ACE – ANTARCTIC CLIMATE EVOLUTION
4-year report to SCAR
2008 renewal application

Rationale for ACE

ACE facilitates research in the broad area of Antarctic climate evolution over a variety of timescales. The programme links geophysical surveys and geological studies on and around the Antarctic continent with ice-sheet and climate modelling experiments. ACE is designed to determine both climate conditions and climatic changes during the recent past (i.e., the Holocene prior to anthropogenic impacts, as well as at the last glacial maximum and other Quaternary glacial intervals, when temperatures were cooler than at present) and the more distant past (i.e., the pre-Quaternary, when global temperatures were several degrees warmer than today). This new cross-disciplinary approach, involving climate and ice sheet modellers, geologists, and geophysicists will lead to a substantial improvement in the knowledge-base on past Antarctic climate, and our understanding of the factors that have guided its evolution. This in turn will allow us to build hypotheses, examinable through numerical modelling, as to how Antarctic climate is likely to respond to future global change. Equally important, the development of data-driven models for Antarctic climate will allow us to extend our results to the analysis and prediction of global climate variability.

Following the SCAR28 meeting in Bremen, ACE (Antarctic Climate Evolution) became a full Scientific Research Programme of SCAR. Since 2004 ACE has delivered outputs commensurate with its SRP status, and these are reported below.

1 OUTPUTS/DELIVERABLES

1.1 Five key achievements (with short paragraphs on each)

In 2008, ACE published a review paper of its top five scientific findings, as requested by delegates at the SCAR29 meeting in Hobart (Siegert et al., 2008). The following five research highlights are taken from that paper.

1.1.1 Connection of CO_2 and ice-sheet inception at the Eocene-Oligocene boundary.

While the onset of major, continental-scale glaciation in the earliest Oligocene (Oi-1 event) has long been attributed to the opening of Southern Ocean gateways, numerical modelling studies suggest declining atmospheric CO_2 was the most important factor in Antarctic cooling and glaciation. Numerical model simulations spanning the Eocene-Oligocene boundary while accounting for decreasing CO_2 concentrations and orbital variability, led to the conclusions that 1) tectonically-forced changes in ocean circulation and heat transport have only a small effect on temperature and glacial mass balance in the Antarctic interior and 2) Southern Ocean gateways could only have triggered glaciation if the climate system was already near a threshold. The timing of glaciation on East Antarctica was sensitive to orbital forcing, mountain uplift, and continental vegetation, but only within a very narrow range of atmospheric CO_2 concentrations around 2.8 times modern, levels that are close to the model's glaciation threshold. Once the glaciation threshold is approached, astronomical forcing can trigger sudden glaciation through non-linear height/mass-balance and albedo feedbacks that result in the growth of a continental-scale ice sheet within 100 kyr. The timing of glaciation appears to be insensitive to both expanding concentrations of seasonal sea ice and changes in geothermal heat flux under the continent.

1.1.2 Orbital control on East Antarctic ice-sheet dynamics across the Oligocene-Miocene boundary

Orbital control of Northern Hemisphere ice sheet volume during the Quaternary ice ages has been well established for a quarter of a century. The Cape Roberts Drilling Project has now shown that orbital configuration influenced the Antarctic Ice Sheet between 33 and 17 million years ago. Around 1500 m of strata in this age range were cored and 55 sedimentary cycles identified, ranging from a few metres to over 60 metres in thickness. The cyclic variation in lithology records both advance and retreat of the ice margin and the fall and rise of sea level. Two of the cycles contain volcanic ash whose ages link them with particular Milankovitch cycles 24.0 and 24.2 million years ago observed in the deep-sea isotope record. Analysis of deep-sea isotope records indicates sea level variations of 30 to 60 m from changes in ice sheet volume at this time.

1.1.3 Neogene major advance and retreat episodes of the East Antarctic Ice Sheet

In the 1980s, studies of the Sirius Group and geomorphological investigations in the Transantarctic Mountains led to the development of 'dynamic' versus 'stable' ice-sheet hypotheses, representing widely contrasting views of Neogene Antarctic climate and glacial dynamics. Recent sampling by the Ocean Drilling Program in Prydz Bay, field studies of the Pagodroma Group exposed on land, and numerical modelling studies provide evidence for a more complex behaviour of the Neogene East Antarctic Ice Sheet (EAIS). The Lambert Glacier is the largest fast-flowing outlet glacier in the world and drains approximately 12% of the EAIS into Prydz Bay. During advances of the Lambert Glacier to the shelf break, glacigenic debris flows built up a trough mouth fan on the continental slope. Studies combining results from ODP Site 1165 off Prydz Bay and seismic data conclude that changes in margin architecture at ca. 3 Ma are related to changes in glacial thermal regime. Indeed, stable isotope studies and interpretations of siliceous microfossils indicate low sea-ice concentrations and relatively high sea surface temperatures in the early Pliocene with a cooling trend occurring from the middle Pliocene onward. The combined results from ODP cores and field studies of the Pagodroma Group provide evidence of major shifts in the position of the grounding-line of the Lambert Glacier through the Late Neogene. Numerical modelling studies of erosion and sediment supply suggest that, besides climate, continued excavation and overdeepening of the glacial trough during ice advance phases is an important factor controlling the dynamics of the Lambert Glacier in the late Pleistocene. Although complete deglaciation as proposed in the dynamic ice-sheet hypothesis has not been demonstrated in any of the data sets, the periodic advance and retreat of fast-flowing outlet glaciers is expected to be associated with recognizable changes in sea level at continental margins elsewhere.

1.1.4 Synchroneity of late deglacial ice retreat across Antarctica's continental margin.

The integration of historical and instrumental climate data with climate reconstructed from ice cores and marine sediments offers a powerful tool for examining the forcing and response of the Antarctic Ice Sheet at time scales that are relevant to our greenhouse future. The retreat of Antarctica's ice sheet following the last glacial maximum (LGM) has been studied for more than 30 years via marine geology and continental glacial geomorphology, and yet many questions remain regarding the timing, speed, and style of ice retreat. New coring capabilities as well as refinements in age-dating methods are yielding surprising new results regarding the timing of last deglacial ice retreat from the ice margin proximal portions of Antarctica's continental shelf. Long sediment cores from both sides of the Antarctic Peninsula, the Ross Sea, and distant regions of the East Antarctic continental shelf suggest the possibility of rapid and synchronous ice retreat from much of Antarctica's continental margin beginning about 11,500 years ago and lasting less than 1,000 years. The apparent synchroneity is unexpected, given previous inferences of large geographic asynchroneity in the timing of maximum glacial advance and subsequent early deglacial history. However, a rapid retreat of ice from widespread regions of Antarctica's continental shelf beginning about 11,500 years ago is not necessarily inconsistent with observations of asynchroneity earlier during the last deglaciation. A threshold may

have been crossed, such as sea level or temperature rise, that forced a continent-wide response. The significance of this rapid retreat event is three-fold. 1) It suggests that a global or hemispheric forcing agent was responsible for rapid loss of ice rather than regionally variable fluctuations in local energy balance or the dynamics of ice and ice streams interacting with bedrock and the ocean. 2) The timing coincides with estimates for the initiation of global meltwater pulse 1B, allowing for the possibility that loss of Antarctic ice contributed significantly to this event rather than accepting that virtually all meltwater came from the northern hemisphere ice sheets. 3) Synchroneity implies the sudden release of large volumes of freshwater into the Southern Ocean, raising the possibility of significant oceanic stratification and concomitant changes in productivity, nutrient fluxes, and the control of atmospheric CO_2 levels by the Southern Ocean.

1.1.5 Subglacial processes of former Antarctic ice streams from marine geology and geophysics

Recent marine geophysical and geological research from the Antarctic continental shelf has resulted in significant advances to our understanding of the extent, timing and dynamic behaviour of the West Antarctic Ice Sheet (WAIS) and the Antarctic Peninsula Ice Sheet (APIS) during the last glacial maximum, as well as the processes and conditions at the former ice-sheet bed. This research indicates an extensive WAIS and APIS at the last glacial maximum. The ice sheet was positioned at, or close to, the shelf edge around the Peninsula, and in the Bellingshausen Sea and Pine Island Bay. In these areas large glacial troughs extend across the continental shelf, and sedimentary and geomorphic evidence from these troughs indicates that they were occupied by grounded palaeo-ice streams during, or immediately following, the last glacial maximum. This evidence includes elongate subglacial bedforms such as drumlins and mega-scale glacial lineations orientated along trough axes. Marine geological investigations have also begun to distinguish different styles of past deglaciation; ranging from rapid, to stepped, to slow and gradual.

1.2 Contributions to IPY

ACE is a full programme of the IPY. The ACE programme is directly relevant to Theme #2 of IPY: *To quantify, and understand, past and present environmental and human change in the polar regions in order to improve predictions*. The ACE programme will provide answers to the following two questions that will be asked in this theme: (1) How has the planet responded to multiple glacial cycles? and (2) What critical factors triggered the cooling of the polar regions? The proposed function of the ACE programme will allow the investigation of past changes in Antarctica during several time slices. Question 1 will be answered as part of the ACE investigation into the *Pleistocene glacial cycles and intervals of extreme warmth and cold* and the *Last Glacial Cycle and Deglaciation*. Question 2 will be addressed in ACE through ACE analysis of the *Eocene-Oligocene events*, and the *Oligocene-Miocene boundary Mi-1 glaciation*, and also in the process-based theme on *Tectonics and climate*. Further, ACE contributes to two other IPY themes. In IPY Theme #3, processes relating to global teleconnections will be investigated. To understand contemporary processes, models (both conceptual and numerical) need to be built and tested against the known record of past changes. To this end, ACE will provide the necessary process-based information concerning the causes and consequences of past changes in Antarctica at a variety of timescales relevant to IPY Theme #3. Two questions within IPY Theme #4 (To investigate the unknowns at the frontiers of science in the polar regions) are of direct relevance to ACE. The first concerns the character of the sub-ice and deep-ocean ecosystems. Such systems exist as a consequence of the modern environment and past environmental changes. The ACE programme will allow subglacial conditions to be evaluated through the Cenozoic, which will allow us to predict the long-term history of, for example, Lake Vostok. The second question will determine the effect of the solid earth on ice-sheet dynamics. ACE ice sheet modelling investigations of the *Influence of tectonics on the behaviour of the ice sheet* will have a direct input to this question.

ACE is involved in the following scientific programmes of IPY: ANDRILL, MIS and SMS, Lake El'gygytqyn, IOPD Wilkes Land Margin, AGAP (including ICECAP and input to BEDMAP II), Plates and Gates, BIPOMAC, Chinese East Antarctic Traverses, Ross Map.

1.3 List of publications in peer reviewed literature (including articles "in press")

ACE has undertaken considerable activity focused on integrating the scientific community on issues relating to past Antarctic changes. This activity manifests itself as a series of international peer-reviewed journal special issues. Below we provide details of the special issues, but not the papers (which total 57) because of space constraints.

- Florindo, F., Cooper, A.K. and O'Brien, P.E. (Editors), 2003. Antarctic Cenozoic palaeoenvironments: geologic record and models. *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 198, 1-278.
- Florindo, F., Harwood, D.M., Wilson, G.S. (Editors), 2005. Long-term changes in Southern high-latitude ice sheets and climate: the Cenozoic history. *Global and Planetary Change*, vol. 45, 1-264.
- Barrett, P., Florindo, F. and Cooper, A. (Editors), 2006. Antarctic Climate Evolution - view from the margin. *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol 231, 1-252.
- A new Special Issue of *Palaeogeography, Palaeoclimatology, Palaeoecology* (Florindo, F., Nelson, A. and Haywood, A., Editors) is now online at the Elsevier website and will appear as hardcopy early in 2008. This, the fourth of such contributions to the ACE Scientific Research programme, includes sixteen new research papers developed largely from presentations and posters at the ACE-sponsored EGU meeting in Vienna (02-07 April 2006), and at the XXIX SCAR Open Science Meeting , Hobart, Tasmania (08-20 July 2006).

A book (edited by Florindo, F. and Siegert, M.) entitled Antarctic Climate Evolution, featuring chapters written by ACE members, will be published by Elsevier as volume no. 8 in their **Development in Earth & Environmental Sciences** series in late 2008.

ACE has also published two peer-reviewed articles relating specifically to the Antarctic Climate Evolution programme:

- Siegert, M.J., Barrett, P., DeConto, R., Dunbar, R., Ó Cofaigh, C., Passchier, S. and Naish, T. Recent advances in understanding Antarctic climate evolution. *Antarctic Science*, doi 10.1017/S0954102008000941 (2008).
- Florindo, F., Dunbar, R., Siegert, M., DeConto, R., Barrett, P., Cooper, A., Escutia, C., Janecek, T., Larter, R., Naish, T., Powell, R. Antarctic Climate Evolution (ACE) Research Initiative. *Terra Antartica*, 9, 127-132. (2003).

1.4 List of other publications

The level of ACE publications is too great to list here. Below are five publications demonstrating how we have advertised the ACE programme to wider scientific and lay audiences.

- Siegert, M.J. Antarctic Climate Evolution: a new research initiative. *The EGGS. Newsletter of the European Geophysical Society*, issue #6, p17-23. 10 December 2003. (2003).
- Siegert, M.J., Dunbar, R. and the ACE Steering Committee. ACE: Antarctic Climate Evolution. *Geophysical Research Abstracts*, Vol. 7, 08910, (2005).
- Siegert, M.J. and the ACE Steering Committee. Antarctic Climate Evolution (ACE) programme. *Geophysical Research Abstracts*, 8, EGU06-A-10685. (2006).

- Powell, R., DeConto, R., Pollard, D. (2006) Drilling back to the future: A new Antarctic project will drill deep into the frozen southern continent to uncover its climate secrets: *Geotimes*, March, 2006, p. 18-22.
- Siegert, M.J., Barrett, P., DeConto, R., Dunbar, R., Ó Cofaigh, C., Passchier, S. and Naish, T. Recent advances in understanding Antarctic climate evolution. *PAGES news*, 15 (2), 9-11. (2007).

1.5 Lists of brochures, posters, press/media articles and similar PR material
ACE presented posters at several international meetings, including: AGU 2005, EGU 2005, AGU 2006 and EGU 2006. An ACE brochure, providing information about the programme to the wider community, was distributed on our website, and at AGU/EGU meetings in 2005.

1.6 Details of the SRP web site, and number of hits per web site
The ACE website is posted at www.ace.scar.org. As of 30 January 2008, it had received ~6000 hits (since February 2005).

1.7 Information on SRP database(s), and amount of use of database(s) (e.g. as measured by hits on a web version)
ACE, being the successor of ANTOSTRAT, is linked to the Antarctic Seismic Data Library System (http://scar-sdls.org/).

1.8 Number and type of education/training and other capacity building activities
On August 26, 2007, R. DeConto and D. Pollard (ACE members) ran a half day ACE workshop on Antarctic climate and ice sheet modeling at the International Symposium on Antarctic Earth Sciences (ISAES) in Santa Barbara, CA. The workshop was attended by ~25 geoscientists with specific interests in Antarctic climate and ice sheet evolution and model-data integration.

ACE members contribute to the Urbino Summer School in Palaeoclimatology (http://www.uniurb.it/ussp/index.html). ACE will support young scientists to attend this meeting through a $1500 sponsorship fund.

ACE has sponsored nine young scientists to attend major international conferences over the past four years, developing communication and collaboration skills that are vital to early research careers.

1.9 Notes on new technology/model developments
ACE modeling activity has led to the development of new ice-sheet modeling components, including high resolution regional Antarctic climate models, coupled ice-sheet-shelf-sediment models, the integration of analytical solutions to ice-sheet grounding line into ice-sheet models and new experimental designs including very long (10^4 year) integrations with coupled ocean atmosphere models.

2 INPUTS

2.1 Number, gender and country of participating scientists
Formal ACE membership is organized through a series of subcommittees, which have the following listed as members:
Last Glacial Maximum and Holocene: Mike Bentley and Colm O'Cofaigh (co-chairs, UK); Philippe Huybrechts (Belgium); Catherine Ritz (France); David Pollard (US); Howard Conway (US); Eric

Wolff (UK); Andrew Mackintosh (NZ); Glenn Milne (UK); Rob Dunbar (US); Robert Larter (UK)
Pleistocene: Tim Naish (chair, NZ); Lionel Carter (NZ); Eric Wolff (UK); Ross Powell (US); Rainer Gersonde (Germany); Gary Clarke (Canada); John Chappell (AUS); Stuart Henrys (NZ); Reed Scherer (US); David Pollard (US); Ian Hall (UK).
Middle Miocene – Pliocene: Alan Haywood (chair, UK); John Smellie (UK); Allan Ashworth (USA); Paul Valdes (UK); Sandra Passchier (USA); Carrie Lear (UK); David Cantrill (Sweden), Fabio Florindo (Italy), Roderik van de Wal (the Netherlands) .
Oligocene – Miocene: Robert DeConto (chair) USA; David Pollard, USA; Steve Pekar, USA; David Harwood (proposed), USA; Catherine Stickley (proposed), UK.
Eocene – Oligocene: Jane Francis (chair, UK); Sergio Marenssi (Argentina); Vanessa Thorn (NZ); Mike Hambrey (UK); Jim Zachos (USA); Henk Brinkhuis (the Netherlands), Barbara Mohr (Germany).
Radio Echo Sounding: Detlef Damaske (chair, Germany); Ian Allison (Australia); Don Blankenship (USA) ; Robert Bindschadler (USA) (for IPY Mass Balance); Sun Bo (China); Heinz Miller (Germany)(for IPY Traverses); Achille Zirizzotti (Italy); David Vaughan (UK)
Ross Seismics Group: Stuart Henrys, GNS Science, NZ; Fred Davey, GNS Science, NZ; Phil Bart, LSU, USA; Walter Boehm, OGS, Italy; Martina Busetti, OGS, Italy; Laura De Santis, OGS, Italy; Riccardo Geletti, OGS, Italy; Roi Granot, SIO, USA; Frank Rack, UNL, USA; Chiara Sauli, OGS, Italy; Christopher Sorlien, UCSB, USA; Nigel Wardell, OGS, Italy; Terry Wilson, OSU, USA.

Total membership (as present in sub-committees, excluding steering committee members): 68 (including 12 women).
Nationalities: USA, 21; UK, 17; Italy, 8; New Zealand, 7; Germany, 4; Australia, 2; the Netherlands, 2; Argentina, 1; Belgium, 1; Canada, 1; China, 1; France, 1; Poland, 1; Sweden, 1.

2.2 Title, place and type of meetings/workshops, and numbers, genders and countries represented in their attendees

In the last four years, ACE has held four steering committees and two town meetings. ACE organizes these meetings to coincide with international symposia and SCAR meetings, so reducing the costs to SCAR considerably.

Monday, 25th April, 2005, 1st ACE Steering Committee, Le Meridien Hotel, Opernring 13-15 Vienna. Present: Martin Siegert (UK), Sandra Passchier (USA), Rob Larter (UK), Jane Francis (UK), Alan Haywood (UK), Carlota Escutia (Spain), Ross Powell (USA), Tony Payne (UK), Fabio Florindo (Italy), Damian Gore (Australia), Colin Summerhayes (UK)

Wednesday, 7th December, 2005, 2nd ACE Steering Committee, Argent Hotel, Civic room, San Francisco. Present: Martin Siegert (UK), Rob Dunbar (USA), Fabio Florindo (Italy), Rob DeConto (USA), Ross Powell (USA), Alan Haywood (UK), Rob Bauer (USA), Carlota Escutia (Spain), Julie Brigham Grette (USA, PAGES Chair) and Alan Cooper (USA), Fred Davey (Australia)

14th December, 2006, 1st ACE Town meeting. AGU, San Francisco, USA. Present: Martin Siegert (UK), Robert DeConto (USA), Eric Wolff (UK), Alan Haywood (USA), David Pollard (USA), Detlef Damaske (Germany) and Don Blankenship (USA).

12th July, 2006, 3rd ACE Steering Committee, SCAR29, Hobart, Tasmania, Australia. Present: Rob Dunbar (USA), Detlef Damaske (Germany), Carlota Escutia (Spain), Ross Powell (USA), Sun Bo (China), Gary Wilson (NZ), Stuart Henrys (NZ), Sandra Passchier (USA). Over 45 additional SCAR OSC participants and delegates also participated in this open steering committee meeting.

29th August 2007. 4th ACE Steering Committee, ISAES Santa Barbara, USA. Present: Carlota Escutia (Spain), Sandra Passchier (USA), Gary Wilson (New Zealand), Ross Powell (USA), Rob Dunbar (USA), Tim Naish (New Zealand), Steve Pekar (USA)

13th December 2007, 5th ACE Steering Committee and 2nd ACE Town meeting, AGU, San Francisco,

USA. Present: Rob Dunbar (US), Tim Naish (NZ), Detlef Damaske (Germany), Carlota Escutia (Spain), Gary Wilson (NZ), Stuart Henrys (NZ), Rob DeConto (US). Guests also at table: Jurgen Thurow (UK), H. Cheshire (UK), Andrew Mackintosh (NZ), Reed Scherer (US), Dave Mucciarone (US). The steering committee meeting was preceded by a town meeting, in which 65 people attended.

2.3 Links to other SCAR SRPs or SCAR Action or Expert Groups

- ACE is most closely linked SCAR SRPs SALE and EBA and has formal liaisons with these SCAR SRPS.
- Two ACE members are active SALE members (M Siegert and R Powell).
- One ACE member (Francis) is undertaking joint research with an EBA member (P Conway).
- ACE will liaise with SALE on the identification of subglacial lakes from the RES surveys it assists.

2.4 Links to other ICSU bodies or to other scientific groups

ACE has formal links with the ice core community via IPICS and the palaeoclimate community via IGBP PAGES and the IPY programme BIPOMAC; it coordinated a special issue of the official PAGES newsletter in 2007. ACE is also officially linked to the IASC programme APEX (Arctic Palaeoclimate and its Extremes). ACE is also linked to the Antarctic Drilling Programme ANDRILL, and to the Integrated Ocean Drilling Programme (IODP).

2.5 Development and staffing of a project office or other administrative support

The bulk of ACE administrative work is undertaken by the steering committee at no cost to SCAR. The ACE website is maintained at the University of Massachusetts by Steve Gaurin. Website maintenance will be undertaken by Sandra Passchiers from 2008 onwards.

2.6 Sources and amounts of SCAR and external income (or in kind contribution) for project activities

ACE received a donation of $5000 from anonymous source to assist young researchers, especially from developing nations. ACE uses these funds to support young scientists to attend international meetings, including the Urbino Summer School.

2.7 Expenditure on project activities, and plans for unspent funds

Allocation for 2007 plus carry forward from 2006:	$57,983.94
Expenses related to 2007:	-$18,876.27
2007 carry forward:	$39,107.67
Allocation for 2008:	$21,000.00
Processed expenditure to date 2008:	$0.00
Account total (2nd April 2008)	**$60,107.67**

The bulk of the funds goes to supporting attendance at workshops and scientific meetings. ACE has built these funds by supporting steering group and town meetings through external sources (invisible to SCAR). The funds were assembled in order to meet planned international meetings in 2008 (Edinburgh meeting, 7-9 April) and 2009 (Granada, 7-11 September).

ACE has supported fifteen scientists (nine are young scientists), to attend international meetings. It will continue to commit such expenditure in future.

3. FUTURE PLANS

ACE held its first SCAR-supported meeting in Edinburgh during April, 2008. Future ACE activities were discussed and planned. These will be reported to SCAR delegates during the SCAR XXX meeting in St. Petersburg 2008. Highlights are given below.

ACE intends to initiate a new subcommittee on Antarctic palaeogeography, bringing ice-sheet modelling, landscape dynamics and plate tectonics experts together to reconstruct the continental land surface of Antarctica during the Cenozoic.

ACE will support and promote drilling and coring activities, including ANDRILL, at a variety of sites around and on the present ice sheet, in order to ascertain past ice-sheet changes. ACE recognises and supports new site-survey geophysics surveys to define new drilling and coring targets.

ACE will also aim to assist the growth and development of the palaeoclimate ice-sheet modelling community focusing on ice-sheet reconstructions, including better collaboration with the PMIP community.

3.1 Membership

The following have been members of the **ACE steering committee** (2004-08):
Martin J. Siegert, UK (co-chair);
Robert B. Dunbar, USA (co-chair);
Sun Bo, China;
Robert Bauer, USA;
Robert M. DeConto, USA;
Carlota Escutia, Spain;
Fabio Florindo, Italy;
Jane Francis, UK;
Andrzej Gazdzicki, Poland;
Damian Gore, Australia;
Robert Larter, UK;
Sandra Passchier, USA;
Ross D. Powell, USA;
Gary Wilson, New Zealand;
Eric Wolff, UK
Tim Naish, New Zealand

Both Martin Siegert and Robert Dunbar will be stepping down as ACE co-Chairs (offering ex officio status for one year). At the ACE meeting in Edinburgh, Carlota Escutia and Rob DeConto were voted as our nominees for co-Chairs 2008-12. We will seek additional members for this committee from the broader membership of the subcommittees.

This item will be reported at SCAR XXX.

3.2 Revised Meeting Organization

ACE will continue to hold regular (annual) steering committee meetings at the major international conferences (AGU, EGU, SCAR) to which members attend. We also plan to continue our biannual town meetings at such venues to provide information to, and allow feedback from, the wider community.

3.3 Major Symposia and Workshops

ACE will organise a major symposium in Granada (Spain) during 2009. The meeting will aim to bring together geologists and numerical ice-sheet modellers, interested in understanding Antarctic history, for the first time since the ANTOSTRAT meeting in Erice (Italy) in 2001. This will use up a substantial pat of the carried forward funds.

3.4 Organize ACE Sessions at Science Conventions

ACE has an excellent record of organising special sessions and international meetings (such as AGU and EGU, ISAES). It will continue to run sessions at these meetings in the future (two per year).

3.5 National Programs

ACE is supporting international efforts to undertake large-scale geophysical and geological investigations in Antarctica. ACE will provide financial support to ANDRILL members (US, NZ, Italy, Germany and UK), to plan future drilling proposals. ACE will sponsor meetings to coordinate and plan the IODP cruise to Wilkes Land. ACE will also assist international planning for long-range geophysics in East Antarctica, under the ICECAP (US, UK, NZ, AUS) and AGAP programmes (US, UK, China, Germany, AUS).

Martin J. Siegert, Robert Dunbar and the ACE Steering Committee
April, 2008