02 INFORMATION ABOUT PRINCIPAL INVESTIGATORS/PROJECT DIRECTORS(PI/PD) and co-PRINCIPAL INVESTIGATORS/co-PROJECT DIRECTORS

Submit only ONE copy of this form **for each PI/PD and co-PI/PD** identified on the proposal. The form(s) should be attached to the original proposal as specified in GPG Section II.C.a. Submission of this information is voluntary and is not a precondition of award. This information will not be disclosed to external peer reviewers. ***DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION.***

PI/PD Name: Ted A Scambos

Gender: ☒ Male ☐ Female

Ethnicity: (Choose one response) ☐ Hispanic or Latino ☒ Not Hispanic or Latino

Race: (Select one or more)
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☒ White

Disability Status: (Select one or more)
- ☐ Hearing Impairment
- ☐ Visual Impairment
- ☐ Mobility/Orthopedic Impairment
- ☐ Other
- ☒ None

Citizenship: (Choose one) ☒ U.S. Citizen ☐ Permanent Resident ☐ Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name): ☒

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project ☒

Ethnicity Definition:
Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.

Race Definitions:
American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
Black or African American. A person having origins in any of the black racial groups of Africa.
Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

WHY THIS INFORMATION IS BEING REQUESTED:

The Federal Government has a continuing commitment to monitor the operation of its review and award processes to identify and address any inequities based on gender, race, ethnicity, or disability of its proposed PIs/PDs. To gather information needed for this important task, the proposer should submit a single copy of this form for each identified PI/PD with each proposal. Submission of the requested information is voluntary and will not affect the organization's eligibility for an award. However, information not submitted will seriously undermine the statistical validity, and therefore the usefulness, of information recieved from others. Any individual not wishing to submit some or all the information should check the box provided for this purpose. (The exceptions are the PI/PD name and the information about prior Federal support, the last question above.)

Collection of this information is authorized by the NSF Act of 1950, as amended, 42 U.S.C. 1861, et seq. Demographic data allows NSF to gauge whether our programs and other opportunities in science and technology are fairly reaching and benefiting everyone regardless of demographic category; to ensure that those in under-represented groups have the same knowledge of and access to programs and other research and educational oppurtunities; and to assess involvement of international investigators in work supported by NSF. The information may be disclosed to government contractors, experts, volunteers and researchers to complete assigned work; and to other government agencies in order to coordinate and assess programs. The information may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records", 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records", 63 Federal Register 268 (January 5, 1998).

List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 04-23

NSF 04-23

FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)

ANT - OPP/ANT - Antarctic Glaciology

FOR NSF USE ONLY

NSF PROPOSAL NUMBER

0550099

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
08/12/2005	**2**	**14030000 ANT**	**5116**	**007431505**	**08/26/2009 4:56pm S**

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846000555

SHOW PREVIOUS AWARD NO. IF THIS IS
☐ A RENEWAL
☐ AN ACCOMPLISHMENT-BASED RENEWAL

IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYM(S)

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE

University of Colorado at Boulder

AWARDEE ORGANIZATION CODE (IF KNOWN)

0013706000

ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE

3100 Marine Street, Room 481
572 UCB
Boulder, CO 80309-0572

NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE

PERFORMING ORGANIZATION CODE (IF KNOWN)

ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE

IS AWARDEE ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)
☐ SMALL BUSINESS ☐ MINORITY BUSINESS
☐ FOR-PROFIT ORGANIZATION ☐ WOMAN-OWNED BUSINESS

☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT **An International Workshop on the Ice and Climate System of the Antarctic Peninsula**

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ **25,433**	**12** months	**10/01/05**	

CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR (GPG I.A)
☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C)
☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.B, II.C.1.d)
☐ HISTORIC PLACES (GPG II.C.2.j)
☐ SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.D.1)
☐ VERTEBRATE ANIMALS (GPG II.D.5) IACUC App. Date _____
☐ HUMAN SUBJECTS (GPG II.D.6)
Exemption Subsection _____ or IRB App. Date _____
☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)
_____
☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.G.1)

PI/PD DEPARTMENT
CIRES

PI/PD FAX NUMBER
303-492-2468

PI/PD POSTAL ADDRESS
Campus Box 449
1540 30th Street, Rm 218
Boulder, CO 803090449
United States

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address
PI/PD NAME **Ted A Scambos**	**PhD**	**1991**	**303-492-1113**	**teds@icehouse.colorado.edu**
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

Electronic Signature

CERTIFICATION PAGE

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the individual applicant or the authorized official of the applicant institution is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), as set forth in Grant Proposal Guide (GPG), NSF 04-23. Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U. S. Code, Title 18, Section 1001).

In addition, if the applicant institution employs more than fifty persons, the authorized official of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of Grant Policy Manual Section 510; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

Drug Free Work Place Certification

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Appendix C of the Grant Proposal Guide.

Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency? Yes ☐ No ☒

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Appendix D of the Grant Proposal Guide.

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure of Lobbying Activities,'' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME **Lisa A Tedesco**	**Electronic Signature**	**Aug 12 2005 1:26PM**

TELEPHONE NUMBER	ELECTRONIC MAIL ADDRESS	FAX NUMBER
303-492-0896	**Lisa.Tedesco@Colorado.EDU**	**303-492-6421**

*SUBMISSION OF SOCIAL SECURITY NUMBERS IS VOLUNTARY AND WILL NOT AFFECT THE ORGANIZATION'S ELIGIBILITY FOR AN AWARD. HOWEVER, THEY ARE AN INTEGRAL PART OF THE INFORMATION SYSTEM AND ASSIST IN PROCESSING THE PROPOSAL. SSN SOLICITED UNDER NSF ACT OF 1950, AS AMENDED.

An International Workshop on the

Ice and Climate System of the Antarctic Peninsula:

"Antarctic Peninsula Climate Variability: Observations, Models, and

Plans for IPY Research"

Summary and Objectives

A 2-day international workshop is proposed for Spring, 2006 to discuss recent research results and logistical cooperation for ice, ocean, climate, and biological topics regarding the Antarctic Peninsula (AP). The meeting will be hosted by T. Scambos and the National Snow and Ice Data Center at the University of Colorado. The meeting format will include a series of invited and keynote talks, contributed talks, and poster sessions, and break-out sessions for collaborative field research planning. Student participation will be encouraged, and some travel funds for both invited speakers and students are proposed. A primary objective of the meeting will be to construct and coordinate a science plan and logistical plans for the International Polar Year period (IPY, 3/2007 – 3/2009). Follow-up work by writing committees formed at the meeting will produce documents useful to the grant-awarding organizations of the several countries involved.

Specifically, we propose this meeting as a means to:

- present the most recent research results and identify the current frontiers of knowledge in the AP ice and climate system;
- provide a forum for graduate student presentations;
- discuss evolving research plans for the IPY period, and promote the formation of collaborative interdisciplinary research groups
- discuss outreach ideas and plans for IPY-AP activities
- discuss national and international logistics assets and possible logistical linkages for conducting IPY-period field work

This would be the third in a series of very successful workshops focused on the topic of Antarctic Peninsula Climate Variability (APCV), following ones at Hamilton College (April, 2002) and Cambridge, England (September, 2004). At this forum we will institute a plan for semi-regular APCV meetings at 18 to 24 month intervals, through at least the IPY period. Results of the meeting, in the form of a small group of peer-reviewed manuscripts, will be published in a widely circulated polar science journal (e.g., Antarctic Science, Polar Geography or The Polar Record). Additionally there will be a bound volume of the program and abstracts distributed to meeting attendees.

We request approximately $25,000 to support invited speaker and student travel, rental of the venue, and non-dinner meals. A registration fee (~$50) will be requested of all participants to support a meeting dinner and pre-meeting reception. Other sources of support will be sought to enhance poster presentations, website development, publications, and outreach. University of Colorado will contribute salaried time (~1 person-month total) for two campus meeting organizers at CIRES/NSIDC.

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For font size and page formatting specifications, see GPG section II.B.2.

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References Cited	2	
Biographical Sketches (Not to exceed 2 pages each)	2	
Budget (Plus up to 3 pages of budget justification)	2	
Current and Pending Support	2	
Facilities, Equipment and Other Resources	1	
Special Information/Supplementary Documentation	0	
Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		
Appendix Items:		

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

Introduction and Rationale

Recent events in the Antarctic Peninsula (AP) demonstrate that ice and climate systems can change rapidly in a warming world. Air temperatures in the AP have risen 6 times faster than the global average in recent decades, triggering glaciological and ecological events unique in the history of this region in the last 1,000 years. Studies based on remote sensing and the available *in situ* data show that a complex interaction is underway, involving climate warming and air circulation changes, sea ice retreat, surface and basal melting of land and shelf ice; melt percolation and fracturing; seasonal changes in ice flow; and rapid glacial acceleration in the aftermath of shelf break-up. As the shelves disintegrate, they uncover a glacial history preserved on the sea-floor beneath them, indicating the current retreats are rare to unprecedented in the Holocene. Biological and oceanographic studies are active along the both coasts, seeking to understand how ocean currents and ecosystems migrate during climate change. The recent discovery of a new chemotrophic ecosystem native to the sub-ice-shelf environment, shows that there are still unknowns in the AP earth and life systems, even as we try to understand this region during a period of rapid change.

The meeting would review recent high-profile research results. Warming has continued in the Peninsula area through at least 2003 (Skvarca and DeAngelis, 2003; Morris and Vaughan, 2003), and an exceptional weather pattern in 2002 led to both unprecedented summer warming and intense, prolonged surface melting, culminating in the disintegration of the Larsen B ice shelf (van den Broeke, 2005, in press; Rack and Rott, 2005, in press; Scambos et al., 2003). Subsequent to this disintegration, significant glacier acceleration and thinning occurred (Rignot et al., 2004; Scambos et al., 2004), confirming the link between ice shelf stability and glacier force balance. This had been previously suggested by observations of the Larsen A feeder glaciers and the valley walls of the Larsen B glaciers (Rack and Rott, 2002; DeAngelis and Skvarca, 2003). More broadly, a survey of aerial and satellite photos spanning 50+ years has shown that glaciers throughout the region north of 70S are presently in retreat, and that this retreat progressed southward as climate warmed in the region in previous decades (Cook et al., 2005). There is substantial evidence emerging that many Peninsula glaciers undergo seasonal accelerations due to meltwater percolation; this accelerates the mass balance changes in the ice sheet as the melt season lengthens.

Causes of the warming are uncertain, but several model-based theories are emerging with robust support from observation. Thompson and Solomon (2002) show that a large fraction of the warming is likely due to stratospheric cooling, a result of autumn ozone depletion. Raphael (2003) shows that the third-order wave in the circumpolar tropospheric circulation changed significantly around 1975, and the pattern now tends to force warmer, northwesterly flow across the peninsula.

Results from marine geological work are also stunning. Earlier work on the exposed Larsen A seabed, and in the Prince Gustav channel to the north, revealed that these areas had seen previous retreats of their ice shelf covering, coinciding with warmer global climate episodes in the recent past (e.g., the Medieval Warm Period, and the period between 2500 and 3500 B.C.E.; Pudsey et al., 2001; Brachfield et al., 2003). But the

retreat of the Larsen B in 2002 is apparently unprecedented in this interglacial (Domack et al., 2005).

The Antarctic Peninsula may well be a model for a future, warmer Antarctica. What we see there are changes of greater scale, speed, and magnitude than were considered possible before. The proposed meeting would be a step towards understanding this system and its responses to know what the future may hold, and a means of planning future field observations and research.

Recent Meetings

This would be the third meeting in a series started in April 2002 on the topic of Antarctic Peninsula Climate Variability. The meetings have been very successful, and have attracted a wide US and international audience.

1) Antarctic Peninsula Climate Variability: A historical and paleoenvironmental perspective. 3-5 April, 2002 Hamilton College, Clinton New York, USA, E. Domack convener.

--this meeting presented recent marine geology results and the events of the 2002 Larsen B breakup. It led to the publication of an Antarctic Research Series volume by the same title (volume 79). A bound programs and abstracts volume was distributed to the attendees.

2) Antarctic Peninsula Climate Variability: History, Causes, and Impacts. 16-18 September, 2004, Scott Polar Research Institute, Cambridge England, UK, D. Vaughan, convener.

--the meeting was similarly international and well-attended, and focused on a variety of meteorological observations and related sea ice effects, as well as the glacial response to the loss of shelf ice in the Larsen B embayment. The meeting broadened the range of topics to include oceanography and climate modeling. A bound programs and abstracts was distributed, but no other publication directly resulted. However, several of the talks were published in Geophysical Research Letters and other journals in the following year.

3) Antarctic Peninsula Climate Variability: Observations, Models, and Plans for IPY. Spring, 2006 (**the proposed meeting**). National Snow and Ice Data Center, Boulder Colorado, USA, T. Scambos, convener.

-- at this meeting, we would announce a plan to hold the meeting at semi-regular intervals, and create a steering committee for coordinating science plan writing and publications. Scientific topics would expand in the directions of ice core climate records, oceanographic changes, icebergs emulating ice shelf decay, and new biological frontiers in the AP. We intend to support the publication of a few (2 or 3) synopsis papers in a widely-circulated polar science peer-reviewed journal, such as Antarctic Science, The Polar Record, or Polar Geography.

Organizing Committee

A local group will be the focus of organizing the meeting, with support from the past conveners and major participants in the IPY-AP 'fuller proposal' recently submitted.

Ted A. Scambos (chair)	NSIDC, University of Colorado
Eugene Domack	Environmental Studies, Hamilton College
David Vaughan	British Antarctic Survey
Eric Rignot	Jet Propulsion Laboratory
Cindy Brekke	NSIDC/CIRES, University of Colorado
Julie McKie	CIRES, University of Colorado

Meeting Location, Structure, Tentative Dates, and Advertisement

The planned meeting space will be in the new mini-conference meeting hall in the University of Colorado's Folsum Stadium. The facility is sized appropriately for up to 75 attendees, and was completed in 2003. It has appropriate facilities and catering for supporting the reception, breakfasts, and lunches during the meeting.

Lodging will be through the 'Millenium House' hotel, within walking distance of both NISDC and the Folsum Stadium meeting venue. At this point, no support for lodging (other than securing a 'CU meeting discount') is planned. Students may have other, less costly lodging identified for them prior to the meeting (e.g., Boulder Inn).

We have not selected the final dates at the present time. The meeting will take place between March 20 and May 20, possibly in early April, thus affording the opportunity for a cross-country ski field trip (informally associated with the meeting). The meeting will be convened on a Monday-Tuesday or Thursday-Friday timeframe, permitting some to enjoy the Colorado winter and scenery over the weekend and facilitating side meetings among attendees.

The meeting will be widely advertised via several polar-related email lists ('Cryolist', 'ARCSS') and by the NSIDC Notes newsletter and the International Glaciological Society's 'ICE' bulletin. We are seeking additional support for a website devoted to the meeting. However, even with no further support, NSIDC will advertise the meeting on their website in the months prior to the meeting.

The University of Colorado is committed to cultural, ethnic, and gender diversity in all its endeavors, and to broad education of the public. The organizing committee will pursue these goals vigorously in the advertising of the meeting, and actively seek participation from nearby high schools and colleges. Graduate and undergraduate participation from outside CU will be supported via (limited) travel funds. It is anticipated that approximately 6 students from the US and international schools can be supported for airfare. Links to local schools will be pursued via CIRES' Outreach group, headed by Dr. Susan Burr.

We further plan to support the invited speakers (approximately 8) with airfare costs.

The University of Colorado campus, NSIDC, and the stadium venue are fully accessible to people with disabilities.

TENTATIVE MEETING PROGRAM

Premeeting Registration and Reception

6:00pm – 8:00pm NSIDC Meeting Rooms – supported by NSIDC

DAY 1

8:00am Continental Breakfast
8:40 Introductions, Agenda, Information
9:00 Hello from NSIDC/CIRES Director
(Dr. Koni Steffen and/or Dr. Roger Barry)
9:20 Hello from NSF Representative – IPY outlook
9:40 Climate Change Keynote Speaker
10: 20 Break
10:40 1st Session – Modern Climate and Oceans in the AP
12:30pm Lunch
1:30 2nd Session – Ice Shelves/Glaciers In a Warming Climate talks
3:20 Break
3:40 Ice Shelves/Glaciers/PaleoClimate Keynote Speaker
4:20 Poster Session/ Reception at 5:00pm
6:00 Adjourn for the day
7:30 Meeting Dinner at Local Restaurant

DAY 2

8:00am Continental Breakfast
8:40 3rd Session Ice Cores/PaleoClimate
10:30 Break
11:00 Marine Geology/Biology Keynote Speaker
11:40 4th Session Marine Geology/Biology talks
12:30pm Lunch
1:30 4th Session Marine Geology/Biology talks (cont.)
2:20 IPY-AP Overview (several speakers)
Science Plan, Logistics, Outreach
3:20 Break and Discussion Groups
4:00 Open Forum Discussion on IPY-AP plans
6:00 Adjourn Workshop

Potential Keynote and Invited Speakers (~8 supported)

- Susan Solomon, David Thompson, Marylin Raphael
- David Vaughan, John King
- Douglas MacAyeal, Helen Fricker, Christina Hulbe
- Ellen Mosley-Thompson, Lonnie Thompson
- Stan Jacobs, David Huber, Douglas Martinson

•Eugene Domack, Amy Leventer, Scott Ishman
•Pedro Skvarca, Gino Casassa, Jorge Arigony, Jefferson Simoes
•Eric Rignot, Helmut Rott, Wolfgang Rack
•Hugh Ducklow, Bill Fraser

Students and Young Investigators Encouraged (6 supported) to Attend:

- Allison Cook, BAS
- Hamish Pritchard, BAS
- Amie Lamb, Portland State University
- Kelly Brunt, Chicago University
- Olga Sergienko, Chicago University
- Aitbala Sargent, University of Maine
- Claudia Riedl, University of Innsbruck

Budget Summary

Funds are requested primarily to support meeting venue and small-meal catering costs, student and invited speaker travel, and publication charges for both peer-reviewed journals and the abstract-program soft-bound volume to be distributed at the meeting.

References for APCV Workshop #3, Spring 2006, Boulder Colorado.

Cook, A. , A. Fox, D. Vaughan, and J. Ferrigno. 2005. Retreating glacier fronts on the Antarctic Peninsula over the past half-century. Science, 308, 541-544.

De Angelis, H., and P. Skvarca. 2003. Glacier surge after ice shelf collapse. Science, 299(5612), 1560-1562.

Domack, E., D. Duran, A. Leventer, S. Ishman, S. Doanne, S. McCallum, D. Ambias, J. Ring, R. Gilbert, and M. Prentice. 2005. Stability of the Larsen B ice shelf on the Antarctic Peninsula during the Holocene Epoch. Nature, 436(4), 681-685.

Domack, E., S. Ishman, A. Leventer, S. Sylva, V. Wilmont, and B. Huber. 2005. A chemotrophic ecosystem found beneath Antarctic ice shelf. Eos, 86(29), 269-272.

Morris, E., and D. Vaughan. 2003. Spatial and temporal variation of surface temperature on the Antarctic Peninsula. In In Antarctic Peninsula Climate Variability: Historical and Paleoenvironmental Perspectives. Antarctic Research Series 79, E. Domack, et al., ed., 61-68.

Raphael,M., 2003. Impact of observed sea-ice concentration on the Southern Hemisphere extratropical atmospheric circulation in summer. Jour. Geophys. Res. 108(D22), doi:10.1029/2002JD03308.

Rack. W., and H. Rott. 2005 in press. Pattern of retreat and disintegration of Larsen B ice shelf, Antarctic Peninsula. Ann. Glaciol., 39, in press.

Rignot, E., G. Casassa, P. Gogineni, W. Krabill, A. Rivera, and R. Thomas. 2004. Accelerated ice discharge from the Antarctic Peninsula following the collapse of Larsen B ice shelf. Geophys. Res. Lett., 31, L18401, doi:10.1029/2004GL020697.

Rott, H., W. Rack, R. Skvarca, and H. De Angelis. 2002. Northern Larsen Ice Shelf, Antarctica: further retreat after collapse. Ann. Glaciol., 34, 277-282.

Scambos, T., C. Hulbe, and M. Fahnestock. 2003. Climate-induced ice shelf disintegration in the Antarctic Peninsula. In Antarctic Peninsula Climate Variability: Historical and Paleoenvironmental Perspectives. Antarctic Research Series 79, E. Domack, et al., ed., 77-92.

Scambos, T. J. Bohlander, C. Shuman, and P. Skvarca, 2004. Glacier acceleration and thinning after ice shelf collapse in the Larsen B embayment, Antarctica. Geophys. Res. Lett., 31, L18402, doi:10.1029/2004GL020670.

Skvarca, P. and H. De Angelis. 2003. Impact assessment of regional warming on glaciers and ice shelves of the northeastern Antarctic Peninsula. In Antarctic Peninsula Climate

Variability: Historical and Paleoenvironmental Perspectives. Antarctic Research Series 79, E. Domack, et al., ed., 69-78.

Van den Broeke, M. 2005. Strong surface melting preceded collapse of Antarctic Peninsula ice shelf. Geophys. Res. Lett, 32, L12815, doi:10.1029/2005GL023247.

Ted A. Scambos

PROFESSIONAL PREPARATION:

1977 B.S. Geology, State University of New York at Stony Brook
1980 M.S. Geology, Virginia Polytechnic Institute and State University
1991 Ph.D. Geology, University of Colorado
1990-1993 Postdoctoral study at NASA Goddard Space Flight Center, Oceans & Ice; Glaciology and Remote Sensing.

APPOINTMENTS:

2004 Lead Scientist of Science Staff; National Snow and Ice Data Center (NSIDC), CIRES, University of Colorado
1993 – 2003 Research Scientist I, II, III (successively) at NSIDC
1990 Postdoctoral Research Scientist, Hughes STX Corporation Goddard Space Flight Center
1985 Graduate Research Assistant, University of Colorado
1980 Geologist, Phillips Petroleum Corporation
1977 Graduate Teaching Assistant Virginia Tech and State University

PUBLICATIONS:

Related to the proposal (Ice and Climate Variability and the Antarctic Peninsula):

Serreze, M., Maslanik, J., Scambos, T., Fetterer, F., Stroeve, J., Knowles, K., Fowler, C., Drobot, S., Barry, R., and Haran, T., 2003. A record minimum arctic sea ice extent and area in 2002. Geophysical Research Letters, 30(3), DOI:10.1029/2002GL016406.

Scambos, T. A., Hulbe, C., and Fahnestock, M. A., 2003. Climate-induced ice shelf disintegration in the Antarctic Peninsula. *In*: Antarctic Peninsula Climate Variability, Ant. Res. Series vol. 79, 79–92.

Nolin, A., Fetterer, F., and Scambos, T., 2002. Surface roughness characterizations of sea ice and ice sheets: case studies with MISR data. IEEE Trans. Geo. and Remt. Sens. 40(7), 1605-1615.

Hutchinson, T. A., and Scambos, T. A., 1997. High-resolution polar climate parameters derived from 1-km AVHRR data. Proceedings of the Eighth Symposium on Global Change Studies, AMS Annual Meeting, p. 284-291.

Significant Publications:

Scambos, T. A., and Haran,T., 2002. An image-enhanced DEM of the Greenland ice sheet. Ann. Glaciol., 34, 291-298.

Scambos, T. A., Hulbe, C., Fahnestock, M. A., and Bohlander, J., 2000. The link between climate warming and breakup of ice shelves in the Antarctic Peninsula. J. Glaciol. 46(154), 516-530.

Fahnestock, M. A., Scambos, T. A., Shuman, C. A., Arthern, R. J., Winnebrenner, D. P., and Kwok, R., 2000. Snow megadunes on the East Antarctic Plateau: extreme atmosphere-ice interaction. Geophysical Res. Lett. 27(22) 3719-3722

Fahnestock. M. A., Scambos, T. A., and Bindschadler, R. A., 2000. A millennium of variable ice flow recorded in the Ross Ice Shelf, Antarctica. J. Glaciol. 46(155), 652-664.

Scambos, T. A., Dutkiewitcz, M. J., Wilson, J. C., and Bindschadler, R. A., 1992. Application of image cross-correlation software to the measurement of glacier velocity using satellite image data, Remote Sensing of Environment, 42, 177-186.

SYNERGISTIC ACTIVITIES:

Developed several new algorithms for extracting climate-related parameters from remote sensing data, among them: ice velocity mapping; DEM enhancement through photo-clinometry; image super-resolution through data cumulation.

Manager and Lead PI for the Antarctic Glaciological Data Center, and NSF-OPP funded activity to gather and distribute field and remote sensing data.

Co-Investigator and project lead for AVHRR Polar Pathfinder data archive, a collection of satellite data and data products covering both polar regions at 1.25km resolution, 1993–2003.

Committee, editorial, and project service:

Science Editor, Journal of Glaciology	2001 - present
Associate Science Editor, Annals of Glaciology Volume 34	2001 - present
Chair, NSF McMurdo Area User's Committee	2001 - present
NASA Antarctic Science Planning Committee	May, 1998
Co-Chair Fall AGU Session on Glaciers and Ice Sheet	Dec, 1997 and 2000
Member, Radarsat Antarctic Mapping Advisory Group (AMAG)	1995 - present
NSIDC Liaison, ICESat Science Team	1996 - present
Co-PI, Landsat 7 Science Team	1997 – 2002

RECENT COLLABORATORS:

Robert Bindschadler NASA Goddard Space Flight Center
Howard Conway, University of Washington
Mark Fahnestock, University of New Hampshire
Florence Fetterer, NSIDC University of Colorado
Christina Hulbe, Portland State University
Douglas MacAyeal, Univerisity of Chicago
Anne Nolin, Oregon State University
Mark Serreze, NSIDC University of Colorado
Christopher Shuman, NASA Goddard Space Flight Center
Julienne Stroeve, NSIDC University of Colorado

GRADUATE AND POST-DOCTORAL ADVISORS

Master's Degree at Virginia Tech: Dr. David Wones (deceased)
Ph. D. Degree at University of Colorado: Dr. Lang Farmer
Post-doctoral advisor at NASA/Goddard: Dr. Robert Bindschadler

GRADUATE AND POST-DOCTORAL ADVISEES

Mr Geir Kvaran, Masters of Arts, Geography, University of Colorado, 2000
currently at Ball Aerospace, Boulder CO.
Ms. Leigh Stearns, Ph. D. Geology, University of Maine, 2005 (external memb. Of Review committee)

SUMMARY PROPOSAL BUDGET

YEAR 1

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
University of Colorado at Boulder

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Ted A Scambos

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Ted A Scambos - PI**	0.00	0.00	0.00	$ 0	$
2.					
3.					
4.					
5.					
6. (0) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0	
7. (1) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	0.00	0	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (0) POST DOCTORAL ASSOCIATES	0.00	0.00	0.00	0	
2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0	
3. (0) GRADUATE STUDENTS				0	
4. (0) UNDERGRADUATE STUDENTS				0	
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0	
6. (0) OTHER				0	
TOTAL SALARIES AND WAGES (A + B)				0	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				0	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				0	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				0	
2. FOREIGN				0	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ 0					
2. TRAVEL 15,050					
3. SUBSISTENCE 0					
4. OTHER 4,050					
TOTAL NUMBER OF PARTICIPANTS (25) TOTAL PARTICIPANT COSTS				19,100	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				0	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				4,000	
3. CONSULTANT SERVICES				0	
4. COMPUTER SERVICES				0	
5. SUBAWARDS				0	
6. OTHER				250	
TOTAL OTHER DIRECT COSTS				4,250	
H. TOTAL DIRECT COSTS (A THROUGH G)				23,350	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **On Campus MTDC 49% (Rate: 49.0000, Base: 4250)**					
TOTAL INDIRECT COSTS (F&A)				2,083	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				25,433	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.C.6.j.)				0	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ 25,433	$

M. COST SHARING PROPOSED LEVEL $ 0 AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Ted A Scambos

ORG. REP. NAME*
Lisa tedesco

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Colorado at Boulder**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Ted A Scambos**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Ted A Scambos - PI**	0.00	0.00	0.00	$ 0	$
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0	
7. (1) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	0.00	0	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (0) POST DOCTORAL ASSOCIATES	0.00	0.00	0.00	0	
2. (0) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0	
3. (0) GRADUATE STUDENTS				0	
4. (0) UNDERGRADUATE STUDENTS				0	
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0	
6. (0) OTHER				0	
TOTAL SALARIES AND WAGES (A + B)				0	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				0	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				0	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				0	
2. FOREIGN				0	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ 0					
2. TRAVEL 15,050					
3. SUBSISTENCE 0					
4. OTHER 4,050					
TOTAL NUMBER OF PARTICIPANTS (25) TOTAL PARTICIPANT COSTS				19,100	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				0	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				4,000	
3. CONSULTANT SERVICES				0	
4. COMPUTER SERVICES				0	
5. SUBAWARDS				0	
6. OTHER				250	
TOTAL OTHER DIRECT COSTS				4,250	
H. TOTAL DIRECT COSTS (A THROUGH G)				23,350	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				2,083	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				25,433	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.C.6.j.)				0	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$ 25,433	$

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Ted A Scambos**

ORG. REP. NAME*: **Lisa tedesco**

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

Current and Pending support, Dr. Ted A. Scambos

SOURCE	TITLE	AMOUNT	PERIOD	COMMITMENT	LOCATION OF RESEARCH
Current					
NSF-OPP 0125570	Snow Megadunes on the East Antarctic Plateau *Field GPS and GPR measurements and remote sensing analysis using ICESat, MODIS, and Landsat 7 of large dune features near Vostok*	$232,264	7/01/2002 - 6/30/05	4.0 p.m. yrs. 1-2 3.0 p.m. yr. 3	NSIDC Boulder Univ. of Colorado PI: Ted Scambos
NSF-OPP 0338134	The Antarctic Glaciological Data Center (AGDC); Continued Data Collection and Management *Continued activity on data gathering and distribution for the NSF-OPP Antarctic Glaciology program*	$655,000	4/01/2004 - 3/31/2009	1.5 p.m.	NSIDC Boulder Univ. of Colorado PI: Ted Scambos
NASA NRA-03-OES-02	Improved Ice Sheet DEMs using MODIS and GLAS *Combining satellite images and satellite elevation track data to create detailed DEMs of the ice sheets*	$368,290	1/01/2004-12/31/2006	2.5 p.m. yr. 1 3.0 p.m. yrs. 2-3	NSIDC Boulder Univ. of Colorado PI: Ted Scambos
Pending					
NASA NRA-04-OES-02	Building the VELMAP database for Antarctic Outlet Glaciers *Repeat mapping of ice flow velocity using satellite images for change detection.*	$239,737	1/01/2005 - 12/31/2007	1.5 p.m./yr	NSIDC Boulder Univ. of Colorado PI: Ted Scambos
NASA NRA-04-OES-02	'At Risk' Ice Shelves and Outlet Glaciers in Antarctica *Continuing investigation of rapid climate change effects on ice shelves nad glaciers in the Antarctic Peninsula*	$669,313	1/01/2005 - 12/31/2007	2.5 p.m./yr	NSIDC Boulder Univ. of Colorado PI: Ted Scambos
NASA IIP	Pushbroom Laser Altimeter for Space-based Cryospheric Topographic and Surface Property mapping	$2,886,000	6/01/.2005 – 5/31/2008	1.8 p.m./yr	NSIDC Boulder University of Colorado Lead PI: David Harding
NASA NNH-04ZYS008N	Diagnosing the Declining Arctic Sea Ice Cover	$594,157	4/01/2005 – 3/31/2008	2.0 p.m./yr	NSIDC Boulder University of Coloraodo Lead PI: Todd Arbetter
NSP – OPP Antarctic Glaciology	Norweigian-United States IPY Scientific Traverse: Climate Variability and Glaciology in East Antarctica	$290,459 CU portion	9/01/2006-8/31/2010	1.0 p.m./yr	NSIDC Boulder University of Colorado Lead PI: Mary Albert
NSF-OPP Antarcitc Glaciology	An International Workshop on the Ice and Climate System of the Antarctic Peninsula	$25,443	10/01/2005-09/30/2006	0 p.m./yr	NSIDC Boulder University of Colorado PI: Ted Scambos

FACILITIES, EQUIPMENT & OTHER RESOURCES

FACILITIES: Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. USE additional pages as necessary.

Laboratory: n/a

Clinical: n/a

Animal: n/a

Computer: computing and word processing resources are available at NSIDC/Univeristy of Colorado

Office: office space and reception space is available at NSIDC

Other: meeting venue space is available and has been visited and priced

MAJOR EQUIPMENT: List the most important items available for this project and, as appropriate identifying the location and pertinent capabilities of each.

OTHER RESOURCES: Provide any information describing the other resources available for the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.

webserver for meeting advertising is available at NSIDC.

Results from Prior NSF Support – T. A. Scambos

An Archive and Distribution System for Glaciological and Cryosphere System Data from the U.S. Antarctic Program: the Antarctic Glaciological Data Center (AGDC).
NSF-OPP-9814550, $465,000, April 1, 1999 – March 31, 2004,
PI: G. Scharfen, Co-I's: R. Barry, T. Scambos and R. Bauer.

The Antarctic Glaciological Data Center (AGDC) II; Continued Operations
NSF-OPP-0338134, $655,545, April 1, 2004 – March 31, 2009
PI: T. Scambos, Co-I's R. Barry, G. Scharfen, R. Bauer

NSF OPP funds the Antarctic Glaciological Data Center (AGDC) at NSIDC to archive and distribute Antarctic glaciological and cryospheric system data obtained by the U.S. Antarctic Program. This project, continuing since 1999, has supported the creation and development of the AGDC web facility (nsidc.org/agdc), by a team of data managers, writers, and scientist liaisons.

Characteristics of Snow Megadunes and their Potential Effects on Ice Core Interpretation
NSF Grant Number OPP-0125570, $232,264. July 01, 2002 – June 30, 2005.
PI: T. A. Scambos; Co-Is M. Fahnestock, M. Albert, C. Shuman)

Large wave-like features covering vast portions of the Antarctic Plateau, up to 5 km in wavelength and 6 meters in amplitude, likely result from extreme local variations in accumulation and post-depositional ice-atmosphere interaction. Field measurements of structure, firn density and permeability, chemistry, and local climate characteristics appear to support a model in which wave structure in katabatic wind flow leads to alternating deposition/ablation stripes on the surface. Unique firn characteristics occur in inter-crest 'glaze' areas due to long exposure to near-surface annual thermal cycling. The chemical and isotopic changes associated with this exposure may impact climate history interpretations from nearby deep ice cores, e.g. Vostok..

Resulting Publications:

Albert, M., Shuman, C., Courville, Z, Bauer, R., Fahnestock, M., and Scambos, T., 2004. Extreme firn metamorphism: impact of decades of vapor transport on near-surface firn. Ann. Glac. 39, in press.

Siple Dome Glaciology and Ice Stream History
NSF Grant Number OPP - 9317007 to T. A. Scambos (with C. R. Raymond and R. W. Jacobel)
$65,672 (May 1, 1994 - April 30, 1997 -extended to September 30, 1997)

History and Evolution of Siple Coast Ice Stream System Recorded by Shear-Margin Scars
NSF Grant Number OPP - 9909469 to T. A. Scambos (with C. R. Raymond and H. Conway)
$167,162 (May 15, 2000 to March 31, 2004)

These two closely-related grants consider the recent history of ice streams and inter-stream ridges in the Siple Coast, as recorded by margin scars and internal layers. The U of CO portions of these grants focused on satellite image analysis and GPS ice motion and topographic measurement. The studies have yielded a host of discoveries, and led to a new appreciation of the short-term variability of the drainage of the West Antarctic Ice Sheet. The ultimate objective of the U of CO portion of the grant is a record of the history of ice flow in the Siple Coast over the last thousand years, combining ice modeling, scar shutdown timing, and flowline tracing on the Ross.

Resulting Publications:

Conway, H. Catania, G., Raymond, C., Gades, A., Scambos, T., and Engelhardt, H., 2002. Switch of flow direction in an Antarctic ice stream. Nature, 419(3), 465-467.

Jacobel, R. W., Scambos, T. A., Nereson, N. A., and Raymond, C. R., 2000. Changes in the margin of Ice Stream C, Antarctica. Journal of Glaciology, 46(152), 102-110.

Scambos, T. A., Nereson, N. A., and Fahnestock, M. A., 1998. Detailed topography of Siple Dome and Roosevelt Island, West Antarctica. Annals of Glaciology 27, 61 – 67.

Scambos, T. A., and Nereson, N. A., 1996. Satellite image and GPS study of the morphology of Siple Dome, Antarctica. *Antarctic Journal of the United States*, **30** (5), 87 – 89.

DRAFT Preparation Form for Proposed IPY Activity

This WORD template is to assist in developing an agreed document for submission to IPY by June 30, 2005. Submissions to the IPO are to be made ONLY via the online version of this form which will be available at www.ipy.org.

1.0 PROPOSER INFORMATION

1.1 Title of Activity

IPY in the Antarctic Peninsula – Ice and Climate
[The APY, APICS, GLABENAP, and TRAPIS Expressions of Intent]

1.2 Short Form Title of Proposed Activity

IPY-AP

1.3 Activity Leader Details

First Name	Surname	
Eric	Rignot	
Affiliation		Country
Jet Propulsion Laboratory		USA

1.4 Lead International Organisation(s) (if applicable)

U

1.5 Other Countries involved in the activity

United Kingdom	Chile	Argentina	Germany
Austria	Belgium	Brazil	Ukraine
Spain			

1.6 Expression of Intent ID #'s brought together in the proposed activity(Lead first)

359	178	87	1010						

1.7 Location of Field Activities (Arctic, Antarctic or Bipolar)

Antarctic Peninsula

1.8 Which IPY themes are addressed (insert X where appropriate)

1. Current state of the environment		4. Exploring new frontiers	x
2. Change in the polar regions		5. The polar regions as vantage points	x
3. Polar-global linkages/tele-connections		6. The human dimension in polar regions	

1.9 What is the main IPY target addressed by this activity (insert X for 1 choice)

1. Natural or social science		3. Education, Outreach, Communication	
2. Data management		4. Legacy	

2.0 SUMMARY OF THE ACTIVITY *(maximum of 1 page A4)*

Air temperatures in the Antarctic Peninsula have risen 6 times faster than the global average in recent decades, triggering glaciological and ecological events unique in the history of this region in the last 1,000 years. In particular, this warming was responsible for the collapse of Larsen A ice shelf in 1995 and Larsen B in 2002. Further south, Larsen C has thinned and continued warming could lead to its breakup within the next decade.

To date, access to the most active Peninsula regions has been limited, and little baseline glaciological data exist. As a result, large uncertainties remain in the determination of the mass balance of this region. Studies based on remote sensing and available *in situ* data show that a complex interaction is underway, involving enhanced precipitation at high elevation, enhanced melting at low elevation, sea ice retreat, enhanced surface and basal melting of land and shelf ice; glacier and ice shelf fracturing; melt percolation; seasonal changes in ice flow; and rapid glacial acceleration in the aftermath of ice shelf break-up. As Larsen A and B ice shelves disintegrated they uncovered a glacial history preserved on the sea-floor indicating the current retreats are rare to unprecedented in the Holocene.

This proposal represents a combination of interest from GLABENAP, TRAPIS, APICS, and APY; these four activities sought to study ice- and climate-related changes at 3 different latitudes, and therefore 3 different stages of ice response to climate change. GLABENAP aims to investigate glacier response in the northernmost areas of the Peninsula, in the aftermath of the transition from continental Antarctic conditions to sub-polar Cordilleran styles of glaciation; APICS and TRAPIS aim to study the rapid changes where ice shelf retreat and glacier acceleration are underway at present; and APY has an interest in the precursors to this change, in basal melting and the influence of increasing summer surface melt on grounded glaciers further to the south around Larsen C. All 4 studies recognize the importance of climate, paleo-climate, geological and oceanographic influences; and all recognize the profound biological responses to change. This proposal is an umbrella organizational tool for several research projects focused on ice-climate interactions.

We propose an international program of logistical cooperation and scientific collaboration to measure, model, and understand the ongoing climate and glaciological changes in the AP. The results will document the evolution of shelf-glacier systems in a warming climate. Our field science program will install automated observing stations at selected sites, deploy an array of sensors designed to monitor glaciological and geophysical parameters of importance that cannot be collected any other way, and collect critical climate and paleoclimate data. During these campaigns, we will gather baseline data on ice motion, thickness, structure, and internal temperature. The program will also further investigate the sea-floor sedimentary record, promote ongoing west coast ecosystem research, and initiate a program of biological and oceanographic observation along the eastern coast. Remote-sensing-based studies will continue, using both new and existing tools, both airborne and satellite based.

We envision a coordinated logistical plan combining US, UK, Chilean, Brazilian and Argentine airborne and ground assets, and we plan US and UK research vessel cruises that would support both land and sea field work. It is our hope that the logistical paths established as part of IPY will lead to continuing and growing cooperation in the Peninsula in the following years.

We will establish an IPY-AP web forum, and organize regular workshop meetings building on recent successful meetings at Hamilton College and SPRI that will provide a venue for discussing results, promoting outreach, and planning research activities.

The Antarctic Peninsula is a model for a future, warmer Antarctica. What we see there are changes of greater scale, speed, and magnitude than were considered possible before. IPY-AP seeks to better observe this system and its responses to know what the future may hold. This region of the World is ideal for international collaboration from geopolitical, logistical and scientific standpoints in the context of IPY.

2.1 What is the evidence of inter-disciplinarity in this activity?

The IPY-AP Initiative encompasses interests from many different aspects of the ongoing climate-driven change in the Antarctic Peninsula. It is focused on ice-climate interactions, and glacier mass balance, but includes collaborations from several other earth science disciplines: polar climate; paleo-climate; geology; oceanography; and biology. The rapid pace of climate change in the Peninsula has a profound influence on the earth's system as a whole. We expect IPY-AP to lead to a better understanding and forecasting of future changes in the Peninsula as well as other parts of the Antarctic continent.

2.2 What will be the significant advances/developments from this activity? What will be the major deliverables, including the outputs for your peers?

Advances:

- Observations of key glaciological variables in the field, that could not be obtained by any other means, but that are essential to drive larger scale representations of climate-controlled glaciological processes such as snow/ice melt, snow accumulation, and ice discharge over the entire region; these observations will be gathered across significant latitudinal and longitudinal gradients in climate that are yet poorly characterized;
- Provide realistic and defensible predictions of the contribution of the Antarctic Peninsula to sea level rise for the coming 100 years;
- A detailed documentation of the sequence of events leading to ice sheet retreat: climate and ocean thresholds, ice shelf evolution towards break-up, glacier acceleration, seasonal changes, the role of melt (surface and base), ice sheet mass loss, and contribution to sea level rise;
- Detailed observations of biosphere responses to rapid climate change and ice shelf removal.

Deliverables:

- A determination of the state of mass balance of the glaciers draining the northern part of the Antarctic Peninsula, and its contribution to sea level rise; this will fill one of the major gaps in our knowledge of the contribution of the world's glaciers to sea level rise;
- A baseline of data on local climate, accumulation, melt, ice dynamics, ice thickness, ice surface elevation, remote sensing data products, etc. to establish a reference frame for future/continuing studies of this region;
- Observations of the evolution of glacier ice in a warming climate in one of the most rapidly changing 'polar' region of the world, its consequences for the cryosphere, ocean circulation, marine biology, and ecosystems;
- A detailed understanding of the relationship between present-day changes and past changes in the Antarctic Peninsula, and teleconnections between the AP and lower latitudes, via climate modeling and ice core analysis.

2.3 Outline the geographical location(s) for the proposed field work (approximate coordinates will be helpful if possible)

Location(s)	Coordinates
Larsen B embayment (glaciers, remaining shelf, and seabed)	65.4S, 62W
MobilOil Inlet and southern Larsen C shelf (glaciers, ice shelf)	68.5S, 65W
Graham Land divide/Detroit Plateau (potential ice core site)	66.0S, 63W
Dyer Plateau (potential ice core site)	70.6S, 65W
Western Peninsula glaciers: Fleming, Clarke,	68.0S, 67W
King George Island Trinity Peninsula and Vega Island	62.0S, 58W 63.8S, 57.5W
Argentina Islands	65.1S, 64W

2.4 Define the approximate timeframe(s) for proposed field activities?

Arctic Fieldwork time frame(s)	**Antarctic** Fieldwork time frame(s)
mm/yy – mm/yy	10/07 – 12/07; 02-03/08; 10/08 – 12/08;02-03/09; traverse-based projects
mm/yy – mm/yy	02/08 – 03/08 and 02/09 – 03/09; ship-based projects
mm/yy – mm/yy	12/07 – 03/08 and 12/08 – 03/09; station based projects

2.5 What major logistic support/facilities will be required for this project? (see notes)

Chilean C-130 Hercules and P3 Orion	US RV ***Nathaniel B. Palmer*** w/helicopters and ROV
Argentine C-130 Hercules and Twin Otter	UK BAS Twin Otters
Research Stations: Argentina, Chile, Brazil Germany, Ukraine, UK, USA	

Further details IPY-AP will require access to a variety of regions, and we have started to discuss an outline of how our 4 projects can make a better use of our logistical assets. **APICS** is seeking to bring the NBPalmer (with helos) to the northeastern Peninsula coast in February- March of 2008; BAS Twin Otter field deployments under **TRAPIS** may be used to survey southern Peninsula targets for glacier mass balance work and climate effects throughout the Peninsula. Argentine C-130s and a Twin Otter may be used in the northeastern areas in 2008 and 2009 for additional support and follow-up. **GLABENAP** will require logistics from the investigator's Antarctic Programs. Permanent stations lodgement will be needed at Comandante Ferraz and Bernardo O'Higgins stations. Field camp deployment, with helos, and snowmobiles, SnowCat, etc., will be needed on glaciers in the Admiralty Bay, Trinity Peninsula and Vega Island regions. Pulse RADAR surveys over Trinity Peninsula glaciers require helo support. **APY** will rely on ongoing collaboration with Chilean military, CECS and NASA to conduct remote sensing surveys of the Peninsula. We will discuss how these surveys can address science objective for our cluster of activities. Field survey will require Twin Otters, flying out of Rothera, UK, possibly in collaboration with **TRAPIS**/BAS; and snowmobiles in the field to travel on glaciers and the ice shelf near MobilOil Inlet**.**

2.6 How will the required logistics be supplied? Have operators been approached?

Source of logistic support	X for likely potential sources	X where support agreed
Consortium of national polar operators	XXXX	(discussed informally)
Own national polar operator	XXXX	(discussed informally)
Another national polar operator		
National agency		
Military support	XXXX (Chilean)	(discussed informally)
Commercial operator		
Own support		
Other sources of support (details)		

2.7 If working in the Arctic regions, has there been contact with local indigenous groups or relevant authorities regarding access?

Not applicable

3.0 STRUCTURE OF THE ACTIVITY

3.1 Origin of the activity(X for one choice)

Is this a new activity developed for the IPY period?	
Is this activity the start of a new programme that will outlive IPY?	X
Is this a pulse of activity during 2007-2009 within an existing programme?	
If part of an existing programme please name the programme -	

3.2 How will the activity be organised and managed? Describe the proposed management structure and means for coordinating across the cluster

IPY-AP is a collaborative international scientific initiative. It is proposed as a means of linking and coordinating several research activities in the Peninsula. We envision hosting regular workshops at rotating venues, every 18 months, following the success of the AP workshops at Hamilton College and SPRI in prior years. Independent research proposals will be submitted from the different groups of collaborators and individuals to funding agencies. We will share and combine logistical assets and data to provide broader and enhanced access to the areas of interest.

Regular workshops will provide the best venue for scientific exchange and coordination of outreach and data management activities. The workshop activities, presentations and results will be posted on the web. The workshops will complementary aspects of climate evolution in the Peninsula, e.g. marine biology and ecology, physical oceanography.

Researchers from several countries are involved in this project. They will carry out activities in specifically selected glaciers located in different parts of the Peninsula, managing their own logistics. Depending on national capabilities logistic support will be coordinated if available. Science activities will be coordinated to define actions, agree on common protocols to perform recording and sampling of glaciological data, coordinate resources, etc. Administration of resources will be done at a local level.

Will the activity leave a legacy of infrastructure and if so in what form?

Yes, in the form of long-term automated observing stations, new lines of research in biological changes on the western and eastern Peninsula, new international logistical and scientific linkages, and continuing IPY-AP forum (workshop meetings, outreach program, website, and data center).

3.4 Will the activity involve nations other than traditional polar nations? How will this be addressed?

IPY-AP has contributions from a large number of nations seeking to increase their activities in the polar regions; however, most of the nations involved have at least one small station in the area, and so would perhaps be considered 'traditional' polar nations.

3.5 Will this activity be linked with other IPY core activities? If yes please specify

We will be closely linked with the data management activities of IPY, such as IPY-DIS (proposed by NSIDC). We will also be scientifically linked (cross-collaborations, presentations of results) with the several ice-dynamics and climate-related IPY activities, such as those concerning other parts of the Peninsula, the Amunsen Sea Embayment, the West Antarctic Ice Sheet, and Greenland ice sheet stability. These studies have a similar set of objectives as IPY-AP.

3.6 How will the activity manage its data? Is there a viable plan and which data management organisations/structures will be involved?

Pre- and post fieldwork metadata from GLABENAP will be published in the Antarctic Master Directory (Antarctic portal of the Global Change Master Directory), following the Joint Committee on Antarctic Data Management (JCADM) endorsed standard (DIF), which is ISO 19115 compliant. To leave a lasting legacy raw and calibrated observed and derived data, gridded data, and model outputs is archived at appropriate World Data Centers (e.g. NSIDC, WGMS), and regional and national data centers (e.g. Chilean Centro Nacional de Datos Antárticos, Antarctic Peninsula GLIMS Regional Data Centers) for long term storage and accessibility. Widespread access to the data is enabled by the use of basic and advanced web services that are build on open and well defined standards and specifications. This makes the project data interoperable with other relevant data bases and allows to use or build generic portals, data visualization and data mining tools. As almost all of the project data is related to a geographic location we make use of SCAR's emerging Antarctic Spatial Data Infrastructure AntSDI. A quality control scheme for the project data has to be developed and established. Reporting requirements are to be defined. A data management task force is established prior to the start of the field work. Field data from APY will be public domain per NSF/NASA policy. Laser altimetry and ice thickness data will be accessed on the webb, as done in Greenland. AWS data will be posted at University of Colorado. Ice velocity maps from JPL will be shared with other researchers in the Peninsula and are distributed to NSIDC.

3.7 Data Policy Agreement (Place X in box for agreement)

Will this activity sign up to the IPY Data Policy (see website)	X

3.8 How will the activity contribute to developing the next generation of polar scientists, logisticians, etc.?

This IPY-AP brings together a diverse group of researchers both with young and long-time scientific experience in the Antarctic, hence bridging the gap between generations of polar scientists from various disciplines and from various nations. The various projects will involve graduate students, logistical assistants, and post docs from several institutions, for which this project will be a new and unique experience.

3.9 How will this activity address education, outreach and communication issues outlined in the Framework document?

APICS plans several activities, currently viewed as independent efforts. Unifying and coordinating them will be an early task of IPY-AP. Among the current ideas:
• Books/articles on the human and natural history of the Peninsula(M. Hooper; L. DuBois);
• Coordination of news-event releases among international research groups (S. Renfrow);
• Educational/public interest web and CD/DVD content on Peninsula climate change (e.g. Kara Pharris/NSIDC; IAI effort Andrew McMinn/UTas);
• Undergraduate education and research opportunities (Eugene Domack)
• Adopt-a-School(s): schedule live video feeds from field work/cruises (Marilyn Raphael)

GLABENAP will produce a series of web-based, interactive eLearning modules specifically designed for high school/undergraduate curricula. We will build on the experience, methodology, infrastructure, and content developed over the past five years within the www.webgeo.de project. Webgeo is an on-line eLearning package for Physical Geography that has been applied successfully over the last years in undergraduate teaching. Webgeo content features both a general approach to geomorphology, and climatology as well as regional topics. The Antarctic Peninsula chapter will explain and illustrate both the scientific rationale of the research and the global relevance of the subject. Graduate students and post docs from the participating institutions will be involved in GLABENAP activities.

APY will involve graduate students from University of Colorado, a post doc from JPL, and graduate students from the University of Valdivia in Chile.

TRAPIS plans a unique participatory program for tourists visiting the Antarctic Peninsula, asking cruise ships and tourists to re-visit known photo sites from past expeditions and re-photograph them for change detection and seasonal evolution of glacier and ice shelf fronts.

3.10 What are the proposed sources of funding for this activity?

APICS will seek support from NSF-OPP (NBPalmer/helicopters) and other national funding agencies (NERC, Instituto Antártico Argentino) for colleagues interested in collaborating in the Larsen B area.

TRAPIS is seeking money currently from the BAS GRADES program, and as an AFI proposal and
NERC Standard Grant bid.

APY will seek additional support from NSF-OPP and NASA Cryospheric Science Program. Rignot/Thomas are currently funded by NASA to study the mass balance of the Peninsula from remote sensing for 2005-2008. CECS is funded for IPY activities in the Peninsula.

GLABENAP will seek support from regular announcement opportunities (CONICYT, INACH, IAA, DFG/BMBF, CNPq/PROANTAR etc). Applications to regular and special international funding opportunities will be submitted as a consortium for not covered items. Limited logistic and operative support is currently allocated from each national Antarctic Program.

3.11 Additional Comments

4.0 CONSORTIUM INFORMATION

4.1 Contact Details

	Lead Contact	Second Contact
Title	Dr.	Dr.
First Name	Eric	Ted
Surname	Rignot	Scambos
Organisation	NASA-JPL	NSIDC-University of Colorado
Address		1540 30th Street, Rm 218 University of Colorado, Boulder Boulder, CO 80309-0449 USA
Postcode/ZIP		80309-0449
Country		USA
Telephone		303 492 1113
Mobile		
Fax		303 492 2468
Email	Eric.Rignot@jpl.nasa.gov	Teds@icehouse.colorado.edu
Repeat Email	Eric.Rignot@jpl.nasa.gov	Teds@icehouse.colorado.edu

4.2 Other significant consortium members and their affiliation

Name	Organisation	Country
APY (EofI 359)		
Robert Thomas	NASA Wallops Island	USA
G Casassa (and GLABENAP)	CECS	Chile
A. Rivera (and GLABENAP)	CECS	Chile
Konrad Steffen	CIRES University of Colorado	USA
Andrew Shepherd	Scott Polar Research Institute	UK
GLABENAP (EofI 87):		
Ricardo Jana	Chilean Antarctic Institute	Chile
Jorge Arigony	NUPAC/UFRGS	Brazil
Pedro Skvarca (and APICS)	Instituto Antártico Argentino	Argentina
Jefferson Simoes	NUPAC/UFRGS	Brazil
Matthias Braun	University of Bonn	Germany
Miguel Santibanez	Chilean Army	Chile
José Retamales	Chilean Antarctic Institute	Chile
Carlos Cárdenas	UMAG	Chile
Jorge Carrasco	Dir. Meteorológica Chile	Chile
Norberto Dani	NUPAC/UFRGS	Brazil
Helmut Saurer	IPG Uni-FR	Germany
Christoph Schneider	RWTH Aachen University	Germany
Dieter Scherer	Berlin University of Technology	Germany
Volkmar Damm	BGR	Germany
Norbert Blindow	University of Muenster, Geophysics	Germany
APICS (EofI 178)		
Eugene Domack	Hamilton College	USA

Amy Leventer	Hamilton College	USA
David Vaughan (A.Cook, H. Pritchard)	British Antarctic Survey	UK
John King	British Antarctic Survey	UK
Andrew Clark	British Antarctic Survey	UK
Robert Larter	British Antarctic Survey	UK
Carol Pudsey	British Antarctic Survey	UK
Helmut Rott Wolfgang Rack	Universitaet Innsbruck AWI-Bremerhaven	Austria Germany
Lonnie Thompson	Ohio State University	USA
Ellen Mosley-Thompson	Ohio State University	USA
Hugh Ducklow	Old Dominion University, LTER group	USA
William Fraser	Montana State University	USA
Christina Hulbe	Portland State University	USA
Martin Truffer	University of Alaska	USA
Marc De Batist	University of Ghent	Belgium
Miquel Canals	University of Barcelona	Spain
Alberto Camerlenghi	University of Barcelona	Spain
Roger Urgeles	University of Barcelona	Spain
Arnold Gordon	Lamont Doherty Earth Observatory, Columbia	USA
Bruce Huber	Lamont Doherty Earth Observatory, Columbia	USA
Douglas Martinson	Lamont Doherty Earth Observatory, Columbis	USA
Marilyn Raphael	UCLA	USA
Ian Joughin	University of Washington	USA
Matt King	University of Newcastle	UK
Gennady Milinevsky	National Antarctic Scientific Center of Ukraine	Ukraine
Stephanie Brachfields	Montclair College	USA
Rosa Compagnucci	Investigadora Independienta del CONICET	Argentina
Sandra Barreira	Investigadora Independienta del CONICET	Argentina
Scott Ishman	Southern Illinois University	USA
Stephanie Renfrow	National Snow and Ice Data Center	USA
Meredith Hooper	Historian, temp. at Scott Polar Research Institute	UK
Lois Dubois	Cayenne Corp.	USA

Notes for completing the WORD template for Proposed IPY Activities

** **The form is not for submission (that must be done online) - it is a tool for preparing the material required for completing the online form.**

** **This form is 7 pages long and the online form will match this length so if your completed WORD template is 7 pages you will have no problems in cutting and pasting to the online form**

** **We suggest you use 11 pt Times or Times Roman for text entry.**

Proposer Information

1.1 A full title for the proposed activity

1.2 Please provide a short title, ideally an acronym which will help with database searching.

1.3 This should be the person nominated to lead the activity. They may also be the primary contact with whom the IPO and JC will interact (see 4.1)

1.4 Where an international organisation is involved in the activity, they should be named (acronym is sufficient)

1.5 These are countries other than that of the activity leader. There will be more cells available on the web form. It is important that each activity demonstrate that there is internationalisation. Components of IPY activities can be operating at simply a national level but should synchronize with comparable groups in other nations activities to ensure internationalization at the IPY activity (core project) level.

1.6 The ID # for each EoI (from the Jan 14 exercise) involved in the activity should be named here. This will allow the IPO to track EoI's that have joined or left clusters identified in the original assessment.

1.7 Insert only one of the three choices.

1.8 Put an X against all of the themes for which the activity is relevant.

1.9 Put an X against one of the IPY targets which most closely describes the activity's main target

Activity Description and Time/Location Information

2.0 A description of what the activity entails and that includes reference to how the various component EoI's contribute to the overall activity. The description should focus on what will be undertaken within the activity and not how it will be organised. The text must not include graphics, equations or substantial formatting as these all cause problems for the database search engine. The JC only wants text entry in this field – leave the fancy presentations for the funding agency applications. Do not exceed 1 page.

2.1 The IPY is promoting interdisciplinary science and it is one of the IPY criteria that researchers should attempt to address.

2.2 This should focus on what will broadly emerge from the activity and if possible list some deliverables. It will be valuable to outline what outputs will be targeted at your peers – papers, workshops, e-media.

2.3 IPY activities should be polar-focussed (not necessarily located in polar regions. These fields should identify one or more areas where field activities will occur, e.g. West Antarctic Ice Sheet, Weddell Sea, Svalbard, Greenland. There is no need to include reference to Antarctica or Arctic (picked up in 1.7). If approximate coordinates are available this will allow distribution maps to be generated for IPY planning and promotional activities and assist logistic operators. An IPY activity does not have to include a field component but will do so in most cases.

2.4 IPY activities should occur during 2007-2009. Use the given format to define fieldwork periods.

2.5 This refers to major facilities and infrastructure and some examples (not comprehensive) are given below. Please use the fields to enter logistic requirements and use the text box to add further details.

Ice-breaker	Multi-instrumented platforms	Snow terrain vehicles
Ice strengthened research ship	Helicopters	Existing field stations
Ship-based drilling capability	Fixed wing geophysical aircraft	New field station
Ship recovery of buoys etc	Fixed wing transport aircraft	Observatories
Submarines	Rockets	Fuel depots
Autonomous Underwater Vehicle	Satellites	Ice drilling capability
Remotely Operated Vehicle	Radars	Rock-drilling capability

Please note if your project will share facilities with other IPY activities, or if there is capacity to support other projects as part of your activity (e.g. a marine biodiversity cruise could feasibly offer to deploy or recover buoys, moorings, etc., for an ocean/climate project).

2.6 Mark X against the 1 or more support options you would anticipate using and place an X against those which have been agreed or are being considered by logistic operators.

2.7 Access to certain Arctic areas is subject to licensing and should not be assumed will be granted so a dialogue with relevant authorities will be necessary. The Canadian IPY Office is a useful start point.

Structure of the Activity

3.1 Identify if your activity is a new activity limited to the IPY period, a new one that may be running for many years but will use IPY to kick start its programme, or an existing programme that will undertake a pulse of activity to coincide with the IPY period. If the latter please name the programme.

3.2 A major IPY criterion is "evidence of a viable management plan" and this is an opportunity to outline how the cluster will organise itself and ensure there is proper coordination. The Joint Committee for IPY 2007-2008 will be overseeing Polar Year activities but will not be managing the individual projects. It is anticipated that IPY projects will be self-managed, free-standing activities or be part of a planned or existing programme that has an established management structure. The JC will need to be satisfied that all proposals have realistic plans for structuring and managing activities. For the larger proposals the JC anticipates that a Project Steering Committee will be established.

3.3 Whilst IPY is envisaged as primarily a pulse of activity during 2007-2009, it is hoped that, as with many IGY initiatives, the initial activity leaves a legacy longer term which could be for example – an observational network, a field research facility, an accessible database, an education course or a health monitoring programme.

3.4 The IPY wants to broaden interest in the polar regions to include nations not traditionally involved in polar activities and has included this as one of its criteria. In some cases this may involve researchers joining clusters for field work but could also be, for example, through attendance of a workshop organised by the cluster.

3.5 The Joint Committee envisages a relatively small number of substantial core projects during IPY and it is anticipated that the JC will assist these projects to interact. Some activities are already considering formal and informal links with related clusters which will bring added value to these IPY activities.

3.6 IPY will generate enormous quantities of data and it should be accessible data so core projects will have to agree a data policy that will allow interaction across projects and early availability to the community. This field offers the opportunity to demonstrate that the components of the cluster have an agreed and valid approach to data management which can be considered alongside other approaches across IPY by the Data Management Sub-Committee to ensure effective coordination. Data organisations such as the World Data Centres, JCADM or national data centres.

3.7 IPY wishes all data to be freely available to the community (accepting certain exceptions e.g. human research) and all core projects will be expected to agree to sign up to the IPY Data Policy (which will be available on the website before the end of May 2005.

3.8 IPY has the development of the next generation of polar researchers as a high priority and IPY activities should show evidence of having considered how to address this issue.

3.9 All activities are expected to give consideration to addressing education, outreach and communication (mainly media focussed). Establishing a website will be a popular suggestion but interactions with schools, involving children/teachers in field activities, holding workshops, producing books or electronic media, collaborating with film-makers are all further possibilities.

3.10 It is recognised that many proposed activities will not yet have established funding lines but it should be demonstrated that valid sources of funding will be approached to support the activity.

3.11 This field can be used for any additional information that you feel is not addressed in the rest of the form or it maybe a specific piece of information that helps a national committee locate its nation's proposed activities.

Consortium Information

4.1 Details for the two primary people in each activity that the IPO can then contact where necessary on behalf of the consortium.

4.2 A list of other significant consortium members, their affiliation and country. The on-line form will also ask for email addresses. Up to 35 additional names can be added to this table, more will be available in the online version.