



Program Programme

41st AMOP
Technical Seminar
on Environmental Contamination
and Response

41^e Colloque technique
de l'AMOP –
Contamination de l'environnement
et intervention

www.ec.gc.ca/AMOP



October 2 – 4 octobre 2018

Resort
Delta Ocean Pointe
Resort

Victoria, British Columbia
Canada


Victoria
(Colombie-Britannique)
Canada



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada 



*We cannot guarantee that all papers will be presented at the Seminar.
Nous ne pouvons pas garantir que tous les documents seront présentés lors du colloque.*


**Tuesday, October 2 – Mardi 2 octobre
Arbutus BCD – Arbutus BCD**

**Detection, Tracking, and Remote Sensing of Oil Spills
Détection, suivi, et télédétection des déversements d'hydrocarbures**

Session Chair – Président de séance

Carl E. Brown


- 8:30 UAV Best Practices for 3D Modelling**
Guillaume Nepveu
CHAAC Technologies Inc., Montréal, Québec, Canada
Sonia Laforest
Environment and Climate Change Canada, Emergencies Science and Technology Section,
Montréal, Québec, Canada
- 9:00 Challenges for Remotely Piloted Aircraft Systems (RPAS) in Oil and Chemicals
Detection in Arctic Conditions: Finnish Experiences**
Jukka Sassi
VTT Technical Research Centre of Finland Ltd., Espoo, Finland
Jorma Rytönen
Finnish Environment Institute (SYKE), Helsinki, Finland
- 9:30 Unmanned Aerial Systems (UAS's) and Aerial Surveillance Platforms: How to
Select the Right Tools during an Oil Spill Response for Tactical Support and to
Provide Better Situational Awareness**
James Thomas Pringle
Oil Spill Response Ltd., Southampton, Hampshire, England
- 10:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus**
- 10:30 Optical Monitoring of Subsea Blowout Droplets and Subsea Dispersant Efficacy**
Emlyn J. Davies, Frode Leirvik, and Per J. Brandvik
SINTEF Ocean AS, Trondheim, Norway
Arden Ahnell
Exponent, Maynard, Massachusetts, USA
- 11:00 Measurement of Oil in Water Using a Field Fluorometer**
Michael Goldthorp, Sonia LaForest, Patrick G. Lambert, Fatemeh Mirnaghi, Kevin G. Watson, and
Ayumi Therrien
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa,
Ontario, Canada
Amrah Nasim
University of Ottawa, Ottawa, Ontario, Canada



Tuesday, October 2 – Mardi 2 octobre
Arbutus BCD – Arbutus BCD

Detection, Tracking, and Remote Sensing of Oil Spills (continued)
Détection, suivi, et télédétection des déversements d'hydrocarbures (suite)

- 11:30** **An Overview of MOSIDEO/CIRFA Experiments on Behaviour and Detection of Oil in Ice**
Christian Petrich
Northern Research Institute (Norut Narvik), Narvik, Norway
Megan O'Sadnick
Northern Research Institute (Norut Narvik), Narvik, Norway and UiT The Arctic University of Norway, Tromsø, Norway
Camilla Brekke and Marianne Myrnes
UiT The Arctic University of Norway, Tromsø, Norway
Sönke Maus, Martina Lan Salomon, and Sofie Woelk
NTNU, Trondheim, Norway
Tom Grydeland
Norut Northern Research Institute, Tromsø, Norway
Rolf Ole Jenssen
UiT The Arctic University of Norway, Tromsø, Norway and Norut Northern Research Institute, Tromsø, Norway
Hajo Eicken and Marc Oggier
University of Alaska Fairbanks, Fairbanks, Alaska, USA
Laurent Ferro-Famil
UiT The Arctic University of Norway, Tromsø, Norway and Université de Rennes 1, Rennes, France
Lekhmissi Harkati
Université de Rennes 1, Rennes, France
Ott Rebane
LDI Innovation OU, Tallinn, Estonia
Nils Reimer
Hamburgische Schiffbau-Versuchsanstalt GmbH (HSVA), Hamburg, Germany
- 12:00** **Observations of Ice Conditions and Properties in Norwegian Fjords during the Winter of 2018 and Implications for Oil Spill Response**
Megan O'Sadnick, Christian Petrich, Øystein Kleven, and Nga Phoung Dang
Northern Research Institute (Norut Narvik), Narvik, Norway
Megan O'Sadnick and Camilla Brekke
UiT The Arctic University of Norway, Tromsø, Norway
Jofrid Skarðhamar
Institute for Marine Research, Tromsø, Norway
- 12:15** **Attendees' Lunch – Harbour Roomm**
Déjeuner des participants – Salle Harbour
- 1:30** **Measuring Oil Slick Thickness: A Review**
Merv F. Fingas
Spill Science, Edmonton, Alberta, Canada



**Tuesday, October 2 – Mardi 2 octobre
Arbutus BCD – Arbutus BCD**

**Oil Spill Contingency Planning, Preparation, and Prevention
Déversements d'hydrocarbures - Planification des mesures d'urgence, préparation, et
prévention**

Session Chair – Président de séance

Elise DeCola

2:00 Developing a Framework for Marine Oil Spill Preparedness in the Canadian High Arctic

Elise DeCola

Nuka Research and Planning Group, LLC, Plymouth, Massachusetts, USA

Andrew Dumbille

WWF-Canada, Ottawa, Ontario, Canada

2:30 Developing a Common Guideline for Geospatial Support during a Marine Emergency Response in the Australian Context

Giovanna Lorenzin

Australian Maritime Safety Authority (AMSA), Canberra, Australian Capital Territory, Australia

**3:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus**

3:30 Development of Area Specific Emergency Response Plans for Linear Energy Transport Infrastructure

Stéphane Grenon, Dominique Goyer, Alain Lamarche, Shannon Macdonald, and Leanne Zrum
TRIOX Environmental Emergencies, Montréal, Québec, Canada

Guillaume Nepveu

CHAAC Technologies, Montréal, Québec, Canada

4:00 A New Method for Contingency Planning, Scenario Based Analyses and Real Response to Oil Spills at Sea

Rune Bergstrøm

Norwegian Coastal Administration, Horten, Norway

Synnøve Lunde


Norwegian Coastal Administration, Aalesund, Norway

Hans Petter Dahlslett

DNV GL, Oslo, Norway

4:30 End of Day – Fin de la journée

**6:00 to 7:30 Welcome Reception – Harbour Room
Réception de bienvenue – Salle Harbour**



Tuesday, October 2 – Mardi 2 octobre
Songhees Suite – Suite de Songhees

Shoreline Response
Interventions en milieu côtier

Session Chair – Président de séance

Sonia Laforest

8:30 Automated Identification of Shoreline Types in a Freshwater Environment Using Imagery Collected with an Unmanned Aerial Vehicle (UAV)

Dominique Goyer, Alain Lamarche, and Stéphane Grenon
TRIOX Environmental Emergencies, Montréal, Québec, Canada
Kosal Khun and Claude Codjia
Université du Québec à Montréal (UQAM), Montréal, Québec, Canada
Sonia Laforest
Environment and Climate Change Canada, Emergencies Science and Technology Section,
Montréal, Québec, Canada

9:00 Recent Field Activities Using Unmanned Aerial System (UAS) Vehicles to Support Shoreline Oiling Assessment Programs

Edward H. Owens
Owens Coastal Consultants (OCC) Ltd., Bainbridge Island, Washington, USA
Christian E. Haselwimmer
Chevron Energy Technology Co., San Ramon, California, USA


9:30 Predicting the Retention Potential of Diluted Bitumen on Marine Shorelines: The Field Implementation of Diluted Bitumen Experiments (Bit_EX)

Lee A.S. Britton
Coastal and Ocean Resources, Vancouver, British Columbia, Canada
John R. Harper
Coastal and Ocean Resources, Victoria, British Columbia, Canada

10:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus

10:30 Diluted Bitumen Sediment Interaction Experiments (Bit_EX): Diluted Bitumen Penetration and Retention on Shorelines

John R. Harper
Coastal and Ocean Resources, Victoria, British Columbia, Canada
Gary Sergy
S3 Environmental, Edmonton, Alberta, Canada
Lee A.S. Britton
Coastal and Ocean Resources, Vancouver, British Columbia, Canada
Sonia Laforest
Environment and Climate Change Canada, Emergencies Science and Technology Section,
Montréal, Québec, Canada
Patrick G. Lambert
Environment and Climate Change Canada, Emergencies Science and Technology Section,
Ottawa, Ontario, Canada



Tuesday, October 2 – Mardi 2 octobre
Songhees Suite – Suite de Songhees

Shoreline Response (continued)
Interventions en milieu côtier (suite)

11:00 ***u*SCAT: Underwater Seabed Cleanup Assessment Technique for Sunken Oil – An Approach for Characterizing Seabed Oiling**

John R. Harper
Coastal and Ocean Resources, Victoria, British Columbia, Canada
Gary Sergy
S3 Environmental, Edmonton, Alberta, Canada
Lee A.S. Britton
Coastal and Ocean Resources, Vancouver, British Columbia, Canada

11:30 **River Shoreline Response and SCAT on the North Saskatchewan River: Streamlined Surveys, Segmentation, and Data Management Evolutions**

Edward H. Owens
Owens Coastal Consultants (OCC) Ltd., Bainbridge Island, Washington, USA
P. Doug Reimer
Environmental Mapping Ltd., Saanich, British Columbia, Canada

12:00 **K9 SCAT Subsurface Oil Detection and Delineation Field Study on Coarse-sediment Beaches in Prince William Sound, Alaska**

Edward H. Owens
Owens Coastal Consultants (OCC) Ltd., Bainbridge Island, Washington, USA
Paul Bunker
Chiron-K9, San Antonio, Texas, USA
Elliott Taylor
Polaris Applied Sciences Inc., Bainbridge Island, Washington, USA


12:15 **Attendees' Lunch – Harbour Room**
Déjeuner des participants – Salle Harbour

1:30 **ShoreZone Imaging and Mapping of Burrard Inlet**

Sarah E. Cook
Coastal and Ocean Resources Inc., Victoria, British Columbia, Canada
John Konovsky and Briget Doyle
Tsleil-Waututh Nation, Vancouver, British Columbia, Canada

2:00 **A Literature Review on Shoreline Cleanup Assessment Technique**

Sonia Laforest and Patrick G. Lambert
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
Helen Dubach
CTEH RM, Houston, Texas, USA
Stephane Grenon
TRIOX Environmental Emergencies, Montréal, Quebec, Canada
Edward H. Owens
Owens Coastal Consultants (OCC) Ltd., Bainbridge Island, Washington, USA
P. Doug Reimer
Environmental Mapping Ltd., Victoria, British Columbia, Canada
Gary Sergy
S3 Environmental, Edmonton, Alberta, Canada



Tuesday, October 2 – Mardi 2 octobre
Songhees Suite – Suite de Songhees

Remediation, Restoration, and Rehabilitation of Chemical and Hazardous Material Spills
Dépollution, restauration, et remise en état en cas de déversements de produits chimiques
et
de matières dangereuses

Session Chair – Président de séance

David B. Mickunas

2:30 Evaluation of Membrane Filtration for the Removal of Naphthenic Acids from Contaminated Water

Vladimir Blinov, Konstantin Volchek, Meiry Farag, Gong Zhang, Wenxing Kuang, Andrew Nguen, and Carl E. Brown
Environment and Climate Change Canada, Emergencies Science and Technology Section,
Ottawa, Ontario, Canada

3:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus

Contingency Planning, Preparation, and Prevention of Spills of Chemicals and Hazardous Materials

Déversements de produits chimiques et de matières dangereux - Planification des mesures d'urgence, préparation, et prévention

Session Chair – Président de séance

David B. Mickunas

3:30 Operational Guide on Accidental Water Pollution by Hazardous and Noxious Substances (HNS) Spills

Josée Lamoureux and Benoit Philippe
Transport Canada, Marine Safety, Ottawa, Ontario, Canada
William Giraud, Mélusine Gaillard, and Christophe Rousseau
Centre de Documentation, de Recherche et d'Expérimentation sur les pollutions accidentelles des eaux (CEDRE), Brest, Cedex 2, France


Monitoring and Assessment of Chemical and Hazardous Material Spills
Surveillance et évaluation des déversements de produits chimiques et de matières dangereuses

Session Chair – Président de séance

David B. Mickunas

4:00 Coupling the Trace Atmospheric Gas Analyzer (TAGA) Mass Spectrometer/Mass Spectrometer (MS/MS) with the VIPER Technology to Remotely Present in Real Time the Concentrations of Hazardous Compounds in Ambient Air

David B. Mickunas
US Environmental Protection Agency (US EPA), Environmental Response Team,
Research Triangle Park, North Carolina, USA



Tuesday, October 2 – Mardi 2 octobre
Songhees Suite – Suite de Songhees

Monitoring and Assessment of Chemical and Hazardous Material Spills (continued)
Surveillance et évaluation des déversements de produits chimiques et de matières dangereuses (suite)

Speaker's Corner – Tribune libre

- 4:30** **Hyperspectral Remote Sensing of Hazardous and Noxious Substances in a Maritime Environment**
Eldon Puckrin
Defence Research and Development Canada (DRDC), Valcartier Research Centre, Québec, Québec, Canada
D. Duro
AEREX Avionics, Lévis, Québec, Canada
Pierre-Yves Foucher
ONERA – The French Aerospace Lab, Toulouse, France
Sophie Chataing-Pariaud
Centre de Documentation, de Recherche et d'Expérimentation sur les pollutions accidentelles des eaux (CEDRE), Brest, Cedex 2, France
Louis Armstrong
Transport Canada, Ottawa, Ontario, Canada

5:00 **End of Day – Fin de la journée**

6:00 to 7:30 **Welcome Reception – Harbour Room**
Réception de bienvenue – Salle Harbour


Tuesday, October 2 – Mardi 2 octobre
Arbutus A – Arbutus A

Remediation, Restoration, and Rehabilitation of Oil Spills
Dépollution, restauration, et remise en état en cas de déversements d'hydrocarbures

Session Chair – Président de séance

Thomas L. King

- 8:30** **Effect of Biostimulation and Temperature on Crude Oil Biodegradability in Sewage Polluted Marine Sediments**
Khaled J. Sakaya and Darine A. Salam
American University of Beirut (AUB), Beirut, Beirut-Riad El Solh, Lebanon
- 9:00** **Effect of Sequential Preconditioning on Metabolism of *n*-Alkanes and Expression of Related Genes in *Pseudomonas* and *Acinetobacter* Species**
Pardis Karimi and Gary Stern
University of Manitoba, Center for Earth Observation Science, Winnipeg, Manitoba, Canada



Tuesday, October 2 – Mardi 2 octobre
Arbutus A – Arbutus A

Remediation, Restoration, and Rehabilitation of Oil Spills
Dépollution, restauration, et remise en état en cas de déversements d'hydrocarbures

Speaker's Corner – Tribune libre

9:30 Soil Inoculants as a Practice for Bioaugmentation to Enhance Bioremediation of Hydrocarbon Contaminated Areas

Haoshuai Li, Dong Yan, Mutai Bao, and Shudong Li
Ocean University of China, Ministry of Education, Key Laboratory of Marine Chemistry Theory and Technology, Qingdao, Shandong, China and College of Chemistry and Chemical Engineering, Ocean University of China, Qingdao, Shandong, China
Kenneth Lee and Thomas L. King
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Canada
Peiyan Sun
State Oceanic Administration, North China Sea Environmental Monitoring Center, Key Laboratory of Marine Spill Oil Identification and Damage Assessment Technology, Qingdao, Shandong, China

10:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus


10:30 Study on Biodegradation of Petroleum Hydrocarbons by Marine *Chlorella Vulgaris* under Different Illumination Conditions

Qingguo Chen, Jingjing Li, Mei Liu, and Jingya Sun
Zhejiang Ocean University, College of Marine Science and Technology, Zhoushan, Zhejiang, China
Mutai Bao
Ocean University of China, Key Laboratory of Marine Chemistry Theory and Technology, Ministry of Education, Qingdao, Shandong, China

Speaker's Corner – Tribune libre

11:00 A Survey of Natural Arctic Marine Bacterial Communities for Petroleum Hydrocarbon Degradation Potential at Sub-zero Temperatures

Charles W. Greer, Julien Tremblay, Nathalie Fortin, Jessica Wasserscheid, David Juck, and Katrina Callender
National Research Council Canada, Energy, Mining and Environment Research Centre, Montréal, Québec, Canada
Thomas L. King, Brian Robinson, and Kenneth Lee
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada



Tuesday, October 2 – Mardi 2 octobre
Arbutus A – Arbutus A

Fate and Effects of Oil
Le devenir et effets des hydrocarbures

Session Chair – Président de séance

Thomas L. King

11:30 A Collaborative Approach to Designing Purposeful Oil Spill Research: Bridging the Gap between Science and Response

D. Abigail Renegar and Nicholas R. Turner
Nova Southeastern University, Halmos College of Natural Sciences and Oceanography,
Dania, Florida, USA
Paul Schuler
Oil Spill Response Ltd., Fort Lauderdale, Florida, USA

Speaker's Corner – Tribune libre

12:00 Natural Dispersion and Dissolution of Refined Petroleum Products under Simulated at Sea Conditions

Thomas L. King, Brian Robinson, Claire McIntyre, Patrick Toole, Scott Ryan, and Kenneth Lee
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia,
Canada
Michel Boufadel
New Jersey Institute of Technology, Department of Civil and Environmental Engineering,
Center for Natural Resources Development and Protection, New Jersey, USA
Haoshuai Li
Ocean University of China, Key Laboratory of Marine Chemistry Theory and Technology,
Qingdao, Shandong, China
Jason Clyburne
Saint Mary's University, Atlantic Centre for Green Chemistry, Departments of Chemistry and
Environmental Science, Halifax, Nova Scotia, Canada

12:15 Attendees' Lunch – Harbour Room
Déjeuner des participants – Salle Harbour

Speaker's Corner – Tribune libre

1:30 Characterizing Seasonal Variability in the Distribution of Different Oils into the Water Column Using a Mesocosm Approach

Alice C. Ortmann, Susan E. Cobanli, Gary Wohlgeschaffen, Brian Robinson and Thomas L. King
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia,
Canada

Speaker's Corner – Tribune libre


2:00 Mesocosm Experiments to Determine Seasonal Microbial Community Response to a Surface Spill of Different Oil Products in a Coastal Ecosystem

Susan E. Cobanli, Alison Gladwell, Jessica MacDonald, Gary D. Wohlgeschaffen, Thomas L. King
and Alice C. Ortmann
Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia,
Canada

Speaker's Corner – Tribune libre

2:30 Microbial Community and Petroleum Hydrocarbon Succession in Marine Oil Related Aggregates

Roman Netzer, Ingrid A. Henry, and Odd G. Brakstad
SINTEF Ocean AS, Department of Environmental Technology, Trondheim, Norway



Tuesday, October 2 – Mardi 2 octobre
Arbutus A – Arbutus A

Fate and Effects of Oil (continued)
Le devenir et effets des hydrocarbures (suite)

3:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus

Speaker's Corner – Tribune libre

3:30 Biotransformation of Dispersed Oil in Frazil Ice
Synnøve Lofthus
Norwegian University of Science and Technology, Department of Biotechnology, Trondheim,
Sør-Trøndelag, Norway

Speaker's Corner – Tribune libre

4:00 Land-based Microcosm Approach to Understand Dilbit Weathering in a Freshwater System
Sawyer Stoyanovich, Jose Luis Rodríguez-Gil, L. Cundall, J. Séguin, and Jules Blais
University of Ottawa, Ottawa, Ontario, Canada
T. Black, Lauren Timlick, and Mark Hanson
University of Manitoba, Winnipeg, Manitoba, Canada
Jeff Cederwall, Johanna Mason, and Diane Orihel
Queen's University, Kingston, Ontario, Canada
Vince Palace
International Institute for Sustainable Development (IISD) - Experimental Lakes Area, Winnipeg,
Manitoba, Canada
Bruce P. Hollebone
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa,
Ontario, Canada

Speaker's Corner – Tribune libre


4:15 Examining the Potential Effects of Controlled Spills of Diluted Bitumen and Conventional Heavy Crude Oil at the IISD-Experimental Lakes Area
Vince Palace
International Institute for Sustainable Development (IISD) - Experimental Lakes Area, Winnipeg,
Manitoba, Canada
Tanya Shanoff
Stantec Consulting Ltd., Kelowna, British Columbia, Canada

Speaker's Corner – Tribune libre

4:30 Enhancement of Science-based Decision Making in Oil Spill Response: The Multi-partner Research Initiative
Kenneth Lee, Alison Janidlo, Boumy Sayavong and Michal Galus
Fisheries and Oceans Canada, Ecosystem Science, Ottawa, Ontario, Canada

5:00 End of Day – Fin de la journée

6:00 to 7:30 Welcome Reception – Harbour Room
Réception de bienvenue – Salle Harbour



Wednesday, October 3 – Mercredi 3 octobre
Arbutus BCD – Arbutus BCD

Physical and Chemical Properties and Behaviour of Oil Spills
Comportement et caractéristiques physiques et chimiques des déversements
d'hydrocarbures

Session Chair – Président de séance

Bruce P. Hollebhone

- 8:30 Characterization of Naphthenic Acids in Crude Oils and Refined Petroleum Products**
Chun Yang, Gong Zhang, Mariam Serhan, Graeme Koivu, Zeyu Yang, Bruce P. Hollebhone, Patrick G. Lambert, and Carl E. Brown
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
- 9:00 Occurrence and Characterization of Naphthenic Acid Fraction Components in Oil Stranded on the Shoreline of Chedabucto Bay, Nova Scotia, Canada**
Zeyu Yang, Gong Zhang, Chun Yang, Keval Shah, Bruce P. Hollebhone, Sonia Laforest, Patrick G. Lambert, Carl E. Brown, Jane Situ, and Alexandra Verkuyl
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
- 9:30 Investigation to Compare the Behaviour of Spilled Conventional Crude Oils with Unconventional Oils (Including Diluted Bitumen Products) through Laboratory and Meso-scale Testing**
David W. Cooper and Ian A. Buist
S.L. Ross Environmental Research Ltd., Ottawa, Ontario, Canada
- 10:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition –le hall Arbutus
- 10:30 Flow Behaviour of Oil: What Makes Diluted Bitumen Different?**
Benjamin G. Fieldhouse, Alaa Alsaafin, and Brandon Guest
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
- 11:00 A Tale of Three Instruments: Laboratory versus Field Particle Size Distribution and Analysis**
Robert J. Faragher, Moshtagh Aljawahari, Michael Goldthorp, and Benjamin G. Fieldhouse
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
Joshua Roberts
Carleton University, Faculty of Science, Ottawa, Ontario, Canada
Mitchel D. Crombeen
University of Waterloo, Faculty of Engineering, Waterloo, Ontario, Canada
- 11:30 Impacts of Partial Upgrading Processes on Diluted Bitumen Characteristics and Behaviour in Water**
Qin Xin, Austin Hartwell, Ryan McDonald, and Heather D. Dettman
Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada



Wednesday, October 3 – Mercredi 3 octobre
Arbutus BCD – Arbutus BCD

Physical and Chemical Properties and Behaviour of Oil Spills (continued)
Comportement et caractéristiques physiques et chimiques des déversements
d'hydrocarbures (suite)

12:00 Evaluation of Alberta Based Oils and Common Degradation Mechanisms by GCxGC

Matthew Endsin, Ron Brockbank, and Pam Andres
AGAT Laboratories, Calgary, Alberta, Canada

12:15 Attendees' Lunch – Harbour Room
Déjeuner des participants – Salle Harbour

1:30 Methods to Create Repeatable Drum-scale Stable Water-in-oil Emulsions

Karen N. Stone and Alan G. Guarino
Bureau of Safety and Environmental Enforcement (BSEE) and MAR (MD), LLC Ohmsett
Sterling, Virginia, USA

2:00 Simplified Procedures to Predict Water-in-oil Emulsions

Merv F. Fingas
Spill Science, Edmonton, Alberta, Canada

Speaker's Corner – Tribune libre

2:15 Weathered Petroleum in Coastal Samples from the Southern Gulf of Mexico
Collected 37 Years after the Ixtoc-I Spill and Characterized by FTICR-MS

Jagoš R. Radović, Isabel C. Romero, John W. Tunnell Jr., Aprami Jaggi, Joel Kostka, Jeff Chanton,
Dave Hollander, Steve R. Larter, and Thomas B.P. Oldenburg
University of Calgary, Calgary, Alberta, Canada

Speaker's Corner – Tribune libre

2:30 A Fluorescence Method for Quantitative Detection of Oil in Lab-prepared
Contaminated Water Solutions and Implications for Use with a Range of Samples


R. Stephen Brown, Julie Adams, Johanna Mason, Eden Hatley, Sarah Wallace, Barry Madison,
Valérie Langlois, and Peter V. Hodson
Queen's University, School of Environmental Studies and Department of Chemistry, Kingston,
Ontario, Canada

3:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus

Speaker's Corner – Tribune libre

3:30 Responding to Spills in the Arctic: A Summary of Arctic Oil Spill Response
Research

Kristi McKinney, Karen N. Stone, Suzanne Chang, Jay Cho, and Paul Meyer
Bureau of Safety and Environmental Enforcement (BSEE), Oil Spill Preparedness Division,
Sterling, Virginia, USA



Wednesday, October 3 – Mercredi 3 octobre
Arbutus BCD – Arbutus BCD

Physical and Chemical Properties and Behaviour of Oil Spills (continued)
Comportement et caractéristiques physiques et chimiques des déversements
d'hydrocarbures (suite)

Speaker's Corner – Tribune libre

4:00 Conventional Crude Water Accommodated Fraction Preparation in Fresh Water Using a Spill Test Tank

Heather D. Dettman, Qin Xin, and Hena Farooqi
Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada

Speaker's Corner – Tribune libre

4:30 Influence of the Gas Plume on the Sea Surface Level

Stéphane Le Floch, Marina Erb, and Camille Lacroix
Centre of Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE), Research Department, Brest, Cedex 2, France
Aprin Laurent
LGEI, Ecole des Mines d'Alès, Alès Cedex, France

5:00 End of Day – Fin de la journée

Wednesday, October 3 – Mercredi 3 octobre
Arbutus A – Arbutus A

Special Session - Line 3 Pipeline Replacement
Séance spéciale - Remplacement de la canalisation 3

Session Chair – Président de séance

Matthew Horn

8:30 A Case Study with the Enbridge Line 3 Replacement Program: Assessing Risks of Crude Oil Spills along a Pipeline


Matthew Horn
RPS Ocean Science, South Kingstown, Rhode Island, USA
Matthew Bordson
Enbridge, Duluth, Minnesota, USA
Chris Pekar
Stantec Consulting Services Inc., Cottage Grove, Wisconsin, USA
Jeffrey Green
Stantec Consulting Services Inc., Burnaby, British Columbia, Canada

9:00 A Case Study with the Enbridge Line 3 Replacement Program: Failure Frequency Assessment of a Pipeline Using Reliability Methods

Benjamin C. Mittelstadt
Dynamic Risk, Houston, Texas, USA

9:30 A Case Study with the Enbridge Line 3 Replacement Program: Assessing the Trajectory and Fate of Crude Oil Spills along a Pipeline to Answer Multiple Questions

Matthew Horn, Jeremy Fontenault, Lisa McStay, Jenna Ducharme, Deborah Crowley
Richard Balouskus, Cheryl Morse, Alicia Morandi, and Sitara Baboolal
RPS Ocean Science, South Kingstown, Rhode Island, USA



Wednesday, October 3 – Mercredi 3 octobre
Arbutus A – Arbutus A

Special Session - Line 3 Pipeline Replacement (continued)
Séance spéciale - Remplacement de la canalisation 3 (suite)

- 10:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus
- 10:30 A Case Study with the Enbridge Line 3 Replacement Program: A Framework for Evaluating and Comparing the Effects of Spills of Diluted Bitumen and Light Crude Oils**
Malcolm Stephenson and Tania G. Noble
Stantec Consulting Ltd., Fredericton, New Brunswick, Canada
Loren D. Knopper
Stantec Consulting Ltd., Stoney Creek, Ontario, Canada
- 11:00 Wild Rice (*Manoomin*) and Understanding Potential Impacts of Pipelines to Traditional Cultural Properties and Culturally Significant Resources**
Jeffrey Lee
Barr Engineering Co., Duluth, Minnesota, USA
Christopher A. Bergman
AECOM, Cincinnati, Ohio, USA


Oil Spill Modelling
Modélisation des déversements d'hydrocarbures

Session Chair – Président de séance

William J. Lehr

Speaker's Corner – Tribune libre

- 11:30 A Framework for Modeling Near-surface Processes for Oil Spills**
Christopher Barker and Amy MacFadyen
National Oceanic and Atmospheric Administration (NOAA), Seattle, Washington, USA
- 12:00 Development of a Practical Model for Chemical Oil Spill Dispersion**
Merv F. Fingas
Spill Science, Edmonton, Alberta, Canada
- 12:15 Attendees' Lunch – Harbour Room**
Déjeuner des participants – Salle Harbour
- 1:30 Further Validation of a Unified Droplet Size Distribution Model for Droplet Break-up in Underwater Plumes**
Anusha L. Dissanayake, Deborah Crowley, Deborah P. French McCay, and Daniel Mendelsohn
RPS Ocean Science, South Kingstown, Rhode Island, USA
- 2:00 Oil Spill Contingency and Response Modelling in Ice-covered Waters**
Tor Nordam, Emma Litzler, Petter Rønningen, Joakim Aune, Thomas F. Hagelien, Arve Loktu, C.J. Beegle-Krause, and Ute Brønner
SINTEF Ocean AS, Trondheim, Norway



Wednesday, October 3 – Mercredi 3 octobre
Arbutus A – Arbutus A

Oil Spill Modelling (continued)
Modélisation des déversements d'hydrocarbures (suite)

Speaker's Corner – Tribune libre

2:30 Empirical Wind Waves Compared to Operational Wave Forecast - Impact on Oil Spill Models

Guillaume Marcotte
Environment and Climate Change Canada, Dorval, Québec, Canada

Speaker's Corner – Tribune libre

2:45 An Extrapolation Scheme between Coastlines and Large-scale Ocean Models

Amina El Kasmi
Environment and Climate Change Canada, Dorval, Québec, Canada

3:00 Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus

Response Technologies and Countermeasures for Oil Spills
Technologies d'intervention et mesures de prévention pour les déversements d'hydrocarbures

Session Chair – Président de séance

Benjamin G. Fieldhouse

3:30 Experimental Measurements and Numerical Simulations of Droplet Behavior in a Heptane/Ethane Spray Flame

Brian T. Fisher, Steven G. Tuttle, and Alfredo D. Tuesta
Navy Technology Center for Safety and Survivability, US Naval Research Laboratory, Washington, District of Columbia, USA
David A. Kessler
Laboratories for Computational Physics and Fluid Dynamics, US Naval Research Laboratory, Washington, District of Columbia, USA


3:45 CARS Thermometry in a Heptane/Ethane Spray Flame

Alfredo D. Tuesta, Brian T. Fisher, and Steven G. Tuttle
US Naval Research Laboratory, Washington, District of Columbia, USA

Speaker's Corner – Tribune libre

4:00 Differences in the Impact of In Situ Burning of Spilled Light Oil versus Diesel and Bunker C Oil on Transformation, Solubilization and the Production of Dissolved Organic Matter

Aprami Jaggi, Jagoš R. Radović, Ryan W. Snowdon, Melisa Brown, Steve R. Larter, and Thomas B.P. Oldenburg
PRG, University of Calgary, Department of Geoscience, Calgary, Alberta, Canada



Wednesday, October 3 – Mercredi 3 octobre
Arbutus A – Arbutus A

Response Technologies and Countermeasures for Oil Spills (continued)
Technologies d'intervention et mesures de prévention pour les déversements
d'hydrocarbures (suite)

Speaker's Corner – Tribune libre

4:15 Weathering of Dispersed Oil in Ice-infested Seawater
Xing Song, Bing Chen, Qinhong Cai, Baiyu Zhang, and Kedong Zhang
Memorial University of Newfoundland, Faculty of Engineering and Applied Science, Northern
Region Persistent Organic Pollution Control (NRPOP) Laboratory, St. John's, Newfoundland,
Canada
Stanislav R. Stoyanov
Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada
Stanislav R. Stoyanov
University of Alberta, Department of Chemical and Materials Engineering, Edmonton, Alberta,
Canada

Speaker's Corner – Tribune libre

4:30 Ice Remediation of Vertical Rope Mop Oil Skimmer Operation in Arctic Climates
Nathan Lamie and Leonard Zabilansky
US Army Engineer Research and Development Center, Cold Regions, Research and Engineering
Laboratory, Hanover, New Hampshire, USA

5:00 End of day – Fin de la journée

Thursday, October 4 – Jeudi 4 octobre
Arbutus BCD – Arbutus BCD

Forum on the Impacts on Oiled Wildlife and Response
Forum concernant les effets sur les espèces sauvages mazoutées et l'intervention

Session Chair – Président de séance

Sherri Cox

8:30 Combining Genomics Bioindicators with Non-lethal Sampling of the Caudal Fin
Enables Oil Spill Effects Determination on Pacific Salmon
Caren C. Helbing, Jacob J. Imbery, and Jessica M. Round
University of Victoria, Department of Biochemistry and Microbiology, Victoria,
British Columbia, Canada
Craig Buday, Rachel C. Miliano, Dayue Shang, Honoria Kwok, Leah Purdey, and
Graham Van Aggelen
Environment and Climate Change Canada, Pacific Environmental Science Centre,
North Vancouver, British Columbia, Canada



Thursday, October 4 – Jeudi 4 octobre
Arbutus BCD – Arbutus BCD

Forum on the Impacts on Oiled Wildlife and Response
Forum concernant les effets sur les espèces sauvages mazoutées et l'intervention

- 9:00** **Fish Toxicity Associated with Weathering of a Conventional Medium Crude Oil Using a Wave Tank**
Valérie S. Langlois, Linda R. Lara-Jacobo, Charles Gauthier, and Patrice Couture
Institut national de la recherche scientifique, Centre Eau Terre Environnement (INRS-ÉITÉ),
Québec, Québec, Canada
Qin Xin and Heather D. Dettman
Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada
F. Dupont and Gaëlle Triffault-Bouchet
Centre d'expertise en analyse environnementale du Québec (CEAEQ), Québec, Québec, Canada
- 9:30** **Oiled Wildlife Response Planning for Inland Regions in California**
Kyra Mills, Curt Clumpner, and Michael Ziccardi
Oiled Wildlife Care Network, Karen C. Drayer Wildlife Health Center,
School of Veterinary Medicine, University of California, Davis, California, USA
- 10:00** **Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus
- 10:30** **Maximizing Expertise in Oiled Wildlife Response - A Case for Partnering Oiled Wildlife Response Organizations and Environmental Consultants during Oil Spill Incidents**
Jenny Schlieps
Focus Wildlife, Anacortes, Washington, USA
- 11:00** **Evaluation of the Toxicity of Diluted Bitumen on Canadian Freshwater Fishes**
Patrice Couture, Roxann Bérubé, Charles Gauthier, T. Bourdin, and Valérie S. Langlois
Institut national de la recherche scientifique, centre Eau Terre Environnement (INRS-ÉITÉ),
Québec, Québec, Canada
F. Dupont, Gaëlle Triffault-Bouchet, and Nicolas Gruyer
Centre d'expertise en analyse environnementale du Québec (CEAEQ), Québec, Ministère du
développement durable, Environnement et Lutte contre les changements climatiques
(MDDELCC), Québec, Québec, Canada
- 11:30** **An Overview of ECRC~SIMEC'S Wildlife Response Activities**
Stephanie McClellan
ECRC~SIMEC, Ottawa, Ontario, Canada
- 12:00** **Merging Science with Operations: How to Apply the Biological Vulnerability Framework During an Oil Spill**
Leif-Matthias Herborg, Lucie Hannah, Candice St. Germain, and Sharon Jeffery
Fisheries and Oceans Canada, Institute of Ocean Sciences, Sidney, British Columbia, Canada
- 12:15** **Attendees' Lunch – Harbour Room**
Déjeuner des participants – Salle Harbour



Thursday, October 4 – Jeudi 4 octobre
Arbutus BCD – Arbutus BCD

Forum on the Impacts on Oiled Wildlife and Response (continued)
Forum concernant les effets sur les espèces sauvages mazoutées et l'intervention (suite)

- 1:30** **A Case Study in Wildlife Response: Using Spatial Distribution to Determine Appropriate Wildlife Response Strategies, North Saskatchewan River, 2016**
Charlie Hebert, Jenny Schlieps, and Chris Battaglia
Focus Wildlife, Anacortes, Washington, USA
Delanie Player and Scott Moffett
Matrix Solutions, Inc., Calgary, Alberta, Canada
- 2:00** **Wildlife Response Planning: Standards for Industry Preparedness**
Jenny Schlieps and Charlie Hebert, Focus Wildlife, Anacortes, Washington, USA

Case Histories and Recent Oil Spill Experiences
Cas concrets et expériences récentes de déversements d'hydrocarbures

Session Chair – Président de séance

Carl E. Brown

- 2:30** **Best Spill Response Ideas**
William (Bill) J. Lehr et al.
National Oceanic and Atmospheric Administration (NOAA), Emergency Response Division,
Seattle, Washington, USA
- 3:00** **Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus
- 3:30** **Quantitative Assessment of Subsurface Spill Response**
Claire B. Paris-Limouzy
University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida, USA
- Characterizing Oil for Fate Modeling**
Fatemeh Mirnaghi
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa,
Ontario, Canada
- Oil Toxicity for Exposures on the Time Scale of Hours**
Deborah P. French McCay
RPS Ocean Science, South Kingstown, Rhode Island, USA
- Including Marine Snow and MOSSFA in Oil Spill Models**
Uta Passow
University of California Santa Barbara, Santa Barbara, California, USA
Kenndra Daly
University of South Florida, St. Petersburg, Florida, USA
Adrian Burd, University of Georgia, Athens, Georgia, USA
- Quantitative Measures for Trajectory Hindcast**
Zhen Li
Bureau of Ocean Energy Management (BOEM), Sterling, Virginia, USA
- Fundamental Prediction of Oil Droplet Sizes Generated during Blowout**
Zach Aman
University of Western Australia, School of Engineering, Crawley, Australia



Thursday, October 4 – Jeudi 4 octobre
Arbutus BCD – Arbutus BCD

Case Histories and Recent Oil Spill Experiences (continued)
Cas concrets et expériences récentes de déversements d'hydrocarbures (suite)

Updated Surface Process Algorithms

Christopher Barker
National Oceanic and Atmospheric Administration (NOAA), Emergency Response Division,
Seattle, Washington, USA

Re-evaluate Algorithms for Certain Facets of Oil Behavior

Merv F. Fingas
Spill Science, Edmonton, Alberta, Canada

Recovered Oil Incinerator

Victoria Broje
Shell Exploration and Petroleum Co., Houston, Texas, USA

Remote Recovery System for Oil in Ice

Victoria Broje
Shell Exploration and Petroleum Co., Houston, Texas, USA

Recovery in Fast Currents

Tim J. Nedwed
Exxon Mobil Upstream Research Co., Spring, Texas, USA

More Rapid Adoption of New Technology

Tim J. Nedwed
Exxon Mobil Upstream Research Co., Spring, Texas, USA

Enabling the Use of Alternative Response Measures in Canada

Chantal Guénette
ECRC~SIMEC, Ottawa, Ontario, Canada

Implementing Improved Sorbent Technology for Heavy Oils

Paul Irving
Australian Maritime Safety Authority (AMSA), Braddon, Canberra ACT, Australia

Detecting Oil in Ice and Under Ice

W. Scott Pegau
Oil Spill Recovery Institute (OSRI) Cordova, Alaska, USA

More Detailed Biodegradation Experiments

Dalina Thrift-Viveros
National Oceanic and Atmospheric Administration (NOAA), Emergency Response Division
Seattle, Washington, USA

Oil Spills in Ice-covered Arctic Waters

Feiyue Wang
University of Manitoba, Centre for Earth Observation Science (CEOS) Winnipeg, Manitoba,
Canada

Environmentally Friendly Solidifiers

Ying Zheng
University of Edinburgh, Edinburgh, Scotland



Thursday, October 4 – Jeudi 4 octobre
Arbutus BCD – Arbutus BCD

Case Histories and Recent Oil Spill Experiences (continued)
Cas concrets et expériences récentes de déversements d'hydrocarbures (suite)

Developing Biomarkers of Embryo Toxicity

Sarah Wallace
Royal Military College (RMC), Kingston, Ontario, Canada

Piscine Models as Bioindicators of Oil Toxicity

Barry N. Madison
Queen's University, Kingston, Ontario, Canada

Improved Oil Toxicity Test Methods

Julie Adams
Queen's University, School of Environmental Studies, Kingston, Ontario, Canada

Speaker's Corner – Tribune libre

4:30 Recent Oil Spill Experiences

To be determined
International Tanker Owners Pollution Federation (ITOPF) Ltd., London, United Kingdom

5:00 End of Technical Seminar – Fin du Colloque technique

Thursday, October 4 – Jeudi 4 octobre
Arbutus A – Arbutus A

Response Technologies and Countermeasures for Oil Spills (continued)
Technologies d'intervention et mesures de prévention pour les déversements d'hydrocarbures (suite)

Session Chair – Président de séance

Benjamin G. Fieldhouse

8:30 Determining the Influences of Viscosity of Crude Oils on Effectiveness of Chemical Herders Using an Acoustic Method

Richard Byrne, Paul D. Panetta, Alexandria Podolski, and Hualong Du
Applied Research Associates (ARA), Inc., Littleton, Colorado, USA

9:00 In Situ Ignition Testing of California Crude Oils

Steven G. Tuttle, Christopher J. Pfützner, Thomas N. Loegel, Katherine M. Hinnant, and Brian T. Fisher
US Naval Research Laboratory, Navy Technology Center for Safety and Survivability, Washington, District of Columbia, USA



Thursday, October 4 – Jeudi 4 octobre
Arbutus A – Arbutus A

Response Technologies and Countermeasures for Oil Spills (continued)
Technologies d'intervention et mesures de prévention pour les déversements
d'hydrocarbures (suite)

Speaker's Corner – Tribune libre

- 9:30** **Characterization of Residue, Soot and Smoke Gases from In Situ Burning of Crudes and Fuel Oils – A Laboratory Study**
Liv-Guri Faksness and Daniel Krause
SINTEF Ocean AS, Environment and New Resources, Trondheim, Norway
Karolina Storesund
RISE Fire Research AS, Trondheim, Norway
- 10:00** **Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition – le hall Arbutus
- 10:30** **Laboratory In-situ Burns of Oil on Ice**
Christian Petrich and Nga Phoung Dang
Northern Research Institute (Norut Narvik), Narvik, Norway
Janne Fritt-Rasmussen and Kim Gustavson
Aarhus University, Roskilde, Denmark

Risk Assessment
Évaluation des risques

Session Chair – Président de séance

Dagmar Etkin

- 10:45** **Application of Zone-of-No-Save Model to Estimate Probability of Rescue for Drifting Vessels along Canada's Pacific Coast**
Tim Robertson, Bretwood Higman, and Sierra Fletcher
Nuka Research and Planning Group, LLC, Seldovia, Alaska, USA
Miles Jolliffe
Clear Seas, Centre for Responsible Shipping, Vancouver, British Columbia, Canada
- 11:00** **Decision-making Based on Oil Spill Risk Assessments**
Dagmar Schmidt Etkin
Environmental Research Consulting, Cortlandt Manor, New York, USA
Andrew Wolford
Risknology Inc., Katy, Texas, USA
Deborah P. French McCay, Jill Rowe, and Matt Horn, RPS Ocean Science, South Kingstown, Rhode Island, USA
- 11:30** **Hudson River Oil Spill Risk Assessment – Probability and Risk Mitigation Analysis**
Dagmar Schmidt Etkin
Environmental Research Consulting, Cortlandt Manor, New York, USA
John Joeckel
SEAConsult LLC, Wachapreague, Virginia, USA
Deborah P. French McCay and Jill Rowe
RPS Ocean Science, South Kingstown, Rhode Island, USA
Andrew Wolford
Risknology Inc., Katy, Texas, USA



Thursday, October 4 – Jeudi 4 octobre

Arbutus A – Arbutus A

Risk Assessment (continued)

Évaluation des risques (suite)

Speaker's Corner – Tribune libre

- 12:00** **A New Risk-Human Factor Analysis Method for Oil Spill Response Decision Making**
Xudong Ye
Memorial University of Newfoundland, Northern Region Persistent Organic Pollution Control (NRPOP) Laboratory, St. John's, Newfoundland, Canada
Bing Chen and Rune Storesund, University of California, Center for Catastrophic Risk Management (CCRM), Berkeley, California, USA
Kenneth Lee, Fisheries and Oceans Canada, Environment and Biodiversity Science Branch, Ottawa, Ontario, Canada
- 12:15** **Attendees' Lunch – Harbour Room**
Déjeuner des participants – Salle Harbour
- 1:30** **Potential Oil Trajectories and Oil Exposure from Hypothetical Spills in the Hudson River**
Deborah P. French McCay, Jill Rowe, Deborah Crowley, Jenna Ducharme, Matthew Frediani, and Matthew Bernardo
RPS Ocean Science, South Kingstown, Rhode Island, USA
Dagmar Schmidt Etkin
Environmental Research Consulting, Cortlandt Manor, New York, USA
- 2:00** **Forecasting System for Predicting the Dynamics of Oil Spill in a Tide-dominated Estuary**
Chijioke D. Eke and Babatunde Anifowose
Coventry University, Faculty of Engineering, Environment and Computing, Coventry, West Midlands, United Kingdom
Marco Van De Wiel and Damian Lawler
Coventry University, Centre for Agroecology, Water and Resilience, Ryton-on-Dunsmore, United Kingdom
Michiel Knaapen, HR Wallingford Ltd, Crowmarsh Gifford, Wallingford, United Kingdom
- 2:30** **Assessing the Probability, Trajectory, and Fate of Hypothetical Oil Releases Associated with the Tesoro Savage Crude-by-rail Vancouver Energy Project**
Matthew Horn and Jill Rowe
RPS Ocean Science, South Kingstown, Rhode Island, USA
Dagmar Schmidt Etkin
Environmental Research Consulting, Cortlandt Manor, New York, USA
- 3:00** **Refreshment Break, Poster Presentations and Exhibits – Arbutus Foyer**
Pause café, présentations d'affiches et kiosques d'exposition – Foyer Arbutus
- 3:30** **Risk Communication Challenge – What are the True Risks of Ship-source Oil Spills in Canada?**
David J. Creber, Dillon Consulting, Fredericton, New Brunswick, Canada
Lynn Gagnon and David Poole, Dillon Consulting, Calgary, Alberta, Canada
- 4:00** **End of day – Fin de la journée**





Posters – Affiches

Posters are on display in the Arbutus Foyer
Les affiches sont exposées dans le hall Arbutus

Tuesday, October 2 – Mardi 2 octobre

Oil Behaviour in Sea Ice: Changes in Chemical Composition and Regulant Effect on the Complex Permittivity and Radar Signature of Sea Ice

Durell Sterling Desmond, Diana Saltyrnakova, Thomas D. Neusitzer, Nariman Firoozy, David G. Barber, and Gary A. Stern
University of Manitoba, Winnipeg, Manitoba, Canada

Acoustic Detection of Oil in the Water Column

Eduardo Loos, John Marko, David Topham, and David Lemon
ASL Environmental Sciences, Victoria, British Columbia, Canada
Richard Gould
US Naval Research Laboratory, Stennis Space Center, Mississippi, USA

Direct Comparison of the LISST-100X and 200X Instruments to Measure Particle Size Distribution and Volume Concentrations in Water

Scott A. Ryan
Fisheries and Oceans Canada, Centre for Offshore Oil, Gas and Energy Research,
Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Integrated Satellite Tracking of Pollution (ISTOP)

Kerri Warner, Véronique Pinard, Stéphanie Tremblay-Therrien, and Benjamin Deschamps
Environment and Climate Change Canada, Canadian Ice Service (CIS), Ottawa, Ontario, Canada

Response Planning on the West Coast of BC – A Collaborative Approach

Timothy McCann
Fisheries and Oceans Canada, Canadian Coast Guard, Richmond, British Columbia, Canada

Oil on Water Exercise: DIY SCAT App

Liam Harrington-Minnin, Nicola Jackson, and Rob Holland
Oil Spill Response Ltd., Southampton, England

ShoreZone Imaging and Habitat Mapping

Kalen Morrow
Coastal and Ocean Resources Inc., Victoria, British Columbia, Canada

Environmental Emergency Shoreline Segmentation Datasets: The Evolution to Open Accessible Data

Ayumi Therrien and Anne-Marie Demers
Environment and Climate Change Canada, Environmental Protection Operations Directorate, Montréal, Québec, Canada
Patrick G. Lambert and Sonia Laforest
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
Jason Duffe
Environment and Climate Change Canada, National Wildlife Research Centre, Ottawa, Ontario, Canada
* with paper/avec article

Wide-area Radiological Mitigation of Infrastructure Materials Using a Water-based Formulation

Wenxing Kuang, Konstantin Volcheck, Pervez Azmi, Vladimir Blinov, and Carl E. Brown
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
J. Semmler, A.P. Snaglewski, A. Toor, and Z. Khan
Canadian Nuclear Laboratories, Reactor Chemistry and Corrosion Branch, Chalk River, Ontario, Canada



Posters – Affiches

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Tuesday, October 2 – Mardi 2 octobre

Selective Degradation and Resistance of H₂S and Mercaptans in Top Soil Contaminated with Sour Condensate: A Lab-based Study

Mahyar Sakari, Nathan Scott, Ryan Staub, Matthew Endsini, and Ron Brockbank
AGAT Laboratories, Calgary, Alberta, Canada

Biodegradation of a Bohai Crude Oil by Natural Attenuation and Biostimulation with Added Nutrients and Chemical Dispersant

Juan Li, Xiping Wang, Peiyan Sun, Jingjing Sha, Qing Zhou, Lixin Cao, Fujuan Li, Jing Cao, and Guangmei Li
North China Sea Environmental Monitoring Center, State Oceanic Administration (SOA), Qingdao, Shandong, China

Key Laboratory of Marine Spill Oil Identification and Damage Assessment Technology, Qingdao, Shandong, China

Alice C. Ortmann, Thomas L. King, Youyu Lu, and Kenneth Lee

Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

* with paper/avec article

Marine Snow in the Context of Oil Spill Response

Ingrid A. Henry, Roman Netzer, Emlyn J. Davies, Jørgen Skancke, Kelly M. McFarlin, and Odd G. Brakstad
SINTEF Ocean AS, Department of Environment and New Resources, Trondheim, Norway

* with paper/avec article

Understanding of Crude Oil Migration Tendencies in Sea Ice

Diana Saltymakova, Durell S. Desmond, Nariman Firoozy, Thomas D. Neusitzer, David G. Barber, and Gary A. Stern

University of Manitoba, Winnipeg, Manitoba, Canada

Update on Research Funded by Fisheries and Oceans Canada's National Contaminants Advisory Group

Cory Dubetz

Fisheries and Oceans Canada, Ottawa, Ontario, Canada

Understanding the Fate and Effects of Diluted Bitumen in Fresh Waters through Experimental Oil Spills: Preliminary Findings on the Role and Responses of Microbial Communities

Diane Orihel, Jeff Cederwall, and Johanna Mason

Queen's University, Kingston, Ontario, Canada

Charles W. Greer

National Research Council Canada, Energy, Mining and Environment Research Centre, Montréal, Québec, Canada

Scott Higgins and Vince Palace

International Institute for Sustainable Development (IISD) - Experimental Lakes Area, Winnipeg, Manitoba, Canada

Mark Hanson

University of Manitoba, Winnipeg, Manitoba, Canada

Bruce P. Hollebone

Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

Alice C. Ortmann

Fisheries and Oceans Canada, Dartmouth, Nova Scotia, Canada

Jose Luis Rodriguez-Gil and Jules Blais

University of Ottawa, Ottawa, Ontario, Canada

Rebecca Rooney

University of Waterloo, Waterloo, Ontario, Canada



Posters – Affiches

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Tuesday, October 2 – Mardi 2 octobre

Effect of Oil Pollution and Ice Formation on Microbial Community of Seawater from Ofotjorden, Norway

Nga Phuong Dang, Megan O' Sadnick, and Christian Petrich
Northern Research Institute (Norut Narvik), Narvik, Norway
Nils Willassen
UiT-The Arctic University of Norway, Department of Chemistry, Tromsø, Norway
* with paper/avec article

Wednesday, October 3 – Mercredi 3 octobre

The Spill Response and Environmental Forensics of the 2016 Pipeline Spill in the North Saskatchewan River

Keval Shah, Zeyu Yang, Bruce P. Hollebone, Mike Landriault, Sonia Laforest, Patrick G. Lambert, and Carl E. Brown
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

The Environment and Climate Change Canada Oil Spill Simulator (ECOSSIM)

Bruce P. Hollebone, Konstantin Vocheck, and Carl E. Brown
Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada
George Comfort
G. Comfort Ice Engineering Ltd., Kanata, Ontario, Canada
David W. Cooper
S.L. Ross Environmental Research Limited, Ottawa, Ontario, Canada

Qualitative Analysis of Volatile Hydrocarbons in Sea Ice and Brine Samples by Static Headspace Gas Chromatography - Mass Spectrometry

Katarzyna Polcwiartek, Diana Saltymakova, Nolan Snyder, David G. Barber, Gary A. Stern, and Feiyue Wang
University of Manitoba, Winnipeg, Manitoba, Canada

Seasonal Effects on Changes in the Physical Properties of Bitumen Blends and Conventional Crude Naturally Weathered on Water: Science to Support Oil Spill Response

Brian J. Robinson, Thomas L. King, Patrick Toole, Claire McIntyre, and Kenneth Lee
Fisheries and Ocean Canada, Centre for Offshore Oil, Gas and Energy Research, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada
Michel Boufadel
New Jersey Institute of Technology, Department of Civil and Environmental Engineering, Center for Natural Resources Development and Protection, Newark, New Jersey, USA
Haoshuai Li
Ocean University of China, Ministry of Education, Key Laboratory of Marine Chemistry Theory and Technology, Qingdao, Shandong, China
Jason A.C. Clyburne
Saint Mary's University, Departments of Chemistry and Environmental Science, Atlantic Centre for Green Chemistry, Halifax, Nova Scotia, Canada



Posters – Affiches

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Wednesday, October 3 – Mercredi 3 octobre

The BOREAL Project: Preliminary Results from a Simulated Spill of Diluted Bitumen in Boreal Lake Enclosures

Jose Luis Rodriguez-Gil, L. Cundall, J. Séguin, Sawyer Stoyanovich, and Jules Blais

University of Ottawa, Ottawa, Ontario, Canada

T. Black, Lauren Timlick, and Mark Hanson

University of Manitoba, Winnipeg, Manitoba, Canada

Jeff Cederwall, Johanna Mason, and Diane Orihel

Queen's University, Kingston, Ontario, Canada

Vince Palace, International Institute for Sustainable Development (IISD) - Experimental Lakes Area, Winnipeg, Manitoba, Canada

Bruce P. Hollebone

Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

Complex Analysis of Chemical Composition of Crude Oil in Sea Ice Mesocosms

Nolan Snyder, Diana Saltymakova, Katarzyna Polcwiartek, Durell S. Desmond, David Barber, Feiyue Wang, and Gary A. Stern

University of Manitoba, Winnipeg, Manitoba, Canada

Alastair Smith and Casey Hubert

University of Calgary, Alberta, Canada

Understanding the Fate and Behaviour of Diluted Bitumen (Dilbit) Spilled in a Freshwater System: A Preliminary Mass Balance

Sawyer Stoyanovich, Jose Luis Rodríguez-Gil, J. Séguin, and Jules Blais

University of Ottawa, Ottawa, Ontario, Canada

T. Black, Lauren Timlick, and Mark Hanson

University of Manitoba, Winnipeg, Manitoba, Canada

Jeff Cederwall, Johanna Mason, and Diane Orihel

Queen's University, Kingston, Ontario, Canada

Vince Palace

International Institute for Sustainable Development (IISD) - Experimental Lakes Area, Winnipeg, Manitoba, Canada

Bruce P. Hollebone

Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

Performance Evaluation of Biosurfactant-based Dispersants

Qinhong Cai, Baiyu Zhang, Bing Chen, and Zhiwen Zhu

Memorial University, Faculty of Engineering and Applied Science, Northern Region Persistent Organic Pollution Control (NRPOP) Laboratory, St. John's, Newfoundland, Canada

Distribution of a Diluted Bitumen Product in Water and Adhesion on Sediment: Effects of Salinity and pH

Lindsay J. Hounjet

Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada

Portable Systems for Measuring the Presence of Total Petroleum Hydrocarbon (TPH) in the Field: A Review

Kevin G. Watson and Patrick G. Lambert

Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

* with paper/avec article



Posters – Affiches

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Wednesday, October 3 – Mercredi 3 octobre

Decanting Regulations, Practices and Future Perspectives: A Review

Yuan (James) Yao, Konstantin Volchek, Vladimir Blinov, Wenxing Kuang, Pervez Azmi, Benjamin G. Fieldhouse, and Carl E. Brown

Emergencies Science and Technology Section, Environment and Climate Change Canada, Ottawa, Ontario, Canada

David W. Cooper, James McCourt, and Stephen Potter

S.L. Ross Environmental Research Ltd., Ottawa, Ontario, Canada

* with paper/avec article

Monitoring of PAH Composition of Environmental Samples from Four Oil Spill Sites Using Fluorescence Spectroscopy Method

Fatemeh Mirnaghi, Bruce P. Hollebhone, and Carl E. Brown

Environment and Climate Change Canada, Emergencies Science and Technology Section, Ottawa, Ontario, Canada

Forensic Identification and Analysis of Vegetable Oils by Combined ATR-FTIR and LC/MS

Grace Park, Honoria Kwok, Ceara MacInnis, Pamela Brunswick, Graham Van Aggelen, and Dayue Shang

Environment and Climate Change Canada, Pacific and Yukon Laboratory for Environmental Testing, North Vancouver, British Columbia, Canada

Marcus Kim

Agilent Technologies Canada Inc., Mississauga, Ontario, Canada

Predicting Dilbit Weathering with a Simulated Molecular Composition

Trevor N. Brown and Thomas L. King

Fisheries and Oceans Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

Simulations of Hypothetical Blowouts of Oil and Gas in Lula Oil Field (Brazil)

Luciana de Freitas Tassarolo and Valdir Innocentini

Instituto Nacional de Pesquisas Espaciais (INPE), São José dos Campos, São Paulo, Brazil

Iury A. Gonçalves

Universidade Federal do Espírito Santo, São Mateus, Espírito Santo, Brazil

* with paper/avec article

Invisible Oil beyond the Deep Water Horizon Fisheries Closures

Igal Berenshtein, Claire B. Paris-Limouzy, and Natalie Perlin

University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida, USA

Steve Murawski

University of South Florida, College of Marine Science, St. Petersburg, Florida, USA

Deep-sea Blowout Modelling: Improved Algorithm, Quantification of Oil Concentration and Mass, and Sensitivity Analyses on Model Configuration

Claire B. Paris-Limouzy and Natalie Perlin

University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, Miami, Florida, USA

A Copolymer of Amylopectin-G-Poly(Methyl Acrylate) for Oil Spill Solidification and Recovery

Fernanda L. Motta and Stanislav R. Stoyanov

Natural Resources Canada, CanmetENERGY, Devon, Alberta, Canada

Stanislav R. Stoyanov and João B.P. Soares

University of Alberta, Department of Chemical and Materials Engineering, Edmonton, Alberta Canada



Posters – Affiches

Posters are on display in the Arbutus Foyer
Les affiches sont exposées dans le hall Arbutus

Thursday, October 4 – Jeudi 4 octobre

Short- and Long-term Fate of Oil Spilled in the Environment: Methods Developed following the Deep Water Horizon Tragedy

Thomas B.P. Oldenburg, Aprami Jaggi, Jago R. Radović, and Steve R. Larter
University of Calgary, Department of Geosciences, Calgary, Alberta, Canada

Effects of Oil Viscosity and Chemical Properties on Dispersant Effectiveness

Paul D. Panetta, Hualong Du, Jennifer Jerding, Alexandria Podolski, and Richard Byrne
Applied Research Associates (ARA) Inc., Littleton, Colorado, USA

Measurements to Estimate the Downward Heat Flux from a Burning Oil Pool

Christian Petrich, Megan O'Sadnick, and Nga Phoung Dang
Northern Research Institute (Norut Narvik), Narvik, Norway
Linda Marie Stakkeland and Steffen Kristiansen
Norwegian Fire Academy, Fjellidal, Norway
* with paper/avec article

Assessing the Effect of Temperature on the Use of Oil Spill Treating Agents

Benjamin G. Fieldhouse, Alaa Alsaafin, Caroline Jung, Saily Dave, and Brandon Guest
Environment and Climate Change Canada, Ottawa, Ontario, Canada
* with paper/avec article

Assessing the Oil Spill Risk for Potential Lease Sales in the US Beaufort Sea

Zhen Li and Walter Johnson
Bureau of Ocean Energy Management (BOEM), Sterling, Virginia, USA



See you next year!

We hope you will join us from **June 4 to 6, 2019** at the **Lord Nelson Hotel** in Halifax, Nova Scotia for the 42nd AMOP Technical Seminar on Environmental Contamination and Response.

À l'année prochaine !

Nous espérons vous revoir du **4 au 6 juin 2019** à l'Hotel Lord Nelson à Halifax (Nouvelle-Écosse) à l'occasion du 42^e Colloque technique de l'AMOP – Contamination de l'environnement et intervention.





Exhibitors – Exposants

Exhibits are on display in the Arbutus Foyer
Les expositions ont lieu dans le hall Arbutus

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Cover Photos :

Cleaning oiled boom, USA (Photo: International Tanker Owners Pollution Federation Limited, ITOPF, London, UK)

Flushing oiled rocks, Japan (Photo: International Tanker Owners Pollution Federation Limited, ITOPF, London, UK)

Photos de la couverture :

Nettoyage d'une estacade huilee, les États-Unis (Photographie : International Tanker Owners Pollution Federation Limited, ITOPF, Londres, Royaume-Uni)

Lavage par inondation des roches huilees, Japon (Photographie : International Tanker Owners Pollution Federation Limited, ITOPF, Londres, Royaume-Uni)



Notes

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Notes

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About the AMOP Technical Seminar

Environment and Climate Change Canada began the **Arctic and Marine Oilspill Program (AMOP)** in March 1978 to improve the knowledge base and technology for cleaning up Arctic and marine oil spills. The AMOP Technical Seminar soon evolved into an international technical forum about oil spills in any environment as well as other spill-related topics. In 1983, the first Technical Seminar on Chemical Spills (TSOCS) was held in conjunction with the AMOP Seminar and this eventually grew to include counterterrorism issues as a reflection of current priorities. In 1999, the Technical Seminar for Phytoremediation/Biotechnology Solutions for Spills (PHYTO) was added. This seminar changed to Biotechnology Solutions for Spills (BIOSS) and then to Biological Solutions for Site Remediation, Restoration, and Rehabilitation (BIOSOLR³). To remain at the forefront of the dynamic field of spill response, in 2008 all three Seminars were amalgamated under the name **AMOP Technical Seminar on Environmental Contamination and Response**.

About the Emergencies Science and Technology Section

The AMOP Technical Seminar on Environmental Contamination and Response is organized annually by the **Emergencies Science and Technology Section (ESTS)** of **Environment and Climate Change Canada**. Staff at ESTS's Centre of Excellence located in Ottawa, Ontario carry out research and development on a variety of topics related to environmental emergencies caused by spilled hazardous materials. For more than 35 years, the Section has run an ongoing national program of research and development (R&D) on:

- properties, behaviour, detection, measurement, and effects of spilled hazardous materials with a focus on conventional and non-conventional petroleum products;
- modelling and remote sensing of spilled hazardous materials;
- spill countermeasures: evaluation, effectiveness, effects, and environmental benefits of mechanical and chemical treating agents; and
- shoreline impact and restoration: utilization of the Shoreline Cleanup Assessment Technique (SCAT).

A unique feature of the R&D is that results are applied to actual spill incidents, providing assistance to spill responders and conversely, feedback to the researchers on the direction of their work. R&D priorities are set and assessed by committees of representatives from all levels of government as well as international government agencies. Technology transfer is an important component of the program and the group provides operational guides, manuals, and training as well as some aspects of contingency planning.

Most of the section's projects are conducted in partnership with other government departments, agencies, and industry and cover a wide spectrum of issues related to spills. They include laboratory and field investigation in terrestrial, freshwater, and marine environments. Among the section's other activities are:

- Participating within the Canadian Safety and Security Program (CSSP);
- Leading the Chemical Community of Practice, including Chemical, Biological, Radiological, Nuclear & Explosive (CBRNE) decontamination research and development; and
- Assists in security arrangements and provides scientific support during major events such as the 2010 Olympic Games in British Columbia and the G8/G20 Summits, and the 2015 Pan American Games in Ontario.

For additional information, please contact:

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À propos du Colloque technique de l'AMOP

Environnement et Changement climatique Canada a démarré le **Programme de lutte contre les déversements d'hydrocarbures en mer et dans l'Arctique (AMOP)** en mars 1978 afin d'améliorer les connaissances et les techniques en lien avec la lutte contre les déversements de pétrole dans des milieux marins et arctiques. Le Colloque technique de l'AMOP s'est rapidement transformé en un forum technique international sur les déversements d'hydrocarbures dans tout type d'environnement mais aussi sur d'autres types de déversements. En 1983, le premier Colloque technique sur les déversements de produits chimiques (TSOCS) s'est tenu en parallèle du Colloque de l'AMOP pour ensuite englober les questions de lutte anti-terroriste qui font partie des priorités actuelles. En 1999, le Colloque technique de phytoremédiation (PHYTO)/Solutions en biotechnologie lors de déversements fut ajouté. Ce colloque a évolué pour s'intituler Solutions biotechnologiques lors de déversements (BIOSS) puis Solutions biologiques de dépollution, de restauration et de réhabilitation des sites (BIOSOLR³). En 2008, afin de demeurer à l'avant-garde de la lutte contre les déversements, les trois colloques ont été regroupés sous un seul nom : **Colloque technique de l'AMOP – Contamination de l'environnement et intervention.**

À propos de la Section des urgences - Science et technologie

Colloque technique de l'AMOP – Contamination de l'environnement et intervention est organisé chaque année par la **Section des urgences - Science et technologie (SUST) d'Environnement et Changement climatique Canada**. Le personnel du Centre d'excellence de la SUST, situé à Ottawa (Ontario), poursuit des travaux en recherche et développement dans le domaine des urgences environnementales causées par des déversements de produits dangereux. Depuis plus de 35 ans, la SUST continue de diriger un programme national de recherche et développement sur :

- les propriétés, le comportement, la détection, la mesure et les effets notamment des produits pétroliers conventionnels et non conventionnels;
- la modélisation et la télédétection des déversements de produits dangereux;
- l'intervention en cas de déversement : évaluation, efficacité, effets et avantages environnementaux de techniques de restauration mécaniques et chimiques et
- Les incidents sur le littoral et la restauration : utilisation de la Technique d'évaluation pour la restauration des rives (TERR).

La particularité des résultats de ce programme de recherche et développement est qu'ils sont appliqués à des déversements réels et permettent de faciliter le travail des équipes d'intervention. En échange, les informations venant des intervenants permettent aux chercheurs de mieux orienter leurs travaux. Les priorités de recherche sont définies et évaluées par des comités de représentants de tous les niveaux de gouvernement et d'organismes gouvernementaux internationaux. Le transfert de technologie est un élément important du programme. La SUST produit des guides opérationnels et des manuels. Elle offre aussi de la formation et contribue dans une certaine mesure à la planification des mesures d'urgence.

La plupart des projets de la section se déroulent en partenariat avec d'autres ministères et organismes du gouvernement, ainsi qu'avec l'industrie, et englobent une vaste gamme de sujets relatifs aux déversements. Ils comprennent des études en laboratoire et sur le terrain, dans des milieux terrestres, en eau douce et en mer. La section comprend d'autres activités :

- la participation au Programme canadien pour la sûreté et la sécurité (PCSS);
- devenir le chef de file de la communauté de pratique chimique, dont la recherche et le développement en matière de décontamination chimique, biologique, radiologique, nucléaire et explosive (CBRNE);
- contribuer aux ententes de sécurité et fournir un appui scientifique durant les événements d'envergure comme les Jeux olympiques de 2010 en Colombie-Britannique et les Sommets du G8 et du G20, de même que les Jeux panaméricains de 2015, en Ontario.

Pour de plus amples renseignements, veuillez contacter :

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Courriel : ec.colloquetechiqueamop-amoptechnicalseminar.ec@canada.ca

Séances d'un coup d'oeil

Jour/Salle	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:15	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30
mardi Arbutus BCD	Détection, suivi, et télédétection des déversements d'hydrocarbures																
	Déversements d'hydrocarbures - Planification des mesures d'urgence, préparation, et prévention																
mardi Arbutus A	Interventions en milieu côtier																
	Dépollution, restauration, et remise en état en cas de déversements de produits chimiques et de matières dangereuses																
	Déversements de produits chimiques et de matières dangereuses - Planification des mesures d'urgence, préparation, et prévention																
	Surveillance et évaluation des déversements de produits chimiques et de matières dangereuses																
mardi Suite Songhees	Le devenir et effets des hydrocarbures																
mercredi Arbutus BCD	Comportement et caractéristiques physiques et chimiques des déversements d'hydrocarbures																
mercredi Arbutus A	Séance spéciale - Remplacement de la canalisation 3																
	Modélisation des déversements d'hydrocarbures																
	Technologies d'intervention et mesures de prévention pour les déversements d'hydrocarbures																
jeudi Arbutus BCD	Forum concernant les effets sur les espèces sauvages mazoutées et l'intervention																
	Cas concrets et expériences récentes de déversements d'hydrocarbures																
jeudi Arbutus A	Évaluation des risques																
	Technologies d'intervention et mesures de prévention pour les déversements d'hydrocarbures (suite)																

Sessions at a Glance

Day/Room	8:30	9:00	9:30	10:00 Break	10:30	11:00	11:30	12:15 Lunch	1:30	2:00	2:30	3:00 Break	3:30	4:00	4:30	5:00	5:30
Tuesday Arbutus BCD	Detection, Tracking and Remote Sensing of Oil Spills																
Tuesday Songhees Suite	Shoreline Response																
	Remediation, Restoration, and Rehabilitation of Chemical and Hazardous Material Spills																
	Contingency Planning, Preparation and Prevention of Spills of Chemicals and Hazardous Materials																
	Monitoring and Assessment of Chemical and Hazardous Material Spills																
Tuesday Arbutus A	Fate and Effects of Oil																
Wednesday Arbutus BCD	Physical and Chemical Properties and Behaviour of Oil Spills																
Wednesday Arbutus A	Special Session - Line 3 Pipeline Replacement																
	Oil Spill Modelling																
Thursday Arbutus BCD	Forum on the Impacts on Oiled Wildlife and Response																
	Case Histories and Recent Oil Spill Experiences																
Thursday Arbutus A	Response Technologies and Countermeasures for Oil Spills (continued)																
	Risk Assessment																
	Response Technologies and Countermeasures for Oil Spills																

