

SEANET-EQUIPPED SHIPS

Current SeaNet-equipped ships:

- R/V *Atlantis*
- R/V *Ewing*
- R/V *Knorr*
- R/V *Melville*
- R/V *Pelican*
- R/V *Seward Johnson*

There is also a portable SeaNet unit available for installation, which has been successfully used on the R/V *Revelle*. The below-deck equipment occupies approximately half the space of a permanent SeaNet unit.

If you have an upcoming cruise on one of these ships and are interested in possibly using SeaNet for high-speed data transfers, contact the ship's home operator's office or send an email to seanet-ops@seanet.int.

SeaNet Partners

Woods Hole Oceanographic Institution (WHOI): Responsible for the SeaNet network architecture and the design, development, and maintenance of the SeaNet communications system software.

Lamont-Doherty Earth Observatory (LDEO): Responsible for maintenance and operational management of the shipboard hardware/software package.

Geosciences Professional Services, Inc. (Geo Prose): Responsible for liaison with government agencies, research fleet operators, and the scientific community.

CONTACT SEANET

SeaNet Operations

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SeaNet Installations

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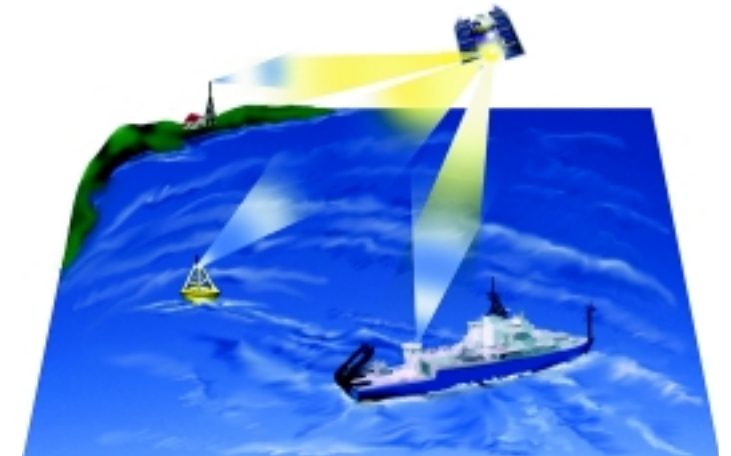
SeaNet offers technical support Monday through Friday, 9-5 EDT.

www.seanet.int

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SeaNet

Extending the Internet to the
Oceanographic Research Fleet



SEANET FEATURES

SeaNet is a collaborative project to extend the Internet to ships at sea using a robust, flexible, cost-effective technology.

Key SeaNet Communications Node Features:

- **BATCHFILE TRANSFERS VIA DATAPIPES:** Transfer large files to shore for processing and have them transferred back to the ship in the most cost-effective manner. Older Inmarsat units transfer data at roughly 9600 bits per second as compared to SeaNet's newer technology, which operates at 64,000 bits per second (actual throughput may vary). Large files such as side-scan sonar data, satellite imagery, scientific plots, and video clips are easily transferred to destination computers on the Internet.

SEANET SCENARIO: Meteorological sensors are installed on several SeaNet-equipped ships. Sensor data are collected by shipboard data-logging software designed by shipboard scientists. In addition to providing access to shipboard scientists, the software is modified so that it places one-minute data subsamples for each sensor in a directory on the shipboard computer. Each time the SeaNet link is brought up, the files in the directory holding the meteorological data, which has been configured as a SeaNet DataPipe, are compressed into a single file and sent across the link to shore. The shipboard files are deleted once it is verified that the shore-side node has received them. Shore-side software processes the data immediately and makes it available on the scientific team's shoreside web site.

- **INTERACTIVE INTERNET CAPABILITY:** SeaNet systems can transparently connect one or more shipboard computers directly to the Internet. The computer responds as if it were on a 64,000 bits per second link on shore. SeaNet-supported cruises have used this capability for web-browser sessions, ftp transfers of vendor-supplied software updates, and data-center queries, among others. The only difference noticed by users is the associated per minute satellite communication costs.

SEANET SCENARIO: A sophisticated oceanographic instrument package is designed for deployment from a winch on a conducting cable. It is also equipped with an ethernet port for on-deck data download, diagnostics, and reprogramming. The package malfunctions, and the diagnostics are not making sense. The shipboard technician connects the instrument to the ship's LAN via an ethernet port. He then opens an interactive SeaNet connection, effectively connecting the ship's LAN to the LAN at his lab. The instrument designer uses the interactive link to upload new software, fixing the problem.

- **WEBMIRRORING:** Keep your ship and shore web sites updated automatically while at sea. SeaNet systems can be configured to associate any ftp-accessible directory on the Internet with a directory on a shipboard computer. Files dropped in one directory are transferred to the other every time the SeaNet link is activated.

SEANET SCENARIO: A shipboard drop box is created on a shipboard ftp server so that shipboard investigators and a student reporter can leave photos, digital movies, journal entries, and stories in it as the cruise proceeds. Each time SeaNet connects to shore, the dropbox contents are delivered to a shoreside ftp server for pickup by the web designer. At the same time, changes made to the shoreside web site are mirrored to the shipboard web site so that shipboard personnel can view a copy of the shoreside web site while the SeaNet link is down.

Other Key SeaNet Features:

- **VIDEO CONFERENCING:** The SeaNet support group has successfully demonstrated video conferencing over the SeaNet system with Netmeeting. A notebook computer running Windows along with an inexpensive web video camera is set up on board ship, and a corresponding unit is set up on the Internet. An interactive Netmeeting session is initiated on the ship, which establishes a full duplex video and audio connection. The user can simultaneously run applications such as whiteboarding, file-sharing, and web-browsing.
- **ACCOUNTING ESTIMATOR:** SeaNet provides a shipboard accounting utility that permits users to monitor spending on DataPipe and interactive Internet services. This feature also allows ship operators to break down costs for high-speed data usage over the SeaNet link to the investigator/project level.
- **CMAIL:** SeaNet now offers an email package as an alternative to existing shipboard email systems.