

## INTERNATIONAL POLAR YEAR 2007-2008

This document provides the current status of implementation of the International Polar Year 2007-2008 (IPY) that started in March 2007 and will be continued up to March 2009. The session will note that the IPY Space Task Group (STG), which was formed in December 2006 by Space Agencies at the request of the Executive Heads of WMO and ICSU, has made substantial progress in the development of Agency portfolios to provide IPY projects with satellite data and products according to their requirements.

The session will also note that STG was well on the way to developing the concept of an effective space component of the observing system for the polar regions during IPY.

The session is invited to review the recommendations of the first STG session that took place in Geneva in January 2007, in particular those that relate to CGMS activities and undertake appropriate actions.

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### 1 INTRODUCTION

1.1 IPY 2007-2008, an intensive and internationally coordinated campaign of high quality research activities and observations in polar regions had started on 1 March 2007 and will continue up to 1 March 2009. The WMO/ICSU Joint Committee (JC) for IPY, its three Sub-committees (one on Observations including its Space Task Group, one on Data Policy and Management, and one on Education, Outreach and Communications) and the IPY International Programme Office (IPO) worked actively to facilitate implementation of IPY projects that are consistent with the six themes and observational initiatives outlined in the Scope of Science for IPY 2007-2008 produced by the ICSU/WMO Joint Committee for IPY and published by WMO in February 2007. The WMO Inter-commission Task Group (ITG) on IPY and the Technical Commissions addressed the IPY preparation at their sessions and developed relevant actions to facilitate the effective IPY implementation.

1.2 The implementation of the IPY projects in the field has started in both polar regions, more widely in the Arctic. The information received by IPO shows that several international multidisciplinary marine expeditions were actively working in July - September 2007 in the Arctic Ocean, implementing a large number of IPY projects related to studies of physical and chemical oceanic processes, sea-ice properties and changes, physical and chemical interaction between atmosphere, sea-ice and ocean, marine geology and biology. On land, IPY projects are implemented at present in both polar regions, carrying out the studies of atmospheric processes, glaciers and ice sheets, permafrost, hydrological cycle, the ecosystems, circumpolar human societies, etc.

### 2 IPY SPACE TASK GROUP

2.1 In order to facilitate the meeting of requirements of IPY projects, in particular IPY project "Global Inter-Agency IPY Polar Snapshot Year (GIIPSY)" for satellite data and products the IPY Space Task Group (STG) was formed as part of the Sub-Committee on Observations (SCOBS) in December 2006 by Space Agencies on request of the Executive Heads of WMO and ICSU. The first meeting of the STG took place in the WMO Headquarters from 17 to 19 January 2007. Representatives from BNSC, CMA, CNES, CSA, DLR, ESA, EUMETSAT, NASA, and ROSHYDROMET participated in the meeting. Invited attendees included representatives from the WCRP Climate and Cryosphere (CliC) Project, the GIIPSY IPY Project, the IPY Joint Committee, and the WMO Space Programme. The basis of the work has been the consolidation of observational requirements as defined through individual Space Agency Announcements of Opportunities, the IGOS-P Cryosphere Theme, the WCRP CliC and other institutional requirements obtained via the IPY survey.

2.2 Results from the first meeting (STG1) indicated that the STG was well on the way to developing the concept of an effective space component of the observing

system for the polar regions during IPY. This would deliver a series of “firsts”, including:

- For the first time, pole to coast multi-frequency InSAR measurements of ice-sheet surface velocity.
- For the first time, repeat fine-resolution SAR mapping of the entire Southern Ocean sea-ice cover for sea ice motion.
- For the first time, one complete high resolution visible and thermal IR (Vis/IR) snapshot of circumpolar permafrost.
- For the first time, pan-Arctic high and moderate resolution Vis/IR snapshots of freshwater (lake and river) freeze-up and break-up.

In terms of how this will be delivered, Space Agencies have introduced the concept of IPY data portfolios. Each Agency will determine what data will be made available to IPY scientists as part of its portfolio. The intention is to provide open and easy access to these portfolios for scientific use. The content of the portfolios will evolve through the STG coordination of planning, acquisition, downlink and processing during IPY and beyond, as a legacy.

2.3 In view of the high importance and priority of achieving the scientific “firsts” that will be a fundamental outcome of the IPY 2007-2008, it is highly desirable that CGMS-35 would urge Space Agencies to do their utmost in developing and adopting a coordinated approach for the implementation of these activities for the remaining period of IPY.

2.4 One of the key issues is how to secure the legacy of a long-term observing system. This legacy shall include high-level products resulting from the science of IPY, e.g. high spatial resolution digital terrain maps of the polar regions. One approach that may be considered for long term security of the IPY legacy is to establish a link to GEO.

### **3 RECOMMENDATIONS OF STG1**

3.1 STG1 agreed on a number of Recommendations. Those that are addressed to CGMS or closely related to its activities are given below. The joint third meeting of the CBS Expert Teams on Satellite Systems and on Satellite Utilization and Products (ET-SAT/SUP-3), in September 2007, was informed of the actions and recommendations formulated by STG1. It was agreed that Recommendations STG1-R3, R4 and R5 should be brought to the attention of CGMS. They are given below as follows:

***STG1 R3: Recommendation to WMO Space Programme to coordinate ground receiving station activities for polar orbiters through CGMS, to ensure that we have guaranteed full polar coverage, as appropriate, at 1km res. for AVHRR during IPY.***

***STG1 R4: Recommendation to WMO Space Programme to extend polar region coverage of geophysical products to maximum extent possible, generated from geostationary data.***

***STG1 R5: Recommendation to WMO Space Programme, GEO, CGMS and CEOS to advance the use of Molniya orbit, to provide pseudo GEO (high resolution spatio-***

temporal) polar coverage. The STG meeting noted the potential Russian “Arktica” mission concept.

3.2 Recommendations STG1-R3 and STG1-R4 are submitted for discussion at this meeting. With respect to Recommendation STG1-R5, discussions regarding the Arktika project initiated by ROSCOSMOS and ROSHYDROMET have progressed within the WMO Space Programme through the first meeting of the IGeoLab Focus Group on Highly Elliptical Orbits (HEO) in April 2007. Exploring further the technical, scientific and institutional cooperation between different potential partners was the topic of the IGeoLab HEO second Focus Group meeting held 9-10 October 2007 in Geneva with the participation of representatives from space and environmental institutions of Canada, Finland, Russian Federation and the USA. The outcome of this meeting is presented in a separate document (WMO-WP-03).

3.3 The joint ET-SAT/SUP-3 meeting has also reviewed the following action proposed by the first STG session:

**STG1 A3:** *Action on Space Programme of WMO to design an interface that points users to how to obtain GOS space data for IPY scientists. This should be linked to the proposed IPY portal home page, and point to respective browsing/ordering interfaces (and data points of contacts).*

The ET-SAT/SUP meeting recommended that the WMO Secretariat respond to this action with support of CGMS. This response would be highly appreciated by IPY community.

#### **4 FUTURE IPY STG ACTIVITIES**

4.1 The second IPY STG session (STG2) will be held at the kind invitation of EUMETSAT from 26 to 27 November in Darmstadt (Germany). Two teleconferences of STG members were successfully carried out during the intersession period. The objective of the first teleconference (June 2007) was the exchange of information on the status of portfolio preparation and on the progress towards documenting the specifics of its content. The objectives of the second teleconference (August 2007) were to identify high resolution optical and microwave data sets that are being added to agency portfolios, to determine which scientific requirements are being met by the planned coverage, and to identify if there are coverage gaps that could be addressed by cooperation between space segment and ground segment capabilities.

4.2 The STG2 will discuss outcomes of the teleconferences, Agency reports on portfolios (CSA, DLR ESA have already prepared the portfolios), and Agency plans for data tagging, data catalogues and inventories, as well as data distribution and data processing issues. Members of the CGMS are invited to participate in the session.