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Metocean Awareness Course

An essential course providing a greater understanding of metocean and its implications for offshore design and operations

Tuesday 3 to Thursday 5 July 2012

Furama RiverFront, 405 Havelock Road, Singapore 169633

Course highlights

- ▶ **Learn** why meteorology and oceanography (metocean) is important to the offshore oil and gas and marine renewables industries
- ▶ **Ability to engage** internal and external stakeholders about metocean matters
- ▶ **Explore** how the regional metocean conditions around the world impact operations and engineering design
- ▶ **Examine** how metocean statistics are presented and how they are used
- ▶ **Understand** how weather and ocean forecasts are derived
- ▶ **Identify** the process for obtaining key metocean deliverables
- ▶ **Find out** where metocean information and advice can be obtained

Comments from delegates who attended previous courses:

“ The years of experience shine through the presentations. Very informative ”

“ Gained a good knowledge of metocean in such a short time ”

This course is eligible for
CPD
Continuing Professional Development



**Further information:
www.imarest.org/events**

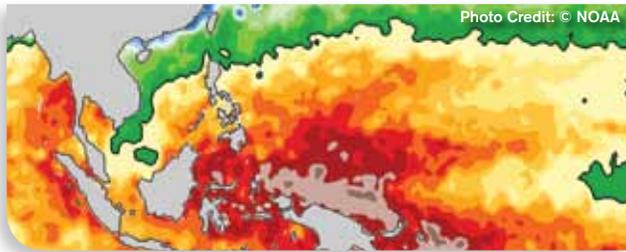
**Email: jenny.seow@imarest.org
or telephone: +65 6472 0096
or +65 9828 4561**

WHY WILL THIS COURSE BENEFIT YOU?

For all offshore industries, the effects of meteorology and oceanography (metocean) have a major impact on design and operations. If users of metocean information are not aware of the implications that the weather, waves, currents and water levels can have on their operations or design work, then things can go wrong with serious health and safety and economic consequences.

The **Metocean Awareness Course** is aimed at those who need to have a greater understanding of metocean conditions worldwide and how they might impact the effectiveness of their work.

The course format will include a mixture of short presentations presented by expert speakers in this field (see back page) and **interactive workshop sessions** including a **group case study exercise**. Delegates will receive a comprehensive course manual on attendance.



WHO SHOULD ATTEND?

This course is essential for Project Managers and Engineers in the offshore and renewables industries, involved in operations or design, from new entrants to the industry to those with many years experience. The course will enable delegates to interact with expert speakers and other delegates from various backgrounds who use or provide metocean data.

EXPANDED LEARNING OUTCOMES FOR INDIVIDUAL PARTS

PART I: Oil and gas industry requirements for metocean criteria and statistics – the application

After completion of the course, participants will:

- ▶ have an understanding of how and why metocean is important to the offshore oil and gas and marine renewables industries for safe and economic operations, through each phase of field development/operation from initial acreage acquisition to field abandonment;
- ▶ be able to engage internal and external stakeholders about metocean matters and their impact.

COURSE SCHEDULE

DAY 1

08.30 Coffee

08.45 HSE brief & Admin; Introductions and Objectives of the course

Offshore industry requirements for metocean criteria and statistics – the application

- 09.30**
- ▶ Why metocean is important
 - ▶ What exactly is metocean?
 - ▶ War stories from participants and speakers

10.15 Coffee break

10.30 War stories from participants and speakers (continued)

Offshore engineering applications:

- ▶ Requirements for metocean information at each stage of the project cycle
- ▶ How metocean meets those needs

11.45 Kick-off: Group case study exercise

12.30 Lunch

Metocean parameters and processes

13.30 Metocean parameters:

- ▶ Atmospheric circulation
- ▶ Winds and waves

15.00 Tea break

15.15 Metocean parameters (continued):

- ▶ Ocean circulation
- ▶ Currents, water level (tides, surges, tsunami) and Ice

16.45 **Data trends/climate variability**

17.30 Finish

18.00 Drinks reception

PART II: Metocean data sources, data quality control, archiving and climate variability

After completion of the course, participants will:

- ▶ be able to describe the various methods of acquiring metocean data, the issues involved, the indicative costs and trends for the future;
- ▶ be aware of safety guidelines (OGP) and the inherent risks of in-field data collection;
- ▶ be aware of vessel requirements to undertake instrument deployment;
- ▶ have an understanding of data processing, quality control and data archiving;
- ▶ know from where they can obtain more relevant information and advice;
- ▶ be able to describe the process of numerical modelling of winds, waves and currents; the limitations and accuracy of results.

DAY 2

08.30 Coffee

Metocean data acquisition

08.45 Metocean data sources:

- ▶ Field measurements – propriety, national and global
- ▶ Data QC
- ▶ National databases/data archiving

10.15 Coffee break

10.30 Satellite measurements

- ▶ Satellite altimetry
- ▶ Validation & assimilation

11.15 **Numerical modelling**

- ▶ Wind and waves
- ▶ Water level and currents

12.00 Group case study exercise (continued)

12.30 Lunch

13.30 **Weather forecasting**

- ▶ How weather forecasts are generated
- ▶ Presentation of forecasts
- ▶ Forecast exercise

15.00 Tea break

Metocean conditions around the world

15.15 Metocean conditions worldwide from an offshore industry perspective:

- ▶ Tropical climates – GOM, Australia and West Africa
- ▶ Tropical – South China Sea
- ▶ Temperate and Arctic: North Sea and Caspian/Arctic

16.45 Group case study exercise (continued)

17.30 Close

18.00 Course dinner

DAY 3

08.30 Coffee

Developing metocean operational statistics

08.45 Metocean statistics for operational planning:

- ▶ Scenarios – when to use, what to ask for
- ▶ Operability – weather windows: seismic, drilling, pipelaying, installations, heavy lifts, tows, float-overs, decommissioning, etc
- ▶ Aviation and marine logistics: helicopters, marine crew change, etc
- ▶ Operational statistics exercise

10.30 Coffee break

Developing metocean design criteria

10.45 Metocean criteria for design:

- ▶ Key elements of design ISO 19901-1
- ▶ Developing metocean criteria for range of engineering applications; response-based design
- ▶ Uncertainties
- ▶ Extreme value analysis exercise

12.30 Lunch

Group case study exercise

13.30 Finalise group case study exercise
Group presentations

15.45 Tea break

Wrap-up/feedback

16.00 Wrap-up/feedback discussion:

- ▶ Future developments
- ▶ What we have learnt
- ▶ What are we going to do differently?

Feedback questionnaire

17.00 Close

PART III: Metocean parameters and processes and metocean conditions around the world

After completion of the course, participants will:

- ▶ have a broad understanding of the key meteorological and oceanographic parameters impacting offshore design and operations;
- ▶ be able to describe the metocean conditions in the various regions around the world where the offshore oil and gas industry and marine renewables industry operates;
- ▶ know from where they can obtain more metocean information and advice.

PART IV: Weather forecasting

After completion of the course, participants will:

- ▶ have an understanding of how weather and ocean forecasts are derived, their accuracy and how they are presented;
- ▶ know from where they can obtain more relevant information and advice.

PART V: Operational statistics and design criteria

After completion of the course, participants will:

- ▶ know how metocean conditions are presented statistically and are used for design in various scenarios;
- ▶ be able to specify the process for undertaking design criteria studies and for preparing operational planning statistics reports;
- ▶ know from where they can obtain more relevant information and advice.

MEET YOUR SPEAKERS

Rob Cowle started his career in Marine Weather Forecasting after graduating in Meteorology in Rhodesia in 1977. After learning "the trade" working offshore in one of the world's most harsh offshore environments, the northern North Sea, he moved on to Italy, the Middle East, Australia and now Singapore. During those 30 years he spent 6 years in Perth working in IT and software development and worked on many Woodside projects including the project management of ROWS and assisted in the development of environmental monitoring systems such as REMS and SEMS. Before joining Fugro GEOS in Singapore in 2004, Rob was the Managing Director of WNI Weathernews, Australia where he established the first commercial weather services for Television and the Internet.

Dr Kevin Ewans is a Principal Metocean Engineer at Sarawak Shell Berhad. He has a PhD from Auckland University and has some 30 years experience in the offshore industry. He is internationally recognised as a metocean expert, particularly in ocean waves and their application to offshore engineering, and extreme value analysis for setting metocean design criteria.

Gao Hongmin, a Physical Oceanographer, has worked in operational oceanography for over 25 years almost uninterruptedly since obtaining a Masters degree in Physical Oceanography from Ocean University of China. He specializes in general and statistical analysis of metocean data and modelling of metocean processes. In addition, he also has considerable experience in metocean data acquisitions and real-time monitoring. During his career Gao has worked for over 10 years with Fugro GEOS in New Zealand, UK and Singapore. He is currently Managing Director of Offshore Weather Services (Asia) Pte Ltd.

Vagner Jacobsen has been with DHI Water & Environment for almost three decades and has been involved in metocean studies for the North Sea, Caspian Sea, Okhotsk Sea, Persian Gulf and South China Sea. The activities cover monitoring and measurements, analyses and numerical modelling (hindcast/forecast) of metocean parameters. Vagner has supervised numerous projects combining monitoring and modelling both for the oil & gas industry and for the offshore renewable energy sector. Currently he is based in Singapore and is the Deputy Regional Director, DHI Asia-Pacific.

Dr Marc Lucas is a Physical Oceanographer in the Spatial Oceanography Division at CLS. He holds a PhD in Physical Oceanography from the University of Southampton, in the UK. Prior to working for CLS, he completed several postdoctoral studies in France and in Germany. An expert in numerical models of the ocean, he is responsible for the development of an operational 2D modelling system at CLS which delivers daily data accessible via a web interface.

Michael Quinnell has a BSc in Ocean Sciences from University of Bangor, UK, and a post-graduate certificate in Coastal Engineering from Old Dominion University, USA. Mr Quinnell has over 13 years experience working at Fugro GEOS in the provision of commercial metocean measurement services and monitoring systems, primarily in support of the oil and gas industry. Prior to this he worked in marine geophysics and coastal geomorphology. With over 15 years experience in marine services, Mr Quinnell serves as Fugro GEOS' Regional Director in South East Asia.

Dr Rizwan Sheikh is a Metocean specialist with nearly 10 years experience. He is currently employed by Shell in KL. Previously, he worked with Fugro GEOS and Noble Denton, as well as completing a doctoral thesis in Applied Hydrodynamics. His experience encompasses deriving metocean conditions for design and operability at numerous locations worldwide, and he regularly contributes research to industry through conference and journal publications. He received a First Class Master of Engineering Degree from Imperial College in 1996, for which he was awarded the Sir Bruce White Prize for outstanding achievement.

Dr Srivatsan Vijayaraghavan is a Research Fellow in the Tropical Marine Science Institute of the National University of Singapore. After graduating in 1997 from the University of Madras with Bachelors and Masters degrees in Physics he went on to obtain a second Masters Degree in Physics from Tufts University in 2003. Moreover, he holds a Ph.D. in Climate Science from University College London. His main research interest encompasses climate modelling and the impacts of climate change, wherein he has authored numerous technical publications.



APPLICATION FORM – Metocean Awareness Course

Tuesday 3 to Thursday 5 July 2012
Furama RiverFront, Singapore

Instructions: Please print clearly or attach business card and photocopy this form for further delegates.

PERSONAL INFORMATION

IMarEST Membership Number (if known) _____

Full name _____

Job title _____

Organisation/company _____

Address _____

City _____

State _____

Code _____

Telephone _____

Email _____

Signature _____

Metocean Awareness Course rates:

IMarEST Member rate SGD 2,100

Non-member rate SGD 2,310

Total amount payable SGD _____

Registration fees include: extensive course materials, daily refreshments over the 3 days, one evening drinks reception, one course dinner and complimentary car park coupons over the 3 days.

For full details on terms and conditions including cancellation policy, venue and accommodation visit: www.imarest.org/events

PAYMENT INFORMATION:

Please invoice VAT receipt Cheque/Eurocheque
 Bank transfer

Payable to

"Institute of Marine Engineering Science and Technology"

Bank Account: 101-356-213-5; Swift Code: UOVBSGSG;

Bank Code: 7375; Branch Code: 001;

Bank's Address: UOB Main Branch, 80 Raffles Place UOB Plaza 1, Singapore 048624

ADDITIONAL REQUIREMENTS:

Vegetarian/special dietary meals Access requirements

(please specify) _____

You will receive a confirmation email, an invoice or VAT receipt and further information on receipt of your application form. Please contact us if you do not receive confirmation.

EMAIL THE COMPLETED FORM TO:
jenny.seow@imarest.org

or send by post to: IMarEST South East Asia Division (SEAD) office, 352 Tanglin Road #01-09, Strathmore Block, Tanglin International Centre, Singapore 247671