



# The SUBSEA newsletter

Publisher: Kongsberg Maritime  
Editor: Subsea Division  
Tel.: +47 33 03 41 00  
Fax: +47 33 04 47 53  
e-mail: [subsea@kongsberg.com](mailto:subsea@kongsberg.com)  
[www.km.kongsberg.com](http://www.km.kongsberg.com)

## content



**EA 400/SP hydrographic echo  
sounder upgrades**  
PAGE 2

**Submarine launched rescue  
device**  
PAGE 2

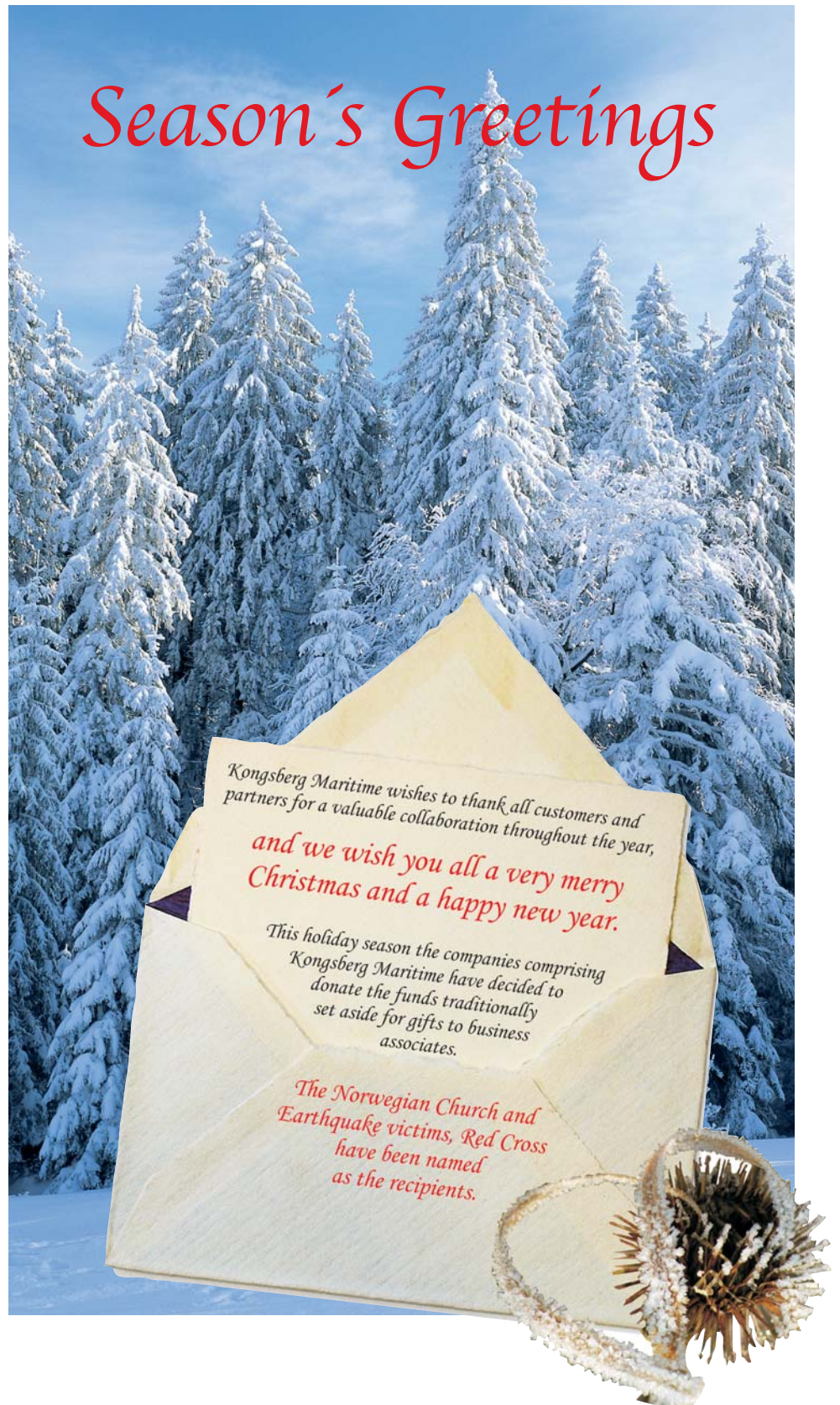
**Great enthusiasm for HUGIN**  
PAGE 3

**Barcelona University – Geology  
and geophysics research**  
PAGE 3

**Risk reduction & cost savings  
in deepwater construction**  
PAGE 4

**Multibeam and single beam  
for Royal Netherlands Navy**  
PAGE 4

**EGS International purchases  
dual head EM 3002D**  
PAGE 5



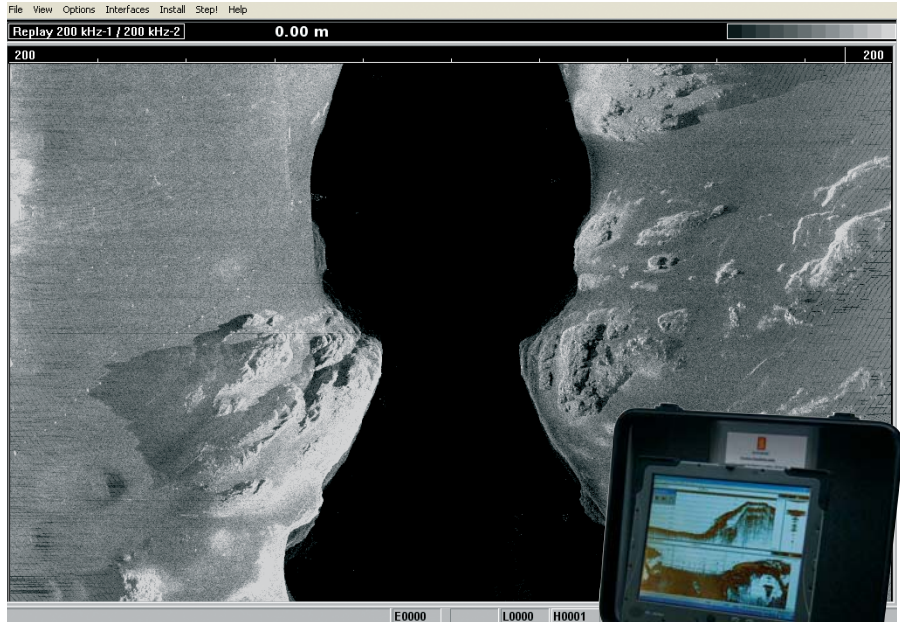


## EA 400/SP hydrographic echo sounder upgrades

Early in 2005 an improved EA 400 portable splash proof (IP56) unit was introduced. In summer 2005 new software for the EA 400/SP/600 was released, providing new features and possibilities.

The EA 400SP is a dual frequency echo sounder operated with a rugged notebook PC (Tablet PC Edition). 38/200kHz frequency is the standard configuration (vertical or side looking transducer(s)) and it is powered with 12VDC. It is easy to commission and therefore perfect for surveying in shallow water depth in small and open boats.

The new EA 400 and EA 600 software, version 2.2.0.1, has been improved with several new features, such as side enhanced looking imaging, replay function and new data formats. The EA has for a long time featured the possibility for side looking imaging, a feature already popular with users. The new side looking software has been improved by scrolling the image vertically and exporting of georef data on the network (position and across distance to an object). For correct across distance, a vertical transducer must be installed.



*EA 400 with dual 200kHz (0.5x49degrees) Side looking transducer.*



*Portable EA 400SP*

Other enhancements includes:

- New functionality in the replay dialog box (slider and storing of existing raw file)
- XYZ values in ascii format (interpolated depth) stored to HD
- Remote control of start and stop logging/pinging and history file
- Extended function to detect second hard bottom with the lowest frequency

in the system. Needed frequencies e.g. 38/200kHz.

See [www.km.kongsberg.com](http://www.km.kongsberg.com) for more EA 400/600 information...

**SUBMARINE RESCUE**

- DISSUB Localisation
- Environmental Assessment
- Communications
- Navigation
- Tracking

## Submarine launched rescue device

The SSE Launched Transponder is an integral device capable of ejection from a distressed submarine (DISSUB) via the submerged signal ejector (SSE). The unit enables rescue assets to acoustically position the DISSUB using a number of commercial and naval tracking systems. In-service with the Royal Navy, the UK variant is compatible with Sonar 2059 and the Kongsberg HPR system range.

The unit contains an integral SSE ejection mechanism and a ballast weight at its base. Immediately upon ejection the rear section containing the ballast weight separates from the main unit by means of an approved separation device.

Kongsberg has extensive experience in the design and manufacture of expendable stores including self generated noise measurement devices and GPS positioning buoys. Available Models SSE Launched Transponder (RN Model): ±90° beam pattern, alkaline battery pack, 1150 feet rating (proof tested at 1550 feet). HPR 300, 400 series & 2059 compatible.

Note: Compatibility with a range of acoustic tracking systems and search sonars is possible, along with alternative transducer beams, source levels, depth ratings, battery types, physical dimensions etc

## Great enthusiasm for HUGIN



The Autonomous Norwegian-developed underwater vehicle HUGIN was demonstrated on 'KNM Karmøy' for potential customers in Bergen on 19th – 20th October.

The conference and demonstration of the Autonomous underwater vehicle HUGIN was arranged by Kongsberg Maritime and potential customers came from Sweden, Denmark, Germany, USA, France and Norway attended.

### Great interest

Kongsberg Maritime believes that HUGIN is going to receive great interest from the international market. HUGIN is available for use in the civilian and military field and the range of potential use is almost unlimited.

### Norway – the first in the world

Norway is still the only country in the world with a vehicle like HUGIN at its disposal for military operations. Kongsberg Maritime has developed the vehicle

in cooperation with Norwegian Defence Research Establishment (FFI) and has three models available, HUGIN 1000, 3000 and 4500. The numbers indicate the depths restriction for each model.

“For the future we also hope to develop a model for use from the submarines. It will be ideal as it is unmanned and can collect data and information with out risk to human life and also for not being observed by the enemy”.

## Barcelona University – Geology and geophysics research



*The boat during construction*

The geology department of the Barcelona University has handled a collaboration agreement with the fishery department of the Catalanian government to

share use of the New Fishing Control Boat “LUERNA” with research activities. The boat is 18 meters length and has been built by Rodman (Vigo) on request of Secretaria General de Pesca.

With this project Barcelona University becomes the first Spanish university to have a multibeam and parametric system. The boat has been equipped with Kongsberg equipment and the main purpose is to develop Geological studies of the Catalanian continental shelf. The leader of the project at the University, Dr. Miquel Canals has a long experience with Kongsberg systems and has par-

ticipated in a huge number of campaigns with Ifremer and CSIC research vessels. The boat is equipped with: Scientific Equipment with Seapath 200, EM 3002 Dual, EA 600, TOPAS PS18, sound velocity sensors and dGPS receivers. Bridge navigation from Simrad including autopilot AP25, heading sensor HS50, electronic chart system Olex, radar RA54 and communications. Additional systems from Kongsberg Maritime divisions are also included on the boat, demonstrating a high level of integration between navigation and scientific equipment.



## Risk reduction & cost savings in deepwater construction

Kongsberg Maritime is leading the way as the offshore construction industry pushes back all the operational positioning limits, on deepwater construction projects around the globe.

New positioning solutions are available that enable operators to reduce risk and vessel time and save costs.

The new combination of HiPAP & HAIN (Hydro-Acoustic Aided Inertial Navigation) enables users to maximise the capabilities of these systems, which are already installed on the majority of the offshore construction fleet, and gain the benefits they are demanding.

This readily available combination allows users to:

- Use less - project & vessel time / equipment / manpower/ administration
- Do more - with existing, paid for, systems
- Implement - new proven operational methods & procedures
- Improve - project bidding, planning, operational flexibility, & vessel scheduling
- Gain - access to operational support services & ongoing system developments
- Reduce risk - less transponders / seabed monuments & frames

HiPAP & HAIN are proven technology

which can maximise the use of USBL and maximise LBL operations, saving valuable vessel time & operational costs

Significant risk reduction and cost savings can be achieved due to the following reasons:

1. Vessel time / engineering costs saved - already installed, therefore no additional mobilisation – system specifically designed to operate with Kongsberg DP system.
2. Vessel time saved - reduced transponder array calibration time- at least 70%
3. Vessel time saved -maximise use of SSBL positioning techniques – less LBL arrays
4. Vessel time saved - using technology to enhance deepwater SSBL accuracy – HAIN (Hydro-acoustic Aided Inertial Navigation) option available – less LBL arrays
5. Vessel time saved - due to Multi-User LBL use – minimise conflict with other critical path operations with no frequency conflicts: Many users - on the same array - at the same time - save project time
6. Less equipment required - Single type of transponder - MPT – using superior error checking algorithms – fewer false readings

– SSBL / LBL / metrology / telemetry /Multi-user enabled

7. Implement new methods - for conventional tasks – without compromising DP performance
8. Less equipment required - lower transit charges – readily available from rental companies
9. Less equipment required - less tracking of assets / less logistics / less admin
10. Latest proven Kongsberg Maritime advance in subsea positioning technology:

### Hydro-acoustic Aided Inertial Navigation - H.A.I.N.

The integrated HiPAP/HAIN Subsea solution gives you:

- Improved acoustic SSBL & LBL position accuracy – up to 300%
- Higher position update rate (1 sec)- irrespective of depth
- High repeatability of positioning:- (typically <2.0m at 1300m water depth)

These are well defined, cumulative, risk & cost savings, which can assist the operator, to provide a competitive advantage during the tendering stage, and add significant benefits during the performance of the actual works.

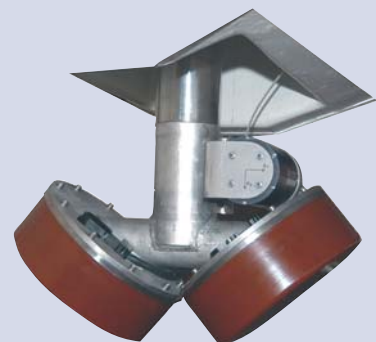
## Multibeams and single beams for Royal Netherlands Navy

Simrad BV has been awarded a 2nd contract by the RNLN for delivery of three EM 3002 dual head high resolution Multibeam (MB) systems and two EA 400 single beam (SB) 38/200 KHz echosounders.

The two MB- systems and SB systems will be installed on survey launches

for assisting the two naval Hydrographic survey vessels already equipped with EM 3000 dual head multibeam and EA 600 single beam echosounders. The MB and SB systems work with the 3rd part data acquisition software QINSy.

Delivery and commission is planned for December 2005.



## HiPAP®500 for heavy lifting



Seaway Heavy Lifting Engineering BV in Holland has placed an order with Kongsberg Maritime for a HiPAP®500 - High Precision Acoustic Positioning - system. The system will replace the existing HPR 310 system onboard the crane vessel 'Stanislav Yudin'.

'Stanislav Yudin' has been successfully employed for platform installations and platform removals in-shore lifting, salvage and installation of large subsea structures. The HiPAP® will be used for

highly accurate structure positioning in shallow and deep waters world wide.

One of the reasons for selecting the HiPAP® was because of the operating area of 200 degrees below the vessel. In addition the dynamic beam forming used by the HiPAP® technology provides an excellent noise suppression capability where the same positioning accuracy is obtained horizontally as vertically. Delivery and commissioning will be in December 2005.

## FEMME 2007



The 11th FEMME (Forum for EM Mutual Experience), will be held in beautiful Amsterdam, early spring 2007. More information will follow in our future Newsletters. If you have questions please send your request to Nina Hovland, e-mail address: [nina.hovland@kongsberg.com](mailto:nina.hovland@kongsberg.com). Later we will establish a web page with relevant information. Amsterdam is often referred to as one of the most colorful cities in the world. And rightly so! Where else do you find so many places of interest, famous museums, cozy pubs and fun shops and (flower) markets?

We're looking forward to seeing you there...

## EGS International purchases dual head EM 3002D

EGS International Ltd in the UK has purchased a dual head Kongsberg Maritime EM 3002D shallow water multibeam system along with real-time operating software SIS, (Seafloor Information System) and Neptune post processing software. A Kongsberg Seatex MRU H attitude sensor was also purchased to provide attitude corrections for the system. The system was initially commissioned on the inshore survey/research vessel Wessex Explorer for work around the UK, however the installation has been designed for portability to be deployable in support of projects on a worldwide basis.



Picture of Wessex Explorer courtesy of Hayes Marine

## General Atomics, Kongsberg Maritime, and C&C Technologies sign AUV cooperative agreement

General Atomics, Kongsberg Maritime and C & C Technologies have agreed to cooperate on the development of Autonomous Underwater Vehicles (AUVs) and associated technologies.

Kongsberg Maritime, manufacturer of advanced hydroacoustic instruments, the HUGIN family of AUVs and other maritime electronic products, has signed a cooperative agreement with General Atomics and C&C Technologies via its affiliate, Kongsberg Underwater Technology Inc, located in Lynnwood, Washington. HUGIN AUVs have established an enviable record of proven performance and reliability in

commercial and military applications worldwide.

General Atomics (GA) and its affiliates, headquartered in San Diego, California, are high-technology development companies in areas ranging from nuclear technologies and advanced defense and energy systems to Unmanned Aerial Vehicles (UAVs), including the PREDATOR, a remotely operated surveillance aircraft. GA is currently active in systems integration for several US Navy programs, including an Electromagnetic Aircraft Launch System, an Advanced Arresting Gear, Integrated Fight Through Power Conversion equipment, a Superconducting Homopolar Propulsion Motor, and an Electromagnetic Railgun.

C & C Technologies, Inc., a Lafayette, Louisiana based survey company, presently operates two HUGIN 3000 AUVs and will take delivery of a third, 4500m depth rated, HUGIN later this year. C & C Technologies is the world leader

in AUV operations having performed more than 50,000 km of commercial survey lines and hundreds of AUV launches and retrievals over the last few years..

This cooperation agreement forms a team with the expertise and capabilities required to further develop the technologies, operations, and production necessary to meet the challenges associated with a wide range of applications and system configurations for the AUVs of tomorrow.



### EM 710 contract

The Swedish Maritime Administration has purchased an EM 710 1x1 with the dual swath option, along with SIS and Neptune. The system will be installed on the ice-breaker vessel 'ALE'. The production and delivery of the systems will be done with very short notice, displaying the flexibility of Kongsberg Maritime. Installation will take place before Christmas this year at the GV Varv AB shipyard in Sweden.



KONGSBERG

KONGSBERG MARITIME AS

P.O. Boks 111 N-3194 Horten Norway Telephone +47 33 03 41 00 E-mail [subsea@kongsberg.com](mailto:subsea@kongsberg.com)

[www.km.kongsberg.com](http://www.km.kongsberg.com)