Conference Preview

Challenges for Today. Opportunities for Tomorrow.

3-5 DECEMBER 2012 • HOUSTON, TEXAS

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SPONSORING ORGANIZATIONS
Dear colleagues,

The Offshore Technology Conference (OTC) Board of Directors in 2009 approved creation of a new conference dedicated to the Arctic — the Arctic Technology Conference (ATC) — and it is my honor, on behalf of the ATC 2012 Program Committee, sponsoring organizations and the OTC board, to invite you to this year’s event.

ATC 2012 will be a truly international event, focused on the cutting-edge science, engineering technologies and ongoing innovations that circum-Arctic exploration demands — all balanced with industry awareness of and concerns for the region’s population and ecologically sensitive dynamic.

The program will include senior industry executives and professionals who will share their vision on the development within the various Arctic regions. Technical experts will present their knowledge and ideas on the exploration and production of the U.S., Canadian, Russian and Norwegian onshore and offshore Arctic basins.

ATC will provide a world-class venue to meeting with colleagues and vendors to discussing challenges and solutions to working at the top of the world. With a highly specialized technical program of over 125 presentations, high quality speakers, networking events and exhibition, the 2012 ATC will provide opportunities for delegates to enhance their experience and share their expertise within the Arctic regions.

We hope you will enjoy the seven key topical areas: resources — exploration drilling; production drilling; facilities and export; physical environment; logistics and marine transport; regulatory and environment — that we know are key to effectively encompass the issues that need to be addressed in working in the Arctic today.

Finally, do not forget the evening receptions — ATC on Ice — to network and share your views with colleagues. We hope you will make the most of this ATC and I personally look forward to meeting you there. See you in Houston!

John R. Hogg,
Chair, ATC Technical Program Committee

Welcome from the Program Chair

ATC 2012 SPONSORS

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Experience the OTC’s Arctic Technology Conference — register now

The burgeoning Arctic arena offers a host of opportunities for companies that can solve the complex environmental, physical and regulatory challenges it presents. Take your company or career further by registering to attend the dynamic Arctic Technology Conference. ATC boasts a top-quality technical program with speakers representing industry-leading companies as well as an exhibition and networking opportunities.

Program Highlights

- 130+ Technical Papers and Posters
- 2 Topical Breakfasts
- 4 Topical Luncheons

Your conference registration includes these thought-provoking panels:
- Plenary Session
- Flow Assurance Challenges and Arctic Production I & II
- Oil Spill Preparedness
- Regulatory Governance
- Future Directions for R&D between Industry and Academia

Exhibition

If you’re looking for suppliers or the latest technologies available for the Arctic, you won’t want to miss the ATC exhibition. Meet face-to-face with vendors, compare products and services, and see the latest offerings. While you’re on the exhibition hall floor you can view the poster sessions and enjoy refreshment breaks. We’ll close each day with ATC on Ice evening reception.

About ATC

Founded in 1969, the Offshore Technology Conference (OTC) is the world’s foremost event for the development of offshore resources in the fields of drilling, exploration, production and environmental protection. The Arctic Technology Conference (ATC) is built upon OTC’s successful multidisciplinary approach, with 14 technical societies and organizations working together to deliver the world’s most comprehensive Arctic event.

A program committee comprising geologists, geophysicists, engineers and academicians from the world’s top E&P companies and universities has ensured the importance and value of attending ATC for professionals responsible for energy operations in harsh Arctic environments.

REGISTER NOW!

Exhibition Hours

- Monday, 3 December 10:30–18:00
- Tuesday, 4 December 10:30–18:00
- Wednesday, 5 December 10:30–14:00

The ATC exhibition is your opportunity to meet with the producers and suppliers of the latest technologies, services and products you need. The hands-on opportunity is simply unmatched. For more information or to view the floor plan visit www.ArcticTechnologyConference.org.

- AAPG
- AeroVironment, Inc. (AV)
- Advanced Mat Systems Inc.
- Aker Arctic Technology Inc
- Aker Solutions Inc
- Alfred Wegner Inst. for Polar and Marine Research
- American Society of Mechanical Engineers
- Arctica Offshore Ltd
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- ASCE American Society of Civil Engineers
- ASL Environmental Sciences Inc.
- C-Core
- CGGVeritas Services (US) Inc.
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- Marine Technology Society
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- Starboard Sun
- Stress Engineering Services
- Strongwell
- T. S. Moly-Lubricants
- TECHNIP
- TGS
- Thompson Metal Fab
- Transkor Group Inc
- Tyco Thermal Controls
- Vesco Plastics
- World Oil/Gulf Publishing
Schedule of Events

SUNDAY, 2 DECEMBER
12:00–17:00  ....... Registration .................................................................Grand Ballroom Foyer

MONDAY, 3 DECEMBER
07:00–17:00  ....... Registration .................................................................Grand Ballroom Foyer
08:00–09:00  ....... Breakfast Bites .................................................................Grand Ballroom Foyer
08:00–09:00  ....... Plenary Session .................................................................Grand Ballroom B
10:30–11:10  ....... Refreshment Break .........................................................Exhibit Hall B3
10:30–17:00  ....... Poster Sessions .................................................................Exhibit Hall B3
10:30–18:00  ....... Exhibition .................................................................Exhibit Hall B3
11:10–12:30  ....... Panel: Flow Assurance Challenges and Arctic Production I .........Grand Ballroom B
11:10–12:30  ....... Technical Sessions .............................................................Grand Ballroom A, B, C and Room 310
12:30–14:00  ....... Topical Luncheon (Mikko Niini) ........................................Room 320
12:30–14:00  ....... Topical Luncheon (Anatoly Zolotukhin) ..........................Room 332
14:00–17:00  ....... Technical Sessions .............................................................Grand Ballroom A, B, C and Room 310
14:00–17:00  ....... Panel: Flow Assurance Challenges and Arctic Production II .......Grand Ballroom B
15:20–16:00  ....... Refreshment Break .........................................................Exhibit Hall B3
17:00–18:00  ....... ATC on Ice Reception .........................................................Exhibit Hall B3

TUESDAY, 4 DECEMBER
07:00–17:00  ....... Registration .................................................................Grand Ballroom Foyer
07:45–09:15  ....... Topical Breakfast (Bernard Coakley) ...............................Room 320
08:00–09:00  ....... Breakfast Bites .................................................................Grand Ballroom Foyer
09:30–12:30  ....... Technical Sessions .............................................................Grand Ballroom A, B, C, Room 310 and Room 332
09:30–12:30  ....... Panel: Oil Spill Preparedness ..............................................Grand Ballroom B
10:30–11:10  ....... Refreshment Break .........................................................Exhibit Hall B3
10:30–17:00  ....... Poster Sessions .................................................................Exhibit Hall B3
10:30–18:00  ....... Exhibition .................................................................Exhibit Hall B3
12:30–14:00  ....... Exhibition Luncheon .........................................................Exhibit Hall B3
14:00–17:00  ....... Technical Sessions .............................................................Grand Ballroom A, B, C, Room 310 and Room 332
14:00–17:00  ....... Panel: Regulatory Governance ............................................Grand Ballroom B
15:20–16:00  ....... Refreshment Break .........................................................Exhibit Hall B3
17:00–18:00  ....... ATC on Ice Reception .........................................................Exhibit Hall B3

WEDNESDAY, 5 DECEMBER
07:00–14:00  ....... Registration .................................................................Grand Ballroom Foyer
07:45–09:15  ....... Topical Breakfast (David Mosher) .....................................Room 320
08:00–09:00  ....... Breakfast Bites .................................................................Grand Ballroom Foyer
09:30–12:30  ....... Technical Sessions .............................................................Grand Ballroom A, B, C and Room 310
09:30–12:30  ....... Panel: Future Directions for R&D between Industry and Academia ....Grand Ballroom
10:30–11:10  ....... Refreshment Break .........................................................Exhibit Hall B3
10:30–14:00  ....... Poster Sessions .................................................................Exhibit Hall B3
10:30–14:00  ....... Exhibition .................................................................Exhibit Hall B3
12:30–14:00  ....... Topical Luncheon (Pete Slaiby) .......................................Room 320
12:30–14:00  ....... Topical Luncheon (Rúni M. Hansen) .............................Room 332
14:00–16:30  ....... Technical Sessions .............................................................Grand Ballroom A, B, C and Room 310
**MONDAY**  *denotes presenter is other than first author*

08:30-10:30 PLENARY SESSION
Grand Ballroom B
Co-Chairs: John Hogg and Han Tiebout
Opening Remarks: Joe Fowler, OTC Board of Directors
The plenary session is everyone’s chance to hear from international leaders in Arctic exploration and production and will set the stage for the high-level science and real-life solutions you’ll hear about over the next three days. Don’t miss it!

- The Norwegian Arctic: Outlook and Perspectives: Jostein Mykltan (Consul General of Norway)
- Offshore Arctic Oil and Gas Activity Profile: Policy and Market Drivers and Restraints to Offshore Hydrocarbons Development in the Arctic: Jamie Balmer (Business Strategy & Analysis, Infield Systems)
- The TOTAL Adventure in the Arctic: Michael Borre! (SVP Continental Europe and Central Asia, Total E&P)
- 2012 — A Pivotal Year for Arctic Oil & Gas: Robert Blauw (Senior Advisor Global Arctic Theme, Shell)

10:30 Refreshment Break
11:10-12:30 TECHNICAL SESSIONS

**EER, Emissions, Discharge and Safety**
Grand Ballroom A
Co-Chairs: Rod Allan and Adel Younan

11:10 Evacuation In Ice: Field Trials of a Conventional Lifeboat in Pack and Level Ice: A. Simoes Re1, B. Veitch2 (*National Research Council; 2Memorial University)*
11:30 Delivering Benefits: Approaches, Initiatives and Outcomes: M. Shrimpton (Stantec Consulting Ltd.)
12:10 Leakage Detection Utilizing Active Acoustic Systems: P. K. Eriksen (NORBIT)

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**Panel: Flow Assurance Challenges and Arctic Production**
Grand Ballroom B
11:10-12:30
Moderators: Annie Audibert-Hayet and Norman Carnahan

Arctic temperatures are much colder than the deepest of deepwater projects. This poses special challenges insofar as fluids are concerned. These sessions will address some of the special fluids related problems for development of oil and gas resources in the Arctic region.

Discussion will encompass challenges and issues related to the entire spectrum of reservoir development, fluid-solid phase behavior, rheology, hydrates, waxes, production system design and operation, production chemistry and additives, drilling fluids, transportation and storage of petroleum and related fluids exposed to extreme cold temperatures of the Arctic.

- Rajiv Aggarwal (Chief Technical Advisor, KBR/Granherne)
- Alberto di Lullo (Flow Assurance Technologies Program Manager, ENI)
- Scott Butfon (Flow Assurance Manager, Technical Advisor & Project Manager, Intecsea Engineering)
- Hans Petter Ronningsen (Senior Advisor Transport Technology and Flow Assurance, Statoil)

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**Codes and Standards**
Grand Ballroom C
Co-Chairs: Abdel Ghoneim and Philippe Blanc

11:10 Barents 2020 — Working Group 02 — Design of Floating Structures in Ice: P. Moslet1, L. Eide1, M. Mansurov2 (*DNV; 2VNIIGAZ*)
11:30 2012 Update on Obtaining Approval to Conduct Marine Seismic Exploration Offshore Nunavut (Canadian Eastern Arctic): T. LaPierre (RPS)
11:50 International Regulation of the Offshore Oil Business in the Arctic: The Case for and Against: W. Spicer (McInnes Cooper)
12:10 From Field Experience in Extreme Cold Conditions to Health and Safety Internal Guidelines for Future Projects: F. Turlan, A. Audibert-Hayet (Total)

**Ice Surveys and Detection**
Room 310
Co-Chairs: Roger Cordes and Walter Kuehnelein

11:10 Petermann Ice Island 'A' Survey Results, Offshore Labrador: J. Halliday1, J. Halliday2, A. King1, P. Bobby1, L. Copland2, D. Mueller2 (*IC-CORE; 2Memorial University of Newfoundland; 2University of Ottawa; 2Carleton University*)
11:30 Improvements in the Detection of Hazardous Sea Ice Features Using Upward Looking Sonar Data: D. Fissel, E. Ross, T. Mudge, A. Kanwar, A. Barr, K. Borg, D. Sadowy (ASL Environmental Sciences Inc.)

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**Topical Luncheon**
Tickets are US $50

**Arctic Ocean – The New Route for Tanker Operators**
Mikko Niini (Naval Architect, President of Aker Arctic Technology Inc.)

Melting ice caps in the Arctic and improved technology create new possibilities for shipping in the north. Reduction of multi-year ice and ice thicknesses in general make shipping more predictable and also reduce the risk of structural damage for ships sailing the high northern latitudes. Plans for transpolar routing have already started. When the change in the environmental conditions is combined with the start of new oil and gas projects boosted by higher energy prices, we will see more and more oil and LNG tankers sailing in ice covered waters in the future. The planning of projects is already under way in all arctic coastal states and it is only a question of time when some of these projects materialize.

Updated environmental regulation and the development of the mandatory polar code will also change the shipping and shipbuilding market in the future. Current development in the utilization of the northern searoute, plans on the development of transpolar routes and the emerging industrial projects in the arctic will create a totally new market for oil tankers and lng vessels and other vessels.

These changes will pose new requirements and possibilities to ship operators, designers and shipyards, infrastructures and the world shipping in general. Whatever the rate of change is, we can be sure that the arctic shipping will be faced with new possibilities and challenges. The luncheon presentation will bring you up to date on these development trends.
The Russian part is recognized to be the largest among oil and gas resources owned by Arctic nations. However, scarce information and available geological data create uncertainty regarding a future role of the Russian Arctic as main base of energy supply in the second part of the 21st century. A further uncertainty is the pace at which production from northern areas including the Arctic, will be brought onstream – either because of national policy, infrastructure development or investment by the state and the oil companies.

Do we have an alternative to the development of oil and gas fields located in the Arctic offshore areas? The development of Arctic resources is inevitable although there is no hurry in doing that now. However, the future role of the Arctic region is of paramount importance, and its resources should be further explored and assessed. There is no doubt that in the second part of 21st century production of hydrocarbons in the Arctic petroleum mega basin will be as important in energy supply as Persian Gulf and West Siberia basins today.

14:00-17:00 Technical Sessions

**Overview of Oil & Gas Activities in the Russian Arctic**

**Grand Ballroom A**

Co-Chairs: Anatoly Zolotukhin and Han Tiebout

14:00 **Superimposing Quantified Basin Stress Evolution with Development of Petroleum System Elements, an Example from Russian Arctic — Kara Sea:** D. Spahic1, V. A. Nikshin2 (Schlumberger; Rosneft Oil Company)

14:20 **Kara Sea as a Promising Area for Future Hydrocarbons Development in Conjunction with Yamal Region LNG Project:** M. Bulakh (University of Stavanger/Gubkin Russian State University of Oil and Gas)

14:40 **Vessel Icing on the Shtokman FPSO:** E. Efimov1, K. Kornishin2 (Gubkin Russian State University of Oil and Gas; Rosneft)

15:00 **Interface of an Offshore Gravity-Based Oil and Gas Producing Platform with a Subgrade:** A. Papusha (MStU)

15:20 **Refreshment Break**

16:00 **Experience in Offshore Pipeline Design for Development of Arctic Offshore Fields:** T. Lapteva (Gazprom VNIGAZ)

16:20 **New Model for Training of Environmental Safety Specialist:** A. Khaustov, M. Redina (Peoples’ Friendship University of Russia)

16:40 **Technology, Equipment and Preliminary Results of Rosnedra Expedition “Arctic-2011” for Determination Limit of the Continental Shelf in the Russian Arctic Outside 200 Mile Based on 1% Sediment Thickness Criterion:** I. Glumov (JSC Severneftegaz)

**Panel: Flow Assurance Challenges and Arctic Production II**

**Grand Ballroom B**

14:00-17:00

Moderators: Annie Audibert-Hayet and Norman Carnahan

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Panelists:
- **Scott R. Hickman** (Flow Assurance, ExxonMobil)
- **Leonid Dykhno** (Team Lead — Flow Assurance Systems, Shell Projects & Technology)
- **Annie Audibert-Hayet** (SCR/ED/TA, Total E&P)
- **Probjot Singh** (Staff Engineer, ConocoPhillips)
- **Benton L. Dibrell** (BH Corporate — Sr. Global Account Manager, Baker Hughes)
- **Stephan J. Allenson** (Fellow, Global Director Technology and Development, Nalco)

**Arctic Frontier Basins: Applications of Technology**

**Grand Ballroom C**

Co-Chairs: Azra Tutuncu and Don Gautier

14:00 **Chemostratigraphic Characterisation and Correlation of Paleogene Sequences, Encountered within the Saglek Basin of the Davis Strait:** C. Roach, T. J. Pearce, L. M. Barnes (Chemostrat Ltd)

14:20 **Dynamic of Orogenic Processes in the Arctic: Insights from Thermochronology in the Brooks Ranges, Alaska:** M. Bigot-Buschendorf1, C. Fillon2, F. Mouthereau1, L. Labrousse1, J-L. Auxietre2, M. Wartes1, T. Moore2, P. Van der Beeke1,2 (UPMC — Paris 6; U. Grenoble 1; Total; Alaska Dept. of Natural Resources; USGS)

14:40 **North Slope Hydrate Fieldtrial: CO2/CH4 Exchange:** D. Schoderbek, J. Howard, K. L. Martin, K. Hester, S. Silpangarmiert (ConocoPhillips)

15:00 **Assessment and Exploration Risking Workflows for Conventional and Unconventional Arctic Resources:** B. P. Wygrala, O. Schenk, D. Spahic (Schlumberger)

15:20 **Refreshment Break**

16:00 **Oil Families and Their Inferred Source Rocks in the Barents Sea and Northern Timan-Pechora Basin, Russia:** M. He1, J. Moldovan1, A. Rovenskaya2, K. E. Peters1 (Stanford University; The Foundation for East-West Cooperation; Schlumberger)
The next wave of Arctic Ocean mapping was supported by the U.S. Navy’s fast attack Sturgeon class submarines. The first systematic mapping of the floor of the Arctic Ocean was conducted from the USS Pargo during the first SCICEX mission in 1993. Subsequent SCICEX cruises, all unclassified, collected approximately 100,000 km of underway bathymetry and gravity anomaly data during six cruises between 1993 and 1999. The ability of the submarines to isotropically access the central Arctic Ocean basin dramatically expanded our knowledge of the simple form of the seafloor and revealed unexpected details that elucidate the history of the basin.

Coakley’s talk will include a review of techniques that have been employed to greater or lesser success to collect seismic reflection data in the Arctic Ocean basin and contrast it with the new opportunities that have been made possible in the peripheral Arctic Ocean by the steady retreat of the ice minimum during the past decade. These data are being used to directly observe, for the first time, the deep history of this ocean basin.

Scientific access to the Arctic Ocean has been dictated by the vagaries of the drifting sea ice. In the early phases of scientific exploration, the sea ice provided a mobile platform that supported access to the water column and seafloor as well as study of the ice itself. Development of icebreakers transformed the study of the Arctic Ocean by supporting more extensive scientific equipment and enabling directed study of particular regions of the ocean. Ice camps went where the sea ice carried them. Ice breakers could access only places where the sea ice was loose or thin. Substantial sectors of multi-year or dynamically compressed ice were not accessible.

The Technical Program: Monday and Tuesday
12:10 Sabertooth a Seafloor Resident Hybrid AUV / ROV System for Long Term Deployment in the Arctic:
C. Roper1, B. Johansson2, J. Siesjö2 (1Roper Resources; 2Saab Underwater Systems AB)

Panel: Oil Spill Preparedness
Grand Ballroom B
09:30–12:30
Moderator: Peter Velez (Shell)
Industry has been conducting Arctic offshore operations and associated oil spill response R&D activities for several decades. This panel will review the state of experience and capabilities in the area of oil spill prevention and response in ice covered waters, and identify emerging technologies, issues, trends and opportunities.

Panelists:
• Joe Mullin (JIP Program Manager, International Oil and Gas Producers)
• Steve Potter (Principal Consultant, SL Rosic)
• Norman Custard (Emergency Response Superintendent, Shell Exploration and Production Company)
• Tim Nedwed (Sr. Engineering Associate, ExxonMobil Upstream Research Company)

Theme II: Drilling Technologies in the Arctic
Grand Ballroom C
Co-Chairs: Robert Ziegler and Han Tiebout
09:30 Exploring Cementing Practices Throughout the Arctic Region: G. G. DeBruijn, M. Popov (Schlumberger)
09:50 Use of Jack-Up Drilling Units in Arctic Seas with Potential Ice Incursions during Open Water Season:
R. Shafer1, C. Wang2, P. G. Noble1, K. Soofi1, M. Quah2, C. Alvord1, T. Brassfield1 (1ConocoPhillips; 2Kepel Technology and Marine Centre)
10:10 Time Domain Analysis of a MODU Moored in Ice:
E. Arens2, A. Bereznitski1, C. Keijdener1 (1Huisman Equipment BV; 2Delft University of Technology)
10:30 Refreshment Break
11:10 Importance of Deep Permafrost Soil Characterization for Accurate Assessment of Thaw Subsidence Impacts on the Design and Integrity of Arctic Wells:
C. Matthews1, G. Zhang2 (1C-FER Technologies, 2EBA, A Tetra Tech Company)
11:30 Microsphere Based Drilling Fluid to Control Hole Enlargement During Drilling in Permafrost:
S. Sengupta (Halliburton Offshore Services Inc)
11:50 Advanced Design and Execution of Delivering High Data Rate MWD Telemetry for Ultra Deep Wells:
A. Caruzo, R. Hutin, S. Reyes, A. Van Den Tweel, P. Temple (Schlumberger)
12:10 Numerical Study on Stability of Mud Line Cells in the Arctic Offshore Environment:
A. C. Trandafir, X. Long, K. Tjok (Fugro GeoConsulting, Inc.)

Shipping & Transport
Room 310
Co-Chairs: Alex Iyerusalimskiy and Andrew Kendrick
09:30 Shipping LNG along the North East Passage: A View From a Major IOC: F. J. Hannon (Total)
09:50 Sustainable Arctic Field and Maritime Operations:
M. H. Westvik1, O. Borch2, T. Berg3, H. Linstad4 (1MARINTEK; 2University of Nordland)
10:30 Refreshment Break
11:10 Suggested Methods to Reduce Crane Operations Downtime: G. Wintle (Reflex Marine)
11:30 Leveraging Air Cushion Technology to Transport Cargo in the Arctic: S. Turner, J. Ireland2, D. Turner (Hovertrans Solutions Pte. Ltd.)
11:50 Operational Experience of the Varandey Shuttle Tankers in Comparison to Early Feasibility Study Assessment:
M. K. Niini (Aker Arctic Technology Inc)
12:10 Requirements for the Winterisation of LNG Carriers for Arctic Operations and the Co-Dependency with the Human Performance in Low Temperature Environments:
R. Bridges (Lloyd’s Register)

Ice Detection and Measurement of Ice Properties
Room 332
Co-Chairs: Walter Kuehnlein and Christian Haas
09:30 Numerical Prediction of First Year Ice Ridge Loads on Floating Offshore Structures:
D. Molyneux1, L. Liu1, J. Cholley2 (1oceanic Consulting Corp.; 2total)
09:50 Multi-Year Ice Loads: Consensus of Experts:
G. Timco (National Research Council of Canada)
10:10 Finite Element Modelling of Iceberg Interaction with Subsea Protective Structures and the Seabed:
E. Drover, S. Kenny (Memorial University of Newfoundland)
10:30 Refreshment Break
11:10 Approaches for Refining Pack ice Driving Force Estimations for the Beaufort Sea: A. Barker, G. Timco (National Research Council of Canada)
11:30 Mechanism and Dynamics of Marine Ice Accretion on Vessel Archetypes:
O. Shipilova1, A. Kulyakhtin2, P. Moslet1, B. Libby1, S. Loset2 (1Det Norske Veritas; 2Norwegian University of Technology and Science (NTNU))
11:50 A Framework for Determining Characteristic Action Effects on a DP Drillship in Ice:
P. Moslet, S. Stele-Hentschel, E. L. Walter, R. Lande (DNV)
12:10 Ice Gouge Interaction with Buried Pipelines Assessment using Advanced Coupled Eulerian Lagrangian:
S. Eigebaly, M. Paulin, G. Lanan, P. Cooper (INTECSEA)
12:30-14:00 EXHIBITION LUNCHEON
Enjoy this complimentary luncheon while you view the exhibits.

14:00-17:00 TECHNICAL SESSIONS

Arctic Geophysics: Seismic Acquisition, Processing, and Interpretation
Grand Ballroom A
Co-Chairs: Michael Enaschescu and David Schoderbek
14:00 Methods for Efficient and Safe 3-D Seismic Acquisition in Arctic Conditions: C. Rypdal, D. Lippett, F. Lie (Petroleum Geo-Services)
14:20 Under-Ice Seismic Acquisition in the Arctic: S. Rice (ION Geophysical)
14:00-17:00 Panel: Regulatory Governance
Grand Ballroom B
14:00-17:00 Panelists:
• Abdel Ghoneim (Chief Engineer, Atkins)
• Susan Childs (Sustainable Development Manager, Shell)
• Bharat Dixit (Chief Conservation Officer, Team Leader, Exploration and Production, National Energy Board NEB)
• Svein Anders Eriksson (Section Head, Logistics and Emergency Preparedness, Petroleum Safety Authority PSA)
• Mark E. Fesmire (Alaska Regional Director of the Bureau of Safety and Environmental Enforcement BSEE)
• Alexander S. Skaridov (Dean, Law Faculty, Russian State Maritime Academy)
Performance of Icebreakers and Ice Class Vessels
Grand Ballroom C
Co-Chairs: Peter Noble and David Molyneux
14:00 Aurora Slim Polar Research Icebreaker: M. Arpiainen1, M. K. Niini1, L. Lembke-Jene2 (1Aker Arctic Technology; 2Alfred Wegener Institute)
14:40 Managed Ice Loads on a Dynamically Positioned Vessel: J. Millan1, R. Gashi2 (1National Research Council of Canada; 2Memorial University of Newfoundland)
15:00 Development of Azipod Propulsion for High Power Arctic Offshore Vessels: S. Hanninen, T. Heideman, E. Tenhunen (ABB Oy Marine)
15:20 Refreshment Break
16:00 Arctic Intervention Vessels — Design Considerations and Verification Studies: T. E. Berg1, B. O. Berge1, H. Borgen2 (1MARIINTEK; 2STX OSV)
16:20 Performance Criteria and Icebreaking Efficiency in Level and Pack Ice: J. Höffmeier (M. Sc. (naval arch., ocean Eng.)
16:40 Classification of the First Mechanical Azimuth Thruster According to the New PC Class Rules: T. Rauti (Rolls-Royce Oy Ab)
Pipeline Installation
Room 310
Co-Chairs: John Bomba and Mark Brunner
14:00 Assessment of Dent Integrity on Offshore Pipeline Systems Using Finite Element Modeling: W. Hanif, S. Kenny (Memorial University of Newfoundland and Labrador)
14:20 Reliable Equipment Shelters for Remote BGV Stations along the Pipeline — A Key Factor for Arctic Pipelines Operation: J. Gropper1, P. Martello2 (1Ormat Power Inc.; 2Alex Sistemi SpA)
14:40 Reeling Arctic Export Lines: K. Van Zandwijk, C. Benard, D. Faidutti (Heerema Marine Contractors)

Panelists:
• Abdel Ghoneim (Chief Engineer, Atkins)
• Susan Childs (Sustainable Development Manager, Shell)
• Bharat Dixit (Chief Conservation Officer, Team Leader, Exploration and Production, National Energy Board NEB)
• Svein Anders Eriksson (Section Head, Logistics and Emergency Preparedness, Petroleum Safety Authority PSA)
• Mark E. Fesmire (Alaska Regional Director of the Bureau of Safety and Environmental Enforcement BSEE)
• Alexander S. Skaridov (Dean, Law Faculty, Russian State Maritime Academy)

Panel: Regulatory Governance
Grand Ballroom B
14:00–17:00
Co-Chairs: Abdel Ghoneim and Susan Childs
The development of regulatory requirements for Arctic exploration and production has to keep pace with the associated technology development. Past experience has been incorporated through industry collaboration with authorities in Arctic countries. The harmonization of the requirements through intergovernmental panels similar to the IPCC, for example, may be an option.

This ATC Regulatory panel discussion will address the issues involved in writing and maintaining the regulations noting the significant variations in ice and environmental conditions in the Arctic regions of interest.

The presentation will show the past experience in Arctic design, construction, operations, R&D, and the anticipated future developments. It will also cover the risk mitigation efforts and all stakeholder concerns for a viable and safe Arctic development in line with existing ALARP principle.

This continues the popular panel from the inaugural ATC for a deeper look at the Arctic Regulatory regimes.
15:00 Deep Water Fully Remote Hyperbaric Welding of Pipelines: A. S. Azar1, H. Fostervoll1, O. M. Akselsen1
("SINTEF; 1The Norwegian University of Science and Technology [NTNU])
15:20 Refreshment Break
16:00 Ovality of High-Strength Linepipes Subject to Combined Loads: A. Fatemi1, S. Kenny2 ("IMV Projects; 2Memorial University of Newfoundland)
16:40 Challenges of Developing a Pipeline Trencher for Arctic Environments: T. de Boer, R. Plat (IHC Merwede)

Ice Load Prediction and Modeling
Room 332
Co-Chairs: Ryan Phillips and Garry Timco
14:00 SIRAM and PIRAM — Application in Canadian Offshore Developments: G. Piercey, J. Bruce, R. Phillips, C. Randell, A. King, M. Brown (Memorial University)
14:20 Iceberg Interaction Frequency Model for Subsea Structures: A. King (Memorial University)
14:40 Protection of Subsea Structures on the Seabed from Iceberg Keels: S. Soper, F. Ralph*, P. Stuckey, A. MacNeil (Memorial University)
15:00 Physical and Numerical Modeling of a Sub-Surface Caisson for Protection of Subsea Facilities against Scouring Icebergs: J. Barrett, A. King, F. Ralph, A. Zakeri (C-CORE)
15:20 Refreshment Break
16:00 PIRAM: Pipeline Response to Ice Gouging: R. Phillips, J. Barrett (C-CORE)
16:20 GIS-Based Analysis for Pipeline Protection against Ice Gouging: A. Cuff, R. Phillips*, J. Barrett, A. King (C-CORE)
16:40 Physical Testing Method to Study Ice Keel Strength Limits During a Gouging Process: J. Bruce1, G. Piercey1, A. MacNeil1, R. Phillips1, A. Derradji2 ("Memorial University; 2NRC-IOT)

Wednesday *denotes presenter is other than first author

07:45–09:15 Topical Breakfast
Tickets are US $35
A Tale of Two Icebreakers: Geophysical Surveying in the High Arctic
David C. Mosher (Research Scientist, Geological Survey of Canada)
In 1991 Mosher participated in the first ice-breaker expedition to the North Pole. For the past four years, he has led Canadian and U.S. efforts in seismic data acquisition for the Arctic Ocean as part of each nation’s extended continental shelf mapping programs. These efforts involved an ice breaker from each country traveling to ice-covered unchartered waters of the high Arctic. Fifteen thousand line-kilometers of new seismic reflection and refraction data are the result of more than 160 days at sea over five field seasons.

09:30–12:30 TECHNICAL SESSIONS
Arctic Frontier Basins: Resource Potential
Grand Ballroom A
Co-Chairs: Michael Enachescu and Don Gautier
09:30 Complex Lower Devonian Carbonate Reservoir Characterization: A Case Study from Timan-Pechora Basin: S. Doronichev1, L. Blanco2, A. Aseev1, D. Velikov2 ("Schlumberger Logelco Inc; 2LLC Alliance Oil MC)
09:50 Structure and Hydrocarbon Prospects of the Russian Western Arctic Shelf: A. V. Stoupakova, T. A. Kirykchina, A. A. Suslova, N. M. Kirykchina, R. Sautkin, I. Kurasov, S. I. Bardunov (Moscow State University)

10:10 The Chukchi Edges Project — Developing Geophysical Constraints on the History of the Amerasian Basin of the Arctic Ocean: B. Coakley, I. Ilhan (University of Alaska)
10:30 Refreshment Break
11:10 Arctic Alaska Shale-Oil and Shale-Gas Resource Potential: D. W. Houseknecht (USGS)
11:30 Canada Basin Revealed: D. C. Mosher1, D. R. Hutchinson2, J. Shimeld1, R. H. Jackson1, D. Chian1, N. Lebedeva-Ivanova2 ("Bedford Institute of Oceanography; 2Woods Hole Oceanographic Institute
11:50 Natural Gas Hydrate (NGH) Prospective Zones and Potential Arctic Ocean Resources: M. Max (Hydrate Energy International)
12:10 Paleogeographic Reconstructions of the Circum-Arctic Region Since the Late Jurassic: C. Scotese (Paleomap Project)

Panel: Future Directions for R&D Between Industry and Academia
Grand Ballroom B
09:30–12:30
Co-Chairs: Peter Noble and Dan Walker
Successful and sustainable exploitation of hydrocarbon resources in Arctic environments requires significant advancement of technology currently in use in less harsh environments, and the development of new technology and technological approaches when existing technologies cannot be adapted.

The panel aims to: shed light on the short-to midterm research and development of the industry as it adapts existing technology; attempt to forecast the long term needs in terms of what is expected, today, to be the new technology needs
for the long term; and discuss possible models in which the human capital in industry, academia and government research organizations can best be aligned towards collaborative success. The panelists are all involved in the development of strategies to allow for sustainable development of Arctic resources.

Panelists:
- Rod Allan (Director of Arctic Business Development, Transocean Offshore)
- David Finn (Chief Operating Officer, Petroleum Research Newfoundland & Labrador)
- David Murrin (Executive Director, Centre for Arctic Resource Development)
- Arne Gürtner (Principal Researcher, Arctic Technology, Statoil)
- Mitch Winkler (Arctic Technology Program Manager, Shell)

Arctic Oil Spill Preparedness
Grand Ballroom C
Co-Chairs: David Dickins and Chengwu Yuan
09:30  The Oil and Gas Industry's Commitment to Safe Arctic Operations: An Innovative Arctic Oil Spill Response Technology — Joint Industry Program: J. V. Mullin (Arctic Response Technology)
10:10  Mechanically Recovering Spills in Ice Covered Water: J. C. Lewis (JCLA Consulting Ltd.)
10:30  Refreshment Break
11:30  Operational Oil Drift Forecasting for the North Atlantic Specifically Greenland Waters: K. A. Harnvig Krane, E. Buch, M. H. Ribergaard (Danish Meteorological Institute)
11:50  Persistent Monitoring and Tracking of Environmental Conditions Arctic Regions with iRobot Seaglider Autonomous Underwater Vehicles: C. Yahnker2, E. Creed1, M. Morris1, P. J. Rusello2 (1iRobot, Inc.; 2Nortek, USA)
12:10  Oil Spill Detection and Mapping tool in Low Visibility and Arctic Ice Settings: P. K. Eriksen (Norbit US Ltd.)

Met Ocean, Forecasting and Weather, Ice Predictions
Room 310
Co-Chairs: Walter Kuehnlein and Christian Haas
09:30  Waves-in-Arctic Models for Use in Arctic Forecasting: T. D. Williams1, D. Dumont4, L. G. Bennett2, V. A. Squire3, L. B. Bertino1 (1Nansen Environmental and Remote Sensing Center; 2University of Adelaide; 3University of Otago; 4Institut Des Sciences de la mer de Rimouski)
09:50  Sea Ice Freeze-up and Break-up Forecasting for Arctic Waters: J. Jakobsen, M. Nissen, R. T. Tonboe, K. A. Harnvig Krane* (Danish Meteorological Institute)
10:30  Refreshment Break
11:30  Ice Information Services in the Era of Multiple SAR Satellites and Advanced Numerical Models: T. Carrieres, D. Langlois* (Environment Canada)
11:50  Near-Real-Time Tracking and Integrated Forecasting of Arctic Ice Floes: P. Anno1, K. Soofi1, B. Cobb2, J. Santosuosso2, C. Yetko1, D. Glover1 (1ConocoPhillips; 2IBM)
12:30–14:00  Topical Luncheon
Tickets are US $50

Shell’s 2012 Arctic Exploration: What Happened and What’s Next
Pete Slaiby (Vice President, Shell Alaska, Anchorage, Alaska)
Shell spent more than 4 billion dollars and six years preparing for the 2012 open water season in the Alaskan Arctic. Shell's plans were heavily scrutinized and commented on by a wide range of groups across the globe from government regulators to environmental organizations. In this presentation, Slaiby will cover Shell’s key learnings from the 2012 season and give some insights into Shell's vision for the next steps in U.S. Arctic exploration.

12:30–14:00  Topical Luncheon
Tickets are US $50

Statoil Crossing Arctic Energy Frontiers
Rúni M. Hansen (Vice President, Head of Arctic Unit, Statoil Exploration)
Rúni M. Hansen is a Faroese national with extensive experience from the international oil and gas industry. He has for a number of years been the country manager for Statoil in charge of operations in the Faroe Islands and Greenland, including operated drilling campaigns. He has also been Manager for Commercial and Negotiation for Europe and North Africa in Statoil. Recently he was appointed head of...
Technical Program: Wednesday

Statoil’s newly established Arctic Unit, tasked with leading work on technology, partnerships, communications and licenses.

The presentation will cover Statoil’s operations and views on future oil and gas activity in the Arctic, covering specific challenges and opportunities in exploration, development and production in harsh operating environments.

14:00-16:30 TECHNICAL SESSIONS
Floating Production Structures
Grand Ballroom A
Co-Chair: Jim Malachowski
14:00 Developing a Turret Mooring System for Arctic FPSO Units: C. van der Nat (Bluewater Energy Services)
14:20 Technical Feasibilities and Challenges of Arctic FPSOs: G. Li (SBM)
14:40 Numerical Simulations of Managed Ice Loads on a Moored Arctic Drillship: A. Gürtner1, B. E. Bjørnsen2, T. Amdahl2, S. Seberg2, S. Teigen1 (*Statoil ASA; 2Ship Modelling & Simulation Centre)
15:00 The History of Artificial Islands for Oil Exploration and Development in the Alaskan Arctic: P. E. Gadd3, C. B. Leidersdorf4, G. E. Hearon1, W. G. McDougall2 (*Coastal Frontiers Corporation; 2Oregon State University)
15:20 Refreshment Break
15:30 Development of SCS Sandwich Composite Shell for Arctic Caissons: P. W. Marshall1, R. Liew2, Y. Jiabo2, K. A. Sohel2, Y. Choo2 (*Moonshine Hill Pty; 2Natl Univ of Singapore)
15:50 Power Distribution for Arctic Subsea Tiebacks: T. Hazel2, A. Woodroffe1 (*Oceanworks; 2Schneider Electric)
16:10 Alternative Methods of Handling Associated Gas in the Arctic: R. Fales, C. G. Saavedra (Granherne)

Ice Management and Monitoring
Grand Ballroom B
Co-Chairs: Khalid Soofi and Dan Walker
14:00 A Constellation of Satellites for Enhanced Mapping of Sea Ice: D. Power1, K. Partington2, N. Walker3, B. Ramsay2, D. Barber2, M. Davidson2, M. Arkett2 (*C-CORE; 2Polar Imaging Limited; 3Canadian Ice Service; 4EOSphere; 5University of Manitoba; 6European Space Agency)
14:20 Numerical Simulations of Ice Forces on the Kulluk: the Role of Ice Confinement, Ice Pressure and Ice Management: M. Sayed1, I. Kubat1, B. Wright2 (*National Research Council; 2Brian Wright & Associates Ltd)
14:40 Tactical Sea Ice Drift Forecasting for Summer Season Operation Support in the Canadian Beaufort Sea: J. Blunt, D. Mitchell, D. Matskevitch, A. Younan, J. Hamilton (ExxonMobil Upstream Research Company)
15:00 Image Analysis Techniques for High Arctic, Deepwater Operation Support: J. Blunt1, K. Kumaran2, V. Y. Garas Yanni1, D. Matskevitch1, J. Hamilton1 (*ExxonMobil Upstream Research Company; 2ExxonMobil Corporate Strategic Research)
15:20 Refreshment Break
15:30 Standards and Guidelines for the Use of Satellite-based Ice Information in the O&G Sector: D. Power1, K. Partington2, W. Spring3 (*C-CORE; 3Polar Imaging Limited; 4Bear Ice Technology)

Structure Foundations
Grand Ballroom C
Co-Chair: Mark Hansen
14:00 Ice Worthy Jack Up Assisted Conical Piled Monopod Concept for Offshore Arctic Field Development: R. Aurora1, A. Williams3, R. Argiolas3 (*ConocoPhillips Company; 2Granherne Ltd.)
14:20 A Half-Cone Gravity Based Structure Concept for the Arctic: L. Deng, P. Taylor (ExxonMobil)
14:40 Recognition and Management of the Distinctions of Harsh Environment FPSO Project Design and Management: S. Leitko, A. Larson, M. Leblanc (WorleyParsons)
15:00 Material Challenges in Arctic Applications: O. M. Akselsen, E. Østby, K. Olafsen, R. Stokke (SINTEF)
15:20 Refreshment Break

Ice Motion and Monitoring
Room 310
Co-Chairs: Anne Barker and Walter Kuehnlein
14:00 Freeze-Up Processes in the Alaskan Beaufort and Chukchi Seas: C. B. Leidersdorf1, K. D. Vaudrey2, C. P. Scott1, G. E. Hearon1 (*Coastal Frontiers Corp.; 2Vaudrey & Associates, Inc.)
14:40 Research Activities Planned for Centre for Arctic Resource Development (CARD): D. C. Murrin, I. Jordaan, R. Taylor, E. Bailey (Centre for Arctic Resource Development)
15:00 Iceberg Monitoring and Studies in the Baffin Bay: M. O. Hansen, J. Buus-Hinkler, R. Fenger-Nielsen*, K. A. Harnvig Krane (Danish Meteorological Institute)
15:20 Refreshment Break
15:30 An Improved Method of Extremal Value Analysis of Arctic Sea Ice Thickness derived from Upward Looking Sonar Ice Data: E. Ross, D. Fissel, J. Marko, T. Mudge (ASL Environmental Sciences Inc)
15:50 Airborne Observations of the Distribution, Thickness, and Drift of Different Sea Ice Types and Extreme Ice Features in the Beaufort Sea: C. Haas (University of Alberta)
16:10 RADARSAT-2 Derived Sea Ice Information for Operations in the Arctic: C. Nadeau, S. Green, P. Kennedy (MDA)

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- **Kershor Gabbro – A Key to Ore Deposits of Polar Ural Mountains:** D. Remizov¹, S. I. Grigor’iev² (¹VSEGEI; ²St. Petersburg State University)
- **A Permafrost Thaw Monitoring System:** A. Beijer Lundberg (University of Technology Delft)
- **Challenges Faced by the Marine Contractors Working in Western and Southern Barents Sea:** O. T. Gudmestad¹, D. Karunakaran² (¹University of Stavanger; ²Subsea7)
- **Development of Flexible and Ductile Pipe-in-Pipe Filled with Granular Material for Cold Regions:** S. Kanie¹, M. Sato¹, T. Kowatari¹, S. Akagawa² (¹Hokkaido University; ²Cryosphere Engineering Laboratory)
- **Arctic Pipeline Integrity Management using Risk Based Integrity Modeling:** P. Thodi, M. McQueen, M. Paulin, G. Lanan (Intecsea)
- **Field Development Solutions for the Newly Delimited Area of the Central Barents Sea:** O. T. Gudmestad¹, M. Bulakh², A. Minikeeva¹, A. Zolotukhin² (¹University of Stavanger; ²Gubkin University of Oil & Gas)
- **HVDC Enables Subsea Active Production Technology:** R. W. Voight (Intecsea)
- **Lessons Learned and Paths Forward – Fire and Gas Protective Systems for Arctic Petroleum Development:** N. K. Rodes (WorleyParsons)
- **Finite Element Analysis for the Prediction of Frost Heave:** J. Xu (MCS Kenny)
- **A New High Strength Drill Pipe Maximizing Safety and Performance in Low Temperature Environment:** K. El Bachiri, L. Laurent Bureau*, P. Machecourt (VAM Drilling)
- **Best Practice in Arctic Concept Selection – How to Avoid the Traps:** M. Paulin (Intecsea)
- **Small Unmanned Aircraft Systems (SUAS):** M. Ziska (AeroVironment, Inc)
- **Case Study of Subsea Boosting/Separation and Smart Well Deployment for an Arctic Offshore Field Development:** A. Khrulenko, Gubkin Russian State University of Oil and Gas
- **Effective Stakeholder Identification Across Arctic Alaska:** W. Dunham (UMIAQ LLC)
- **How to Meet the New Marpol Energi Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP) Requirement with the New Generation of Icebreakers for Ice Management, Drilling and Seismics in Polar Waters:** A. Backman, U. Hedman (Viking Supplyships)
- **Use of Aerospace Information for Monitoring of Promising Field Development in the Russian Arctic Shelf:** C. Sevastiyanova, A. Konygin, V. Shmakov, S. Nekhaev, S. Stolbov (Rosneft)
- **Designing for the Arctic:** A. Bykov (WorleyParsons)
- **An Overview of Arctic Directional Drilling in Alaska:** C. Chatar¹, N. Beck¹, J. Burton¹, J. Longo², M. Abahusayn³ (¹Schlumberger; ²Eni; ³K&M)
- **Hydrocarbon Spill Recovery In Broken Ice:** James Lewis (JCLA Consulting)
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**Two ways to make hotel reservations:**
1. Online at https://resweb.passkey.com/go/2012ATC
2. Download a housing form from www.ArcticTechnologyConference.org and fax or mail as directed

The conference room rate is US $191 plus tax (currently 17%) for a single or double room. There is a US $25 fee per person/per night for a third or fourth person.

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- William P. Hobby Airport (HOU), approximately 12 miles from the convention center.
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