INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ORGANISATION HYDROGRAPHIQUE INTERNATIONALE

IHB File No. TA-006-4

CIRCULAR LETTER 38/2008
21 April 2008

IHO MULTIBEAM COURSE AT THE NATIONAL HYDROGRAPHIC SCHOOL, GOA, INDIA

10-22 November 2008

Dear Hydrographer,

1 As from 2005 the IHO Capacity Building Work Programme has been providing funding from the CB Fund to support students from various Regional Hydrographic Commissions for attendance at Multibeam courses implemented by the Ocean Mapping Group. This support has proved to be very valuable in improving the use of such technology in hydrographic surveying. Nevertheless, the needs have not been fully satisfied due to the fact that there has been an ever-increasing demand from IHO Member States to attend such courses and due to the fact that there is only limited availability.

2 The Chief Hydrographer to the Government of India has now informed the IHB that their modern multibeam training facilities will be made available to the IHO community as a contribution to the IHO capacity building effort. Following this kind offer, the IHB is now very pleased to be able to announce an IHO Multibeam Course which will be held at the National Hydrographic School of Goa (India) from 10 to 22 November 2008.

3 The Course will commence on 10 November and will last 13 working days, including three days of practical training onboard a multibeam-fitted ship. The detailed syllabus of the course is given in Annex I.

4 A maximum of 25 students will be admitted to the course, which is open to all IHO Member States, under the conditions explained here below:

.1 The support provided by the CB Fund will cover the course fees as well as students' accommodation and meal costs for a period up to 16 days. The IHB will make direct arrangements with a suitable hotel in Goa, selected by the INHO, to have these services provided (bed and meals). Air travel to and from the respective countries as well as insurance, pocket money or other items must be covered by the participants.

.2 Interested government authorities responsible for hydrography should forward their candidates' applications (Annex I) to:

Captain Hugo GORZIGLIA
IHB Director and CBC Chairman
International Hydrographic Bureau
4, Quai Antoine 1er
B.P. 445 MC 98011
MONACO Cedex
Email: hgorziglia@ihb.mc
Fax: +377 93108140

.3 A copy of the application should also be sent to :

The Chief Hydrographer to the Government of India
National Hydrographic Office
P.O. Box – 75, 107-A
Rajpur Road
Dehradun - 248 001
India
Fax : +91 135 2748373

5 Nominations must reach the above authorities by **1st August 2008.** Following that date the IHB will start the selection procedure, and the results will be communicated to the interested parties no later than 20th August 2008 in order to facilitate administrative procedures for the participants, in particular the **application for a visa** (which is the responsibility of each participant) to enter the host country.

6 Candidates should preferably have a level of hydrographic knowledge equivalent to a FIG/IHO/ICA Category B level programme, so that they will have an adequate basis to properly follow the course. A good knowledge of English is also necessary, as this will be the language used throughout the course.

On behalf of the Directing Committee
Yours sincerely,

Captain Hugo GORZIGLIA
Director

Enclosures :

Annex 1 – Application Form
Annex 2 – Course syllabus

ANNEX 1 to IHB CL 38/2008

FIRST IHO MULTIBEAM COURSE

National Hydrographic School of Goa, India, 10 to 22 November 2008

APPLICATION FORM FOR PARTICIPATION

To reach Captain Gorziglia (IHB) hgorziglia@ihb.mc or info@ihb.mc and
The Chief Hydrographer to the Government of India Fax : +91 135 2748373
By 01 August 2008

1. FAMILY NAME ……

   FIRST NAME ……

   NATIONALITY……

2. Mailing Address ……

   ……

   Telephone ……..

   Fax …….....

   E-mail …….

3. Date of Birth ……...

4. Passport No. …… Valid up to …….

5. Date and place of issue …… Issuing Authority …….…….....

6. Person to notify in case of emergency:-

   Name ……...

   Address ……...

   ……..……..

   Telephone ……

7. Present position and description of duties ……

   ……..

   ……..

8. Educational background ……..

   ……..

   ……..

9. Previous Experience …….

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10. Field of application of the knowledge acquired after finalization of the course …….

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Applicant's signature …….....

Name and Position of the Authority forwarding this Application

Name: …….

Position: …….

Date: ……

Signature: ……

MULTIBEAM COURSE SYLLABUS

N°	SYLLABUS	LOK	Periods
	Multibeam Basic Theory: Explain the basic principles of multibeam sonar transmit and receive beam forming and beam steering. Describe the difference between the various methods of bottom detection, Shading, Block diagram of MB 2112, Elac 1180, importance of DMS, Advantages and disadvantages of phase and amplitude detection, effect of SV in accuracy of sounding	C	6
2	**Multibeam Transducers:** The different types of transducers and its advantages and disadvantages, Use of various transducers for different systems	C	4
3	**Coverage and Accuracy:** Explain depth coverage, bandwidth, beam-width, beam elevation angle, depth, ping rate, describe motion compensation techniques. Estimate depth coverage and uncertainty, taking all factors into account	C	6
4	**Multibeam Calibration:** Explain the effects on depth and position uncertainty of errors in sensor locations and alignments within the vessel reference frame. Define the "patch test". Establish the vessel reference frame and sensor offsets and alignments. Select test area and lines to be run for "patch test". Calibrate the misalignments between transducer and motion sensor. Various Multibeam Calibration Tests - Roll & Pitch test, Yaw test and nav latency. Acceptance tests like Adjacent line alignment, Orthogonal Lay, Shallow and Deep water Repeatability test	C	6
5	**IHO standards for hydrographic surveys (SP 44)**	F	2
6	**Applications of Multibeam Survey:** Hydrographic Surveying, Channel Conditioning and Clearance Surveys, Geological Surveys, Cable and Pipeline Surveys, Search, Siting, Construction, and Pre-/Post-Dredging, Location of Potential Sea Floor Hazards, Mine Clearance	F	2
7	**Multibeam Survey Planning:** Planning of survey lines vis a vis line spacing percentage overlap, half swath angle, half swath width	P/D	2
8	**Multibeam Data Acquisition:** Data acquisition using the simulator and various settings to be used.	P/D	6
9	**Multibeam Data Management:** Issues affecting acquisition, processing, storage and retrieval of multibeam data. Quality control and quality assurance of multibeam data. Preparation of error budget.	D	8
10	**CARIS HIPS:** Preparation of Project, vessel, importing data, data structures, attitude, nav and swath editing. Quality control measures using subset editor, application of tide and sv, creation of field sheet and exporting data.	D	6
11	**CARIS GIS:** Introduction to GIS, preparation of sheet, importing data into sheet, quality control tools available. Symbolising and taking plot.	D	6
12	**Introduction to HYPACK:** Basic functioning of HYPACK, line planning, importing data, processing data making a field sheet and export data to sheet	P	8
13	**Practical Training onboard Survey vessel (03 DAYS**	P	36
14	**Processing of collected data, Fairsheet generation, DTM creation and QA/QC**	P	10
		Total :	**108**

LOK=Level of Knowledge (F=Fundamental, C=Conceptual, D=Detail, P=Practical)