

NOAA VENTS Program

Sea Grant Legal Program

Teacher-At-Sea



What if we could take a look at volcanoes like this one underwater? NOAA's VENTS Program does just that. One such mission visited the Juan de Fuca ridge in 1998.



John Duff
assists in
deploying an
instrument to
the ocean.

Legal Program attorney John Duff took part in the scientific research of the VENTS Program through participation in **NOAA's Teacher-At-Sea Program** which allows teachers of marine-oriented subjects to gain hands-on experience on a NOAA research vessel and to take the experiences back into their practices and classrooms.

In the mid-80's, scientists discovered significant volcanic and hydrothermal vent activity off the coast of Washington and Oregon in the vicinity of the Juan de Fuca ridge, a submerged mountain range-like area that includes the caldera of a long dead underwater volcano.



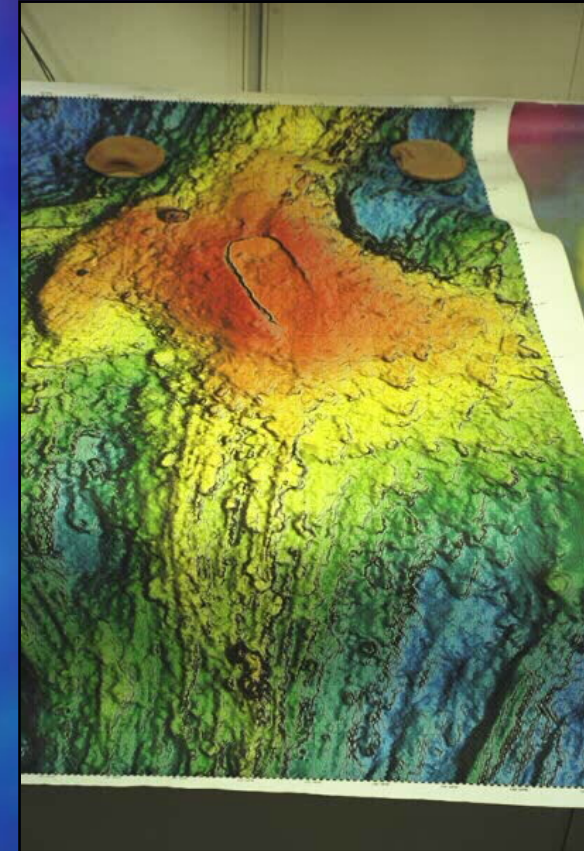


The *Ron Brown* leaves the port of Newport, Oregon.

From July 30th to Aug. 15th, 1998, the NOAA research ship *Ron Brown* served as the floating laboratory to study volcanic

activity that occurred there only months before. It would be the first opportunity to retrieve scientific equipment that recorded the activity. Participants in the Teachers-At-Sea Program assisted in the retrieval.

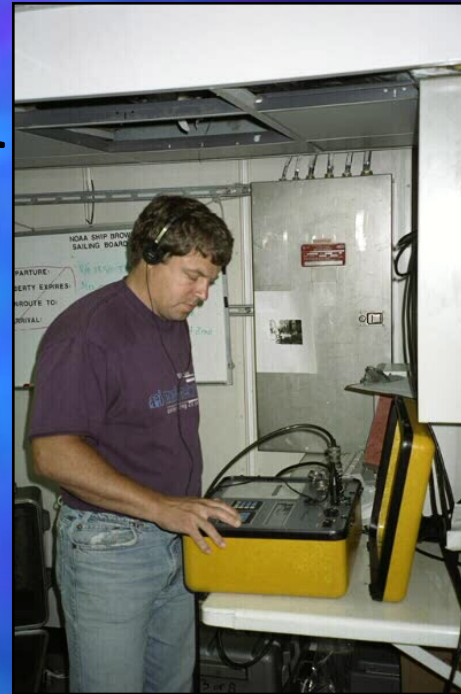




Dr. Sharon Walker, Dr. Ed Baker and John Duff review maps on the *Ron Brown* to track their position in the vicinity of hydrothermal vents. Instruments deployed earlier in the year to measure seismic activity as well as physical and chemical conditions would be retrieved. New instruments would be placed in the area and shipboard directed experiments would be conducted.

The Retrieval

To retrieve the instruments, an electronic transceiver is lowered overboard the ship to “talk” to the coupling device on the mooring line. Once the shipboard device locates the instrument line, a signal is sent to release the buoyed mooring line from the weight anchoring it to the seafloor. If the device has not been compromised by the seismic activity (or any other problems), the connected instruments begin their slow ascent to the surface.



Geoff listens for the location of a scientific instrument that has been taking data on the ocean floor for over 6 months.

It then becomes a contest between crew members as to who can first spot the buoy as it reaches the surface.

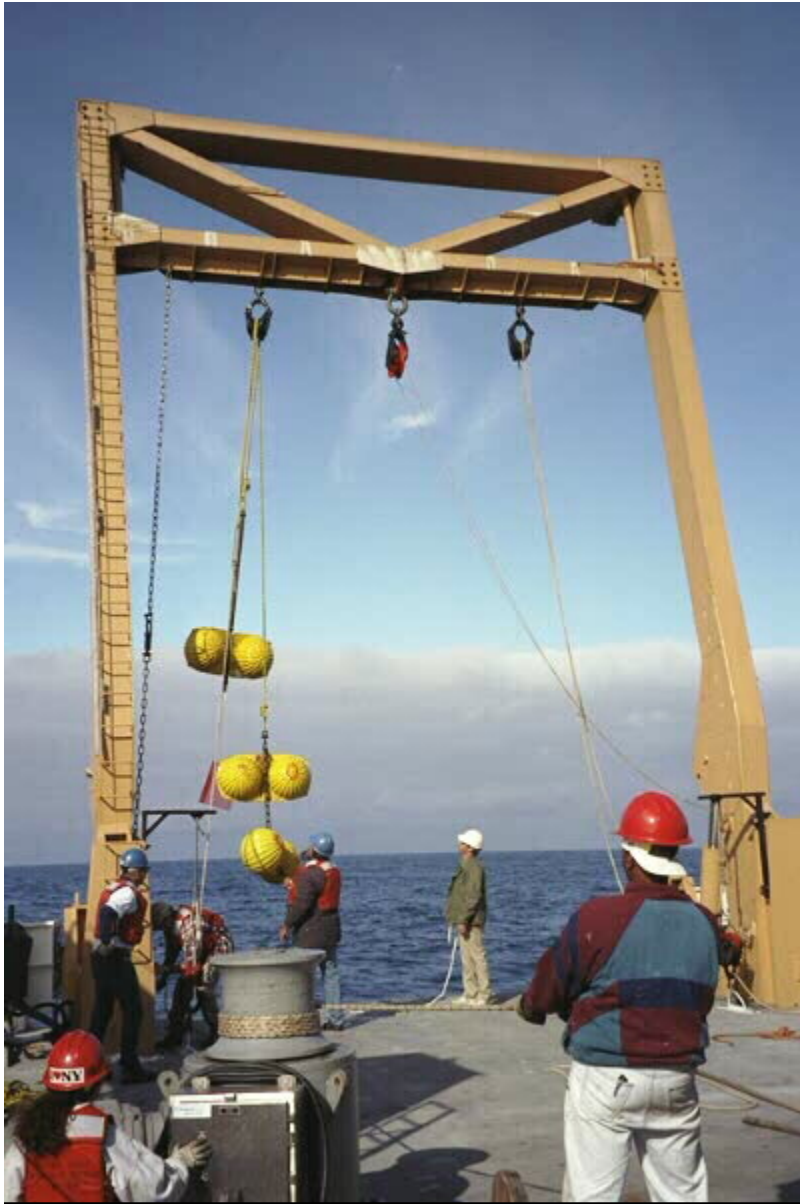


The buoy pops to the surface with its valuable data in tow.



The buoys and their instruments are retrieved from the water.





And, onto the ship.

The CTD



Members conducted onsite monitoring, as well, by deploying a **conductivity-temperature-depth instrument (CTD)** to the ocean's bottom and towing it over the area to take a “look” at the bottom activity.

Niskin bottles (the torpedo-shaped tubes) are loaded, with the CTD in order to take water samples from the bottom.

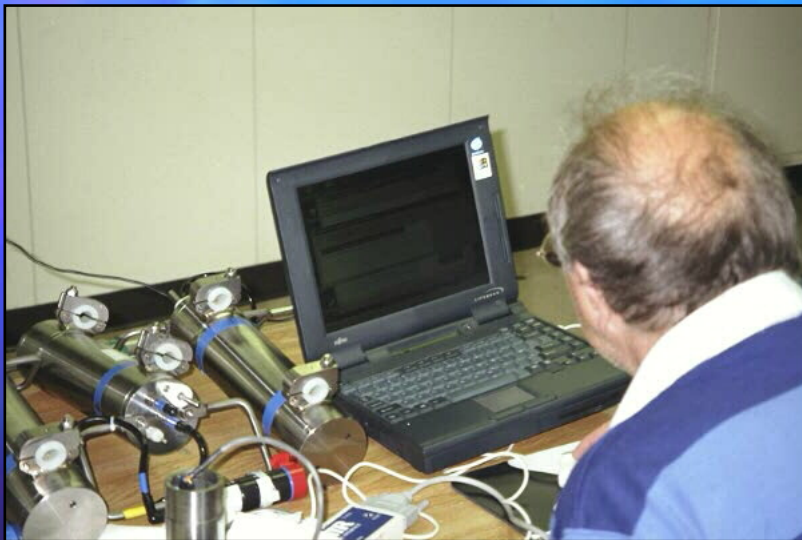
After being towed to within meters of the ocean floor, the CTD is raised, retrieved from the ocean and brought to the ship.



The water samples which measure salinity, temperature, and presence of isotopes as well as biological matter, are taken from the Niskin bottles.

The Data

Some of the data can be downloaded from the smaller instruments to a computer which reads and tracks the scientific information. This information is then recorded for future use.



Dave downloads data.

Geoff records mission





Crew members as well as science team members took part in emergency drills.

For more information. . .

Contact *John Duff* at the Sea Grant Legal Program at 662-915-7775 or jduff@olemiss.edu

• Visit the *Teacher at Sea Program Webpage* at www.nwn.noaa.gov/sites/tas/ .

Visit *NOAA's VENTS Program Webpage* at www.pmel.noaa.gov/vents/home.html .

Or, visit the Legal Program *Slide Show Page* or *Coastal Links Page* for other coastal information.

Credits

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