Institute of Marine Engineering, Science & Technology

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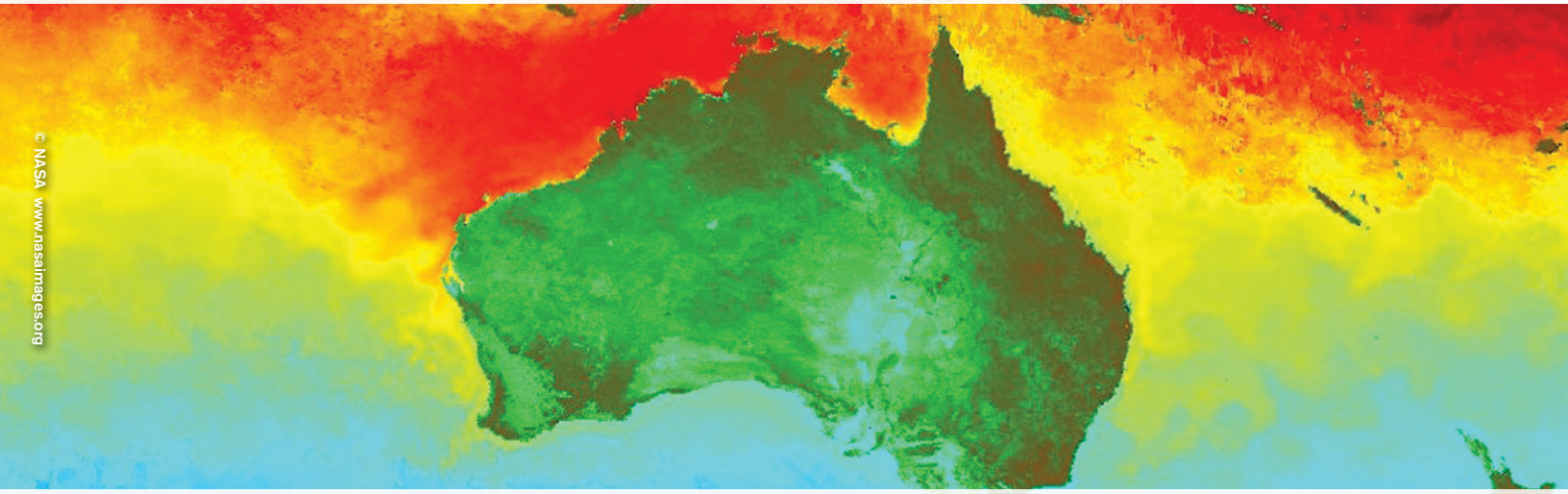
**see back page for details*



Metocean
Awareness Course

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

Monday 17 – Wednesday 19 September 2012

Hotel Ibis Perth, 334 Murray Street, Perth 6850, Western Australia

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:

Tel: + 61 8 9446 9903

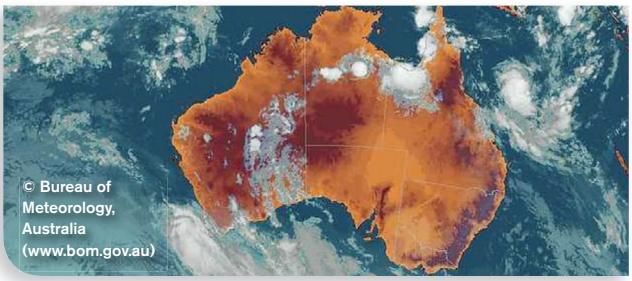
Email: perthevents@sut.org

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.

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 – proprietry, 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

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.

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.

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.

Dr Colin Grant has worked as a metocean specialist for over 30 years and is currently the technical authority for metocean in BP. He currently chairs the metocean committee of the International Association of Oil and Gas Producers (OGP). He is a Chartered Scientist, Chartered Marine Scientist and currently a Vice President of the IMarEST.

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.

Professor Ralph Rayner has worked in metocean data collection and modeling for over 30 years. He is currently sector director for energy and environment for the BMT Group as well as having an advisory role to the US Integrated Ocean Observing System initiative. He serves as chair of the Global Ocean Observing System Scientific Steering Committee, is a Vice President of the Institute of Marine Engineering, Science and Technology and is a member of the Council of the Society for Underwater Technology.

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.

Justin Vaughan has worked for FMC Technologies for 10 years with responsibilities in Subsea Installation, Design Engineering and most recently in Field Development. He has taken assignments in Houston, West Africa, Brazil and most recently here in Australia for the Asia Pacific region.

Application Form – Metocean Awareness Course

Monday 17 September – Wednesday 19 September 2012

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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 13th July 2012)

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 wil 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 Joyce Bremner on: **perthevents@sut.org** or **+61 8 9446 9903** or fax in the completed form to: **+61 8 9446 9905**

Alternatively, you can send to: **Post Office Box 7284 Cloisters Square, Perth, WA 6850**