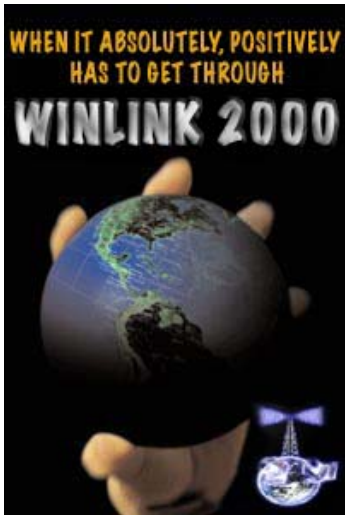




Winlink 2000

Digital Messaging in the 21st Century



Gary J Takis, K7GJT – NNN0KUL

Clark County Amateur Radio Club Meeting 3 April 2009

K7GJT@arrl.net - K7GJT@winlink.org - NNN0KUL@winlink.org

Subjects to cover

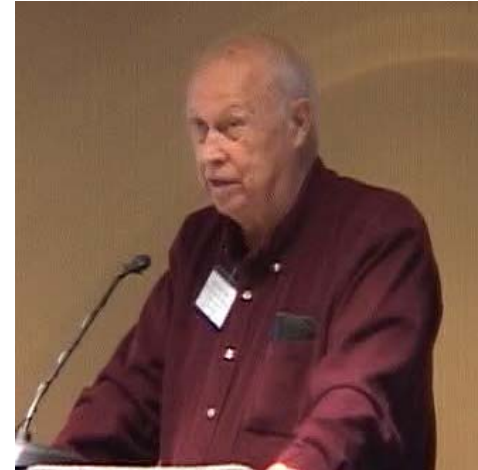
- What is WinLink?
- The Founders
- The History
- The Mission
- The System 1
- How does it work?
- CMS Topology
- RMS Topology
- The System 2
- The Users
- The Real Users
- Why WL2K for Emcom?
- What's Up?
- The Client Programs
- Airmail & Paclink
- Does it really work?
- URLs of Interest
- Credits
- Questions...

What is Winlink?

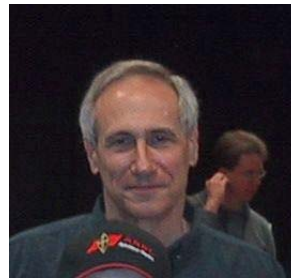
- Winlink 2000 (WL2K) is a global amateur radio service. Remember, ***there is no privacy over amateur radio.***
- It is subject to amateur radio regulations of the country where each participating station is located.
- On **HF PACTOR**, the radio users of the Winlink 2000 system initiating a contact are present as control operators, and therefore, WinLink 2000 operations do not fall within the category of "automatic control" per U.S. FCC Part 97.221 as described within Part 97.221, such operations are either under "automatic control" or "local or remote control."
- Winlink 2000 complies with FCC Part 97 Section
 - §97.109 Station control, for 3rd Party traffic rules
 - §97.219(c) for 3rd Party traffic Content Rules
 - §97.309 for data emission codes
 - §97.403 Safety of life and protection of property

The Founders

- What is now the Winlink 2000 development team has evolved since the early 1980's. The original program, Amlink (Amtor-Packet link), an earlier DOS-based mailbox program and the first versions of Winlink were the brainchild of **Victor D. Poor, W5SMM**, then a semi-retired engineering executive and one of the major forces behind the development of the modern microprocessor.



- * **Hans Kessler, N8PGR**
- **Steve Waterman K4CJX** →
- * **Jim Jennings W5EUT**
- * **Jim Corenman KE6RK** (*created the Airmail program*)
- **Rick Muething, KN6KB**



* Indicates not currently on WDT

The Current WDT

Victor D. Poor, W5SMM

Rick Muething, KN6KB

Steve Waterman, K4CJX

Tom Lafleur, KA6IQA

Lee Inman, K0QED

Don Moore, KM0R

Bud Thompson, N0IA

Tyler Gaillard, KT4XD

Lor Kutchins, W3QA

Neil Hughes, VE1YZ

Don Trotter, VE1DTR

Phil Sutherland, VK6KPS

Peter Woods, N6PRW

Michael Kasteli, OE1MCU

Gerhard Kmet, OE3ZK

The History

- **Early 1980's** – **ApLink** (Amtor-PACKET Link) created
- NavyMARS asked for a smaller client version to use aboard ships called **PAMS**
- **Mid-80's** – With the advent of Windows programming language, Vic upgraded the program to **Winlink Classic** (never meant to interface with Internet email)
- **80-s/90's** – Hans enhanced **Winlink Classic**
- Late1990's – **NetLink** provided the interface between radio digital and internet email
- **1998** - Steve, Rick, Hans, and Vic, met in Cleveland, Ohio, and planned **Winlink 2000**, (1999-to-present).
- **The rest is history!**

The Mission

WL2K MISSION

Our primary mission is to provide our agencies with the value-added services they want.

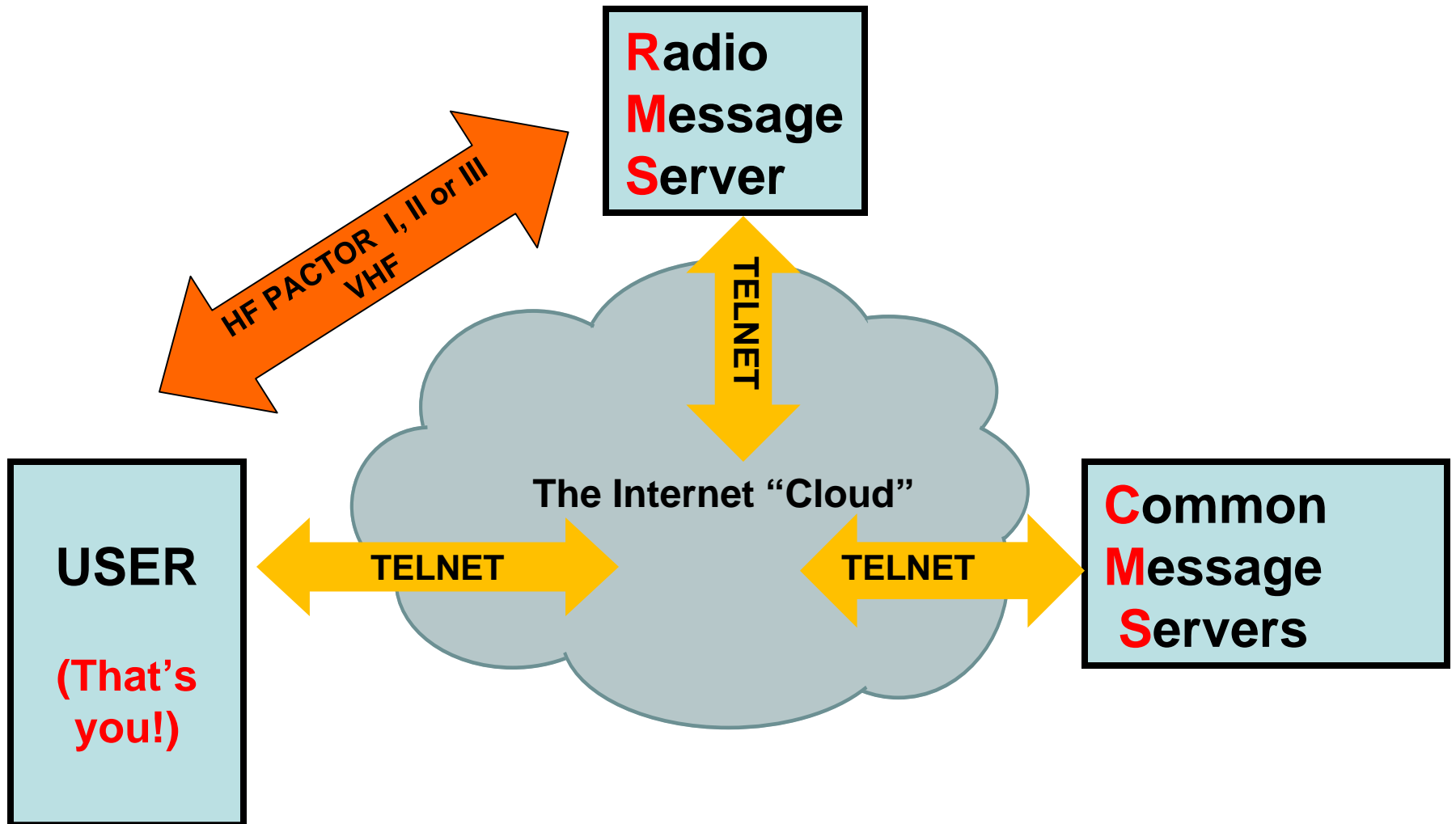
They want “interoperability among all available services.”

Today, that includes digital messaging in the form of de facto e-mail extendibility from all available resources. We have such a network in place. It is now up to us to be organized and trained with the proper tools to respond to any casualty event. Certainly, in such events, being available to provide de facto e-mail where it is otherwise unavailable is key.

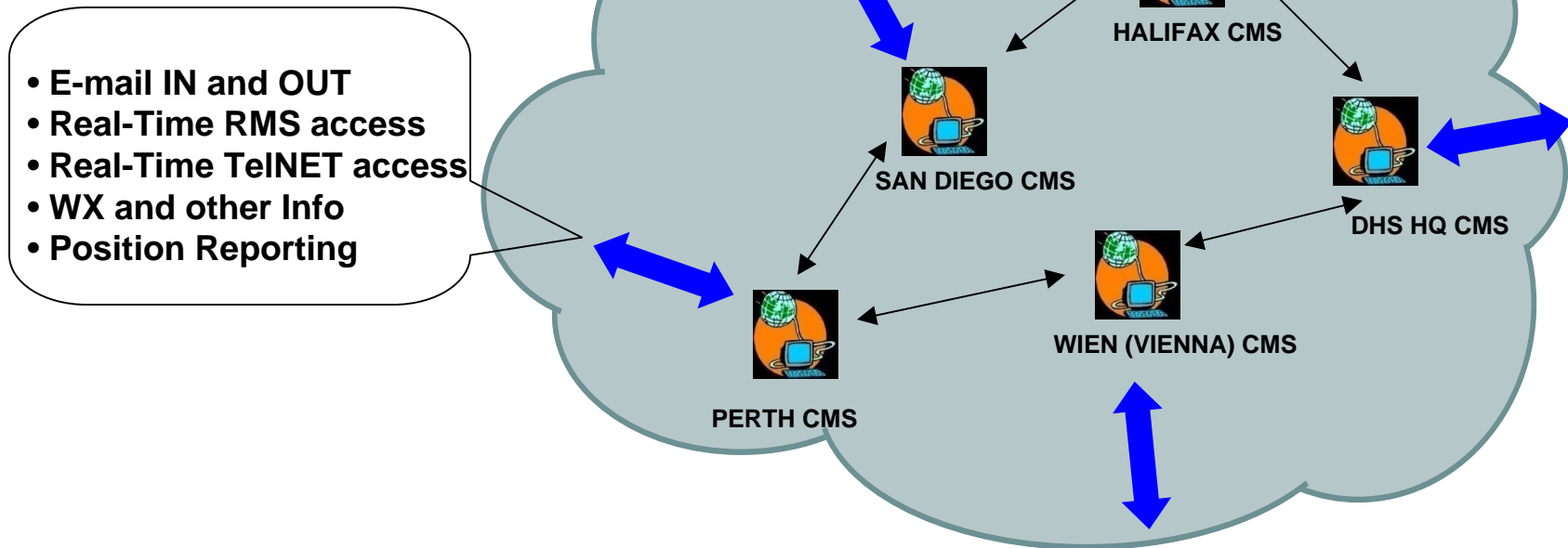
The System – Part 1

- **5** Full-time, Redundant, Mirror image, Common Message Servers (CMS)
 - Halifax, San Diego, Washington DC, Perth Australia, and Vienna, Austria,
 - All in hardened sites, providing excellent reliability, worldwide.
 - Wash DC is DHS sponsored, Halifax is Canadian Sponsored
- **165** total HF Radio Message Servers, worldwide
- **2** major **Service Classes** maintaining separate operations.
 - Public & EmComm & Amateur
 - Government (MARS controlled).
- More than 346 VHF/UHF entry points in CONUS.
- Over **99%** system availability since Nov, 1999.

How does it work?

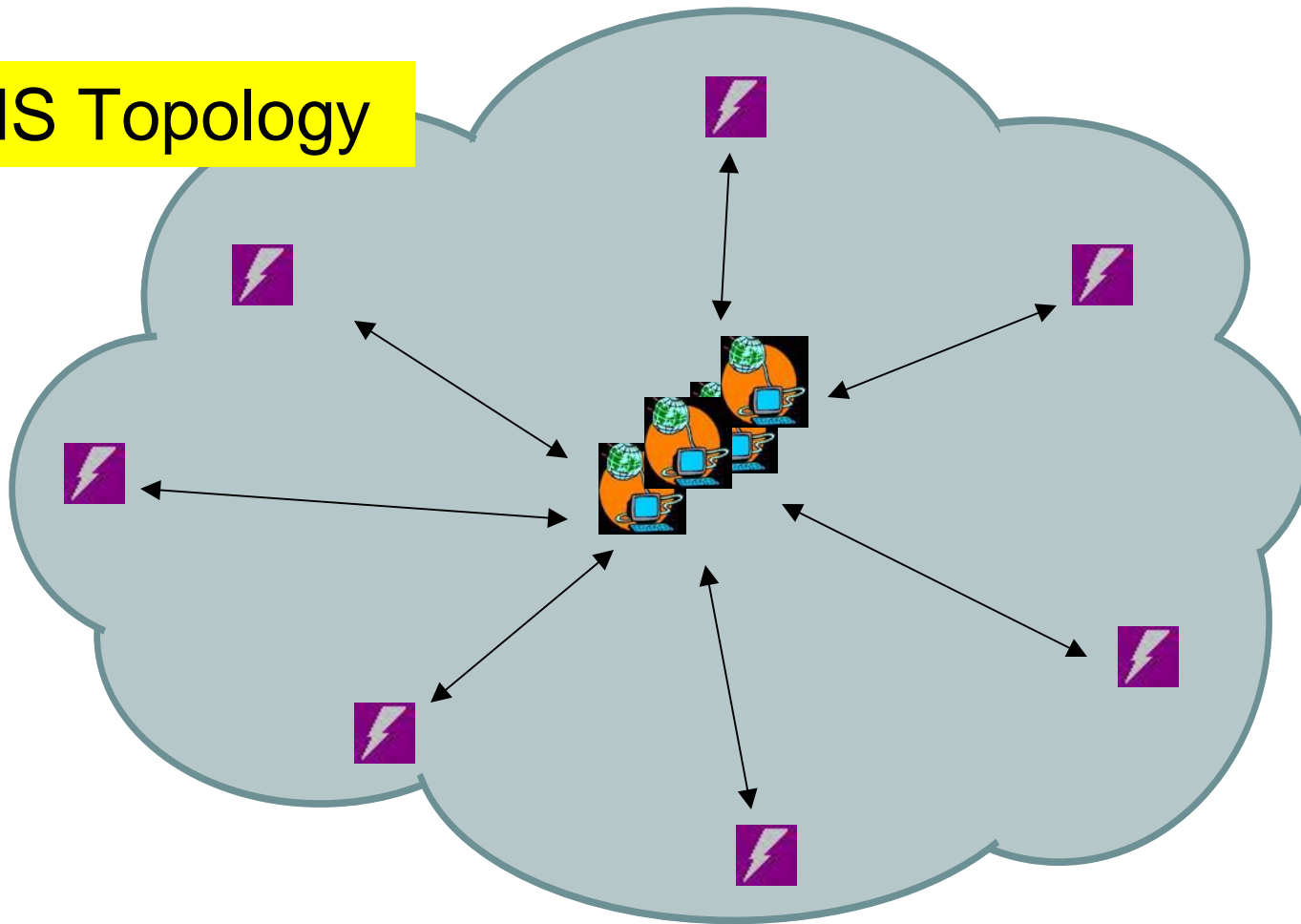


CMS Topology



- Mirror image, redundant Common Message Servers (CMS) provide:
 - IETF RFC 2821 de facto e-mail between Winlink 2000 users and Internet Recipients over telnet, Web mail or Radio links.
 - Retrieval of Weather and other information available as files or URL pages from the Internet.
 - Position Reporting for Mobile applications.

RMS Topology



- Radio Message Servers “RMS” are always connected to the CMS System via the Internet in a star network topology, serving as radio nodes on the Winlink 2000 network.
 - RMS Pactor for HF provides short or long haul availability to internet e-mail.
 - RMS Packet for VHF/UHF “last mile” e-mail availability to Internet e-mail.
 - RMS Relay provides continual communications with the CMS system when n¹ Internet is available to bridge the “last mile.”

The System – Part 2

- Geography of RMS stations
- “Last Mile” RMS Packet provides real-time access to the CMS system
- RMS Gateways provides real-time access to the CMS system
- Two separate clients – Airmail & Paclink

The System – Part 2

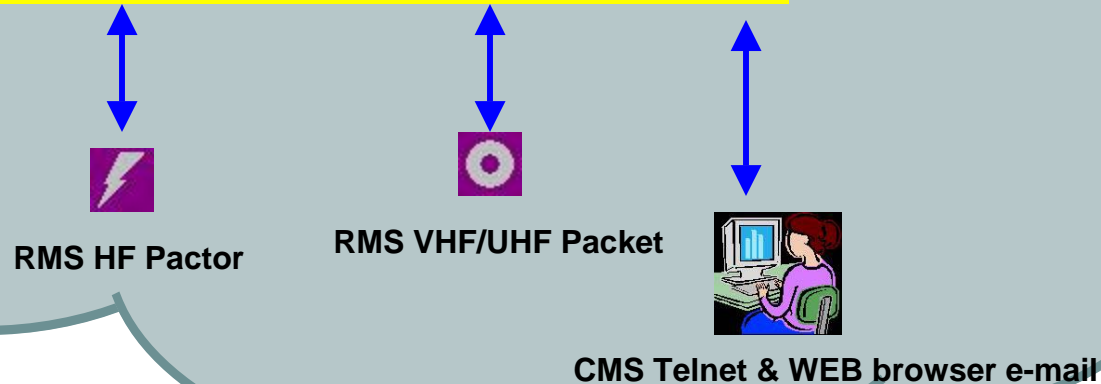
- HF RMS stations operate on +/- 5 HF frequencies
- 151 amateur frequencies (80 Tri-Service MARS) are assigned to RMS stations based on geography
- HF RMS stations 'scan' the frequencies on a rotational basis
- Scanning operates at about 1ch each 5-10 seconds.
- When they detect a calling station, they connect.
- When the transaction (up/down messages) is complete, they resume scanning

HF RMS PACTOR Stations Worldwide



85 Public **30 EMCOMM** **45 MARS** **1 UK Cadet Force**

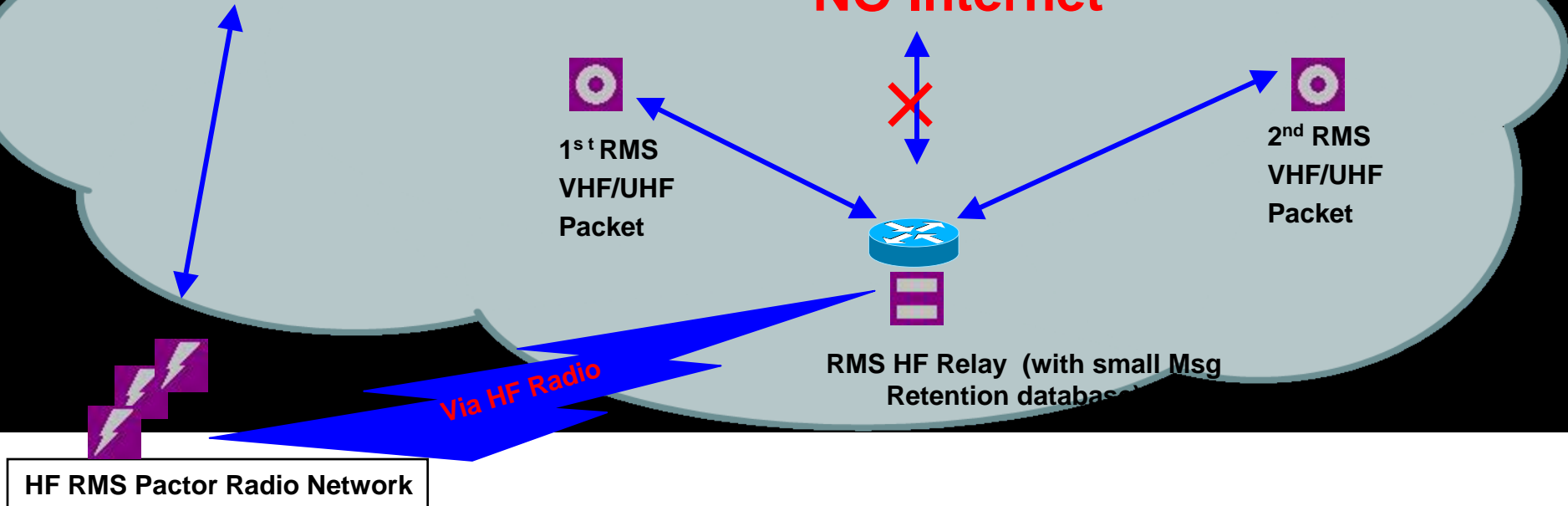
- To CMS's (Round Robin)



- RMS Gateways provides real-time access to the CMS system from many locations, worldwide. It actually bridges HF radio to the Internet.
 - The RMS systems are separated into “classes” such as the “Government” class, or the Amateur Radio class.
 - In each class, the RMS system nodes are all redundant, mirror images of each other.
 - Should an RMS Pactor Gateway be separated from the Internet, it will become *invisible* to the radio user.
 - Radio users understand that they may check in on any RMS Pactor Gateway within their licensed class, depending on propagation, and the RMS availability to the Internet.

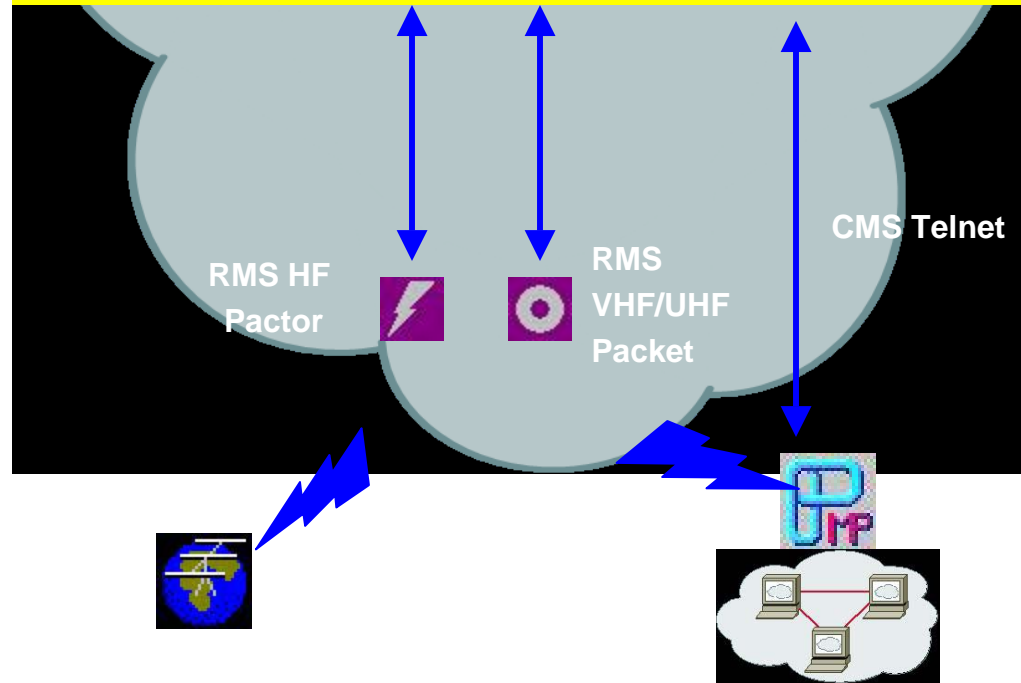
To CMS's (Round Robin)

NO Internet



- “Last Mile” RMS Packet provides real-time access to the CMS system from the “last mile,” in support of local areas such as County governments, or other communities of interest.
 - Multiple RMS Packet (VHF/UHF) gateways may be linked to one RMS Relay for local hubbing and HF relay to an RMS Pactor gateway.
 - **RMS Relay allows RMS Packet to reach the rest of the Winlink 2000 system via HF (Radio) Pactor when local Internet is broken.**

- To CMS's (Round Robin) Via Internet



- Two separate clients:
 - **Airmail**, a single application client.
 - **Paclink MP**, a single/Multiple user client with standard POP3 e-mail clients as a user interface. Contains automatic hierarchical routing, secure login, and “auto-precedence.”

Users

- Approximately 15,000 client accounts
- Approximately 10,000 Weekly Radio users communicating with over 98,000 Email recipients,
- An average of 150,000 messages or 280,000 minutes monthly
- An average duration of 3.4 Minutes at 3,600 bytes/per message.
- The average time from message origination to pickup for delivery is approximately 1.0 minute, regardless of distance.
- The greatest growth is now in Emergency Communications preparedness.

The Real Users

In a “Real-Life” Mass Casualty Event, we must look at WL2K from an “Interoperability” Point-of-view.



Why Winlink is used for EmComm

- Uses **de facto e-mail**, the World's standard for written communications.
- Provides “last Mile” **local** radio digital messaging **directly** for served agencies, using **existing** e-mail programs, on **existing** computers, with **no** additional “invasive” software...seamlessly and transparently.
- Provides **wide area** coverage from **inside** a disaster area **without** the Internet, and with a minimum amount of additional client hardware or software.
- Has a proven record of reliability, and continues to be responsive to the needs of its user communities.

Although Winlink 2000 has proven itself to be attractive to the agencies we wish to serve, like anything else, it must first be Implemented by those who will benefit by its use.

TSA HF Sites – WL2K MARS

Voice Only
Non-operational

Mobile
Operational

Northeast Area (Region 1)
Bill Hall / 571-227-4758

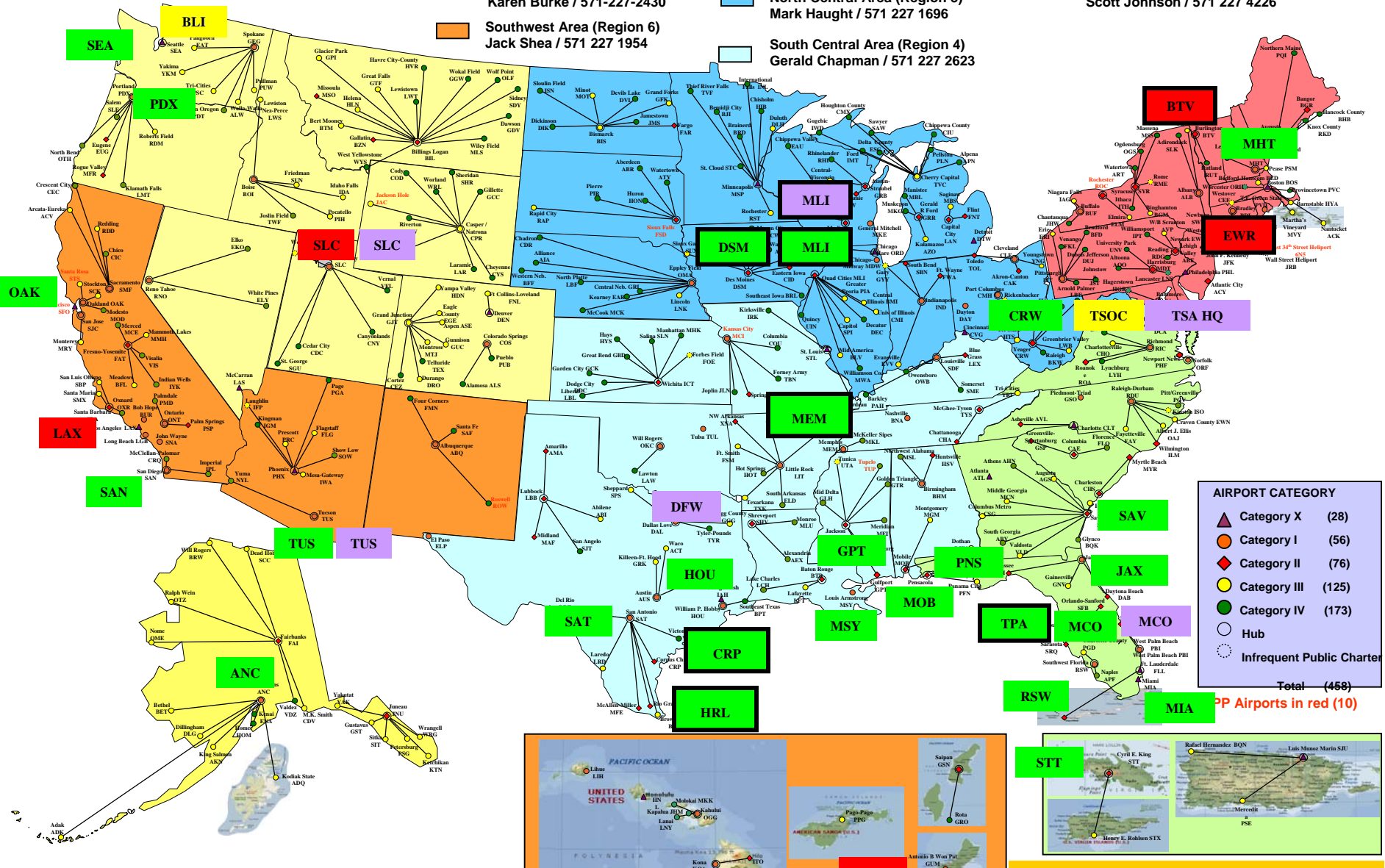
Southeast Area (Region 2)
Scott Johnson / 571 227 4226

Northwest Area (Region 5)
Karen Burke / 571-227-2430

Southwest Area (Region 6)
Jack Shea / 571 227 1954

North Central Area (Region 3)
Mark Haught / 571 227 1696

South Central Area (Region 4)
Gerald Chapman / 571 227 2623



AIRPORT CATEGORY

- ▲ Category X (28)
- Category I (56)
- ◆ Category II (76)
- Category III (125)
- Category IV (173)
- Hub
- Infrequent Public Charter

Total (458)

PP Airports in red (10)



Transportation Security Administration
Federalized Airports / Dec 1, 2008
OPR: Airport Federalization, Randy Webb

Additional changes, and deletions since Oct 1, 2008 edition:
 Additions: In FL - PGD Charter;
 Changes: NEW AREA DESIGNATIONS, also: ISO - from Cat III to Cat II, Infrequent Public Charter;
 TLH - now a spoke of JAX; CPR - from Cat IV to Cat III;
 In Alaska - numerous hub / spoke changes;
 GJT - name change to Grand Junction Regional

What's up?

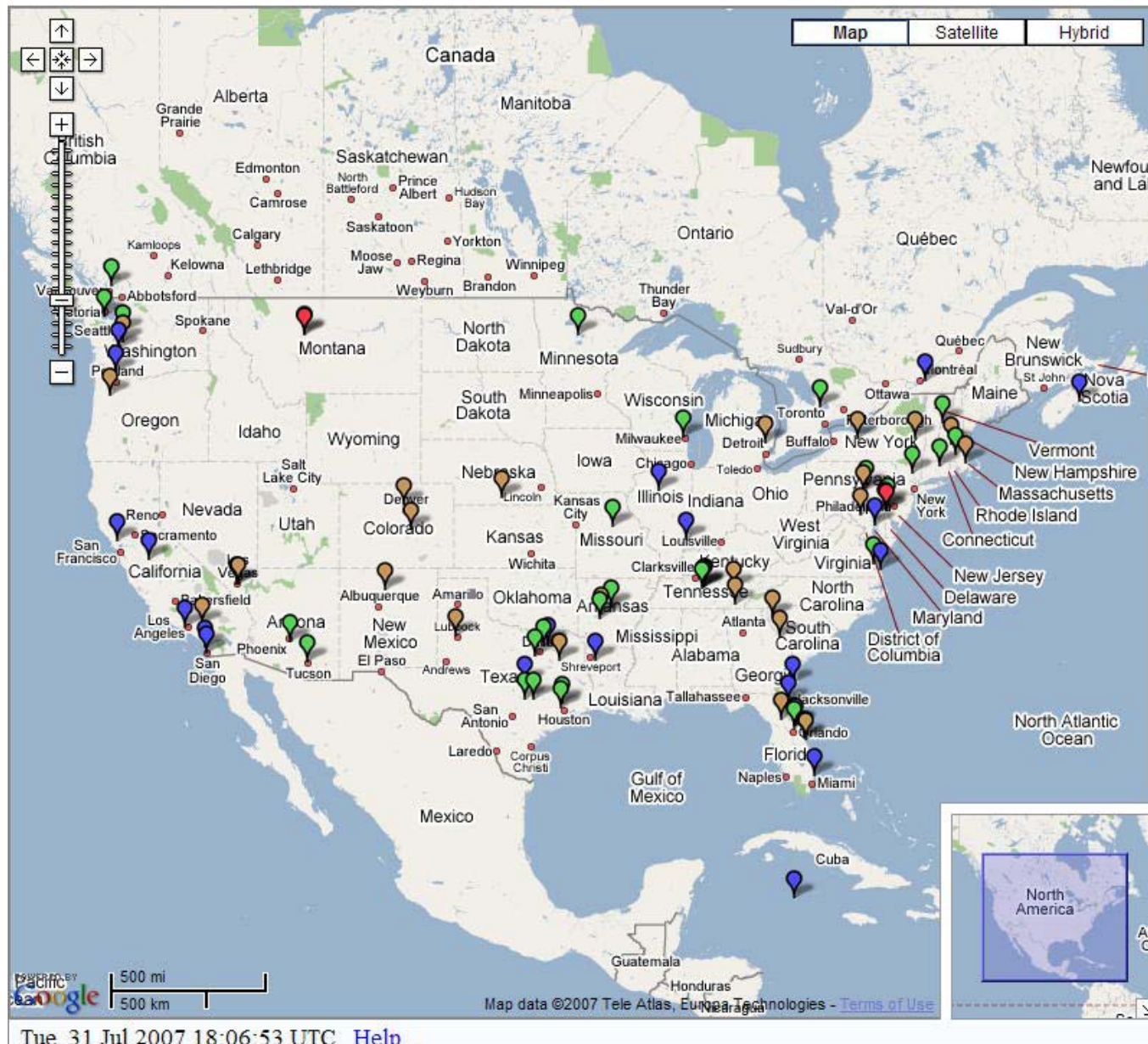
- **Real Time status**
 - CMS servers
 - HF Pactor RMS stations
 - VHF RMS stations
 - Other
- **Presentation**
 - Raw Data available
 - Google Graphics available

Real-Time Status - CMS

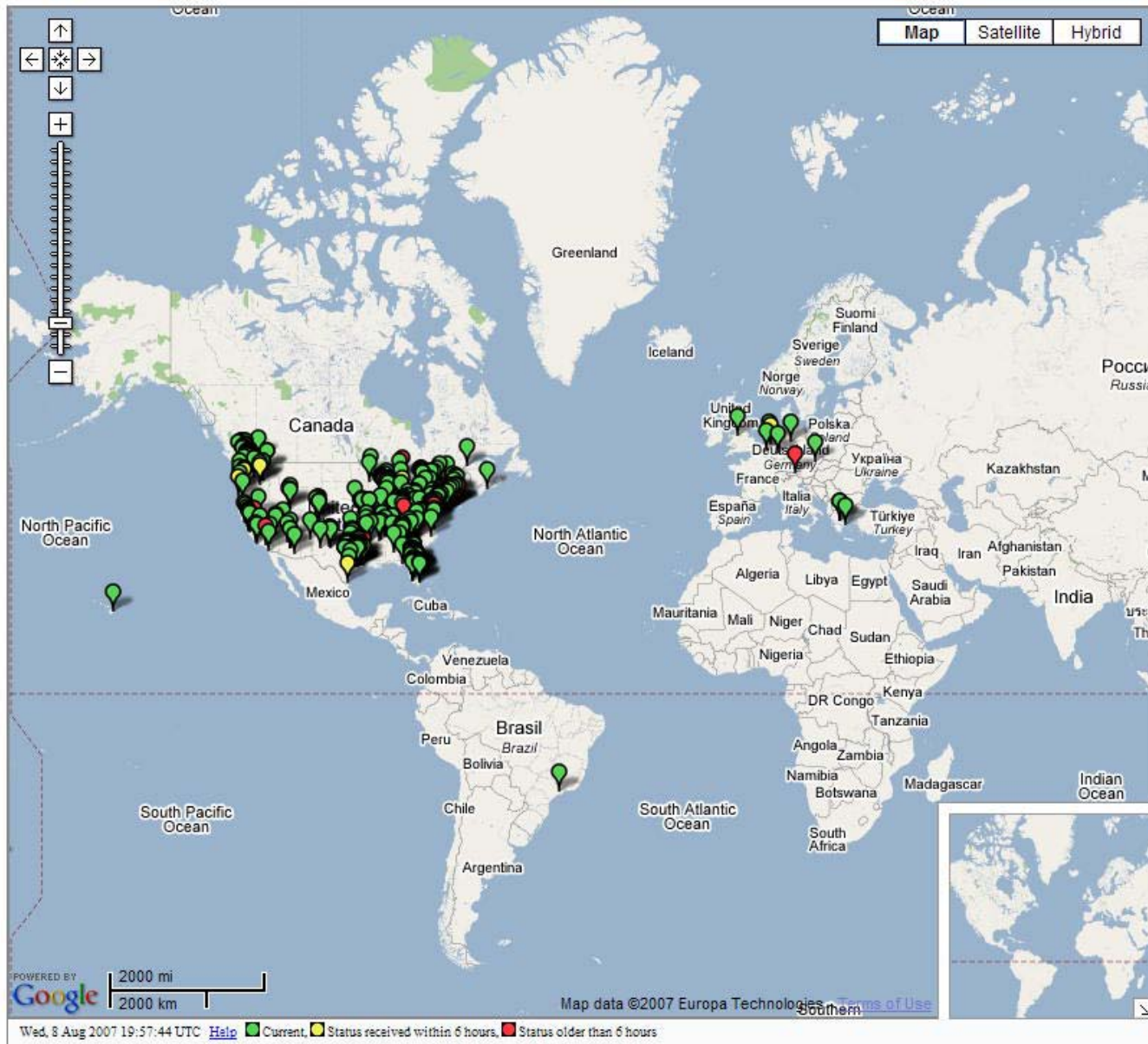
Common Message Server Status			
<input type="button" value="View"/> <input type="button" value="Outline"/> <input type="button" value="Track"/>			
@2008/04/07 07:58 UTC	State	Last Update	Status Message
CMS Site - Halifax		2008/04/07 07:58 UTC	On-Line
CMS Access Port	Running	2008/04/07 07:57 UTC	
CMS Inquires	Running	2008/04/07 07:57 UTC	
CMS Position Reports	Running	2008/04/07 07:57 UTC	
CMS Queue Processor	Running	2008/04/07 07:58 UTC	
CMS Site Monitor	Running	2008/04/07 07:58 UTC	
CMS SMTP Client	Running	2008/04/07 07:58 UTC	
CMS SMTP Server	Running	2008/04/07 07:57 UTC	
CMS Telnet Server	Running	2008/04/07 07:57 UTC	
CMS-CMS Link	Running	2008/04/07 07:57 UTC	
CMS Site - Perth		2008/04/07 07:58 UTC	On-Line
CMS Access Port	Running	2008/04/07 08:00 UTC	
CMS Inquires	Running	2008/04/07 08:00 UTC	
CMS Position Reports	Running	2008/04/07 08:00 UTC	
CMS Queue Processor	Running	2008/04/07 08:00 UTC	
CMS Site Monitor	Running	2008/04/07 08:01 UTC	
CMS SMTP Client	Running	2008/04/07 08:01 UTC	
CMS SMTP Server	Running	2008/04/07 08:00 UTC	
CMS Telnet Server	Running	2008/04/07 08:01 UTC	
CMS-CMS Link	Running	2008/04/07 08:00 UTC	
CMS Site - SanDiego		2008/04/07 07:58 UTC	On-Line
CMS Access Port	Running	2008/04/07 07:58 UTC	
CMS Inquires	Running	2008/04/07 07:57 UTC	
CMS Position Reports	Running	2008/04/07 07:57 UTC	
CMS Queue Processor	Running	2008/04/07 07:57 UTC	
CMS Site Monitor	Running	2008/04/07 07:58 UTC	
CMS SMTP Client	Running	2008/04/07 07:58 UTC	
CMS SMTP Server	Running	2008/04/07 07:57 UTC	
CMS Telnet Server	Running	2008/04/07 07:57 UTC	
CMS-CMS Link	Running	2008/04/07 07:57 UTC	
CMS Site - Washington		2008/04/07 07:58 UTC	On-Line
CMS Access Port	Running	2008/04/07 07:58 UTC	
CMS Inquires	Running	2008/04/07 07:57 UTC	
CMS Position Reports	Running	2008/04/07 07:57 UTC	
CMS Queue Processor	Running	2008/04/07 07:58 UTC	
CMS Site Monitor	Running	2008/04/07 07:58 UTC	
CMS SMTP Client	Running	2008/04/07 07:57 UTC	
CMS SMTP Server	Running	2008/04/07 07:57 UTC	
CMS Telnet Server	Running	2008/04/07 07:58 UTC	
CMS-CMS Link	Running	2008/04/07 07:57 UTC	

Vienna, Austria
 “Wien”
 not shown

Real-time Status - ALL HF RMS



Real-Time Status – VHF RMS



**VHF/UHF
Telpac/RMS Packet:
346 Active shown
MARS VHF numbers
increasing (not
shown).**

Near Real-Time Proactive User Position Reports



MARS NOT
SHOWN

Real-Time Status – MARS HF RMS

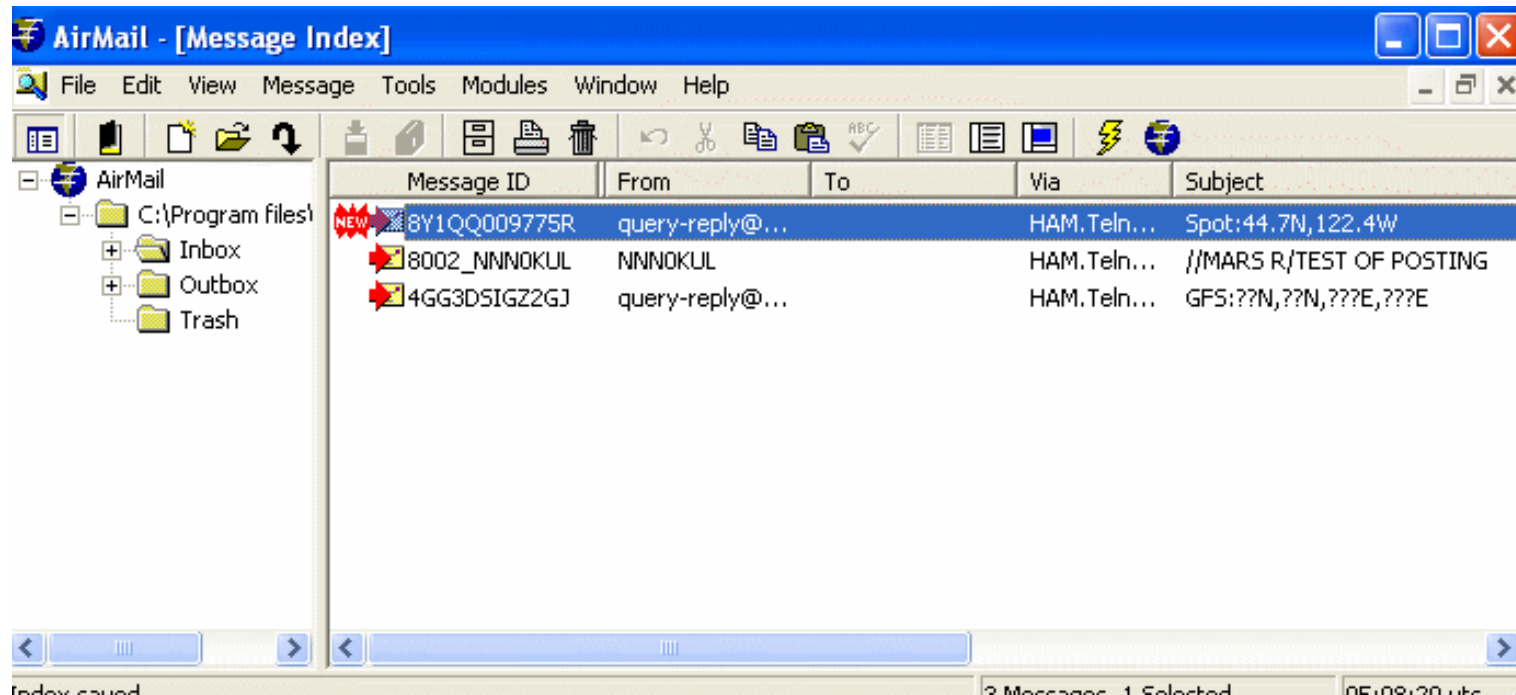


Client Programs

- Airmail
 - Written by Jim Corenman, KE6RK
 - Adapted for MARS use (v3.3.0.81)
 - Uses NTIA/ITS ICEPAK program for propagation predictor
- Paclink
 - Written by Rick Muething, KN6KB
 - 3 Versions
 - Paclink - obsolete
 - PaclinkMP – current
 - PaclinkW – Beta testing

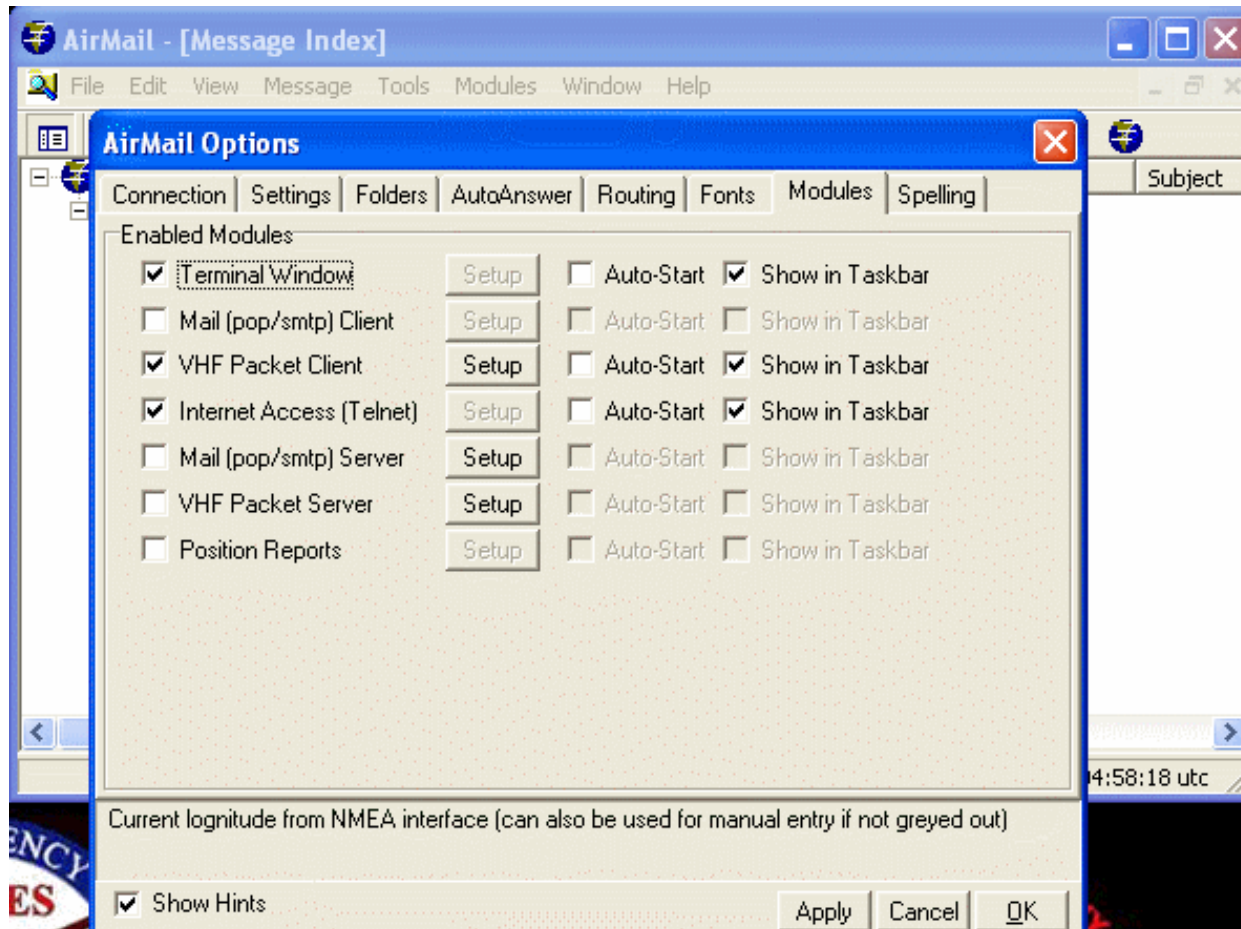
Airmail

Written by Jim Corenman KE6RK



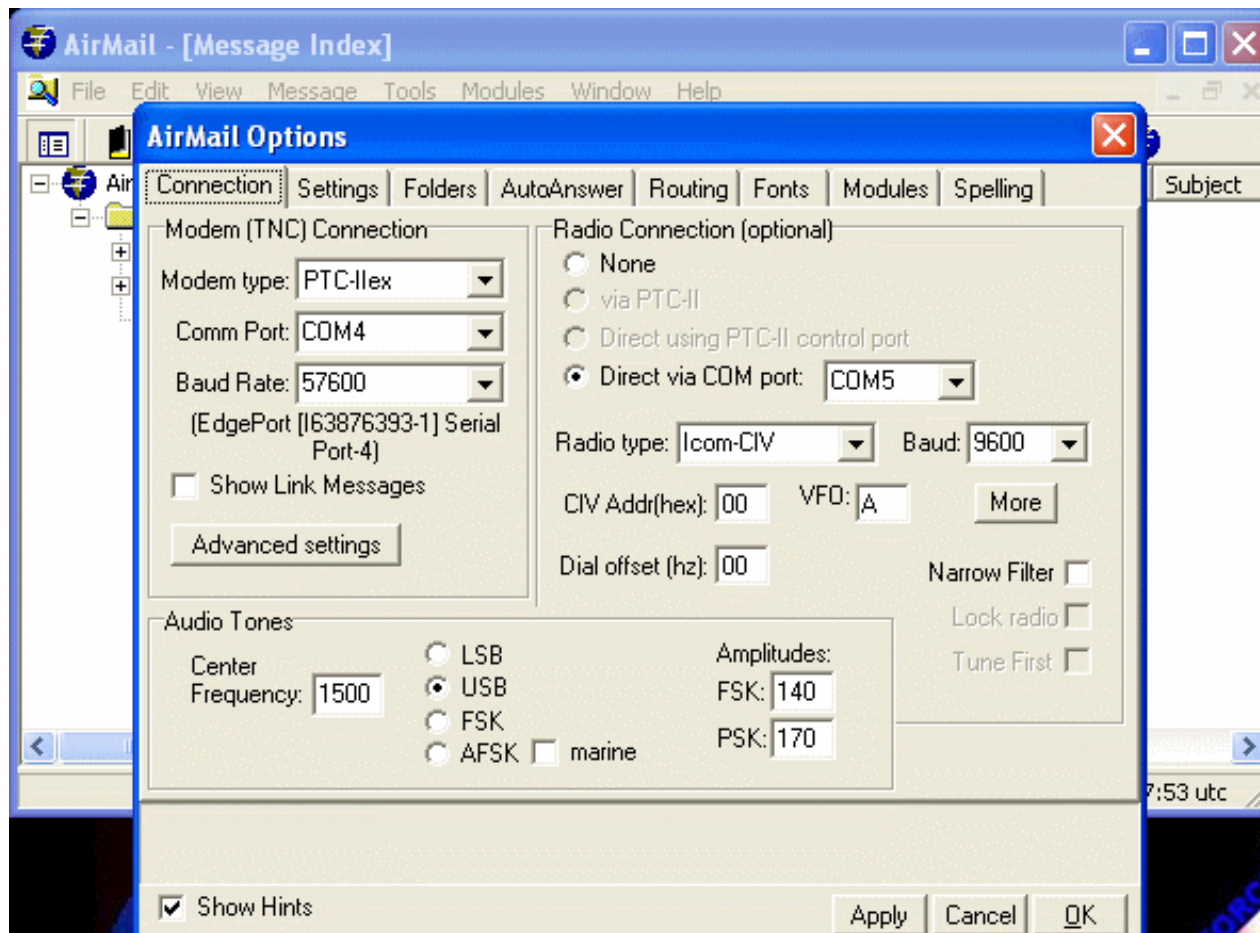
Airmail

Module selection



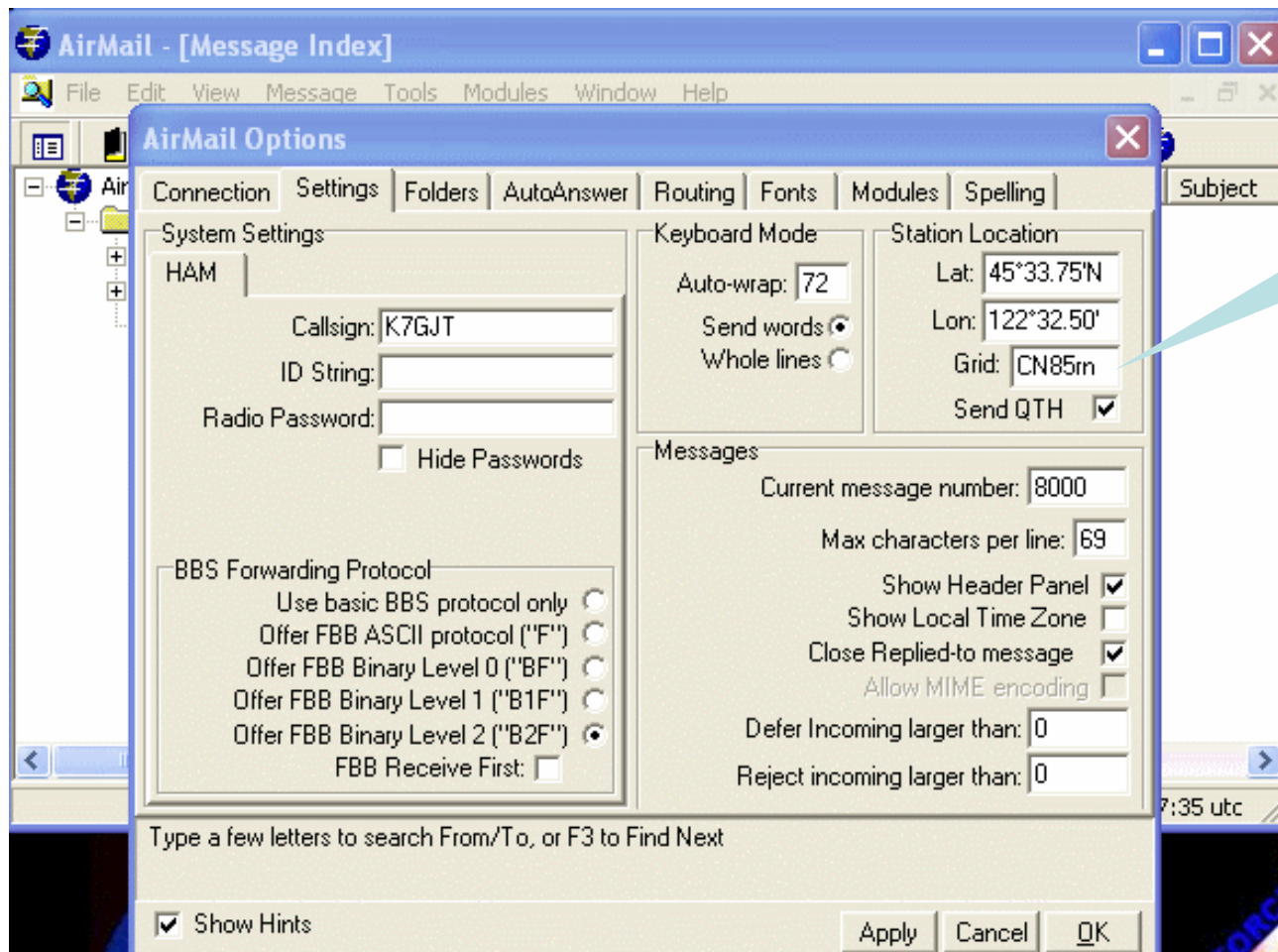
Airmail

Setup Screen 1



Airmail

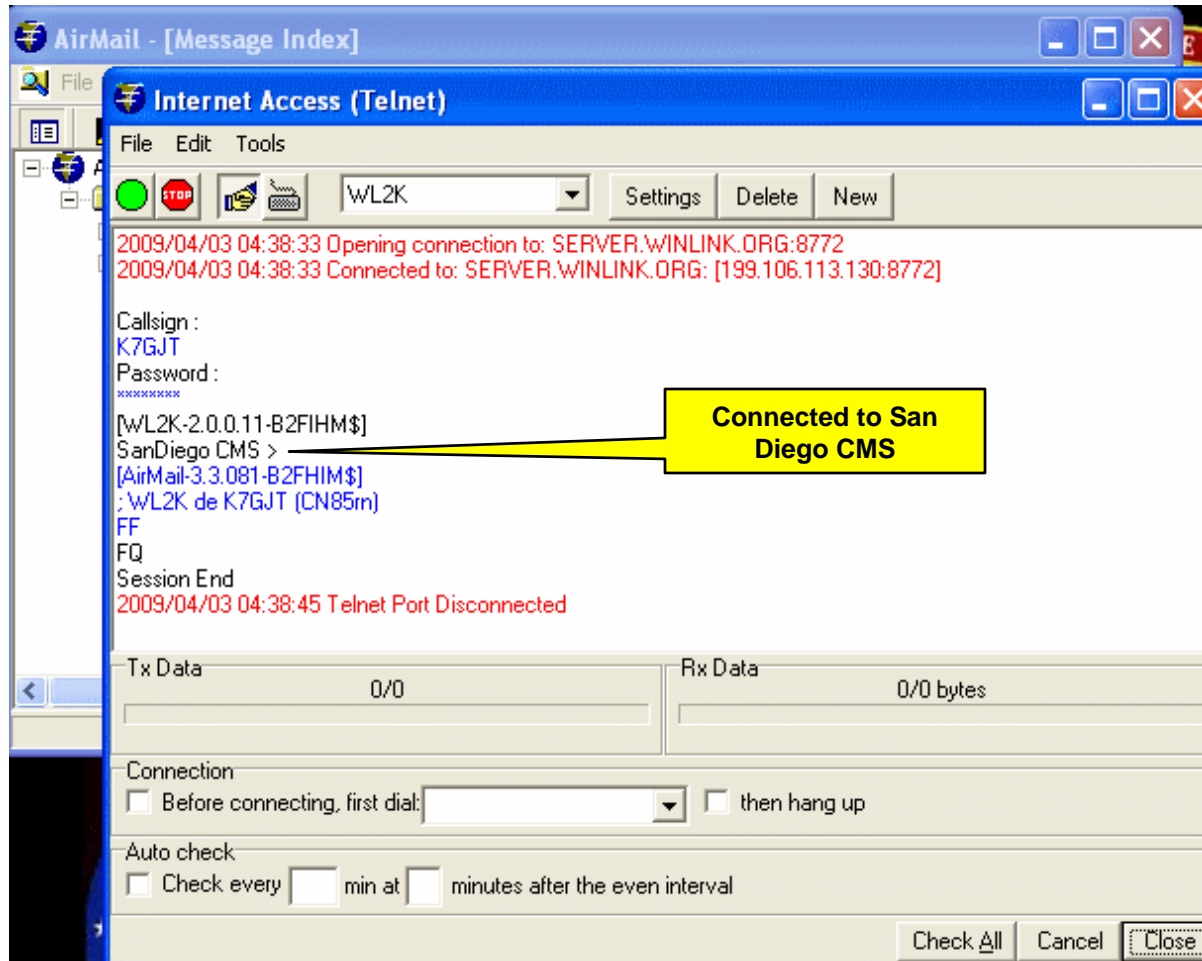
Setup Screen 2



Filling in grid square will auto-populate Lat/Lon

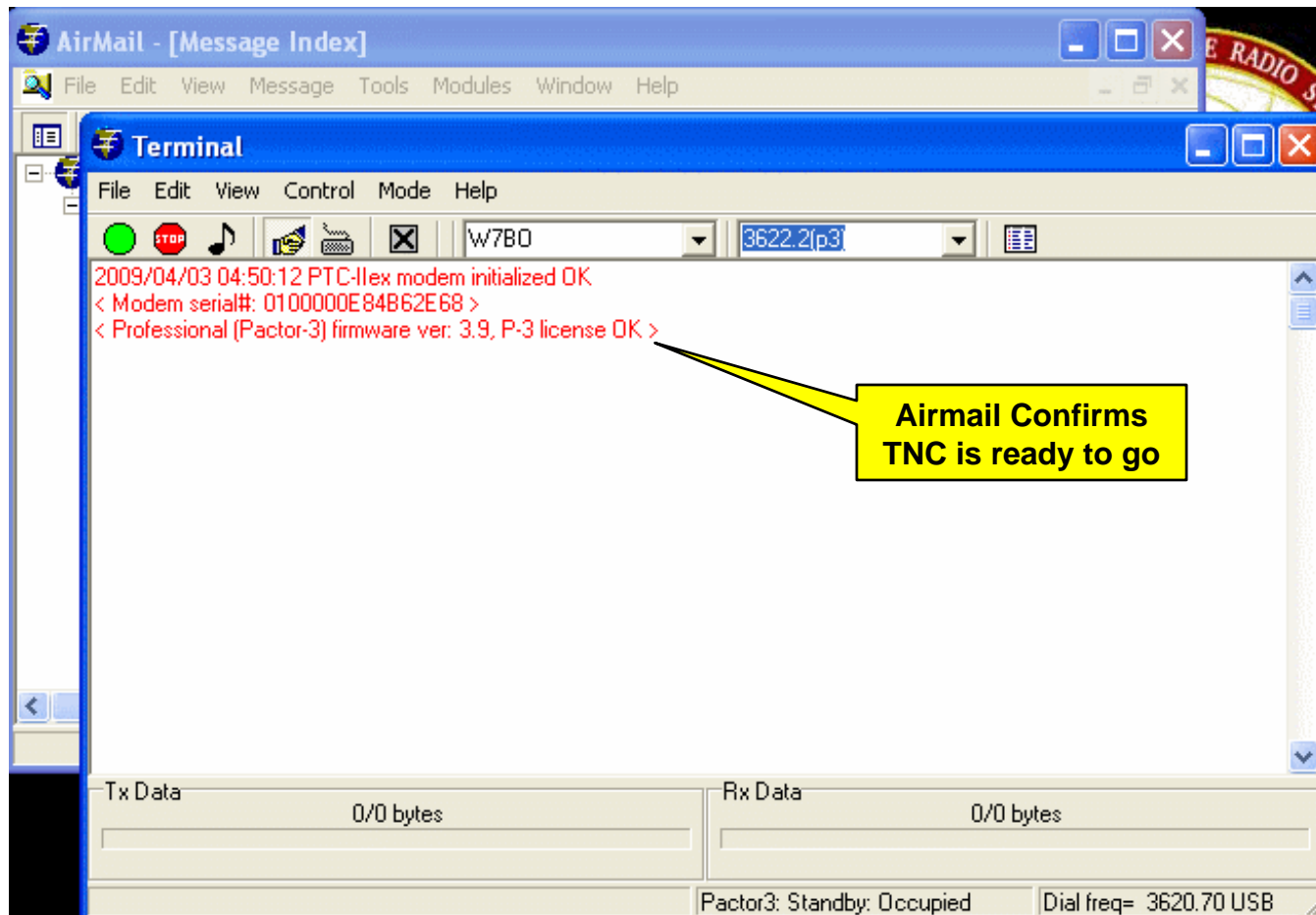
Airmail

Internet Module (TELNET) (transaction example)



Airmail

HF Terminal (PACTOR)



Airmail

HF Terminal – ‘F8’ propagation predictor

The screenshot shows the Airmail software interface with the Propagation window open. The window displays the following information:

From our location: Lat: 45°34'N, Lon: 122°33'W, Grid: CN85m
To station location: Lat: 36°06'N, Lon: 086°48'W, Grid: EM66oc
Parameters: Freq(khz): 07076.9,07101.2#,14076.9,14106.7#,03631.2,03631.2#:10123.9,10141.2#,181
 Sunspots: 100 SFI: 100 Date: 2009/04/03
 K4CJX, Nashville/TN: Distance= 1703 NM at 97°T

Reliability: Reliability, SNR
Pre-Calc: Pre-Calc, Update

Station List (RMS Stations):

- W7BO
- W7IJ
- KB6YNO
- VE6KBS
- WU3V
- K6IXA
- K6CYC
- KA6IQA
- W6IM
- WB5KSD
- KL7EDK
- WD8DHF
- W9GSS
- WB0TAX
- W9MR
- K4SET
- K4CJX**
- N8PGR
- VE2AFQ

Propagation Grid (Frequencies):

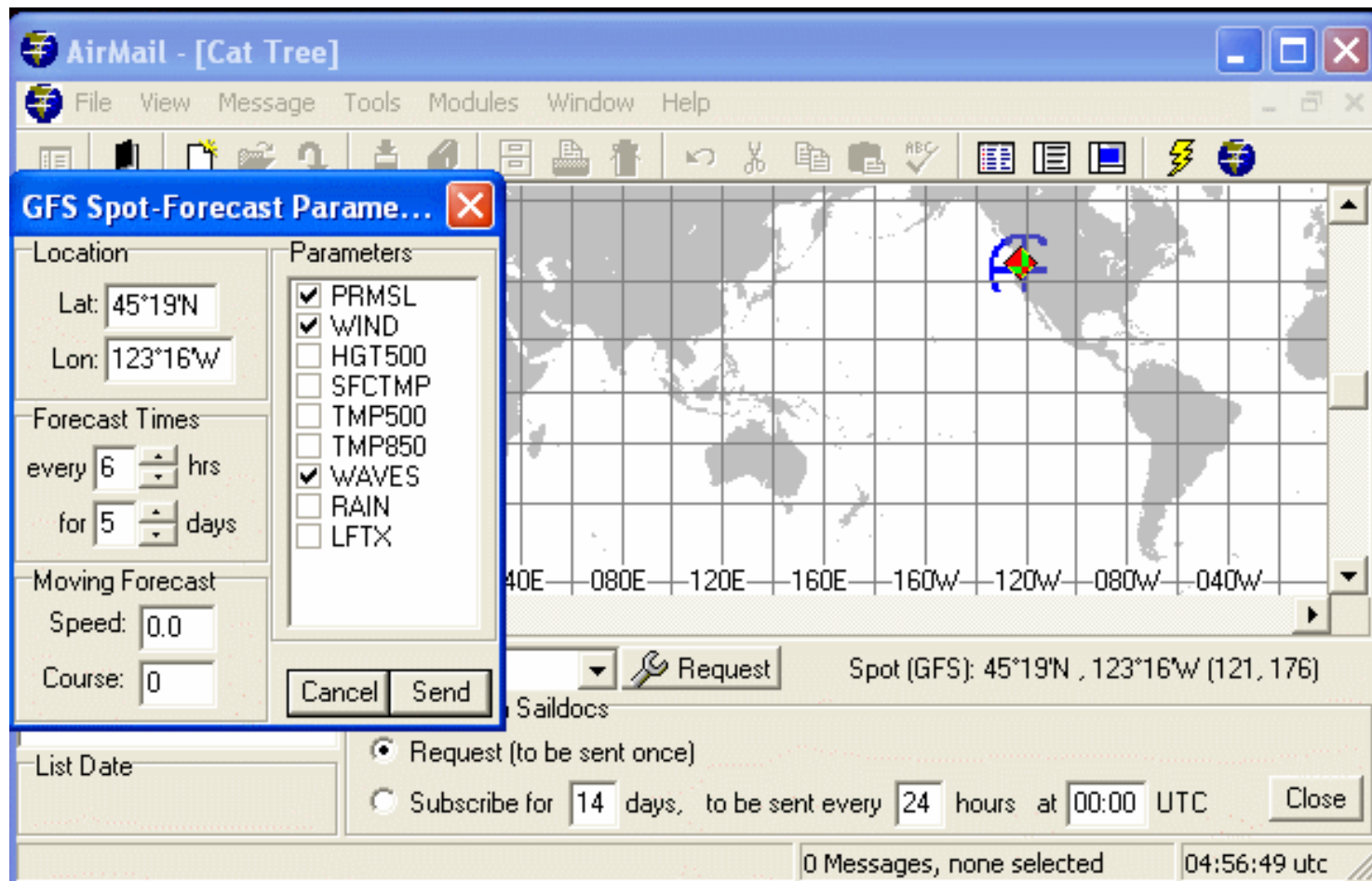
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
3631.2		1	5	11	7	8	8	9	11	18	26	41	21												
3631.2		1	5	11	7	8	8	9	11	18	26	41	21												
7076.9	37	65	80	87	87	85	85	85	90	92	94	95	92	86	56	1									1
7101.2	37	65	80	87	87	85	85	85	90	92	94	95	92	86	56	1									1
10123.9	82	92	96	95	93	93	94	95	98	98	99	99	97	96	94	86	64	2						7	70
10141.2	82	92	96	95	93	93	94	95	98	98	99	99	97	96	94	86	64	2						7	70
14076.9	92	94	93	95	97	94	92	90	82	79	70	76	93	97	97	96	85	79	73	71	71	74	83	91	
14106.7	92	94	93	95	97	94	92	90	82	79	70	76	93	97	97	96	85	79	73	71	71	74	83	91	
18103.9	94	94	96	93	80	69	58	49	38	21		2	42	85	97	98	99	99	46	52	54	50	97	95	
18108.7	94	94	96	93	80	69	58	49	38	21		2	42	85	97	98	99	99	46	52	54	50	97	95	

Callouts:

- RMS Stations:** Points to the station list.
- Closest to farthest:** Points to the station list.
- Frequencies:** Points to the grid header.
- GMT Time:** Points to the grid header.

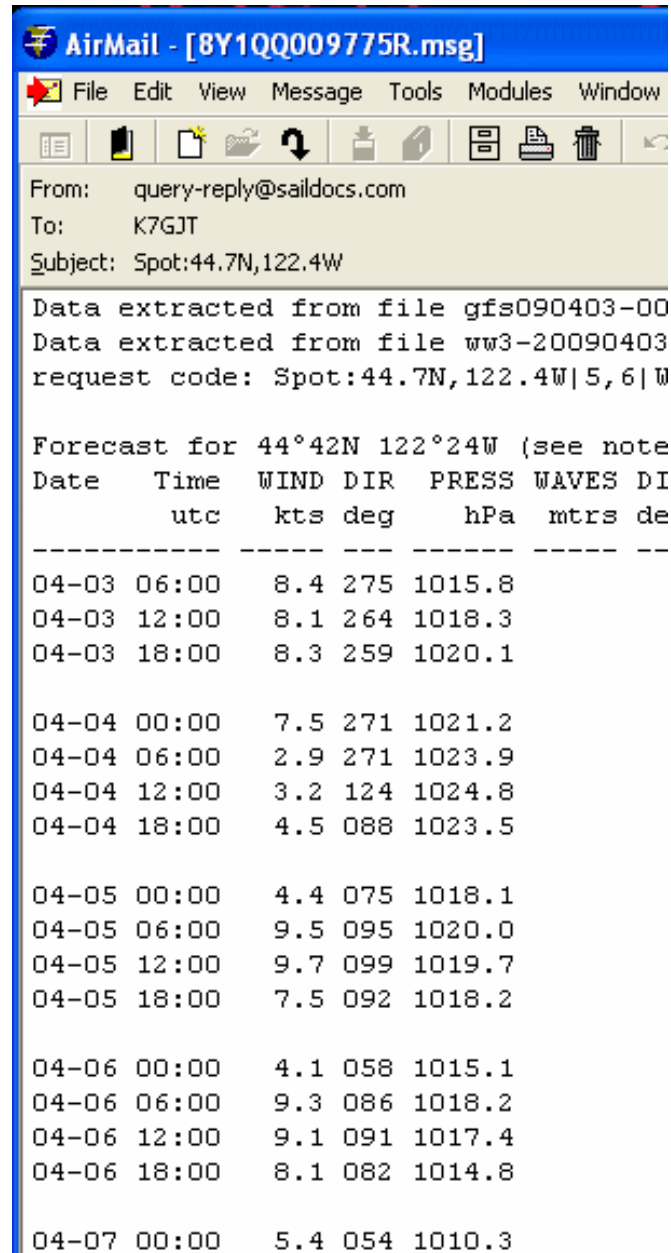
Airmail

GFS Spot-Forecasting capability



Airmail

GFS Spot-Forecast



From: query-reply@saildocs.com
To: K7GJT
Subject: Spot:44.7N,122.4W

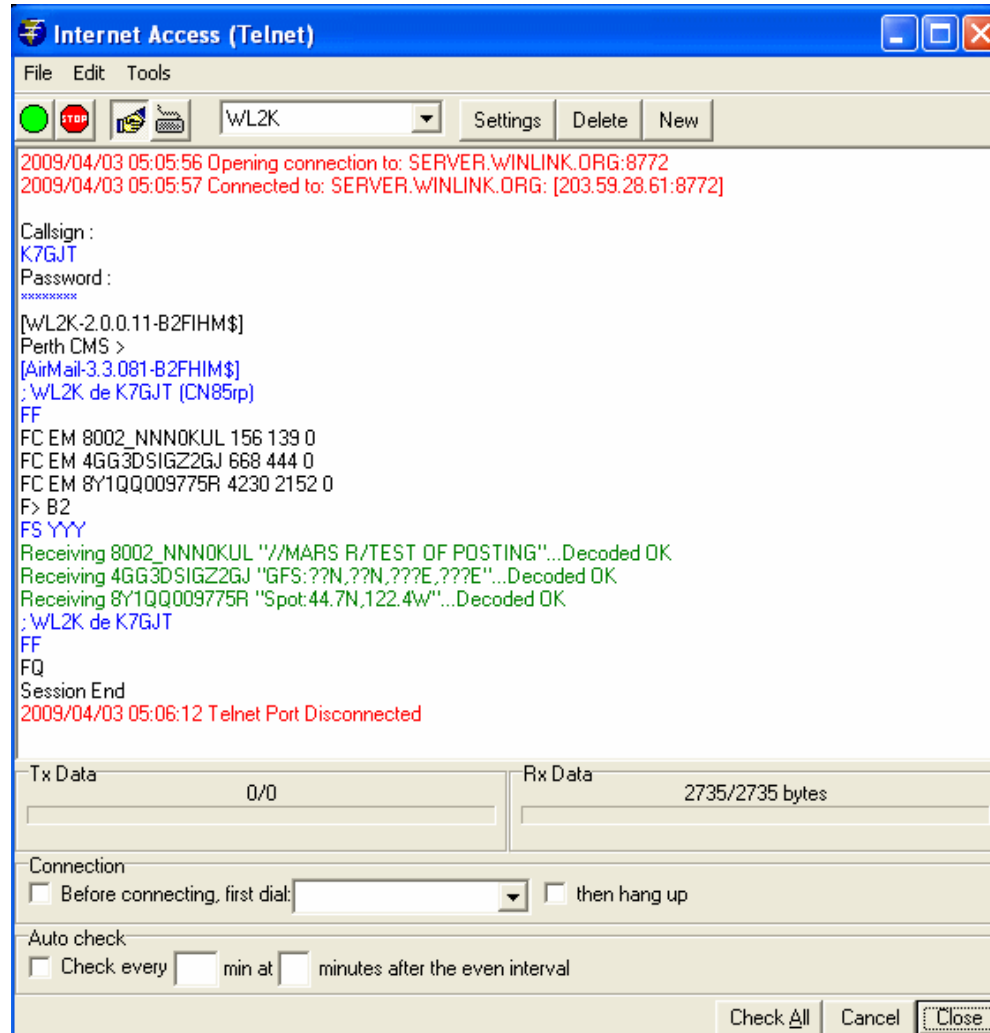
Data extracted from file gfs090403-00
Data extracted from file ww3-20090403
request code: Spot:44.7N,122.4W|5,6|W

Forecast for 44°42N 122°24W (see note)

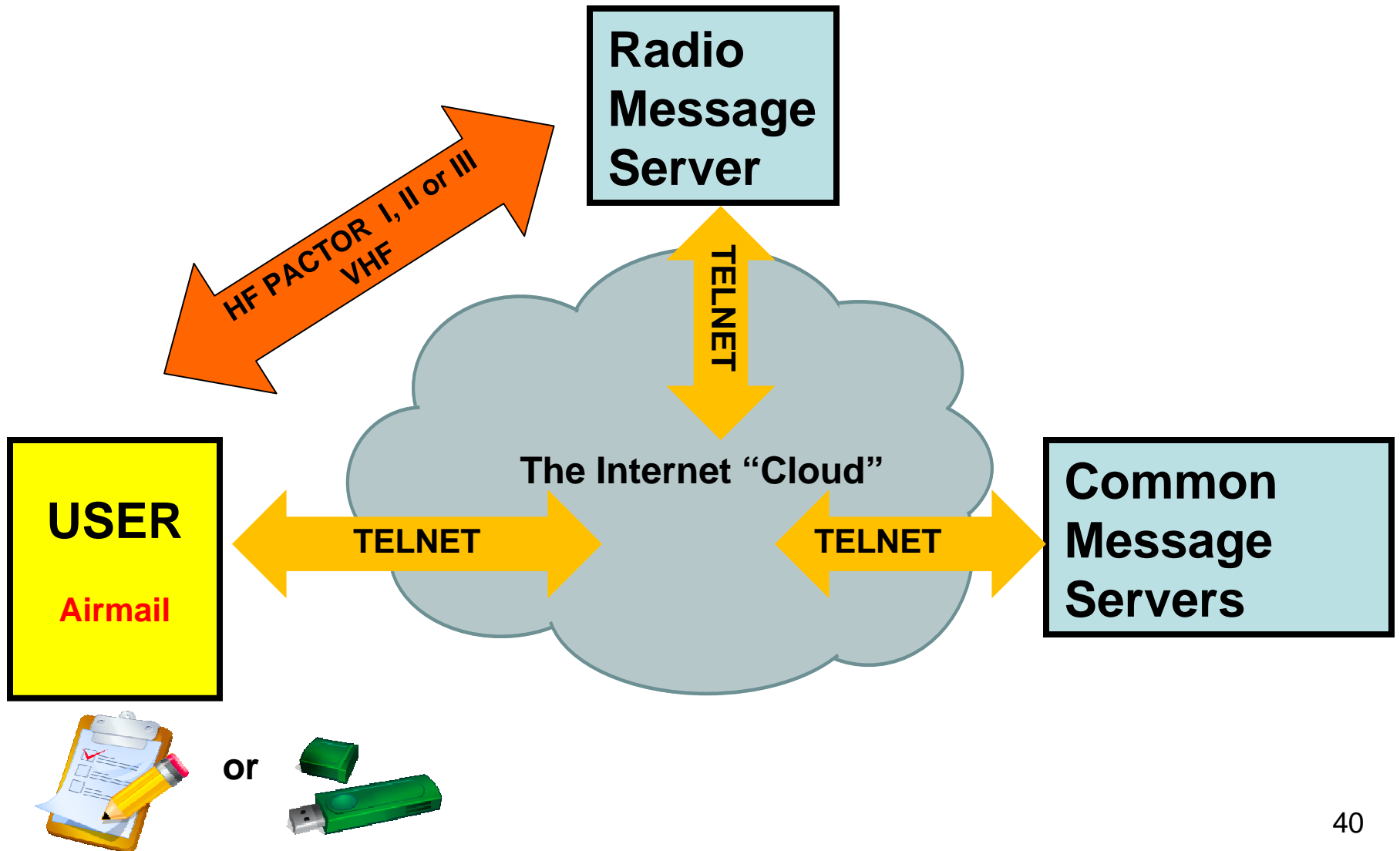
Date	Time	WIND	DIR	PRESS	WAVES	DI
	utc	kts	deg	hPa	mtrs	de
04-03	06:00	8.4	275	1015.8		
04-03	12:00	8.1	264	1018.3		
04-03	18:00	8.3	259	1020.1		
04-04	00:00	7.5	271	1021.2		
04-04	06:00	2.9	271	1023.9		
04-04	12:00	3.2	124	1024.8		
04-04	18:00	4.5	088	1023.5		
04-05	00:00	4.4	075	1018.1		
04-05	06:00	9.5	095	1020.0		
04-05	12:00	9.7	099	1019.7		
04-05	18:00	7.5	092	1018.2		
04-06	00:00	4.1	058	1015.1		
04-06	06:00	9.3	086	1018.2		
04-06	12:00	9.1	091	1017.4		
04-06	18:00	8.1	082	1014.8		
04-07	00:00	5.4	054	1010.3		

Airmail

Transaction receiving messages



How does it work?



Paclink

- Paclink



- Required Internet connection
- Will work with more than one account

- PaclinkMP (Multi Protocol)



- Can use without Internet connection
- Replaced by Paclink 3.0

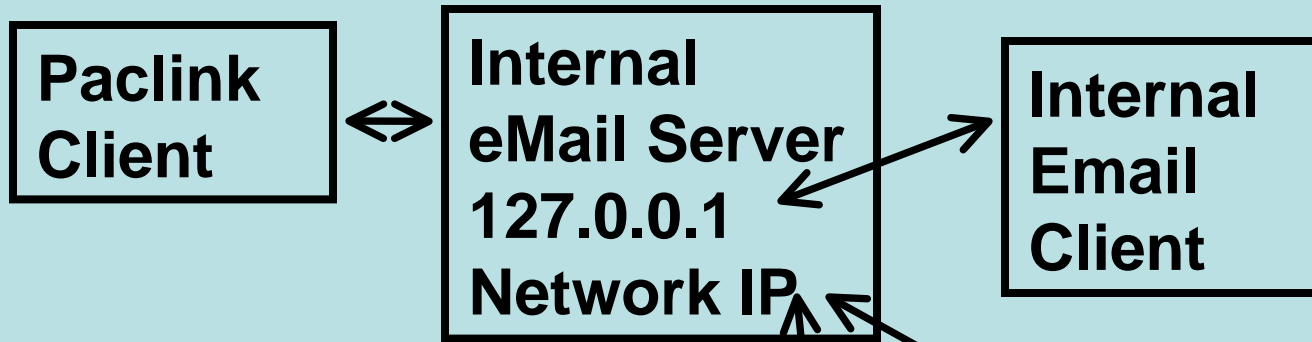
- PaclinkW (WINMOR)



- Can use without internet connection
- **WINMORE** embedded as additional capability

Paclink

Inside your PC



Paclink acts like an email server. The internal as well as the external email clients can connect into it

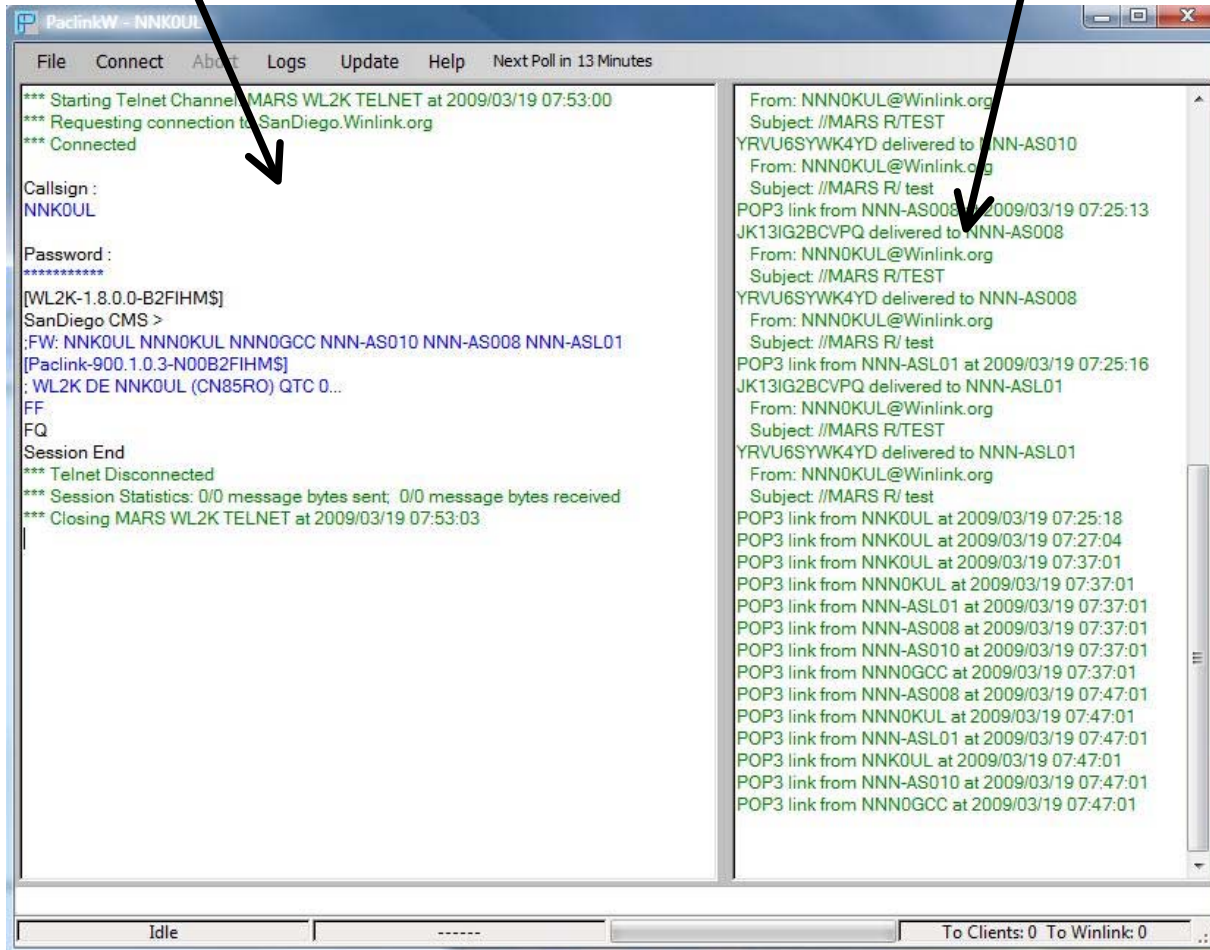
External PC

External PC

Paclink

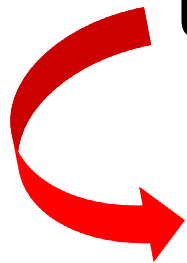
Radio/TELNET window

Message Server window



Paclink

Using Paclink w/Thunderbird - 6 MARS WL2K accounts



1

2

3

4

5

6

The screenshot shows the Thunderbird interface with six accounts listed in the left sidebar: NNKOUL, NNNOKUL, NNNOGCC, NNN-AS010, NNN-AS008, and NNN-ASL01. The main pane displays a list of messages from these accounts. The selected message is from NNN0CC@Winlink.org with the subject '//MARS R/CHNAVMARCORMARS INFO BCST 02-09'. The message body contains a radio message header and subject line.

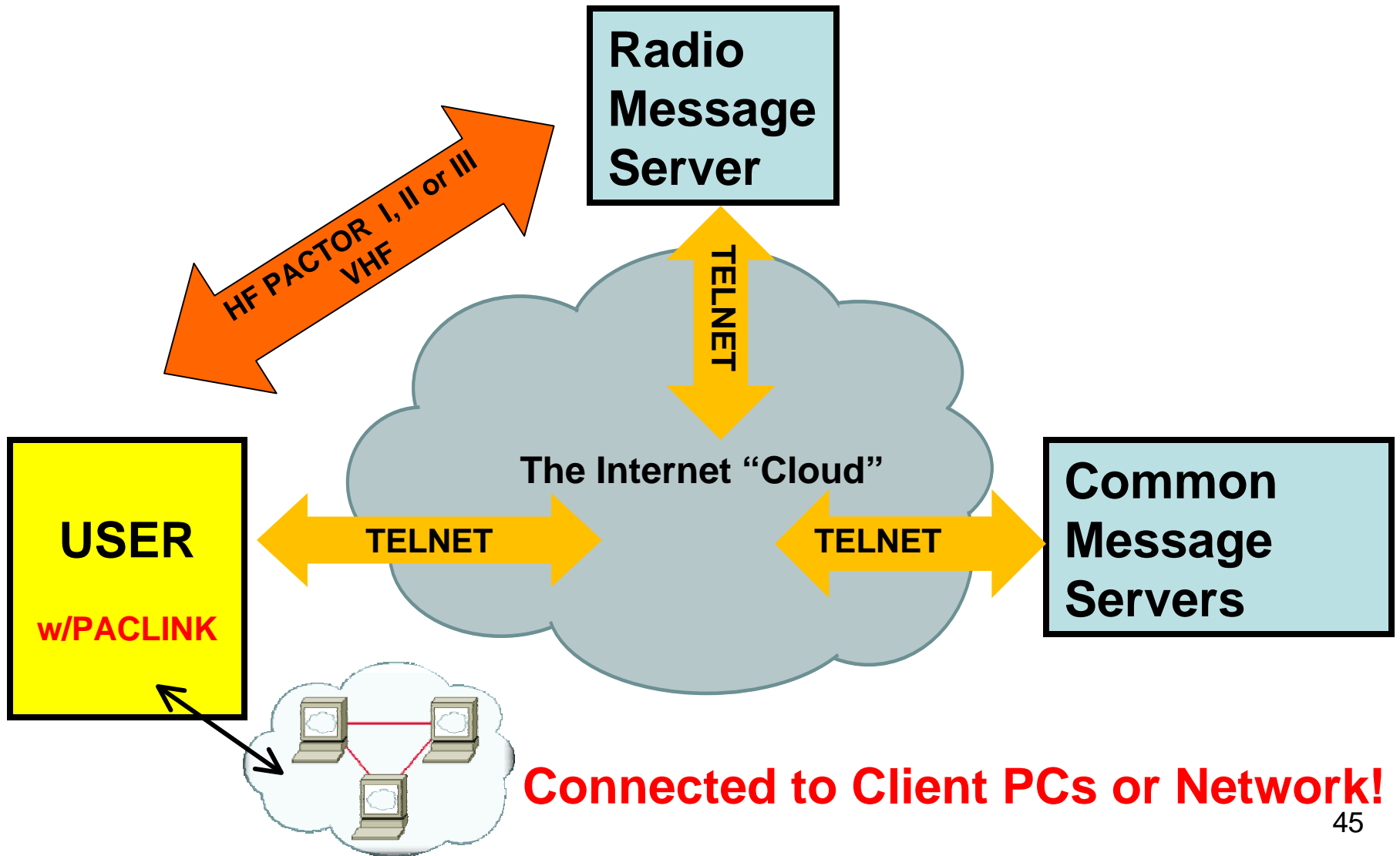
Subject	Sender	Date
//MARS R/0X1C NET	NNN0BP@Winlink.org	1/14/2009 5:58 PM
//MARS R/CHNAVMARCORMARS INFO BCST 02...	NNN0BP@Winlink.org	1/15/2009 6:09 AM
//MARS P/SHARES COORDINATION NETWORK (...)	NNN0BP@Winlink.org	1/15/2009 12:13 PM
//MARS P/SHARES COORDINATION NETWORK ...	NNN0CC@Winlink.org	1/15/2009 4:12 PM
//MARS R/CHNAVMARCORMARS INFO BCST 02...	NNN0CC@Winlink.org	1/15/2009 4:12 PM
//MARS R/0X1C	NNN0CC@Winlink.org	1/15/2009 4:12 PM
//MARS R/CHNAVMARCORMARS INFO BCST 10...	NNN0CC@Winlink.org	3/11/2009 6:39 AM
//MARS R/CHNAVMARCORMARS INFO BCST 10...	NNN0BP@Winlink.org	3/11/2009 6:43 AM
//MARS R/R TEN ECOM BCST 20	NNN0CC@Winlink.org	3/13/2009 7:22 AM
//MARS R/ECOM BCST 20	NNN0BP@Winlink.org	3/13/2009 7:24 AM
//MARS P/ACTUAL EEI Castle Rock, WA.	NNN0KTM@Winlink.org	3/16/2009 6:24 AM
//MARS R/ALNAV 018-09	NNN0CC@Winlink.org	3/16/2009 7:38 AM
//MARS R/ALNAV 019-09	NNN0CC@Winlink.org	3/16/2009 7:38 AM
//MARS R/ALNAV 019/09	NNN0BP@Winlink.org	3/16/2009 8:05 AM
//MARS R/ALNAV 018/09	NNN0BP@Winlink.org	3/16/2009 8:06 AM
//MARS R/TRAINING NEEDED	NNN-ASE01@Winlink.org	3/16/2009 11:09 AM
//MARS R/NMCM ALE ROSTER	NNN0BCL@Winlink.org	3/16/2009 2:34 PM
//MARS R/REGION TEN BCST 02/09	NNN0CC@Winlink.org	3/17/2009 5:08 PM
//MARS R/NNNOASO BROADCAST 02/2009	NNN0BP@Winlink.org	3/17/2009 5:33 PM
//MARS R/TEST	NNN0JBG@Winlink.org	3/18/2009 9:32 AM
//MARS R/ACTUAL INCIDENT EEI MESSAGES	NNN0CC@Winlink.org	3/18/2009 5:30 PM

Subject: //MARS R/CHNAVMARCORMARS INFO BCST 02-09
From: NNN0CC@Winlink.org
Reply-To: NNN0CC@Winlink.org
Date: 1/15/2009 4:12 PM
To: NNN0GCC@Winlink.org
Cc: NNN0EGK@Winlink.org, NNN0GJZ@Winlink.org, NNN0GMO@Winlink.org, NNN0JWF@Winlink.org

DE NNNOASA 005
R 151200Z JAN 2009
FM NNNOASA VA
TO NNNOALL
BT
UNCLAS
SUBJ: CHNAVMARCORMARS INFO BCST 02-09

Unread: 0 Total: 21

How does it work?

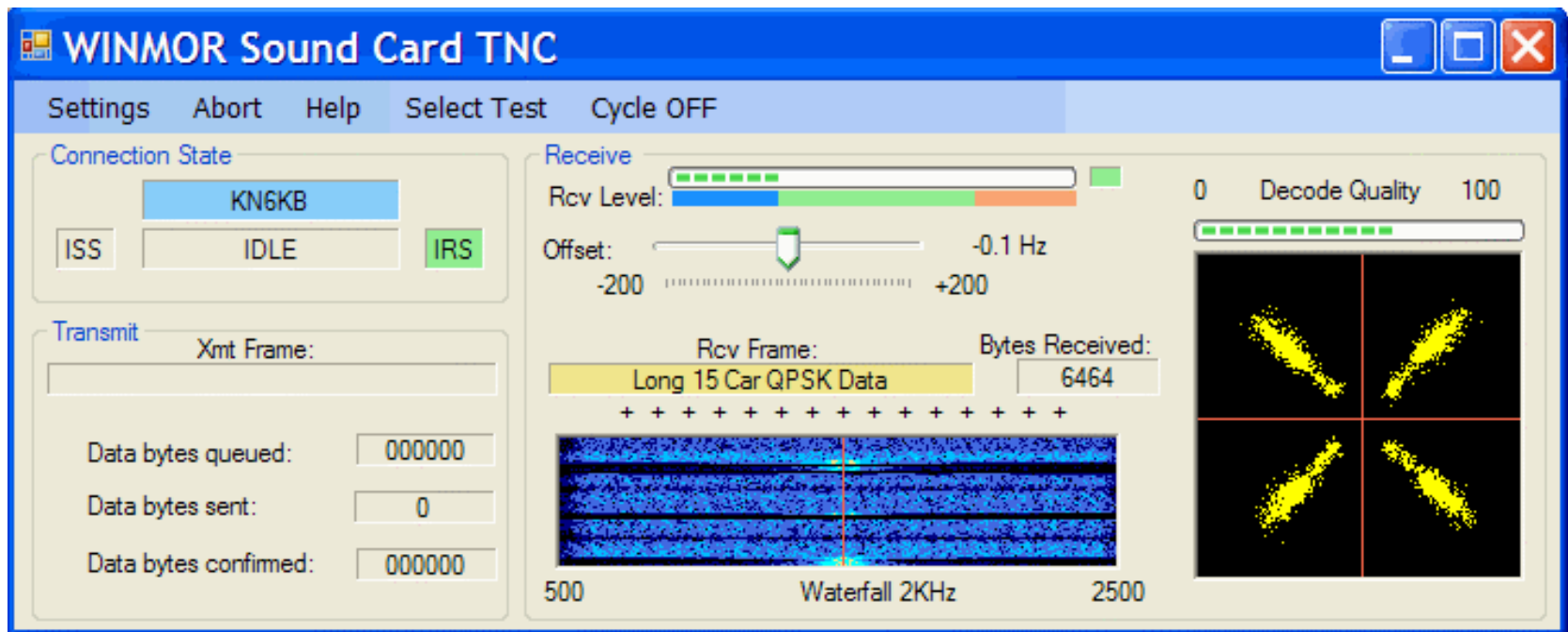


WINMOR

- Rick Muething, KN6KB, is lead coding PaclinkW and RMS HF software
- PC Soundcard ARQ mode for WL2K Digital Messaging
- No external TNC required
- Not a replacement for PACTOR 1, 2 or 3
- This is an additional HF mode for WL2K
- Speed expected to be between P2 and P3
- PaclinkW in Beta 'desktop' testing
- Limited HF RMS testing next step
- To be fully deployed in ???

WINMOR

- Picture of WINMOR client



WL2K at work...



“The Real World,” does it really work?

Example of agency use:

Hurricanes, Typhoons
“The” Asian Tsunami
Failure of IntelSat 804
Forest Fires (US, Australia)
Humanitarian Missions
Health Mercy Missions
Research Missions
Missing/distressed vessels (continual)
Agency EmComm



U.S. COAST GUARD



Homeland Security



FADCA



International Boat Watch Network

Friend Ships

-----Original Message-----

From: Hennigan, Joe

Sent: Friday, March 09, 2007 11:13 AM

To: Chief, Army MARS



Homeland
Security

Subject: The Department of Homeland Security Sponsorship of Winlink 2000.

The Department of Homeland Security (DHS), Operations Coordination Directorate (OPS) has made great strides over the last 3 months in support of the Military Affiliate Radio System (MARS). In cooperation with Army MARS, and DHS Transportation Security Agency, DHS Operations Coordination Directorate (OC) has installed a WinLink 2000 system, to include hosting one of four redundant, mirror image, Common Message Server (CMS) Hubs, a Radio Message Server (RMS,) and end-user client applications for HF Operations.

WinLink 2000 is a COTS application suite, allowing users the ability to extend an e-mail capability and GPS Positioning data between an HF Radio and the internet. DHS has the capability to literally pass data from anywhere in the world, no matter how austere. DHS is one of many Government Agencies with HF radio capabilities, but this particular solution provides DHS with a unique set of extended capabilities.

The WinLink 2000 system consists of many different components, making it very stable and reliable in times of need. WinLink 2000 is utilized by many Emergency Response Agencies, including the Department of Defense (DoD). The MARS Winlink 2000 radio messaging system can both be contacted through this application via conventional HF/VHF/UHF radio communications, or via standard e-mail through the MARS Winlink 2000 radio e-mail system, to any number of operators throughout the world to get messages promptly delivered where normal standard e-mail does not exist. This is critical to any emergency response requirement.

This capability is proof positive of the DHS's commitment to enhancing emergency communications.

Best regards,

Joe Hennigan,
Director, Technology Support
Operations Coordination Directorate
Department of Homeland Security

URLs of Interest

Winlink 200 Website:

- <http://www.Winlink.org>

Yahoo Groups:

- <http://groups.yahoo.com/group/wl2kemcomm> Winlink
- <http://groups.yahoo.com/group/airmail2000> Airmail
- <http://groups.yahoo.com/group/WINMOR> WINMOR
- http://groups.yahoo.com/group/LOADING_WL2K_USER_PROGRAMS
For the 'Digitally Challenged'

Winlink2000.org Website

WINLINK 2000
Global Radio Email System **ON AIR**

Home About Applications E-mail Us How-to... Links Maps Reports Software WebMail Login FAQ Site Login

Winlink 2000

Winlink 2000 (WL2K) is a worldwide **system** of volunteer resources supporting e-mail by radio, with non-commercial links to internet e-mail. These resources come from Amateur Radio, the Military Affiliate Radio Systems (MARS), and other volunteer organizations. The system provides valuable service to emergency communicators, and to licensed operators without access to the internet. The Winlink Development Team (WDT) is committed to continuous improvement using the most efficient and effective radio modes and protocols for local, regional and long-distance applications, together with modern computer and networking technology.

To use the Winlink 2000 system, you must hold an Amateur Radio license or be a member of a supported organization or agency. Use of the system and all software is free of charge for those who qualify.

Winlink 2000 is an all-volunteer, non-profit project of the Amateur Radio Safety Foundation, Inc. It functions only through your generous donations and the unselfish efforts of hundreds of Amateur Radio operators around the world. Please support WL2K with your tax-deductible donation.

Quick!!

- **Is this an EMERGENCY?** Concerned about a WL2K user or family or friends at sea? *Get help through Winlink 2000 NOW.*
- Want the position of a WL2K user? [Click here.](#)
- Want to get started using Winlink radio email? [Go here.](#)
- Update your software with the latest *HF frequency list.*
- Get the latest on *WINMOR.*
- This is a big site. Find anything fast with the Search tool, above.

View This Site in Your Language

Google Translate
Select Language

[Gadgets powered by Google](#)

Telpac Network Support Ends

This is a reminder. As we previously announced, beginning the afternoon of March 5 Telpac stations that attempt a logon will get a message "Invalid gateway indicator - Disconnecting".

Telpac software is no longer supported on the Winlink 2000 system. Telpac Sysops should upgrade to RMS Packet or Linux RMS Gateway software. Learn more about WL2K sysop software: [click here.](#)

Yahoo Group Website

Yahoo! | My Yahoo! | Mail | More ▾ Get the New, Safer IES Hi, Gary ▾ | Sign Out | Help

YAHOO! GROUPS

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WINMOR

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Polls
Members
Calendar

Promote

Groups Labs (Beta)
Applications

Info Settings

Group Information
Members: 723

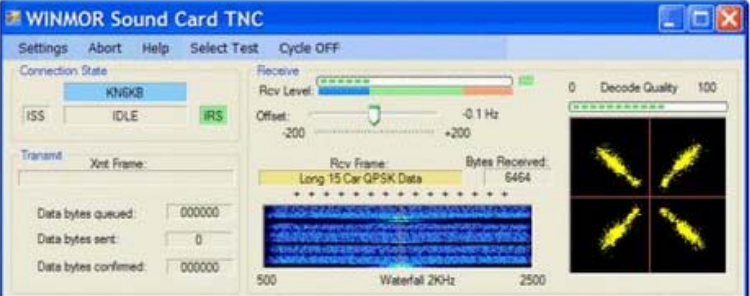
If you are (or were) experiencing problems with Yahoo! groups, visit the [Groups blog](#) for more information

Home

Activity within 7 days: **30** New Members - **9** New Messages - New Questions

Description

Please state your valid amateur radio call sign when requesting membership. If you forget to state your call sign, you will be contacted via your registered email address. So, be sure that you register with a working email address that you check regularly! If you don't respond to the request, your membership cannot be approved. We cannot infer your call sign, even if you may use it in your email address (unless it is an ARRL address).



**** This Group is owned and moderated by Joe, N2QOJ, of Queen Creek, AZ. ****

WINMOR is an HF digital protocol designed for use with the Winlink 2000 network. WINMOR will eliminate the

WL2K for Dummies



The screenshot shows the Winlink 2000 website interface. At the top, there is a blue header with the Winlink 2000 logo and the text "Global Radio Email System ON AIR". To the right of the logo is a search bar with a "Search" button. Below the header is a large image of Earth from space. Underneath the image is a navigation menu with the following items: Home, About, Applications, E-mail Us, How-to..., Links, Maps, Reports, Software, WebMail Login, FAQ, and Site Login.

"WL2K For Dummies"

by Bud Thompson, N0IA.



This is not a book, but an on-line course for those serious about learning how to use the EmComm "last mile" portion of Winlink 2000, but who also may feel "digitally challenged." In this course, it is possible to set up and experience WL2K e-mail over Amateur Radio without a data modem (TNC) or a radio. All that is required is a Microsoft Windows 2000 Pro (or better) computer, Internet access, and a valid Amateur Radio License.

To take this short course, and have lessons delivered by regular email, you must join the Yahoo Group at http://groups.yahoo.com/group/LOADING_WL2K_USER_PROGRAMS/ moderated by N0IA, 'Bud' Thompson. You download the lessons from the file area of the group, and Bud and the gurus answer any questions and help you address any problems. You will work through several assignments at your own pace, and then determine if you wish to get further involved with a TNC and compatible radio over the air!

REVISED course now includes PacLink MP!
Here are the assignment headers:

- **ASSIGNMENT #1 - Collecting Information and Cataloging Equipment**
Estimated time - 10 Minutes or less

In this assignment you will learn if the computer-associated equipment you have available is sufficient for downloading, installing, and configuring the several programs that will be used for packet and the WL2K radio e-mail system. It is not necessary for you to have any radio equipment or data controller/TNC to complete this assignment (or this course!)

You will also introduce yourself to the group.

Credits...

Much of the information contained herein provided by:

- Steve Waterman, K4CJX
 - Winlink 2000 Network Administrator,
 - Winlink 2000 Development Team
- The www.Winlink.org website
- Experience...!

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

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

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

Questions?

Gary J Takis, K7GJT

K7GJT@arrl.net - K7GJT@winlink.org - NNN0KUL@winlink.org