



Radio Meets Internet

Steven F. Goldberg, W3SFG



Radio Meets Internet Series Outline

- Part 1: Internet Operating Aids
- Part 2: Survey of Digital Operating Modes
- Part 3: Internet Resources and Databases
- Part 4: Software Applications



Radio Meets Internet

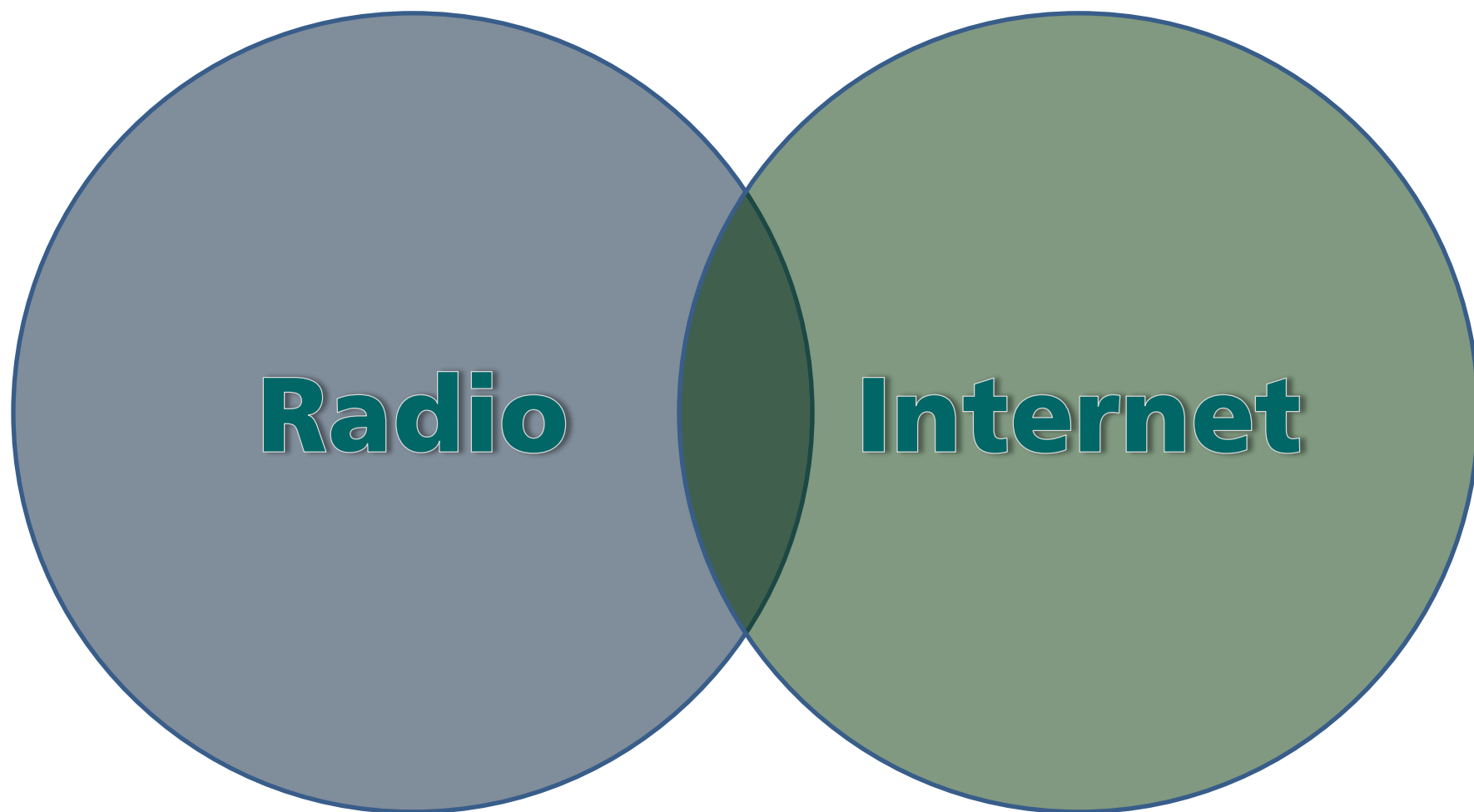
Introduction

Venn and the Art of Communications

Steven F. Goldberg, W3SFG



The Intersection





Communication Modes



- Wireless
- Analog / Digital
- Voice, Text, Data, Video
- Bandwidth = Frequency Spectrum
- Public
- Dependencies: Propagation, Equipment
- Two-way
- Synchronous
- Regulated / License Required
- Plagued by trolls and crackpots

- Wired backbone, wireless access
- Digital
- Voice, Text, Data, Video, GUI
- Bandwidth = Bit Rate / Channel Capacity
- Public or private (encryption)
- Dependencies: Access, Software
- Store and Retrieve / Interactive / Streaming
- Asynchronous / Synchronous
- Unregulated / Self-organizing Chaos
- Plagued by trolls and crackpots



The Intersection

- Internet-enhanced Radio Operation
- Internet / Radio Networks
- Digital Operating Modes
- Resources and Databases
- Software Applications (including Mobile)
- Other?



Radio Meets Internet

Part 1: Internet Operating Aids

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Outline

- Propagation Data and Prediction
- Spotting Networks
- Callsign Lookup / Mapping
- Logging / QSL
- Net Control
- Wide Area Network
- Real-time Streaming
- Satellite Tracking
- Remote Control



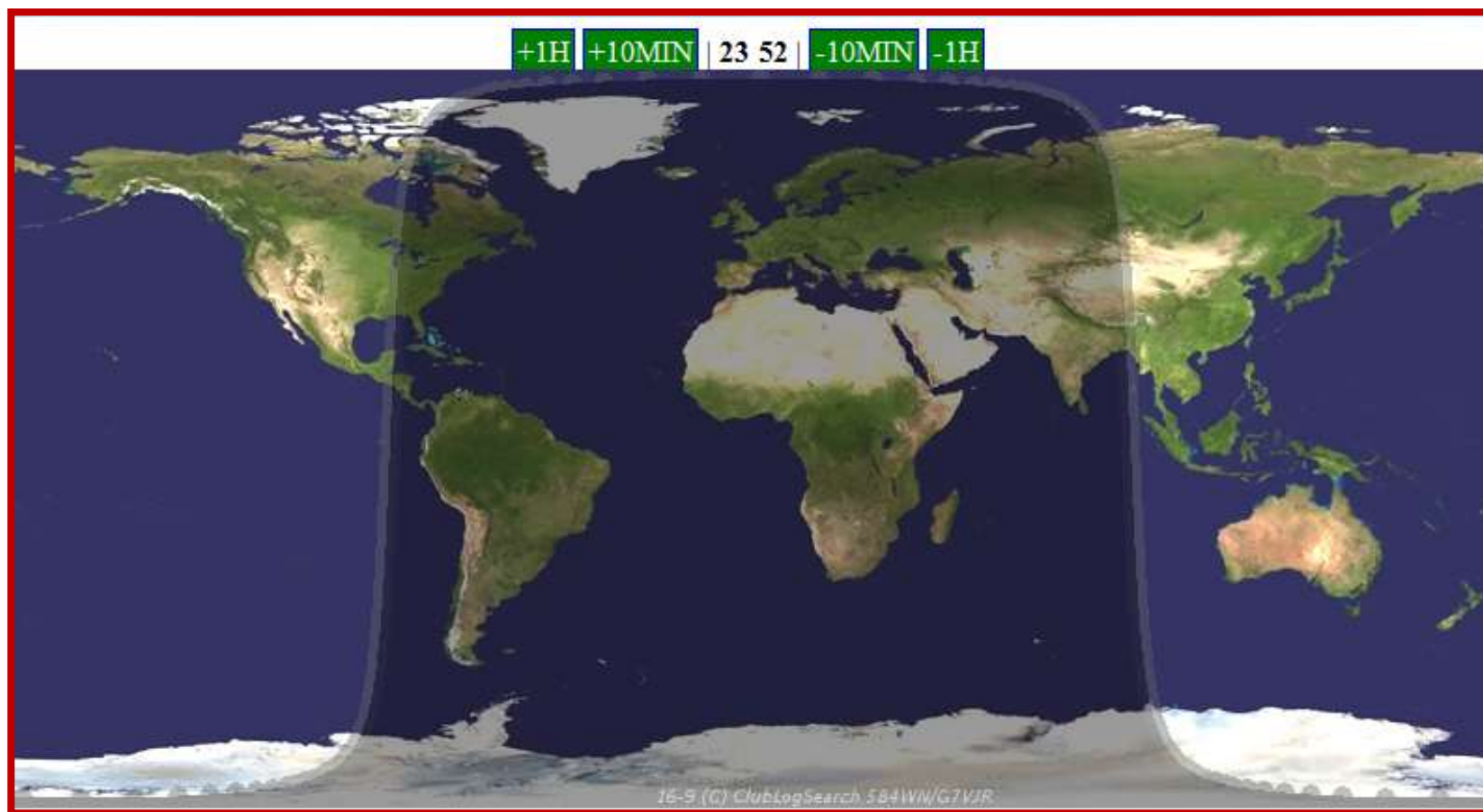
Propagation Data / Prediction

The screenshot shows the homepage of spaceweather.com. The header includes the site's logo, a navigation bar with links like "AURORA ALERTS", "SUBMIT YOUR PHOTOS!", "3D SUN", "CONTACT US", "SUBSCRIBE", "FLYBYS", and "SCIENCE@NASA", and a subscription form. The main content area is divided into several sections. On the left, "Current Conditions" provides real-time data on solar wind speed (457.2 km/sec) and density (0.3 protons/cm³), along with X-ray solar flare forecasts for the next 6 and 24 hours. Below this is a "Daily Sun" section featuring a large orange sun graphic with sunspot numbers (1558, 1571, 1584) and a note that solar activity is low. The central "What's up in space" section includes news about meteorite sales and reports on quiet solar activity and a "plasma rain" event. To the right, there's an "archives" section with dropdown menus for month and year, and a "view" button. At the bottom right, there are advertisements for a "Solar Telescope" and "space toys". A large video player with a play button is positioned at the bottom center of the main content area.

spaceweather.com



Propagation Data / Prediction





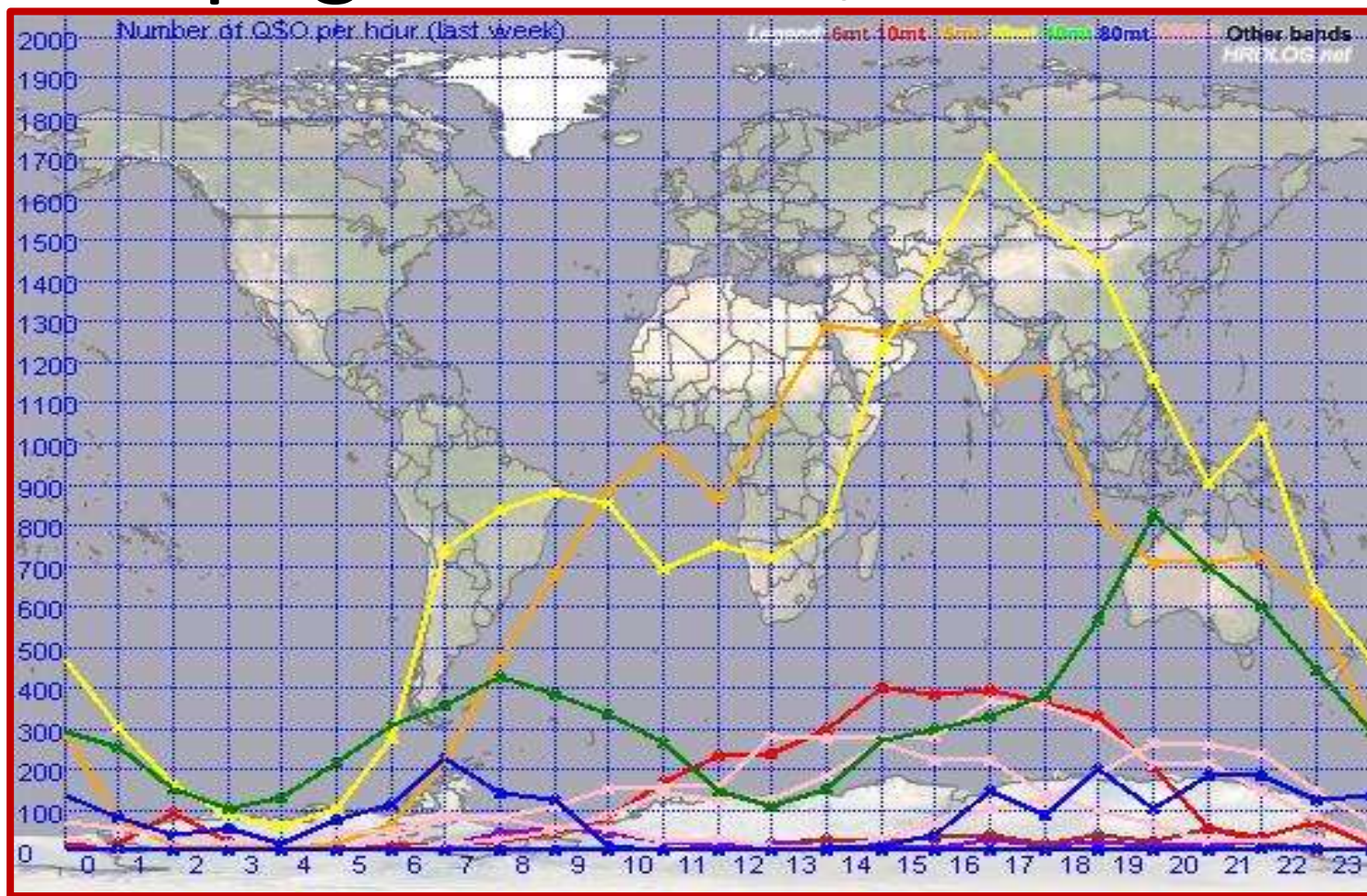
Propagation Data / Prediction



pskreporter.info



Propagation Data / Prediction



hrdlog.net



Spotting Networks

DXSUMMIT BY RADIO X ARCALA

OH8X
WWW.RADIOARCALA.COM

NEWS **DX SPOTS** BAND SPOTS ANNOUNCEMENTS SEND SPOT SEARCH FORUM DONATE RADIO ARCALA

[» 25](#) [» 50 HF](#) [» 50 VHF](#) [» HF/CW](#) [» HF/PHONE](#) [» VHF/CW](#) [» VHF/PHONE](#) [» 250](#) [» 1000](#) [» 10000](#) [» Most Wanted](#) [» Old view](#) [» 25 plain text](#) [» 25 mobile spots](#)

[» LAST 25 DX SPOTS - RELOADED EVERY MINUTE](#)

W3LPL	14001.0	HP1/I26BRN		0027	17 Sep	Panama
KI5WE	14286.9	DH5PK	59+10 GREAT SIGNAL IN TEXAS	0026	17 Sep	Fed. Rep. of Ger
YV4DHS	21070.0	K7CWA	599.bpsk 31	0026	17 Sep	United States
DS1RLZ-@	21013.0	K1UI	CW FB QSO TNX CQ	0026	17 Sep	United States
K1JI	18092.0	JT1E		0026	17 Sep	Mongolia
RW9FN	7003.0	UA6APT	tnx QSO Vlad 73	0025	17 Sep	European Russia
DS1RLZ-@	21013.0	W3KB	CW FB QSO TNX CQ	0025	17 Sep	United States
N4NDX	14285.0	W6I	Where is W6F	0025	17 Sep	United States
UA9CGL	10103.1	ES4MM	CQ DX	0024	17 Sep	Estonia
I27JVR	3799.0	HP1/I26BRN	ci sei???	0023	17 Sep	Panama
UA9CGL	10109.8	HA7PJ	CQ	0022	17 Sep	Hungary
JA2XLV	28023.0	XE2S	cqcqcg qsb	0022	17 Sep	Mexico
WA9E-@	14266.0	OH8X	Thanks for DX Summit, rt 66 is fu	0022	17 Sep	Finland
DS4DBG	14027.0	HL2LVB	CQ DX	0022	17 Sep	Republic of Kore
N3LDE	14010.0	DP0PC	Tnx 550 in MD Jim	0021	17 Sep	Brazil

[Sign In/Register](#)

Solar-Terrestrial Data
17 Sep 2012 0014 GMT
SFI: **97** SN: **53**
A-Index: **7**
K-Index: **3**
X-Ray: **B1.8**
304A: **143.2** @ SEM
Calculated Conditions


Band	Day	Night
80m-40m:	Poor	Fair
30m-20m:	Good	Good
17m-15m:	Fair	Fair
12m-10m:	Poor	Poor


Signal Noise: **S2-S3**
Click to Install Solar Data On your Web Site
[http://www.solarweb.com](#)

dxsummit.fi




Callsign Lookup


**QRZ.COM**


Voice Beacon


Database News Forums Swapmeet Resources Contact Edit W3SFG


00:31:53 UTC 17 Sep 2012

**Glass-leading
100% duty cycle**
ICOM


**OPEK**

**Kenwood
TS-590S**

**E-Z HANG**

W3SFG 

STEVEN F GOLDBERG
107 Lakin Avenue
Boonsboro, MD 21713-1313
USA








[+] Mailing label
Lookups: 1498 XML Subscriber

Biography Detail Notes Logbook 46 Web 7

Former callsigns: WN2UCR, WN2ZYR, WB2ZYR, WB5WRO, KJ5IL, AA3NE
QTH: Boonsboro, Maryland, USA (a small, historic town in Western Maryland)


My last 10 QSO

CALL	DX	DXCC	TIME	BAND	MODE	RSTr	RSTs
W3SFG	NZ8V		2012-09-13 03:37	40m	JT65	-06	-06
W3SFG	KJ9C		2012-09-13 03:22	40m	CW	599	599
W3SFG	W0BH		2012-09-13 03:21	40m	CW	599	599
W3SFG	KY4F		2012-09-13 03:20	40m	CW	599	599
W3SFG	K6DB		2012-09-13 03:19	40m	CW	599	599

qrz.com



Callsign Lookup

 **QRZCQ** - The database for radio hams - **BETA** [Report a problem](#) [Help](#) 2012-09-17 00:12

Call search: [search](#) [Advanced](#) • [SUN DATA: SF=98 SN=53 XR=B1.7 AI=7 KI=3](#) | Logged in as [W3SFG](#) [View](#) [mana](#)

[Home](#)
[Stream \(4\)](#)
[Chat](#)
[Account](#)
 [Check](#)
 [Data](#)
 [Mail](#)
 [System \(1\)](#)
 [Sent](#)
[Images](#)
 [Footnotes](#)
[Items](#)
[Logbook](#)
[Settings](#)
[Lists](#)
[Invites](#)
[Search](#)
[DX Cluster](#)
[Internal](#)

You are here: [QRZCQ](#) > [Home](#)

Welcome, W3SFG!


Thank you for registering and using QRZCQ.com
There are 21200+ users with you here!

[Your account dashboard:](#)
⇒ You have 1 unread system messages

[QRZCQ internal news:](#) [view all](#)
2012-09-04 09:49:45 [D05SSB](#) New linking possibilities [details](#)
2012-07-19 10:50:51 [D05SSB](#) Logbook download [details](#)
2012-06-06 19:21:39 [D05SSB](#) More filtering possibilities in DX-Cluster [details](#)
2012-06-06 19:18:04 [D05SSB](#) Comments on some pages [details](#)
2012-06-06 19:15:29 [D05SSB](#) Partial logbook upload [details](#)

[Current activities in calendar:](#) [view all](#)
⇒ [DXpedition: Swains Island DXpedition NH8S](#) // Begin: 2012-09-05 12:00:00 // End: 2012-09-19 12:00:00
⇒ [Contest: ARRL EME Contest 2304 MHz and Up](#) // Begin: 2012-09-16 00:00:00 // End: 2012-09-17 23:59:59

[Today's featured station:](#) [IT9ACJ](#)



[Hottest QRG on DX Cluster now:](#)
21070.0 kHz on 15m band
DX K7CWA by YV4DHS

[Current activities in calendar:](#)
⇒ [DXpedition: Swains Island DXpedi...](#)
⇒ [Contest: ARRL EME Contest 2304 M...](#)
⇒ [Contest: North American Sprint, SSB](#)

[Latest spotlessly clean profiles:](#)
[DK2KW](#) [FW2GI](#) [I78IFT](#) [ON4ARV](#) [OT4R](#)

qrzcq.com



Logging / QSL

The screenshot shows the HRDLOG.net website. At the top, it says 'HRDLOG.net Amateur Radio Web based logbook' and 'vers. 0.33.0 - beta'. There's a navigation bar with '> Home' and 'Auto'. The main content area is titled 'Members operations' and includes three options: 'View logbook >', 'Load logbook >', and 'Create script >'. To the right, there's a 'To do list' with items like 'Make a don', 'Insert your', and 'Insert a des'. Below that is a table titled 'My last' with columns 'Callsign' and 'D'. The table lists several entries for 'W3SFG'. A 'Donate' button is also visible. On the bottom left, there's a 'Current activity' section showing a spectrum plot with the text 'HRDLOG.net SF:98 SN:53'. On the right, there's a world map with colored dots representing logbook entries. A legend at the top right of the map indicates '60m', '80m', 'Other bands', and 'HRDLOG.net'. At the bottom right of the map, it says 'W3SFG 6 Continents, 23 CQ Zones, 23 ITU zones, 91 DXCC Max GRB 16,750 Km Updated: 17-Sep-2012 00:39UTC'.

hrdlog.net



Logging / QSL

THE ARRL



LOGBOOK
OF THE WORLD™



YAESU
PRINCIPAL SPONSOR
of the LoTW Website

Today is Mon, 17 Sep 2012 UTC
You are W3SFG
[Log Off](#)
You have 4,373 QSO records
You have 2,283 QSL records

Join ARRL!
Join or Renew Today



[Home](#) [Your QSOs](#) [Awards](#) [Find Call](#) [Upload File](#) [Your Account](#)

Welcome to Your Logbook of the World User Account Home Page

About Logbook of the World

- Welcome
- [Introduction](#)
- [Start Here — LoTW Main Page](#)
- [Troubleshooting and Help](#)

TrustedQSL Status

Current *TrustedQSL* software version: 1.13
([Download](#))

Logbook Status

p1k.arrl.org/lotwuser



Logging / QSL



eQSL
Electronic QSL-Card Centre

W3SFG - Boonsboro -
eQSL.cc Home Page
We have already saved
over 51,118 trees!

ML&S martin lynch & sons
Suppliers of Communications Equipment

The Worlds
Favourite Ham Store!



System Stats

Users online: 99
Total Unique Users: 200,572
Total eQSLs: 260,633,914
Load Factor: 0%
Page Wait: 0.0 secs

Search

Callsign:

Help

[FAQ](#)
[Contact Us](#)


[Community](#)


[InBox](#)
A list of new incoming eQSL cards you have not displayed yet.


[OutBox](#)
Display and edit your outgoing eQSL log.


[Archive](#)
eQSLs you have already displayed or archived.


[RejectBox](#)
eQSLs you have rejected.

[About eQSL.cc](#)
History, technologies, Advisory Board, and other information about eQSL.cc

[Site News](#)
News and announcements you need to know

[My Savings](#)
Calculate how much money you have already saved by using eQSL.cc

[My Postage Account](#)
Your account for postcards, plaques, and other shipping costs

[Orphan eQSLs](#)
Are there any eQSLs waiting for a portable/mobile version of my

eqsl.cc



Net Control

Net Logger 2.4 - 'OMISS 40m SSB Net, NC: DANNY, Logger: KE5WDI

File View Edit Setup Function Help

My Nets: OMISS 40m SSB Net [Add Net] [Delete Net] [Clear Net Info] [Nets Online]

Check-Ins: Freq: 7.185 Mode: SSB Band: 40m [Log Contact] [Club Info] [DXCC List]

#	Callsign	State	Remarks	QSL Info	City/Country	Name	Status	RST Rcvd	RST Sent	County	Grid Square	Street	Zip	DXCC	Mode
1	KE5WDI	TX	#6421#	GIB-8 M V T	NCS	DANNY				FANNIN	EM13				SSB
2	KD0CZK	MN	#7216#	GIB-3 N	MOBILE	TOM				MILLE LACS	EN35				SSB
3	KI4QMB	FL	#7682#	GIB-19 M	QRP 5W	DICK				PUTNAM	EL99				SSB
4	KI6ZAC	CA	#8149#	GIB-1	QRP 5W	STEVE				SAN DIEGO	DM12				SSB
5	N4JLT	KY	#1505#	GIB-7 M		KEN				BOYLE	EM77				SSB
6	W8CWG	OH	#7998#	GIB-1 M		CHRIS				MONTGOMERY	EM79				SSB
7	K4HTV	NM	#8441#	GIB-4		GARY				LUNA	DM62				SSB
8	N4JTE	NY	#1440#	V T Y Q N		BOB				ULSTER	FN21				SSB
9	KR8RJA	OH	#8266#	GIB-2		RJ				MAHONING	EN91				SSB

Contacts: ☐ Callsign Filter ☐ Net Filter ☐ Remarks Filter ☒ Operator Filter

Almost Instant Messages

[N4JTE] 3 week general using remote, pretty cool!

[KC9TLM] best remote I've heard

[KF5LNU - JODY] Josh, you're a geocacher as well, eh?? =0)

[N2ETI] Homer, you need Gam

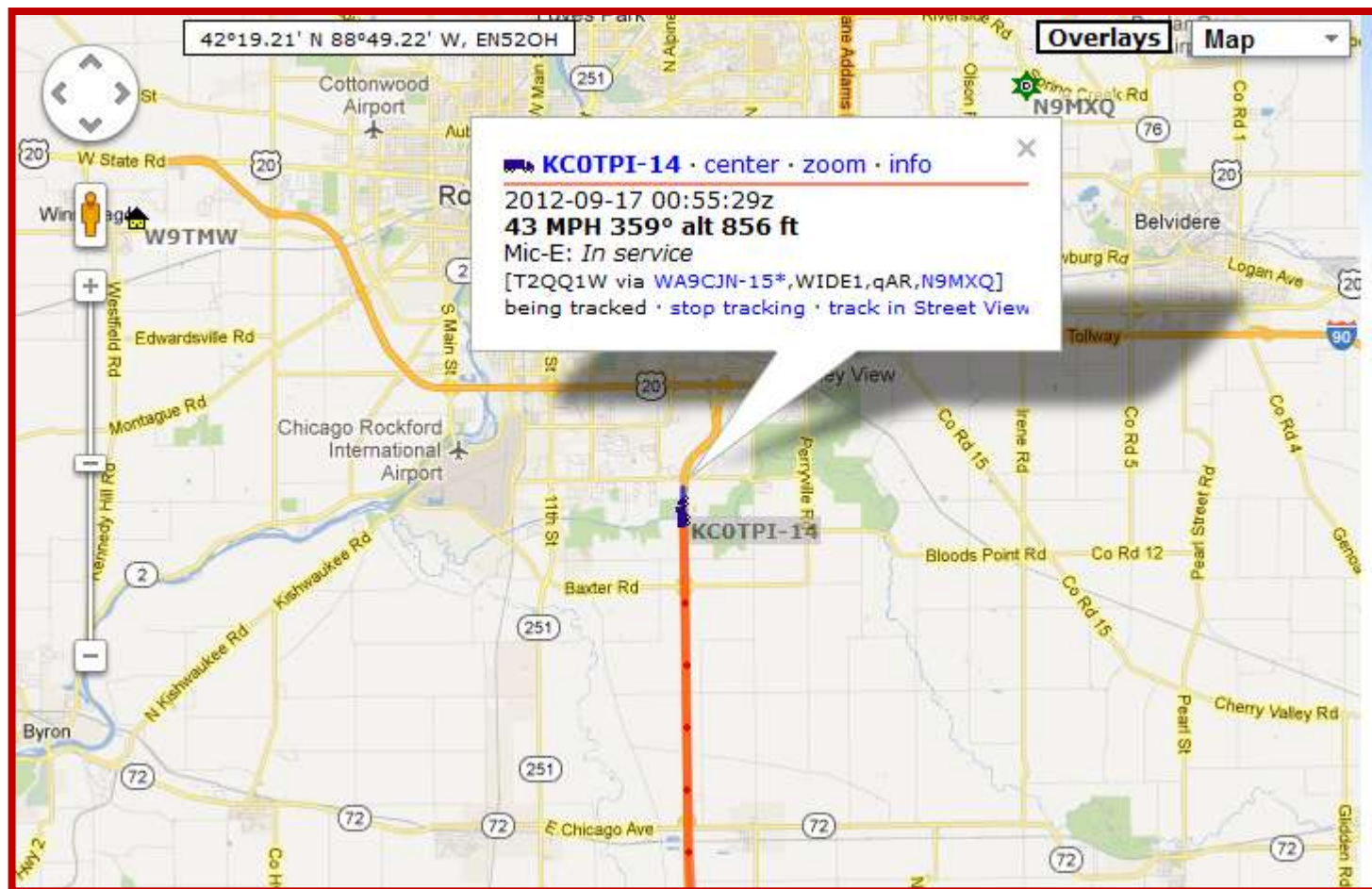
Type your message here. [Send]

Net Info: UTC: Meets: Day(s): Week: QSL Info: Server: OMISS Club Profile: Worked Flag: Callsign Operator: W3SFG 00:51z

netlogger.org



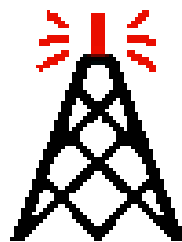
Wide Area Network



aprs.fi



Wide Area Network



EchoLink



dstarinfo.com / echolink.org / irlp.net



Wide Area Network



hamsphere.com / qsonet.com



Real-time Streaming




A WebSDR is a Software-Defined Radio receiver connected to the internet, allowing many listeners to listen and tune it simultaneously. SDR technology makes it possible that all listeners tune independently, and thus listen to *different* signals; this is in contrast to the many classical receivers that are already available via the internet.

More background information is available [here](#) and frequently asked questions are answered [here](#). Questions and comments can be sent to [PA3FWM](#), the author of the WebSDR software and maintainer of this site.

WebSDR servers can register themselves automatically on this site, leading to the below list of currently active WebSDR servers.

Currently there are 42 servers active, with 102 users and 40994 kHz of radio spectrum.

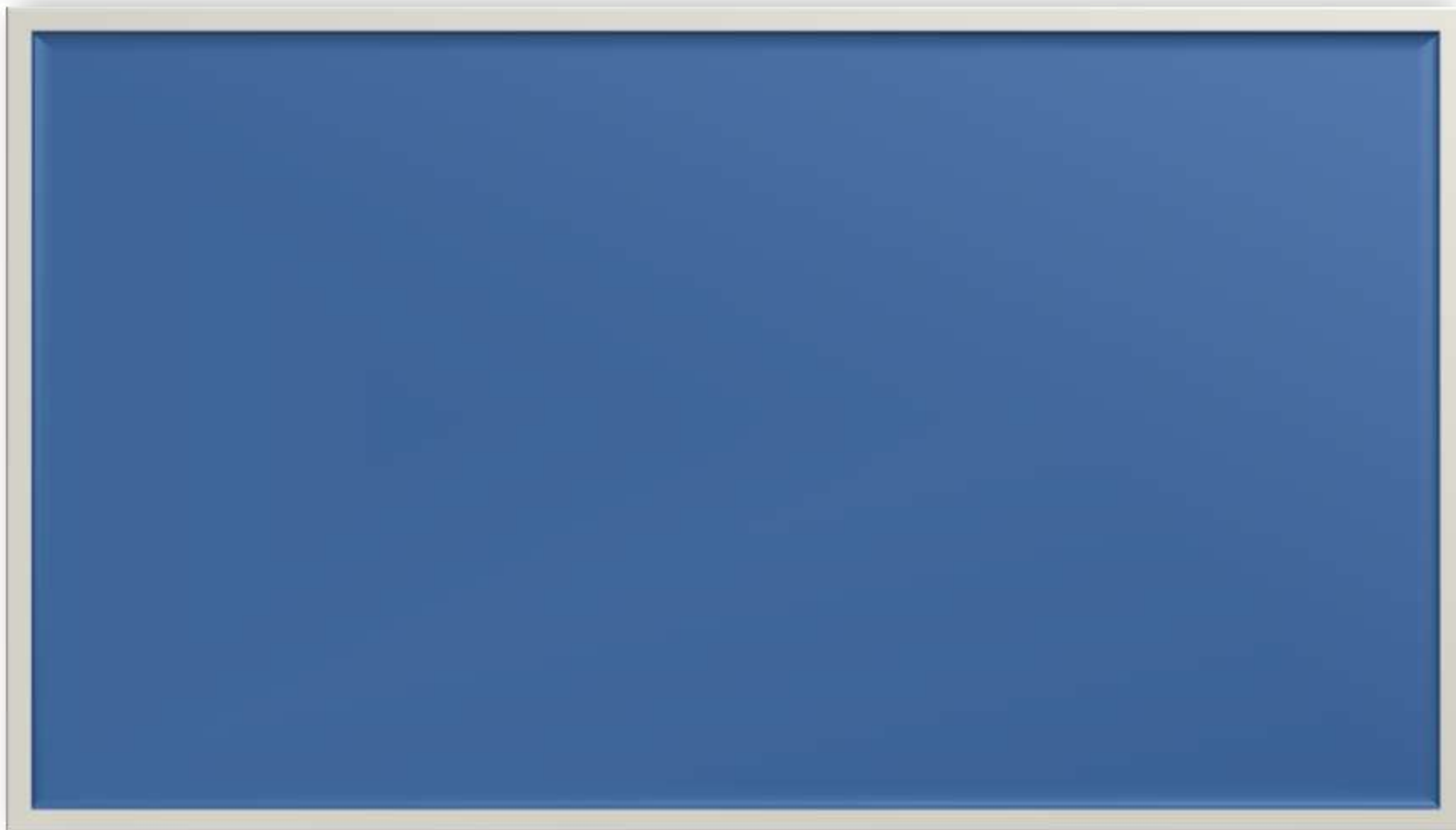
Filter band: and region:

Location and URL	Frequency range	Antenna
 WebSDR at the University of Twente, Enschede, NL http://websdr.ewi.utwente.nl:8901/ JO32KF; 19 users	0.000 - 29.160 MHz	Mini-Whip
 WebSDR from Weert, The Netherlands http://www.nachtuilen.net/ JO21UG; 12 users	3.591 - 3.783 MHz 7.008 - 7.200 MHz	Wellbrook loop
 W4AX Softrock 160, 80, 40, and 20M. Atlanta, GA, USA http://W4AX.com/ EM74uc; 32 users	1.799 - 1.991 MHz 3.549 - 3.741 MHz 3.744 - 3.936 MHz 7.018 - 7.210 MHz	Inverted L at 100 ft. Clifton Labs Active Antenna and Norton Preamp

websdr.org



Real-time Streaming





Satellite Tracking



AO-Echo - Visible Passes

Search period start: 16 September 2012 00:00

Search period end: 26 September 2012 00:00

Location: Frederick, MD, 39.4076°N, 77.4344°W

Orbit: 695 x 815 km, 98.2° (Epoch: 16 September)



Passes to include: ☒ visible only ☐ all

Click on the date to get a star chart and other pass details.

Date	Brightness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
16 Sep	?	04:17:59	10°	NNE	04:22:31	60°	E	04:22:31	60°	E
16 Sep	?	05:58:33	10°	NNW	06:00:58	14°	WNW	06:02:30	12°	W
17 Sep	?	03:39:02	10°	NE	03:42:16	23°	E	03:42:16	23°	E
17 Sep	?	05:17:27	10°	N	05:21:39	33°	WNW	05:22:14	32°	W
18 Sep	?	04:37:23	10°	NNE	04:41:59	83°	NW	04:41:59	83°	NW
19 Sep	?	03:57:59	10°	NNE	04:01:44	35°	E	04:01:44	35°	E
19 Sep	?	05:37:23	10°	NNW	05:40:57	22°	WNW	05:41:43	21°	W
20 Sep	?	03:10:47	10°	ENE	03:31:30	14°	E	03:31:30	14°	E

heavens-above.com



Remote Control



