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SCAR Circular No. 772

To: National Committees, Delegates and Alternate Delegates

Subject: Developing Antarctic Observing Systems

Dear Colleague,

This is a request for you to nominate a representative to serve on the SCAR Action Group for the Pan Antarctic Observations System (PAN-TOS).

It has long been realised that observations in the Polar Regions are essential as part of the business of understanding how our planet works. The first proposal to collect synchronous and systematic observations across a number of discipline topics in the Polar Regions came from Carl Weyprecht, one of the co-leaders of the Austrian expedition that discovered Franz Josef Land in the high Arctic in 1872-74. Realising that polar phenomena could not be explained with the data from a single national expedition (Weyprecht, 1875a and b), he proposed that an international polar expedition, which became the first International Polar Year (1882-83), be set up: "... to make, in the Arctic and Antarctic, or around those regions, and at as many stations as it may be possible to establish, synchronous observations following a programme decided upon in concert, so as, on the one hand, on proceeding through comparison, to deduce from observations collected at different points, independent of the particularities that characterise the different years of observation, the general laws governing the phenomena under study....." (Wilczek and Weyprecht, 1877).

Despite all the efforts since Weyprecht drew attention to the problem in 1875, the environmental observing systems of the Polar Regions are still the weakest on the planet, which restricts our ability to observe, understand and forecast the behaviour of phenomena that are particularly well developed in those areas. Recognising that defect, the planners of the present IPY (2007-2009) called for Polar observing systems to be one of the primary legacies of the IPY. Both the Arctic Council and the Antarctic Treaty Consultative Meeting have heeded the call and are urging their

members to maintain and extend long-term monitoring of environmental change in the Polar Regions (see Annex 1 for the relevant ATCM Resolution).

In the Arctic a Sustained Arctic Observing Network (SAON) is being developed. In the Antarctic, SCAR is developing a similar approach through the activities of the Pan-Antarctic Observations System (PAnTOS) Action Group. There are compelling arguments for evaluating the existing Antarctic observation infrastructure and recommending improvements that will help deliver a coherent set of Pan-Antarctic, long-term, and multidisciplinary observations focused on the entire chain of effects from Geospace to the Earth's surface. An important focus will be on integrating conventional observations with the vast amounts of satellite remote sensing data that are (and will be) available for high latitudes of the Southern Hemisphere. Without these synthesized observations it is impossible either to describe current environmental conditions in the Antarctic, or to understand some of the climatic changes that are underway around the Antarctic Peninsula and their connections to the global climate system. PAnTOS focuses on compiling details about the currently existing or planned observational networks over the Antarctic in various scientific disciplines. The main goal is to address the scope and implementation strategies for the follow-on development of the multidisciplinary Pan-Antarctic Observations Network encompassing the Antarctic Continent and the surrounding Southern Ocean. For more details see the PAnTOS Implementation Plan on the SCAR web site at <http://www.scar.org/researchgroups/physicalscience/>. Note that while at present the focus is on the physical sciences, ultimately we expect the networked observing system to include aspects of the geosciences and biosciences.


This objective of this Circular is threefold:

- (i) to draw your attention to these larger international thrusts;
- (ii) to encourage you to ensure that the necessary investments in appropriate monitoring and observing systems are made at the national level;
- (iii) to ask that you consider assigning a representative to work with the PAnTOS Action Group.

It would be helpful to have the names of your nominees for PAnTOS by end JANUARY 2007.

For those interested in finding out more about the ideas of Carl Weyprecht, please see the references listed below.

Yours sincerely,



Colin Summerhayes
Executive-Director

References (DOWNLOADABLE FROM ITEM 8 ON SCAR WEB SITE AT <http://www.scar.org/ipy/>)

Weyprecht, C., 1875a, Scientific Work of the Second Austro-Hungarian Polar Expedition, 1872-4. JI. Royal Geographical Society of London 45, 19-33 (translated from the Geographische Mittheilungen vol. xxxi, p.65)

Weyprecht, C., 1875b, Fundamental Principles of Scientific Arctic Investigation. An address delivered before the 46th meeting of German Naturalists and Physicians, Graz. 7pp

Wilczek, Le Comte, and Weyprecht, C., 1877, Programme des Travaux d'une Expédition Polaire Internationale. Paper submitted to Second International Meteorological Congress, Rome. Printed by W. Stein, Bauernmarkt 11, Vienna, 8pp

Annex 1

ATCM XXX, Delhi, Resolution 3 (2007) Long-term Scientific Monitoring and Sustained Environmental Observation in Antarctica

The Representatives,

Recalling the Edinburgh Antarctic Declaration on the IPY 2007-2008 that was agreed at ATCM XXIX, which supports the objective of delivering a lasting legacy for the IPY, and promotes increasing collaboration and coordination of scientific studies within Antarctica;

Recalling that the CEP has a continuing commitment to environmental monitoring related to the implementation of the Protocol;

Noting that the Arctic Council Ministerial Meeting of 26 October 2005 urged all member countries of the Arctic Council to maintain and extend long-term monitoring of change in all parts of the Arctic as well as to create a coordinated Arctic observing network;

Recalling the success of the CCAMLR Ecosystem Monitoring Programme in providing over two decades of circum-Antarctic data on the Antarctic marine ecosystem and biological environment;

Welcoming and supporting SCAR's proposal to establish a multi-disciplinary pan-Antarctic observing system, which will, in collaboration with others, coordinate long-term monitoring and sustained monitoring and observation in the Antarctic;

Recommend that the Parties:

1. Urge national Antarctic programmes to maintain and extend long-term scientific monitoring and sustained observations of environmental change in the physical, chemical, geological and biological components of the Antarctic environment;
2. Contribute to a coordinated Antarctic observing system network initiated during the IPY (2007-09) in cooperation with SCAR, CCAMLR, WMO, GEO and other appropriate international bodies;
3. Support long-term monitoring and sustained observations of the Antarctic environment and the associated data management as a primary legacy of the IPY, to enable the detection, and underpin the understanding and forecasting of the impacts of environmental and climate change.