Joint Expert Team on Cryosphere Related Services (JET-CRYO)

Helge Tangen, JET-CRYO Chair

Presented by

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SERCOM-3 (March 2024)

- Decision 8, Services related to the cryosphere
- Proposed milestones
  - White Paper on requirements for cryosphere-related services
  - Requirements and plan for a pilot project for regional mountain monitoring and warning centres
  - User requirements to be shared with the Advisory Group on the Global Cryosphere Watch (AG-GCW) to inform recommendations on indicators for monitoring and predicting cryosphere change, reflecting the cryosphere-related services and applications covered by the WMO Service Delivery Strategy
  - Inclusion of cryosphere-related hazards in Multi-Hazard Early Warning Systems (MHEWS) and catalogue of hazardous events
  - Advocate for the representation of cryosphere-related policy priorities of vulnerable regions in the work plans of WMO bodies. Represent the services perspective in the development of high-level cryosphere actions and contribute to the preparation and implementation of The International Year of Glaciers' Preservation 2025
  - Arctic, Antarctic and Third Pole Regional Climate Centres designated, and their operations enhanced to be undertaken in consultation with EC-PHORS
  - Report on the global stocktake of cryosphere-related research to operations opportunities and gaps. Use the results of the report in the development of services related to the cryosphere

JET-CRYO

- The Joint Expert Team on Cryosphere-related Services was established by SERCOM-3, under its Standing Committees on Climate Services (SC-CLI) and Hydrology (SC-HYD).
- Membership:
  - Mr Helge Tangen - Chair (Norway)
  - Dr James Kirkham - Core member- (United Kingdom of Great Britain and Northern Ireland)
  - Dr Alexander Klepikov - Core member- (Russian Federation)
  - Dr Lijuan Ma - Core member- (China)
  - Dr Petra Heil - Core member- (Australia)
  - Dr Jonas Mphepya - Core member (South Africa)
  - Ms Natalie Rose Gervasi - Core member (Canada)
  - Dr Rupa Kumar Kolli - Focal point (India)
  - Dr Yanina García Skabar - Focal point (Argentina)
  - Dr Yuri Simonov - Focal point- (Russian Federation)
- The expert Team has experts/members from all continents and focal points from relevant WMO standing Committees (SCs)

White Paper on the Requirements for Cryosphere-related Services

- Continuation of the previous work of EC-PHORS, and to be drafted in consultation with them;
- The purpose of this paper will be:
  - To define the needs and opportunities for improving weather, hydrological, snow, ice, and climate services in the polar and high-mountain regions;
  - To outline, for the NMHSs, potential actions for improving services to address global risks associated with the often irreversible changes in the cryosphere.
- The paper should address services for the adaptation and mitigation of changes in polar and high-mountain regions and their downstream impacts, including those on coastal areas and the Small Island Developing States (SIDS);
- The paper should also cover disaster risk reduction (DRR), climate and public services, hydrology and water resources management, agriculture and food security, transportation, energy, etc., in order to inform on priorities for action across WMO bodies.
- The paper will support priority setting for future Expert Team activities and define other deliverables for the coming intersessional period.

White Paper on the Requirements for Cryosphere-related Services

- Objectives
  - Review the current status of cryosphere-related services to address the needs to respond to accelerating impacts of climate change-driven changes in the cryosphere in polar and high mountain environments;
  - Identify the current and emerging/future user requirements for cryosphere-related services, and do a gap analysis (current status vs. future user needs); and
  - Formulate recommendations for strengthening cryosphere-related services for WMO Members and other stakeholders.

Basic Structure of the White Paper

- Key Topics
  - Regional Drivers
  - Existing services
  - User needs
  - Service delivery
- Domains covered
  - Arctic
  - Antarctic
  - High Mountains including the Third Pole Region
  - Cold regions

High-Mountain Areas

- Third Pole, Alpes, Caucasus, Andes, Rockies
- Regional Drivers
  - Global modes (e.g., ENSO), local factors (e.g., precipitation extremes, heat waves, climate change, etc.);
  - Water resources
  - Cryosphere related hazards
  - Cryospheric tipping elements
- Existing Services
  - National services
  - Assessment and utilization of snow and ice resources
  - Global initiatives and frameworks (e.g., GCW, WGMS, etc.)
  - RCCs/RCC-Networks
  - Research to Services (WCRP CliC, TPE, UNESCAP, etc.)

- User Needs
  - Defining users in policy and decision context
  - ECVs for high-mountain regions
  - Monitoring of cryosphere changes and potential drivers
  - Prediction and projection of cryospheric resources
  - Early warning of cryospheric hazards
  - Safety of snow and ice tourism
  - Reporting to policymakers
- Service delivery progress model assessment
  - Meteorological services
  - Emerging services
  - Private providers
  - Infrastructure and resources
  - Free and open access

Approach

- Writeshop organized at Geneva during 7-8 April 2025 for collaborative development of the draft materials;
- The aim is to deliver a 10+ pages document with recommendations to WMO on the need for present-time and future services and focus areas;
- The target audience includes, among others, NMHSs, RCCs, public sector organizations, policy and advocacy organizations, UN and international organizations, NGOs, private sector, donors and investors etc.;
- This White Paper builds on the WMO Services Delivery Strategy;
- JET-CRYO is in advanced stages of finalizing the draft through electronic communications;
- A first version is expected within a few weeks.

Thank you

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