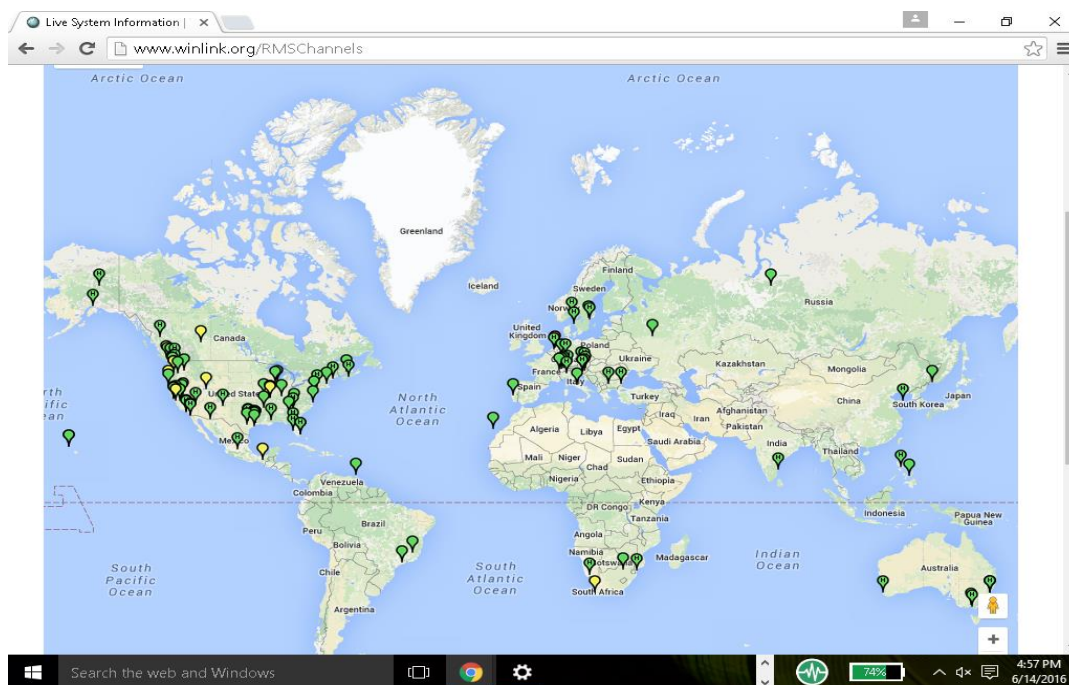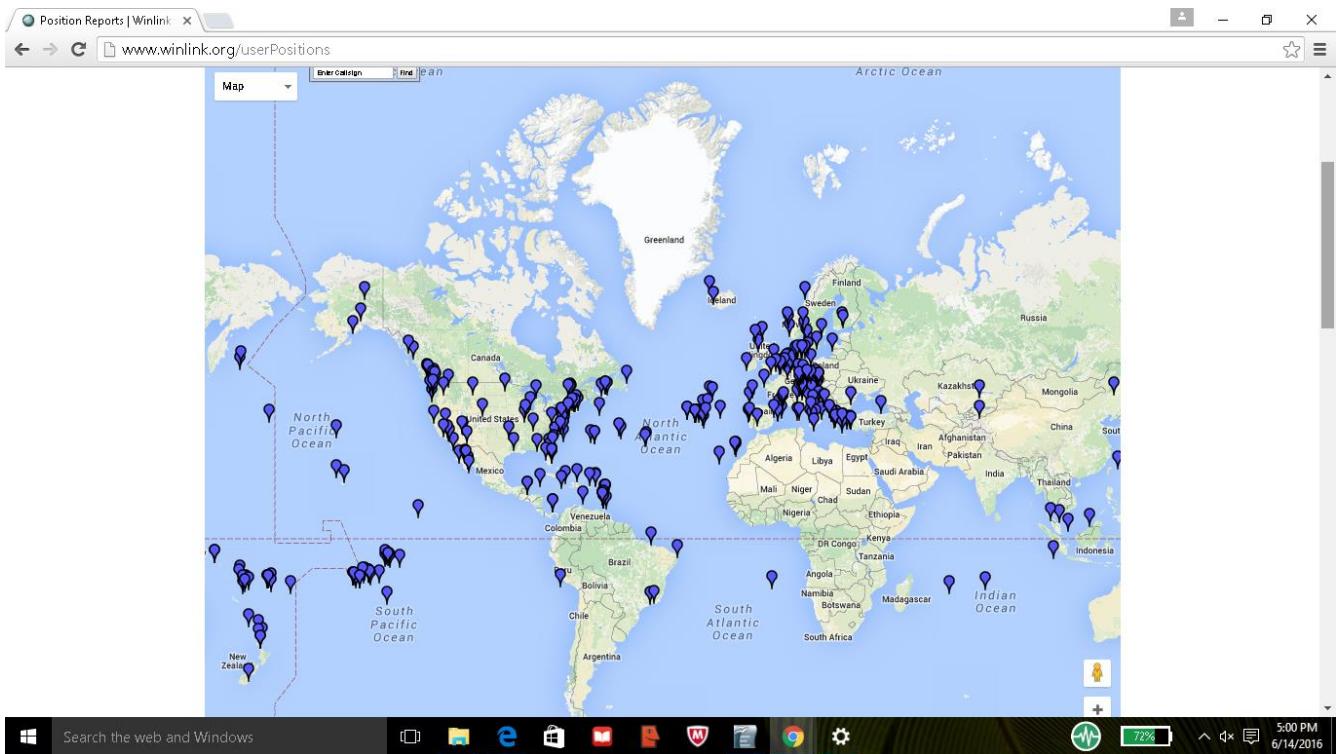# WINLINK
EMAIL OVER HAM RADIO

- Unique public service that provides boaters, missionaries & others email access & weather information from anywhere on the globe, via amateur radio
- Tens of thousands of messages moved through the system every month
- Operates on HF and VHF, multiple digital modes (injected into mic and sampled from speaker)
- Narrowband transmissions equal to or narrower than voice bandwidth
- Increasingly used as a backup emergency communication plan for Red Cross, Emergency Operations Centers, and even local, state and fedeal government
- Dispersed volunteer stations; system is more resilient to hurricanes & disasters than tower-based cell phone, repeater, or microwave public safety systems.
- *A useful skill to have in your emergency communications bag of knowledge*

Access is as easy as common digital modes such as PSK31 – a sound card and free software and you can get a free access account.

Map of HF volunteer server stations all over the world. There are additional VHF stations not shown.

Typical map of actual current users, including mariners on all the oceans as well as land-based users

Free Software does Email over Radio – multi-colored dialog box helps you find "easy" (green) versus "hard" (red) HF-propagation targets (middle right of screen) while a software-based Terminal Node Controller (TNC) allows a simple sound-card type interface to do digital by sending

and accepting audio tones from your speaker/mic. Remainder of the software acts much like any other email/attachment application.

Boats & Emergencies
WINLINK meets the needs of boaters needing a way to reach loved ones at home, as well as getting crucial weather information. But it also has a special place in emergency communications, because of its ability to use virtually any SSB or FM transceiver – from any manufacturer – to transmit email and attachments when normal communications system are down or overloaded.

Detailed lists of needs, supplies, volunteers – all the intricate data needed to keep shelters operating during emergencies – can easily be transmitted by WINLINK. Faster and more accurate than voice transmissions for such important details. Voice is quick and easy and certainly fills many rolls – but when more than just a few words need to be accurately passed, WINLINK is a good fit.

Backup Internet
In large scale Internet loss, WINLINK has automated smart-radio-routing which will get the messages through – though not as fast, of course. Email is routed from one server to the next until it reaches a "Message Pick Up Station" the intended recipient has pre-selected and designated.

Free
Any licensed ham can get an account. You'll have a new email that ends in @WINLINK.ORG WINLINK EXPRESS client software is free (previously named RMS EXPRESS). Like most capable systems there's some details to learn, but help files and youtube videos abound to make it simple. (There's a place to donate, but it is optional.)

LINKS TO START WITH:
Free software: http://www.winlink.org/RMSExpress

Quick Start Information: http://www.winlink.org/content/quick_start_links_mariners_and_everyone

YouTube video series by Rick Frost K4REF: https://www.youtube.com/watch?v=tI7G0WFLhIo

Slightly older but voluminous information on WINLINK:
http://wx4j.com/MDCWL2KOVwAM.htm#_Toc334858010

EMERGENCIES
As you can imagine, with any communications system 2 decades old, WINLINK has been used in distress situations from many, many boats. As well as in Katrina. And in ice storms. Practically any weather emergency you can think of where towers buckle and microwave dishes get iced over or bend. HF stations have long-distance ability to jump right out of the disaster area and get crucial information in and out. Packet and other VHF systems can be easily repaired – even a dipole will work – and keep on serving even in a catastrophe. WINLINK is another great tool to have in your bag of skills if you are in emergency communications!

EQUIPMENT

- Any audio interface that works for digital is likely to work for the WINMOR audio protocol that is one of the easiest to use with WINLINK. Because this is a fast-paced acknowledge/repeat error-free communications protocol, fast transmit-receive switching times are important, so simple mic-to-speaker that works with PSK31 won't work here, but a simple one-transistor push-to-talk switch driven by a serial port works!   The popular Signalink-USB's are very popular

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- Packet TNCs are common on VHF WINLINK.

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- Higher-throughput and serious emergency communications outlets move toward the PACTOR modems, despite their higher cost.

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- Even vacuum tube older SSB gear can work fine for WINLINK, but you do need to hit the published frequency of your intended server station within +/- 200 Hz.   Using a frequency counter or a digital dial can be a huge help here.   When you connect, you'll get an indication of how far off you are, that can help with the next contact.

PROPAGATION-- ON HF

Skip via the ionosphere varies from hour to hour and from day to day.   WINLINK takes advantage of a free U.S. Government created propagation software to give you up to the hour predictions of which servers you are likely to reach.   You'll probably find that during the daytime, there are fewer "easy" targets, while as soon as the sun sets there are dozens you can easily reach.