International Association of Oil & Gas Producers

The future of observations from seabed to space: Training to support marine science

Wendy Brown, Environment Director

Sea Tech Week, 12 October 2020

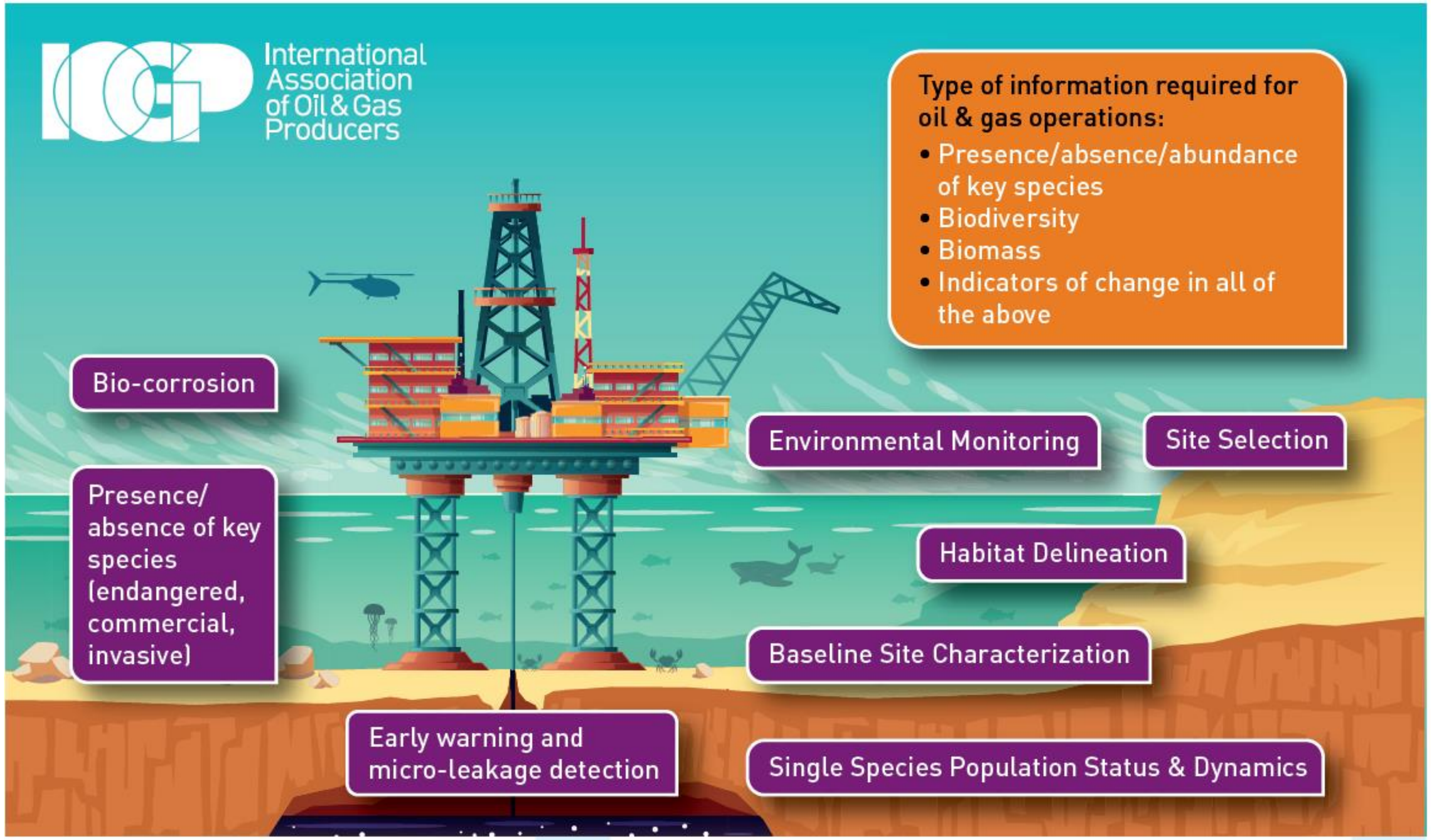
Environmental Management throughout E&P lifecycle

Activity	Exploration / Appraisal	Project Development	Operations	Cessation of Production
	Phase			
SEISMIC	2D and 3D	3D	3D and 4D	
DRILLING	Exploration / Appraisal	Appraisal / Development	Development	Well Plugging and Abandonment
CONSTRUCTION		Installation Commissioning	Modifications Expansion	Dismantling removal
PRODUCTION			Production operations	
DECOMMISSIONING				Decommissioning Restoration
TIMESCALE	2-3 years	2-5 years	10-40 years	Variable

- Preliminary screening / risk identification
- Env baseline, Env risk / impact assessment, Predictive modelling, Oil spill contingency planning
- Assessment of Env risks and impacts, Predictive modelling, Env risk assessment, Env baseline assessment, ESHIA, Env Management Plans
- Env Management Plans – biodiversity, waste, water, air, …, Env monitoring, Env management system implementation, Oil spill contingency plan
- Decommissioning plan, Comparative assessment, ESIA, Final status env survey

Environmental Genomics applications in offshore oil and gas industry

E&P ENVIRONMENTAL GENOMICS RESEARCH PROGRAMME



http://www.iogp-edna.org/

- O&G companies undertake a variety of ecological assessments to characterise the environments in which they operate and monitoring changes within environments.
- Conventional approaches for ecological assessment, such as direct sampling and visual/acoustic observation, tend to be time consuming and expensive
- Environmental DNA (eDNA) can be used to detect organisms and estimate biodiversity. **This method can be faster, cheaper, and offer different and/or more comprehensive information**.
- **Goal of JIP:** To develop guidelines for the application of environmental genomics in environmental management activities in O&G industry

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Sound and Marine Life Research

Industry funded scientific research studies since 2006

E&P SOUND & MARINE LIFE PROGRAMME

JIP Objectives: To advance understanding of the interaction between sound from oil and gas operations and marine life.

Research Categories:

I. Sound Source Characterisation

II. Physical, physiological and hearing

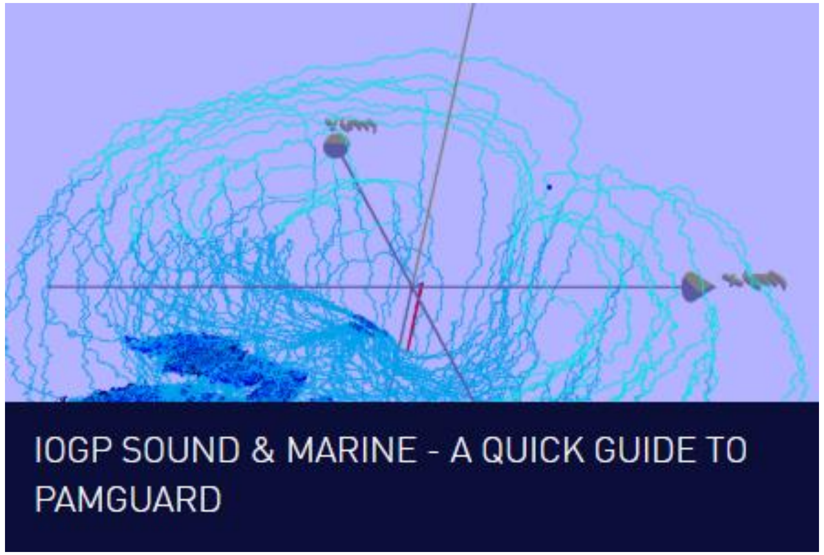
III. Behavioural responses and biological significance

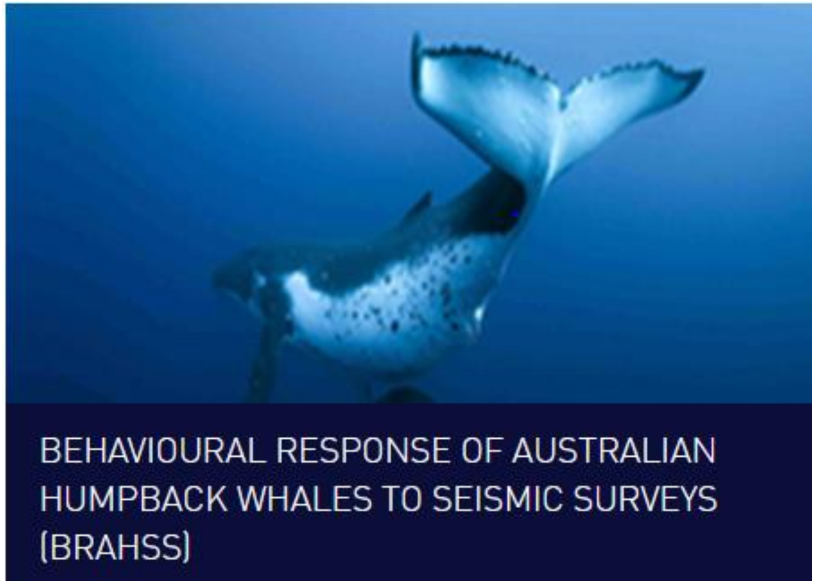
IV. Mitigation and Monitoring

V. Technology development


Sound source characterization & acoustic output modeling

MMO





More information

IOGP Publications available free to download from our website www.iogp.org

- Report 629 **Environmental Sampling and Monitoring from Airborne and Satellite Remote Sensing** – March 2020
- Report 254 **Environmental Management in the Oil and Gas Industry** – 2nd edition, August 2020

Library with links to publications and reports from JIP-sponsored research

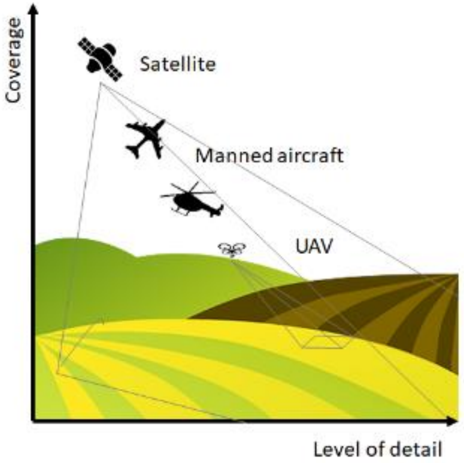
Details on **research focus areas**

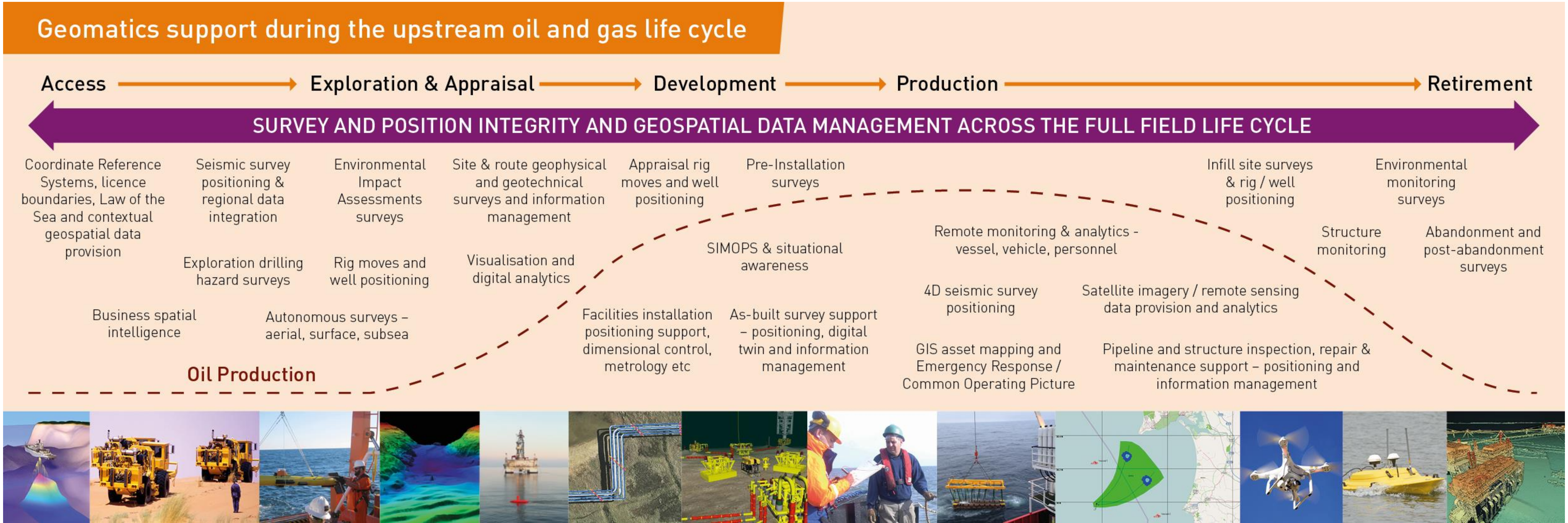
Funding opportunities

Website and Library Database
www.soundandmarinelife.org

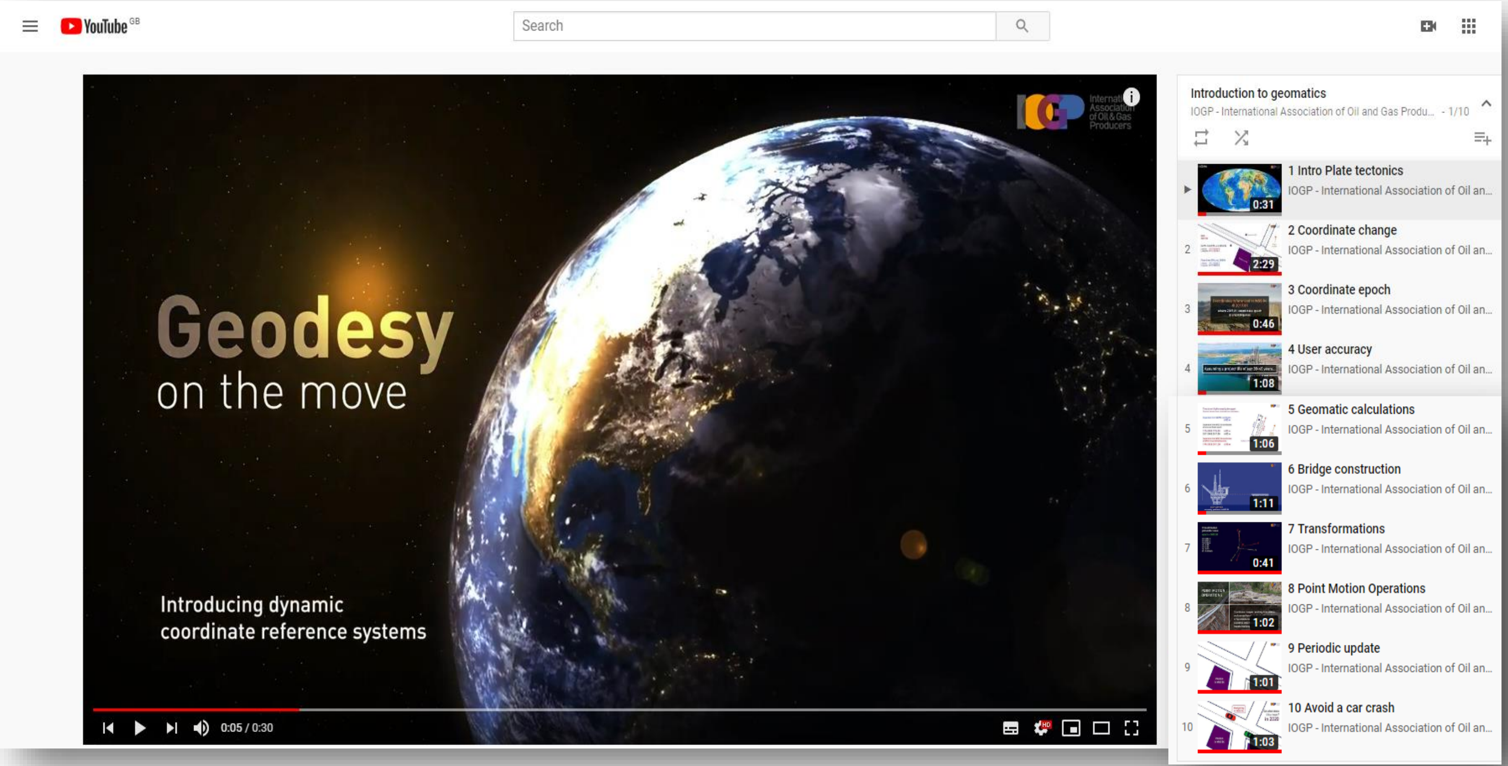
Remote Sensing Applications
Expanded use of remote sensing in the O&G industry

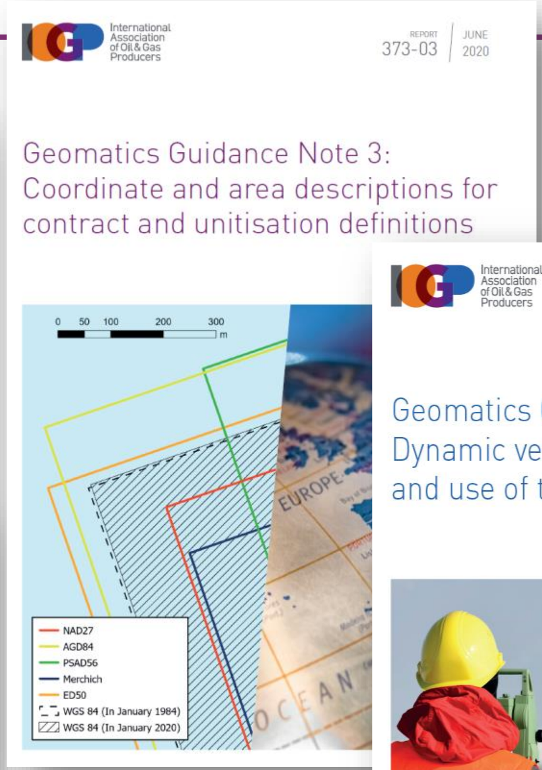
- A mechanism to collect quantitative data in a repeatable manner over a large area in a safer and often more cost effective process than traditional ground or vessel-based surveys

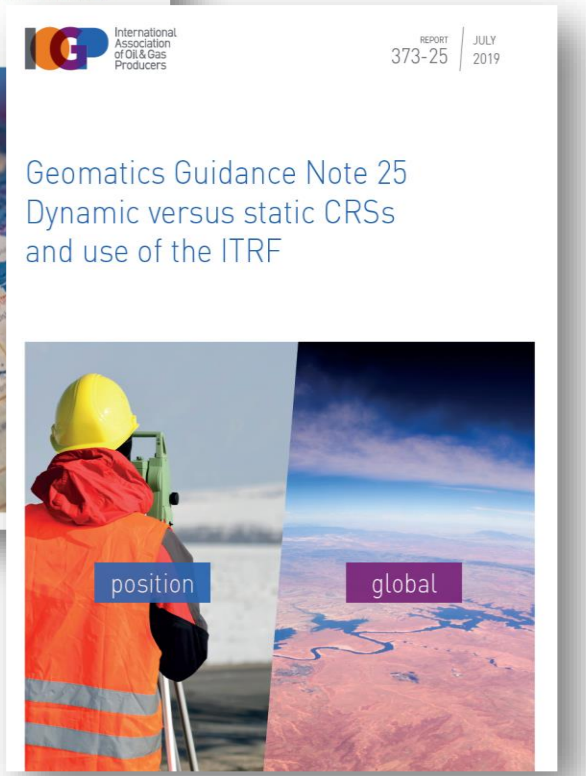




Geomatics Committee: primary global source of spatial data guidance necessary to ensure the geodetic integrity



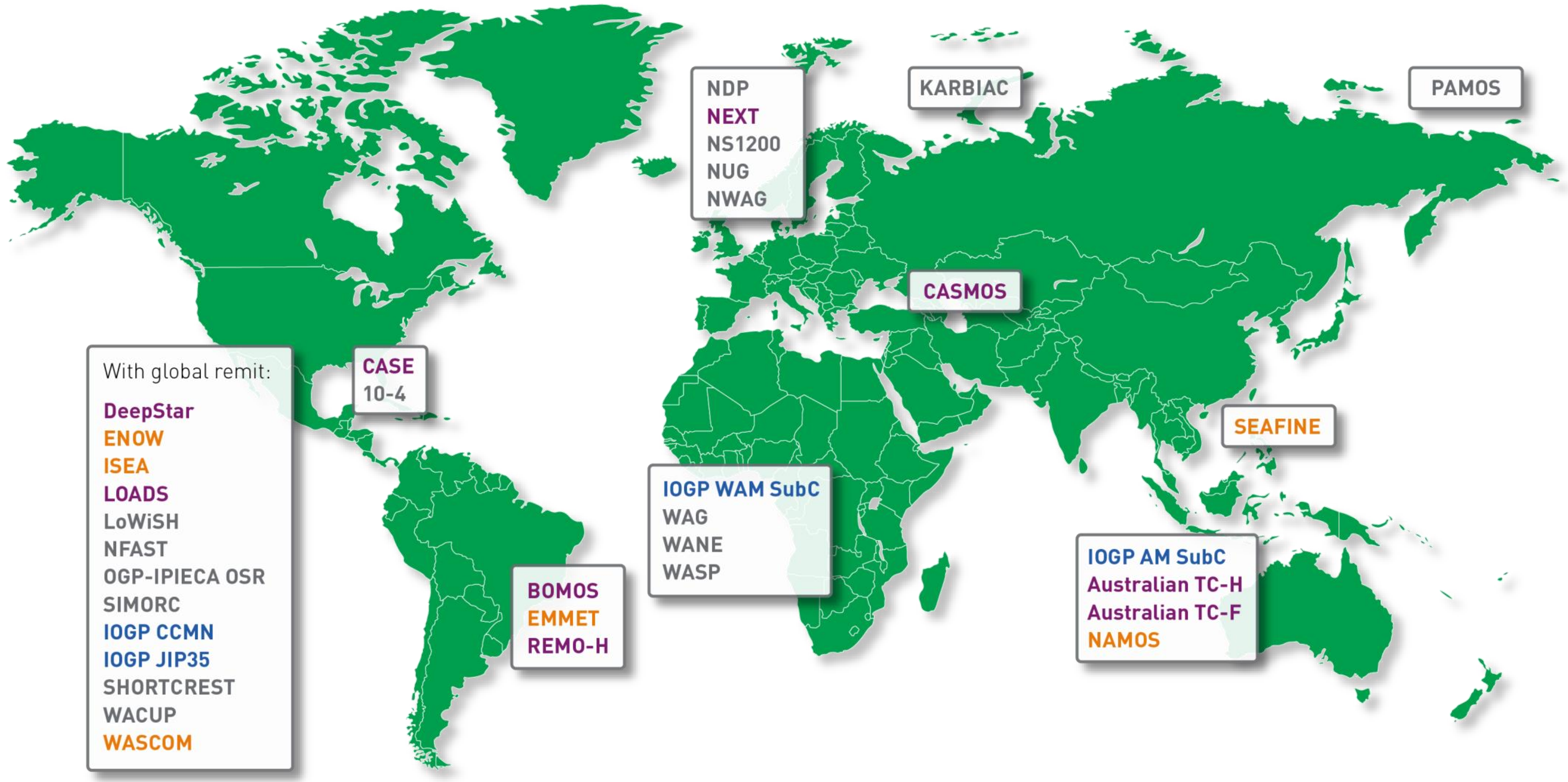




Available at: https://www.iogp.org/geomatics/ & https://www.iogp.org/bookstore/
Video: https://www.youtube.com/watch?v=ygDv2PJpYoc&list=PLt0-qTVCvEp1ZwKnf8iup320Cvp9AgXso&index=1

Metocean Projects and Studies

IOGP's Metocean projects and collaboration bring the benefits of applied oceanography and meteorology into operations planning, structure design and personnel, assets and operations safety.



Read more at: https://www.iogp.org/metocean/metocean-projects/

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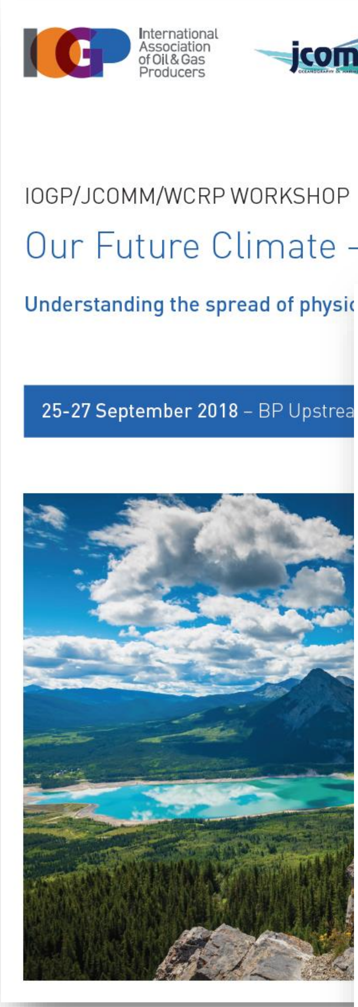
Metocean Seminars / Webinars

Participants include members of the oil and gas community, metocean and forecast service providers, and academic and government specialists.



International Association of Oil & Gas Producers

IOGP/JCOMM/WCRP WORKSHOP

Our Future Climate – **Summary Report**

Understanding the spread of physic

25-27 September 2018 – BP Upstrea

International Association of Oil & Gas Producers

IOGP/JCOMM/WCRP WORKSHOP

Our Future Climate – **Executive Summary**

Understanding the spread of physical risk for the oil and gas industry

25-27 September 2018 – BP Upstream Learning Centre in Sunbury, UK

International Association of Oil & Gas Producers

IOGP Metocean Committee

Seminar on Extra-Tropical Storms

Monday 9th September 2019

IOGP Office, City Tower, Level 14, 40 Basinghall Street, London EC2V 5DE

Meeting Synopsis

Extra-tropical storms provide one of the greatest hazards to oil and gas operations in the North Sea, Eastern Canada and Caspian regions. They are responsible for generating conditions that often control the design of fixed and floating production systems – particularly in the North Sea – and can provide particularly hazardous conditions to mobile drilling units. They are also responsible for generating large surge events that affect the safe operation of coastal refineries. Recent industry-led work has resulted in: (1) the partial adoption of multiple member ensemble climate models to help reduce the uncertainty in prediction of abnormal extra-tropical events; (2) the effects of climate change in extra-tropical storm frequency and intensity have so far been difficult to detect - with the exception of a possible increase in the likelihood of extra-tropical transition, which may present an emerging population of events to consider in operations. Meanwhile, the forecasting of extra-tropical storms has improved significantly in recent years with the higher resolution models, multiple member ensembles and ECMWF's adoption of stochastic physics in their initial condition and parameterisation schemes. There may even be skill in seasonal predictions of extra tropical storm frequency. The intention of this seminar is to bring together experts in the many aspects of extra tropical storms listed above to help define what current state-of-the-art knowledge is and, importantly, what best practise - in terms of developing Metocean design criteria and forecasting - looks like today.

Meeting Objectives

- Identify current state of knowledge in the prediction and understanding of severe extra-tropical storms;
- Seek expert consensus on climate change impacts on extra-tropical systems;
- Agree practical methods for establishing design criteria in extra-tropical regions that include climate change effects and uncertainty;
- Identify opportunities for improved operational forecasting of extra-tropical storms.

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International Association of Oil & Gas Producers

IOGP Metocean Committee

Seminar on Tropical Cyclones

23rd-24th March 2020

BP Helios Plaza, 201 Helios Way, Houston, TX 77079

Meeting Synopsis

Tropical cyclones are a key hazard impacting oil and gas operations around the globe. Winds, waves, currents and water levels generated by these events often control the design of permanent fixed and floating production facilities and associated export pipelines, and influence operating conditions for mobile offshore drilling units (MODUs). The water levels / storm surge associated with tropical cyclones may also greatly impact coastal facilities such as refineries and marine terminals.

To better understand how the design / operating characterization of these hazards may evolve over time, and to share insights on the latest advancements in operational forecasting, the Metocean Committee of the International Association of Oil and Gas Producers (IOGP) is sponsoring a seminar on the following topics:

- Potential climate change impacts on TC design and operating criteria for the GOM / Caribbean areas, with an understanding of what if any allowances should be made in TC criteria for various future time horizons, and robust methods for assessing such.
- A review of state-of-the-art short-term TC operational forecasting methods, and potential improvements that could be made to aide decision makers responsible for planning offshore platform / MODU and coastal / onshore facility shutdowns / evacuations.

This seminar is by invitation only and the registration fee for non-speakers is £120. Dinner attendance is at additional cost of £60. Audience will comprise members of the oil and gas community, metocean and forecast service providers, and academic and government specialists.

For more information and registration, please contact the Metocean Committee Manager, Lucyna Kryla-Straszewska, at lks@iogp.org

Reports are publicly available at: https://www.iogp.org/our-future-climate/

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Thank you for listening

Any Questions?

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For more information please contact:

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