



Canadian Meteorological  
and Oceanographic Society

La Société canadienne  
de météorologie et  
d'océanographie

# CMOS **BULLETIN** SCMO

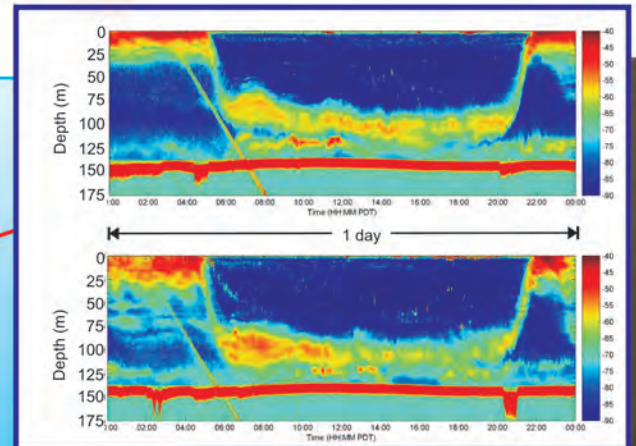
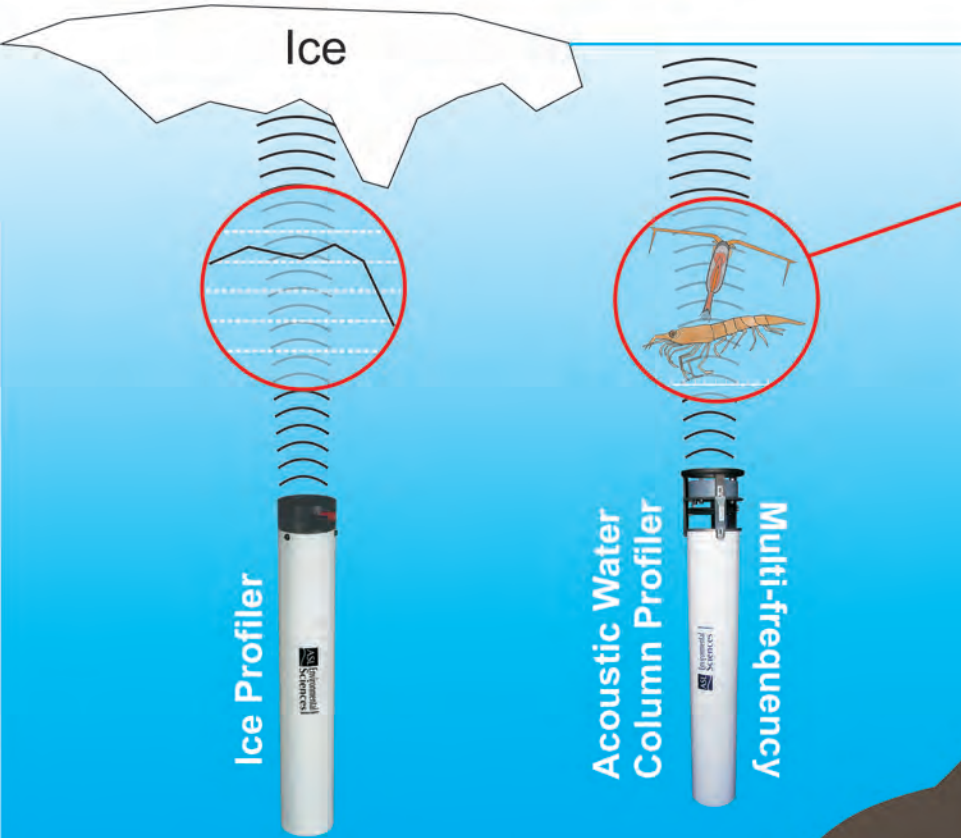
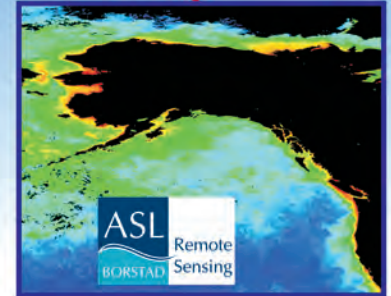
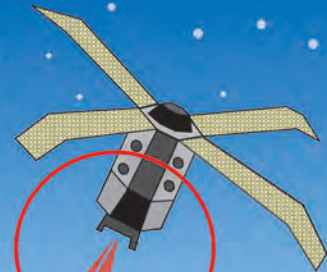
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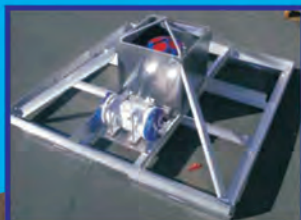
CMOS 5<sup>th</sup> Photo Contest / 5<sup>e</sup> Concours photographique de la SCMO

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## ...from the President's Desk

Friends and colleagues:

Norman McFarlane  
President CMOS  
Président de la SCMO

The annual Congress is the major yearly event for CMOS. For me it has always been something to look forward to when I have been able to attend. This year the Congress in Victoria was a great success. Over 500 people attended and over 450 papers were presented. The Victoria Conference Centre is an outstanding venue. The organization and operation were flawless and the program was excellent with outstanding plenary speakers, public lectures and scientific sessions

that covered the breadth of topics within the Congress theme of "**Ocean, Atmosphere and the Changing Pacific**".

For me the 45<sup>th</sup> CMOS Congress certainly lived up to my expectations of it as a highlight event of the year. It is impossible to overemphasize the importance of the hard work and dedication of the large team of volunteers and the Local Arrangements Committee, chaired by Nathan Gillett. The excellence and success of the program were largely because of the efforts of Bill Merryfield and the Scientific Program Committee that he chaired.

Next year the 46<sup>th</sup> CMOS Congress will be held from May 29 to June 1 in Montreal. CMOS 2012 will be held jointly with the 25<sup>th</sup> Conference on Weather Analysis and Forecasting and the 21<sup>st</sup> Conference on Numerical Weather Prediction of the American Meteorological Society. Holding of these AMS conferences in Montreal in conjunction with the 2012 CMOS Congress recognizes Canadian leadership for many decades in numerical weather prediction and related fields. Its theme will be "**The Changing Environment and its Impact on Climate, Ocean and Weather services**". Louis Lefavre is the chair of the Local Arrangements Committee and Pierre Gauthier is the chair of the Scientific Program Committee. Preparations are well under way for what promises to be another excellent CMOS Congress.

(Continued on page 119 / Suite à la page 119)

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**CMOS Bulletin SCMO**

"at the service of its members / au service de ses membres"

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**Cover page:** Shown on the cover page are the three winning photos from the 5<sup>th</sup> CMOS Annual Photo Contest. Top, 1<sup>st</sup> prize: *Storm over Canola* from Patrick McCarthy; bottom left: 2<sup>nd</sup> prize: *Face to Face with Mother Nature*, also from Patrick McCarthy; bottom right: 3<sup>rd</sup> prize: *Frost on Flower* from Richard Verret. To learn more, please read Bob Jones' report on **page 131**.

**Page couverture:** Les trois photos gagnantes du 5<sup>e</sup> concours photographique annuel de la SCMO sont présentées en page couverture. Haut: 1<sup>er</sup> prix: *Storm over Canola* de Patrick McCarthy; en bas et à gauche: *Face to Face with Mother Nature*, également de Patrick McCarthy; en bas et à droite: *Frost Flower* de Richard Verret. Pour en savoir plus, veuillez lire le rapport de Bob Jones en **page 131**.

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**...from the President's Desk** (Continued / Suite)

Looking farther ahead, the 47<sup>th</sup> Congress will be held in Saskatoon jointly with the Canadian Geophysical Union (CGU) and the Canadian Water Resources Association (CWRA). The planning for CMOS 2013 is well under way under the leadership of Craig Smith as chair of the LAC and SPC Co-Chairs Geoff Strong (CMOS), Rod Blais (CGU) and Russ Boals (CWRA).

Several of the plenary talks and papers in the scientific sessions at the 45<sup>th</sup> CMOS Congress dealt with understanding and predicting changes in climate and associated impacts. As I write this column, the importance of such research activities are put into context for me by the flooding in Manitoba that is a daily news headline. Major flood occurrences such as this may be associated with a sequence of weather events that are individually unusual or occur in unusual combinations. Their occurrence underlines the importance of being able to quantify the causes of hitherto rare weather event combinations and anticipate their impact. Such "event attribution" studies are now being carried out by a few climate research groups in the world but they place strong demands on both the availability of long-term observations as well as on quantitative modeling and analysis capabilities. An interesting example is discussed in a recently published study of the flooding events that occurred in England in the summer of 2000 (*Pall et al., Nature, vol. 470, 17 February 2011*). That study suggested that the risk of floods in England and Wales has increased substantially as a result of the effects of 20<sup>th</sup> Century anthropogenic greenhouse gas emissions. This conclusion is broadly consistent with results from other studies that have been published in recent years. They suggest that, while it is not possible to ascribe any single high impact weather event or a particular combination of them to climate change, the increasing incidence of high impact weather events is a feature of the global climate change that is now occurring. However, there is still much uncertainty in quantifying the changing frequency of such events. When viewed in this context, reductions in support and capacity for weather and climate research appear to be, at least, short-sighted. The well publicized recent and anticipated further substantial reductions of scientific staff at the Federal Government level, combined with reduced Federal funding for climate and atmospheric research, are a cause for concern for CMOS and for Canadians.

*Norman McFarlane*  
CMOS President / Président de la SCMO

**CMOS exists for the advancement of meteorology and oceanography in Canada.**

**Le but de la SCMO est de stimuler l'intérêt pour la météorologie et l'océanographie au Canada.**

**Next Issue CMOS Bulletin SCMO**

Next issue of the *CMOS Bulletin SCMO* will be published in **October 2011**. Please send your articles, notes, workshop reports or news items before **September 2, 2011** to the address given on page 118. We have an URGENT need for your written contributions.

**Prochain numéro du CMOS Bulletin SCMO**

Le prochain numéro du *CMOS Bulletin SCMO* paraîtra en **octobre 2011**. Prière de nous faire parvenir avant le **2 septembre 2011** vos articles, notes, rapports d'atelier ou nouvelles à l'adresse indiquée à la page 118. Nous avons un besoin URGENT de vos contributions écrites.

**REMINDER - REMINDER - REMINDER**

CMOS has negotiated great membership deals for its members. CMOS members are eligible for a 25% discount off membership fees for the Royal Meteorological Society (RMetS) and the Canadian Geophysical Union (CGU) as associate members. Members of both these societies are also eligible for associate membership in CMOS; so please encourage your colleagues in those societies to join CMOS too.

**RAPPEL - RAPPEL - RAPPEL**

La SCMO a négocié des tarifs intéressants pour ses membres qui désirent devenir membre de la Société royale de météorologie (RMetS) et de l'Union géophysique canadienne (CGU). Un rabais de 25% est appliqué lorsque vous devenez membre associé de ces deux sociétés savantes. Les membres de ces deux sociétés ont également le privilège de devenir membre associé de la SCMO; dites-le à vos collègues et encouragez-les à rejoindre la SCMO.

This publication is produced under the authority of the Canadian Meteorological and Oceanographic Society. Except where explicitly stated, opinions expressed in this publication are those of the authors and are not necessarily endorsed by the Society.

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**ARTICLES**

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**A Useful Canadian Ozone Mapping Web Site****by Tom McElroy<sup>1</sup>**

A recent issue of the *CMOS Bulletin SCMO* (Vol.39, No.3) carried an article, reprinted from the Journal *NATURE*, that reported on the unusually low ozone over the Arctic in the late winter and early spring of 2011. At the end of the article there were two links to websites: a European site, on the Finnish Meteorological Service (FMI) website

[http://www.ava.fmi.fi/~jtammine/gomos\\_video.gif](http://www.ava.fmi.fi/~jtammine/gomos_video.gif)

and a US link on the NOAA (the US National Oceanic and Atmospheric Administration) website:

<http://www.esrl.noaa.gov/csd/assessments/ozone/>

The FMI site includes a video prepared from GOMOS (Global Ozone Measurement by the Occultation of Stars) data that shows the temporal behaviour of the Northern Hemisphere ozone profile during the 2011 Winter season projected against a backdrop of column ozone data from OMI (the Ozone Monitoring Instrument) on the NASA AURA satellite. The NOAA site has information about the Scientific Assessments of Ozone Depletion which are prepared every four years. While these sites were included in the *Bulletin*, because they were referenced in the *NATURE* article, there are other sites that are of interest to those seeking information about the global distribution of ozone. For example, NASA maintains a site that reports space-based measurements of ozone:

<http://toms.gsfc.nasa.gov/ozone/today.html>

There is also a Canadian site that provides very useful maps, particularly of the Polar regions, and also brings together prognostic information from other sites.

Each of these sites presents different information and, therefore, is of value to different users, depending on their needs. The availability of ozone maps in different projections is one of the key advantages of the Canadian site

<http://exp-studies.tor.ec.gc.ca>

which will be described in detail in the remainder of this note. The maps presented are also of unique importance because they integrate data from different sources, notably, currently, the OMI, GOME-2, SBUV and TOVS satellite instruments. The integration of TOVS and SBUV data is done by NOAA using data assimilation that involves TOVS data. The integration of TOVS data and OMI measurements permits the production of continuous maps of ozone in the Polar regions, even when there is no sunlight for the backscatter instruments, such as OMI, to make measurements. The dark regions are effectively filled in by the TOVS data. Forecast ozone maps are also posted on the site, using data from web sites operated by NASA and KNMI (the Royal Netherlands Meteorological Service).

In addition to a total ozone map, a map of the difference in ozone from an average pre-1980 reference field can be displayed to show the effects of ozone depletion on any particular day of the year. A sample, total column map showing the severe depletion that took place on April 1, 2011 is shown as Figure 1. Figure 2 shows the departure from historical, 'pre-CFC' values. Depletions of up to 40% can be seen.

A separate section of the website

<http://exp-studies.tor.ec.gc.ca/cgi-bin/dailyMaps?language=e&fsource=all&fday=all&region=n>

provides forecast maps of total ozone. Data from KNMI and NASA are presented as Figures 3 and 4, respectively, showing forecasts for April 1, 2011 created four days before.

The mapping website was developed by Vitali Fioletov and Tom Mathews of Environment Canada (EC) and is automatically updated daily. The ground-based data used in preparing the total column ozone maps are taken from the World Ozone and Ultraviolet radiation Data Centre (WOUDC) operated by Environment Canada on behalf of

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<sup>1</sup>Senior Research Scientist  
Environment Canada  
Downsview, Ontario, Canada

the World Meteorological Organization (WMO) and managed by Ed Hare at EC.

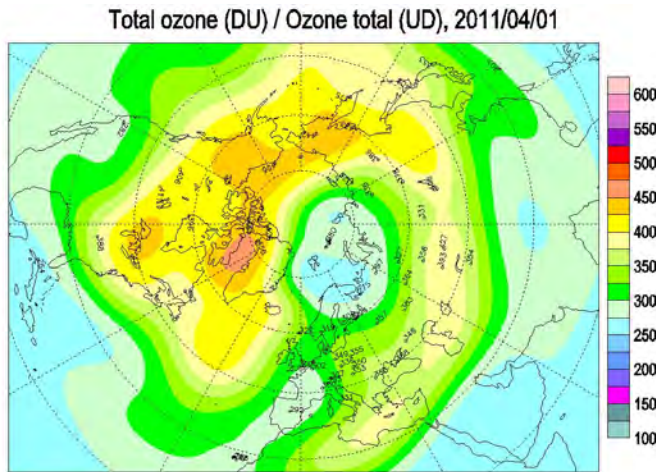


Figure 1: Map of the total column ozone distribution on April 1, 2011 created using OMI, GOME-2 and ground-based data. Note that there are ozone column amounts as low as 250 Dobson units near the centre of the arctic vortex. Map copied from Environment Canada website <http://exp-studies.tor.ec.gc.ca>.

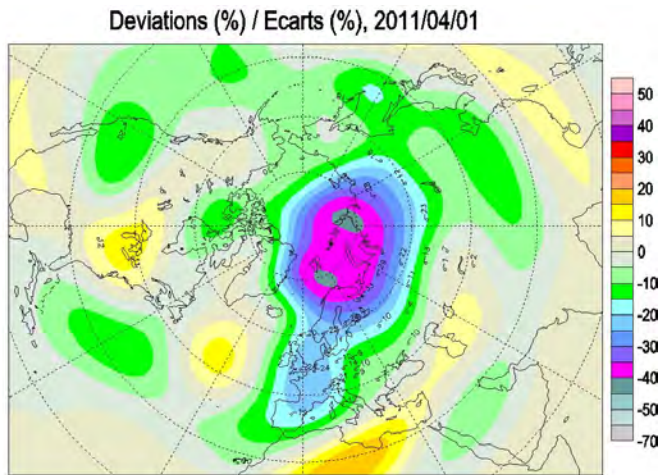


Figure 2: The departure of the April 1, 2011 total ozone column amount from the ozone climatology prior to 1980. There are regions in the arctic vortex where the ozone level is more than 40% below historical values.

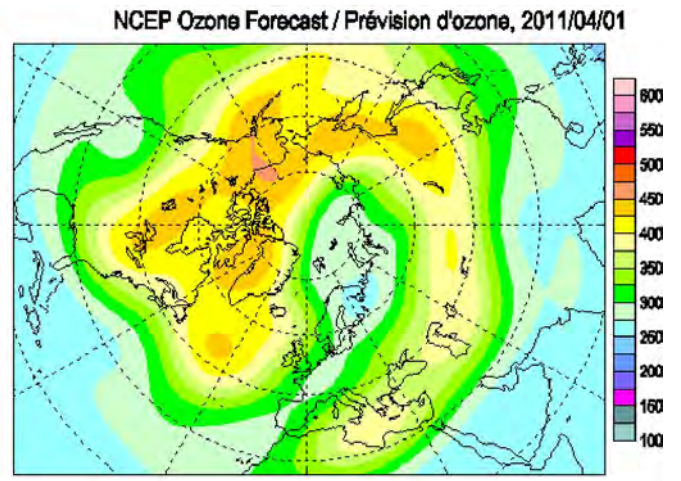


Figure 3: The US National Center for Environmental Prediction (NCEP) 4-day forecast for April 1, 2011.

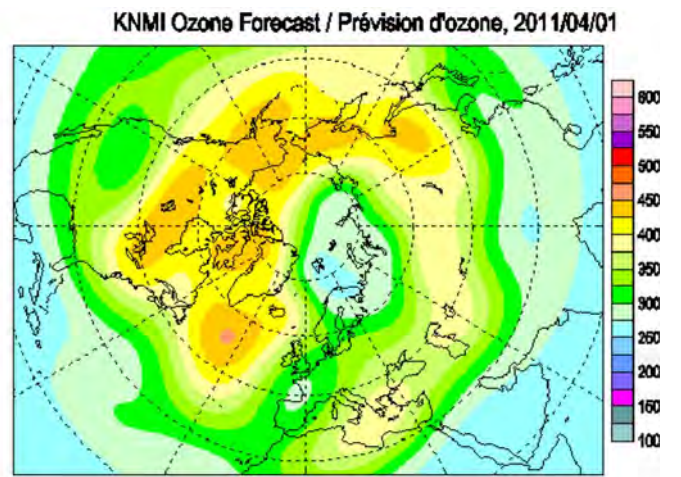


Figure 4: The Royal Netherlands Meteorological Service (KNMI) 4-day forecast for April 1, 2011.

## Happy Birthday Meteorological Service of Canada: 140 Years Young



When the Meteorological Service of Canada (MSC) began on May 1, 1871, it was one of the first public institutions created in the young country of Canada, and quickly became fondly known simply as, “The Weather Office.” With 140

years of serving this vast and varied country, MSC is one of the country’s oldest and longest running public services.

The main mission of a meteorological service is to get a high-quality weather forecast out to the public quickly. If it does not reach the public in time, it has no value. As a result, Canada’s weather service has always been one of the largest consumers of telecommunications services in Canada, creating and adapting new technologies to deliver more weather information to more people and to do it more quickly.

In fact, telecommunications helped transform meteorology into a modern practical science, and make national weather services possible. In turn, society’s basic need for weather warnings has often been a driving force behind communications devices such as the telegraph, radiotelephone, automatic telephone answering systems, Weatheradio, mobile phones, and now, of course, the internet.

Throughout the years, MSC has not only seen and adapted to the evolution of technology, but it has been a key facet of Canadian society – in both the dissemination and prediction of weather, as well as being the official source of weather watches and warnings. And this country has definitely seen its share of weather events in the last 140 years.

For every major weather event in Canada during that time-span, the MSC has been there. Environment Canada would like to congratulate its Meteorological Service, especially the thousands of staff that have worked for the service throughout the years.

While Environment Canada celebrates its own 40<sup>th</sup> anniversary and looks forward to the future, it also recognizes the large role that the MSC has played in shaping the strong reputation that this country has for public service.

### MSC Key Milestones

Here are some highlights in the service’s history, and how these key milestones have impacted our country:

#### 1871

With a grant from the Canadian government, George Kingston, the director of the Toronto Observatory and professor of meteorology at the University of Toronto, establishes a national meteorological office in Toronto and a network of weather observing stations. Toronto exchanges data with Washington and weather warnings are telegraphed back to Canada. Previously, people had relied on traditional knowledge about the colour of the sky or the behaviour of farm animals to predict the approach of a storm.

#### 1873

Ottawa funds a national weather warning system in the wake of the Great Nova Scotian Cyclone, which claimed some 500 lives as it swept across Cape Breton Island on Canada's East Coast. The storm also claimed 1,200 vessels, 900 buildings and numerous bridges before dying out.

#### 1876

Telegraph land lines link all the major cities in Eastern Canada. The first forecasts developed in Canada are issued from Toronto at 10 a.m. every day except Sunday, and are posted on public buildings.

#### 1920

The invention of wireless radio revolutionizes meteorology. Information can be gathered from hundreds of remote weather stations across the country and transmitted to isolated logging camps, island communities and even ships at sea.

#### 1935

The weather service provides a daily national weather synopsis and forecast for the Canadian Radio Commission’s Trans-Canada network – the precursor of the CBC.

#### 1939-1945

During the Second World War, information about the weather is a strategic military commodity. It was kept secret from the enemy and transmitted only in code to support anti-submarine patrols and ship convoys on the Atlantic and the Pacific oceans, as well as the British Commonwealth Air Training Plan. Nazi forces try to gain an advantage by secretly setting up an automated weather station in northern Labrador. The station operates for two weeks until its radio transmissions are jammed by the Allied forces.

#### 1952

Televised weather-casts debut on CBLT-TV in Toronto. Percy Saltzman is the first television weather broadcaster.

#### 1954

Hurricane Hazel strikes southern Ontario, killing 80 people and dumping some 300 million tonnes of rain on Toronto.



**1963**

The first weather satellite pictures are received in Canada.

**1971**

Canada's weather service joins the new Department of Environment. On October 29, a new headquarters building is opened in Toronto.

**1983**

Canada's weather service acquires its first supercomputer. It is installed at the Canadian Meteorological Centre in Montreal. The supercomputer results in dramatic improvements in computer modelling.

**1988**

In support of Canada's role as host of the Winter Olympic Games in Calgary, a weather forecast team represents the MSC, and provides site-specific forecasts and weather briefings for all of the outdoor events. The weather team shows up frequently in the media as Chinook conditions, with strong winds and warm temperatures, have substantial impact on the plans and operations.

**1989**

Environment Canada develops one of the first computerized models of the global climate. The model predicts an increase in the temperature around the world of 3.5° Celsius over the next 50 years. This trend is supported by the fact that 11 of the 12 warmest years have occurred since 1980.

**1992**

Canada becomes the first country to develop a daily nationwide ultraviolet (UV) index to warn Canadians about the dangers of over-exposure to the sun. Several other countries, including Australia, Germany, Great Britain and the United States, have now started their own programs, closely modelled on the Canadian UV index.

**2001**

The Air Quality Research Branch and the Canadian Meteorological Centre (CMC), a division of the MSC, implements a National Air Quality Prediction Program in Canada. The program provides numerical/chemical model guidance to provincial agencies and Environment Canada regions that produce daily air quality forecasts for the public.

Shortly after the terrorist attacks of September 11, the CMC Operations Branch provides specialized numerical guidance to Health Canada on the long-range atmospheric transport and dispersion of plumes from the attack locations. Results of the numerical simulations indicate that it is unlikely that any released material will affect Canadian territory within 72 hours.

**2010**

The MSC provides detailed weather predictions before and during the 2010 Olympic Winter Games in Vancouver. The weather forecasts, warnings and information are essential

for the safety, security and delivery of the Games, especially when extremely warm temperatures and spring-like conditions threaten to postpone or cancel many of the events.

Following the eruption of the Eyjafjöll volcano in Iceland, MSC's Volcanic Ash Advisory Centre (VAAC) staff becomes a key component in helping monitor the situation and reporting any changes in atmospheric conditions that could impact air traffic. MSC also works closely with Volcanic Ash Advisory Centres in London and Washington to ensure the accurate prediction of volcanic ash in the atmosphere.

Source: Environment Canada website (EnviroZine) visited late May 2011.

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## Bon 140<sup>e</sup> anniversaire au Service météorologique du Canada!



Lors du lancement du Service météorologique du Canada (SMC) le 1er mai 1871, c'était une des premières institutions publiques créées dans le jeune pays qu'était le Canada. C'est devenu rapidement le « bureau météorologique », un surnom affectueux. Servant depuis 140 ans ce vaste pays diversifié, le SMC est un des plus anciens services publics exploités depuis le plus longtemps.

La mission principale d'un service météorologique est d'offrir rapidement des prévisions météorologiques de qualité élevée à la population. Si la population ne reçoit pas rapidement ces prévisions, elles n'ont aucune valeur. C'est pourquoi le Service météorologique du Canada a toujours été un des consommateurs de services de télécommunications les plus importants au Canada, créant et adaptant de nouvelles technologies, afin d'offrir un nombre accru de données météorologiques à un nombre supérieur de gens et ce, de manière de plus en plus rapide.

En fait, les télécommunications ont aidé à transformer la météorologie. C'est maintenant une science pratique moderne. Les télécommunications rendent les services météorologiques nationaux possibles. De plus, les besoins de base de la société quant à des alertes météorologiques ont souvent favorisé l'élaboration de dispositifs de communication, comme le télégraphe, le radiotéléphone, les systèmes de réponse téléphonique automatique, Radiométéo, les téléphones mobiles et, maintenant, Internet.

Au fil des ans, le SMC a constaté l'évolution de la technologie et s'y est adapté, en plus d'être un élément clé de la société canadienne en ce qui a trait à la diffusion des conditions météorologiques et à la prévision du temps. C'est aussi la source officielle d'alertes et d'avertissements météorologiques. D'ailleurs, on sait que le pays a eu sa part d'événements météorologiques au cours des 140 dernières années.

Pour chaque événement météorologique intense au Canada durant cette période, le SMC était là. Environnement Canada aimerait féliciter son Service météorologique, tout particulièrement les milliers d'employés qui y ont travaillé au fil des ans.

Même si Environnement Canada célèbre son 40e anniversaire et se tourne vers l'avenir, il reconnaît aussi le rôle important que le SMC a joué pour établir la réputation d'excellence du pays en matière de service public.

### Étapes-clés du SMC

Voici quelques faits saillants de l'histoire du Service, et l'incidence de ces étapes-clés sur le pays :

#### 1871

Grâce à une subvention du gouvernement canadien, George Kingston, le directeur de l'observatoire de Toronto et professeur de météorologie à l'Université de Toronto, crée un bureau météorologique national à Toronto, ainsi qu'un réseau de stations météorologiques d'observation. Toronto échange des données avec Washington. Les avertissements météorologiques sont télégraphiés au Canada. Auparavant, les gens devaient se fier aux connaissances traditionnelles quant à la couleur du ciel ou au comportement des animaux de ferme pour prévoir l'approche d'une tempête.

#### 1873

Ottawa finance un système d'avertissement météorologique national à la suite du grand ouragan de Nouvelle-Écosse, où quelques 500 personnes ont perdu la vie, tandis qu'il a traversé l'île du Cap-Breton, sur la côte Est du Canada. La tempête a aussi détruit 1 200 navires, 900 immeubles et plusieurs ponts avant de s'éteindre.

#### 1876

Des lignes télégraphiques terrestres relient toutes les villes principales de l'Est du Canada. Les premières prévisions créées au Canada sont émises à Toronto, à 10 h, chaque jour, sauf le dimanche. Elles sont affichées sur les immeubles publics.

#### 1920

L'invention de la radio sans fil révolutionne la météorologie. On peut recueillir de l'information de centaines de stations météorologiques dans des régions éloignées du pays, et la transmettre à des camps isolés, à des communautés insulaires et même à des navires en mer.

#### 1935

Le service de météorologie propose un bulletin et des prévisions météorologiques nationaux quotidiens au réseau Trans-Canada de la Commission canadienne de la radiodiffusion, l'ancêtre de la SRC.

#### 1939-1945

Durant la Seconde guerre mondiale, les renseignements sur la météo deviennent des données militaires stratégiques. Elles sont gardées secrètes et sont transmises par code afin d'appuyer les patrouilles anti-sous-marine et les convois de navires dans les océans Atlantique et Pacifique, ainsi que le Programme d'entraînement aérien du Commonwealth britannique. Les forces nazies ont tenté d'obtenir un avantage en instaurant secrètement une station météorologique automatisée dans le nord du Labrador. La station a été exploitée pendant deux semaines, jusqu'à ce que les forces alliées bloquent les transmissions radio.

#### 1952

Des bulletins météorologiques télévisés sont maintenant offerts par la CBLT-TV à Toronto. Percy Saltzman est le premier présentateur de bulletins météo télévisés.

#### 1954

L'ouragan Hazel frappe le sud de l'Ontario, tuant 80 personnes et laissant quelques 300 millions de tonnes de pluie à Toronto.

#### 1963

Les premières photos d'un satellite météorologique sont reçues au Canada.

#### 1971

Le Service météorologique du Canada se joint au nouveau ministère de l'Environnement. Le 29 octobre, un nouvel immeuble pour l'administration centrale est ouvert à Toronto.

#### 1983

Le Service météorologique du Canada acquiert son premier superordinateur. Il est installé au Centre météorologique canadien de Montréal. Grâce au superordinateur, on améliore grandement la modélisation par ordinateur.

#### 1988

Pour appuyer le rôle du Canada à titre d'hôte des Jeux olympiques d'hiver de Calgary, une équipe chargée des prévisions météorologiques représente le SMC et propose des prévisions spécifiques à l'endroit et des informations météorologiques pour tous les événements extérieurs. Cette équipe fait souvent l'objet de reportages médiatiques, car les conditions de chinook, accompagnées de forts vents et de températures chaudes, ont un effet important sur les plans et les activités.

**1989**

Environnement Canada crée un des premiers modèles informatisés de climat mondial. Le modèle prévoit une hausse de la température à l'échelle mondiale de 3,5° Celsius au cours des 50 prochaines années. Cette tendance est appuyée par le fait que 11 des 12 années les plus chaudes ont été enregistrées depuis 1980.

**1992**

Le Canada devient le premier pays à élaborer un indice UV quotidien à l'échelle nationale pour prévenir la population canadienne des dangers d'une surexposition au soleil. Plusieurs autres pays, comme l'Australie, l'Allemagne, la Grande-Bretagne et les États-Unis, ont maintenant lancé leur propre programme, fortement semblable au modèle canadien.

**2001**

La Direction de la recherche sur la qualité de l'air et le Centre météorologique canadien (CMC), une division du SMC, ont mis en œuvre un programme national de prévision de la qualité de l'air au Canada. Le programme propose des lignes directrices quant aux modèles numériques/chimiques aux organismes provinciaux et aux régions d'Environnement Canada qui offrent des prévisions quotidiennes à la population concernant la qualité de l'air.

Peu après les attaques terroristes du 11 septembre, la Direction des opérations du CMC a proposé des données numériques spécialisées à Santé Canada sur le déplacement et la dispersion à grande distance des panaches des lieux attaqués dans l'atmosphère. Selon les résultats des simulations numériques, il était peu probable que les émissions auraient atteint le Canada au cours des 72 heures suivant les attaques.

**2010**

Le SMC propose des prévisions météorologiques détaillées avant et durant les Jeux olympiques d'hiver de 2010 à Vancouver. Les prévisions, les avertissements et les données météorologiques sont essentiels pour assurer la sécurité et le déroulement des Jeux, surtout lorsqu'on songe à retarder ou à annuler plusieurs activités en raison des températures extrêmement chaudes et des conditions printanières.

Suite à l'éruption du volcan Eyjafjöll, en Islande, le personnel du centre d'avis de cendres volcaniques (VAAC) du SMC devient essentiel pour tenter de surveiller la situation et faire état des changements concernant les conditions atmosphériques pouvant avoir une incidence sur le trafic aérien. Le SMC collabore aussi étroitement avec des centres d'avis de cendres volcaniques de Londres et de Washington afin de s'assurer que les prévisions de cendres volcaniques dans l'atmosphère sont exactes.

Source: Le site web d'Environnement Canada (EnviroZine) visité fin mai 2011.

**Publication Exchange Agreements**

Ever wondered how they do things in Australia? Of course, you can search the web and find all kinds of things of little interest to you as a meteorologist or oceanographer. Another way is to read their publications, and this is what we do at CMOS National. You may be interested to know that CMOS has a number of exchange agreements with other sister societies:

**World Meteorological Organisation** : we have full access to the WMO library and all on-line publications, in exchange for an individual CMOS membership for the WMO librarian.

**American Meteorological Society**: we exchange the CMOS Bulletin SCMO in return for AMS Bulletin.

**Australian Meteorological and Oceanographic Society**: we exchange the CMOS Bulletin SCMO in return for Bulletin of the AMOS and a "membership" in AMOS.

**Meteorological Society of New Zealand** : we exchange the CMOS Bulletin SCMO in return for their Newsletter and their journal Weather and Climate.

**Royal Meteorological Society**: we have a reciprocal associate membership agreement and we exchange the CMOS Bulletin SCMO in return for Weather.

**Société météorologique de France** : we exchange the CMOS Bulletin SCMO in return for La Météorologie.

**Canadian Geophysical Union** : we have a reciprocal associate membership agreement.

We occasionally re-produce an article from these publications, but mainly, we see how they are organized, how they finance their activities, what problems they are dealing with, who are their personnel, ideas that may be applicable in CMOS.

Through these exchanges, you CMOS member, are part of a broader community of societies. CMOS National cannot offer the services of a library, but we can connect you with information sources in these countries on a case by case basis.

*Richard Asselin*  
May 2011

**REPORT / RAPPORT****Weather and climate extremes over Canada:  
science and adaptation**Report submitted by Ron Stewart<sup>1</sup>

Canada is and always has been buffeted by weather and climate extremes; these may become more frequent in the future. Current extremes pose many challenges and future conditions are expected to push the limits of extremes in heat, winds, precipitation, floods and droughts and their many associated features including forest fires, ecosystem changes, agricultural and infrastructure impacts. A component of these changes will come in temporal and geographical shifts in the boundaries between climate extremes. This issue may well be *the* key issue that the country has to face in terms of climate change. It affects virtually all aspects of society and our environment.

To address extremes appropriately, we need to consider their trends, the process responsible for them, and an assessment of future conditions across Canada. It is recognized, of course, that this can't be done without considering the whole continent or without utilizing a wide diversity of observational and model information, some of which originates elsewhere.

To begin to address this issue in a systematic manner, a workshop was held on February 7-9, 2011 in Winnipeg (<http://www.drinetwork.ca/extremes2011.php>). It attracted some 80 participants from across Canada and the United States and from academia, government and the private sector. To a considerable degree, this workshop built upon the efforts of the Drought Research Initiative (DRI) research network, funded largely by the Canadian Foundation for Climate and Atmospheric Sciences. With its focus on drought, DRI had focussed on a significant part of this whole issue of extremes. Lessons learned from this activity may be applicable to other types of extremes.

The workshop focussed on two key issues:

- To develop a consensus on the critical elements to be included in a science plan on understanding and adapting to extremes;
- To develop a strategy for implementing a project to address these science and policy issues.

The workshop was broken down into oral presentations and breakout sessions. Presentations first dealt with challenges

in regard to extremes and hazards as well as current knowledge from the statistical and phenomenological perspectives. These were followed by presentations addressing impacts and policy-related issues, and the science and trends of extremes. Final presentations concentrated on current activities related to this issue as well as future opportunities. Breakout groups addressed our expectations for the future in regard to extremes, our current gaps, and steps needed to move forward.



Through the presentations, breakouts and other discussions, many critical issues were identified. Some of these issues include:

- a need for investing in better monitoring and more research to improve forecasts of extreme weather and high impact climate events at time-scales up to decades;
- updating design, engineering and building codes for critical infrastructure and urban, rural and remote communities, and protecting sensible and vulnerable natural ecosystems;
- implementing best practices and adaptation measures to protect our agricultural sector from more intense wind and rain events as well as persistent drought and carrying out complementary measures such as wetland restoration in flood plains to improve water quality;
- establishing plans to prepare for the negative consequences as well as to the opportunities anticipated in a future punctuated with extreme weather conditions; and,
- championing the important need for ongoing capacity building in climate research to ensure the quality of life is not robbed from future generations.

Such issues, and numerous others, need to be integral parts of a plan for understanding and adapting to extremes. In view of the diverse needs and issues associated with extremes, climate scientists, hydrologists, meteorologists, statisticians, social scientists, planners and many sectors of society have to be collectively engaged to effectively and efficiently move forward. It is hoped that opportunities to accomplish this will soon become available.

<sup>1</sup> University of Manitoba,  
Winnipeg, Manitoba, Canada

**45<sup>th</sup> CMOS Annual Congress****Victoria, BC****45<sup>e</sup> Congrès annuel de la SCMO****Parsons 2011 Medal Award Presentation****Présentation de la médaille Parsons 2011**

At the annual congress of the Canadian Meteorological and Oceanographic Society, on June 7, Dr. Siddika Mithani presented the 2011 Parsons Medal in Multidisciplinary Ocean Science from Fisheries and Oceans Canada to **Dr. Curtis A. Suttle**, Associate Dean of Science at the University of British Columbia. Dr. Suttle's groundbreaking research on marine viruses is work that has contributed significantly to the further development of multidisciplinary ocean science.



Drs. Timothy Parsons, Curtis Suttle and Siddika Mithani

Lors du congrès annuel de la Société canadienne de météorologie et d'océanographie le 7 juin, Siddika Mithani, Ph. D., a remis la médaille Timothy R. Parsons 2011 de Pêches et Océans Canada, décernée pour l'excellence dans les sciences océaniques multidisciplinaires, à **Curtis A. Suttle**, Doyen associé des sciences à l'Université de la Colombie-Britannique. Les recherches novatrices de M. Suttle sur les virus marins ont grandement contribué à l'avancement des sciences océaniques multidisciplinaires.

DFO established the Timothy R. Parsons Award in 2004 to pay tribute to excellence in Canadian ocean sciences and honour a scientist for either outstanding lifetime contributions to or for a recent exceptional achievement in multidisciplinary facets of ocean sciences, while working within a Canadian institution. The first award was presented to Dr. Parsons himself who was also a recipient of The Order of Canada.

Dr. Suttle's research has demonstrated that viruses, as mortality agents of marine primary producers, have significant implications for the pathways of nutrient and energy flow in the ocean. These findings have had significant implications for many other ocean science disciplines.

In addition to the Parson's Medal, Dr. Suttle's many distinguished honours acknowledging his contributions to science, include being named the Zheng Zhong Distinguished Visiting Fellow, Xiamen University, China, 2010; the A.G. Huntsman Award for Excellence in Marine Science, 2010; Fellow of the Royal Society of Canada, 2008; and Fellow of The Canadian Institute for Advanced Research, Program in Integrated Microbial Biodiversity, 2007.

Dr. Suttle received his B.Sc. in Zoology (with honours) from the University of British Columbia in 1978. In 1987 he received his PhD in Botany, also from the University of British Columbia. He has made significant contributions at a number of institutions. Over the years, his career has taken him to: the University of Washington, the Brookhaven National Laboratory, the State University of New York at Stony Brook, Duke University, the University of Texas at Austin, and the University of Constance, in Germany.

La médaille Timothy R. Parsons a été créée par le MPO en 2004 afin de reconnaître les réalisations hors du commun dans le domaine de la recherche sur les océans. Elle est décernée à un scientifique canadien qui s'est distingué par sa contribution remarquable dans un domaine multidisciplinaire lié à l'océanographie. Elle fut octroyée la première fois au Dr. Parsons lui-même qui est également récipiendaire de l'Ordre du Canada.

Les recherches de M. Suttle ont démontré que les virus, en tant que vecteurs de mortalité des producteurs marins primaires, ont un impact majeur sur le parcours des nutriments et le flux énergétique en milieu océanique. Ces résultats ont eu d'importantes répercussions pour de nombreuses autres branches des sciences océaniques.

Outre la médaille Timothy R. Parsons, M. Suttle a reçu de nombreux prix et distinctions soulignant sa contribution à la science. Entre autres, il a été nommé invité de marque Zheng Zhong par l'Université de Xiamen en Chine en 2010, il a reçu le prix A.G. Huntsman d'excellence dans les sciences marines en 2010, il a été nommé membre de la Société royale du Canada en 2008 et membre de l'Institut canadien de recherches avancées, Programme de biodiversité microbienne intégrée, en 2007.

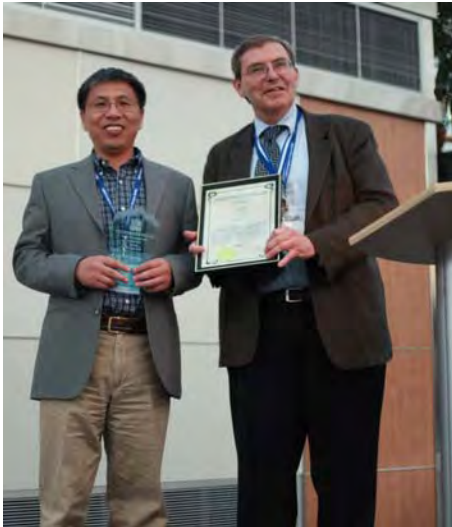
M. Suttle a obtenu un baccalauréat en zoologie (avec distinction) de l'Université de la Colombie-Britannique en 1978. En 1987, il a obtenu un doctorat en botanique, également de l'Université de la Colombie-Britannique. Il a aussi collaboré de façon importante avec de nombreuses institutions. Au fil des années, sa carrière l'a amené à travailler à l'Université de Washington, au Brookhaven National Laboratory, à l'Université de l'État de New York à Stony Brook, à l'Université Duke, à l'Université du Texas à Austin et à l'Université de Constance en Allemagne.

## CMOS Prizes and Awards announced at the 45<sup>th</sup> Annual Banquet

Crystal Garden, Victoria, British Columbia  
June 8<sup>th</sup>, 2011

### President's Prize

may be awarded each year to a member or members of the Society for a recent paper or book of special merit in the fields of meteorology or oceanography. The paper must have been accepted for publication in *ATMOSPHERE-OCEAN*, the *CMOS Bulletin SCMO* or another refereed journal.



Dr. Hai Lin and David Fissel

Awarded in 2010 to **Dr. Hai Lin**, Environment Canada, for his significant contributions to extended-range forecasting research and to our understanding of low-frequency variability. His milestone paper, "*An observed connection between the North Atlantic Oscillation and the Madden-Julian*

*Oscillation*", published in the *Journal of Climate* in 2009, was the first to demonstrate a statistically significant two-way connection between the North Atlantic Oscillation and the tropical convection of the Madden-Julian Oscillation on intraseasonal time scales during the Northern Hemisphere winter season. This research was pivotal in leading the way to advancing the science of extended-range weather prediction.

### Tully Medal in Oceanography

may be awarded each year to a person whose scientific contributions have had a significant impact on Canadian oceanography.

Awarded in 2010 to **Dr. John W. Loder**, Bedford Institute of Oceanography, for providing enhanced understanding and knowledge of fundamental physical processes in both coastal and deep ocean regions and for providing exemplary scientific leadership and management in the face of reduced support for government laboratories. His deep understanding of theory, combined with his keen, insightful skills in analyzing data have led to novel insights on the oceanography and climate of the northwest Atlantic basin. His vision and energy have mobilized the community to support long-term monitoring in the Labrador Sea, a key

region for the study of climate change processes.

### Andrew Thomson Prize in Applied Meteorology

may be awarded to a member or members of the Society for an outstanding contribution to the application of meteorology in Canada.

Awarded to **Bohdan Kochtubajda**, Environment Canada, for his long and dedicated service in the application of current weather data, analyses, and

forecasts, to tackling a variety of practical problems. His tireless work with multi-disciplinary scientific teams on several meteorological research networks (e.g., the Mackenzie GEWEX Study, MAGS; Storm Studies in the Arctic, STAR; and the Drought Research Initiative, DRI), during the past 20 years has facilitated research projects to their successful completion. His long record of providing clear, concise presentations of complex scientific issues to both scientific and general audiences has brought great credit and respect to our community.



Dr. John Loder receiving the Tully Medal from David Fissel



Bohdan Kochtubajda and David Fissel

**The François J. Saucier Prize in Applied Oceanography**

may be awarded each year to a member or members of the Society for an outstanding contribution to the application of oceanography in Canada.



Dr. Gary Borstad receiving the François J. Saucier Prize from David Fissel

Awarded to **Dr. Gary Borstad**, ASL Borstad Remote Sensing Inc., for his longstanding leadership in the application of science to a wide range of applied projects in the oceanographic sciences, with a particular focus on the application of remote sensing to the study of marine processes and ecosystems. His scientific vision in leading more than 200 oceanic/aquatic remote sensing projects worldwide has facilitated Canadian leadership in international oceanographic science applications.

**The Rube Hornstein Medal in Operational Meteorology**

may be awarded each year to an individual for providing outstanding operational meteorological service in its broadest sense, but excluding the publication of research papers as a factor, unless that research has already been incorporated into the day-to-day performance of operational duties. The work for which the medal is granted may be cumulative over a period of years or may be a single notable achievement.

Awarded in 2010 to **Brad Snyder**, Environment Canada, for his delivery of operational excellence throughout his career, most recently in his work in the training of forecasters to produce exemplary services throughout the 2010 Vancouver Winter Olympic and Paralympic Games. His leadership in the creation of a Mountain Weather Course in partnership with the Cooperative Program for Operational Meteorology, Education, and Training (COMET) has provided forecasters with new tools necessary to understand and to predict processes on sub-synoptic space and time scales.



Brad Snyder with David Fissel

**The Tertia M.C. Hughes Memorial Prize**

may be awarded for contributions of special merit by graduate students registered at a Canadian university or by Canadian graduate students registered at a foreign university.

Awarded to **Dr. Yanji Cheng**, University of Northern British Columbia, for his outstanding Ph. D. dissertation at the University of Northern British Columbia which led to five refereed publications in top-tier journals. Each paper addressed the very challenging and important issue of ENSO (El Niño/Southern Oscillation) prediction and predictability. Stephen Dery has accepted the prize on his behalf.



Stephen Dery with David Fissel

**Roger Daley Postdoctoral Publication Award**

Not awarded in 2010.

**Neil J. Campbell Medal for Exceptional Volunteer Service**

may be awarded each year to a member who has provided exceptional service to CMOS as a volunteer. The award may be made for an exceptional contribution in a single year or for contributions over an extended period. The contribution should have resulted in an important advancement for CMOS and/or its aims, nationally or locally.

**Steven J. Lambert**, Canadian Centre for Climate Modelling and Analysis, received the medal in 2010 for his 20+ years of exemplary service in ensuring the excellence of *Atmosphere-Ocean* by careful editing of manuscripts and mentoring of Editors. His ceaseless devotion to the greater good of this journal has made it a leading publication for the dissemination of research in the atmospheric and oceanic sciences.



David Fissel with Steven Lambert

**Citations**

One or more Citations may be awarded each year to an individual, group or organization which has, in the previous year, made some outstanding contribution towards promoting public awareness of meteorology or oceanography in Canada.



David Fissel and Claire Martin

A citation is awarded in 2010 to **Claire Martin**, CBC Senior Meteorologist, for her excellence in producing Radio and Television Weather presentations. Her hosting of two CBC Radio hour-long weather programming specials has been instrumental in educating the public in the science of meteorology and forecasting. Her passion for and knowledge of the field are clearly evident in all of her presentations.

**ASL Environmental Sciences Best Student Poster Prize in Oceanography** was presented to **Pamela Dinn**, University of Victoria, for her poster entitled “*Effect of the receiving environment on transport, fate and bio-uptake of contaminants from two submarine municipal outfalls*”.



Kossivi Yewougni Tete with David Fissel

**CMOS Best Poster Prize** was awarded to **Kossivi Yewougni Tete** of Université du Québec à Montréal for his poster entitled “*Simulations over West Africa with Version 5 of the Canadian Regional Climate Model*”.

**The following scholarships were presented during Parsons Lunch on Tuesday, June 7, at the Crystal Garden**

**The CMOS CNC/SCOR NSERC Scholarship Supplement** provides a supplement of \$5000 to a holder of an NSERC Postgraduate Scholarship or Canada Graduate Scholarship. It is renewable for a second year provided the Scholarship continues to be held.

**Campbell Scientific Best Student Poster Prize in Meteorology** was presented by Claude Labine to **André Monette**, Université du Québec à Montréal, for his poster entitled “*Projected changes to multi-day precipitation extremes over Quebec watersheds using a multi RCM ensemble*”.



Claude Labine with André Monette



Alireza Mashayekhi with Norm McFarlane

In 2010, the supplement was presented to **Alireza Mashayekhi**, University of Toronto. His PhD research involves studying turbulence in

oceans with a focus on the transport and mixing of tracers such as heat, salt and carbon dioxide and its implications for the climate system. An extension of this research will employ satellite altimetry observations to test theoretical predictions.

The second year supplement is awarded to **Agathe Lisée-Pronovost** as she continues to hold her NSERC grant. She is working on the analysis of paleomagnetic lake sediments in Patagonia for evidence of climate change.



### The CMOS Weather Research House NSERC Scholarship Supplement

provides a supplement of \$5000 to a holder of an NSERC Postgraduate Scholarship or Canada Graduate Scholarship. It is renewable for a second year provided the Scholarship continues to be held.



Eugenie Paul-Limoges with Susan Woodbury

Awarded to **Eugenie Paul-Limoges**, University of British Columbia. She is entering an MSc program in micro-meteorology at UBC. Her undergraduate record is judged to be t r u l y

outstanding and was ranked the top out of 41 applicants for her program. She will be working on land-atmosphere interactions, namely measuring carbon emissions from a harvested Canada Fluxnet site on Vancouver Island in collaboration with Prof Andy Black.

The second year supplement is awarded to **Sarah Emily Collier**, University of Alberta, as she continues to hold her NSERC grant. She is working on high-resolution coupled modelling of climate, alpine glaciers and land surface hydrology.

**The CMOS Weather Network/ Météomédia Scholarship** offered to a Canadian female student enrolled in the 3<sup>rd</sup> or 4<sup>th</sup> year of an atmospheric science degree program at a Canadian university and with career aspirations as a forecast meteorologist, on-air meteorologist or meteorological briefer. It consists of a cheque for \$1500. The scholarship is funded by an annual donation from Pelmorex Inc., the parent company of The Weather Network and Météomédia.

The scholarship was not awarded this year.

Photos credit: Except otherwise specified, all photographs shown are courtesy of Faith Bowyer, the CMOS Victoria Congress official photographer.

### CMOS Undergraduate Scholarships

Provides \$500 for students planning a career in atmospheric, hydrological, oceanographic or limnological sciences.

Awarded to **Matthew Morison**, University of Winnipeg.

Awarded to **Katelyn Wells**, University of British Columbia.



Jacqueline Binayamin accepting the prize on behalf of Matthew Morison from David Fissel

Note from the Editor: Please note that there was no Patterson Medal presentation this year at the Victoria Congress. It is the first time since 1961 that there has not been a Patterson Medal awarded by MSC.

### Fifth CMOS Annual Photo Contest - 2011

And the Winners are ...

1<sup>st</sup> Prize (\$100): *Storm over Canola* by Patrick McCarthy;

2<sup>nd</sup> Prize (\$50): *Face to Face with Mother Nature* also by Patrick McCarthy;

3<sup>rd</sup> Prize (\$25): *Frost on Flower* by Richard Verret.

Prompted by participants in earlier photo contests, 11 members submitted 28 photos. Photos were displayed during the Victoria Congress and on the web site. Voting was open from 25 May to 25 June. 43 electronic ballots and 10 paper ballots were submitted.

A point system, as for other years, was used to determine the winning photos. Three points for first choice; two points for second choice and one point for third choice.

Qing Liao, CMOS Office Manager, helped with the vote counting, verification and tabulation.

## Results

First prize, a clear winner with 66 points, is *Storm over Canola*, taken by **Patrick McCarthy** near Carlyle SK in July 2008. As can be seen, the winning photo combines the beauty of a popular Prairie grain about to be watered by a convective summer storm.



Storm over Canola by Patrick McCarthy

Second prize, with 53 points, also by **Patrick McCarthy**, is *Face to Face with Mother Nature*, taken near Bowman ND in July 2009. Like his winning storm photo, this one also depicts a serious approaching storm which may contain a tornado, to the delight of the eager storm chasers in the foreground. We hope they all left the scene without incident.



Face to Face with Mother Nature by Patrick McCarthy

*Results are reported by Bob Jones  
CMOS Webmaster  
29 June 2011*

Third prize, with 25 points, taken by **Richard Verret**, was originally titled *Frost* but we renamed it to *Frost on Flower* for the contest. *Frost* was taken in November 2010 in Laval QC.



Frost on Flower by Richard Verret

The prizes for this year's photo contest were graciously donated by **Lou Ranahan**, a CMOS Ottawa Centre member. Lou has developed his web site ([www.meteorology.ca](http://www.meteorology.ca)) which serves as a portal for meteorology web sites around the world, and you are invited to visit.

### About the Photographers

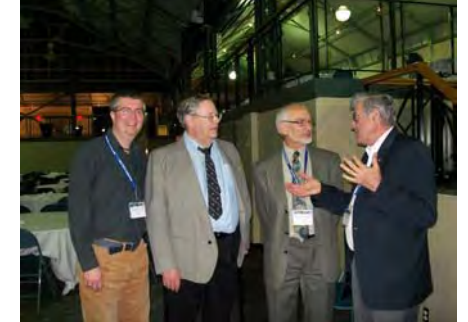
Both Patrick and Richard have entered the contests several times in the past. Prior to assuming his current position as Chief of the Prairie and Arctic Storm Prediction Centre, Patrick McCarthy was a severe weather meteorologist working in Winnipeg. He has also been a member of a Canada/USA storm chasing group, and had captured many amazing photos such as his winners in this contest. Patrick won in 2007 for *Sunset Shower* but this is Richard's first win. Richard Verret works at the Canadian Meteorological Centre in Montreal. He has wide expertise in meteorological forecasting and verification models, and has presented his findings many times at recent CMOS Congresses.

### Contributing Photographers

In addition to Patrick McCarthy and Richard Verret who won the prizes, we wish to thank the following photographers for their excellent photos which were widely seen and appreciated during the contest period. They are: Paul-André Bolduc, Frederic Fabry, Jacob Kollegger, Stephen Mayne, Xin Qiu, Sergiy Savelyev, Garry Schaefer and David Sills.

Copies of the three winning photos which had the most votes are included with this report in highest resolution available and are shown on cover page.

## 45<sup>th</sup> CMOS Congress Photo Memories Souvenirs photographiques du 45<sup>e</sup> Congrès de la SCMO



Photos legend (from left to right, top to bottom). 1. Publication Committee at work on Sunday morning; 2. Registration desk with **Quing Liao & Denis Bourque**; 3. When oceanography meets meteorology: **David Greenberg & Richard Asselin** at cocktail before banquet; 4. Venus & Neptune booths in the exhibit area; 5. **Victoria Gardner** from Taylor & Francis and **Richard Asselin**, partners for *Atmosphere-Ocean*; 6. Members of the Victoria LAC Committee celebrating during banquet; 7. **Diane Houle, Dawn Conway, Nathan Gillet** and **Ian Rutherford** rejoicing after banquet; 8. CMOS Hall of Fame: **Norm McFarlane**, Incoming President, and **Susan Woodbury, David Fissel, Richard Asselin, Ian Rutherford, Peter Taylor, Bill Crawford** and **Geoff Strong**, former Presidents of CMOS; 9. **Andy Bush, Charles Hanan, and Richard Asselin** being "lectured" by **Professor Lawrence Mysak** on banquet night.

Above photos are courtesy of the Editor, *CMOS Bulletin SCMO*, June 2011.

## 2011 CMOS Congress

Victoria, June 9, 2011. The CMOS Congress 2011 wrapped up a successful week of meetings at Victoria's Conference Centre today. This was the 45<sup>th</sup> Annual CMOS Congress. Over 450 delegates attended. Attendance at this Congress was diminished by last-minute withdrawal by Environment Canada of travel support for about 100 delegates. About 400 oral and poster papers were presented in multiple sessions with alternate presenters covering papers from delegates who were unable to attend.

Many topics of interest were discussed by a series of plenary speakers. The plenary sessions were focussed on climate change and its impacts. These included the role of natural variability in climate change; long range transport and measurement of global industrial pollution including East Asian pollution now increasing over BC; an explanation of the impacts on sea animals of ocean "dead zones" (or hypoxia - reduction in oxygen) caused by climate changes; the changing shorelines as climate change alters erosion by waves as well as increasing sea height; migration of ocean fish caused by climate changes; and the variations in El Niño cycles caused by changing climate.



Dr. Bill Merryfield, Chair Scientific Program Committee



Dr. Ken Denman presenting "The North Pacific - An Ocean in Transition" on June 7

Two public lectures were held on the Tuesday and Thursday evenings. In the first lecture, Ken Denman discussed the changing North Pacific Ocean as the impacts of climate change are already being measured. Once again, global climate warming was confirmed at two degrees C by 2050, but model results are increasingly agreeing that the warming will not increase much in later decades and centuries. On Thursday evening, Verena Tunnicliffe of UVic talked on the undersea world of living animals near thermal vents. She accompanied her talk with videos and photos which

fascinated the audience.



P.Met exhibit booth at Congress

Other important discussions during the Congress included the successful transfer of *Atmosphere-Ocean* to Taylor and Francis, and the launch of the **P. Met** Certification program for meteorologists by

ECO Canada. Both Taylor and Francis and ECO Canada had exhibit booths where delegates obtained additional information.

Many prizes and awards were announced and presented during the Congress. Details can be found on previous pages in this August Bulletin issue.

Bob Jones, CMOS Webmaster

### President's speech at CMOS Banquet

Bonsoir mesdames et messieurs! Good evening friends and colleagues!

It is a great honour for me to be President of CMOS. Our Society has over 800 members from government, universities and private sectors from all parts of Canada. It was very encouraging to learn in the Annual General Meeting on Monday that we have substantially more students as new members this year. This is good news for the vitality of CMOS and I hope that we can encourage them to remain as members in the coming years after they graduate.

I am also happy that David Fissel will be on the Executive for another year as Past President and I look forward to having his advice and help to carry on the initiatives that have been developing under his leadership.

Among other things, David has worked closely with the President of the Canadian Geophysical Union (CGU) to bring a number of Canadian geophysical associations into partnership in the Canadian Societies for the Geophysical Sciences. The CSGS will link and coordinate the geophysical sciences in Canada to promote their well being and advancement. It will serve as voice for the geophysical sciences to government, funding agencies, industry and the public. These efforts are beginning to succeed. The partnership now includes the CGU, CMOS and the Canadian Society for Soil Sciences (CSSS). These societies are now committed to enhancing their joint activities and expanding the partnership by recruiting other geophysical associations within Canada.

I have learned a lot about the job of being President of CMOS from both David Fissel and Bill Crawford, whose term as Past President ends with this Congress. Bill, many thanks again for your service to CMOS over the last three years!



Dr. Norman McFarlane  
Incoming CMOS President  
Nouveau président de la SCMO

Recently, Bill reminded me of how fortunate I am to be coming in as president at the end of the three-year cycle that occurs when the executive moves to a new centre because I will have the benefit of having an experienced executive to work with. He started out his term as President with a new executive and everyone had to learn how CMOS works. Now, they know everything and I am the beneficiary of that. Rich Pawlowicz will continue as treasurer, Jane Eert as corresponding secretary, Sophie Johannessen as recording secretary and Charles Lin as councillor-at-large. I would also like

to note that Kent Johnson and John Parker will also step down as councillors-at-large. I would like to thank them for their service to CMOS. I welcome two new councillors-at-large, Denis Gilbert, who is a Research Scientist at the Institute Maurice-Lamontagne in Mont-Joli, Québec, and Kimberly Strong who is a Professor in the Department of Physics at the University of Toronto.

I am very pleased to welcome Peter Bartello as the new Vice President of CMOS. Peter is a professor in both the Departments of Atmospheric and Oceanic Sciences and Mathematics at McGill University. He has served CMOS in a number of capacities in the past including as a co-editor of *Atmosphere-Ocean*. I am looking forward to working with Peter in the coming year as he begins the transition of the CMOS Executive to the Montreal Centre next year.

One thing that I have learned from being Vice president for the past year is that our Society could not function without the excellent support we have from the people in our national office in Ottawa. You have had a chance to meet and interact with them here at the Congress this week. You heard earlier from Richard Asselin, our Director of Publications, and I would like to strongly endorse his remarks concerning *Atmosphere-Ocean*. It is uniquely places as an excellent journal reporting upon the research of our community. I would also emphasize the excellent

partnership we now have with Taylor & Francis, the publisher of our scientific journal.

Many of you have also seen and met our Executive Director, Ian Rutherford here at the Congress. Ian quietly makes sure that everything runs smoothly. Being a former CMOS President himself, he knows all there is to know about our Society. Special thanks also to Qing Liao, Sheila and Denis Bourque for helping at the registration desk this week. Many thanks also to our webmaster Bob Jones and to Paul-André Bolduc, the *CMOS Bulletin SCMO* editor. Paul-André always manages to fill the Bulletin with interesting and informative material even though I know that it is a struggle at times to find new articles.

This 45<sup>th</sup> Congress has turned out to be a great success and I thank all the participants who have come afar in spite of the travel and funding challenges that many of you are coping with these days. Thanks also to those participants who were unable to be here in person but arranged to have their presentations given by colleagues. I want to add my thanks to Nathan Gillett and Bill Merryfield for their efforts in making this Congress a success. Being a member of the Scientific Program Committee, it gave me the opportunity to have an inside look at the tremendous work Bill has put into making the program work in spite of glitches in the days leading up to the Congress because a number of participants were unable to attend in person.

Now, although its is getting late, I would like to say a few words about the future, particularly in regard to the **Canadian Foundation for Climate and Atmospheric Sciences**. As many of you know, CFCAS is nearing the end of its mandate from the federal government to provide support for university-based research on weather and climate. During the last decade, CFCAS has been Canada's leading agency for supporting university-based research on weather and climate through combinations of individual research grants and the research network which CFCAS has fostered. Almost all of these network partnerships have involved strong collaborations between government and university-based research groups. In fact, those of you who attended Greg Flato's talk on Monday morning will have noted that he listed five of these networks as contributing to the development of CanESM2, which is the model that CCCma is using for its contribution to the IPCC AR5.

All of the CFCAS research grants and network partnerships are now wrapping up after being been brilliantly successful in fostering Canadian research and training of highly qualified personnel. Many graduate students and post-doctoral fellows have been trained under these research networks and grants. This represents a huge investment in the future of our science community, in Canada and internationally. As many of you know, the mandate to channel federal government support to university-based research has not been renewed. However, this does not

imply the demise of the Foundation itself. Over the past several years, CFCAS has also engaged in activities designed to bring together scientists, policy-makers and people engaged in provision of services related to weather and climate in the public and private sectors. It will hopefully continue to play an important role in our science community in the future.

As the founding member of CFCAS, CMOS will be involved in helping define that new role and how it comes into play. We expect that federal government funding for our research community will continue and be dispersed by other agencies in the future, albeit at a substantially lower level than it has been provided through CFCAS. However, I hope that the very successful decade of focussed support for research on weather and climate that CFCAS has provided will serve as an example to federal and provincial governments and funding agencies in the future.

Merci beaucoup pour votre attention! Thank you for bearing with me!

*Norm McFarlane*  
*Incoming President CMOS*

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## Dr. Siddika Mithani's Speech

ADM, Oceans and Science Sector  
Department of Fisheries and Oceans

on Opening Ceremonies<sup>1</sup>  
Monday, June 6, 2011

CMOS Congress, Victoria Conference Centre

Good morning. Bonjour à vous toutes et à vous tous.

Je suis très heureuse de participer au congrès de la Société canadienne de météorologie et d'océanographie ici, dans la belle Ville de Victoria. It is always a pleasure to have an opportunity to travel to the west coast, and particularly Victoria. Even your west coast weather is giving us a warm welcome!

This morning, I am speaking to you on behalf of our Assistant Deputy Minister of Oceans and Science Sector, Dr. Siddika Mithani. Dr. Mithani will be joining the CMOS Congress tomorrow for the presentation of the Parsons Award at the luncheon, but she was unable to adjust her schedule to join us this morning. However, I am pleased to be able to deliver her good wishes for a successful and

rewarding Congress on her behalf.

I would like to begin by extending my sincere thanks to the Chairs of this year's Local CMOS Committee, **Nathan Gillett** and **Bill Merryfield**, and their team, for organizing what promises to be a very successful Congress. I know how much hard work goes into the planning and execution of a meeting like this.

I would also like to acknowledge our CMOS President, David Fissel, and the incoming President, Norman McFarlane and their contributions to the CMOS organization. Your hard work is very appreciated.

The theme for this year's Congress, "**Ocean, Atmosphere and the Changing Pacific**", seems all too appropriate considering that this event is being hosted by the "City of Gardens" - Victoria. It is that very interaction between the ocean and the atmosphere, which has created a microclimate which is so favourable to the city's gardens that host many rare native plants that are not found anywhere else in Canada.

But what of the future? Will Victoria's gardens be the same, fifty years from now?

Selon un consensus atteint par d'éminents scientifiques du Canada et du reste du monde, nous savons que les modifications à nos océans et aux conditions atmosphériques, au-delà de toute variabilité climatique naturelle, modifient les systèmes naturels partout.

Below the oceans surface, changes are occurring to the physical properties of seawater. We know that our oceans are becoming more acidic because of their ability to capture anthropogenic carbon dioxide. In addition, hypoxic water, that is seawater with low oxygen concentration, is becoming more prevalent off the South West coast of Vancouver Island, with the lowest oxygen levels occurring in late summer.

In a changing climate, ecosystems will have no choice but to respond. Evidence of species re-distribution to climate change already exist. An example of these ecosystem changes are how Humboldt squid have moved northwards – they were found in large numbers in Canadian waters in 2009, and then missing from Canadian waters in 2010. The appearance of a new species in an ecosystem is in its own right, significant, but there are also cumulative impacts that influence species that share a common ecosystem. The Cohen Commission is examining, among a multitude of other factors, the role that climate change might have with respect to the decline in the Fraser River sockeye. In its deliberations, the Commission has discussed many scenarios in which climate influences are potentially threatening the species.

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<sup>1</sup> Opening speech was read by Helen Joseph, Director, Oceanography and Climate Branch Oceans Sciences - Canadian Hydrographic Service, Department of Fisheries and Oceans

In addition to ecosystem changes, if we look at coastal communities themselves, such as Victoria and others here on the West Coast, climate impacts are likely to include rising sea levels, along with increases in natural hazards and extreme storm events. Coupled ocean-atmosphere models, and operational oceanography, are needed to forecast ocean changes for coastal Canada.

L'avenir nous réserve beaucoup d'incertitudes. Ce n'est qu'au prix de nombreuses observations précises, d'une bonne gestion de données, d'excellentes analyses scientifiques que nos questions trouveront une réponse!

For Fisheries and Oceans Canada, we have been collecting oceanographic data for decades, collecting and analysing this information in the context of managing the ocean resources entrusted to us. For the oceanographer, long time series of data are a necessity if one is to better understand and predict future conditions.

Perhaps the longest time series which we have of oceanic conditions is here off the coast of British Columbia. The United States collected its first observations at Ocean Station P in December of 1949. Canada followed a year later. While the oceanographic program at Station P and Line P has undergone many changes since its inception, today its data continues to be mined for new ways to better inform the Department's managers and policy-makers.

Throughout its history Line P was a joint meteorological and oceanographic endeavour, how fitting when you consider the theme of this Congress.

The understanding of ocean interactions would not be possible without the collaboration between Environment Canada's "atmosphere" scientists, and DFO "ocean" scientists, working closely with our academic and private sector partners. Collaboration amongst scientists working at the Canadian Climate Centre for Modelling and Analysis here at the University of Victoria in downscaling results from climate models, help us understand the changing Pacific Ocean.

So how will the up welling of hypoxic and acidified waters, and changing Pacific waters impact Victoria's Gardens? There may very well be a connection, but for now it eludes me. What doesn't elude me, however, is the fact that the connection between our oceans and the atmosphere is a very intimate relationship. If we are going to truly understand what lies ahead, the future will require significant investments in the integration of scientific knowledge across many disciplines.

This week's Congress continues to bring meteorologists and oceanographers together as it has since January, 1967 when the Canadian Meteorological and Oceanographic Society was first formed. In its relatively young 45 years, CMOS has set an example for the integration of the ocean

and atmospheric sciences and its continuing work will no doubt influence our understanding of a changing Pacific.

I leave you with a wish for further successes as you share your knowledge with your colleagues and trust you will find new and innovative partnerships that will advance our understanding of the world in which we live. Je vous souhaite à toutes et à tous un bon congrès et je me réjouis à l'avance des exposés informatifs, des affiches et des discussions.

Thank you. Merci.

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## Prochain Congrès de la SCMO

Le prochain congrès de la SCMO se tiendra à Montréal, Québec, du 29 mai au 1<sup>er</sup> juin 2012. Le thème choisi est "*L'Environnement en évolution et son impact sur les services pour le climat, les océans et la météo*". Ce congrès est organisé conjointement avec la 21<sup>e</sup> Conférence de l'American Meteorological Society (AMS) sur la Prévision Numérique du Temps et la 25<sup>e</sup> Conférence



Nathan Gillet (Chair LAC 2011 Victoria Congress and Louis Lefavre (Chair LAC Montréal Congress)

de l'AMS sur la Prévision et l'analyse météorologique. Le Comité organisateur local et le Comité du programme scientifique travaillent déjà à préparer le congrès 2012 pour vous accueillir chaleureusement à l'hôtel Hyatt-Regency de Montréal. Prière d'inscrire ces dates importantes à votre agenda pour 2012.



Montreal Hyatt-Regency Hotel Complex by Night

### Next CMOS Congress

The next CMOS Congress will be held in Montreal, Quebec, May 29 - June 1, 2012. The selected theme is *"The Changing Environment and its Impact on Climate, Ocean and Weather Services"*. This congress is organized jointly with the 21<sup>st</sup> American Meteorological Society Conference on Numerical Weather Prediction and the 25<sup>th</sup> AMS Conference on Weather Analysis and Forecasting. The Local Arrangements Committee and the scientific program committee area already working on the preparation for the 2012 Congress to welcome you at the Montreal Hyatt-Regency hotel. Please book these important dates on your 2012 agenda.

### ANNOUNCEMENT

#### Videos from Victoria Congress

All the videos (opening ceremony, plenary speakers and public lectures) from the 45<sup>th</sup> CMOS Congress are now available online at:

<http://www.cmos.ca/congress2011/en/index.html>

and

<http://www.cmos.ca/congress2011/en/plenary-speakers/index.html>

Photos credit: Except otherwise specified, all photographs shown in the above section are courtesy of Faith Bowyer, the CMOS Victoria Congress official photographer.

### ANNONCE

#### Vidéos du congrès de Victoria

Tous les vidéos (cérémonie de bienvenue, présentations plénières, présentations publiques) du 45<sup>e</sup> Congrès de la SCMO sont maintenant disponibles en ligne à :

<http://www.cmos.ca/congress2011/fr/index.html>

et

<http://www.cmos.ca/congress2011/fr/orateurs-pleniers/index.html>

#### Congress Protest in Victoria Never Seen Before!



Was CMOS-2011 a special event? Well, it isn't every CMOS Congress that stimulates a protest about our insane and wild activities. With my tongue firmly planted in my cheek, come on folks, we have to stop all those weather-changing experiments! Photo and legend credit: Howard Freeland, IOS, Sidney, BC.



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**CLIMATE CHANGE / CHANGEMENT CLIMATIQUE**

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**Another Round of Climate Change Negotiations – Did Anybody Notice?**by John Stone<sup>1</sup>

The United Nations Framework Convention on Climate Change (UN/FCCC) held its usual mid-year negotiations in June. Did anybody notice? These two weeks of talks involved primarily government officials although as always there were a large number of representatives from environmental non-government organizations (ENGO's). Ministers usually only attend the much larger and more publicized Conferences of the Parties under the Convention that are held towards the end of the year. In comparison to the 40,000 that attended the Copenhagen Conference in 2009 the recent meetings in Bonn attracted around 3,500. The Climate Action Network did notice and presented Canada with a number of Fossil of the Day awards including all three on one day. This was after Canada had made a presentation on how well it was tackling climate change.

But consider what is at stake: it will soon be 20 years since the Convention was adopted and the Kyoto Protocol is scheduled to end next year; meanwhile greenhouse gas emissions increased by the largest amount last year and concentrations are almost 40% greater than pre-industrial levels. After more than two decades of negotiations we seem to be no closer to adequately addressing the threat of climate change. Making things worse, Russia and Japan have now joined Canada in stating that they will not pledge new emission reduction targets under any post-Kyoto regime. And yet the process inexorably continues with Canada arguing that it can make valuable contributions to the debate given its experience in implementing the Kyoto Protocol.

So what happened in Bonn? There was certainly lots of process. There were enough meetings to tax the scheduling ability of any organization and the energies of any participant. There were the 34<sup>th</sup> sessions of the Subsidiary Body for Scientific and Technical Advice (SBSTA) and the Subsidiary Body on Implementation (SBI), the 14<sup>th</sup> session of the Ad-hoc Working Group on Long-term Cooperation under the Convention (AWG-LCA) and the 16<sup>th</sup> session of the Ad-hoc Working Group under the Kyoto Protocol (AWG-KP established at the Montreal Conference in 2005). Not surprisingly the agendas of these meetings become more elaborate and overlap considerably with new items added continually. The result was that the first three days were taken up discussing the agendas themselves. The issue of

transparency also came up in discussions regarding the participation of observers during negotiations between governments. Transparency is a general concern of civil society and one that most recently has affected the IPCC's work.

The issue of the potential consequences of national responses to the threat of climate change, such as reducing energy use and constraining trade, occupied much of the negotiations. This is an issue that is referred to in the Convention and has been used as a negotiating ploy, particularly by oil exporting countries, since the beginning. The Chairs of SBSTA and SBI arranged for a joint "forum" and in the manner of other issues this will now become a standard agenda item. Attempts were made to include under this topic the issue of loss and damage caused by extreme weather and climate events. More games.

On matters of substance, there was some progress on reducing emissions from deforestation and forest degradation (now enlarged to include forest conservation and sustainable forest management) - colloquially known as REDD+. However, the technical details are likely to be every bit as complicated as the rules for using carbon sinks - open to imaginative accounting and limited by our scientific understanding of the carbon cycle. SBSTA continues to organize sessions on research and systematic observations that provide opportunities for useful presentations on the state of science. An interesting new agenda item was on the impacts of climate change on water resources management particularly in developing countries.

So perhaps there was not much to notice! What expectations should we have of this multilateral exercise? The Copenhagen meeting adopted an Accord that provided a mechanism for countries to list their pledges to reduce their emissions. So far, more than 80 countries have done this. But many of these pledges are conditional upon actions by others and collectively are insufficient to reach the adopted goal of keeping temperature increases below 2 °C - what the chief economist of the International Energy Agency calls "a nice Utopia". The level of ambition clearly has to be raised if there is to be real progress.

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<sup>1</sup> Retired Meteorologist and Adjunct Research Professor in the Department of Geography and Environmental Studies at Carleton University, Ottawa, Ontario, Canada

The Copenhagen meeting ended in failure through a lack of mutual trust and damaged the UN process itself. The Mexicans who presided over last year's meeting adopted much lower-key expectations and this seems to be the case for this year's Conference in Durban, South Africa. On the positive side, the Convention has now established a practical framework with the creation of a Technology Mechanism, an Adaptation Committee and Green Climate Fund although the financing of these institutions has yet to be fully realized. Although some countries argue that the Convention may be a sufficient instrument, many developing countries want to preserve the "firewall" that separates binding commitments by developed countries and voluntary actions by others.

Considering the lack of progress on emission reductions and on legal matters, the future of the Kyoto Protocol seems very much in doubt. The consequences of not having a sequel to the Kyoto Protocol will undermine the global carbon market since it would no longer be constrained. Indeed, according to a recent report from the World Bank, trading has declined dramatically over the past year. While the EU has passed legislation that would continue its European Emission Trading Scheme beyond 2012, and the possibility of a reduced-scale regime - a "Kyotino" - has been raised, any legally-binding global regime will need the participation of the US - and that is several years away.

Sadly, the establishment of a legally binding global regime to address the threat of climate change now seems to be an over-ambitious goal and the UN/FCCC (particularly the Kyoto Protocol) process seems to all intents and purposes to be doomed. Several academics, such as David Victor, are attempting to set the stage for the future and are exploring other approaches such as regional "carbon clubs" that operate from the bottom-up and are subject to a pledge and review process. Other avenues that may still hold some hope include the use of the courts, employing such arguments as causing a public nuisance and not protecting a public good. None of this will be achieved quickly. Perhaps the meetings in Durban will provide some catalyst for action and we will then have something to notice.

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*International Research Initiative on Adaptation to Climate Change Announces Research Awards*

### **Five Canadian and Developing Country Teams to Study Climate Change Adaptation**

Ottawa, Canada, June 2, 2011 –The International Development Research Centre (IDRC) together with the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC) today announce that five research teams have been awarded a total of \$12.5 million dollars under the *International Research Initiative on Adaptation to Climate Change* (IRIACC).

Each team will receive \$2.5 million over five years to study how best to protect people, communities and vital economic sectors, like agriculture and tourism, that are most at risk from the effects of climate change. Two teams will focus specifically on vulnerable indigenous populations. Together, the research projects, which will take place in Canada and in developing countries across four continents, aim to address an important gap in our climate change knowledge, namely, how to anticipate, manage, and reduce climate risk vulnerability through adaptation.

The five successful research teams were selected through a rigorous peer-review process. Their projects and respective team leaders are:

#### **Coastal Cities at Risk: Building Adaptive Capacity for Managing Climate Change in Coastal Megacities**

Anond Snidvongs, Chulalongkorn University and Southeast Asia START Regional Research Center, Thailand

Gordon McBean, University of Western Ontario, Canada

#### **Adapting to Climate Change: Protecting Water Resources in West Africa and Canada**

Driss Ouazar, Université Mohammed V Agdal, Maroc

Taha Ouarda, Institut national de la recherche scientifique, Canada

#### **Partnership for Canada-Caribbean Community Climate Change Adaptation**

Murray Simpson, the CARIBSAVE Partnership, Barbados

Daniel Scott, University of Waterloo, Canada

#### **Indigenous Health Adaptation to Climate Change**

Alejandro Llanos, Universidad Peruana Cayetano Heredia, Peru

Shuaib Lwasa, Makerere University, Uganda

James Ford, McGill University, Canada

Lea Berrang Ford, McGill University, Canada

## **Vulnerability and Adaptation to Climate Extremes in the Americas**

Fernando Santibañez, Universidad de Chile, Chile  
David J. Sauchyn, University of Regina, Canada

In announcing the awards, the presidents at the four organizations commented:

*"Africa, the Arctic, and other vulnerable regions face an urgent need to adapt to such effects as rising sea levels, extreme weather events, drought and desertification,"* says IDRC President David M. Malone. *"This initiative will help determine how vulnerable populations in Canada and in developing countries can best cope with changes to their health, environments, and livelihoods."*

*"Aboriginal peoples are particularly at risk, and this initiative offers an opportunity for researchers to combine Western scientific methods with traditional indigenous knowledge,"* says CIHR President Alain Beaudet. *"Research is urgently needed to help these vulnerable populations adapt and even improve their lives in the face of climate change."*

*"SSHRC-funded researchers have helped build a strong foundation of Canadian innovation and expertise on the human dimension of climate change,"* says SSHRC President Chad Gaffield. *"This international collaboration will enable us to develop new knowledge and capabilities in key areas, as well as to enhance the contributions of social sciences and humanities research to meeting the needs of Canadian and developing communities in the process of adaptation to a changing environment."*

*"The knowledge and expertise of NSERC-funded researchers will play a key role in finding solutions to the environmental changes that affect the most vulnerable communities in Canada and around the world,"* says NSERC President Suzanne Fortier. *"By collaborating on an international scale, these researchers will be able to strengthen efforts that will ultimately lead to the effective management of, and adaptation to, a changing environment."*

For more information about this unique, made-in-Canada collaboration between IDRC and Canada's granting councils, please visit [www.idrc.ca/iriacc](http://www.idrc.ca/iriacc).

Source: Press release from International Development Research Centre, Ottawa, Canada.

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Octroi de subventions de recherche  
en vertu de l'Initiative de recherche internationale  
sur l'adaptation aux changements climatiques

## **Cinq équipes formées de chercheurs du Canada et de pays en développement se pencheront sur l'adaptation aux changements climatiques**

Ottawa, Canada, le 2 juin 2011 – Le Centre de recherches pour le développement international (CRDI), de concert avec les Instituts de recherche en santé du Canada (IRSC), le Conseil de recherches en sciences naturelles et en génie (CRSNG) du Canada et le Conseil de recherches en sciences humaines (CRSH) du Canada, annonce aujourd'hui que cinq équipes de recherche se partageront 12,5 millions de dollars en vertu de l'Initiative de recherche internationale sur l'adaptation aux changements climatiques (IRIACC).

Chaque équipe recevra 2,5 millions de dollars sur cinq ans afin d'examiner les meilleures façons de protéger des effets des changements climatiques les populations, collectivités et secteurs cruciaux de l'économie – notamment l'agriculture et le tourisme – qui y sont les plus exposés. Les cinq projets, qui seront réalisés au Canada et dans des pays en développement de quatre continents, cherchent à combler une importante lacune au chapitre des connaissances en matière de changements climatiques : comment prévoir, gérer et réduire la vulnérabilité à ces changements par le truchement de l'adaptation. Deux d'entre eux seront axés sur les populations autochtones vulnérables.

C'est au terme d'un rigoureux examen des propositions par des pairs que les cinq équipes ont été retenues. Voici le titre des projets de même que le nom des chargés de projet.

### **Villes côtières à risque: renforcement des capacités d'adaptation pour les besoins de la gestion des changements climatiques dans les mégapoles côtières**

Anond Snidvongs, Université Chulalongkorn et centre de recherche régional de l'Asie du Sud-Est de START, Thaïlande  
Gordon McBean, Université Western Ontario, Canada

### **Faire face aux changements ensemble: mieux s'adapter aux changements climatiques au Canada et en Afrique de l'Ouest dans le domaine des ressources en eau**

Driss Ouazar, Université Mohammed V-Agdal, Maroc  
Taha Ouarda, Institut national de la recherche scientifique, Canada

**Partenariat Canada-Caraïbes sur l'adaptation des collectivités aux changements climatiques**

Murray Simpson, The CARIBSAVE Partnership, Barbade  
 Daniel Scott, Université de Waterloo, Canada

**Santé des autochtones et adaptation aux changements climatiques**

Alejandro Llanos, Universidad Peruana Cayetano Heredia, Pérou  
 Shuaib Lwasa, Université Makerere, Ouganda  
 James Ford, Université McGill, Canada  
 Lea Berrang Ford, Université McGill, Canada

**Vulnérabilité et adaptation aux phénomènes climatiques extrêmes dans les Amériques**

Fernando Santibañez, Université du Chili, Chili  
 David J. Sauchyn, Université de Regina, Canada

Voici ce qu'ont déclaré les présidents des quatre organismes partenaires à l'occasion de l'annonce.

David M. Malone, président du CRDI: "*En Afrique, en Arctique et dans les autres zones vulnérables, il est urgent de renforcer la capacité d'adaptation aux effets des changements climatiques, à savoir l'élévation du niveau de la mer, les phénomènes climatiques extrêmes, les sécheresses et la désertification, pour ne nommer que ceux-là. Cette initiative aidera à déterminer comment les populations vulnérables, au Canada et dans des pays en développement, peuvent composer le mieux possible avec la manière dont leur santé, leur milieu ambiant et leurs moyens de subsistance s'en trouvent modifiés.*"

Alain Beaudet, président des IRSC: "*Les populations autochtones sont particulièrement exposées, et cette initiative fournit l'occasion de recourir à la fois aux méthodes scientifiques occidentales et au savoir autochtone traditionnel. Des recherches s'imposent de toute urgence pour aider ces populations vulnérables à s'adapter aux changements climatiques voire à améliorer leurs conditions de vie grâce aux mesures prises en réaction à ces changements.*"

Chad Gaffield, président du CRSH: "*Les chercheurs financés par le CRSH ont contribué à constituer une solide assise d'innovation et de savoir-faire au Canada en ce qui concerne la dimension humaine des changements climatiques. Cette collaboration internationale aidera le CRSH à acquérir de nouvelles connaissances et capacités dans des domaines clés et lui permettra d'enrichir l'apport de la recherche en sciences humaines pour ce qui est de répondre aux besoins de collectivités du Canada et de pays en développement alors qu'elles s'efforcent de s'adapter à un environnement en pleine transformation.*"

Suzanne Fortier, présidente du CRSNG: "*Les connaissances et le savoir-faire des chercheurs financés*

*par le CRSNG joueront un rôle clé dans la mise au point de solutions d'adaptation aux changements environnementaux qui ont une incidence sur les collectivités les plus vulnérables, au Canada et ailleurs dans le monde. En collaborant à un projet d'envergure internationale, les chercheurs seront en mesure de consolider les efforts en vue d'une gestion efficace des changements que subit l'environnement et d'une adaptation adéquate à ces derniers.*"

Pour obtenir de plus amples renseignements sur cette collaboration sans pareil du CRDI et des trois conseils subventionnaires du Canada, prière de consulter le [www.crdi.ca/iriacc](http://www.crdi.ca/iriacc) f.

Source: Communiqué de presse du Centre de recherches pour le développement international, Ottawa, Canada.

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**Books in search of a Reviewer (Partial list)  
 Livres en quête d'un critique (Liste partielle)**

Latest Books received / Derniers livres reçus

**2011-11)** *Climate Change and Climate Modeling*, by J. David Neelin, Cambridge University Press, ISBN 978-0-521-60243-3, Paperback, 282pp, US\$55.

**2011-13)** *Radiation in the Atmosphere, A Course in Theoretical Meteorology*, by Wilford Zdunkowski, Thomas Trautmann and Andreas Bott, Cambridge University Press, ISBN 978-0-521-87107-5, Hardback, 482pp, US\$135.

**2011-14)** *Tropical Montane Cloud Forests*, edited by L.A. Bruijnzeel, F.N. Scatena and L.S. Hamilton, International Hydrology Series, Cambridge University Press, ISBN 978-0-521-76035-5, Hardback, 740pp, US\$110.

**2011-16)** *River Discharge to the Ocean, A Global Synthesis*, Edited by John D. Milliman, Katherine L. Farnsworth, Cambridge University Press, ISBN 978-0-521-87987-3, Hardback, 123pp, US\$160.

**2011-18)** *Climate Change, Global Risks, Challenges and Decisions*, by Katherine Richardson, Will Steffen and Diane Liverman, Cambridge University Press, Hardback, ISBN 978-0-521-19836-3, 2011, 501pp, US\$99.

**2011-19)** *Atmospheric Dynamics*, by Mankin Mak, Cambridge University Press, Hardback, ISBN 978-0-521-19573-7, 2011, 486pp, US\$80.

**2011-21)** *Fluid Mechanics, A Short Course for Physicists*, by Gregory Falkovich, Cambridge University Press, Hardback, ISBN 978-1-107-00575-4, 2011, US\$60, 167pp.

**2011-22)** *Rising Waters, The Causes and Consequences of Flooding in the United States*, by Samuel D. Brody, Wesley E. Highfield and Jung Eun Kang, Cambridge University Press, Hardback, ISBN 978-0-521-19321-4, 2011, US\$99, 195pp.

**CMOS BUSINESS / AFFAIRES DE LA SCMO*****Atmosphere-Ocean* Citation Facts**by William Hsieh<sup>1</sup> and Guoqi Han<sup>2</sup>

As of June 15, 2011, Web of Science reported 273 papers published in *Atmosphere-Ocean* since 2000. These papers were ranked by the average number of citations per year, yielding the top ten ranking papers, listed here in reverse chronological order:

Title	Authors	Vol-Issue	Yr Pub	Total	Av/Yr
Internal Wave Observations in the South China Sea: The Role of Rotation and Non-Linearity	Farmer, D; Li, Q; & Park, JH	47-4	2010	10	<b>5.0</b>
Dynamics, stratospheric ozone, and climate change	Shepherd, TG	46-1	2008	23	<b>5.8</b>
<a href="#">Monitoring the volume, freshwater and heat fluxes passing through Lancaster Sound in the Canadian Arctic Archipelago</a>	Prinsenber, SJ & Hamilton, J	43-1	2005	40	<b>5.7</b>
<a href="#">Gridded North American monthly snow depth and snow water equivalent for GCM evaluation</a>	Brown, RD; Brasnett, B; & Robinson, D	41-1	2003	80	<b>8.9</b>
<a href="#">An overview of the past, present and future of gravity-wave drag parametrization for numerical climate and weather prediction models - Survey article</a>	Kim, YJ; Eckermann, SD; & Chun, HY	41-1	2003	67	<b>7.4</b>
<a href="#">The UVic Earth System Climate Model: Model description, climatology, and applications to past, present and future climates</a>	Weaver, AJ; Eby, M; Wiebe, EC; <i>et al.</i>	39-4	2002	179	<b>17.9</b>
<a href="#">Seasonal predictions based on two dynamical models</a>	Derome, J; Brunet, G; Plante, A; <i>et al.</i>	39-4	2002	50	<b>5.0</b>
<a href="#">Ocean circulation within the North Water Polynya of Baffin Bay</a>	Melling, H; Gratton, Y; & Ingram, G	39-3	2001	62	<b>5.6</b>
<a href="#">Temperature and precipitation trends in Canada during the 20<sup>th</sup> century</a>	Zhang, XB; Vincent, LA; Hogg, WD; <i>et al.</i>	38-3	2000	131	<b>10.9</b>
<a href="#">Parametrization of peatland hydraulic properties for the Canadian Land Surface Scheme</a>	Letts, MG; Roulet, NT; Comer, NT; <i>et al.</i>	38-1	2000	69	<b>5.8</b>

**Legend:**  
 Vol-Issue = A-O Volume and issue number  
 Yr Pub = Year of publication  
 Total = Total number of citations since publication  
 Av/Yr = Average number of citations per year

<sup>1</sup> *Atmosphere-Ocean* Co-Editor (Meteorology)  
 University of British Columbia  
 Vancouver, BC, Canada

<sup>2</sup> *Atmosphere-Ocean* Co-Editor (Oceanography)  
 Fisheries and Oceans Canada  
 St-John's, NL, Canada



## Announcing Official Certification in Meteorology

On June 5, [ECO Canada](#) officially launched the new [Professional Meteorologist \(P. Met\)](#) certification at the 2011 [Canadian Meteorological and Oceanographic Society \(CMOS\) Congress](#) in Victoria, British Columbia.

The **P. Met** Certification will formally recognize the unique skills and knowledge of meteorologists working in various fields such as forecasting, consulting and research, among other areas.

*“Professional credibility for meteorologists has become a priority for the industry. The increased impact of severe-weather and natural disasters has drawn public interest around the work of meteorologists. ECO Canada recognizes that it is imperative to have a mechanism that provides professional credibility to meteorologists”* says **Grant Trump**, CEO of ECO Canada.

*“Ongoing professional development is crucial to success as a meteorologist. **P.Met** provides a framework for professional development and will ensure that Canadian meteorologists stay abreast of the latest forecasting techniques and advancements in the science”* says **Christopher Scott**, Forecast Operations Manager at the [Weather Network](#). *“Encouraging meteorologists to be active educators in their community will serve to broaden the public’s knowledge of our profession and ultimately improve the understanding of weather forecasts.”*

The development of [National Occupational Standards](#) for meteorology, serves as the foundation of the **P. Met** Certification program and is a result of the collaborative efforts of the entire meteorological community including the private sector, academia and government. National Occupational Standards form the basis for all certification programs offered through ECO and are updated approximately every 5 years to ensure they remain reflective of emerging areas in an ever-changing industry.

**Claire Martin**, On-Air Broadcaster at [CBC](#) says *“Like it or not, your local TV weather presenter is often seen as being the ‘face of the science.’ Achieving and displaying a **P.Met** designation will bring a level of confidence in the individual presenter, and trust in the on-air product that does not currently exist.”*

Professional certification is awarded based on academic and experiential criteria as well as the evaluation of an individual’s competency level as compared to the National Occupational Standards (NOS) for Meteorology. More information is available online at [www.eco.ca/meteorology](http://www.eco.ca/meteorology).

This program was funded in part by [Human Resources and Skills Development Canada \(HRSDC\)](#), the Government of Canada’s Sector Council Program.

For more information, please visit [www.eco.ca/meteorology](http://www.eco.ca/meteorology).



## Annonce de la certification officielle en météorologie

Le 5 juin, [ECO Canada](#) a officiellement lancé la nouvelle certification de [Météorologue professionnel \(P. Met.\)](#) au [Congrès 2011 de la Société canadienne de météorologie et d'océanographie \(SCMO\)](#) à Victoria en Colombie-Britannique.

La certification de **P. Met**. reconnaîtra officiellement les compétences et les connaissances uniques des météorologues travaillant dans différents domaines tels que les prévisions météorologiques, le conseil et la recherche, entre autres secteurs.

*“La crédibilité professionnelle pour les météorologues est devenue une priorité pour l’industrie. L’augmentation des impacts du temps violent et des désastres naturels a attiré l’intérêt public vers le travail des météorologues. ECO Canada reconnaît qu’il est impératif d’avoir un mécanisme qui donne une crédibilité professionnelle aux météorologues”,* dit **Grant Trump**, PDG d’ECO Canada.

*“Le perfectionnement professionnel continu est essentiel pour le succès en tant que météorologue. La certification P.Met. fournit un cadre pour le perfectionnement professionnel et assurera que les météorologues canadiens restent au courant des*

*plus récentes techniques et avancées en prévisions météorologiques*”, dit **Christopher Scott**, directeur des opérations de prévisions météorologiques au [Weather Network](#). “*Encourager les météorologues à être des éducateurs actifs dans leur communauté servira à augmenter les connaissances du public sur notre profession et en fin de compte améliorer la compréhension des prévisions météorologiques.*”

Le développement des [Normes professionnelles nationales](#) pour la météorologie sert de fondation pour le programme de certification de **P. Met.**, et il est le résultat des efforts de collaboration de toute la communauté météorologique y compris le secteur privé, les universités, et le gouvernement. Les Normes professionnelles nationales forment la base de tous les programmes de certification offerts par ECO et elles sont mises à jour à tous les 5 ans afin d'assurer qu'elles reflètent toujours les secteurs émergents dans une industrie en constante évolution.

**Claire Martin**, radiodiffuseur à l'antenne de la [CBC](#) dit: “*Que vous aimiez cela ou non, votre présentateur météo de TV local est souvent considéré comme un «scientifique». Terminer et présenter une désignation P.Met. donnera un niveau de confiance envers le présentateur individuel, et envers le produit qui n'existe pas actuellement*”.

La certification professionnelle est octroyée selon des critères universitaires et d'expérience, ainsi que selon l'évaluation du niveau de compétence d'un individu en comparaison avec les Normes professionnelles nationales (NPN) pour la météorologie. De plus amples renseignements sont disponibles en ligne au [www.eco.ca/meteorology](http://www.eco.ca/meteorology).

Ce programme a été financé en partie par [Ressources humaines et Développement des compétences Canada \(RHDC\)](#), et par le Gouvernement du Canada par l'entremise du Programme des conseils sectoriels.

**Pour de plus amples renseignements, veuillez visiter le [www.eco.ca/meteorology](http://www.eco.ca/meteorology).**

## Sharing the Knowledge from Project Atmosphere 2010

by Alexander (Sandy) Adamson<sup>2</sup>

I was the very lucky Canadian teacher selected by the Canadian Meteorological and Oceanographic Society (CMOS) to attend the two-week Project Atmosphere workshop in Kansas City, MO, last July. It was a wonderful experience and I had a great time. I came home “an expert” and was ready to share my new knowledge and resources with my Alberta colleagues.

I asked the North Central Teachers' Convention Association if I could run a two-hour workshop on the topic of “Weather” at their February convention. They accepted my offer and then it was time for me to get to work. I know that the folks from the American Meteorological Society (AMS) who run Project Atmosphere are quite keen on the workshops being on a single topic (e.g., “clouds” or “air pressure”). I totally understand that they are hoping to train teachers to have real expertise and not just a brief exposure. I also know that the people I would be giving my workshop to would be interested in a broader introduction to Project Atmosphere and some of the great hands-on activities it provides. And, with apologies to the AMS, I started to put together my teacher-training session for the convention.

I selected five modules from Project Atmosphere to showcase at the workshop. I gathered materials, made handouts, and generally put my session together. In January 10 grade 5 teachers from my district got together one Saturday morning and we spent a couple of hours going through the workshop. This allowed them to get some free Professional Development time and it allowed me the chance to fine tune the presentation. It went well and so on Friday, February 11<sup>th</sup> I felt well prepared for the convention. They set me up in a smallish room which they told me was able to handle 25 people. I was very pleased when 22 teachers showed up to do the workshop. I expected mostly grade 5 teachers because Weather is a six-week topic in Alberta's grade 5 Science curriculum and it is less evident at other grade levels. There were indeed several grade 5 teachers but we also had junior high and high school teachers there as well.

The first Project Atmosphere module we went through was “Pressure – Highs and Lows”. This seemed a good basis for what was to follow. After going through one of the activities, all of the participants knew very well that in a low pressure the air moves counter-clockwise and the air rises, and vice versa for high pressure. There is a spinning hand movement that they learn as part of this activity and it was fun to watch a room full of teachers spinning their hands with looks of intense concentration on their faces. I doubt that they will forget the air movement differences between highs and lows and I know that their students will be seeing this activity, too.

Our next activity was to make clouds in a bottle. This was something that I had done with my own classes over the years but the Project Atmosphere method also includes

<sup>2</sup> High Park School, Stony Plain, Alberta, Canada

adding an aquarium thermometer strip to show temperature changes as the pressure changes. I was surprised at how many teachers had not seen this activity before and those that had seen it appreciated the new learning that came with the thermometer strip. Each table of four or five teachers made a couple of "clouds" and some folks were really keen to take their "cloud" home with them. This is a great hands-on activity that really emphasizes some basic facts about the atmosphere and the materials needed are inexpensive.

"Sunlight and the Seasons" was our next module. This is a topic that is in our Science 5 curriculum and isn't always easy to explain. The module has participants plotting sunlight hours and amount of energy received at a polar location, an equatorial location and a third location approximately half-way between the other two. The graphs that the participants produce are important for the follow-up discussion about why there are seasons and why different places have different ecosystems. This was a really good module for the grade 5 teachers in particular.

We next did the "Water Vapour and the Water Cycle" module. We worked our way through the background material. The activity that we did was to take a bunch of plastic cups and cut them into a series of different size cups. The larger cups represented warmer air and the smaller cups represented colder air. We used popcorn to represent water vapour. Participants quickly understood that warmer air held more water vapour than colder air. I was glad that I chose popcorn instead of water because things could have gotten really wet. As it was we made a bit of a mess with the popcorn (which was actually quite fun).

The workshop finished with a module on "Hazardous Weather". This is a subject that everyone was keen on. There are activities for thunderstorms, tornadoes, hurricanes and blizzards. I chose, instead, to do the activity for "ice storms". Participants graph data from a fictitious weather balloon and discover why there was so much precipitation and why it fell as ice instead of rain or snow. I really like how this activity helps students understand the three-dimensional nature of the atmosphere.

The workshops went very well. I did not have evaluation forms specifically for myself but the convention had folks fill in evaluations and the feedback was good. All the teachers were very impressed with the Project Atmosphere materials. Two young teachers in particular, who were apprehensive about teaching the Weather Unit for the first time, told me how they now felt like "experts". All participants are now armed with some solid background knowledge. They had five tested activities under their belts, and they all now have access to the Project Atmosphere materials online. It was a busy couple of hours but everyone was engaged, everyone stayed the whole time, and the feedback was very encouraging.

On a personal note, I enjoyed myself. I felt confident knowing that I had been well trained by my Project Atmosphere experience. I knew that activities were educational. Sure they were fun, but speaking as an educator, more importantly they taught important atmospheric concepts. I knew that my students enjoyed and learned from these activities and that my colleagues from my January and February workshops felt the same. Speaking at a convention was a good venue and I feel like I should do the same again next year.

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## Sharing the Knowledge from the Maury Project 2010

by Grant Badgero<sup>3</sup>

I was able to expose a variety of people to the Maury Project. I presented the material to seasoned veterans of my Local Science Specialist Association and to a group of student teachers.

The intent with the first group was to encourage them to use what they already know and do, in a different context, and to show how the Maury Project material can fit into their existing curricula and lesson plans. The latter group was given the opportunity to see what 'extra-curricular' Professional Development resources are out there to add to their growing repertoire (regardless of their current teaching interests and subject/grade levels).

I shared my personal experience of the workshop and presented a number of the activities that they could consider/try in their classrooms. My topic choices seemed well received. Activities that I presented included 1) sample information topic was 'the Pacific Ocean', 2) sample 'hands-on' activities - Wind-Driven Ocean Currents, Ocean Tides on the Web, and El Niño and La Niña. The teachers participated enthusiastically in the activities, and they appreciated the materials (guides) provided and the potential to network with like-minded educators.

Not knowing how many of the 40+ people I interacted with may apply for future Project workshops, I hope they will use the material in their classrooms, and at least consider participating in what I believe to be an excellent Professional Development experience, the Maury Project Summer Programs. Thanks again for the opportunity of a lifetime.

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<sup>3</sup> Kalamalka Secondary School, Coldstream, British Columbia, Canada



**SHORT NEWS / NOUVELLES BRÈVES****World Meteorological Congress elects President and Vice-Presidents**

Note: La version française suit.

Geneva, 25 May 2011 (WMO) - Mr David Grimes (Canada) was today elected as President of the World Meteorological Organization for a four-year term in office. Mr Grimes is the Assistant Deputy Minister, Meteorological Service of Canada, Environment Canada, and Permanent Representative of Canada to the WMO – positions he has held since 2006.

Dr Antonio Divino Moura (Brazil) was elected First Vice-President; Prof. Mieczyslaw S. Ostojki (Poland) Second Vice-President and Mr Abdalah Mokssit (Morocco) Third Vice-President.



Mr. David Grimes  
Newly elected President WMO and  
ADM, Meteorological Service of  
Canada

The elections took place during the WMO Congress (16 May-3 June) which decides the strategic directions, priorities, budget and office holders of the UN System's authoritative voice on weather, water and climate. Congress reappointed Mr Michel Jarraud as WMO Secretary-General on Tuesday for another four year term of office.

*"As leaders of National Meteorological and Hydrological Services (NMHSs), we recognize the critical role WMO plays for*

*humanity in the area of weather, climate and water in facilitating cooperation across borders and oceans, in building scientific leadership and in instilling a passion for excellence,"* said Mr Grimes. He said he would strengthen these contributions.

He said his priorities over the next four years would include: promoting the implementation of the Global Framework for Climate Services to empower countries to adapt to climate change; strengthening the role NMHSs in disaster risk reduction; capacity building; and promoting integrated, quality assured Earth observations.

The WMO President presides over the sessions of Congress and the Executive Council which guide WMO activities in research and services related to weather, water and climate which are fundamental to people's daily lives.

"I am delighted to announce that David Grimes, ADM MSC, was elected President of the World Meteorological Organization (WMO) today during the Sixteenth World Meteorological Congress being held in Geneva".

*Paul Boothe, Deputy Minister  
Environment Canada  
25 May 2011*

Mr Grimes will succeed immediately after the XVI Congress, Dr Alexander Bedritskiy (Russian Federation), who has held the position for eight years.

Dr Bedritskiy said he was confident that the new President and Vice Presidents would strengthen WMO as it seeks to respond to challenges facing humanity such as climate change.

**Short biographies of WMO President and Vice-Presidents**

**Mr David Grimes** is Assistant Deputy Minister, Meteorological Service of Canada, Environment Canada and Permanent Representative of Canada since July 2006. He has more than 35 years of scientific, research and management experience at Environment Canada, and over 20 years experience working with WMO initiatives and programmes, supporting the Executive Council activities since 1993. He is a career meteorologist who studied mathematics, nuclear and quantum physics at Brock University in Ontario.

**Dr Antonio Divino Moura** is Director of the Meteorological Institute of Brazil (INMET). He has been Third Vice President of WMO since 2007. He was also the founding Director General of the International Research Institute for Climate and Society at Columbia University (1996-2002); and researcher and Professor in Meteorology at the Brazilian Space Research Institute and the University of São Paulo.

**Prof. Mieczyslaw S. Ostojki** is Director of the Institute of Meteorology and Water Management of Poland. Since 2007, he has served as a member of WMO Executive Council and from 2009 as Vice-President of the Regional Association for Europe. He is active in strengthening traditional cooperation within Europe and with other regions and enhancing the visibility and the importance of the NMHS role.

**Mr Abdalah Mokssit** is Director of the National Meteorological Service of Morocco and Vice President of the Intergovernmental Panel on Climate Change's Working Group I which assesses the physical scientific aspects of the climate system and climate change. He is a prominent member of several WMO commissions including the Commission on Climatology and the Commission for Basic Systems.

Source: WMO Press Release No. 918.

World Meteorological Organization is the United Nations System's authoritative voice on Weather, Climate and Water

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## Le Congrès météorologique mondial élit le Président et les Vice-présidents de l'OMM

Genève, 25 mai 2011 (OMM) – M. David Grimes (Canada) a été élu ce jour Président de l'Organisation météorologique mondiale pour un mandat de quatre ans. M. Grimes est sous-ministre adjoint en charge du Service météorologique du Canada relevant d'Environnement Canada et Représentant permanent du Canada auprès de l'OMM, des fonctions qu'il exerce depuis 2006.

M. Antonio Divino Moura (Brésil) a été élu Premier Vice-Président, M. Mieczyslaw S. Ostojki (Pologne), Deuxième Vice-Président et M. Abdalah Mokssit (Maroc), Troisième Vice-Président.

Les élections se sont déroulées à l'occasion du Congrès météorologique mondial, en session du 16 mai au 3 juin, qui définit les orientations stratégiques, fixe les priorités, adopte le budget et nomme les administrateurs de l'institution du système des Nations Unies faisant autorité pour les questions relatives au temps, à l'eau et au climat. Mardi, le Congrès avait reconduit M. Michel Jarraud dans ses fonctions de Secrétaire général de l'OMM pour un nouveau mandat de quatre ans.

*“En tant que chefs de Services météorologiques et hydrologiques nationaux (SMHN), nous sommes conscients du rôle crucial que l'OMM tient au service de l'humanité dans les domaines du temps, du climat et de l'eau, favorisant la coopération au-delà des frontières et des océans, développant le rôle prépondérant de la science et suscitant la passion de l'excellence”,* a déclaré M. Grimes en assurant qu'il veillerait à renforcer l'action de l'Organisation dans ce sens.

M. Grimes a fait part de ses priorités pour les quatre ans à venir, à savoir: favoriser la mise en œuvre du Cadre mondial pour les services climatologiques afin de donner aux pays les moyens de s'adapter à l'évolution du climat;

intensifier le rôle des SMHN dans la réduction des risques de catastrophes; renforcer les capacités; et promouvoir l'intégration et le contrôle de qualité des observations de la Terre.

Le Président de l'OMM préside les sessions du Congrès et du Conseil exécutif chargées de guider les activités de l'Organisation dans les domaines de la recherche et des services relativement au temps, à l'eau et au climat qui conditionnent nos vies au quotidien.

Immédiatement après le Seizième Congrès, M. Grimes succèdera à M. Alexandre Bedritskiy (Fédération de Russie), en fonction ces huit dernières années. M. Bedritskiy s'est dit confiant dans la capacité des nouveaux Président et Vice-Présidents de renforcer l'OMM pour qu'elle puisse relever les défis que l'humanité doit affronter, notamment l'évolution du climat.

### Biographies succinctes du Président et des Vice-Présidents de l'OMM

**M. David Grimes** est sous-ministre adjoint en charge du Service météorologique du Canada relevant d'Environnement Canada et Représentant permanent du Canada auprès de l'OMM depuis juillet 2006. Il possède plus de 35 ans d'expérience dans les domaines scientifiques et de la recherche ainsi qu'en gestion au sein d'Environnement Canada. Son expérience englobe plus de 20 ans de travail dans divers programmes et initiatives de l'OMM, et il contribue aux activités du Conseil exécutif de l'Organisation depuis 1993. C'est aussi un météorologiste de métier qui a étudié les mathématiques, la physique nucléaire et la physique quantique à l'Université Brock en Ontario.

**M. Antonio Divino Moura** est directeur de l'Institut de météorologie du Brésil (INMET) et occupe depuis 2007 les fonctions de Troisième Vice-Président de l'OMM. Il a fondé l'Institut international de recherche sur le climat et la société à l'Université Columbia et en a été le premier directeur général de 1996 à 2002. Il a été chercheur et professeur de météorologie à l'Institut de recherche spatiale du Brésil et à l'Université de São Paulo.

**M. Mieczyslaw S. Ostojki** est directeur de l'Institut polonais de météorologie et de gestion de l'eau. Depuis 2007, il est membre du Conseil exécutif de l'OMM, et ce, à titre de vice-président du Conseil régional pour l'Europe depuis 2009. Il œuvre énergiquement pour intensifier la coopération engagée de longue date au sein de l'Europe et avec les autres régions, mais aussi pour renforcer la notoriété des SMHN et le rôle qu'ils tiennent dans la société.

**M. Abdalah Mokssit** est directeur du Service météorologie marocain et vice-président du groupe de travail I relevant du Groupe d'experts intergouvernemental sur les changements climatiques, chargé d'évaluer les aspects scientifiques du système climatique et de l'évolution du climat. C'est un membre éminent de plusieurs commissions de l'OMM, notamment la Commission de climatologie et la Commission des systèmes de base.

Source: Communiqué de presse de l'OMM N° 918.

## Dr. Allyn Clarke Honoured at ICES/NAFO Decadal Symposium

Dr. Allyn Clarke, an Emeritus Scientist with Fisheries and Oceans Canada (DFO) at the Bedford Institute of Oceanography and former President of CMOS (2003), recently received international recognition as a Guest of Honour at a scientific symposium organized by the International Council for the Exploration of the Sea (ICES) and the Northwest Atlantic Fisheries Organization (NAFO). The symposium, held at Santander, Spain on the "*Variability of the North Atlantic and its Marine Ecosystems during 2000-2009*", represented the continuation of a series of decadal symposia on oceanographic variability in the North Atlantic over the past half-century.



Photo credit: Alicia Lavin Montero

Dr. Clarke was one of six Guests of Honour who were acknowledged for their contributions to enhancing our understanding of the marine environment, and who were recognized as leaders and long-time contributors to the study of environmental variation in the North Atlantic and effects on biota over many decades within ICES and

NAFO. The other five honourees were from France, Germany, the United Kingdom and the United States.

Dr. Clarke's primary scientific interest has been the circulation of the high-latitude North Atlantic and its role in the global climate system. His research papers include both theoretical and observational results. During his 35 years of distinguished service with DFO he made many significant contributions to our present understanding of circulation and water mass transformations in the northwest Atlantic Ocean. He led numerous research cruises in the North Atlantic including memorable winter visits to the Labrador and Greenland Seas in search of deep convection. He served unselfishly as Head, Ocean Circulation Section (1985–1997) and Manager, Ocean Sciences Division (1997–2002), and played lead roles in international climate programs such as the World Ocean Circulation Experiment (WOCE) and the Climate Variability and Prediction program (CLIVAR). His counsel and advice to senior management contributed to decisions and policy at all levels of government. As a scientist and manager, he provided scientific leadership in ocean and related climate research at local, national and international levels. He earned the respect of his colleagues for his scientific productivity, strong leadership and timely and scientifically-sound advice.

Congratulations to Allyn Clarke from all CMOS members!

## Allyn Clarke (Ph. D.) honoré au colloque décennal du CIEM et de l'OPANO

Allyn Clarke (Ph. D.), scientifique émérite de l'Institut océanographique de Bedford, relevant du ministère des Pêches et des Océans (MPO), s'est récemment vu accorder une reconnaissance internationale en tant qu'invité d'honneur au colloque organisé par le Conseil international pour l'exploration de la mer (CIEM) et l'Organisation des pêches de l'Atlantique Nord-Ouest (OPANO). Tenu à Santander (Espagne), ce colloque sur la « variabilité de l'Atlantique Nord et de ses écosystèmes marins de 2000 à 2009 » représentait la continuation d'une série de colloques décennaux sur la variabilité de l'Atlantique Nord au cours des cinquante dernières années.

Allyn Clarke était l'un des six invités d'honneur, dont on a reconnu la contribution à l'approfondissement de la compréhension de l'environnement marin et dont on a consacré le leadership de longue date dans le domaine de la variation environnementale dans l'Atlantique Nord et ses effets sur le biote, et ce, au cours de plusieurs décennies au sein du CIEM et de l'OPANO. Les cinq autres personnes honorées provenaient de l'Allemagne, des États-Unis, de la France et du Royaume-Uni.

La circulation aux latitudes élevées en Atlantique Nord et son rôle sur le système climatique a été le domaine scientifique de prédilection d'Allyn Clarke. Les articles scientifiques de ce dernier comprennent des résultats théoriques et d'observation. Au cours de ses 35 années de services distingués au sein du MPO, A. Clarke a considérablement contribué à la compréhension présente de la circulation et des transformations de la masse d'eau dans le nord-ouest de l'océan Atlantique. Il a dirigé un grand nombre de croisières de recherche dans l'Atlantique Nord, y compris de mémorables visites hivernales à la recherche de convection profonde dans les mers du Labrador et du Groenland. Monsieur Clarke s'est dévoué à l'océanographie en tant que chef de la Section de la circulation océanique (1985 à 1997), puis comme gestionnaire de la Division des sciences de l'océan (1997 à 2002). Il a joué un rôle de premier plan au sein de plusieurs programmes, comme l'Expérience sur la circulation océanique mondiale (WOCE) et le programme sur la variabilité et la prédictibilité du climat (CLIVAR). Ses avis et conseils destinés aux hauts gestionnaires ont influencé les décisions et les politiques à tous les paliers gouvernementaux. En tant que scientifique et gestionnaire, il a orienté la recherche sur les océans et la recherche connexe sur le climat aux échelles locales, nationales et internationales. Allyn Clarke a gagné le respect de ses collègues grâce à sa grande productivité scientifique, à la force de son leadership, et à ses conseils judicieux et opportuns.

Félicitations à Allyn Clarke de la part de tous les membres de la SCMO!

## Uvic acquires a New Research Vessel



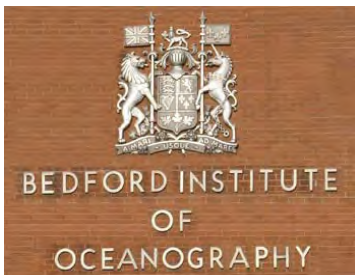
Uvic has acquired a 33 m vessel, the former *MV Tsekoa II*, as a donation from Fisheries and Oceans Canada. Funded by the Canadian Foundation for

Innovation and the BC Knowledge Development Foundation, Uvic will refit the ship with a full suite of scientific instruments for work in coastal waters. The vessel will be used for coastal ocean research, as a ROV platform in support of ocean observatory maintenance, and to explore "green shipping" technologies through the installation of a hybrid fuel-cell drive system. The reconfiguration of the vessel should begin this summer.

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## BIO at 50: A Voyage of Discovery

Since 1962, the Bedford Institute of Oceanography (BIO) has been a leader in scientific research and innovation. In 2012, BIO will celebrate **50 years of discovery** and host many events scheduled throughout the year. Among these events will be the ever-popular Open House in September and a Gala celebration in October.



One of the major programs in BIO history was the work done during the Arrow crisis in Chedabucto Bay starting in February 1970 when the tanker struck Cerebrus Rock. On February 24<sup>th</sup> a task force was formally created and the science support team, centred at

BIO, was led by Bill Ford. The task force was dissolved seven months later. For those of us involved in this work it is a lasting memory.

This is one of the events in BIO history which should be remembered and acknowledged in the **50<sup>th</sup> celebration**. More than 100 scientists and engineers, with supporting staff, worked on a full or part time basis on the problems created by the massive, near-shore oil spill. Memories fade; all of those involved in this work have retired and many have passed away. There never was a complete list.

I have assembled a partial list of the actors in this drama; obviously, there are too many omissions. I would like to assemble a list of all the science/engineering/admin folks who contributed to the Arrow event, including those involved before the task force was created (in itself a considerable

number). If you were involved, you know about it - please send me some information.

Please help create this memory and reply to this message with more information about this major BIO program.

Clive Mason  
Bedford Institute of Oceanography  
[bio.oceans@gmail.com](mailto:bio.oceans@gmail.com)

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## McGill University & IBM develop Quebec's most powerful and energy-efficient supercomputer cluster

Montreal, Quebec, June 14, 2011. New CLUMEQ High Performance Computing Consortium announced a huge step forward for research and innovation.

McGill University today announced an \$8.3-million CDN contract with IBM in Canada to acquire a supercomputer cluster able to support the data-intensive research activities of the CLUMEQ High Performance Computing Consortium, making it the most powerful supercomputer in Quebec and the second-most energy-efficient data centre in Canada (1). The first phase of this McGill project, funded by the Canadian Foundation for Innovation (CFI), aims at building Canada's capacity to undertake world-class research and technology development to strengthen its position in today's knowledge economy. According to a recent report issued by the Organization for Economic Co-operation and Development, the province of Quebec is a hotbed of research and development, making the city of Montreal an ideal location for the project.

### Fiche technique du nouveau superordinateur de McGill

Cette nouvelle structure technologique fournie par IBM, qui célèbre cette année son 100<sup>e</sup> anniversaire, sera composée de 2400 processeurs dont chacun sera doté de 14 400 coeurs, ce qui représente 136,3 Teraflops de capacité de calcul. La capacité de stockage s'élèvera à 1,92 petaoctet (10<sup>15</sup> octets).

Source: Journal Le Devoir.

Gaining an efficient, relevant understanding of mountains of data will be one of the biggest challenges for organizations in the 21st Century. McGill's CLUMEQ will provide high-performance computing (HPC) capabilities to fully support the research activities of the Quebec and Canadian university communities in several data-intensive sectors. McGill's focus includes high-energy physics, nanotechnologies, **computational fluid dynamics, climate research**, brain imaging, biology and life sciences. The

cluster will leverage the processing power necessary to facilitate the efficient capture, storage, search, sharing, analysis, and visualization of vast amounts of industry data. CLUMEQ will also support the Atlas research project linked to the European Organization for Nuclear Research (CERN) project.

*"With these impressive, multidisciplinary computing capacities, the new theories tested by the McGill CLUMEQ consortium will have a major impact on many areas of scientific expertise, from research into the Big Bang to advances in nano-scale materials, as well as industries in key fields such as neuroscience, biopharma, aerospace, and finance",* said McGill's Principal and Vice-Chancellor Heather Munroe-Blum. *"We appreciate the strong support we have received from the federal and provincial governments, and from our IBM partner, which helps us to foster innovation and discovery within our university communities and to conduct transformational research for the continued advancement of society".*

Founded in 2001, CLUMEQ is a supercomputer consortium network created with McGill University, Université Laval and the Université du Québec network, which includes the École de technologie supérieure (ÉTS), where the supercomputer is housed. McGill's CLUMEQ is part of the National Platform infrastructure meant to support researchers all over the country.

*"McGill's CLUMEQ is poised to be a game-changer to help accelerate Canadian research innovation,"* said Denis Desbiens, IBM Quebec Vice-President at IBM Canada. *"With IBM's expertise, the consortium – part of Calcul Québec - is now one of the seven components of the national HPC platform set up by Compute Canada to serve Canadian researchers. "Cutting-edge research in a variety of disciplines is what McGill CLUMEQ will bring."*

On the forefront of innovation, IBM already has an impressive track record when it comes to high performance technology. In February of 2011, IBM's Watson computing system competed and won on the popular game show Jeopardy! against two of the most well-known and successful champions. Watson's performance on the show captured the imagination of millions of viewers, highlighting the power of computing to benefit humanity in areas such as healthcare.

*"McGill's research position on the world stage has reached new frontiers when it comes to demonstrating the powerful impact that industry can bring when joining forces with universities and governments. This puts Canada and particularly Quebec on the map of scientific capability in terms of critical synergies in support of research and innovation,"* Desbiens said.

IBM, which celebrates its centennial this year, began co-operating on McGill's supercomputer initiative in 2005. It has provided McGill researchers continuous support on this initiative.

*"We are very happy to collaborate with IBM and McGill. When it comes to applied teaching and research in engineering and technology transfer, ÉTS is a beacon model in Canada. This announcement further reinforces the critical synergies between research, innovation and industry. By working in partnership, ÉTS and McGill have a positive impact on the entire innovation chain, from both idea to innovation and from fundamental research to application",* said Yves Beauchamp, Chief Executive Officer of ÉTS.

The new supercomputer, based on IBM's iDataPlex solution, has received contributions from both levels of government in addition to IBM's participation as part of its industrial regional benefits (IRB) program.

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## CMOS 2012 Photo Contest

All members with a photographic bent are invited to participate in the 2012 Photo Contest. Please submit your own original image files, either in colour or black and white, from scans or digital capture of a meteorological or oceanographic subject, event, or phenomenon. Details on the photo contest can be found on the CMOS Web Page at:

[http://www\\_cmos.ca/photocontest.html](http://www_cmos.ca/photocontest.html)



## Concours photographique 2012 de la SCMO

Tous les membres qui ont une passion pour la photographie sont invités à participer au concours de photographie 2012 de la SCMO. Prière de soumettre vos photos numériques originales, soit en couleur, soit en noir et blanc, à partir de copie papier ou de fichier numérique portant sur des sujets ou phénomènes météorologiques ou océanographiques. Les détails du concours se trouvent sur le site web de la SCMO à:

[http://www\\_scmo.ca/photocontest.html](http://www_scmo.ca/photocontest.html)

**In Memoriam****Ed Truhlar (1928-2011)**

Cropped photo from CMOS archive: 25-year awards for AES employees in February 1986

Ed Truhlar was deeply religious, conscientious and kind. His only fault was that he was a worrier – mostly about unimportant things. For example, Mrs. McTaggart-Cowan held a tea once a year for the wives at her home in Richmond Hill. At that time, Ed was not married, and he worried a great deal about the invitations he received for Mrs. Truhlar. Should he tell Mrs. McTC that he was still single, or would some poor secretary be criticised for making a mistake. Maybe he should dress up as a woman and go to the tea-party! Later in life, we used to laugh and laugh about these invitations.

Ed graduated from the University of Toronto MA course in Meteorology in 1958. He retired from AES/MSO in 1991 but continued to come to the office and work for CMOS until 1995.

I first met Ed when I was posted to Toronto to join the Scarborough Physical Research Centre about 1960. At that time, Ed managed the Canadian upper atmosphere ozone program, and I had the task of drafting a Treasury Board Minute on the Met Service's responsibilities in the field of air pollution. We were rarely disturbed. That is because we were a long way from Head Office, too far to be invited to sub-committee meetings, and nobody was quite certain whether we were entitled to travel allowances. Ed seemed particularly interested in my stories of the wartime Met Service, and we became good friends.

After several years, the Scarborough office was closed, and we were moved to 8 Spadina Road, and then a couple of years later to the new headquarters, north on Dufferin Street.

Over these years, I discovered that Ed Truhlar had a special talent for copy editing. And he began proof-reading manuscripts for me. After a while, I informed CMOS of Ed's abilities, and they invited him to become an *ad hoc* member of their editorial board. He began attending the June Congresses – I remember seeing him and his wife Beth at a couple of those events, one of them at a site on the south shore of the St Lawrence.

Shortly after Ed's death, I received an e-mail from an old friend in South Korea, Yong Chung. I read it at Ed's funeral, which took place in Mississauga:

*Ed indeed was a very quiet man at the AES, but his warm heart and thoughtful mind will be remembered for a long time, as long as his name survives.*

Ted Munn

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### **Major New Sustainability Conference Calls for Papers to Provide Scientific Leadership for Rio + 20**

**Planet under pressure 2012: New Knowledge Towards Solutions**

26-29 March, 2012, London, UK

The closing date for abstract submission is 16 September 2011. Full details on the conference sessions and on submitting an abstract are available on the conference website: [www.planetunderpressure2012.net](http://www.planetunderpressure2012.net)

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### **CMOS Accredited Consultants Experts-Conseils accrédités de la SCMO**

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