

# ARCTIC SIGnal



## Welcome Back

By Ann McMillan

Here is the second edition of the ArcticSIG Newsletter: ARCTIC SIGnal, just in time for CMOS Congress in Rimouski, which has the rather appropriate theme "Northern Exposure".

We hope you like our continuing focus on short, relevant articles, and look forward to having input from you in person at the Congress. One of the main reasons to get this edition out now is to

advertise our upcoming Special Session at Congress. While the focus of the session is on Arctic monitoring, we will have representatives of government departments, universities and private industry present and presenting. We're hoping the panel discussion can explore innovative ways of moving forward to know our North through monitoring, as well as provide some context in today's world of restraint.

We are toying with the idea of publishing Letters to the Editor. If you would like to react to an article here, or raise an issue for discussion, please send a letter to me at [mcmillan@storm.ca](mailto:mcmillan@storm.ca)

One of the science initiatives being pursued by CMOS is an updated statement on Climate Change. In discussions with Adam Monahan and Bruno Tremblay who are working on this, input from the ArcticSIG would be welcome. We'll discuss how to best provide this at the Congress Session.

Finally, the ArcticSIG is a "group" under the CMOS LinkedIN site. Go to Canadian MetOcean and see the ArcticSIG group. Please join!!!

See you in Rimouski!

Ann McMillan, [mcmillan@storm.ca](mailto:mcmillan@storm.ca)  
CMOS ArcticSIG Newsletter Editor

### Included in this Issue

- *Northwest Territories Devolution*
- *Research in the North, a Changing Paradigm?*
- *Global Cryosphere Watch of the World Meteorological Organization*
- *CMOS 2014 Workshop Information*
- *A Word from our Chair*



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## Northwest Territories Devolution

April 1 2014

For more information, this information abstracted from:

<http://devolution.gov.nt.ca/>

<http://devolution.gov.nt.ca/useful-resources/devolution-what-does-it-mean>

ON APRIL 1, 2014, AUTHORITY OVER LAND AND RESOURCE MANAGEMENT WAS TRANSFERRED FROM THE FEDERAL GOVERNMENT TO THE GOVERNMENT OF THE NORTHWEST TERRITORIES (GNWT), THIS WAS MADE POSSIBLE BY:

- *Federal Bill C-15, Northwest Territories Devolution Act*
- *Bill C-15 also included measures relating to Northern Regulatory Reform*
- *Devolution of Land and Resource management took place in Yukon in 2003*

### NEGOTIATED IN AGREEMENT

- Transfer of administration and control of public lands & waters
- List of federal lands that are to be excluded from devolution and remain under federal administration and control
- Post-devolution resource management arrangements
- Oil and gas and co-ordination between offshore & onshore
- Responsibilities for waste sites
- Human resources, Salaries and benefits
- Offers for federal employees transferring to the GNWT (132 federal employees transferred to NWT)
- Federal properties, assets, contracts and records
- Transitional and on-going funding to carry out responsibilities
- Net fiscal benefit for the NWT and resource revenue-sharing
- Pre- and post-devolution transition & implementation matters

The website says: "The departments of Industry, Tourism, and Investment (ITI) and Environment and Natural Resources (ENR) will take on federal functions related to their existing mandates, and a new department of Lands will be created to support, manage and administer the sustainable use of public land in the NWT. The GNWT's existing responsibilities for managing Commissioner's Lands will transfer from Municipal and Community Affairs (MACA) to the new Lands department." For more information on the new approach, see <http://devolution.gov.nt.ca/wp-content/uploads/2012/04/Impacts-for-Industry-and-Communities.pdf>.

It is expected that these changes will also change the roles of some federal departments such as Aboriginal Affairs and Northern Development Canada, Environment Canada and Fisheries and Oceans Canada. For example although the *Mackenzie Valley Resource Management Act* (MVRMA) will remain federal legislation for the time being, the GNWT will take on greater authority under it and a number of responsibilities and decision-making authorities formerly held by a federal Minister under the MVRMA will be exercised by a territorial Minister through delegated authority. (including the authority to approve Type A water licenses). The GNWT considers delegated authority under the MVRMA to be an interim step, and has negotiated a requirement for a review of these provisions in the Devolution Agreement in five years.

ALL PUBLIC LANDS IN THE NWT STILL BELONG TO HER MAJESTY IN RIGHT OF CANADA

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Council of Yukon  
First Nations

## Research in the North, a Changing Paradigm?

By Bob Van Dijken, Director Circumpolar Relations, Council of Yukon First Nations, Whitehorse YUKON

Indigenous land claims agreements and the devolution of federal powers and responsibilities are creating a new political and regulatory landscape in Canada's northern territories. This has implications for researchers working in the North and there isn't a one size fits all instruction manual for northern research that can provide all the answers in one convenient location.

Canada invested substantial amounts in research and research infrastructure during International Polar Year (IPY) and more than 50 Canadian lead projects conducted research across our Arctic regions. IPY required that projects work with international partners and include plans for training, education and outreach for northern residents. There were some refreshing new models for research partnership undertaken during International Polar Year and hopefully these will be adopted as standard practice moving forward.

The *Yeendoo Nanh Nakhweenjit K'atr'ahanahtyaa: Environmental Change and Traditional Use in the Old Crow Flats, Yukon* project turned the traditional research paradigm on its head. Upon learning of the Canadian IPY science call for proposals, the community of Old Crow invited four northern research chairs to come north to develop a research proposal. Over the course of a weekend the community worked with the academics to develop a proposal that dealt with the communities priority research needs. They shared meals and stories, agreed upon research priorities and plans and submitted a successful proposal with the Vuntut Gwitchin First Nation's Director of Natural Resources as the Project Leader. Summer research programs provided employment opportunities and researchers participated in and offered training opportunities for youth summer camps and other activities. In late January the researchers, up to 15 professors and grad students, came to Old Crow for a weekend, giving an update on the previous summer's research and making plans for the upcoming field season. These visits helped strength the research partnership and ensure that the community was engaged and informed. As the project funding was winding down a grad student spent time developing community based monitoring programs and protocols so that the First Nations government and community members could continue to gather information and develop long term data sets. This "cradle to grave" approach, working with communities from the development of the proposal to legacy aspects such as community based monitoring programs, can serve as a valuable model. Not all research lends itself to this full partnership approach but communication should still be a goal.

Minor changes to the tri-councils funding model could help promote this type of approach. The provision of some "seed funding" to allow researchers to travel north during the proposal development phase would help develop meaningful partnerships and community relevant research. Funding could also be included for developing communication materials and returning to communities after field programs are completed to report on results.

With the Canadian High Arctic Research Station (CHARS) scheduled to open in Cambridge Bay Nunavut in 2017, we look forward to this institution promoting and fostering this research approach.

Developing research relationships requires an investment of time, energy and funds but in the end the results can be well worth the effort.

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## Arctic SIG SESSION CONFIRMED FOR UPCOMING CMOS CONGRESS

Arctic Science Infrastructure and Monitoring – Are we there yet?

CMOS 2014 - Rimouski

Sunday June 1 2014, 13h30 – 16h00  
Hotel Rimouski - COURCHESNE Room

## A Word from our Chair

By Martin Taillefer



At the Next CMOS Congress in Rimouski QC, the ArcticSIG will be meeting for the second year at a Special Session on Sunday afternoon, June 1st. We will be discussing Arctic Science Infrastructure and Monitoring Session and asking "Are we there yet? ". Yet the same can be said of the ArcticSIG itself ... "Are we there yet?" It has been a busy year in our respective roles in government, academia and the private sector – and while we have made some small steps in progressing the SIG this year, we are hoping that the momentum of the SIG will continue to grow and accelerate into future years.

I dare say that at this time we are not there yet! But the ArcticSIG path is being mapped out, defined and paved so that we can be fully integrated in future consideration of Arctic discussions, research and as a voice to northern issues within CMOS. As CMOS membership experiences small declines with each passing year, the ArcticSIG can certainly be used as a catalyst at CMOS to showcase the importance of northern issues and arctic climatic changes to highlight the very relevance of our society within the greater Canadian community.

So who is aware today of the existence of the ArcticSIG – I would say perhaps 200 people – and maybe in 5 years it will be 1000. It's not huge, but certainly enough to make our voices heard. We are not there yet – but we are getting there!!

This is an exciting time for me and the ArcticSIG Board – and as always, we would not be able to deliver without the unselfish support and volunteerism of many.

Thank you and Fair winds.

### WORKING GROUP

The working group is currently comprised of the following members:

Martin Taillefer – Chair

Andrew Bell – CMOS Executive Director – SIG Advisor

David Fissel, Ann McMillan, Doug Bancroft, Helen Joseph - Members

Tess Maheux – Administrative Support & Social Media



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World Meteorological Organization  
Weather • Climate • Water

## Global Cryosphere Watch of the World Meteorological Organization

By B. Goodison, *Vice-Chair, GCW Steering Group*  
on behalf of GCW Steering Group, World Meteorological Organization

There is now an unparalleled demand for authoritative information on past, present and future state of the world's snow and ice resources, or collectively, the cryosphere. The cryosphere includes solid precipitation, snow cover, sea ice, lake and river ice, glaciers, ice caps, ice sheets, permafrost, and seasonally frozen ground. It characterizes our polar regions, but the cryosphere is global, existing not just in the Arctic, Antarctic and mountain regions, but in various forms at all latitudes and in approximately one hundred countries. The cryosphere is one of the most useful indicators of climate change, yet is one of the most under-sampled domains in the climate system. Improved cryospheric monitoring, and integration of information across cryospheric domains, are essential to fully assess, predict, and adapt to the variability and change we now witness in weather, climate, water and other environmental sectors.

In Canada, several collaborative initiatives are actively improving our monitoring, prediction and understanding of the cryosphere and its changes. An integrated perspective of the cryosphere from local to regional (including pan-Arctic) to global, however, is an ongoing challenge. The International Polar Year (IPY) did demonstrate the urgent need for a sustained, robust, end-to-end cryosphere observing and monitoring system, not only for polar regions, but globally. In 2007, the World Meteorological Congress of WMO supported a proposal from Canada to create a Global Cryosphere Watch (GCW) and in 2011, after widespread consultations, it approved its

development as an IPY legacy. Partnering is essential for long-term success. Information on the GCW program and its current status can be accessed at the website – <http://globalcryospherewatch.org>. Some specific activities of interest for Canada and ones in which Canadian expertise is welcomed are noted below.

A key task in the development of GCW is to achieve sustained cryosphere observing, monitoring and provision of data and service-oriented information related to climate, water and weather. This is essential for use in real time, for risk management as well as for climate change adaptation and mitigation. . Such a system must be a combination of ground-based measurements, satellite remote sensing, aircraft measurements, modeling, and data management. To achieve this in a geographically and climatologically diverse country such as Canada is a major challenge. Remote, data-sparse areas of the north make it even more difficult.

WMO member countries strongly supported, as an early initiative, the development and implementation of a surface-based cryosphere observing network called "CryoNet". CryoNet will establish sustained cryosphere observations made according to accepted best practices, guidelines and standards, built on existing measurement practices where possible. It would be akin to WMO's GAW network. CryoNet also has to address issues such as cryospheric terminology, data formats,

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metadata, interoperability, and compatibility of observations from all GCW constituent observing and monitoring systems and derived cryospheric products. Some CryoNet sites, termed “Integrated sites”, will provide long-term data for calibration and validation of satellite products and for verification of cryospheric processes in climate models. CryoNet sites must meet a minimum set of requirements, including a commitment by the responsible agency to long-term observations of at least one GCW variable. Over 100 sites have been suggested by countries, and 14 sites were selected for initial implementation within CryoNet. Eight of these are in the Arctic, including Eureka. It is hoped that community monitoring could become an integral part of this surface based network.

A complementary and essential task in the provision of authoritative information is the conduct of product intercomparisons, as there are often multiple satellite products for the same geophysical variable (e.g., sea ice, snow cover), and similar products from surface measurements and models. Various satellite-based “trackers” are being created for GCW; for example a snow water equivalent tracker developed by the Finnish Meteorological Institute. The trackers give near real-time information on current conditions in the context of climatology. GCW’s “Snow Watch” project is comparing various snow cover products. GCW will also develop an inventory of satellite products that are mature and generally accepted by the scientific community.

GCW is working to improve exchange of, access to, and utilization of observations and products from WMO and other observing systems through the GCW data portal, or catalogue, (<http://gcw.met.no>; developed and supported by the Norwegian Meteorological Service) which is dedicated to data management and to providing specific information on datasets. IPY data centers/portals, such as METNO, the Canadian Cryosphere Information Network

(CCIN), the British Antarctic Survey (BAS), the Norwegian Polar Institute (NPI), the National Institute of Polar Research (NIPR, Japan), and the National Snow and Ice Data Center (NSIDC, USA) are already interoperable. The portal is part of the WMO Information System (WIS). Hence, the GCW web portal will make GCW data and information available to WMO Members, their partners, and users while providing the ability to exchange data and information among a distributed network of providers.

The GCW information website provides project information, near real-time graphics illustrating the state of the cryosphere, scientific assessments, cryosphere news, observational requirements, measurement standards, and GCW documents (<http://globalcryospherewatch.org>).

The “Watch” is provided through the GCW website and will provide authoritative, clear, and useable data, information, and analyses on the past, current and future state of the cryosphere to meet the needs of WMO Members and partners.

Canada first suggested the need for a global cryosphere watch; WMO Members responded to support its development. GCW is designed to be inclusive and partnerships are a key element in the design and development of GCW and include government agencies and institutions that measure, monitor, or archive cryosphere data and information. International bodies and services, such as the International Permafrost Association (IPA), the World Glacier Monitoring Service (WGMS, a service of the International Association of Cryospheric Sciences), the Global Precipitation Climatology Centre (GPCC), and national institutions such as the U.S. National Snow and Ice Data Center (NSIDC) are examples of bodies that have been engaged in the development of GCW. Participation in GCW is strongly encouraged. Canadian cryosphere contributions are essential in building an accurate pan-Arctic and global understanding of the cryosphere, its changes and its socio-economic impacts