

Wireless Communications: SSB & Satphone for Vic-Maui

David Sutcliffe
October 2015

Introduction

- ▶ Equipment: SSB & SatPhone
- ▶ Installation, Interference, Operation, Coverage
- ▶ Vic-Maui Roll Call
- ▶ Appendices

SSB, SatPhone considerations

SSB

- ▶ Works everywhere *
- ▶ Broadcast
 - Emergency voice
 - Emergency DSC
 - Weather
 - Daily “nets”
- ▶ Station call: DSC
- ▶ Initial expense high
- ▶ Airtime free
- ▶ Installed in one boat

SatPhone

- ▶ Works in coverage area *
- ▶ No broadcast
 - Call RCC for Relay *
 - Call RCC for Relay *
 - Use a Worldband radio *
 - Unable to participate
- ▶ Station call: SatPhone # *
- ▶ Initial expense medium
- ▶ Airtime \$ per minute
- ▶ Portable off the boat

Most long term offshore boats now carry both

Equipment: SSB Radio

- ▶ Marine HF-SSB Radio
- ▶ HF Antenna
- ▶ Automatic Antenna Tuner
- ▶ Data Modem
- ▶ Laptop Computer & Software



SSB Installation

- ▶ Power wiring
- ▶ RF ground
- ▶ Antenna and connections;
automatic tuner
- ▶ MMSI, DSC
- ▶ Data modem, laptop & software
- ▶ Services



- ▶ See Farallon white paper at
<http://www.farallon.us/webstore/Pcup%20SSB.pdf>

SSB Operation

- ▶ Station License, Call Sign, Identifier
- ▶ Operator License
- ▶ Equipment User Manuals
- ▶ Quick Reference cards



- ▶ Charged Batteries
- ▶ Practice

WeatherFax schedules		Transmit time	
Chart	Valid	UTC	Ships Time
96hr 500mb/sfc/wndwv	0000	20:33 - 21:03	11:33 - 12:03
48hr 500mb/sfc/wndwv	0000	08:28 - 08:58	23:28 - 23:58
48hr 500mb/sfc/wndwv	1200	19:53 - 20:23	10:53 - 11:23
24hr sfc/wndwv	0000	08:08 - 08:18	23:08 - 23:18
24hr sfc/wndwv	1200	19:33 - 19:43	10:33 - 10:43
sfc analysis NE NW	0000	03:20 - 03:45	18:20 - 18:45
sfc analysis NE NW	0600	09:19 - 09:32	00:19 - 00:32
sfc analysis NE NW	1200	15:20 - 15:33	06:20 - 06:33
sfc analysis NE NW	1800	21:24 - 21:37	12:24 - 12:37
500mb anal	0000	03:45 - 03:45	18:45 - 18:45
500mb anal	1200	15:45 - 15:45	06:45 - 06:45
sea state	0000	03:10 - 03:10	18:10 - 18:10
sea state	1200	15:00 - 15:00	06:00 - 06:00

SSB Interference

- ▶ Installation practices
- ▶ Wiring, standing rigging
- ▶ Electrical and electronic devices
- ▶ Frequency & equipment changes
- ▶ Testing
- ▶ When Operating



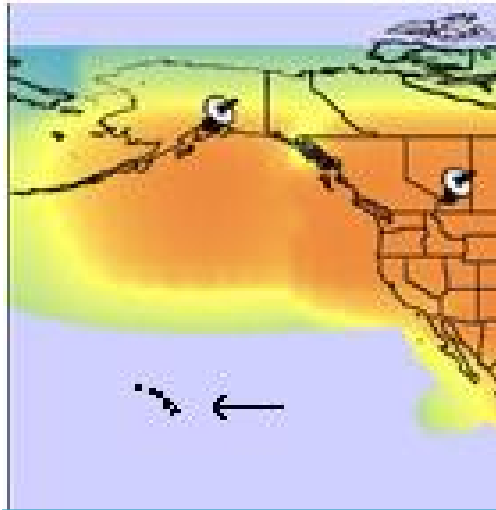
Equipment: Satphones

- ▶ Inmarsat, Iridium, (Globalstar)
- ▶ External Antenna
- ▶ Data kit
- ▶ Laptop Computer & Software



SatPhone Coverage

- ▶ Inmarsat Maritime, 70N to 70S
- ▶ Iridium Worldwide
- ▶ Globalstar



Source Globalstar, 2015, Voice & Duplex Data

SatPhone Installation

- ▶ Connections:
 - ▶ Power
 - ▶ External Antenna
 - ▶ Headset
 - ▶ Computer / data
- ▶ Software
 - ▶ Connection
 - ▶ Compression
 - ▶ Email
 - ▶ Downloads



Vic-Maui Communications Plan

- ▶ Includes Roll Call instructions, reference information
- ▶ 2016 version:
will be published before the race
- ▶ 2014 version (for reference):
 - <http://www.vicmaui.org/official-notice-board> or
 - http://www.vicmaui.org/pdfs/2014-documents/VM2014%20Bulletin%205%20-%20Communications%20Information_Redacted.pdf

Daily Reports & Roll Call

- ▶ Daily Reports – positions **and conditions**
LAT, LON, BARO, W-SPD, W-DIR, OTHER
- ▶ Daily Reports now submitted by email
- ▶ Traditional voice roll call ‘sked’
on SSB is now voluntary
- ▶ Coordinated by Communications Vessel
- ▶ Also relay communications RC ↔ Fleet
- ▶ “Practices” during VM Qualifying Races

Appendices

- ▶ Weather Products and Schedules
 - Weather Broadcast (voice) Schedules
 - Weather Warnings
 - Weather Fax Schedules
 - Weather Model (GRIB) Schedule
- ▶ Emergency Communications
- ▶ Courses
- ▶ Sources
- ▶ Glossary

Much of the information in these appendices is subject to error or becoming dated over time; it is essential to check and update information yourself before relying on it.

Summary

- ▶ Equipment: SSB & SatPhone
- ▶ Installation, Interference, Operation, Coverage
- ▶ Vic-Maui Roll Call
- ▶ Appendices

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Weather Broadcast Schedules

US Coast Guard Station – "NMC" – Point Reyes, CA

Channel	Freq. (kHz)	Times	(UTC)		
424	4426	0430	1030		
816	8764	0430	1030	1630	2230
1205	13089	0430	1030	1630	2230
1625	17314			1630	2230

US Coast Guard Station – "NMO" – Honolulu, HI

Channel	Freq. (kHz)	Times	(UTC)		
601	6501		0600	1200	
816	8764	0005	0600	1200	1800
1205	13089	0005			1800

Pacific Area High Seas Warnings

- ▶ Broadcast on time signal station WWV (Fort Collins, CO) at 10 minutes past the hour. WWV transmits with a male voice on 2.5, 5, 10 and 15 mHz; or phone +1.303.499.7111
- ▶ Also broadcast on WWVH (Kekaha, HI) at 48–51 minutes past the hour. WWVH transmits with a female voice on 2.5, 5, 10 and 15 mHz; or phone +1.808.335.4363
- ▶ Time of day and location will affect which of these stations you can hear.
- ▶ This information is also available at <http://nws.noaa.gov/om/marine/wwwv.htm>

Weather Fax Schedules

Pt. Reyes, CA, NMC

North and Tropical East Pacific

<http://weather.noaa.gov/pub/fax/hfreyes.txt>

Honolulu, HI, NMO

Central, Southeast and North Pacific

<http://weather.noaa.gov/pub/fax/hfhi.txt>

Kodiak, AK, NOJ

Alaska, North and Northeast Pacific

<http://weather.noaa.gov/pub/fax/hfak.txt>

Weather Model (GRIB) Schedule

- ▶ US NOAA/NCEP "GFS" global model
- ▶ Run every 6 hours (nominally 0z, 6z, 12, 18z)
- ▶ Available within 5 hours of nominal time
- ▶ Parameters: surface pressure, wind, other
- ▶ Data every 3 hrs to day 10,
then every 12 hrs to day 16
- ▶ Resolution improved to 0.25 degrees
- ▶ File size is critical to downloading when
accessing GRIB files via SSB or Satphone

Emergency Communications

- ▶ The Canadian or US Coast Guard should be contacted for emergencies. These authorities may be contacted or alerted by any available means including VHF radio, HF-SSB radio, satellite telephone and EPIRB.
- ▶ After initiating emergency communications with the Coast Guard, a boat should make all reasonable efforts, including continued participation in Roll Call, to keep the Race Committee and other boats informed of its situation.

Emergency Communications

Radio Communications

Canadian Coast Guard

- ▶ VHF channel 16
- ▶ MF 2182 kHz

US Coast Guard

- ▶ VHF channel 16
- ▶ ~~MF 2182 kHz closure~~
- ▶ NMC (Pt. Reyes, CA) monitors HF 4125, 6215, 8291, 12290 kHz (24 hours)
- ▶ NMO (Honolulu, HI) monitors HF 6215, 8291 kHz (24 hours), HF 4125 (0600–1800Z) and HF 12290 (1800–0600Z)

SatPhone Communications

Canadian Coast Guard

- ▶ RCC Victoria emergency phone +1.800.567.5111, ~~+1.250.363.2333~~
- ▶ +1.250.413.8933

US Coast Guard

- ▶ RCC Alameda (California, Eastern Pacific Ocean) emergency phone +1.510.437.3700
- ▶ RCC Seattle (Washington and Oregon) emergency phone +1.206.220.7001
- ▶ RCC Honolulu (Hawaii, Central Pacific Ocean) emergency phone +1.800.552.6458, +1.808.842.2600

Courses

Marine SSB & Amateur Radio

- ▶ Blue Water Cruising Association
Instructor: Ron Kolody
www.bluewatercruising.org
- ▶ North Shore Amateur Radio Club
www.nsarc.ca

Radio Operator License (Maritime)

- ▶ Canadian Power and Sail Squadron
www.cps-ecp.ca

Sources

Equipment & Installation

- ▶ Victoria
Victoria Marine Electric
www.ael.ca
- ▶ Vancouver
First Yacht Services
www.firstyachts.com
- ▶ San Francisco
Farallon Electronics
www.yachtwire.com

Software & Services

- ▶ SailMail, GetFax & SailDocs
www.sailmail.com,
www.saildocs.com
- ▶ OCENS
www.ocens.com
- ▶ GMN Global Marine
www.globalmarinenet.com

Glossary

CV	Communications Vessel
DSC	Digital Selective Calling
GRIB	Gridded Binary (weather data file)
EPIRB	Emergency Position Indicating Radio Beacon
HF	High Frequency
kHz	kiloHertz (radio frequency)
mHz	megaHertz (radio frequency)
MMSI	Maritime Mobile Service Identity, 9 digit number
RC	Race Committee
RCC	Rescue Coordination Center (Coast Guard)
RF	Radio Frequency
SSB	Single Sideband (radio mode)
UTC	Universal Coordinated Time (Greenwich, Zulu)
VHF	Very High Frequency