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Meteorological Masterclass Webinar Series

WRITTEN BY CMOS BULLETIN SCMO ON AUGUST 14, 2020. POSTED IN CLIMATE, NEWS & EVENTS, WEATHER.

The Royal Meteorological Society has joined with the University of Reading to offer a Meteorological Masterclass Series providing training for professionals working in Meteorology and Climate Science. Leading experts will present the latest science for understanding and predicting storm track behaviour across three timescales: from the synoptic-scale meteorology of storms and blocking, to weather-regimes and their consequences for extended-range forecasting and the impacts of climate change and its simulation.

The free webinars will benefit practitioners working in the field of meteorology, offering an opportunity to refresh and deepen participants' knowledge and awareness of the latest science, research and its applications. The webinars will be held from 3pm to 4.30pm (BST) with a presentation followed by questions and discussion with the speaker. Whilst the webinars are part of a series people can choose which to attend and attendance at all three is not compulsory.

WEBINAR TOPICS AND DATES

Wednesday 16 September: Synoptic storms in the North Atlantic
Helen Dacre: University of Reading Professor Lecturer in Dynamical Meteorology
Register here

Wednesday 30 September: The impact of climate change on winter storms
Len Shaffrey: University of Reading / NCAS Professor of Climate Science
Register here

Wednesday 14 October: Subseasonal predictions for European winter
Rob Lee: University of Reading / NCAS Research Scientist
Register here

Left to Right: Helen Dacre, Len Shaffrey, and Rob Lee

#

ECCC – DFO CONCEPTS Webex Seminar 2:00 PM (ADT) Wednesday September 2

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 1, 2020. POSTED IN NEWS & EVENTS, OCEANS.

Greg Smith & J-P Paquin (ECCC, Dorval QC), M Dunphy (Institute of Ocean Sciences, Sidney BC), Youyu Lu (Bedford Institute of Oceanography, Dartmouth NS)

Please join us for the first of two ECCC DFO CONCEPTS seminars this Wednesday, September 2, 2020 at 2pm Atlantic Time (Canada). The seminar will be presented using Microsoft Teams, which can be downloaded here.

Agenda

- 2:00 Welcome and introduction
- 2:05 Overview of IC process and IC3 timeline (G. Smith)
- 2:10 Presentation on update to RIOPS (G. Smith)
- 2:20 Presentation on update to CIOPS (J-P Paquin)
- 2:30 Presentation of Salish Seas 500m (M. Dunphy)
- 3:00 Discussion of results
  – Suggestions for future improvements and evaluations
- 3:30 Discussion regarding applications and system products
  – Short presentation on output strategy and dissemination (J-P Paquin)
  – Short presentation of examples of known applications (Y. Lu)

  – Discuss gaps and potential future applications

- 3:50 Wrap up and close

Abstract

Development of the CIOPS-West system has continued since its experimental implementation in August 2019. An updated version (CIOPS-W v2.0) will be proposed as part of ECCC's CCMEP innovation cycle 3 (IC3) this fall. This seminar will present the updated system and engage with the various user groups. The meeting will start

with a summary of improvements that CIOPS-W will inherit from its forcing model RIOPS. Following this, we will discuss adjustments to the 2.5 km model and present a hindcast evaluation of a new addition: an embedded Salish Sea model covering the mouth of Juan de Fuca to Johnstone Strait at a higher 500 m resolution. Following the presentation we have reserved time for discussion with the larger oceanographic community before the new system proceeds toward operations – see agenda above. Inputs from external collaborators on data requests and the definition of user grids are welcome.

Future Talks

Wednesday Sept. 9 at 2pm ADT: Greg Smith, F Roy and J-P Paquin et al. “Coastal Ice Ocean Prediction System East Version 2”

The BIO DFO Webex series is open to everyone and is intended to support an active knowledge exchange and open discussion forum. Presentation topics can range from technical discussions of specific models, theories, experimental studies, unfinished work in progress, proposed projects or cruises, cruise reports, ideas you wish to expose to critical review, recent conference reports, finished talks presented elsewhere, etc. A diversity of topics is encouraged from ‘traditional’ oceanography to interdisciplinary studies, related socio-economic considerations etc. We particularly welcome talks from researchers from other study centres and universities, etc.

Contact:
Brent.Law@dfo-mpo.gc.ca; William.Perrie@dfo-mpo.gc.ca; Emmanuel.Devred@dfo-mpo.gc.ca; Zeliang.Wang@dfo-mpo.gc.ca ; Hui.Shen@dfo-mpo.gc.ca; dagreenberg@eastlink.ca

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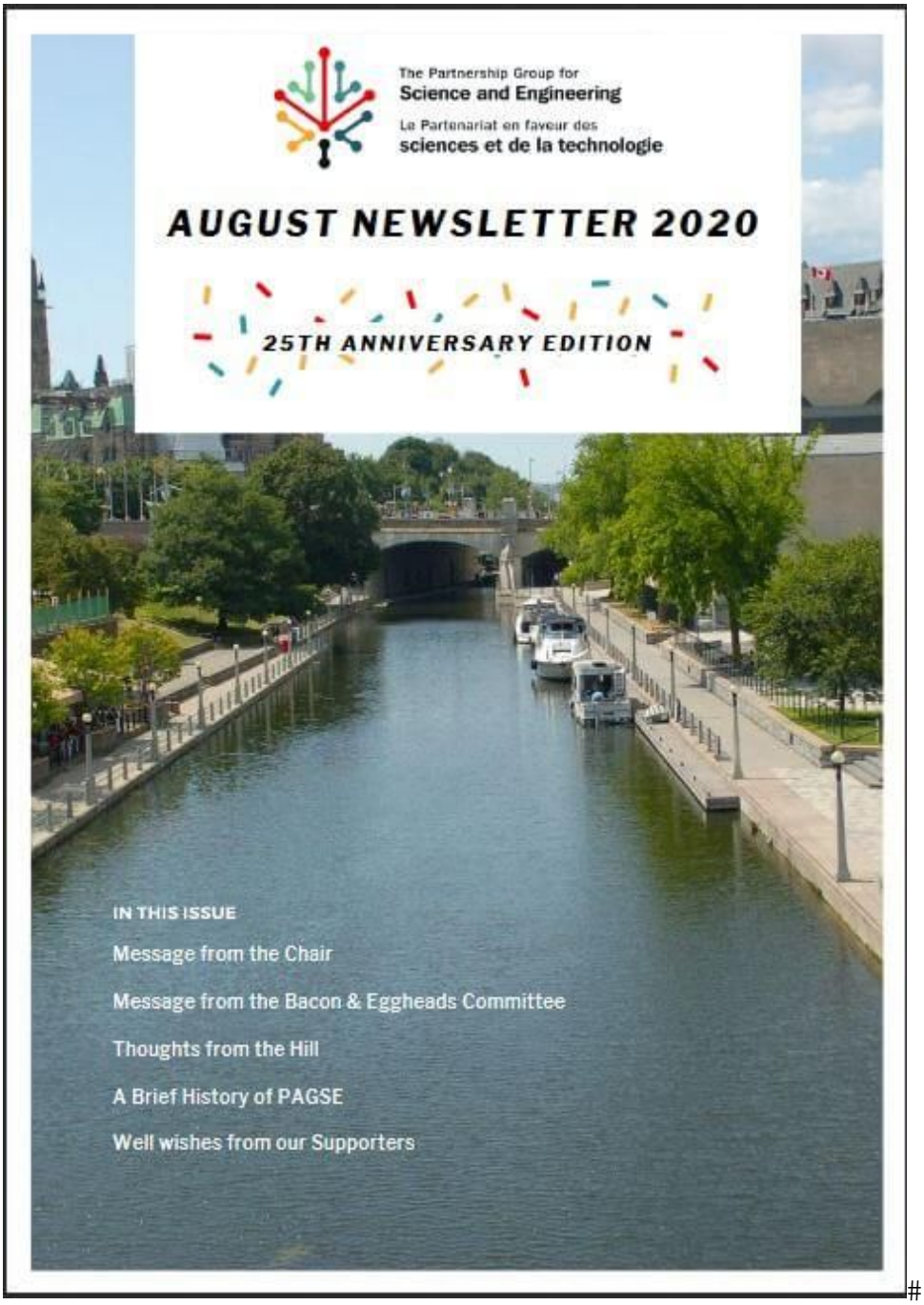

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Celebrating the 25th Anniversary of PAGSE

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 3, 2020. POSTED IN NEWS & EVENTS.

For your awareness – the 25th anniversary newsletter for the Partnership Group for Science and Engineering is available here.

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ECCC – DFO CONCEPTS Webex #2: Wednesday September 9th 2020, at 2:00 pm Atlantic Time (ADT)

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 9, 2020. POSTED IN NEWS & EVENTS.

Presented by Greg Smith, J-P Paquin, Francois Roy, from ECCC, Dorval

Title: Coastal Ice Ocean Prediction System East Version 2

Agenda

- 2:00 Welcome and introduction
- 2:05 Overview of IC process and IC3 timeline (J.-P. Paquin)
- 2:10 Presentation on update to RIOPS (J.-P. Paquin)
- 2:20 Presentation on update to CIOPS (F. Roy)
- 3:00 Discussion of results
- – Suggestions for future improvements and evaluations
- 3:30 Discussion regarding applications and system products
- – Short presentation on output and dissemination strategies (J.-P. Paquin)
- – Short presentation of examples of known applications (J.-P. Paquin)
- – Discuss gaps and potential future applications
- 3:50 Wrap up and close

Abstract

Development of the CIOPS-East system has continued since the initial system (v1) was accepted for experimental implementation at CCMEP in June 2019. An updated version (CIOPS-E v2.0) will be proposed as part of ECCC's CCMEP innovation cycle 3 (IC3) this fall. This seminar will present the updated system and engage with the various user groups. The seminar will start with a summary of improvements that CIOPS-E will inherit from its forcing model RIOPS. Following this, we will discuss the various changes that have been introduced to the 2.5 km model used for CIOPS-E. This includes a modified formulation for ocean roughness to better account for wave processes, increasing the number of vertical levels, and several modifications targeting the tides and water mass properties in the St. Lawrence Estuary. Following the presentation we have reserved time for discussion with the larger oceanographic community before the

new system proceeds toward operations – see agenda above. Inputs from external collaborators on data requests and the definition of user grids are welcome.

Join Microsoft Teams Meeting

Learn more about Teams | Meeting options

Future Talks

Friday Sept. 11 at 10am ADT: Craig Brown on “Bottom Mapping”

The BIO DFO Webex series is open to everyone and is intended to support an active knowledge exchange and open discussion forum. Presentation topics can range from technical discussions of specific models, theories, experimental studies, unfinished work in progress, proposed projects or cruises, cruise reports, ideas you wish to expose to critical review, recent conference reports, finished talks presented elsewhere, etc. A diversity of topics is encouraged from ‘traditional’ oceanography to interdisciplinary studies, related socio-economic considerations etc. We particularly welcome talks from researchers from other study centres and universities, etc.

Contact:

Brent.Law@dfo-mpo.gc.ca; William.Perrie@dfo-mpo.gc.ca; Emmanuel.Devred@dfo-mpo.gc.ca; Zeliang.Wang@dfo-mpo.gc.ca ; Hui.Shen@dfo-mpo.gc.ca;dagreenberg@eastlink.ca

#

Royal Society of Canada Elects this Year’s New Fellows

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 9, 2020. POSTED IN MEMBERS, NEWS & EVENTS.

The Royal Society of Canada (RSC) and its Members have elected this year’s new Fellows and named the incoming class of The College of New Scholars, Artists and Scientists.

Eighty-seven new Fellows in the Academies of Arts and Humanities, Social Sciences, and Science have been elected by their peers for their outstanding scholarly, scientific and artistic achievement. Recognition by the RSC is the highest honour an individual can achieve in the Arts, Social Sciences and Sciences.

Two new fellows in particular related to our society:

MANN, Ian – Department of Physics, University of Alberta

Ian Mann is an influential and world-renowned expert in space science and space weather research. His research has delivered transformative new understanding of extreme space radiation and the dynamics of the near-Earth space environment. Mann’s leadership at the United Nations promotes the translation of research to policy excellence, steering international efforts to mitigate extreme space weather impacts. From leading cubesat missions to issuing auroral alerts, he tirelessly promotes lifelong learning.

WALLACE, Douglas – Department of Oceanography, Dalhousie University

Doug Wallace is an oceanographer who uses observations of chemical distributions to unravel the complex biogeochemical processes that connect the ocean and the atmosphere. He introduced several approaches and tools that have had long-lasting impact on our understanding of marine biogeochemistry and its connection with climate, especially with respect to the uptake of carbon dioxide and oxygen by the oceans.

La Société royale du Canada (SRC) ont élu les nouveaux membres de cette année

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 9, 2020. POSTED IN NOUVELLES ET ÉVÉNEMENTS.

La Société royale du Canada (SRC) et ses membres ont élu les nouveaux membres de cette année, et ont désigné la promotion entrante du Collège de nouveaux chercheurs et créateurs en art et en science.

Quatre-vingt-sept ont été élus par leurs pairs au sein des académies des arts, des lettres et des sciences humaines, des sciences sociales et des sciences pour leurs réalisations académiques, scientifiques et artistiques remarquables. La reconnaissance par la Société royale du Canada constitue le plus grand honneur qui puisse être accordé à un individu travaillant dans les domaines des arts, des sciences sociales et des sciences.

Deux membres en particulier lié à notre société:

MANN, Ian – Département de physique, l'Université de l'Alberta

Ian Mann est un expert en sciences de l'espace et en météorologie spatiale de renommée mondiale. Ses travaux ont amené de nouvelles connaissances sur la radiation spatiale extrême et la dynamique de l'espace circumterrestre. Son leadership à l'ONU promeut l'application des recherches aux politiques, et guide les efforts internationaux en vue d'atténuer l'impact de la météorologie spatiale extrême. Par son implication dans les missions CubeSat ou dans la diffusion d'alertes aurorales, il promeut inlassablement l'apprentissage tout au long de la vie.

WALLACE, Douglas – Département d'océanographie, l'Université Dalhousie

Doug Wallace est un océanographe qui utilise des observations de distributions chimiques pour élucider les processus biogéochimiques complexes qui relient l'océan et l'atmosphère. Il a présenté plusieurs approches et outils qui ont eu un impact durable

sur notre compréhension de la biogéochimie marine et de son lien avec le climat, en particulier en ce qui concerne l’absorption de dioxyde de carbone et d’oxygène par les océans.

#

An Interview with Oceanographer Susan Allen about the Salish Sea

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 12, 2020. POSTED IN OCEANS, WHAT'S CURRENT.

Marek: Hello, I am speaking with Professor Susan Allen, from the University of British Columbia's Department of Earth, Ocean, and Atmospheric Science about one of her many research interests: the Salish Sea. What is the Salish sea? Can you tell me a bit about it?

Susan: The Salish Sea, I believe, is not actually an official geographic term and therefore it does not have an official definition. For example, I recently saw a paper where the Salish Sea only included Puget Sound and a little bit of the Strait of Juan de Fuca, which is the smallest Salish Sea I've seen. My Salish Sea goes from the mouth of the Strait of Juan de Fuca, all of Puget Sound, all of the Strait of Georgia and up into some of the Johnstone Strait. Most maps I've seen kind of cut it off at the north end of the Strait of Georgia.

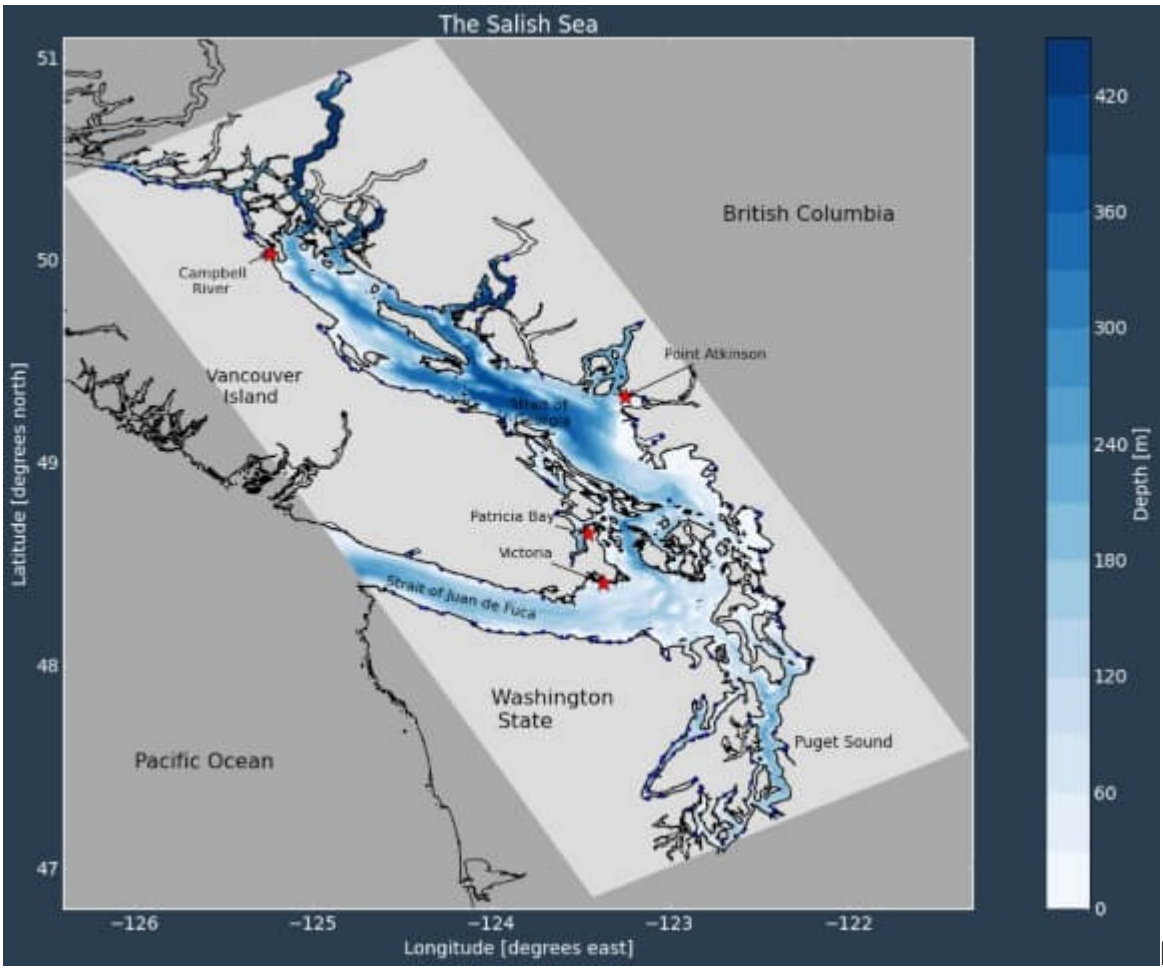


Fig. 1. The region covered by the model includes the Strait of Georgia, Juan de Fuca Strait, Johnstone Strait, Fraser River, and other connecting waterways.

Marek: OK. Since it is kind of a new-ish term, can you maybe tell me a little bit about how the term came to be used?

Susan: Most of the terms I just used for the individual basins are “settler” terms. They’re named after kings and discoverers, and there’s a very strong feeling here that the place was settled before that. It will also come up in the next question, but we should use the terms that the Indigenous Peoples here used. I’ve often also found that the Indigenous Peoples’ terms are more in tune with the physical oceanography. They group things together that actually should be grouped together from the physical oceanography point of view, whereas the settler terminology breaks things up that that are broken up for geopolitical reasons, but not for oceanographic reasons.

Marek: OK, so then historically, how many groups lived around the Salish seashore?

Susan: So the term Salish comes from the Coastal Salish people, which are not a single people, but are seen as a single linguistic group. The estimates of the number of different groups that lived around the Salish sea, it’s like dozens. In Vancouver itself we

have three groups: the Musqueum, the Squamish and the Tsleil-Waututh. And in the South, you've got the Lummi, so there's there's a large number, probably a couple dozen.

Marek: Today, the major population centre on the Canadian side is Vancouver and on the American side it's Seattle. So I am wondering whether the Indigenous groups are urban Indigenous Peoples, or do they have land associated with each group?

Susan: Vancouver has a large number of Indigenous peoples from the region, but also from the whole province. It's not just the coastal Salish that are in Vancouver as urban people. I'm pretty sure all these groups have land that they currently have as a reservation. And then they have claims or unceded territories that very much cover the whole region and overlap.

Marek: So in terms of population centres, people who might not know the West Coast well, apart from Vancouver. What do we have?

Susan: Well certainly Victoria, which is actually the capital of British Columbia, is on the Juan de Fuca Strait and that's part of the Salish sea. And then we have a smaller centres like Nanaimo and then great places to fish like Campbell River. Interesting places like Powell River, but they're very much smaller. And then, of course, when I say Vancouver, we are not amalgamated, like say Toronto is, so we have separate cities: North Vancouver, West Vancouver, Richmond, Burnaby, Delta, Surrey. So there's a large number of these centres that are all kind of grouped together. If we go south of the border, we have Seattle and all its sister cities, including Tacoma, which takes us right down to the southern end of the Salish sea and Everett and Edmonds. Once we go out to the Juan de Fuca Strait, we have smaller communities like Port Angeles, which is right across from Victoria.

Marek: Right. So what about ecologically? Sounds like the Salish Sea covers everything from shallow delta type environments to fairly deep ocean. So what lives in there?

Susan: So everything lives in the Salish Sea, right? Now we're seeing the return of the big mammals, which is just wonderful. More and more, we're seeing bigger whales as well as the killer whales. We're seeing humpback whales and we're seeing more and more seals, more sea lions. So the Salish sea is actually recovering to some extent. It was over-fished and over-hunted, and we're mainly seeing the recovery from those two things. Because of the fluid dynamics itself, the major part of the Salish Sea is not heavily polluted from the local region. Its CO_2 has gone way up because of anthropogenic effects, but generally, it's not badly polluted. That's not because we're wonderful people. It's because of the dynamics of the system. In the actual harbours, of course, it is badly polluted, but we're working on it. Most of the shores of the Salish Sea are very rocky and very vertical, but there are regions that are deltas. Unfortunately, those regions are ecologically tremendously important to the system with shallows, eelgrass beds, and juvenile or larval fish, but those are also the places we settled. So

although the Salish Sea is huge and we're only on a small part of it, we're on one particular type of ecology, and so we have had an impact that way. For example, we're down in eelgrass.


Fig. 2. Image of a storm surge. Photo (with permission) by Ben Moore-Maley.

Marek: How did you come to model the Salish sea? Did it come from the physics, the ecology side, both?

Susan: So one of my real passions is how physics impacts and determines biology, at least at the lower levels. And so for me, they're intertwined. And the other thing that's really cool about biology and chemical tracers and other things that you can put in your ocean models is they're great integrators and integrate some of the physical things we're interested in that we don't actually measure very well. So, for example, vertical velocities are difficult to get in a model very accurately. You think they're kind of okay on average. But if you actually want to, look at phytoplankton growth because the vertical velocity determines how many nutrients get into the surface layer. If you don't have your vertical velocities in your mixing right, you're not going to get your productivity right. And so they're very well tuned together and they actually work very nicely together. In some ways, the measurements that we can do up them because they're natural integrators is really useful. I would say I come to model Salish Sea as an extremely interesting fluid dynamics place, but also ecologically very interesting as well. So from both. And it's my backyard.

Marek: Right. That's convenient. So, does the model you've developed have an actual name?

Susan: Yeah, it's called SalishSeaCast.

Marek: Is it both an operational model and a scientific model in the sense that it provides predictions?

Susan: Yeah. So it runs operationally every day and it does storm surge prediction. The storm surge predictions are actually used by a bunch of people. There's a wave model that runs operationally on top of it. The wave predictions [and the currents] are also being used by a bunch of people. Then it also produces a complete set of biological fields every day more in a nowcast than, I would say, a predictive sense. I find it super interesting, but I don't know if anybody's really using that portion. From a research point of view, yes, we are interested in how the Strait works. And so my postdoc, Elise Olson's paper was just accepted. It shows the importance of the nutrient source from the North end of the Strait and how that drives a lot of productivity towards the North end, particularly coming straight down towards Baynes Sound, which is one of the biggest shellfish aquaculture sites. It's a sensible place to put it right with ample nutrients. I'm looking at some of the mixing and how the local mixing amongst the islands controls the exchange between the Strait of Georgia and the Juan de Fuca straight. And then we're just submitting a paper on the impact of ocean acidification on the strait since the pre-industrial period.

Marek: Where do you put all that data?

Susan: Well, we have some of it on Compute Canada. But basically I built a fairly big system to hold that information. And we also put the operational stuff online for people to get from the server. So that's how people get the storm surge or the currents or whatever they want. It's actually on a server they can download from.

Marek: Right. OK, so, I'm a modeller, you're a modeller. We all know we like and don't like about our models, but not everyone is a modeller. So maybe talk a little bit about if you could snap your fingers and magically improve one aspect of the model, what would it be? What are the sensitive spots? You mentioned one already: trying to get vertical velocities and mixing. Is that the key one or is there something else?

Susan: The model framework I use is NEMO, which was created in Europe as an open ocean global model. And, particularly groups in the U.K. have worked to make it useful as a coastal model. There has been a group in Italy using it to look at the Mediterranean. But one of the things that the version of the model I use doesn't have is wetting and drying, which is relevant because of the huge tides in the Strait of Georgia. I can't have any cell go to zero depth, so my minimum depth is four metres. So I would very much like to magically snap my fingers and get the new version 4.0, working with wetting and drying and with my favourite Z level coordinates. I don't want to go to sigma coordinates which don't play well with my super steep topography that I have in other places in the Strait of Georgia. So that's what I would like, wetting and drying.

Marek: That's a good one! Maybe talk a little bit about the computing side of it. I mean, one of the things people have talked about in the last few years is that the model has stopped being the challenge. Now it's more data or visualisation. But as you just mentioned, for physical oceanography, some parts of the model quite often are still a challenge. So what's the what's the mixture of challenges. Is it is it the model? Is it the data? Sounds like you've got the data. What about visualisation processing?

Susan: Yeah, I would say that pretty much we are even with a lot of things and we are definitely data limited in a bunch of different ways. I'm starting a new project where we're looking at the zooplankton, which are the little animals that eat the phytoplankton, and that's a hugely complicated ecological structure.

Marek: And how do we take the two boxes that are in the model and actually compare the two? I think that's always been a problem with models and observations; you know, you just don't say, well, the model got this value and the observations got this value and they agree or disagree because they're measuring two different things in two different ways. So how do you take that all into account?

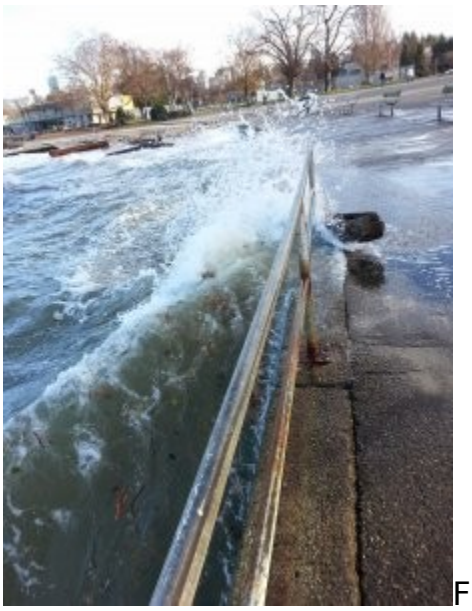
Susan: There's more data all the time, which is wonderful, but there are basic challenges with the modelling. We still find bugs in the original model that need to be fixed and have impacts. Visualisation and the physics and figuring out what's going on.

Marek: Well, that's fun, right? That's the science. Like, how do you pull out of this system the things that are interesting and the ways to look at them. I think that's always a challenge, but I think that's always also the most fun science.

Susan: We run the model operationally through Ocean Networks Canada that managed to get us some time on various computers; and it's now on the Arbutus cloud system. There's another piece that runs on my local system and there's one piece that runs on a UBC system. The research version is pretty much run on Complet Canada and we are very much appreciative of that time.

Marek: And how is the data processed?

Susan: So a lot of the operational stuff just goes straight onto the server and then we have some basic plots that are available on the website. And then how we process the data in the research sense depends on what we're trying to do. So different people are doing all sorts of different things. So Ben's been looking at upwelling in the Strait to try to understand the upwelling system. He's used EOF analysis, scenario analysis. And idealised cases. He's also used theory. So we put all the tools together. One of Rich Pawlowicz's students is doing a lot of work with numerical drifters because they were using drifters for observations. So he's been putting Lagrangian drifters in the model. I think that's a very powerful technique.

 Fig. 3. Storm surge photo by William Durocher, used with permission.

Marek: So pretty much all the classic oceanographic tools, right? Well, you know, I could probably talk about the computing side for another half an hour or more, but maybe let's switch to something different. How has the experience been with transferring knowledge down to stakeholder communities?

Susan: So I started this project funded by MEOPAR, the Marine Environmental Observation, Prediction and Response Network. And as part of that network, there is Response, which is the group that's actually trying to look about what we do about Marine advance. And so I was fortunate to get in contact with Stephanie Chang, who's a social science scientist at UBC, and she had a lot of experience already working with stakeholders. So I learnt a great deal from her. We've run quite a few stakeholder workshops and worked with those. And so how I deal with stakeholders actually determines which stakeholders. Because there's a whole bunch of different stakeholders, right. So one of the stakeholders is Environment and Climate Change Canada. My model, SalishSeaCast, is being developed and should go into beta testing as an operational model for Environment Canada in the Fall of 2020, which is pretty exciting as one of the first oceanographic models from a university to go there. And so, you know, they're scientists. And so it's very straightforward, right? It's scientists to scientists and that's no different. Then the next thing we could say, well, working with the local communities like the city of Vancouver; those kinds of people you end up working with – they're professional planners and people like that. And I found that really enlightening because they're no-nonsense. They know what they want. And it's just a case of talking through the language differences. You know what you have and you just work through how you get it done. And then their people talk to my software engineer and it happens.

The workshops are really good because it takes a lot of time sometimes just to figure out what you have, what they have, how this works together. So patience, and I would

say my most frustrating piece is actually you build up a really good relationship and you actually get really working with, and then they change jobs and you've got someone new. And that can be a little frustrating and hard because they do change jobs more than, you know, faculty, professors who've been in the same position for 30 years now. And then the last piece is I have done a little bit of talking to the Tsleil-Waututh people, and that has been absolutely wonderful. They have their own scientists. They hire their own scientists. So the communication is scientists-to-scientists and then their scientists take it to to the Indigenous community. I would say my biggest frustration is my model doesn't actually go into Tsleil-Waututh. But I would really love to go further with that, because I think their perceptions and what they want to do is really exciting.

Marek: OK, well, so look ahead for me a little bit. What's the what's the future of Salish Sea research?

Susan: So there's a couple of really cool things about SalishSeaCast because we've made it so available and because there's a large number of people at UBC doing all sorts of things in the region. We've got a large number of researchers not directly related to me that are actually working on it and using the fields as part of their ability to understand ecology, biodiversity, and we haven't even talked about the fact we're working on an oil spill model. So, you know, there's a large number of applications that are happening, but I also think it's proving to be a very special testbed for testing a whole bunch of things that are probably happened in other coastal systems. But coastal systems are complicated and you need to resolve them to really understand what's going on. And this is a way you can test ideas and test things. So I think it's going in all sorts of directions. It's getting further up the food chain, if you want to think about that, but also getting more into the fundamentals of the fluid dynamics and the data that Rich Pawlowicz is collecting right now will allow us to test it at a higher level. DFO is going to create nested grids inside the SalishSeaCast model, which will then allow us to get into the harbour and things like that. So I think that will be interesting too.

Marek: OK, neat, well, this isn't really a spoken word question, but what I'm going to do is to ask for the readers if you could provide some sort of extra reading for all the keeners who would like to read a little bit more. Thank you Susan for speaking with me.

About the Author

Susan Allen, Professor at the University of British Columbia (UBC), is a physical oceanographer who uses models to understand, and predict coastal oceanographic processes and biogeochemical-physical interactions. Her longest standing obsession has been the flow over and around topography and its implications on biology and chemistry of the surrounding waters.

Susan was modelling coordinator for the Canadian GEOTRACES project and is one of two Theme Leads for Canada's Marine Environment Observation, Prediction and Response (MEOPAR) Network of Excellence. Her group runs a three-dimensional coupled bio-chem-physical model daily and forecasts 36 hours into the future. With MEOPAR she has collaborated with social scientists and stakeholders and advanced open, accessible and reproducible science.

At UBC she teaches physical oceanography, atmospheric science and numerical techniques. Twenty MSc and nine PhD students have graduated under her supervision. She has received the President's Prize and the Saucier Applied Oceanography Prize from the Canadian Meteorological and Oceanographic Society.

More information about Susan's research can be found here:

- For today's storm surge forecast, click here.
- See the Evaluation Results Board from Nowcast. here.
- See an example movie, and select Surface Nitrate from the drop down menu.
- Publications can be found here

Space-based Earth Observations: The Government of Canada wants to hear from you!

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 13, 2020. POSTED IN NEWS & EVENTS, SPACE.

The Canadian Space Agency (CSA) is seeking input from interested stakeholders to support and inform the Government of Canada's commitment to charting a new course for Space-based Earth Observations (SBEO). The intent of this new course of action is to strengthen federal services and provide the data and landscape necessary for industry, academia, and governments across Canada to thrive while fostering a generation of world class experts in all the technologies and sciences related to the field.

To facilitate this process, external stakeholders are invited to comment on an **Engagement Paper** titled "Space-based Earth Observation – 2020" that can be found here (English) and here (Français). In particular, the Government of Canada (GoC) is most interested in stakeholder specific feedback in relation to six (6) key questions:

1. From your stakeholder perspective, what are the priority actions for advancing SBEO capabilities in Canada?
2. How can Canada maximize the potential of SBEO data to solve everyday problems for Canadians?
3. What would allow Canada's commercial SBEO sector (upstream, midstream, or downstream) to reach its full potential in strengthening the economy and creating jobs?
4. What can be done to facilitate a strong role for SBEO in maintaining Canada's leadership in scientific and research excellence?
5. Are the SBEO best practices identified in this document aligned with your perspective as a stakeholder in the SBEO landscape?
6. Given your position as a SBEO stakeholder, how do you see yourself contributing to, or benefiting from, addressing the challenges outlined in this paper?

The Government of Canada welcomes input from all SBEO stakeholders (external to the GoC).

If you have additional details in which to share – please send your responses to the following email address: earth.observation.terre@canada.ca

Recognizing that SBEO benefits are whole-of-society and the role the stakeholder community can play in helping the GoC meet its' objectives, it is vital to now engage the broader SBEO stakeholder community in Canada in this discussion. While there is no set deadline to provide feedback on the Engagement Paper and/or any one or more of the questions, now is a timely opportunity to provide stakeholder perspectives.

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#

Coping with Extreme Weather: A CMOS Public Virtual Forum/Panel Discussion – October 8, 2020

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 20, 2020. POSTED IN NEWS & EVENTS, WEATHER.

Marking the 2nd anniversary of the Ottawa/Gatineau Tornadoes

8 October 2020, noon to 2PM EDT

Extreme weather events, including tornadoes, floods, ice storms, hurricanes, droughts and blizzards, are a major risk to life, property and the economy in Canada. The risks are changing as climate changes. The Canadian Meteorological and Oceanographic Society (CMOS) is pleased to announce a free two-hour online forum for the public. Details of the program are on the next page. In the first hour, the moderator will introduce presentations from four leading Canadian experts. In the second hour, there will be a panel discussion on questions from the public.

The first talk will present an overview of natural disasters around the world and their costs to society, showing how extreme weather events are a major burden on countries, and how the costs to society have changed in recent decades. The second talk will be on lessons learned about disaster preparedness from the Ottawa/Gatineau tornadoes of September 2018. The third talk will offer a local perspective centred on how individuals in Dunrobin – one of the areas affected during the outbreak – experienced and recovered from this disastrous tornado. The fourth talk will place the 2018 tornadoes into the larger picture of tornadoes across Canada, looking at how and where tornadoes happen, and whether tornadoes are likely to change as the climate changes.

Click here to register (free) to have the Zoom link for the forum/discussion sent to you. The proceedings will be recorded live and available to the general public on the CMOS website at a later date.

Moderator: Jim Abraham, Vice-President CMOS, Broadcast Meteorologist

Speaker/ Panelist	Presentation	Expertise
Gordon McBean	A Global Perspective on Evolving Societal Risks from Severe Weather Events	Institute for Catastrophic Loss Reduction; first Chair, Integrated Research on Disaster Risk International Program; Assistant Deputy Minister (1994-2000), Meteorological Service of Canada, Environment Canada
Peter Kimbell	Preparedness & Response to Eastern Ontario Tornadoes: Lessons Learned from Ottawa/Gatineau, Sept. 2018	Warning Preparedness Meteorologist, Environment and Climate Change Canada
Jennifer Spinney	Understanding and Improving Societal Resilience and Response to Severe Weather Events such as Tornadoes, Floods and Ice Storms	Environmental Anthropologist, Assistant Professor, Disaster & Emergency Management, York University
David Sills	An Emerging Awareness of Tornado Risk in Canada: Past, Present and Future	Executive Director, Northern Tornadoes Project, Western University

Organized by: Leonard Barrie, Gordon McBean.

Co-Sponsors: CMOS Ottawa, Canadian Club of Rome-Ottawa, Institute for Catastrophic Loss Reduction.

Format: The first hour will be the expert presentations; the second hour will be a panel discussion featuring selected and anonymous questions posed to the panelists by the public. The proceedings will be recorded live with Zoom, and will be available to the general public on the CMOS website at a later date.

#

Proposed Nomenclature for Fire-induced Vortices

WRITTEN BY CMOS BULLETIN SCMO ON SEPTEMBER 23, 2020. POSTED IN WEATHER, WHAT'S CURRENT.

– By Patrick McCarthy and Leanne Cormier –

Extreme fire behaviour can manifest itself in many ways, violent tornado-like vortices being one example. On April 19, 2000, a large out-of-control fire at a major flax straw storage facility in southern Manitoba produced numerous vortices. One vortex emerged out of the inferno, tossing a pickup truck. One occupant was thrown to his death, while two others were injured (Globe and Mail, 2000). On May 22, 2015, a small water bomber fighting a wildfire near Cold Lake, AB, encountered a strong vortex, partially embedded in the smoke, causing the plane to roll over and crash, killing the pilot (Transportation Safety Board of Canada, 2016).

Figure 1 (left). Firewhirls of various sizes during stubble-burning near Fannystelle, Manitoba, Canada. Many of the firewhirls were fleeting, ranging from a few seconds to a minute in duration. Larger ones last a bit longer, reaching 10s of metres in height. Of these, the occasional one would break away from the fire and whirl across the field like a small dust-devil.
Figure 2 (right). Small pyronado during a stubble-burning near Fannystelle, Manitoba, Canada. The core funnel circulation at the base was about 5 to 10 metres wide, surrounded by a weaker smoke/ash/stubble-filled circulation. The funnel reached all of the way to the pyrocumulus (out of picture), about a thousand metres above. This pyronado broke away from the fire, persisting for many minutes. For a larger pyronado example, see Umscheid et al., 2006. Photos by Patrick McCarthy

Traditionally, the forest fire-fighting community has used the term “firewhirl” to describe fire-related vortices of any scale. Cormier (2013) summarized the etymology of “firewhirl” (sometimes “fire whirl”), noting variations such as “fire devil”, “fire whirlwind” (with or without a hyphen), and “fire swirl.” Cormier also found newer versions, popularized by the media, such as “fire tornadoes” and “firenadoes.” Among social media platforms, terms like “ash devil”, “pyronado”, “pyro-tornado”, “smokenado, “smoke-nado”, “smoke funnel,” were observed.

Cormier (2013), Lareau et al. (2018), and others have recognised that these various synonyms poorly capture the breadth of scale and intensity for fire-induced vortices. Goens (1978) attempted a scaled system, from smallest to largest: Fire Devils, Fire Whirls, Fire tornadoes and Fire Storm. That proposal was not widely adopted.

Figure 3 (left). Pyro-tornado associated with a Pyro-cumulonimbus during the Loyalton Fire in Lassen County, Calif., Aug. 15, 2020. Photo: Katelynn and Jordan Hewlett (with permission).
Figure 4 (right). Pyrocumulus over a forest fire near Porters Lake, NS, viewed from Halifax, June 14, 2008. Photo: Under CC Attribution-ShareAlike 2.0 License.

The accepted meteorological standard for fire-related clouds is the recently introduced term “flammagenitus” (World Meteorological Organization, 2020). Prior to that, meteorologists colloquially began to use the prefix pyro- as early as 1991, with “pyrocumulus” (Ludlum, 1991) and pyrocumulonimbus (Crosby, 1993). Those two terms began to appear in journals in the mid-2000s (Fromm et al, 2010) and by the end of 2013, both terms had been added to the American Meteorological Society (AMS) Glossary (2000d, 2000e). “Pyroconvection” (Real, et al, 2007) and “Pyro-tornadogenesis” (McRae, et al, 2013) expanded the use of the prefix.

With the meteorological community gradually adopting a more consistent approach to fire-related atmospheric phenomena, Cormier (2013) proposed a new standard nomenclature for fire-induced vortices; one that took into account the scales of traditionally-defined atmospheric phenomena:

- Firewhirl – small dust devil-like whirls in or near fires. They are small, short-lived and can be filled with a combination of fire, smoke, firebrands, or ash.
- Pyronado – persistent, tornado-like vortices in or near fire that extend hundreds of metres upwards from the ground, often (but not always) reaching the pyrocumulus clouds above. They are filled with a combination of fire, smoke, firebrands, or ash.
- Pyrotornado – large, violent, tornadic vortices in or near large vigorous fires. They are associated with large rotating pyrocumulonimbus firestorms.
- Pyrovortex – all-encompassing term for fire-related vortex phenomena.

Among the scale of atmospheric vortices, the term “whirl” seems to be the least threatening. The pyronado category is similar to the “landspout” in scale. It is also somewhat similar to the scale of a “gustnado”. Both terms are included in the AMS Glossary (2000a, b). The term pyrotornado has a larger, violent character.

Since Cormier’s original proposal, numerous large fire-induced vortices have been observed and documented. Often, dramatic videos and photos have been shared in the traditional and social media, piquing the public’s interest.

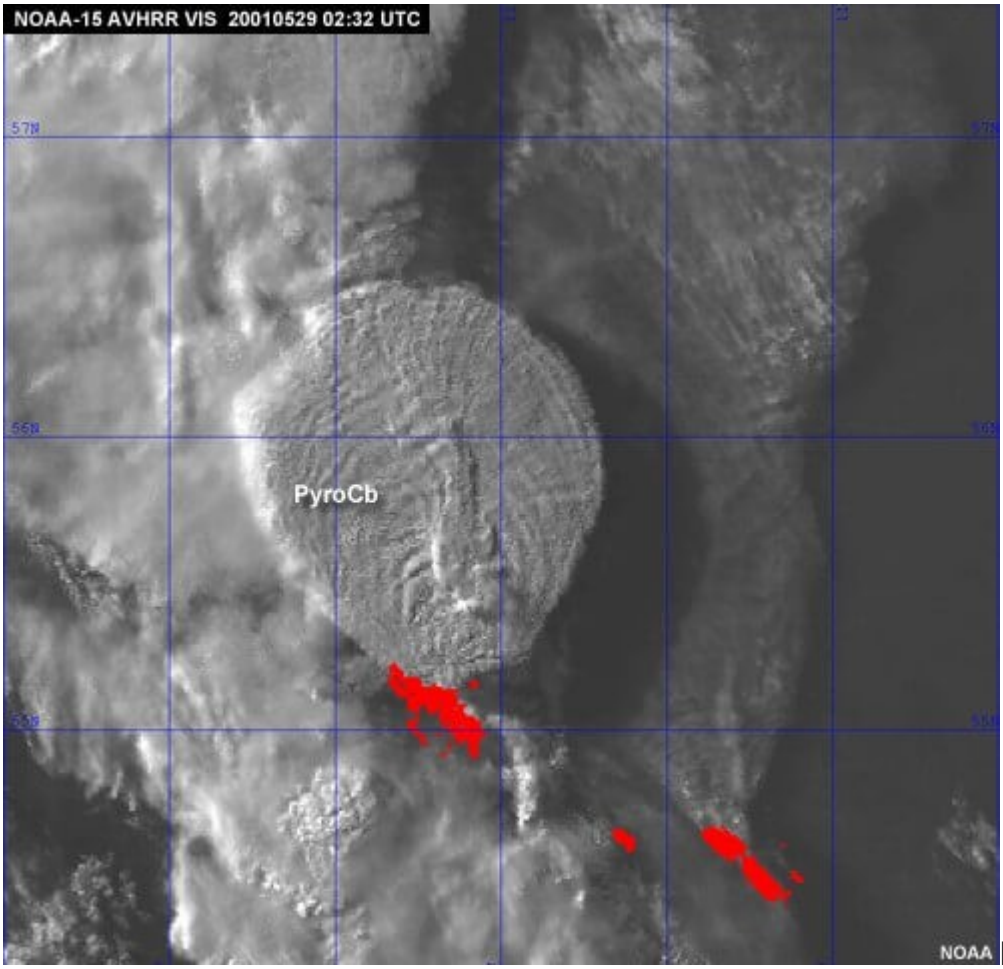

Image 5. Satellite view the a pyrocumulonimbus which formed over a major forest fire

near Chisholm, Alberta, May 2001. Part of the hamlet was destroyed. Red areas are hot spots detected by the satellite. Photo credit: NOAA (other images available here)

While the scientific naming of these terms may be intuitive to scientists, some of these names, particularly the long ones, may be cumbersome for the general public. The use of a hyphen after the pyro- prefix could more clearly distinguish the root word.

Cormier mentioned “firestorm” in the original proposal, and referenced a number of highly destructive historic events. The word remained off that scale since it was a very complex phenomenon. It may include one or more pyrotonadoes, similar to a large, violent supercell producing a wide swath of destruction. Recent research (e.g. McCrea et al, 2013, and Lareau et al, 2018) indicate that firestorms have a large mesoscale circulation. The AMS Glossary (2020c) defines a mesocyclone as “a cyclonically rotating vortex, around 2–10 km in diameter, in a convective storm.” This is similar in scale to recorded firestorm events, such as the October 8, 1871 Peshtigo, Wisconsin, firestorm that killed an estimated 1200-2500 people (Gess & Lutz, 2003). Therefore, “pyromesocyclone” (or pyro-mesocyclone”) could define these large cyclonic fire events.

A modified and expanded version of the Cormier fire vortex-related nomenclature is proposed:

Term	Scale (width)	Scale (Height)	Duration	Windspeed	Description
Firewhirl	< 5 m	Up to 10s of metres	Typically < I minute	< 50 km/h	They can be filled with a combination of fire, smoke, firebrands, or ash.
Pyronado	5 m - 50 m	100s of metres, often reaching the base of pyrocumulus	Typically < 10 minutes	up to about 100 km/h	They are filled with a combination of fire, smoke, firebrands, dirt or ash. They can occur over water near volcanoes and large off-shore fires, but are usually only filled with lifted water and condensed water vapour.
Pyrotornado (or pyro-tornado)	50 m - 1 km	>1 km	5 min. - 30 min.	100 km/h - 250 km/h	Large, violent, tornadic vortices in or near very large vigorous fires. They are associated with a large rotating pyrocumulonimbus. They are filled with a combination of fire, smoke, firebrands, dirt, ash, large branches, parts of man-made structures. They can occur over water near volcanoes and large off-shore fires but are usually only filled with lifted water and condensed water vapour.
Pyromesocyclone (or pyro-mesocyclone)	1 km - 10 km	>2 km	>30 minutes	100 km/h - 200 km/h	Very large (1 km - 10 km), long-lived, violent, tornado-strength cyclonic vortex, similar to a large, violent supercell mesocyclone producing a wide swath of destruction and may include one or more pyrotonadoes. Traditionally called a "firestorm", where everything in its path is usually razed, and with most living things above ground killed.
Pyrovortex	All scales	All scales	All scales	All Scales	All-encompassing term for fire-related vortex phenomena.
Pyrotornadogenesis (or pyro-tornadogenesis)					Process by which a fire-induced tornadic circulation forms.
Pyroconvection (or pyro-convection)					Atmospheric convective process resulting from fire-induced superheated gasses within a favourable atmospheric instability environment.
Pyrocumulus					A cumulus cloud formed by a rising thermal from a fire, or enhanced by buoyant plume emissions from an industrial combustion process (AMS Glossary, 2000e).
Pyrocumulonimbus					An extreme manifestation of a pyrocumulus cloud, generated by the heat of a wildfire, that often rises to the upper troposphere or lower stratosphere (AMS Glossary, 2000d).

The new nomenclature provides a scaled scientific approach to fire-related atmospheric processes. In addition, consistency in research, and clarity in messaging, training and education could also be achieved.

About the Authors

Patrick McCarthy is a retired Meteorological Service of Canada (MSC) meteorologist. He began his career working with the Alberta Weather Centre as a summer student in 1984; working with their severe weather program over five summers. After becoming an operational meteorologist for MSC in 1989, he spent two years in Gander, NL. He was transferred to the Prairie Weather Centre in Winnipeg and came a severe weather specialist. He ended his career as Head of the Prairie and Arctic Storm Prediction Centre. He remains passionate about weather and is an active storm chaser.

Leanne Cormier studied at the University of Manitoba in 2013, graduating with a Bachelor of Science degree specializing in Atmospheric and Hydrological Sciences. She now works at Environment and Climate Change Canada as a Meteorological Technologist fixing weather stations all over Manitoba and Nunavut and maintaining various networks. When not flying to the Arctic, she enjoys working on building her tiny

house on wheels with her husband Steve and relaxing with their two cats, Oscar and Elliot.

References

1. American Meteorological Society, cited 2020a: gustnado. Glossary of Meteorology. [Available online]
2. American Meteorological Society, cited 2020b: landspout. Glossary of Meteorology. [Available online]
3. American Meteorological Society, cited 2020c: Mesocyclone. Glossary of Meteorology. [Available online]
4. American Meteorological Society, cited 2020d: Pyrocumulonimbus. Glossary of Meteorology. [Available online]
5. American Meteorological Society, cited 2020e: Pyrocumulus. Glossary of Meteorology. [Available online]
6. Cormier, L. (2013). Vertical transport of biomatter in pyronadoes and its implications for tornado detection. Honours Thesis, University of Manitoba, Winnipeg.
7. Countryman, C. M. (1971). Fire whirls...why, when, and where. Forest Service, U.S. Dept. of Agriculture. Berkley: U.S. Government Printing Office. [Available online]
8. Crosby, B. (1993). War in our forests. Sunset, Sunset Publishing Co., Menlo Park, California, July 1993, p.66. [Available online]
9. Cunningham, P. & M.J. Reeder (2009). Severe convective storms initiated by intense wildfires: Numerical simulations of pyro-convection and pyro-tornadogenesis. Geophysical Research Letters, 36, L12812. https://doi.org/10.1029/2009GL039262
10. Fromm, M., D. T. Lindsey, R. Servranckx, G. Yue, T. Trickl, R. Sica, P. Doucet, and S. Godin-Beekmann, 2010: The Untold Story of Pyrocumulonimbus. Bull. Amer. Meteor. Soc., 91, 1193 –1210.https://doi.org/10.1175/2010BAMS3004.1
11. Gess, D. & Lutz, W. (2003). Firestorm at Peshtigo: A town, its people, and the deadliest fire in American history. Henry Holt and Co.
12. Goens, D. W. (1978). Fire whirls. National Weather Service, NOAA Tech. Memorandum NWS WR-I29. [Available online]
13. Lareau, N.P., N.J. Nausler, & T.J. Abatzoglou (2018). The Carr fire vortex: A case of pyrotornadogenesis? Geophysical Research Letters, 45. https://doi.org/10.1029/2018GL080667.
14. Ludlum, D.M. (1991). National Audubon Society field guide to North American weather. National Audubon Soc., Alfred A. Knopf, New York, p. 546.
15. McRae, R. H. D., J. J.Sharples, S. R.Wilkes, and A. Walker, 2013: An Australian pyro-tornadogenesis event. Nat. Hazards, 65, 1801–1811, https://doi.org/10.1007/s11069-012-0443-7.
16. Real, E. & Law, K. & Weinzierl, Bernadett & Fiebig, M. & Petzold, Andreas & Wild, Oliver & Methven, John & Arnold, S.A. & Stohl, Andreas

& Huntrieser, Heidi & Roiger, Anke & Schlager, H. & Stewart, D.J. & Avery, Melody & Sachse, G.W. & Browell, Edward & Ferrare, R. & Blake, D. (2007). Processes influencing ozone levels in Alaskan forest fire plumes during long-range transport over the North Atlantic. Journal of Geophysical Research. 112. 1-19. https://doi.org/10.1029/2006JD007576.

17. Umscheid, M. E., Monteverdi, J. P., & Davies, J.M. (2006). Photographs and analysis of an unusually large and long-lived firewhirl. Electronic J. Severe Storms Meteor., 1,(2). https://www.ejssm.org/ojs/index.php/ejssm/article/viewArticle/6/11
18. Wood, V. T., 1992: Whirlwind Formation at a Burning Oil Supertanker in the Gulf of Mexico. Mon. Wea. Rev., 120, 371–372, https://doi.org/10.1175/1520-0493(1992)120<0371:WFAABO>2.0.CO;2.
19. World Meteorological Organization, cited 2020. Cumulus flammagenitus. International Cloud Atlas. https://cloudatlas.wmo.int/en/flammagenitus.html

Global Weather Enterprise Forum – The WeatherPod Podcast Series

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 6, 2020. POSTED IN NEWS & EVENTS, WEATHER.

In this episode, co-presenters Alan Thorpe and David Rogers talk to hugely experienced broadcast meteorologist, Gerald Fleming.


Gerald Fleming

Gerald is the former head of the forecast division of Met Éireann where he was responsible for almost all of the public output of the weather service. One of his tasks was to oversee and organize Met Éireann relationships with Radio Telefís Éireann (RTE – Ireland's public broadcasting service) and appeared often as an on-air broadcast meteorologist with television and radio. As the public face of Met Éireann he has contributed frequently to the media and has trained many meteorologists in broadcast meteorology nationally and internationally through the World Meteorological Organizations' Public Weather Service Programme.

About the WeatherPod

Alan Thorpe is an atmospheric scientist who has worked as a Professor of Meteorology, as head of the UK Met Office's Hadley Centre and, most recently, as Director General of the European Centre for Medium Range Weather Forecasts.

David Rogers is an oceanographer turned meteorologist, a former Chief Executive of the UK Met Office and now a consultant with the World Bank helping countries improve their weather, hydrological and disaster management systems and services.

Weather information is an international resource critical to saving lives, making business and society more efficient, and building resilience to the growing impacts of extreme weather & climate change.

Each month, WeatherPod will explore how the public, private and academic sectors – which make up what's informally called the Global Weather Enterprise – co-operate to produce weather information and make it widely available. It will also examine how weather affected public and private enterprises actually use it.

Extreme weather often impacts the poorest the hardest. So the WeatherPod will look beyond the wealthier countries to the poorer and less developed ones – which host most of the world's population – to examine how the rich and poor use weather & climate information – the differences, the things in common, and the lessons we can learn from each other.

In each episode Alan and David will invite a leading expert to join them to discuss a key topic. Alongside this there will be a section called: 'Wow – That's Interesting!' which features a newsworthy story or two about the Global Weather Enterprise.

Please visit the Global Enterprise Forum for more information on the WeatherPod and to tune into more podcasts!

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Remembering Louis Fortier

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 19, 2020. POSTED IN ARCTIC, CLIMATE, NEWS & EVENTS, OCEANS.

It is with great sadness that we announce the death of Dr. Louis Fortier in Quebec City, on the 4th of October at the age of 66, following a courageous fight against leukemia. He was the son of Pierre Fortier (1923-2012) and Louise Roy (1925-1989).He is survived by his partner, Leah Braithwaite, who supported him throughout his final journey, his children Benjamin and François and their mother Brigitte Robineau; his brothers and sisters, Marie-France (Richard Guay), Pierre (Marie-France Garnier), Robert (Sylvie Boivin), and Dominique (Stefanos Roussos); his nephews and nieces Christophe and Ariane Fortier-Guay, Frédéric and Olivier Fortier, his beloved aunts Camille Roy-Harnois and Aline Fortier, as well as many cousins, friends and colleagues, both in Canada and around the world.

Louis grew up on the bank of the St. Lawrence River and this was a profound influence on his worldview and interests. He was driven by a curious and inquisitive mind, a fiery and passionate nature and an insatiable desire to understand the fragility of the world around us. These qualities led him to traverse the remote high Arctic seas with students and colleagues from around the world to comprehend and focus attention on these vulnerable marine ecosystems. Throughout his career, he was at the forefront of understanding and demanding action on climate change. His conviction was absolute and his message remains more crucial than ever.

His vision was informed by the most rigorous science and his leadership led to the creation of a ship he loved and a research community that encompassed all aspects of the North. He was Scientific Director of the Quebec-Ocean Strategic Cluster when it was founded (2002-2005), the ArcticNet pan-Canadian Network of Centres of Excellence (2001-2019), the research icebreaker CCGS Amundsen (2002-2020), and most recently, the Institut nordique du Québec (2016-2019). He devotion to science and commitment to communicating the results of research earned him, among others, the Order of Canada (2007), the Ordre national du Québec (2008), named scientist of the year by La Presse, Le Soleil and Radio Canada (2004-2005-2008), the Governor

General’s Medal for Northern Affairs (2014) and Knight of the National Order of the French Legion of Honour (2017).

With a prolific research career, he held the Canada Research Chair on the Response of Arctic Ecosystems to Global Warming (2004-2020), led NSERC Strategic Networks such as NOW (International North Water Polynya Study) and CASES (Canadian Arctic Shelf Exchange Study). With close University of Laval colleagues, he established the Canada Excellence Research Chair in Remote Sensing of Canada’s New Arctic Frontier. Over the years, he has trained dozens of students and wrote numerous scientific and lay publications. He was an ardent promoter of the decompartmentalization of science and international cooperation, following to the letter the spirit of his childhood bedside book “Tintin and the Mysterious Star” by Hergé.

An accomplished classical guitarist, a lover of life, hunter and fisherman in the company of his sons and close friends, an epicurean at heart and of great generosity, he has touched in a special way those who have been close to him through his endearing and uncompromising personality. For us, his family, he will forever remain Louis, the father, the spouse, the brother, the brother-in-law, the son, the uncle, the nephew, the cousin who always came back from far away, made us travel to unknown lands and live adventures, each one more hectic than the other, and which we love deeply. He landed the grand three-masted ship that carried him to his final rest, but the moorings of the CCGS Amundsen will continue to be cast off, and his memory will continue to sail in the wind and waves of the Far North.

Your expressions of sympathy can be translated into a donation to Leucan – the Association for children with cancer or Canadian Parks and Wilderness Society: CPAWS. Given the restrictions linked to the Covid-19, a ceremony will be held in the strictest privacy. Condolences can be sent to Lépine Cloutier funeral home.

Pour renseignements / For informations :
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Courriel / mail : infomaison@athos.ca
Posted on October 8, 2020 by dany

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En mémoire de Louis Fortier 2020

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 20, 2020. POSTED IN ARCTIQUE, CLIMAT, NOUVELLES ET ÉVÉNEMENTS, OCÉANS.

C'est avec une immense tristesse que nous annonçons le décès du Dr Louis Fortier à Québec, le 4 octobre dernier à l'âge de 66 ans, à la suite d'un courageux combat contre la leucémie. Il était le fils de Pierre Fortier (1923-2012) et de Louise Roy (1925-1989). Il laisse dans le deuil sa compagne, Leah Braithwaite qui l'a soutenu tout au long de ce dernier périple, ses enfants Benjamin et François et leur mère Brigitte Robineau; ses frères et soeurs, Marie-France (Richard Guay), Pierre (Marie-France Garnier), Robert (Sylvie Boivin), et Dominique (Stefanos Roussos) ; ses neveux et nièces Christophe et Ariane Fortier-Guay, Frédéric et Olivier Fortier, ses tantes adorées Camille Roy-Harnois et Aline Fortier, ainsi que plusieurs cousins, cousines, amis et collègues, tant au Canada qu'à travers le monde.

Louis a grandi le long des berges du fleuve Saint-Laurent, ce qui l'a profondément marqué. Son esprit curieux et inquisiteur, sa nature fougueuse et passionnée et sa quête insatiable pour comprendre la complexité du monde qui nous entoure, l'ont conduit aux confins des mers arctiques où il a étudié sans relâche les écosystèmes marins. Dans cet environnement superbe mais fragile, il a compris rapidement l'urgence de réagir au changement climatique. Il s'est évertué alors avec persévérance et talent à faire passer le message crucial au grand public et aux preneurs de décisions. Son message demeure plus que jamais d'actualité.

Avec une vision des temps modernes appuyée par la science et une façon bien à lui de mener son beau grand navire qu'il affectionnait tant, il a été directeur scientifique, du regroupement stratégique Québec-Océan lors de sa fondation (2002-2005), du réseau d'excellence pancanadien ArcticNet (2001-2019), du brise-glace de recherche NGCC Amundsen (2002-2020), et plus récemment de l'Institut nordique du Québec (2016-2019). Il était résolument dédié à la science, et cet engagement lui a valu, entre autres, d'être fait officier de l'Ordre du Canada (2007), officier de l'Ordre national du Québec (2008), personnalité scientifique par La Presse, Le Soleil et Radio Canada (2004-2005-

2008), médaillé du gouverneur général pour la nordicité (2014) et chevalier de l'Ordre national de la Légion d'honneur française (2017). Il était titulaire de la chaire de recherche du Canada sur la réponse des écosystèmes arctiques au réchauffement climatique (2004-2020), il a également piloté les réseaux de recherche NOW (l'Étude internationale de la polynie des Eaux du Nord) et CASES (Canadian Arctic Shelf Exchange Study) du CRSNG. Avec ses collègues de l'Université Laval, il a mis en place la Chaire d'excellence en recherche du Canada sur la télédétection de la nouvelle frontière arctique canadienne. Il aura ainsi formé au fil des ans, des dizaines d'étudiants-es et écrit de très nombreux articles scientifiques. Il aura été un ardent promoteur du décloisonnement des sciences et de la coopération internationale, suivant ainsi à la lettre, l'esprit du livre de chevet de son enfance « Tintin et l'Étoile mystérieuse » d'Hergé.

Guitariste classique émérite, amoureux de la vie, de la chasse et de la pêche avec ses fils et ses proches amis, épicurien dans l'âme et d'une grande générosité, il aura touché d'une façon particulière celles et ceux qui l'ont côtoyé de près, par sa personnalité attachante et sans compromis. Pour nous, sa famille, il demeurera à jamais Louis, le père, le conjoint, le frère, le beau-frère, le fils, l'oncle, le neveu, le cousin qui revenait toujours de loin, nous faisait voyager dans des contrées inconnues et vivre des aventures toutes plus trépidantes les unes que les autres, et que nous aimons profondément. Il a accosté le grand trois-mâts qui l'a porté pour enfin se reposer, mais les amarres du NGCC Amundsen continueront à être larguées, et sa mémoire à voguer dans le vent et les flots du Grand Nord.

Vos témoignages de sympathie peuvent se traduire par un don à Leucan – Association pour les enfants atteints de cancer ou bien à la SNAP – société pour la nature et les parcs du canada – snapcanada.org Compte tenu des restrictions liées à la Covid-19, une cérémonie se tiendra dans la plus stricte intimité. Vos condoléances peuvent être envoyées à la maison funéraire Lépine Cloutier.

Maison Gomin
Services commémoratifs
2026, boul. René-Lévesque Ouest
Québec – G1V 2K8

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Weather and Climate: Not what your grandparents knew! – CMOS Webinar

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 22, 2020. POSTED IN CLIMATE, NEWS & EVENTS, WEATHER.

David Phillips, Senior Climatologist, Environment and Climate Change Canada

CMOS Toronto and Ottawa Centre Webinar

Urban floods, ice rains, winter heat waves, interface wildfires, weather bombs, megadroughts – if you think we've been cursed and clobbered a lot harder and a lot more often recently, you are not imagining it. It used to be that our weather was "normal" and dependable. Now, more and more Canadians are asking: What's happening to our weather? If our weather is becoming weirder and wilder are people responsible or is it nature doing this to us? Or both? Maybe we are changing more than

the weather. What has become clear is that the Earth is warming, and the number of weather-related disasters is on the rise. We can no longer assume that yesterday's weather will apply tomorrow.

Time: November 17, 2020, 7:00 p.m.
Location: Webinar will take place on Zoom. Please register in advance for this meeting.

#

New Global Weather Enterprise Forum Webinar

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 20, 2020. POSTED IN NEWS & EVENTS, WEATHER.

Please see register for the following Webinar to be given by Prof. Adrian Gerhard, the President of WMO:
Global Weather Enterprise Forum webinar, 28 October – 'Unlocking the Benefits of Open Weather Data'.
The Global Weather Enterprise Forum (GWE Forum) will host its second webinar on Wednesday 28 October. Scheduled to take place at 09.00 US Eastern Daylight Time, 13.00 GMT, it will feature an expert presentation titled 'Unlocking the Benefits of Open Weather Data'.


Adrian Gerhard, President of the World Meteorological Organization.

The presentation will be delivered by Prof. Dr. Gerhard Adrian, President of the WMO and President of the German Weather Service (Deutscher Wetterdienst, DWD). It will be followed by an audience Q&A session.

For further information and to register, please visit: https://www.gweforum.org/gwe-forum-webinar-28-october-unlocking-the-benefits-of-open-weather-data/

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Message from the CMOS President: Planning for a Virtual Victoria Congress of 2021

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 22, 2020. POSTED IN NEWS & EVENTS, WHAT'S CURRENT.

– By Marek Stastna, CMOS President, and Professor in the Department of Applied Mathematics, University of Waterloo –

After a glorious stretch of humidity free summer weather, my southern Ontario summer literally ended with a bang. At around 5 a.m. on Sept. 7, lightning struck so close to my house that there was no count to be had between the lightning and thunder. The house shook for what felt like a minute, and both man and dog had quite a hard time returning to their slumber. I've always liked counting to get the distance of the storm, and I suppose over the years it has provided a link to a simpler, child's view of the world: Inquiry as pure curiosity, knowledge as a security blanket against a large and intimidating world.


CMOS President, Marek Stastna

Since Sept 8th I have returned to teaching. I have spent the summer trying to hold the loose threads of my research group together with varying success. I have overworked and underworked, trying to make sense of working from home. I have also shared stories with the academic community of friends around Canada and beyond. My academic community has been mostly virtual long before COVID-19 inspired changes, and it has been a joy to participate in the sketch comedy of personal and professional lives with those who share my corner of the research Universe (and often my odd sense of humour).

However, there can be no denying the change all around us. Working from home has given me the separation necessary to re-examine some of my professional habits, but I am well aware that my rather comfortable experience is very different from that of others; particularly that of my students. Similarly, my uncertainty regarding the form of the upcoming high school experience for my younger child feels at times like the sound of that far off storm, but pales in comparison to the struggles of those juggling work from home and the care of multiple younger children. COVID-19 may have changed the world, but it has not altered its fundamental divisions and inequities. Ensuring full and meaningful participation by women in the work world will require firm, thoughtful engagement for years to come. Similarly, ensuring that the students we graduate, especially those at the highest levels, are not under-employed after graduation will require a significant break from the “why don’t you go to the US for a postdoc” business model that the Canadian academic system has been using for the entirety of my professional life. I am hopeful that academic societies like CMOS can provide a means to gather “best practices” from around the country, and promote the kind of local advocacy that can make our home institutions work toward a fairer “new normal” to return to.

CMOS itself, being a society with a virtual governance model, has continued to hum along in its yearly cycle of activities. The first Executive Meeting of 2020/2021 has taken place, and the first Centre Chairs and Council Meetings will soon follow. The primary task for Executive and Council in the coming academic year will be a revision and refinement of the CMOS Strategic Plan. In what I see as considerable wisdom, the authors of the existing plan, have identified areas that were left incomplete for those following in their footsteps. I encourage all members to provide input whether through informal discussions, or through the more formal survey that will arrive in members’ inboxes this fall.

Finally, I note that the planning for the Victoria Congress 2021 is well underway, and will build on the success of the Virtual Ottawa Congress of 2020. This year’s Ottawa Virtual Congress proved very popular, and next year’s Congress will have the benefit of a much longer planning cycle (one final tribute here to the Ottawa organizers for their grace under pressure!). A full schedule including plenary talks, oral and e-poster contributions, a public speaker, networking opportunities and space for exhibitors and sponsors is being put together by the Victoria LAC team, and I am very much looking forward to the event as a way of wrapping up what will be a busy CMOS year.

Marek Stastna
CMOS President, and Professor, Department of Applied Mathematics, University of Waterloo
Email: president@cmos.ca

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Message du président de la SCMO: Planification du Congrès virtuel de Victoria 2021

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 1, 2020. POSTED IN NOUVELLES ET ÉVÉNEMENTS, QUOI DE NEUF.

– Par Marek Stastna, Président de la SCMO, et professeur du département de mathématiques appliquées, l'Université de Waterloo –

Après une période estivale glorieuse et sans humidité, mon été dans le sud de l'Ontario s'est littéralement terminé sur un coup de tonnerre. Le 7 septembre, vers cinq heures du matin, la foudre a frappé si près de ma maison que je n'ai pu faire le compte entre l'éclair et le retentissement du tonnerre. Il m'a semblé que la maison a tremblé pendant une bonne minute; et le maître et le chien ont eu beaucoup de mal à se rendormir. J'ai toujours aimé compter les secondes entre la foudre et le tonnerre pour savoir à quelle distance se trouvait la tempête, et je suppose qu'au fil des ans, cela m'a permis d'avoir une vision plus simple et plus enfantine du monde : mener une enquête par pure curiosité, acquérir des connaissances en guise de protection contre un monde vaste et intimidant.


Président de la SCMO, Marek Stastna

Depuis le 8 septembre, j'ai recommencé à enseigner. J'ai passé l'été à tenter de resserrer les liens de mon groupe de recherche, avec plus ou moins de succès. Je me suis surmené et j'ai paressé, essayant de comprendre à quoi rime le télétravail. J'ai également raconté des histoires d'amis au Canada et à l'étranger à des universitaires. Dans mon cas, mon cercle d'universitaires était pour la plupart virtuel bien avant que la COVID-19 n'inspire des changements, et ce fut une joie de participer aux sketches

comiques de la vie personnelle et professionnelle avec ceux qui partagent mon coin de l'univers de la recherche (et souvent mon étrange sens de l'humour).

Cependant, on ne peut pas nier le changement qui s'opère autour de nous. Travailler de la maison m'a donné le recul nécessaire pour revoir certaines de mes habitudes professionnelles, mais je suis bien conscient que mon expérience, pas trop désagréable, est bien différente de celle des autres; en particulier de celle de mes étudiants. De même, mon incertitude quant à la forme que prendra la vie de mon cadet à l'école secondaire ressemble parfois au grondement de cette tempête lointaine, mais elle est bien pâle en comparaison des difficultés de ceux qui jonglent avec le travail à la maison et la garde de jeunes enfants. La COVID-19 a peut-être changé le monde, mais elle n'a pas enrayé les divisions et les inégalités fondamentales. Pour garantir une participation pleine et entière des femmes au monde du travail, il faudra établir un dialogue ferme et réfléchi pendant des années. De même, pour garantir que les étudiants à qui nous donnons un diplôme, en particulier ceux qui se classent parmi les premiers, ne soient pas sous-employés à leur sortie de l'université, il faudra s'éloigner du modèle commercial du « pourquoi n'allez-vous pas aux États-Unis faire des études postdoctorales » que le système universitaire canadien préconise depuis le début de ma vie professionnelle. J'espère que les sociétés universitaires comme la SCMO seront à même de rassembler les « pratiques idéales » de partout au pays et diffuseront le type de plaidoyer à l'échelle locale qui incitera nos institutions d'origine à travailler vers une « nouvelle normalité » plus juste.

Pour la SCMO, une société ayant adopté un modèle de gouvernance virtuelle, son cycle annuel d'activités a continué de se dérouler rondement. La première réunion du comité exécutif de 2020/2021 a déjà eu lieu, et les premières réunions des présidents des centres et du Conseil suivront bientôt. La tâche principale du comité exécutif et du Conseil au cours de la prochaine année universitaire sera la révision et le perfectionnement du plan stratégique de la SCMO. Je considère que les auteurs du plan actuel https://cmos.in1touch.org/uploaded/web/website/by-laws/CMOS%20-%20Strategic%20Plan%202018%20-%202020%20-%20Final.pdf ont fait preuve d'une grande sagesse en indiquant les domaines qui demeurent incomplets pour ceux qui poursuivront le travail. J'encourage tous les membres à apporter leur contribution, soit par des discussions informelles, soit en répondant au sondage plus formel qu'ils recevront par courriel cet automne.

Enfin, je note que la planification du Congrès de Victoria 2021 est bien avancée et que celui-ci s'inscrira dans le prolongement du succès du Congrès virtuel d'Ottawa de 2020. Le congrès d'Ottawa s'est avéré très populaire, et celui de l'année prochaine bénéficiera d'un cycle de planification beaucoup plus long (un dernier hommage ici aux organisateurs et à la grâce dont ils ont fait preuve malgré la pression!). L'équipe de Victoria est en train de préparer un programme complet comprenant des conférences plénières, des contributions orales et des affiches électroniques, un conférencier, des possibilités de mise en réseau et un espace pour les exposants et les commanditaires, et j'attends avec impatience cet événement qui clôturera une année très chargée pour la SCMO.

Marek Stastna
Président de la SCMO, et professeur du département de mathématiques appliquées, l'Université de Waterloo
Courriel: president@cmos.ca

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The Challenge of Maintaining Fraser River Sockeye Salmon in a Warming World

WRITTEN BY CMOS BULLETIN SCMO ON OCTOBER 23, 2020. POSTED IN CLIMATE, OCEANS, WHAT'S CURRENT.

– By David Levy –

This article first appeared in The Province on September 13, 2020.

Opinion: The DFO has done the right thing this year by closing Fraser sockeye fisheries.

The return of only 283,000 Fraser River sockeye in 2020, the lowest number recorded, has again triggered expressions of concern for these iconic salmon, debate as to what is causing their demise and recognition of the critical need for effective conservation strategies.

There is now a litany of failed Fraser sockeye runs that have been addressed by Dr. Peter Pearse in 1982; the Hon. John Fraser in 1995; the Auditor General of Canada in 1999; the First Nation Panel on Fisheries in 2004; the Hon. Bryan Williams in 2005; the Standing Committee on Fisheries and Oceans in 2005; the Pacific Fisheries Resource Conservation Council in 2010; and the Cohen Inquiry into the Decline of Sockeye Salmon in the Fraser River in 2012.


Image 1. Sockeye salmon.

In spite of this level of inquiry and investigation, many British Columbians, including First Nations, commercial and recreational harvesters, environmentalists, scientists and fisheries managers remain perplexed about the causes, consequences and relevant management strategies required to maintain a thriving and sustainable resource.

Salmon are notoriously difficult to forecast. Fraser sockeye run size predictions require a two-year forecasting time horizon corresponding to Fraser sockeye marine life history, with only limited capacity for marine monitoring. By contrast, weather forecasting provides reliable predictions for only around one week, despite considerable forecasting experience, a strong scientific foundation and numerous monitoring tools. Pre-season forecasting of Fraser sockeye isn't rocket science, it's harder. This was exemplified during the Cohen Inquiry in 2010 when the run surprisingly returned 28 million, eclipsing the 1.8-million return in 2009 that triggered the inquiry.


Image 2. Red salmon couple.

The science program of the Cohen Inquiry engaged fisheries scientists from nine universities, six private consulting companies and the North Pacific Marine Science Organization, and collectively generated 16 technical reports to support the public inquiry process. In spite of this expertise, none of the scientists predicted the spectacular rebound of Fraser sockeye in 2010. Scientific understanding of Fraser sockeye freshwater and marine ecology has advanced incrementally over the past decade, however there is no definitive explanation for the 2020 run failure.

Once Fraser River sockeye migrate into coastal waters, in-season management procedures are triggered that rely upon test-fishing, hydroacoustic assessment, catch estimation, escapement monitoring and intensive management oversight. The Fraser sockeye fishery is arguably one of the most intensively managed fisheries in the world. Why then are Fraser sockeye declining so severely?

The Cohen Inquiry focused on both fisheries management and fisheries science. The science program analyzed a suite of potential effects on Fraser sockeye including climate change, freshwater and marine ecology, predation, contaminants, disease, production dynamics, salmon farms and cumulative effects. Cumulative effects were implicated and commissioner Cohen concluded that there was no “smoking gun,” a single cause that would explain the decline in Fraser sockeye productivity.


Image 3. Sockeye salmon race.

The idea that a single event or stressor caused the 2009 decline was appealing but considered improbable. Cohen further stated that one of the most troubling factors threatening Fraser sockeye was climate change. Fraser sockeye encounter climate-change effects due to warming of both freshwater and marine habitats.

At the adult migration stage in freshwater, sockeye are routinely stressed by high temperatures and in some years, high-flow discharge, both of which cause en-route migration mortality. Additionally, high temperatures during migration and spawning cause pre-spawning mortality and reduced spawning success.

In the marine environment, “warm blobs,” zones of higher-than-normal temperatures, can occur within sockeye and other salmon-feeding habitats in the North Pacific Ocean reducing marine survival. Many of the effects of high temperatures are believed to be related to food-chain alterations in marine zooplankton and marine predators.

Is history repeating itself or is 2020 a different kettle of fish? Both in 2019 and 2020, upstream populations of Fraser sockeye have contended with the effects of the Big Bar slide, which has been mitigated in part by laudable efforts and an unprecedented degree of co-operation among First Nations, the DFO and the B.C. government among others.

The Big Bar slide impacts are secondary in importance, however, to the low survival of juvenile and subadult Fraser sockeye in the marine environment. The idea that freshwater production of out-migrating sockeye smolts drove the 2009 sockeye decline was eliminated as a causal factor by the Cohen Inquiry scientific investigations, and marine mortality factors were implicated. Whether reduced survival is localized in the Salish Sea, Queen Charlotte Sound, coastal Alaska or the Gulf of Alaska couldn't be definitively pinpointed and survival reductions in the North Pacific Ocean were considered plausible in different habitats in different years.

Marine and freshwater habitat changes due to climate change and other stressors are largely outside the realm of management control. The DFO has done the right thing this year by closing Fraser sockeye fisheries, a strategy that is endorsed by the First Nations Leadership Council, which has also voiced a desire to create a recovery strategy to save the fish.

Any recovery strategy should embrace the reality that Fraser sockeye freshwater and marine habitats have been altered and subject to future climatic change. This is a reflection that Fraser sockeye are distributed along the southern margin of the sockeye salmon distributional range making them vulnerable to warming. In more northerly areas such as Bristol Bay, Alaska, sockeye returned strongly in 2020 and 38 million fish were harvested. In recent years, chum, pink and sockeye salmon have been showing up in Arctic waters reflecting an expansion of salmon ranges northward into suitable habitats due to a northward push of thermal habitats.

It will become increasingly difficult to maintain Fraser sockeye production while habitat quality inevitably becomes further compromised by climate change. It's critical that an effective and smart recovery strategy be developed to focus primarily on those Fraser sockeye populations that have the best chances for survival in a warming world. Concurrently, a conservation strategy is required to address the potential extirpation of small, vulnerable Fraser sockeye populations.

About the Author

David Levy, Ph.D., is the former science director for the Cohen Commission of Inquiry. Dave is a salmon ecologist who has worked extensively with Fraser River First Nations. He has a B.Sc. degree in Marine Biology from McGill University and a Ph.D. in Zoology from the University of BC. While at UBC, he worked as a Research Scientist and undertook fisheries research in the Fraser River Estuary, Babine Lake and Lake Titicaca, Peru. Dave was Science Director for the Cohen Commission and co-ordinated a research program involving nine universities, six consulting companies and one international agency. Between 2016 and 2020 Dave was an Independent Panel Member for an environmental assessment of the proposed Roberts Bank Terminal 2 Project. Dave`s passion is all types of fishing and communing with nature.

CMOS Call for Awards Nominations

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 1, 2020. POSTED IN NEWS & EVENTS, OTHER.

Canadian Meteorological and Oceanographic Society (CMOS) AWARDS Nominations Deadline: Feb 15.

February 15th is the deadline for nominations for the CMOS Prizes and Awards. It may seem far away, but it always seems to arrive faster than we thought.

Please take a moment to visit http://www.cmos.ca/site/awards for a list of the eight awards, for instructions on how to make a nomination and then submit something on behalf of one of your colleagues or students.

CMOS has a rich history recognizing deserving persons (members and non-members) through its awards programs. But regrettably, there are many deserving candidates who go unrewarded each year because we were too busy to work up a nomination. **Don't wait – do it now!**

Note that any inquiries and all nominations are to be forwarded to the CMOS Awards Coordinator (Denis Bourque) at awards-coord@cmos.ca.

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Appel pour les nominations : Prix de la SCMO

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 1, 2020. POSTED IN NOUVELLES ET ÉVÉNEMENTS.

Date limite pour les nominations envers les Prix de la Société canadienne de météorologie et d'océanographie (SCMO) : 15 février.

Le 15 février est la date limite pour la soumissions des mises en candidature pour les prix et honneurs de la Société. Cela semble peut-être loin, mais il semble toujours que la date arrive soudainement.

Veuillez prendre quelques secondes pour visiter http://www.cmos.ca/site/awards?language=fr_FR& pour la liste des huit prix et pour lire les instructions, puis prendre le temps de soumettre la nomination d'un de vos collègues ou étudiants.

La SCMO a une histoire qui souligne les personnes méritantes (membres et non-membres) par ses programmes de reconnaissance. Malheureusement, il y a beaucoup de personnes qui méritent d'être nommées qui ne le sont pas, parce qu'on est trop occupé. N'attendez pas : faites-le maintenant!

À noter que toutes enquêtes ainsi que toutes nominations doivent être soumises au Coordinateur des honneurs de la SCMO (Denis Bourque) au coord-honneurs@scmo.ca

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Announcing the WeatherPod with Alan Thorpe and David Rogers

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 9, 2020. POSTED IN CLIMATE, NEWS & EVENTS, WEATHER.

The WeatherPod – the podcast which explores the role of the weather enterprise in building resilience to extreme weather & climate change.

The WeatherPod is a unique podcast exploring how weather and climate information is produced and used, and the key role of national and international co-operation in addressing the mounting challenges to life, society and business from extreme weather and climate change.

It brings together people and organisations sharing the common goal of providing and using accurate and reliable weather information and services to save lives, protect infrastructure and essential services, and enhance economic output.

According to the World Economic Forum (1), environmental concerns now dominate the top long-term global risks, while an analysis (2) of 500 of the world's biggest companies found nearly a trillion dollars is at risk because of climate change.

The WeatherPod is published monthly and is co-hosted by Alan Thorpe, a former Director General of the European Centre for Medium Range Weather Forecasts (ECMWF), and David Rogers, a former CEO of the UK Met Office and lead meteorological consultant at the World Bank and Global Facility for Disaster Reduction & Recovery (GFDRR).

In each episode, Alan and David invite a guest speaker to discuss various aspects related to weather and climate information and what role could public, private and academia sectors play in addressing the growing societal challenges related to hydromet hazards – from data and information processing and distribution, to its use by growing numbers of weather affected 'end users' in business and society.

In addition, each podcast episode includes two news features called 'Wow, That's Interesting!' which highlight science and technology innovations, and the consequences of hazardous weather events which rarely if ever make the headlines.

A central theme of WeatherPod is the importance of co-operation between the public, private and academic sectors in providing accurate and timely weather data products and services.

The WeatherPod is supported by the Global Facility for Disaster Reduction & Recovery (GFDRR) and has been launched by the Global Weather Enterprise Forum, an engagement between the public, private and academic sectors who make up the ‘global weather enterprise’ and share the common goal of using weather information for the benefit of all.

Target audiences include all those engaged in acquiring and producing weather information (e.g. scientists, companies, and meteorological services), the public and private enterprises affected by the weather, plus policy and decision-makers, the development agencies which finance improvements in weather services and, of course, the general public.

The WeatherPod is part of a planned range of digital communications from the GWE Forum designed to encourage discussion, share knowledge and increase understanding about the increasingly important role of weather information.

The WeatherPod is available to stream and download from the GWE Forum website, https://www.gweforum.org/series/podcasts/, via ACAST (https://shows.acast.com/5f6b61317a9b7e43e0429e31/episodes) Apple iTunes (https://podcasts.apple.com/gb/podcast/the-weatherpod/id1530926525)and, in the near future, from other popular podcast sites.

Further information

To talk to Alan and David, in the first instance please contact WeatherPod producer, Ian Harper, at ian@moneyvista.co.uk

About the Hosts

Alan Thorpe is an atmospheric scientist who has worked as a Professor of Meteorology, as head of the UK Met Office’s Hadley Centre and, most recently, as Director General of the European Centre for Medium Range Weather Forecasts.

David Rogers has extensive experience in meteorology and oceanography, is a former Chief Executive of the UK Met Office and now lead meteorological consultant with the World Bank.

About the GWE Forum

The Global Weather Enterprise Forum (GWE Forum) is an international engagement between the public, private and academic sectors, which share the common goal of providing accurate and reliable weather information and services that save lives, protect infrastructure and enhance economic output. The goal of the GWE Forum is to create an open dialogue between the public, private and academic sectors in the Global Weather Enterprise and pursue activities that test new ways to improve the delivery and sustainability of weather, climate and water services.

About the Global Facility for Disaster Reduction & Recovery (GFDRR)

The Global Facility for Disaster Reduction & Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change. GFDRR is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide. Working on the ground with over 400 local, national, regional, and international partners, GFDRR provides knowledge, funding, and technical assistance.

Sources

(1) Source: World Economic Forum 2020. For the first time in the history of the Global Risks Perception Survey, environmental concerns now dominate the top long-term risks by likelihood among members of the Forum's multistakeholder community.

(2) Source: CDP. A 2018 analysis of 500 of the world's biggest companies by market cap found nearly a trillion dollars is at risk because of climate change. Half of these companies also reported climate-related opportunities totalling over US$2.1 trillion dollars.

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An Update on CMOS's 2021 Virtual Congress

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 11, 2020. POSTED IN ARCTIC, CLIMATE, NEWS & EVENTS, OCEANS, WEATHER.

Update 9 November 2020

1. The 2021 Congress will be entirely on-line, over the 2-week period: 31 May – 12 June. To accommodate different time zones across Canada, the daily conference hours will be shorter: 0800-1300h Pacific Time; 1100h-1600 Eastern Time.

2. We are pleased to announce that the following people have accepted invitations to give Plenary Talks at CMOS 2021:

- Paul Snelgrove, Memorial University, Science Advisor to DFO
- Shawn Marshall, U. Calgary, Science Advisor to ECCC
- Andrew Weaver, U. Victoria, Climate science and politician
- Lisa Loseto, DFO Winnipeg, Arctic
- Johanna Wagstaffe, CBC Meteorologist, Vancouver
- Mark Jaccard, Simon Fraser University, Economics of addressing climate change
- Erin Bertrand, Dalhousie University, Ocean biogeochemistry

3. The Call for Proposals for Special Sessions has been emailed to all CMOS members, submissions to be guided by the following Themes:

- Advances in meteorology, weather observation and forecasting
- Arctic change
- Biogeochemistry
- Circulation in large lakes and the oceans
- Climate change from seasons to centuries
- Climate change: risks, impacts, resilience, and responses
- Dynamics of the atmosphere, oceans, and climate
- Hydrology, the cryosphere, and sea-ice forecasting

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CMOS Fellows and Honorary Fellows Nominations Deadline: March 15

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 13, 2020. POSTED IN NEWS & EVENTS.

The Canadian Meteorological and Oceanographic Society (CMOS) FELLOWS and HONORARY FELLOWS Nominations Deadline: March 15.

March 15th is the deadline to recognize your colleagues by nominating one or more of them to be a CMOS Fellow or CMOS Honorary Fellow. It may seem far away, but it always arrives faster than we expected.

The titles “CMOS Fellow” and “Honorary CMOS Fellow” may be granted for exceptional long term service and support to the Society and/or outstanding contributions to the scientific, professional, educational, forecasting or broadcasting fields in atmospheric or ocean sciences in Canada.

Nominations can originate from non-members of the Society, as long as at least one Sponsor is a Member.

Please take a moment to visit here for information about these designations and instructions on how to submit a nomination. Don’t wait – do it now!

Any inquiries and all nominations are to be forwarded to the CMOS Awards Coordinator (Denis Bourque) at awards-coord@cmos.ca.

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Soumission des mises en candidature pour le titre de Membre émérite et Membre honoraire de la SCMO

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 13, 2020. POSTED IN NOUVELLES ET ÉVÉNEMENTS.

Le 15 mars est la date limite pour la soumission des mises en candidature pour le titre de Membre émérite et Membre honoraire de la SCMO. Cela semble peut-être longtemps, mais la date arrive plus vite que l'on si attend.

Les titres « Membre émérite » et « Membre honoraire » sont accordés pour des services et/ou soutien exceptionnels à la Société, ou pour des contributions scientifique, professionnelle, éducative, ou en prévision ou présentation, dans les sciences atmosphériques ou océaniques au Canada.

Les nominations peuvent être d'origine de non-membres de la Société si au moins un des commanditaires est Membre.

Veuillez prendre quelques secondes pour visiter ici pour les instructions, afin de soumettre la nomination d'un de vos collègues. N'attendez pas : faites-le maintenant!

Toutes enquêtes ainsi que toutes nominations doivent être soumises au Coordinateur des honneurs de la SCMO (Denis Bourque) au coord-honneurs@scmo.ca

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2020-2021 Arctic Winter Seasonal Climate Outlook for Sea Ice

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 20, 2020. POSTED IN ARCTIC, CLIMATE, OCEANS, WEATHER, WHAT'S CURRENT.

– By contributors from Environment and Climate Change Canada, University of Quebec at Montreal, Arctic and Antarctic Research Institute, The Norwegian Meteorological Institute, Finnish Meteorological Institute, World Meteorological Organization, Climate Prediction Centre of the US National Oceanic and Atmospheric Administration, and the International Arctic Research Center –

Arctic Climate Forum Consensus Statement

CONTEXT

Arctic temperatures continue to warm at more than twice the global mean. Annual surface air temperatures over the last 5 years (2016–2020) in the Arctic (60°–85°N) have been the highest in the time series of observations for 1936-2020[1]. Though the extent of winter sea-ice approached the median of the last 40 years, both the extent and the volume of Arctic sea-ice present in September 2020 were the second lowest since 1979 (with 2012 holding minimum records)[2]. To support Arctic decision makers in this changing climate, the recently established Arctic Climate Forum (ACF) convened by the Arctic Regional Climate Centre Network (ArcRCC-Network) under the auspices of the World Meteorological Organization (WMO) provides consensus climate outlook statements in May prior to summer thawing and sea-ice break-up, and in October before the winter freezing and the return of sea-ice. The role of the ArcRCC-Network is to foster collaborative regional climate services amongst Arctic meteorological and ice services to synthesize observations, historical trends, forecast models and fill gaps with regional expertise to produce consensus climate statements. These statements include a review of the major climate features of the previous season, and outlooks for the upcoming season for temperature, precipitation and sea-ice. The elements of the consensus statements are presented and discussed at the Arctic Climate Forum (ACF) sessions with both providers and users of climate information in the Arctic twice a year in May and October, the later typically held online. This consensus statement is an outcome of the 6th session of the ACF held online on 28-29 October 2020 and

coordinated by the North American Node of ArcRCC-Network hosted by the United States of America.

HIGHLIGHTS

The combination of an Arctic meridional atmospheric circulation (north-south) and high ocean surface heating this summer (JJA: June, July, August 2020) was the main driver of this past season's temperature, precipitation and sea ice anomalies. Above normal temperatures forecast for all Arctic regions this winter (November 2020 to January 2021) will continue to have implications for sea-ice over that time period.

Sea-ice: The Northern Hemisphere September 2020 minimum sea-ice extent was the 2nd lowest since 1979, with the Eurasian seas and the Northern Sea Route completely ice free while sea-ice conditions in the Beaufort Sea and the Canadian Archipelago were close to normal. Later than normal fall freeze-up is expected for Baffin Bay, East Siberia, and the Kara, Labrador, and Laptev Seas; near normal to early freeze-up is expected for all other regions. Below to near normal 2021 maximum sea ice extent are forecast for majority of the Arctic.

UNDERSTANDING THE CONSENSUS STATEMENT

This consensus statement includes: a seasonal summary and forecast verification for sea-ice for previous 2020 Arctic summer season (June, July, and August 2020); an outlook for the upcoming 2020-2021 Arctic winter season (November 2020, December 2020, and January 2021). Figure 1 shows the established shipping routes and regions used for the sea-ice products.

Figure 1. Sea-Ice Regions. Map Source: Courtesy of the U.S. National Academy of Sciences

The majority of the sea-ice extent and experimental freeze-up forecasts are based on the Canadian Seasonal to Inter-annual Prediction System (CanSIPSv2), a multi model

ensemble (MME) of two climate models. The Baltic Sea forecasts are developed using outputs from the ECMWF Long-Range Forecasts, UK MetOffice, and NOAA CFSv2. A larger multi-model ensemble that will include forecasts from the following WMO GPC-LRFs is under development: ECCC/MSC (CanSIPSv2), NOAA (CFSv2), Meteo-France (System 5), UK MetOffice (GloSea5) and ECMWF (SEAS5). When sea-ice extent is at its maximum in March of each year, forecasts are available for the following peripheral seas where there is variability in the sea-ice edge: Barents Sea, Bering Sea, Greenland Sea, Northern Baltic Sea, Gulf of St. Lawrence, Labrador Sea, and Sea of Ohkotsk. In addition to these regions, forecasts for sea-ice freeze-up are also available for Hudson Bay, East Siberian Sea, Kara Sea, Laptev Sea, Chukchi Sea and the Beaufort Sea. Winter outlooks for key shipping areas are provided by the Arctic and Antarctic Research Institute, American, Canadian, Norwegian and Finnish ice services, and are based on statistical model guidance and forecast expertise.

SEA-ICE and ARCTIC OCEAN

Sea surface temperature (SST) anomalies and the heat content (HC) of the upper layer of the polar ocean influences the melting and growth of sea-ice. High positive SST anomalies and prevailing positive polar ocean upper layer (20 m) HC during June-August 2020 (MERCATOR Ocean reanalysis, not shown here) simulated the melting of sea-ice in parts of the Kara and Laptev Sea. On the other hand, near normal to below normal SST and HC anomalies over that same time period slowed the melting of sea-ice in the Beaufort and Chukchi Seas (Figure 2).

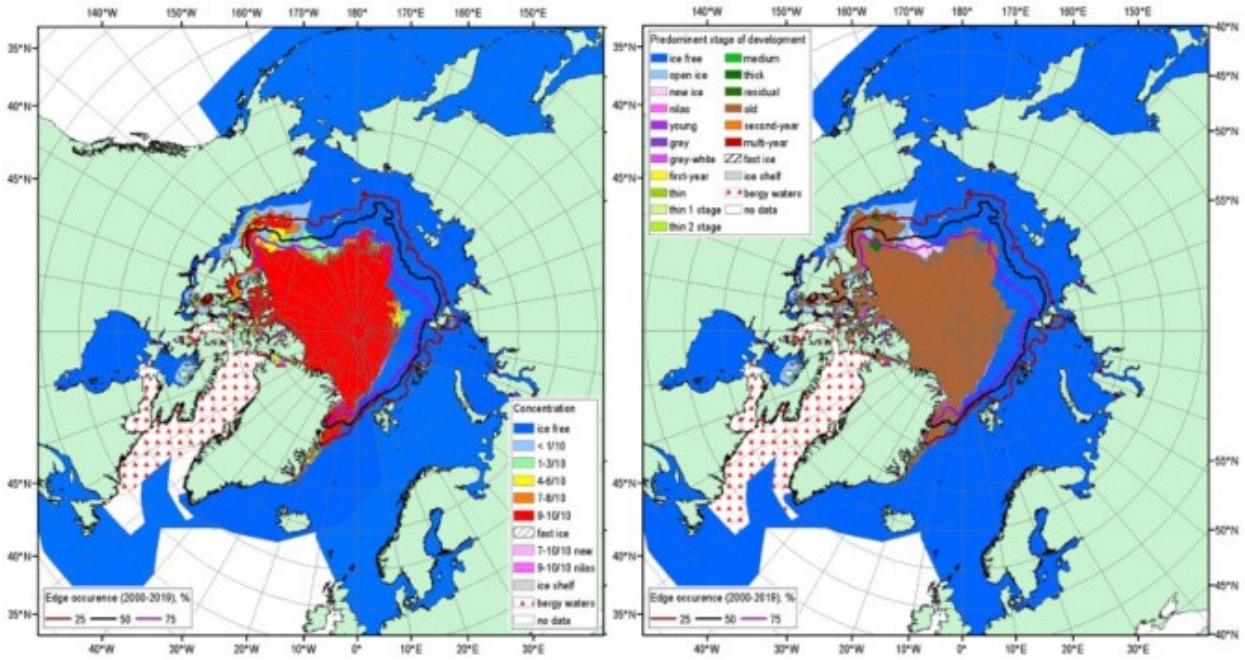

Figure 2. Blended Arctic sea-ice chart (AARI, CIS, NIC) for 14-17 September 2020 and sea-ice edge occurrences for 14-17 September for 2000-2019.
Left: total concentration
Right: predominant stage of development.

The 3.9 mln km^2 minimum sea-ice extent reached on September 12, 2020 is the second lowest minimum sea-ice extent since 1979, with the minimum summer sea-ice extent observed in 2012 (3.35 mln km^2). Estimates of the sea-ice volume based on numerical reanalysis (HYCOM-CICE, PIOMAS) show that the 2020 sea-ice volume is the second lowest, with 2012 and 2016 tied for lowest. The 2020 sea-ice is not considerably lower than that of 2019, suggesting higher summer sea-ice thickness in 2020 compared to 2019. However, extreme reduction of the Arctic sea-ice cover this summer significantly differs in shape with that of 2019. While the Eurasian shelf seas and the Northern Sea Route were completely ice free, sea-ice conditions in the Beaufort Sea and the Canadian Archipelago were close to normal, with the Northwest Passage closed.

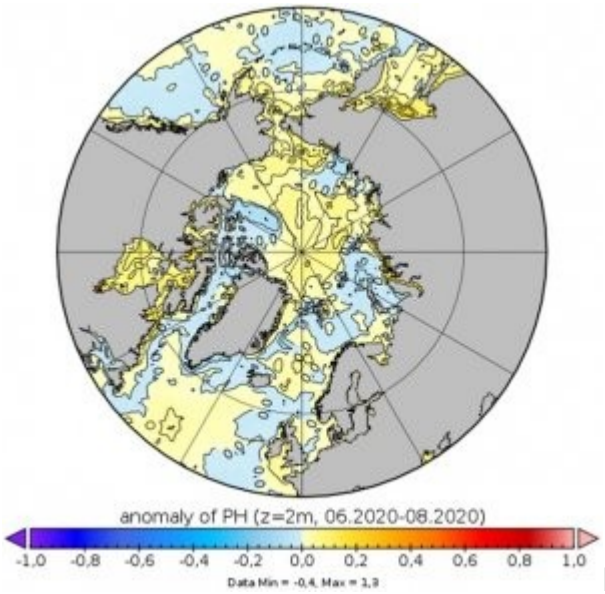

Figure 3. pH 2m depth anomalies in June, July, and August 2020 relative to 2000-2019. Map produced by the Arctic and Antarctic Research Institute http://www.aari.ru. Data source: Copernicus Marine Service.

Figure 3 shows the MERCATOR Ocean pH anomalies for summer 2020, where areas of both positive (yellow areas: Arctic Basin, Norwegian Sea, and Chukchi Sea) and negative pH (blue areas: Barents, Kara Sea, and Canadian Arctic) anomalies can be identified. Such pH anomalies indicate possible effects of the different alkalization and acidification processes to Arctic marine wildlife.

Higher than normal sea surface temperatures and surface layer heat content were observed in the Eurasian Arctic, Bering Seas, and parts of the Baffin Sea and Hudson Bay during summer 2020. On the other hand, the Beaufort Sea and a portion of the Greenland and Barents Seas experienced their lowers surface heating in 20 years. The absence of sea-ice, combined with high surface heating, resulted in stormier than normal conditions over most of the Arctic shelf seas and adjacent parts of the Arctic Basin (not shown here).

The forecast for September 2020 sea-ice extent (Figure 4) was based on output from CanSIPSv2 and an MME of two climate models. Forecast accuracy was high for all regions with the only exceptions being two instances of low accuracy noted in the Barents and Greenland Seas (Table 1). The summer seasonal forecast of above normal sea-ice extent in the two aforementioned areas were the only instances of forecasted higher than normal sea-ice coverage, whereas all regions in the Arctic summer forecast witnessed below normal conditions. Above normal air temperatures across most of the Arctic supported significant sea-ice losses in all basins, as below normal sea-ice extents at the September 2020 minimum were observed in every forecast region. Additionally, notable warm sea surface temperature anomalies were observed in the Eurasian Basin and northern Baffin Bay that contributed to the severely diminished sea-ice extents in these sectors. Observed lower than normal old sea-ice concentrations in the southern Beaufort Sea and the Canadian Arctic Archipelago also led to lower extents in these regions as old ice tends to be thicker and thus less prone to complete melt than first-year ice types.

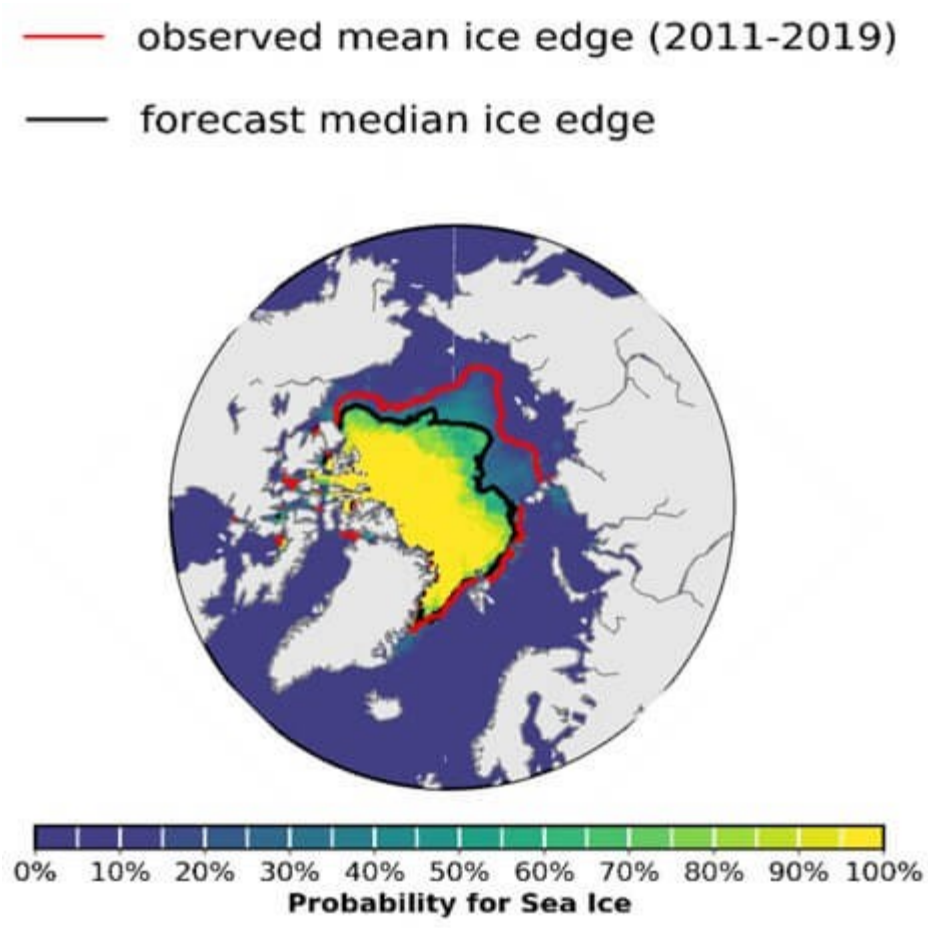

Figure 4. September 2020 probability of sea-ice at concentrations greater than 15% from CanSIPSv2 (ECCC). Forecast median ice extent (black) and observed mean sea-ice extent 2011-2019 (red).

Table 1. Summer 2020: Regional Comparison of Observed and Forecasted Minimum Sea-Ice Extent

Regions (see Figure 2)	CanSIPS Sea-Ice Forecast Confidence	CanSIPS Sea-Ice Forecast	Observed Ice Extent	CanSIPS Sea-Ice Forecast Accuracy
Barents Sea	Low	Above normal (northern section)	Below normal	Low
Beaufort Sea	Moderate	Below normal	Below-Near normal	High
Canadian Arctic Archipelago	Moderate	Below normal	Below normal	High
Chukchi Sea	High	Below normal	Below normal	High
Eastern Siberian Sea	Moderate	Below normal	Below normal	High
Greenland Sea	High	Above normal	Below normal	Low
Kara Sea	High	Below normal	Below normal	High
Laptev Sea	High	Below normal	Below normal	High

Outlook for Fall Freeze-up 2020:

Sea-ice freeze-up is defined as the date where ice concentration exceeds 50% in a region. The outlook for fall freeze-up shown in Figure 5 displays the sea-ice freeze-up anomaly from CanSIPSv2 based on the nine-year climatological period from 2011-2019. The qualitative 3-category (high, moderate, low) confidence in the forecast is based on the historical model skill. Only regions where the model has historical skill are included in the outlook (Figure 6). A summary of the forecast for the 2020 fall freeze-up for the different Arctic regions is shown in Table 2.

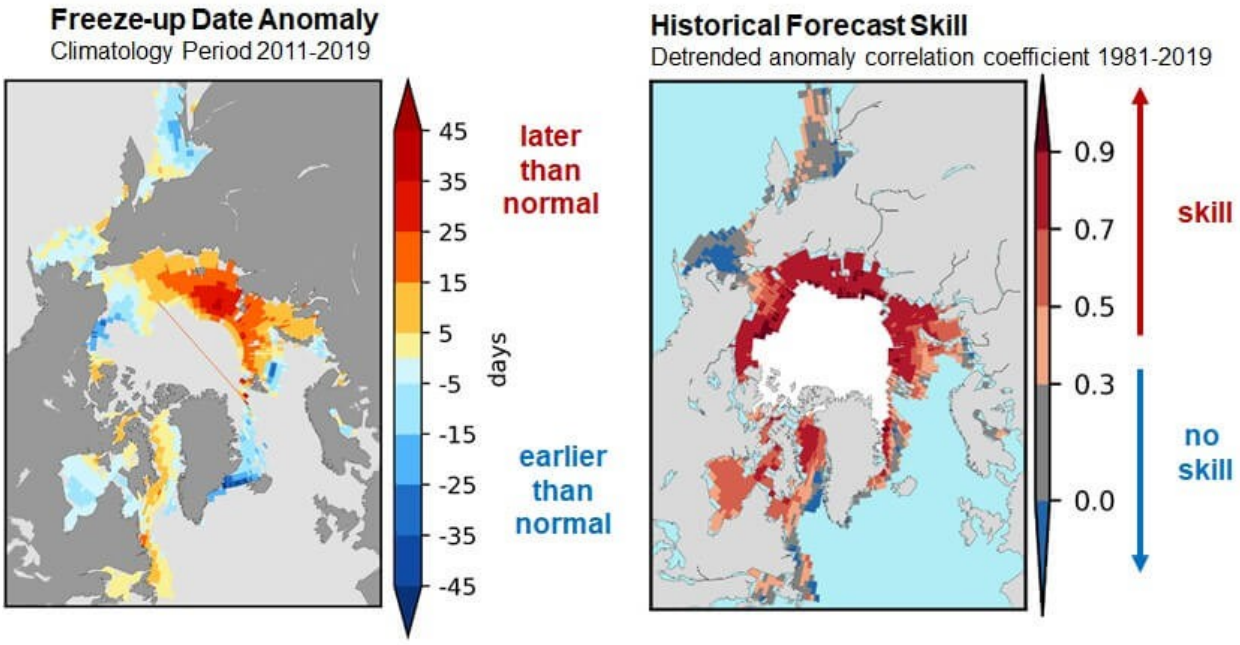

Figure 5. Forecast for the 2021 winter freeze-up expressed as an anomaly (difference from normal), where freeze-up is defined as the date when the ice concentration exceeds 50%.

Figure 6. Historical forecast skill defined as the detrended anomaly correlation coefficient based on the 1981-2019 period.

Table 2: Winter 2020-2021 Regional Outlook for Arctic Sea Ice Freeze-up

Regions (see Figure 1)	CanSIPSv2 Sea-Ice Forecast Confidence	CanSIPSv2 Sea-Ice Freeze-up Forecast
Baffin Bay	Moderate	Late
Barents Sea	High	Near normal
Beaufort Sea	High	Near normal to early
Bering Sea	Low	Near normal to early
Chukchi Sea	Moderate	Near normal
East Siberian	High	Late
Greenland Sea	High	Near normal to early
Hudson Bay	Moderate	Near normal to early
Kara Sea	High	Late
Labrador Sea	Moderate	Late
Laptev Sea	High	Late
Sea of Okhotsk	Low	Near normal

Outlook for March 2021 Maximum Sea Ice Extent

March 2021 sea-ice probability of ice concentration > 15%

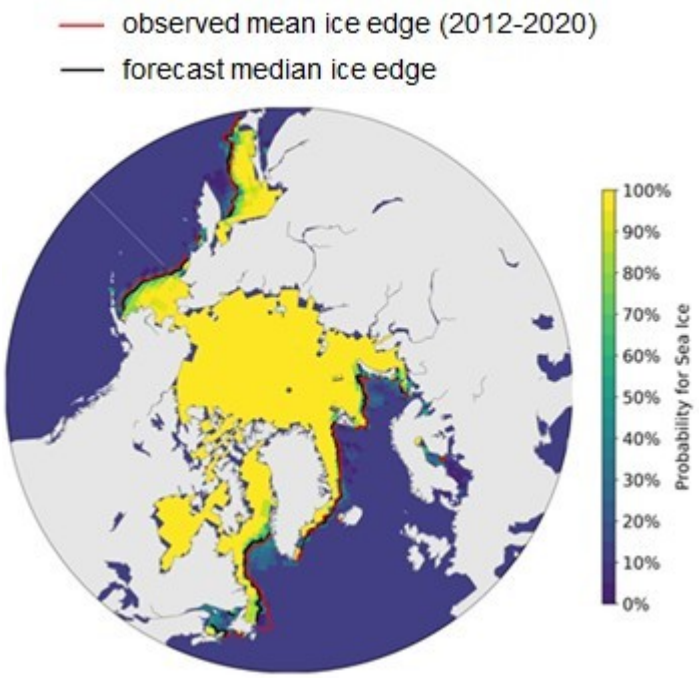

Figure 7: March 2021 probability of sea-ice at concentrations greater than 15% from CanSIPSv2 (ECCC). Forecast median ice extent from CanSIPSv2 (black) and observed mean ice edge 2012-2020 (red).

Regions (see Figure 1)	CanSIPSv2 Sea-Ice Extent Forecast Confidence	CanSIPSv2 Sea-Ice extentForecast
Barents Sea	Moderate	Near normal
Bering Sea	High	Near normal
Greenland Sea	Moderate	Near normal
Northern Baltic Sea	Moderate*	Below normal*
Gulf of St. Lawrence	Moderate	Below normal
Labrador Sea	Low	Below normal
Sea of Okhotsk	High	Near normal

Table 3: Winter 202-2021 Regional Outlook for Maximum Sea-Ice Extent
*: Based on ECMWF Long-Range, UK MetOffice, and NOAA CFSv2 forecasts

Maximum sea-ice extent is normally achieved each year during the month of March in the northern hemisphere. Table 3 categorizes the sea-ice extent forecast confidence and relative extent (i.e. near normal, below normal, above normal) by Arctic region with respect to an average sea ice extent based on 2009-2017 conditions. Figure 7 displays the probabilities of sea-ice presence for concentrations greater than 15% and the forecasted mean ice extent from CanSIPSv2 (black), with the observed median sea-ice extent for the 2012-2020 period in red. The sea-ice extent is expected to be below normal for the Northern Baltic Sea, the Gulf of St. Lawrence, and the Labrador Sea, and near normal for the Barents Sea, the Bering Sea, the Greenland Sea, and the Sea of Okhotsk.

Outlook for Key shipping regions

Gulf of St. Lawrence: Below normal sea-ice conditions are expected this winter based on current sea surface temperatures, forecasted surface air temperatures and numerical model guidance. Forecasted lighter ice conditions should mitigate any significant difficulties encountered in the Gulf and in individual ports. The expected

winter air temperature regime may delay freeze-up significantly and reduced ice thickening may lead to rapid and early spring break-up.

The Baltic Sea: The sea-ice season in the Baltic Sea regime is expected to become mild according to the seasonal sea ice forecast. Navigation will be affected by ice mainly in the Bay of Bothnia and in the eastern Gulf of Finland. A mild winter with its fluctuating weather typically causes ice deformation and brash ice barriers to form at the ice edge, both of which are difficult for shipping.

Svalbard and Barents Sea: The sea-ice freeze-up time and March 2021 extent around Svalbard and in the northern part of the Barents Sea is expected to be close to normal for the upcoming winter season, based on the forecast model. However, since the model does not show if the sea-ice extent is composed of older ice advected into the area or new ice grown in situ, the impact for users is difficult to ascertain.

Northern Sea Route (NSR): Later than normal freeze-up and below normal sea-ice conditions are expected for the NRS this winter based on current and forecasted sea surface and surface air temperatures. The expected winter air temperature regime will continue to support the development of medium first-year ice in the Kara Sea and thick first-year ice in the Laptev and Eastern Siberian Seas. Forecasted lighter ice conditions should mitigate any significant difficulties encountered in the area. The expected higher than normal snow height may delay the start of the melting processes this spring.

Sea of Okhotsk: Earlier than normal freeze-up and normal March 2021 sea-ice extent in the Sea of Okhotsk are expected based on current ocean and forecasted surface air temperatures, and numerical model guidance.

Endnotes

1. Review of Hydrometeorological processes in the Northern Polar Region, AARI, 2016-2019; http://www.aari.ru/misc/publicat/gmo.php
2. http://psc.apl.uw.edu/research/projects/arctic-sea-ice-volume-anomaly

Background and Contributors

This Arctic seasonal climate outlook was prepared for ACF-6. Contents and graphics were prepared in partnership with the Russian, United States, Canadian, Norwegian, Danish, Finnish, Swedish, and Icelandic meteorological agencies and contributions of the former JCOMM Expert Team on Sea-ice, former CCl/CBS Inter-Programme Expert Team on Regional Climate Activities, the GCW, the IICWG, and with input from AMAP.

The ArcRCC-Network, a collaborative arrangement with formal participation by all the eight Arctic Council member countries, is in demonstration phase to seek designation

as a WMO RCC-Network, and its products and services are in development and are experimental. For more information, please visit https://arctic-rcc.org/acf-fall-2020

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Acronyms:

AARI: Arctic and Antarctic Research Institute
ArcRCC-Network: Arctic Regional Climate Centre Network https://www.arctic-rcc.org/
ACF: Arctic Climate Forum
AMAP: Arctic Monitoring and Assessment Programme
CAA: Canadian Arctic Archipelago
CanSIPSv2: Canadian Seasonal to Inter-annual Prediction System
CCl: WMO Commission for Clilmatology/
CBS: WMO Comission for Basic Systems
CIS: Canadian Ice Service
ECCC: Environment and Climate Change Canada
ECMWF: European Centre for Medium-Range Weather Forecasts
ESS: Eastern Siberian Seas
GCW: Global Cryosphere Watch
GPCs-LRF: WMO Global Producing Centres Long-Range Forecasts
GloSea5: Met Office Global Seasonal forecasting system version 5
HYCOM-CICE: HYbrid Coordinate Ocean Model, Coupled with sea-ICE
IICWG: International Ice Charting Working Group
IOC: Intergovernmental Oceanographic Commission
JCOMM: Joint WMO/IOC Technical Commission on Oceanography and Marine Meteorology
NIC: National Ice Center (United States)
NCAR: National Center for Atmospheric Research
NCAR CFSR: National Center for Atmospheric Research Climate Forecast System Reanalysis
NOAA/NWS/NCEP/CPC: National Oceanic and Atmospheric Administration/National

Weather Service/National Centers for Environmental Prediction/Climate Prediction Center (United States of America)
NSIDC: National Snow and Ice Data Center (United States)
MME: Multi-model ensemble
NSR: Northern Sea Route
NWP: Northwest Passage
PIOMAS: Pan-Arctic Ice Ocean Modeling and Assimilation System
WMO: World Meteorological Organization

David Grimes Appointed to the Order of Canada

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 30, 2020. POSTED IN CLIMATE, MEMBERS, NEWS & EVENTS, WEATHER.

Congratulations to David Grimes, C.M, who is to become a Member of the Order of Canada, for his outstanding leadership in meteorology and for his pioneering development of a global strategy on climate change and disaster-risk preparedness.

#

2021 CMOS Congress – Call for Session Proposals

WRITTEN BY CMOS BULLETIN SCMO ON NOVEMBER 30, 2020. POSTED IN ARCTIC, ATMOSPHERE, CLIMATE, NEWS & EVENTS, OCEANS, WEATHER.

Dear CMOS member or past Congress participant,

The Canadian Meteorological and Oceanographic Society (CMOS) 55th Congress will be held 31 May to 11 June, 2021, hosted by the Vancouver Island Centre. The Congress will be held using a virtual (on-line) format, extending over a longer period, 9-10 days, with reduced hours each day to accommodate multiple time zones. More detailed information will be posted as it becomes available on the Congress website at www.cmos.ca under the CONGRESS tab.

The focus of this Congress is “Climate Change: Risk, Resilience, Response”. While the Canadian public are generally supportive of our governments taking action on climate change, the COVID-19 pandemic has, rightly, captured the public’s attention in the last few months. We hope that this Congress will help maintain and sharpen the focus of our professional community on the issue of climate change. Proposals for scientific sessions are being invited for all areas of interest of CMOS, especially relating to the following themes (order is alphabetical):

- Advances in meteorology, weather observation and forecasting
- Arctic change
- Biogeochemistry
- Circulation in large lakes and the oceans
- Climate change from seasons to centuries
- Climate change: risks, impacts, resilience, and responses
- Dynamics of the atmosphere, oceans, and climate
- Hydrology, the cryosphere, and sea-ice forecasting

At this time, we are inviting interested members to propose and to take the lead on organizing scientific sessions. Although sessions will be determined and finalized after all abstracts have been received, this is an opportunity to organize a session in your particular area of expertise and interest. We would anticipate that you would then encourage your contacts to submit abstracts for that session. Sessions will be organized into 1 1/2-hour blocks of six 15-minute presentations, or organizers may allot 30-minutes for an invited lead speaker and four 15-minute presentations. Multiple 1 1/2-hour sessions are welcome if the number of submitted abstracts warrant it. There will also be ‘poster’ sessions with individual 3-5 minute talks, with ~4 slides each.

Please submit your proposal for a special session through the CMOS website and select “Congress”. The proposal should include the session title (up to 40 characters), contact information about the session conveners (at least 2 needed for an on-line Congress), and a short paragraph of up to 300 words describing the scientific content of the proposed session. All session proposals should be received by 7 December 2020 for consideration by the SPC. This preliminary list of sessions will be used in the Call for Abstracts which will be issued later in December 2020.

We look forward to receiving your submissions.

#

2021 CMOS Scholarships

WRITTEN BY CMOS BULLETIN SCMO ON DECEMBER 6, 2020. POSTED IN NEWS & EVENTS.

The Canadian Meteorological and Oceanographic Society (CMOS), the premier Society for atmospheric and oceanographic sciences in Canada, offers undergraduate and graduate scholarships to students in atmospheric sciences, meteorology, climate, oceanography and related fields (e.g., mathematics, hydrology, limnology).

The undergraduate scholarships offer $1,000 and $1,500.
The graduate scholarship is $5,000 (with an option for a 2nd year).
Information about these scholarships and how to apply can be found here.
You do not have to be a member of the Society to receive a scholarship.

The application deadline for the undergraduate scholarships is **March 15th**.
The application deadline for the graduate scholarship is **April 20th**.

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Bourse d’études de la SCMO 2021

WRITTEN BY CMOS BULLETIN SCMO ON DECEMBER 6, 2020. POSTED IN NOUVELLES ET ÉVÉNEMENTS.

La Société canadienne de météorologie et d’océanographie (SCMO), la Société principale au Canada pour les sciences atmosphériques et océanographiques, offre des bourses d’études de premier, deuxième et troisième cycle à des étudiants dans des programmes d’études en science de l’atmosphère, météorologie, climat, océanographie et sciences connexes (p.ex., mathématique, hydrologie, limnologie.)

Les bourses du premier cycle offre 1 000$ et 1 500$.
La bourse de deuxième ou troisième cycle a une valeur de 5 000$ (avec une possibilité d’une deuxième année).
Vous trouverez tous les détails nécessaires en ligne ici.
Vous ne devez pas être membre de la Société pour recevoir une bourse.
La date limite pour les bourses du premier cycle est le **15 mars**.
La date limite pour les bourse du deuxième ou troisième cycle est le **20 avril**.

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