# Multibeam echo sounder

## FM 710 - New standard for Flexibility and Precision Shallow to medium water depths

Konasbera Maritime proudly introduces the EM 710 concept.

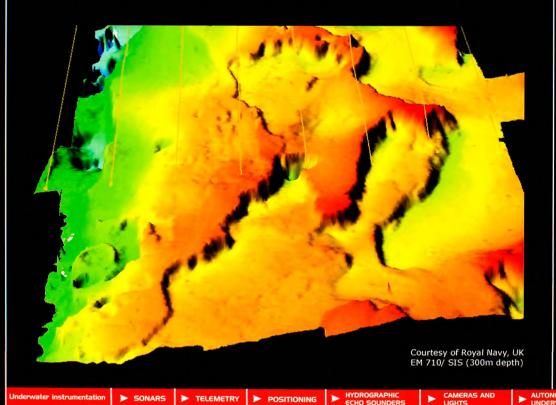
Based upon 20 years of experience with multibeam echo sounders, we are launching a system packed with new technology.

#### New technology:

- Wideband transducers using composite ceramics technology
- Fully programmable transmit pulse waveforms
- Floating point, 140 dB dynamic range receivers
- High resolution beam processing for improved resolution

#### Main system features:

- 70-100kHz frequency, up to 2000m range capability
- Beams actively stabilized for yaw, pitch, roll
- Beams focusing for both transmission and reception
- Choice of transducer sizes/resolution 0.5 to 2 degrees
- Transducers for permanent hull mounting or portable use
- Chirp pulse waveforms with coherent signal compression on
- Calibrated seabed imagery as well as imaging of reflectors in water column



Norway: +47 33 03 41 00, USA: +1 425 712 1107

Canada: +1 902 468 2268, UK: +44 1224 22 65 00 Italy: +39 06 615 22 476, Singapore: +65 68 99 58 00

www.kongsberg.com

e-mail: subsea@kongsberg.com



# THE INTERNATIONAL HYDROGRAPHIC REVIEW

SPONSORED BY THE INTERNATIONAL HYDROGRAPHIC ORGANISATION

Published by:

GITC bv, P.Ó Box 112, 8530 AC Lemmer, The Netherlands Tel.: +31 (514) 56 18 54, Fax: +31 (514) 56 38 98

E-mail: mailbox@gitc.nl, Website: www.gitc.nl

INTERNATIONAL	HYDROGRAPHIC	REVIEW

#### Contents Editorial 5 By Adam J. Kerr, Editor Articles Three Hydrographic Quantum Leaps 6 By Steve Ritchie The Open Navigation Surface Project By Brian Calder, Shannon Byrne, Bill Lamey, Richard T. Brennan, James D. Case, David Fabre, Barry Gallagher, R. Wade Ladner, Friedhelm Moggert, Mark Paton and the Open Navigation Surface Working Group 2,500m Isobath from Satellite Bathymetry Accuracy Assessment in Light of IHO S-44 Standards By Karen M. Marks and Walter H.F. Smith, NOAA Laboratory for 19 Satellite Altimetry, Silver Spring, MD, USA A Model for the Generalisation and Transfer of Linear Features over the Web By Dr Eng. Andriani Skopeliti, Cartographer, and Assoc. Professor Lysandros Tsoulos, NTUA Cartography Laboratory, Faculty of Rural and Surveying Engineering, National Technical University of Athens, Greece 30 The UK Civil Hydrography Programme Changing the Mould By Cliff Whatrup, Marketing Manager, Gardline Hydro, UK, Dave Mann, Survey Support Manager, Gardline Geosurvey Ltd, UK and Brian Davidson, Project Manager, Gardline Hydro, UK 45 Geopolitical and Geoeconomic Value of Access to Sea Resources The Case of the Land-locked States in Africa 57 By Petros Siousiouras, Aegean University (Rhodes), Greece Notes Modernisation of the Hydrographic Service of Uruguay By Capt. Hugo Roldos de la Sovera, Capt. Orestes Pereyra, Lt. Alvaro Sánchez and Lt Jose Domínguez, Servicio de Oceanografía, Hidrografía y Meteorología de la Armada de la República Oriental del Uruguay, Uruguay 67 Third Extraordinary International Hydrographic Conference Held at Auditorium Rainier III, Monaco 11-15 April 2005 75 Applying the Test of Appurtenance Globally A New Inventory of Wide Margin States from Public Domain Data By Dave Monahan, University of New Hampshire, USA, Robert van de Poll, CARIS, Canada and Sara Cockburn, CARIS, Canada 77 Book Review Navigator to Hydrographer The Sequel to "Mandalay to Norseman" By Tom McCulloch, published by Trafford Publishing, Victoria BC, 2005. xx + 278 pages, 74 photos & maps, ISBN 1-4120-4592-4, \$28.95 Cdn. (US\$ 23.16, £ 13.04, € 18.82). 85 Obituary H.S.H. Prince Rainier III of Monaco By Rear Admiral Giuseppe Angrisano, retired President of the IHB, on behalf of the Directing Committee

87

### The International Hydrographic Review

Group Publisher

: Michel Veen

Publisher Editor-in-Chief Editorial Board

: Durk Haarsma : Adam J. Kerr : Lee Alexander

: Michael Casev

: Captain Hugo Gorziglia (International Hydrographic Organisation)

: Horst Hecht : Sean Hinds : Robert Ward

Editorial Manager

: Sandra Visscher (sandra.visscher@gitc.nl) Account Manager : Victor van Essen (victor.van.essen@gitc.nl) Circulation Manager: Marjan de Vries (marjan.de.vries@gitc.nl)

#### Instructions for Contributors

The International Hydrographic Review is an international journal published three times a year by GITC by. It is sponsored by the International Hydrographic Organisation. It contains original papers concerning all aspects of hydrography and associated subjects. All articles are subjected to peer review and are expected to be 4,000 to 6,000 words long, although longer articles may be considered. It also provides a medium for discussions in the form of shorter Notes, that are typically 1,500 to 2,000 words in length.

Information on the layout of articles and the form of illustrations and references may be obtained by requesting 'Instructions to Authors' from the Editor. They are also published in the first issue of each year. Submissions should be send to:

Mr Adam Kerr Flagstaff Cottage Lamorna Penzance Cornwall TR19 6XQ UNITED KINGDOM

GITC by P.O. Box 112 8530 AC Lemmer THE NETHERLANDS Tel.: +31 (514) 56 18 54

Sandra Visscher

Tel.: +44 (0)1736 - 731 228 Fax: +31 (514) 56 38 98 E-mail: sandra.visscher@gitc.nl Fax.: +44 (0)1736 - 731 976

E-mail: Adam.J.Kerr@btopenworld.com

Information on the Layout of Articles and the form of illustrations and references may be obtained by requesting 'Instructions for Authors'. These are published in the first issue of each year and may be obtained by contacting the Editor.

#### Reprints

Reprints of all articles (including articles published in earlier issues) can be ordered. For more information, please contact Sandra

Visscher at GITC.

Copyright

Any permission needed to incorporate material published elsewhere is the responsibility of the authors and it will be assumed that such permission has been maintained. The publisher is not responsible for statements made in the articles or advertisements nor is responsible for typing or converting errors. No material may be reproduced in whole or in part without written permission of GITC by.

#### Subscription Information

The Journal is published three times a year by GITC by and can be obtained regularly by subscription. Please find below the subscription rates:

	Europe	countries	
1 year Individual	€ 67.00	US\$93.00	
1 year Library	€ 85.00	US\$108.00	
Should you wish	to take out	a subscription	
then please contact our circulation manager.			