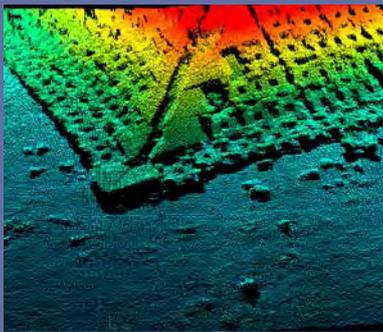




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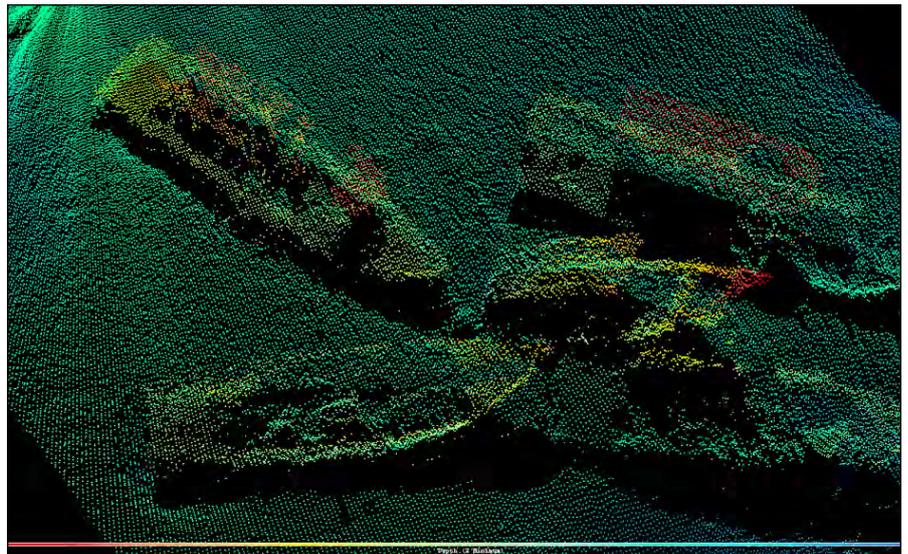
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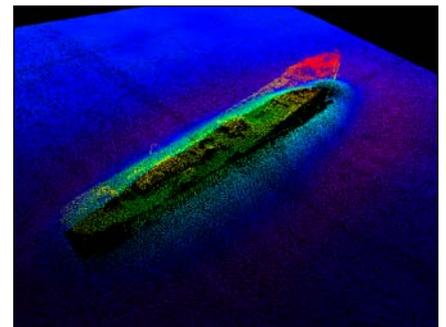
EM 2040 Asian Demo Tours



Looking at raw data from the EM 2040 showing wrecks in Singapore.

The new EM 2040 hydrographic echo sounder has been on the road for several months for an extensive tour of Asia. Successful demos have been carried out in Singapore in December, outside Tokyo in January, in Perth in February and finally in Wellington in March.

The equipment used is an EM 2040 1x1 and Seapath 330+, making a powerful combination for surveying that has



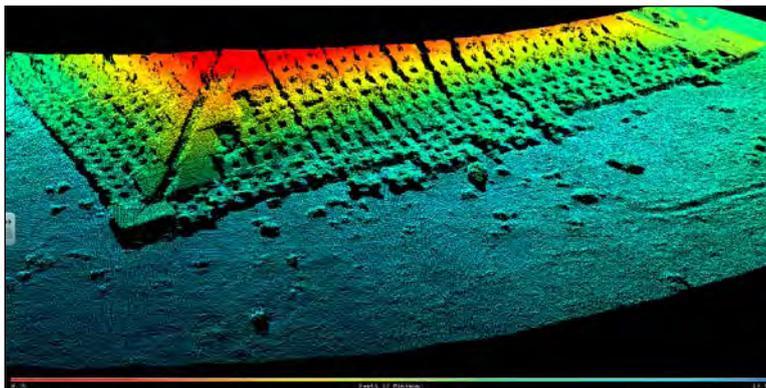
The picture shows the South Seas Wreck with only three overhead passes. Note that even with this small data set some twisting of the Hull can be noticed around mid-ships on the starboard side



In Japan we mounted the equipment over-the-side and logged very good data. The ship is owned by our agent Nippon Kaiyo.

impressed customers all over Asia. The high resolution and short pulse lengths give a very good presentation of wrecks, anchors, coral reefs, pockmarks and artifacts. The details it provides have certainly impressed our customers. We have also surveyed harbor walls and pilings etc in Tokyo, Perth and Wellington. The

Read more on page 2 



The blocks in real-life and displayed by the EM 2040.

data quality also reduces the time spent on the post processing part.

The Asian Tours ends in Wellington

where the EM 2040 will also log data for the shallow water conference next year.

Kongsberg Maritime would like to express gratitude for the valuable assistance

and planning from Nippon Kaiyo, Marcom & Watson, NIWA and our internal colleagues for making this demo tour possible.

Hydroid Integrates HiPAP with REMUS AUV



Hydroid will now offer the integration of Kongsberg Maritime's High Precision Acoustic Positioning (HiPAP) system into its family of REMUS AUVs. HiPAP technology will provide REMUS users a faster, more accurate way to obtain an AUV's exact position and to update the vehicle's navigation system.

The REMUS navigation system currently provides an accurate real-time estimate of its position, velocity, and heading, which permits the vehicle to autonomously self-navigate and to geographically reference and time stamp all data collected during a mission. If desired, the onboard navigation system may be aided by acoustic transponders that are located on the seafloor, or, in shallow waters, aiding may be provided by surfacing and obtaining a position update using the Global Positioning System (GPS).

Kongsberg Maritime's HiPAP provides

an additional means of aiding REMUS' navigation system by transmitting an independently established location, which is calculated by the HiPAP system on the surface and then sent to the submerged REMUS vehicle over an acoustic communication link.

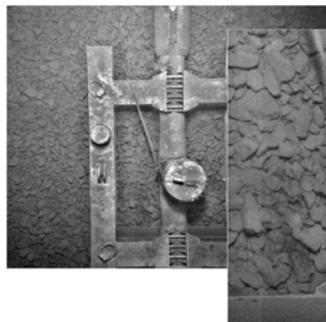
"As our customers' trust and confidence in REMUS has grown over the past years, the need to track and communicate with our vehicles during a mission has diminished," said Christopher von Alt, President and one of the co-founders of Hydroid. "Today, many owners deploy their vehicles and set them free to execute their mission, returning to recover them six to 24 hours later at a preprogrammed location. However, some customers choose to stay in contact with and track their vehicles during a mission. The compatibility of Kongsberg Maritime's HiPAP system with REMUS is of interest to both groups."

HiPAP is a family of high precision acoustic position systems based on the Super Short Base Line principle. The system can provide precise 3D position to an acoustic transponder on the vehicle. When combined with heading, pitch, roll, yaw and ship position data, the positioning system can support the computation of the vehicle's subsea position in near real time. The HiPAP information is used either to track the vehicle or to update and bind the vehicle's position if it is accurately time-stamped over the acoustic communication link. HiPAP's unique transducer technology and advanced digital signal processing form an ideal solution for obtaining an AUV's exact position at any time when it's in range of the ship.

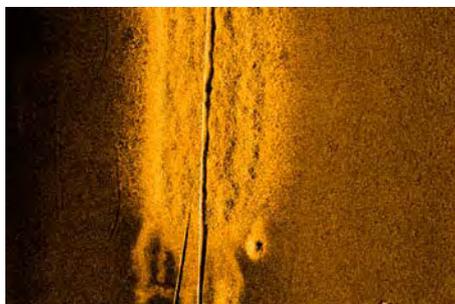
The components of a HiPAP positioning system required to support REMUS consist of the surface vessel mounted spherical acoustic array, the HiPAP processor, and a subsea transponder that is mounted on the REMUS vehicle.

"Hydroid has a proven track record of providing our customers with intelligent solutions for their needs in the field," added von Alt. "To that end, this upgraded capability will offer REMUS users a more efficient way of establishing and updating the position of their REMUS vehicles."

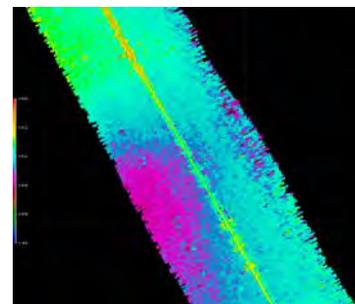
KONGSBERG MARITIME HUGIN 1000 COMPLETES WORLD'S LONGEST MULTI-SENSOR AUV PIPELINE INSPECTION



A single 3 Megapixel camera image. Altitude 4.6 m. Resolution 2x2 mm.



HISAS image. Area 120x90 m. Range 32-152m. Resolution 35x35 mm.



Raw bathymetry from EM3002. Area shown 120x120 m.

Kongsberg Maritime developed AUV, instruments and software combine for high performance survey

KONGSBERG has completed the world's longest multi-sensor AUV pipeline survey using one of its cutting-edge HUGIN 1000 Autonomous Underwater Vehicles (AUV). The pipeline inspection took place February 9th – 11th 2011, in the Hjelte fjord near Bergen, Norway and the HUGIN 1000 was operated from the Royal Norwegian Navy vessel HNoMS Maloy.

The subject of the inspection was two subsea pipelines going to the Mongstad oil refinery. The HUGIN 1000 AUV was equipped with an advanced suite

of KONGSBERG imaging equipment including the HISAS 1030 synthetic aperture sonar, EM 3002 multibeam echo sounder and an optical camera with LED lighting. The instruments were used to inspect around 30 km of subsea pipeline in an 8-hour, two-pass mission.

In the first pass, side-scan data from the HISAS 1030 sonar was used to detect and track the pipelines in real-time, using PipeTracker software for pipeline detection and tracking extracted pipe-like features in the sonar images, with a high degree of robustness towards false detections.

The PipeTracker software, which was developed in a collaborative effort with the Norwegian Defence Research Establishment (FFI) in a project funded by the Norwegian Research Council, runs as a plug-in module in the standard HUGIN payload system. The HUGIN 1000 control system in turn uses the identified pipeline tracks to position the vehicle at an optimal range for HISAS imaging. The whole process is fully automated inside the AUV and requires no operator intervention.

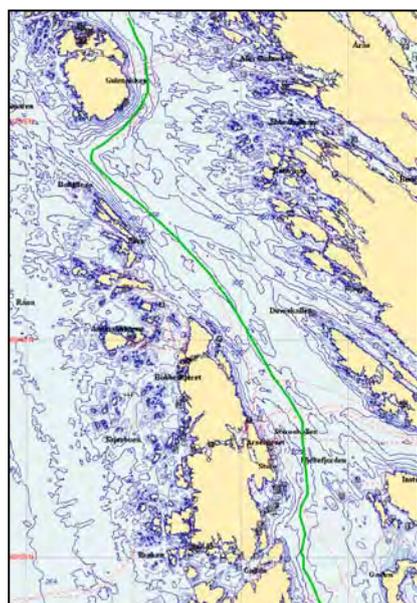
In the second pass, HUGIN followed the pipeline tracks identified in the first pass at low altitude and inspected the pipelines using the EM 3002 multibeam and the optical camera.

After the mission, the recorded HISAS 1030 data was post-processed into high-resolution (4x4 cm) sonar images and bathymetry maps of the pipeline. Together with the optical

images and the multi-beam data recorded in the second pass, this gave a detailed view of the pipeline surroundings and the pipeline itself. The complete procedure was repeated the next day over the second pipeline in a new 8-hour, two-pass mission.

Both pipelines were surveyed at a constant speed of 4 knots and at 4-25m altitude, depending on the sensor in use. Water depth was 180-560m. The greater speed of the HUGIN 1000 compared to that of a ROV meant that 60km of pipeline could be inspected in a little over 16 hours during the two passes. Furthermore, the stability of the HUGIN platform and the ability to simultaneously operate both at high speed and at low altitude resulted in an efficient survey with crystal clear images from the onboard optical camera.

Kongsberg Maritime and subsidiary Hydroid offer 'Full Picture' HUGIN and REMUS AUV solutions, where the vehicles themselves and required instruments can be supplied by Kongsberg Maritime, ensuring users have a single company to co-operate with for any kind of survey. The company is aligning the two product lines, providing users operational synergies and a strengthened technology base, suitable for all underwater survey applications. The PipeTracker software module has been developed in a collaborative effort with the Norwegian Defence Research Establishment (FFI) in project funded by the Norwegian Research Council (the FORNY-program).



The first 8-hour mission (green line)

Kongsberg Maritime Subsea Celebrates Over 10 Years at AGU Fall Meeting



In December, more than 18,400 scientists (geophysicists and others) from around the world gathered in San Francisco for the 2010 American Geophysical Union (AGU) Fall Meeting. This event occurs annually and is one of the largest scientific community gatherings in the world. It provides an opportunity for researchers, teachers, students, and

consultants to present and review papers covering the latest issues affecting the Earth, the planets, and their environments in space. More than 5,800 oral papers and 11,500 poster papers were presented throughout the week.

For Kongsberg Maritime Subsea, this meeting is one of the most important of

the year because it provides us with an opportunity to maintain close contact with not only our scientific end users, but also members of the key organizations that fund the purchase of scientific acoustic systems and the operation of the vessels that host them. These include U.S. organizations like the National Science Foundation (NSF), the University National Oceanographic Laboratory System (UNOLS), Naval Research Laboratories (NRL), National Oceanic and Atmospheric Administration (NOAA), Consortium for Ocean Leadership and corresponding agencies from other countries around the world.

For more than 10 years Kongsberg Underwater Technologies Inc. (KUTI) has participated in the conference and this year they were joined by representatives from Kongsberg Maritime and Kongsberg Defense Systems. In what has become an annual tradition, KUTI hosted a well attended, informal networking dinner with various customers and partner companies from the Hydrographic community.

Record Year for Sales of GeoSwath Plus



Kongsberg GeoAcoustics, has announced a record year for sales of its shallow water combined multibeam and side scan system, 'GeoSwath Plus'. More than 150 GeoSwath Plus systems have now been delivered worldwide for

use in varied applications and diverse environments.

BSH, the German Hydrographic Office and Rijkswaterstaat (Netherlands) use GeoSwath Plus primarily for surveying inland waterways or very shallow estuaries, for hydrographic purposes whereas Ifremer, the US Army Corps of Engineers, Titan Environmental Surveys and the Geological Surveys of Norway and Sweden primarily operate GeoSwath Plus for environmental mapping and coastal zone management tasks.

Many GeoSwath users chose the system due to its portability. The 500 kHz transducer is only 13cm wide and 35cm long with a weight of just 10 kilograms; making it an ideal tool for mobile installations on small vessels of opportunity. The system provides high resolution sidescan images and bathymetry data



exceeding IHO, SP 44, Special order standards and also coverage on the seafloor of 12 times water depth in shallow waters.

GeoSwath Plus has also been installed on a whole range of small man-portable AUVs providing the same performance data as that of a boat mounted system, whilst only consuming 40 W of power.

Kongsberg Maritime Aberdeen Expands Rental Pool with REMUS 100 AUV



Kongsberg Maritime Ltd in Aberdeen will expand its rental pool with a REMUS 100 AUV from Hydroid, Inc.

“We are delighted that Kongsberg Maritime Ltd has chosen to expand its rental equipment pool by adding the REMUS

100,” said Graham Lester, Director – Hydroid Europe. “The system is extremely reliable and has proven capability for underwater search and survey operations. As the market leader we are pleased to offer this pioneering AUV rental capability, which allows marine operators and surveyors alike to utilize this advanced technology on a variety of survey jobs at an affordable cost.”

Formed during 1997, the Aberdeen, UK based Rental Division was established to supply and support a total rental solution anywhere in the world. The rental lease pool has increased rapidly in size, offering a comprehensive range of equipment and market leading resources in key technological equipment areas. The customer base encompasses most offshore areas including oil & gas, telecommunications, scientific research and the military.

“The introduction of the portable shallow water REMUS 100 AUV system to our equipment lease pool perfectly

complements our existing KONGSBERG subsea rental inventory,” said Keith Thomson, Kongsberg Maritime Equipment Rental Manager. “The product already has a proven track record and introducing it into the rental marketplace will create opportunities for our customers to use this technology to support and expand their subsea operational activities.”

Kongsberg Maritime will begin offering the REMUS 100 for rent beginning in April of 2011. Hydroid’s REMUS AUVs are modular and may be fitted with a large number of different types of sensors and have been used to aid in hydrographic surveys, harbor security operations, debris field mapping, scientific sampling and mapping, as well as many basic and applied research programs funded by ONR, DARPA and the UK Ministry of Defense. With over 200 vehicles in the field, Hydroid is currently the AUV market leader with systems in use around the world.

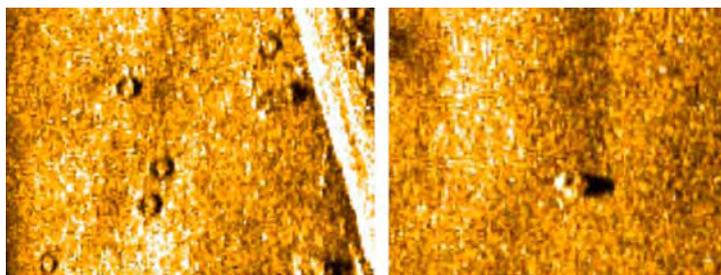
GeoAcoustics Demonstrates Latest Generation Side Scan Sonar in Spain



Sonar 2094 Digital



In the Villajoyosa marina during Posidonia



GeoAcoustics, A KONGSBERG Company, has launched the new Sonar 2094 Digital. A series of seminars and demonstrations were held by Simrad Spain, S.L., the local KONGSBERG office, in November and December last year, for their naval, scientific and industry customers.

The capabilities of this technology for environmental mapping, engineering and archaeology surveys as well as object detection and classification were demonstrated by the Simrad Spain head office in Villajoyosa, Alicante, among

other places along the Mediterranean coast of the peninsula.

Sonar 2094 Digital is the successor of the Dual Frequency sidescan sonar, which was first launched in 1996 and developed into an industry standard, with over 1000 units sold world wide. Sonar 2094 Digital combines the system’s ease of operation and reliability with the latest digital technology, which allows simultaneous acquisition of the 114 kHz and 410 kHz data channels with pioneering 24 bit resolution.

It was also demonstrated that the sonar has a 30% wider range than its prede-

cessor; up to 150m for 410 kHz per side. This is achieved using digital oversampling techniques. A 2000m rated system was purchased by the Spanish Ministry for Environment, Rural and Marine Affairs and is due to be commissioned on R/V Vizconde de Eza for carrying out environmental mapping for fishery research.

Simrad Spain has been a branch office for Kongsberg Maritime’s Subsea line of products for more than 15 years. The company offers system integration by delivery of complete fishery research and oceanographic survey equipment.

Subsea 2011 Exhibition and Conference, Aberdeen UK



Kongsberg Maritime's stand at Subsea 2011.

Aberdeen play host to the annual Subsea Exhibition and Conference and Aberdeen-based Kongsberg Maritime Ltd made the short trip to the AECC to represent the company at the event. Organised by industry body Subsea UK, the event is Europe's largest conference and exhibition for the

subsea industry and with a 'Global Connections' theme this year it was the ideal occasion for Kongsberg Maritime to present their global capabilities to the subsea market. The event also provided an opportunity to engage with various Kongsberg Maritime customers operating in the subsea sector, and to discuss current issues and recent developments in the industry. Kongsberg Maritime has recently added several key products and services to the Subsea division including the EM 2040 High Resolution Inspection Multibeam, cNODE Wideband Digital Transponder and the rental of a REMUS 100 man-portable Autonomous Underwater Vehicle. The camera division was also on stand with several key subsea products on display.

Kongsberg Maritime Ltd also used the occasion to unveil a new training course at the event. An Introduction to Acoustic Positioning and Offshore Survey Applications focuses on the fundamentals and principles of acoustic positioning and its application on dynamic positioning vessels. During Subsea 2011 Kongsberg Maritime employees took the time to sit in on some of the conference sessions, led by companies such as Shell, Technip and BP. With the 'Global Connections' theme, many of the sessions focused on addressing issues that will help the UK subsea sector grow in international markets, including current projects, operating strategies and legislation, skills development, environmental considerations and reliability and integrity of subsea projects.

Kongsberg Maritime's Subsea Group Showcases New Stand at Underwater Intervention 2011



The Kongsberg Maritime Subsea group showcased a new joint modular

US exhibition stand at the Underwater Intervention 2011 exhibition, which

took place in New Orleans on 22nd to 24th February. On the stand Kongsberg Subsea demonstrated a host of new and recent product additions. These included: New underwater digital stills cameras, the new EM 2040 shallow water multibeam sonar, the Sonar 2094 Digital Side Scan Sonar, GeoPulse Plus Sub Bottom Profiler and the new M3 Multimode Multibeam imaging and profiling sonar.

EUROFLEETS Ship-Based Training Course for Scientists and Technicians



A three day ship-based multibeam training course organized within the framework of the EUROFLEETS project, was held in Bergen from 25th to 27th January thanks to the voluntary contribution of

research vessel 'G.O. Sars' from the Institute of Marine Research (Norway) and the kind provision of an instructor from Kongsberg Maritime AS, Horten.

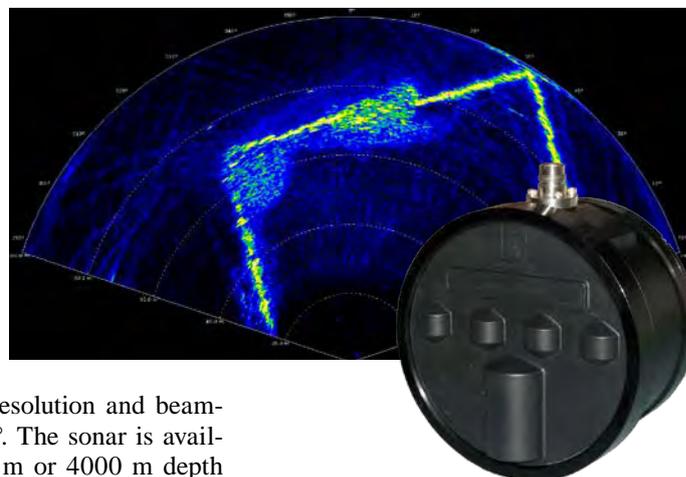
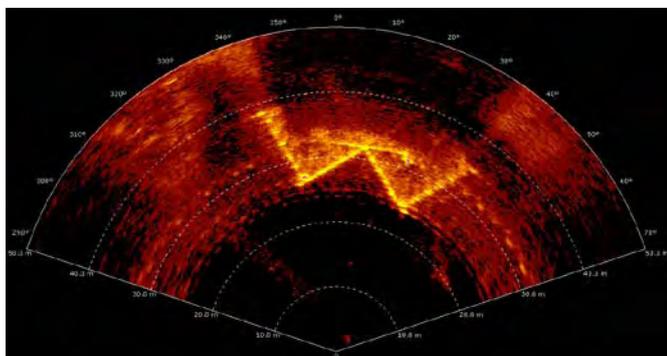
The training course, covered among other topics, multibeam theory, Seabed Information System (SIS) and data handling. The 12 technicians and scientists who attended were chosen on the basis of their professional background and nationality for best geographical distribution (from Belgium (1); Estonia (1); Ireland (2); Italy (1); Poland (1); Portugal (2); Romania (1); Spain (2); and UK

(1)). During the course they acquired the practical skills necessary to operate, collect and refine data from multibeam echo sounders for bottom topography.

The course also featured day trips and at sea practical exercises covering instruments involved in bottom topography surveys such as navigation systems, attitude sensors, sound velocity sensors, etc., conducted by Kongsberg Maritime instructor, Ms Torunn Haugland, with assistance from the vessel's two instrument chiefs, Mr Asgeir Steinsland and Mr Martin Dahl.

Kongsberg Expands the Envelope of Multibeam Sonar Performance with the new M3MultiMode Multibeam Sonar™

Kongsberg Mesotech Ltd. announces the introduction of the M3 MultiMode Multibeam Sonar™. The M3 Sonar™ is characterized by truly innovative design, versatility, and ease of use in a light, compact design. The first two models of the M3 series are intended for the underwater vehicle market, in particular, work class ROV operations.



According to Peter Fox, Ph.D., Principal Systems Engineer of Kongsberg Mesotech Ltd. and leader of the development team, "The M3 Sonar™ is a radical departure from conventional multibeam; with a simple, elegant user interface driving a versatile multichannel sonar transceiver capable of extreme spatial and temporal agility, with highly innovative composite transmit and receive transducers, a state-of-the-art signal processing with true time delays, dynamic focussing, and pulse compression; all orchestrated to produce The Full Picture in stunning quality".

Truly Innovative

The M3 MultiMode Multibeam Sonar™ combines imaging, profiling and true zoom modes in a single design. Short range (0.2 meters) and long range (100 meters) imaging capability plus multiple true zoom windows are now possible. Dynamically variable bandwidth provides optimized images and target detection with high resolution and enhanced shadows.

Versatile

ROV operators can now take advantage of the high refresh rate of conventional multibeam technology or tradeoff refresh rate for Enhanced Image Quality Modes providing detailed images of exceptional quality. The M3 Sonar™ enables operators to use the same sonar for obstacle avoidance at 100 meters range and close work in zero visibility conditions. Enhanced Image Quality Modes and true zoom windows provide high resolution and high Signal-to-Noise Ratios where the operators need it, with

centimetre range resolution and beamwidths less than 1°. The sonar is available in either 500 m or 4000 m depth rated versions for shallow or deep water applications.

Compact The M3 Sonar™ provides the sophistication and performance levels formerly found only in high end multibeam sonar in a compact package of only 3.8 kg. dry weight with an 18 cm diameter and 14 cm length. Compact deep water rotators from Kongsberg enable operators to aim this compact multibeam where they want it.

Easy to Use

The M3 Sonar™ employs a new user interface with an elegant simplicity that provides intuitive control, based on the task at hand. The M3 Sonar provides an

- Intakes at 25m (50m): Cooling intakes for a power station using eIQ Mode

unmatched viewing volume for navigation and obstacle avoidance with a 120 degree (horizontal) and 30 degree (vertical) coverage with a maximum range of 100 metres. The vertical coverage is also adjustable to suit the operator's requirements.

Data sheets for these products are available for download in pdf format at this site:

<http://www.km.kongsberg.com/ks/web/nokbg0240.nsf/AllWeb/8486C7CC54CFF3D8C1256CFD003F790D?OpenDocument>

Seminar for the Swedish Navy Focuses on AUV Hydrographic Mapping

The Kongsberg Maritime agent in Sweden, CA Clase located in Gothenburg, invited the Swedish Navy and several of its suppliers to a seminar in Stockholm on 19th October 2010, which focused on Hydrographic mapping by using multibeam echo sounders and sidescan sonars. Equipment mounted on HUGIN and Remus AUVs was specifically addressed.

The seminar was held at the Garnisonen Conference center with more than 25 people from different Navy departments in attendance.

The Swedish Navy, Marin Mätteknik



AB, GeoAcoustics - A Kongsberg Company, L3 Klein and Kongsberg Maritime all contributed with presentations, experience and open discussions according to the agenda for the seminar.

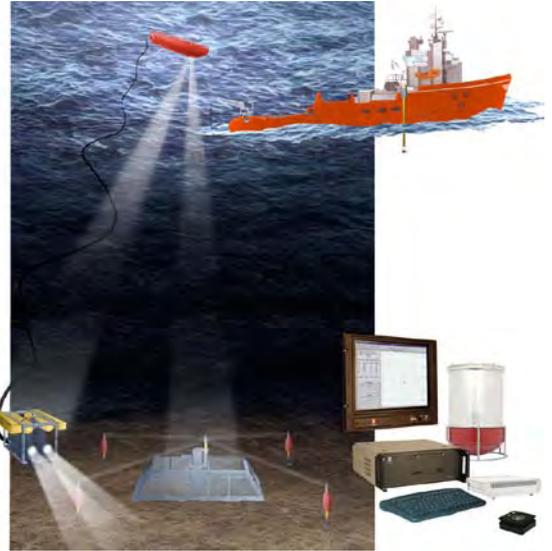
New Course – Introduction to Acoustic Positioning & Offshore Survey Applications

Kongsberg Maritime Ltd has announced that it is now offering a new subsea acoustic positioning course at its Training & Simulation Centre in Aberdeen, UK. The course – An Introduction to Acoustic Positioning and Offshore Survey Applications – focuses on providing the fundamentals of acoustic positioning, its principles and application on dynamic positioning vessels.

The introduction of the course forms part of the company strategy to expand the portfolio of courses offered at the training centre, which is already a leading provider of dynamic positioning, acoustic positioning and automation systems courses. The decision to introduce this latest course comes just over a year after the new Training & Simulation Centre opened in Westhill in response to increased demand for courses across

the subsea and offshore marine sectors.

The addition of the new course to the current offering means that the training centre now covers all levels of familiarisation with acoustic positioning technology from basic familiarisation to advanced operator and technical courses. An Introduction to Acoustic Positioning and Offshore Survey Applications is ideal for those who would benefit from having a general knowledge of the principles of underwater positioning and survey applications, and specifically has DP operators, vessel owners, technical personnel and onshore management in its sights. All courses at the training centre benefit from having



the latest KONGSBERG equipment and instructors with extensive, real-world experience of using the equipment.

Demonstrations and New Products at Ocean Business 2011



Kongsberg Maritime Ltd will be travelling to Southampton soon for this year's Ocean Business technology exhibition and training forum. Taking place at the National Oceanography Centre from the 5th April until the 7th April, the hands-on event is one of the leading international events in the ocean technology calendar.

This year Kongsberg Maritime Ltd will be conducting regular product demonstrations aboard a dedicated chartered vessel that will be situated at the Ocean Business dockside throughout the event. The survey vessel, the Solent Surveyor, will feature the new EM2040 High Resolution Inspection Multibeam and the Seapath 330+ positioning, attitude and heading sensor. Event attendees are invited to sign up for demonstration sessions at the Kongsberg Maritime Ltd stand, N1.

Kongsberg Maritime Ltd will also be taking the opportunity to display various products on the stand, including a HiPAP High Precision Acoustic Positioning model, cNode digital transponders and a scaled model of the HUGIN 3000 Autonomous Underwater Vehicle.

The exhibition will also provide the chance to engage with existing customers and industry professionals and present new Kongsberg Maritime capabilities, including the recent introduction of a Hydroid REMUS 100 man-portable AUV to the rental pool based in Aberdeen, UK.

Visit Kongsberg Maritime on stand N1 at the Ocean Business 2011 exhibition and training forum, National Oceanography Centre, Southampton UK between Tuesday 5th April and Thursday 7th April.



KONGSBERG

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