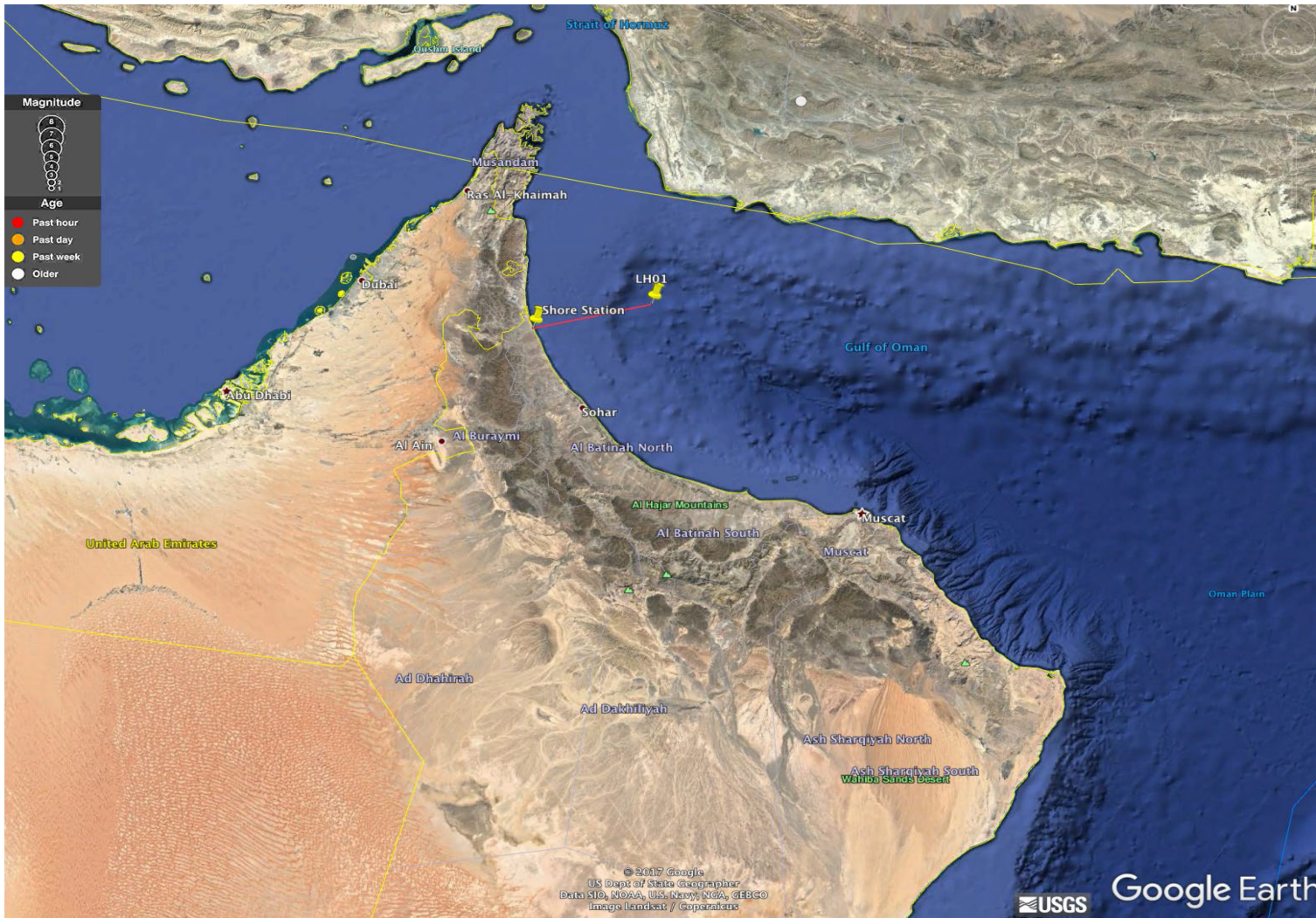




LIGHTHOUSE® REALTIME SEAFLOOR SEISMIC STATION

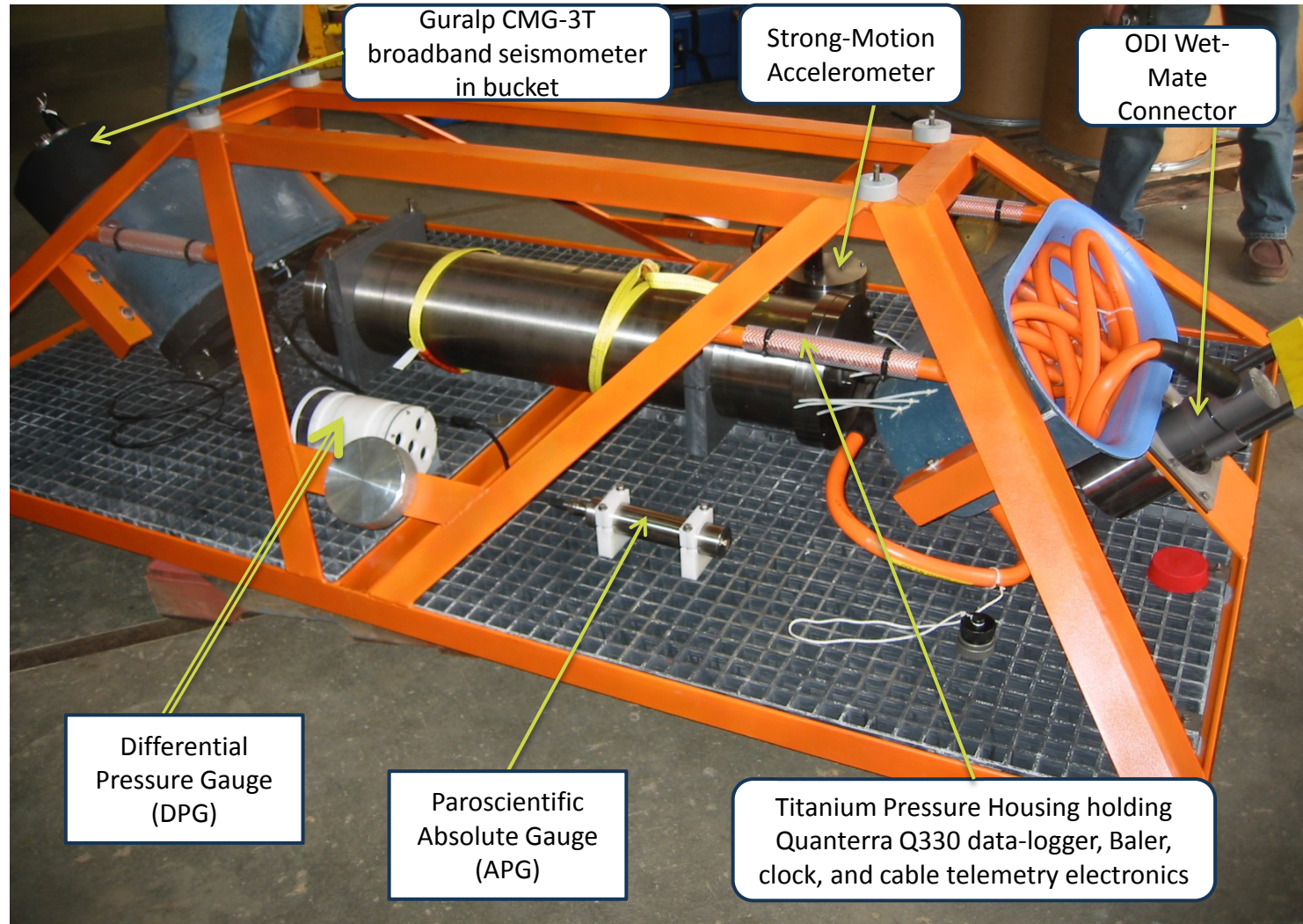
WHOI Ocean Bottom Seismograph Laboratory

Location



In 2006-2007, the WHOI OBS Lab was contracted by Lighthouse, Inc. of Houston, TX to design and build two real-time seismic stations, one of which was deployed in the Gulf of Oman where it was connected to a fiber-optic cable running from a shore station in northern Oman approximately 80 km away. The WHOI OBS Lab also participated in the station deployment.

Design



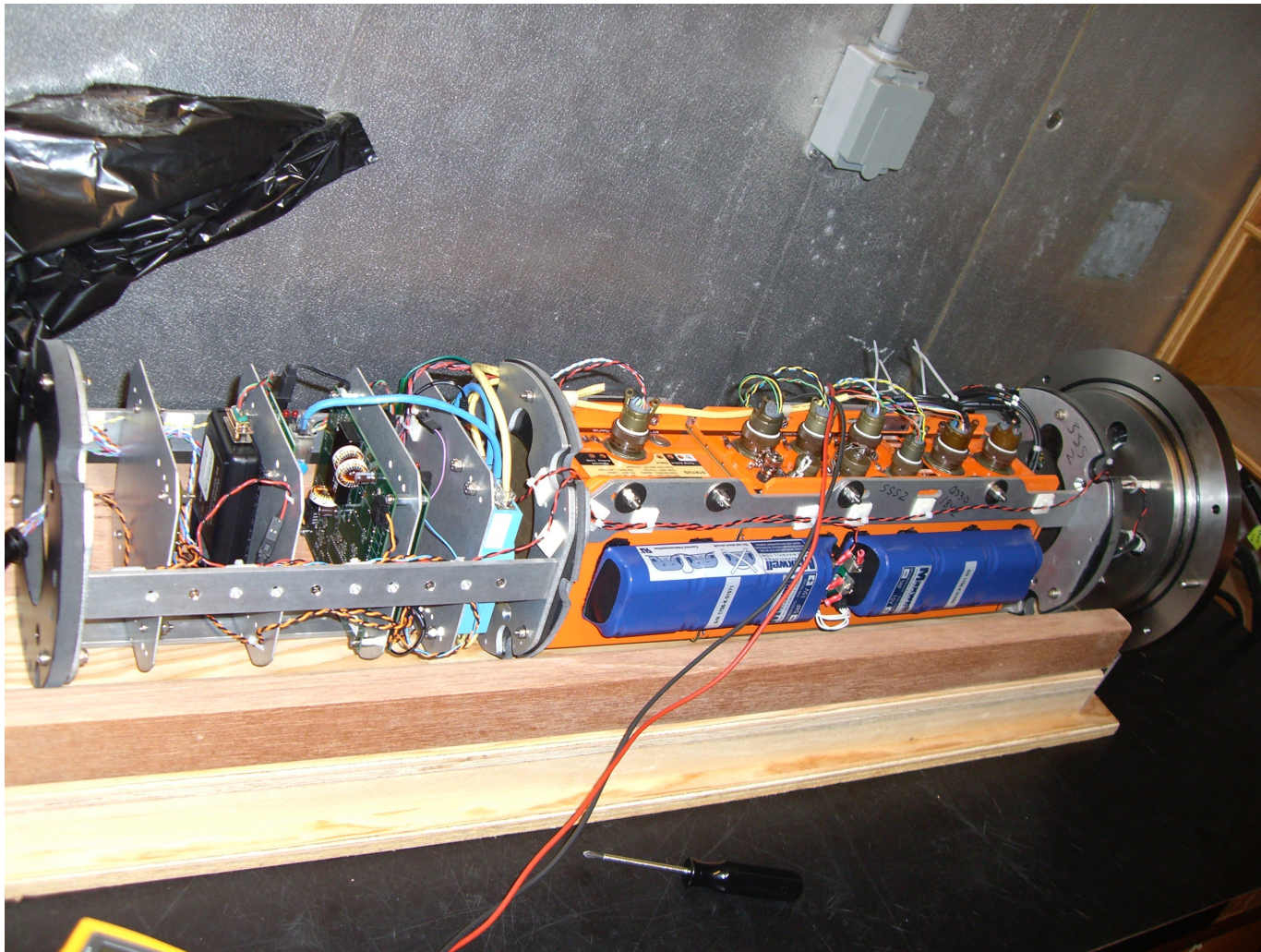
The seafloor station record ground-motion on a broadband seismometer and a strong-motion accelerometer. The seismometer is designed to be buried in the seafloor. Pressure signals are recorded on a differential and absolute pressure gauges.



The Teledyne-ODI wet-mate connector and pressure-balanced oil-filled hose sit at one end of the frame, where they can be readily accessed by ROV. The frame and its trawl-resistant cover were designed and constructed by Mooring Systems Inc. of Cataumet, MA.



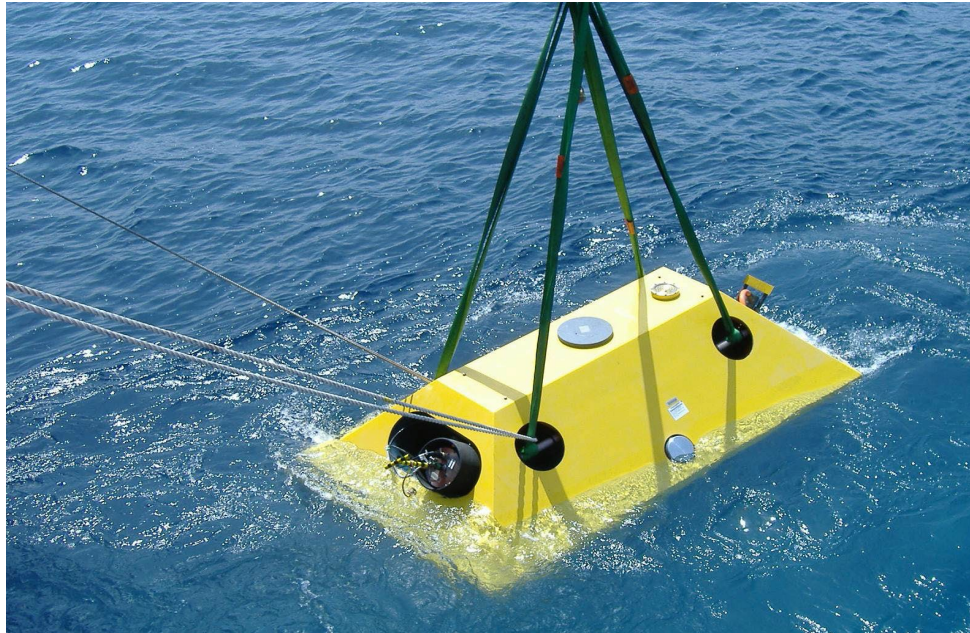
The broadband seismometer and cable sit in ROV-accessible buckets at the other end of the frame. The seismometer pressure housing has a slot for a T-bar so that the ROV can pick it up and bury it in the seabed.



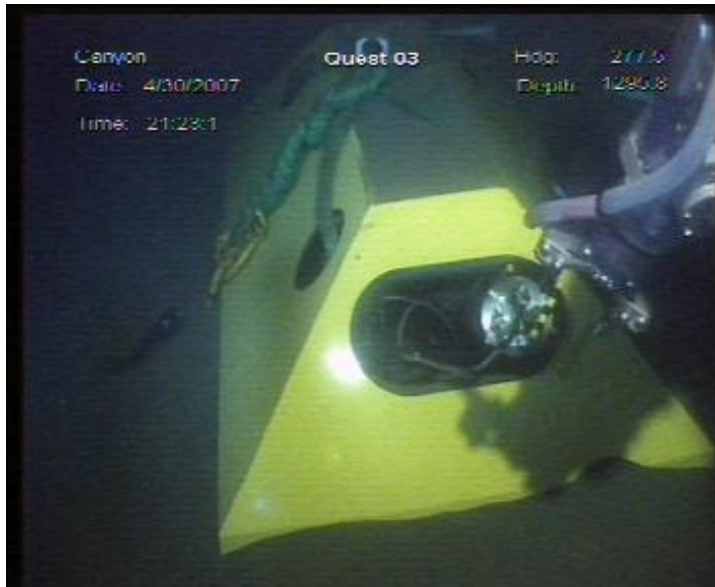
A view of the Quanterra Q30 datalogger and field Baler mounted on a chassis that fits inside the main pressure housing. The blue packages are super-capacitors.



The systems was deployed in the Gulf of Oman from an ROV support vessel. ROV operations were carried out by Canyon Offshore.



(top left) Deployment of the trawl-resistant frame. The broadband seismometer and wet-mateable connector sit in buckets at left and right. (top right and bottom left) The ROV begins to pay out the wet-mateable connector and oil-filled hose.



The ROV grabs hold of the seismometer and pushes it into the seabed some distance from the trawl-resistant frame.