Grassroots Emergency Communications Operations

Sticky Notes

GECO Newsletter
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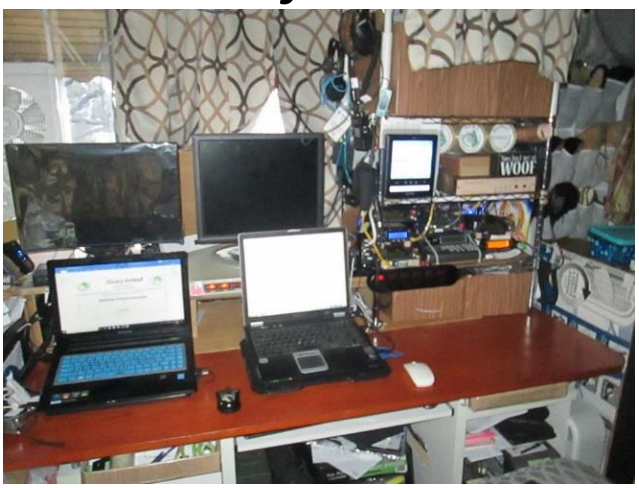
www.neighborhoodlink.com/GECO Email: gecoradio@gmail.com

Ready to Serve and Sustain Our Community

KM6EON-R Station Facelift



We started on a hunt to eliminate low background noise on our 2m/440 station transmission. One thing led to another, and we finally decided to give the station a major facelift.

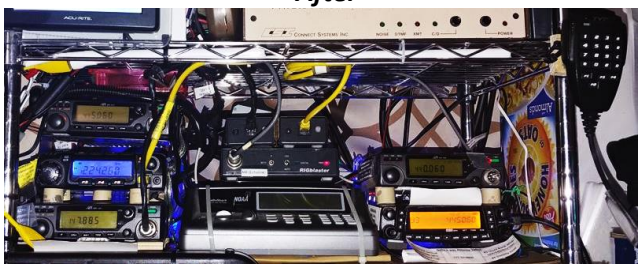
After much thought, Joe N6WZK, suggested separating the KM6EON-R transmitter and receiver to eliminate the background noise. The first challenge was to get enough free play in the antenna feed lines to these radios. This required the entire radio rack to move closer to the entry point of the station coax.

This forced the move of the dedicated EchoLink laptop from the right side of the desk to the center. All the EchoLink sound cards and related cables and wiring also shifted to the center of the desk behind the EchoLink laptop. As you might imagine, there were several cords and cables that need to be re-routed behind the desk. Luckily, they were all long enough.

On the radio rack, a major shuffle took place. See the photos below of the "before" and "after" layouts.

Before

After



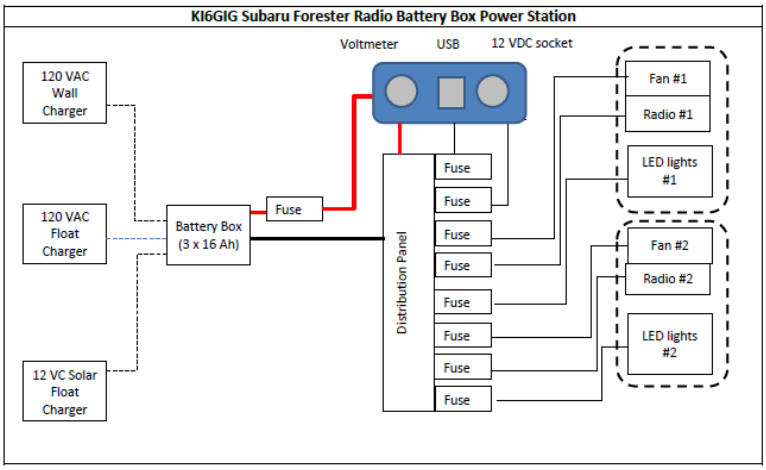
All transmitters moved to the left stack (top to bottom: 440, 220, 2m). Scanner and all Rigblasters moved to the center (top to bottom: 2m, 220, 440, scanner). The 440 Receiver and KI6GIG base station radio are stacked on the right. The separation of the 440 TX and RX helped to reduce the low background noise.

In This Issue

Planning the GECO Mobile Radio Power System

We have been thinking long and hard about how to safely power up our car mobile field radio systems. We had a miserable experience replacing the battery on our Subaru Forester 2015. We bought a new battery for the car at a local branch of a popular chain auto supply store. They offered to install the new battery for us. However, despite their reassurances that any problems created by the battery replacement/installation, the engine idle malfunctioned. They auto parts folks were not true to their word, and the car service bill to restore the idle control effectively doubled the cost of the new battery. Object lesson learned: there are so many different computer systems in new cars, you never know what trouble you can create in a newer car's electrical system. If a simple thing as replacing a battery caused trouble, there is no telling what might happen with a radio installation.

Our current game plan is to install a separate radio battery bank in the car and recharge it independent and separate from the car's electrical system. The photo on the right shows a typical GECO field battery box. It contains three 16 Ah deep cycle 12 VDC batteries. The wiring harness includes a 15-amp inline fuse, Anderson PowerPole connectors, and a 12 VDC accessory socket. The Anderson connectors are compatible with any GECO mobile radio or battery charger. The 12 VDC socket is for the Bao Feng HT battery eliminator and for solar trickle charging.



The diagram on the left shows the propopsed layout of the car radio battery box. Recharging could be done by 120 VAC commercial main power by regular or float battery charger. A 12 VADC socket is available for solar recharging.

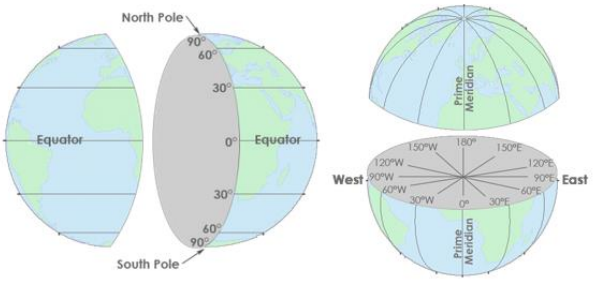
A fused distribution panel serves the USB outlets, a 12 VDC socket, and a volt meter. Additional fused outlets allow for two sets of. radios, cooling fans, and LED lights.

An independent battery bank for our radios may seem extreme. But it is simple solution. It avoids creating potentially complex and expensive complications in the car.

Do You Know Where You Are?

HAM radio spans the world. Its purpose was to promote international friendship and understanding via radio communications. Today, there are four commons ways for HAMs to describe QTH (station locations).

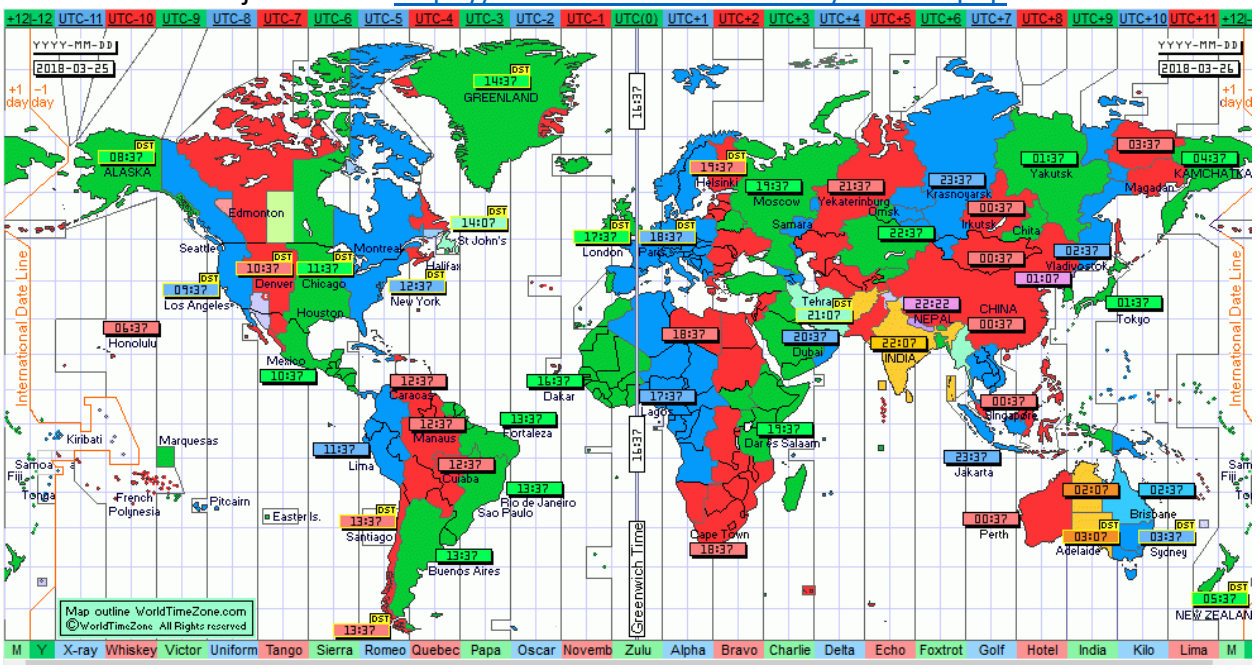
- **Geographic Coordinates** are very common. However, when Morse transmissions were common, latitude and longitude was deemed inefficient. It took too long to send.

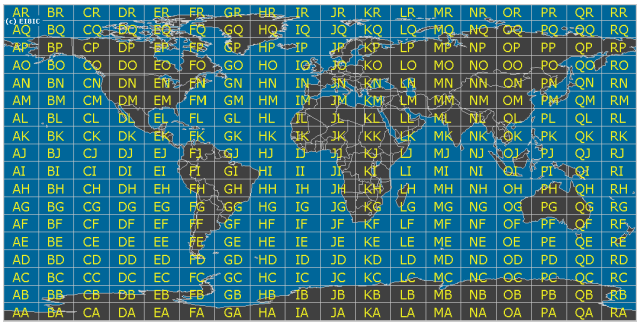


Latitude / Longitude coordinates are traditional for navigation.

FFI: https://gisgeography.com/latitude-longitude-coordinates/

The Geographic Grid is the foundation for establishing the UTC (Coordinate Universal Time) zones. The roots go back to the 1884 International Meridian Conference held in Washington, D.C., the local mean solar time at the Royal Observatory, Greenwich in England was chosen to define the Universal day. This gave rise to the term GMT (Greenwich Mean Time). The measurement of time is adjusted as our understanding and technology changes. The scientific definition and measurement of time is one thing. The Geopolitical reality is that nations also apply and use time as they see fit in their nation. Time zone boundaries do not strictly adhere to the geographic grid and the solar reality. For example, the continental US spans four time zones. PR China has a single time zone. On the other hand, the UK and France occur within the same time zone (UTC 0), but France chose to use UTC+1 time. Adjustments occur and can make it a bit confusing for HAMs making international contacts or planning worldwide events. We suggest making use of the following website to keep up with these adjustments. https://www.worldtimezone.com/index24.php

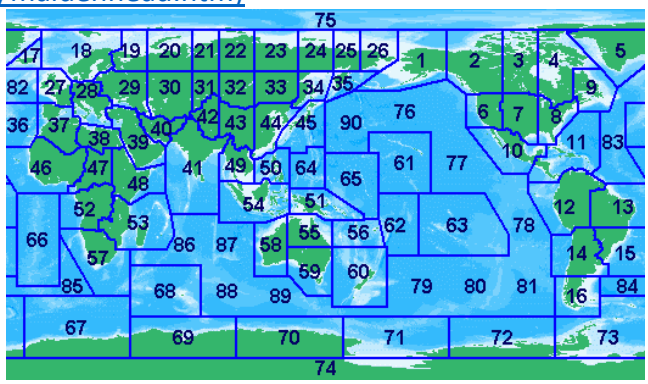




Maidenhead Coordinates make it easy to accurately transmit QTH locations in Morse code.

- **Maidenhead Coordinates:** In April 1980 a meeting of European VHF managers was held in Maidenhead near London, UK. Dr. John Morris (G4ANB) who proposed a system starting at the Greenwich longitude with 20 by 10 degrees "large units", 2 by 1 degrees "middle units" and 5 by 2.5 minutes "small units". In 1982 the "Maidenhead Locator System" was adopted by IARU Region 1 as the new locator system starting January 1, 1985. The system allowed a location to be transmitted accurately using only 6 characters: a pair of letters, a pair of digits, and another pair of letters. (FFI: http://www.jonit.com/fieldlist/maidenhead.htm)

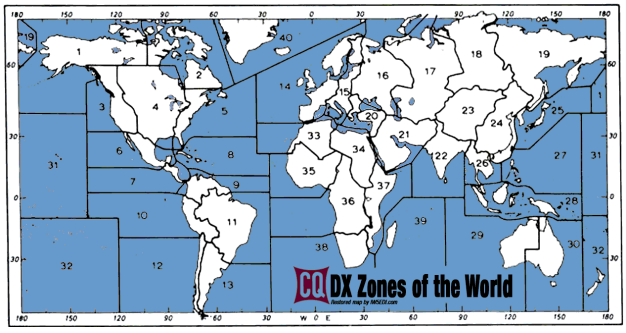
- **International Telecommunications Union (ITU) Zones:** Officially called CIRAF Zones (Spanish for *Conferencia Internacional de Radiodifusión por Altas Frecuencias*), the zones defined the operating areas for shortwave broadcasters. They were set by the World Administrative Radio Conference held in Mexico, 1948. The ITU Zone system, devised by the International Telecommunications Union, uses 89 zones in three regions. ITU Region 1 is Africa, Europe and Russia, Region 2 includes all the Americas, Region 3 is Australia and southern Asia. Each ITU zone has a number which does not necessarily match national boundaries. There are no uniform rules concerning the zone boundaries. Each National entity has flexibility to apply the guidelines and use them as they choose. Deviations do occur among countries. When HAMs use ITU zones for contests, the contest organizers are may define the ITU zones for their own purposes. HAMs can do this because the ITU zones are not administratively separate from amateur radio. HAM contest organizers to use the ITU zones for convenience.



ITU Zone Map originally intended for professional shortwave broadcasters.

ITU is the United Nations specialized agency for information and communication technologies

- The CQ Zone system divided the world into forty arbitrary zones. It is the basis for the WAZ award (Worked All Zones). It is believed to have first appeared in *R/9* magazine in 1934 with K.V.R. Lansingh, W6QX, editor. It has been associated with *CQ Magazine* since the late 1940s. The awards have categories for RTTY, SSB, and Morse.



Putting It All Together

One of the best uses for location information is on a QSL card. Here is a sample QSL card from the KI6GIG issued to Mark, N7YLA. Look over the card and see how many different location information items you can find.

Confirming contact w/	UTC Date / Time				MHz	Mode	Note	Thanks for the QSO
	Year	Month	Date	Hr				
N7YLA (Mark)	2018	Mar	24	21:20	445.060	KM6EON-R EchoLink 717585	KI6GIG Control station operator	

Here is another QSL card example. See if you can find different location data being used on this card.

Confirming contact w/	UTC Date / Time				MHz	Mode	Note	Thanks for the QSO
	Year	Month	Date	Hr				
x (x)	2018	x	x	x	N7YLA-L	EchoLink	N7YLA Station Operator	