CGEO-USGEO Testbeds & Drought Studies

GEO-DRI Drought Monitoring Workshop
Winnipeg, Manitoba

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Environment Canada
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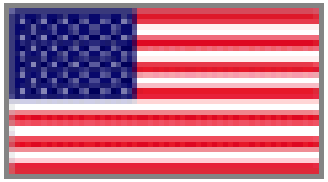
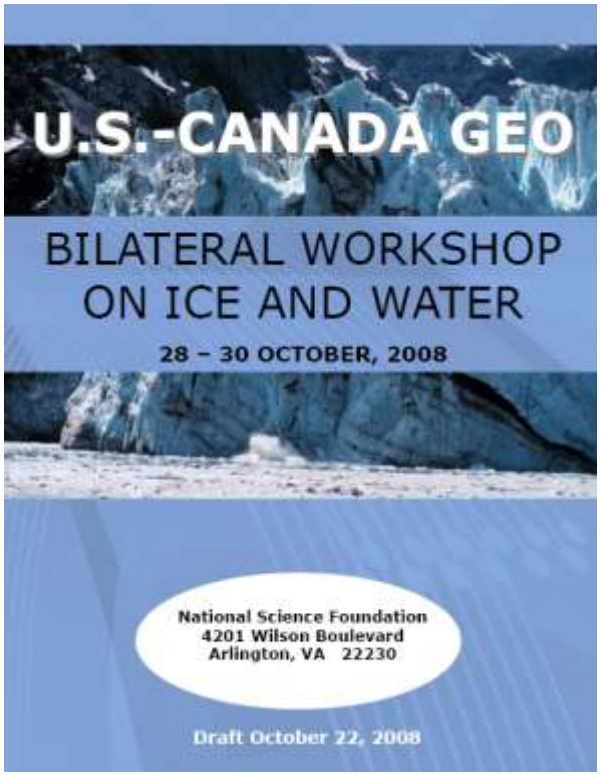
Canada

Canadian & US GEO Bilateral Initiatives



- Water and ice identified as key priority areas for both Canada and U.S. at CGEO-USGEO meeting in Montreal (Jan 2007)
- Small team established to coordinate concrete activities and next steps

U.S. – Canada GEO Bilateral Workshop on Ice and Water



- Held 28-30 Oct 2008 near Washington, DC
- Technical sessions organized by Rick Lawford (water) & Jeff Key (ice)
- Themes:
  - Drought
  - Marine and Freshwater Ice
  - Closing the Water Budget
  - Data Assimilation
- ~ 90 participants

- Long list of highlights & recommendations produced
- Follow-up: CGEO & USGEO discussed process to identify priorities & how to turn into action
- Highest priorities for short-term results:
  - develop international monitoring testbeds in key regions
  - bilateral studies on drought indices & SWSI index
- Build on related initiatives (DRI, Monitoring & Prediction of Western Water & Weather workshop, etc.)
- Undertake scoping meetings to initiate actions
- Develop guidelines to provide principles & templates for project implementation

5 pages of recommendations …

USGEO – CGEO Bilateral Workshop on Ice and Water: Recommendations and Actions

Priority	Issue	Recommendations	Geographic Area / Responsible
High	High Priority for the Canada-US GEO Community		
#1 An International Testbed Cost: moderate – high	Under GEO's goal of promoting interoperability there are many plans but few examples where different countries are collaborating together to determine what is needed to promote the convergence of observation networks, systems and sensors. While Canada and the USA have many similarities in the way they collect and process data, significant differences occur for some water cycle variables (e.g., soil moisture) and cryospheric (e.g., snowfall) variables.	Canada and the US should establish a trans-boundary site or region with comprehensive integrated (tropopause to water table) measurements to provide an assessment of the data products on each side of the border and their consequences for water resources management. The focus should be on a robust set of measurements, possibly new types of observations, emphasizing both cold and warm season water budgets.	Upper Great Lakes or the Northern US Rocky Mountains/Southern Canadian Rockies. This should serve as a testbed for model improvement, upscaling, and error characterization of satellite and in situ measurements US - NSF (WATCH), NOAA, NASA, USGS; Canada – EC, AAFC, NSERC (University Community)
#2 A Shared Data Assimilation Platform Cost: low – moderate	There are major environmental changes accruing as a result of global warming. For example, rapid changes are occurring in the multi-year ice cover on the Arctic Ocean and in the variability and possible acceleration of the global water cycle. The current observation networks and systems are inadequate to fully detect these changes. New data assimilation capabilities and products that take full advantage of the simulation capabilities of current models and the full value of integrating surface and space-based data are needed.	It recommended that the US and Canada work together to develop a continental data assimilation capability that highlights land surface, water cycle and cryospheric processes. Efforts to assimilate cryospheric data should be continued and expanded, including the efforts of the North American Ice Service (NAIS). Global and regional data assimilation products should be developed to serve as a reliable basis to evaluate all aspects of the "acceleration" in the global water cycle. This effort should include an assessment of critical factors in network design to ensure that the information needs of water cycle prediction systems are met.	Canada – EC; US – NOAA, NASA
#3 Binational Data Products	There are a large number of experimental and operational products that are produced either in USA or Canada that could benefit the other country if extended northward or southward. Furthermore, the cost of extending many of	It is recommended that data products that can readily be internationalized through bilateral efforts be accelerated by US and Canada GEO as a demonstration project for a broader common data production platform between the two countries.	US – NOAA (NCDC); Canada – EC, AAFC, NRcan

CGEO-USGEO Toronto, June 2009

- ½ day technical meeting held to discuss possible projects arising from the 2008 Workshop on Ice and Water
- CGEO-USGEO Leaders participated in the technical meeting and then met and agreed to endorse:
  - 3 testbed projects (Great Lakes, Prairies, Rocky Mountains)
  - 2 drought studies (Drought Indices, SWSI Index)

Outcomes from the CGEO-USGEO Asheville Workshop, April 2010

- draft Guidelines were welcomed as a useful tool for shaping the work ahead
- project plans to be prepared for each testbed & drought study activity (by 31 May 2010)
- project plans will then be submitted for review and approval by the CGEO-USGEO leaders
- project teams agreed that it was valuable to meet collectively at least once annually, ideally in conjunction with other relevant meetings or events, to review progress and exchange ideas

Great Lakes Testbed

- envisions the development of a “GEOSS for the Great Lakes”
- supporting enhanced and expanded data exchange and access among the many existing Great Lakes data collection and coordination bodies
- building on the Great Lakes Observing System (GLOS) as the core, with activities focused on ice cover, water level, groundwater, and beach contamination (water quality)

Prairies Testbed

- covers Red River Basin in the U.S. and Canada
- focus on two broad themes of flooding and drought
- sub-themes: soil moisture, forage and crop yield, snow estimation, flood estimation, and agro-meteorological indices
- testbed will also be linked to related initiatives including the Joint Experiment on Crop Assessment Monitoring (JECAM) and other bilateral projects between Canadian and U.S. agencies

Rocky Mountains Testbed

- examine the sensitivity of mountain snow-cover to changing climate conditions
- examine snow measurement issues
- improve understanding of resulting impacts on river flow and water availability in the Columbia River Basin
- identify implications for power generation and watershed management
- other issues relevant to the upcoming re-negotiation of the Columbia River Basin Treaty

Drought Studies –

over to Richard Heim …

Canada