



SCAR Science in the Twenty First Century

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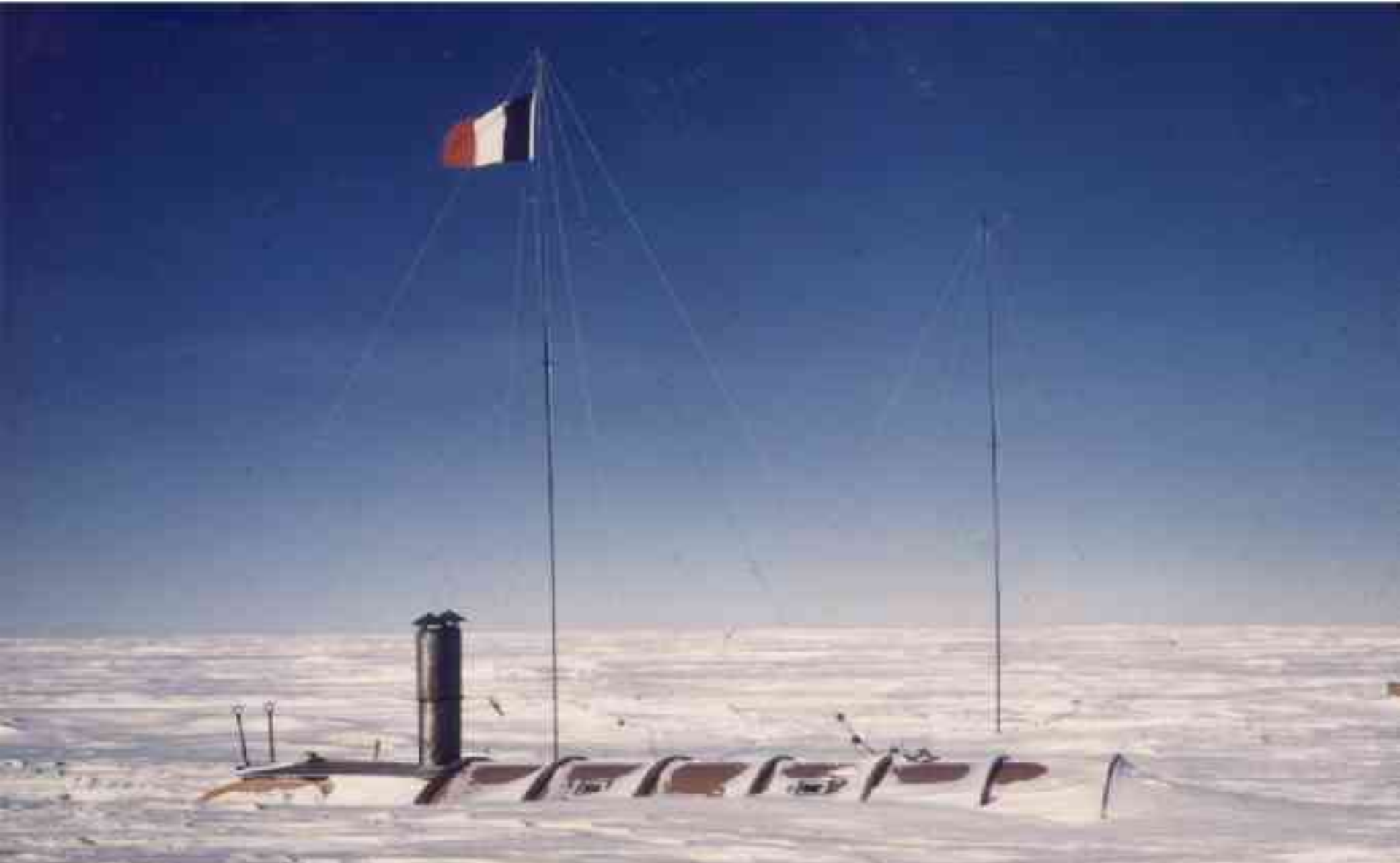
Scientific Committee on Antarctic
Research (SCAR)



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IGY CHARCOT STATION





The History of SCAR

- Formed in February 1958, SCAR evolved from the Special Committee on Antarctic Research established by ICSU to co-ordinate the continuing scientific research of the twelve nations active in Antarctica during the IGY
- Mix of national scientific representatives (27+4) and ICSU union representatives (7)
- Initiates, promotes and co-ordinates scientific research in Antarctica
- Provides independent scientific advice to the Antarctic treaty system



Antarctic Stations

Plus 7 on
King George
Island





The Structure up to 2000

- **National Delegates meet every two years**
- **Executive: President, 4 Vice-Presidents, Executive Secretary, Past-President**
- **Finance Committee**
- **Working Groups**
- **Groups of Specialists**
- **Joint Committee on Antarctic Data Management (JCADM)**



Working Groups

Biology



Geosciences

Geodesy & Geographic Information



Glaciology



Working Groups

Human Biology &
Medicine



Solar-Terrestrial &
Astrophysical
Research

Physics & Chemistry
of the Atmosphere





Groups of Specialists

Antarctic Neo-Tectonics



Global Change & the Antarctic



Environmental Affairs & Conservation





Groups of Specialists

Seals



Subglacial
Antarctic Lake
Exploration

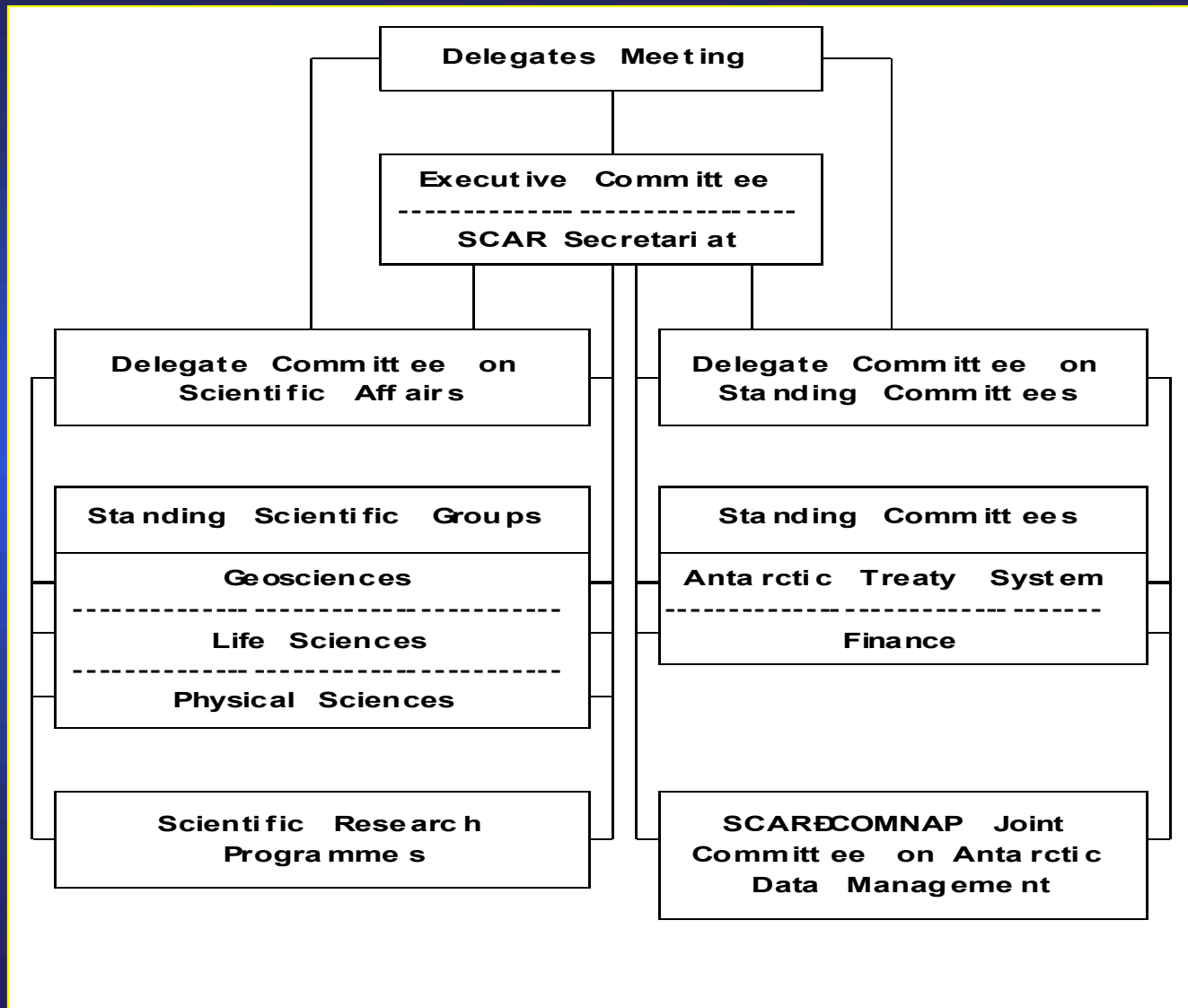


The SCAR Review

- **Ad hoc group on SCAR Reorganisation and Strategy.**
- **Chaired by Phil Smith (USA)**
- **Reported in 2000 at the Tokyo Meeting.**
- **Reviewed the whole question of how SCAR science should be conducted and the relationships with other organisations**



The New Structure of SCAR





SCAR Meetings

- The primary SCAR meeting will be held every two years and will consist of a major science symposium, as well as working sessions. **July 2004**
- The Delegates will meet three months later to review the science and make major policy decisions. **October 2004**



SCAR Open Science Conference - Antarctica and the Southern Ocean in the Global System; July 25-31; www.scar28.org

OPEN SCIENCE CONFERENCE



Welcome	General Information	Circulars and Programme	
Accommodation	Travel Information	Contact and Committees	XI SCALOP Symposium
Registration	SCAR Open Science Conference	Submission of Abstracts	Industrial Exhibition
		News	

Imprint





Papers on

- variability and change in the Antarctic climate and biota
- links between the Antarctic climate and biota and that of lower latitudes
- sea ice variability and change
- studies of Southern Ocean ecosystems
- the physical oceanography of the Southern Ocean
- modelling the Antarctic environment
- ice sheet mass balance
- the Antarctic ozone hole
- Antarctic climate processes
- upper atmospheric physics
- large-scale biological patterns and processes
- Arctic-Antarctic ecosystem functioning and links
- Antarctic geology and geophysics



SCAR Science

- About half a dozen major programmes lasting 4-10 years
- Expert groups maintaining long term liaison e.g. the Expert Group on Operational Meteorology
- Action groups for short term (2-4 year) initiatives e.g. Action Group on Plateau Astronomy Site Testing in Antarctica.



Existing/Planned Programmes

- ANTEC - Antarctic Neotectonics (ending)
- APIS - Antarctic Pack Ice Seals (ending)
- ICESTAR - Interhemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research
- AGCS – Antarctica and the Global Climate System
- SALE - Sub-glacial Antarctic Lake Exploration
- EBA - Evolutionary Biology of Antarctica



ICESTAR

- **Quantification of the mechanisms that control bi-polar regional differences (or commonalities) in the magnetosphere-ionosphere coupling and corresponding upper atmospheric phenomena**
- **Arctic and Antarctic**
- **Also linking to the lower atmosphere via the Arctic/Antarctic Oscillations.**
- **Forcing by solar activity – geomagnetic storms and sub-storms**



Antarctica and the Global Climate System

- **Teleconnections on sub-annual to multi-decadal time scales: e.g. ENSO**
- **Changes to the ice sheets, including clouds and precipitation variability**
- **Natural climate variability and Man's impact**
- **Predictions for the next 100 years**
- **The role of the stratosphere and ozone depletion/recovery**



The SCAR READER (REference Antarctic Data for Environmental Research) Project

- To create a new, high quality data set of Antarctic observations for use in climate research and change studies
- Based on surface and upper-air *in-situ* synoptic reports
- Metadata included where possible
- Results are available via the WWW and on CD-ROM



Modelling and Observational Studies of Antarctic Katabatics (MOSAK)

- High resolution observations and modelling of near-surface wind field
- 55 km resolution regional atmospheric model run for 14 years.
- Forced by ECMWF fields at the boundary
- No data directly assimilated.



SCAR For the Twenty First Century

- SCAR is in a state of transition
- New science programmes will be approved in October 2004
- Aim to produce more cross-disciplinary science
- New format conference will be the premier Antarctic science conference
- New Executive Director, April 2004



SCAR and Other Organisations - Examples

- SCAR Co-sponsoring WCRP's Climate and the Cryosphere (CliC) Programme
- SCAR Co-sponsoring SCAR-SCOR-IOC Coordinating Group on Interdisciplinary Southern Ocean Science (ISOS)
- SCAR will lead Cryosphere Theme study with space agencies and UN agencies
- Links to Council of Managers of National Antarctic Programmes (COMNAP)
- Scientific advice to Antarctic Treaty System



How Can the IPY help SCAR?

- The IPY can advance leading edge science by enhancing SCAR programmes
- The IPY can expand critical measurements (e.g. to validate satellite data; to ensure synoptic observations)
- The IPY can create or enhance information networks and encourage exchange of key data
- The IPY can help to improve understanding of key processes, including, for instance:
 - continental tectonics;
 - recent geological history;
 - climate and glacial history;
 - the relation between ice sheet mass balance and sea-level;
 - the evolution of under-ice lakes;
 - the relation of biology to climate;
 - the role of tropospheric aerosols in climate.
- **The IPY should build on SCAR's existing programme platforms**



How Can SCAR help the IPY?

- SCAR can promote IPY in government circles through the Treaty system
- SCAR provides an extensive network of scientific experts
- SCAR links directly to funding agencies in its Member countries
- SCAR's experts can review IPY proposals and help develop IPY plans
- SCAR can encourage the development of novel proposals
- SCAR can integrate the results of novel IPY activities into existing programmes, adding value to both
- SCAR offers access to the network of Antarctic databases through the Joint Committee on Antarctic Data Management (JCADM), which will be essential for storage and management of IPY data
- SCAR offers IPY synergy with ongoing efforts, avoidance of duplication, and filling of important gaps in knowledge and understanding
- **SCAR will take a leading role in providing scientific advice for the IPY process.**