Grassroots Emergency Communications Operations

Sticky Notes

GECO Newsletter
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Ready to Serve and Sustain Our Community

Announcing H_2OH: Hams Helping Other Hams

In various conversations with Joe, N6WZK, over the past year or more, a common topic that recurred was a feeling that HAM radio has changed from one of openness and sharing to one of exclusion or at least less inclusive as it was in the past. The validity of this perception is not so important. The perception is relative to the place and HAMs you know. What is more important is what you do if you share this perception.

Greg KI6GIG and Joe N6WZK in a discussion over coffee.

Joe expressed a keen desire to "Elmer" others. This is a long standing tradition in HAM radio. Older, more experienced and knowledgeable HAMs would mentor and guide younger, less experienced HAMs. The lack of opportunity is multi-faceted. Removing the "code" requirement from amateur licensing produced a surge in new amateurs. But a quick survey of many HAM clubs shows the members tend to be older. The younger generation, the digital kids, don't seem to be drawn to HAM radio as in the past.

Greg KI6GIG and Joe have done a bit of outreach with some limited success. In the local area, they presented a talk to introduce EchoLink at two different area club meetings. Joe offered to help anyone set up their EchoLink station. The most effective outreach has been via the KM6EON-R node 717586 with the West Bengal Radio Club in Kolkata, India.

Greg has created the H_2OH logo by taking the Chinese characters for "forest" and adding a horizontal line to create a stylized graphic of a bridge. (See the Zakim bridge free icon from on the Internet shown on the left).

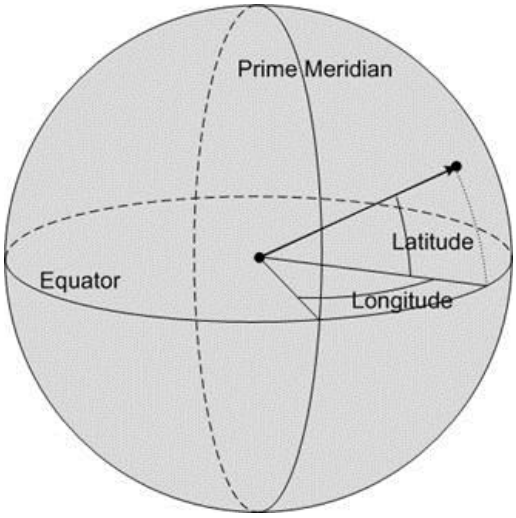
Some HAMs are so immersed in the myriad details of the technology they have trouble "seeing the forest for the trees." The bridge symbolism represents the idea that Elmers help to bridge the knowledge gap for other hams.

In This Issue

Reporting Locations

Every location measurement system is either "finite" or "relative". Finite measurements are referenced to a "standard" scale or system. (Philosophically, this makes them "relative" to the reference. But let's keep it simple for now.)

Latitude, Longitude, and Elevation are the global equivalents of the X, Y, and Z axes of geometry. Hey are based on the center of the Earth, the Prime Meridian, and the Equatorial Plane. This results in a finite and unique way to locate every point on the surface of the Earth.



Latitude and Longitude measurements are based on the center of the Earth, the Prime Meridian, and the Equatorial Plane.

Latitude and longitude are angular measurements from the center of the Earth. Latitude is given before longitude. To avoid confusion, notice this is in alphabetic order: "La" comes before "Lo". Traditionally the format was degrees, minutes, and seconds. Latitude ranges from the Equatorial Plane (0°) to North or South Pole (90° N or 90° S respectively). Longitude ranges East or West of the Prime Meridian (0°) to the International Date Line (180°). With the advent of computers and Global Positioning Systems (GPS), an alternative format is decimal degrees minutes and seconds.

Elevation is the distance of a place referenced to "mean sea level." In most cases, the elevation is "above mean sea level (amsl)". However, there are places below mean sea level (e.g. the Dead Sea, Death Valley, etc.). [**Note:** Do not confuse elevation with altitude. The two terms are often used interchangeably as both are linear height measurements. The Earth's surface is solid (land or ice) and liquid (water, most often the oceans). Elevation is the height of a place above mean sea level. Altitude is used to indicate the height of an object above the earth's surface.]

Street level view of the KM6EON-R QTH.

For example, the location of the KM6EON-R station is at 34° 5'42.57"N (34.095158°),118° 8'11.95"W (-118.136654°) at an elevation of 521 ft amsl. You can't get more precise in specifying your location.

Relative locations are more common place in every day speech and use. I am three block west of Main Street and Commerce Street. Or, my QTH is north of Bell, CA. The hotel is 3 miles west of the airport.

For emergency communications, it is necessary for you to be as precise as possible in giving locations. The destruction rendered by a tornado, tsunami, or cyclone can affect a large area and be so complete that common local

street signs no long exist. Or in remote areas where street signs don't exist, giving your decimal latitude and longitude is more useful for relief helicopters coming to your rescue. This is because of the use of digital electronic navigation systems. Giving them traditional latitude / longitude coordinates requires conversion to a digital format. This can take time and introduce errors.

In local emergencies (e.g. fires, road accidents, etc.), the more specific location information could be a street address, a highway distance marker, or a well-known local landmark. The idea is to give the emergency service responders as specific a location for the incident as possible. Minutes and seconds lost getting to the site could mean lives lost.

For road accidents, be sure to give the highway number, mile marker, which side of the road, and be specific about the help required. You don't want them searching for the location. [**Note:** Remember, an emergency is an incident which threatens life or property.]

If you are near the coast, there is a chance you could hear a maritime distress call. In this case you might get an absolute location (latitude/longitude). If not, then it might be relative to a known shore location. For example, "About 25 miles SW of Pt. Mugu, taking on water fast, no pumps working."

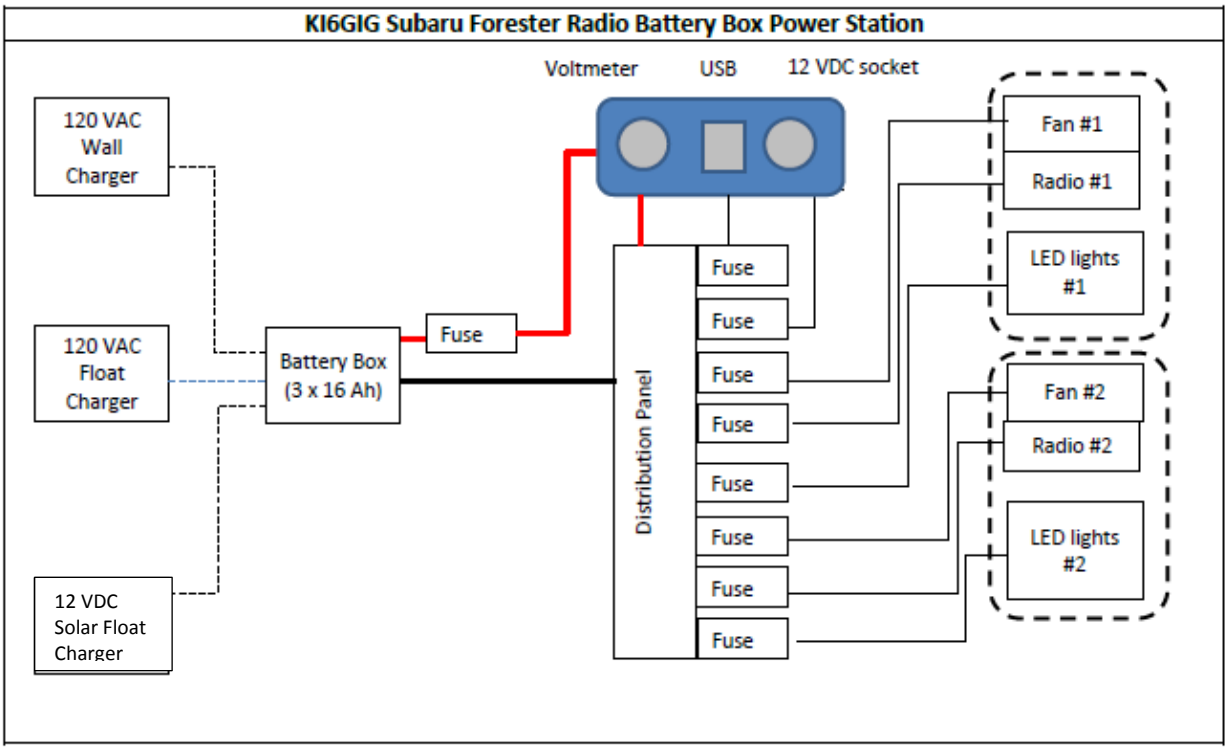
Just think of it this way. If someone you involved in an accident and call for help, you can see the difference in tell the police: A) I had a car accident with serious injuries in Los Angeles or B) I had a car accident with serious injuries at the SW corner of Vermont and Wilshire, in Los Angeles. Of these two calls, you can see call B would have responders arriving faster.

The emerging finite location / addressing system is the three word address. It lays a 3m x 3m grid over the surface of the globe and uses common words in combinations of 3 to recreate unique three-word addresses for each grid square. Now, tens of thousands of people living in previously unaddressed locations can be uniquely located. To learn more about this by going to https://www.ted.com/talks/chris_sheldrick_a_precise_three_word_address_for_every_place_on_earth

Planning the GECO Mobile Radio Power System

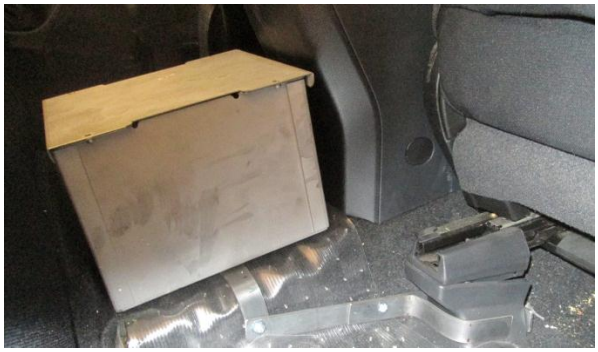
We are trying to set up our 2015 Subaru Forester for field radio work. We decided to avoid tapping into the vehicle's electrical system for fear of disturbing the computers. [**Note:** We recently had to replace the battery. We had the store where we bought the new battery install it. The simple process of installing a new battery disrupted the computer controls for the idle.]

To simply things, we opted to install a totally separate bank of three 16 Ah batteries for our radios. The diagram below shows the overall independent system.

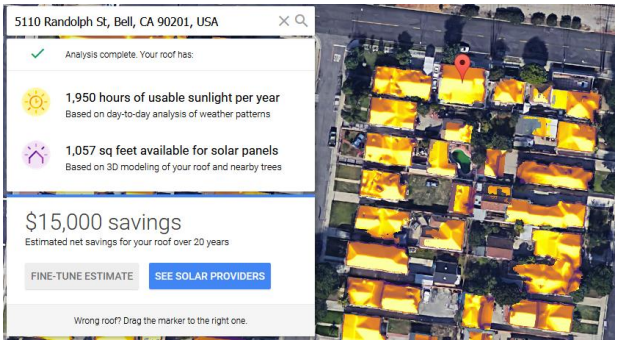


This battery box power system is intended to support 2 field radios and a portable EchoLink Link station. The power for the computer will be via an inverter plugged into the 12 VDC socket near the distribution panel.

Recharging the batteries will be done using commercial main power when the vehicle is back at the QTH. A 12 VDC solar float charger will be used when in the field.



Estimating Solar Potential for Your QTH



There is an easy way to determine the solar potential for your QTH. To make your station more resilient, you should consider going solar. Go to Google's "Project Sunroof" at https://www.google.com/get/sunroof#p=0 . Follow the prompt and type in your address. The program reports the number hours of usable sunlight per year and the roof area available for solar panels. They also estimate the total savings for the 20 year life-span of the system. However, the actual amount will vary depending on a number of variables, include the local regulations and utility rates. The program estimated the size of solar system and estimates the roof area needed. In the

example above, a 3.25 kW system would use 229 sq. ft. of roof surface. This provides 98% of the monthly electricity used. (This is based on average use for the area and not the actual usage of the sample house.) The system lets you input your average monthly utility bill to refine the calculations.

At this point, you can decide if you want to use the solar for your entire house or just for your radio station. Powering up just your shack would be less than the entire house.

KE7FXM Went Solar About 2012

Jimmy KE7FXM got his HAM station off the grid as far back as 2012. He got some used solar panels. He found dog shelters at a yard sale, and salvaged 12 VDC batteries. He's station in Oregon was solar. Now that he is in Alaska, the goal is the same: Go Solar!