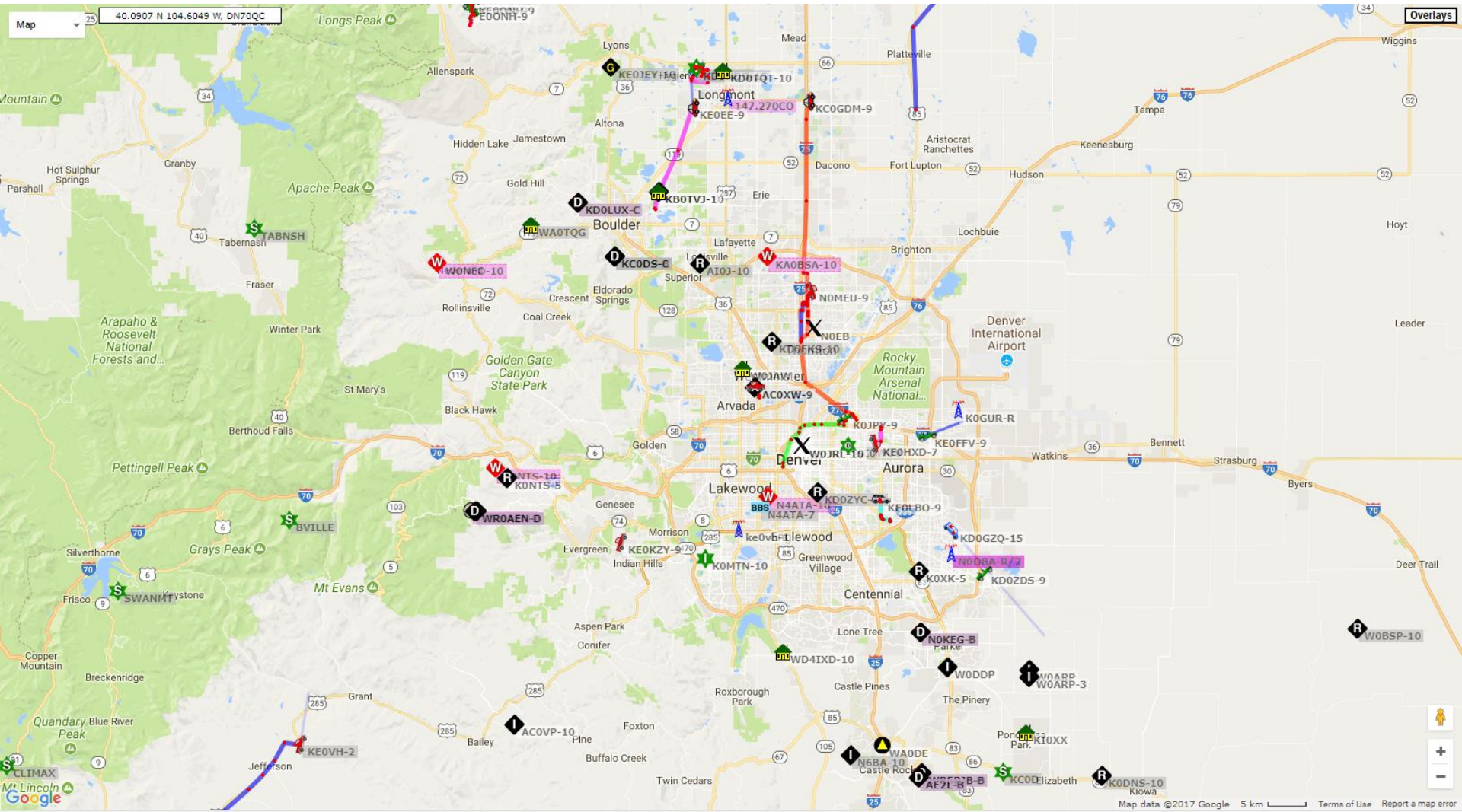
Repeaters

- Retransmits your signal from a high point or tower
- Boosts range up to 60mi
- Repeaters can be linked for even more range
 - New Mexico Megalink
 - Echolink and IRLP – internet linking of repeaters
- Often feature phone patch



APRS

- Transmits your location via ham radio to APRS Network, APRS.fi
- Requires [specific radio models](#) or adapters for others
 - \$400 - \$600 price range for APRS built-in
 - \$5 to \$70 for bolt-on, either using APRSDroid (android only) with cable, or [Mobilinkd with bluetooth](#)
- Message won't route to internet if not in range of a digipeater



Overlays

40.0907 N 104.6049 W, DN70QC

Map

CLIMAX
Mt Lincoln
Google

+

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HF Radio

- Frequencies $< 30\text{MHz}$ are called High Frequency (HF), and are named by their wavelength
 - $20\text{m} = 14\text{MHz}$ $40\text{m} = 7\text{MHz}$, $80\text{m} = 3\text{MHz}$, etc
- Freqs $< 15\text{MHz}$ very reliably support comms of over 200 miles, beyond line of sight
 - Ionosphere refracts the signal – i.e. skip or DX
- Requires more expensive gear, longer antenna (see slide 6)
- Could make for a fun side hobby

Ham Radio for Emergencies

- VHF repeaters are everywhere, and are well monitored
- HF can get a message out instantaneously up to 1000mi away, reliably
- Ham radio is frequently used in Search & Rescue & Disaster comms
- No need for license to transmit in emergencies
- Always there when cell and SPOT doesn't work

Alternatives

- CB Radio
 - Noisy due to truckers, broadcasters
 - prone to distant interference
 - 4 watt max = short range
 - Handheld units are pricey and suck
 - Needs big antennas which break a lot
- FRS/GMRS
 - Very short range (Don't believe the range labels!)
 - GMRS allows more power, mobile units & external antennas, but requires \$85 no-test license
- [MURS](#)
 - Only 5 channels
 - Limited 2W power, low range
- [Business Itinerant Frequencies \(Part 90\)](#)
 - 10 channels
 - Higher power
 - surplus mobile units cheap
- SPOT Satellite Messenger
 - Expensive (\$75 for the unit, \$20/month)
 - Transmits messages only, good for SOS

The Catch

- Ham Radio requires an FCC license to transmit
 - Which requires you to take a test
 - [Which is so easy a kid can do it!](#)
- Why?
 - Avoid Interference to other users
 - Improve Safety
 - Cultivate radio science
- Listening doesn't require license



License Classes

- Technician
 - 30MHZ and up
 - Very Easy 35 Multiple Choice Question Test
 - Pretty much all you and your friends need
- General
 - Access to HF spectrum (VERY long range)
 - Harder 35 question test, includes simple electrical theory, antenna design questions, RF safety, and band/mode memorizations
- Extra
 - Access to all amateur radio spectrum
 - Very difficult 50 question test (unless you're an Electrical Engineer)

Summary – Why Ham Radio

- Distance!
- Clarity!
- Hardware!
- Emergency!
- And fun!

Ham Radio Resources, Incl Licensing

- <http://www.arrl.org/>
- <http://www.kb6nu.com/study-guides/>
- <https://hamstudy.org/>
- <http://k9ham.org/>
- <http://www.slsrc.org/>

Links & Resources on Ham Radio & Jeeping

- <http://www.4x4ham.com/forum.php>
- <http://n4ae.com/2016/10/outfitting-a-jeep-jk-unlimited-for-ham-radio/>
- <http://forum.expeditionportal.com/threads/24082-HAM-radio-amateur-radio-FAQ>
- <https://offroadpassport.com/forum/showthread.php?t=2821>
- <https://www.youtube.com/watch?v=WJTivWzSfTs>
- https://www.reddit.com/r/amateurradio/comments/7bi6qp/im_giving_a_presentation_about_ham_radio_to_a/



Jeep

Wrangler

4x4

