

Metocean Awareness Course

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

Wednesday 12 – Friday 14 February 2014

Parmelia Hilton: Mill Street, Perth, Australia, 6000

Course highlights

- ▶ **Learn** why meteorology and oceanography (metocean) is important to the offshore oil and gas and marine renewables industries
- ▶ **Become capable of engaging** 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



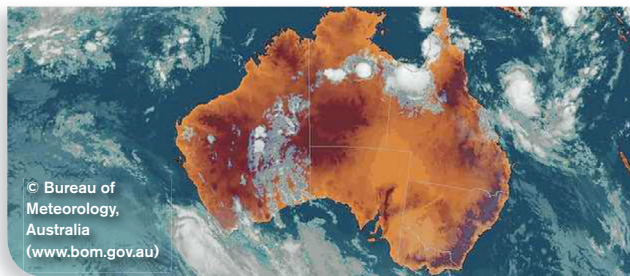
For further details contact:
Jennifer Maninin
Tel: + 61 8 9446 9903
Email: j.maninin@sut.org

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 Registration and refreshments

Welcome

08.45 Introductions and objectives of the course

Offshore industry requirements for metocean criteria and statistics – the application

09.15 ▶ Why metocean is important

▶ What exactly is metocean?

09.45 ▶ War Stories from participants and speakers: Kolskaya and Key Biscayne Jackup disasters and why it is always easier to blame metocean

10.15 Refreshments

10.30 War stories from participants and speakers (contd)
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 data acquisition

13.30 ▶ Measured – propriety, national and global
▶ Modelled

15.15 Refreshments

15.30 ▶ Satellite data

▶ Data QC

▶ National databases/data archiving

16.30 **Data trends/climate variability**

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;
- ▶ be able to describe the process of numerical modelling of winds, waves and currents; the limitations and accuracy of results.

Day 2

08.30 Refreshments

Metocean parameters and processes

- 08.45** ▶ Atmospheric and ocean circulation
▶ Winds and waves

10.15 Refreshments

- 10.30** ▶ Ocean circulation
▶ Currents
▶ Water level (tides, surges, tsunami) and ice

12.00 Group case study exercise (contd)

12.30 Lunch

Metocean conditions around the world

- 13.30** Metocean conditions worldwide from an offshore industry perspective:
▶ NW Australia
▶ Tropical climates – GOM, South China Sea and West Africa
▶ Temperate and Arctic: North Sea and Caspian/Arctic

15.00 Refreshments

Weather and ocean forecasting

- 15.15** ▶ How weather and ocean forecasts are generated
▶ Presentation of weather forecasts
▶ Weather forecast exercise

16.45 Group case study exercise (contd)

17.30 Close

18.00 Course dinner

Day 3

08.30 Refreshments

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 Refreshments

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

13.30 **Subsea production equipment – metocean design impact**

Group case study exercise

14.00 Finalise group case study exercise
Group presentations and award of prize

15.45 Refreshments

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

Vadim Anokhin is a Metocean engineer at Woodside Energy Ltd, Perth. Vadim graduated with a BA of civil engineer (High Dist) from Bishkek, Kyrgyzstan, and then continued his studies at Stuttgart University, Germany, completing a Masters degree in Water Resources Engineering, followed by a PhD in Environmental Fluid Dynamics of internal waves from the University of Western Australia, Perth. Vadim's interests include ocean engineering, internal waves, weather forecasting, operational response of floating and fixed production facilities to tropical cyclones, cyclonic and non-cyclonic extreme design criteria for offshore structures.

Steve Buchan is General Manager of RPS MetOcean Pty Ltd, a physical oceanographic consultancy which initiated in Perth in 1974. He joined in January 1979, and (probably uniquely) has been involved in the development of operational and/or design metocean criteria for every operational Offshore Oil & Gas facility (and related coastal facilities) on the NW Shelf and in the Timor Sea. He is a Member of The Institution of Engineers Australia and of the Society for Underwater Technology. He has over 30 years of experience in Physical Oceanography, and in Coastal and Ocean Engineering.

Dr Gregory Bush has over 20 years of experience in commercial oceanography for the offshore oil and gas industry. Early work experience focused on field work offshore, through to project management then company management. His highest level of education was a doctorate in physics using acoustics to measure sea ice thickness in Antarctica. Areas of special interest include mooring design and oceanographic survey, particularly current measurements. He has worked around the world including 3 years based in the UK, and 9 years based in Singapore. He is currently the general manager for RPS MetOcean in Perth.

Jan Flynn is a senior metocean engineer with Shell Development Australia Pty Ltd. She graduated from Southampton University with an MSc in Oceanography in 1987 since when she has worked in applied oceanography, primarily for the oil and gas, and water industries. She has undertaken studies in a wide variety of ocean environments in Europe, Middle East, Africa and SE Asia, including extensive field measurements, data analysis and interpretation. She is presently supporting the development of the world's first Floating LNG processing plant, to be installed off the coast of Western Australia.

Ron Hille has been working for the Bureau of Meteorology since 1984, and spent the last 21 years working in the Commercial Weather Services (CWS) section of the Bureau of Meteorology in Australia. CWS specialise in providing detailed tailored weather services to the Oil & Gas Industry operating in Australia and offshore waters (NW Shelf, Timor Sea, Bass Strait and Southern Ocean). He has worked for many years as the marketing manager for CWS and is currently under contract as a senior meteorologist with the CWS team. He has experience working on offshore drilling rigs/drilling ships/barges and platforms during weather sensitive operations, and has made numerous visits to offshore facilities providing pre cyclone season briefings. In more recent years he has been one of the main facilitators in weather training seminars and workshops provided by CWS for the Oil & Gas Industry.

Scott Noreika is the Consultancy Manager and a Senior Oceanographer at RPS MetOcean Pty Ltd (RPS), a physical meteorological and oceanographic consultancy firm in Perth (since 1974) and he's been with the company since 1991. He graduated from the United States Naval Academy with a BSc in Physical Oceanography/Naval Science in 1984. He then spent 6 years as a US Naval Officer working at sea (Pacific and Indian Oceans) and onshore (Hawaii) in roles including management of personnel and operating systems and in provision of metocean services/support to the Pacific Fleet. He moved to Western Australia in 1991, where he took up his position with RPS. In his 21 years at RPS, he has been involved in the development of operational and/or design metocean criteria for most of the operational Offshore Oil & Gas developments (and related coastal facilities) on the NW Shelf and in the Timor Sea. He also has extensive experience in conducting metocean studies for global offshore sites in the Southern Ocean, in the South China Sea, in the Indonesian Seas, off East and West Africa, off Brazil, and in the South and North Western Pacific Ocean.

Stan Stroud has some 45 years' experience with Oil companies, and has worked in the metocean area for the past 35 years mainly for Woodside, where he is presently Senior Metocean Adviser and Metocean Technical Authority. In the metocean area in Woodside, he has been responsible for design of many oceanographic measurement programmes, assessment of operational and extreme conditions including FPSO response to tropical cyclones, and has lead research in the areas of extreme wave height, internal waves and climate change as affecting future tropical cyclone design wave heights. Experience is mainly off NW Australia, the Southern Ocean, East and West Africa and Korea.

Professor David White is the Shell EMI Professor of Offshore Engineering at the University of Western Australia in Perth. He has been at UWA since 2006, having previously held a lectureship at Cambridge University in the UK. His research encompasses many aspects of offshore geotechnics and fluid-soil-structure interaction. The work combines physical modelling, particularly using the UWA centrifuge and O-tube facilities, with numerical analysis and field observations. David has authored book chapters on piled foundations and pipeline geotechnics, and his >180 career publications have won 5 prizes. He was awarded the 2010 Anton Hales Medal by the Australian Academy of Science and the 2011 Western Australia Tall Poppy Science Award. He was the 2011 Western Australian Early Career Scientist of the Year.

Application Form – Metocean Awareness Course

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Parmelia Hilton: Mill Street, Perth, Australia, 6000

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

Personal Information

IMarEST/SUT Membership Number

Full name

Job title

Organisation/company

Address

City

County

Postcode

Telephone

Email

Signature

Metocean Awareness Course fees: (please tick)

Member \$1850 AUD ☐

Non-member \$2000 AUD ☐

Early bird discount \$200 AUD ☐

(Registrations received before Friday 20 December 2013)

Rates include GST at standard rate

Total amount payable

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

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

PAYMENT INFORMATION:

☐ Please invoice (PO NO.)

☐ GST receipt

☐ Cheque Australian Dollar only, made payable to The Society for Underwater Technology

☐ Credit card Mastercard, Visa or AMEX* ONLY. We cannot accept payment by any other card. *Payment by AMEX will carry a 2.75% surcharge

☐ Amex ☐ Mastercard ☐ Visa

Card number

Card holder's name

Signature

Expiry date

Start date

Issue number (if applicable)

Security Code (last 3 digits on the back of your card)

Address at which card is registered

ADDITIONAL REQUIREMENTS:

☐ Vegetarian/special dietary meals ☐ Access requirements (please specify)

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

Registration Information

For further information, please contact Jennifer Maninin at j.maninin@sut.org or + 61 8 9446 9903.

To simply register please email your completed registration form to perthevents@sut.org or fax to: +61 8 9446 9905 or post to: 5/5 Hasler Road, Osborne Park, WA, 6017.