MARINE TECHNOLOGY REPORTER

May 2006
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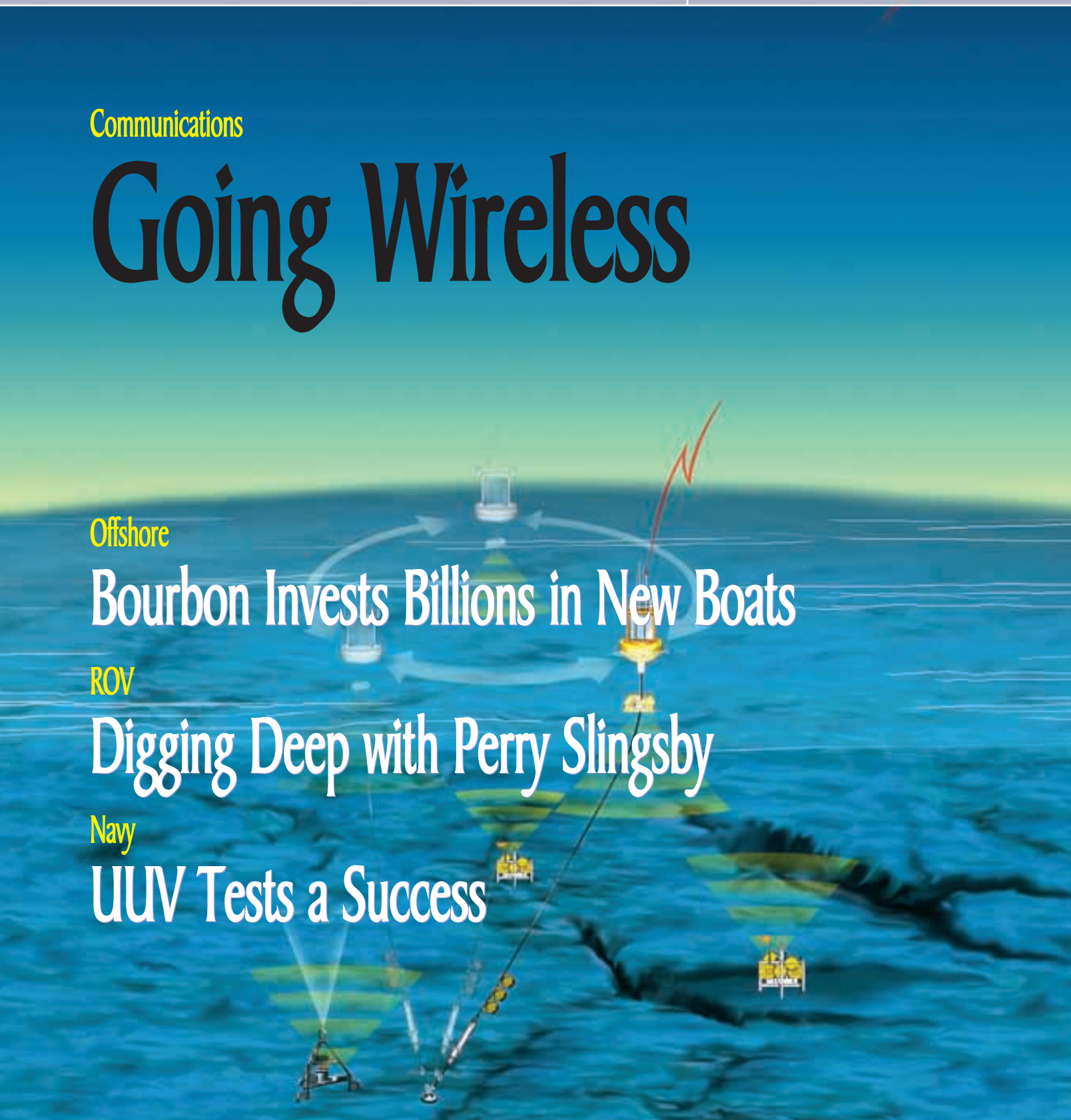

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May 2006

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In the Background: A Hydrex diver cleans an underwater area in preparation for welding. See story on page 40.

editorial

In the wake of an outstanding Offshore Technology Conference held in Houston earlier this month, signs clearly point to a continued buoyant offshore energy market for the long term. Based on history, it is foolhardy to believe the oil and gas market will not experience its historic roller coaster ride. However the emerging trend of the continued push to cost-efficiently discover and recover oil and gas in increasingly deep waters bodes well for a very broad sector of the undersea technology market, as more than ever the oil and gas industry is dependent on next-generation technologies to not only identify resources, but to install, maintain and repair production facilities in deeper, more hostile and unpredictable environments. All of the companies who are working 24/7 to return Gulf of Mexico oil and gas operations to 100 percent in the wake of hurricanes Katrina and Rita of nine months ago will surely attest to that.

Greg Trauthwein
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Companies & People with editorial mention in this edition

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on the Cover

The Nootka acoustically linked deepwater observatory is like a wireless computer network: Instruments and users may come and go from the system, sending and receiving data without upsetting the other users and without the fuss of attaching cables. (See story on page 22)

Illustration by E. Paul Oberlander, Woods Hole Oceanographic Institution

the Authors

Maggie Linskey Merrill is the founding editor and publisher of *Marine Technology Reporter*. She has 20 years experience communicating marine science, technology, environmental and engineering news and information. She has held positions at the Woods Hole Oceanographic Institution, Massachusetts Institute of Technology, HA Perry Foundation and Sea Data Corporation. In 1993 she founded *MTR* and the Marine and Oceanographic Technology Network (MOTN). **(Story on page 26)**

Mike Carlowicz is a science writer for Woods Hole Oceanographic Institution. He has written hundreds of articles about earth, space, and ocean sciences, and his latest book is entitled *The Sun*, published by HN Abrams.
(Story on page 22)

also in this Edition

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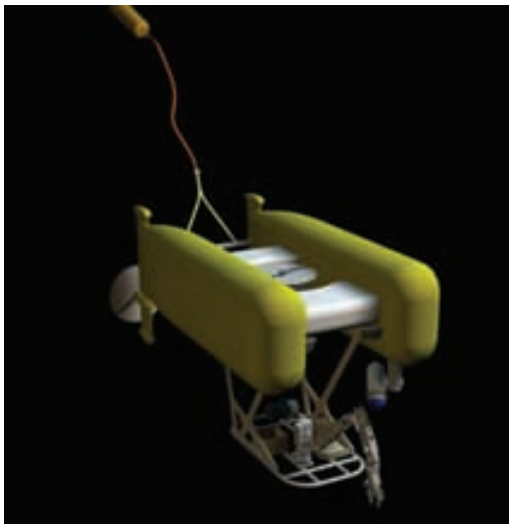
A Thin Line to a Deep Trench



HROV in ROV Mode.
(Photo Credit: Jack Cook, ©Woods Hole Oceanographic Institution)

The cable is nearly as thin as a strand of human hair and stretches 20 miles (32 km) long, far enough to reach into Earth's deepest seafloor trench. On an April 2006 expedition to the Marianas Trench, Woods Hole Oceanographic Institution (WHOI) engineers were set to give the new cable its first test in extreme depths. Ultimately, the cable will be used to relay real-time data and communication between shipboard researchers and a deep-sea vehicle under construction called the Hybrid Remotely Operated Vehicle (HROV). Just 250 mircons in diameter, the cable will allow HROV to maneuver at depths of 36,000 ft. (10,972 m) without the drag of heavy cables on traditional deep-sea vehicles.

(Source: Oceanus, Vol. 45, No. 1, April 2005)

VideoRay Releases Images of Ship Grounding

VideoRay LLC released images taken underneath Empress of the North, a grounded cruise ship. When the U.S. Coast Guard's Maritime Safety and Security Team (MSST) 91101, based in Seattle responded to the grounding of the 360 ft. passenger overnight sternwheeler, a VideoRay ROV was used to investigate the conditions under the hull.

A cracked seam.
(Screen Capture of the VideoRay Video Feed. Photo Credit: Seattle USCG MSST)

A hull breach. Just to the right of the date is a tear in the hull (dark jagged area in the middle of the white.
(Screen Capture of the VideoRay Video Feed Photo Credit: Seattle USCG MSST)

French Navy Loses $3.6M Sonar

The French navy reported that it had lost a multi-million dollar sonar navigation device after its cable ripped in stormy waters. French defense minister Michele Alliot-Marie confirmed a report in the country's satirical weekly Le Canard Enchaine, and said an investigation had been launched into how the device was mislaid. Le Canard Enchaine reported that the captain of the De Grasse frigate decided, against his lieutenants' advice, to try out the 10-ton sonar in rough seas in an exercise in the south western Gulf of Gascony on March 24. The device is one of the most sophisticated in the world, capable of detecting an enemy submarines 150 km away.

Empress of the North.
(Photo Credit: Seattle USCG MSST)

Shortly after deploying VideoRay, the MSST saw dramatic images as the robot swam under the vessel and revealed that a large boulder had actually punctured the hull. The salvage team had initially thought the vessel was on smooth sand, but the video footage from the ROV showed that the original flotation plan could be catastrophic. The team immediately worked out a new refloating plan, which was ultimately successful.

An official commendation to those involved from the Coast Guard by Captain Patrick G. Garrity, Commanding Officer of Sector Portland, included "The underwater video provided by MSST Seattle's ROV proved very helpful in planning the salvage operation."

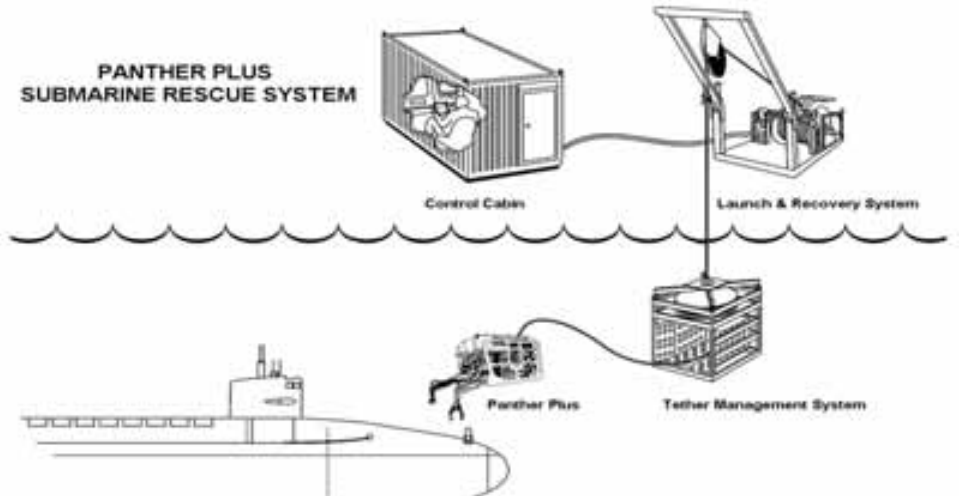
During the process of investigating the hull, the VideoRay was tossed about "as if we were in a washing machine on the super spin cycle" according to the MSST operating team.

This was due to the swift currents - over four knots at times - in the very tight space under the hull. However, this unit was recently upgraded with GTO (Greater Thrust Option) propulsion and, along with expert operators, accomplished its mission.

The Empress of the North ran aground Friday, March 24 on the Columbia River, near Washougal, Wash.. Aground, it sat at an 8 to 10 degree list. All of the 233 passengers and most of the ship's non-essential crew were safely transferred off the vessel.

Russian Navy to Fly ROV to Sub Emergencies

The Russian Navy is setting up a rapid response, air transportable rescue system that can be rushed to the assistance of stricken submariners. The underwater Remotely Operated Vehicle (ROV) that forms the main part of this package will come from Seaeye Marine, who has been awarded the contract to supply its half-ton Panther Plus electric powered work class ROV system. The need for a rapid response system follows lessons learned from the recent rescue of the Pritz AS-2S mini submarine and her seven man crew by a Royal Navy ROV that was air lifted from the U.K. to the Russian Far East in August last year. Seaeye's Panther Plus will be fitted with sonar and an acoustic tracking system to assist locate and position a distressed sub-



Sentry Goes for a Swim

WHOI Engineers recently conducted the first deepwater dunk for Sentry, a new autonomous, fast-moving, four-winged vehicle that is slightly smaller than a Volkswagen Beetle. Trials allowed engineers to see how Sentry handled in depths to 16,400 ft. (5,000 m)

(Photo Credit: Tom Kleindinst, ©Woods Hole Oceanographic Institution)

GD to Build 'Sea Robots'

General Dynamics Corp. (GD) won a $8.5 million contract to build two sea robots for the U.S. Navy.

The unmanned surface vehicles will be part of an antisubmarine warfare package for the Littoral Combat Ship, a new U.S. Navy vessel designed to chase down enemy forces in coastal waters. The sea robots will carry a variety of sensors and will have the ability to operate autonomously. These sensors include sonar, listening devices and towed arrays of information collectors.

General Dynamics said its contract covers up to four of the robots. If all options are exercised, the deal could be worth $11.3 million.

marine as well as a full suite of color and low light black and white video cameras to provide rescue planners with underwater pictures of the submarine on the seabed. The ROV will also be fitted with two manipulators, an eight-inch rotary disc cutter and a hydraulic guillotine cutter with a capacity to cut up to 38 mm wire rope and assist with debris clearance. This ROV, which also has the capability of inserting emergency life support stores into a distressed submarine, is able to connect hoses and lines to a submarine's salvage connections to help keep the crew alive while waiting for their rescue. The complete package includes a Seaeye tether management system (TMS) which acts as a subsea garage for the ROV out of which it is flown when it reaches the operational depth. A winch and 'A' frame that has been specially modified for air transport will be provided to launch and recover.

FarSounder Selected for DHS Project

FarSounder was selected by the Department of Homeland Security to develop a prototype Underwater Threat Detection System for port security applications. This $750,000 Small Business Innovative Research (SBIR) Grant is a result of a recently completed Feasibility Study and Proof of Concept testing at Quonset Point, RI. That project was part of FarSounder's Homeland Security Advanced Research Projects Agency (HSARPA) Phase I SBIR.

The FarSounder team's goal is to produce a low cost commercialized 3D sonar system for underwater threat detection, and to provide the first underwater port security system practical for use in all U.S. ports and along extensive areas of U.S. coastlines and inland waterways.

IODP Research Team Penetrates Fossil Magma Chamber

In the Pacific Ocean, approximately 800 km west of Costa Rica, scientists aboard the research drilling ship Joides Resolution have, for the first time, recovered black rocks known as gabbros from intact ocean crust. The scientists, working for the Integrated Ocean Drilling Program (IODP), drilled through the volcanic rock that forms the Earth's crust to reach a fossil magma chamber lying 1.4 km beneath the seafloor.

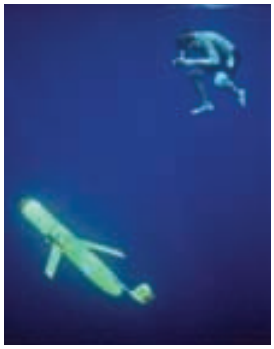
"By sampling a complete section of the upper oceanic crust, we've accomplished a major goal scientists have pursued for over 40 years, since the days of Project MoHole," said Damon Teagle, National Oceanography Center, University of Southampton, U.K., and co-chief scientist of the drilling expedition. "Our achievement will ultimately help science answer an important question, 'how is new ocean crust formed?"

Project MoHole, begun in the 1950s, endeavored to drill all the way through the ocean crust and into the Earth's mantle. Co-chief scientist Jeff Alt, of the University of Michigan, said that, "Having this sample from the deep fossil magma chamber will allow us to compare its composition to the overlying lavas. It will help explain whether ocean crust, which is about six- to seven-kilometers thick, is formed from one high-level magma chamber or from a series of stacked magma lenses."

(Photo Credit: IODP/TAMU)

Glimpses of Gliders

David Sutherland, an MIT/WHOI Joint Program student in the Physical Oceanography department, joined an ascending glider during a test in the Bahamas in January 2003. (Photo by Dave Fratantoni, Woods Hole Oceanographic Institution)

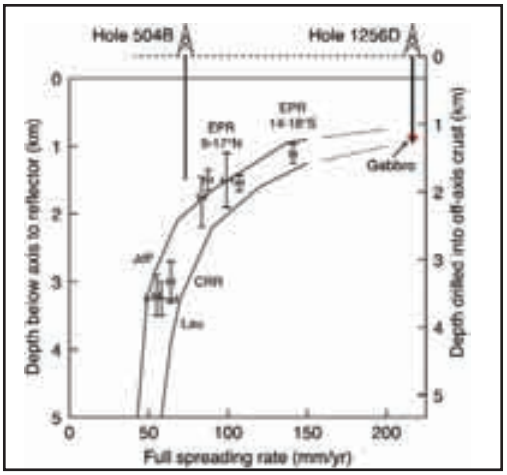


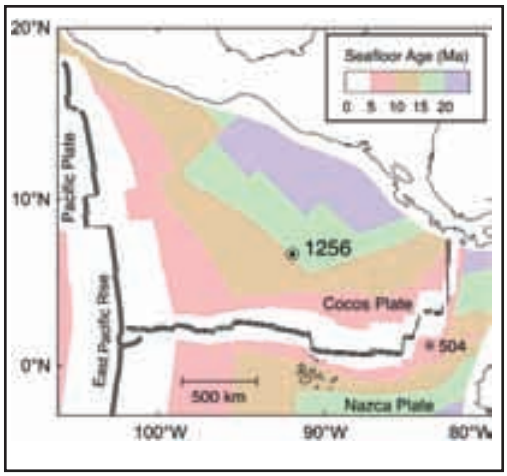
He said, "The size and geometry of the melt lens affects not only the composition and thermal structure of the ocean crust, but also the vigor of hydrothermal circulation of seawater through the crust." Alt explains that such systems lead to spectacular black-smoker vents ancient copper deposits, and oases in the deep ocean that support exotic life.

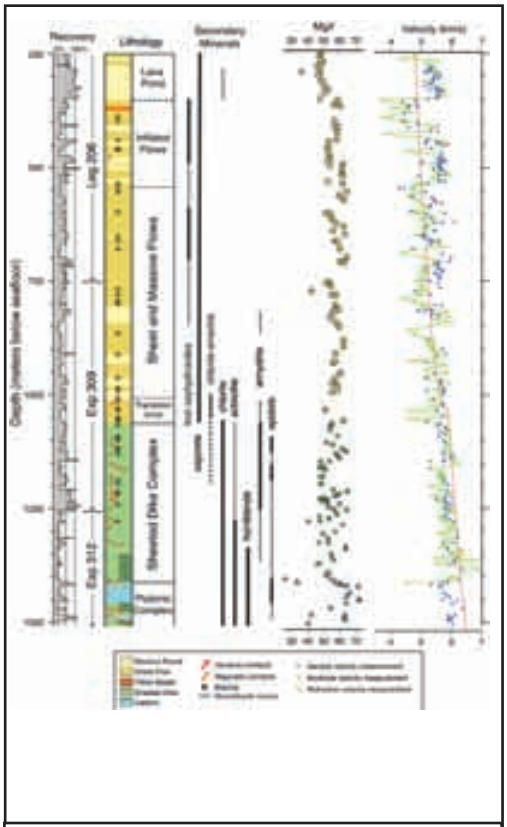
Jamie Allan, IODP program director at the U.S. National Science Foundation, said, "These results, from drilling into the structural heart of Pacific crust, are exciting and confirm ideas from seismologic interpretation about how fast-spreading oceanic crust is built. They further refine our understanding of the relationship between seismic velocity and crustal rock composition, and open new vistas for investigating the origin of lower oceanic crust that can best be addressed by deeper drilling."

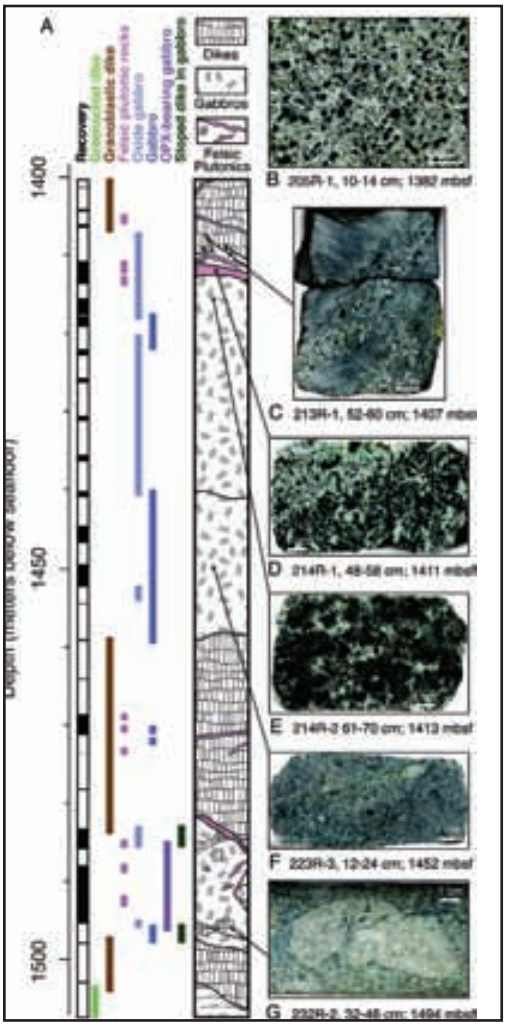
Geophysical theories have projected that oceanic magma chambers freeze to form coarse-grained, black rocks known as gabbros, commonly used for facing stones on buildings and kitchen countertops. Although gabbros have been sampled elsewhere in the oceans, where faulting and tectonic movement have brought them closer to the seafloor, this is the first time that gabbros have been recovered from intact ocean crust.

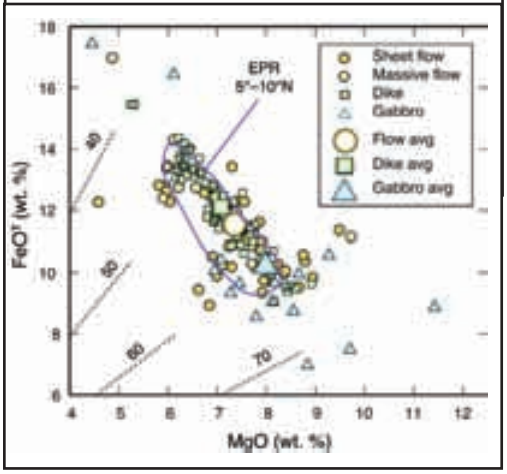
"Drilling this deep hole in the eastern Pacific is a rare opportunity to calibrate remote geophysical measurements such as seismic travel time or magnetic field with direct observations of real rocks," said geophysicist Doug Wilson, University of California, Santa Barbara. Co-chief scientist on an earlier expedition to the same











(All Graphs courtesy of Science)

Wet Laptop

This extremely rugged laptop caught our eye while at OI in London. Terralogic manufactures several models. What is pictured is the Tough Note Series 4. They can withstand being submerged, being frozen and even heated. www.terralogic.co.uk

Photo credit: Maggie L. Merrill

drilling site, Wilson was responsible for selecting the site. In addition, Wilson originated the idea for these missions through study of the ocean crust's magnetic properties. "Finding the right place to drill was probably key to our success," Wilson said. His research identified a 15-million-year-old region of the Pacific Ocean that formed when the East Pacific Rise was spreading at a "superfast" rate (more than 200 mm per year), faster than any mid-ocean ridge on Earth today.

"We planned to exploit a partially tested geophysical observation that magma chambers should be closest to the Earth's surface in crust formed at the fastest spreading rate. If that theory was indeed correct, then we should only need to drill a relatively shallow hole, compared to anywhere else on the planet, to reach gabbros." Wilson and his colleagues were proven correct.

After three years of research and multiple trips to the site in question, the borehole that rendered the magma chamber is more than 1,500 m deep and took nearly five months at sea to drill. Twenty-five hardened steel and tungsten carbide drill bits were used before the scientists' work was complete. The rocks directly above the frozen magma chamber were extremely hard because they had been baked by the underlying magmas, much like tempered steel. IODP scientists already plan to return to the site of the unearthed magma chamber and explore deeper, in hopes of finding more secrets hidden deep within the ocean's crust.

Mars Production to Resume

Shell Exploration & Production Company is ahead of schedule to restart production from its Mars Tension Leg Platform (TLP), the company reports. To signal resumption, Shell began to notify the appropriate Gulf of Mexico mid-stream transportation, marketing businesses and downstream customers to secure sales for initial, post-Katrina, oil and gas production. Mars is the largest producing platform in the Gulf of Mexico that was affected by Hurricane Katrina, representing about five percent of current Gulf of Mexico daily production.

"Reviving this vital energy source for America prior to the peak summer driving season would not have been possible without the tremendous work of the Shell team," said Marvin Odum, Executive Vice President and head of Shell Exploration & Production in North and South America. "The Mars platform recovery and deepwater pipeline repairs were among the most technologically complex operations in the world, and our people were up to the task, completing the work safely and ahead of schedule."

Based on progress to date, Shell expects that construction activity necessary for initial production at Mars would be complete by the end of April. A brief re-commissioning and start-up process will follow, and partial production is expected to resume in the second half of May. Mars production is expected to be restored to pre-Katrina rates by the end of June.

By the end of 2005, Shell had repaired all of its hurricane-damaged facilities except Cognac and Mars, restoring over 75 percent of its total pre-Katrina production rate.

The Mars TLP and wells survived the extreme Katrina weather conditions, but the platform drilling rig and some major elements of the topsides production equipment were heavily damaged. In restoring the Mars TLP and its Pipelines, Shell accomplished:

- Three months of preparation, planning and work on-site led to the successful lift of the damaged, 1,000-ton, Mars platform rig in two pieces from its awkward toppled position on the platform deck. The damaged sections of the rig were transported to shore for repairs.
- The rig was removed without damaging the important High Pressure Gas treatment vessel that was under the rig, an accomplishment that helped to shorten the recovery time at Mars.
- Engineers, construction specialists, technicians and other support staff accomplished an industry-first deepwater pipeline project, successfully repairing the Mars oil and gas export pipelines in 2,700 ft. of water using underwater robotics to execute tasks normally performed by divers in shallow waters. The oil and natural gas export lines were damaged as a result of a drifting semi-submersible deepwater drilling rig that dragged an anchor across the lines during the storm. The 18-in. oil line and 14-in. gas line have both been repaired, and integrity testing has been successfully completed. Both lines are commissioned and ready for service once Mars production resumes.

In addition, the Mars flexjoint (the pipeline connection to the TLP) repairs, scheduled prior to the 2005 hurricane season but delayed due to loop currents, were completed during the Mars recovery effort.

- To accommodate the living quarters and deck area needed to perform the varied work tasks, Prosafe Offshore's Safe Scandinavia accommodation semi-submersible journeyed from the North Sea to the Gulf of Mexico for the first time. The six-story vessel with lodging for more than 500 people successfully deployed the Shell supplied Deepwater mooring system in record water depth for this vessel.

New Dive Support/Offshore Construction Vessel

Merwede Shipyard received a contract for the design and construction of a new Diving Support/Offshore Construction vessel for Bermuda-based Toisa Limited. The vessel will be built under yard No. 712 and will be delivered in the first quarter of 2008. The vessel will be built in accordance with the Rules and Regulations of Det Norske Veritas, to obtain the following notation: DNV X 1A1, EO, SF, Dynpos, AUTRO, HELDK, DSV-SAT.

The ship has been designed by Merwede Shipyard in concert with Toisa. It will be a fully Dynamic Positioned Diving Support/Offshore Construction Vessel, suitable for worldwide operation.

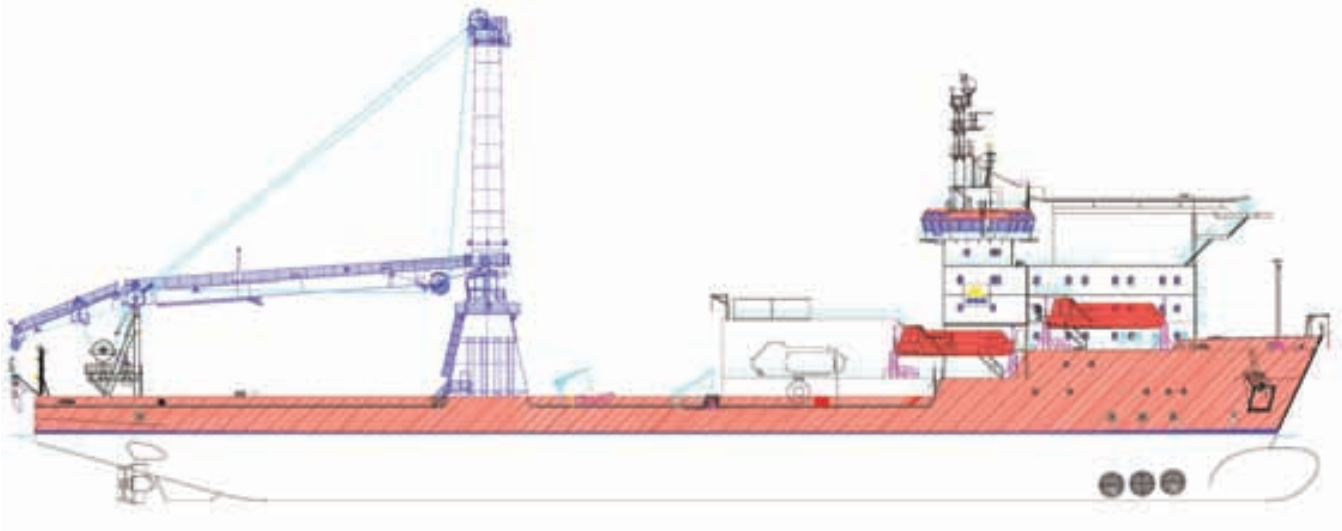
As an enhanced sister vessel to the Toisa Proteus, but with a fully inbuilt saturation Diving System, this vessel will support a wide variety of subsea operations. Within the saturation diving market, the existing world fleet of such vessels averages more than 20 years old. This order will provide the market with a DP3 vessel capable of meeting the higher and more demanding standards in safety, dynamic positioning operations, saturation diving and the use of environmentally sensitive vessels.

It will be built with a 12-man single bell saturation system. Its under-deck configuration allows for a range of equipment, while her large, clear deck area provides scope for a range of other applications.

The increasing need for subsea construction vessels to accommodate large numbers of contractor's personnel has also been addressed in designing the ship to accommodate up to 199 persons (excluding any divers in saturation).

Main Particulars

Length, o.a.	131.7 m
Length, pp, on design drafty	117.7 m
Breadth, molded	22 m
Depth, main deck molded	9.5 m
Draft, design	6.25 m
Draft, scantling	6.75 m
Ship's complement	100



Mexican Rigs First to be Serviced by SLICE

A new design crew boat was recently launched by Lockheed Martin. Líder is the first of two SLICE Crew Transport Vessels (SCTV) the company is building for Hotelería y Servicios Petroleros, S. A. de C.V. (HSP) of México. HSP in conjunction with Consultoría y Servicios Petroleros, S.A. de C.V. (COSEPE) will operate the two vessels, under contract with Mexico's national oil company, Petróleos Mexicanos (PEMEX), to transport workers and limited cargo from Ciudad del Carmen to the Gulf of Mexico's Campeche Basin Oil Field, approximately 90 miles offshore.

Built at the FBMA shipyard in the Philippines, Líder and its sister ship, Tenaz, which is scheduled to be launched later this spring, feature Lockheed Martin's innovative SLICE design. The company first used this innovative design for a vessel it developed, built and tested for the United States Office of Naval Research. Based on Small Waterplane Area Twin Hull (SWATH) design, the SCTV hull form is designed to improve the operational efficiency and lower the costs for PEMEX by enabling Líder and Tenaz to operate faster in more challenging sea conditions and still provide a safer, more comfortable ride. Following the dock and sea trials over the next several months, Líder and Tenaz will be transported together to Mexico for final delivery to HSP this summer.

"Today, and even more so in the future, oil exploration and production demands support vessels to go farther from shore and into deeper waters, often exposing passengers to rougher seas and for longer periods of time. By incorporating the latest technological advancements in offshore marine crew transportation in decades, Líder and Tenaz will enable HSP to better serve PEMEX by providing safer, more cost-effective, swifter and more comfortable transportation." said Carlos Alfaro, chief executive officer of HSP.

"We are extremely pleased to launch Líder," said Dave Broadbent, vice president and general manager of Lockheed Martin's Littoral Ships & Systems line of business. "Not only are we on budget and on time for delivery

Main Particulars

Length, o.a.	28 m
Beam	16 m
Draft	3 m
Full load displacement	184 long tons
Passengers	150
Crew	6
Main engines	2 x Cummins KTA-50 @ 3,600 bhp
Propellers	2 x CPP

later this year, but we are providing HSP with an innovative vessel that meets the demanding needs of the offshore industry. The faster, smoother ride of Líder and Tenaz will enable workers to arrive sooner, healthier and ready to work." The development of the detailed engineering and construction work for Líder and Tenaz took place in Baltimore, Md.; Sunnyvale, Calif.; Cebu, Philippines; and Southampton, U.K. In 2004, Lockheed Martin was awarded a contract for more than $25 million to perform detailed design, construction, test and delivery of two Small Waterplane Area Twin Hull (SWATH). Awarded by by Hoteleria y Servicios Petroleros, S. A. de C.V. (HSP), the crew transport vessels will provide service to Mexico's national oil company, PEMEX.

Going Deep

With Perry Slingsby's Martin Anderson

At initial glance, the Perry Slingsby System (PSS) story is not an easy one to be told. PSS has a long and varied corporate history, as well as a diversity of products and services serving many unique markets across the globe. Enter Martin Anderson, a straight-talking Scotsman who serves as the company's Managing Director and CEO. Anderson took over nearly three years ago to harness the company's treasure trove of underwater systems, products and engineering expertise to deliver a focused, motivated and forward-thinking remote intervention application powerhouse.

Martin Anderson, Managing Director & CEO, Perry Slingsby Systems

Perry Slingsby Systems traces its beginnings to the early days of the aviation and ocean engineering industries. As men of vision, John Perry and Fred Slingsby each began innovative cutting edge businesses that ultimately joined to form the Perry Slingsby Systems of today. As a leading expert in the design and manufacturing of remote intervention technologies and equipment systems, the company is known worldwide for its dedication to quality and professional excellence.

The experience that has been gained over the past 50 years through design and production of hundreds of ROVs, Trenchers, Tether Management Systems, Submarine Rescue Systems, Submarine Cable Plows, Tooling Systems and Remote Intervention Technologies is unmatched throughout the world

Martin Anderson, with more than 21 years experience in the subsea construction and contracting sectors of the oil and gas industry, took over the company with the intention to unleash the company's full potential.

Today's PSS is much changed from the PSS of a few years ago, and Anderson said that the company's two plants - a 45,000 sq. ft. plant in Jupiter, Fla., and a 48,000 sq. ft. plant in Kirkbymoorside (near York), England - are running at full tilt, due in large to the booming offshore markets around the world.

But the story of PSS reaches far beyond that of simply a manufacturer faring well in favorable markets. PSS, per-

haps known best for its rugged and technologically advanced classes of work class ROVs for the oil and gas market, provides a wide spectrum of product and service split into six business lines: ROVs, Trenchers & Robotics; Standard and Bespoke Tooling Systems; Defense; Support Services; Controls and Process Products; and Geotechnical and Seabed Systems.

Anderson counts the company's core expertise in control system technologies for the entire range of remote intervention applications as the bedrock upon which the company's future success is based.

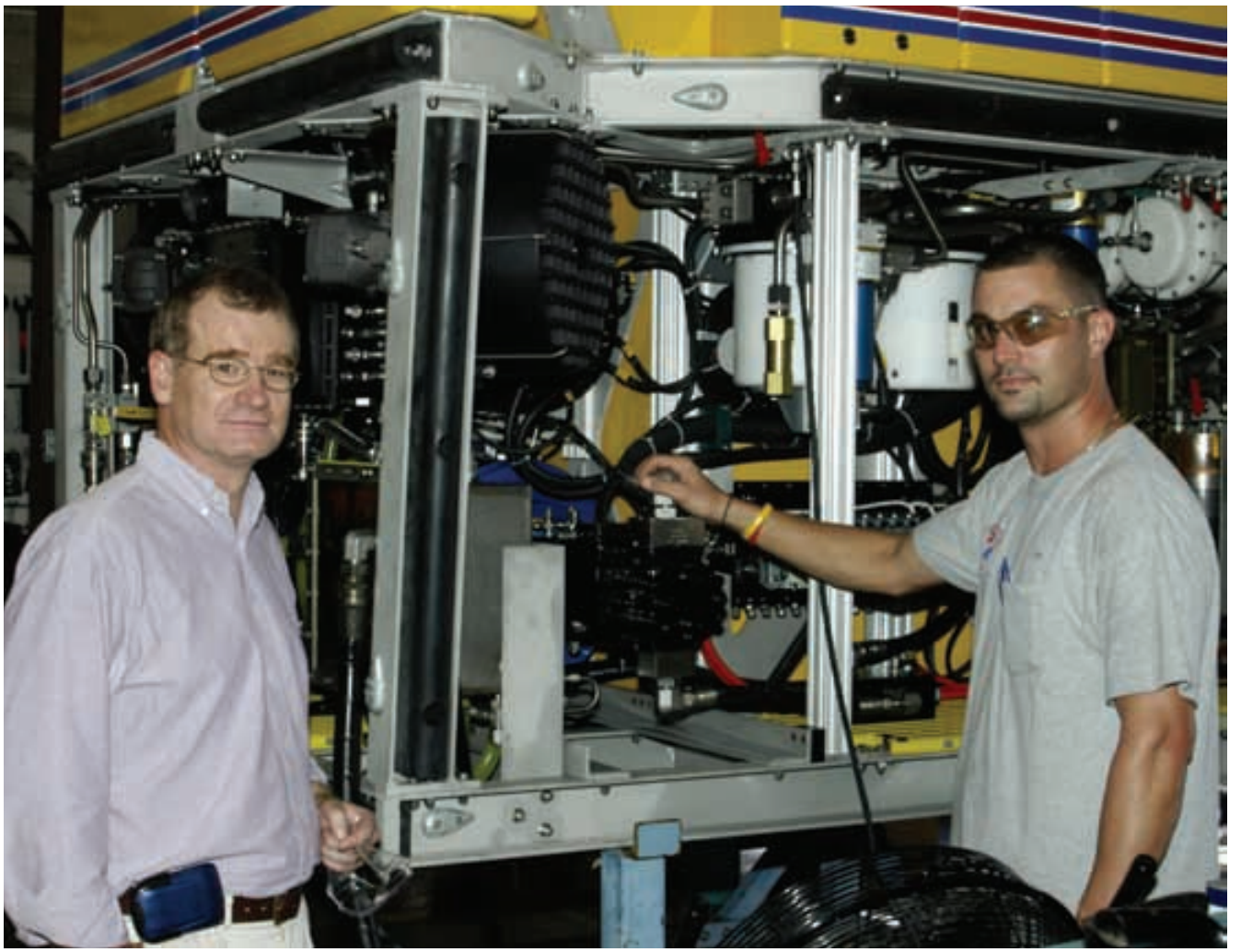
"Our challenge is to find new applications for our core expertise, rather than simply build more ROVs," Anderson said.

As a technology company, the new product development is its lifeblood, which explains why the company infuses three percent of revenues- approximately $1.5 to $2 million - into new product development each year. To that end, one of the biggest projects ongoing is the development of its new generation Work Class ROV. Though physically the new ROV will appear very similar to current models, it will have vastly enhanced and state-of-the-art control systems and operator interfaces, making it easier to use and maintain.

Much of the development work done at PSS is driven by customer need, and today's customer seems to need most a system that will operate in increasingly deep waters, between 3,000 and 4,000 meters under the sea's surface.

"When I started working in the industry, working in 150 meters of water was the limit," Anderson said. "As you go deeper, the challenges increase."

While it is critical to supply a system that will operate in



these deep waters, Anderson is quick to point out that the system must be robust. "You have to deliver performance and enhanced capabilities without giving away the robust nature of the system," he said. The deployment and recovery of a vehicle at those depths takes a few hours, which is essentially "dead time". So you have to provide a high-tech, robust system that is able to stay down for extended periods of time.

Controls technology is the core to Perry Slingsby Systems' products (vehicles and bespoke tooling). Process products are permanent equipment that are part of the function of a fixed facility with an independent or dedicated control system.

The new business line, Controls & Process Products, focuses on the improvement of existing systems, the development of the next generation of systems and will enable research and development into ancillary and innovative subsea products and applications.

A major focus of this has been on an advanced robotic arm, with the emphasis on improving the control. The ultimate goal: dexterity and controls that, as closely as possible, emulate that of the human hand.

The Business of Technology

The evolution of the undersea market extends far beyond the technical capabilities of the system. In a business sense, the industry is significantly changed from two decades ago, particularly in terms of the manner in which systems are developed and procured. "Everything we do, in some way, is managing risk," Anderson said. "The risk level of projects has increased, and shifted to suppliers, who must now take on much more commercial and technical risk."

He explained that 20 years ago, it was normal for PSS' customers to pay for the development of a project, but today the company takes on much of the risk to develop and deliver a system to a customer's expectations. "We must estimate well," he said, in an understatement. "Very few companies are willing to pay for it (product development) today."

While industry insiders and lay people alike are often awed by the capabilities of underwater technology companies, focus for PSS does not stray from the fact that it is indeed a business, created to make profit and accountable to investors.

In addressing the global nature of the business and of Perry Slingsby Systems, Anderson said "it's not the easiest company to run," with coordination and communication posing two of the biggest challenges. When Anderson took over as CEO two and a half years ago, he brought with him a management style that relies on direct communication on a regular basis to clearly define responsibility and demand accountability as the core tenant. "Three years ago, we had one model that was being sold across the board," he said. "But the drivers and needs for the oil and gas business, for example, are completely different from defense." We had to recognize that we have a range of products that bridge many different markets, and the challenge is finding new applications for our old customers, and new customers for existing applications.

While the diversity of the PSS product and service lines combined with its cumulative engineering experience are major competitive advantages, Anderson said that "evolved in everything but focused on nothing, can be a danger."

To avoid complacency and move forward in the most efficient manner, PSS has created focused business teams within the organization, teams that are focused on winning orders, delivering systems and forward-planning for product and system lines sold to specific business areas, such as oil & gas, telecom, geotechnical and defense markets.

When Anderson joined the PSS team, his assessment of the company found many strengths — established products, financial flexibility and engineering expertise — which he intended to leverage to the company's benefit.

Simply by virtue of its longevity, PSS has outlived many of its competitors and has built a critical mass of products with major customers around the globe. But while steady business from large customers is a success, it can also spell trouble. "When you have as long of a track record as Perry Slingsby Systems, you have to guard against complacency," Anderson warns. "You can get flabby if you're not out there fighting (for new business) every day."

To complement its product lines and engineering know-how, PSS is able to offer a number of innovative financial models. For example, the company can help arrange financing, a feature that is particularly attractive to extend the PSS brand to new, smaller clients. In another move to help the company extend its market share, PSS has adopted a new Tooling Rental program at key international locations.

While PSS seeks to grow its product and service lines organically, Anderson also noted - but declining to elaborate - that "the industry is full of takeover opportunities right now, and the trick is to find the right one."


TRITON XLS 11

Going Wireless in the Deep Blue

by Mike Carlowicz

Deploying instruments to monitor the ocean is one thing. Getting daily reports from them is another

You're exploring how currents develop in the ocean, or how salt and spray are exchanged with the atmosphere, or how superheated fluids and lava erupt from the seafloor.

You could make observations from a ship, but expeditions provide only snapshots of the ocean. They don't allow you to observe changes over months or years, nor can you capture sudden, unpredictable events such as earthquakes or eruptions.

Instruments on satellites offer useful broad and long-term observations of the ocean. But the view is only skin deep, as cameras and lasers can only penetrate the top few meters of water. You could build a cabled observatory, running power and communications cables to an array of instruments on the seafloor and obtaining data in real time. But once built, your observatory is limited to one place on the map, usually close to a coast. And it would be expensive to build.

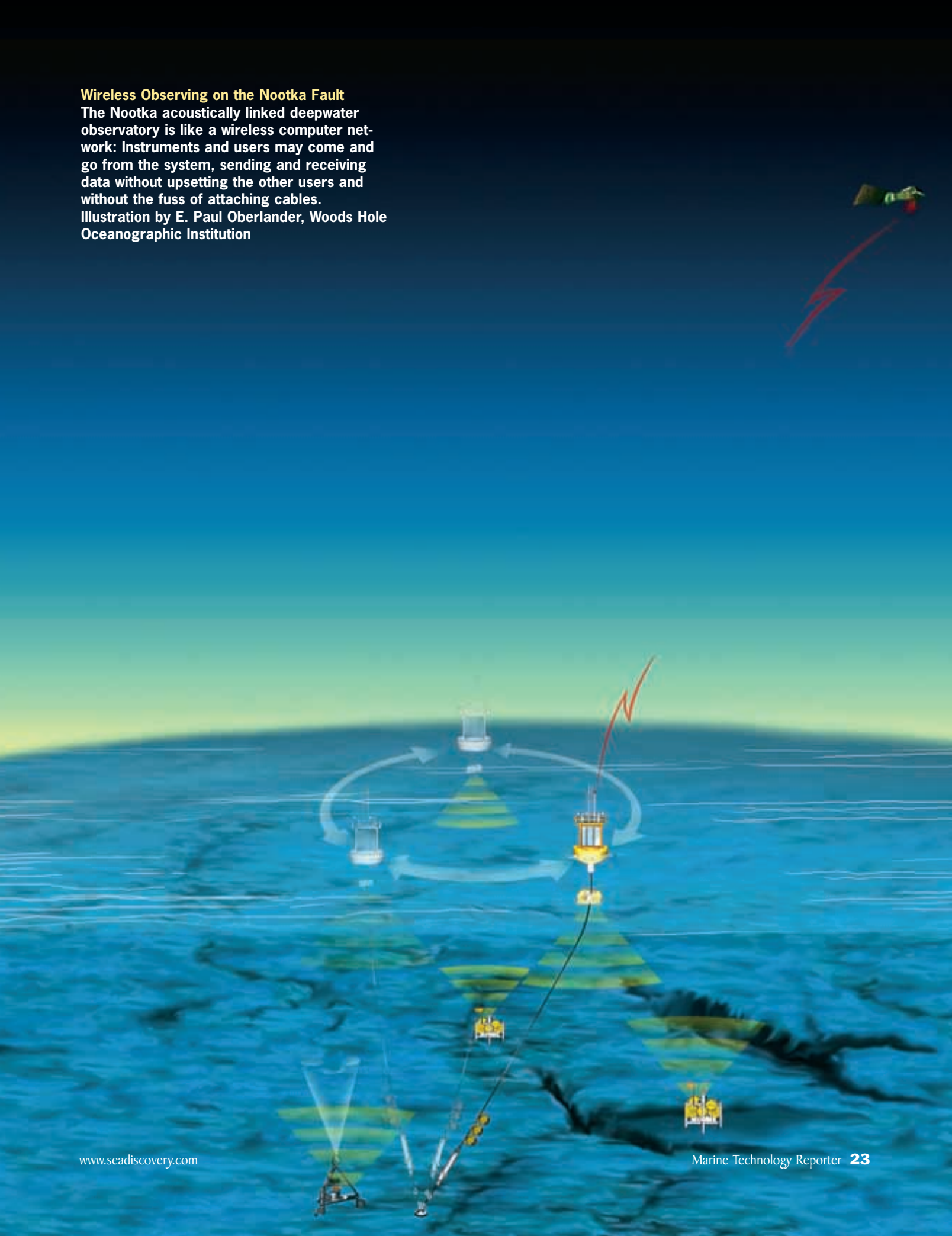
So how do you get long-term ocean measurements from any spot on the globe, with daily feedback and lower costs? If you are Dan Frye of the WHOI Advanced Engineering Laboratory, you take an old oceanographic concept-the moored buoy-and bring it into the 21st century with wireless technology. He calls it an acoustically linked deepwater observatory.

"The system is like a wireless computer network or hotspot," said Frye, a senior research specialist in the Applied Ocean Physics and Engineering Department. "It allows users to move in and out in a very flexible and seamless manner, and it eliminates the complexity and expense of cables and connectors used in a conventional wired system."

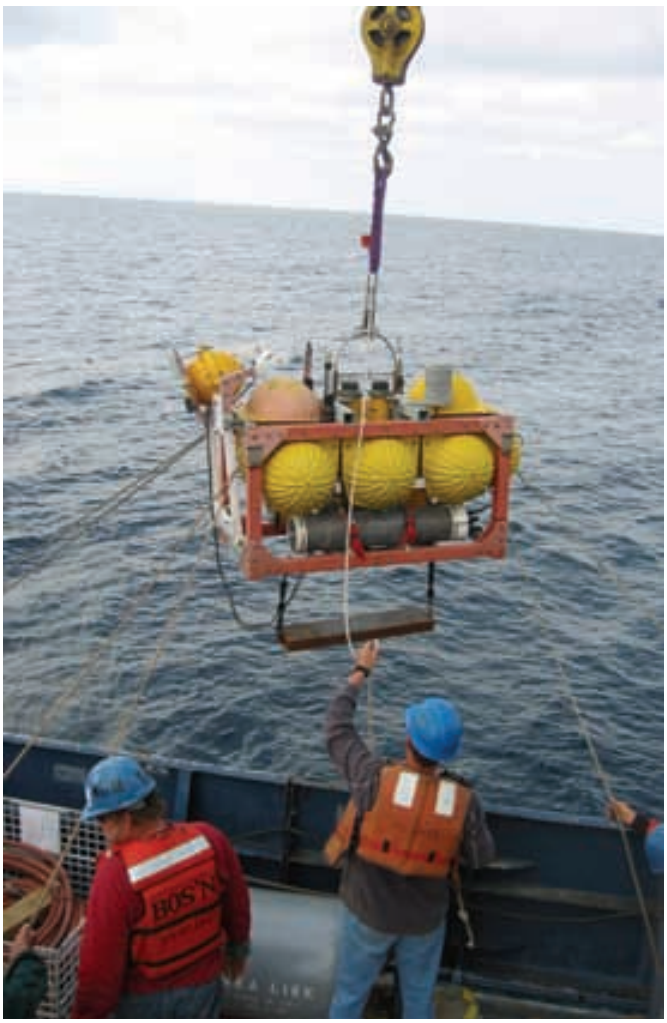
High-tech Take on an Old-School Tool

For several years, Frye, Matthew Grund, Lee Freitag, Jonathan Ware and other engineers and buoy specialists at WHOI have been testing the limits of tried and true technology. They have searched for or developed new mooring cables and connectors. They have doubled, tripled, and quadrupled the speed of underwater modems that send data in sound waves. And they have watched and learned from the latest developments in satellite communications.

The result is a wireless buoy observatory, which the team deployed for a trial run from May 2004 to July 2005 with colleagues from the University of Washington and the Scripps Institution of Oceanography. The system was set up in 7,750 ft. (2,362 m) of water along the Nootka Fault, off Vancouver Island, a site rich with fluid seeps, mud volcanoes, hydrothermal venting, and other dynam-



Wireless Observing on the Nootka Fault
The Nootka acoustically linked deepwater observatory is like a wireless computer network: Instruments and users may come and go from the system, sending and receiving data without upsetting the other users and without the fuss of attaching cables. Illustration by E. Paul Oberlander, Woods Hole Oceanographic Institution



Researchers and ship crew on the R/V Atlantis lower an ocean-bottom seismometer over the side of the ship, on its way to its "virtual connection" to the Nootka mooring system. (Courtesy of Dan Frye, Woods Hole Oceanographic Institution)

ic geologic processes.

This relatively low-cost observatory allowed researchers to observe daily what was happening on the seafloor, in the water above, and at the surface. Data were sent back to researchers on shore six times a day, with the opportunity to gather information more often when interesting oceanic events occurred. The 12-member research team could talk to the instruments-sending commands to adjust experiments on the fly-while adding others long after the initial deployment.

The keys to the system are satellite transmitters and acoustic modems. For several years, scientists have watched with great interest as commercial companies have established satellite phone and communications networks that enable conversations from anywhere in the world. The Nootka buoy was outfitted with two Iridium satellite transceivers, allowing the research team to send and receive "calls" from their offshore observatory any time of day or night.

Sounds of Science

But getting information from a buoy to shore is only part of the challenge. The bigger test is getting signals from the seafloor to the surface. Instead of sending data through cables-which are costly and physically limiting-the Nootka observatory relies on sound waves. Computer codes and data are turned into sound signals-much like those passing through the phone line and modem to your home computer-and transmitted between the seafloor instruments and the acoustic modems on the surface buoy.

Once a novelty, underwater acoustic modems have been made ever faster by WHOI engineers. During the test deployment, roughly half a megabyte of data was sent home per day-a small amount by land-based standards, but a giant leap for remote sensing in the ocean.

With the wireless approach, up to 15 separate instruments can be set up as far as 1.8 miles (3 km) away from the base of the mooring. Frye and colleagues believe the distance could be stretched even farther by using hydrophones to relay signals along the seafloor from outlying instruments to closer ones that can be heard by the surface buoy.

The distributed design allowed researchers to add a Scripps/University of Washington instrument package to the network several months after the initial installation. With no cables to attach, the research team simply deployed the new instruments on the seafloor and reprogrammed the observatory's computer systems to listen for another new voice. The only serious limitation is power. Current battery systems can provide enough juice to get through roughly a year of observations before they need to be replaced. Because the acoustically linked buoy has a relatively low-cost (two to four times less than buoy systems using cables) and a self-contained infrastructure, researchers believe the system could be deployed and redeployed almost anywhere in the world-certainly in some places not now reachable with cables.

"The success of the project has been important to the

The Nootka Fault, off Vancouver Island, is an area rich with oceanographic and geologic phenomena of interest to scientists. (John Collins, Woods Hole Oceanographic Institution)

(Reprinted with permission from Oceanus Magazine, Woods Hole Oceanographic Institution, April 2006)

A surface buoy serves as the communications hub between the seafloor and shore-based researchers using the new, acoustically based observatory. (Courtesy of Dan Frye, Woods Hole Oceanographic Institution)

development of ocean observatories because it has demonstrated the feasibility of using acoustic links for long-term, deep-ocean applications," said Frye. "This system can be installed and maintained using conventional, low-cost logistics as it doesn't require the use of specialized remotely operated vehicles (ROVs) or expensive ships. The sensors can be added or removed without impacting the rest of the system and, since they are independent, they are less likely to experience a system-wide failure."

The National Science Foundation, the W.M. Keck Foundation, and the Woods Hole Oceanographic Institution provided funding for the Nootka observatory project. Satellite telemetry service was provided through the Oceans.US Iridium project.

Sonardyne Improving Underwater Coms

By Maggie L. Merrill

Sonardyne of Yately, Hampshire, UK has been in business for 30 years pioneering the use of acoustics for navigation, positioning and underwater communications. Sonardyne sees itself as a major player in the offshore oil industry. Now with 160 employees 65 of whom are engineers, Sonardyne is making a significant investment in the future, particularly focused on providing real time communications to the offshore energy production and construction industries. Sonardyne has offices in Aberdeen, Houston, Singapore, Brazil and Norway.

At a recent press briefing in London, Rob Balloch, Marketing Director described in detail the the backbone of the Sonardyne product line; Wideband Technology. It serves as the infrastructure that enables coordinated telecommunications amongst a number of sensors set on the sea floor or installed on underwater vehicles. Sonardyne provides a variety of products and services to make communicating between the top side control team and the underwater instruments and vehicles run more smoothly and more accurately.

For instance when positioning a large work vessel over a work site, the Sonardyne Digital Signal Processoring (DSP) technology along with the Wideband system enables the topside crew to track up to 14 separate bottom mounted beacons simultaneously. Additionally, Sonardyne is providing a new way for Autonomous Underwater Vehicles AUVs to be tracked. The inverted Ultra Short Base Line (USBL) is a new way to communicate from the vehicle looking upward to the ship. The inverted USBL has been installed on one of the BlueFin AUVs that is being operated by MBARI in California. The National Oceanographic Center in Southampton, England is also utilizing the inverted USBL on their AUVs.

Now with the new Wideband Data link, Sonardyne communications systems will enable several ships working on positioning various drilling platforms and other large bottom templates for oil work to coordinate real time. In the past one ship would do one operation, then the next would come in and do the next operation and so on. With the Sonardyne system several ships can work in unison maneuvering around a field of sea bed transponders performing many tasks; saving huge amounts of time and therefore money.

Finally, Sonardyne is a player in the Tsunami detection business as well with its newly introduced advance warning system. Their Tsunami Detection System can be deployed on the seabed in the deep ocean where it will monitor the pressure of the water above it. A tsunami wave in deep water can be tracked and small changes can be transmitted to a topside buoy that transmits to a satellite and on to a control base that will set population warnings into motion. The system is based on the Sonardyne line of sea bed acoustic transponders which employs the Wideband digital acoustic technology to provide through water transmission.

Sonardyne's uCOMM underwater communication transponder set up in London by Marketing Director, Rob Balloch. (Photo credit: Maggie L. Merrill, MTR)

Who said underwater communications has to be difficult? The deeper industry and scientists explore the ocean depths, the more important faster, more accurate and flexible communications systems must be. Sonardyne is one of several companies leading the charge developing cutting edge systems to make working in the deep ocean

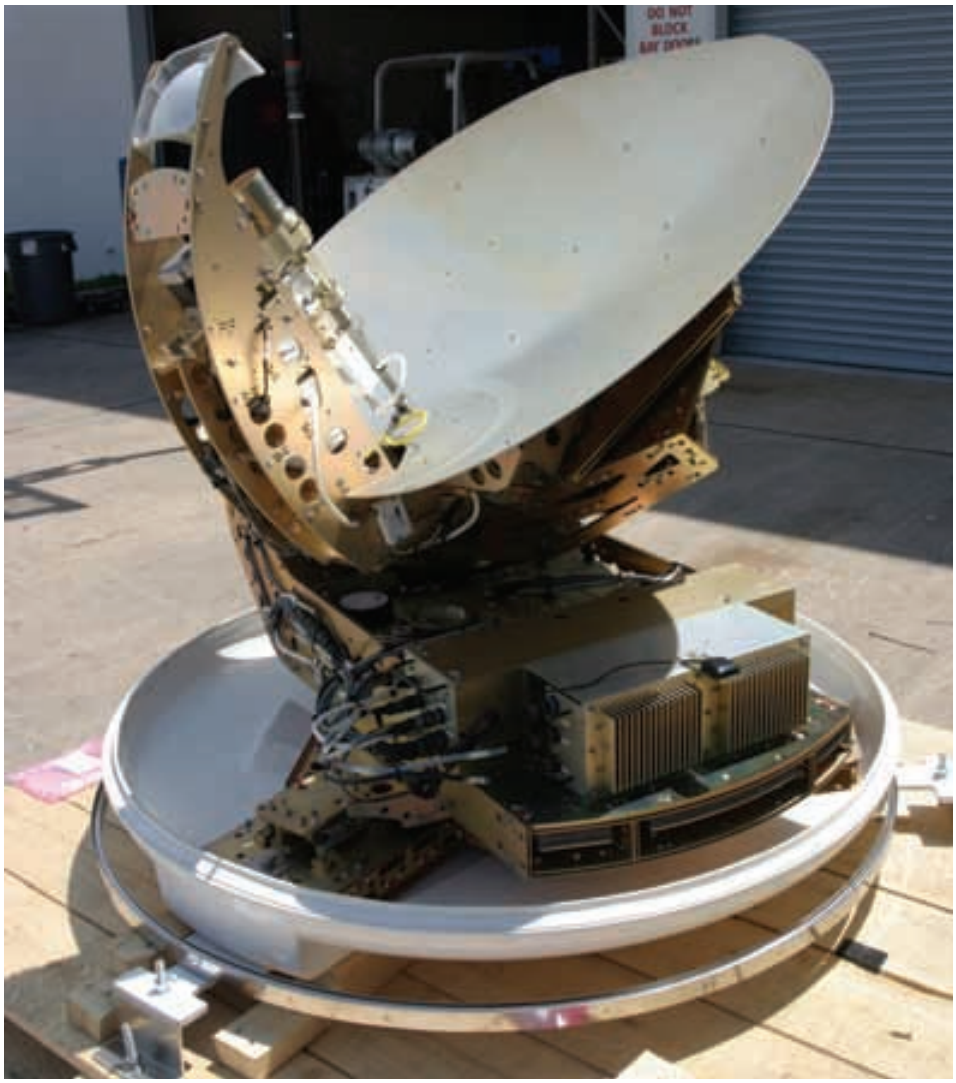
PetroCom VSAT has Guaranteed Information Rates

Two years in the making, PetroCom's new Very Small Aperture Terminal (VSAT) satellite communication system is structured around private communication networks that guarantee around-the-clock connection speeds. This system offers customers the ability to turn bandwidth on and off, re-allocate bandwidth or schedule increased bandwidth as business needs change.

"Our private communication networks separate PetroCom from the competition; we've built a system that will reduce the frustration many current VSAT users feel because of pooling and oversubscription," said PetroCom President Ken Wright. "Instead of introducing an off-the-shelf solution, we carefully specified and selected the best equipment and software that allows customers unequalled tune-ability, committed information rates (CIR) and less time division multiplexing over IP. Data transmits at the speed the customer expects and there is no waiting for dial tone."

Recently, PetroCom signed agreements to provide VSAT voice and data services for Onyx Special Services, Superior Offshore International and Tetra Applied Technologies. Last month, Helix Energy Solutions tapped PetroCom to provide VSAT services for its offshore fleet. Multiplex VSAT communication networks with speeds from 64 to 512K are available for fixed and stabilized applications. Built around VIPERSAT Network's capacity management platform and RAD Data Communication's IP-based multiplexers, PetroCom's system guarantees a committed information rate, prioritizes voice over data to eliminate jitter and delivers superior voice quality. PetroCom also offers fixed pricing; most maintenance and technical support expenses are included.

PetroCom is also the first to offer "add-on" satellite services or "ASAT" services within established private networks. A primary subscriber, at their discretion, can grant third-party clients, vendors and service providers access to their company's private network. The subscriber can then choose to bill these authorized users for their bandwidth allocation or have PetroCom bill them directly. Software control of the PetroCom ASAT system still assures a guaranteed CIR. "Many customers using other VSAT systems have been disappointed with their current solution, particularly with the pooling of service, the slow speeds during peak usage times and wildly-changing service expenses," notes PetroCom Product Manager, Jerry Lenaz. "PetroCom was aware of this when we designed our system. We offer a highly flexible platform where allocations are set by the customer and communication rates are guaranteed."



Bourbon Invests in Offshore Vessels to the tune of

$1.8 Billion

Just 17 years ago, Bourbon was a driving force in the food processing and sugar production businesses, and the marine industry was not even a blip on its radar. By 2000, the company was well into its planned transition to a marine-dominated company, with food processing comprising just 21 percent, while marine services had grown to 27 percent. Fast forward to 2006, and the company that made its mark in food has wholly reinvented itself into one of the leading vessel owners serving the offshore oil and gas business, becoming a 100 percent marine services company.

Bourbon CEO Jacques de Chateauvieux and other key company executives recently visited with reporters in Houston to discuss the company's aggressive newbuilding plan - dubbed Horizon 2010 - that outlines the company's growth plan for the coming four years, including a planned fleet investment of nearly $1.8 billion in new Offshore Service Vessels.

In assessing the near and long-term future of the offshore business, de Chateauvieux said the company sees "strong and continued demand" for oil, as declines in production output from existing offshore wells will pressure the oil majors to step up efforts to find new reserves. The company projects that the world's production of oil will increasingly come from offshore sources, rising from 34 percent today to 39 percent by 2010, and increasingly that share will come from deepwater developments, based largely on the fact that 65 percent of new discoveries are coming from deepwater searches.

The investment in new vessels and a host of new personnel is not being conducted blindly. According to a recent report from Douglas-Westwood, there will be 110 floating production units installed between 2005 and 2009, a 59.4 percent increase compared to the years 2000-2004. In addition, according to Infield and Bourbon, there will be approximately 2,121 subsea installations between 2004-2008, a 71 percent increase over the four year period between 1999-2003. Thus Bourbon projects an overall 12 percent annual turnover growth for the company, driven by an anticipated 20 percent turnover growth, per year, in its offshore division.

Fast-Track Growth

At the turn of the century the company announced plans to become a pure marine player, and in the years between 2002 and 2006 its Offshore division grew with 53 supply and 39 crew boats; its Towage and Salvage division added four tugs and two sea going tugs, and its Bulk division added three bulk carriers. At the end of 2006, Bourbon will own a modern, new generation fleet of 264 vessels, which includes 192 for its Offshore Division, 66 tugs for its Towage & Salvage Division, and six bulk carriers for its Bulk division, all built and deployed worldwide.

Bourbon, which builds and operates its vessels worldwide, views the offshore market with particular regard, and estimates that an aging generation of vessels servicing the shallow draft oil and gas market, combined with accelerating demand for a new generation of vessels capable of operating in increasingly deep waters has created a historic market opportunity.

"Today, anything that floats, makes money. In the future, only those with low costs will be successful," said de Chateauvieux. To this end, the company is investing in a fleet of modern vessels with the capacities and capabilities to serve evolving needs of offshore operators. This

year alone, the company expects to receive 30 new vessels to its stable.

Les Abeilles, the towage and salvage division, is active in three main segments: harbor towage, terminal towage and coastal environment. In late April, the company announced plans to expand its fleet, saying that it had ordered 12 new harbor tugs, including a series of eight vessels from the Piriou Shipyard in Concarneau, France, and four from Damen in China.

Yves Rastoin, Chief Executive Officer of Les Abeilles, a division of Bourbon, said: "Under Bourbon Horizon 2010 strategic plan, we reaffirmed our goal to expand the towage and salvage business. With these 12 vessels, Les Abeilles is meeting the demands of its clients and adapting to the challenge posed by larger LNG tankers and mega-container ships, as well as strengthening its position in international bid tenders."

Eight of the new tugs will serve the Les Abeilles fleet in the major French ports. Measuring 98.5 x 33 ft., the more compact template for this series contributes to better maneuverability enabling greater operational efficiency. The tugs, equipped with Azimuth Stern Drive propulsion and a new design, are designed to offer 15 percent more bollard pull capacity than earlier models, raising capacity from 57 to 65 tons. This choice is an effective response to the changes in towage operations resulting from an increase in the size and tonnage of the vessels towed. The eight new tugs will also be equipped with fire-fighting capacity.

Deliveries are scheduled between October 2007 and the end of 2008.

Dressed for success: Bourbon CEO Jacques de Chateauvieux has his company positioned to dominate the offshore service vessel market in the next four years, with a commitment to invest nearly $1.8 billion in new boats.

56 New PSVs

In late April Bourbon started putting the meat to the bones of its Horizon 2010 plan, announcing that, since January 1, 2006, it had placed the first series of orders for 56 modern offshore oil and gas supply vessels for $808 million. These 56 vessels are in addition to the 27 supply vessels already under construction at December 31, 2005.

The deliveries and commissioning of these vessels will be staggered from the final quarter of 2007 until the first half of 2009, and include:

- **4 PSV Ulstein P105 ordered from the Zhejiang shipyards in China**

These 4 vessels are sisterships of the Bourbon Peridot, delivered in 2005. 298.5 ft. long with a deadweight of 4,900 tons, these Platform Supply Vessels (PSV) will be equipped with diesel-electric propulsion, will be classed DP2 and will be pre-equipped to receive a 100 ton deep sea crane.

- **8 GPA 670 PSVs ordered from the Zhejiang shipyards in China**

This order follows an initial order of 10 vessels of the same type, five of which are already in operation. With a length of 239.5 ft. and deadweight of 3,200 tons, the PSVs in this series will be equipped with diesel-electric propulsion and classed DP2.

- **5 AHTS ordered from the Bharati shipyards in India**

This series of Anchor Handling Tugs Supply vessels (AHTS), with 11,000 HP and a bollard pull of 125 tons, is identical to the series of five units, four of which were recently delivered by Keppel in Singapore (Bourbon Artemis, Bourbon Aladin, Bourbon Apsara, Bourbon Alexandre). Classed DP1 and equipped with a FiFi 1 anti-fire system, these AHTS offer optimum services for the towage, anchor handling operations of drilling rigs and tanker lifting at offshore terminals.

- **1 MPSV ordered from the De Hoop shipyards in the Netherlands**

This 279 ft. long Multi-Purpose Supply Vessel (MPSV) has quarters for 70 people. With diesel-electric propulsion, a DP2 system, and heave compensated 100-ton crane, this vessel is particularly adapted to sub-sea operations conducted in deepwater using robots (ROV).

- **2 MPSVs from the Bharati yards in India**

This order follows the order for two MPSVs currently under construction at the same shipyards. With a length of 197 ft. and accommodations for 44 people, these vessels are particularly adapted to maintenance work in producing oil and gas fields on the continental offshore.

Bourbon signed a contract with Zhejiang Shipbuilding Co. Ltd in China for the construction of four Ulstein P105 platform supply vessels (PSVs).

Larry Rigdon, CEO of Rigdon Marine, in 2005 at the delivery ceremony for Iberville, one of the company's state-of-the-art Platform Supply Vessels.

- **36 Supply Vessels from the Dayang shipyards in China**

This large order includes two series of vessels, the concepts for which come from a GPA design identical to the design for the 10 units already ordered in December 2005 by Rigdon Marine for the U.S. Gulf of Mexico. Twenty-six of the 36 vessels ordered are AHTS with 80 tons of bollard pull, and the other 10 are particularly economical PSVs of 1,600 tons deadweight.

All 36 AHTS and PSVs ordered are diesel-electric, classed DP2 and FiFi1, and maneuver using two directional thrusters associated with a fixed propeller and two bowthrusters. They have been designed to optimize the transport of various products and can carry 640 cu. m. of liquid mud.

Rigdon Marine

In 2002, Larry Rigdon, the former Tidewater executive vice president turned heads when he formed Rigdon Marine. Rigdon Marine turned more heads with the announcement of a $125m financing agreement from Bourbon to fund 10 deepwater platform supply vessels, which are now in service.

The initial investment, made in compliance with the Jones Act, prefaced Rigdon and Bourbon's collaboration to date.

In January, Bourbon announced an additional $9.1m investment in Rigdon Marine.

"This stake in the Rigdon Marine group is the natural outcome of four years of collaboration. We have seen that this fast-growing company has rapidly become a profitable service provider, duly recognized in the offshore oil marine services sector, particularly in the Gulf of Mexico," de Chateauvieux said.

In addition, Rigdon received $170m and new equity capital from American investors to finance 10 more vessels to double its fleet.

Bollinger Shipyards was tapped to build the 10 platform supply vessels for Rigdon Marine, based on a new GPA 654 Class, designed by Guido Perla & Associates.

The design incorporates increased carrying capacity and greater operating efficiency, compared to similar sized vessels, while at the same time allowing simplified construction methods to reduce construction cost.

The vessels will be diesel-electric and classed ABS +A1+AMS+DP2, USCG Subchapter L and SOLAS. (include engine info here, locate Rigdon quote)

Looking ahead and indicating further growth, Rigdon said, we'd like to be in the 30 all modern vessel range to remain an important player in GoM.

Ridgon aims to target the new market niche that isn't being covered while maintaining their primary focus of complementing Bourbon vessels.

Marine Technology Society of New England Stepping Out

By Maggie L. Merrill

In two very interesting evenings, MTS New England introduced its members to the facilities available to new companies at the Quest Center in New Bedford; a project by Professor Lou Goodman of UMASS's School for Marine Science and Technology (SMAST); and to the shark tagging techniques at NMFS as well as the cooperative research program that NMFS is doing fishermen.

The Quest Center was established in cooperation with the University of Massachusetts in Dartmouth and the City of New Bedford to provide state of the art office facilities to new companies or to international companies that want to establish a physical presence in the New England region. Premium space is reserved for start-ups in the marine science and technology sector. Resident there now is Brooke Ocean Technology, the US office of a Canadian firm of the same name. Headed by Roger Race, formally of Endeco/YSI, BOT USA is providing engineering and design services to companies. Most recently they have been working on an AUV launch and recovery system for one of the Bluefin robotics vehicles.

Professor Lou Goodman of the SMAST in New Bedford discussed his work to use the AUV, REMUS, developed at the Woods Hole Oceanographic Insitutions to study turbulence mixing in the ocean water column. He and his team of graduate students have equipped the AUV with a Seabird CTD to measure conductivity, temperature and depth; a Marine Sonics side scan sonar to measure the distance from the sea floor; and a Teledyne/RDI ADCP to measure current velocity. They have been able to conduct several extremely successful tests with this AUV and are now offering it to others in industry who may wish to hire them to conduct different types of surveys. Goodman editorialized during his conclusion that the technology that is available is far too complex for the some of the science being done. He urged the technology oriented audience to consider developing somewhat simpler instruments that are more reliable and repairable in the field.

(L-R) Brian Rothchild, head of UMASS Dartmouth's Marine Science Consortium enjoys a moment with Dave Sheehan head of the Quest Center in New Bedford at an MTS New England meeting. (Photo credit: Maggie L. Merrill, MTR)

Brooke Ocean Technology USA's screen display of an AUV launch and recovery system being designed for Bluefin Robotics. (Photo credit: Maggie L. Merrill, MTR)

On a blustery spring afternoon, the few members fortunate to make the trek to the NMFS center in Woods Hole were treated to delectable sandwiches, munchies, and beverages. Providing an overview of the NMFS was John Boreman, a 20 year veteran and now Center Director. The National Marine Fisheries Service facilities in Woods Hole have been there since 1850. It was the first research institution sited in Woods Hole. Since that time the Center has grown to employ 350 people with a $60 million annual budget.

The center operates several ships which are at sea for 315 days per year sampling up to twenty different fish species including monkfish, cod, haddock, yellow tail flounder, scup and black sea bass. NMFS also works closely with New England fishermen to develop fishing gear that lets juvenile fish through the larger mess sizes. According to Cooperative Fisheries Program director, John Hoey, fishermen are great to work with on locating stocks of fish and on sampling. NMFS works hard to integrate fishing industry data with their data to determine the overall heath and abundance of certain species.

Dr. Nancy Kohler described the many methods for tagging and tracking sharks. She and her colleagues have

been at it for over twenty years. Her years of experience and data have cris-crossed the Atlantic thousands of times. The most popular tagging programs employ a fairly simple tag which is attached behind the shark's dorsal fin. These are recorded when a shark is caught and the fish is then released. Both commercial and recreational fishermen are enthusiastic participants in this program. The Apex Predator Program, which Kohler heads looks at life cycles of the fish, their migratory patterns, their eating and reproductive habits.

The MTS New England also sponsored the May 6 MATE ROV contest. Eighteen teams registered to compete at the Massachusetts Maritime Academy. MTR Editorial Director, Maggie Merrill was on site to cover the event and to help judge the posters. Watch the June issue of MTR for descriptions of the winning vehicles and for race results.

(L-R) John Hoey, Manager Cooperative Research Program; Nancy Kohler, Chief Scientist Apex Predators Program; James Case, MTS Chairman; John Boreman, Director NMFS Center in Woods Hole at the April MTS New England gathering. (Photo credit: Maggie L. Merrill, MTR)

MOTN Annual Meeting Focuses on Hurricane Predictions

The Marine and Oceanographic Technology Network, MOTN hosted their annual meeting in mid March to announce the new leadership and learn about the work of Dr. Issac Ginis of the University of Rhode Island to predict hurricanes. The new board of directors welcomed, Cheryl Zimmerman of Farsounder as President; Eric Takajian of Quest Marine Services as Vice President, Steve Withrow of Trinity International as treasurer, Bob Hamilton of Woods Hole Group as Secretary. Past President Hugh Murphy, vice president Chip Ryther were thanked for their work in the past two years to keep MOTN moving forward. Issac Ginis is a professor at URI. He has been studying the role the oceans have in predicting hurricanes. He started his talk with photos he had taken in early March that showed how little work has been done to clean up the mess in parts of the Gulf coast where hurricanes Katrina, Rita and Wilma hit. He said, "that is scary, given the fact that this year's hurricane season will be upon them again in a few short months". He mentioned that in 2005 there were 27 named hurricanes and there are 17 named hurricanes predicted for the 2006 season. He also mentioned that the ocean temperature is cooler this year than it was last year at this time, which is a good thing.

New MOTN President Cheryl Zimmerman of Farsounder; Dr. Issac Ginis of URI and Hugh Murphy, past president of MOTN at the March MOTN Annual Dinner meeting where Dr. Ginis discussed his work on predicting hurricanes. (Photo credit: Maggie L. Merrill, MTR)

Ginis studies the relationship and dynamics between ocean temperature and currents with air temperatures and storm and hurricane formation. The ocean is the major energy force driving the storms. The warmer the water, the more intense the hurricane except in the eye which is where the water is actually cooler and therefore the intensity is less. This area is called the cool wake of the hurricane or the eye of the hurricane. The Gulf of Mexico storms are driven by the Loop Current which moves huge amounts of warm water from the Caribbean Sea into and around the GOM. The Loop Current is watched carefully by people in the offshore oil industry to predict when eddies will break off and create difficult working conditions. A newer area that Ginis is addressing is the interaction with wind and sea surface waves and what happens when those waves come ashore.

USS Scranton Completes Successful UUV Test

The fast-attack submarine USS Scranton (SSN 756) demonstrated homing and docking of an Unmanned Undersea Vehicle (UUV) system during at-sea testing in January 2006.

The two UUVs used in the testing are a part of the AN/BLQ-11 Long Term Mine Reconnaissance System (LMRS), which was designed to enable submarines to conduct clandestine undersea surveys to locate mines.

"The testing demonstrated several important capabilities of a submarine-launched UUV system," said Capt. Paul D. Ims Jr., program manager for UUVs in the Program Executive Office for Littoral and Mine Warfare. "These included the ability of the submarine to prepare and then launch an autonomous UUV from her torpedo tubes, and the ability of the submarine to rendezvous with an autonomous UUV and then control the UUV with an underwater acoustic communication system."

According to Ims, repeated homing tests were conducted with slightly different configurations to assess the ability of a UUV to dock with a torpedo-tube-mounted recovery system. The final result was the first successful docking of the LMRS vehicle to a submerged submarine at-sea.

"This was a big step forward," Ims said. "The Navy is making significant progress in the development of Unmanned Undersea Vehicles, especially in the mission areas of reconnaissance, surveillance and anti-mine warfare."

"Our UUV programs are focused on delivering more affordable, modular, autonomous systems with an open architecture."

After the UUV is launched from the submarine's torpedo tube, it transits to a series of pre-programmed waypoints. Meanwhile, the submarine maneuvers to rendezvous with the UUV. Homing and Docking sonar guides the UUV towards the recovery arm, a unique docking mechanism that extends out of the ship's upper torpedo tube. After the UUV is captured, the recovery arm guides the UUV into the lower torpedo tube, and back into the submarine.

"Achieving the first successful at sea docking of an autonomous UUV with a submarine was the result of a seamless joint effort between Scranton and the LMRS team," said Cmdr. Mike Quinn, commanding officer, Scranton. "Submarine missions are increasingly focused on generating real-time, actionable intelligence and the ability to launch and recover autonomous, re-useable UUVs with various mission payloads will improve our ability to provide the theater commanders with the information they need to successfully conduct pre-cursor, as well as combat operations."

"Improvements in autonomy -- the artificial intelligence that enables UUVs to function beneath the water for long periods of time without communication with human operators -- will enable UUVs to accomplish very sophisticated missions with complex payloads," Ims added.

The LMRS test demonstrated technologies possible from completely autonomous UUVs. Once launched, there are no wires connecting them to the submarine. The UUVs can monitor and control their position using sophisticated inertial navigation systems and GPS receivers. Forward and side scanning sonars enable obstacle avoidance, and communications are accomplished via acoustic and UHF satellite communications systems.

An average of 10 attack submarines are deployed globally at any given time, performing a variety of missions in support of national security and the global war on terrorism. UUVs are just one of the multi-mission payloads submarines bring to the joint warfighting arena.

"Unmanned Undersea Vehicles will extend the submarine's stealthy reach, across both the depth and breadth of the littoral battlespace," Ims stated. "Acting as a clandestine, autonomous, mobile sensor, networked into the Global Information Grid, UUVs will provide unprecedented improvements in battlespace awareness."

The variety and complexity of missions that a UUV can perform will provide the area commanders a valuable tool in Intelligence, Surveillance and Reconnaissance (ISR) and other littoral operations.

"UUVs will play a major role in assuring access to the littorals and enabling U.S. Joint Forces to project power from the sea to inland objectives," Ims said.

"Mine Countermeasure and ISR mission capabilities will be delivered first, followed by expansion into other warfighting missions through development of modular payloads," he added. "UUVs will provide the submarine force with access to littoral battlespace that is too shallow for submarine operations or is otherwise inaccessible."

"With FORCEnet connectivity, UUVs will be a force multiplier, enabling a single submarine to simultaneously

Official U.S. Navy file photo of USS Scranton (SSN 756).

provide clandestine presence in multiple locations."

Several critical lessons were learned during these tests, including management of the interaction that occurs when a UUV comes very close and then docks to a submerged submarine, the integration of UUV systems within the submarine and the performance of UUV acoustic communication and homing systems.

All of these lessons learned are being used to continue the development of UUVs for today's submarine force and looking at future capabilities and technologies for the next generation of UUVs.

"Advances in autonomy software, energy systems, sensor design and computer processing technology will make it possible to pack ever-increasing capability into smaller, cheaper UUVs," Ims explained.

"These improvements will also enable a UUV of a given size to have longer endurance or carry more payload," he continued. "Unmanned vehicle systems must employ modular hardware and software design, and an open system architecture that will support rapid, affordable insertion of new technologies and payloads."

"The follow on applications for this technology and capability in the submarine force are limitless," Quinn added.

By Chief Journalist (SW/AW) Mark O. Piggott, Commander, Naval Submarine Forces Public Affairs

EBDG Supports New Research Vessel

Elliott Bay Design Group designed the modifications for the R/V Bank of Bermuda Atlantic Explorer; a 168-ft. research ship recently christened by the Bermuda Biological Station for Research (BBSR).

Purchased as the R/V Seward Johnson from the Harbor Branch Oceanographic Institute by the non-profit BBSR, the vessel will be used in oceanographic research primarily off the coast of Bermuda; throughout the Atlantic Ocean and into the Caribbean.

EBDG provided engineering guidance during the extensive modification. Work included the relocation and refit of the existing pilothouse to serve as a new aft-facing scientific operations center; as well as the design, construction and installation of a new wheelhouse atop the scientific operations center. The mast was relocated; a SOLAS rescue boat installed; and the main deck bulkheads relocated to provide a new CTD garage. In addition, EBDG has completed arrangements and structural design to support future plans to extend the central stair arrangements from the main deck to the hold deck and to provide a completely new winch deck serving the aft and side A-frames. Modifications were completed at Lyon Shipyard in Norfolk, Va. The R/V Atlantic Explorer replaces the 115-ft. Weatherbird II, and has a beam of 38 ft. and a depth of 14.25 ft. It draws just under 12 ft. at full load.

The modified vessel offers expanded deck space to carry up to four, 20-ft. scientific vans and/or work boats simultaneously. It will allow for the launching of larger scientific mooring buoys and instruments, provide more room for multi-investigator equipment and offer larger wet and dry laboratory space as well as greater stability for carrying more delicate instruments.

"This new vessel will expand BBSR's capabilities, bringing benefit to the scientific community," said Roy Newyman, EBDG's project manager. "All of us at EBDG are proud to be a part of such an important project."

IXSEA Opens in China

IXSEA announced the opening of a Chinese office, IXSEA PTE. Ltd.. Lucy Xi will head the sales division in China. The new office will be located at: Suite 2039, 20th Floor, Qing Yun Modern Plaza, 43 Bei San Huan Xi Lu, Haidian District, Beijing 100086, China.

Wind Energy Cabling Contract Awarded

Oceanteam Power & Umbilical BV won a contract by the Joint Venture for the installation of subsea cables for the shore connections and the inter array cables, including shore landings and j-tube pulls on the wind turbine foundations. The Windfarm is located 8 km west of Egmond aan Zee in Dutch territorial waters.

The contract includes the collection and transport of all cables from Naples to IJmuiden, installation of 3 x 15 km shore connection cables, installation of 34 inter array cables between the wind turbine generators and one met mast. The project man-

agement, engineering and installation will be carried out by Oceanteam P&U's operations and engineering offices in Aberdeen and IJmuiden (the Netherlands).

Tyco Finishes Cable Job

Tyco Telecommunications completed both the St. Lucia and Barbados landings of the Antilles Crossing Cable System.

Antilles Crossing is a 940 km state-of the-art undersea fiber optic cable system linking St. Lucia, Barbados, and St. Croix. Antilles Crossing will provide communications to the rest of the world. Undersea cable systems aggregate data from various communication mediums (fixed line, microwave, cell phones, and even satellite) and transport it on today's information superhighways.

"Existing cable systems that service the region are more than a decade old. During the past few years, optical transmission and network protection techniques, as well as cable installation and protection methods have evolved significantly," said William Marra, vice president and general manager Tyco Telecommunications.

"These new practices have been incorporated into the Antilles Crossing Cable System, resulting in a very robust, reliable, high speed state-of-the-art undersea fiber optic system that will satisfy the telecommunications needs of Barbados and St. Lucia for years to come."

Northrop Grumman's Newest Submarine Comes to Life

Northrop Grumman Corporation reached a milestone in the life of the newest Virginia-class submarine, Texas (SSN 775), as the crew began moving aboard and ate the first meal prepared in the ship's galley. "The milestone of moving the crew aboard a new warship is much more than just getting the many systems and spaces built and turned over," said Capt. John Litherland, prospective commanding officer of the pre-commissioning unit Texas. "It represents the

Hatlapa Winches for Maria S. Merian

One of the world's most modern research vessels - named Maria S. Merian after the scientist born in 1647 - was delivered for scientific exploration on February 9, 2006. Maria S. Merian is to support the Polarstern as a floating laboratory during work in Arctic circles. Polarstern was also equipped with Hatlapa products. Seven special winches were supplied to the shipyard in December 2003 already, which are also used for moving the underwater equipment. Hatlapa has escorted this project for five years, during which time the design of the winches was formed in close cooperation with the order principal BAW (Bundesanstalt für Wasserbau) and the shipyard Krögerwerft in Rendsburg.

One speciality is the combination of friction and storage winch for handling the very long and relatively thin measuring cables. The advantage is that the sensitive and expensive research ropes can be spooled on the storage winch free from load. The pull is created in the friction part and exerted via several grooved drums to protect the rope. A spooling device that has been developed and patented by Hatlapa also is designed so that the rope is wound onto the storage winch in a clean and gentle manner. Thereby the crossing of rope layers resulting in rope breakages are avoided. The storage winches have a very large drum diameter for realizing low bending radii of rope when wound on for protecting the sensitive measuring wires in the ropes.

By using frequency inverter controlled motors the speed can be infinitely variably controlled and the winches operated synchronously. The electric driving capacity of each winch is up to 352 kW, which is produced by four 88 kW motors kW. To dissipate the heat arising in the electric motors water cooling has been provided.

moment when the ship really begins to come to life, as the crew starts living and working aboard on a daily basis."

Texas is in the final stages of construction at the company's Newport News sector. It is the second ship of the Virginia class and will be the first submarine delivered by Newport News since 1996.

The next construction milestone is sea trials, an aggressive series of operational tests to demonstrate the submarine's capabilities. Sea trials are scheduled for early May with delivery to the Navy in June.

Northrop Grumman Newport News is teamed with General Dynamics Electric Boat to build the first 10 ships of the Virginia class. Current plans call for 30 Virginia-class submarines in the fleet. The first ship of the class, USS Virginia (SSN 774), was delivered in 2004 and is the first major combatant delivered to the U.S. Navy that was designed with the post-Cold War security environment in mind. The keel for Texas was laid on July 12, 2002, the ship was christened on July 31, 2004 and launched on April 9, 2005.

AXYS Wins DFO CHS Contract

The Department of Fisheries and Oceans (DFO) Canadian Hydrographic Service (CHS) Quebec region selected AXYS Technologies Inc. (AXYS) of Sidney, B.C. to provide 30 Data Acquisition Systems (DAS) for tide gauge monitoring on the St. Lawrence Seaway. AXYS will provide its WatchMan500 Data Acquisition Systems and Data Management Software (DMS) as part of the agreement. AXYS has also won an additional contract to help redesign the CHS tide gauge system enclosure. The CHS tide gauge information network (called SINECO) forms a crucial information component along the St. Lawrence Seaway. Data from the tide gauges is used by the Coast Guard to assist in Vessel Traffic Management along the St. Lawrence Seaway. Data from this network is also used for the planning and execution of the hydrographic survey work and the dredging of the St. Lawrence Seaway. Ship owners may also have access to the system data to ensure the optimal freight loading of their vessels.

Ocean Legislations Hit Congress

Representative Wayne Gilchrest (R-MD) introduced bipartisan legislation to update the Magnuson-Stevens Fishery Conservation and Management Act (MSA), which governs fishery management activities within the federal 200-mile limit through eight Regional Fishery Management Councils. Gilchrest's

Twin Ultrajets for Forth Ports Survey Cat

A new Ultrajet-powered 14.5-m Survey Catamaran designed by Global Marine Design Pty Ltd., Australia, has been delivered to its new owners Forth Ports Plc. The Twin UltraJet 340 jets controlled by an UltraJet

Joystick control system and driven by Cummins diesel engines are designed to provide Calatria with exceptional maneuverability and ease of operation.

Built by Auztek Engineering Ltd., based of Pembrokeshire, U.K., the vessel reportedly exceeded contract specifications in all aspects of performance and operation. Propulsion is provided by a pair of Cummins QSM 11 450 bhp (336 kW) diesel engines via Twin Disc MG5082SC gearboxes, coupled to twin UltraJet 340 waterjets. The UltraJets were supplied as a complete integrated package with jet-mounted hydraulic reversing system and electronic joystick control system. The jets deliver thrust for a maximum fully laden speed of 22 knots.

Calatria's main duty will be the very accurate surveying of the shipping lanes on the Rivers Forth and Tay in Scotland. An ergonomically designed fatigue free seat allows the Helmsman to sit upright in a driving position.

Survey data acquisition is carried out in the spacious cockpit. Electronic oceanographic monitoring hardware includes a tide monitor, echo sounder and Simrad radar.

The GMD catamaran can be equipped for multipurpose roles, including patrol, rescue, diving, commercial and sports fishing purposes. Its shallow draft capability also allows the vessel to operate in very shallow waters.

bill - H.R. 5051 - is based largely on the Senate version that passed the Senate Commerce Committee in December led by Senators Ted Stevens (R-AK) and Daniel Inouye (D-HI). Gilchrest's bill contains several important conservation and economic reforms, including enhancing the role of science in decision-making, ending overfishing and strengthening the regional councils. Representative Richard Pombo (R-CA) also introduced a bill - H.R. 5018 - to reauthorize the MSA. Pombo's bill helps align economic incentives with conservation goals. It also authorizes cooperative research with fishermen and scientists, and creates a funding mechanism for fisheries observers who collect data for conservation and management.

Lockheed Martin Delivers Radar for Navy's AUTEC

Lockheed Martin delivered its Multi-Mission Surveillance Radar (MMSR) system to the U.S. Navy for use at its Atlantic Underwater Test and Evaluation Center (AUTEC). AUTEC is the U.S. Navy's undersea warfare systems test complex, located at Andros Island in the Bahamas.

The new MMSR system will measure the location of aircraft and surface ships in support of submarine testing at the AUTEC test range. This single MMSR radar replaces existing radars that were distributed along the test range coast.

The MMSR system is designed to have mid-range surveillance capability - 50 nautical miles (approximately 57 statute miles) - and was produced at Lockheed Martin's facility in Syracuse, NY, following a $5.5m contract awarded by the Naval Underwater Warfare Center in 2002.

Researchers Propose Seafloor Mapping Project

Researchers say a proposed $5.6m seafloor mapping project would benefit the region in a number of critical areas - including fisheries management, tsunami planning and the creation of marine reserves. The Oregon Ocean Policy Advisory Council unanimously endorsed the proposal and organizers now plan to take the idea to the State Land Board. Federal support also will be sought for the project. Researchers plan to use sophisticated sonar to produce a highly detailed map of the three-mile wide strip of ocean floor along the Oregon coastline. About 95 percent of the Oregon territorial sea is known only by crude depth charts and contours, researchers say. They want a clear picture of a sea floor dominated by ridges, valleys, rockpiles and various marine habitats that are known for only a tiny fraction of the area that is regulated by the state. The project is being developed by Mark Hixon, an Oregon State University professor of zoology, and led by Chris Goldfinger, a professor of oceanic and atmospheric sciences, and Dawn Wright, professor of geosciences. The three are experts in seafloor mapping, habitat characterization, and earthquakes and tsunamis. Costs could be kept down by using idled fishing vessels, supporters say, and advances in technology could yield maps of exceptional detail that would once have been too expensive to make. Scientists say that understanding the nature of Oregon's territorial sea is critical to sustaining sport and commercial fisheries, coastal tourism, and the ocean ecosystem.

Keppel Deliver KFELS B Class Jackup

Keppel FELS Limited will deliver a jackup to a wholly-owned subsidiary of SeaDrill Management, the third KFELS B Class rig that Keppel has completed within the first four months of 2006. This is the first of four jackups that Keppel FELS is building for SeaDrill. Construction of the other three rigs is expected between mid 2007 and 2Q 2008. Keppel FELS secured the first jackup contract in March 2004 with Odfjell Drilling, which ordered a second rig in March 2005. In mid 2005, SeaDrill acquired Odfjell Invest Ltd., the holding company for the rigs. The right to exercise Odfjell's option to a third rig was then assigned to SeaDrill. The fourth jackup rig order was made by Seatankers Management Co. Ltd.

HPS2006 Set for San Diego

HPS2006, the west coast's only Human Powered Submarine design competition and race, is scheduled for Thursday July 19 through Sunday July 23. The racing will be held in the Offshore Model Basin in Escondido, Calif., where divers from the San Diego area will once again volunteer their time to ensure safety. The rules for HPS2006 are very similar to HPS2004. The biggest change in requirements is that all entrants must now submit a Design Description Document. This is intended to be the written documentation of the sub design that each team is submitting to the competition. There are no format or length requirements. It is up to the teams to determine what to incorporate in the document.

Flexible Mobdocks Make their Mark

For years cofferdams (called mobdocks in Hydrex terminology - short for 'mobile mini dry docks') have needed to be large metallic structures that make a watertight fit to the hull of a vessel in order to seal out water from the area being repaired. Hydrex has pioneered many different uses of mobdocks including sealing off thruster tunnels at both ends, removing the water and creating a dry space within. This enabled specialists to perform repairs or even change thrusters whilst the vessel was carrying out port activities such loading or unloading, without all the added time and problems connected to going into dry dock.

The first mobdocks for thruster tunnels were initially large, specially shaped, metal structures that fitted to the curved hull around the thruster tunnel. In many cases, this is now no longer needed. Hydrex has broken new ground in the last year and come up with a 'flexible mobdock' allowing diver-technicians to work within the thruster tunnel. Once the water has been removed, technicians can work within the thruster tunnel. The cost of producing heavy metal structures is usually no longer needed, which in turn means time saved on the repairs.

Rene Huybreghts, General Manager of Hydrex, said "The flexible mobdocks are the latest result of a fast service we have been looking to achieve for years. We have already done a number of jobs using them last year and now they are into full operation with several jobs done this month. They open up a whole new dimension to provide better service in the field of underwater ship repairs."

One of the jobs, done in Portsmouth, U.K., was the removal and replacement of a bow thruster gearbox. A flexible mobdock was installed and all water was removed from the tunnel. In this 'dry environment' underwater, the propeller blades were first removed from the hub. The gearbox and electromotor were then dismounted and dis-

Hydrex diver working underwater.

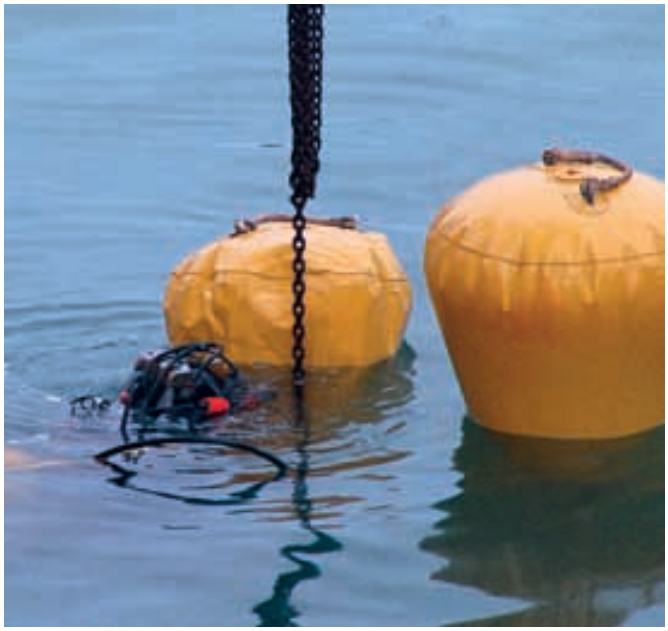
Overhauled thrusters unloaded.

connected from the structure holding it in place. The thruster tunnel was flooded with water and thruster was moved to the end of the tunnel and hoisted to the surface, along with the propeller blades, where it was sent for repairs.

A blind flange had been installed within the tunnel where the thruster had been fitted, which then allowed the vessel to sail on schedule. Several weeks later the gear-

Diver preparing to work in thruster tunnel.

Prep to seal thruster tunnel with flexible mobdocks.



Cleaning the area before welding.

New blade being lowered into the water.

box had been renovated and was ready for installation. It was taken into the thruster tunnel, along with the 4 detached propeller blades. The propeller blades were fitted with new seals, the gearbox refilled with oil and then air vented on the propeller hub monitored by the diver. After completing all mechanical and electrical connections the bow thruster was tested and found working perfectly.

Another job was done on a 208 m container ship in Marseilles where Hydrex was called out to repair one broken blade and replace all four-blade seals on a bow thruster.

On arrival an underwater inspection was done and it was found that not only had one blade broken off completely, but that this had also caused a crack and deformation in another blade. It was therefore decided to replace the second blade as well.

The work then began with the bowthruster grids first being removed. Following this, a flexible mobdocks was installed. Water was then pressurized out from the tunnel and a 'dry space' created. The first part of this operation required taking the securing plates from the blade bolts, removing the bolts and then all blades were taken away from the gearbox.

The old seals were then taken off, the area cleaned up and new seals were fitted. After this, the two new blades and the two original ones were installed.

The blade bolts were tightened to the right torque according to the specifications and the unit was filled, with oil. As this was a controlled pitch propeller system, the pitch of the blades was tested to ensure there were no oil leakages.

This proved to be working smoothly and so the securing plates were welded back over the blade bolts, the thruster tunnel filled de-pressurized and the flexible mobdock removed. After the gratings were fitted back in place a final test was done which showed the unit to be functioning optimally.

Due to the use of flexible mobdocks, this operation - which in the past would have required dry docking the vessel - was carried out in a short time whilst the vessel was in port carrying out its regular duties, demonstrating that significant savings in time and money result from using the Hydrex flexible mobdock system.

New Drysuits Offered

DUI released a complete line of drysuits designed specifically for warmer waters and climates - the redesigned 30/30, the new 30/30SE and new StretchLiner 100. DUI uses a unique material with M3 Technology that is waterproof and breathable. The 30/30 is designed to be worn with light insulation so it gives the diver a sleek, slim fit. It has ankle seals instead of boots to keep your body temperature regulated on the surface. DUI's 30/30 drysuit is available in two models: 30/30 SE and 30/30 Stretch Liner.

Epic Divers Acquired by Tetra Technologies

Epic Divers & Marine, headquartered in Harvey, La., was acquired by Tetra Technologies, Inc. for $50 million in cash, which was jointly announced by Julie Rodriguez, owner and CEO of Epic, and by Geoffrey M. Hertel, President and CEO of Tetra. Epic, which also has an office in Houston, TX, has approximately 250 employees and projected revenues for 2006 in excess of $60 million. Epic will remain headquartered in Harvey, and its management team, staff, divers & marine personnel also will remain with the newly acquired dive company. Rodriguez will serve as President of the newly acquired company. Epic will continue to do business as Epic Divers & Marine, which houses a full-service commercial diving company and a fleet of marine vessels with offshore and coastal diving support capabilities, along with production and construction support. Epic Divers was founded in Harvey, LA in 1972, by L. J. "Pie" Rivet. His daughter, Julie Rodriguez, began working for the company Epic Divers Inc., in 1976, and purchased it from her father in 1991. Six years later she launched its marine division, Epic Marine, LLC, which later became established as Epic Divers & Marine.

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www.bluewaterengineering.com

British Oceanographic Data Center
Product: The British Oceanographic Data Center (BODC) is the UK national facility for preserving and distributing oceanographic and marine data. Staff have direct experience of marine data collection and analysis and they work alongside information technology specialists to ensure that the biological, chemical, physical and geophysical data handled are documented and stored for current and future use.
Enquiries Officer
Tel: +44 (0) 151 795 4884
enquiries@bodc.ac.uk
http://www.bodc.ac.uk/

Brooke Ocean Technology
Product: BOT USA Inc was formed to continue development work funded under two US Navy Small Business Innovation Research (SBIR) projects. These projects involve the development of payloads for naval unmanned surface vehicles. BOT USA is partnered with, a Cambridge based manufacturer of autonomous underwater vehicles (AUVs).
General Manager Roger E. Race
Tel: 508-990-4575
rrace@brooke-oceanusa.com
brooke-ocean.com

Bruttour International Pty Ltd
Product: CEE Products: - CEEDUCER Pro dual channel echosounding with GPS & data logging Hydrographic survey system. - CEESTAR Dual channel digital survey echosounder. - CEETIDE - Acoustic tide gauge with optional telemetry. Agents for Odom Hydrographics Inc, Hemisphere GPS Inc, GeoAcoustics Ltd., HYPACK Inc.
Sales Director Dave Garforth
Tel: +61 2 9481 8730
dg@bruttour.com.au
www.bruttour.com.au

Bucksport Marine Services
Product: Contract Services Vessel Charter
Owner Michael S Ormsby
Tel: 207-469-6616
bucksportmarine@adelphia.net

C & C Technologies, Inc.
Product: C & C is headquartered in Lafayette, Louisiana and has additional offices in Houston, Singapore, Brazil, Mexico, South Africa and the United Kingdom. C & C provides a range of survey and mapping services for the land and offshore oil and gas industry, the telecommunications industry and several government entities. Today, C & C is a leader in deepwater AUV survey services.
Public Relations Jeff Fortenberry
Tel: 337-261-06660
info@cctechnol.com
www.cctechnol.com

C & W Industrial Fabrication and Marine Equipment Ltd.
C&W Industrial Fabrication & Marine Equipment Ltd. is a fabricating company, spe-

directory

cializing in the production of aluminum boats and barges, Fish Harvesting, Unloading and Processing Equipment, Offshore services and Naval Construction.
Darren Brown, Manager
Tel: (709) 334-3303
dbrown@cwindustrial.com
http://www.cwindustrial.com

Cain & Barnes, L.P.
Product: Survey and geodetic technical consultancy to the oil and gas industry; management and marketing consultancy services, specializing in geospatial data.
Jim Cain
Tel: +1 281 558 6153
jim.cain@cain-barnes.com
http://www.cain-barnes.com

Callenberg Engineering
Product: Electrical and electronic installation, repairs and service.
President Avi Tal
Tel: 305-493-8000 Fax: 305-493-8099
avi@callenberg.com
www.callenberg.com

Canada Ocean Technology Energy and Marine Branch
235 Queen Street, Room 61
OF Ottawa, Ontario K1A 0H5
Industry Development Officer
Donna McCloskey
(613) 952-4164
mccloskey.donna@ic.gc.ca

CARIS
Product: CARIS has been developing and marketing software for hydrography, mapping and Geomatics for over 25 years. CARIS has gained a reputation as a world leader in marine and hydrographic charting agencies. In the field of Marine and Hydrographic information, CARIS offers 13 product lines which are compatible and provide a complete solution from post-processing of bathymetric data; to paper, raster and electronic chart production; to spatial database management and internet distribution.
Phone: 506-458-8533
info@caris.com
www.caris.com

Carousel Paint Corp
Product: Alocit, EnviroPeel, PPG, Pittsburgh Paints, Carborundum, ASM Spray SSPC Certified Protective Coatings Specialist Dan P Buelk PCS.
Tel: (757) 397-4594
danpbuelkpcs@carouselpaint.com
www.carouselpaint.com

Carrillo Underwater Systems
Products: Complete VHS/DVD & Hard Drive combination diver video recording systems, Communications
Tel: (888) 728-2226
info@carrillounderwater.com
www.carrilloUnderwater.com

CAT PUMPS-High Pressure Pumps & Systems
Product: Mfr of triplex, reciprocating, high pressure piston and plunger pumps and customer engineered pumping systems up to 320 GPM, 7000 PSI for desalination, process, hydrostatic testing, jetting, misting and other industrial applications.
Customer Relations Darla Jean Thompson
Tel: 763-780-5440
techsupport@catpumps.com
www.catpumps.com

Centre for Earth and Ocean Research
Product: Earth, ocean and atmospherica research, within a university context.
Tel: 250-721-8848
ceor@uvic.ca
web.uvic.ca/ceor

Cetacean Research Technology
Product: Broadband hydrophones, data acquisition instrumentation, signal analysis software, digital recording systems, suction cup attachment devices, and custom systems for underwater sound detection, recording, and analysis.
Owner J. R. Olson
Tel: 206-297-1310
crt@cetaceanresearch.com
www.cetaceanresearch.com

Coastal Marine Equipment
Product: Coastal Marine Equipment offers a complete line of Marine Deck Machinery including, but not limited to, Anchor Windlasses, Mooring Winches, Anchor Winches, Hose Reels, Capstans, Escort Winches, Towing Winches, Tugger Winches, Ramp Winches, Spud Winches, Cable Storage Reels, as well as General Fabrication, Machining Services, Testing, Installation, Maintenance and Repair Services.
General Manager Ralph Waguespack
Tel: 228-832-7655
ralphw@coastalmarineequipment.com
coastalmarineequipment.com

DDL Omni Engineering
Product: DDL Omni Engineering LLC provides a wide spectrum of Engineering and Technical Services dedicated to the acquisition, design, testing, logistics, and documentation of hardware / software / firmware systems.
Pete Alexander
Tel: 619-640-0275
pete.alexander@ddlomni.com
www.ddlomni.com

Deep Development Corp.
Products: Viperfish Land, Viperfish Amphibian, Viperfish DEEP
Muriel Orr
Tel: 1.877.864.9671
morr@deepdevelopmentcorp.com
www.deepdevelopmentcorp.com

DeepSea Power & Light
Product: DeepSea Power & Light was founded in 1983 with the goal of providing high quality, innovative products to the oceanographic community Initially manufacturing deep water power systems, the company's expertise and product line has grown to include underwater video and lighting systems. All of DeepSea Power & Light's standard products (from Underwater lights and cameras to lasers and batteries) are rigorously designed to perform in the harsh marine environment, from wet/dry surface applications to full ocean depth deployments.
Oceagnographic Sales Manager Peter Weber
Tel: (858) 576-1261
peter_weber@deepsea.com
www.deepsea.com

Deep Sea Systems International, Inc.
President, Chris Nicholsen
Tel: 508 540 6732

Deltamarin Ltd
Product: Deltamarin specializes in marine consulting, design and engineering. Services provided: feasibility, R&D and project studies, safety and risk based design, simulations, basic design, planning, procurement handling, detail engineering, supervision and project management and coordination.
info@deltamarin.com
www.deltamarin.com

DMW Marine LLC
Products: Marine Cranes
Tel: (610) 827-2032
info@dmwmarine.com
www.dmwmarine.com

Draka Cableteq USA - BIW
Product: Underwater Marine, Commercial, and Industrial Cables
Manager of Design and Application Engineering Matthew Bodziony
Tel: 508-513-2321
matthew.bodziony@draka.com
www.drakausa.com

Duramax Marine LLC
Product: Duramax Marine LLC is a leading manufacturer of commercial marine products including Johnson Cutless® Water Lubricated Bearings, DuraCooler® Heat Exchanger Systems, Duramax® Shaft Seal Systems and Johnson Commercial Fendering Systems.
Lewis Foster
Tel: 440-834-5400
LFoster@duramaxmarine.com
www.duramaxmarine.com

EdgeTech
R.J. Jablonski
(508) 291-0057 Ext. 713
raj@edgetech.com
www edgetech.com

EGA Master S.A.
Product: Ega Master manufactures professional and industrial tools for the marine/offshore sector. Ega Master offers the broadest tool range for engineering, mechanic, construction or electrical use; including striking tools, slogging spanners, pipe wrenches, threading equipment, pipe cutters, tubing cutters, pipe vices, hammers, tool sets and tool storage systems.
Aner Garmendia
Tel: +34-945290001
master@egamaster.com
www.egamaster.com

EMX Inc.
Product: Mfr. of thermal imaging systems for surveillance, security, boats, and vehicles.
Tim Arion
Tel: 321-751-0111
arion@emx-inc.com
www.emx-inc.com

Enerpac bv
Product: Enerpac, the global leader in high force hydraulic solutions, is exhibiting hydraulic tools and accessories for the heavy construction trade
Irene Kremer
Tel: +31 318 535911
irene.kremer@enerpac.com
www.enerpac.com

Falmouth Scientific, Inc.
Product: Since 1989, Falmouth Scientific, Inc. has been an International leader in the development and manufacturing of precision oceanographic instrumentation. FSI's full range of products is used around the globe, in environments ranging from estuarine to full ocean depths. Core products include current meters, CTDs, profiling CTDs, wave gauges, AUVs and other oceanographic sensors. FSI also offers offshore acoustic instrumentation and leading edge special engineering capabilities to address a wide array of underwater applications.
Frances Lewis-Souza
Tel: 5085647640
fsi@falmouth.com
www.falmouth.com

FarSounder, Inc.
Products: 3D Forward Looking Sonar Systems: FS-3 System, FS-3DT Systems, Aluminum and Stainless steel models
Cheryl M. Zimmerman, CEO
Tel: 401-784-6700
info@farsounder.com
WWW.FARSOUNDER.COM

Florida Institute of Technology
Underwater Technologies AUVS , ROVS, Submersibles
Assistant Proßssor Ocean Engineering
Stephen L. Wood, Ph.D., P.E.
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Applied Science Associates
70 Dean Knauss Drive
Narragansett, RI 02882-1143
Phone: +1-401-789-6224
Fax: +1-401-789-1932
Eric Anderson, President
eanderson@appsci.com

www.appsci.com

Applied Science Associates (ASA) is an international leader in the development and application of computer tools to investigate marine and freshwater environments. ASA answers questions about our environment and human interaction within that environment, using computer models, which simulate physical, chemical, and biological processes.

DeepSea Power & Light
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San Diego, CA 92123-1813
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DeepSea Power & Light was founded in 1983 with the goal of providing high quality, innovative products to the oceanographic community Initially manufacturing deep water power systems, the company's expertise and product line has grown to include underwater video and lighting systems. All of DeepSea Power & Light's standard products (from Underwater lights and cameras to lasers and batteries) are rigorously designed to perform in the harsh marine environment, from wet/dry surface applications to full ocean depth deployments.

Flotation Technologies Inc.
Product: Flotation Technologies, Inc. is a world leader in the design, manufacture, and marketing of deepwater buoyancy systems using high-strength Flotec syntactic foam and polyurethane elastomer products.
Fred Maguire
Tel: 207-282-7749
sales@flotec.com
www.flotec.com

Flume Stabilization Systems
Product: Passive tank roll stabilization systems- design and model testing
USA Montclair 07042
President John Martin
Tel: +1 973 509 1530
maritim@attglobal.net
http://pws.prserv.net/flume

Fugro GEOS
Rob Smith
(713) 346-3600
r.smith@geos.com
www.geos.com

Furuno USA, Inc.
Product: World leader in marine electronics including radar, chart plotters, fish finders, depth finders, sonar, GPS, communications, autopilots, marine software and more.
Jeff Kauzlaric
Tel: 360-834-9300
readerresponse@furuno.com
www.Furuno.com

Geometrics
Products: Digital Seismic Streamer, Marine Magnetometer
Tel: (408) 954-0522
sales@mail.geometrics.com
www.geometrics.com

German Hydrographic Consultancy Pool
Klaus D. Pfeiffer
+49 4103 9 12 23 - 0
pfeiffer@hydromod.de
www.hydromod.de

Global Oceanic Enterprises, Inc.
Product: Underwater and Marine Services
President Richard Coppola
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GOE@GlobalWeb.com
www.GlobalWeb.com

Government of Newfoundland & Labrador
Jonathan Brockway
(709)729-5680
jbrockway@gov.nl.ca

Gregg Drilling & Testing, Inc.
Products: Drilling Ship, Mini Cone CPT; Jack-Up Floating Boats and Barges
Tim Boyd
info@greggdrilling.com
www.greggdrilling.com

GRI Simulation Inc.
GRI Simulations Inc. provides ocean mapping services for domestic and international customers using the DOLPHIN semi-submersible Remotely Operated platform. GRI focuses on supporting sub-sea Remotely Operated Vehicle (ROV) operations by providing simulation technology to enhance ROV pilot training, mission planning and rehearsal for offshore oil construction and production operations and Military SAR and Mine-Countermeasures activities
Steve Dodd, Manager
Tel: (709) 747-5599
geores@thezone.net
www.grisim.com

Haekeon Corporation
Product: hydraulic tools, equipment distributor
Managing Director Kyung Hwan Kim
Tel: +82 32 329 1531
hae-keon@hotmail.com
www.cmlkorea.com

Hafmynd
Product: The GAVIA AUV System developed by Hafmynd LTD, is a commercially available fully modular compact AUV capable of both very shallow water and deep-water operations. The Gavia base vehicle is a mobile sensor platform that can be user onfigured on deck for a particular task or operating condition by the addition of one or more sensor, navigation or battery modules, which are inserted into the vehicle and locked in place by means of a unique twist lock system.
Arnar Steingrimsson
Tel: +354 511 2990
sales@gavia.is
www.gavia.is

Hawaii Mapping Research Group
Product: A group of research scientists and engineers who build and operate seafloor mapping systems.
Director Margo Edwards
Tel: 808-956-5232
margo@soest.hawaii.edu
www.soest.hawaii.edu/hmrg/

Heila Marine Cranes
Product: Manufacturer of Marine Cranes in a wide variety of models and configurations. Fixed Box Booms, Telescopic, Foldable, Knuckle boom, and custom build cranes up to 1500 tm. Cranes for Offshore Platforms, Fishing Industry, ROV handling, Workboat, Supply vessels, anchor handling, aquaculture, fish farm food supply and many other applications.
Ivan B. Zwijnenburg
Tel: +390522688244
seadiscovery@heila.com
www.marine-cranes.com

Herrin Design & Manufacturing Co.
Products: Communications & Control Systems
Tel: (360) 856-1233
herrindesign@verizon.net

HOBI Labs
Product: Oceanographic research and manufacturer of oceanographic sensors. Sensors measure backscattering, absorption, attenuation and we also provide data loggers, radiometers, and battery packs.
Nancy Alimonti
Tel: 520-299-2589
sales@hobilabs.com
www.hobilabs.com

Hydra Marine
Product: MAnufacturer of commercial Diving Systems
Mike Jessop
Tel: +27 (21) 552 3600
MikeJ@hydra.co.za
www.hydra.co.za

Hydroid Inc.
Product: REMUS 100 Autonomous Underwater Vehicle (AUV).
VP Marketing Kevin McCarthy
Phone: 508-563-6565
sales@hydroidinc.com
www.hydroidinc.com

IMS, Inc.
Product: Manufacturer of watertight sliding doors
Terry Torgeirson
Tel: +1239 772 9299
tto@imsdoors.com
www.imsgroups.com

Impulse
Andy Gardner
(858) 565-7050
(858) 565-1649
andyg@impulse-ent.com

InterOcean Systems, Inc.
Stephen M. Pearlman
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(858) 268-9695
sales@interoceansystems.com
www.interoceansystems.com

International Communications & Navigation Limited (ICAN)
St. John's-based ICAN develops and integrates sophisticated electronic charting, display, and communication systems. Navies, coast guards, hydrographic offices, ocean scientists, and professional mariners of all types utilize ICAN's Aldebaran and Regulus electronic chart systems and related modules.
Neil Chaulk, President
Tel: (709) 754-0400
sales@icanmarine.com
www.ican.nf.net

International Industries Inc.
Product: Sales & Rental of Hydrographic & Oceanographic equipment,software and training. This includes Side Scan Sonar, Sub-bottom Profilers, Forward Looking and Multibeam Sonars, SAR Sonars, Echosounders (shallow - deep and ships navigation), ROVs, Underwater Automamous Vehicles, DGPS (general-local-worldwide coverage), Towed Underwater Vehicles, Vibracore Drilling Equipment, Gyrocompasses, Dynamic Motion Systems, Underwater Tracking Systems, Underwater TV and Lighting, Winches, Underwater Electrical Connectors, Sonar Processing Software, Survey Planning and Operations Software,Tracked Underwater Vehicles and Many Installation and Training Courses - both classroom and via DVD.
President Morris A. (Chic) Ransone
Tel: 410-349-4080
chic.ransone@internationalindustries.net
www.internationalindustries.net

IVS 3D
Bill McKernan
Tel: 603 431 1773
bmckernan@ivs3d.com
www.ivs3d.com

IXSea
Product: Navigation and positioning systems, underwater acoustics systems and seabed imagery, seafloor mapping
Phone: +33 (0)1 30 08 98 88
Fax: +33 (0)1 30 08 88 01
info@ixsea.com
www.ixsea.com

IXSurvey SAS
Product: coastal oceanographic and hydrographic survey. Computer modelling
CEO Andre Dolle
Tel: +33 1 30 08 86 00 Fax:
info@ixsurvey.com
www.ixsurvey.com

Jack Vilas & Associates, Inc.
Products: Syntho-Glass, Fire Blockade, salvage equipment, corrosion protection, fittings & hoses, helmets and hat bags
Tel: (985) 384-8012
sales@jackvilas.com
www.jackvilas.com

Kongsberg Maritime
Lisbeth Ramde
Tel: +47 33 03 41 00
subsea@kongsberg.com
www.km.kongsberg.com

Kongsbreg Seatex AS
Product: Kongsberg Seatex is a leading international marine electronics manufacturer specializing in the development and production of precision positioning and motion sensing sys-

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tems. Our commitment is to provide quality products and solutions for safe navigation and operations at sea in the commercial offshore, maritime, hydrographics and defence industries.
Marketing Henning Langlete
Tel: +47 73 51 50 20
henning.langlete@kongsberg.com
http://www.km.kongsberg.com/seatex

Kongsberg Underwater Technology Inc.
Product: SM 200 Underwater Surveillance System
Tel: (425) 712-1107
Km.sales.lynwood@kongsberg.com
www.kongsberg.com

LCM Systems Ltd
Product: LCM Systems are manufacturers of standard and custom design load cells, load pins, pressure transducers and associated instrumentation systems. We have a wide experience in the design and supply of load cell products to the offshore, marine and other harsh environment applications.
Managing Director Steve Sargeant
Tel: 44 (0) 1983 249264
sales@lcmsystems.com
www.lcmsystems.com

L-3 Communications Klein Associates, Inc.
Products: GMDSS, A1, A2, A3, A4, Inmarsat C, VHF, NERA, F77 SatCom
www.L-3Klein.com
Michael Mitchell
Tel: 603-890-1304
Deborah.Durgin@L-3Com.com

Lockheed Martin Sippican, Inc.
Tracy L. McNeil
(508) 748-1160 ext. 185
tracy.l.mcneil@lmco.com

Loxus Technologies
Product: ROV and Sonar Operations, Underwater Tunnel Inspections
Tel: +358 40 716 1318
Mikko.simola@loxus.com
www.loxus.com

Madrock Marine Solutions Inc.
Mad Rock Marine Solutions Inc. develops enhanced marine evacuation system products. Drawing on strong technical engineering capabilities and expertise in evacuation systems, Mad Rock's team of professionals help to ensure safer marine evacuations by providing new, reliable, high quality products.
Dean Pelley, President/CEO
Tel: (709) 772-7547
dpelley@madrock.ca
www.madrock.ca

Makai Ocean Engineering, Inc.
President Ph.D., P.E. Joseph Van Ryzin
(808) 259-8871
Joe.Van Ryzin@makai.com

MAN B&W Diesel, Inc.
Product: The MAN B&W Diesel Group is a leading supplier of large diesel engines for ship propulsion systems, stationary power supply and rail traction.
Marine Sales Manager Chuck Kissee
Tel: 941-723-4282
ckissee@manbwus.com

Marin Mätteknik AB
Product: MMT maps shallow, littoral and offshore areas for bathymetrical, geophysical and geotechnical surveys. Our information products enable nautical charts producing, subsea route and foundations engineering and marine environmental assessments and exploration.
Anders Höfnell
Tel: +4631695280
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Marine Magnetics
Paolo Berardelli
Tel: 905 709. 3135
pb@marinemagnetics.com

Marine Oceanographic Technology Network
Executive Director Steve Withrow
(508) 548-3246
info@morn.org
www.motn.org

Marion Hill Associates, Inc. Diving & Marine Services Group
Product: inland marine contractor specializing in traveling water screens, sewage treatment plants, generating stations, etc.
VP of Sales Leen Dykstra
Tel: 724-847-3390
ldykstra@marionhilldivers.com
www.marionhilldivers.com

Mar-Vel International
Product: Catalog
Tel: (800) 488-4499
Sales-mt@mar-vel.com
www.mar-vel.com

Master Tech Diving Services Pte. Ltd.
Product: Underwater Services
Managing Director Stevens Tan
Tel: +65 67788037 Fax: +65 67786806
mail@mastertech.com.sg
www.master-tech-diving.com

Materials Systems Inc.
Product: Materials Systems Inc. (MSI) designs and manufactures custom sonar transducers and arrays for a wide range of applications, including side-scan, obstacle avoidance, sub-bottom profiling, swath bathymetry, mine hunting, and acoustic communications. MSI's piezocomposite technology offers extremely broad bandwidth, high receive sensitivity, high source levels, and conformability for curved arrays.
Rick Foster
Tel: 978-486-0404
ideas@matsysinc.com
www.matsysinc.com

MacArtney A/S
Products: Cables, Connectors, Winches, Diving Equipment, Acoustic Equipment, Oceanographic Equipment, Telemetry, ROV Systems, Fibre optics, In-house Engineering
Mette Sjelborg
Tel: +45 7613 2000
ms@macartney.com
www.macartney.com

Mckim & Creed, P.A.
Product: Hydrographic and Land Surveying Services including dredging surveys, beach monitoring, single beam, multibeam, sidescan, sub bottom, and magnetometer surveys. Dredge/vessel positioning.
Tim Cawood
Tel: 910 343 1048
tcawood@mckimcreed.com

MitreTek Systems
L. Dwayne Johnson
Tel: (703) 610-1711
Dwayne.Johnson@mitretek.org
www.mitretek.org

Monterey Bay Aquarium Research Inst.
Chief R 0 V Pilot
T. Craig Dawe
(831) 775-1910
dacr@mbari.org
www.mbari.org

Naval Research Laboratory
Product: Government research laboratory operated by the U. S. Navy
William T. Thomposn
Tel: 831-656-4733
william.thompson@nrlmry.navy.mil
www.nrlmry.navy.mil

NavSim Technology Inc.
NavSim develops innovative marine navigation integrated systems that merge top-level computation, visualization and communication technologies. NavSim products enable safer, more accurate and easier boat handling at any speed and under any weather and traffic conditions. The Artificial Intelligence technology allows for an innovative, seamless customization of the system for a particular boat.
Dr. Piotr Waclawek
Tel: (709) 726-7779
info@navsim.com
www.navsim.com

NetworkAnatomy
Product: Complete long haul wireless and integrated satellite communications, cargo management, fleet management and monitoring systems and security
CEO Doug Linman
Tel: 925 249 8900
dlinman@networkanatomy.com
www.networkanatomy.com

NOAA/NESDIS/ National Oceanographic Data Center
Product: US Government long-term archive of global oceanographic data
Director Zdenka Willis
Tel: 301-713-3270
zdenka.willis@noaa.gov
www.nodc.noaa.gov

Nova Ray, Inc. Subsea Systems
Products: Patented Nova Ray underwater ROV with Arcuate wing
www.novaray.com
Nova Ray, Inc.
Tel: 425-825-0654
email:info@novaray.com

New Draulic Tools Inc.
Eve Polanco
(718) 292-0680
eve@newdraulictools.com
www newdraulictools.com

NOAA
Director National Geodetic Survey
Charles W. Challstrom
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Charlie.Challstrom@noaa.gov

Noise Control Engineering Inc.
Product: Noise Control Engineering provides practical solutions to habitability and underwater noise issues on all types of vessels and marine structures. Our company can has received and helped other companies win Small Business Innovative Research (SBIR) contracts to provide solutions to difficult marine acoustic problems. NCE has developed unique software that can be used to predict and control the noise environment onboard vessels. Our engineers have the experience and NCE has the equipment to diagnose existing problems, prevent problems from occurring, and optimizing system wide solutions. NCE has been involved with the successful design and testing of the quietest US commercial research vessel, some built to internation standard for underwater radiated noise limits.
Raymond Fischer
Tel: 978-670-5339
nonoise@noise-control.com
www.noise-control.com

Ocean Innovations
Product: Ocean Innovations supplies underwater cables/connectors, ROVs, hydrographic survey equipment, oceanographic sensors and underwater navigation systems.
President Brock Rosenthal
Tel: 858-454-4044
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www.o-vations.com

MacArtney A/S
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Mette Sjelborg
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www.macartney.com

The MacArtney Group supplies products and engineering solutions to the worldwide Underwater Technology Market. Our aspiration is to maintain our continued success by using our experience and our understanding of customers' expectation. We understand the market demand for advanced technology and we consider it our responsibility to keep astride of these advances without any compromise, indeed it is essential to enable us to offer the best solutions.

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Chris Tarmey, CEO
ctarmey@seaeye.com

www.seaeye.com

Seaeye was the first manufacturer to take brushless DC motor technology and develop this for reliable use in ROV thrusters. As part of this development, Seaeye were the pioneers who integrated motor drive circuitry within the thruster body. For this work they won the prestigious Triad Innovation Design award in 1990.

Oceanic Imaging Consultants
Jediah Bishop
(808) 539-3871
jbishop@oicinc.com
www.oicinc.com

Ocean.US
Product: Design and coordinated implementation of integrated ocean observing systems
Director Mary Altalo
Tel: 703-588-0853 Fax:
m.altalo@ocean.us
www.ocean.us

OceanWaveS GmbH
Product: Wave Monitoring System WaMoS II: Wave measurement with any type of X-band radar in real time. The system detects the spectral sea state parameters like significant wave height, wave period, direction, and length as well as currents. It works automatically and unattended from moving vessels, offshore platforms or at coastal sites.
Phone: +49 4131 78 98 318
info@oceanwaves.de

Ocean Marine Industries, Inc.
Product: DIDSON Identification Sonar
Tel: 757-382-7616
info@oceanmarineinc.com

Offshore Marine Consultants
Product: Marine Operations Policy, Procedures, and Manuals Shipyard Project Management and Dispute Resolution Project Management, Vendor Evaluation, and Vendor Quality Dispute Resolution Market Surveys or Proposal Development and Presentation Vessel Design Concept Development and Evaluation Anchor Handling and Mooring Installation Procedures Mooring and Dynamic Positioning for Cargo Handling MODU Mobilizations and Jack-up Elevating & Preloading Procedures Damage and Condition Surveys Marine Casualty Analysis, Expert Testimony, and Arbitration Port, Facility, or Vessel Security Maritime Regulatory Affairs and Liaison
President Robert Ettle
Tel: 985-839-6444
bobettle@earthlink.net
http://home.earthlink.net/~bobettle/

Optech Incorporated
Product: Optech is the world leader in the development, manufacture and marketing of advanced laser-based survey instruments, including the SHOALS line of products.
Juliet Wintrobe
Tel: 905-660-0808
shoals@optech.ca
www.optech.ca/shoals

OWECO Ocean Wave Energy Company
Product: Develop modular, self supported OWEC Ocean Wave Energy Converter(r).
Foerd Ames
Tel: 401-253-4488
foerd@owec.com
www.owec.com

Parker Associates, Inc
Product: Specializing in Arctic Oceanand Bering Sea operations.
President Walter B. Parketr
Tel: 907 333-5189 Fax: 907 333-5153
wbparker@gci.net

Penscil, Inc.
Product: Penscil provides complete design and development services for sonar and other scientific instruments. We furnish detail-oriented solutions in the areas of hardware, software, systems integration, technical documentation and project management.
info@penscil.com
www.penscil.com

Perry Slingsby Systems - Technip Group
Tel: 561-743-7000
www.perryslingsbysystems.com

Prizm Inc.
Products: AUV
Tel: (410) 379-6658
www.prizminc.com

Provincial Aerospace Ltd.
Provincial Aerospace specializes in Maritime Surveillance Technologies, Aerospace Engineering and Aircraft Modification, Aerospace Design, Component and System Fabrication, Systems Integration, Software Engineering and ice and environmental monitoring services to the offshore oil and gas industry.
Derek Scott
Tel: (709) 576-1207
Email:dscott@maritimesurveillance.com
www.maritimesurveillance.com

Radio Holland Netherlands
Product: Apart from standard communication- and navigation electronics Radio Holland Netherlands supplies specific underwater sensors for the dredging business as well as equipment to determine the accuracy of the measured position.
Mw. Annet Boers
Tel: +31 10 4283344
info@radioholland.nl
www.radioholland.nl

Rapp Hydema
Products: Winches for Underwater Applications
www.rappus.com

Remote Ocean Systems, Inc.
Products: Underwater Video Cameras, Underwater Lights, Rugged Pan and Tilt Units, Custom Engineered Solutions
Edward Petit de Mange
858.565.8500 x112
epetit@rosys.com
www.rosys.com

Reson, Inc.
Sales Engineer
Al Rougeau
(410) 923-0066
www.reson.com

Rockland Scientific International Inc.
Product: Rockland Scientific designs and manufactures high-accuracy instrumentation for oceanographic research. We are the world's leading supplier of instrumentation and sensors for the measurement of microstructure turbulence in natural waters.
Fabian Wolk
Tel: 1-250-370-1688
info@rocklandscientific.com
www.rocklandscientific.com

Rutter Technologies Inc.
Rutter Inc. has three lines of business: Products, Manufacturing and Engineering Services. Their products lines include: voyage data recorders, marine-certified electronic interfaces, high-resolution radar processing and recording technology, a line of marine safety lights, high-fidelity audio cards and high-resolution video recording cards.
Byron Dawe, President
Tel: (709) 368-3174
info@rutter.ca
www.ruttertech.com

SAIC
Product: Sediment profile imaging, video, hydrographic, oceanographic surveys, sediment programs
Marine Scientist Benjamin Allen
Phone: 401-847-4210
benjamin.t.allen@saic.com
www.saic.com/aquatic-sciences/

SAM Electronics GmbH
Product: Navigation, Communication, Automation, Energy Distribution, Diesel-electric Propulsion, Podded Systems, Installation, Service
Senior Manager Marketing Ulrich Roehrl
Tel: +49 40 8825 2110
info@sam-electronics.de
www.sam-electronics.de

Schilling Robotics
Product: Schilling Robotics specializes in the design, development, manufacture, and field service of remotely operated systems for underwater environments. Products include electric and hydraulic ROVs, remote manipulator systems, and systems for subsea communications and power distribution.
USA Davis 95616
VP and Regional Manager Jason Stanley
Tel: 281-854-2049
jason.stanley@schilling.com
www.ssaalliance.com

Scottish Association for Marine Science
Product: SAMS is the lead marine research organization in Scotland. Our new Dunstaffnage site near Oban on Scotland's west coast houses an interdisciplinary team of more than 120 scientists and technicians, tasked not only with long-term strategic scientific objectives but also with delivering authoritative solutions in applied marine science and technology
David Meldrum
dtm@sams.ac.uk
www.sams.ac.uk

Seaeye Marine Ltd
Product: Electric ROVs
CEO Chris Tarmey
Phone: +44(0) 1329 289000
ctarmey@seaeye.com
www.seaeye.com

Seabotix
Jesse Rodocker
Tel: 619 239 5959
jesse@seabotix.com
www.seabotix.com

Seaglider Fabrication Center - Univ. of Washington
Product: Seagliders are AUVs that gather profiles of seawater properties and measure depth averaged currents. Using a variable buoyancy engine, they dive to 1000 m and back to the surface where they use GPS to locate themselves and Iridium satellite modems to send data back to base.
Fritz Stahr, PhD
Tel: 206-543-7886
stahr@ocean.washington.edu
http://seaglider.washington.edu

Sea Robotics
Donald T.Darling
(561) 627-2676
ddarling@searobotics.com
www.searobotics.com

Sea School
Products: Training & Education
Tel: (800) Best-One
www.seaschool.com

SonTek/YSI, Incorporated
David W. Velasco
(858) 546-8327 Ext. 129
dvelasco@sontek.com
www.sontek.com

SeaTrepid LLC
Product: SeaTrepid LLC is an underwater engineering organization specializing in applied robotic solutions in support of scientific, public safety, commercial, and military applications. Our focus as an organization is the persistent development of effective equipment and techniques for lowering of risks to personnel, and accomplishing underwater tasks in hazardous environments.
Principal Bob Christ
Tel: +1 (610) 469-1730

directory

bob.christ@seatrepid.com
www.seatrepid.com

Seattle Diving Company
Product: Commercial diving services
President Daniel Dolson
Tel: 206 298 DIVE
info@seattledivingcompany.com
www.seattledivingcompany.com

Shark Marine Technologies
Products: ROV's, U/W detection and monitoring, camera systems, tether managemnet systems, personal and multipurpose sonars
Jim Honey
tel: 905-687-6672
email:sales@sharkmarine.com
www.sharkmarine.com

SIDUS Solutions
Products: Hazardous Area & Subsea CCTV
Leonard Pool
(619) 275-5533
l.pool@sidus-solutions.com

SmarterScience
Product: SmarterScience applies and supplies knowledge and specializes in marine, earth and environmental science
Angelina Souren
Tel: +44 (0)23 80448125
contact@smarterscience.com
http://www.smarterscience.com

Sohre Turbomachinery
Products: Shaft grounding (earthing) bushes
Tel: (413) 267-0590
tsohre@sohreturbo.com
www.sohreturbo.com

Sonardyne International Limited
David Brown
+44 (0) 1252 743223
E.rob.balloch@sonardyne.com
www.sonardyne.com

Sound Ocean Systems, Inc.
Product: Sound ocean Systems, Inc. is a small business incorporated in the state of Washington with administrative, engineering and manufacturing facilities located in the city of Redmond. SOSI was established in 1978 with the goal of providing quality marine products and services at realistic costs through innovative engineering. Since 1978 the company has developed a broad spectrum of shipboard, on-water and underwater equipment.
Brian Reid
Tel: 425-869-1834
brian.reid@soundocean.com
www.soundocean.com

South Coast Development Partners
Product: SouthCoast Massachusetts offers opportunities and assistance to transform marine and maritime science into marketable technology.
Tel: (508) 999-8412
www.southcoastdev.org

Stearns Engineering Company, P.A.
Product: Underwater structural inspections, surveys, and design.
Director of Underwater Services Andrew Lacovara
Tel: 301-294-9414 ext. 202
Andrew@StearnsEngineering.net
www.StearnsEngineering.net

SubConn
Products: Underwater connectors
Tel: (888) 245-1104
Tel: +45 7613 2000
www.subconn.com

SubSea Propulsion Systems
Product: Rov, Auv and manned submerciable thruster and propulsions system designed as hydraulic and electric include pumpjet thruster systems and subsea excavators.
Paul Morgan
pmorgan60@aol.com
www.subseapropulsionsystems.com

Teledyne Benthos
Product: For over 40 years, Teledyne Benthos has been a leading provider of oceanographic and underwater products for use in deep and shallow environments. Products include: Wireless Underwater Communications, Hydrophones, Side Scan Sonar Systems, Underwater Acoustic Systems, Aviation "Black Box" Pingers, and Remotely Operated Vehicles.
Communications Director Peter Zentz
Tel: 508 563-1000
pzentz@benthos.com
www.benthos.com

Teledyne RD Instruments
Product: Teledyne RD Instruments is the industry's leading manufacturer of Acoustic Doppler Current Profilers (ADCPs) and Doppler Velocity Logs (DVLs) for marine applications. Teledyne RDI's Workhorse ADCPs offer ease of use, reduced cost, and patented BroadBand technology, providing fast, accurate high-resolution water current profiling in every environment - from the shallowest stream to the deepest ocean. Teledyne RDI's revolutionary family of Doppler Velocity Log (DVLs) provide precision navigation to a wide array of surface vessels, underwater vehicles, and diver platforms.
Customer Liaison Gina Lopez
Tel: 858-693-1178
rdisales@teledyne.com
www.rdinstruments.com

Transas
Product: Transas is a world-leading developer and supplier of a wide range of software, integrated solutions and hardware technologies for the aviation and marine transportation industry, including both onboard and shore-based applications. Transas offers technologically advanced solutions for Maritime security services, Shipping companies and ship operators, Naval and Coast Guard organisations, Training and educational centers, Port and harbor administrations, Governmental, municipal and local authorities and administrations, Environmental services and institutions, as well as OEM partners.
Operations Manager Danny O'Donoghue
Tel: +353 (0) 21 4710400
info@transas.com
www.transas.com

Trinity International Consultants, Inc.
Product: Business development services for the global marine technology industry. Strategic market planning, product placement and market assessments, new product introduction strategies, new market penetration strategies, publicity and advertising services, international collaboration & networking, identification of investment funding options.
Principal Consultant Steve Withrow
Tel: 508 548-3246
trinity38@adelphia.net

Triton Imaging, Inc.
Product: Triton Imaging, Inc. is a leading software and hardware provider of multi-component data acquisition systems and advanced data processing solutions for seafloor search and survey. Triton offers complete search/survey solutions: acquisition, processing, data fusion, visualization, and analysis of multibeam echo sounder, sidescan sonar, FLS, SAS, seismic, sub-bottom profiler, and magnetometer data.
Tel: 831-722-7373
sales@tritonimaginginc.com
www.tritonimaginginc.com

TSS (International) Ltd.
Product: Inertial Navigation Systems Gyrocompasses Motion Sensors Pipe & Cable Tracking Systems Steering Control Systems
Regional Sales Manager Ted Curley
Tel: (978) 948-6688
tcurley@tssusa.com
http://www.tss-international.com

Underwater Resources, Inc.
Product: Marine and commercial diving services including ROV/NDT inspections, pipeline construction/repair, dredging, concrete repair, salvage & demolition, ship husbandry and potable water cleaning.
Tom Belcher
Tel: (415) 974-5464
tbelcher@underwater-resources.com
www.underwater-resources.com

University-National Oceanographic Laboratory System (UNOLS)
Product: UNOLS is an oversight organization that assists in coordinating the ship schedules and research facilities of the U.S. Academic Research Fleet.
Executive Secretary Mike Prince
Tel: (831) 771-4410
office@unols.org
http://www.unols.org

Videoray, LLC.
erick.estrada@videoray.com
www.videoray.com

Walker Diving Underwater Construction Corp.
Product: Underwater construction, repairs and inspections.
CEO Alex Kalafatides
Tel: 609-704-8650
akalafatides@walkerdiving.com

Washington Chain & Supply Co. Inc.
Product: Suppliers of Anchors, Anchor Chain,Deck Hardware,Rigging & Lifting Hardware, and Wire Rope
Sales Manager Craig Clarey
Tel: 206-623-8500
craig@wachain.com

Werum Software & Systems
Product: Software Solutions and Products for Maritime Research - Data Management Systems - Environmental Monitoring Systems - Naval Expedition Route Planning Software
Carsten Stein
Tel: +49 4131 8900 689
info@werum.com
www.marine.werum.com

Woods Hole Group
Product: Founded in 1986, Woods Hole Group offers coastal and ocean engineering, measurement & environmental assessment services; Real-time measurement system design, integration & operation; Software application for monitoring multiple sensors; System installation & field services; Computer modeling & Data telemetry worldwide.
Bill Grafton
Tel: 5084956253
wdgrafton@whgrp.com
www.whgrp.com

Zentech Inc.
Product: Offshore and Marine related design engineering, construction management, and development of engineering software
President Ramesh K. Maini
Tel: 281-558-0290
ramesh@zentech-usa.com
www.zentech-usa.com

Hydroid Welcomes Gonsalves

Hydroid LLC hired Wayne Gonsalves for the position of Production Manager. Gonsalves has over 25 years of experience in manufacturing of complex oceanographic instruments and systems. He brings a solid background in the implementation and support of Lean Manufacturing processes. He was most recently with Teledyne Benthos Inc., where he was employed as their Technical Product Line Leader. Wayne has held previous positions supervising QA, testing, and trouble shooting activities for a range of products that included microwave, digital and analog technologies. Hydroid LLC holds the exclusive license from the Woods Hole Oceanographic Institution for the manufacture and further development of the REMUS Autonomous Underwater Vehicle (AUV) technology.

SonTek/YSI Expands R&D Team

SonTek/YSI announced plans to increase its research and development talent pool by adding at least a dozen new engineering, technical, and sales positions. It will also turn its San Diego headquarters into an electronics and software "Center of Excellence." This move is in response parent company YSI Inc.'s broader vision to align its business strategy with a rapidly growing, international demand for sophisticated outdoor water monitoring systems.

"Building on our existing R&D intelligence is taking the business to the next level" said Peter Dierauer, Vice President of Technology. "Water scarcity and quality, along with climate change issues around the world, continue to present challenges and opportunities that can benefit from an augmentation of progressive technology expertise and applications knowledge" said Dierauer.

SonTek manufactures acoustic Doppler instrumentation for water velocity measurement in oceans, rivers, lakes, harbors, estuaries, and laboratories.

McCalla Joins Deep Marine Technology

Deep Marine Technology, Inc. hired Jeff McCalla as Vice President of Engineering, where he will lead the emerging functions of engineering, construction and installation of subsea tooling and hardware for deepwater developments. McCalla joins DMT with almost 20 years of experience in Subsea related activities. During his time in the industry, he has served in various capacitates including Research Engineer, Project Engineer and Design Engineer. McCalla holds a B.S. in Mechanical

Far Sounder Issued Patent

FarSounder announced the issuance by the United States Patent and Trademark Office of a patent pertaining to its 3D Forward Looking Sonar as the latest expansion of its Intellectual Property Portfolio. The company's founding engineers and technologists, Matthew J. Zimmerman and James H. Miller, contributed to this effort and continue to develop new technologies for the company. "We are especially excited about this particular patent as it reflects the strength of our core technology," FarSounder CEO, Cheryl M. Zimmerman said. "We are protective of our intellectual property and continue to expand our portfolio as we advance our product line with innovative technologies." Used for obstacle avoidance and shallow water navigation, FarSounder FS-3 sonars are capable of generating a complete 3D image of the sea floor and in-water objects at navigationally significant ranges with a single ping. This new sonar technology revolutionizes marine navigation, especially in shallow areas. They offer visualization of a clear, easy to understand 3D sonar image. The standard user interface software includes automated alarms, BSB chart plotting capabilities, and GPS, compass, and depth sounder display capabilities. The technology is also appropriate for security and defense applications. The company has recently been selected for a Phase II Small Business Innovative Research Grant (SBIR) for the Department of Homeland Security.

Engineering from Louisiana State University, and an M.S. in Ocean Engineering from the University of New Hampshire.

Aker Yards to Build ROV Support Vessel

Aker Yards has entered into a contract with GEO ASA for the building of an ROV Support Vessel. The value of the contract is approximately $61.6m. The vessel will be built by Aker Yards in Brazil, with delivery scheduled for May 2008, and is of the design Aker ROV 06, designed by Aker Yards Project. The vessel is 106 x 21 m, with accommodation for 100. It will be equipped with a 140 tons offshore crane, and will have DP Class 2.

Acergy Expands ROV Fleet

Acergy has purchased two Schilling ultra heavy-duty hydraulic ROVs. These 150-shp, 3,000-m ROV systems are based on Schilling's UHD ROV. The new ROV systems are the product of a collaboration between the two companies to produce a new fleet vehicle for Acergy. The ROV systems have all the core UHD technologies, but they also incorporate features to enhance operational efficiency by allowing simple and flexible configuration for mission-specific tasks. Both ROV systems will include Schilling's XE TMS. The TMS can load up to 825 m of 35-mm tether. The new Acergy ROV systems will be installed aboard the Polar Queen, which has been recently chartered by Acergy for deepwater flexible pipelay and subsea construction tasks worldwide. The ROVs will support this work in depths up to 2000 m. Both systems will be delivered in November 2006.

Technip Awarded Pipeline Contract

Technip won a contract by BG Trinidad and Tobago for the flowlines, risers, and umbilicals for the North Coast Marine Area (NCMA) Development, offshore Trinidad. The contract includes engineering, procurement, fabrication, installation, and pre-commissioning of the insulated riser, flowline and umbilical systems that will connect the Eastern Hibiscus and the Chaconia subsea wells to the Hibiscus Platform. The location is twenty-five miles northwest of Trinidad in NCMA Block 01 (East Hibiscus and Chaconia reservoirs) in 500 ft. of water.

The work also includes engineering, fabrication and installation of two insulated steel flowlines with two flexible risers as well as the engineering, supply, installation, and pre-commissioning of two hydraulic control umbilicals. The detailed design engineering will be performed by Technip's operations and engineering center in Houston.

The high-pressure flexible risers will be manufactured by Flexi France, one of the Group's flexible pipe plants, located in Le Trait (France) while the hydraulic control umbilicals will be manufactured by Technip's UK subsidiary, Duco, based in Newcastle.

IXSEA Announces ROPOS Deal

IXSEA announced the signing of a deal with the Canadian Scientific Submersible Facility (CSSF) for a Global Acoustic Positioning System (GAPS), a number of transponders along with spare parts. GAPS is a calibration-free acoustic positioning system which combines inertial and acoustic technologies. The CSSF, based in Sidney, British Columbia, Canada, is a nationally registered not-for-profit corporation. Established to manage and operate the Remotely Operated Platform for Ocean Science (ROPOS) system once the Department of Fisheries and Oceans could no longer fund underwater research vehicles, the CSSF successfully transferred the ROPOS Remotely Operated Vehicle operation from government to the private sector.

The ROPOS Remotely Operated Vehicle is equipped with the IXSEA Global Acoustic Positioning System (GAPS).

Fabrication of the rigid flowline will take place at Technip's spoolbase in Evanton (UK).

The offshore installation phase will use two vessels from Technip's fleet: the Apache will lay the flowlines while the Wellservicer will install the flexible risers and umbilicals and offer diving and ROV 4 support for the completion of the work.

Teledyne RDI Wins Contract

Teledyne RD Instruments (RDI) has been awarded a contract from the National Oceanographic and Atmospheric Administration (NOAA) / Pacific Marine Environmental Laboratory (PMEL) to provide up to 140 acoustic Doppler current profiling instruments over a six-year period.

This new current profiler will measure and communicate in real-time the highly accurate velocity and temperature measurements required for NOAA/PMEL's next generation mooring systems. These systems are intended for gathering climate information for improved detection, understanding and prediction of global climate events such as El Niño and La Niña.

IVS 3D Launches Certified Training Center

IVS 3D announced the certification of Dr. Douglas Bergersen, Director of Acoustic Imaging (AI), as its certified instructor in the Pacific region for the Fledermaus software suite. IVS Director of Sales and Marketing, Bill McKernan, said, "As technology advances our clients require a knowledgeable resource that not only understands the capability of the entire Fledermaus suite, but also has the experience in the ocean industry that enables them to understand the clients needs and goals. This combination is essential for any of our certified support and training centers. The combined expertise at Acoustic Imaging is exactly what our clients in the Pacific region are looking for. We look forward to accelerated growth in this region due to partners like Acoustic Imaging."

Acoustic Imaging's mandate is to offer innovative solutions to marine geophysical projects active in Austral-Asia region.

Triton Technical Workshop Series 2006

- May 23-24 hosted at UNH
- May 25-26 hosted by Edgetech Systems

There will be a hands-on technical workshop/professional training courses that cover side scan, multibeam and seismic acquisition and processing. The courses offer techniques to optimize workflows by automating complex processes with modern technologies.

www.tritonimaginginc.com

Transocean Legend Awarded Contract

Transocean Inc. said that a subsidiary of Eni has awarded an estimated six-month contract for the semisubmersible rig Transocean Legend for drilling operations offshore Indonesia. The contract is expected to commence in November 2006, following the completion of an existing contract commitment offshore Sakhalin Island. Revenues that could be generated over the estimated six-month contract period total an approximated $79 million, excluding revenues for mobilization, demobilization and client reimburseables.

The Transocean Legend is expected to be in a South Korean shipyard through May 2006 completing a minor upgrade program ahead of the mobilization of the rig to Sakhalin Island where it is expected to operate through October 2006.

Seatronics Buys Doppler Products, Expands Activities

Teledyne RD Instruments (RDI) announced two large back-to-back orders from Seatronics Ltd. for a variety of acoustic Doppler products for use in the organization's worldwide lease pool. Seatronics is one of the world's largest rental and sales organization for marine survey electronic equipment including hydrographic, geophysical and inspection operations. Seatronics recent purchases include a total of 26 new Doppler products to meet the organization's growing demand for offshore equipment. The products purchased include: (7) 75 kHz Workhorse Long Ranger Acoustic Doppler Current Profilers (ADCPs) for long range, deep-water oceanographic current profiling applications; (8) Workhorse

Sentinel ADCPs for a variety of self-contained current profiling applications; and (11) Workhorse Navigator Doppler Velocity Logs (DVLs) for precision navigation applications onboard Autonomous Underwater Vehicles (AUVs) and Remotely Operated Vehicles (ROVs).

These latest additions to the lease pool are scheduled for use on Ormen Lange in the Norwegian sector of the North Sea, and for current monitoring in the deeper regions of the Mediterranean and Gulf of Mexico.

FarSounder Appoints Japanese Distributor

FarSounder appointed TOYO Corporation as the exclusive distributor of FarSounder products in Japan. "All of TOYO's sales staff and support engineers have the engineering technical background allowing them to successfully market and support our advanced sonar products," FarSounder CEO, Cheryl M. Zimmerman said. "We are confident that Mr. Fujishima and TOYO will swiftly capture the Japanese markets for us while providing their customers with the service that we expect from our distributors."

Used for obstacle avoidance and shallow water navigation, FarSounder FS-3 sonars are capable of generating a complete 3-dimensional image of the sea floor and in-water objects at navigationally significant ranges with a single ping. The small, lightweight sonar can be installed on newbuilds or fitted into existing vessels.

PSS Secures Contracts from Rovtech

Perry Slingsby Systems (PSS) announced the placement of an order by Rovtech for a Tether Management System (TMS) for delivery early April. The TMS will be used in conjunction with Spartan 7, which has been awarded a two-year contract for a drill support project commencing in May. This takes the Rovtech total to nine PSS-built WROVs, launched from PSS built TMSs. In addition Rovtech have placed a contract with PSS for the upgrade of Spartan 3 to a 100 HP vehicle. The order includes new buoyancy thrusters, giving enhanced payload and performance capability. The upgrades will be carried out when the ROV returns from Baku in June, on completion of its contract with Technip for the Shah Deniz project. PSS are will upgrade Rovtech's 5 remaining 75 HP Spartans to the same specification, once they become available from existing contracts. The upgrade work will be carried out in Aberdeen utilizing Rovtech personnel.

Veritas Makes Appointment

Houston-based Veritas Geophysical Company has appointed Veripos of Aberdeen as primary positioning provider for its entire worldwide fleet of seismic survey vessels under a multi-million dollar contract covering a two-year period with options for future extension. Under the contract, Veripos will provide continuous high-precision positioning via its Ultra Precise Point Positioning (PPP) service as well as its independent multi-station single-frequency Standard and dual-frequency Standard Plus Differential GPS network facilities via fully redundant global networks and multiple delivery satellites.

Oceanteam Awarded Contract

Oceanteam Power & Umbilical BV has been awarded a contract by the Joint Venture for the installation of subsea cables for the shore connections and the inter array cables, including shore landings and j-tube pulls on the wind turbine foundations. The Windfarm is located 8km west of Egmond aan Zee in Dutch territorial waters. The contract includes the collection and transport of all cables from Naples to IJmuiden, installation of 3 x 15 km shore connection cables, installation of 34 inter array cables between the wind turbine generators and one met mast. The project management, engineering and installation will be carried out by Oceanteam P&U's operations and engineering offices in Aberdeen and IJmuiden (the Netherlands). All offshore work will take place in 2 Q 2006 using several chartered vessels including Team Oman, a turn table cable installation vessel, a DP II vessel and a coastal work vessel. Trenching of cables to max 3m will be performed with Oceanteam's Trenching Tools - Oceanjet 200 and the ROV Oceanjet 900.

Nautronix MariPro Awarded Contract

Nautronix MariPro, Inc, Californian based subsidiary of Nautronix (Holdings) plc, signed a $4.4m contract with Alcatel Submarine Networks to design, manufacture and test ocean observing science node hardware for educational and oceanic research activities. The multi-year contract is part of the North-East Pacific Time-Series Undersea Network Experiments (NEPTUNE) project that will serve as a platform for real-time all-the-time oceanic monitoring and scientific experiments.

CSSF Issues RFP on Science Management

The Coastal States Stewardship Foundation (CSSF) is issuing a Request for Proposals for a contractor to address strengthening the application of science in coastal decision-making. This project builds upon work the Coastal States Organization (CSO) has conducted over the past three years and is part of both CSO and CSSF's efforts to bring innovation to the coast by improving the links between scientists and coastal managers. To carry out this project, the contractor will complete three tasks: Task 1 is to develop and implement an outreach strategy for previous science to management products; Task 2 involves conducting regional focus groups and compiling their results; and Task 3 is to convene a national meeting to determine ways to improve the previous national survey of coastal managers research and technology needs.

The project will commence on July 1, 2006 and conclude no later than June 1, 2007. Total funding available is $118,000. Financial support for this effort is provided by the NOAA-UNH Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET).

Proposals are due by 4:30 p.m. EST on May 15, 2006 to Debra Hernandez at debra@hernandezandcompany.com. PTo view the complete announcement visit the CSSF homepage at www.coastalstatesfoundation.org or CSO homepage at www.coastalstates.org.

EDO to Supply Israeli Navy ALOFTS

EDO Corporation received a contract from the Israeli Navy for its ALOFTS undersea-warfare sensor. The contract is valued at more than $7 million, plus options for additional systems. The EDO Model 980 ALOFTS system is a low-frequency, active, towed-array system. It is designed to provide a long-range sensor capability that will counter the threat of extremely quiet submarines operating in either shallow or deep water.

ECA Hytec's New ROV

ECA Hytec is launching a new work class remotely operated vehicle (ROV), the ROV H1000. With a maximum operating depth of 1,000 m. (3,000 ft.) and multifunctional hydraulic manipulating arms, this ROV has a large underwater intervention capacity for a wide range of applications.

The electrically propelled ROV is 1,100 lb. fully equipped (zero-weight when in water) and can handle a 35-lb. payload in seawater. Its open-frame design gives it exceptional modularity, especially for adding on measuring sensors. Two manipulating arms (one with four functions and one with five) and the embedded hydraulic power unit enable the use of a wide range of hydraulic tools. The ROV H1000 has two depth configurations: the 1,000-meter (3,000 ft.) version includes a TMS (tether management system) and LARS (launching and recovery system) assembly, and the 300-meter (1,000 ft.) version has a much lighter design and operates with a deadweight and a 400-ft. umbilical cord.

Visit www.maritimeequipment.com/mt & Click No. 66

Schilling Delivers Acergy Extended-Tether TMS

Schilling Robotics has announced shipment of its first XE extended-tether TMS unit to Acergy. The TMS will be paired with the Acergy SCV 32, the latest vehicle in the SCV work-class line.

The TMS is equipped with 520 m of 35-mm tether but has drum capacity for up to 825 m.

While tether capacity was a factor in Acergy's choice of the XE TMS, the variable-speed spooling and flexible control system were also important factors.

The SCV and TMS will be installed on the Seaway Legend, a construction support ship for deepwater offshore projects that include general ROV and construction services, trenching and pipeline burial, suction anchor deployment, subsea completions, and pipeline remediation. The vessel will be operating off the coast of West Africa.

Visit www.maritimeequipment.com/mt & Click No. 34

Global Marine Launches GeoCable V 5.2

Global Marine Systems Limited launched version 5.2 of its GeoCable marine engineering software package, which assists companies with the management of cable route planning, installation and maintenance operations. Comprising more than 1.9 million km of cable route data and 3,000 hydrographic charts, version 5.2 is designed to enable customers to benefit from bespoke functionality to reflect the needs of their business, such as viewing information based upon a specific geographical focus, seismic activity or dedicated information and statistical analysis on a particular type of subsea cable.

Originally developed in 1999 by Global Marine, GeoCable is designed to provide customers with a simple interface to integrate GeoMedia GIS (Geographical Information System) software with global cable data, ocean depth information and navigational charts.

Visit www.maritimeequipment.com/mt & Click No. 33

Seaeye Launches 1000m Rated Falcon DR

Seaeye launched its 1,000 m rated Falcon DR, an ROV designed for deepwater work, inshore, offshore and down tunnels, where a small, portable, yet powerful ROV is needed. This new addition to the Falcon range comes with built in fiber optics, giving high volume data transmission over a long umbilical, and the ability to use broadcast quality video cameras. Tilting variable intensity lights are linked to a new camera tilt mechanism for superior illumination when filming above or below the vehicle.

The new deep-rated Falcon DR incorporates a number of rolling developments in the Falcon range, including improved tolerances to the gearboxes of the five independent thrusters for smoother running and a longer life. These brushless thrusters, each with velocity feedback, are designed to give precise and rapid control for finger-tip maneuverability.

Also newly introduced is a lightweight surface control unit that is almost half the size of the earlier units and is much lighter. It comes with a fold out 17-in. flat screen and keyboard. The unit operates through a universal single phase, self-selecting AC input of 100 to 270 volts at 2.8 kW. And for hostile conditions an optional IP68 waterproof surface control unit is also available.

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Argonaut Laptop Receives ABS and IMO Certification

Argonaut Computer debuted what it calls the world's first marine laptop computer certified by the American Bureau of Shipping and compliant with International Marine Organization standards. The new Ranger model 1500T/TXL is a rugged, sunlight readable, high performance Pentium laptop computer certified for use aboard naval and commercial vessels worldwide. The Ranger has been designed for durability, compatibility and safety in some of the world's most demanding marine, military and industrial environments. "The 1500 performed flawlessly in all stress tests," said George Kioutas, President of Argonaut Computer. "We have devoted a decade of marine laptop experience to producing the ideal lightweight, powerful and high performance system for both professional and recreational marine use."

The Ranger laptop was also tested and certified to meet the stringent requirements of the International Marine Organization, rating IEC/EN60945. This standard relates to electromagnetic emission and immunity standards for equipment used on the bridge of commercial and naval vessels. Ordinary computers emit radio waves that can potentially interfere and cause dangerous malfunctions when placed close to navigational and communication electronics, typically found on the bridge of commercial and naval vessels. The Ranger was specifically engineered to reduce harmful emissions and passed the IEC/EN60945 standard without malfunction. Magnetic interference is also a concern, addressed by the 60945 test procedures to establish that the device is immune from ship borne magnetic energy. The Ranger was determined to be immune and performed without malfunction when exposed to high levels of magnetism.

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Sonavision Launches RoxAnn Groundmaster GD-X

Following the recent launch of the RoxAnn GD-A Seabed Classification system, Sonavision announced the launch of the RoxAnn Groundmaster GD-X Seabed Classification system, a further enhancement of the RoxAnn System. RoxAnn was developed for scientific use and has been routinely used in many seabed mapping studies with applications as diverse as dredging, fisheries habitat management, environmental pollution control, sea grass and coral population research and assisting hydrographic offices in the generation of navigation charts. The RoxAnn Groundmaster GD-X is a stand-alone system, using a small dual frequency fish-finder sonar as its host. Built into a watertight and sturdy case of 200 x 110 x 60 mm and weighing only 4.5kg, it is considerably smaller and lighter than the previously available version.

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AC-ROV Reports a Strong Showing at OI06

Oceanology International 2006 was the busiest ever exhibition for AC-CESS, according to the company, and a benchmark in submersible vehicle demonstration. Its hand carry AC-ROV underwater inspection system was operational for the full three show days and kept the staff busy with an overall average of nearly six hands-on presentations per hour.

Visitors were given a quick demonstration of the micro ROV's capability in the eye level glass tank before being let loose to try it themselves. This was followed by a run through of what you get for your money in a single hand carry case, ready to operate system. A wide screen TV had the new AC-ROV 'Demo on a Disc' on continuous play to inform those visitors waiting in the queue and for finishing off a visitor presentation with live underwater footage. The 'Demo

on a Disk' covers, amongst other things, how easy it is to fly the ACROV sideways and how it can "limpet-on" and glide across surfaces, both of which are powerful capabilities for simplifying large surface inspections such as harbour walls and ship hulls.

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New Sensor from TSS International

TSS (International) Ltd. introduced the DMS-H, which has been designed to work with modern single-beam echo-sounders so that ocean depth measurements can be made with an accuracy of 5cm RMS or 5 percent, whichever is greater. It is designed to enable the errors caused by vessel motion to be eliminated from measurement data and can be used with equal ease inshore or in deep ocean.

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TSS Develops TSS 440 OOST

The new TSS 440 OOST from TSS is a pipe and cable tracker that enable users to obtain target position and burial state data with twice the accuracy of the current TSS 440. These qualities now allow users to verify the straightness of a pipe or cable with a degree of precision that has been unobtainable in the past.

The new version retains all of the functionality and range of the TSS, but is designed to provide more accurate target positioning and burial state survey data.

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IXSEA's PHINS 6000 with DVL Ready

IXSEA recently launched PHINS 6000 with DVL Ready option, the latest version of IXSEA's subsea Photonic Inertial Navigation System. This fully calibrated system with a DVL interface is designed to improve the USBL rejection filter for noisy environments (multi transponder) and has an LBL protocol. It is based on Fiber Optic Gyroscope (FOG) technology coupled with a digital signal processor, which runs a Kalman filter especially developed for marine applications.

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IXSEA Launches Enhanced OCTANS

IXSEA launched a new version of OCTANS, the IMO certified survey grade gyrocompass and full motion sensor, which is now Ethernet and wireless compatible. OCTANS now with Ethernet interface allows users to connect it to their network and any instrument or computer connected to this network will then be able to access its data. OCTANS is configured with Ethernet compatible repeater software that allows any Ethernet network connected PC users to configure OCTANS. In addition, OCTANS is able to provide real-time data at 200 Hz refreshing rate and to synchronize on UTC time using PPS and ZDA message from a GPS receiver.

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Sonardyne Launches AvTRAK 2

Sonardyne International Ltd. launched a new acoustic positioning and communications instrument for Autonomous Underwater Vehicles (AUVs). AvTrak 2's comprehensive command language allows the vehicle to undertake a variety of survey tasks from LBL ranging, USBL tracking via a surface vessel and robust and high speed telemetry for AUV-to-surface and AUV-to-AUV communications.

AvTrak 2 aims to provide the AUV designer with absolute position reference data to constrain the drift in his inertial navigation systems.

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New Tsunami Detection System

A system for providing advance warning of tsunami waves has been developed by Sonardyne International Ltd. The Tsunami Detection System can be deployed on the seabed in the deep ocean from where it will monitor the pressure of the water above it. A tsunami wave in

deep water creates a small but measurable change in pressure that will be maintained for as long as 20 minutes. By monitoring any such changes caused by a tsunami, the subsea detector will trigger an alarm that sends an acoustic warning message to a buoy-mounted transceiver on the surface. The transceiver, in turn, relays the message via a satellite data link to a control center.

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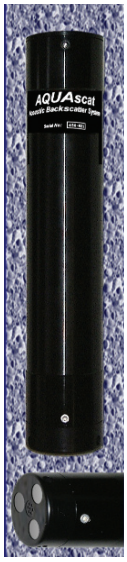
Aquatscat 1000 Launched



The AQUAscat acoustic backscatter system has passed through several generations since the AQ62 and AQ115 single-board PCbased data loggers with a 20MB hard disk were first developed in 1992. The AQUAscat 1000 was launched at Oceanology. It transmits high frequency sound at up to four different frequencies, using aligned transducers. It records the sound scattered back by

suspended material in the water column. By comparing the response at different frequencies, particle size can be inferred, designed to simplify suspended load estimation. Data is available as a time-averaged series of profiles, with spatial resolution to at least a centimeter and timing resolution of less than a second. The following three types of AQUAscat are now available, with sales already recorded to European and US customers: The Survey model, the Research model, and the Laboratory model.

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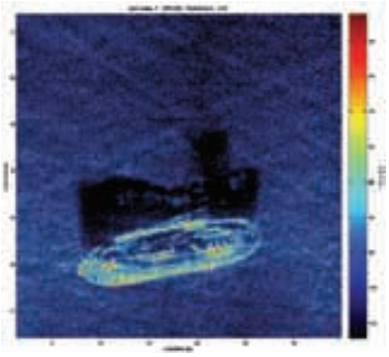
HISAS Synthetic Aperture Sonar



The HISAS Synthetic Aperture Sonar prototype has recently been tested with success at sea off Horten, Norway, with signal processing completed by the Norwegian Defense Research Establishment (FFI).

The image is from the test and shows a sunken wreck standing upright on the bottom. It has a resolution of about 4 cm both along track and across, each acoustic beam being processed from 40 consecutive pings.

Synthetic Aperture Sonar (SAS) combines a number of acoustic pings to form an image with much higher resolution than conventional sonar, typically 5-20 times higher the company reports. HISAS is a wideband SAS with frequency range of 70-100kHz, capable of producing ultra high resolution acoustic images as well as co-registered bathymetry.

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The EVOLeye-SL60HT from EV Offshore

The EVOLeye-SL60HT Camera from EV Offshore Ltd. has been configured for trace dye leak detection applications. The camera features an array of Green LED's used to excite Red Trace dye complete with optical filters to optimize its visible spectrum performance.

Using industry standard configuration, it can be retro-fitted onto existing equipment. Available in a range of housings to suit depth and size requirements. The SL60HT is supplied complete with a color camera as standard.

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Mariner Shuttle for Ecosystem Monitoring

The new Chelsea Mariner Nu-Shuttle is based on the Nu-Shuttle towed oceanographic vehicle. It is a generic, robust monitoring system designed for regular monitoring of large marine ecosystems. Undulating behind a research vessel or ship of opportunity it enables a wide range of oceanographic measurements to be made underway from the surface to depths in excess of 150 m. Temperature, salinity, chlorophyll, dissolved oxygen, plankton photosynthesis, plankton sampling, optical plankton counting and nutrients are all measured in real-time with the data displayed on the ship. Large Marine Ecosystems are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of the major current systems. They are relatively large regions of 200,000 sq. km or greater, characterized by distinct bathymetry, hydrography, productivity, and trophically dependent populations.

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For information on posting a job on these pages and on the "JOBS" site at www.seadiscovery.com, contact Dale Barnett at tel: 212-477-6700; fax: 212-254-6271; or e-mail: barnett@marinelink.com

ROV PILOT TECHNICIAN, DIVERS AND MARINE ENGINEERS

Job Location: United Kingdom, London

The required personnel will work as expatriate support staff in the St. Fergus Terminal (in UK) on sub sea operation and inspections etc.

George Brown
Quest Technical Limited
Barton House, 73 Rydens Road,
Walton on Thames, Surrey KT12 3AL, UK
London, +4401
United Kingdom

Email: questtechnicalgb@yahoo.co.uk

STRUCTURAL ENGINEER - DIVER

Job Location: USA, NJ Lumberton

An established Structural Marine Engineering/ Construction Company located in Lumberton, (South/Central) New Jersey is looking for Structural Engineers with bridge experience, a Professional Engineers License and a minimum of 5 years of related experience. N.B.I.S. certification, underwater inspection capabilities and certified diver a plus.

We have immediate openings with an excellent starting salary and benefits package. To apply, mail resume to:

P.O. Box 586
Lumberton, New Jersey 08048
or e-mail to: jcastle@wjcastlegroup.com
William J. Castle, P.E.
W. J. Castle, P.E. & Assoc., P.C.
693 Main Street, Building B
P.O. Box 586
Lumberton, NJ 08048 USA
Phone: 609-261-2268
Fax: 609-261-3422
Email: jcastle@wjcastlegroup.com
WEB: http://www.wjcastlegroup.com

SEAGOING ELECTRONICS ENGINEERING TECHNICIAN

Job Location: USA, WA Seattle

MUST BE US CITIZEN, NAFTA PROFESSIONAL OR CURRENTLY AUTHORIZED TO WORK IN THE US

General Position Summary: The Seagoing Electronics Engineering Technician (EET) is responsible for assembly, operation, repair, maintenance, and mobilization/demobilization of the company's survey equipment. The incumbent also provides technical support on survey system development projects.

Essential Functions:
- Provide technical support on survey systems development projects.
- Identify improvements, plan, design, and test new and existing technology and survey equipment.
- Maintain or refurbish all field electronic and mechanical survey systems to include proper calibration, testing and certification prior to deployment to the field; and maintenance of adequate equipment and spares stock levels.
- Conduct light construction activities and utilities' maintenance coordination.
- Assemble, operate, repair, maintain and mobilize/demobilize all survey equipment.
- Safely pack and stow equipment in preparation for transport.

Specific Job Skills:
- Strong knowledge of digital and analogue integrated circuitry, DSP logic, micro-processing, RF principles, sonar fundamentals and ability to use a wide range of test equipment.
- Strong problem solving skills, and ability to resolve both technical and personal issues relevant to the job.
- Flexibility with changing schedules and work situations.
- Possess strong interpersonal skills that include the ability to work effectively with peers, subordinates, and superiors. Must have an excellent ability to communicate in a professional manner and seek a "win-win" solution.
- Ability to multi-task.
- Must be highly organized and able to work with deadlines.
- Excellent written and verbal communication skills.
- Computer literate.
- Fluent in written and spoken English.
- Pre-employment physical and drug screen (required).

Education and Experience:
- B.Sc. in Electronic Engineering Technology or higher.
- 5+ years experience in electronic troubleshooting and maintenance.
- Seagoing experience preferable, however not necessary.

Carrie Higley-Krowka
Fugro Seafloor Surveys, Inc.
2727 Alaskan Way - Pier 69
Seattle, WA 98121 USA
Fax: 206-441-9308
Email: hr@seafloor.com
WEB: http://www.seafloor.com

LEAD ENGINEER

Job Location: USA, MA Cataumet - Cape Cod

Falmouth Scientific, Inc. a marine technology company on Cape Cod specializing in ocean sensors systems is seeking a senior electrical engineer to lead a team of engineers and technicians through all phases of product development. Position reports directly to President/GM.

Qualifications include a proven track record of 7+ years in the design, development, testing, installation and Customer support of marine instrumentation and ocean monitoring systems. MSEE preferred; BSEE or equivalent required. Competitor and Customer familiarity is a plus.

Strong hands-on software and hardware development in marine systems required. Working knowledge of C++ and assembly languages essential. Must be familiar with all aspects of ocean hardware development, deployment and reliability.

Additional duties include proposal generation, costing, tasking, scheduling, sales support and presentations.

John Baker
Falmouth Scientific, Inc.
PO Box 315
1400 Route 28A
Cataumet, MA 02534 USA
Fax: (508)564-7643
Email: fsi@falmouth.com
WEB: http://www.falmouth.com

SUBSEA / HYDROGRAPHIC SURVEY (ALL LEVELS)

Job Location: Norway

Experienced Subsea Surveyors, Senior Surveyors, QA/QC reporting and Technicians are required by a leading international Geotechnical Survey Company for various assignments on 28 day rotations throughout 2006. HUET and Norwegian Survival / medical will be required and allowance will be made for Norwegian Tax. This is an excellent opportunity to work for a good company on 1st class survey vessels.

Start Date: April / May 2006
Duration: 28 Day Rotational Assignments
Rate: Good day rate

Bridget Drakes
TEK Personnel Consultants Ltd
4th Floor, Broadstone House,Broadstone Road,Stockport
Manchester, SK5 7DL United Kingdom

Phone: +44 (0) 161 975 0321
Email: bridgetdrakes@tekpersonnel.co.uk
WEB: http://www.tekpersonnel.co.uk/

DATA PROCESSOR (HYDROGRAPHIC SURVEY)

Job Location: Norway

Experienced Data Processor for Hydrographical Survey required by a leading international Geotechnical Survey Company for various assignments on 28 day rotations throughout 2006. HUET and Norwegian Survival / medical will be required and allowance will be made for Norwegian Tax. This is an excellent opportunity to work for a good company on 1st class survey vessels.

Start Date: April / May 2006
Duration: 28 Day Rotational Assignments
Location: Norwegian Base
Rate: Good day rate

Bridget Drakes
TEK Personnel Consultants Ltd
4th Floor, Broadstone House,Broadstone Road,Stockport
Manchester, SK5 7DL United Kingdom

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Email: bridgetdrakes@tekpersonnel.co.uk
WEB: http://www.tekpersonnel.co.uk/

ENGINEERING ASSISTANT II - ELECTRONICS

Job Location: USA, OPEN

Engineering Assistant II - Electronics
Multiple Positions Announcement #05-12-04

The Alvin Group is looking for an Engineering Assistant II. The qualified applicant, with some supervision, applies acquired knowledge of established procedures to the assembly, testing and use of equipment in support of engineering projects related to oceanographic research.

GENERAL REQUIREMENTS: Meticulous work habits and broad electrical/electronic skills are required. Must be capable of troubleshooting to the component level utilizing the proper test equipment and minimal documentation. Excellent soldering skills are required.

SPECIFIC DUTIES PERFORMED:
- Maintain, repair and test both manned and unmanned Deep Submergence Vehicle elec-

tronic components and systems.
- Assist in the preparation of scientific equipment used with the vehicles.
- Troubleshoot and repair both digital and analog circuit.
- Work may require maintenance of lead acid batteries including assembly of cells into battery cases, charging, equalizing, watering and condition analysis.
- Maintain and test DC power distribution components such as electrical relays, fuses, circuit breakers, DC brushless motors and controllers, underwater lighting components, cables and connectors.
- Participate in all phases of the launch and recovery operations of the vehicles, including swimming tasks.
- Possibly enter into the DSV Pilot training program with the goal of obtaining Alvin pilot status within 18 months.
- Must be able to pass the equivalent of an aircraft Private Pilot 3rd Class medical examination to be eligible for manned submersible pilot training.
- A physically demanding job requiring ability and willingness to go to sea for extended periods of time, typically eight months total over a one year period.

Education and Experience:
A BS in Electronic or Electrical Engineering with 2 years of related experience preferred. At-sea experience desired. Computer skills in Microsoft Windows 2000 are desirable.

How to Apply:
For a full job description, including education requirements, and to be considered, applicants should begin the review process by registering on-line at our Career Center, http://jobs.whoi.edu and applying for the posting.

The Woods Hole Oceanographic Institution is a private, non-profit research facility dedicated to the study of marine science and to the education of marine scientists. It is the largest independent oceanographic institution in the world. It is located on Cape Cod in Massachusetts.
Women and minority candidates are strongly encouraged to apply.
WHOI is an Affirmative Action/Equal Opportunity Employer.
M/F/D/V/EOE
Applications are reviewed confidentially.

WHOI Recruitment
Woods Hole Oceanographic Institution
MA USA

Email: work@whoi.edu
WEB: http://jobs.whoi.edu

REGIONAL SALES MANAGER

Job Location: USA, FL Fort Lauderdale

Marine Propulsion Manufacturer seeking Sales person for the State of Florida. Engineering degree desired along with experience selling a similar product. Excellent opportunity with 6 figure potential for the right candidate. Contact klitchfield@litchfieldandassociates and view our website at: www.marinesearchassociates.com

Karen Litchfield
Marine Search Associates
Fort Lauderdale, FL 33063 USA
Phone: 954-969-9609
Email: klitchfield@litchfieldandassociates.com
WEB:
http://www.marinesearchassociates.com

MARINE/OCEANOGRAPHIC INSTRUMENT TECHNICIAN

Job Location: USA, CA Bodega Bay

VL# 5043 External
Marine/Oceanographic Instrument Technician
Final Filing Date 04-21-06
This position is located in: Bodega Marine Lab, Bodega Bay, CA and is represented by a union. Working hours: M-F, 8-5.

This External position is for UCD/UCDHS employees and the general public.
Applications from the general public and UCD/UCDHS employees will be considered simultaneously.
Bodega Marine Laboratory (BML) is an Organized Research Unit (ORU) of the UC Davis campus, located in Sonoma County about 100 miles from Davis. BML and its surrounding 362-acre Reserve provide research and instructional facilities for resident, campus-based and visiting faculty, researchers and students. For application materials, call (707)875-2211 Mon - Fri 8 - 5; apply to BML, P.O. Box 247, Bodega Bay, CA 94923, OR apply to UC Davis per Application Process below.

Responsibilities: This position will serve as the Marine Instrument Technician at the Development Technician III ($2,797-3,359./mo.), Development Technician IV ($3,359 - 4,046./mo.), or Development Technician V ($3,861- 4,659/mo.) level based on qualifications.

At the DEV. TECH. III level, under supervision, this position coordinates and participates in a variety of technical tasks associated with the design, construction, deployment, operation, and maintenance of marine scientific instrumentation and sensors in support of coastal research and facilities at BML. Serves as an on-shore and sea-going technician for testing, operation, maintenance, and repair of meteorological, oceanographic, and vessel instrumentation, including Acoustic Doppler Current Profilers, CTDs, current meters, an underway data acquisition vessel system, and mooring hardware.
At the DEV. TECH. IV level, this position performs all of the above plus data management tasks related to recovery, processing, distribution, and archiving of data obtained from land-based, moored and vessel instrumentation.

At the DEV. TECH. V level, this position performs all of the above while working independently, under direction. All levels will provide technical assistance and training to scientists and staff in the selection, operation, and maintenance of appropriate research instrumentation.

Requirements:
- Experience in electronics and electronic systems and installing, operating, and maintaining analog and digital electronics data acquisition equipment, signal conditioners, environmental sensors, ocean instrumentation, instrument platforms, cabling.
- Knowledge of telemetry.
- Knowledge of oceanographic sensors such as CTDs, ADCP, thermosalinographs.
- Knowledge of calibration techniques and testing equipment.
- Skill in, and commitment to, keeping abreast of changes in ocean sensor, remote sensing, data acquisition and mooring technologies.
- Experience working with research and physical plant equipment and tools such as mechanical and wiring tools, electrical meters, sensors, probes, and pumps in the field, on boats, and in the laboratory.
- Skill to perform light construction.
- Skills to develop and maintain effective working relationships.
- Skills to assume a lead role with diverse groups of individuals at different levels of organizations.
- Skills to work collaboratively on dynamic project based work.
- Excellent verbal and written communication skills for interactions with colleagues, scientists, staff, engineers, and consultants; for documenting policies and procedures; and for producing and delivering instructional materials.
- Record-keeping skills to create and maintain procedures and histories of group and organizational tasks.
- Experience functioning under deadlines to meet expectations as a resource person for the department; willingness and ability to work with multiple departmental managers and researchers.
- Skill working on a computer using office software including designing spreadsheets, figures.
- Experience using instrument specific software (i.e. Seabird, RD Instruments) preferred.
- Experience working from vessels.
- Knowledge of boating and diver safety procedures.
- Ability to become Scuba certified by a nationally recognized agency (i.e. PADI, NAUI, etc) preferred.
- Knowledge of electrical and computer safety procedures.
- Skills and willingness to interact with larger scientific and technical community to seek advice, approaches, or welcome collaborations.

ADDITIONAL QUALIFICATIONS FOR DEV TECH IV LEVEL:
- Skills to design and write database applications, reports, and documentation.
- Knowledge of data acquisition systems from moorings, vessels or shore-based sensors, evaluating data quality, postprocessing, manual and automatic data archiving, computer and data security, and disaster recovery methods.
- Skill with designing, fabricating, deploying and maintaining offshore oceanographic instrumentation moorings, including anchor systems, float/buoy fabrication.
- Skills in computer networking and operating systems and a variety of applications software.

ADDITIONAL QUALIFICATIONS FOR DEV TECH V LEVEL:
- Skill with data acquisition systems from moorings, vessels or shore-based sensors, evaluating data quality, postprocessing, manual and automatic data archiving, computer and data security, and disaster recovery methods.
- Skill generating reports from data collection, including graphical representation.

Special Conditions of Employment:
Non smoking work environment. Work occasional evenings/nights. Work occasional varied lunch hours. Work occasional weekends and holidays. Work occasional emergency Call Back. Work from coastal vessels for day (possibly extended day) trips.

Physical Requirements: Position requires lifting up to 100 lbs. Work in confined areas while installing or repairing equipment or hardware. Work outdoors and during cruises, sometimes during inclement weather. Assist others, sometimes under harsh environmental conditions, during field, shipboard, and diving operations to service meteorological instrumentation.

Julie Quigley
Bodega Marine Laboratory
Phone: 707.875.2211
Email: julquigley@ucdavis.edu

OIL RIG ENGINEER

Job Location: Singapore, Jurong

A very reputed company from Norway is starting its OIL RIG here in Singapore; they are looking for an Engineer who has experience in the following fields.

1. Extensive Knowledge in LEGS FABRICATION
2. ALIGNMENT LINKING (Laser)
3. ASSEMBLY
4. ERRECTION
5. Sound knowledge in welding procedures
6. Heat Control, Pre Heat
7. Other Rig Related skills

The role would be that of a QA who will lead the Rig Setup. This person must be well experience in new technologies and must have good experience in Rig Construction.

Candidates must be able to join immediately
Apply: vikram@newway.com.sg
Call : +65-6738-3141
Vikram
Newway Consulting
Singapore
Email: vikram@newway.com.sg

LOOKING FOR PROJECT MANAGERS

Job Location: Singapore, Singapore

A leading marine transportation and shipbuilding group in Singapore has 2 offshore oil rig contracts worth close to half a billion dollars. We are looking for experienced Project Managers to stream line their operations.

We welcome Resumes for the PROJECT MANAGER positions ASAP.
Location: SINGAPORE
Email: vikram@newway.com.sg
Vikram
Newway Consulting
Orchard Road Singapore
Singapore, Singapore
Phone: +65-96234908
Email: vikram@newway.com.sg
WEB: http://www.newway.com.sg/

NAVIGATOR

Job Location: USA, TX Offshore Position

VERITAS MARINE ACQUISITION
Veritas DGC Inc., a $600 plus million public geophysical information and services provider, is one of the world's leading providers of advanced geophysical technologies. Veritas Marine Acquisition urrently has several rewarding opportunities for the position of NAVIGATOR in our various global offshore locations.

The NAVIGATOR is responsible for:
- The recording quality of navigation data onboard the vessel.
- The accurate setup and operation of ALL navigation acquisition systems and sub-systems onboard the assigned vessel.
- Ensuring that all components of navigation acquisition operations run efficiently and effectively to minimize down time.
- Performing installation and maintenance of the above systems and their associated cables and antennas located on the masts, catwalks and on in-water floats.
- Performing proper layout of seismic recording equipment and ensure proper connections have been made to recording equipment.

REQUIREMENTS:
Working knowledge of UNIX preferred but not required. GPS - Navigation experience a plus. Associates Degree (or equivalent) or above in Hydrographic Surveying, Marine Science, Marine Technology or Electronic Engineering a plus. Must possess willingness and ability to travel and work offshore for extended periods of time (current rotation is six weeks offshore / six weeks leave). Team player with strong interpersonal communication and organizational skills. Proficient computer skills.

We also require that you have a valid passport before starting employment. You must submit to and pass a drug screening and UKOOA medical. You must obtain a Basic Offshore Safety Induction and Emergency Training Certificate before starting employment (this is scheduled and paid for by the company).

VERITAS OFFERS:
Paid travel to and from crew change location. Accommodations and meals provided while onboard the vessel. Bonus Incentive Plan, after successfully completing Trainee period and training program.

Interested applicants should submit resumes to vgshr@veritasdgc.com. Please let us know where you viewed this job posting.

Veritas is an equal opportunity employer.

Trena Gipson
Veritas Geophysical Corporation
10300 Townpark Drive
Houston, TX 77072 USA
Phone: 832-351-8047
Fax: 832-351-8721
Email: trena_gipson@veritasdgc.com
WEB: http://www.veritasdgc.com

EMBEDDED SOFTWARE ENGINEER

Job Location: United Kingdom, Edinburgh

SeeByte Ltd is a world leader in software and embedded systems for underwater vehicles. Our flagship product, SeeTrack, is the mission-planning, monitoring, sensor-fusion and visualisation platform of choice for Autonomous Underwater Vehicles. In support of our well funded development programmes for underwater robotic vehicles, we are looking to recruit an Embedded Software Engineer to work in this exciting area.

To succeed in this job, you will have the following essential qualifications:

- Expertise in C++ and Linux
- At least 1 year's experience and a good Bachelors Degree in Software Engineering, Electronic Systems or Computer Science
- You must be a team player yet also able to work autonomously. You must have a flexible working approach and be able to remain calm under pressure
- Good written and spoken English.

ALL CANDIDATES MUST BE ELIGIBLE TO WORK IN THE UK

Our ideal candidate will also have the following skills:

- Knowledge of real-time programming and embedded computing hardware
- Experience with Ethernet and WiFi
- Some practical skills and the ability to work in the field
- Experience of developing in an embedded environment
- 3 years' experience.
- A Masters Degree in Software Engineering, Electronic Systems or Computer Science, or equivalent experience.

The candidate should have the ability to produce quality, well-commented and documented source code to meet specifications and requirements set out by the product manager; good organisation skills; and be able to work with colleagues and other staff. The candidate must be able to adapt and be self-motivated. Travel may be a requirement of the position.

The starting salary for this post will be between ?18k and ?25k depending on experience and training.

Suitably qualified candidates should submit a covering letter, their C.V. and the name of three referees (include their e-mails and phone numbers) by the 7th of April 2006.

Juliet Grant
SeeByte Ltd
Canaan Court
6a Canaan Lane
Edinburgh, EH10 4SY, United Kingdom

Email: juliet.grant@seebyte.com

WANTED MARINE & FPSO CONSULTANTS - SINGAPORE

Job Location: Singapore, Central

This is an excellent opportunity for an experienced Marine Operations professional to work for a leading FPSO operator
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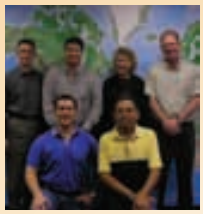


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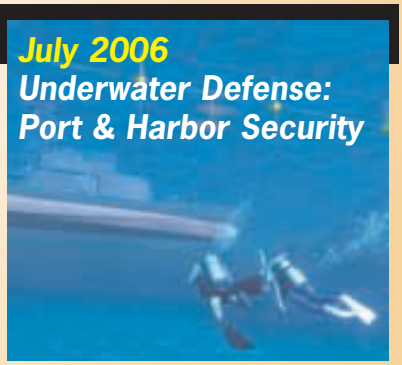

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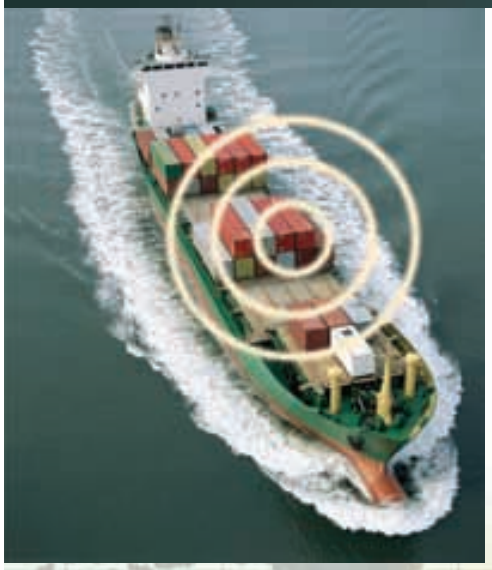

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