NEWSLETTER FOR CUSTOMERS OF KONGSBERG MARITIME

04/II

KONGSBERG

The SUBSEA newsletter

Publisher: Kongsberg Maritime
Editor: Subsea Division
Tel.: +47 33034100
Fax: +47 33044753
e-mail: subsea@kongsberg.com
www.km.kongsberg.com

content

Season's Greetings

Kongsberg Maritime wishes to thank all customers and partners for a valuable collaboration throughout the year. This holiday season the companies comprising Kongsberg Maritime have decided to donate the funds traditionally set aside for gifts to business associates.

AARAMBH	Eduction – Every Child's Right Mumbai, India - www.aarambh.org/
KARANBA	Sports to strengthen and build community relationships, Rio de Janeiro, Brazil www.karanba.no
BOLA PRA FRENTE	Working for the disadvantaged children in Rio de Janeiro, Brazil - www.bolaprafrente.org.br

have been named as the recipients.

Successful product seminar in Spain

Part of the Kongsberg Maritime sales team who carried out the presentations.

On September 13th and 15th, two seminars for Kongsberg Maritime Subsea products were given in Madrid and Cádiz respectively.

The first, held at the Hotel AC Carlton in Madrid, consisted of several system presentations and was well-received by well-known customers and other companies with important projects in progress.

In Cádiz, the seminar was held in Baluarte de los Mártires, located in the old headquarter of the city just on the seaside, which was a fortress part of the fence wall around Cádiz city. The grand building featured a huge conference room able to hold a large audience and a nice terrace overlooking the sea.

Attendees were able to see the wide range of systems with a common technology root based on extensive experience and reputation from Kongsberg Maritime.

It was a comprehensive agenda that included the following updates:

- Hydrography, Multibeam and Singlebeam echosounder, side scan sonars, sub-bottom profiler and other bathymetric sonars.
- Acoustic Instrumentations with the new positioning systems.
- Cameras and scanning sonars.
- Autonomous Underwater Vehicles - AUV´s families.
- Reference and motions systems.

In addition a special presentation was held, describing Kongsberg Maritime's capabilitieson doing projects integrating the groups whole product range. Examples from latest projects was given.

Multibeam Echosounders from Kongsberg Maritime in Poland

NAWIGATOR XXI, a training vessel owned by Maritime University in Szczecin, has been equipped with the first multibeam echosounder EM 710 in Poland, capable of operating at the depths of up to 2000m.

The echosounder has been delivered and installed by Escort Ltd and the final stage of installing the transducers was conducted by Mr Terje Moe and Mr Jørgen Hamre, representatives from Kongsberg Company. Transducers Tx and Rx were mounted at the bow of the vessel during its stay at dry dock in Szczecin Ship Repair Yard 'Gryfia'. The installation of the whole system took place in September 2011.

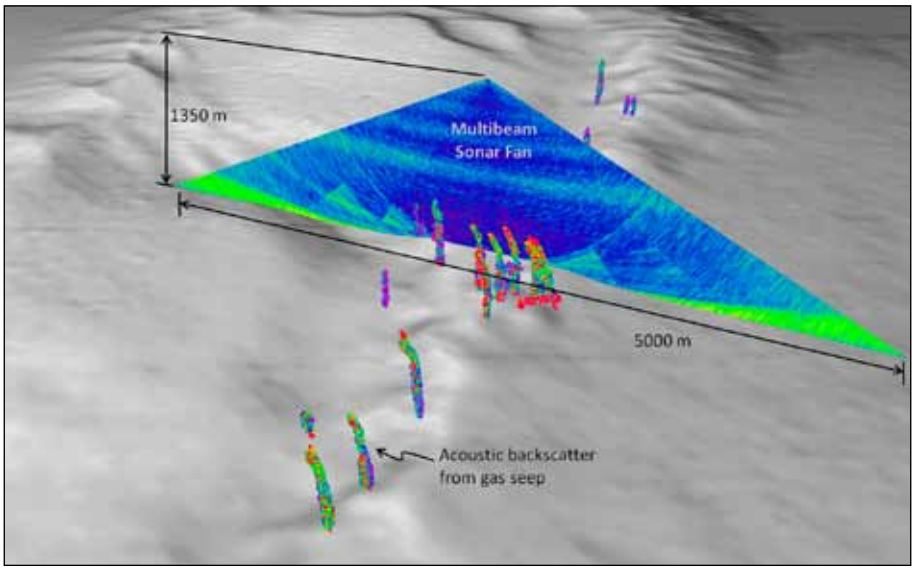
In the first week of October, a five-day long sea trial was carried out on the Baltic Sea. The trials and calibration of the system culminated successfully and the system worked very well, even during rough weather conditions.

The installation of the transducer at the bulbous bow as a result gave very good acoustic conditions for operation of the system. This mounting spot was proposed by Mr Bjorn Hoyum Larsen during his visit to Szczecin in August. At that time, a few various other mounting spots were considered. One of mounting option was on the gondola under the vessels hull, which, was rejected as it would change the parameters of the vessel's submersion and increase the installation costs. The ship owner wanted to avoid such a situation. The technical documentation regarding transducers' installation was prepared by the MIDCON – the Designe Office, while the documentation of electrical installation was prepared by Escort Ltd.

At present, Maritime University also owns the GeoSwath Plus 250 kHz multibeam echosounder, which is installed on HYDROGRAF XXI - another small training vessel.

Moreover, the Maritime Office in Szczecin owns two EM 3002D systems and the Hydrography Office of the Polish Navy in Gdynia has two EM 3002D systems as well. The Port Authority Gdansk also has one EM3002S system and a very similar one is owned by Gdańsk University of Technology. In December 2011, another GeoSwath Plus 500 kHz system will be delivered to the Hydrographic Office of the Polish Navy in Gdynia.

NOAA and Partners demonstrated success of EM 302 Multibeam Echosounder to detect and map deep-sea gas seeps



Multibeam sonar, an echo sounding technology commonly used to map the seafloor, can also be used to map and detect gaseous seeps in the water column, according to scientists testing the technology on board NOAA Ship Okeanos Explorer in the Gulf of Mexico.

Following an earlier test in 2009 on Okeanos Explorer's multibeam sonar off the U.S. West Coast, the most recent expedition in the Gulf was the first comprehensive test of Okeanos Explorer's multibeam to detect deep gaseous seeps over a wide area. Its use during this mission confirms the effectiveness of the tool and may lead to extending NOAA's water-column mapping capabilities.

The expedition was conducted jointly by NOAA's Office of Ocean Exploration and Research (OER), the University of New Hampshire's Center for Coastal and Ocean Mapping and the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), as well as scientists and technicians from NOAA's Southeast Fisheries Science Center working in parallel from NOAA Ship Pisces.

With the Gulf of Mexico home to numerous gaseous seeps, data collected by multibeam sonar could prove valuable to researchers planning further studies of gas seeps and their effects on the marine environment.

The objective of the expedition was to test the sonar's ability to map gaseous seeps, not oil, as oil is more difficult to acoustically detect with the multibeam sonar. Techniques developed during this cruise are intended to help scientists better understand detection of gas seeps which may in turn better inform scientists who are working on techniques to map oil in the water column.

"Mapping the seafloor and the water column are essential first steps in exploring our largely unknown ocean. This expedition confirms earlier indications that multibeam technology provides a valuable new tool in the inventory to detect plumes of gas in the water column, and especially in deep water," added Weber.

Bill Shedd, a BOEMRE geophysicist and expert in hydrocarbon seeps who participated in the expedition as part of an ongoing collaboration with NOAA's OER, stated, "Our agencies have been working together in the Gulf of Mexico since 2003. We're optimistic and impressed about this new capability for exploration that was demonstrated so well during this expedition."

An Update from South America

Chile

Kongsberg Maritme AS Hydrographic Departement has been awarded a contract by the Chilean Hydrographic and Oceanographic Service (SHOA) for the supply of new survey equipment for the hydrographic survey vessel PSH Cabrales. The supply consists of one EM 3002 Dual, one EM 710 1x2 one EA 400, sensors, spareparts and services. The plan is to have the equipment delivered and installed during the first half of 2012. We previously supplied EM 3002 systems to two of SHOA's other vessels, the PSG Micalvi and PSG Ortiz, which are both in operation.

Peru

Kongsberg Maritme AS Hydrographic Departement has been awarded a contract by the Hydrographic Office in Callao, Lima, Peru (Direccion de Hidrografia y Navigacion - DHN) for the supply of one EM 3002 Dual, one Seapath 330, sensors and services. The equipment will be used for shallow water mapping and mapping of rivers and waterways. The system will be installed on DHN's new shallow water survey vessel during the last part of 2011 and first half of 2012.

Unique Antique for the Hydrographic Institute Museum in Cádiz

Donation ceremony: Jan Haug Kristensen representing Kongsberg Maritime is handing over the instrument to Chief Commander Moreu from Hydrographic Institute in Cadiz.

In connection with the Kongsberg Maritime Subsea product seminar in Cádiz on September 15th, Simrad Spain and Kongsberg Maritime Subsea took the opportunity to donate an antique navigation instrument to the Hydrographic Museum in Cádiz, administrated by the Hydrographic Institute.

This antique navigation instrument is a Graphometer double telescope with compass from 1771 built by Meurand - Quai del Horloge - Paris. This instrument, preserved in an excellent condition, is a unique and historical article for the museum's unique collection of items related to the history of hydrography. The Graphometer was used for topographic and cartographic applications on azimuthal and vertical angle measurements.

The donation ceremony took place at the Hydrographic Museum building in Cádiz, and the Hydrographic Institute Director, Chief Commander Guillermo Moreu, accepted the donation on behalf of the museum. The ceremony was attended by key people from the Hydrographic Institute together with the Kongsberg Maritime Subsea sales team who participated in the product seminar. A guided tour in the museum was also arranged to view the unique collection of hydrographic history.

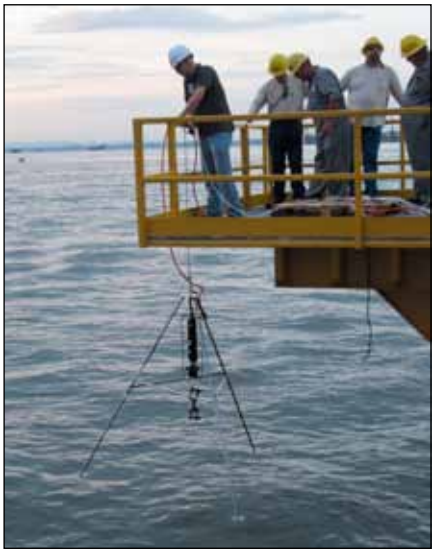
MS1000

Remote TS Pte Ltd, a Singapore-based inspection and survey company, were contracted to provide overview images of a wellhead template, prior to removal and after the wellheads and template had been removed. The only solution was to use the KONGSBERG MS1000 Imaging Sonar to take a number of images and then stitch them together to form a mosaic.

The equipment was deployed on the vessel and excellent images were obtained that were post processed using GIMP software into a mosaic showing the 'as found' and 'as left' condition of the site.

The operators of the equipment found it very easy to set up and acquire the images. The equipment was deployed using a tripod arrangement manufactured for this particular project. The tripod and sonar head were deployed by hand to a depth of 65 metres. This arrangement worked for this project but a more robust deployment system is being designed to enable us to work at greater depths and currents. The system was also fitted to an ROV as an alternative deployment method. However, the ROV was used for other tasks and so the hand deployment method was used in this case.

The client was extremely happy with the results and we look forward to carrying out similar work with them in the future. The company is actively looking for other projects using the MS1000 both offshore in the Oil and Gas industry and for onshore civil inspection projects.



Roddy Macdonald, Managing Director, Remote TS Pte Ltd, said: "We are very grateful to Grant Rawlinson at Kongsberg Maritime Pte Ltd, Singapore, for all the assistance received to successfully complete this project. For us, this was a new way of carrying out inspection and we were very encouraged by the results and are looking to expand our capability with the MS1000 as I think it has great potential in many different markets."

Successful RC International/Kongsberg Hydroacustics seminar in Argentina

On October 11th 2011, RC International (Kongsberg Maritime's representative in Argentina) and Kongsberg Maritime Subsea Division successfully arranged a Hydroacoustics seminar in Buenos Aires, Argentina.
The goal was to update all customers about the latest Kongsberg Maritime technology and its applications.
The seminar gathered around 100 participants from all sectors: Hydrographic Services, Oil Companies, Navy, private survey companies, Coast Guard, Research Institutes, marine contractors and technical support agents.
KM Subsea sales team Americas presented all Kongsberg Maritime subsea products. Alan Rozenblum and Hernan Patrich, from RC International hosted the seminar and presented Seatex products.
"The goal was to gather the key players from the industry in one room and show Kongsberg's commitment towards our market. It's a growing market in Argentina with a many challenges, so we need to position ourselves in the customer's head so that when the budget increases, they will come to us," said Alan Rozenblum, Director of RC International.
Ing. Hernán Patrich Cohen of RC International, commented on the high attendance: "There aren't many seminars on hydroacoustics in Argentina, and we usually have to travel many miles to be part of them, so when we have the chance to attend this kind of presentations in our own country, we don't miss the opportunity."

Kongsberg Maritime Ltd Hosts Successful Subsea Seminar in Aberdeen

Aberdeen-based Kongsberg Maritime Ltd host the Kongsberg Maritime Subsea Seminar 2011, which featured presenters from across the Kongsberg Subsea product groups and attracted almost 80 people from across the UK survey market.

The theme of this year's event was 'Integrating a New Generation of Technology' and presentations focussed both on new developments in Kongsberg equipment and the integration of this technology with other products to achieve the best results. The presentations were mostly application orientated, with data and conclusions from recent successful projects interspersed throughout the talks.

The event was a big success and an ideal setting to showcase the latest technologies to existing and potential customers. With a large number of key customers opting to attend, it also proved a great networking opportunity. The aim of the seminar was to not only present new products and technology to customers, but to also present new ways of utilising Kongsberg technology. By enhancing the technical and practical knowledge amongst companies and individuals, this will ensure that users are maximising productivity of the equipment they have invested in.

Presenters on hand to guide delegates through the technology and results were; Finn Otto Sanne, Product Manager Motion Sensors at Kongsberg Seatex; Ralf Timm, Vice President Sales at Geoacoustics; Berit Horvei, Product Manager Multibeam; Craig Wallace, Senior Subsea Engineer; Ian Florence, Subsea Acoustic Specialist; Jan Erik Faugstadmo, Vice President UNAV, and Einar Gustafson, Sales Manager AUV.

In addition, there was also various operational equipment and models on hand which provided a visual and practical element to proceedings. Working equipment included a HiPAP 351, cPAP, cNode Maxi and cNode Mini. Multibeam software SIS was also set up on replay mode showing data captured during a recent project. Models on show included a HiPAP 500, EM 2040, full-size REMUS 100 AUV model and a scaled version of the HUGIN 3000 AUV.

The Kongsberg Maritime Subsea Seminar also saw the unveiling of the new Kongsberg Maritime T-shirt design, created exclusively for Kongsberg by Ian Florence.

Kongsberg AUV Users Conference – June 2012

The Kongsberg Group is pleased to announce the second REMUS/ HUGIN AUV Users Conference is to be held the week of June 25, 2012 at the Villa Marigola in La Spezia, Italy.

This conference will provide a forum for the worldwide REMUS and HUGIN community to come together, share ideas, experiences, learn about new developments, applications and capabilities for your AUVs.

You will find more information on how to sign up for this event on our webpage in January 2012. http://www.km.kongsberg.com/ under news, events.

If you are interested in reserving your place for this event, or need more information, please send an email with your name and contact information to: epatton@hydroid.com.

FUGRO, Kongsberg AUV and Hydrographic teams climbing to the top

Left to right: Henning Tolleifsen, Mr John McGregor (Fugro) and Mr Frank Wilhelmsen on the summit of Mt Kinabalu

A joint team from FUGRO Survey Pte Ltd, Singapore, and Kongsberg Maritime's Subsea departments in Horten and Singapore, travelled to Sabah, East Malaysia to make an attempt to climb South East Asia's highest mountain. At 4,098m above sea-level, Mount Kinabalu is known locally as 'The revered place of the dead'.

The climb took 2 days. The team started at an altitude of 1,800m on day one. A stiff climb up a rocky path through the many different layers of mountain vegetation, ensued. Finally after an exhausting 6 hours the climbers reached the sanctuary of the Pendant hut at 3,290 m, and could rest and rehydrate. At this elevation the climbers were starting to feel the effects of the altitude and the reduced oxygen. After a brief few hours' sleep, they woke at 1:00AM and geared up to make the final push for the summit. The mountain gods were happy on this morning, the weather was crisp and cold but beautifully still with almost no wind – perfect climbing conditions.

The climbing immediately got steeper. With head torches fixed to their foreheads, using the fixed ropes for safety, they slowly climbed higher up the granite fortress of Mt Kinabalu's summit cone. With every 100m ascent, the climbers felt the effects of the reduced oxygen more and more. With screaming lungs and burning legs it was with immense relief that they finally reached the summit at 6:40AM. Just in time to see the morning sky erupt in light and one of the most incredible sunrises unfold before their eyes.

Getting to the summit of a mountain is only halfway. The team chose to descend by the 'Via Ferrata' route, back down to Pendant Hut. The Via Ferrata leads you, literally, straight down a cliff face. Using holds bolted into the cliff face, and taking extreme care to ensure they were always connected to the safety lines, the team slowly inched their way down the steep exposed rock for 1.5 hours. After arriving back safely at the hut and a short stop for a well-earned breakfast, a brutal knee jerking 4 hours of descent down steep steps to the base of the climb followed. A tired but happy group of climbers finally arrived back safely in the township ok Kota Kinabalu at 6PM that night to celebrate the climb.

The trip was a success in many ways. Not only in that all climbers made it to the summit and down safely, but also in the relationships that formed during the journey. John McGregor from Fugro states: "It was good to get out of the office environment and spend time getting to know each other a little better in a situation that, with the exception of Grant Rawlinson, was completely new to us. The weekend was challenging, enjoyable and there was great camaraderie, all of which contributed to us gaining a much better understanding of each other, both in a personal sense and a corporate sense. It's always easier to communicate in business if you have this extra level of understanding. This will definitely help with future communication between our two companies, particularly when it involves technical subjects."

The 100th EM 710 to be delivered to R/V Kilo Moana of University of Hawaii

Courtesy of "R David Beales, University of Hawaii Creative Services".

Since their introduction 25 years ago, Kongsberg Maritime shallow/medium water multibeam echosounder systems have been very successful in the market. The first system, EM 100, began operations in the North Sea in 1986. Over the years, Kongsberg Maritime has continuously worked to develop systems with even better capabilities and subsequently released the EM 1000 in 1991 and the EM 1002 in 1998. More than one hundred EM 100/1000/1002 systems were delivered from 1986 to 2007.

The EM 710 was introduced to the market during the fall of 2004 to replace the EM 1002. This system was a major leap forward in technology, incorporating many new features such as frequency modulated transmit pulses, dual swath per ping and multiple transmit sectors. The first EM 710 was delivered to the UK Royal Navy and installed onboard the HMS Endurance, the UK Navy's ice inspection vessel for the Southern Seas, and completed successful sea trials in April 2005. As with its predecessors, the EM 710 has been highly successful and is currently in operation in more than 25 countries around the world.

Kongsberg Maritime is very proud to announce a new contract for the purchase of our 100th EM 710 system. The contracted unit has a 1x1 degree transducer configuration and will replace the existing EM 1002 onboard the University of Hawaii's (UH) R/V Kilo Moana.

R/V Kilo Moana is operated by University of Hawaii's School of Ocean and Earth Science and Technology (SOEST). Established in 1988, SOEST has since grown to employ over 900 scientists, staff and graduate assistants. It is an international leader in such diverse fields as alternative energy, tropical meteorology, coral reef ecosystems, volcanology, seafloor processes, climate modeling and ocean mapping research, just to name a few.

The Kilo Moana, which means "oceanographer" in Hawaiian, supports a variety of coastal and open ocean science activities for UH and other U.S. and international institutions. The ship has a unique Small Waterplane Area Twin Hull (SWATH) design, which provides a comfortable, stable platform and no acoustic noise from bubble draw-down, even in high sea conditions. The ship has dynamic positioning and two multibeam echosounders – one low frequency system for deep-water seafloor mapping and one medium frequency system for medium and shallow-water seafloor mapping. The medium frequency multibeam is scheduled to be replaced with EM 710 No. 100 during the ship's next dry-docking period, which is scheduled for February 2012.

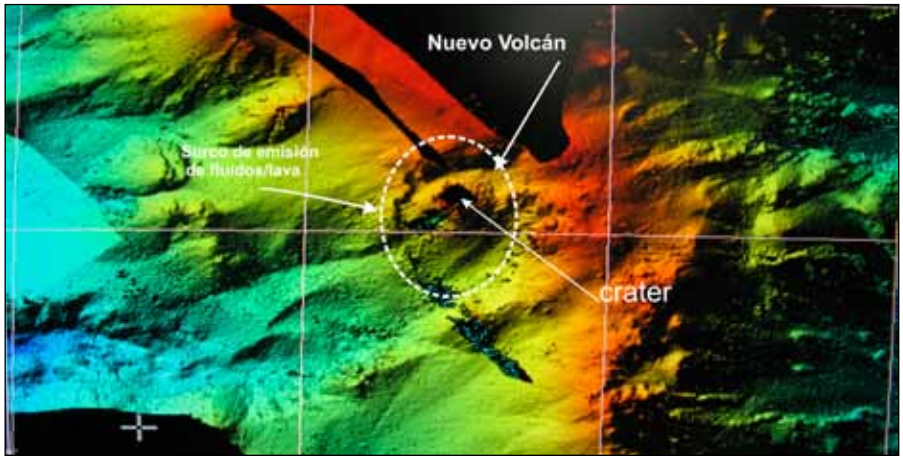
Francisco J. Gutierrez joins GeoAcoustics as Product Manager

On 1 November 2011, Francisco Gutierrez joined GeoAcoustics as Product Manager. His main responsibilities include supporting the internal and external sales team, preparing and executing product demonstrations, publishing technical papers and supporting the GeoAcoustics product evolution systematically.

Francisco has a background in physics and since achieving his MSc (Honours), his career has progressed from applied physics towards technology, with positions including DSP Field Application Engineer at Texas Instruments Ltd and technologist in coastal oceanography at CSIC, the National Research Council in his native country Spain.

Background information:
GeoAcoustics Ltd in Great Yarmouth, UK, has been manufacturing marine survey equipment for more than 25 years and is a world-leading manufacturer of sonar survey equipment for engineering geophysics and Naval survey applications. Principle product lines are swath bathymetry systems for shallow waters, side scan sonars and sub-bottom profilers. Kongsberg Maritime acquired GeoAcoustics Ltd in September 2008.

The latest Spanish research vessel, R/V Ramon Margalef, monitor the progress of a submarine vulcano



The new multi-purpose research vessel R/V Ramon Margalef, which belongs to the Spanish Oceanographic Institute (IEO), was undergoing sea trials when the Science Ministry decided to move it to the Canary Islands to follow up on the activity of the volcano on El Hierro Island.

The vessel was only delivered a few weeks previously, on September 23rd 2011, so with such a challenging first mission, this really was a trial by fire.

During the first week of the mission, the goal was to map the volcano so researchers had a clear view of its footprint. It didn't take long for the team to build a good picture of the volcano using the data acquired with the KONGSBERG EM 710 multibeam echosounder system installed on board R/V Ramon Margalef.

After the volcano was located, the EM 710 was used to measure dimensions such as cone height from the bottom and diameter. The IEO team compared this data with a dataset from the same area acquired on board R/V Hespérides using the KONGSBERG EM 12 in 1998, in order to calculate how much the volcano had risen.

The team then went on to research the gasses and water column using the six different frequencies of the KONGSBERG EK60 scientific echosounder and ME70 multibeam echosounder.
Once the area was fully mapped the ROV operations started, which enabled the team to view high quality video of the sea bottom around the volcano captured by HD cameras supplied by Kongsberg Maritime in Aberdeen.

The vessel is currently performing different oceanography missions launching various sensors, with vessel navigation supported by Kongsberg Maritime's K-Pos Dynamic Positioning and K-Bridge Integrated Bridge System.

So not only was this first mission a trial by fire for R/V Ramon Margalef, but the Kongsberg Maritime Full Picture delivery onboard has been put through its paces too. The systems performed reliably and accurately from the offset, enabling the team to acquire the data they needed to make the first mission for R/V Ramon Margalef a great success.

FEMME 2013

Kongsberg Maritime is pleased to announce that the FEMME 2013 Multibeam User Conference will take place in Boston, Massachusetts, USA from 23rd to 26th April 2013. Invitations will be sent out in August/ September 2012 and a web page for information and online registration will be established.

Boston is a historical and beautiful city, and a lot of information can be found on the internet on pages like http://www.cityofboston.gov/ or http://www.boston.com/ or many other addresses.

As before, presentations by users of Kongsberg Maritime multibeam echosounders will constitute a very central part of the conference, so we invite you to send suggestions of topics, abstracts and other ideas to the paper committee at the following address: helge.uhlen@kongsberg.com.

If you have any questions about the conference or would like to discuss possible presentations, please contact: nina.hovland@kongsberg.com, chris.hancock@kongsberg.com or jan.haug.kristensen@kongsberg.com.

Kongsberg Maritime wins contract to Supply Hydrographic Sonar Suite to New CSIRO Research Vessel

Kongsberg Maritime has been chosen by Teekay/Sembawang as the partner to provide a complete suite of Dynamic Positioning, Navigation and Scientific instrumentation onboard a new ocean-going research vessel for the Marine National Facility, owned by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

The scientific instrumentation is split into two groups: Fisheries sonar and Hydrographic sonar. As part of the new contract, Kongsberg Maritime will supply a hydrographic sonar suite that includes the following equipment:

- EM 122 - 1 x 1 degree Deepwater Multibeam echosounder
- SBP 120 - 3 degree Deepwater sub-bottom profiler
- EM 710 - 0.5 x 1 degree Shallow to Medium Water depth multibeam echosounder
- EA 600 12Khz singlebeam echosounder Single beam echosounder
- Seapath 330+ positioning system
- EN250 – Navigational echosounder
- Various 3rd party senors incl. ADCP, Doppler SpeedLog
- The fisheries sonars include the following systems:
- EK60 Singlebeam sonar – 6 frequencies (18,38,70,120,200,333)
- ME70 – Scientific multibeam
- ITI – Integrated Trawl Instrumentation
- SH90 – Omni-directional sonar

The new 89 meter ship, named RV Investigator, will accommodate 40 scientists and cover 10,000 nautical miles in each voyage. Scheduled to begin operating by mid-2013, the vessel will be used by Australian universities, research organisations and their international collaborators to undertake vital marine research that will inform our sustainable ocean management practices.

This comprehensive and state-of-the-art choice of hydrographic equipment will allow RV Investigator to very accurately measure ocean bathymetry, water column data and even information below the seafloor. The equipment is capable of taking bathymetric measurements ranging from very shallow water all the way down to the deepest ocean. It will be able to measure the sediment structure below the seafloor using the SBP 120 Sub bottom profiler system. Using the latest technology developed by Kongsberg Maritime, information in the water column itself can be measured and studied. Phenomenon such as gas seeps and underwater thermal vents rising up from the ocean floor can all now be identified and quantified in great detail.

Using the EK60 and ME70 echosounders, RV Investigator will also be able to locate fish resources, and to measure stock size and fish size distribution extremely accurately. The high quality data produced by the Simrad EK60 provides an excellent basis for further analysis for applications such as biomass assessment and fish behavior studies. Using the multiple frequencies, exact species of fish and even individual fish can be counted. The ME70, with its wide swath, can do very rapid sampling of large areas of fish and the habitat they live in. From this data we can obtain accurate volume data for 3D presentation, can do characterisation and volume estimation of schools and can predict fish behavior studies which all helps to lead to improved fish stock assessment.

The RV-Investigator also has a Simrad ITI complete wireless trawl positioning and monitoring system. This is designed to improve control and efficiency in pelagic and bottom trawling. Small, robust, battery-powered sensors mounted on the trawl, transmit important information to the vessel on request. The Simrad ITI will allow the RV Investigator to monitor the exact position of the trawl gear, and what is happening in and around the trawl. This provides crucial information for effective and responsible fishing.

Mr Anthony Fielding, Project Director for the RV Investigator from the Sembawang Shipyard Teekay Build Team, said: "We are very happy to be partnering with Kongsberg Maritime on this project. For a vessel of this sophistication, it is imperative we use the best equipment available in the market place, which Sembawang/Teekey considers the Kongsberg Maritime equipment to be. Through previous partnerships with Kongsberg Maritime, such as the new vessel's soon to be predecessor, RV Southern Surveyor, we know we can rely on them for highly advanced, reliable equipment and service."

EM 2040 Multibeam Echosounder for MAREANO Survey Contract awarded to Fugro

An important hydrographic survey contract as part of the MAREANO Program in Norway has been awarded to Fugro OSAE GmbH.

A new high resolution KONGSBERG EM 2040 multibeam echosounder will be used by Fugro OSAE GmbH onboard the survey vessel Victor Hensen to conduct this €2.3 million hydrographic survey contract which will encompass an area over 12,000km² in the Barents Sea.

Survey operations will be carried out in early 2012 in an area located 200km offshore in the northernmost part of Norway, near the Russian border, in water depths down to 300 meters.

The MAREANO Program was designed to map depths and seafloor topography, sediment composition, contaminants, biotypes and habitats in Norwegian waters. For more information on MAREANO Program, please go to www.mareano.no

Subsea Product Seminar in Valparaiso, Chile

The last part of Kongsberg Maritime's Subsea Sales teams' autumn effort in South America, which included this time Brazil, Argentina and Chile, was a one day product seminar arranged at the Naval Club in Valparaiso. The arrangement was done in close collaboration with our representative in Chile, Robinson Marine Electronics SA.

Valparaiso, on the Pacific Coast of Chile, is an important harbor for the country, both for the merchant marine as well as the Chilean Navy. In addition is the city of Valparaiso, where the Chilean Hydrographic and Oceanographic Service (SHOA) has their headquarters.

The product seminar was attended by around 30 individuals, mainly from different branches of the Chilean Navy, and a great interest was shown in the products and solutions Kongsberg Maritime AS can offer. The seminar provided a great opportunity for the audience and KM Subsea personnel to interact.

Shallow Water Seminar in Lingen

Kongsberg Maritime in Germany recently invited its customers to Lingen at river Ems for a hydrographic seminar focusing on the 'shallow-water' survey.

Over 60 participants attended the three-day event from all over Germany, Austria and Switzerland, which provided the opportunity for Kongsberg Maritime's to present its latest products in a pleasant environment and to have an intensive exchange of experience with its customers.

The first day began with various presentations on hydrographic themes from the Kongsberg staff as well as other private sector, authority and science professionals.

Several practical product demonstrations were held on different survey vessels including two from the event's sponsor, water way authority Rheine, on which Kongsberg systems had been installed.

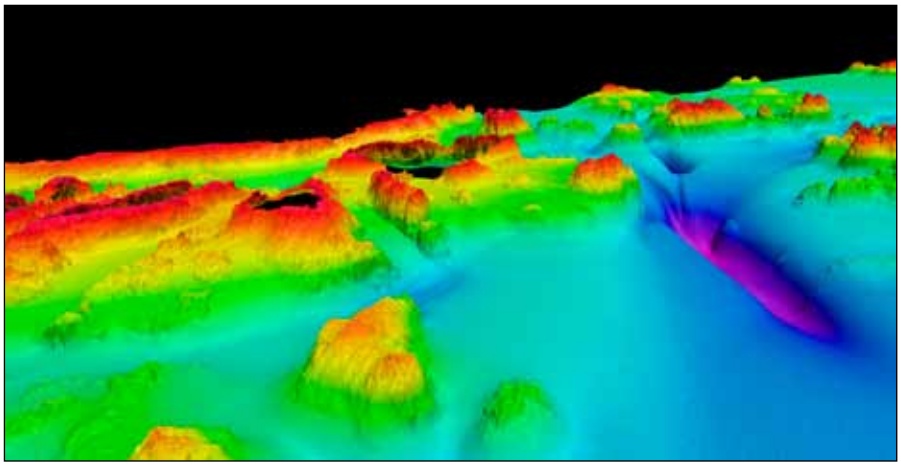
The vessel, MS Westfalen , equipped with an EA MCU multichannel system with 47 transducers, including a motion sensor MRU5 and a GPS compass Seapath 20 NAV, demonstrated the area survey capabilities of such a KONGSBERG system.

On the second survey vessel, Ludinghausen, the high resolution and outstanding performance of the new EM 2040 multibeam echosounder, together with a GPS compass Seapath 330+ and a motion sensor MRU5 +, was demonstrated.

The third vessel, Lingen, provided by the water way authority office in Lingen, was used to demonstrate the multi-application capabilities of the new EA 440 together with dual 500 kHz sidescan transducers and two vertical frequencies 200/15 kHz to customers. Additionally, the dual frequency Geo-Acoustic sidescan sonar tow fish with 114/410 kHz was also presented, which can be operated together with the EA 440 wide band transceiver for deeper water sidescan surveys. The KONGSBERG EA SSM software was demonstrated for online navigation as well as post processing the sidescan raw data into geo-referenced maps.

Parallel to the product demonstrations, seminars were offered in smaller groups on various topics, so an intensive exchange of information among the participants was encouraged.

MMT AB surveying with their first EM 2040



During 2011, MMT Group has achieved important results in both the shallow and deep water applications by using KONGSBERG multibeam echosounders.

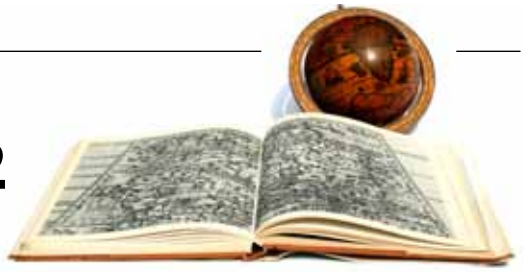
The company purchased and installed a KONGSBERG EM 2040D dual head multibeam echosounder on its survey and ROV vessel IceBeam. The EM 2040D, with its high resolution and short pulse lengths, allows the acquisition of unmatched bathymetric and backscatter data quality. Unique features include dual swath per ping to allow a doubling of survey speed, FM chirp to achieve a much longer range capability, complete roll, pitch and yaw stabilization and nearfield focusing both on transmit and receive. These make the EM 2040 multibeam echo sounder the first and only system on the market to bring all the advanced features of deep water multibeam echosounders to the near bottom sounding environment.

The following image was made by MMT Group from bathymetric data acquired with an EM 2040 Dual Head system during a test, showing seabed rocks, troughs etc.

MMT Group also owns an EM 710 0,5x1 multibeam echosounder, which is a very high resolution seabed mapping system capable of meeting all relevant survey standards.

The company was awarded the 2011 MAREANO survey contract by the Norwegian Hydrographic Service. The area that was surveyed covered roughly 9,000 square kilometers and varied between approximately 200 and 1,200 meters in depth. Survey operations started in April and were completed in August 2011. The contract included bathymetric data acquisition and processing in the Nordland VI area of the Norwegian Sea, west of Bodø, Norway. The surveys were carried out using the EM 710 multibeam echosounder installed aboard MMT survey vessel Franklin.

Training semester 2012



HiPAP Operator - HiPAP LBL Operator
HiPAP Technical - HAIN Reference Operator

Week	Date	Course
12	March 20-21	HiPAP Operator course
20	May 15-16	HiPAP Operator course
24	June 12-13	HiPAP Operator course
7	February 14-16	HiPAP LBL Operator course
13	March 27-29	HiPAP LBL Operator course
17	April 24-26	HiPAP LBL Operator course
21	May 22-24	HiPAP LBL Operator course
25	June 19-21	HiPAP LBL Operator course
2	January 10-12	HiPAP Technical course
16	April 17-19	HiPAP Technical course
22	May 29-31	HiPAP Technical course
27	July 3-7	HiPAP Technical course

Position Reference System Operator Course:
APOS/HiPAP - Artemis - DARPS

Week	Date	Course
5	January 30- February 3	PRS Operator course
9	February 27- March 2	PRS Operator course
19	May 7-11	PRS Operator course
24	June 11-15	PRS Operator course

EM & SIS Operator Course - Open 4 days theory,
1 day Hands On training. Price NOK 23 000 per person.

Week	Date	Course
13	March 26-30	HiPAP Operator course

Kongsberg Maritim Ltd Awarded Offshore Renewables Contract with Aquamarine Power

Kongsberg Maritime Ltd, the UK subsidiary of global marine technology company Kongsberg Maritime, has been awarded a contract with leading wave energy technology provider, Aquamarine Power, to carry out underwater noise assessments relating to their Oyster wave energy device.

The Oyster device has been developed by Aquamarine Power to capture wave energy from near-shore sites and convert it into clean sustainable electricity. The contract represents a first collaboration between Kongsberg Maritime Ltd and Aquamarine Power, and will involve the company measuring underwater noise during the Oyster installation and operational phases at the EMEC range, Billia Croo on Orkney.

The project scope will also involve Kongsberg Maritime Ltd determining the acoustic impact associated with installing and operating the Oyster device when it is subsequently operating in a high energy wave environment. This phase will take place off the North-West coast of the Isle of Lewis.

The next-generation Oyster 800 wave energy device was recently installed at the EMEC site in Orkney, where the installation noise was captured by Kongsberg Maritime Ltd as part of the project scope, and there are plans to install two further Oyster devices at the same site in 2012 and 2013. Each device will have a generating capacity of 800kW.

Having completed the first phase of the project at Billio Croo, Kongsberg Maritime Ltd will shortly embark on measuring the underwater noise once the Oyster device is operating. These activities undertaken by Kongsberg Maritime Ltd will allow the environmental impact of the wave energy device outside the EMEC site to be assessed in context.

As part of the project, Kongsberg Maritime Ltd used their autonomous underwater noise recording system known as RUNES to conduct baseline noise measurement at the Isle of Lewis site. The RUNES system, simple in its deployment method, is placed on the seabed over an extended period of time while recording baseline noise prior to any construction or installation work being carried out.

Using the RUNES system removed the need for surface support vessels and personnel during the main operation, helping to reduce costs and increase operational efficiency. The absence of trailing hydrophones and vessel noise also meant that the data collected at the Isle of Lewis site was of significantly higher quality, allowing for clearer interpretation and analysis.

The data collected during the baseline noise studies, combined with the underwater noise data gathered at the Billio Croo site, will contribute to an assessment of the potential effects of underwater noise on marine mammals, fish and diving birds at the site once the Oyster device is installed and operational.

Kongsberg Maritime technology is utilised in all phases of offshore renewable energy, from the planning and consent phases through to installation and maintenance of offshore renewable structures. Within the industry, Kongsberg Maritime is the leading supplier of ship positioning, navigation and marine automation systems for turbine installation and cable-lay vessels, with their AUV's and multibeam technology frequently used for conducting seabed surveys and mapping.

KONGSBERG

KONGSBERG MARITIME AS
P.O. Boks 111 N-3194 Horten Norway Telephone +47 33 03 41 00 E-mail subsea@kongsberg.com
www.km.kongsberg.com