



FOCUS ON . . .



DEEP WATER WORK & OTHER CHALLENGING ENVIRONMENTS

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The AquaMap RBS-2D Transponder Mounted on MIR-2

Oil exploration, science and salvage are pushing the frontier of ocean depth. Deep ocean exploration requires tools that are not only reliable but also meet the increasingly demanding standards for precision, efficiency and quality of work.

Desert Star Systems supports deep water projects with a range of innovative solutions for precision survey, navigation, data collection and acoustic communication. Past applications have included a scientific data collection and telemetry system that was used in the Marianna Trench and the design of a 6,000 meter rated electronic still camera.

In 1998, Cape Verde Explorations (CVE, at www.cveltd.com) purchased an AquaMap long baseline system for the survey of the Japanese I-52 submarine. The I-52 was on its way to Germany with an assorted cargo, including precious metals, when it was sunk by American forces in the mid-Atlantic in 1944. Now resting at a depth of 5,240 meters, the I-52 project is the deepest wreck exploration in history.

CVE located the I-52 in 1995 using a sled mounted side scan sonar. The sonar and camera images from the sled showed a substantial debris field near the wreckage of the submarine itself. In 1998, CVE returned to the I-52 for a detailed survey of the site. The Russian research vessel Mstislav Keldysh with its two MIR submersibles was chartered for the project. The manned MIR submersibles are perhaps best known for their participation in the movie Titanic.



Deep Water Products

CVE chose an AquaMap long baseline survey system to guide the search. Because the precious metals are just a fraction of the cargo, CVE needed AquaMap's ability to conduct a search with sub-meter accuracy. Other advantages of AquaMap included: its chart overlay and annotation capabilities, data post processing features, and its ability to operate within the confined environment of a deep ocean submersible.

A vehicle transponder was installed on each MIR and three baseline transponders were deployed around the wreck site. Using this configuration, a total of fourteen dives (seven by each MIR) were executed. Data from each dive guided the following dives. Near the end of the series, the debris field was densely covered by several thousand position fixes, and MIR was running into the areas that had not been recorded yet. While the cargo recovered during this mission did not include any precious metals, the survey did yield the data needed to plan the next step of the I-52 project.

On-Site Support

Deep ocean operations are expensive and complex. Desert Star Systems minimizes your risk with on-site engineering support and training. The I-52 mission benefited greatly from on-site support. Tests revealed the emission of very high levels of broad-band noise by MIR. Preventive action successfully minimized interference. When new data processing and navigation requirements arose during the mission, software changes were implemented on the spot. Leases are also available if you do not wish to own the equipment.

Other Challenging Environments



Sonar Transducer Listens Through a Tank Wall



The Solex Tank Inspection Robot with AquaMap

While deep water operations place stringent demands on technology, many other environments are also challenging. Our products are probably used in a greater variety of environments than any other acoustic positioning and communication equipment. For example, oil pollution was mapped in a wind swept Aleutian lake that is less than four feet deep in places. Our systems also guide robots in refinery tanks, and divers inspecting the hulls of vessels. Projects in harbors, on noisy tropical reefs and in kelp forests are common as well. Desert Star Systems hardware also helped map a hyper-saline lake and establish “through-the-mud” wireless communication with instruments buried under the sea floor.

At Desert Star Systems we are ready to support your operations with products and expertise in any environment.

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