

SHTP Communications 2012

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SSB and Satphone

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Paul Elliott – S/V VALIS

Now that satellite phones are being broadly accepted as a valid means of communications during ocean races, let's review our options for both satphone and SSB systems. The advantages and disadvantages of each have been pretty well discussed by now, but it's safe to say that each is valuable in its own way, and either one is much better than nothing at all (assuming you *want* to communicate!)

This presentation will look at some typical satphone and SSB installations, and issues you might have in setup and use.

Depending on the areas of interest, we can skip right over some of this material.

Who am I?

- Retired Electronics Engineer
 - Audio, power, R.F., fiber optics, systems architecture
- Radio Amateur: WB6CXC
- Sailing (on and off) since I was 6 years old
- VALIS: Pacific Seacraft 44
- Pac Cup 2006, 2008, 2010, (2012)
- VALIS Pac Cup comms vessel '08, '10, ('12)
- Hawaii and West Coast cruising, SoPac crewing

Race Rules

Communications and Position Reporting

SHTP

- Must carry SSB or Iridium satphone (no Inmarsat option???)
- Daily position report options
 - Via SSB to Comms boat
 - Via email to Race Committee (can be sent using shoreside contact)

Pacific Cup

- Must carry SSB transceiver or Satphone *and* SSB receiver
- Daily position report options
 - Via SSB to Comms boat
 - Via satphone voice call to Race Committee
 - Via email to Race Committee
 - Via text message to Race Committee

(All must carry VHF with masthead antenna plus a spare antenna)

SHTP allows only Iridium? Inmarsat (Isatphone Pro) may be an option.

SSB

- Installation -- typical costs, options
- Antenna and ground systems
- Power – connections and power budget
- Operation – Sailmail and other email choices, cost, practical limitations, spam email
- How to communicate – microphone technique, headset use, earplug trick, practice, relaying, other radio traffic
- Onboard radio noise – sources, mitigation
- RFI on transmit: autopilots, other?
- Common problems – antenna, low battery, noise, propagation, interference from other vessels
- Return passage coordination and emergency communications with Pac Cup and Vic-Maui boats.
- Radio test schedule with VALIS: April 29 (Opening Day), 3:00PM PDT

The basic installation issues for SSB are well-covered. This will be a brief overview of the basics and options, but the emphasis will be on common problems, operating techniques, etc.

SSB Hardware



- SSB Radio
- Antenna Tuner
- Coax Cable
- GTO-15 Feed Line
- Cable Gland
- Standoff Insulators
- Backstay Insulators
- Heavy Gauge Wiring
- Ground Straps
- Ground Plate
- Alternate Antennas
- Alternate Grounds
- Pactor Modem

Single Side Band is the traditional method for high-seas communications. The equipment needed is:

- A marine SSB transceiver. Icom is the most common vendor, with the M710 and M802 being the most popular. Transceivers are also available from Furuno and a few others, but there aren't a lot of vendors.
- An antenna and usually an antenna tuner.
 - The insulated backstay antenna is common, practical, rugged, and effective. It requires a tuner.
 - Wire-in-rope, the "GAM" (split-lead antenna that fits over the backstay), and whip antennas are also used. These also require tuners.
 - Test any of these antennas on all frequencies you plan to use.
- A Ground System.
 - This can be as simple as a thick cable (much better, a wide copper strap) connected to a bronze (not painted!) through-hull.
 - Other choices include runs of copper foil inside the hull, bronze ground plates on the hull, connecting to the aluminum toe-rails and lifelines, or the "KISS-SSB" ground system.
- A good battery connection. A direct (fused) connection is good, but not always necessary.
- For SSB email, a modem is needed. The SCS Pactor-3 modem is the usual choice.
- Typical costs
 - Icom 802 SSB -- \$1800
 - Icom AT-130 Antenna Tuner -- \$500
 - SCS Pactor-II/III Modem -- \$2000
- Email service options: Sailmail, other commercial services.
 - SailMail: www.sailmail.com
- For marine SSB operation you need both a Ship Station license, and an Operator's Permit. Get these from the FCC: http://wireless.fcc.gov/services/index.htm?job=licensing&id=ship_stations
- Ham radio options
 - Unless you have a true emergency, you need a ham radio license to use the Ham bands.
 - Ham transceivers can be modified to operate on the marine SSB bands, *but this is not legal*.
 - Marine SSB transceivers can be legally used on the ham bands but you need that ham license. Many marine SSB transceivers are inconvenient to use on the ham bands.
 - Ham transceivers typically have more bells and whistles – easy to configure incorrectly if you're not careful.
 - For email, Winlink, using a Pactor-3 modem.
 - Software modems: WINMOR (free, can be used with Winlink). Probably not too reliable; there are few WINMOR-capable stations.

Antennas

Traditional Insulated-Backstay

- Simple and effective
- Bottom backstay insulator may be unnecessary
- Antenna is HOT – do not touch bare wire
- Stand off feedwire from grounded backstay

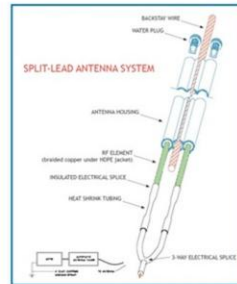


The typical insulated-backstay breaks the backstay near the top and bottom with specialized insulators. The lower insulator may not be necessary unless you have a metal boat. The antenna length starts at the output of the tuner, and the overall length is usually 23-40 ft.

If you have a backstay adjuster you will need to work out a method to keep the necessary slack in the feedwire from becoming fouled.

Antennas Alternatives

- Wire alongside fiber backstay
- Wire-in-rope
 - Hauled aloft with spare halyard
 - Don't let it foul your rigging
- Vertical Whip at Stern
- GAM-SSB
 - Slips over standard backstay
 - It usually works



There are alternatives to the backstay. All marine antennas are compromises, but some more than others. You really need to test your radio at all frequencies you intend to use.

Grounding

- 100 Square Feet of Copper
 - Not bad, not necessary



The traditional “100 square feet” of copper thing is definitely more of a guideline than a rule.

The photo is of VALIS’ hull, note copper foil running from chainplates to keel bolts – would probably vaporize in a lightning strike, unless the mast took most of the hit. There are similar copper straps running from the navstation and the aft lazarette (tuner location). This does work well. Lead keel (painted), and propshaft are also connected to this ground.

A coupling capacitor is recommended, VALIS doesn’t have one.

Many effective systems have very simple grounds. Probably the simplest is the bronze thru-hull.

Grounding Dyna-Plate

- Sintered bronze plate on hull
- Probably no better than a bronze through-hull
- Drag
- It works



Grounding

KISS-SSB

- Multiple wires in a common sheath
- Possibly no better than a single 10' wire
- It usually works



As far as I know, it *always* works. I'm just a little suspicious...

Electromagnetic Interference (EMI / RFI)

- Receiving
 - Noise generated by computers, instruments, refrigerators, solar controllers, wind generators, alternators, LED lights, etc.
- Transmitting
 - Your transmitter puts out a strong radio field (this is a good thing.)
 - This field can interfere with your instruments, autopilot, etc.
- Not just SSB, but VHF too
 - Don't forget AIS systems

EMI can be a problem during transmitting and receiving.

Receive: Other electrical / electronic gear on your boat can generate noise that interferes with your ability to hear (or decode) the desired signals. This noise can be conducted (power wiring) but is usually radiated.

Noise sources include

- Computers, chartplotters
- Navigation and performance instruments (often a 1-second repetition rate)
- Refrigerator controllers
- Battery charging (alternators, solar and wind controllers, etc.)
- LED light fixtures (the LED tricolor can interfere with a masthead VHF antenna)

EMI during transmit can cause instruments to act funny. The autopilot may try to jibe your boat. Remember, you want your antenna to put out a strong R.F. field, and this will be picked up by your boat's wiring.

Eliminating EMI

(Actually, just dealing with it as best you can)

Receive EMI

- Find the sources
 - Shut the power off to everything but the radio
 - Do a receive survey. Take notes
 - Restore power one item at a time, re-check reception
- Kill the signal
 - Ferrite cores: First line of defense
 - Bypass capacitors, shielding, grounding
 - Tedious
 - Effective

To track down these sources, Turn off *everything* but your SSB receiver. Listen on many channels and take notes of outside signals. Turn things back on one item at a time, re-checking all channels. Some gear can emit noise when switched off, as long as the power is connected. It's a good idea to test your VHF as well. This is best done away from the slip, as there is much noise in a marina.

When a source is found (and there are often several sources), try using some *appropriate* ferrite chokes (this is covered later).

If the ferrites don't do the trick you can:

- Use more ferrites
- Add bypass capacitors
- Build a shielded enclosure, or if the equipment enclosure is metal, connect the case to a good R.F. ground. This can be difficult
- Turn stuff off when using the radio

Proper wiring of the radio power and ground are essential. Poor grounding can cause big problems. Losses in the power connection can cause a bad transmit signal.

Eliminating EMI

Transmit

- Antenna Feed Wire
 - Keep the antenna feed wire away from other wiring.
 - Cross at right angles, use stand-offs.
 - Do *NOT* put ferrites on the feed wire.
- Put ferrites on the signal and power wiring at the unit being interfered with.
- Capacitors and shielding

- Keep the antenna feed wire (leaving the tuner) away from other wiring. Cross at right angles, use stand-offs. This feed wire is part of your antenna, and is radiating a strong signal.
- Put ferrites on the signal and power wiring at the unit being interfered with.
- Capacitors and shielding: You need to know what you're doing. Will be completely ineffective unless done right.

Use the Proper Ferrites!



<http://www.mouser.com/ProductDetail/Fair-Rite/0431164181/?qs=KmHvPbTOE4SbzMQqE%2fOkzw%3d%3d>

Manufacturer: Fair-Rite

Manufacturer Part #: 0431164181

Frequency Range: Lower & Broadband Frequencies 1-300 MHz (31 material)

Description: 31 ROUND CABLE CORE ASSEMBLY

The ferrites you will find at Radio Shack (etc) are probably designed for VHF signal suppression. They will work after a fashion at the lower SSB frequencies, but you will have better results if you use ferrites made from a material optimized for SSB frequencies. Cores using “31” material from the “Fair-Rite” company are excellent performers. These come in all shapes and sizes, but the clamp-on core above has proven to be generally useful.

<http://www.mouser.com/ProductDetail/Fair-Rite/0431164181/?qs=KmHvPbTOE4SbzMQqE%2fOkzw%3d%3d>

- All wires leaving the equipment are potential antennas.
- Put the core as close as possible to the equipment.
- If possible take two or three turns through the core. Up to a point, the suppression effect is proportional to turns² (turns-squared).
- If possible, run power and ground together through the core.
- Before buttoning things back up, secure the heavy core to protect the wires and connectors.

Operating Your SSB Effectively

- Have your batteries charged, engine off
- ***Learn how to listen***
 - Headphones really help
- Microphone Technique
 - Up close, *across* the mic
 - Initial syllable is sometimes clipped.
- Be on-time for your sked
- Use the proper format for position reporting
- Be prepared to relay

•Have your batteries charged, engine off

Low batteries are a common cause of poor transmit signal quality. Your receiver may be working just fine, but your transmitted signal may be totally unreadable. This is important!

Try to not be running your engine when using the SSB. The audio background noise makes it difficult for those trying to listen to you, and the alternator is probably generating RFI that makes your reception difficult. Even with headphones, the noise level will be a distraction.

•Learn how to listen

Just reporting your position is easy, but if you plan to be logging your competitor's positions you need to learn to listen. Sometimes only you can hear a particular boat, and your ability to understand and relay their weak signal can be critical. If you have an emergency, or are in a position to assist, being a competent radio operator can make a big difference.

Headphones really help. I mean they help a lot. Get ones with good isolation, not the on-the-ear ones that let background noise through.

Active noise-cancelling headphones (such as Bose) work well. Check that these don't see interference from your transmitted signal.

If the noise level is still too high, use earplugs and crank up the volume.

Practice listening. Effective listening is an "in the zone" thing, where you become fully immersed in the audio. Do not let yourself get distracted. Of course you still have to sail your boat!

More SSB Operation Stuff

- Spare mic?
- Find the channel!

Channel	Frequency (KHz)	Channel	Frequency (KHz)
4A	4146	8A	8294
4B	4149	8B	8297
4C	4417		
		12A	12353
6A	6224	12B	12356
6B	6227		
These channels are all Simplex, Upper Side Band			

Spare Mic?

- Make sure it works. The one I recently bought for the M-710 sounds like garbage. (Original mic: HM-120, New mic: HM-180)

Find the channel!

- Too many knobs and buttons, these get confusing
- Make sure the radio's channels are programmed to the correct frequencies and modes – the ones we use are all simplex, Upper Sideband (USB).
- Know your emergency channels
- KHz and MHz: $4146 \text{ KHz} = 4.146 \text{ MHz} = 4,146,000 \text{ Hz}$

Selecting the right mode

- Marine SSB uses Upper Side Band (USB)
- Ham Radio uses USB above 10MHz, and LSB below.

Still More SSB Stuff

- Learn how to use your antenna tuner
 - it's usually pretty automatic.
- Propagation: Time of day, distance, frequency
 - And sunspots
 - Look at the "Airmail" propagation tool
- Other useful SSB broadcasts
 - USCG Weather (voice, WFAX, digital)
 - BBC, other news stations
 - WWV, WWVH time signals

Which band to use for short/long distances, what time of day is best?

- In general, the lower frequencies are good for daytime short-distance operation up to a few hundred miles, and for long-distance work in the evening
- Higher frequencies are useful for daytime distance work, but are often useless at night.
- Download "Airmail" and play with the propagation tool
 - <http://www.siriuscyber.net/sailmail/>
- Use WWV and WWVH time signals for a quick propagation (and chronometer) check.
 - WWV Broadcasts from Colorado (a man's voice)
 - WWVH from Kauai (a woman's voice).
 - Frequencies: 5, 10, 15 MHz at 10 KW
 - 2.5 and 20 MHz at 2.5 KW (WWV) or 5 KW (WWVH)

High seas weather and safety broadcasts

- WFAX: www.nws.noaa.gov/om/marine/radiofax.htm
- Voice: www.nws.noaa.gov/om/marine/hfvoice.htm
- A whole lot more: www.nws.noaa.gov/om/marine/home.htm

Finding radio news and other interesting stuff

- BBC World Service: www.bbc.co.uk/worldservice/schedules/frequencies/
- Voice of America: www.voanews.com/english/programs/frequencies/
- AM Radio often comes through at night

SSB Language

- Hey good buddy, this is not CB
 - Get hipped to the lingo
 - Learn the Phonetic Alphabet
 - When in doubt, speak English
 - You will learn during the race
 - Nobody's going to yell at you
 - It's OK to have fun (but get the job done)
 - Take your turn
 - Listen before transmitting

Radio has developed its own language. While some is an artifact of the morse-code era, much of it has a practical value. Knowing the terms and how they are used can help you communicate over this often difficult medium.

Unlike VHF, SSB does not have that distinctive "squelch tail" (noise burst) when you un-key the microphone. This is why we say **Over, Out, Clear, Break**, etc.

Over: I have finished talking and am waiting for your reply.

Copy or **Roger:** I understand what you just said. Roger means "I understand", it does not mean "I will do what you ask". That's **Wilco** (Will Comply). Nobody actually says Wilco.

Affirmative and **Negative:** These are unambiguous. "Yes" and "No" are too short for reliable copy.

Out: I have finished talking and am finished with this contact.

Break: Say Break when you are pausing in the middle of a long transmission. This is good practice since it allows emergency traffic to interrupt. *You need to un-key the microphone during the pause!*

Break: You can also say Break when you wish to interrupt for some very good reason. Say **Break Break Break** if you have a real emergency.

Standing By or **Come Now:** I am waiting for someone to transmit.

Monitoring: I am no longer actively communicating, but am listening to this frequency. Call me if you want to.

Clear: I am finished and am turning off my radio.

These are short, easily-understood words and phrases. Know how to use them appropriately. It helps.

Learn the Phonetic Alphabet. If you need to spell something, it's best to use standard phonetics.

Final Words on SSB Operations

- Position Reporting Procedure
- Other SSB Nets
 - Pac Cup, Vic-Maui, Pacific Seafarer's Net (ham)
- You still have to sail your boat
- Pre-Race Radio Test
 - VALIS will be running a radio test net on Opening Day (April 29, 3:00PM PDT).
Stay tuned for details.

Our position-reporting nets tend to have a well-defined procedure, and it's easy to get comfortable with the protocol.

SHTP SSB Position Reporting format:

"Alchera at zero nine hundred was at latitude three-one one-four, longitude one-three-four four-three, DTF one-five-three-four miles, course two-zero-zero, speed seven-point-five."

Note: With the exception of the time, all numbers are individually spoken – e.g., 'three one', not 'thirty one', and 'one four', not 'fourteen'.

If your protocol uses decimal point notation, say it the way the comms vessel is expecting to hear it. ("decimal" or "point"?)

"Nine" is sometimes difficult to understand (it can sound like "five"). "Niner" sounds funny, but is clearer.

Say "Zero", not "Oh"

Get the times and frequencies for the Pac Cup and Vic-Maui SSB nets. These could be useful in an emergency. There is usually an informal net for returning vessels. There is almost always someone monitoring the ham radio frequency 14.310MHz (USB). The Pacific Seafarer's Net runs daily, from 0300Z to 0330Z (it can run longer).

VALIS will be running a SSB radio test net from S.F. Bay on April 29, 3:00PM PDT. Gordon West will be checking in from SoCal, and there should be some Vic-Maui participants as well. This is a great opportunity to check your installation with short and distant paths and different frequencies. Details to follow.

Satphone

- Installation -- typical costs, options
- Antenna options
- Iridium, Inmarsat
- Power – connections and power budget
- Operation – XGate, Sailmail, and other email choices, cost, practical limitations, pre-paid minutes
- How to communicate – just like a phone.
- Always-on?
- Common problems – dropped calls, running out of minutes, spam - email, spam filters
- USB Serial Port number assignment
- Win7-64 vs WinXP vs Apple vs Linux
- Firewalls (Iridium only opens some ports, Inmarsat opens most ports)

Satphone Hardware



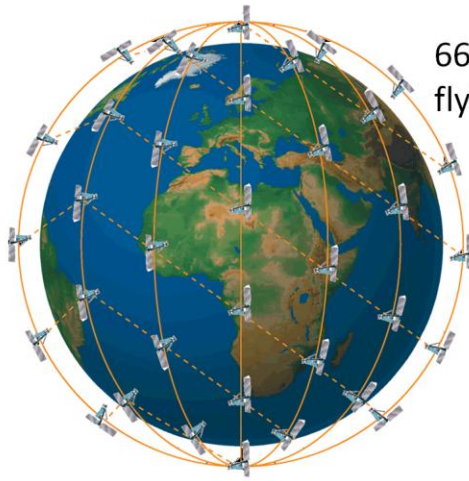
- Satphone
- Power / Data Connection
 - Old-style RS232, 12V Cig Plug
 - New-style USB cable for both
- Antenna Cable
- Cable Gland
- External Antenna
- Antenna jumper cable
- Alternate: "Hockey-Puck" Antenna
- Make or buy a phone cradle

The simplest satphone solution is using the phone, with its built-in antenna, from the cockpit. The phone needs a clear view of the sky.

If you want to use the phone for email, or from a more protected location down below, you need:

- An external antenna. The "car top" antenna that is usually provided will work, but the cable is short. You will probably have better results with a proper external antenna and high-quality coax running to the navstation.
- A flexible coax jumper cable for the final connection to the phone.
 - 48" jumper: <http://www.pasternack.com/tnc-male-tnc-male-rg174au-cable-assembly-pe3425-48-p.aspx>
 - Adaptor for connecting the two cables: <http://www.pasternack.com/tnc-female-tnc-female-straight-adapter-pe9154-p.aspx>
- A method for charging the phone. The phone draws about 100mA when on. Consider leaving it on in case someone needs to contact you. I once had a PLB false-alarm, and the USCG called my satphone.
- Email service options: Sailmail, XGate, OCENS, other commercial services.
 - SailMail: www.sailmail.com
 - XGate: www.globalmarinenet.net
 - OCENS: www.ocens.com

Iridium



66 Low Earth Orbit satellites
flying at 17,000 MPH

Iridium's constellation consists of 66 cross-linked operational satellites, plus seven in-orbit spares. The satellites operate in near-circular low-Earth orbits (LEO) about 780 km (483 miles) above the Earth's surface. There are 11 satellites in each of six orbital planes and their orbits "intersect" roughly over the north and south poles. The low-flying satellites travel at approximately 17,000 miles per hour, completing an orbit of the Earth in about 100 minutes. It is a function of latitude/longitude and beam coverage, but it typically takes about eight minutes for a satellite to cross the sky from horizon to horizon.

Each satellite can project 48 spot beams on the Earth's surface. The size of each spot beam is approximately 250 miles in diameter and the satellite's full 48-beam footprint is approximately 2,800 miles in diameter. All spot beams and satellite footprints overlap.

Iridium 9675 “Extreme”



- \$1500
- Jet-water, shock and dust resistance
- Enhanced SMS and email messaging capability
- Integrated speakerphone
- Headset and hands-free capability
- Internally stowed antenna
- Mini-USB data port
- GPS-enabled location-based services
- Supports online tracking and Google Mapping services
- Programmable, GPS-enabled, one-touch SOS button
- Power consumption:
 - USB charging -- approx 0.1A from 12VDC (10 to 300 mA)
 - 2.4 Ah / day, if always-on

This is the newest Iridium phone. The older 9505a is a good phone as well, and may cost a little less.

These phones can be rented, about \$200 / month, but you may need to rent an external antenna, other items. There are activation fees.

Iridium AxxessPoint



Iridium AxxessPoint: \$175

Iridium AxxessPoint allows you to create a Wi-Fi hotspot by connecting to your satellite phone and establishing an Internet connection.

With Iridium AxxessPoint connected to an Iridium phone, you are able to use your smartphones, tablets and laptops (i.e. iPhone, iPod Touch, iPad, Android, PC, Mac).

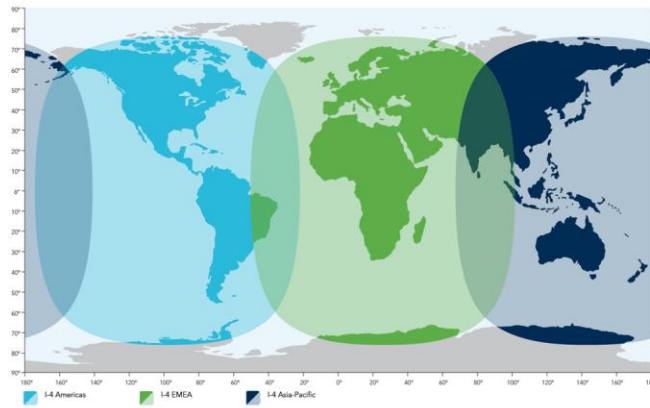
(See *AxxessPoint Connect* software to convert your Iridium satphone-connected computer into a WiFi access point.)

Satphone connection remains open (\$\$\$) until you power-down this unit.

You still need satphone-aware communications software for this system to adequately work.

Inmarsat

IsatPhone Pro coverage



Three global constellations of 11 satellites flying in geosynchronous orbit 22,000 miles above the Earth.

IsatPhone Pro (Inmarsat)



•\$595

From the press release:

- Satellite telephony, voicemail, text and email messaging,
- GPS location data
- Up to 8 hours talk time and up to 100 hours standby time
- Operational range of -20°C to +55°C; dust, splash and shock resistant (IP54); humidity tolerance from 0 to 95 per cent
- Bluetooth capable: Place the handset on its side, with full maneuverability of the antenna, for easy handsfree use
- Intuitive GSM-style interface; high-visibility color screen; larger keypad for easy dialing with gloves on
- Reliable network connection: operates over global geostationary satellites that will be operational into the 2020s; significantly less possibility of call dropping

- User reports are mixed.
- The published service rates are reportedly increasing in May (http://www.panbo.com/archives/2012/03/gmns_wxa-102_satellite_router_but_inmarsat_rate_increases_too.html)
- A pre-paid plan is not available in U.S. territory due to patent conflicts. Outside territorial waters the pre-paid plan can be used.
- You may need a firewall (software or hardware) to prevent software updates from swamping the connection.
- I would do some research before committing to this phone.

Satphone Email and Airtime



XGate email service -- www.globalmarinenet.com

One-time setup fee: \$59.00

3 months: \$80.00

12 months: \$240.00



Iridium Airtime

75 minutes: \$169.00 (good for 2 months, \$2.26 / min)

200 minutes: \$475.00 (good for 6 months, \$2.38 / min)

500 minutes: \$649.00 (good for 12 months, \$1.30 / min)



IsatPhone Pro Airtime

Postpaid 100 minutes / month: \$95 (\$0.95 / min)

\$50 activation fee

Rates are going up

XGate / Global Marine Networks

- Buy or rent
- Airtime
- Email, web acceleration, weather tools

OCENS

- Same products as Global Marine Networks, re-branded
- Additional weather tools?

Outfitter Satellite

- Buy or rent hardware
- Airtime
- Some support software

Make sure you are able to purchase pre-paid airtime while at sea. You may need to have a credit card and signature authorization on file (you will need to do this ahead of time)

Know how your airtime rolls over.

Getting Weather Data

- Getting weather info – satphone email, SSB email, SSB WFAX, SSB voice broadcasts
 - Learn how to use Saildocs.com
 - Receive WFAX charts using SSB and your Factor modem, or soundcard and software package.
 - SSB weather information voice broadcasts
- Other email weather products
 - Global Marine Networks, OCENS, and others
 - May not comply with race rules

You can get more than GRIBs from saildocs.com. Saildocs provides compressed WFAX images and text-format weather information. The image files are probably too big (12 – 20 Kbytes each) for regular SSB sailmail downloading, but aren't too bad if you are using a satphone for email. There is a directory of some of the available files here: <http://weather.noaa.gov/fax/ptreyeslatest.shtml>

These are the ones I was getting during the last Pac Cup:

- PYBA90.TIF (the eastern portion of the n pac surface analysis)
- PWBI10.TIF (the 48-hour ne pac surface forecast)
- PWBM99.TIF (the 96-hour ne pac forecast)
- PWBE10.TIF (the 24-hour wind / wave forecast)

Off-the-air WFAX is free, and can be easy. Go here for the schedules:

- <http://weather.noaa.gov/pub/fax/hfreyes.txt> For Pt. Reyes
- <http://weather.noaa.gov/pub/fax/hfhi.txt> For Hawaii.

Off-the-air voice broadcasts: <http://www.nws.noaa.gov/om/marine/hfvoice.htm>

Weather products from GMN, OCENS, etc, may not comply with race rules. Pac Cup has ruled that these are legal *if* they are only re-packaging publicly-available data. Outside interpretation is not allowed. SHTP?

Email, Spam, Computers

- Email spam-filtering – whitelists (XGate, SailMail, Winlink)
- Shadowmail (see Sailmail.com)
- Computer – laptop, netbook, ?, power budget
- New computer, backup

Sailmail does not believe in spam filters. Control your email address!

Xgate / OCENS have an available whitelist spam blocking service. This works well, but you *need* to pre-program the whitelist for some email. For example, to request data from Saildocs you send email to info@saildocs.com or query@saildocs.com, but the reply will come from sub-server@saildocs.com. This will bounce if not whitelisted.

Winlink also has whitelist spam filter options. Learn how to use them.

Before you cast off, go online and check your email accounts. There's no need to download a bunch of old email, and if you have a spam problem it's better to know early so you have time to take action.

Shadowmail can redirect your email.

A computer is going to be a big part of your power budget. Measure the current consumption, develop a realistic plan. Solar panels don't deliver rated output when there is cloud cover.

If you have a backup computer, make sure that all software and drivers are loaded and working. Serial/USB adaptors can be troublesome, and the Win7 drivers may not be available. Test everything! Load a memory stick with all drivers and programs you will be using. Send more than a short "Hello, world" email using any backup computers. For example, I've got a problem with a new Win7/64-bit netbook, where some driver is not handling the sending of large emails (with jpeg attachments). I'm not going to be bringing that particular netbook.

The serial port number for serial/USB adaptors can change if you plug them into a different USB port. There may be ways to lock the port number.

Emergency Phone Numbers

- Pacific SAR Coordinator, RCC Alameda
(510) 437-3700
- RCC Honolulu (operated as JRCC with DOD)
(808) 535-3333
- RCC Seattle
(206) 220-7001

These numbers should be programmed into your satphone.



VALIS

150 NM north of
Kaneohe, sailing
home after the
2008 Pac Cup

VALIS Navstation



Note the homebrew satphone holder and interface panel. The wires leaving the satphone are antenna and USB.

There are commercially-available holders for the most satphones.

For custom panel design tools and fabrication, see www.frontpanelexpress.com

Navstation Details



- Custom panel
- Satphone connections
 - DC power
 - Computer connections
 - AIS “stealth” switch

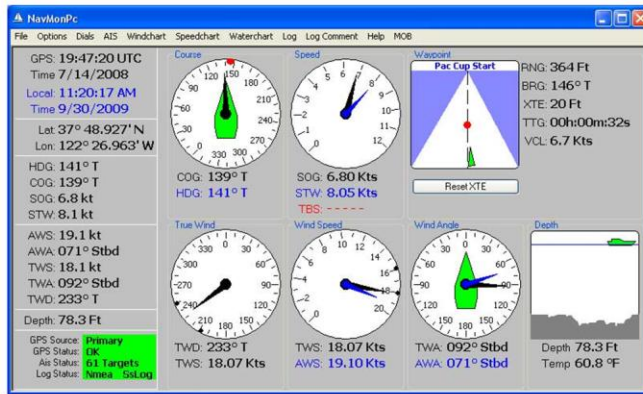


SSB Headphone Jack
and volume control



The Icom M-710RT does not have a built-in headphone jack. The jack and volume control shown here are connected to the external audio output wires in the wiring harness.

NavMonPc



www.navmonpc.com

NavMonPc is a free program that I wrote. It has some handy features, including alarms, AIS, stripcharts, logging. It is *not* a chartplotter.

Alien Mind-Control Shielding



Just in case...