MULTIBEAM BOOT CAMP 8TH

23rd - 29th October 2023

From basic sonar principal, project organization, sonar selections softwares , QC, system installation, calibration, acquisition, processing, analysis and more. Discover things you think you know but you don't of the multibeam. Join us dive into multibeam inside out.

Program Overview:
Lectures in class, practical on site, lab data processing, and results. All will be held at Univesiti Malaysia Terengganu and Redang Island. Fees inclusive of accomondation and logistic on the Island only.

Day 1: Registration and lectures (UMT)
Day 2: TGG - Redang Island and practical (Redang)
Day 3 & Day 4: Practical and lectures (Redang)
Day 5: Redang Island - TGG
Day 6 & Day 7 : lab and lectures (UMT)

LIMITED SEATS

*Possible to get Board of Geologist Malaysia (BoGM) CPD points

Dr. Razak Zakaria (Speaker)

Space is limited. Register your place today:

WWW.OCEANMY.NET

Please contact: Yana (+6013 400 9856) Farah(+6019 329 4645)

Multibeam Boot Camp 8th, 2023

Missing the basic knowledge of Sonar and the principal gives a lot of disadvantages to the Multibeam survey overall. This course is intended for those who are interested in knowing how to work with the sonar the proper way and getting the better result. From sonar principle and theory, basic sonar equation, multibeam project organization from line planning, sonar selection, project requirements, and QA & QC. Hands-on practical with the sonar on board for two days including installation, echo sounder calibration, and online recording. Using the latest technology for data processing, analysis, and interpretation and 4D visualization and production. Basically, this workshop will introduce the multibeam seamless workflow that had been introduced worldwide.

The course focuses on practical and spends 69% most of the camp time. The course is intended for beginner and intermediate levels.

The following subjects are dealt with:

- ✓ What is Multibeam? What is sound and why sound!
- ✓ Pick the right multibeam for your operation.
- ✓ All the settings in the multibeam software you MUST and NEED to know why.
- ✓ The heart of the operation, Motion Sensor. The important stuff.
- ✓ What environment got to do with a multibeam operation?
- ✓ Result comparison between multibeam systems in the same area in our research area.
- ✓ Just bathymetry? Object detection? Sediment type?
- ✓ Bottom detection? Save by the water column! Actually, you missed a lot of things.
- ✓ Learn how to read and understand your data.
- ✓ Besides your multibeam system, things affecting your result that always forgotten.
- ✓ Etc.

**The subject covers are trying to provide you with a basic understanding of what is involved in a multibeam survey. We assume that little knowledge is present. We are aware that time is short to cover each subject in depth. We do not intend to be fully comprehensive nor all-knowing and are well aware of our shortcomings. However, it is our belief that the training will enhance your understanding and provide essential knowledge of the multibeam thatmost of us forget.*

Course Content

Multibeam Surveying	This topic covers the principal of multibeam and its applications. Understand how to work with the system in order to archive an excellent result. Getting to understand sonar is the major key to a successful survey. The lecture will also discuss oh subjects such as transducers, installation, calibration, sonar setting, types of sonar, object detection with multibeam, bottom mapping, standard, QA and QC, and survey planning, and most importantly, best practice guide.
Underwater Acoustics Basic & Sonar	Learning about the basic of how multibeam works as it important element in doing the right thing to archive useful and valuable data. This topic will share some important knowledge to be taken such as how sonar works, acoustic properties, sonar equation
Sensors Calibration	The most important part of setting up the system. This will focus on the multibeam calibration and part of Gyro calibration, motion sensor calibration, and ways of Position verification.
Basic Oceanography	The lecture will share basic oceanography information that is very important and needs to be taken into consideration for multibeam survey. Such as tide, current, sediment, and other physical phenomena that affect multibeam operation and data quality.
Multibeam Processing	Processing evolved. This session will share the latest technology and types of advanced processing. With the advanced processing, users will able to QC the data right away and do analysis. This will cover bathymetry, backscatter, and water column processing.
Mobilization and Data Acquisition	The course is focusing on this subject matter. In this session, participants will get down with the equipment themselves with the trainer. Trainer will share do's and don'ts, tips, and standards to follow. Setting up the sensors the right way is a big role in providing accurate, precise, and quality data that the sensor can achieve.
Data Visualization and Analysis	The course will be focusing on advanced processing with 3D visualization. The 3D/4D environment allows users to rapidly gain insight and extract more information from their underlying data. This provides added value in data processing efficiency, quality control accuracy, data analysis completeness, and project integration, which promotes clear communication.

SCHEDULE MBES Boot Camp #8 | 2023

	Monday(Day 1)	Tuesday (Day 2)	Wednesday(Day 3)	Thursday (Day 4)	Friday (Day 5)	Saturday(Day 6)	Sunday (Day 7)
	Breakfast		*Breakfast*	*Breakfast*	*Breakfast*	*Breakfast*	*Breakfast*
9.00 am - 10.30 am	Introduction & MB 1	*Travel to Island*	Multibeam Mobilization **[P]**	Multibeam Survey **[P] Bidong**	Travel to UMT	Bathymetry Processing	Data Visualization& Analysis
10.30 am - 10.50 am	*Break*					*Break*	*Break*
10.50 pm - 12.30 pm	Basic Oceanography					Bathymetry Processing	Data Visualization& Analysis
12.30 pm - 2.15 pm	**L U N C H**						**CLOSING**
2.15 pm - 3.15 pm	Underwater Acoustics Basic & Sonar	Backscatter & Sediment	Calibration MB & Multibeam Survey**[P] Redang**	Multibeam Survey **[P] Bidong**		Backscatter Processing	
3.15 pm - 3.30pm		*Break*				*Break*	
3.30 pm - 5.00 pm	MB 1	Equipment Setup and Practice **[P]** & MBII				Water Column Processing	
5.00 pm - 8.00 pm	**D I N N E R**						
8.45 pm - 9.30 pm		MBES Calibration & Ancillary Sensors	Water Column				
9.30 pm - 10.30 pm			Acquisition Software				

Programme Description

1.0	Name	:	Multibeam Boot Camp
2.0	Mode of Course	:	Full Time
3.0	Duration of Course	:	7 days
4.0	Target Group	:	The course is intended for beginner and Intermediate level
5.0	Attendee	:	Local & International Companies, Universities, and Public
6.0	Objectives	:	✓ To provide a learning platform for understanding the multibeam to produce a reliable result. ✓ Hands-on practical experience and practice.
7.0	Introduction	:	Hands-on practical with the sonar on board for 7 days including installation, echo sounder calibration, and online recording. Using the latest technology for data processing, analysis, and interpretation and 4D visualization and production. Basically, this workshop will introduce the multibeam seamless workflow that had been introduced worldwide.
8.0	Course subject	:	✓ Multibeam Survey ✓ Underwater Acoustics Basic & Sonar ✓ Sensors Calibration ✓ Basic Oceanography ✓ Bathymetry Processing ✓ Mobilization and Data Acquisition ✓ Data Visualization and Analysis
9.0	Course Schedule	:	Monday to Sunday (9.00 am to 10 pm)
10	Course Fees	:	✓ International company/university – USD2200.00 / person ✓ Malaysian company/ Private – RM5900.00 / person ✓ Malaysian Government/University - RM4500/person * Fee is inclusive of meals and accommodation during the course on the island only.

Conclusion

In conclusion, the Multibeam Bootcamp, as an established program, running its 7th year in the result provides a platform for the participant to demonstrate and share the latest seabed mapping technology. By the end of the course, participants will have the knowledge and quality driven to produce a precise and accurate bathymetry chart and additional products derived from multibeam. The participants will also be equipped with hands-on experience in mobilization and acquisition on board in a real project situation. The course will guide participants doing it right the first time in a multibeam survey.