

5th Annual

2007 Medical Reserve Corps National Leadership and Training Conference



FORGING POWERFUL PARTNERSHIPS



April 17–20, 2007

Providence, Rhode Island



USA 
Freedom Corps
Make a Difference. Matter.

citizen  *corps*

Getting the Word Back Home

How to communicate with deployed MRC members



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Westchester County MRC
Lead Instructor

HOMELAND SECURITY
ADVISORY SYSTEM



THREAT LEVEL
ELEVATED
Significant risk of terrorist attack
CLICK FOR ADDITIONAL THREAT INFO



- There are many examples of radios, software and interfaces used in this presentation. There is no endorsement, implied or otherwise, of any product. All products and product names are copyrighted by their owners.

Goals & Objectives

- Increased awareness of need for redundancy
- Types of communication options
- Resources & Methods
- Need for developing Communications plan
- How to get the word out

Background

- Identification of need based upon past experience
 - Hurricane Charley
 - Hurricanes Rita, Wilma & Katrina
 - Results of “mock” deployment
 - Best Practices from MRC’s across the Country



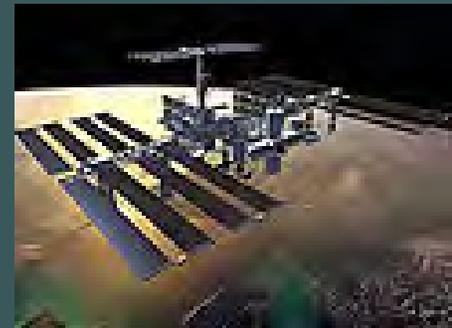
Galveston



New Orleans

Types of Communications

- Audio – Voice communications – plain English
- VoIP – EchoLink / eQSO
- Digital – much like the internet with text messages
- Video – SSTV
- Satellites and the ISS are used as well



Some "buzz" words

- Traffic (Messages)
 - Health & welfare
- NET (Gathering place / Time & Location)
 - NCS (Net Control Station)
- Radiogram (Like a telegram)
- ARRL (American Radio Relay League)



Organized groups (NETS)

- ARES – Amateur Radio Emergency Service
- RACES – Radio Amateur Communication Emergency Services
- SKYWARN
- MARS (Military Affiliate Radio System)
- SATERN
- MRC Net
- Hurricane Watchers NET



To name a very few.....

MARS



- Written documents impose their own kind of discipline for ANY communications that require accuracy, a permanent record, and point-to-point / point-to-multi-point distribution.
 1. For inoculation inventories.
 2. For prescription requests and inventories.
 3. For any communications that requires interfacing with the Internet e-mail system where it otherwise may not be available

MARS

Mobile HF rig and antenna: \$1,200...

PACTOR III Modem: \$1,000...

**Ability to send email when
commercial communications
systems fail: Priceless**

<http://www.winlink.org>



MARS / WINLINK 2000

Send an email from here? No problem.

Can your radio do that?

<http://www.winlink.org>



Winlink Message Summary

Common Message Server - System Traffic Summary

This Month's Traffic So Far

Telnet Messages Received or Delivered	50048
Telpac Messages Received or Delivered	8679
WEB Messages Received or Delivered	43
APRS Messages Received or Delivered	141
VHF Messages Received or Delivered	753
HF Messages Received or Delivered	48028
HF Minutes Air Time (All Stations)	144478
HF Average Minutes Air Time Per Message	3.01
HF Average Message Size (Characters)	3100
Total Messages Received or Delivered	107692

Last Month's Traffic

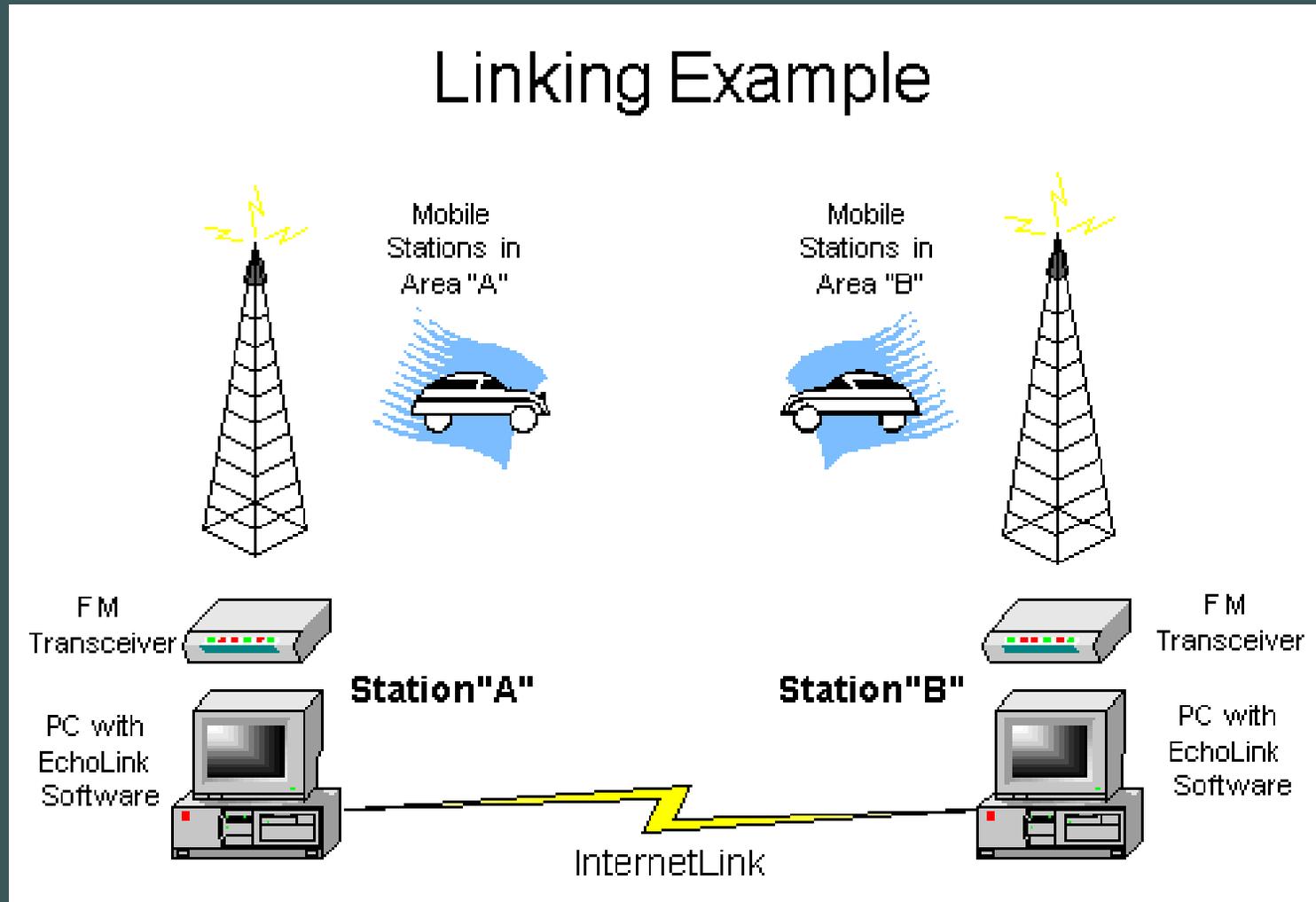
Telnet Messages Received or Delivered	66099
Telpac Messages Received or Delivered	10183
WEB Messages Received or Delivered	39
APRS Messages Received or Delivered	135
VHF Messages Received or Delivered	1314
HF Messages Received or Delivered	55276
HF Minutes Air Time (All Stations)	174711
HF Average Minutes Air Time Per Message	3.16
HF Average Message Size (Characters)	3402
Total Messages Received or Delivered	133046

How does it work?

- Here is what is needed:
 - Computer
 - Internet connection (*As fast as possible*)
 - Speakers (*Headphones may be better*)
 - Microphone
 - eQSO, CQ 100, WINLINK 2000 or EchoLink Software (*free*)
 - FCC Licensed, Amateur Radio Operator to use it

How does it work?

Linking Example



How does it work?

The screenshot displays the EchoLink - K1RFD application window. The main interface is divided into several sections:

- Station List:** A table listing various stations and their locations. The 'Germany' category is highlighted in the left sidebar.
- Station Summary:** A summary window showing overall statistics for the network.
- Connection Statistics:** A window showing detailed statistics for the current connection to the 'ECHOTEST' conference.
- Connection Status:** A green bar at the bottom indicates the current connection state.

Station List:

Station	Location/Description
DB0ANT-R	Wolfenbüttel 439.225MHz
DB0EIN-R	Einbeck JO41VU free
DB0EIS-R	Siegerland - DB0YS+0EIS
DB0EL-R	Munich Olympic Tower
DB0ERG-R	www.db0erg.de.vu
DB0FA-R	Fassberg - 438.600 MHz
DB0FCB-R	St. Arnold, 145.6125MHz
DB0FIG-R	Friedrichshafen
DB0GV-L	Frankfurt/Main Maintal
DB0GWD-R	Greifswald JO64QC
DB0GZ-R	Aifeld 439.350 Mhz
DB0HUS-L	Husum 144.975 (JO44ML)
DB0IGB-R	St. Ingbert / Saarland
DB0IK-R	nr. Arnstadt, Germany
DB0IO-R	DB0IO / Odenwald

Station Summary:

	Free	Busy	Total
Repeaters:	1179	65	1243
Links:	1079	369	1445
Users:	436	204	640
Conf Svcs:	189	0	189
Total:	2879	638	3517

Connection Statistics:

ECHOTEST - (confer... ip-68-178-200-46.ip.se...	
Sent	Received
Control Packets: 1	Control Packets: 0
Data Packets: 1	Data Packets: 45
Out of Sequence: 0	Out of Sequence: 0
Missed: 0	Missed: 0
Compensation: 0	Compensation: 0

Connection Status: Connected to: *ECHOTEST* (Conference [11]) CONF
ip-68-178-200-46.ip.secureserver.net

Ready | Connected | RX

EchoLink – validation needed

The following callsign(s) are registered with EchoLink:

Callsign	Status	Date Registered (UTC)
AA2SK	Already validated	2-Aug-2004

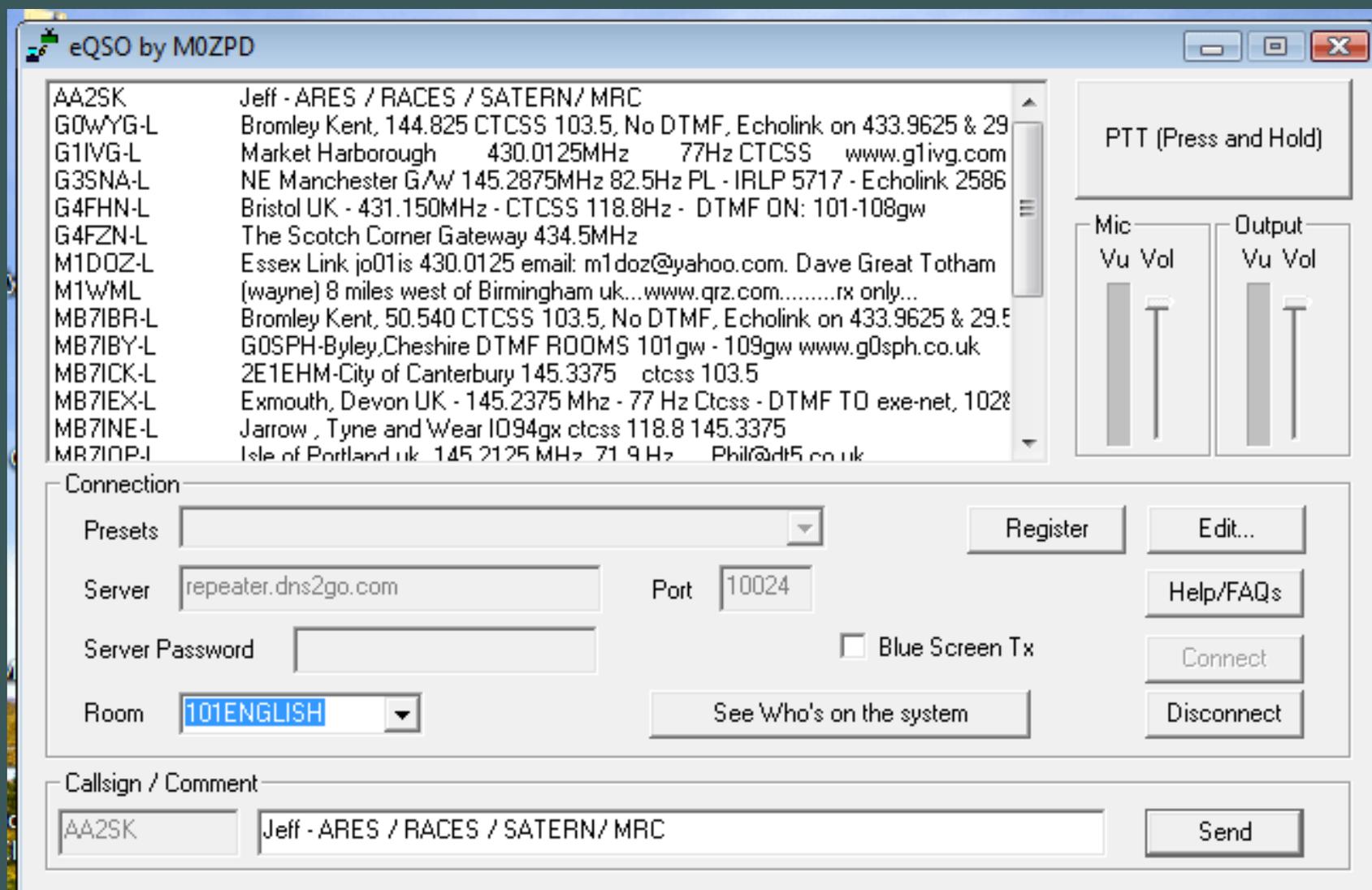


CQ100 – VoIP



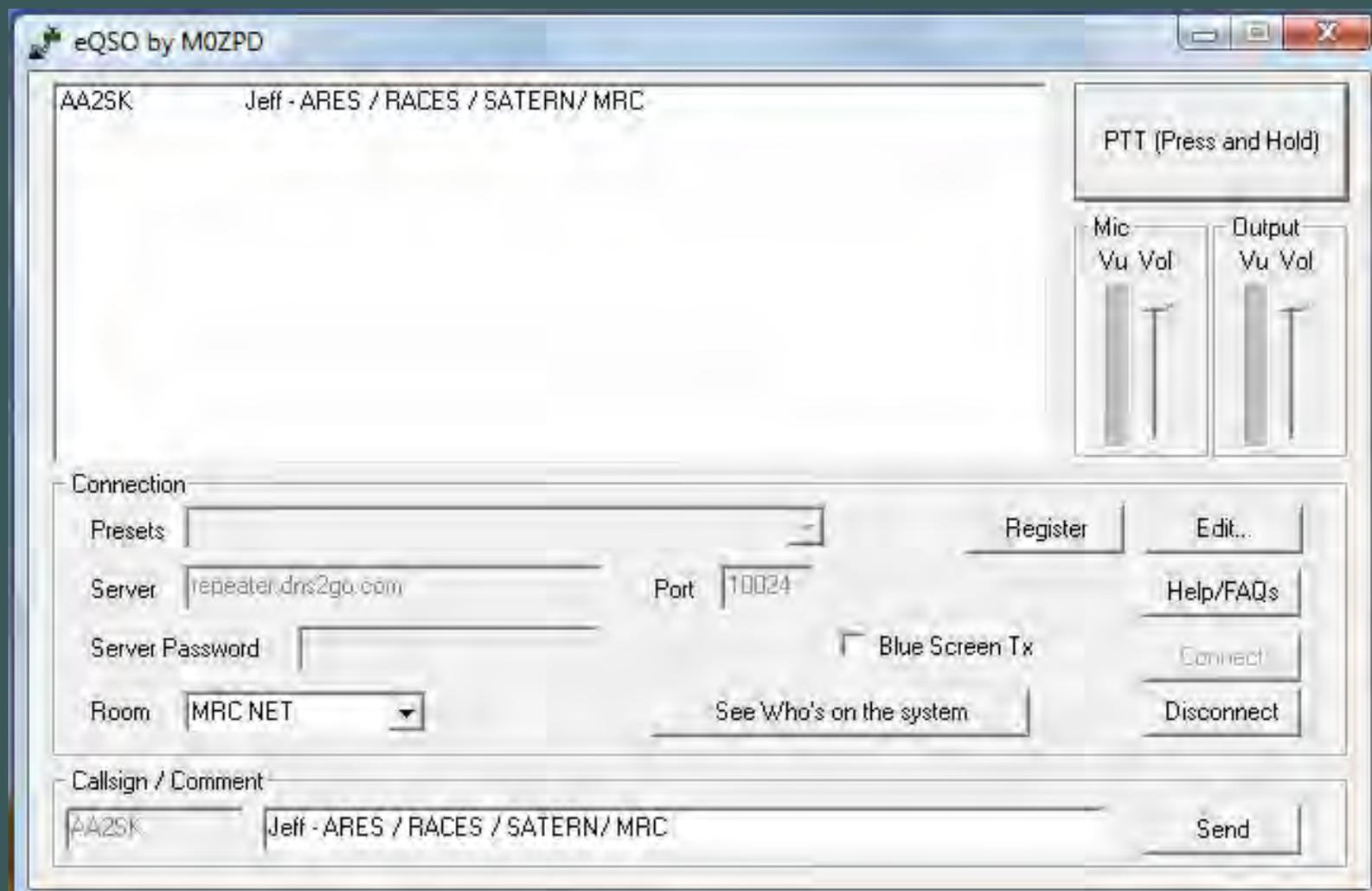
You will need to provide a picture of license – 90 day trial - \$32.00/year

eQSO & MRC NET



Text listing of all stations & locations available

eQSO & MRC NET



Be sure to install, validate and test the software. Be proactive!

How is the MRC NET different?

- Most all other NETS pass traffic into and out of an affected area for the services of the general population
- The primary function of the MRC NET is to facilitate traffic between MRC leaders “back home” and deployed MRC members “in the field”

Other options.....

Family Radio Service / General Mobile Radio Service

- FRS / GMRS Radios
 - For GMRS an FCC license is required (\$80),
 - Line of sight (FRS)
 - Repeater's available in many areas for GMRS



Good for incident location

GMRS Frequencies

Designator	Lower Frequency	Upper Frequency
"550"	462.550 MHz	467.550 MHz
"575"	462.575 MHz	467.575 MHz
"600"	462.600 MHz	467.600 MHz
"625"	462.625 MHz	467.625 MHz
"650"	462.650 MHz	467.650 MHz
"675"	462.675 MHz	467.675 MHz
"700"	462.700 MHz	467.700 MHz
"725"	462.725 MHz	467.725 MHz

GMRS Power

- 50 watts maximum on the “regular” frequencies
 - Handhelds usually transmit from 1 to 4 watts
- 5 Watts on the “split” frequencies

At the nearly “line of sight” frequencies of GMRS, communications range is affected more by antenna height than by transmitter power



REACT

- R*A*DIO
E*M*ERGENCY
A*S*SOCIATED
C*O*MMUNICATIONS
T*E*AMS



REACT Contact Information

***REACT* International, Inc.**

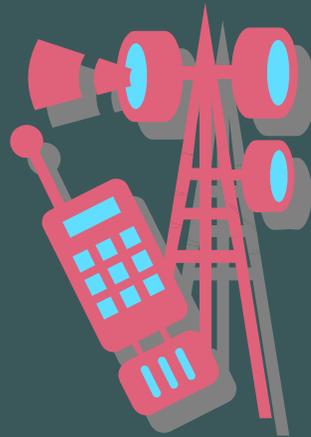
5210 Auth Road, Suite 403

Suitland, Maryland 20746

www.reactintl.org

Ham Infrastructure

- Many many hams have generation, back up power, back up antenna systems and alternate means of communications
- REDUNDANCY



Ham Infrastructure

- Natural disasters won't disable amateur radio as it will cell phones, land line phones and other conventional means of communications. Why?

Because Ham Radio Stations, in many cases, are “stand alone” entities

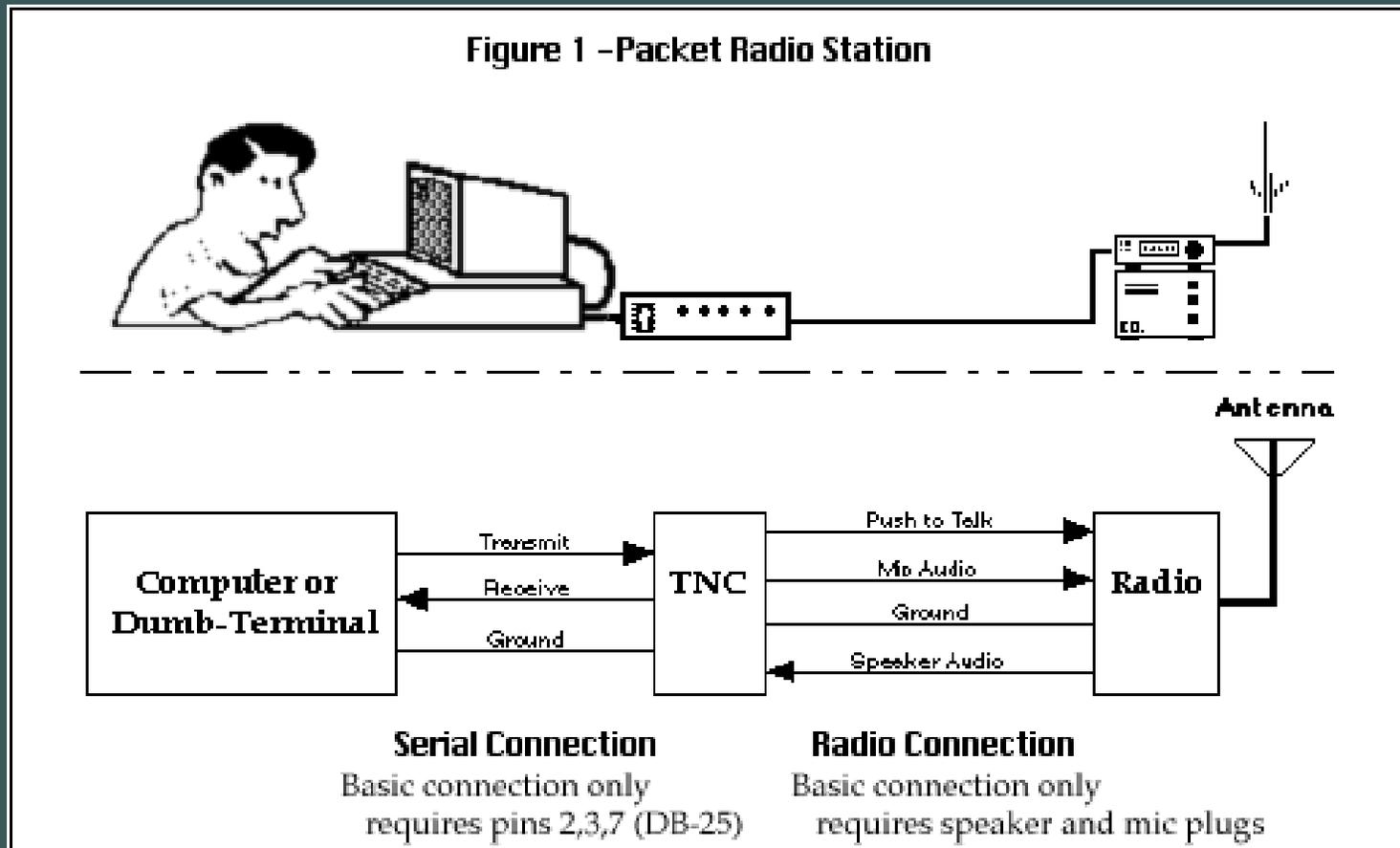


Packet Radio Communications

- Digital communications
 - Very similar to conventional email
 - No voice communications involved
 - Text messaging
 - Digipeaters (like voice repeaters, only for data)

Packet Radio Communications

Figure 1 - Packet Radio Station



<http://www.fadca.org>

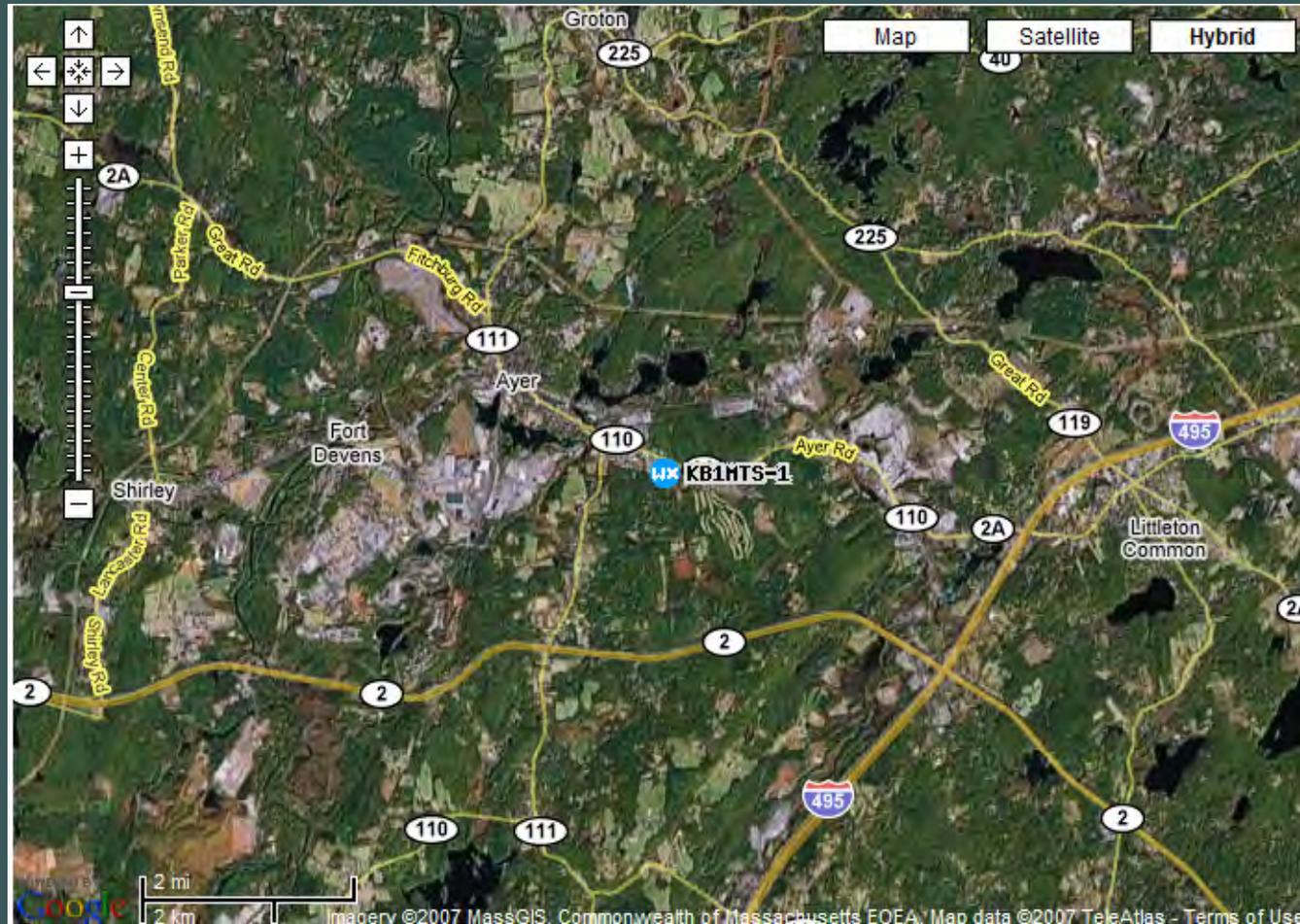
Florida Amateur Digital Communications Assoc.

Automatic Position Reporting System

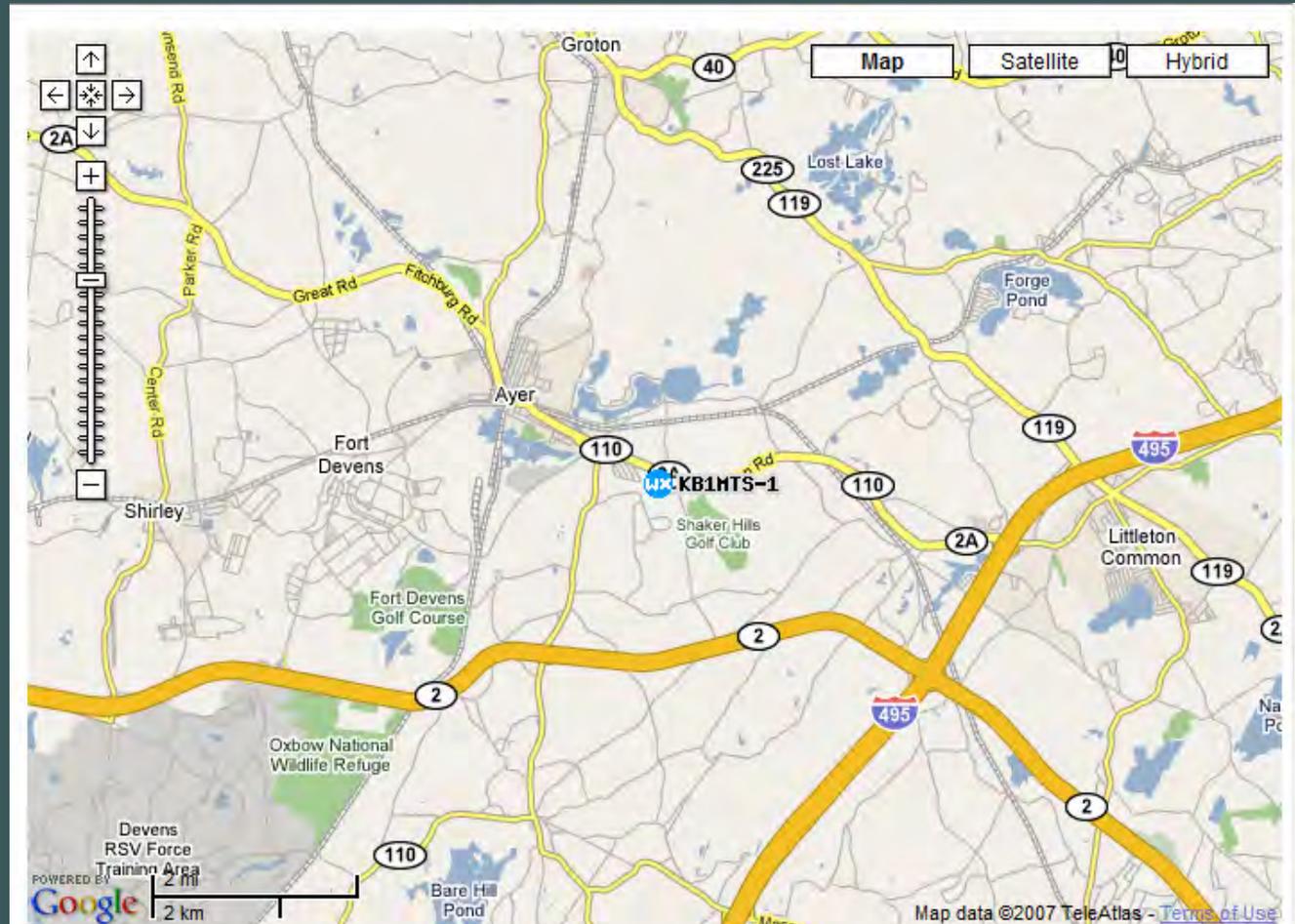
APRS



Automatic Position Reporting System APRS

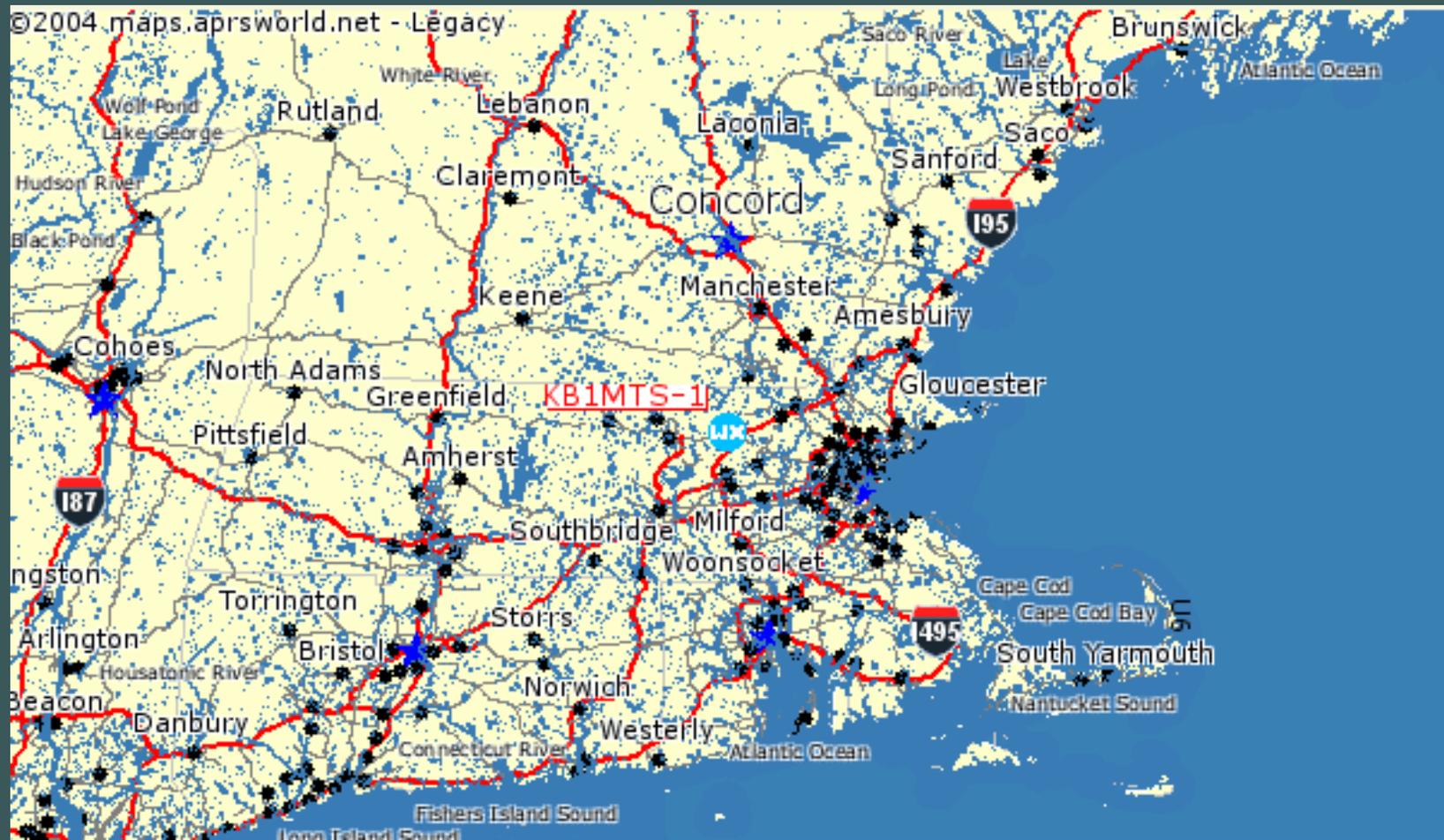


APRS



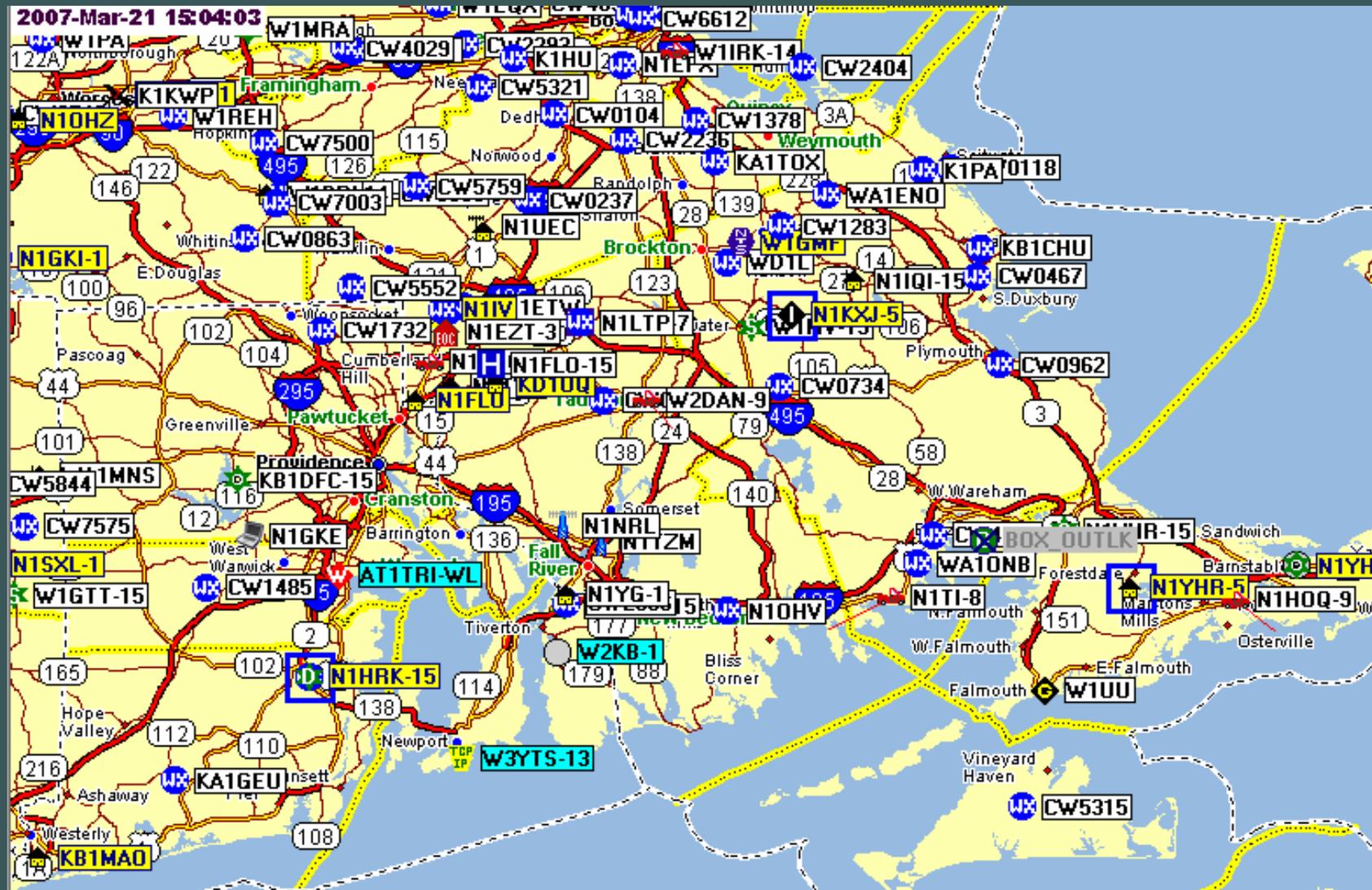
Ability to visually track, direct or locate stations

APRS - Wide shot



<http://www.findu.com>

APRS – Real Time



Stations on the map starting with CW are "Citizen Weather" APRS Stations

APRS – Weather Stations

Page Refreshes Every 3 Minutes
Times are 24 Hour Clock Times

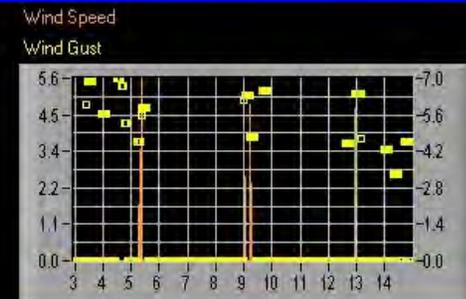
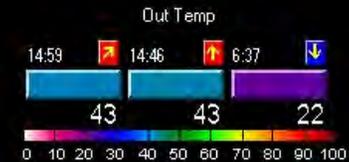


Click on Image
to access
Weather Underground

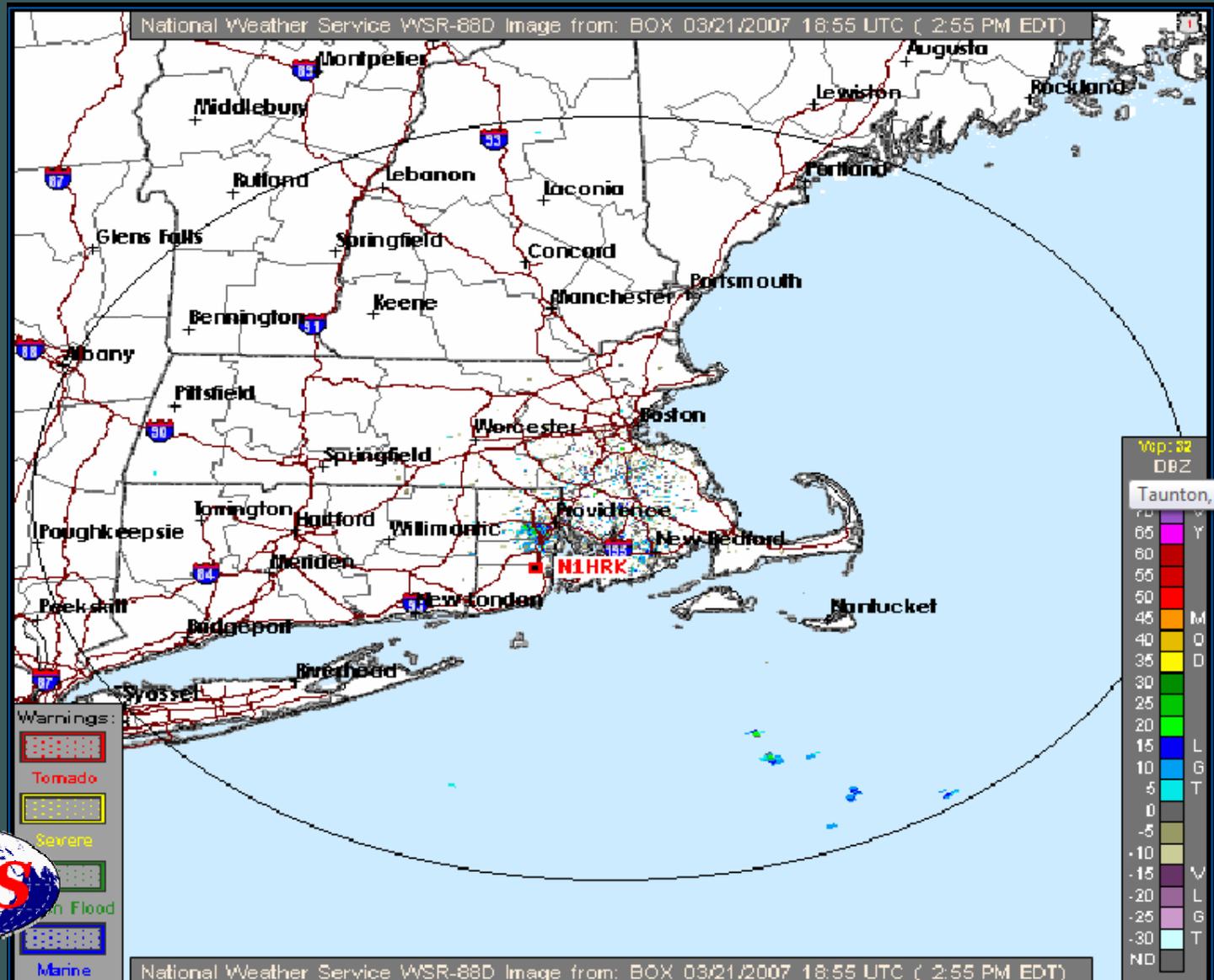
N1HRK
North Kingstown, Rhode Island

3/21/07 14:59

TEMP	WINDS	CURRENT	ALMANAC
<p>High 43° Low 22° Rate 1.4°/hr 43°</p>	<p>0mph SW (217°) Gust: 0mph</p>	<p>Humidity: 49% Dew Point: 25° Wind Chill: 43° Barometer: 30.66in -0.06in/hr Rain Today: 0.00in Hourly: 0.00in Monthly: 5.13in Total: 12.17in</p>	<p>Sunrise: 6:46 Sunset: 18:57 Moonrise: 7:54 Moonset: 22:42 Moon Day: 3</p> <p>10%</p>



APRS – Weather Stations



APRS

- GPS with a data port
- APRS ready radio with GPS interface



Slow Scan Television (SSTV)

- Transmission of “still” video from station to station
 - Forward deployment
 - Near real time visual information
 - It is not “live” video in the customary sense
 - Webcam images or Digital Images

SSTV – What you need

- Ham Radio
- SSTV Software
- Camera
- Interface



An example of SSTV Hardware

- Portable SSTV unit 1/4-inch, 270,000-pixel CCD camera 360-degree rotatable and detachable camera head 1.8-inch TFT color LCD monitor Up to 10-picture memory Built-in microphone and speaker Connect to a Kenwood handheld, mobile or HF transceiver with an optional cable Power supply: AA alkaline batteries (4) Computer connectivity with an optional connection kit*



Actual SSTV Pictures



Mobile Communications



This is not an example of being mobile!

Mobile Communications



Mobile Communications

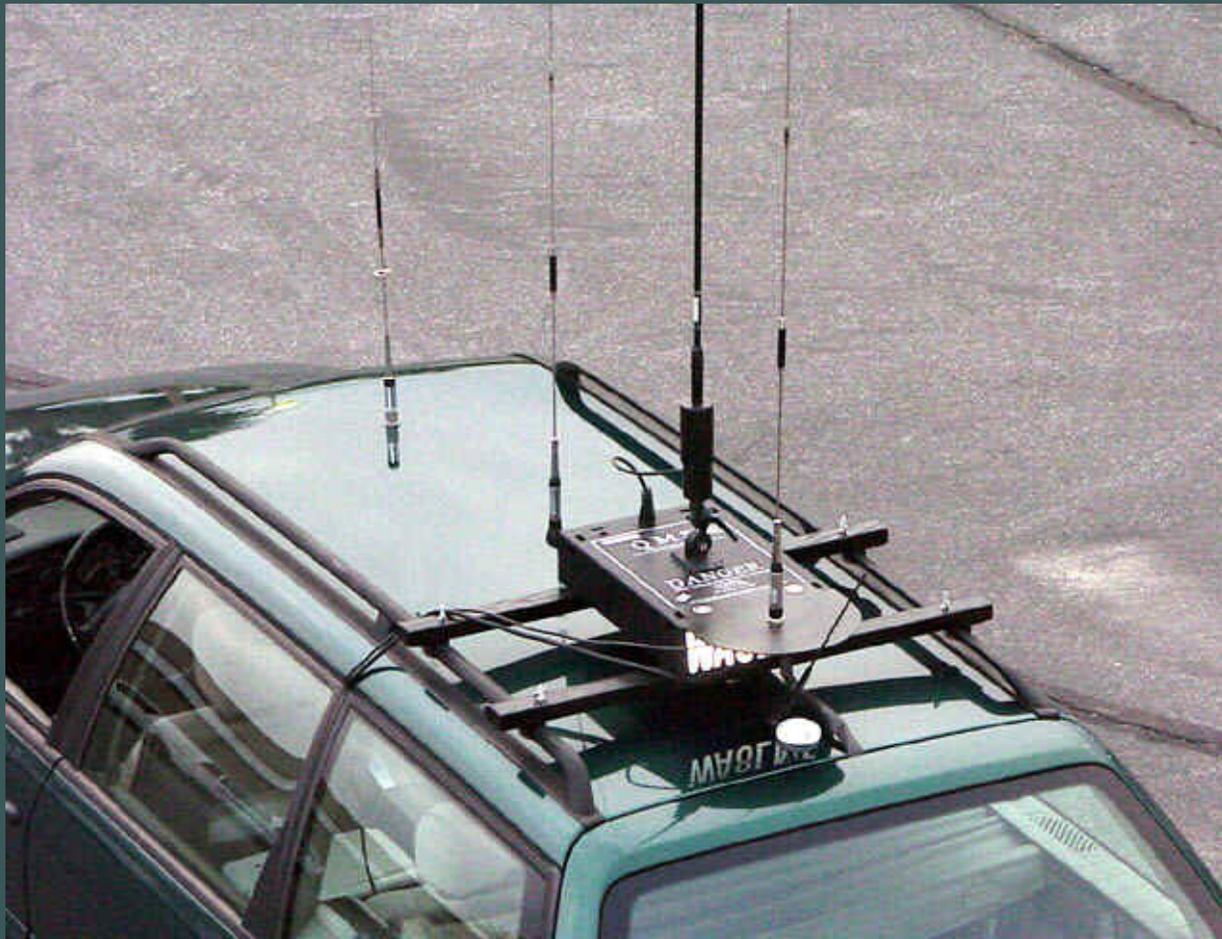


Photo by WA8LMF

Mobile Communications



Photo by WA8LMF

Mobile Communications

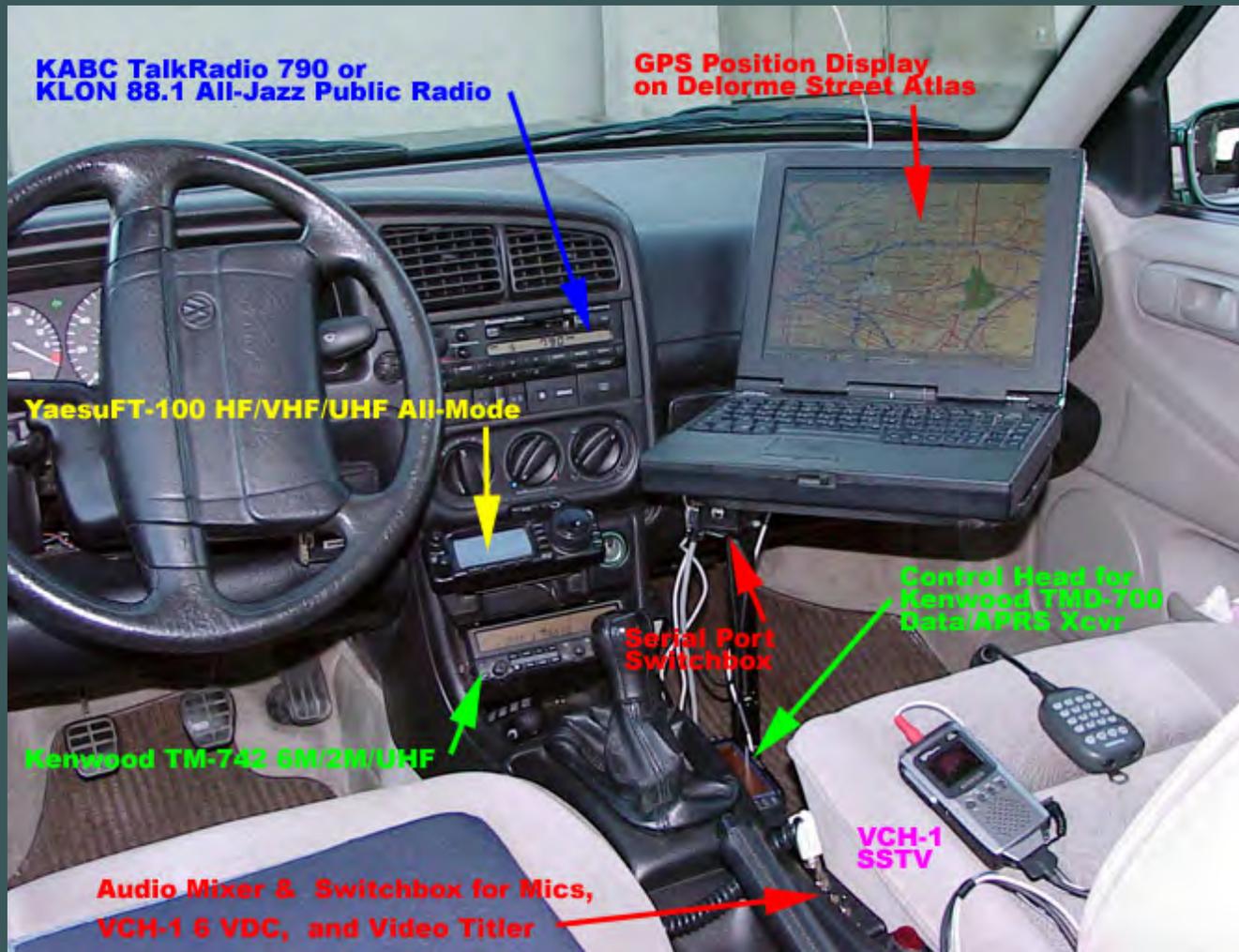


Photo by WA8LMF

To learn more about ham radio.....



"Hello..."

Celebrating 100 Years of Voice over Radio Worldwide

100 Years of Voice | What Is Ham Radio? | "Why I Love It!" | Become a Ham | More Info



Imagine sitting in your room talking to people in distant lands – senators and sailors, astronauts and farmers.

Imagine hearing world events as they happen. Listening to far off places with strange names.

Imagine hearing a voice break through the air calling you --

"Bonjour"



The American Radio Relay League
225 Main Street
Newington, CT, 06111-1494 USA
Tel: +1-860-594-0200
hq@arrl.org

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www.arrl.net

Some interesting web sites:

- The ARRL "Getting Started" Page" <http://www.arrl.org/hamradio.html>
- The W5YI group at www.w5yi.com
- The QRZ Ham Radio callsign lookup service at www.qrz.com
- The Tucson Packet Amateur Radio group at www.tapr.org
- The Electronic Ham Radio operators at www.eham.com
- The Ham Radio Magazine "CQ" at www.cq-amateur-radio.com.
- Nuts and Volts Magazine at <http://www.nutsvolts.com/>
- The Radio Amateur Information Network (R.A.I.N.) at <http://www.rainreport.com/>

Practice, Practice, Practice!



How you can get involved

- Contact local ARES / RACES organizations in your service area
- If they aren't familiar with the Medical Reserve Corps, educate them.
- Give them information about the MRC NET and how it's function is different from their NETS, and won't encroach upon their much needed participation.

FEMA & RACES

- Guidance For Radio Amateur Civil Emergency Service
- Civil Preparedness Guide
Federal Emergency Management Agency
Washington, D.C. 20472
CPG 1-15



Communications Planning



Communications Plan

- Develop your baseline
 - “If I had to deploy my unit today.....”
- What resources are available to me
 - Examine options available locally
 - Don't reinvent the wheel! – NETWORK
 - Examine Best Practices and Ask Questions
- Do I need a communication “team”
 - Is it appropriate to assign a comm officer?

Communications Plan

- What equipment is available to my unit *now*
 - Radios
 - Computer(s)
 - Software – with backup copies
- Comm Policy
- Comm Procedure
- Local OEM / EOC
- ARES / RACES / REACT / FRS / GMRS / MRCN

Communications Plan

- Drill the plan
- Critique – “Hot wash”
- Make necessary changes
- Re-drill the plan
- Share lessons learned on the MRC message board.
 - <http://www.medicalreservecorps.gov/login.asp>
 - If you don't have an account, you can create one.

Questions & Wrap up



Photos by Matt Hackman

When in Rhode Island....



The New England Wireless and Steam Museum, Inc.
1300 Frenchtown Road, East Greenwich, RI 02818-1424