MEOPAR
MARINE ENVIRONMENTAL OBSERVATION PREDICTION & RESPONSE NETWORK

Meeting the Challenges of Our Changing Ocean

Our vision:

To inspire and enable Canadian leadership in marine environmental observation, prediction and response.

MEOPeer
Pre-June 2015 Annual Scientific (Training) Meeting
June 14 & 15, 2015
Vancouver & Vancouver Island, British Columbia

Information & Agenda

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www.meopar.ca

Marine Environmental Observation Prediction & Response Network
Dalhousie Ocean Sciences Building
1355 Oxford Street Suite 2-41
Halifax NS B3H 4J1 Canada

"Look aft and learn"

Seafarers commonly say "look aft": to look behind, to the rear and to the wake of the vessel. This philosophy is applicable to the MEOPAR training program as we work towards achieving our vision and training the next generation of marine researchers.

Background

The MEOPeer pre-June 2015 ASM training meeting will be two days of activity: Sunday, June 14 will be a marine research field trip with one of our project partners and Monday, June 15 will be two onsite concurrent workshops at the Sheraton Wall Centre hotel.

Sunday, June 14, 2015

Strait of Georgia field trip via B.C. Ferries, in collaboration with Ocean Networks Canada and onsite marine research presentations, Vancouver Island.

*Field trip will proceed, rain or shine
*Agenda on page five
*breakfast at the hotel, lunch catered onsite during the field trip, supper is available on the ferry (on your own, keep your receipt)
*All transportation pre-purchased by MEOPAR

Introduction

The Strait of Georgia is the main deepwater basin of the Salish Sea, a region bound by the eastern and northern shores of the mainland of British Columbia and Washington State, respectively, and the southwestern coastline of Vancouver Island. It represents an extensive marine ecological system, is the home of over 7 million people, and supports one of the busiest shipping and commercial seaways in North America. Understanding this important marine environment has been the focus of scientific research going back over 70 years. To support and enhance the present research efforts, a major network of permanent instruments and monitoring systems has been installed and continues to grow as part of the VENUS ocean observatory, now operated and maintained by Ocean Networks Canada (ONC) of the University of Victoria.

Marine monitoring systems in the Salish Sea support several key MEOPAR research programs investigating the marine environment of the Strait of Georgia. In addition to fixed cabled systems on the ocean bottom, including continuous

measurements of water properties and ocean currents, there are mobile and geospatial systems measuring the upper ocean. These include CODAR coastal radar systems for measuring surface currents and instruments mounted on several B.C. ferries, which ply the waters on regular and frequent criss-crossing routes. In collaboration with Dr. Richard Dewey of Ocean Networks Canada (ONC), (MEOPAR Observation Core, Project 3.4), while onboard a MEOPAR-supported instrumented ferry, Richard will provide a broad overview of the oceanography of the Salish Sea, an overview of the ONC observatory systems monitoring the marine environment, and a review of the specific systems contributing to numerous MEOPAR research programs. (If the acoustics on the ferry are unsuitable, Richard will give this presentation at our Sidney, Vancouver Island destination.)

Guest field trip researcher: Dr. Richard Dewey, Associate Director, Science, Ocean Networks Canada
rdewey@uvic.ca
Richard is responsible for coordinating and assisting all scientists and researchers using the observatories, from planning to publication. He works with the Staff Scientists to support the science community. He holds a B.Sc. in Physics (University of Victoria) and a Ph.D. in Oceanography (University of British Columbia). His research interests are coastal flows, mixing, turbulence, waves, and tides. He has conducted research throughout the Pacific from Japan to California, and along the B.C., Alaskan, and Arctic coasts. He has used a variety of profilers and ROVs, and deployed more than 150 moorings on over 100 oceanographic expeditions. He is the author of the Mooring Design and Dynamics MATLAB package, and specializes in time series analysis.
To learn more about Richard, visit his "(Old) Oceanographer's Haunt" webpage, http://canuck.seos.uvic.ca/rkd/

After the ferry trip from Tsawwassen to Swartz Bay, Vancouver Island, we will board a bus to the Mary Winspear Community Cultural Centre for an afternoon of networking and marine research. Here we will be welcomed by Donna Petrie, Executive Director, Sidney Business Improvement Area. We will have lunch (catering provided by MEOPAR) and meet Dr. Grant Murray, Director, and Canada Research Chair in Coastal Resource Management, Vancouver Island University. With two of his PhD students, Dr. Murray will present about the Institute and their research work. In return, MEOPeers whose research is about

the B.C. ferries, the Salish Sea/Strait of Georgia, and coastal communities (not limited to the west coast) are invited to present their research. MEOPeer Jeremy Whitehead (University of Calgary) will lead a roundtable discussion of his "lessons from the field(work)". There will be time for informal networking after the research program concludes before we return by ferry to Vancouver.

Dr. Grant Murray
grant.murray@viu.ca
Grant Murray is Director of the Institute for Coastal Research and in 2006, he was appointed the Canada Research Chair, Coastal Resource Management, Vancouver Island University. With graduate training in marine ecology and natural resource sociology, Dr. Murray works within Vancouver Island University's Institute for Coastal Research to better our understanding of the way human societies interact with marine and coastal ecosystems, and to address the linked socio-cultural, economic and ecological challenges that coastal communities are facing as new opportunities emerge. His interdisciplinary research involves the combination of elements from both natural and social sciences, and has focused on historical and current marine resource usage patterns in Mexico, the United States and Canada. His research interests include: 1) interdisciplinary marine environmental history using local ecological knowledge (LEK) in combination with archival sources and scientific information; 2) the relationship between local knowledge, marine resource management and social-ecological outcomes; 3) governance and aquaculture;
4) the cumulative effects of regulatory change on commercial fishing communities; 5) the environmental and social impacts of tourism; and 6) the governance of marine and coastal protected areas.
To learn more about Dr. Murray, visit http://sites.viu.ca/icr/about-us/members/

About the Institute: Due to dramatic change over the last 100 years, many resource-dependent coastal communities are in transition and, in some cases, crisis. Shifts away from traditional resource-based industries like logging, fishing and mining have sometimes been painful, and have left coastal communities looking for ways to maintain their well-being while promoting the health and resilience of the ecosystem around them. Website: https://www2.viu.ca/icr/

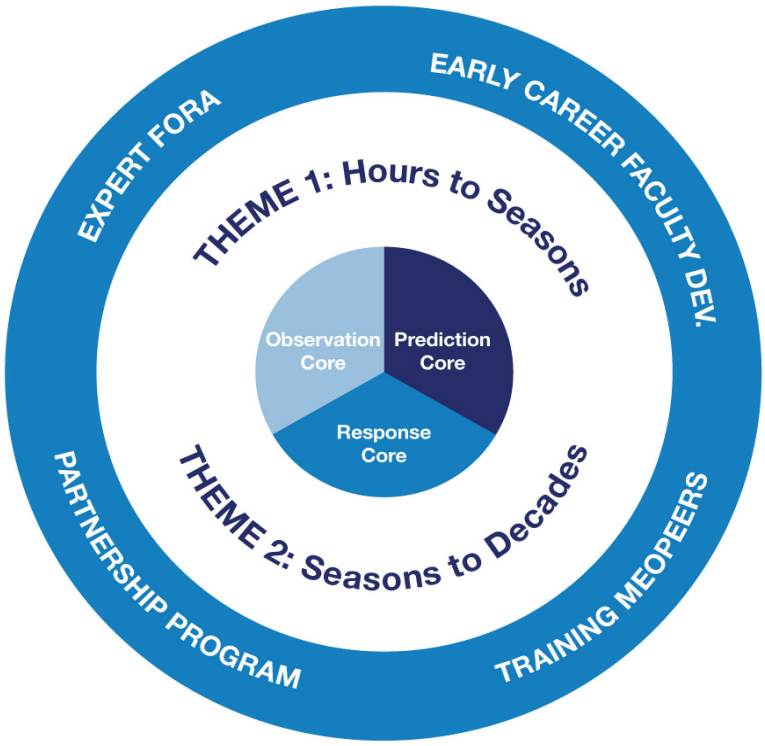
Sunday, June 14, 2015
MEOPeer Marine Research Field Trip
AGENDA

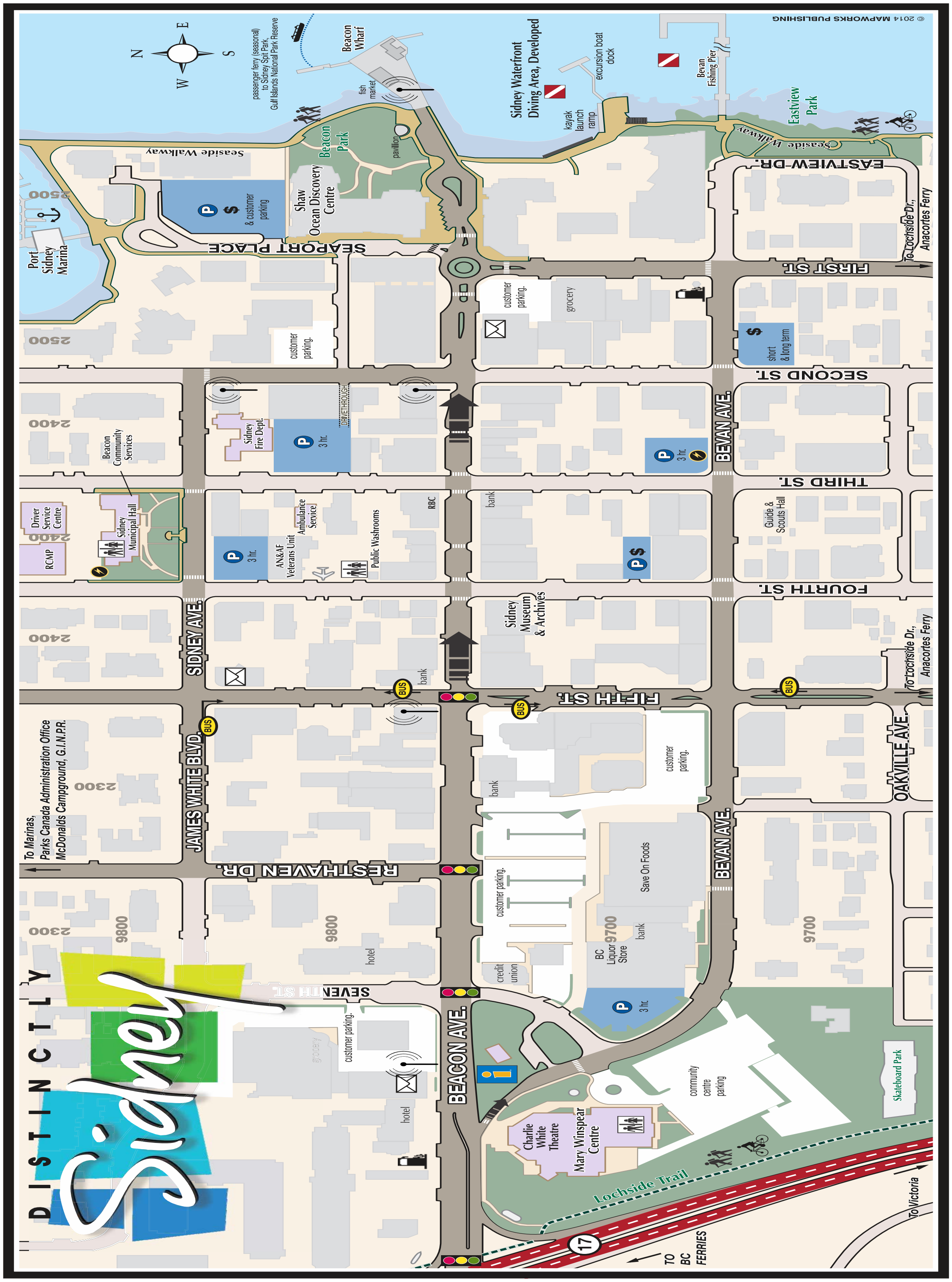
Start: Vancouver, British Columbia **Destination: Sidney, Vancouver Island, British Columbia**		
Room: Pavilion Ballroom D (unless otherwise stated)		
	Destination:	Swartz Bay, Vancouver Island, B.C.
	Sailing time:	1 hour, 35 minutes
	Nautical miles:	24
Time	Activity	
8:00 a.m.	Welcome, breakfast, Agenda review, Q & A	
9:15 a.m.	Bus meetup: the bus will enter the hotel driveway loop from Helmcken Street, and exit the loop onto Burrard Street. The bus parks and loads off to the side of the loop, near the Burrard Street exit.	
9:30 a.m.	Bus departs hotel for Tsawwassen ferry terminal	
10:15 a.m.	Arrive Tsawwassen ferry terminal	* board ferry by 10:30 a.m.
11:00 a.m.	Ferry departs; onboard research talk, Richard Dewey, O.N.C.	
12:35 p.m.	Ferry arrives Swartz Bay, Vancouver Island, disembark; board bus to Sidney	
12:45 p.m.	Bus arrives Mary Winspear Community Centre; meet 'n greet, lunch (catered); (see map, page seven)	
1:30 p.m.	Research program begins	
5:00 p.m.	Research program ends/Wrap Up	
5:15 p.m.	Bus meetup from Centre to Swartz Bay ferry terminal	* board ferry by 5:30 p.m.
6:00 p.m.	Ferry departs Swartz Bay	* supper (on your own) available onboard ferry, 4-8 p.m.: all-inclusive buffet, $22.75/per person or self-serve restaurant; keep receipt for reimbursement (not to exceed $24/person); see ferry Amenities website below
7:35 p.m.	Arrive Tsawwassen ferry terminal, disembark	
7:45 p.m.	Board bus for return to Sheraton Wall Centre hotel	
8:00 p.m.	Bus departs ferry terminal	
8:45 p.m.	Bus arrives Sheraton Wall Centre hotel	

Have a great day!

Website resources:

B.C. Ferries website: http://www.bcferries.com
B.C. Ferries route map: http://www.bcferries.com/files/images/maps/bcf-all_routes_map.pdf
Amenities onboard the ferry: http://www.bcferries.com/onboard-experiences/
Ocean Networks Canada: http://www.oceannetworks.ca
Vancouver Island map: http://www.tourismnanaimo.com/map-of-vancouver-island
Sidney, Vancouver Island, British Columbia: http://distinctlysidney.ca (map on page seven)
Mary Winspear Community Cultural Centre: http://marywinspear.ca




DISTINCTLY Sidney
BEACON AVE.
BEVAN AVE.
SIDNEY AVE.
JAMES WHITE BLVD.
OAKVILLE AVE.
SEAPORT PLACE
EASTVIEW DR.
FIRST ST.
SECOND ST.
THIRD ST.
FOURTH ST.
FIFTH ST.
RESTHAVEN DR.
SEVENTH ST.
Port Sidney Marina
Shaw Ocean Discovery Centre
Beacon Park
Beacon Wharf
fish market
pavilion
Seaside Walkway
Sidney Waterfront Diving Area, Developed
kayak launch ramp
excursion boat dock
Bevan Fishing Pier
Eastview Park
passenger ferry (seasonal) to Sidney Spit Park, Gulf Islands National Park Reserve
Sidney Fire Dept.
Beacon Community Services
Driver Service Centre
RCMP
Sidney Municipal Hall
AN&AF Veterans Unit
Ambulance Service
Public Washrooms
Sidney Museum & Archives
Guide & Scouts Hall
Save On Foods
BC Liquor Store
credit union
Charlie White Theatre
Mary Winspear Centre
community centre parking
Skateboard Park
Lochside Trail
To Marinas, Parks Canada Administration Office McDonalds Campground, G.I.N.P.R.
To Lochside Dr., Anacortes Ferry
To Victoria
TO BC FERRIES
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MEOPeer
Pre-June 2015 Annual Scientific (Training) Meeting
Sheraton Wall Centre Hotel
Vancouver, British Columbia

Monday, June 15, 2015
AGENDA

Room: Pavilion Ballroom D (unless otherwise stated)		
Time	Activity	
7:30 a.m.	Breakfast	
8:30	Welcome & reflections from Sunday Day 2: introductions, review, Q & A	
8:50	*Move to workshop room (Finback or Orca)*	
9:00	Workshop A: Version Control (Doug Latornell) room: Finback	Workshop B: Scientific and Technical Writing Skills (Michael Sjoerdsma) room: Orca
10:30	break	
10:45	*return to workshops*	
12:30 p.m.	lunch	
1:10	*return to workshops*	
3:45	workshops end; *return to Pavilion Ballroom D*	
	Wrap Up/looking forward to ASM (4 p.m. end)	
tba	group supper?	

About the workshops:
Version Control is a core best practice for software development, and a highly recommended tool for writing papers, theses, and presentations. It can also be used as the basis of a data management system in the absence of a database system for dealing with metadata. Incorporating version control into your everyday workflow will help you automate the process of keeping track of what happened when in your code, writing, and data handling, and level-up you research repeatability.

This workshop will introduce you to the Mercurial version control tool and the Bitbucket web service for storage and collaboration with Mercurial repositories.

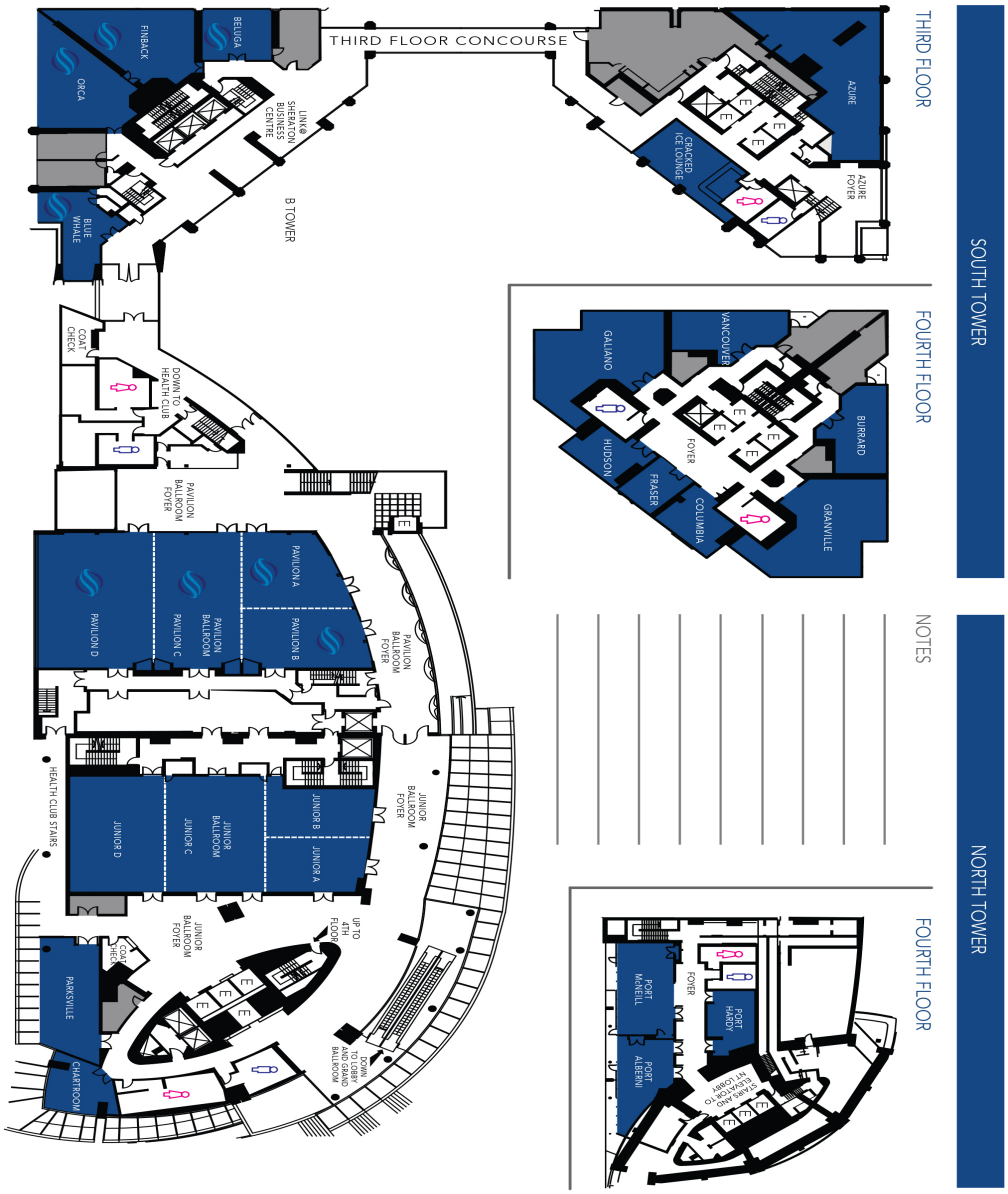
Scientific and Technical Writing Skills (will include, but not limited to):
- rule-based versus strategy-based writing
- the writing process
- punctuation
- revising for order, clarity, conciseness, and connection, and
- principles of rhetoric (audience, purpose, etc.)

Instructor Biographies:
Doug Latornell is a professional engineer with post-graduate degrees in experimental and computational fluid mechanics and modeling, and in control of robotic manipulators. In the realm of ocean sciences, he works as a research software engineer with MEOPAR investigator Susan Allen's group at U.B.C. Projects include implementing "operational" deployments of computational oceanographic models to do daily predictions and calculations about the circulation and biogeochemistry of the Salish Sea, and developing software tools and systems to help improve the group's research productivity and repeatability. Doug is a contributor to several open source projects, and an instructor with the Software Carpentry Foundation. Visit Doug's website at http://douglatornell.ca

Michael Sjoerdsma is a Senior Lecturer in the School of Engineering Science at Simon Fraser University and coordinates the technical communication program. Michael teaches a number of courses encompassing various aspects of technical communication: Form, Style and Professional Genres; Graphical Communication for Engineering; Spatial Thinking and Communicating; Project Documentation and Team Dynamics; Social Responsibility and Professional Practice; and Human Factors and Usability.
In addition to his teaching, Michael consults in industry regarding technical communication, and he is a volunteer mentor for a non-profit organization that helps integrate new immigrants to the Canadian work force.
In collaboration with Agriculture Canada, his undergraduate honours thesis focused on creating a rapid pathogen detection system used for greenhouse plants. His Master's thesis, in partnership with Auto21 (another NCE similar to MEOPAR), focused on the semi-active control of structure-borne noise in automobiles. Michael also has a certificate in Teaching English to Speakers of Other Languages (TESOL).

Michael is a candidate for the degree of Doctor of Education, where he is using soft systems methodology to study engineering education. Visit Michael's website at https://www.sfu.ca/engineering/people/faculty/michael_sjoerdsma.html

Sheraton Wall Centre Hotel floorplan
Meeting space used for the MEOPeer training workshops and ASM are indicated by the MEOPAR logo; MEOPeer scientific posters will be in the Pavilion Ballroom foyer:



Our Research Portfolio...where do you and your MEOPAR research project 'fit' within the MEOPAR Research Network?
(look for a similar graphic of our research projects at the ASM)

MEOPAR

MEOPAR's Current Research Portfolio

Theme 1: Hours to Seasons

1.1 - A Relocatable Coupled Atmosphere-Ocean Prediction System - *PI: Dr. Harold Ritchie, Environment Canada/Dalhousie University*

1.2 - Building a Network of Fixed Coastal Observing Forecast Systems - *PIs: Dr. Jinyu Sheng, Dalhousie University; Dr. Susan Allen, University of Victoria*

1.2.1 - Straight of Georgia Indicators and Impact Scenarios – *PI: Dr. Stephanie Chang, University of British Columbia*

1.3 - Improving Marine Drift and Dispersion Forecasts – *PI: Dr. Dany Dumont, Institut des sciences de la mer (ISMER), Université du Québec à Rimouski*

1.6 - Improved Sea Ice Prediction Through Assimilation of Ice Thickness Information and SAR Image Classification – *PI: Dr. Andrea Scott, University of Waterloo*

1.7 - Modeling Ship Movements: Application for Noise Exposure to the Marine Ecosystem – *PI: Dr. Rosaline Canessa, University of Victoria*

1.8 - WHaLE: Whales, Habitat and Listening Experiment – *PI: Dr. Chris Taggart, Dalhousie University*

1.9 - Maritime Transportation Disruption: An Integrated Assessment for Coastal Community Resilience – *PI: Dr. Stephanie Chang, University of British Columbia*

1.11 - Understanding the Factors that Affect the Properties of Coastal and Polar Fog – *Dr. Rachel Chang, Dalhousie University*

1.12 - Socio-ecological Modeling of the Acoustic Environment and Interactions Between Whales and Ships in the Estuary of the St. Lawrence – *PI: Dr. Jérôme Dupras, Université du Québec en Outaouais*

1.13 - It's Too Easy Being Green: Using Underwater Video to Optimize Capture Efficiency of Invasive Green Crab (Carcinus maenas) to Reduce Their Impact on Fisheries – *PI: Dr. Brett Favaro, Memorial University*

1.14 - Evaluation, Improvement, and Communication of Short-Term Hazardous-weather Forecasts over Coastal British Columbia – *PI: Dr. Daniel Kirshbaum, McGill University*

1.15 - Modeling and Predicting Disease Outbreak and Spread in Coastal Seas: Sustainability in Fisheries and Aquaculture – *PI: Dr. Martin Krkosek, University of Toronto*

1.16 - Improving Oil Spill Models to Support Environmental Emergency Response and Chemical Dispersant use Policy Development – *PI: Dr. Haibo Niu, Dalhousie University*

1.17 - Pressured Ice: Environmental Monitoring, Modeling and Mitigation of Risk for Marine Operations – *PI: Dr. Rocky Taylor, Memorial University*

1.18 - Insuring Canadian Coastal Communities in the Era of Wild Weather – *PI: Dr. Jason Thistlethwaite, University of Waterloo*

1.19 - Forecasting Grand Banks Fog: Assessment, Improvement and Application – *PI: Dr. Joel Finnis, Memorial University*

1.20 – Predicting the Microbial Bioremediation Response to Marine Oil Spills in Canada – *PI: Dr. Casey Hubert, University of Calgary*

January 2015

Theme 2: Seasons to Decades

2.1 - Climate Change and Extreme Events in the Marine Environment – *PIs: Dr. Bill Merryfield, Environment Canada/University of Victoria; Dr. Greg Flato, Environment Canada/University of Victoria*

2.1.1 - Marine Applications and Downscaling of Seasonal Climate Predictions – *PI: Dr. Bill Merryfield, Environment Canada/University of Victoria*

2.1.2 - Coastal Storm Activity – *PI: Dr. Francis Zwiers, University of Victoria*

2.1.3 - Estimation of Extreme Wave Statistics Off the East Coast of Canada and Their Future Change - *PI: Dr. Jinyu Sheng, Dalhousie University*

2.1.4 - Assessing and Reducing Risk and Vulnerability to Extreme Events in Newfoundland and Labrador Fishing by Engaging Stakeholders and their Knowledge – *PI: Dr. Barbara Neis, Memorial University*

2.1.5 - Adapting to Climate Change Risks: Planning and Policy in Municipalities – *PI: Dr. Gordon McBean, University of Western Ontario*

2.2 - Biogeochemical Projections under a Changing Climate – *PI: Dr. Katja Fennel, Dalhousie University*

2.3 - User-Driven Monitoring of Adverse Marine Weather States in the Eastern Beaufort Sea – PI: *Dr. David Atkinson, University of Victoria*

2.4 - InFORM: International Fukushima Ocean Radionuclide Monitoring Network – PI: *Dr. Jay Cullen, School of Earth & Ocean Sciences, University of Victoria*

2.5 - Enhancing Ecosystem Resilience: Integrating Social and Natural Sciences through Marine Historical Ecology - PI: *Dr. Natalie Ban, University of Victoria*

2.6 - A Meteorological Observatory in the Northwest Passage: Understanding Sea Ice Changes and Inuit use of Scientific Information – PI: *Dr. Brent Else, University of Calgary*

2.7 - Linking Ocean Health and Human Health: Coastal Security and Sustainability in Haida Gwaii – PI: *Dr. Philip Loring, University of Saskatchewan*

2.8 - Continuous Spectroscopic Measurements of Marine Boundary Layer Composition and Evolution in an Urban Shipping Environment – *PI: Dr. Aldona Wiacek, Saint Mary's University*

Prediction Core

4.1 - Downscaling from Large to Small Spatial Scales – *PI: Dr. Rene Laprise, Université du Québec à Montréal*

4.2 - Support for the NEMO Model – *PI: Dr. Youyu Lu, Dalhousie University*

4.3 - Assessing & Visualizing Risk – *PI: Dr. Ronald Pelot, Dalhousie University*

4.4 - Biogeochemical Model Development – *PI: Dr. Jim Christian, University of Victoria*

4.5 - Socioeconomic Indicators – *PI: Dr. Stephanie Chang, University of British Columbia*

Observation Core

3.1 - DORADO Autonomous Vehicle Development – *PIs: Dr. Doug Wallace, Dalhousie University; Dr. Mae Seto, Dalhousie University*

3.2 - Tethered Float Development – *PIs: Dr. Brad DeYoung, Memorial University; Dr. Ralf Bachmayer, Memorial University*

3.3 - Atlantic Shelf Observations (CODAR Installation) – *PIs: Dr. Doug Wallace, Dalhousie University; Dr. Brad DeYoung, Memorial University*

3.4 - Strait of Georgia Observations – *PI: Dr. Richard Dewey, University of Victoria*

3.5 - Remote Sensing Support – *PI: Dr. Marcel Babin, Université Laval*

3.6 - Calibration & Shared Equipment Operations – *PIs: Dr. Doug Wallace, Dalhousie University*

3.7 - Data Management – *PI: Dr. Doug Wallace, Dalhousie University*

3.8 - Data Management (Social Science) – *PI: Dr. Tony Charles, Saint Mary's University*

3.9 - Coordination/Travel & Meeting Support – *PI: Dr. Brad DeYoung, Memorial University*

January 2015

About our training program:
MEOPAR is mindful of the academic, career and life experiences of each our MEOPeers (Highly Qualified Person, 'HQP'). We try to help our HQP identify and develop the skills, knowledge, attitudes and beliefs required of a 21st century marine researcher. The training needs of our HQP's are as diverse as the HQP's themselves. To be successful, a 'one size fits all' approach to training is not effective. Rather, our strategy is to offer diverse opportunities *to which the HQP can contribute* (via suggested topics, identified experts or their expertise) *and from which the HQP can choose to participate* that meet one's needs, interests and complements one's academic research.

The Goals of our training program are:
i) to develop a next generation community of practice in Canadian marine research (online and inperson)
ii) to expose our HQP to new and diverse training and learning experiences related to the marine environment that the HQP might use in one's research project, career and education
iii) to improve the HQP's research knowledge, skills, attitudes and beliefs required for successful marine research (in academia or one's future career)

The Guiding Principles of our training program:
- one that is 'above and beyond' traditional academic/researcher development
- is focused on marine researcher development
- is collaborative: in planning, implementation and evaluation by/for/with our HQP's
- training can be formal and informal
- recognizes 21st century researcher development may be different from the HQP supervisor's training and educational experience
- is unique and differentiates MEOPAR from other NCE's, but shares resources and training opportunities when possible
- is informed by the literature, the HQP's self-identified needs, best practices, partners, our research projects, etc.
- reflects adult learning, theories, pedagogy, etc.
- is local, national and international in scope, when appropriate
- maximizes opportunities to highlight HQP research
- involves and exposes our HQP's to the network's day-to-day operations