

## Highlights



**CryoNet is taking shape!** After workshops in Vienna, Beijing, and Santiago de Chile, many stations have been proposed and preliminarily accepted, to be approved by WMO Congress in June 2015.



## CryoNet is taking shape



## Cryosphere in the News

Extraordinary runoff from the Greenland Ice Sheet in 2012 amplified by hypsometry and depleted firn-retention

2015-09-03  
the-cryosphere-discuss.net

Linking catchment-scale subglacial discharge to subsurface glacially modified waters near the front of a marine terminating outlet glacier using an autonomous underwater vehicle

2015-09-01  
the-cryosphere-discuss.net

Late summer sea ice segmentation with multi-polarisation SAR features in C- and X-band

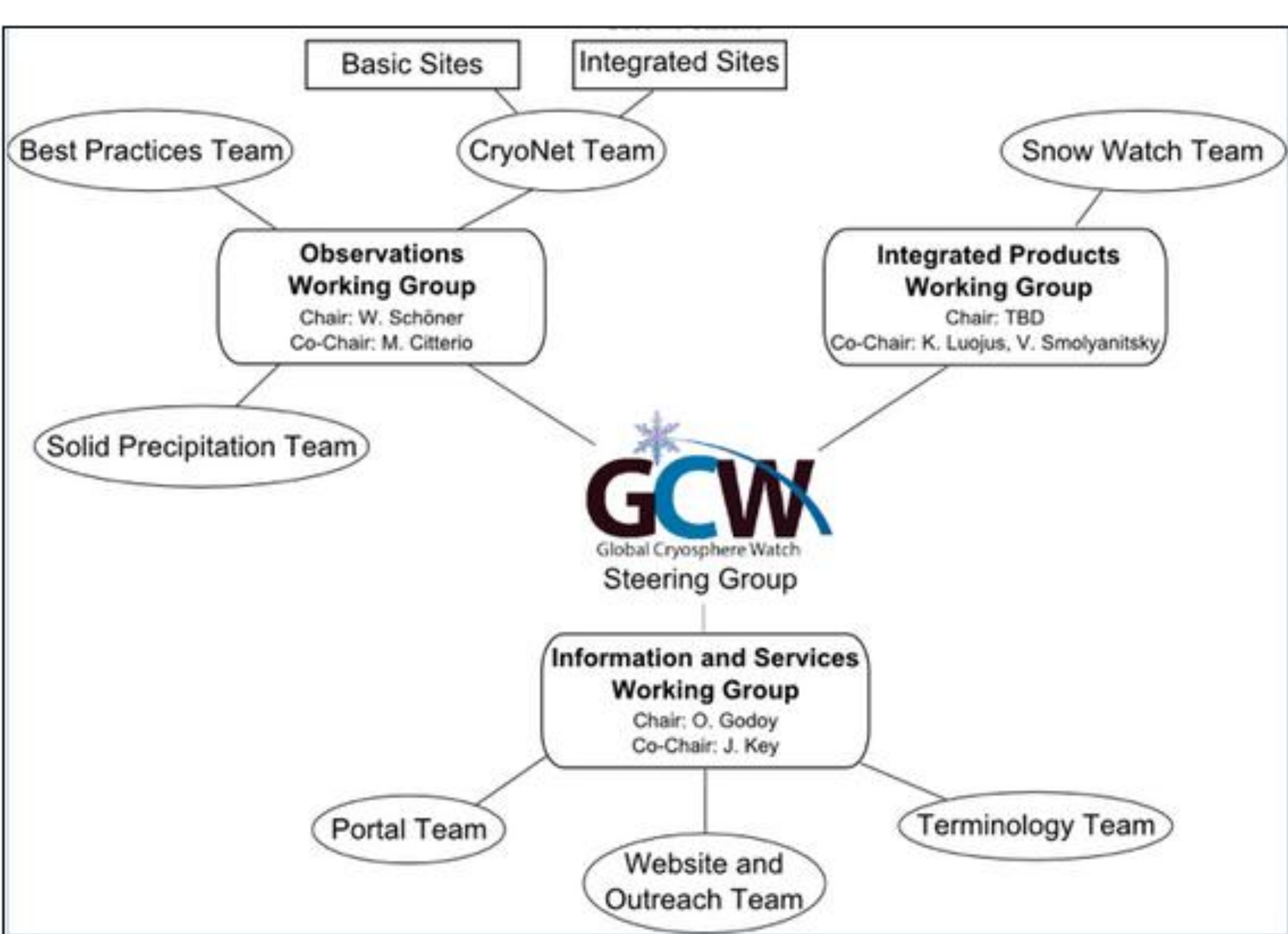
2015-09-01  
the-cryosphere-discuss.net

Global warming carving changes into Alaska in fire and ice

Sun, 30 Aug 2015  
news.yahoo.com

Scientists, tribe study shrinking Washington state

[More Cryosphere in the News »](#)





World Meteorological Organization  
Global Cryosphere Watch

# GCW Overview

**GCW includes all components of the cryosphere,  
globally, regionally, nationally**

The Global Cryosphere Watch (GCW) is establishing a sustained, global, robust, end-to-end cryosphere observing and monitoring system. GCW will provide data, information and products that will help to reduce the loss of life and property from disasters, improve management of energy and water resources, contribute to a better understanding of environmental factors affecting health, understand, assess, predict, mitigate and adapt to climate change, improve weather forecasts and hazard warnings, aid in management of ecosystems, and support sustainable agriculture.

**GCW, working with WMO Members and partners, 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 Members and partners in delivering services to users, the media, public, decision and policy makers. *Partnering is essential.***



## The Cryosphere

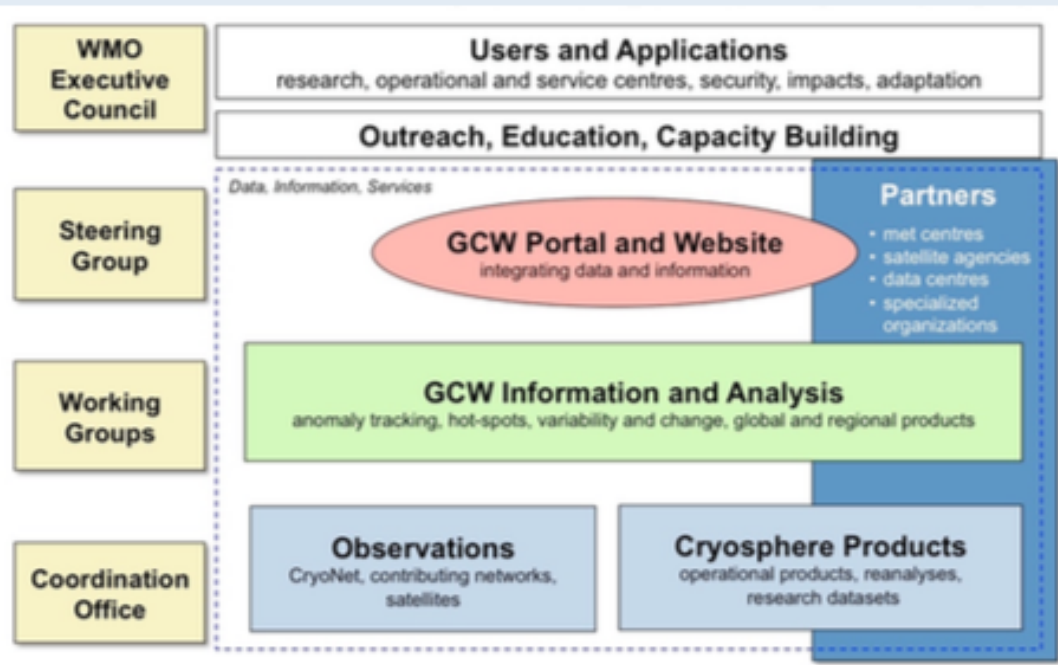
The cryosphere is a component of the Earth System that includes solid precipitation, snow cover, sea ice, lake and river ice, glaciers, ice caps, ice sheets, permafrost, and seasonally frozen ground. The cryosphere is global, existing not just in the Arctic, Antarctic and mountain regions, but at all latitudes and in approximately one hundred countries.

GCW encompasses:

- **Requirements:** Meet evolving observing requirements;
- **Integration:** Provide a framework to assess the state of the cryosphere and interactions in the Earth System;
- **Standardization:** Enhance the quality of observational data by improving measurement practices;
- **Access:** Improve exchange of, access to, and utilization of observations and products;
- **Coordination:** Foster research, development, and planning activities for future observing systems and global observing network optimization.



GCW is a cross-cutting activity. It is an essential component of the WMO Integrated Global Observing System (WIGOS) and will coordinate cryospheric activities with the Global Climate Observing System (GCOS), enhancing GCOS support to the UNFCCC. GCW will strengthen the WMO contribution to the Global Framework for Climate Services (GFCS). Through WIGOS and the WMO Information System (WIS), GCW is also providing a fundamental contribution to the Global Earth Observation System of Systems (GEOSS). GCW partners include government agencies, institutions and international bodies. Over 30 WMO Members have nominated GCW focal points.

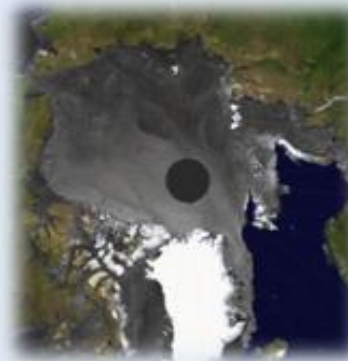


### Conceptual Framework

Cryospheric data, information, and products are provided by NMHSs and partner organizations. GCW includes an interface with the user community. Capacity building and training are included throughout the framework. Expert teams are responsible for developing, implementing and managing tasks. A GCW Steering Group provides high-level guidance on GCW activities, tasks, and structure.

Current GCW activities include:

- developing a **core standardized network of surface observations** called "CryoNet", building on existing networks;
- developing **measurement guidelines**;
- refining **observational requirements**;
- **product intercomparisons**;
- creating **unique products ("trackers")**;
- engaging in **historical data rescue**;
- building a **snow and ice glossary**;
- providing **up-to-date information on the state of the cryosphere**;
- providing **access to data** through a portal.



GCW includes observation, monitoring, assessment, product development, prediction, and research. It provides the framework for reliable, comprehensive, sustained observing of the cryosphere through a coordinated and integrated approach on national to global scales and deliver quality-assured global and regional products and services. GCW organizes analyses and assessments of the cryosphere to support science, decision-making and environmental policy.



# Global Cryosphere Watch

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## GCW News



**[2015-06-25] Strong endorsement of GCW by WM Congress.** The 17th World Meteorological Congress (Cg-17) agreed that Polar and High Mountain Regions become one of the seven WMO Priorities for 2016-2019, especially to "Improve operational meteorological and hydrological monitoring, prediction and services in polar, high mountain regions and beyond by: (a) operationalizing the Global Cryosphere Watch (GCW); (b) better understanding the implications of changes in these regions on the global weather and climate patterns; and (c) advancing the polar prediction under the Global Integrated Polar Prediction System (GIPPS)". In Resolution 4.2.6(2)/1 (Cg-17) on GCW, Congress decided to mainstream and implement GCW in WMO Programmes as a cross cutting activity and requested that the Secretary-General ensure, to the extent possible within available resources, management of, and provide support to, the implementation of GCW and to establish a GCW Project Office. Congress agreed that the GCW Implementation Plan should be the guiding document for the implementation of the GCW. Congress also agreed that an immediate priority for GCW is to establish CryoNet, which is one of the four WMO Integrated Global Observing System (WIGOS) component observing systems and agreed on 36 CryoNet sites that will be used for the pre-operational testing phase.

### See Also

- » [GCW News](#)
- » [Cryosphere in the News](#)
- » [Community Announcements](#)
- » [Community Calendar](#)

### **Pre-operational testing phase (August 2015-August 2016)**

GCW will drive performance and provide motivation for high quality observations. Being a GCW station or CryoNet site means being part of an international, operational, global observing system and thus providing observations of known quality for research and knowledge beyond a site's local region.

Stations/sites identified and approved for the pre-operational testing phase will first be assessed accordingly to their capability to share metadata and data. This means that a monitoring mechanism of data availability/accessibility through the GCW Portal will be performed. All CryoNet sites should therefore establish an interface with the GCW Data Portal.

Once this is done, the accessibility/availability of each cryospheric variable will be routinely monitored. The WMO secretariat will liaise with the nominated GCW focal points and site operation and science contacts to help in any specific issues regarding CryoNet. The result of this phase will be used in the selection process of sites to be included in CryoNet.



## Seventeenth World Meteorological Congress, May-June 2015

### CryoNet Sites selected for the pre-operational testing phase

|    | Site  | Operating Country | Location   | Integrated? |
|----|---|-------------------|------------|-------------|
| 30 | <a href="#">Syowa</a>   | Japan             | Antarctica | yes         |
| 33 | <a href="#">Dome-C</a>  | France            | Antarctica | no          |
| 12 | <a href="#">Morenas Coloradas Rockglacier</a>                             | Argentina         | Argentina  | no          |
| 24 | <a href="#">Vuriloches</a>  | Argentina         | Argentina  | no          |
| 25 | <a href="#">Aonikenk</a>  | Argentina         | Argentina  | no          |
| 3  | <a href="#">Sonnblick</a>   | Austria           | Austria    | yes         |
| 11 | <a href="#">Zongo Glacier</a>   | France            | Bolivia    | yes         |
| 8  | <a href="#">Eureka</a>  | Canada            | Canada     | no          |
| 36 | <a href="#">Valle Nevado</a>  | Chile             | Chile      | no          |
| 4  | <a href="#">Qilianshan Station of Glaciology and Ecologic Environment</a> | China             | China      | no          |
| 6  | <a href="#">Qilian</a>  | China             | China      | yes         |
| 7  | <a href="#">Tanggula Cryosphere and Environment Observation Station</a>   | China             | China      | no          |
| 20 | <a href="#">Xidatan</a>   | China             | China      | yes         |
| 21 | <a href="#">Tanggula</a>  | China             | China      | yes         |
| 27 | <a href="#">Tianshan</a>  | China             | China      | no          |

|    |  |             |             |     |
|----|--|-------------|-------------|-----|
| 27 | <a href="#">Tianshan</a>                                       | China       | China       | no  |
| 29 | <a href="#">The Koxkar Glacier Camp (KGC)</a>                  | China       | China       | yes |
| 10 | <a href="#">Antisana 15 alfa</a>                               | Ecuador     | Ecuador     | no  |
| 5  | <a href="#">Sodankylä-Pallas</a>                               | Finland     | Finland     | yes |
| 16 | <a href="#">Saint-Sorlin Glacier</a>                           | France      | France      | yes |
| 17 | <a href="#">Argentiere Glacier</a>                             | France      | France      | yes |
| 18 | <a href="#">Mer de Glace Glacier</a>                           | France      | France      | no  |
| 19 | <a href="#">Gebroulaz Glacier</a>                              | France      | France      | no  |
| 1  | <a href="#">SIGMA-A</a>  | Japan       | Greenland   | no  |
| 2  | <a href="#">PROMICE Greenland Ice Sheet Monitoring Network</a> | Denmark     | Greenland   | no  |
| 28 | <a href="#">Zackenbergl</a>                                    | Denmark     | Greenland   | yes |
| 31 | <a href="#">SIGMA-B</a>  | Japan       | Greenland   | no  |
| 9  | <a href="#">Hofsjökull</a>                                     | Iceland     | Iceland     | no  |
| 35 | <a href="#">Forni Glacier</a>                                  | Italy       | Italy       | no  |
| 15 | <a href="#">Glaciar Norte</a>                                  | Mexico      | Mexico      | no  |
| 13 | <a href="#">Quelccaya Ice Cap</a>                              | USA         | Peru        | no  |
| 22 | <a href="#">Tiksi</a>  | Russia      | Russia      | yes |
| 23 | <a href="#">Ice Base Cape Baranova</a>                         | Russia      | Russia      | yes |
| 34 | <a href="#">Spasskaya Pad (Yakutsk)</a>                        | Japan       | Russia      | yes |
| 32 | <a href="#">Col de Porte</a>                                   | France      | France      | yes |
| 14 | <a href="#">Davos</a>  | Switzerland | Switzerland | yes |
| 26 | <a href="#">Barrow Baseline Observatory</a>                    | USA         | USA         | yes |

Note: By clicking on the Site name, the Site specific metadata can be viewed.