



Development of an International Antarctic Institute

**A Joint venture between the
University of Tasmania and
international partner institutes.**

Project Business Plan

Draft Version 2 (13th April 2005)

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1 Overview

1.1 Executive Summary

The International Antarctic Institute (IAI) will serve as the educational center for Antarctic programs facilitating cross accreditation of courses from partner institutes. The IAI will deliver multidisciplinary educational programs at both the undergraduate and graduate level.

1.2 Project Initiation

This project was initiated as a result of a Governor's Forum on Antarctic Affairs in 2003. Both the Tasmanian Governor at the time, Sir Guy Green, the Vice Chancellor of the University of Tasmania, Professor Daryl Le Grew, and the Director of IASOS, Assoc Professor Andrew McMinn saw an opportunity and envisioned the establishment of an International Antarctic University.

1.3 Project Background

By international agreement the Antarctic continent has been set aside for peace and scientific collaboration. As has been seen over the past half-century, international cooperation is the key to the success of large-scale research programs in Antarctica and the Southern Ocean.

The University of Tasmania has had a long interest in Antarctic teaching and research and has developed linkages with a number of other institutions around the world. In considering ways to complement and extend these linkages, and to facilitate the development of Antarctic related education, the University of Tasmania established a steering group to explore the possibility of developing an international educational structure, bringing together national academic institutes, consolidating each university's Antarctic focus and differentiation, and build on decades of international cooperation.

Invitations were extended to universities and relevant institutions throughout the world directly concerned with Antarctic undergraduate and postgraduate education, to send a representative to a weekend workshop held in Hobart (November 2004) to discuss the development of such an educational structure. The concept of what is provisionally titled the "International Antarctic Institute" received unanimous support from the 30 participants from 19 institutions in 12 countries who attended. Participants at the meeting recognised a range of practical issues related to establishing and implementing such an Institute, including its funding and infrastructure needs and support (Appendix 1 Meeting report and list of participants).

The meeting discussed and passed unanimously the following resolutions:

1. This meeting endorses in principle the proposal that an international Antarctic institute (“the Institute”) be established.
2. The Institute:
 - a. Shall comprise a consortium of participating institutions (“the Participating Institutions”);
 - b. Shall be governed by a council comprising a person appointed by each Participating Institution.
3. It is envisaged that the Institute would be multi-campus and multi-disciplinary and would:
 - a. Develop undergraduate and/or postgraduate courses and associated activities and provide joint supervision of student projects;
 - b. Be a vehicle to draw upon the strengths of each Participating Institution;
 - c. Facilitate student and faculty exchange.
4. The offer by the University of Tasmania to establish and resource an interim Secretariat to provide administrative support for the establishment of the Institute be accepted.
5. The offer by the University of Tasmania to establish and resource a Secretariat for the operation of the Institute for an initial period following its establishment is accepted.
6. As soon as practicable, each participating Institution shall provide the interim Secretariat with the name and contact details of a representative.
7. Following consultation with the Participating Institutions, the interim Secretariat shall generate detailed proposals and business plans for the structure and operation of the Institute for consideration and ratification by the appropriate institutional bodies.
8. That the interim Secretariat be authorised to inform the International Polar Year (IPY) Committee of the proposal to establish an international Antarctic institute and to register a Statement of Intent in anticipation of the establishment of the Institute (Appendix 2 IPY Expression of Intent).

1.4 International Antarctic Institute Steering Group

A Steering Group was established to oversee the establishment, direction and operation of the International Antarctic Institute.

Members of the Steering Group comprise:

Sir Guy Green, IAI Steering Group Chairman

Assoc Professor Andrew McMinn, IAI Steering Group, Project Director, IASOS, University of Tasmania

Professor Daryl Le Grew, VC, University of Tasmania

Professor Michael Stoddart, Australian Antarctic Division

Mr Ben Galbraith, Antarctic Tasmania

Assoc Professor Marcus Haward, School of Government, University of Tasmania

Dr Patti Virtue, IAI Project Officer, IASOS, University of Tasmania

1.5 Rationale for UTAS involvement

Antarctica is one of the UTAS strategic areas. Hobart has long had a wide range of Antarctic connections and resources; it is also a locus of Antarctic, marine and climate research of international standing. A niche has been identified in global Antarctic education in that there exists no facility addressing international Antarctic educational needs. UTAS is poised to fill this niche. The IAI will provide partner institutes with access to an otherwise unavailable breadth of Antarctic courses and research programs.

The University of Tasmania is well advanced in the Antarctic educational arena, with national programs established at both the undergraduate (BAntStud) and postgraduate (Honours, Masters and PhD) level. The Institute of Antarctic and Southern Ocean Studies (IASOS) has been established for 15 years and is unique in the fact that it has been associated with 3 Antarctic CRCs, allowing student involvement in major national and international Antarctic research programs. The IAI is designed to build on these achievements and deliver new outcomes for the university's benefit and enhance the Australian international profile in Antarctic education and research.

The development of the IAI is timely, as the new BSc Antarctic Studies started this year (March 2005). This degree program proved quite popular with high enrolments (52 students in the unit (KSA 101) and 18 students in the 3 year degree program). While overall enrollments in Science at UTAS was down this year by 12%, enrollments in the Department of Maths and Physics was up due to the popularity of this course and degree program. Developing an MSc in Antarctic Studies through the IAI may help retain some of these students graduating from this degree (and students who have taken the Antarctic unit KSA 101). A similar situation may occur as the result of the development of the new UTAS BSc Marine Science in 2006. Graduates from both these UTAS degree programs will be likely candidates for a MSc in Antarctic Studies that will be well developed by the time they graduate in 2008/2009.

2 Objectives and Scope

2.1 Vision and Mission

The IAI vision is the full recognition and development of international opportunities in Antarctic education. The IAI will capitalise on the existing UTAS strengths to deliver an international multidisciplinary educational program both at the graduate and undergraduate level. The IAI vision is to promote international cooperation engendered by the Antarctic Treaty System, through the educational and cultural experiences of our students.

The IAI mission is to:

- extend the existing national teaching base in Antarctic education into the international arena
- produce expertly trained scientists and social scientists with international experience and skills in research and its application
- enhance UTAS leadership in Antarctic education both at the national and international level
- expand engagement of the international scientific community in Antarctic and Southern Ocean education
- deliver the knowledge and information needed by the next generation researcher and policy maker to address sustainable resource management, climate impacts and other global environmental and social issues associated with Antarctica and the Southern Ocean.

2.2 Objectives

- To develop international opportunities in Antarctic undergraduate education.
- Share teaching resources between partner universities.
- Develop new and innovative Antarctic courses.
- Develop clear articulation of pathways between degrees to encourage student and staff mobility.

2.3 Opportunity/Need

The opportunity exists to establish an international educational structure, bringing together national academic institutes, consolidate each university's Antarctic focus and differentiation, and build on decades of international cooperation. The development of such an infrastructure is timely as we approach the International Polar Year in 2007-2009 (Appendix 2).

In several countries, distinctive university programs in Antarctic Studies and research are already being offered. Many institutions offer units at the undergraduate level and many postgraduate level courses could be modified for undergraduates.

We envisage an educational program both at the graduate and undergraduate level. This could include cross-crediting study programs, developing joint curricula, provide cross-accreditation for teaching and sharing educational, human and other resources and facilities. All the international partners are engaged in Antarctic and Southern Ocean research, and where possible programs would be conducted in the context of a research environment.

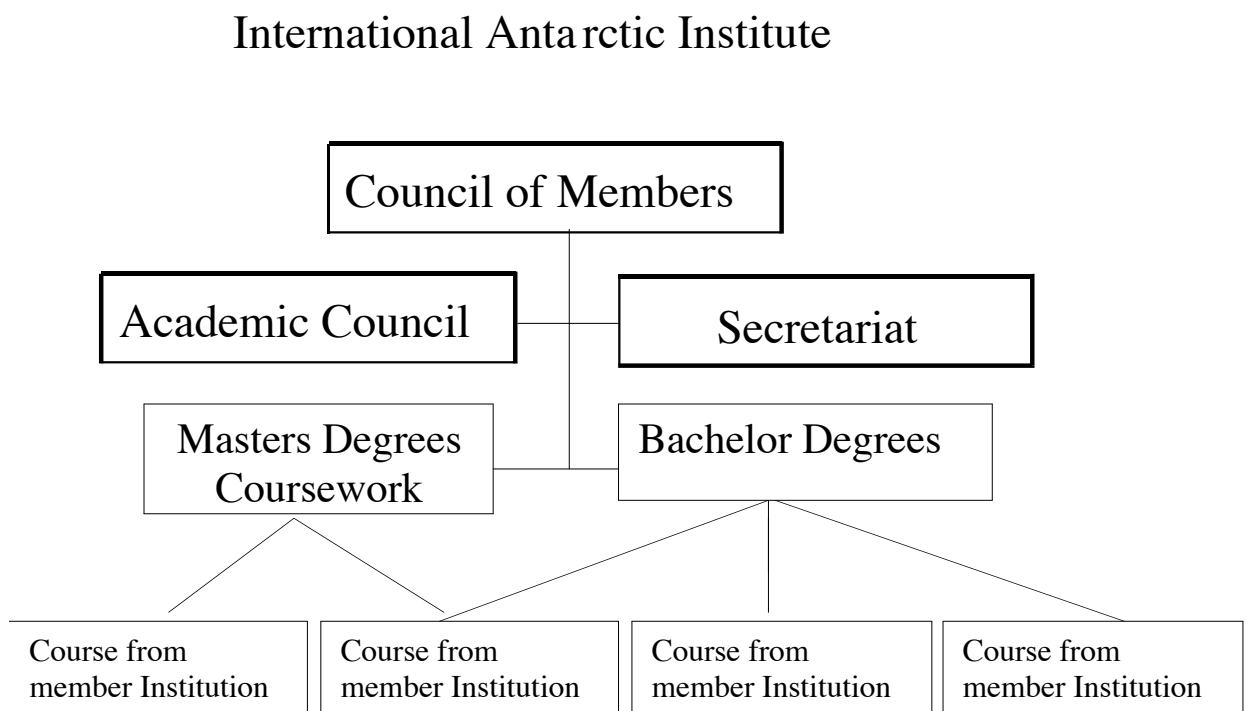
The International Antarctic Institute could be a multi-campus, multi-disciplinary institution with the opportunity to offer jointly accredited degrees up to, and including taught Masters. Pathways through the matrix of awards, courses and subjects assembled could be facilitated by this international institute through its cross-crediting

arrangements, monitored by an Academic Committee. The IAI would play a major role in formalising these pathways.

An IAI will improve access to undergraduate education for each of its partners. The IAI will provide a net benefit to all participants. Through active promotion and publicity the total number of students enrolled in Antarctic courses will increase and will benefit all participating institutions. This will have a flow on effect to enrolments in postgraduate research programs (research Masters and PhDs), which are currently suffering a global decline in enrolments.

2.4 Structure and Governance

As passed by resolution by spokespeople from participating institutions (IAI meeting, November 2004), it was agreed that the IAI would be a consortium governed by a council comprising a person appointed by each institution. The model below was tabled as a starting point for discussion, with potential to consider various reciprocal arrangements, some which could be achieved within existing frameworks, others might need developing.



The Council of Members would comprise members of IAI universities. Each university would be a member of this primary decision making body.

The Academic Council would oversee all academic matters including the planning of courses and the enrolment and supervision of students. It would comprise a smaller group drawn from the IAI universities.

The Secretariat would comprise a director, secretary and project officer. It would be responsible for the day to day operation of the institute, publicity and promotion and the identification of funding opportunities. It is envisaged that the secretariat would rotate between member institutions.

A formal arrangement through a system of Memorandums of Understanding (MOU) (Appendix 3) will be established between partner institutions, offering or considering offering courses which credit towards an undergraduate or Masters degree. To determine accreditation equivalents between institutions, formalised recognition of academic achievements will be made through the current UTAS system of 'Direct Entry/Advanced Standing' agreement. Detailed institute/country specific principles will be developed for MOU and accompanying Direct Entry/Advanced Standing agreement or equivalent convention.

There is scope explore other avenues of the IAI structure using models such as Universitas 21, University of the Arctic and, on a national model- SIMS- the new Sydney Institute of Marine Science. An assessment of these joint venture institutes will be undertaken, and upon consideration of their strengths and weaknesses, recommendations will be made to the IAI steering committee.

3 IAI Partners and IAI Structure

3.1 Potential Participants and Expertise

Potential IAI partners include institutions from Brazil, Chile, France, Germany, Japan, Malaysia, New Zealand, Norway, United Kingdom, United States of America. Most of the potential IAI institutions are universities, some with existing polar undergraduate and postgraduate educational programs, others with postgraduate polar research students. There also exists expertise, involved in large scale international Antarctic research ventures, at national facilities associated with these Universities.

Potential partners include the following educational institutes (for a full list of participants at the IAI meeting in Hobart, November 2004, see Appendix 1):

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- **Brazil** Universidade Federal do Paraná
 - **Chile** Universidad de Magallanes
 - **France** Observatoire Océanologique, Villefranche sur mer and Université Pierre et Marie Curie- Paris VI
 Université de Bretagne Occidentale and European Institute for Marine Studies (IUEM)
 - **Germany** Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Universität Bremen
 - **Japan** Department of Polar Science, National Institute of Polar Research (NIPR), Tokyo
 Low Temperature Institute, Hokkaido University
 Tokyo University of Marine Science and Technology
 Department of Ocean Sciences, Tokyo University of Marine Science and Technology
 - **Malaysia** Faculty of Science, University of Malaya
 School of Biological Sciences, Universiti Sains Malaysia
 - **New Zealand** Gateway Antarctica, University of Canterbury, Christchurch
 - **Norway** Norwegian Polar Institute, and The University Center in Svalbard (UNIS)
 - **UK** Scott Polar Research Institute, University of Cambridge
 - **USA** Department of Geology, Hamilton College, New York
 Byrd Polar Research Center, Ohio State University

A few examples of the programs available through the IAI partnership are detailed. The University of Canterbury has an established undergraduate and masters program in Antarctic studies. The Scott Polar Institute, Byrd Polar Institute, and Hamilton College have Antarctic courses at the undergraduate or Masters level. The University of Bremen/Alfred Wegener Institute/St Petersburg State University conduct a joint German-Russian polar Masters Program. The University Center in Svalbard (UNIS), Norway has an extensive suite of Arctic courses available at all university levels. The Institute of Low Temperature Science, Hokkaido University, Japan, has a glaciology/sea ice program.

Collaborative arrangements between institutes will broaden the educational and research scope of the IAI. Just as IASOS has developed though access to the national Antarctic and marine research facilities located locally, the IAI will have access to facilities and high cost laboratory equipment at universities and their partner institutes, particularly through NSF and European Union funding.

3.2 Credit Process/Student Mobility

The IAI would work towards establishing a multi-institute degree. Students would enrol in their home institutions (IAI-affiliated university) and take up to an agreed proportion of their course units at other IAI member institutions during the second and/or third year. The range of acceptable course unit combinations would be established by the Academic Council. Degrees would be “jointly badged” by the

participating institutions of the IAI. The units taken during this exchange would be credited through their home university. As units become available by distance learning, these too would be advertised via the IAI. The IAI would expand the already existing structures to allow students to take appropriate units at IAI institutions.

The need for students to travel to different institutions will require travel support. The IAI will not be responsible for funding student travel rather it will encourage all partners to facilitate student exchanges. Initially each institution will need to provide a small number of travel bursaries (i.e. < 5) to support this travel. Student exchange programs are already widespread at most universities. Early in the life of the IAI it might be possible to utilise existing student exchange programs.

UTAS students who do not receive designated IAI scholarships could be eligible, under the timely new Commonwealth loan program, OS-HELP, to undertake full time study at an overseas university for two separate 6 month periods.
<http://www.goingtouni.gov.au/Main/Quickfind/StudyOverseas/OSHELP.htm>

3.3 Masters by Course Work - IAI MSc Outline

As discussed at the IAI Hobart workshop 2004, it was proposed that a Masters in Antarctic Studies by course work be developed (50% course work/50% research project).

The Masters in Antarctic Studies may consist of a general introduction of Antarctic Sciences and Social Sciences and then students will be streamed into specialist areas (Antarctic Biology, Antarctic Geology etc) depending on research interests. The MSc structure would be as follows:

Antarctic Introduction-1st semester

Topics to include (although not inclusive):

- History
- Antarctic Treaty/Policy
- Geography
- Climate
- Oceanography
- Geology
- Biogeochemistry
- Southern Ocean Ecosystems
- Glaciology
- Arctic Comparisons
- Generic Skills (modeling, statistics, scientific writing etc)

This semester (or some of the specialised courses) would be taken by all students at one institute (or at one of 2 multicenters- one in Europe (eg Germany/France/UK) or the US and one in the southern hemisphere (eg Asia/Aust/NZ/Chile)).

Specialised Courses- 2nd Semester

Students to take one of the following streams (at the institute which chooses to develop the stream):

Biology
Geology
Social Science
Oceanography
Glaciology
Biogeochemistry
Etc

Research Project- 3rd and 4th Semesters

Students to undertake research projects at their home (or other) institute under the guidance of specialist supervisors.

3.4 Strategy for Marketing

Effective promotion could comprise a variety of different initiatives. A key point is the targeting of non-traditional student groups. One of the strengths of IAI will be its strong links to scientists in other universities and institutions. The IAI will be instrumental in gaining wide recognition for international undergraduate offerings. The secretariat will be responsible for maximising international exposure of the IAI and publicising its degrees and courses.

The IAI web site is presently being established and will serve to specifically identify and describe IAI degrees, undergraduate courses and programs. It will identify scholarships and sources of student financial assistance. The secretariat is responsible for maintaining and regularly updating the IAI website.

4 Institute Staffing and Finances

4.1 Secretariat Costs

The offer by the University of Tasmania to establish and resource an interim Secretariat to provide administrative support for the establishment of the IAI was accepted by the partner institutes (November 2005 meeting). The IAI Secretariat, as proposed in the position paper may rotate between member institutions on a 3-5 year basis, however the details of these arrangements have yet to be established. It is proposed that UTAS cover Secretariat costs for the first 3 years.

Presently the Secretariat comprises a director, project officer and a web development officer (Appendix 4-6 Position Descriptions). The Secretariat is responsible for the day

to day operation of the institute, publicity, promotion and the identification of funding opportunities.

Funding for the Secretariat in the interim developmental stage and once the IAI is established (Year 1-3) would include:

4.2 Staff

Director relief time (Level E (1)) (20%) –Associate Professor Andrew McMinn

1 Full-time Academic Staff (Academic lecturer B (4))-Dr Patti Virtue

Web Development Officer: Programming and initial development -Adam Steer (8hrs per week) for 1 year.

4.3 Location and infrastructure resources

The IAI Secretariat will be located within IASOS, Department of Maths and Physics. There is an office available, designated for both the project officer and the web development officer. General secretarial support and general office expenses (phone, computing, stationary, photocopying etc) will be covered by IASOS in exchange of services from the project officer (lecturing in both BSc Antarctic Studies and IASOS Honours program, and postgraduate student supervision). Additional miscellaneous office costs requested for the IAI Secretariat (international phone calls, postage etc). Funds are requested for promotional material such as the production of a brochure .

To provide access to, and communicate with the potential partners, the development of a comprehensive web site will incur costs. Funding is also requested for Web site fixed costs - hosting plus domain and registration charges and ongoing maintenance costs (plus any additional programming and development).

4.4 Travel

Travel costs for the IAI, due to the nature of the institute are inherent, particularly during the initial developmental phase (Years 1-3).

Both the director and project officer are holding a IAI workshop at the Scientific Committee for Antarctic Research International Symposium (SCAR IX, 25-29 July, Curitiba, Brazil). Visits to partner institutes will be incorporated into this travel agenda on the forward or homeward leg of this trip.

There is an opportunity to inform the national marine science fraternity, at the Australian Marine Sciences Association national conference Darwin July 11-13th 2005. The project officer will give a presentation on the IAI at this conference.

Years 2 and 3 will also have a travel component for the project officer and Director to visit partner institutes.

4.5 Estimated IAI Income

The IAI will earn income primarily from student enrolments, however, there are other potential funding sources available which are under investigation (outlined in 5.2).

5 Potential Resources

5.1 Potential Resources for Field Access

Field access is an important aspect of an Antarctic educational program. Opportunities for field-based courses are being explored. Initial steps toward establishing logistics for Sub-Antarctic and Antarctic student field experiences are being undertaken with both public and private sectors.

Research Vessels

A Japanese research vessel has been tentatively offered by Tokyo University of Marine Science and Technology and the Department of Polar Science, National Institute of Polar Research, Japan, for IAI student use. A two to four week course/research voyage can be conducted yearly to the subantarctic, as part of the Japanese long term monitoring program in this area.

The French vessel, 'L'Astrolabe', used by L'Institute Polaire to resupply the French Antarctic Base, Dumont D'Urville, is berthed in Hobart. Operators of this vessel will be approached with regard to its use for possible student access to Sub-Antarctic islands.

Tourist Industry (through individual IAATO operators).

We have had an offer from a tourist operator to provide a pool of berths (per year) and/or scholarships to IAI students. This company also offered to berth the tourist vessel at the Antarctic coast, for a number of days to provide a base/classroom/lab platform for students.

Private Philanthropists

Dick Smith has offered to make his Ship ('Ulysses Blue') available to universities for marine science research for six months a year. There may be scope to use this vessel for student field access to the Sub-Antarctic.

5.2 Potential Funding

Several potential funding opportunities have been identified among which include:

- National Science Foundation -US- ‘Partnerships for International Research and Education’ <http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf05533>
- European Commission- Framework program
- United Nations support for developing nations (Chile, Brazil and Malaysia)
- AusAid

6 Milestones and Major Activities

6.1 Time Line

2005

- International Polar Year (IPY) Expression of Interest (January)
- IAI web site development (March)
- Working group formation (April-December)
 - Masters programs
 - Undergraduate programs
 - IAI Constitution and MOUs
- IPY Full Application (September)
- IAI workshop at the IXSCAR International Biology Symposium 25-29 July, Curitiba, Brazil.
- IAI Business Plan passed through UTAS Council then sent out to partners.
- IAI ‘Memorandum of Understanding’ developed in conjunction with IAI partners.

2006

- IAI inauguration Council of Members meeting (tentatively scheduled in conjunction with SCAR/COMNAP July 2006- Hobart).
- First IAI courses offered 2006/2007

6.2 Future Plans

The University of Tasmania will hold the Secretariat for the first 3-5 years of the life of the IAI. Whether the Secretariat will remain at UTAS or rotate to other partner institutes has not yet been determined. The costs of hosting the initial IAI Secretariat and hence establishing the IAI will be higher than the following terms of the Secretariat. Whilst costs for hosting the first Secretariat will outweigh income, target student numbers are expected to increase in the 3rd and 4th years of establishment.

Postgraduate enrolments MSc: increasing by approximately 10 per year to peak at 30, including some international enrolments.

Undergraduate enrolments: the IAI undergraduate program will be established in 2007 with an estimated 20 students being recruited through the IAI.

Income from external sources will include funds from international grants and research projects linked to major international research schemes. Estimated income from these sources will be in the order of \$AUS20,000 per year to a maximum of \$AUS100,000.

A record of research publications will result from IAI student research projects which will enhance UTAS's national and international profile.