SeaSonde® Remote Unit Operator's Manual

SSRS-100 Product Series

August 20, 2009

Table of Contents

Site Planning

Antennas & Cables

The following are requirements and recommendations for siting SeaSonde antennas to maximize performance. Many competing recommendations must be considered. Ideally, all recommendations are followed, but in practice, a compromising balance must be achieved. For example, a site may not be as close to the water as possible in order to avoid objects between the antenna and the water. Advanced planning and site scouting greatly benefit antenna siting.

Summary of planning tasks for siting antennas

- Plan antenna location with respect to receive antenna and other vertical structures.
- Plan cable routes between SeaSonde transmitter and transmit antenna making sure that the cable is long enough to reach at both ends.
- Plan antenna support.
- Plan to protect against animal damage.
- Plan to protect area around antenna against tampering and vandalism.

Distance Between Antennas

The following distances are the minimum allowable between SeaSonde transmit and receive antennas. (Combined transmit/receive antennas are not subject to these minimums.)

SeaSonde frequency	Minimum distance between antennas
4.3–5.4 MHz	60 meters
11.5–14.0 MHz	25 meters
24.0–27.0 MHz	12 meters
40.0–44.0 MHz	6 meters

Distance to Water

☐ Locate antennas as close to the water's edge as possible. The following distances are the maximum allowable between a SeaSonde antenna and water:

SeaSonde frequency	Maximum distance to water
4.3–5.4 MHz	250 meters
11.5–14.0 MHz	150 meters
24.0–27.0 MHz	150 meters

SeaSonde frequency	Maximum distance to water
40.0–44.0 MHz	100 meters

Terrain

- ☐ Antennas should be located on flat or gently sloping land.
- ☐ Avoid locating antennas directly in front of steep hills or cliffs.

  Note: Locating antennas on top of a hill or cliff is acceptable as long as the steep section is below the antennas.

- ☐ Avoid terrain that rises between the antenna and the water, like rocks, points or cliffs.

Objects Near Antennas

The following "clear area" should be maintained. ***Distances are minimums***. The farther away any electrically conductive object is from an antenna, the better.

- ☐ Ensure that above-ground objects are at least five times their height from the antenna location. The taller the object, the farther away it must be.

  Note:

  For example, a six-meter-tall light pole should be at least

  *6 * 5 = 30 meters away from an antenna.*

  Electrically conductive objects (metal poles, wires, etc.) affect performance more than non-conductive.

- ☐ Ensure that no electric power lines are within 100 meters of antennas. Avoid high power electric lines. Electric power lines cause radio interference.

Underground Objects

SeaSonde performance is adversely affected by nearby underground electrical conductors, such as metal pipes, steel reinforcement bars or cables.

- ☐ Ensure that there are no long (any length greater than one meter) underground electrical conductors within a 100-meter-radius and 10-meter-deep area below the antenna base.
- ☐ Ensure that there are no shorter (any length less than one meter) underground electrical conductors within a four-meter radius below the antenna base.

  Note: Underground non-conductors do not affect SeaSonde performance.

Objects Between Antennas and Water

- ☐ Avoid objects that rise between the antenna and the water, like buildings or metal fences.

Objects That Affect Antenna Performance

The following is a list of common objects that affect antenna performance. These kinds of objects should be kept outside the clear areas defined above.

Above-ground objects:

- metal railings or fences*
- buildings
- rocks
- cliff or steep slope BEHIND antennas
- non-SeaSonde antennas
- towers
- overhead cables
- large metal objects
- trees
- electric power lines, especially high voltage

Note: Mounting antennas on top of metal fences or light poles can help to mitigate the effects or these objects if there is not sufficient clearance.

Below-ground objects:

- metal pipes
- cables
- steel reinforcement bars

Radio Transmitters

☐ Avoid any non-SeaSonde transmitters operating in the area, including commercial navigation radars

Antenna Support

☐ Plan how to support the antenna.

Antenna support depends on the characteristics of the site. If the site's soil can be excavated, it is common to use a reinforced-concrete in-ground pier. Plans for such a pier are included in this guide. A drawing of the antenna feed is also included and shows the mounting bolt hole pattern. For temporary or short-term installations, the antenna can be bolted to a sturdy plywood base (not supplied), which sits on the ground, and stabilized with guy ropes. The base should be 0.75–1 meters in diameter or square, with four holes drilled in the center and matching the antenna feed bolt hole pattern.

☐ Decide whether guy ropes will be needed.

If the support is very stable (for example, a concrete pier), guy ropes are not needed. Guy ropes should be made of *non-conductive* material. ***Do not use metal guy wire or cable***. For long-term installations, Kevlar rope with UV-resistant outer braid is recommended. To reduce cost, nylon can be used for short-term installations. If guy ropes are needed, plan how they will be anchored. Simple or cork screw stakes are commonly used. Metal stakes can be used. Determine the required length. Guy ropes and stakes are not provided with the transmit antenna and must be procured separately.

Cable Protection

Animals (rodents in particular) can gnaw through cables. Plan to avoid this potential damage. Covering the cable with plastic split loom tubing (1/2 inch nominal size) is an inexpensive way to protect the cable. Running the cable through conduit is also an option. Conduit can be buried. Schedule 40 PVC pipe can be used as conduit.

Security and Safety

People should not touch the antenna or risk tripping over the wires on the ground that radiate in a semicircle from the base of the antenna. Consider a non-metallic fence, markers and/or signage, especially if the site is accessible to the public. A minimum keep-out area is a 7 meter radius circle centered at the antenna.

Electronics Housing

Dimensions

SeaSonde electronics consist of one each of a transmit and receive chassis. Both are rack-mountable and designed to fit industry standard 19 inch (48 cm) wide racks. Each chassis is 3U (13.335 cm) tall and requires a depth of 56 cm including space for cable connections.

A SeaSonde also comes with a computer, keyboard, mouse and monitor. Space needs to be provided for these items. Unless specified otherwise, a Mac Mini computer is provided: (5.08H x 16.51W x 16.51D cm). Typically, a 17" monitor is provided but needs only be connected during user interaction.

Additional room in the rack should be budgeted for the recommended UPS and extra battery banks or other peripherals.

Climate Control

Depending on the transmit power, the SeaSonde will generate approximately **1000 BTU per hour**. This heat needs to be dissipated or displaced as well as any additional heat from other peripherals (DSL /cable modems, etc.) or external sources, such as the ambient air or solar radiation. Ambient air temperature inside the electronics enclosure should never exceed 95° F (35° C). If ambient air temperature is consistently higher, the performance and life of your system may be degraded and manufacturer's warranty will be voided.

Also, a closed system should be used to isolate SeaSonde electronics from the salt air found near the coast. Additionally, if air conditioning is installed on the electronics rack within an exterior housing, be sure to vent warm air exhaust outside or into a room with climate control or volume of sufficient size to prevent overheating.

Power

SeaSondes are delivered with one of three possible input voltages: 240VAC, 120VAC or 24VDC. Be sure your SeaSonde electronics match your power source's voltage. The SeaSonde's power consumption is approximately 600 W continuous. Air conditioning and peripheral devices will add to this amount.

Communications

Robust communications are an essential part of maintaining a SeaSonde® network. A fast and reliable data connection will allow you to transfer data files, browse the remote file system, run commands and view/control the remote screen. This will reduce downtime by allowing the operator to diagnose and fix problems sooner or even prevent problems before they affect data acquisition. When working with Radio Frequency (RF) signals, the ability to view real-time spectral graphs is invaluable for diagnosing problems and identifying solutions. Lastly, it is the responsible thing to do because most frequency-granting authorities require the ability to shutdown broadcast equipment immediately, if necessary. As much as reliable power and good environmental controls, communications should be considered and planned well ahead of SeaSonde installation.

With the above ideas in mind, remember the following guiding principles when choosing your SeaSonde's communications solution:

1. Data transfer should be robust with minimal dropouts or downtime
2. The ***upload*** bandwidth should be 256 kbit/s or greater for screen control
3. You should be able to find the SeaSonde computer on the internet and initiate an *incoming* connection at a moment's notice

The SeaSonde computer allows for data transfer to the SeaSonde combine server or any file server that the user chooses. While dial-up telephone connections are still supported via the Timbuktu Pro application, these are typically slower and less reliable than a solid internet connection. Internet access is available in more parts of the world than ever and allow for multiple possibilities for data transfer, such as FTP, SSH, Timbuktu Pro among other protocols. The following should be considered when planning and implementing a communications solution for your SeaSonde remote unit.

Public IP Address

Internet Protocol (IP) addresses are the way devices find each other over the network. When making a decision about which method to use for communications, make sure that the IP address assigned to your computer is not private. Private IP addresses are reserved for devices behind routers that share a single public IP address using network address translation (NAT). They will match one the following patterns:

192.168.x.x 10.x.x.x 172.16-31.x.x

If the SeaSonde Computer is assigned an IP address matching one of these patterns, then you will not be able to access it remotely unless you use one of these solutions:

Port Forwarding

Traffic on port 22 (SSH) and/or port 407 (Timbuktu Pro®) that arrives at the public address is forwarded to the SeaSonde computer's private address. Not all ISPs are willing or able to provide this service.

Timbuktu via Skype

Data (files and screen sharing) will be transferred by Timbuktu via Skype service. Requires an individual Skype account (free with email address) for the SeaSonde computer and only Timbuktu protocols are supported (no SeaSonde warnings via email or SSH communications). It requires that the computer can access the Skype service on the internet.

Static IP Address

In addition to having a public IP address, it is also important to have a static IP address that you can always rely upon to contact your SeaSonde remote unit computer. A static IP address is one that will only be assigned to your computer and will not change, even when the computer is rebooted or reconnects to the internet. Not all ISP's provide static IP addresses in order to conserve their limited number available. ISP's that do offer static addresses may charge extra for it. If you cannot get a static IP address, use one of these solutions:

Dynamic DNS Service

Domain Name System (DNS) matches name internet addresses like *codar.com* to numeric addresses like 72.41.175.235. Dynamic DNS service allows you to choose a name address like mysitename.dyndns.com and then dynamically match it to your computer's numeric address, even if that numeric address changes. Software runs on the remote computer to keep the match up to date. There are several of these services available online that support Mac OS X. The one used most often by CODAR customers is www.dyndns.com. Typically, you sign up for an account using your email address. For each account/email address, you get five dynamic name IP addresses for free. You can get more per account/email address with a monthly fee. There is rarely more than a 30 minute lag between the IP address being updated and the match being updated. All TCP/IP protocols can use Dynamic DNS.

Timbuktu IP Locator

Timbuktu (included on every radial SeaSonde computer) has a feature similar to dynamic DNS service whereby you supply your email address to the Timbuktu software on the SeaSonde computer and it reports the public ip with your email address to a Netopia server. The service is included with the software license and does not interfere with dynamic DNS services but you can only use each email address once per computer and it only works with the timbuktu remote control and file transfer software (no SSH, rsync, FTP, etc.). This is a great secondary method in case dynamic DNS fails.

Timbuktu via Skype

Just as you might use Timbuktu via Skype for working around a private IP address, you could also use it when your ISP will only provide a dynamic IP address. Dynamic DNS services are preferable because they allow all types of connections, Timbuktu via Skype provides a nice secondary or backup method.

Push Data

If your remote unit computers do not have static IP addresses and the combine site has a fixed, public IP address, then one fall back solution is to set up your remote machines to "push" data back to the central site. This has the advantage that the remote machine addresses can change IP address. This can be done in addition to all of the above methods. The disadvantage is that you have to dig through log files to find out the current IP address of the radial computer.

Firewalls

If your ISP has a firewall in place, be sure to have them open at least the following ports to the SeaSonde computer:

Protocol	Port
Secure SHell (SSH)	22
Timbuktu Pro	407
Radial Web Interface	8240 (can be changed)

Assembling the Antennas

Inventory and Preparations

If the installation site is remote, a missing part or tool will delay the installation. Ensure that you have all the required parts, tools and support equipment before departure. Checklists are provided in this guide.

Pack a clean work surface in your field kit. A piece of cardboard, paper, or cloth will work. The surface will be placed under threaded antenna parts to keep them clean. In addition, many small parts are used to assemble the antenna. The small parts are difficult to find if dropped in grass or dirt. A surface under the work area makes it easy to find dropped items.

Include spare fasteners in your field kit, in case any are lost. Spare fasteners must be made of the material specified in the checklists. In particular, do not replace stainless steel parts with non-stainless steel.

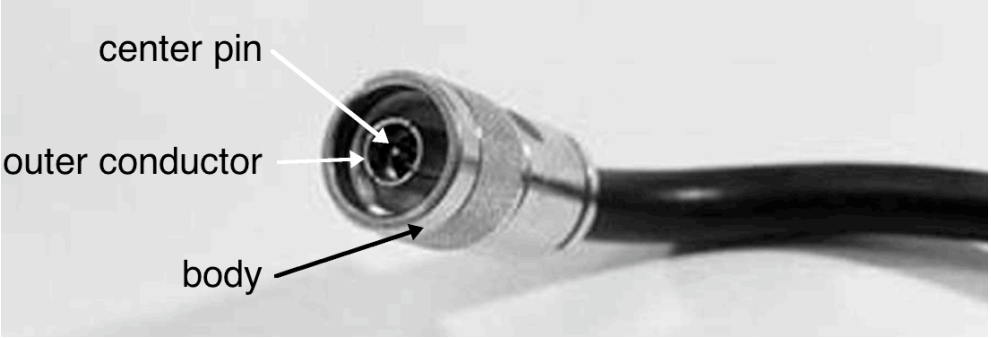
Inspection

Summary procedure:

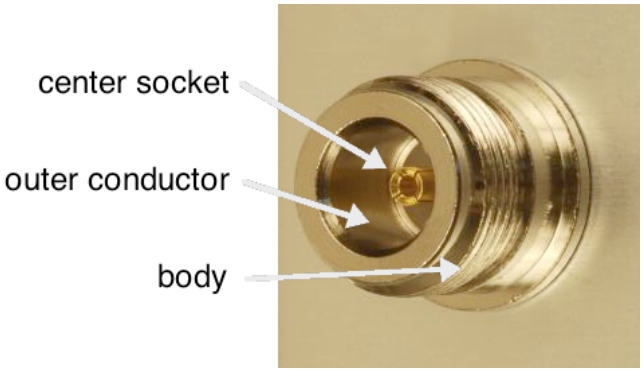
- Inspect physical condition.
- Perform electrical continuity checks.

A damaged or malfunctioning part will delay installation. The following inspections and tests should be performed prior to departure to a remote installation site.

The transmit cable and corresponding connectors on the antenna and transmitter are Type N coaxial connectors. Each connector has two conductors, a central pin or socket and an outer hollow cylinder. The conductors are enclosed by a threaded metal body.



Type N Connector Plug



Type N Connector Socket

Inspect the physical condition of all electrical connectors.

- ☐ Connector bodies should not be bent or damaged.
- ☐ Connectors should be securely attached to cables.
- ☐ Connector pins, sockets and outer conductors should not be bent or loose.
- ☐ Connector pins and outer conductors should not extend beyond connector bodies.

Perform electrical continuity checks with an ohmmeter or multimeter. Remember, zero or low resistance indicates continuity, the ability to conduct electricity. Infinite or large resistance indicates no continuity. Some meters have a continuity test mode.

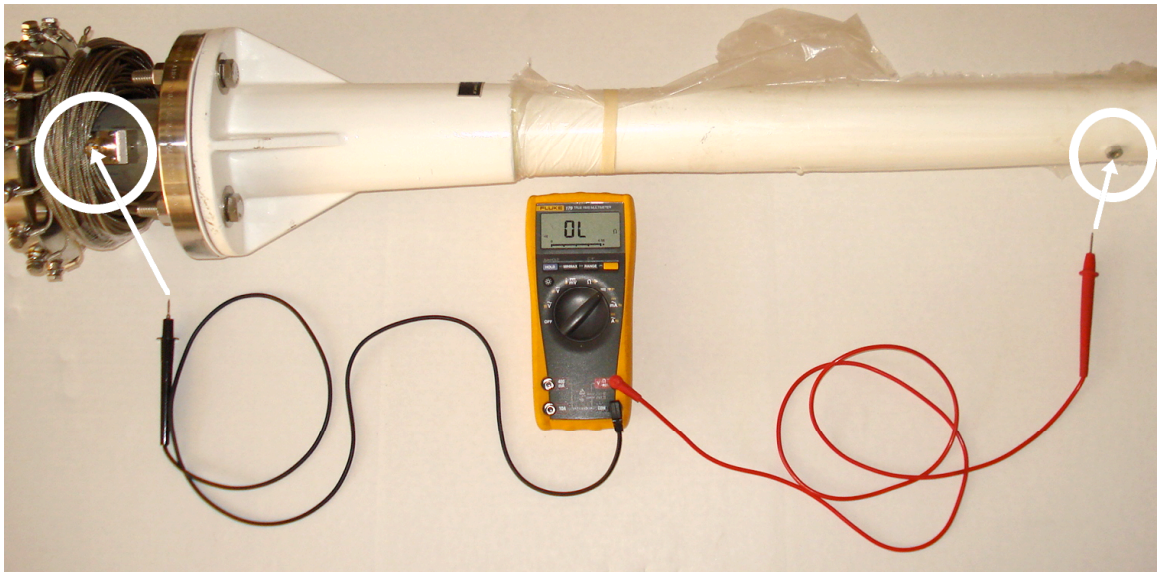
Continuity checks for the spooled cable are performed easily while the cable is on the spool.

- ☐ On the spooled transmit cable, measure continuity between the connector center pins at the two ends of the cable. There should be continuity (very low or zero resistance).
- ☐ On the spooled transmit cable, measure continuity between the connector outer conductors at the two ends of the cable. There should be continuity.
- ☐ On the spooled transmit cable, measure the continuity between a connector center pin and the outer conductor of the same connector. There should be no continuity (very high or infinite resistance). Repeat for the antenna cable connector at the other end of the cable.

Transmit Antenna Check (Long Range only)

- ☐ A lightning arrester with a Type N socket connector is mounted on the spool-shaped ground-plane feed subassembly, attached to the lower antenna section. Measure the resistance between the center socket of the connector and the lightning arrester housing. Be careful. Do not bend or damage the center socket when measuring. There should be no continuity.

- [ ] There is an exposed metal fitting on the lower antenna section, 0.75 meters above the base. Measure the resistance between the center socket of the lightning arrester connector and the metal fitting. There should be continuity. (There is an epoxy seal opposite the metal fitting. Be careful. Do not remove or damage the seal.)

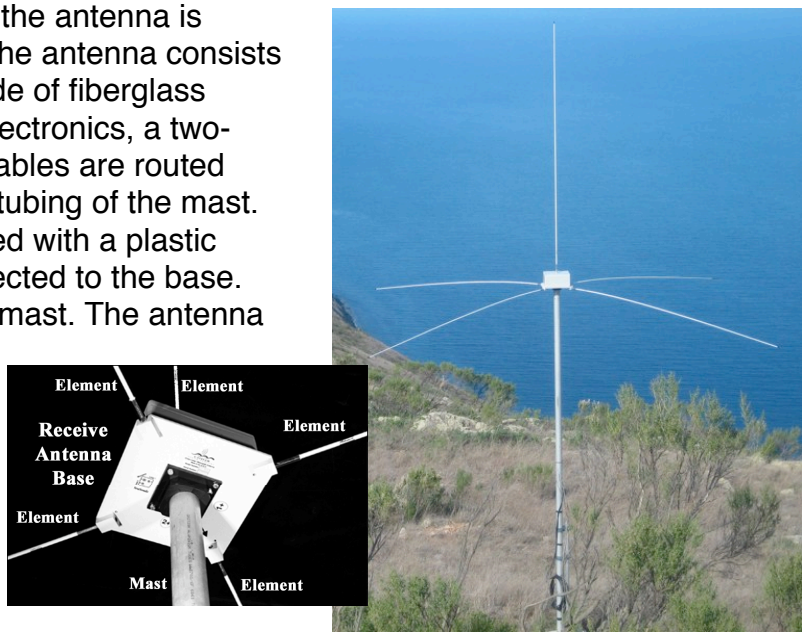


Receive & Combined T/R Antenna

Box Style Receive Antenna

Note: that SeaSonde receive antennas and combined transmit/receive antennas are mechanically similar and identically assembled. This section is applicable to either type of antenna.

When assembled and raised, the antenna is approximately 7 meters tall. The antenna consists of five antenna elements, made of fiberglass whips, a base that contains electronics, a two-piece mast and cables. The cables are routed through the hollow aluminum tubing of the mast. The two mast pieces are mated with a plastic coupler. The cables are connected to the base. The base is connected to the mast. The antenna elements are attached to the base.



Parts List

Quantity	Description
1	cable set, 100 meters
1	mast, lower section
1	mast, upper section
1	mast coupler
2	screw, hexagonal head (cap bolt), 4-20 x 3/8 inch
1	antenna box
2	screw, hexagonal head (cap bolt), 4-20 x 3/8 inch
1	fiberglass whip, vertical element (see table below for lengths)
4	fiberglass whip, horizontal element (see table below for lengths)

Fiberglass Whip Lengths

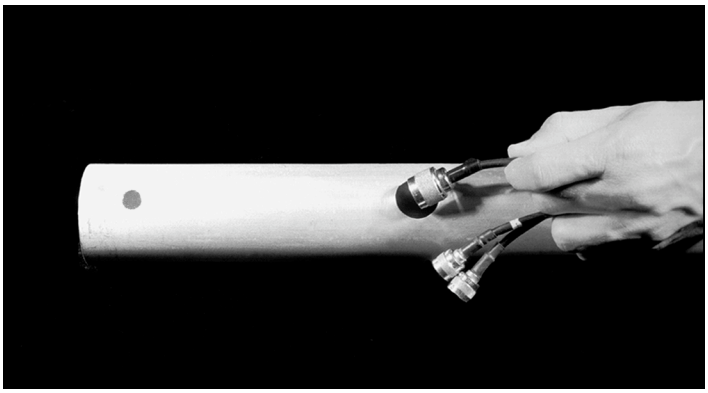
SeaSonde Frequency	Vertical Fiberglass Whip Length	Horizontal Fiberglass Whip Length
4.3 - 5.4 MHz	8 ft	8 ft
11.5 - 14.0 MHz	8 ft	8 ft
24.0 - 27.0 MHz	8 ft	4 ft
40.0 - 44.0 MHz	64 in	30 in

Tools List

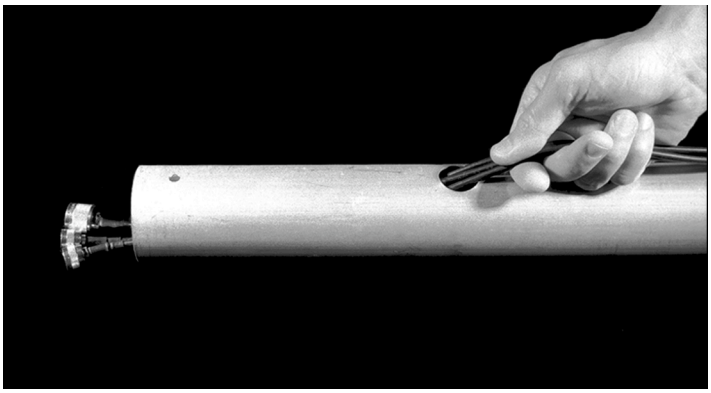
- wrench, 7/16 inch (socket with short extender recommended)

Procedure

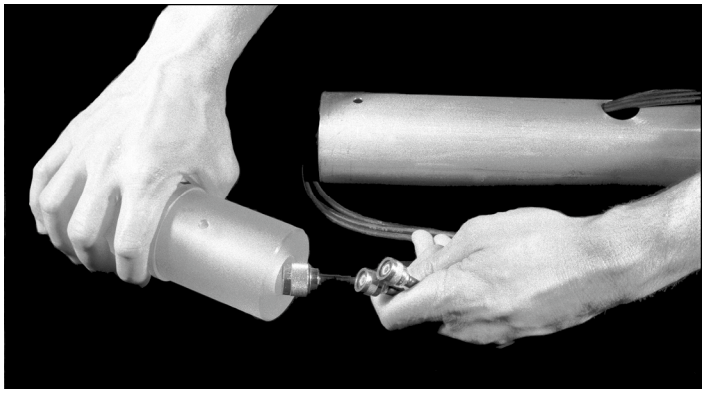
☐ One at a time, insert the end of each cable in the large hole at the upper end of the lower mast section. Be sure to start with the largest connector first.



☐ With all connectors inserted, gently push the cables until they appear at the upper end of the mast section.

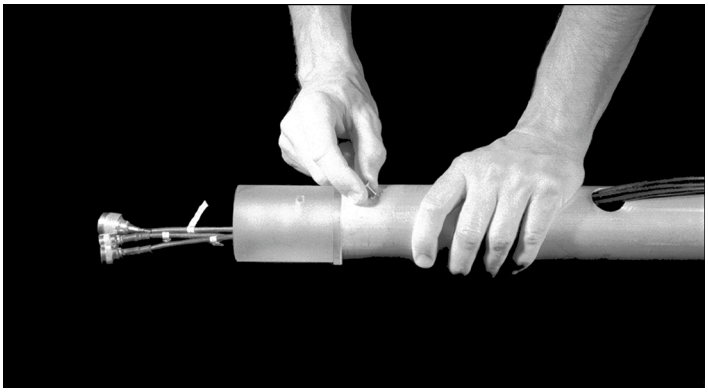


☐ One at a time, insert the end of each cable in one end of the mast coupler and push it through the coupler until it appears at the other end. Be sure to start with the largest connector first.

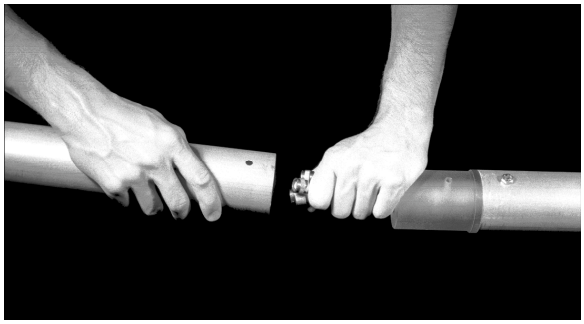


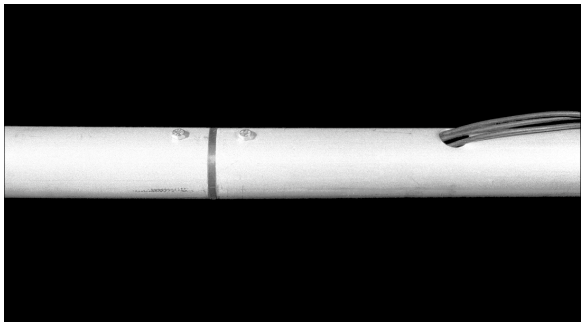
☐ With all cables threaded through the coupler, insert the coupler in the upper end of the lower mast section.

- ☐ Align the threaded hole in the coupler with the hole in the mast. Insert a 1/4-20 x 3/8 hexagonal-head screw (cap bolt) through the hole in the mast and screw it into the coupler. Gently tighten the screw with a wrench. Do not overtighten. The threads in the coupler are easily stripped.

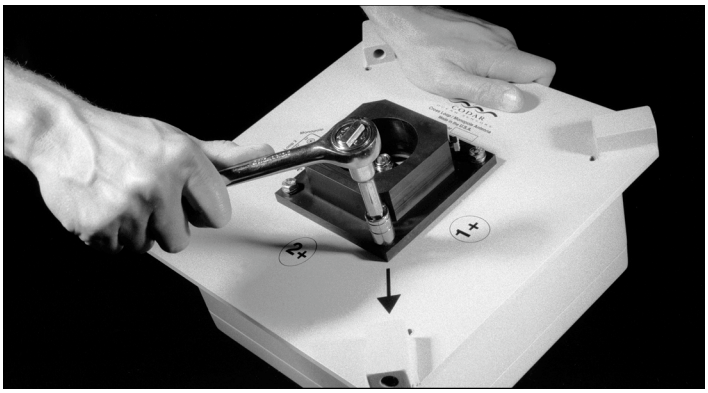


- ☐ Insert the cable ends and coupler in the lower end of the upper mast section.
- ☐ Align the threaded hole in the coupler with the hole in the upper mast section. Insert a 1/4-20 x 3/8 hexagonal-head screw (cap bolt) through the hole in the mast and screw it into the coupler. Gently tighten the screw with a wrench. Do not overtighten. The threads in the coupler are easily stripped.



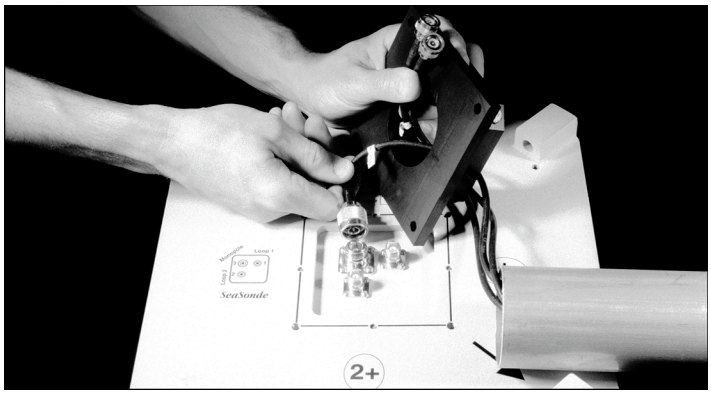


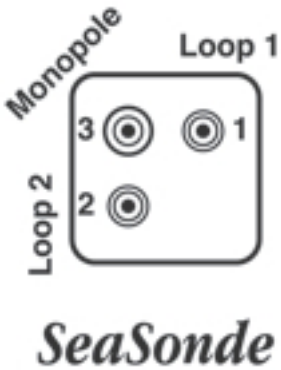
- ☐ Gently push the cables toward the top of the mast until they appear at the top.
- ☐ Remove the four bolts that fasten the black mounting sleeve to the antenna box.



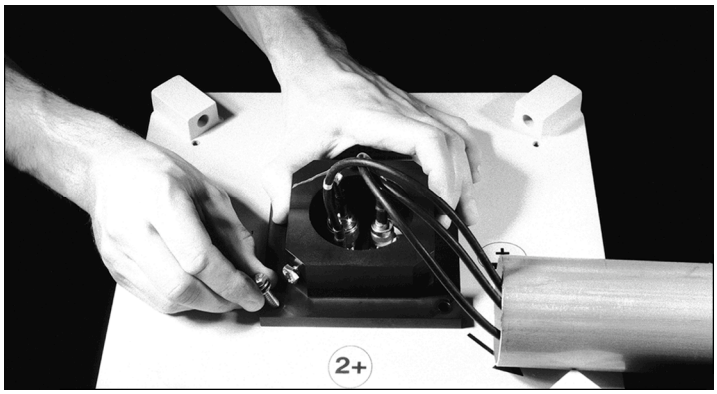
- ☐ Thread the cables through the mounting sleeve and connect the cables to the antenna box. Refer to the diagram on the antenna box and match the cable labels

with the corresponding base connectors. Finger tighten the connectors. Do not use a wrench or pliers.





- [ ] Reattach the black mounting sleeve with its four bolts. Tighten securely with a wrench.



- [ ] Mount the antenna box to the mast. Make sure the mast is fully seated in the mounting sleeve.
- [ ] There are two bolts that secure the antenna box to the mast through threaded holes in the black mounting sleeve. Tighten the two bolts securely with a wrench.
- [ ] The antenna has five fiberglass-whip elements. The elements are screwed into threaded holes in the antenna box. One element is oriented vertically, screwed into the top of the base. The remaining four are horizontal, screwed into holes at each corner of the base. The lengths of the elements vary, depending on the SeaSonde frequency.

  Some older SeaSonde models have two-piece antenna elements. The two-piece elements are used with 4.3 - 5.4 MHz (Long Range) and 11.5 - 14.0 MHz (Standard Range) SeaSondes.

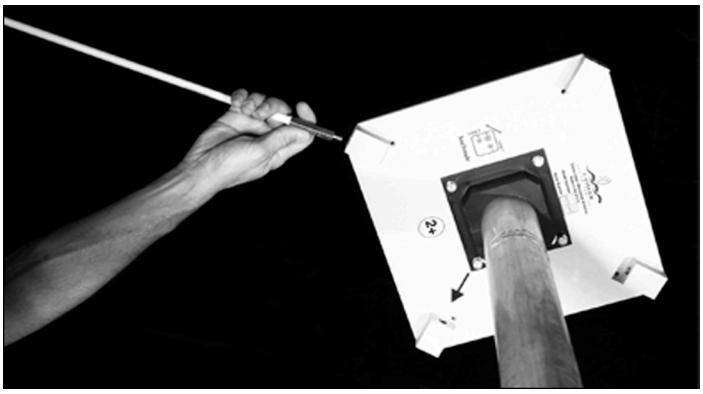
  Coat the metal couplers with a moisture-proof lubricant. Dow Corning 4 Electrical Insulating Compound is recommended. Push the two pieces together, ensuring they are firmly and completely mated. Wipe off any excess lubricant. Wrap the exposed metal coupler where the two pieces mate in electrical tape.

- ☐ Find the vertical element and coat its metal male threads with a moisture-proof insulating lubricant. Dow Corning 4 Electrical Insulating Compound is recommended.
- ☐ Insert the vertical antenna element in the threaded hole on the top of the base and screw it in. Tighten securely using a wrench.

- ☐ Coat the metal male threads of a horizontal antenna element with a moisture-proof insulating lubricant. Insert the antenna element in a threaded hole on side of the base and screw it in.

  Note: The fine threads are easily cross threaded and can damage the Helicoil insert. Thread the whips by hand first, then tighten with a wrench.

- ☐ Tighten securely using a wrench. Repeat for the remaining three elements, installing at each corner of the base.



The SeaSonde receive or combined transmit/receive antenna is assembled.

Dome Style Receive Antenna

When assembled and raised, the antenna is approximately 7 meters tall. The antenna consists of one antenna element (a fiberglass whip), a dome-shaped base that contains electronics, a mast, mast cable bundle and Rx cable spool (see Table and Figures below).

Item # (refer to images below)	Antenna Parts	Quantity	Model Number	Ship Bundled
1	Receive Antenna Assembly (Dome-Style)		SSRA-101-5	
2	Dome Receive Antenna	1	SSRA-SA101	X
3	Handhole Cover	1		
4	Mast Cable Bundle & Hardware (runs inside mast)	1		
5	Mast Stand (used for assembly only)	1		
6	Receive Antenna Whip	1		X
7	Receive Antenna Mast (Dome-style)	1	SSRA-201	
Not shown	Receive Antenna Cable (100m)	1	RXCBL-STD	X

Rx Antenna Assembly

Antenna Assembly Hardware

The Rx cable bundle is first routed through the aluminum inner mast (inside fiberglass mast) and attached to the dome base. The base and inner mast are then secured to the fiberglass mast and the antenna whip element is attached to the dome base.

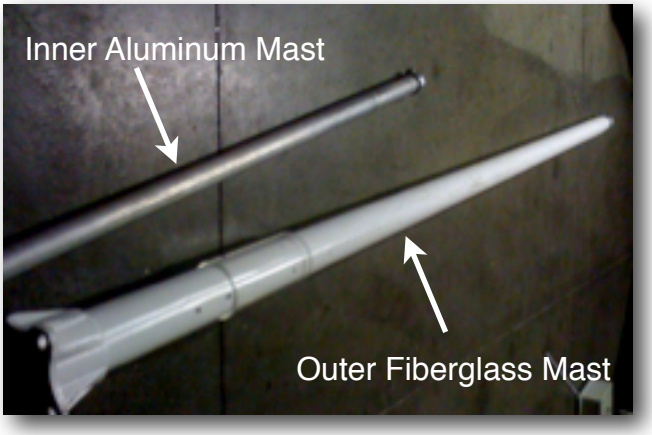
Lastly, the cables connectors at the base of the mast are attached to the mast strain relief and cable connectors are attached. The next few pages describe the assembly procedure in detail.

Tools List

- Phillips Screwdriver

Procedure

☐ First, remove inner aluminum mast from outer fiberglass mast.

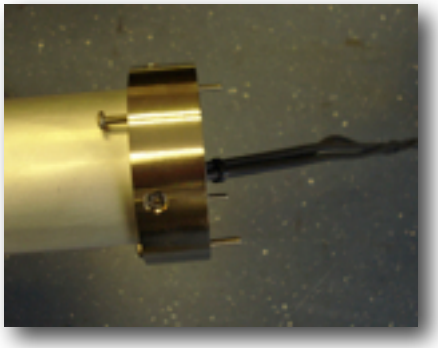


☐ Identify bulkhead connector ends on the mast cable bundle and insert bulkhead ends into the top end of the aluminum mast.

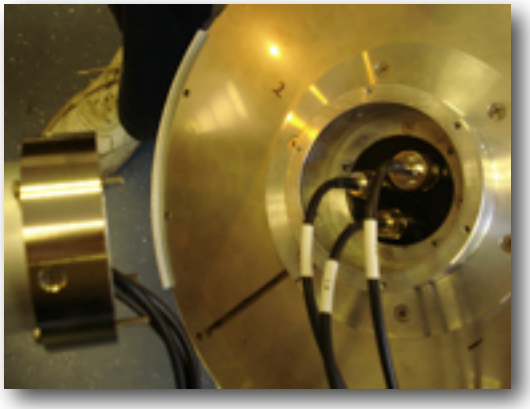
☐ Prepare to connect cables to the dome base. Identify cables 1, 2 & 3 and their connection locations on the dome base.

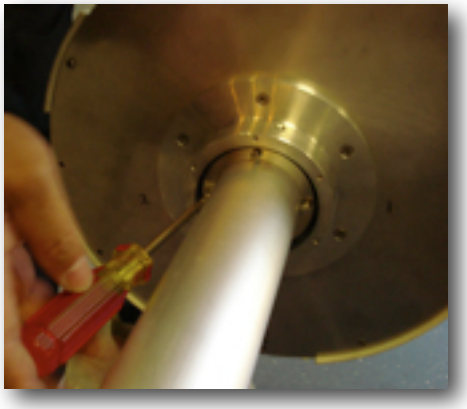
☐ Connect cables to dome base:

☐ Insert hardware screws into aluminum mast coupler. Pull cables through.

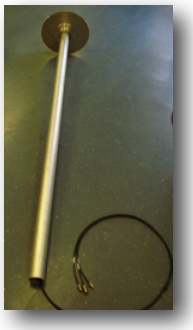


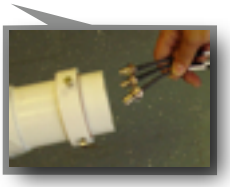
☐ Align mast coupler screws with holes on dome base. Tighten screws with Phillips screwdriver.

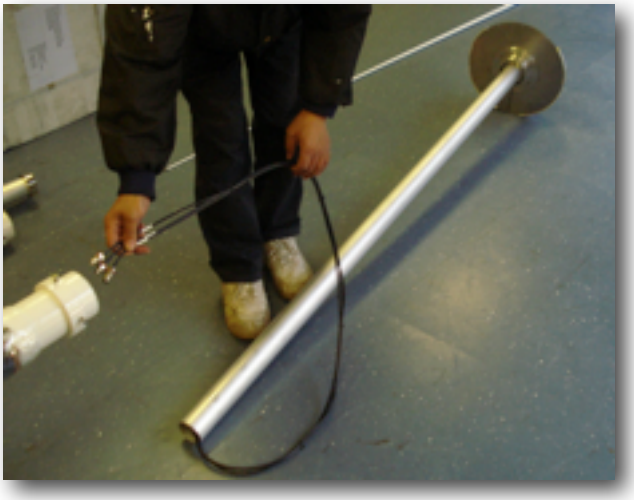




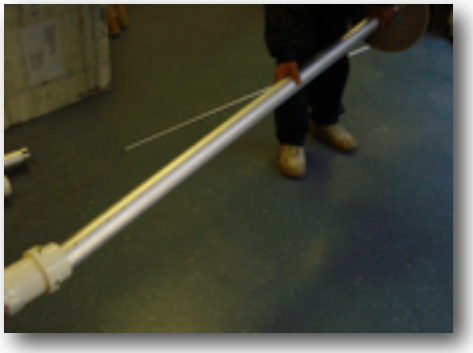
☐ Feed bulkhead connectors ends of mast cable bundle into fiberglass mast.

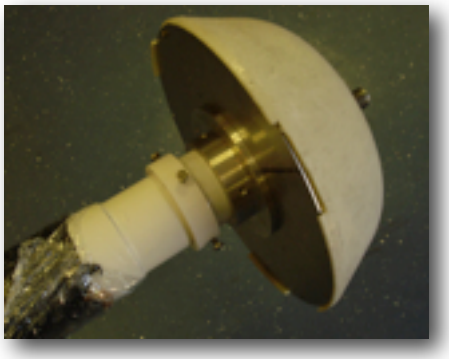






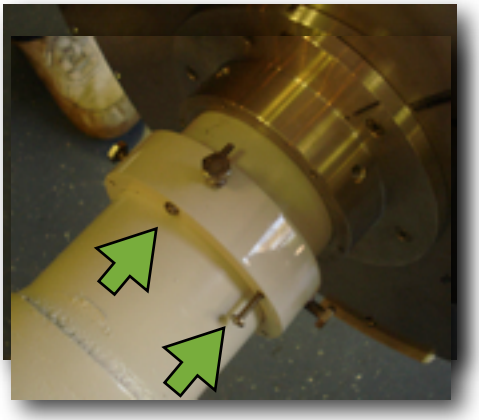
☐ Slide inner aluminum mast (with dome attached) into outer fiberglass mast.





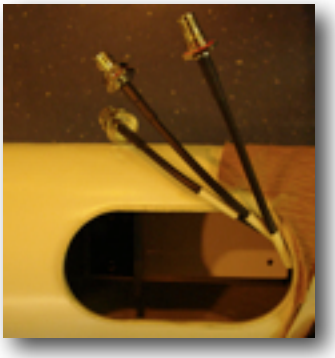
☐ Insert hardware screws in the fiberglass mast coupler.

☐ Align dome base with fiberglass mast screws. Tighten all coupler screws to attach the dome base.



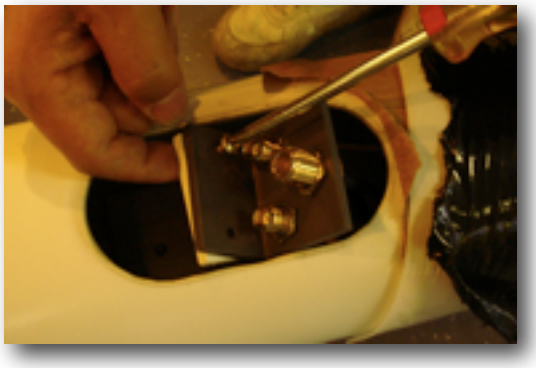
☐ Attach antenna whip element to top of the dome base.

☐ At the base of the fiberglass mast, pull bulkhead connectors down and out through the handhole. Find strain relief flap on back interior of mast.

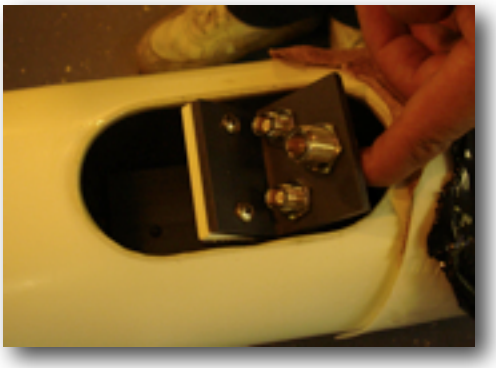


☐ Insert bulkhead connectors into the cable strain relief and secure with bulkhead nut.

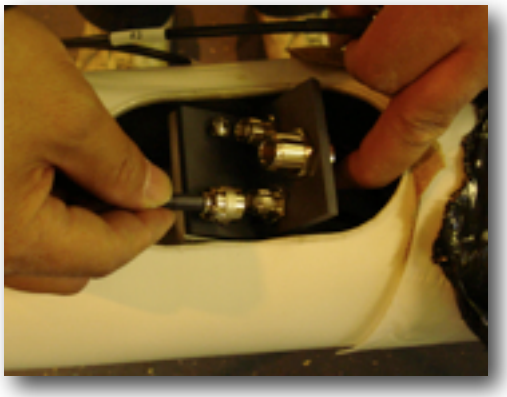
☐ Alternatively, for easy connecting, you can remove the screws from the cable strain relief panel and connect bulkhead connectors, and re-attach panel.



☐ Connect all three bulkhead connectors to cable strain relief.



☐ To complete assembly, connect the Rx Cable Spool cable TNC & N connectors to bulkhead connectors at base of mast.



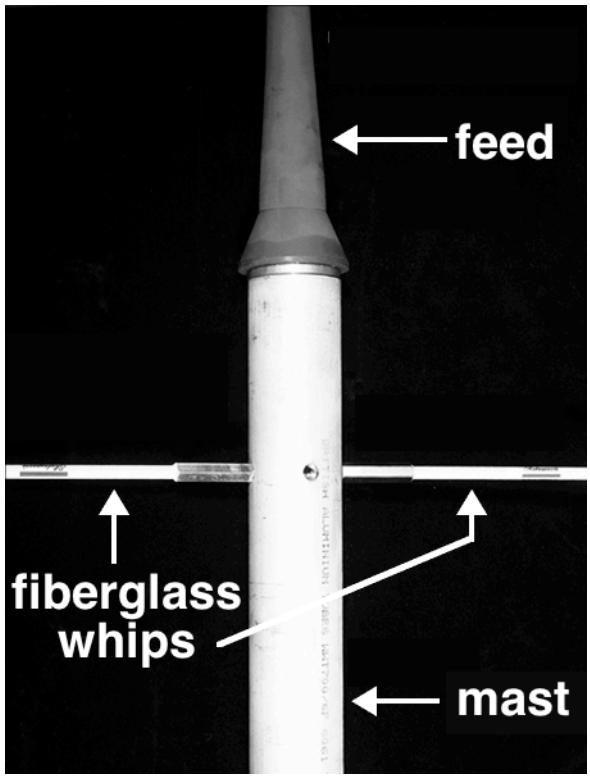
☐ Erect antenna and secure via permanent antenna mount.

☐ Take antenna bearing measurement of black arrow.

Transmit Antenna Assembly

12 MHz and Above

The transmit antenna consists of a two-piece mast, a feed, fiberglass whips and a cable. The cable is routed through the hollow aluminum tubing of the mast. The two mast pieces are mated with a plastic coupler. The cable is connected to the antenna feed. The feed is connected to the mast and vertical and horizontal fiberglass whip elements are attached. When assembled and raised, the antenna is approximately 7 meters (24-27 MHz SeaSondes) or 9 meters tall (11.5-14 MHz SeaSondes).



Parts List

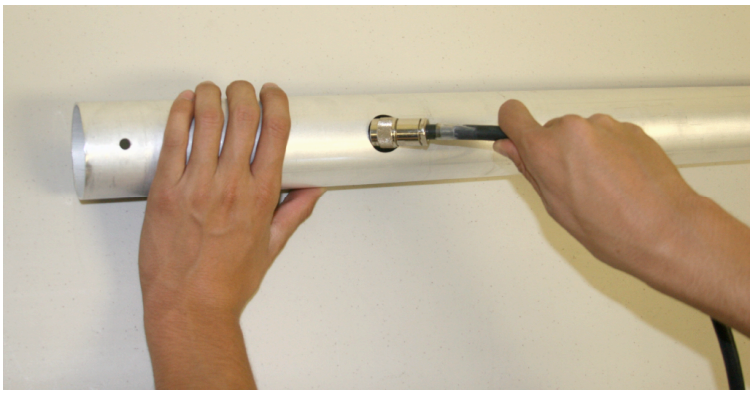
Quantity	*Description*
1	cable, RG-8, 75 meters
1	mast, lower section
1	mast, upper section
1	mast coupler
2	screw, hexagonal head (cap bolt), 4-20 x 3/8 inch
1	antenna feed
2	screw, hexagonal head (cap bolt), 4-20 x 3/8 inch
1	fiberglass whip assembly, vertical element, four mating sections for 11.5-14.0 MHz SeaSondes or two sections for 24-27 MHz
2	fiberglass whip, horizontal element, 8 feet long

Tools List

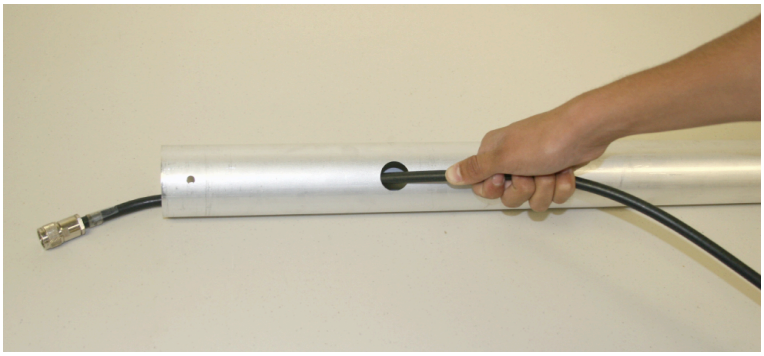
- wrench, 7/16 inch
- moisture-proof insulating lubricant. Dow Corning 4 Electrical Insulating Compound is recommended.

Procedure

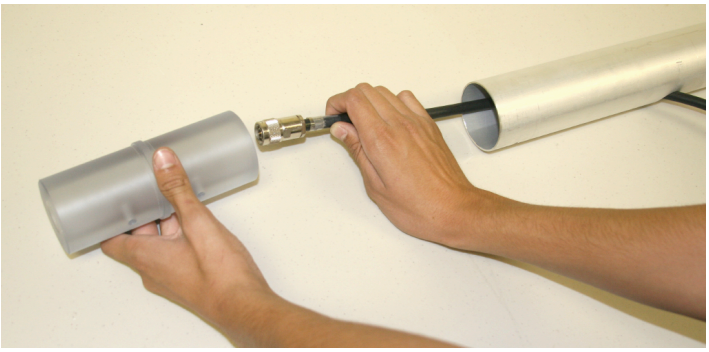
☐ Insert the end of the transmit cable into the large hole at the upper end of the lower mast section.



- ☐ Gently push the cable until it appears at the upper end of the mast section.

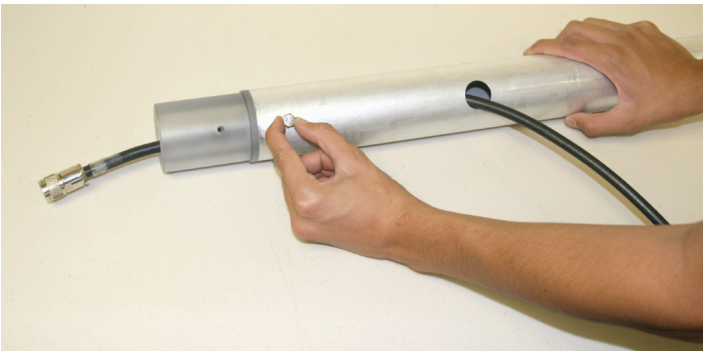


- ☐ Insert the cable into one end of the mast coupler.

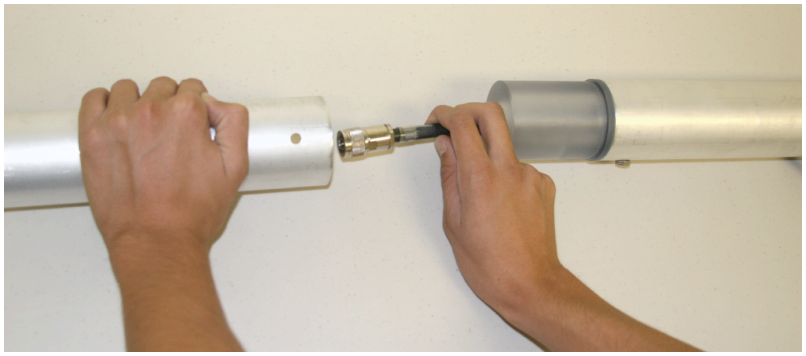


- ☐ Gently push the cable through the coupler until it appears at the other end.
- ☐ Coat the lower end of the coupler with moisture-proof insulating lubricant.
- ☐ With the cable threaded through the coupler, insert the coupler into the upper end of the lower mast section.
- ☐ Align the threaded hole in the coupler with the hole in the mast. Insert a 1/4-20 x 3/8 hexagonal-head screw (cap bolt) through the hole in the mast and screw it into the coupler.

  Gently tighten the screw with a wrench. Do not over tighten. Over tightening can strip the coupler threads or crack the coupler.

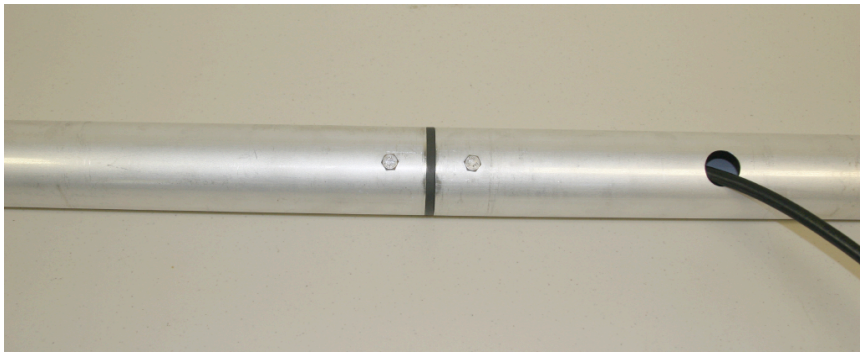


- ☐ Insert the cable end and coupler into the lower end of the upper mast section.

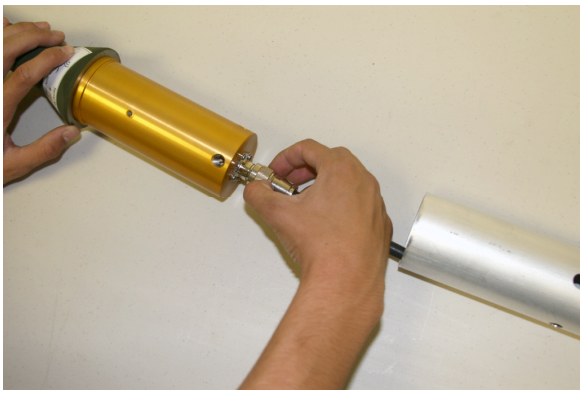


- ☐ Coat the upper end of the coupler with moisture-proof insulating lubricant.
- ☐ Align the threaded hole in the coupler with the hole in the upper mast section. Insert a 1/4-20 x 3/8 hexagonal-head screw (cap bolt) through the hole in the mast and screw it into the coupler.

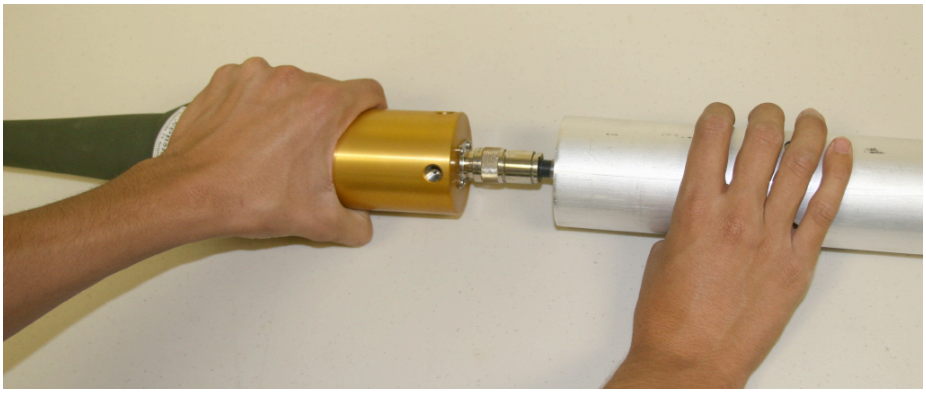
  Note: Gently tighten the screw with a wrench. Do not overtighten. Over tightening can strip the coupler threads or crack the coupler.



- ☐ Gently push the cable toward the top of the mast until it appears at the top.
- ☐ Coat the cable connector threads and the antenna feed connector threads with moisture-proof insulating lubricant.
- ☐ Connect the cable connector to the antenna feed connector. Finger tighten the connectors. Do not use a wrench or pliers.



- ☐ Apply moisture-proof insulating lubricant to the lower metal section of the antenna feed. Coat the areas that will touch the mast when the antenna feed is inserted.
- ☐ Insert the antenna feed into the upper end of the mast.



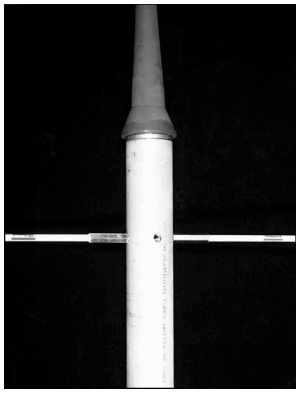
The horizontal antenna elements are white fiberglass whips.

Note: Some older SeaSonde models have two-piece antenna elements. Coat the exposed metal ferrule with moisture-proof insulating lubricant. Push the two pieces together, ensuring they are firmly and completely mated. Wrap the exposed metal coupler where the two pieces mate in electrical tape.

- ☐ Align the threaded holes in the feed with the holes in the mast.
- ☐ Coat the metal threads of a white fiberglass horizontal antenna whip with moisture-proof insulating lubricant.
- ☐ Insert the antenna element through the mast hole and screw it into the feed. Tighten securely using a wrench.

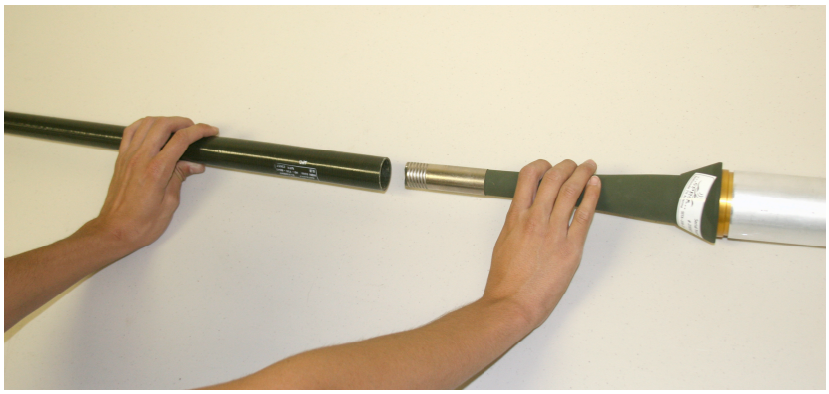
- ☐ Coat the threads of the second antenna whip with a moisture-proof insulating lubricant.

- ☐ Insert the antenna whip through the mast hole opposite (180 degrees away from) the whip previously installed. Screw the whip into the feed by hand to ensure proper thread contact. Tighten securely using a wrench.



The vertical antenna element is a green fiberglass whip. The whip is made of four sections for 11.5-14 MHz transmitters or two sections for 24-27 MHz transmitters. From bottom to top, each section is progressively thinner.

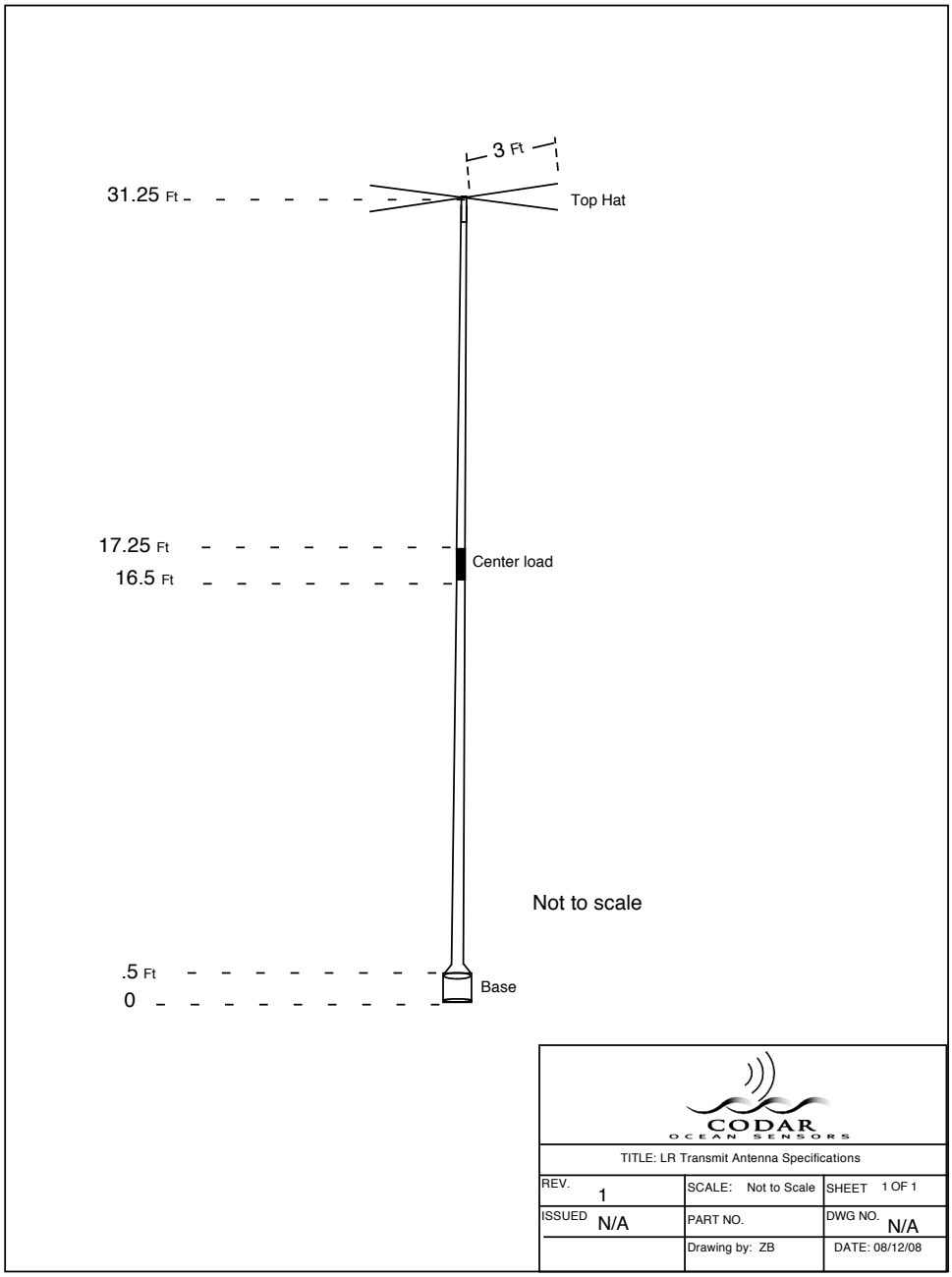
- ☐ Insert each vertical antenna section's metal coupler into the the next section's socket. Coat the antenna connection with DC-4 silicone grease and push the sections firmly together and hand-tighten it
- ☐ Insert the antenna feed into the vertical antenna element. Twist the pieces firmly and completely together by hand. Do not use a wrench or tool.



The SeaSonde transmit antenna is assembled.

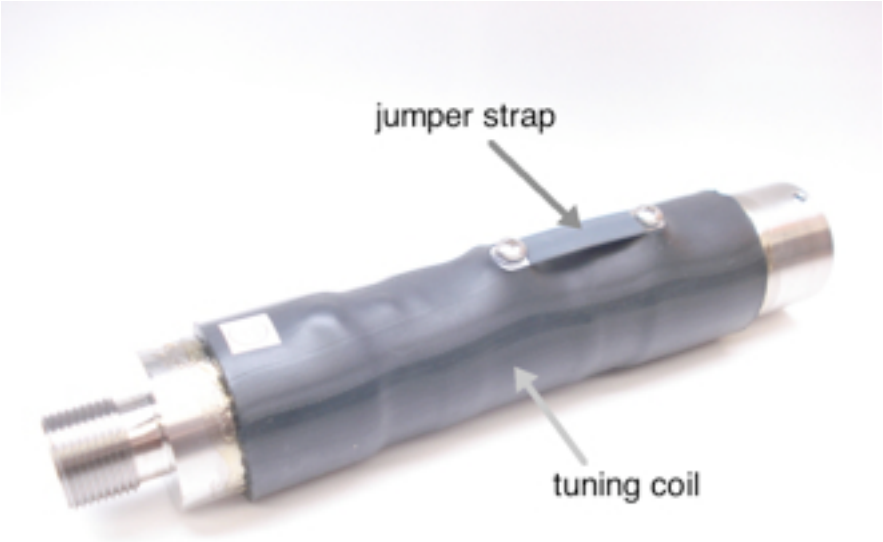
5 MHz (Long Range)

When assembled and raised, the long range transmit antenna is approximately 9.5 meters (31.25 feet) tall and weighs approximately 45 kilograms (100 pounds). The antenna assembly consists of two long sections with a tuning coil connecting them. A “top hat” adapter is mounted at the top of the antenna assembly. Nine ground plane wires, 7 meters long, are connected to the base and form a semicircle on the ground.



Tuning Coil Jumper Strap

The tuning coil is shipped with a metal jumper strap installed. If you plan to transmit at a frequency greater than 4.6 MHz, leave the jumper strap installed. If you plan to transmit at a frequency less than or equal to 4.6 MHz, the jumper strap must be removed.



The tuning coil jumper strap is held in place by screws and star washers at its upper and lower ends. To remove the jumper strap:

- ☐ Loosen, but do not remove, the lower screw (nearest the socket end of the tuning coil).
- ☐ Remove the upper retaining screw (nearest the exterior-threaded end of the tuning coil).
- ☐ Rotate the strap 180 degrees around the lower screw.
- ☐ Replace and tighten the upper screw and star washer. Tighten enough so that the screw stays in place. Do not overtighten.
- ☐ Tighten the lower screw enough so the strap does not move. Do not overtighten.

Installation

A crew of at least three strong people is needed to raise the antenna.

Transport all the parts and tools to the installation site.

Installing Cable

Summary:

- Locate antenna site.
- Unspool and route cable.

Exercise care when installing the cable. Do not sharply bend the cable. (Minimum bending radius is 4 inches.) Do not exert excessive pulling tension on the cable. (Maximum pulling tension is 230 pounds.) Do not pull on the connectors. Do not damage the connectors. Do not crush the cable or allow it to kink.

- ☐ Find the desired transmit antenna location. Pace off the distance or measure with a rangefinder or tape. Ensure that the distance between the SeaSonde electronics and antenna is as planned.
- ☐ Start at the SeaSonde electronics and ensure the transmit cable can be mated to the transmitter (or optional LP-100 lightning protection kit, if installed) and is properly routed.
- ☐ Unspool the transmit cable from the SeaSonde electronics to the antenna site. The easiest way is to insert a 1 meter pipe through the spool and have two people walk the pipe and spool to the antenna site.
- ☐ Double-check the routing and ensure there is enough slack to mate the connectors at each end.
- ☐ If needed, install split loom tubing or other protection around the cable to avoid damage by animals.

Assembling Top Hat Adapter

The top hat adapter is so named because it fits over the top of the antenna. It consists of a metal sleeve and four stiff wire elements. The wire elements are held in place by a washer-like retainer and four fasteners. The top hat adapter is secured to the antenna with set screws.

Summary:

- Mark wire elements for safety.
- Loosen retaining washer screws.
- Insert wire elements.
- Tighten retaining washer screws.

Injury warning: the wire elements may cause injury to eyes or other parts of the body. Mark the end of each wire, so that it is seen easily. Safety glasses are recommended.

- ☐ Place a piece of adhesive tape on one end of each wire, so that it is seen easily.
- ☐ Using a 9/64 inch hex (Allen) driver or key, loosen the four cap screws that hold the retaining washer in place at the end of the top hat adapter. Loosen just enough to slip the wire elements snugly between the retaining washer and one of the grooves in the top hat adapter.

- ☐ Insert a wire element between the retaining washer and a groove in the top hat adapter. Repeat for all four wire elements.
- ☐ Tighten the four cap screws on the top hat adapter.
- ☐ Set the top hat adapter aside. It will be installed on the antenna a few steps later.

Assembling Antenna

Summary:

- Arrange antenna sections.
- Lubricate and screw together upper antenna section and tuning coil. Tighten set screws.
- Lubricate and screw together lower antenna section and tuning coil. TIghten set screws.
- Install guy rope collar and guy ropes if used.
- Install top hat adapter.

- ☐ Lay out the two antenna sections on the ground and arranged end-to-end for assembly. The tuning coil is installed between the lower and upper antenna sections. Ensure that the connecting parts remain clean by placing a clean surface (cardboard, paper, a towel or rag, etc.) under them.
- ☐ Ensure that the tuning coil jumper strap is in the correct position. It should be installed (secured with both screws) when transmitting greater than 4.6 MHz. It should be uninstalled (removed from the upper screw) when transmitting less than or equal to 4.6 MHz. If the tuning coil jumper strap must be uninstalled, follow the instructions earlier in this guide.
- ☐ Coat the socket threads at the bottom of the upper antenna section with a moisture-proof insulating lubricant. Dow Corning 4 Electrical Insulating Compound is recommended.
- ☐ Coat the threads at the upper section of the tuning coil with moisture-proof insulating lubricant.
- ☐ Screw the tuning coil tightly onto the upper antenna section.
- ☐ Tighten the two set screws at the bottom of the upper antenna section using a 3/32 inch hex (Allen) driver or key.
- ☐ Coat the socket threads of the tuning coil with moisture-proof insulating lubricant.
- ☐ Coat the threads at the top of the lower antenna section with moisture-proof insulating lubricant.
- ☐ Screw the tuning coil with upper antenna section tightly onto the lower antenna section. Use a strap wrench if necessary.
- ☐ Tighten the two set screws at the bottom of the tuning coil using a 3/32 inch hex (Allen) driver or key.
- ☐ (Optional.) If using guy ropes, slip the top of the antenna through the center hole of the guy rope collar. The eye bolts on the guy rope collar should point downward, i.e., the eyes should be closest to the ground when the antenna is raised. Slide the

collar to the center of the antenna until it stops in place at the metal fitting of the upper antenna section.

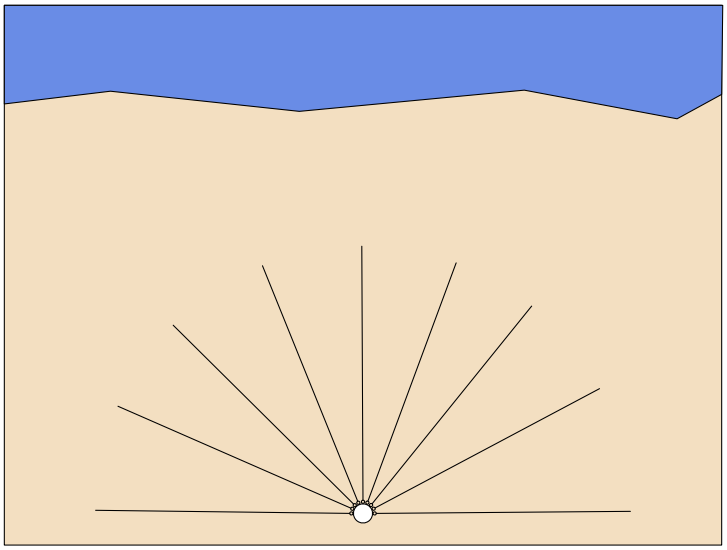
- ☐ (Optional.) If using guy ropes, attach four ***non-conductive*** guy ropes to the four guy-rope-collar eye-bolts.
- ☐ Begin installing the top hat adapter by placing it over the top of the upper antenna section. Ensure that the top of the antenna is completely inserted in the top hat adapter.
- ☐ Tighten the three upper top hat adapter set screws (cup point with red marking) using a 3/32-inch hex (Allen) driver or key.
- ☐ Tighten the three lower top hat adapter set screws (soft point, green-tipped) using a 3/32-inch hex (Allen) driver or key.
- ☐ Remove the adhesive tape markers from the top hat adapter wire elements.

Raising and Securing Antenna

Summary:

- Orient antenna.
- Raise antenna.
- Place antenna on support and tighten fasteners.
- Secure guy ropes if used.
- Release and arrange ground plane wires. Stake if needed.
- Mark keep-out area if needed.
- Take up cable slack.

- ☐ There are nine ground-plane wires connected to the ground-plane feed assembly and secured with bolts. Locate the center bolt of the nine. Rotate the antenna so that, when it is raised, the head of the center bolt will be toward the sea.



Ground Plane Wire Orientation (not to scale)

- ☐ If needed, attach a temporary base to the ground plane feed assembly base.
- ☐ Hold the antenna base in position while others lift the antenna at its middle (near the tuning coil) and raise the antenna by walking it toward the base.
- ☐ If using a permanent support, lift the antenna and place the ground plane feed assembly over the support bolts. Install and tighten support nuts.
- ☐ If using guy ropes, secure them while one or more people hold the antenna in place.
- ☐ The ground plane wires are wrapped around and secured to the ground plane feed assembly. Remove the material that secures the ground plane wires.
- ☐ Unwrap the ground plane wires from the ground plane feed assembly.
- ☐ Arrange the ground plane wires so that they are evenly spaced and fan out in a 180 degree arc. The loose end of the center ground plane wire should be closest to the sea.
- ☐ If the ground plane arc is not properly oriented, reorient it by moving one or more of the ground plane wires on the antenna feed (base). Determine which wire “points” directly to the sea. This will be the center wire. There should be four wires on either side of the center wire. If not, move a wire from the side that has more than four wires to the other side by removing its fastener and reattaching it to a threaded hole on the opposite side of the arc. Repeat if necessary until there are four wires on either side of the center wire.
- ☐ If needed, secure the ends of the ground plane wires with long nails or irrigation hose stakes to keep them in their proper orientation. Metal stakes can be used.
- ☐ If needed, mark or secure the area with non-metallic fence, markers and/or signage to keep people from tripping over the ground plane wires or touching the antenna.
- ☐ Take up any cable slack at the antenna by looping the cable into a 0.3 meter diameter coil at base of antenna.

- ☐ Connect the transmit cable to the lightning arrester at the base of the antenna.
- ☐ Connect the transmit cable to the transmitter connector or the optional LP-100 lightning protection kit.

Antenna Parts Checklist

Parts marked “not supplied” are not supplied by CODAR and must be procured from other sources.

Note: many parts are pre-assembled. For example, the antenna feed is completely assembled and mated to the lower antenna section.

Check	Quantity	Description
		UPPER ANTENNA SECTION PARTS
	1	transmit antenna, upper section
	2	set screw, cup point, 10-32 x 3/8", 3/32" hex socket, stainless steel
		LOWER ANTENNA SECTION PARTS (The fasteners and gasket listed mate the lower antenna section to the antenna feed subassembly.)
	1	transmit antenna, lower section
	4	cap bolt (full thread), 1/2-13 x 2-3/4”, stainless steel
	8	flat washer, 1/2”, stainless steel
	4	lock washer, 1/2”, stainless steel
	4	nut, 1/2-13, stainless steel
	1	(optional), teflon gasket (Gasket goes between lower antenna section and antenna feed.)
		ANTENNA FEED PARTS
	1	spool-shaped base, stainless steel
	9	ground plane wires, 25 feet long, stainless steel
	9	bolt, 1/4-20 x 3/8”, stainless steel (fastens ground plane wire to antenna feed)
	9	lock washer, 1/4” (on ground plane wire bolt)
	9	flat washer, 1/4” (on ground plane wire bolt)
	1	antenna feed connector, Type N, attached to base

Check	Quantity	Description
	1	lightning arrester with Type N connector, attached to antenna feed connector
		TUNING COIL ASSEMBLY PARTS
	1	tuning coil
	1	tuning coil jumper strap, stainless steel, with black shrink tube insulation
	2	screw, phillips head, 10-32 x 1/4”, stainless steel
	2	internal star washer, #10, stainless steel
	2	set screw, cup point, 10-32 x 3/8", 3/32" hex socket, stainless steel
		TOP HAT ASSEMBLY PARTS
	1	top hat adapter, stainless steel sleeve
	4	antenna element, 0.062” diameter, 3 feet long, titanium alloy (6 AL/4V ELI)
	1	retaining washer, 1” outside diameter, with five holes
	4	cap screw, 8-32 x 7/16", 9/64" hex socket, stainless steel
	4	internal star washer, #8
	3	set screw, cup point, 10-32 x 3/16", 3/32" hex socket, stainless steel, red marking on threads (inserted in upper holes of top hat adapter)
	3	set screw, soft point (nylon), 10-32 x 3/16", 3/32" hex socket, stainless steel, green tipped (inserted in lower holes of top hat adapter)
		MOUNTING HARDWARE (not supplied)
	4	(not supplied) bolt, 5/8”-11, length as required
	4	(not supplied) nut, 5/8”-11
	4	(not supplied) lock washer, 5/8”

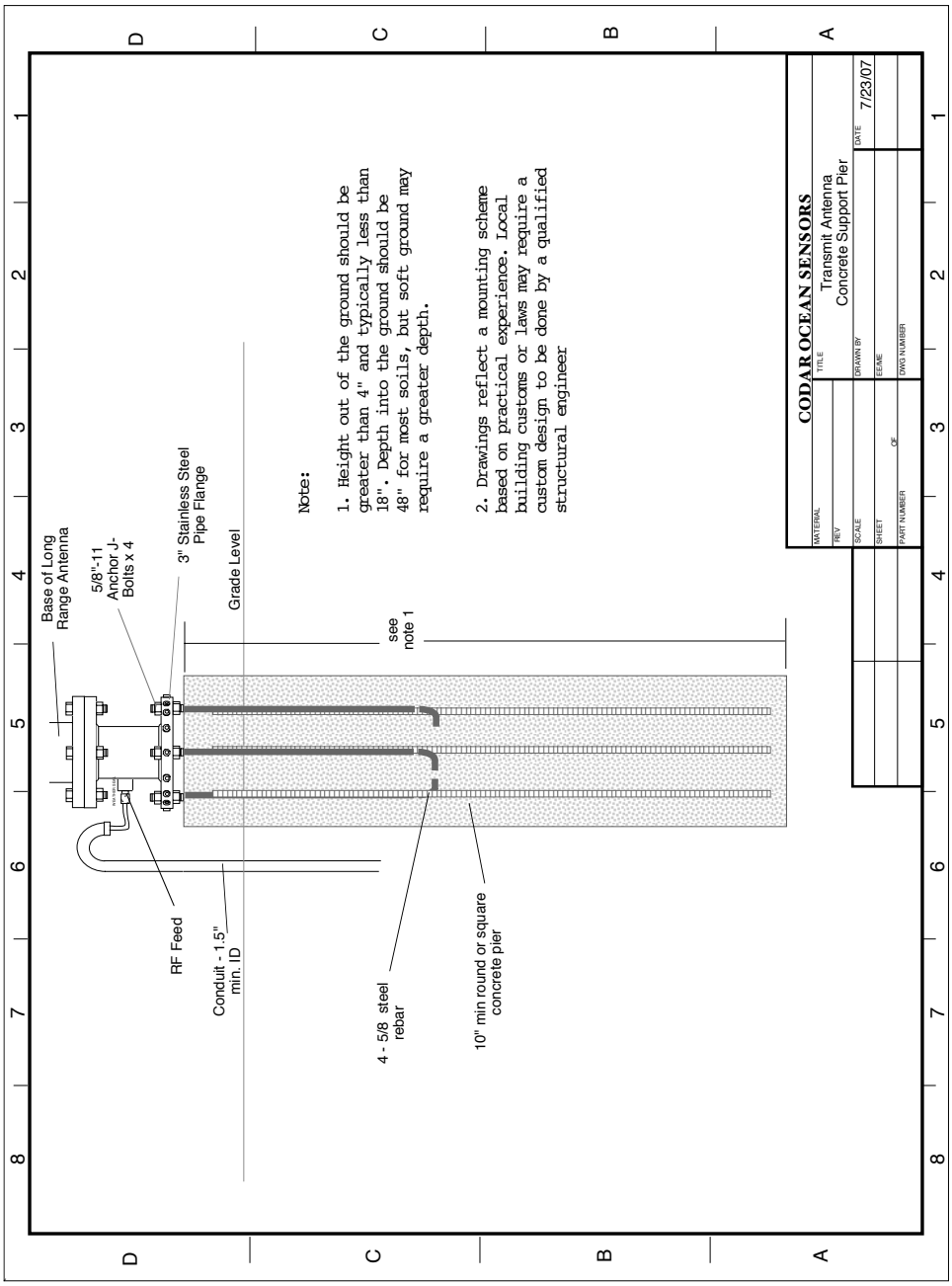
Check	Quantity	Description
	4	(not supplied) flat washer, 5/8”
	4	(optional, not supplied) guy ropes, non-conductive, length as required (10 m nominal). For long-term installations, Kevlar with UV-resistant outer braid is recommended. To reduce cost, nylon can be used for short-term installations.
	4	(optional, not supplied) stakes or anchors to tie down guy ropes
	1	(for temporary install, not supplied) base, plywood, 1-inch thick (minimum), 0.75–1 m diameter or square, holes drilled with antenna feed bolt hole pattern
		CABLE
	1	cable, RG-8 with N-type connectors, 75 m
		OPTIONAL EQUIPMENT
	1	lightning protection kit, CODAR part LP-100
	as required	(not supplied) non-metallic fencing, markers, and/or signage
	as required	(not supplied) split loom tubing, plastic, 1/2 inch nominal, or conduit, (e.g., Schedule 40 PVC), 1/2 inch nominal, (to protect cables from animal damage)

Tool Checklist (Tools not supplied.)

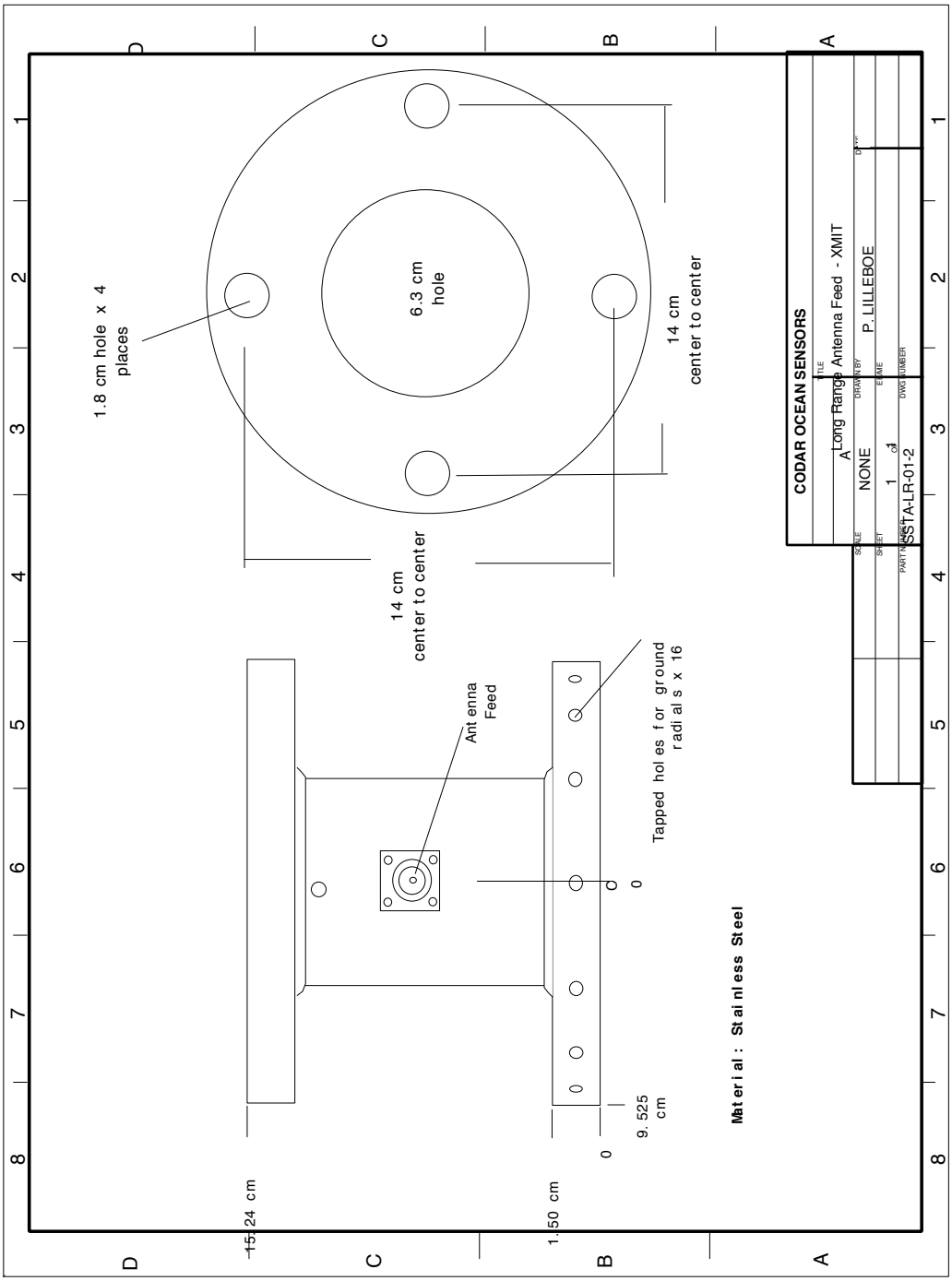
Check	Quantity	Description
	1	hex (Allen) driver or key, 3/32"
	1	hex (Allen) driver or key, 9/64"
	1	strap wrench
	as required	hammer(s) to drive ground plane wire stakes and guy rope stakes
	1	ohmmeter or multimeter for continuity checks
	1	tape measure or rangefinder
	as required	Moisture-proof insulating silicone lubricant. Dow Corning 4 Electrical Insulating Compound is recommended.
	as required	clean working surface (cardboard, towel, etc.)
	1	(optional) pipe, 1 m long, to put through cable spool

Drawings

Concrete Support Pier



Antenna Feed



Configuring the SeaSonde

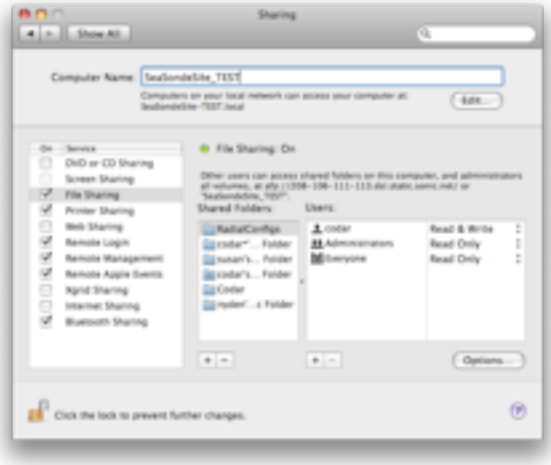
Initial Power Up

- ☐ Confirm the transmitter is switched off and unplugged.
- ☐ Connect the computer to the receiver with the supplied USB cable
- ☐ Plug in and switch on the receiver.
- ☐ Plug in the computer and press the power button.
- ☐ After computer starts up, quit all applications.

Configure Site Information

Computer Name

- ☐ Select a descriptive four-character code for your site (characters A-Z, a-z, 0-9)
- ☐ Change the computer name in System Preferences-> Sharing by adding your site code using the format SeaSonde_Site_XXXX (where XXXX is your four-character code)

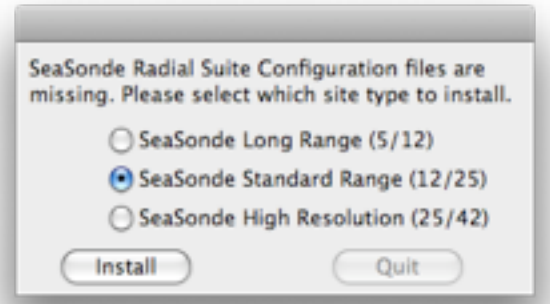


- ☐ Delete any existing RadialConfigs folders found in /Codar/SeaSonde/Configs

Site Parameters

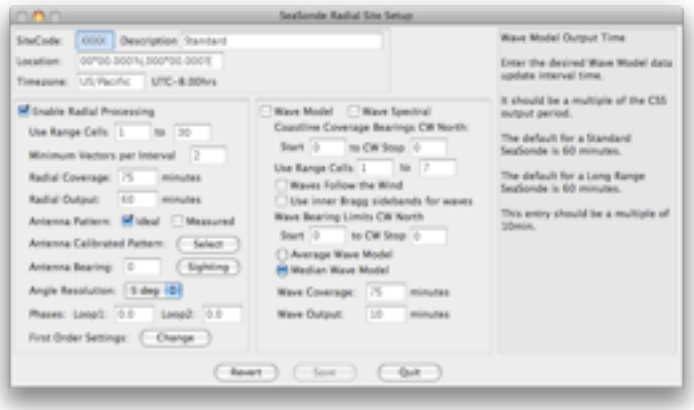
- ☐ Launch the SeaSondeRadialSetup

☐ Select the type of system (Long/Standard/High Res) you are operating



☐ Enter your four-character site name in the “SiteCode” box

Optional: add a site description in field to right of Site Code.

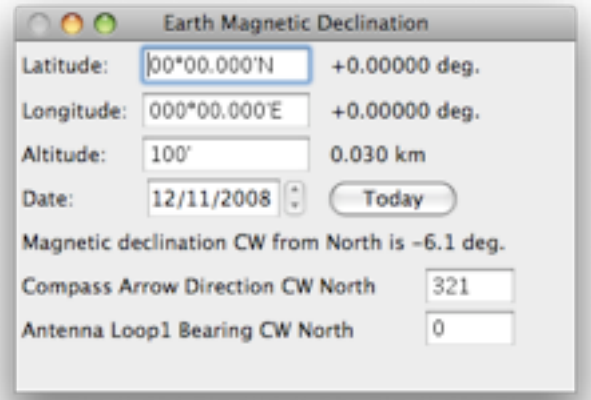


☐ Enter the WGS-84 latitude and longitude of the receive antenna separated by a comma in the “Location” box

☐ In the Timezone box, enter the time zone with which you wish your data files to be stamped.

☐ Click Save.

- ☐ Click the “Sighting” button to open the Magnetic Declination app and the following window/ panel:



- ☐ If they are not already filled in, enter the latitude and longitude in the appropriate boxes of the “Earth Magnetic Declination” menu

  Note: you can cut and paste the SeaSonde location from the values that you entered in the “Location” box earlier. Disregard the altitude (your SeaSonde will always be close enough to sea level that this parameter is insignificant)

- ☐ Confirm the correct date in the “Date” box.

  Note: This value comes from the computer clock and should reflect the current date.

- ☐ Enter the magnetic black arrow bearing in the “Compass Arrow Direction CW North” box.
- ☐ Copy down the Antenna Loop 1 Bearing and quit the app Magnetic Declination app
- ☐ Fill in your Antenna Loop 1 Bearing in the Antenna Bearing field

Configure Receiver Settings

- ☐ Click the SeaSondeController icon in the Dock.
- ☐ Choose the *first* Control > Select Port… menu item. (There are two Select Port… menu items.)
- ☐ Confirm SeaSonde Receiver is displayed in the pop-up menu. If not, choose SeaSonde Receiver from the pop-up menu.
- ☐ Click OK.
- ☐ Choose Control > Receiver Controller > Advanced. The advanced Receiver Controller dialog appears.
- ☐ Enter “GMON 0” in the Send field.
- ☐ Click Send. The GPS timing monitor is turned off.
- ☐ Click Store to store settings as switch-on defaults. The settings are stored in receiver memory location 1.
- ☐ Enter “SAVE 2” in the Send field.
- ☐ Click Send to store settings in receiver memory location 2. This is a backup.

Confirm electronics rack cable connections

Confirm that following cable connections are made.

- ☐ TRANSMIT DRIVE OUT (receiver) ↔ TRANSMIT DRIVE IN (transmitter)
- ☐ TRANSMIT CONTROL (receiver) ↔ TRANSMIT CONTROL (transmitter)
- ☐ ANTENNA 1 LOOP 1 (receiver) ↔ Loop 1 (receive antenna)
- ☐ ANTENNA 2 LOOP 2 (receiver) ↔ Loop 2 (receive antenna)
- ☐ TRANSMIT OUT TO ANTENNA (transmitter) ↔ transmit antenna

For separated transmit and receive antennas:

- ☐ ANTENNA 3 MONOPOLE (receiver) ↔ Monopole (receive antenna)

For combined transmit and receive antenna:

- ☐ RECEIVER ANTENNA 3 (OPTIONAL) (transmitter) ↔ Monopole (combined transmit/receive antenna)

Powering up the transmitter

- ☐ Confirm that the transmitter power switch is off.
- ☐ Plug in the transmitter power cord.
- ☐ Click the SeaSondeController icon in the Dock.
- ☐ Choose Control > Special Controls > Transmit Monitor…. The RC1 Transmit Monitor window appears.
- ☐ Switch on the transmitter.
- ☐ In the Transmit Monitor window, attenuation should be set to 10 dB.
- ☐ Choose Control > Special Controls > Transmit Drive Control…. The RC1 Transmit Control dialog appears.
- ☐ Confirm the settings in the RC1 Transmit Control dialog are as follows:
- ☐ In the RC1 Transmit Monitor window, confirm that Reflected (power) is less than 25% of Forward (power).
- ☐ In Transmit Monitor window, confirm that VSWR is 3.5 or less.
- ☐ Identify and correct problems if VSWR is greater than 3.

Repeat the following steps until Forward (power) in the RC1 Transmit Monitor window is 40-50 watts and VSWR is less than 3.

- ☐ Reduce by 1 the entry in the Atten field of the Receiver Controller window. For example, enter “9” if the current value is “10”.
- ☐ Click the Atten button.

- ☐ Click Store to store settings as switch-on defaults. The settings are stored in receiver memory location 1.

- ☐ Enter “SAVE 2” in the Send field.
- ☐ Click Send to store settings in receiver memory location 2. This is a backup.
- ☐ Capture an image of the Advanced Receiver Control dialog:
  - Press Command-Shift-4.
  - Press the Space bar. The pointer changes to a camera.
  - Click the advanced Receiver Control dialog.

  Note: An image of the dialog named “Picture #” (where # is a number) is saved to the Desktop.

Configure GPS synchronization (SHARES systems only)

- ☐ Confirm the GPS antenna has a clear view of the sky.
- ☐ Confirm the GPS antenna cable connects the GPS antenna to the receiver.
- ☐ Click the SeaSondeController icon in the Dock to make it active.
- ☐ Choose Control > Special Controls > GPS Monitor…. The RC1 GPS Monitor dialog appears.
- ☐ Confirm that at least four satellites are shown by the Satellites indicators.
- ☐ Observe the Survey progress indicator (a moving bar). Wait until Survey is complete.
- ☐ Store the SeaSonde’s position:
  - Select the checkbox next to the pop-up menu.
  - Choose Store Survey GPS Position from the pop-up menu.
  - Click the Go button. The SeaSonde’s position is stored.
  - Confirm the Position Stored indicator is green.
  - Repeat this step if the position is not stored.
- ☐ Confirm all indicators are green.
- ☐ Choose Control > Receiver Controller > Advanced. The Advanced Receiver Controller dialog appears.
- ☐ Enter “GMON 10” in the Send field.
- ☐ Click the Send button. The GPS timing monitor interval is set to 10 seconds.
- ☐ Store setting using the Send box of the advanced Receiver Controller.
- ☐ Enter “SAVE 2” in the Send field.
- ☐ Click Send to store settings in receiver memory location 2. This is a backup.
- ☐ Choose Control > Special Controls > Transmit Drive Control…. The RC1 Transmit Control dialog appears.
- ☐ Select When GPS Not Ready.
- ☐ Choose Control > Receiver Controller > Advanced. The advanced Receiver Controller dialog appears.

- ☐ Enter “GS” in the Send field.
- ☐ Click the Send button. The SeaSonde pulse timer is synchronized with GPS time.
- ☐ Confirm transmitter is transmitting (solid green LED and flashing yellow LED on transmitter).
- ☐ Click the SeaSondeAcquisition icon in the Dock.
- ☐ Confirm correct number of Doppler points for your system (in the Spectra Map window)
- ☐ Confirm that Bragg peaks are present in A3 (Monopole - Channel 3) Spectra Map
- ☐ Select “Monitors” menu->Cross Spectra Color Map->Channel 2
- ☐ Confirm that Bragg peaks are present in A2 (Loop 2 - Channel 2) Spectra Map
- ☐ Select “Monitors” menu->Cross Spectra Color Map->Channel 1
- ☐ Confirm that Bragg peaks are present in A2 (Loop 1 - Channel 1) Spectra Map

Computer reboot test

- ☐ Choose Apple menu > System Preferences…. The System Preferences window appears.
- ☐ Click the Accounts icon. The Accounts pane appears.
- ☐ Click the SeaSonde user’s icon. (The user is normally “codar”.)
- ☐ Click the Login Items tab.
- ☐ Confirm Sentinel is listed in “These items will open automatically when you login:”.
- ☐ If Sentinel is not listed, add it to the list:
  - Click the “+” button.
  - Select /Codar/Seasonde/Apps/RadialTools/Sentinel
  - Click the Add button.
- ☐ Choose Apple menu > Restart…. The “Are you sure you want to restart your computer now?” dialog appears.
- ☐ Click Restart.
- ☐ After the computer starts up, confirm that Sentinel launched the processing suite.
- ☐ Confirm that data are being acquired in SeaSonde Acquistion’s Spectra Map window.
- ☐ Re-visit the site in 6 or more hours and confirm that CSQ, CSS, Rdli radials are being created and stored in their respective folders in /Codar/SeaSonde/Data/Spectra/... and /Codar/SeaSonde/Data/Radials/

••The SeaSonde remote unit is configured and operating••

Optional Configuration Tasks

Find frequency with least interference

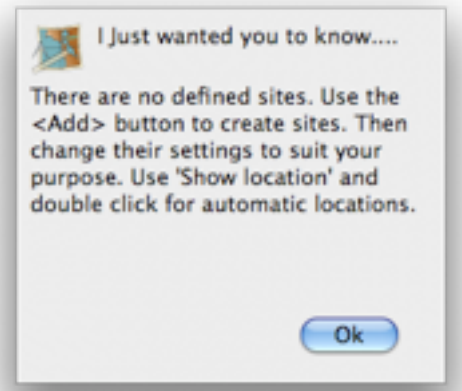
- ☐ With transmitter off, collect at least one full CSQ file for each of your assigned operating frequencies.
- ☐ Open a CSQ file collected at each frequency using the application SpectraPlotterMap.
- ☐ Examine range cell #5 comparing noise floor values on each antenna.
- ☐ Inspect each range cell for interference striping (horizontal or vertical stripes).
- ☐ Choose the frequency with the lowest noise and no interference for your primary operating frequency.

Create a site map for viewing surface currents

- ☐ Launch SeaDisplaySetup (/Codar/SeaSonde/Apps/Tools/SeaDisplaySetup)
- ☐ Pull down File->New to create a new map
- ☐ Pull down File->Save (use default Site File Options) and click OK button
- ☐ Navigate to /Codar/SeaSonde/Configs/SiteDefinitions in Browser Dialog box
- ☐ Rename “Untitled” file to SeaDisplay_Site_XXXX

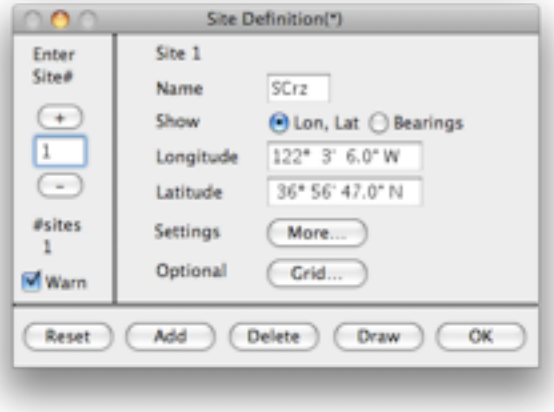
  Note: substitute your site code for the XXXX, use the format in the example

- ☐ Pull down Map->Sites menu
- ☐ Click “OK” to dismiss “I just wanted you to know...” box



☐ Click “Add” button in “Site Definition”

☐ Replace “Name” box entry “SCrz” with your four-character site name



☐ Enter latitude and longitude as DD, DM or DMS. Note: Disregard degree-minute-second symbols, make sure the N,S,E,W

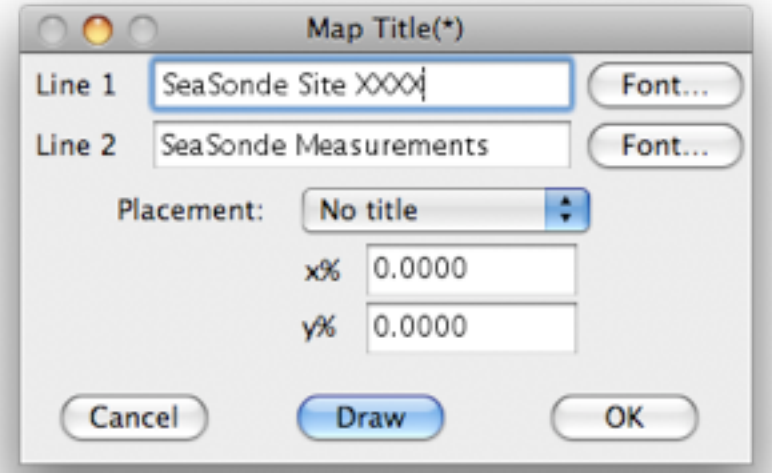
☐ Click “More ...” button

☐ Check mark “name” in Labeling options

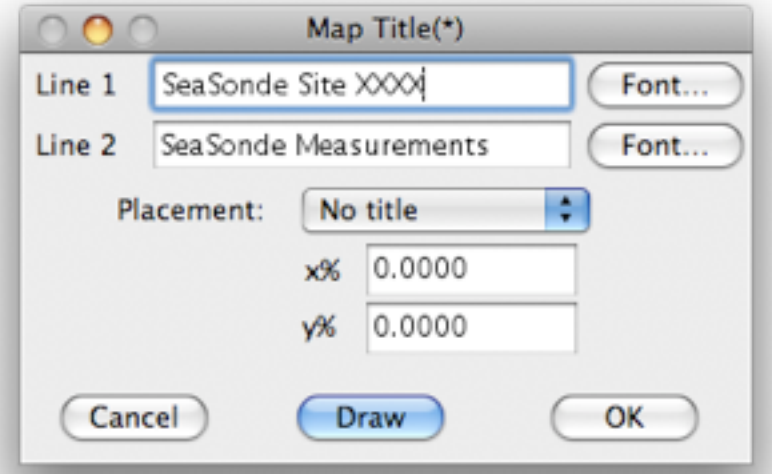
- ☐ Enter expected range in “Coverage display: Max Km”
  (Defaults: 15km for 42MHz, 45km for 25MHz, 75km for 12MHz, 185km for 5MHz)

- ☐ Click “OK” to dismiss “More...” dialog
- ☐ Click “OK” to dismiss “Site Definition” dialog
- ☐ Pull down “Map->Area” menu
- ☐ Click “Use Site Info for Boundary” button in the middle of the dialog box
- ☐ Click “Maximize Window” button near the bottom of the dialog box
- ☐ Pull down “Map->Title” menu

☐ Enter a title less than 32 characters in the *Line 1* text field

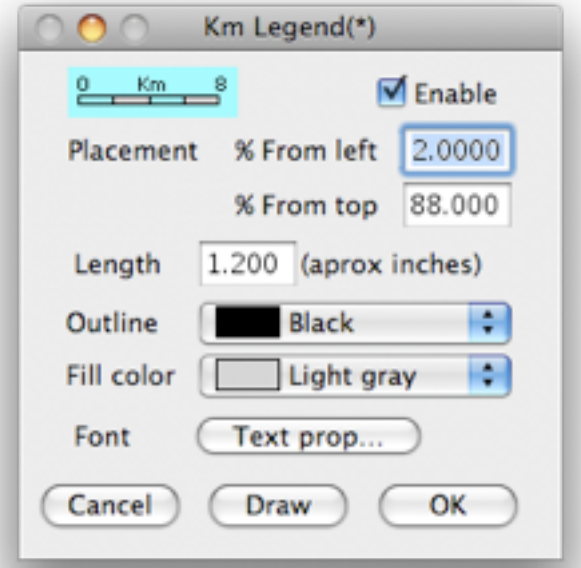


☐ Select “Top Center” in the *Placement* pull down menu



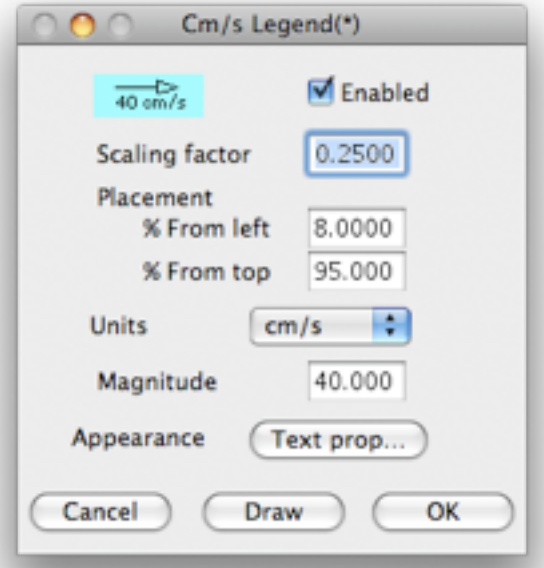
☐ Click “OK” to dismiss “Map Title” dialog

- ☐ Pull down “Map->Km Legend” menu
- ☐ Check “Enable” box

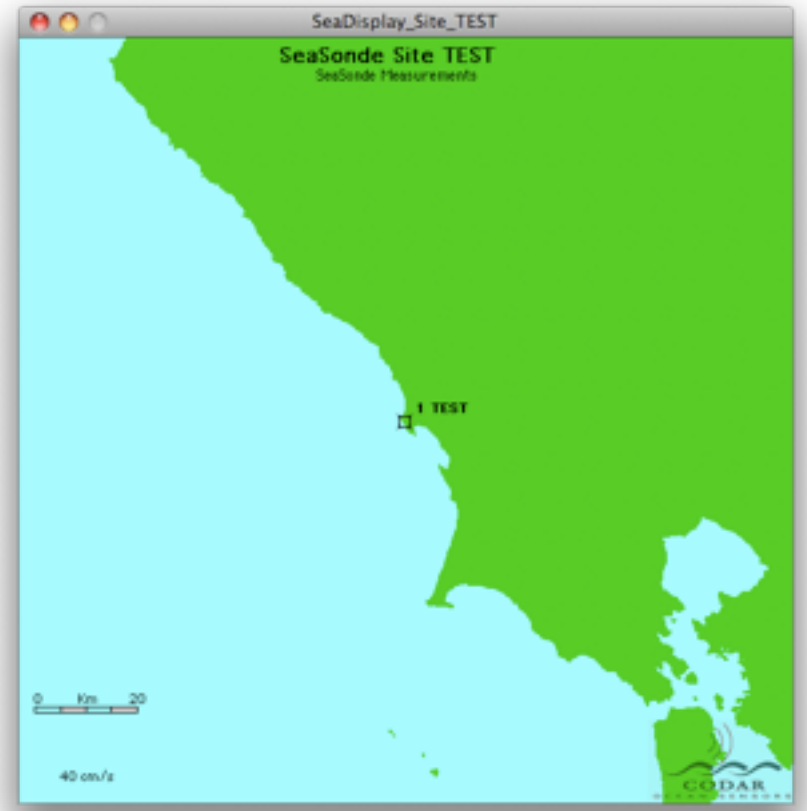


- ☐ Click “OK” to dismiss “Km Legend” dialog

- ☐ Pull down “Map->Cm/s Legend...” menu
- ☐ Check “Enable” box

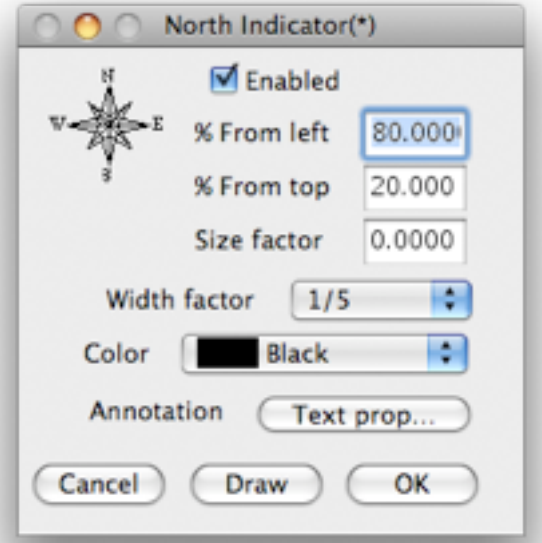


- ☐ Click “OK” to dismiss “Cm/s Legend...” dialog



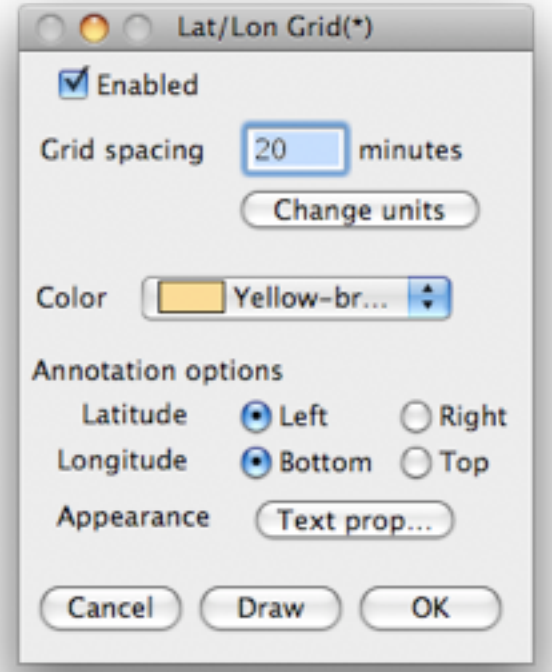
☐ Pull down “Map->N/S arrow...” menu

☐ Check “Enable” box



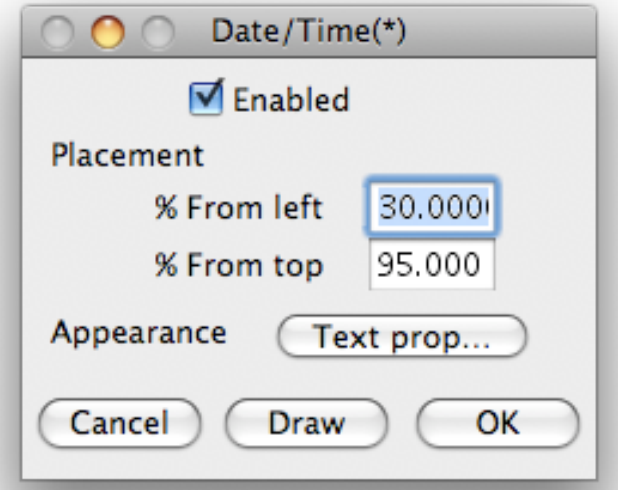
☐ Click “OK” to dismiss “N/S arrow...” dialog

- ☐ Pull down “Map->Lat/Lon grid...” menu
- ☐ Check “Enable” box



- ☐ Click “OK” to dismiss “Lat/Lon grid...” dialog

- ☐ Pull down “Map->Date/Time...” menu
- ☐ Check “Enable” box



☐ Click “OK” to dismiss “Lat/Lon grid...” dialog

☐ Pull down File->Save (use default Site File Options) and click OK button

☐ Navigate to /Codar/SeaSonde/Configs/SiteDefinitions in Browser Dialog box

☐ Save/Overwrite the file SeaDisplay_Site_XXXX saved earlier

☐ Hyphenate (or delete) any extra map files in the SiteDefinitions folder

Note: The first SeaDisplay map file encountered in the SiteDefinitions folder having the name format SeaDisplay_Site_XXXX will be opened automatically when RadialDisplay is launched.

You have now completed a basic map for displaying your radial data.

Activating Real-Time Data Viewing in RadialDisplay

☐ Launch RadialDisplay (/Codar/SeaSonde/Apps/Viewers/RadialDisplay.app

☐ Move the mouse over the RadialDisplay icon in the Dock and click-hold the mouse button

☐ Select “Open at Login”. The program will now launch automatically when the c

Data Archiving

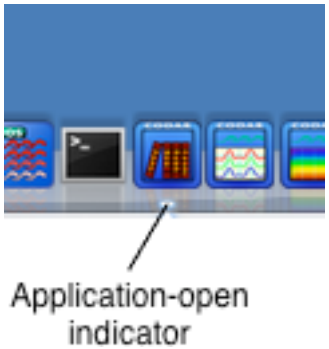
This chapter describes how to confirm that the Archivalist data archiving application is functioning properly and how to correct some common problems. The document also provides examples of common Archivalist configuration changes and guidelines for data archive maintenance.

About Archivalist

Archivalist is an application that periodically moves or copies older data files, logs and configuration files from active data folders (found in /Codar/SeaSonde/Data) to archive folders. Archives are sets of folders logically named and organized, and separate from the active data folders. Archives are normally located in /Codar/SeaSonde/Archives. Archiving files limits the number of files in the active data folders, which would otherwise grow to large numbers. Naming and organizing archives makes it easier to find older data when needed. Archivalist also deletes the oldest archived files to limit the likelihood that the disk's capacity is exceeded.

Check Archivalist function and configuration

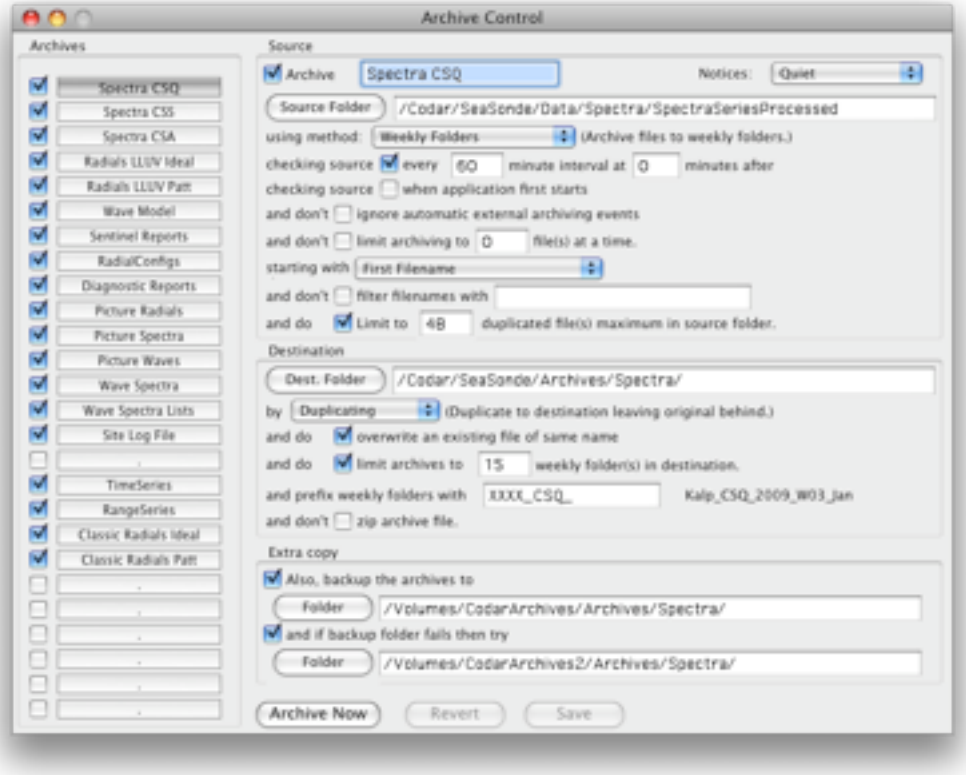
☐ Look at the Archivalist icon in the Dock. Confirm that there is an application-open indicator below the icon.



☐ Click the Archivalist icon in the Dock to open Archivalist or make it active.

Check settings

☐ Choose Control > Change Archives…. The Archive Control dialog appears.



☐ Review the checkboxes in the Archives pane and confirm that the expected archives are selected.

☐ Click each archive name in the Archives pane and review its settings in the other panes. Confirm that the settings are correct.

Check archives

In the Finder, confirm that files are correctly archived. Archives are normally in /Codar/SeaSonde/Archives.

☐ Confirm that archives are located in the folders specified by the Archivalist settings.

☐ Confirm recent archiving by checking file-created dates for recent dates and times.

Confirm the archive sizes for each archive folder:

- ☐ Select an archive folder.
- ☐ Choose File > Get Info. An Info window appears.
- ☐ In the Info window's General pane, confirm that the number of archived files or archive sizes are the same as the settings.

The Archive Control settings may be empty. If the settings are empty, see **Restore archive settings**.

Check status and disk usage

- ☐ In Archivalist, choose Control > Show Status Window. The Status window appears.
- ☐ Review the Status window entries for any red-colored error messages. If there are any errors, correct them.
- ☐ Click the CodarData disk on the desktop.
- ☐ Choose File > Get Info in the Finder. The CodarData Info window appears.
- ☐ In the Info window's General pane, confirm that the available disk space is at least 5 gigabytes (GB) or 10% of the disk's capacity, whichever is less.

If the available disk space is less than 5 GB or 10% of the disk's capacity,

- ☐ change the Archivalist settings to reduce the archive size (see **Archive Configuration Examples**)

  or

- ☐ delete the oldest archive files (after backing them up, if desired).

If an extra copy is made to a separate disk,

- ☐ check the disk's available space.

  If the disk is nearing its capacity,

  - ☐ delete the oldest files on the disk

    or

  - ☐ exchange the disk for a disk with more available space.

- ☐ If you encounter problems that you can not solve, open /Codar/SeaSonde/Apps/Scripts/SeaSondeReportsHigh. A report file /Codar/SeaSonde/Logs/RPT_XXXX_YYYYMMDD_HHMMSS_hi.zip is created. Email the report to support@codar.com with an explanation of the problem and your attempts to solve it.

Restore empty archive settings

Use the following procedure if you discover that the Archive Control settings are empty. That is, all the checkboxes in Archive Control dialog's Archives pane are deselected and all the archive names are blank.

Archivalist generates an empty settings file when it can not find a settings file. If the settings are unexpectedly empty, the settings file may have been renamed or moved. If you can locate the correct settings file,

- ☐ Drag the correct settings file to the Desktop.
- ☐ Name the file Archivalist.plist.

- ☐ Quit Archivalist.
- ☐ Look in each of the following folders for a settings file named Archivalist.plist. Drag the settings files you find to the Trash.
  - ☐ in the same directory as the Archivalist application (normally /Codar/SeaSonde/Apps/RadialTools)

- ☐ /Users/codar/Library/Preferences
- ☐ /Codar/SeaSonde/Configs/RadialConfigs

☐ Drag the correct settings file to /Codar/SeaSonde/Configs/RadialConfigs.

If you can not find a correct settings file, you can install the default settings:

- ☐ Open SeaSondeRadialSetup. The SeaSondeRadialSetup dialog appears. The dialog indicates that the settings file, Archivalist.plist, is missing.
- ☐ Select the the SeaSonde's transmit frequency.
- ☐ Click the Install button. A default Archivalist settings file is installed.

Once the settings file is replaced or installed,

☐ Open Archivalist.

☐ Choose Control > Change Archives…. The Archive Control dialog appears.

☐ Confirm the settings are correct.

Archive Configuration Examples

The following examples demonstrate how to make some common configuration changes. Refer to the *SeaSonde Radial Suite Application Guide for Archivalist* for complete details on archive configuration.

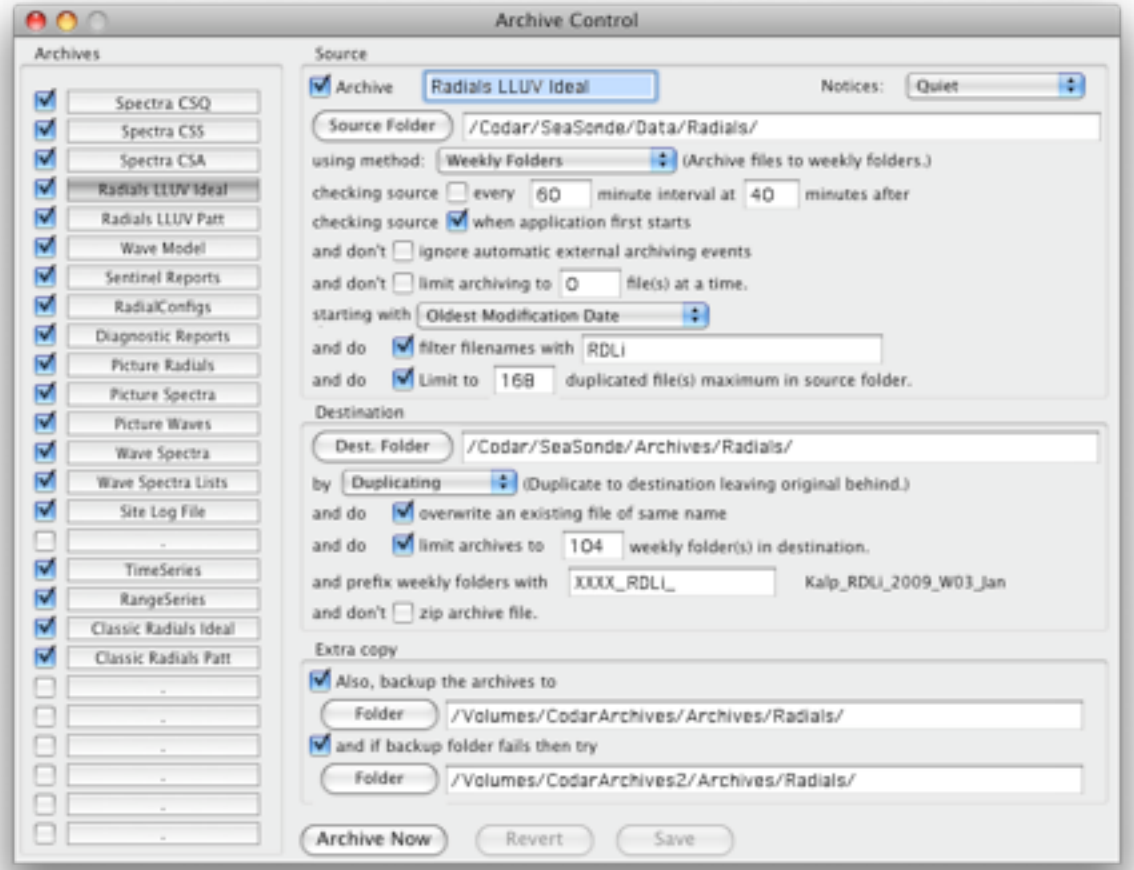
Reduce archive limits to increase available disk space

You may discover that your archive configuration does not leave enough available disk space. In this example, you decide to reduce the number of ideal-pattern radials data files that are archived.

☐ Some of the archives will be deleted when the limits are reduced. If you want to back up the current archives, do it before reducing the limits.

☐ Choose Control > Change Archives…. The Archive Control dialog appears.

☐ Click Radials LLUV Ideal in the Archives pane.



Note that 168 files are duplicated in the source folder. ("and do Limit to 168 duplicated file(s) maximum in source folder" in the Source pane.) These are seven days of data. (168 files / 1 file per hour / 24 hours per day = 7 days) You decide to reduce the duplicated files in the source folder to three days of data. 3 days * 1 file per hour * 24 hours per day = 72 files.

☐ Enter 72 in the "and do Limit to … duplicated file(s) maximum in source folder" field of the Source pane.

Note that 104 weekly archives are duplicated to the destination folder. ("and do limit archives to 104 weekly folder(s) in destination" in the Destination pane.) These are two years of data. (104 folders / 1 folder per week / 52 weeks per year = 2 years) You decide to reduce the duplicated files in the destination folder to 1 year of data. 1 year * 1 folder per week * 52 weeks per year = 52 folders.

☐ Enter 52 in the "and do limit archives to … weekly folder(s) in destination" field of the Destination pane.

☐ Click the Save button. The changed configuration is saved.

- ☐ Click the Archive Now button. If the previous archive sizes exceed the new settings, the archive sizes are reduced to the sizes of the new settings.

Reorganize destination folders

In this example, you note that the normal settings duplicate ideal-pattern radials files in folders whose names start with XXXX_RDLi_ and measured-pattern radials files in separate folders whose names start with XXXX_RDLm_. You decide to archive ideal-pattern radials data files and measured-pattern radials data files in the same directory, whose name you want to start with XXXX_RDL_. ("XXXX" indicates your site's four-character code.)

- ☐ Choose Control > Change Archives…. The Archive Control dialog appears.
- ☐ Click Radials LLUV Ideal in the Archives pane.
- ☐ Enter XXXX_RDL_ in the "and prefix weekly folders with …" field. Remember that "XXXX" should be replaced with your site's four-character code.
- ☐ Click the Save button.
- ☐ Click Radials LLUV Patt in the Archives pane.
- ☐ Enter XXXX_RDL_ in the "and prefix weekly folders with …" field.
- ☐ Click the Save button.

The radials data files are stored in folders whose names start with XXXX_RDL_ at the next "checking source" time.

The old destination folders (XXXX_RDLi_… and XXXX_RDLm_…) and the archives they contain will remain on the disk. To free the disk capacity used by the old archives,

  - ☐ Back up the old data if you want it.
  - ☐ Drag the old destination folders to the Trash, then empty the Trash.

Copy an archive to an external disk

In this example, you decide to make an extra copy of data archives to an external FireWire disk drive.

- ☐ Connect the external FireWire disk drive to the SeaSonde computer.
- ☐ In the Finder, rename the external disk "CodarArchives".

The normal settings backup all selected archives to the CodarArchives disk. To review the settings or change which files are backed up,

- ☐ In Archivalist, choose Control > Change Archives…. The Archive Control dialog appears.
- ☐ Click an archive button in the Archives pane.
- ☐ Select or deselect the "Also, backup the archives to" checkbox in the "Extra copy" pane.
- ☐ Click the Save button if you change a setting.
- ☐ Repeat for each data archive.

The selected archives are periodically copied to the external disk at the each “checking source” time.

Measuring the Antenna Pattern

This section describes how to prepare and perform a SeaSonde **antenna pattern measurement (APM)**. The SeaSonde uses an APM to calibrate the antenna response vs bearing for local, site-specific conditions resulting in increased accuracy and reliability of the data outputs.

Preparation

Use the following procedure to confirm the transponder battery is charged, set up the transponder, test that the SeaSonde receives the transponder signal, and restore the receiver to normal operation.

Preparation is usually completed prior to the day of the APM.

Items Required

- ☐ Transponder (SSTR-101) including:
  - ☐ Transponder charger
  - ☐ Custom USB data cable
  - ☐ 3 eight-foot fiberglass whip antenna elements
- ☐ SeaSonde Remote Unit (SSRS-100) including:
  - ☐ Antenna(s), cables, Rx chassis, Tx chassis and computer

Charging the transponder battery

- ☐ Open the transponder case. Inside, there is a printed circuit board with a socket labeled CHARGER and a power switch.
- ☐ Plug the transponder charger into an electrical outlet.
- ☐ Plug the transponder charger's round plug into the CHARGER socket on the printed circuit board. The FAST CHARGE indicator on the charger will light while the battery charges.
- ☐ When the FAST CHARGE indicator light turns off, the battery is charged.
- ☐ Unplug the round plug from the CHARGER socket.

Setting up the transponder

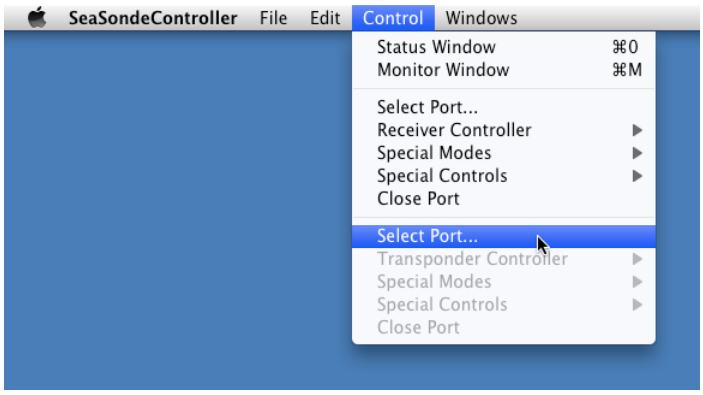
- ☐ Determine the expected distance between

the transponder (on boat or land) and receiver during the APM.

- ☐ Plug the round black connector of the custom USB data cable into the USB data port on the side of the transponder case.
- ☐ Plug the standard USB connector of the data cable into any available port on the SeaSonde computer.
- ☐ Switch on the transponder.
- ☐

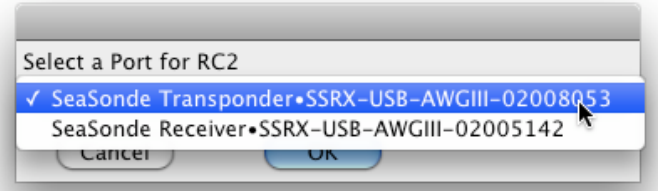
- ☐ On the computer, open SeaSondeController.

- ☐ Choose the SECOND *Select Port...* menu item:



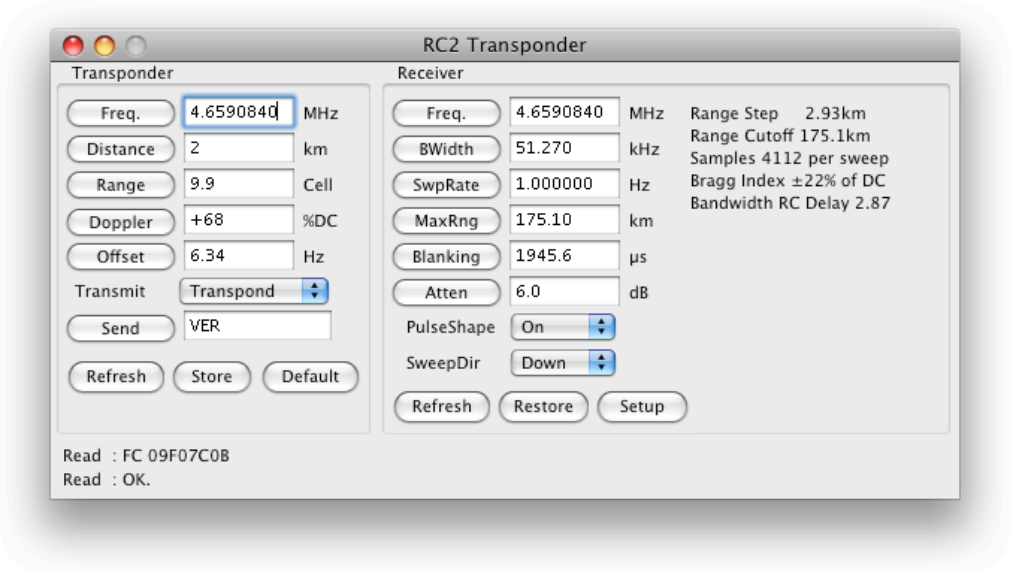
The *Select a Port for RC2* dialog appears:

☐ Choose the menu item that starts with “SeaSonde Transponder.”



☐ Click *OK*.

☐ Choose Control > Transponder Controller > Transponder to view the RC2 Transponder control panel.



The *RC2 Transponder* control panel has two panes, Transponder and Receiver. In the following steps, use the fields and buttons in the Transponder pane to set up the transponder. You will also refer to the fields in the Receiver pane.

- ☐ Note the frequency shown in the Freq. field of the Receiver pane (on the right side of the Freq. button). Enter the same frequency in the Freq. field of the Transponder pane.
- ☐ Click the Freq. button in the transponder pane to set the transponder frequency.
- ☐ Enter one of the following frequency offsets (Hz) in the Offset field:
  - 20.7 for 5 MHz (nominal transmit frequency) SeaSonde
  - 40.7 for 11 or 25 MHz SeaSonde
  - 80.7 for 42 MHz SeaSonde
- ☐ Click the Offset button to set the transponder offset.

The Offset field will change as you make the following settings. [Should there also be a warning that entries can and will change, e.g., entering +70 in Doppler yields +68?]

- ☐ Enter the expected distance between the transponder and receiver during the upcoming APM in the Distance field.
- ☐ Click the Distance button.
- ☐ Enter the desired range cell (usually 10) for the transponder peak in the Range field.
- ☐ Click the Range button.
- ☐ Enter percentage from DC (usually +70) in the Doppler field. Use this setting to move the transponder doppler peak away from ocean surface current peaks (usually higher than the ocean current Doppler frequency and lower than the maximum frequency) so that the transponder peak can be easily located in later data processing.
- ☐ Click the Doppler button.
- ☐ Click the Store button to store the transponder settings.
- ☐ Record the transponder settings:

Setting	***Value***	***Unit***
Freq.		MHz
Distance		km
Range		Cell
Doppler		%DC
Offset		Hz

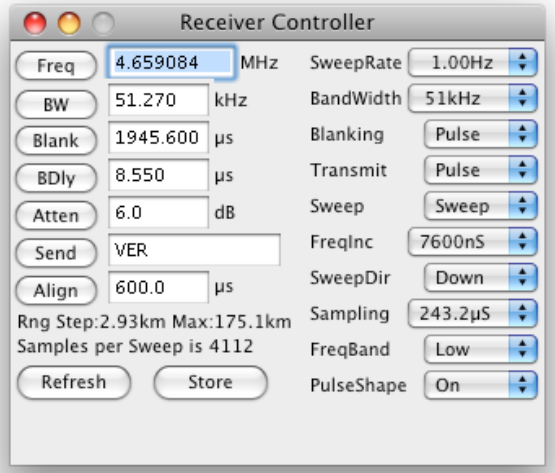
- ☐ Switch off the transponder.
- ☐ Switch on the transponder.
- ☐ Click the Refresh button in the Transponder pane of the SeaSondeController RC2 Transponder dialog.

- ☐ Confirm the transponder settings are the same as those recorded above.
- ☐ Switch off the transponder.
- ☐ Unplug the USB data cable connector from the transponder.

The transponder is set up for an APM.

Test SeaSonde reception

- ☐ Place the transponder at least 1 wavelength away from the SeaSonde receive antenna.
- ☐ Attach an eight-foot fiberglass whip antenna element into each of the three sockets on the transponder case.
- ☐ At the SeaSonde computer, click the SeaSondeAcquisition icon in the Dock.
- ☐ Choose Monitors > Range Display > Range Display. The Range Display window appears.
- ☐ Choose Processing > Enable Diagnostic Processing. Three windows appear, Diag. Control, Diag. Processing Monitor and Cross Spectra.
- ☐ Click the SeaSondeController icon in the Dock.
- ☐ Choose Control > Receiver Controller > Advanced. The advanced Receiver Controller dialog appears:



- ☐ Enter one of the following attenuations in the Atten field:
  - -15 for an APM with the transponder on a boat
  - -30 for an APM with the transponder on land (a “walking pattern’)
- ☐ Click the Atten button.

- ☐ Enter one of the following bandwidths in the BW field:
  - 25 for 5 MHz (nominal transmit frequency) SeaSonde
  - 50 for 12 MHz SeaSonde
  - 150 for 25 MHz or 42 MHz SeaSonde
- ☐ Click the BW button.
- ☐ Enter 4.75 in the BDly field.
- ☐ Click the BDly button.
- ☐ Enter 60 in the Blank field.
- ☐ Click the Blank button.
- ☐ Choose a sweep rate from the SweepRate pop-up menu:
  - 2.00 Hz for 5 MHz SeaSondes
  - 4.00 Hz for 12 MHz or 25 MHz SeaSondes
  - 8.00 Hz for 42 MHz SeaSondes
- ☐ Choose On from the PulseShape pop-up menu.
- ☐ Switch on the transponder.
- ☐ Close and latch the transponder case.
- ☐ Look at the Range Display window in SeaSondeAcquisition.
- ☐ Confirm that the transponder signal peak appears in the Range Display window.
- ☐ After the initial set of sweeps, confirm that the transponder signal peak appears in the Cross Spectra window.
- ☐ Enter “SAVE 2” in the Send field of the Receiver Controller dialog.
- ☐ Click the Send button. The receiver settings for the APM are stored in the SeaSonde’s second memory register.
- ☐ Enter “LOAD 1” in the Send field.
- ☐ Click the Send button.
- ☐ Confirm the settings shown in the Receiver Controller dialog are correct for normal operation.

The receiver is now set for normal operation.

- ☐ Quit SeaSondeAcquisition.
- ☐ Open SeaSondeAcquisition by clicking the SeaSondeAcquisition icon in the Dock.
- ☐ Confirm that Bragg peaks appear in the Spectra Map window.
- ☐ Click the Sentinel icon in the Dock.
- ☐ Choose Control > Restart Computer.

APM preparation is complete. The receiver is set up for normal operation until the APM begins.

APM Procedure

The following procedure describes how to collect the data necessary to produce an antenna pattern file:

Items Required

- ☐ Transponder (SSTR-101) including:
  - ☐ Transponder charger
  - ☐ Custom USB data cable
  - ☐ 3 eight-foot fiberglass whip antenna elements
- ☐ SeaSonde Remote Unit (SSRS-100) including:
  - ☐ Antenna(s), cables, Rx chassis, Tx chassis and computer
- ☐ GPS navigator capable of storing time-stamped track. Garmin GPS 60, GPSMAP® 60 or GPSMAP® 76 product lines are recommended.

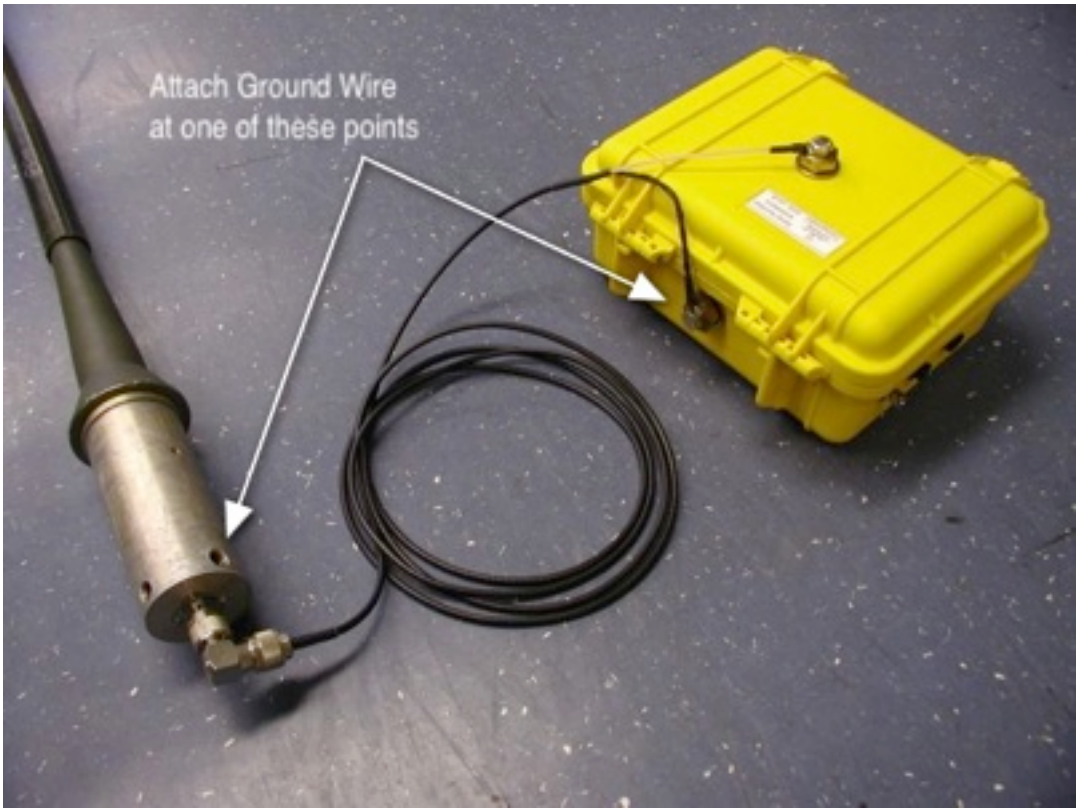
Recommended Items

- ☐ Transponder Extender Kit (SSTR-EX) if operating frequency < 20 MHz, including:
  - ☐ four piece green whip antenna
  - ☐ whip antenna feed/base
  - ☐ grounding cable
  - ☐ custom transmit cable
- ☐ Voice communications (2 x two-way radios, cell phones, etc.)
- ☐ Boat

Set up the transponder antenna

Transponder on a boat (SeaSondes operating below 20 MHz)

- ☐ Assemble and mount to the boat the four-piece whip antenna and feed included with Transponder Extender Kit (SSTR-EX).
- ☐ Attach the transmit signal cable type N connector to the antenna feed, the white wire to the Monopole Transponder Antenna Port and the black wire to one of the grounding antenna ports.



- ☐ Ground the antenna feed or one of the transponder grounding antenna ports to the seawater connecting the 20’ grounding wire to seawater
  - directly over the side of the boat with end of wire weighted to stay in water or
  - via a seawater ground point on the boat or propellor motor.

Transponder on a boat (SeaSondes operating above 20 MHz)

- ☐ Attach an eight-foot fiberglass whip antenna element in the Monopole Transponder Antenna Port on top of the yellow transponder case.
- ☐ Attach an eight-foot fiberglass whip antenna to BOTH of the grounding antenna ports on the front and back of the transponder case.

Transponder carried on land (Any Freq)

- Attach an eight-foot fiberglass whip antenna element in the Monopole Transponder Antenna Port on top of the yellow transponder case. Attach eight-foot fiberglass whip antennas to BOTH of the grounding antenna ports on the front and back of the transponder case.

Set up tracking on your GPS handheld

- ☐ Set up your GPS navigator to log a track.
- ☐ Record track entries by time increment: 1 to 5 seconds, depending on memory

  Note: Track files downloaded from the GPS unit must contain a date and time stamp for every position recorded. Garmin models only save this information in the ACTIVE track log

Set up the SeaSonde

- ☐ Click the Sentinel icon in the Dock.
- ☐ Choose Control > Quit All Visible Applications.
- ☐ Wait until applications quit.
- ☐ Click the SeaSondeAcquisition icon in the Dock to open the SeaSondeAcquisition application.
- ☐ Click the SeaSondeController icon in the Dock to open.the SeaSondeController application.
- ☐ Click the SeaSondeAcquisition icon in the Dock to select SeaSondeAcquisition.
- ☐ Choose File > Log Cross Spectra to deselect Cross Spectra logging.
- ☐ Confirm there is no check mark next to the File > Log Cross Spectra menu item, indicating the item is deselected.
- ☐ Choose Processing > Enable Diagnostic Processing.
- ☐ Confirm there is a check mark next to the Processing > Enable Diagnostic Processing menu item, indicating the item is selected.

- ☐ Choose Monitors > Range Display > Range Display. The Range Display window appears.
- ☐ Click the SeaSondeController icon in the Dock to select SeaSondeController.
- ☐ Choose Control > Receiver Controller > Advanced. The advanced Receiver Controller dialog appears.
- ☐ Enter “LOAD 2” in the Send field of the Receiver Controller dialog.
- ☐ Click the Send button. The settings stored in receiver memory location 2 are loaded.
- ☐ Confirm the loaded settings are correct.

Measure antenna pattern

- ☐ Move the transponder to the starting point.
- ☐ Switch on the transponder.
- ☐ Confirm that the transponder peak appears.
- ☐ Synchronize the SeaSonde computer clock with the GPS navigator clock.
- ☐ Start track logging on the GPS navigator.
- ☐ Click the SeaSondeAcquisition icon in the Dock to select SeaSondeAcquisition.
- ☐ Choose File > Log Time Series.
- ☐ Move the transponder (on a boat or by walking) in a circular arc centered on the receive antenna. Maintain a constant speed.
- ☐ At the end of the arc, reverse course and retrace the arc in the opposite direction.
- ☐ After completing two full arcs in opposite directions, uncheck File > Log Time Series in SeaSondeAcquisition to end logging.
- ☐ Save the GPS navigator track log.

APM is complete.

Store APM data

Copy or move the following data to a separate folder. The data will be used to generate an antenna pattern file for use with your SeaSonde remote unit.

- ☐ The directory /Codar/SeaSonde/Data/Timeseries, including the files in that folder.
- ☐ The directory /Codar/SeaSonde/Configs, including the files in that folder.
- ☐ The GPS navigator track log file.

Set up SeaSonde for normal operation

- ☐ Click the Sentinel icon in the Dock to select Sentinel.
- ☐ Choose Control > Restart Computer.

The SeaSonde is configured for normal operation.

Making an Antenna Pattern File

- ☐ The GPS and SeaSonde data collected during the APM must be processed into an antenna pattern file for processing radial vectors. This can be done by CODAR (fees may apply) or by someone trained in antenna pattern data processing. Refer to *SeaSonde Radial Suite Application Guide for CrossLoopPatterner* and CODAR training materials for more information.

Routine Monitoring

via Radial Web Display

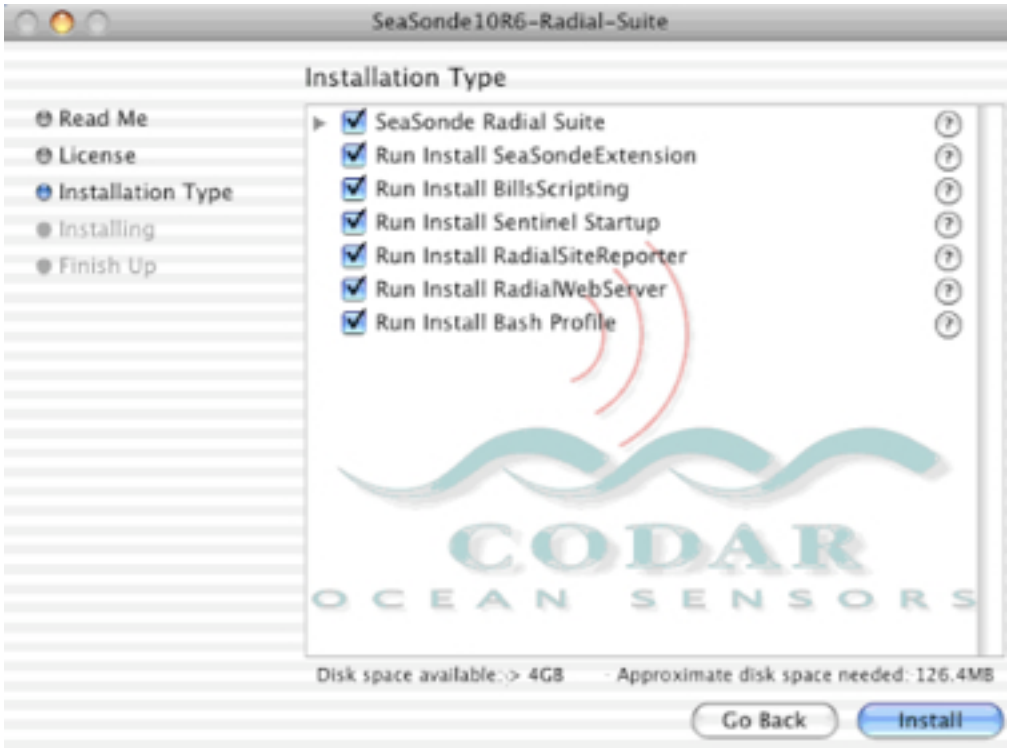
The Radial Web Server helps you to remotely monitor how your remote unit is performing via a web browser. It is installed with SeaSonde Radial Suite Release 6. Access is limited to viewing and downloading the site's status, configuration, spectra, diagnostic, wave, and radial data.

A browser client will need the site's URL or IP address and RadialWebServer user name and password to gain access

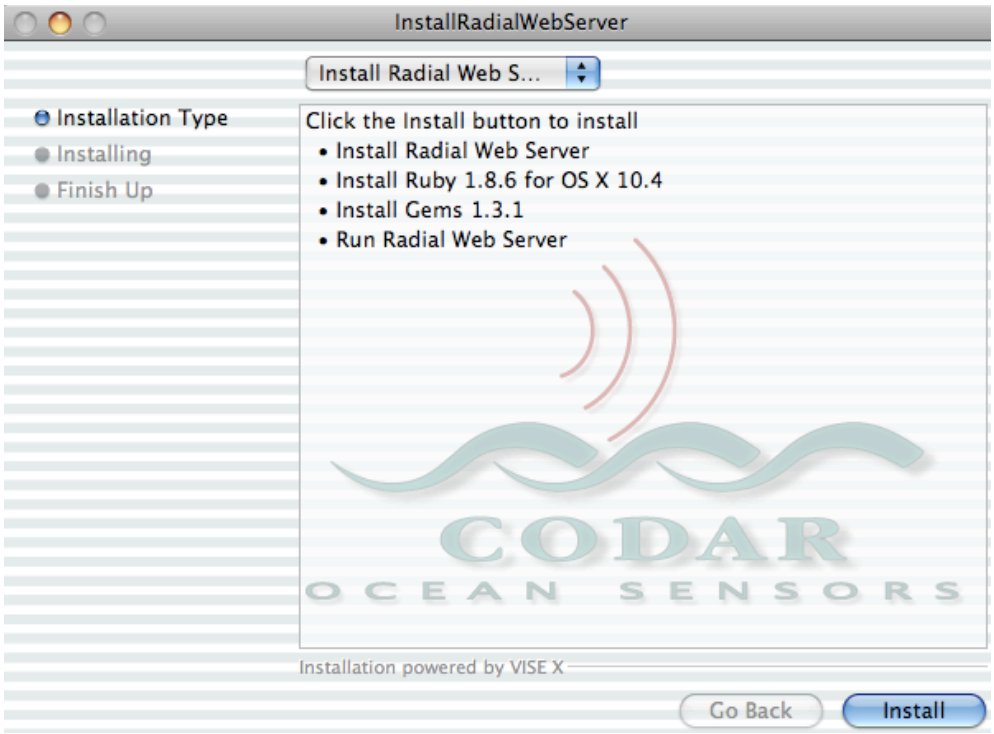
Setting up a web account

Follow the steps below to install Radial Web Server and set up Web account.

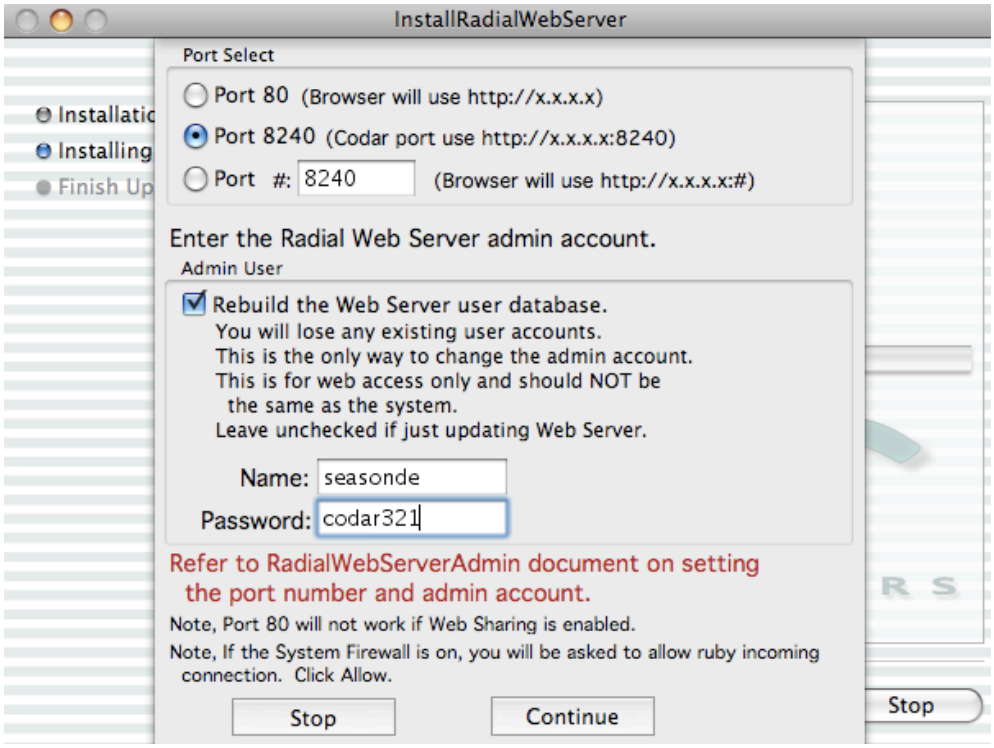
- ☐ Run the SeaSonde10R6-Radial-Suite.app installer.
- ☐ Make sure that the "Run Install RadialWebServer" checkbox is selected.



- ☐ Click on the Install button.
- ☐ When the installer opens the "InstallRadialWebserver" page, click on the Install button.

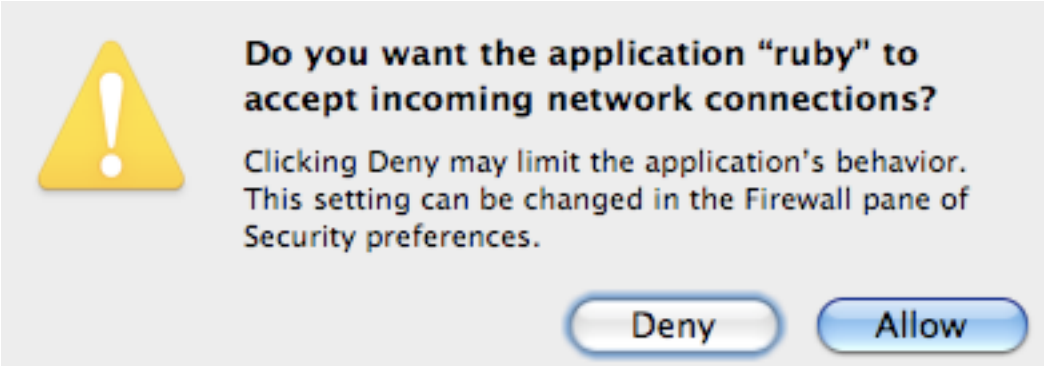


This will open the Radial Web Server configuration window.

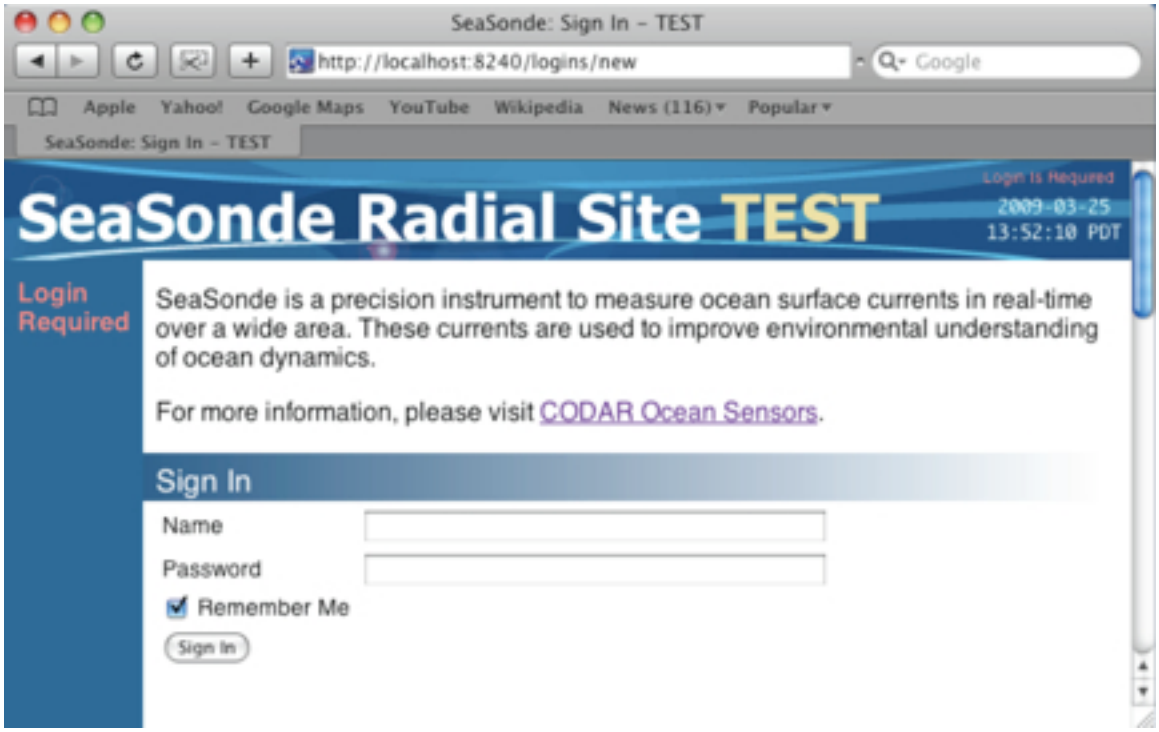


- ☐ To gain remote web browser access the site must be configured with a static IP or another URL method which allows the site to be found on the internet.
- ☐ You need to specify the port number to use. The default Codar port is set to 8240. Using default port is recommended.

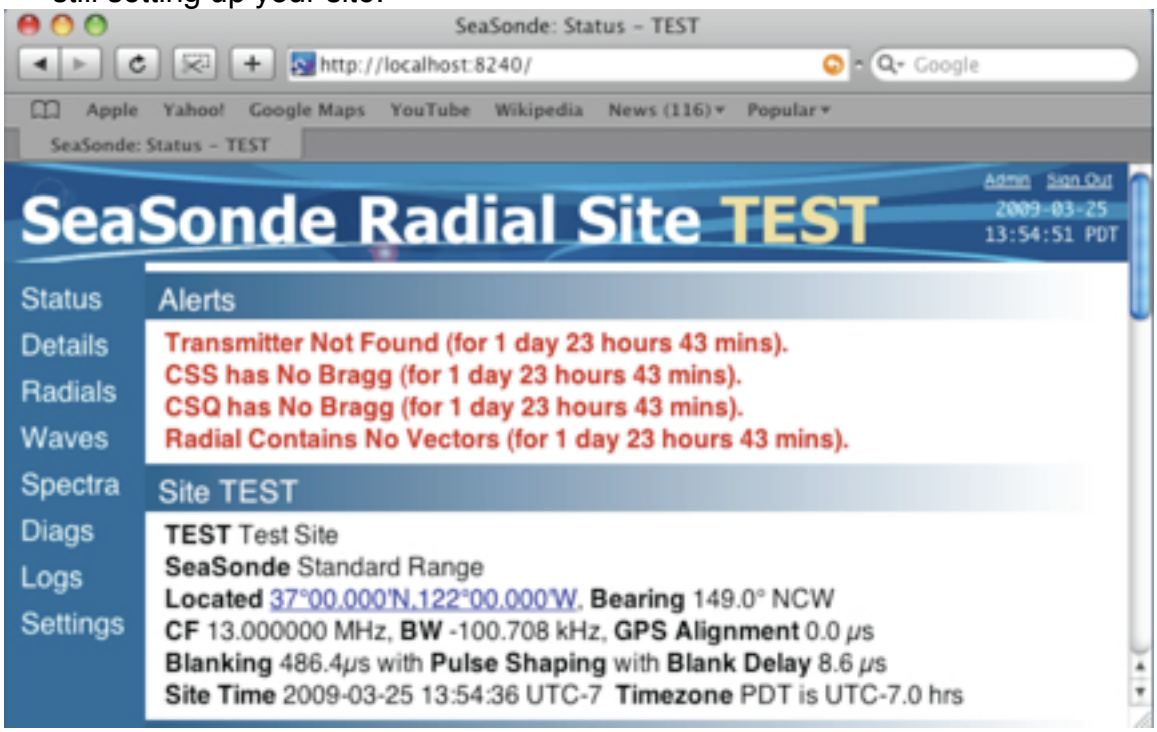
- ☐ You can also specify your own port number. [**Note:**Please read the RadialWebserver-Admin.pdf document included with the Release 6 installer, before you customize with a non-default port number.
- ☐ To access the remote site, enter the site's static IP address or the url and the port number. Example: http://x.x.x.x:8240, where x.x.x.x is the site's static IP address.
- ☐ After finalizing the port number, enter default Username and password for the Web Server admin account. [**Note:** For security, this web admin user details should not be the same as the system login user account].
- ☐ If installing for the first time, select the "Rebuild the Web Server user database" checkbox. If you are just updating an existing, Radial Web Server, then deselect this checkbox so that the installer will not destroy the existing accounts.
- ☐ Enter your desired username and password to create the admin account for the webserver.
- ☐ You can create more user accounts (non-admin) and set their permissions, by logging through web-browser using the admin account.
- ☐ Once the port number and Admin account details are entered, Click on the Continue button to install.
- ☐ If the computer is using OS X 10.4, installer will first run a sub installer to install Ruby 1.8.6. When prompted, enter your computer (not web server) admin password.
- ☐ If firewall is turned ON on your computer, then a dialog will pop up asking to allow "ruby" to accept incoming network connections?"



- ☐ Click the Allow button.
- ☐ After installation is finished, quit the installer.
- ☐ Test the Radial Webserver on the site. Open Safari and enter "http://localhost:8240" (use your selected port number, if not 8240)
- ☐ Page as shown below should open in safari.

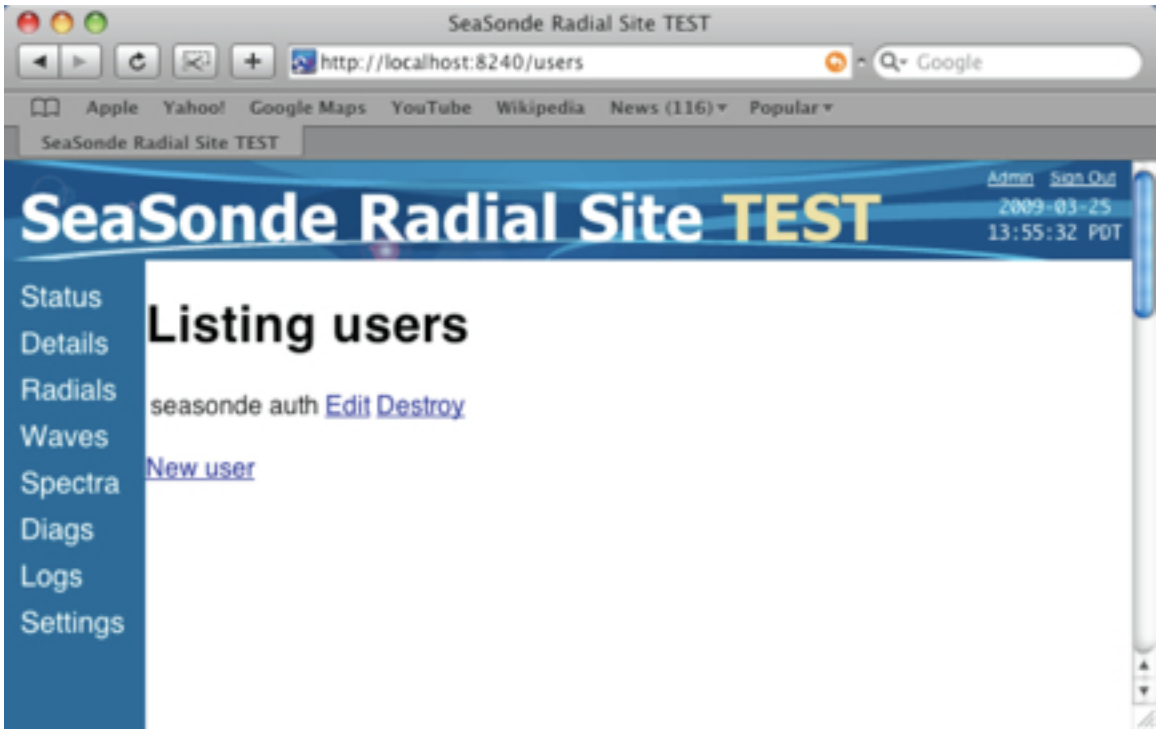


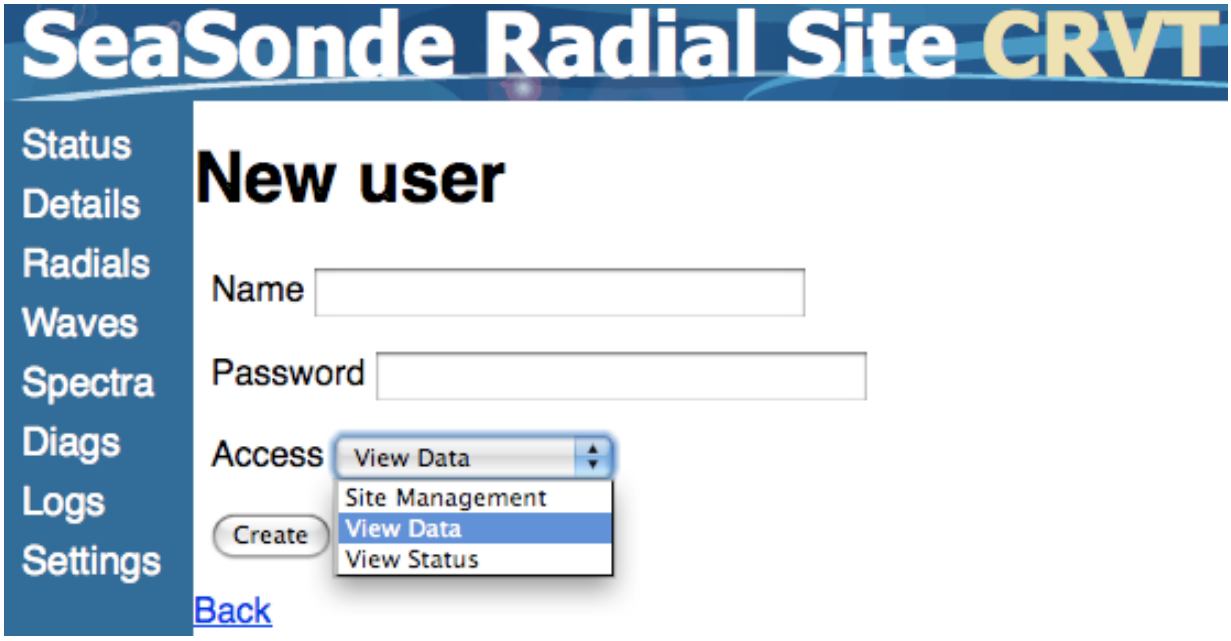
☐ Enter the Web admin user name and password. A successful login will result in showing the status of the site. Don't be concerned about the alerts, yet, if you are still setting up your site.



Click on the Admin link in the upper right corner of the window. This will allow you to view and enter more user accounts to access the site. Click on the New user to add

more accounts. If you want CODAR support staff to be able to access your site, create an account for them.





- ☐ User name and password are case sensitive.
- ☐ Three kinds of authorizations can be set up for a user:
  - ☐ **Site Management:** administrative user who has permission to add/remove/edit users.

- ☐ **View Data:** user who can see Status, Details, Radials, Waves, Spectra, Diags, Logs, and Refresh Settings. This user cannot view or edit the other users and will not see the Admin link.
- ☐ **View Status:** user limited to Status, Details, and Refresh Settings. Clicking the other views will jump to the login view. This user also cannot view or edit the other users and will not see the Admin link.

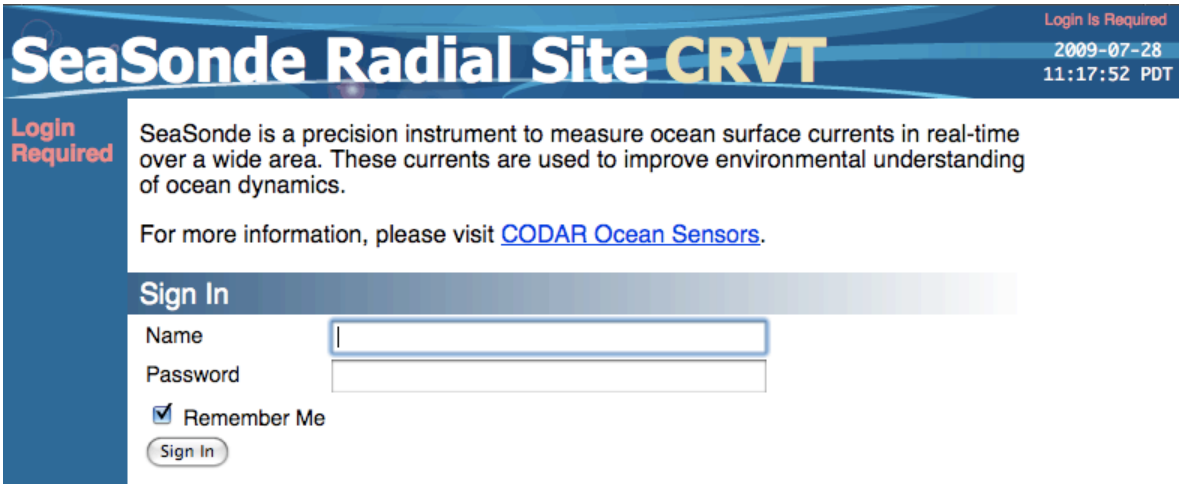
Note: You will be unable to remove the first admin user. If you try,you will see a "Cannot delete admin user." message. You can remove all users by reinstalling the RadialWebServer; the installer has an option to rebuild the user account database and will create a new first admin user as explained in the begining.

The above steps should be enough to set up the Radial Web Server

- ☐ If there are any problems with the RadialWebServer, open the log files RadialWebError.log and RadialWebStatus.log located in /Codar/SeaSonde/Logs/ These are included in SeaSondeReports file which should be sent to support@codar.com.
- ☐ For any additional information about webserver, please read the Radial Web Server Admin document.

Navigating the web interface

- ☐ Open your browser and enter "x.x.x.x:port' where x.x.x.x is the static ip address of the site and :port is the port number used to install the RadialWebServer (the default is :8240). If using at the Remote Unit computer, you can enter "http://localhost:port" to open the radial webserver page.
- ☐ Login Page will appear as in the image below.



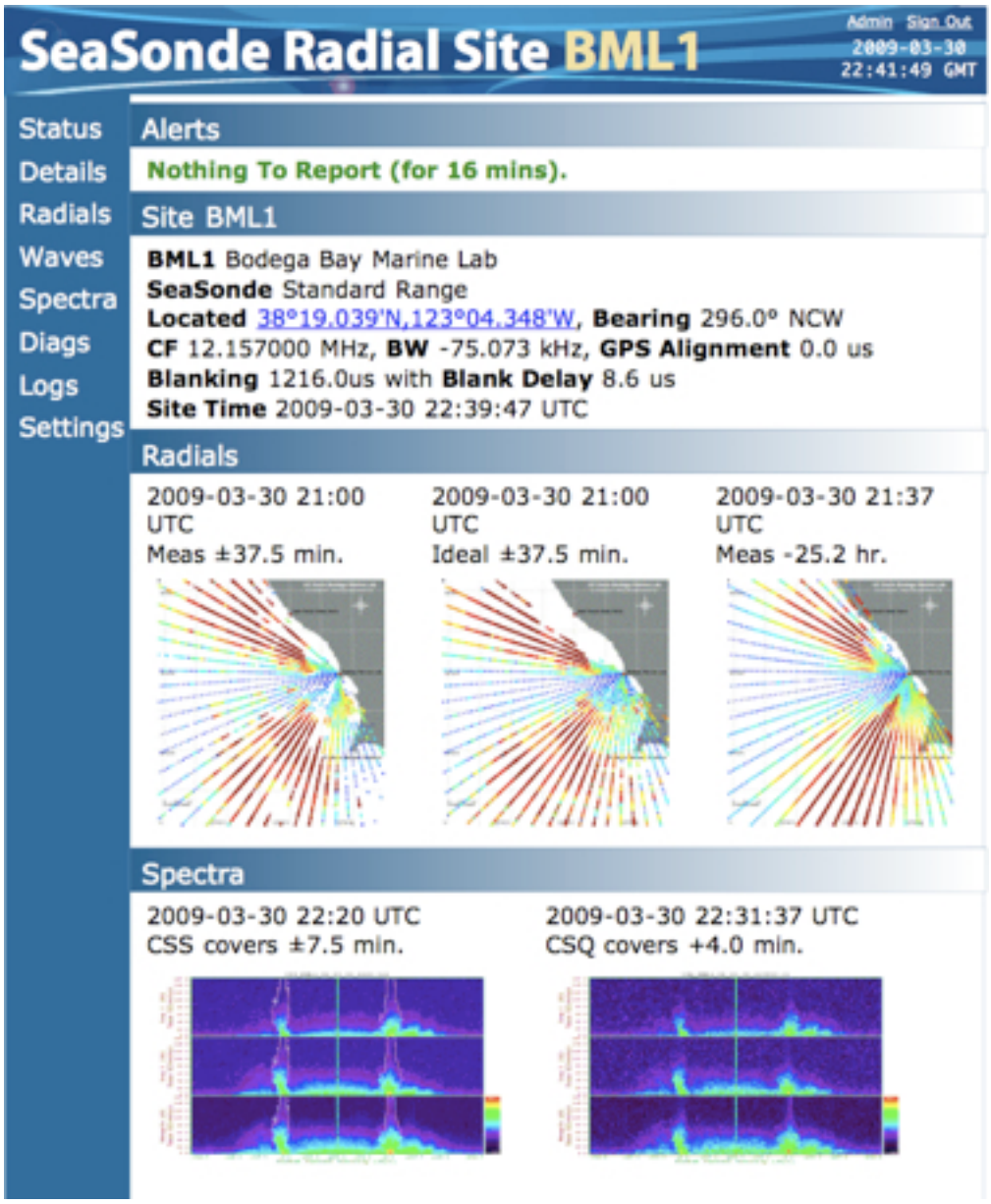
- ☐ Enter the username and password.
- ☐ If login details are correct, the Status View page will open.
- ☐ The 4 letter site code is displayed next to the SeaSonde Remote Unit banner.
- ☐ On the right are Admin and Sign Out links. Below these 2 links, the date and time at the site are displayed. Vertical menu list of views is on the left.

The different views are as follows:

Status :Site's current status
Details :More detailed status about the site's configuration, status, hardware, and data.
Radials :Plot any radial within last year on the site.
Waves :Plot any wave data within last year on the site.
Spectra :Plot any spectra within last year on the site.
Diags :Plot the hardware and radial diagnostic files.
Logs :View critical site logs and create/download a SeaSondeReport file
Settings :Change the refresh interval and setup the alert email service.

Status view gives a quick look of whether the site is working well or not.

- ☐ Alerts section lists any problems with the site. IF no problems exist, then "Nothing to Report" message is shown.
- ☐ "Site XXXX" section shows basic information about the site like name, location and other settings. Clicking on the co-ordinates opens a google map of the site's location in a new window.



- ☐ The Radials section shows thumbnails of the last radial vectors for both Measured and Ideal patterns plus a 25hr averaged radial for the site. Clicking on the thumbnail will open a full size pot.
- ☐ The Spectra section shows the last CSS and CSQ cross spectra power maps. Clicking on the thumbnail will open a full size plot. Carefully look at the radials and spectra plots can tell you how well the site is operating.

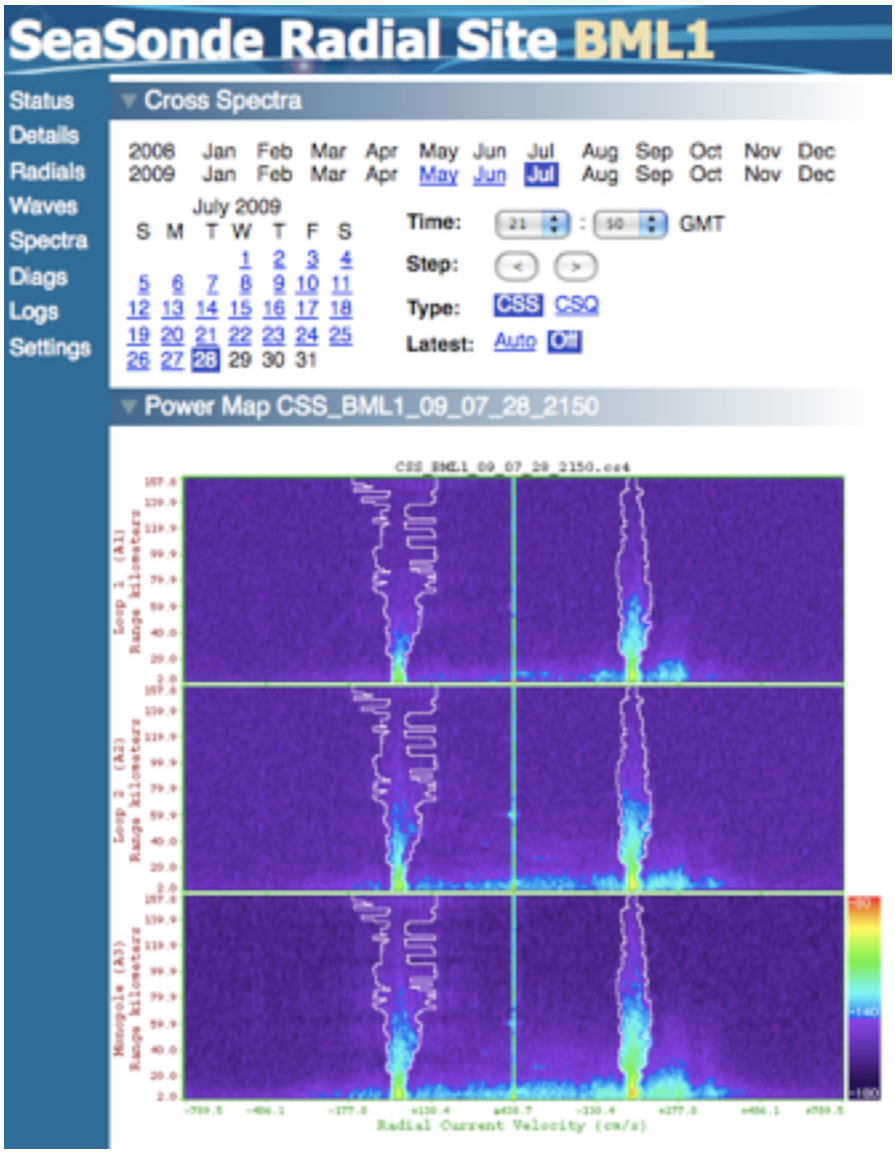
The **Details View** shows sections with detailed information about the Site, Alerts, Receiver,Transmitter, Data Files, Processor, and SeaSonde Applications running. Some of the useful information here is receiver firmware, hardware temperature, transmit power, disk space available, and applications' version numbers.

The **Radials View** allows you to plot and download radials up to one year ago on the site.

- ☐ The first section allows selection of the radials to plot and/or download.
- ☐ The months during which the radial data is available, are highlighted with blue and an underline. Click on the blue text to select the month.
- ☐ This will display the corresponding month's calendar below the selection.
- ☐ The days with atleast one radial file are highlighted in blue with an underline.
- ☐ To the right of the calendar is the Control Time bar with hours and minutes pop-up menus. Select the hour and minute to display the corresponding radial.
- ☐ Use the Step arrows to step back or forward in time to plot each existing radial.
- ☐ Click on "Measured" or "Ideal" links in the Type bar to display corresponding radials. If the selected type does not exist, you will get a "No Matching Radials" instead of a plot below.
- ☐ The Latest: Auto Off control, if set to auto, will automatically show the latest radial.
- ☐ The section below this is the Radial Plot section,which displays the radial image plot. You can drag and drop this image to the desktop or Right Click and select "Save As" to save the image.
- ☐ Download section is at the bottom. It shows the link to download the selected radial.
- ☐ The small white triangles next to the section titles "Radials" and "Radial RDLm_2009_03_29_0600". if clicked on will collapse the section so that it is hidden.

The **Waves View** can plot wave data up to one year ago on the site.

- ☐ Select the start time to plot using the calendar as in the Radial view.
- ☐ Time Span pop-up menu allows to set the time span of the plot.
- ☐ The Latest control when set to auto will periodically refresh the page with the latest wave data.
- ☐ The Wave plot section contains eight plots. Four plots for range cell 3 of wave height, wave period, wave direction, and wind direction followed by four plots each containing range cells 2, 3, 4 & 5 of wave height, wave period, wave direction, and wind direction.
- ☐ The Download section shows one or two waves files for the current time. Since Wave files are monthly, the current month and the previous month both might be shown here. Clicking on the link will download the selected wave file.

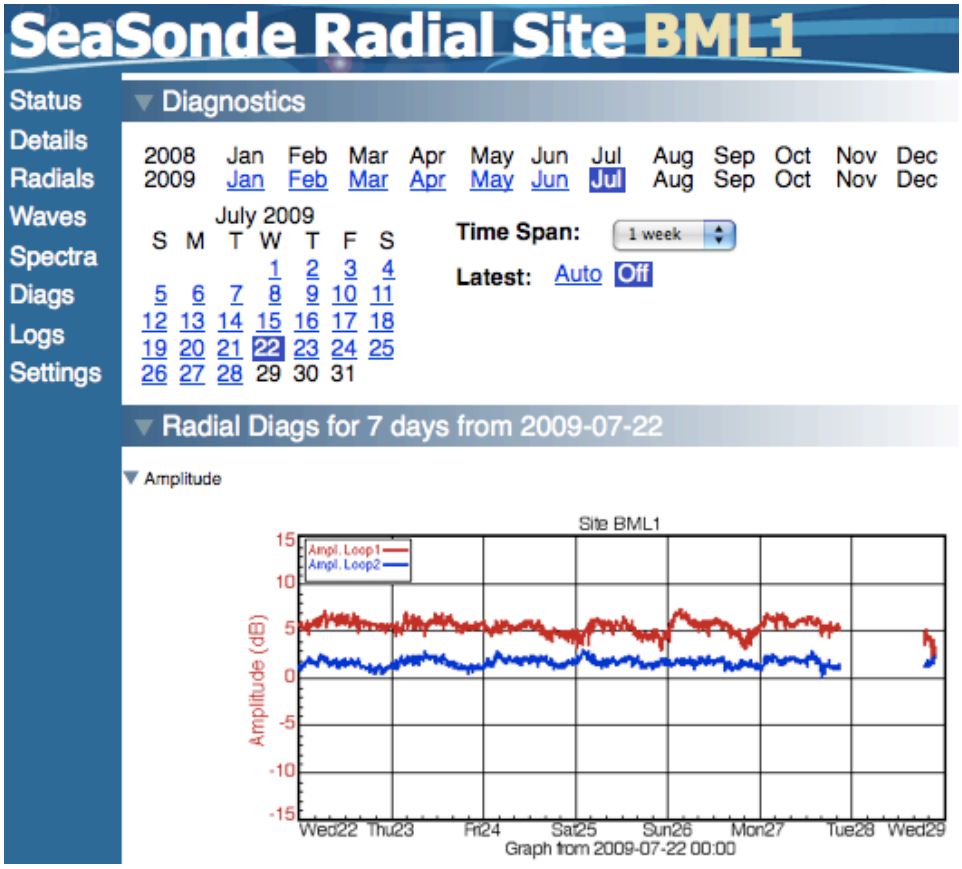


The **Spectra View** can plot spectra data up to one year ago on the site.

- ☐ Selects the spectra time to plot in the Cross Spectra section.
- ☐ Select CSS or CSQ in the Type control to switch between the averaged CSS spectra and the more raw CSQ spectra.
- ☐ The first plot is the power map which shows the power returned as color intensity across all doppler and range cells for the three cross loop antennas.
- ☐ The second plot section is a single range slice of power versus doppler. Use the slider and arrow control to select the range cell to look at.
- ☐ The download section allows to download a reduced cross spectra file. is a special variation of the standard cross spectra files which is compressed about 3:1. The utility SpectraShortener can expand this file to a standard cross spectra format.

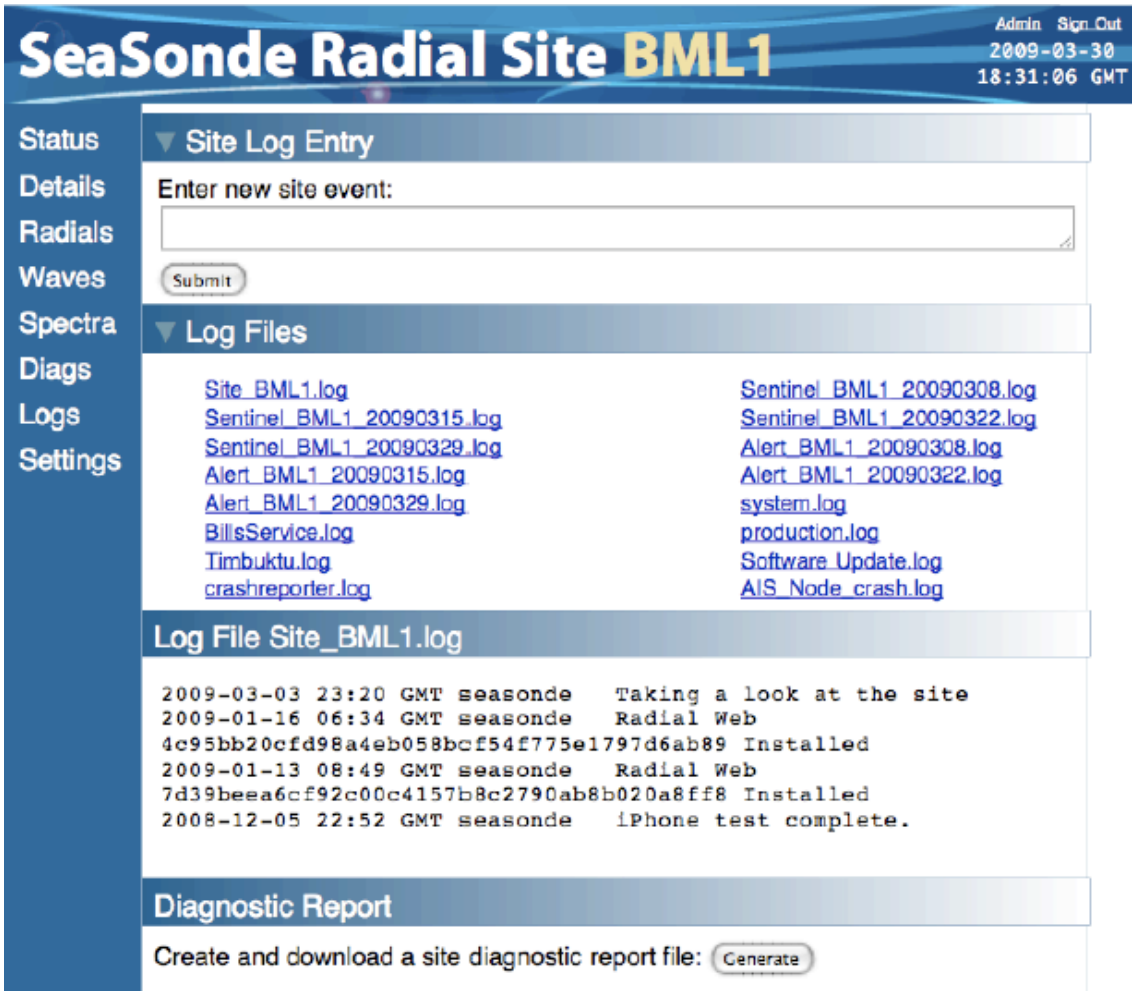
The **Diags View** can plot the diagnostics history of the hardware and radial status diagnostic logs.

- ☐ Use the Control section to set the start time and the time span to plot.
- ☐ Next is a radial diagnostic section containing 10 different plots followed by a hardware section containing 7 plots.
- ☐ The Download section shows one to four diagnostics files for the current time.



- ☐ The **Logs View** shows a list of system and SeaSonde logs for the site and also allows the web user enter notes into a site log and generate /download a SeaSonde Report file.
  - ☐ Enter any notes, logs in the Site Log Entry section and click the Submit button.
  - ☐ This entry will be time stamped and tagged with your web user name and appended to the Site_XXXX.log file where XXXX is the site code.
  - ☐ Click on any log file in the Log Files section to view the log file in the next section.
  - ☐ The Diagnostic Report section allows you to generate and download a SeaSonde Report file which you can send to CODAR support personnel for diagnosing problems. Customers are recommended to send this file to CODAR support whenever contacting for any issue.

- ☐ Click the Generate button to start downloading a RPT_XXXX_yyyymmdd_hhmm_web.zip file. The file size can vary between 2MB
  to 5MB, hence can take couple of minutes to download



The **Settings View** is used to control settings for the RadialWebServer and the email alerts. The “System Settings” section will only be available to admin users.

- ☐ Currently, the only configurable setting available is the Web Page Refresh Interval. This time sets how often the browser requests new data from the site.
- ☐ The refresh setting applies to the Status, Detail and any other views using Latest: Auto mode.

Setting up Email Alerts

The Settings View in the Radial Web Server interface allows to set up email alerts.

- ☐ RadialSiteReporter tool on the remote unit computer generates the site alerts and optionally emails them.
- ☐ Read RadialSiteReporter document for detailed information on its function.
- ☐ Click on Alert Mail Configuration link to enter the email address to whom the email alerts should be mailed. (This feature is available only to admin user account).

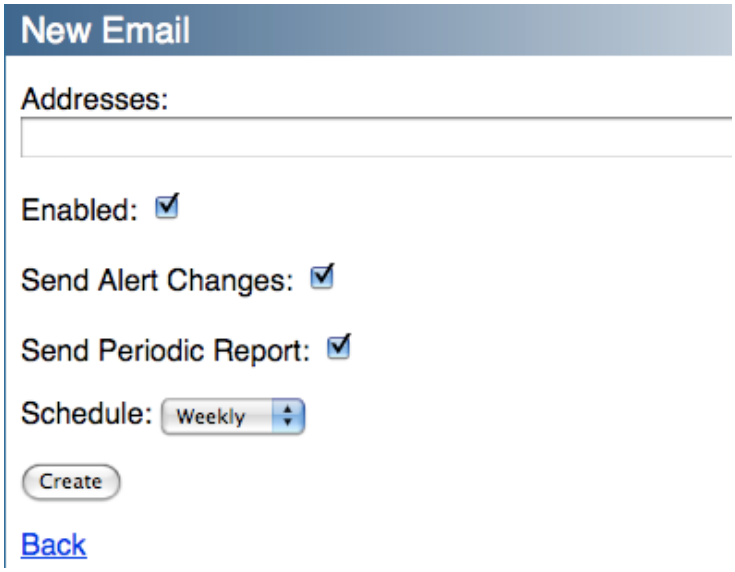
Alert Mail Configuration

Addresses	Enabled	Send Alert Changes	Send Periodic Report	Schedule	
you@yourdomain.com	No	No	No		Edit Remove

Create New

- ☐ Click on the Create New link to add the email address to the list. Remove link will delete the email address from the list. Edit link will enable editing the settings for the particular email address in the list.
- ☐ Enter one or more email addresses separated by comma.

Note: Please, do not abuse this feature; do NOT send alert emails to an unsolicited address.



- ☐ Select the Enabled checkbox to activate that email address(es) to receive alerts.
- ☐ Select the Send Alert Changes checkbox to send an email to addresses whenever an alert is tripped or cleared.
- ☐ Select the Send Periodic Report checkbox to send out the Site info plus the Alert logs periodically selected by the Schedule: popup. ***(Currently, this feature is not* available.)**

Below is an example of the email alert:

From: codar@SeaSondeSite-XXXX.local
Date: March 30, 2009 12:14:24 AM PDT
Subject: [SeaSonde] TEST Alerts [TxNotFound,CSSNoBragg,CSQNoBragg]
To: you@yourisp.com

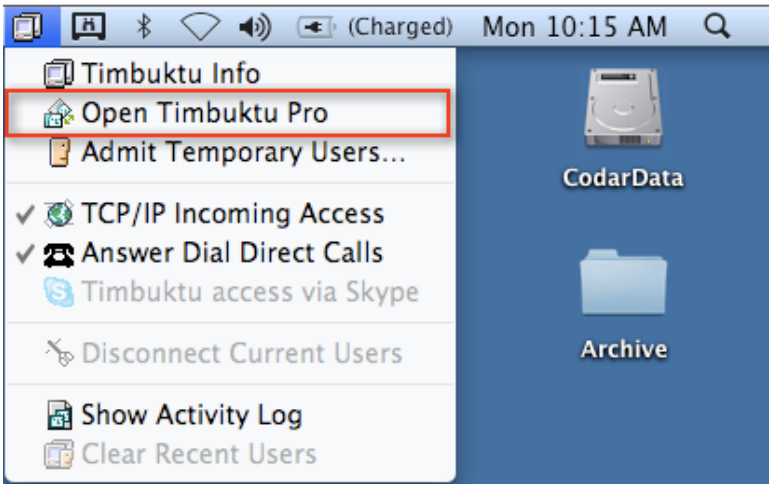
2009-03-26 13:14 UTC-7 Failure: Transmitter Not Found.
2009-03-26 13:14 UTC-7 Failure: CSS has No Bragg.
2009-03-26 13:14 UTC-7 Failure: CSQ has No Bragg.
2009-03-26 13:14 UTC-7 Failure: Radial Contains No Vectors.
2009-03-27 18:53 UTC-7 Failure: Radial is Not Up-to-Date.
2009-03-30 00:14 UTC-7 Success: Computer is Running

via Timbuktu Pro (Screen Sharing)

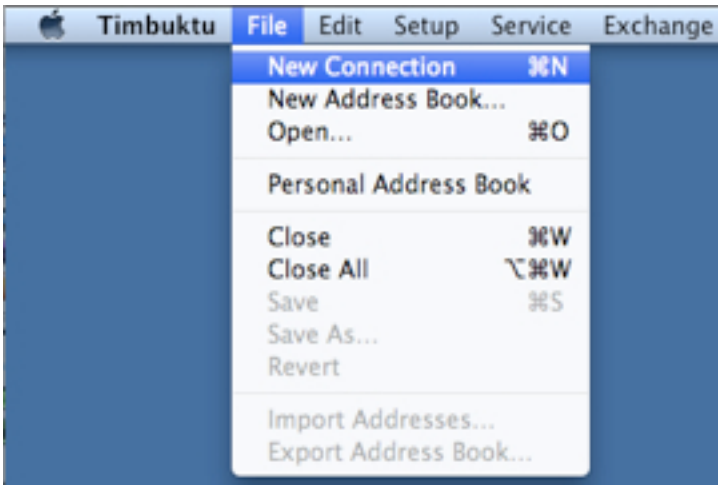
Timbuktu Pro is a screen sharing and data transfer application for PC and Macintosh computers. It is installed by default on computers shipped with SeaSondes or spare units ordered from CODAR. It is a valuable tool for viewing real time data displays on remote SeaSonde computers.

Controlling the Screen of the Remote Unit Computer

Locate the Timbuktu Pro menu found in the upper right hand portion of the Desktop menu bar (Macintosh) or on the widget tray (Windows) and select the *Open Timbuktu Pro* menu item, this will open/activate the Timbuktu Pro program.

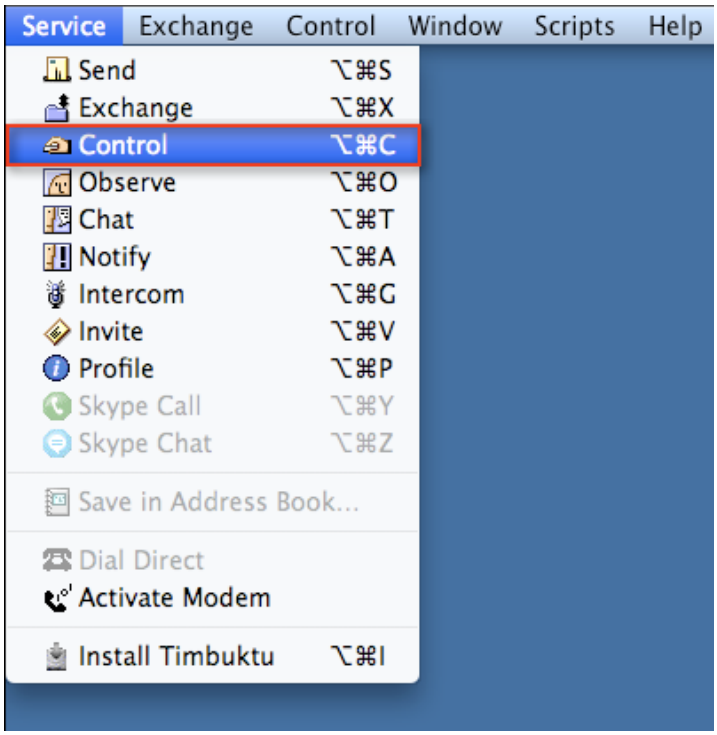


Go to the *File* menu on the left side of the menu bar and select the *New Connection* menu item:

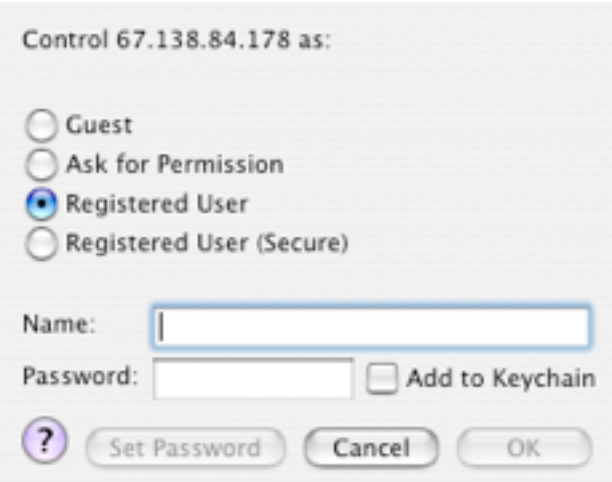


In the New Connection window, select the *Internet* tab bar item as shown below and enter the IP address of the SeaSonde Remote Unit computer.

Next, click on the *Service* menu bar item. Select the *Control* from the drop down menu:



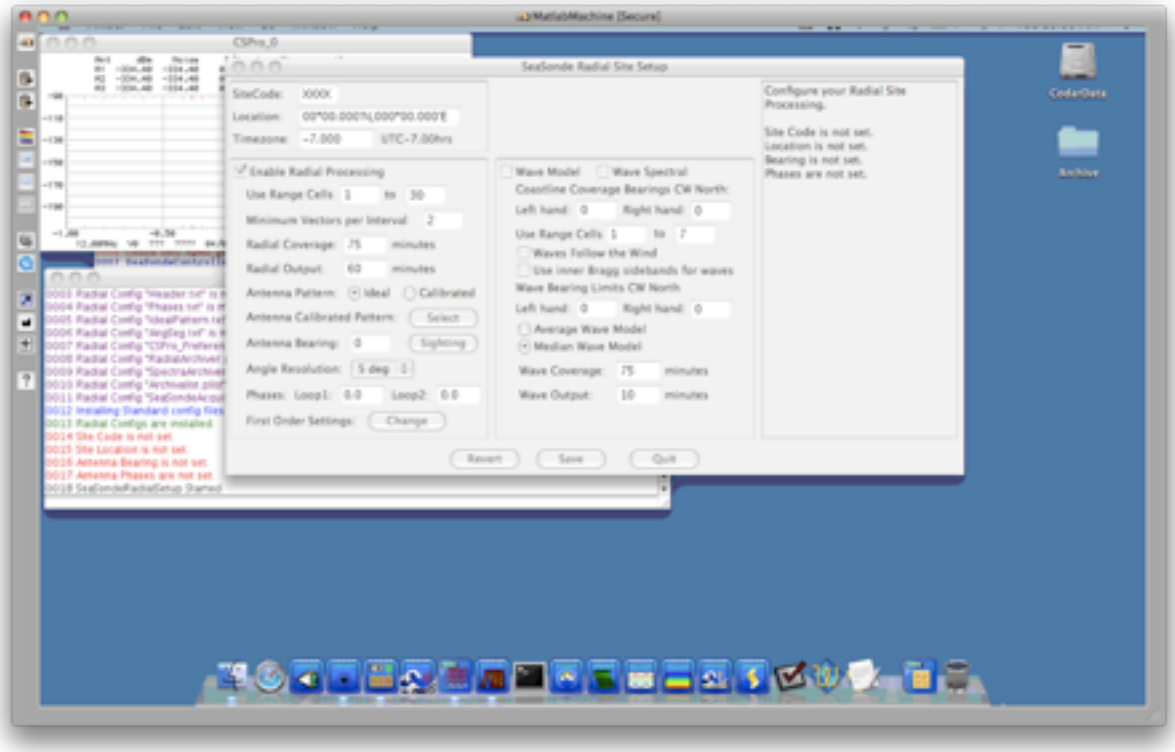
A Control Session Login Panel will appear:



Select either the *Registered User* or *Registered User (Secure)*, enter in the Name and Password of the account and click *OK*.

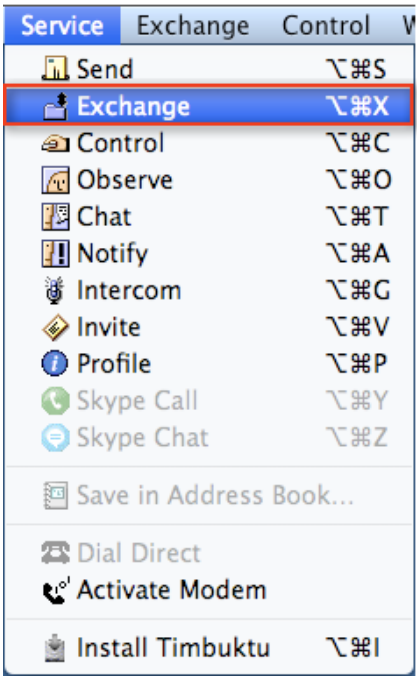
Note: Consult SeaSonde Support if you do not know account login information

The Remote Screen Control window should appear. This will allow you to interact with the computer over the internet as if you were physically in front of the computer screen:

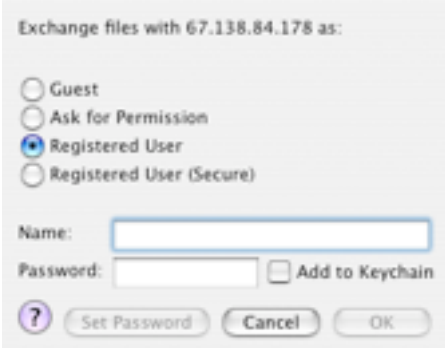


Transferring Data to/from the Remote Unit computer

In order to transfer files, an Exchange Session must be activated. Click on the Service Menu at the top of the Desktop. Select the Exchange Menu Item.

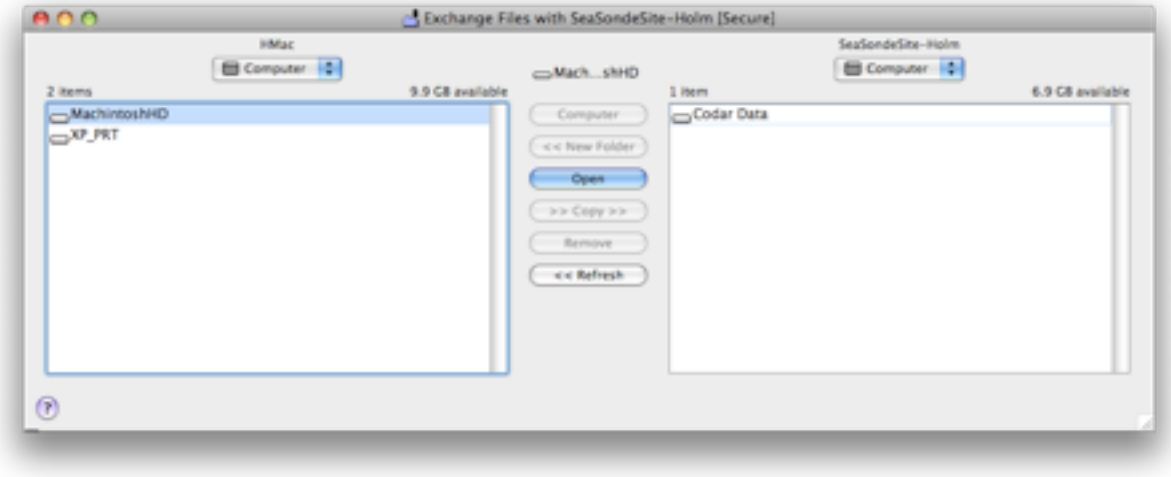


This will bring up a Exchange Session Login Dialog.

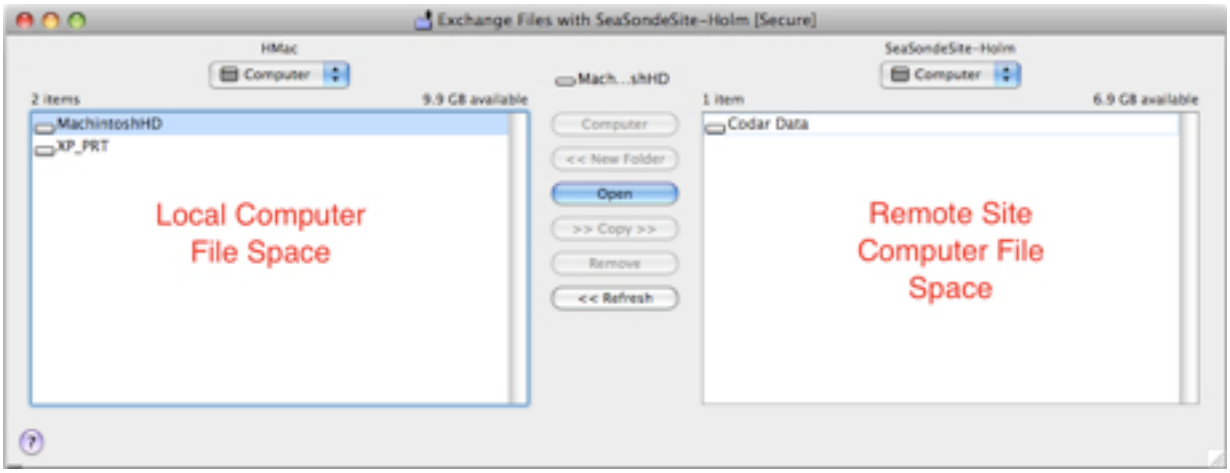


Select either the *Registered User* or *Registered User (Secure)* account login and enter in the Name and Password associated with the account. Consult SeaSonde Support if you do not know the account login information.

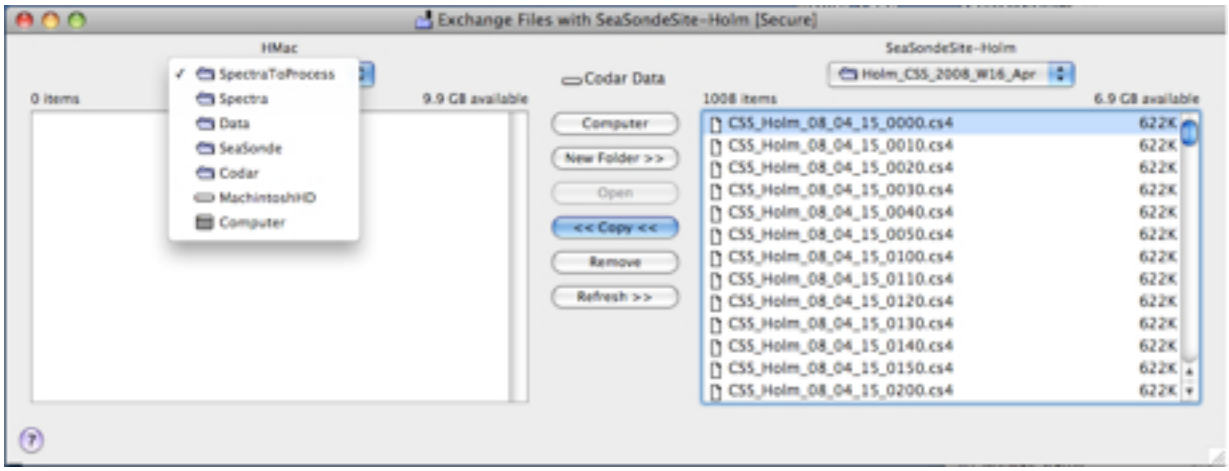
The Exchange Session window will appear. This will allow to transfer files and folders to and from the remote site computer.



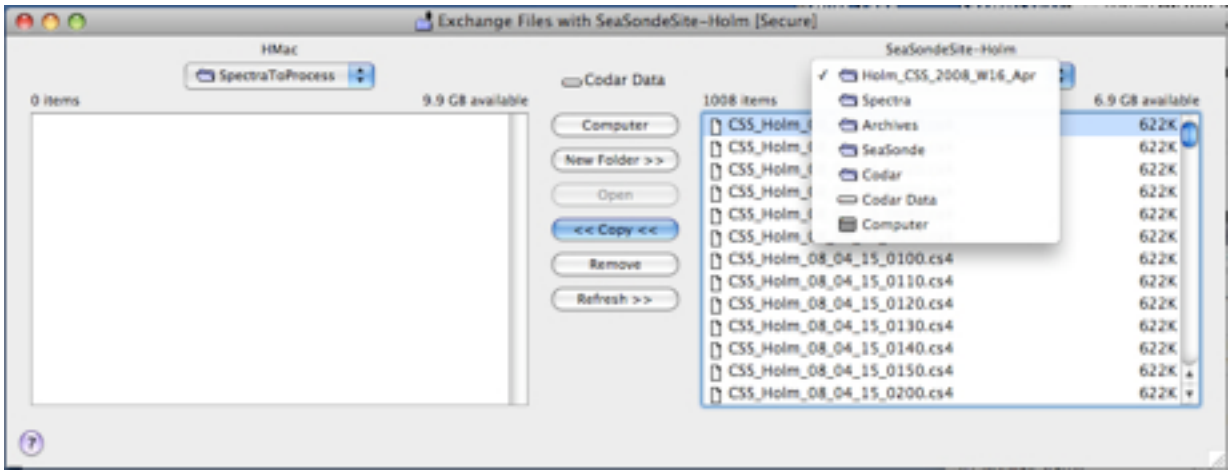
The Exchange Session window has two main areas: the file space of the Remote Site Computer and the Local Computer. These areas can be used to navigate both remote and local file systems.



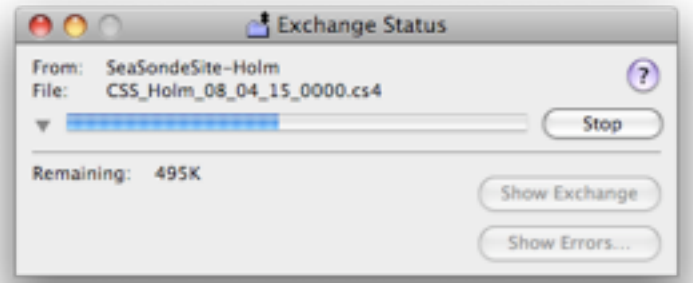
The following example will demonstrate how to navigate to and move a file from the Remote Site Computer to the Local Computer. First, navigate to the target folder on the Local Computer (left side) by clicking on folder or volume icons appearing in the Local Computer File Space to move down the folder tree or by using the drop down menu for the current folder to move up the folder tree:



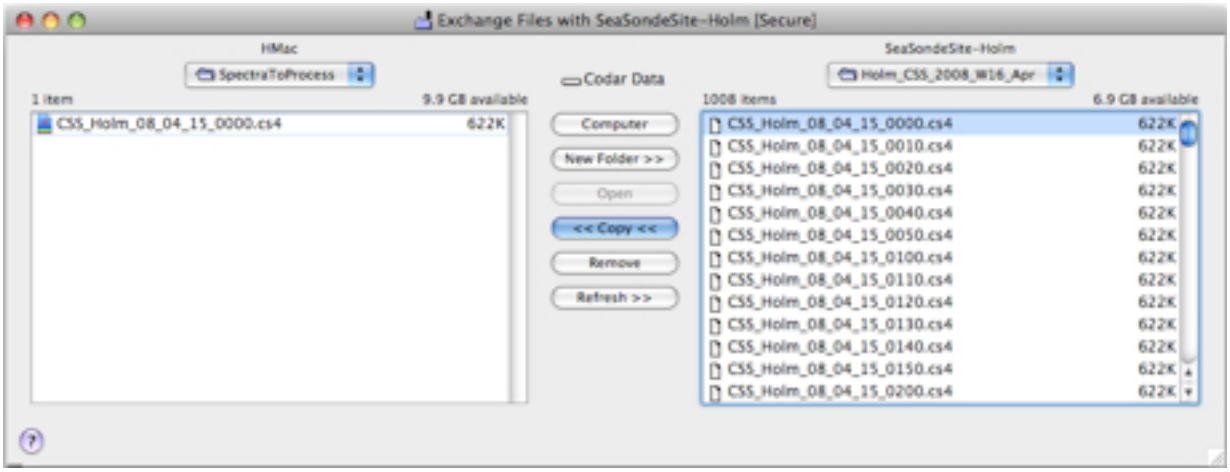
Next, navigate to the source folder in the Remote Site Computer (right side) and select a file to be transfered. The file will highlight in blue:



Click *Copy*. A File Transfer Panel will appear with a progress bar.



The transfered file will appear on the Local File Space when the transfer is complete:

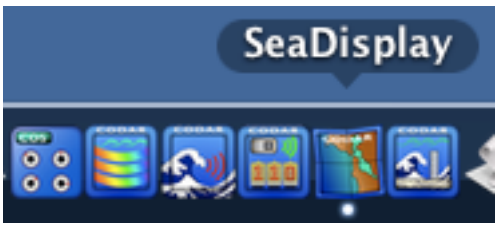


Viewing Radials

SeaDisplay is CODAR's surface current data visualization tool. It can be used to plot radial and combined surface currents as well as generate radial distributions, plot standard deviations and generate current vector animations.

Opening SeaDisplay

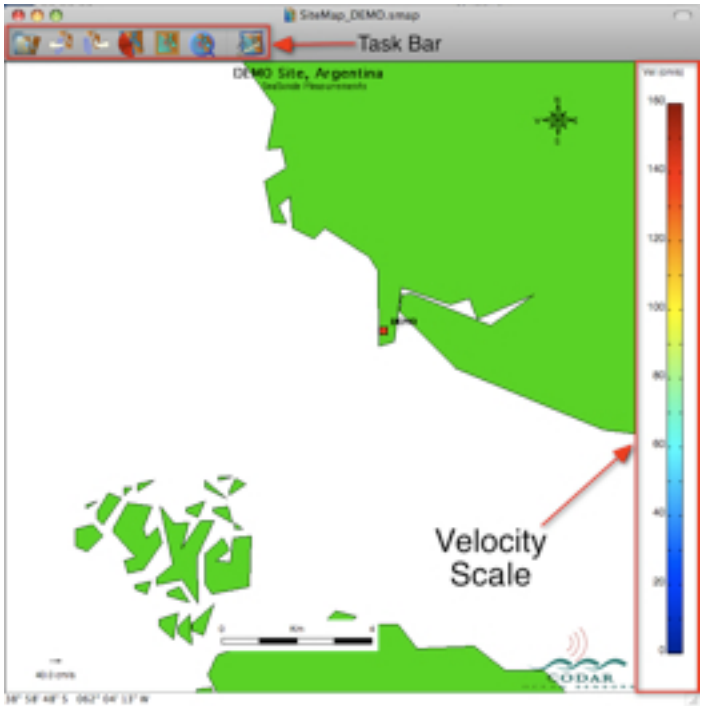
Click on the SeaDisplay Icon found in the Dock.



A map window showing the default map area should appear.

The task bar, located located above the map area on the left side, contains icons that control the most important functions. .

The velocity color scale is show along the right side of the map window.



Taskbar Icons

File Open

Display a *File Open* dialog and point to the Radial Files folder. When a file is selected, SeaDisplay will automatically load all matching radial files in the same folder.

Prev

Next

Plot the previous or next sequential radial file in the same folder.

Radial Distribution

This is the Radial Distribution Plot Icon. Clicking on this icon will allow the user to see the radial density plots of the radials in the Radial Files folder.

Save Image

Create a PNG image file of the current window display.

Create Movie

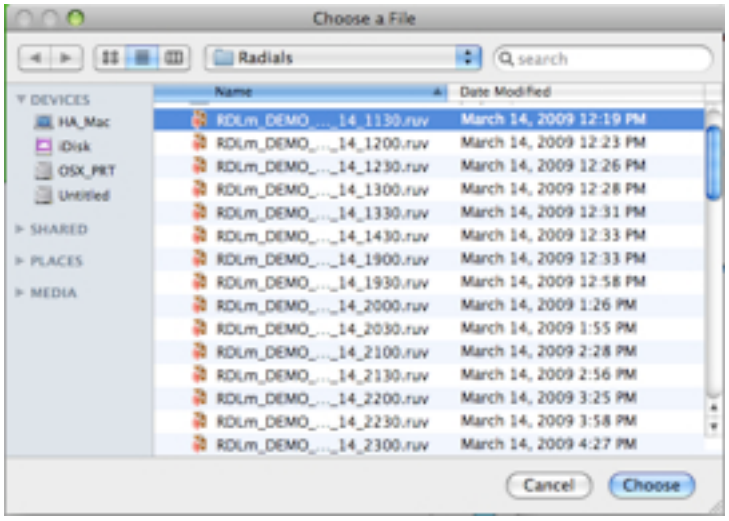
Create a Quicktime movie of all the radial data files contained in the current folder. The movie file will be written to the Desktop of the user's Macintosh computer.

Setup

Open the SeaDisplaySetup program to modify the current SeaDisplay site map. Please refer to *Creating Site Map* found in *Optional Configuration Tasks*.

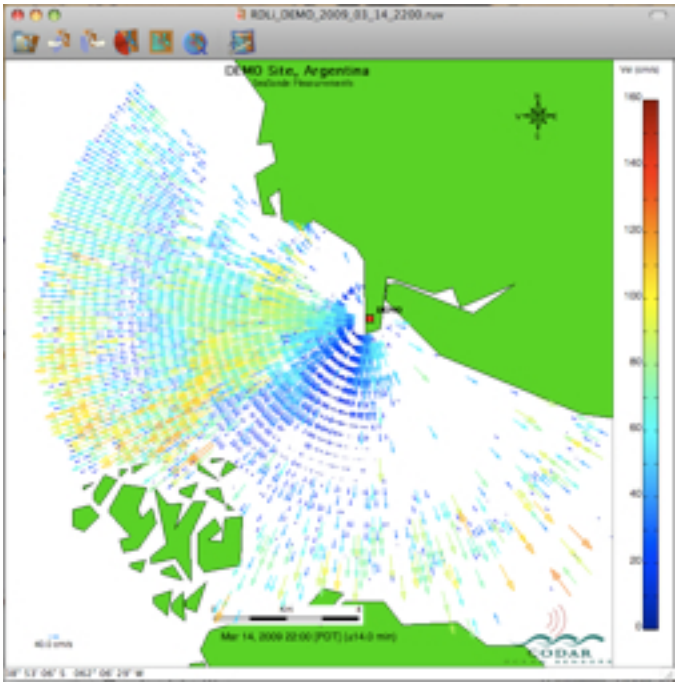
Plotting Radial Files

Click on *File Open* and select a radial file from the *Choose a File* dialog.



The selected file will be plotted and all matching files will be loaded into memory.

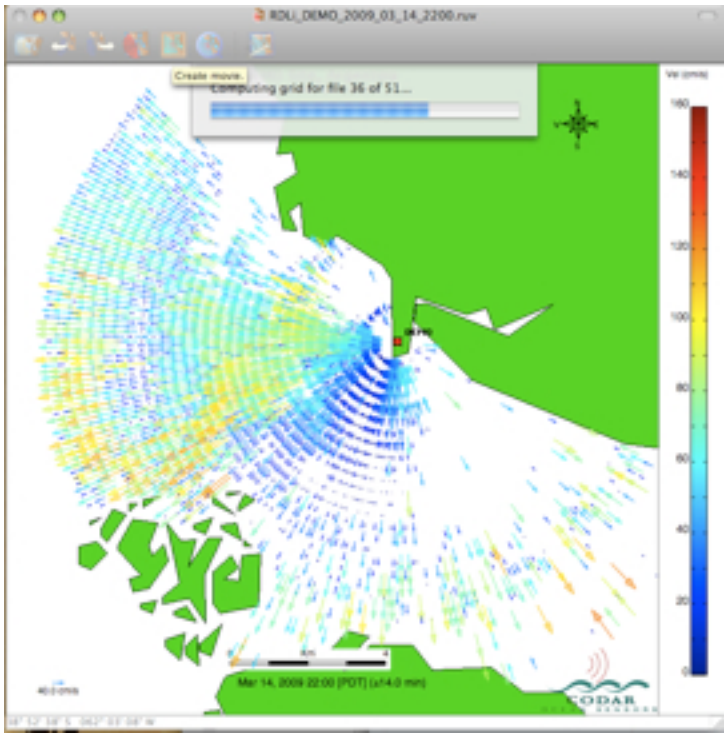
By clicking *Prev* or *Next* the user can step through sequential radial files one at a time.



Creating a Radial Distribution

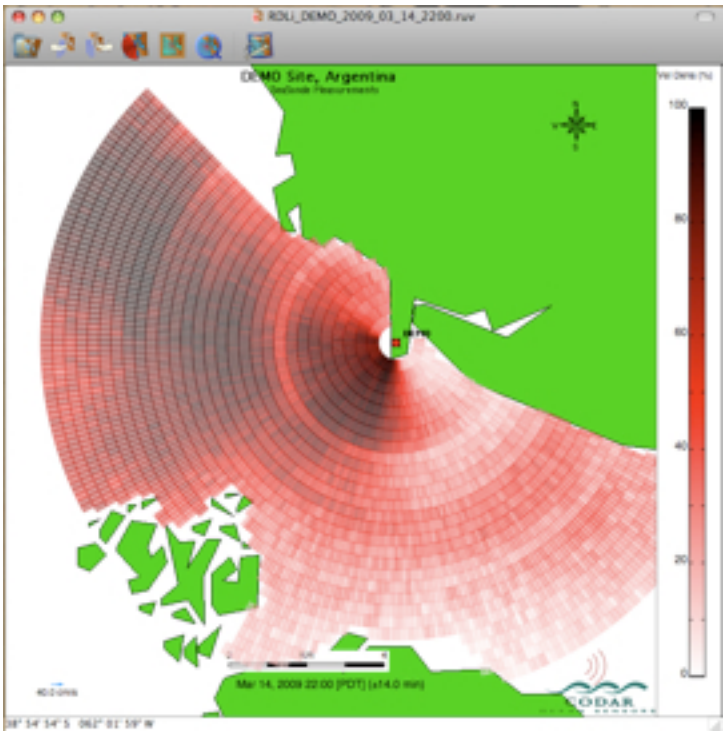
To create a radial distribution, click *Radial Distribution* in the taskbar.

This may take a little time, depending on the size of the radial file list.



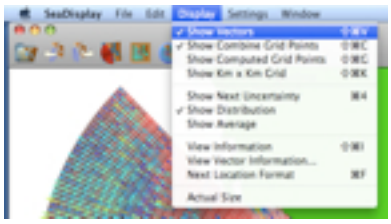
When the computation is complete, a radial distribution plot will be displayed on the map.

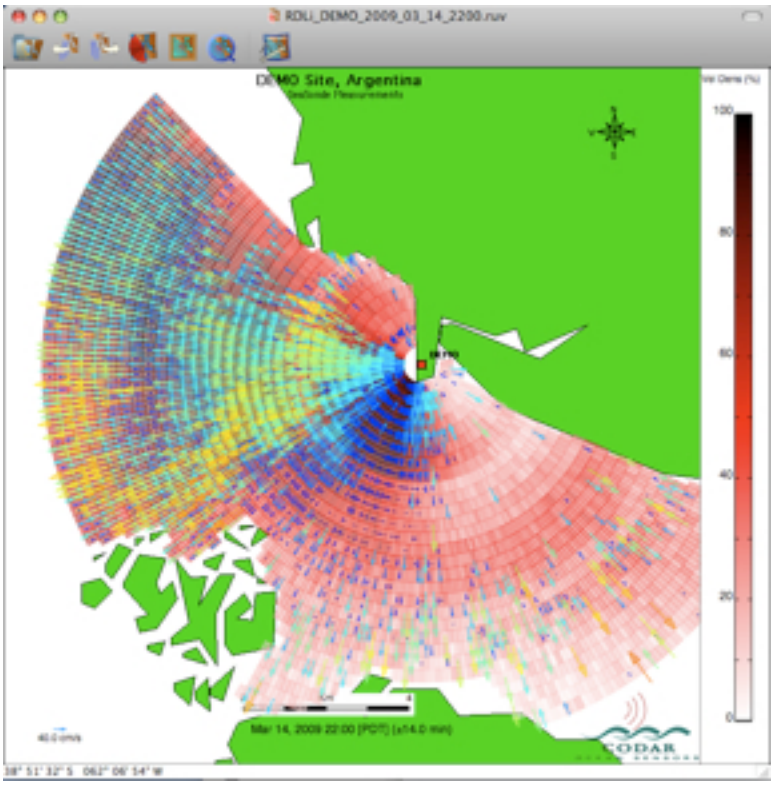
Note: the velocity scale on the right is now replaced with a Vector density scale.



If a radial vector map was already displayed then the density plot will be graphed under the radial map.

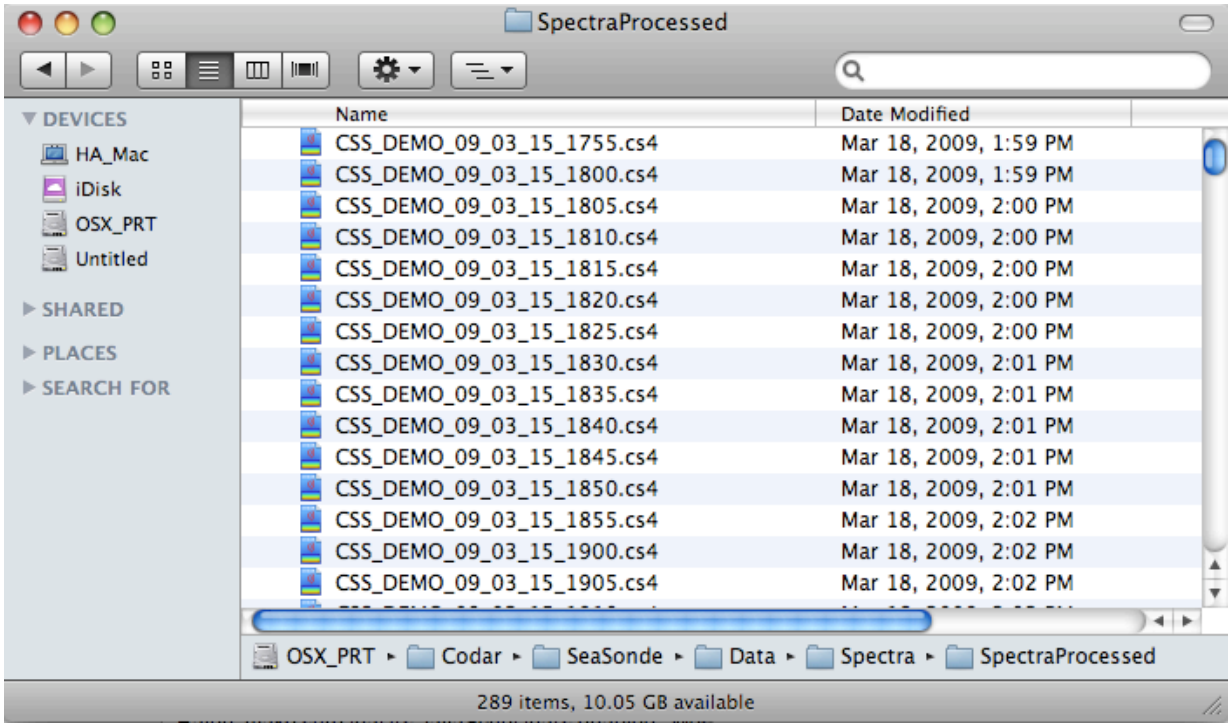
To toggle off the vectors to get a clearer view of the distribution plot, select *Display* in the menu bar and uncheck *Show Vectors*:





Viewing Spectra

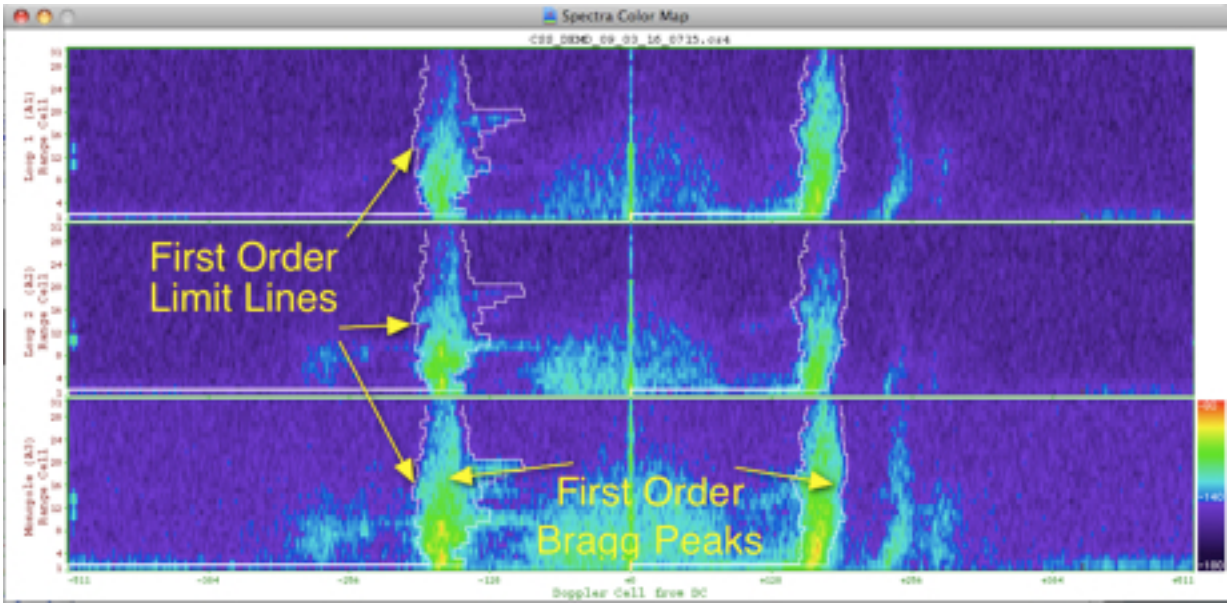
Spectra Plotter Map is a visualization tool that allows for the plotting of spectra data. This software also allows for analysis of signal to noise ratio, signal noise floors, maximum amplitudes and phases with regards to physical range and doppler range.
Plotting Cross Spectra Files
There are three primary types of spectra files that Spectra Plotter Map can plot and analyze:
CSQ files - These files are created after the first FFT process and are considered the lowest level cross spectra files
CSS files - These are merged sets of CSQ files that are created by the CSPro program. These are the files that are used by the radial processing tools to extract radial vector files.
CSA files - These files are averages of CSS file sets over an hour.
This document will cover opening and analyzing a CSS file using Spectra Plotter Map. The other file types a can be similarly opened and used in the same fashion.
To open a CSS file mouse to the folder containing Spectra data. Normally the user can find the CSS files either in the following folders:
/Codar/SeaSonde/Data/Spectra/SpectraProcessed/
/Codar/SeaSonde/Data/Specta/SpectraToProcess/
or alternatively in the Archives folder:
/Codar/SeaSonde/Archives/Spectra/



Spectra Processed Folder

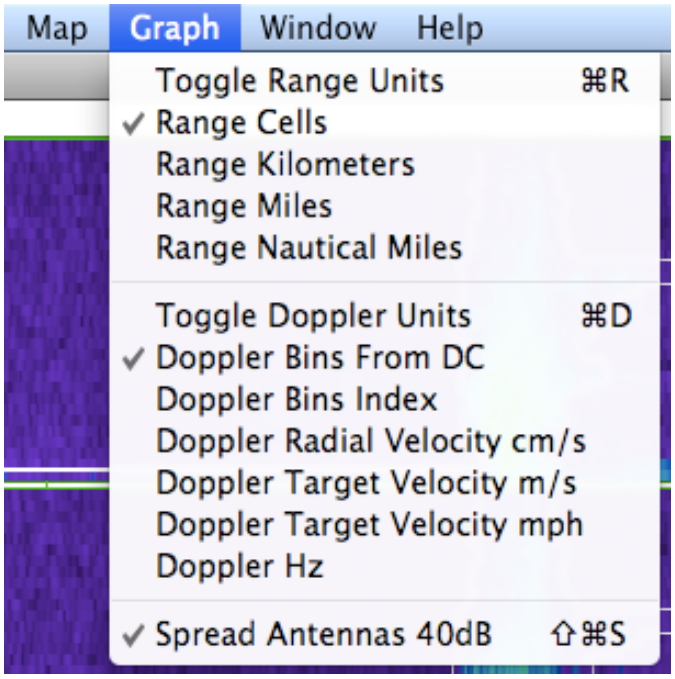
Simply drag and drop a CSS file onto the Spectra Plotter Map Icon on the Dock found in the Desktop.

The Spectra Plotter Map program opens with four main dialogs; the Spectra Color Map, the Range Slice Map, the Doppler Slice and the CSS Informational Display dialog. A brief description of these main dialog follows:

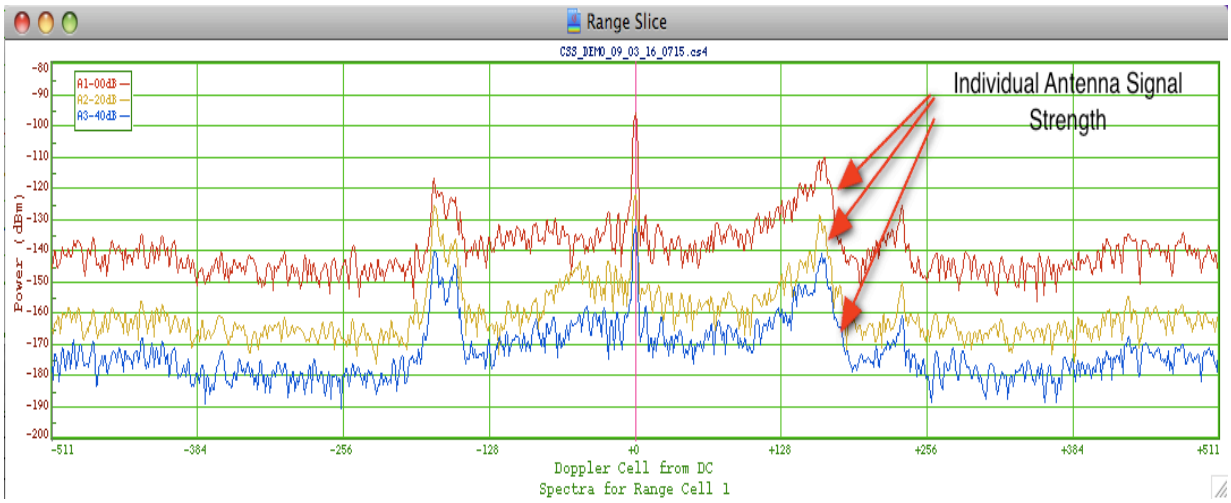


Spectra Color Map

This dialog displays signal intensity via a color "temperature" display, cooler colors indicate lower signal or noise levels while warmer colors indicate greater intensities. Normally the dialog shows the signal and noise levels on all three antenna channels as indicated on the left hand side of the dialog. The horizontal axes are normally displayed as Doppler cells from the center or DC region of the graph going out in positive and negative Doppler directions and physical range cells distances for the vertical axes. These axes can be changed to translate the distular range and Doppler cell range to frequency and kilometer units (or other combinations) by mousing to the Graph menu and checking the options desired.

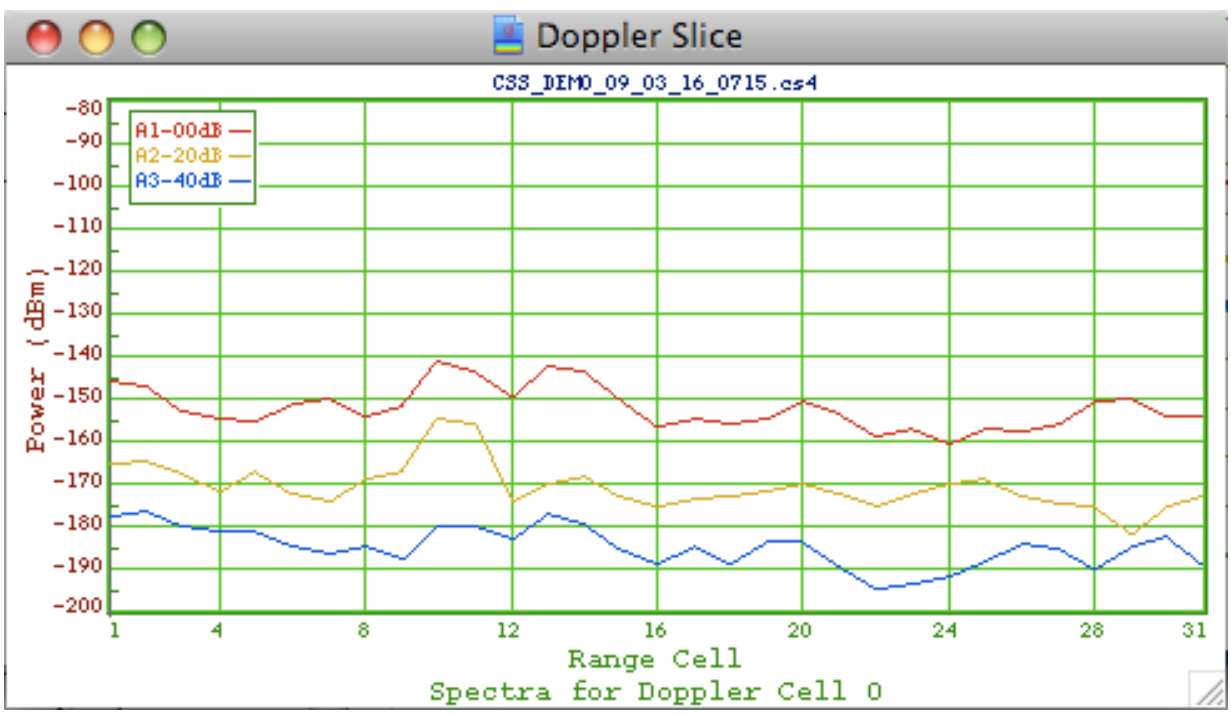


Graph Menu



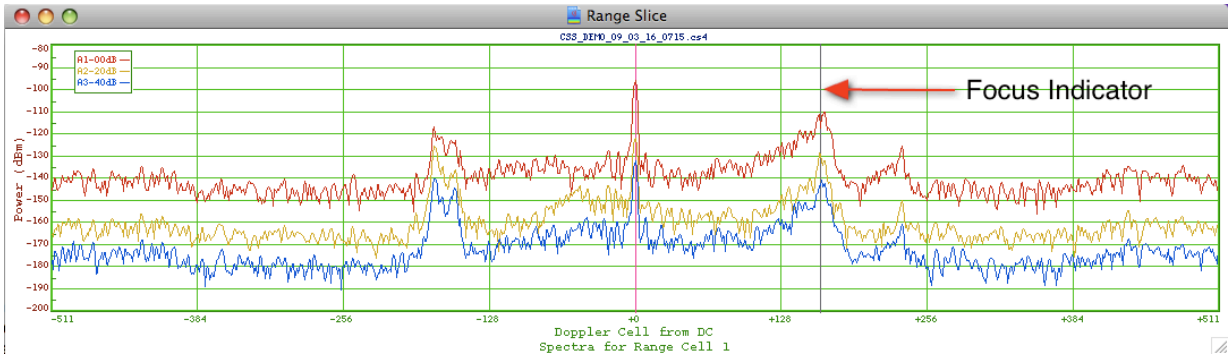
Range Slice Dialog

The Range Slice Map Dialog displays the signal strength of an individual range cell. This is in contrast to the the spectra color map that shows signal simultaneously for all range cells and frequency shift. Note the three antenna channels are displayed on this dialog are biased to be 20 dB apart with regards to each channel so that the spectra can be seen clearer rather then displaying the three channels directly on top of each other. The horizontal and vertical axes of this dialog will change along with the Spectra Color Map by changing options in the Graph Menu detailed above.

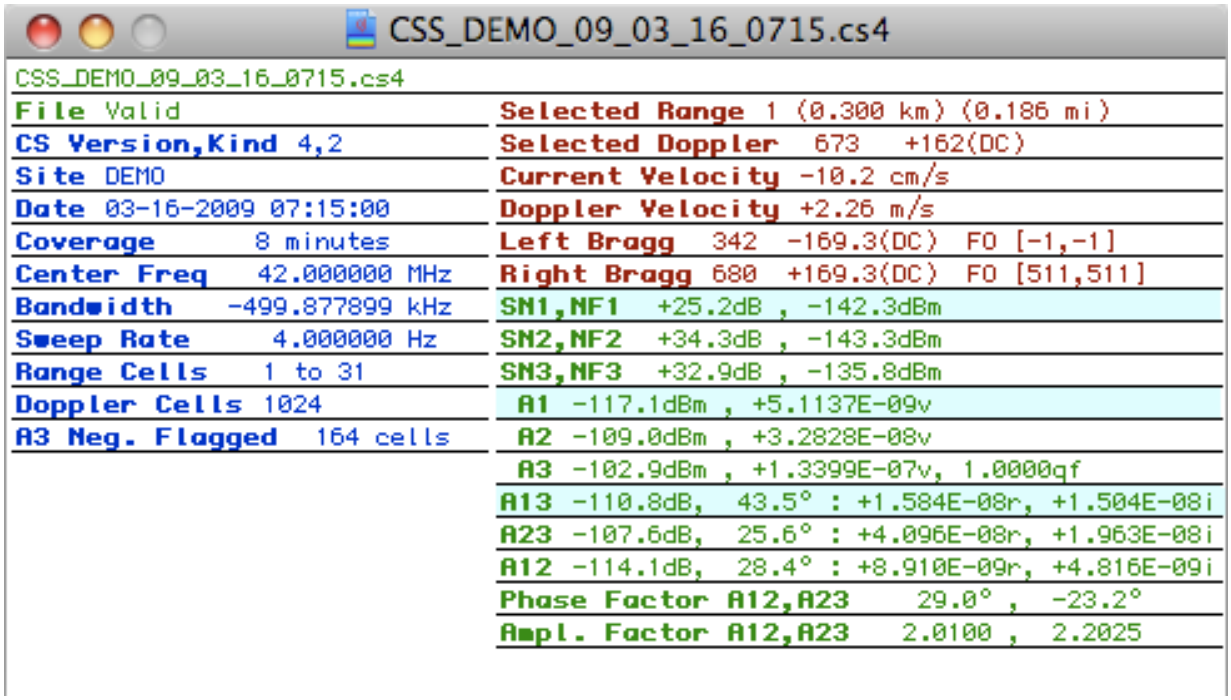


Doppler Slice Plot

The Doppler slice map shows the signal power in terms of decibel per meter for each doppler cell with regards to range. This dialog with change as the focus is moved along the Range Slice Map Dialog or the Spectra Map via the arrow keys on the keyboard.



Focus Indicator on the Range Slice Map



Cross Spectra MetaData

The Informational Dialog displays relevant spectral information for a specific range and doppler bin. As the focus indicator is played around in range and doppler cells the dialog entrees will change. Center frequency, bandwidth, FFT length and other transmit information normally found in SeaSonde Controller setting will also be recorded in blue text.

Viewing Diagnostics

This section describes how to use DiagDisplay to perform routine monitoring of radial data collection and SeaSonde hardware operation. It is a valuable tool for troubleshooting of most problems.

About DiagDisplay

DiagDisplay is an application that is used to plot different SeaSonde radial and hardware data parameters from the diagnostic files, on a graphical display to evaluate/diagnose the radial data and the SeaSonde hardware operation. The diagnostic files (with the names beginning with “STAT_”) are located in /Codar/SeaSonde/Data/Diagnostics. Two types of diagnostic files are produced weekly on Sundays with the name STAT_XXXX_YYYY_MM_DD.EXT, where XXXX is four character site code and “.EXT” is the extension of the file. “.EXT” is .rdt for radial diagnostic files and .hdt for hardware diagnostic files. DiagDisplay can be used to plot several weeks or months of diagnostic files at a time.

Opening Diagnostic Files

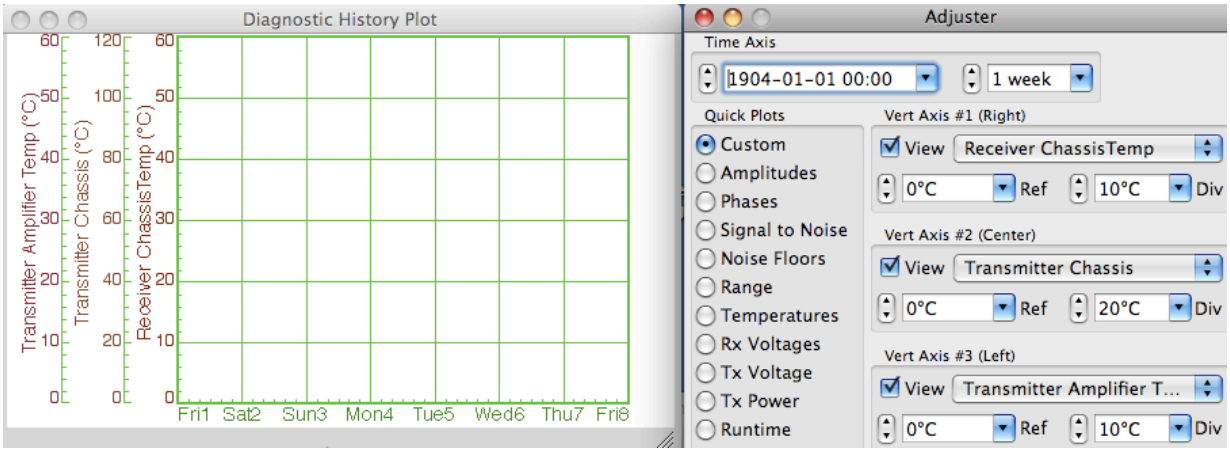
The DiagDisplay application is located in /Codar/SeaSonde/Data/Apps/Viewers. It can also be found in the Dock on a factory-installed SeaSonde computer.

DiagDisplay Icon

You can monitor different parameters like Radial range, Radial vector count, Noise Floors, Signal To Noise Ratio, temperatures inside the SeaSonde Transmitter and Receiver chassis, some common voltages of the equipments, and so on, using DiagDisplay.

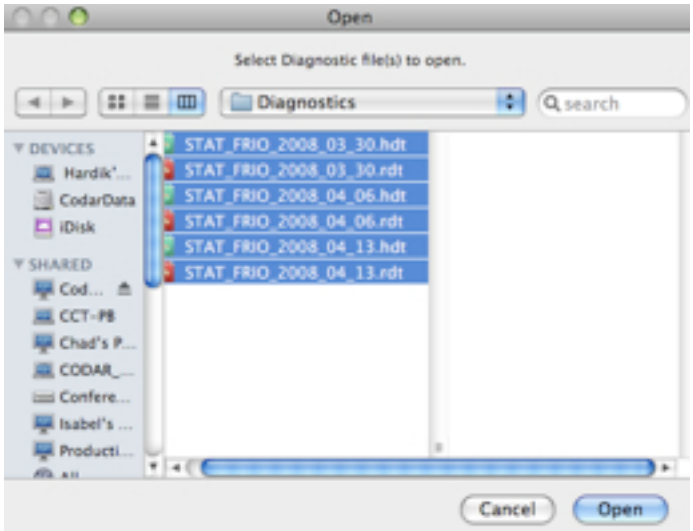
It is a good practice to plot the diagnostic files (“STAT_”) regularly, like weekly or bi-weekly to check the different radial and hardware parameters.

- ☐ Click the DiagDisplay icon on the Dock.
- ☐ The Adjuster Dialog and the Diagnostic History Plot window will open.



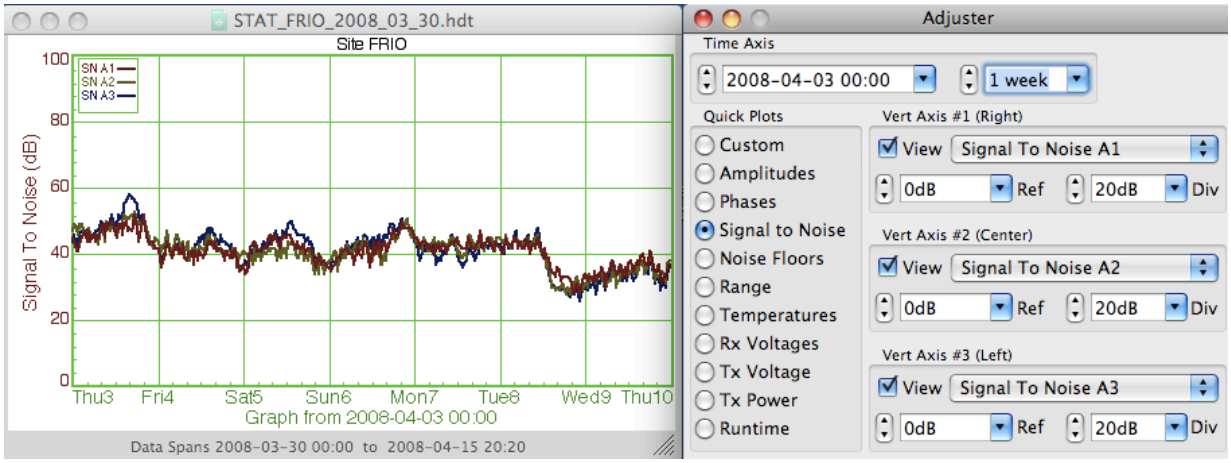
Diagnostic History Plot and the Adjuster Dialog

- ☐ Choose File > Open.
- ☐ Select the “STAT_” diagnostic files and click on the “Open” button to open files.



File Menu Open

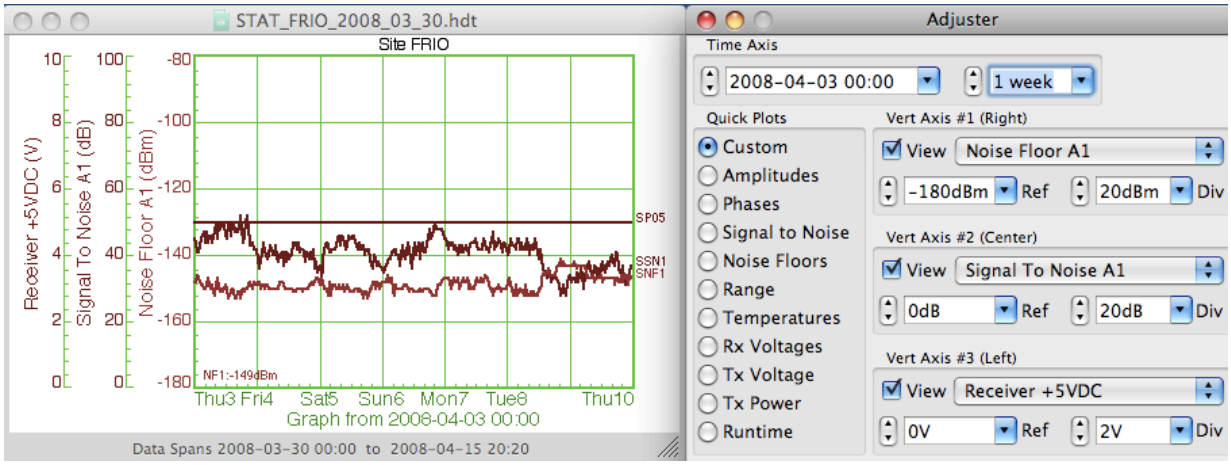
- ☐ By default it will plot one of the sets of parameters of the Diagnostic Files on the Diagnostic History Plot.



Diagnostic Files plotted on the Graph

- ☐ Quick Plots pane in the Adjuster Dialog is used for quick plotting of a default set of related parameters simultaneously, like Noise Floors, Signal to Noise Ratios, Phases,etc.

- ☐ Select “Custom” checkbox to plot parameters from different sets together.



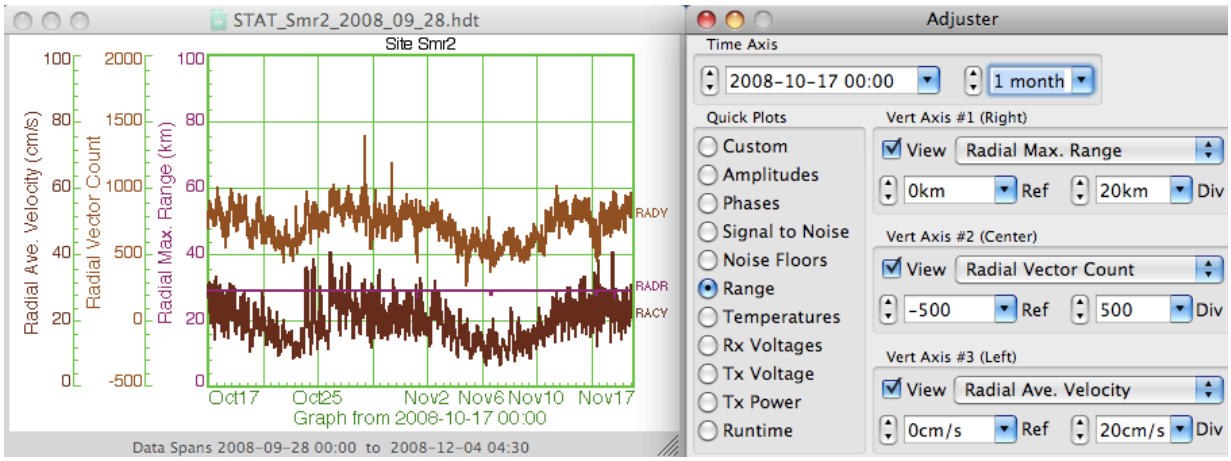
Custom Plots

Maintenance Check and Troubleshooting

The below example shows how you can use DiagDisplay for maintenance check of normal operation of radial data collection and SeaSonde hardware operation. This example specifically covers an instance, when a client observed a sudden reduction in radial range during their regular maintenance check. This example shows how DiagDisplay can be used in such cases to try to find out the suspected reason of

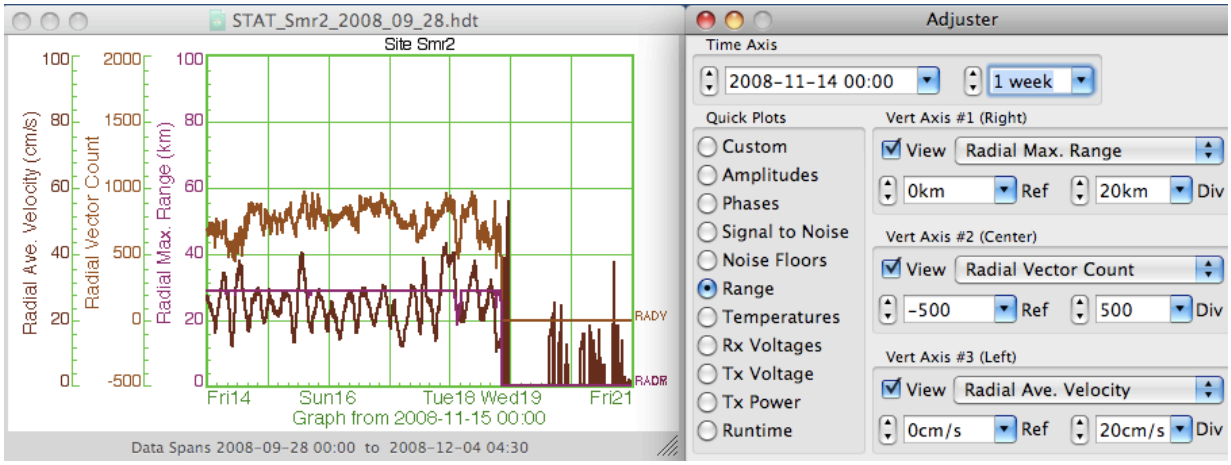
problem. There can be more than one reason leading to the same problem. This example covers one of the many reasons leading to the same problem.

- ☐ Select the “Range” checkbox to plot the Radial Max Range, Radial Vector Count and Radial Average Velocity simultaneously.



Plotting Radial Range Parameters

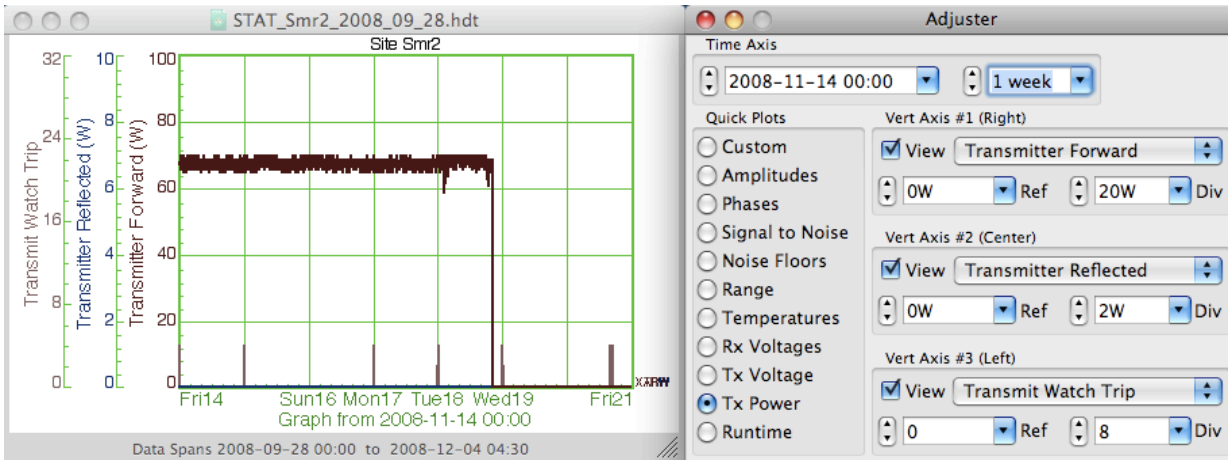
- ☐ Depending on your site’s operating frequency and settings, confirm if the radial max range and the radial vector count seem reasonable.
- ☐ Verify if there is any period of time, when the range and/or vector count decreases.
- ☐ Select different set of parameters from the Quick Plots section to plot on the graph and confirm if everything is working reasonably well.



Sudden reduction in Range

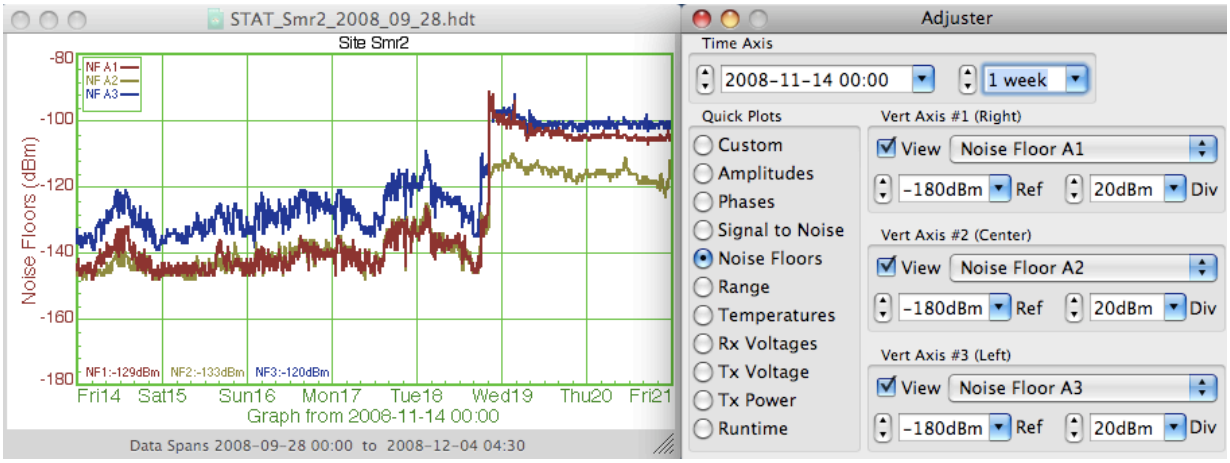
- ☐ The Radial Vector Count and Radial Max Range looked reasonable till Wednesday 11/19. The radial range and vector count suddenly dropped to zero on 11/19.
- ☐ So, you can plot other parameters to find out the cause of range reduction.

- ☐ Select “Tx Power” checkbox. This will plot Transmitter Forward power, Reflected power and the Transmit Trip parameters.
- ☐ Make sure that your site’s forward/reflected power readings are reasonable depending on your settings.



Power Plot

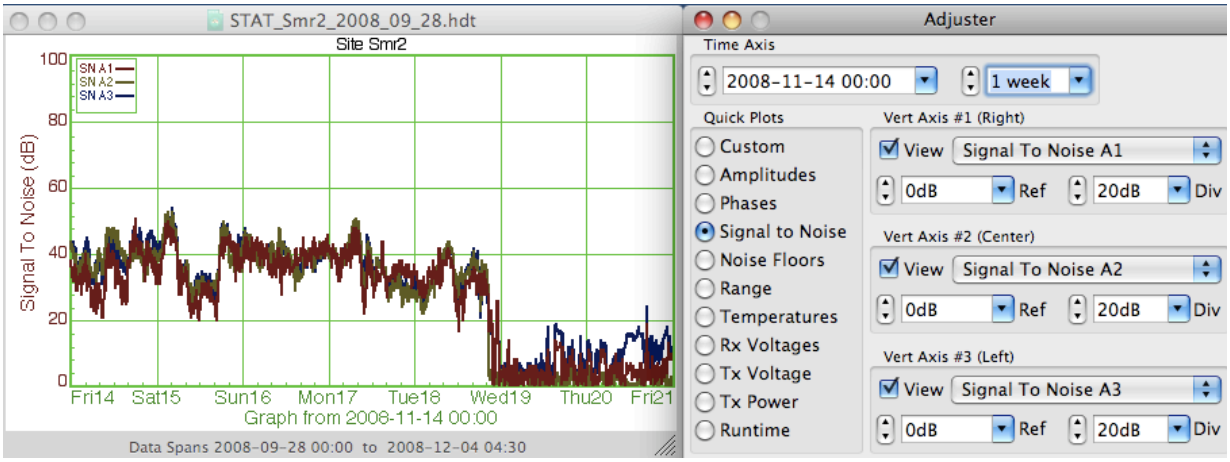
- ☐ The plot shows that the forward power was reasonable till Wed. 19 and then suddenly drops to zero.
- ☐ This shows that the Transmitter is not transmitting any output power. It can be due to several reasons like tripped transmitter, fallen antenna, cable cut, bad transmit power supply, bad transmit amplifier or any other non-working module in the Transmit or Receive chassis.
    - ☐ Since, there is no forward power, there is no radial coverage.
    - ☐ The “Transmit Watch Trip” graph shows that the transmitter was not tripped at the time of failure. The default value is “0”, the value rises to more than 1 when the TX gets tripped. So in this case, there is some other reason.
    - ☐ Plot other more parameters to try to find the reason for no forward power.
- ☐ Select “Noise Floors” checkbox. Check the noise floors on all three channels.



Rise in Noise Floors

The noise floors suddenly increased around Wed 19. This can be due to several reasons like sudden increase in the environmental noise or some internal hardware failure or due to bad antenna.

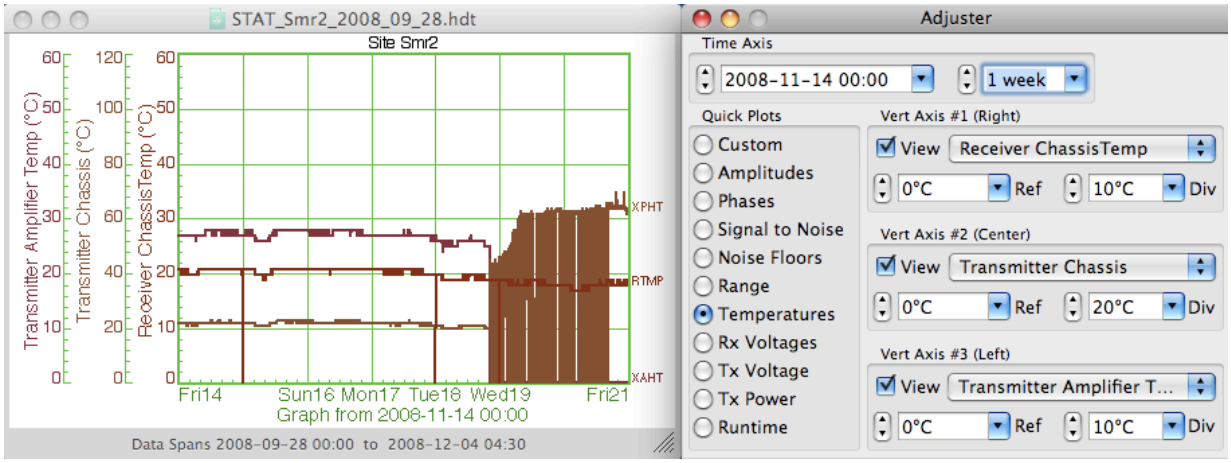
☐ Select “Signal To Noise” checkbox. Check the signal-to-noise ratios on all three channels.



Drop in Signal-to-Noise Ratios

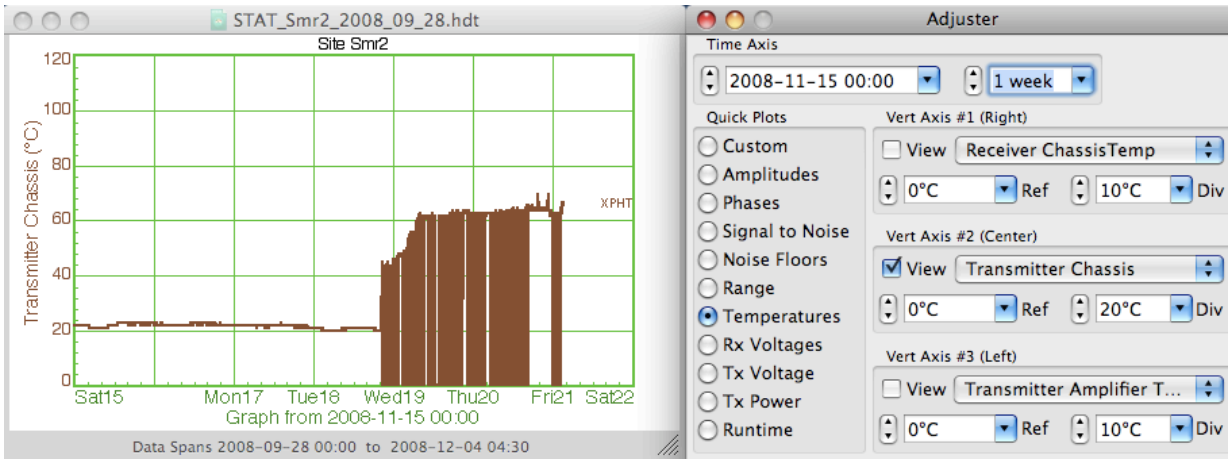
The Signal-to-Noise Ratios on all the three channels dropped to almost zero, as there was no output power after Wed 19.

☐ Select “Temperatures” checkbox. Make sure that all the temperatures look reasonable.



Temperatures Plot

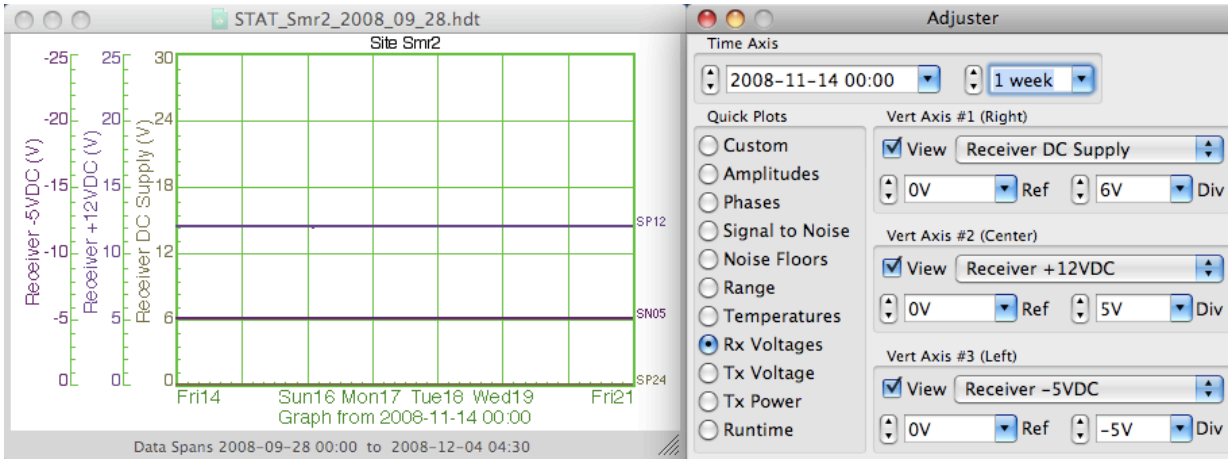
The transmitter chassis temperature was reasonable till Wed 19, but after that it went very high. This can be either due to the very high surrounding atmospheric temperature or very high temperature generated inside the chassis due to some hardware component failure.



Transmitter Chassis Temperature Rise

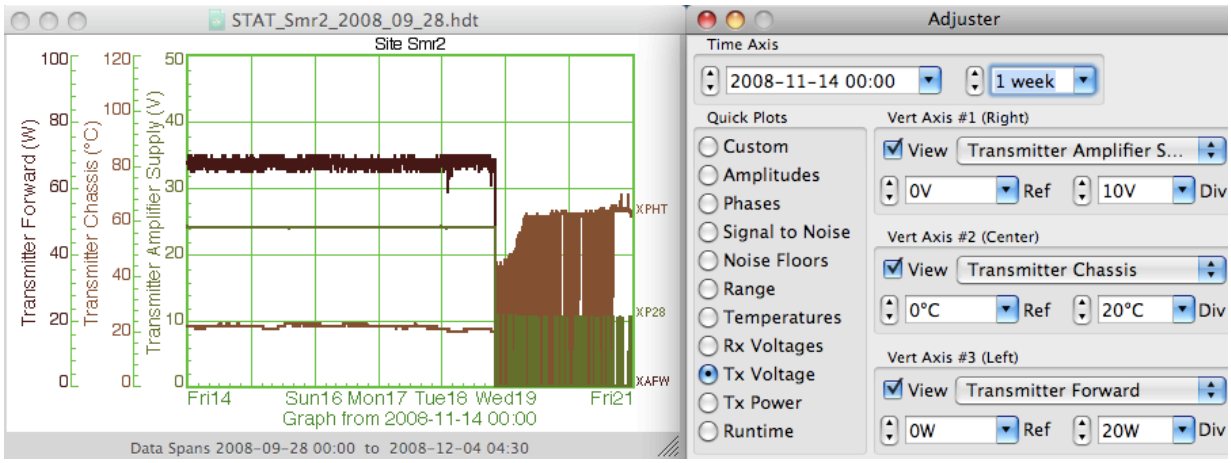
You can plot TX and RX voltages to confirm, if the common voltage readings inside the chassis are correct.

- ☐ Select “RX voltages” checkbox.
- ☐ Confirm, if the Receiver +5V and +12V readings are correct. (Receiver DC supply reading is only for systems with DC supply).
  - ☐ If both the +5V or +12V supply reading are correct, it means there is most likely no failure in RX chassis components.
  - ☐ If any of the supply readings is in-correct, then it means there is a hardware failure of one or more components inside the RX chassis.



RX voltage readings

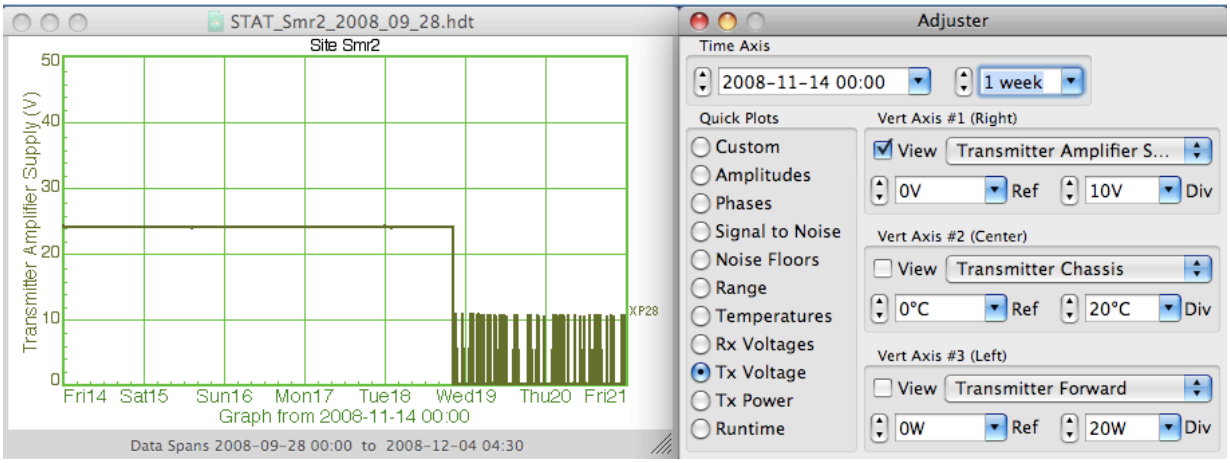
☐ Select “TX voltage” checkbox.



TX Voltage Reading

☐ On Wed. 11/19, the TX power fell to zero, TX chassis temperature rose to a very high value and the Transmitter Amplifier supply dropped from its normal 24/28V value to a lower value.

☐ Un-check the “View” checkboxes with Transmitter Chassis and Transmitter Forward fields.



Transmit Amplifier Supply Drop

- ☐ This means that there may be some problem with the Transmitter amplifier power supply.
  - ☐ Hence client was suggested to make a site visit and measure the Transmitter power supply voltage and few other voltage readings in the TX chassis.
- ☐ Finally, after all measurements, it was clear that there was some problem with the amplifier which was pulling down the Supply voltage.
- ☐ In this way, you can use DiagDisplay, to get an idea about the suspected reason for any failure in hardware operation or irregular collection of radial data.

CODAR Support Services

SeaSonde Training and Self-Help Resources

Training Courses

CODAR offers 3-day basic training courses at its Mountain View, CA Headquarters twice per year. One free basic course tuition is included with each SeaSonde purchased. Contact support@codar.com for course information and reservations. Course dates and descriptions are posted on our website http://www.codar.com. Onsite training can also be purchased.

CODAR highly recommends that operators of SeaSondes HF radar systems attend a basic training session prior to equipment installation.

SeaSonde Support Website

CODAR Technical Support hosts a support website at support.seasonde.com. The login and password for the T.I.P.S. page (**T**echnicians **I**nformation **P**ages for **S**eaSondes) is provided to all new SeaSonde owners at the time of purchase. The TIPS pages are updated with the latest software bug fixes, answers to commonly asked questions and tutorial video screencasts for explaining how to perform the most common tasks.

HF Radar Library

A comprehensive “pdf library” of peer-reviewed publications pertaining to oceanographic applications for HF Radar can be found at http://www.codar.com/bib.htm. Most of the articles are full-text documents and can be downloaded as pdfs.

How to Get Technical Support

If you require technical assistance and have a support service contract on file with us, please feel free to email support@codar.com or call +1 408 773 8240 and ask the operator to speak with a member of our Technical Support staff. There is no charge for short answers (~ 5 minutes or less) but at a minimum, we do require that a CSERV-A support services contract be setup in advance.

The Principal Investigator/Owner of the SeaSonde(s) and his/her authorized technicians are identified in the contract forms along with correspondence and billing addresses.

Setting up a Support Services Account

To set up a Pay-As-You-Go (CSERV-A) service contract or to purchase pre-paid Time-Bundle (CSERV-B), please complete the appropriate form and email it to support@codar.com or fax it to the attention of Technical Support Services at +1 408

773 0514. Forms are also available on the support.seasonde.com website and in the Appendices at the end of this document.

CODAR also offers more comprehensive service plans that include pro-active service checks and maintenance by our staff. Annual site visits can also be provided if required. Please contact support@codar.com for custom pricing for our CSERV-C and CSERV-D plans.

No-Charge Services

CODAR will not charge for time spent diagnosing software bugs or for doing the requisite diagnostic checks for an RMA to be issued.

If the software or hardware problem/complaint turns out to be a user configuration error or is a result of improper operation, then we will invoice the user for the Technical Support consultation on an hourly scale.

If an RMA is issued as a result of a remote diagnosis made by a CODAR technical support staff member and the hardware is not returned for repair within 30 days, we will also invoice for time spent diagnosing the problem.

Reporting Problems to CODAR

Identifying a problem

Prior to contacting CODAR's Technical Support Services department please prepare a detailed description of the problem and collect and email the latest SeaSondeReports log (if applicable). We will also need the serial numbers of the equipment and the remote contact information for the sites (IP address(es) and any custom passwords).

If your SeaSondes are running CODAR SeaSonde Release6 software with RadialWebServer, please provide the URL and password for webserver access.

One-click Diagnostics Using SeaSondeReports

The best way to report information about your remote unit's status to CODAR Support is to run one of the SeaSondeReports scripts available on SeaSonde sites with Release 5 or higher installed. When run, the scripts create a zipped file containing a bundle of system logs, SeaSonde data and diagnostics files.

via the Radial Web Display

Info coming soon

via the Desktop

The SeaSondeReports scripts are found in the /Codar/SeaSonde/Apps/Scripts/ folder. There are two scripts: SeasondeReportsHigh and SeaSondeReportsMedium. The

primary difference between them is the amount of data bundled. To keep the zipped bundle under most email file size restrictions, run SeaSondeReportsMedium. On computers set up by CODAR, it can also be run from the Dock by clicking the following icon:

SeaSondeReports Icon

When run, SeaSondeReportsMedium will create a zipped file of bundled system logs, SeaSonde data and diagnostics on the Desktop approximately 10 MB in size with the following name format:

RPT_XXXX_YYYYMMDD_hhmmss_md.zip

This file should be emailed to support@codar.com and please include any additional description of the circumstances surrounding the issue and/or recent site configuration changes that might help us in our analysis. If immediate assistance or a prompt response is required, our standard support policy and rates apply, but submission of the zipped report files is always free and all submissions will be reviewed.

Returning Equipment to CODAR

Procedure

CODAR personnel ***must authorize*** any return of materials or hardware for repair, upgrade or exchange. Complete the following steps to avoid delays and additional charges:

- ☐ Confirm with a CODAR support engineer that your equipment needs to be returned
- ☐ Complete the following Return Materials Authorization (RMA) request form.
- ☐ Send the information on the form to CODAR by one of the following methods:
  - email: rma@codar.com
  - fax: 408-773-0514
  - voice: 408-773-8240; a support representative will assist you.
  - mail: 1914 Plymouth St., Mountain View, CA 94043
- ☐ A CODAR support engineer will issue an RMA number for the authorized return.
- ☐ Pack the equipment/materials and clearly label the package with the RMA number.
- ☐ Ship the materials to CODAR.

CODAR will notify the customer's contact personnel that materials were received.

CODAR will notify the contact person about analyses performed, recommended repairs, price estimates, etc.

Notes:

1. Materials out of warranty will be assessed an analysis and repair fee.
2. Dirty or corroded materials may be assessed a cleaning fee.
3. Direct inquiries about the status of any RMA to rma@codar.com.

RMA Request Form

CODAR OCEAN SENSORS

CODAR OCEAN SENSORS, LTD.
Attn: RMA Department
1914 Plymouth St., Mountain View, California 94043
TEL: (408) 773-8240 FAX: (408) 773-0514
e-mail: rma@codar.com

RMA No. _____ Date: _____

Client Shipping Address:	Client Billing Address:
Attn:	Attn:

Client Contact Person: _____ Email: _____

Item #	Hardware Description	Serial Number
1		
2		
3		
4		

Reported Problem:	Troubleshooting Attempted: ☐ COS Support Assistance?

Special Notes:

* Note: for hardware not on warranty, a minimum $400 analysis & repair fee will be assessed. If the internal equipment is observed to be dirty and/or corroded, a $300 cleaning charge may apply.