

# **ANTARCTIC FUNDING INITIATIVE (AFI)**

## **NOTES FOR PARTICIPANTS**

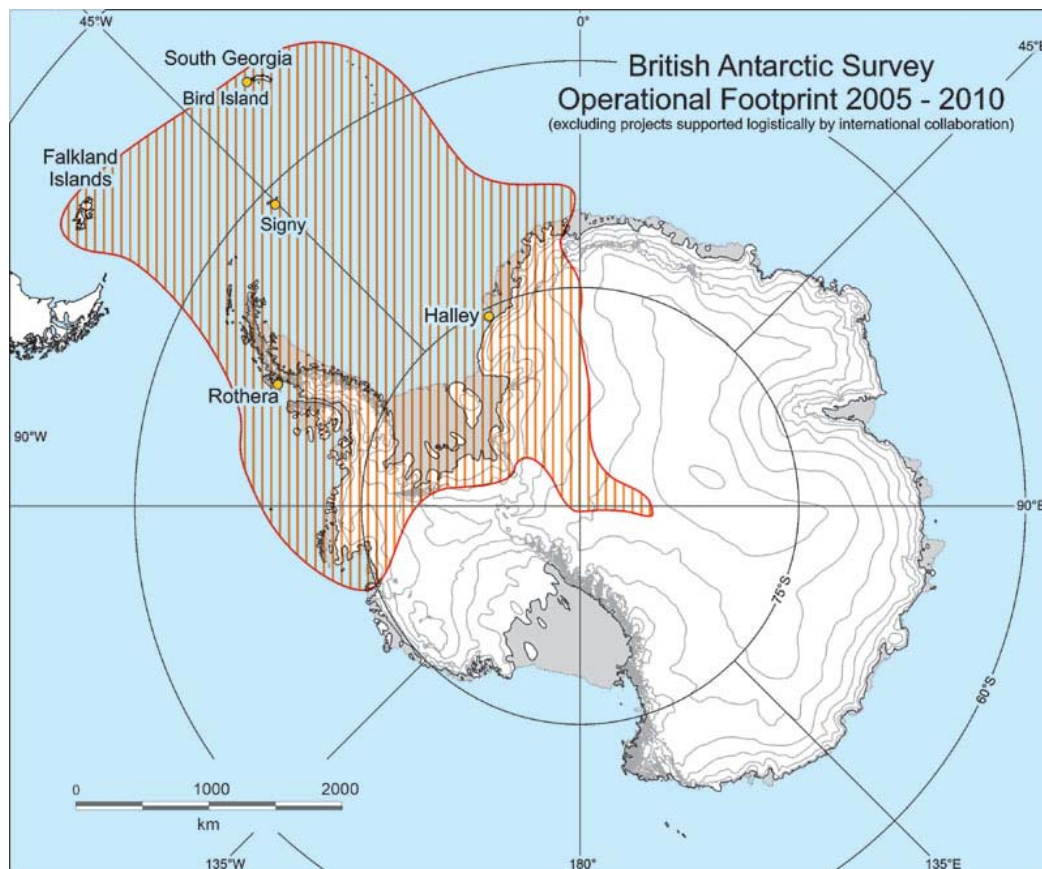
**2011 – 2012**

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## 1. INTRODUCTION

The British Antarctic Survey (BAS) is a component of the Natural Environment Research Council (NERC). Based in Cambridge, United Kingdom, it has, for over 60 years, undertaken the majority of Britain's scientific research on and around the Antarctic continent. The research is conducted predominantly in the British Antarctic Territory (BAT); also in the vicinity of South Georgia and the South Sandwich Islands, and in the Southern Ocean. The BAT was designated by an Order-in-Council which came into force on 3<sup>rd</sup> March 1962 as that sector of the Antarctic continent south of latitude 60°S and bounded by longitudes 20°W and 80°W. A close liaison is maintained between BAS and the Polar Regions Unit of the UK government's Foreign and Commonwealth Office.



### **BAS Mission:**

The mission of the British Antarctic Survey is:

- To deliver a world class programme of scientific research, national capability and long-term observations, concentrating on the regional and global role of polar processes in the Earth system.
- Through our science and impact sustain for the UK an active and influential Antarctic regional presence, and a leadership role in Antarctic affairs.

**BAS Organisation:** (see: [http://www.antarctica.ac.uk/about\\_bas/our\\_organisation/index.php](http://www.antarctica.ac.uk/about_bas/our_organisation/index.php))

The British Antarctic Survey has around 400 staff, of whom approximately 50 spend the austral winter in the Antarctic. The organisation is composed of a small Directorate; two functional science groups (Science Strategy and Science Delivery); an Operations and Logistics group (OPAL), which also includes Technology and Engineering, together with a Mapping and Geographic Information Centre; Corporate Services; an Environment Office; and a Programme Office. BAS support of the Antarctic Funding Initiative is coordinated and

administered by staff of the Programme Office, which is a component of the Science Strategy group. Further information about the BAS administrative structure is available at:

[http://www.antarctica.ac.uk/about\\_bas/our\\_organisation/how\\_we\\_are\\_organised.php](http://www.antarctica.ac.uk/about_bas/our_organisation/how_we_are_organised.php)

BAS supports three research stations in the Antarctic: at Rothera, Halley and Signy, and two stations at South Georgia (located at King Edward Point and at Bird Island, respectively). Ice-strengthened ships sustain the Antarctic operations. RRS *James Clark Ross* has advanced facilities for oceanographic research. RRS *Ernest Shackleton* is primarily a logistics ship used for the re-supply of stations. Four Twin-Otter aircraft fitted with wheels and skis are operated from Rothera and Halley, whereas a wheels-only Dash-7 aircraft provides the inter-continental air-link from Rothera to the Falkland Islands (or Punta Arenas), and flies inland to blue ice runways.

The total BAS budget for 2009-2010 was £47.1 million. Of this, £11.1 million was spent on the science programmes, whereas £36 million was allocated to supporting the science; this includes the costs of running the ships, aircraft and research stations. The high costs involved highlight the challenges involved in operating within the harsh and remote environment of Antarctica.

## 2. ANTARCTIC FUNDING INITIATIVE (AFI)

The 1993 Government White Paper on Science, Engineering and Technology “Realising our Potential” placed a responsibility upon NERC to conduct a science programme in the polar regions. This responsibility is underscored by a Government requirement that there should be a continuous UK presence and visibility in Antarctica, provided through a first-class programme of scientific research.

In 1998, a peer review of the existing core science programme at BAS was made, to determine scientific priorities for the five-year period commencing April 2000. An attendant reorganisation was recommended, with the objective of encouraging and supporting a greater degree of multi-disciplinary research.

In parallel with this exercise, NERC established, in conjunction with BAS, a new funding initiative called the Antarctic Funding Initiative (AFI), the purpose of which was to promote wider participation in Antarctic research by UK universities and other publicly-funded research organisations. As with other NERC responsive mode initiatives, research grants could be held at approved UK Higher Education Institutions (HEIs); approved Research Institutes (RIs); and at approved Independent Research organisations (IROs). Full details of approved RIs and IROs can be found on the RCUK website: <http://www.rcuk.ac.uk/research/Pages/Eligibilityforrcs.aspx>.

**AFI was devised to encourage field-based research conducted in the normal BAS operating area and using BAS logistic capabilities.**

The programme was introduced in a phased manner in 1999; in 2002/03 it operated at a funding level of nominally £1.5m per annum. The operation and effectiveness of the scheme was reviewed within the Quinquennial Science and Management Audit (SMA) of BAS during September 2002. The SMA team recommended that AFI should continue to be supported at its (then) current scale.

The introduction of Full Economic Costing (fEC) for all grant proposals submitted to the Research Councils from 1<sup>st</sup> September 2005 resulted in an additional uplift to the AFI budget. The total amount of funding available per round was subject to a variety of factors, however. For the eleventh (and final) round of AFI, nearly £3m was committed to support the five funded projects. The principal fieldwork season for those latter projects is 2011/2012.

Operating in parallel with AFI, an additional scheme known as the **Collaborative Gearing Scheme** was instigated, which continues to offer further opportunities for collaboration with BAS, in situations **where no additional funding for salaries, grants or direct science costs is required.**

AFI afforded opportunities to undertake projects embracing a wide range of terrestrial, marine and atmospheric sciences, as well as geospace science, to address problems of global and regional relevance. Fieldwork may be conducted either at the year-round Rothera and Bird Island stations; at the summer field stations of Signy Island

and Fossil Bluff, or in the deep field, supported by aircraft and light surface transport. The most southerly of the BAS research stations, Halley, which is located on the Brunt ice shelf and operated year-round, is currently being replaced by a new, modular design (Halley VI). It is intended that Halley VI will be operational for science projects from February 2012, with the first summer season being 2012/13. At all the research stations, field support is restricted largely to the summer period (November-March), but there are limited opportunities for winter-based projects. It is also possible to support ship-based marine studies in the Southern Ocean bordering the Antarctic Peninsula, using the ice-strengthened ship RRS *James Clark Ross*. Fieldwork on South Georgia has not been eligible for funding under AFI, except at Bird Island. The research station at King Edward Point on South Georgia is operated under contract to the UK Foreign & Commonwealth Office and to the Government of South Georgia & the South Sandwich Islands; it has not been available to support AFI-funded projects.

AFI was an open competition for responsive mode, curiosity-driven research, with awards usually for periods no longer than 3 years. Funding recommendations to NERC were made by the AFI Moderating Panel, which was convened annually. The Panel for 2010 was chaired by Professor Jane Francis (University of Leeds, Earth Sciences), who has chaired the Panel since 2005. The project selection procedure was based on scientific merit, as perceived by the Panel, which was informed by external peer reviews of the submitted proposals. The timing of the AFI funding cycle was matched to the BAS field operations planning cycle.

Planning of research activities is conducted within BAS on the basis of a detailed, two-year logistic ‘forward look’, which is updated twice a year. The process permits essential long-lead fieldwork preparations (such as laying fuel depots) and helps to minimise logistic costs, through detailed forward planning and the identification of synergy between projects. For field activities involving the 2011/12 Antarctic field season (the primary field season for AFI round 11 projects), integration of the funded projects into the BAS field programme was initially considered by the BAS Field Operations Working Group on May 19<sup>th</sup> 2010.

## **Eligibility**

AFI was subject to the normal NERC non-thematic eligibility requirements, both at individual and institutional level. Further details of these are given in the [NERC Research Grants Handbook](#), Section C.

## **Special Considerations**

In common with BAS research guidelines and procedures, AFI-funded investigators were required to observe the following:

- The research must comply with the provisions of the Antarctic Act (1994) regulations. Principal Investigators will be responsible for satisfying the requirements of the associated permitting regime.
- The research must satisfy UK ethical standards relating to research. Where deemed appropriate, proposals will be presented for scrutiny by an Ethics Review Committee, convened under the auspices of Cambridge University, and will only be accepted if ethical approval is obtained.
- Given the long lead times for planning and conducting fieldwork in Antarctica, and the uncertainty of access, researchers funded by the Initiative will be requested to commit to flexibility in their planning, and in the availability of AFI fieldworkers.
- Researchers funded by the Initiative will not be allowed access to BAS facilities and bases unless they have satisfactorily completed the training courses prescribed by BAS.
- Individuals involved in field activities will have to undergo medical screening to specific standards.
- Researchers will have to conform to the command structure on BAS research stations and ships.
- Researchers must comply with UK legislation regarding Health and Safety, except where this is impractical or impossible, in which case BAS best practice must be followed.

- Over-wintering will be allowed, although it will be necessary to verify that personalities are suitable for wintering.
- All applicants must note that there is no domestic help on BAS stations. All visitors are therefore required to assist with general duties.
- All equipment must be shown to satisfy safety standards prior to shipping. Novel instrumentation must be tried and tested in the UK prior to shipping. Responsibility for the maintenance of equipment lies with the researcher.
- All infrastructure and logistic costs outside of BAS current infrastructure will be charged for, e.g. modifications to BAS aircraft or ships; also any incurred air-freight costs.
- Research should acknowledge NERC funding and BAS logistic support in any publications resulting from the research.

### 3. COLLABORATIVE GEARING SCHEME

Arrangements under the first round of AFI required that all proposals for scientific work from organisations outside BAS, and requiring access to the BAS operating area in Antarctica, must be proposed through AFI, as a standard research grant in the non-thematic mode. These arrangements were supplemented from the second round, by the introduction of a low-cost “Collaborative Gearing Scheme” (CGS). The objective was to facilitate additional collaborative science opportunities between BAS and Higher Education Institutes (HEIs), [Research Council Institutes and approved Independent Research Organisations](#), in situations where no additional funding for salaries, grants or direct science costs was required, but where access to field activities already included in the BAS science programme could enhance significantly the scientific outcome of the core programme. Although research proposals which require access to Antarctic infrastructure are now considered through NERC responsive mode opportunities, instead of through the Antarctic Funding Initiative, NERC announced on 25<sup>th</sup> January 2010 that [the Collaborative Gearing Scheme \(CGS\) will continue](#). If the proposed project requires significant extra logistic support, above that already approved for the associated BAS programme, then the proposal must be submitted as a full bid to a NERC responsive mode call.

CGS operates in the following way:

- The purpose of the Collaborative Gearing Scheme is to provide researchers, from eligible institutions external to BAS, with access to BAS Antarctic infrastructure and logistic support, for the purpose of conducting fieldwork for an approved research project in collaboration with one or more scientists from BAS. The project must be allied to a programme of the BAS research framework 2009-2012, Polar Science for Planet Earth, and the proposal be supported in writing by the Science Leader of the associated programme.
- Eligibility requirements for Principal Investigator and Co-Investigator are the same as those for a NERC responsive mode funding proposal.
- The fieldwork need not necessarily be conducted by the Principal Investigator or Co-Investigator. A postdoctoral researcher (or student, subject to supervisory arrangements being agreed with BAS) may be nominated by the Principal Investigator. However, all fieldwork personnel will be required to undergo medical fitness examination and complete training as prescribed by BAS, before being allowed to travel to the Antarctic..
- Proposals will require financial support only for certain marginal costs, such as travel (air-bridge between the UK and either the Falkland Islands or Punta Arenas, Chile); training and field clothing; and medical fitness examinations. These costs will be met by NERC. There is no provision to fund any costs for scientific equipment or materials. Requests for significant additional logistic costs above those already agreed for the BAS core programme will not be considered.

- CGS proposals must be submitted on the CGS application form, which may be downloaded from [http://www.antarctica.ac.uk/afi/docs/forms/cgs\\_form.doc](http://www.antarctica.ac.uk/afi/docs/forms/cgs_form.doc). The completed form should be accompanied by a science case (maximum two sides of A4). The latter will set out the scientific case for support and articulate how it matches BAS logistics and enhances the appropriate core programme of BAS. The proposal must also be accompanied by a letter of support from the Science Leader of the appropriate BAS core programme.
- Proposals should be submitted to the Antarctic Funding Office at BAS (email: [afibas@bas.ac.uk](mailto:afibas@bas.ac.uk)), **no later than 31<sup>st</sup> March preceding the intended austral summer field season**, i.e., submitted no later than 31<sup>st</sup> March of the same calendar year as the start of the intended field season. Submissions received after this deadline will only be considered if there are exceptional mitigating circumstances for the late submission and if the requested logistic support is still feasible on the proposed timescale. Contact details for fieldwork participants must be supplied to the Antarctic Funding Office at BAS **no later than 30<sup>th</sup> June preceding the intended Antarctic** season. These conditions ensure that the necessary logistic planning arrangements are considered to the same timetable as for other BAS Antarctic operations; also to ensure that fieldwork personnel are scheduled to attend the annual Antarctic pre-deployment training course, held at Girton College, Cambridge, and undertake other training as may be required.
- Whereas no proposals which involved fieldwork on South Georgia (except at Bird Island) were permitted during all 11 rounds of AFI (nor during the concurrent CGS opportunities), that restriction no longer applies to CGS bids, nor to applications submitted to responsive-mode NERC opportunities.
- Proposals submitted to the CGS will be considered by the BAS Board member for Science Strategy, Professor Alan Rodger, who is responsible for deciding which proposals will be supported. A report will be made to NERC annually, with justification for the awards made and any applications rejected.

#### 4. AFI PLANNING AND SUBMISSION CYCLE

##### Outline Bid Stage

The Announcement of Opportunity for AFI round 11 was made on 12<sup>th</sup> May 2009, via the AFI website, with a closing deadline of 4 p.m. on 17<sup>th</sup> July 2009 for receipt of outline bids to the AFI Coordinator at BAS. AFI operated according to the normal rules of a NERC non-thematic grant round, except that it involved an outline bid stage which enabled preliminary screening of the logistic aspects, before applicants invested substantial time in preparing a full proposal. A logistics panel convened at BAS to consider the outline proposals from this perspective. For AFI Round 11, this Panel met on 23<sup>rd</sup> July 2009. No ‘screening’ of the science case occurred at this stage, nor was financial information requested.

Outline proposals were prepared electronically on the appropriate form, available from the AFI website. The completed form, together with science case (no more than two sides of A4, using 12 point font) needed to be submitted as an e-mail attachment to the AFI Office at BAS Cambridge, using the e-mail address [afibas@bas.ac.uk](mailto:afibas@bas.ac.uk), to arrive no later than 4pm on the closing date.

Feedback from the logistics panel meeting was provided from NERC Swindon Office to applicants, to assist the development of full proposals. All outline proposals which the logistics panel was satisfied could be supported by BAS were then placed in a password-protected directory of the AFI website, for viewing by all applicants to the new round. The purpose of this was to encourage collaboration, where there were strong elements of commonality or synergy between individual proposals.

##### AFI Workshop

Following the outline bid stage in the first three rounds of AFI, a Planning/Briefing meeting was held at BAS in late September, the primary purpose of which was to give applicants from outside BAS an introduction to the people, systems and procedures in place at BAS and in the field, in order to assist the preparation of full

applications. This was superseded in 2002 by an annual AFI 'workshop', with presentations from Principal Investigators (or their delegated representatives) of projects in receipt of an AFI award and for which fieldwork had commenced. The meeting provides a valuable opportunity to obtain information about projects currently funded by AFI and to encourage continuing communication between AFI participants. It also provides a useful introduction to AFI for new participants – and to prospective new applicants for NERC funding with which to conduct Antarctic field-based projects. The AFI Workshop takes place at Murray Edwards College (formerly known as New Hall), Cambridge. A decision by NERC on whether an AFI Workshop will be held in 2011 is currently awaited, pending further information about the effects on NERC of the Government's comprehensive spending review. If approval is given, the 2011 AFI Workshop will be held on 12<sup>th</sup> and 13<sup>th</sup> September.

### **Full Application stage**

Full proposals were submitted to NERC, no later than the announced deadline, and using the Joint electronic Submission (Je-S) system. Information about Je-S is provided at:

<http://www.pparc.ac.uk/jes/jes1/jes1system.asp>.

In common with other UK Research Councils, NERC has required that all research grant proposals be submitted on-line through Je-S since 1<sup>st</sup> April 2005. For AFI full proposals, a completed logistics questionnaire form needed to be included as an attached file. The blank forms were available from the AFI website.

### **Post-award, pre-field period**

The timing of the AFI funding cycle was matched to the normal BAS field operations planning cycle, which includes a detailed, two-year logistic look-ahead, updated every six months. That process permitted essential long-lead fieldwork preparations (such as laying fuel depots) and helped to minimise logistic costs through detailed forward planning and the identification of synergy between projects. Fieldwork planning is co-ordinated primarily by the BAS Field Operations Working Group (FOWG) which meets twice a year (usually during May and November) to reviews logistic requirements. Besides senior staff from BAS Operations and Logistics section (OPAL), the Group includes representatives from individual BAS science programmes, and the AFI Coordinator.

The remit of the FOWG is to match the scientific requirements to the resources available and to identify where there are shortfalls. BAS strives to deploy its resources in the most efficient way, in the interests of maximising scientific output. The FOWG therefore plans to produce the most efficient programmes. Frequently this is achieved by sharing of resources between projects. The FOWG is not empowered to make decisions on scientific priority, but only on logistic feasibility.

The FOWG presents its recommendations to the senior management forum at BAS, the BAS Board, which makes the final decisions on priorities. For field activities involving the 2011/12 field season, which will be the primary field season for projects funded in AFI Round 11, the first detailed proposals for logistic support were input to the FOWG meeting held on 19<sup>th</sup> May 2010, to follow the AFI Moderating Panel meeting of 25<sup>th</sup> March 2010. Shortly after the Award letters are issued by NERC, Principal Investigators are contacted by the AFI Coordinator and advised that the fieldwork for their respective projects will be accommodated by BAS in the designated field season, so that planning and recruitment may proceed.

At this point, Principal Investigators have a commitment from BAS to support the project's field programme in a particular season. Antarctica is a very unpredictable environment and it is necessary to retain flexibility in planning, in order to deal with unforeseen circumstances and changes to other elements of the programme which may occur even at a late stage. Principal Investigators will be kept fully informed and will be closely consulted on such changes.

The AFI Coordinator will send to Principal Investigators detailed information on pre-field procedures and a schedule of the various administrative formalities that must be completed. This information will be provided in January preceding the designated field season. Principal Investigators can expect to have regular contact with BAS from this point.

### **Recruitment of field staff**

Principal Investigators should take particular note that any scientific staff who will conduct Antarctic fieldwork must be recruited by 30<sup>th</sup> June prior to the field season concerned – although such staff need not necessarily commence employment contracts until somewhat later. The 30<sup>th</sup> June deadline is set to ensure that field participants can complete the necessary formalities prior to the BAS Antarctic Pre-deployment Training held in early September, preceding the austral summer field season. It is important to allow sufficient time both for the pre-fieldwork training and adequate scientific induction, especially if it is planned to send a postgraduate student into the field. For this reason, AFI awards are made subject to successful recruitment of field scientists by the due date.

In planning fieldwork, please consider very carefully the timing of your lecturing or other commitments. Whilst BAS Operations & Logistics make best efforts to accommodate such constraints, an itinerary may have to be changed at short notice, owing to matters outside their control. For example, the date on which you leave Antarctica is heavily dependent on good-weather access to a remote field-site and, of course, problems with either your own equipment or logistic support (e.g. aircraft) may have affected the course of the field season. Flexibility is always paramount.

Do start recruitment early. You cannot assume that deferment will automatically be approved if you fail to find a suitable recruit by the due date. Financial or logistic implications may well preclude that option.

AFI participants who propose to over-winter at an Antarctic station, and who have not attended a formal BAS interview, will be required to attend an informal interview with a member of BAS Human Resources and the appropriate Base Commander.

## **5. FIELD AND SUPPORT REQUIREMENTS (LOGISTICS) QUESTIONNAIRE**

Each Full Proposal to AFI had to be accompanied by a fully completed logistics questionnaire, which may be downloaded from the AFI Website: [http://www.antarctica.ac.uk/afi/docs/forms/Logistics\\_form.doc](http://www.antarctica.ac.uk/afi/docs/forms/Logistics_form.doc). A set of Guidance Notes is appended to the questionnaire. It is most important that you identify any follow-on logistic support that may be required in a later season. For example, if a data logger is employed in one season and subsequently requires data downloads and (eventually) recovery, this must be clearly stated.

### **5.1 Ship-based projects**

Note that the requested length (days) of a marine science cruise should include the sailing time from a departure port such as Stanley, as well as time for mobilisation and demobilisation, besides the actual number of days during which scientific operations will be conducted.

In a recent change of policy, **all** ship-based science proposals must be accompanied by an on-line Ship-time & Marine Equipment (SME) application, which is accessed from the NERC Marine Facilities Planning website: <http://www.noc.soton.ac.uk/nmf/mfp/mfp.php>. You will need to create a user account to do this; details are provided on the website. Completion of the on-line form will generate a profile number, which needs to be specified on the Je-S form when your Full Proposal is submitted. Furthermore, applicants should contact the NERC Marine Planning Officer, Dr Helen Beadman (e-mail: [heba@nerc.ac.uk](mailto:heba@nerc.ac.uk)) at an early stage – before commencing the SME application – to discuss project planning requirements.

In the event that NERC Marine Facilities (NMF) Sea Systems technical support and/or equipment from the [National Marine Equipment Pool](#) is required, then Principal Investigators must include an estimate of the associated costs in their full AFI application. Applicants should contact the NMF Sea Systems Programme Manager, Colin Day (email: [cdy@noc.soton.ac.uk](mailto:cdy@noc.soton.ac.uk)), to discuss their requirements, so that an estimate of the total technician and/or equipment support cost can be determined.

Spares and consumables will be provided by BAS to keep on-board equipment operational. However, AFI project personnel are responsible for the provision of consumables needed for acquisition of scientific data for their project. For example: provision of XBTs, standard seawater, salinity bottle inserts and scintillation counter vials.

## 6. ANTARCTIC STATIONS

BAS operates four research stations and one heritage site in the Antarctic. It also manages the station at King Edward Point (KEP) for the Government of South Georgia and the South Sandwich Islands (GSGSSI).

### 6.1. HALLEY, Brunt Ice Shelf, Coats Land (75°35'S, 26°34'W - on moving ice)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/halley/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/halley/index.php).

**Chief activities:** Atmospheric sciences, but also including survey, geology and glaciology.

**Occupied:** 15<sup>th</sup> January 1956 to the present, year-round.

**Air facility:** snow runway.

**Complement:** 16 wintering (average); up to 70 summer.

**Weather:** This is the coldest of the BAS research stations. Mid-summer average temperatures are around -5°C, but in winter the monthly mean temperatures are in the region of -30°C. The majority of strong and moderate winds are from the east-north-east. Moderately strong winds from the south-west also occur. The wind causes drifting snow on about 180 days each year, which becomes general blowing snow on about 80 days. Snow falls on about 175 days each year. Gales occur on average 40 days each year. The average annual total of sunshine is 1440 hours (34% of the maximum possible).

Halley is the UK's most isolated station and is afloat on an ice shelf on the mainland of Antarctica. In winter there is darkness for 105 days - darkness relieved by magnificent auroral displays. The relief of Halley is a major undertaking, with supplies being landed twice a year by ship onto the ice shelf and then towed on sledges by 'Sno-cat' vehicles to Halley, some 12 km distant from the ice edge.

Halley V is the fifth station to be built on the Brunt Ice Shelf. The first was established for the International Geophysical Year (IGY) in 1957-58, and named after the astronomer Edmond Halley. It filled an important gap in the IGY Antarctic network, with studies in meteorology, glaciology, seismology, radio-astronomy, and geospace science. Many of these studies have continued uninterrupted since then.

Studies at Halley are crucial for a global perspective on ozone depletion, atmospheric pollution, sea level rise and climate change. Ozone has been measured at Halley since 1956. The discovery of a spring-time depletion in stratospheric ozone was announced by BAS scientists in 1985, in the leading scientific journal *Nature*, and this led very quickly to the international response to curtail production of the chlorofluorocarbons (CFCs) responsible.

Halley V took six years from being conceived at the drawing board to its commissioning in February 1992. It is novel in that the three main buildings sit 4 m above the snow on independent steel platforms that may be raised by jacks. The largest is the Laws Building (accommodation) which is 59 m long, 14.6 m wide and 3 m high. The smaller Simpson Building (meteorology and ozone studies) and Piggott Building (upper atmospheric sciences) house specialist laboratories. The height of the platforms above the ice shelf affects the local wind turbulence and the build-up of drifting snow. Each summer, the platforms are raised an average of 1m to compensate for

the accumulated snowfall. In addition, the supporting legs can be realigned to correct for distortion caused by differential movement in the flow of the ice shelf beneath.

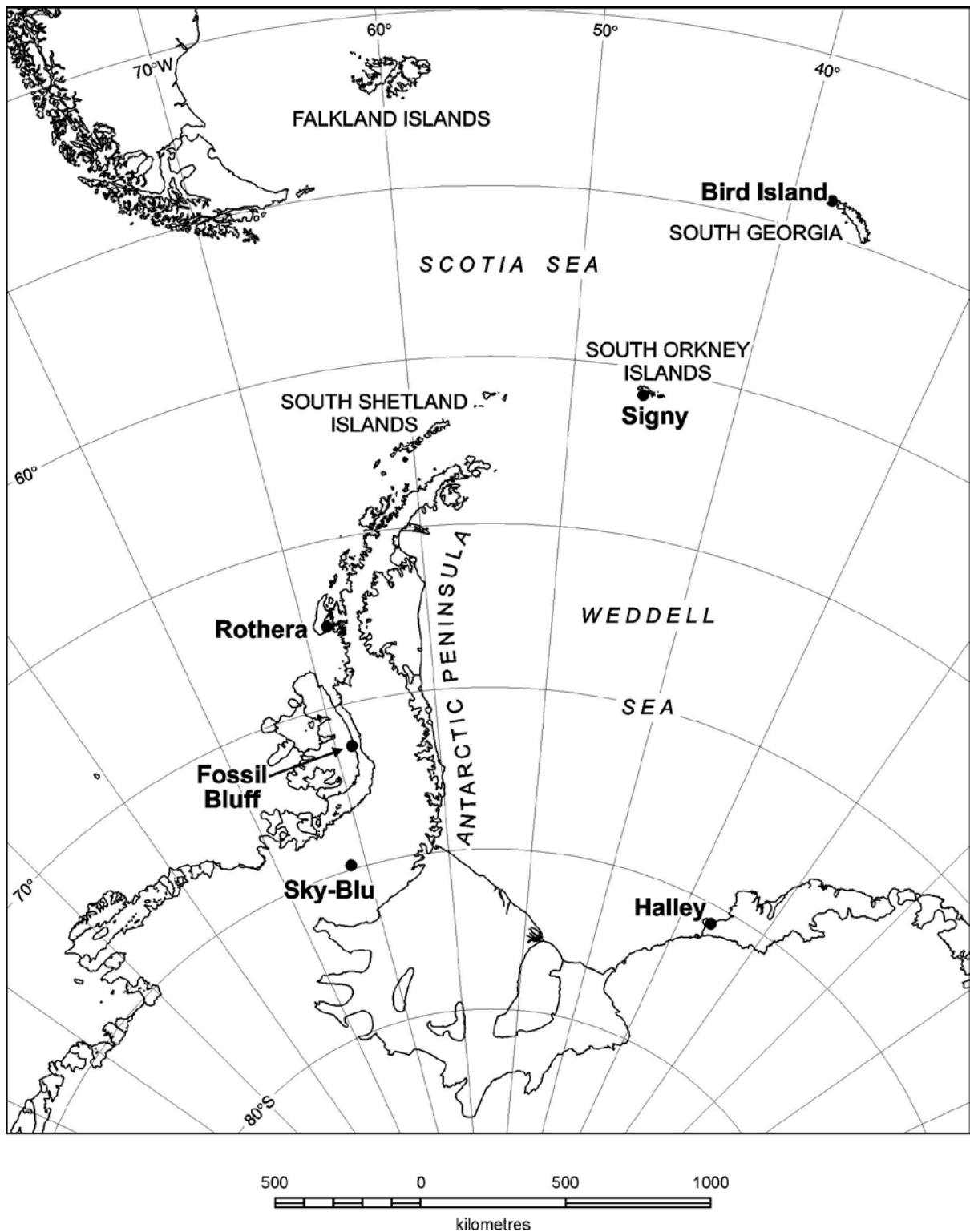
Halley, lying within the auroral zone, is ideally situated for geospace research. An HF (SHARE) radar, supported by a suite of other powerful radio and optical instruments including remote unmanned Automatic Geophysical Observatories, provides an unparalleled spatial picture of the consequences of geospace interactions in the upper atmosphere, over an area of around three million square km above the South Pole.

Halley I to Halley IV were built directly on the snow and were each abandoned within ten years, having been crushed by the overlying ice.

The Brunt Ice Shelf flows at a rate of 0.4 km per year northwest from Coats Land towards the sea, where, at irregular intervals, it calves to form very large icebergs. Because of the growing risk that ice on which the Halley V Research Station sits could break off within the next decade, a new station (Halley VI) was therefore commissioned, to allow long-running research on global change to continue at the locality where the ozone 'hole' was discovered. The new modular station, of futuristic design, will be elevated on ski-based legs (which can be raised by jacks) to avoid burial by snow, and can be towed across the ice. The modules are relatively simple to construct and can be re-arranged or relocated inland periodically, as the ice shelf flows towards the sea. A central module which contains areas for recreation and relaxation is flanked by a series of modules designed to suit the changing needs of the science. It features renewable energy sources and new environmental strategies for fuel, waste and material handling. For further details, see:

[http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/halley/halleyvi](http://www.antarctica.ac.uk/living_and_working/research_stations/halley/halleyvi).

Construction of Halley VI commenced during the 2007/08 field season and is currently continuing. 2012/13 is scheduled to be the first summer field season that Halley VI will be available for science projects.



**BAS stations and an indication of the 'normal' operating area covered by BAS Field Operations**

It is not possible to define the area of operations in a prescriptive sense. Until recently, fieldwork based on South Georgia was not permitted (except at Bird Island). Fieldwork on the Falkland Islands is not supported by BAS. However, ship-based projects conducted in the Scotia Sea, Weddell Sea, or west of the Antarctic Peninsula, are possible.

## 6.2 ROTHERA, Adelaide Island (67°34'S, 68°08'W)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/rothera/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/rothera/index.php)

**Chief activities:** Biology, geosciences, glaciology, atmospheric sciences. Main air facility for fieldwork, depot-laying and links to South America and the Falkland Islands.

**Air facility:** crushed rock runway.

**Occupied:** 25<sup>th</sup> October 1975 to present, year-round.

**Boating:** A dedicated boathouse, with four inflatables and two semi-rigid craft, used for search & rescue, and diver support.

**Diving:** The Bonner laboratory is designed to support year-round marine biology and incorporates a purpose-built diving facility. This comprises an office, changing room, store and compressor room. There is a 2-4 person lock-in/lock-out recompression chamber and two compressors, providing diving air and support to the chamber.

**Complement:** Population of up to 100 in the summer (exceptionally up to 125 for short periods) and an average winter population of 22.

**Weather:** Mean monthly summer temperatures are in the region of -1 to +2°C, while the mean monthly winter temperatures range between -5 and 0°C. Winds are gusty and are strongest from the north-east and north-north-west. There is snow or sleet on about 200 (197.25) days each year, and rain or drizzle on about 33 days. Gales are recorded on more than 70 days and there are around 1100 hours of sunshine each year (27% of the possible maximum).

Rothera Station is the BAS logistic centre for the Antarctic Peninsula and home to well-equipped biological laboratories and facilities for a wide range of research. The station is situated on a rock and raised beach promontory at the southern extremity of Wormald Ice Piedmont, south-eastern Adelaide Island. The station has a 900 m crushed rock runway, with an associated hangar and bulk fuel storage facility, and a wharf for the discharge of cargo from supply ships. There is a transitory summer population of scientists and support staff who reach Rothera either by ship or through use of an intercontinental Dash-7 aircraft flying from the Falkland Islands.

Rothera station was established in 1975 to replace Adelaide station (1961-1977), where the skiway had deteriorated. From its inception until the 1991-92 summer season, BAS Twin Otter aircraft used the skiway 300 m above the station on Wormald Ice Piedmont. With the commissioning of the gravel runway and hangar in 1991-92, air operations became more reliable and access to Rothera was greatly improved through a direct airlink from the Falkland Islands.

The opening of the original Bonner Laboratory in 1996-97 marked the start of new activities in biological sciences in the Antarctic Peninsula. These included SCUBA diving and experiments conducted in the Bonner Laboratory throughout the year. Meteorological research using satellite data intercepted at the Rothera ground station also continues year round. Fieldwork is concentrated in the summer months from November until March. Once in the field, the parties travel using skidoos and sledges for up to four months and, being in daily radio communication with Rothera, they can be resupplied when necessary.

## 6.3 SIGNY (60°43'S, 45°36'W)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/signy/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/signy/index.php)

**Chief activity:** Biology.

**Occupied:** 18<sup>th</sup> March 1947 - 13<sup>th</sup> April 1996. Austral summers only 1996/97 - present.

**Complement:** 8-9 in summer (November - April).

**Sea Ice:** During the winter, Signy is often surrounded by Weddell Sea pack ice. There are also periods when the sea freezes to form fast ice. Thick sea-ice at the beginning of the summer season can hamper ship access to the island.

**Air facility:** None for fixed wing, although helicopters can operate from visiting ships.

**Transport:** There are currently no boating facilities to support fieldwork at Signy.

**Weather:** Mean air temperatures range from near freezing to +3°C in summer and from -3°C to -15°C in winter. Signy Island lies in the track of prevailing westerly winds and persistent gales are recorded on about 60

days per year. Local topography causes much turbulence and gale force gusts occur much more frequently. On average, there are about 85 days with rain or drizzle, and 270 days with some snowfall – which may be accompanied by blowing snow (120 days). It is the cloudiest of all BAS bases and the average total annual sunshine amounts to only about 550 hours (14% of the maximum possible).

Signy Island is a small sub-Antarctic island, 6.5 km long and less than 5 km wide. There is permanent ice cover over a large part of the island, which rises to 288 m. In the summer, extensive areas of moss and some grasses are exposed, and there are numerous freshwater pools and lakes.

Signy station was established in 1947, primarily as a meteorological station. It was then developed in 1963 into a major biological station, with new living accommodation, laboratories and diving facilities, together with a launch and inflatable craft for work at sea. Signy was the centre of BAS biological science until 1995, when the marine component was transferred to Rothera. In 1995-96 the station was rebuilt for the third time, for a new role as a summer-only station, supporting studies in terrestrial and freshwater biology. The current main building, Sørille House, has living accommodation, laboratories and offices.

#### **6.4 BIRD ISLAND**, Jordan Cove, Bird Island, South Georgia (54°00'S, 38°03'W)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/bird\\_island/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/bird_island/index.php)

**Chief activities:** Population biology, ecosystem dynamics and the behaviour of seabirds and seals.

**Occupied:** Intermittently between 1958 and 1982, continuously from 22<sup>nd</sup> September 1982 to the present.

**Complement:** 4 wintering, 9 in summer.

**Air facility:** Occasional helicopter visits, but no fixed-wing aircraft facility.

**Weather:**

Annual mean temperature	1.2°C
Minimum temperature	-10.2°C
Maximum temperature	9.3°C
Annual mean wind speed	8.5 kt

Bird Island lies off the north-west tip of South Georgia. The island's northern coast consists mainly of sheer cliffs rising to 365 metres; the southern coast is more accessible, with numerous beaches. The island is 5 km long and up to 800 m wide. Below 150 metres it is predominately covered in tussock grass, with rock, scree and mosses above this altitude. There is no permanent snow or ice on the island; the yearly temperature range is from -10°C to 10°C.

The first permanent hut at Bird Island was established in 1958 by the Falkland Islands Government. A living hut and two further small huts were added in 1963 by the United States Antarctic Research Programme. BAS has supported summer work on the populations of birds and seals since 1971. A new hut on concrete piers was built in 1981-82; this provided accommodation, laboratory and office space for up to 8 people for year-round occupation. The 1995-96 summer saw the start of a two-summer programme to bring the facilities at Bird Island up to a standard comparable to the other BAS stations. Part of the improvements involved a better water collection and treatment system. The research station comprises three main buildings with living accommodation, office and laboratory space for up to eight people. Around the island there are several field huts, situated near bird colonies to aid the science programmes. Six to eight people usually work at the station during the summer and four remain for the winter. The station is serviced by the two BAS ships, RRS *James Clark Ross* and RRS *Ernest Shackleton*, three times per year.

Bird Island has a rich diversity of wildlife and is afforded special protection as a Site of Special Scientific Interest. It is home to about 50,000 breeding pairs of penguins, 30,000 pairs of albatrosses, 700,000 nocturnal petrels and 65,000 breeding fur seals. In total, that amounts to one bird or seal for every 1.5 m<sup>2</sup>, making Bird Island one of the richest sites for wildlife anywhere in the world.

The main research programmes on Bird Island focus on seabird and seal population dynamics, feeding ecology and reproductive performance. Long-term monitoring studies contribute to international environmental conservation objectives, including under the CCAMLR Ecosystem Monitoring Programme.

## 6.5. FOSSIL BLUFF, Alexander Island (71°20'S, 68°17'W)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/fossil\\_bluff/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/fossil_bluff/index.php)

**Chief activity:** Logistics facility with skiway.

**Occupied:** Intermittently from 20<sup>th</sup> February 1961 to present. Occupied during the winters of 1961, 1962, 1969-75. Summer-only occupation since 1975.

**Complement:** The hut houses four people and forms a transit station for summer field parties and aircraft refuelling facility only.

**Air facility:** Unprepared snow runway.

**Weather:** Mean monthly temperatures range from 0°C down to -4°C, with individual daily maxima possibly exceeding 4°C and minima falling to -20°C.

Fossil Bluff hut lies at the foot of a scree-covered ridge overlooking George VI Sound, which separates mountainous Alexander Island from Palmer Land. George VI Ice Shelf occupies the sound and provides a north-south route for travelling parties, except in high summer, when the surface of the ice shelf is flooded with extensive areas of meltwater. To the west and north-west lie Planet Heights, an extensive range of mountains rising to over 1500 m.

Fossil Bluff is a facility for refuelling aircraft and is operated by Rothera station during the Antarctic summer season between October and March. There is a 1200 m unprepared snow runway (skiway), marked by drums 1 km south of the station. Very soft snow surfaces in midsummer may make landing inadvisable. Twin Otter aircraft ferry drums of fuel from Rothera to Fossil Bluff each summer, to maintain the size of the fuel depot. The station is 90 minutes flying time from Rothera.

## 6.6. SKY-BLU, Eastern Ellsworth Land (74°58'S, 70°46'W)

see: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/skyblu/index.php](http://www.antarctica.ac.uk/living_and_working/research_stations/skyblu/index.php)

**Chief activity:** Logistics facility, with skiway and blue ice runway

**Occupied:** Summer-only occupation since February 1995.

Sky-Blu is an area of blue ice situated close to Sky-Hi Nunataks and suitable for use as an ice runway for wheeled aircraft. First located by BAS in 1993-94, the runway has rapidly assumed a position of vital importance in support of BAS deep-field operations, because it can be used by Dash-7 aircraft. The greater freight capacity of the Dash-7 has provided fuel/load cost benefits in the support of deep field parties, which were earlier undertaken exclusively by wheel-ski Twin Otter aircraft.

Sky-Blu became fully operational as a logistics facility in 1997-98, when an earlier high altitude depot at Sky-Hi Nunataks was abandoned. The groomed blue ice runway is up to 1.2 km in length and 50 m wide, permanently marked by flags. At the start of each summer season, snow drifts have to be removed from the runway. In support of the runway, and 1.5 km south-west of the runway apron, is the main camp which remains year round. It comprises a "melon" hut, together with a number of tents, garage, food depot, radio aerial, toilet facility, etc.

## 7. BAS SHIPS

### 7.1. RRS *James Clark Ross*

Construction:	Strengthened hull for work in ice; classed with Lloyds 100 A1 Ice Class 1 A Super Launched 1990
Dimensions:	Length 99.0m, Breadth 18.9m, Draft 6.3m
Tonnage:	5732 gross
Normal Passage speed:	11.5 knots (Endurance 55 days)
Propulsion:	Diesel-Electric 8500 SHP

	Single Fixed Pitch Propeller
	White Gill 360° Bow Thrust Unit (10 ton thrust)
	White Gill 360° Stern Thrust Unit (4 ton thrust)
Cargo capacity:	1500 m <sup>3</sup> general cargo, 250 tonnes bulk aviation fuel, 300 tons diesel fuel
Scientific areas:	Laboratories 400 m <sup>2</sup> – dry & wet lab spaces
Accommodation:	Officers 11, crew 15, staff on passage 50.

The ice-strengthened RRS *James Clark Ross*, launched in 1990, is one of the world's most complex marine research vessels, as well as a cargo and personnel carrier. The ship has a service speed of 12 knots and, with an endurance of 50 days, and can be driven at a steady two knots through level sea ice one metre thick. To assist passage through heavy pack ice, a compressed air system rolls the ship and prevents the ice from squeezing the hull. RRS *James Clark Ross* is equipped for geophysical studies, with a compressor bank to power a large seismic air gun array; a large aft deck for deploying a wide range of equipment; and a midships gantry for deploying sediment corers capable of obtaining 30 m deep cores. For biological studies, the vessel can deploy a wide range of sampling gear, including commercial-sized nets for studies on fish stocks of commercial importance, and benefits from modern underway instrumentation. The ship is designed with an extremely low noise signature, to allow sensitive underwater acoustic equipment to operate effectively. The ship houses a suite of scientific winches, bow and stern thrusters; a Dynamic Positioning System for precise positioning, and a large research complex. A LAN enables communication throughout the ship and, via the satellite communications system, with shore-based computing facilities. The ship was fitted with a swath bathymetry system during a refit in 2000. Internet access points are available in the ship's cabins.

For more information, see:

[http://www.antarctica.ac.uk/living\\_and\\_working/research\\_ships/rrs\\_james\\_clark\\_ross/index.php](http://www.antarctica.ac.uk/living_and_working/research_ships/rrs_james_clark_ross/index.php)

*Historical note:*

RRS *James Clark Ross* was named after the scientist and polar explorer Admiral Sir James Clark Ross, RN (1800 - 1862), who, in February 1842, reached a latitude of 78.9°S in the Ross Sea, a record which lasted into the 20<sup>th</sup> century.

## 7.2. RRS *Ernest Shackleton*

Construction:	DnV* Class 1A1 E0 Icebreaker ICE 05 Launched 1995
Dimensions:	Length 80.0m, Breadth 17.0m, Draft 6.35m
Deadweight (at 7.35m):	1910 tonnes
Normal passage speed:	10.5 knots
Propulsion:	2 x Bergen Diesel BRM 6, each 2550 kW at 720 rpm.
Endurance:	130 days/40,000 nautical miles
Accommodation:	80 berths

The Polar Queen was built in 1995 by Kvaerner Kleven in Norway as an ice-strengthened, special purpose vessel. It has been chartered by the Alfred Wegener Institute, the German Geological Institute (BGR), the Scandinavian National Antarctic Programmes and by the Australian National programme (ANARE) in various Antarctic seasons following build, for both logistic and scientific work. The vessel entered service with BAS for the 1999/2000 Antarctic season, as a long-term replacement for the Bransfield, the major supply vessel for the Antarctic stations. BAS will operate and maintain the vessel under a 15-year contract, during which Polar Ship Management will retain ownership. During this time, the ship is flagged in the Falkland Islands, painted in the BAS colours, and operated as a BAS vessel.

The vessel usually leaves the UK in early November so as to be in the vicinity of Halley by mid-December, when ice conditions are likely to be first favourable for reaching the ice shelf and discharging cargo. She is then routed around the other Antarctic stations, transferring personnel and cargo. She may also be required to put in fuel depots at remote sites, for future air operations, and may spend time supporting geologists at coastal

locations. Logistic and science cruises are often combined for efficiency and operational reasons. The ship returns to the UK in May.

The RRS *Ernest Shackleton* is primarily a logistics asset that which does not have a formal time allocation as a science platform, although it may be feasible to make opportunistic, 'on passage' use of this vessel for marine science projects that involve that require little or no additional equipment to be installed on the ship. An example would be the launching of eXpendable Bathy Thermographs (XBTs). AFI bids would have to cover the cost of fitting specialist equipment, for example if it was proposed to deploy CTD's.

For more information, see:

[http://www.antarctica.ac.uk/living\\_and\\_working/research\\_ships/rrs\\_ernest\\_shackleton/index.php](http://www.antarctica.ac.uk/living_and_working/research_ships/rrs_ernest_shackleton/index.php)

From this link (and from the corresponding one to the RRS *James Clark Ross*) the following may be viewed:

Position reports, itineraries, cruise plans, ship plans; a virtual tour; technical specifications; cabin safety booklets; port agents; details of computing facilities; the principal scientist's standing instructions; laboratory code of practice; and all the operational, technical, personnel and finance forms required to sign up for a cruise.

## **8. BAS AIRCRAFT**

BAS operates a total of five aircraft in the Antarctic, from October to March each year. These are a four-engined de Havilland Dash-7, and four, twin-engined, wheel/ski equipped, de Havilland Twin Otter aircraft.

The prime role of the Dash-7 is as an intercontinental link between the Falkland Islands (or Punta Arenas) and Rothera Station in the Antarctic, moving staff and priority cargo on this air-bridge route. The Dash-7 can also be configured for geophysical survey work and is used for deploying fuel depots to selected blue ice runways.

The Twin Otter aircraft deploy field parties from Rothera into the interior of the Antarctic continent. Continued support is given during the season to the field parties, either by re-supply or re-location of the party to new work areas. As well as logistic support, the Twin Otter aircraft can also be configured for a variety of scientific survey roles. These include aerial photography, radio echo ice depth sounding and geophysical survey. The aircraft are always available for search and rescue tasks, should the necessity arise.

The centre of Air Operations for BAS aircraft in the Antarctic is Rothera Station, with its crushed rock runway, hangar, fuel farm and full maintenance facility. In the field, Antarctic flying is mainly dependent on the weather, but surface conditions are also a controlling factor.

For initial planning purposes, the following statistics related to the performance of the DHC-6 Twin Otter (wheel ski) may be used:

- Working radius: 400km (without refuelling)
- Airspeed : 120 knots
- Cargo Payload: 2000 - 2500 lb, dependent on range and other conditions. The pilot's decision is final.

Weight of field unit: Typical overall weight of 2 person, travelling unit with 2 skidoos, tent, clothing, survival gear & food, but excluding fuel and scientific equipment etc., ~2900 lb.

For more information, see:

[http://www.antarctica.ac.uk/living\\_and\\_working/aircraft\\_and\\_vehicles/aircraft/index.php](http://www.antarctica.ac.uk/living_and_working/aircraft_and_vehicles/aircraft/index.php)

## 9. ANTARCTIC FIELD PREPARATION: BRIEFING AND TRAINING

Adequate preparatory training and instruction are vital for the success and safety of Antarctic field campaigns and operations. It is mandatory that all BAS staff, AFI participants and visitors who work under the auspices of BAS in the Antarctic, whether on land or on BAS ships, must satisfy BAS requirements on medical fitness and training. This Section sets out a general framework and provides information for hosts of Antarctic visitors. Further information about the documentation that needs to be completed by fieldwork personnel prior to travelling 'south' is available from the BAS website, at:

[http://www.antarctica.ac.uk/staff/antarctic\\_visitors/introduction.php](http://www.antarctica.ac.uk/staff/antarctic_visitors/introduction.php).

### 9.1 Preparatory Training Requirements

For staff and visitors with previous experience of undertaking BAS-supported fieldwork, BAS Operations and Logistics (OPAL) section will determine what training is required, with each case considered individually. The final responsibility for training requirements rests with BAS Director.

BAS will contact 'Antarctic visitors' (a term used by BAS to designate persons not employed by BAS, but to whom fieldwork support is being provided) during July or early August, to notify them of their training schedule. Hosts of Antarctic visitors will be responsible for ensuring that their visitors comply with the BAS requirements and are made aware of the schedule of courses, with plenty of notice. Any variation will only be allowed with the agreement of BAS Director. Hosts, or a nominated deputy, must arrange to meet their visitors during the Antarctic Pre-Deployment Training course, to discuss preparations for the forthcoming season. Where an AFI project has one or more members of BAS staff as Co-Investigator, then a BAS Co-Investigator will normally act as the BAS host. Where an AFI project has no Co-Investigator based at BAS, the AFI Coordinator will act as BAS host.

Other training elements which may be required could include SCUBA certification, mast climbing and boat-handling. **Note that the costs for any specialist training beyond the BAS Antarctic Pre-Deployment Training course, Field training course (if appropriate) and First Aid course (if appropriate) must be included in the budget for an AFI project.**

It is essential that hosts should brief visitors clearly on realistic expectations for their time in the Antarctic, what scientific equipment and supplies they need to take (and the shipping system), as well as on working arrangements in the field, on base, or on board ship.

### 9.2 BAS Antarctic Pre-Deployment Training, First Aid and Field Courses

Annually in September, BAS holds an Antarctic Pre-Deployment Training Course (at Girton College, Cambridge), commencing on a Sunday afternoon and finishing on the following Wednesday. The purpose is to provide practical advice and information to those who will be undertaking Antarctic fieldwork, besides providing more general background on the British Antarctic Survey and its work. The Pre-Deployment Training Course thus provides a wide-ranging induction to BAS policies and culture, as well as an important opportunity for new recruits, visitors and returning personnel to meet others with whom they will be living and working. It also provides an opportunity to meet BAS Cambridge staff who provide vital logistical support. Further details are available on the BAS website at: <http://www.antarctica.ac.uk/staff/conference/index.php>.

BAS staff and visitors who have no previous Antarctic experience are required to attend the Antarctic Pre-Deployment Training Course. **Even for staff and visitors who have previous Antarctic experience with other operators, attendance at the BAS Antarctic Pre-Deployment Training Course is a requirement.** The sole exception (introduced in 2007) is that those who will be working exclusively on a BAS ship (science cruise), rather than engaging in land-based fieldwork, are not required to attend, but will be sent an information 'briefing pack'.

There are different elements to the Antarctic Pre-Deployment Training Course, and different attendance requirements for delegates, according to their circumstances. BAS issues invitations to all named participants, 4-8 weeks before the event is scheduled to commence.

A 'First Aid Plus' training course (of two days duration) is held immediately after the Antarctic Pre-Deployment Training Course. This is organised and presented by the BAS Medical Unit (BASMU). The training has been designed to meet the needs of BAS, with particular reference to medical resources in the Antarctic. The level of First Aid training required will depend on the nature of the proposed fieldwork. The following Table provides a guide to First Aid training requirements, although decisions on individual cases will be made by BAS.

	<b>Ship (cruise) only</b>	<b>Station based (Short term)</b>	<b>Station based (Long term)</b>	<b>Field based (Short term)</b>	<b>Field based (Long term)</b>
<b>BAS staff</b>	<b>A1</b> BASMU 'First Aid Plus' or refresher	<b>A1</b> BASMU 'First Aid Plus' course or refresher	<b>A1</b> BASMU 'First Aid Plus' or refresher	<b>A1</b> BASMU 'First Aid Plus' or refresher	<b>A1</b> BASMU 'First Aid Plus' or refresher
<b>Non-BAS personnel</b>	<b>B1</b> Not required <b>but</b> "First Aid at Work" is recommended	<b>B1</b> Not required <b>but</b> "First Aid at Work" is recommended	<b>B2</b> "First Aid at Work" required	<b>B3</b> BASMU 'First Aid Plus' or refresher	<b>B3</b> BASMU 'First Aid Plus' or refresher

**B1, Research station** – Activities will be restricted to the research station vicinity.

**B1, Ships** – If an individual does not hold a "First Aid at work" certificate, land-based activities are liable to be restricted.

**AFI-funded personnel in category B1 or B2 will not normally be offered First Aid PLUS training by BASMU, but should obtain First Aid training, to the "First Aid at Work" standard, elsewhere.** If project fieldwork requires more than a single summer field season, refresher training is required annually (this may be obtained on board ship or on station), and repeated BASMU training every 3 years, to maintain certification.

Depending on the proposed fieldwork, there may be a requirement to attend a half-day oil-spills training course, which follows the First Aid Plus course.

Those who will participate in fieldwork which involves a campaign based away from a BAS station must also attend the Field Training Course. This is held in Derbyshire, and provides instruction and practical training in Antarctic camp craft, along with glacier travel techniques and crevasse rescue under simulated conditions. This foundation course will be reinforced with further training in the Antarctic. Refresher training will be required every 3 years. The Field Training Course also provides instruction and practical training in sub-Antarctic camp-craft, navigation and rescue techniques under simulated conditions, on the Derbyshire gritstone crags.

### **Training Timetable for 2011:**

Antarctic Pre-Deployment Training Course: Sunday, 18<sup>th</sup> September (p.m.) – Wednesday, 21<sup>st</sup> September

First Aid Refresher: a one day course, available at BAS Cambridge, on 15<sup>th</sup> and 22<sup>nd</sup> July; 12<sup>th</sup> and 19<sup>th</sup> August.

First Aid Plus Course: Thursday, 22<sup>nd</sup> September – Friday, 23<sup>rd</sup> September

Field Training Course: Sunday, 25<sup>th</sup> September – Wednesday 28<sup>th</sup> September (Derbyshire)

### **9.3 Personal Survival Techniques Training**

All BAS personnel and visitors, including AFI participants engaged on a research cruise **will be required to hold a valid STCW 95** (Standards of Training, Certification and Watch-keeping) **Personal Survival**

**Techniques certificate.** This is the internationally agreed standard of personal survival training required for seafarers. The training is available at most UK maritime colleges. Courses must be arranged individually by the AFI-funded Principal Investigator. A list of available course centres can be obtained from the AFI Coordinator. Training fees will not be the responsibility of BAS and should be costed into an AFI proposal (see section 15). Personnel in transit only, on BAS vessels, will not be expected to undertake this training.

**On joining ship, personnel will be required to produce their certificates to the ship's Master, who holds all marine certificates in case of an inspection. Without this certificate, personnel will not be permitted to join the ship.**

Continuing training and drills are part of the ethos of the STCW 95 provisions. All personnel will be expected to comply with on-board briefings and drills.

## 10. PERSONNEL SCREENING AND MEDICAL ASPECTS

Living and working in a hostile environment demands a certain level of physical fitness. The Antarctic stations, especially during the austral winter, are isolated in the extreme; it is frequently impossible to gain access. Sudden illness and injury cannot at times be avoided, but to allow someone whose illness is potentially predictable to work in Antarctica would be foolhardy, endangering perhaps not only the individual but also his or her companions.

Medical fitness will be determined by the BAS Medical Unit (BASMU). BASMU will follow-up specific medical issues as required. This may involve further tests to confirm an individual's fitness for fieldwork in the Antarctic or on board ship.

BAS reserves the right to determine the suitability of any applicant for Antarctic work, which may include seeking character references. All personnel working with BAS are required to undergo a routine medical examination, which will include a blood test for hepatitis, HIV, etc. The examination will normally take place with an individual's GP, to BAS guidelines, around 4-5 months before departure to the Antarctic.

New recruits should be medically examined as soon as possible after interview and before a formal offer of appointment is made. Note that the costs of the medical examination will not be the responsibility of BAS and should be built into the budget of each AFI proposal (see section 15). If a prospective participant is already aware of a medical condition, then he or she is advised to contact BAS Human Resources division at the earliest possible stage. The aim of the medical screening is to try to identify any pre-existing condition, and to assess whether this makes a difference to the individual's ability to work in Antarctica. This does not mean that anyone with an existing medical condition will automatically be excluded. A list is available of conditions which may cause a problem. BAS Operations and Logistics section (OPAL) manage the paperwork associated with medical requirements; in the event of queries, you may contact either Operations Support Assistant Mr Chris Aldridge (e-mail [chrdr@bas.ac.uk](mailto:chrdr@bas.ac.uk)), or the BASMU Manager, Pete Marquis, ([peter.marquis@phnt.swest.nhs.uk](mailto:peter.marquis@phnt.swest.nhs.uk)).

With regard to dental fitness requirements, summer-only fieldwork personnel must visit their own dentist for a check-up and necessary treatment prior to their Antarctic visit. They should not rely on check-ups from the BAS dentist. BAS cannot provide pre-Antarctic dental screening for visitors. Emergency treatment in the Antarctic may not always be carried out by a dental surgeon.

Since the Spring of 1997, the BAS Medical Unit has been managed by Plymouth Hospitals NHS Trust at its Derriford Hospital site in Plymouth. Derriford Hospital is the largest District General Hospital in the UK and hosts a vast array of facilities and specialities to which BASMU has immediate access. Plymouth University and the Diving Diseases Research Centre, which is adjacent to the Hospital, provide the Unit with specialist research and diving advice and support.

The important features of the medical service are:

- Recruitment of medical staff to work on Antarctic stations and ships. A period of specialist training is undertaken in areas of medicine not usually experienced by doctors.
- Pre-employment medical examinations for all BAS personnel travelling to the Antarctic. Evacuation from the Antarctic can at times be impossible and, when feasible, is costly and dangerous. A healthy workforce is therefore essential.
- First Aid training for all BAS personnel. A thorough grounding in basic first aid is given to all BAS staff, with a smaller percentage receiving more advanced training.
- Emergency 24-hour cover is provided to the doctors from medical consultants at Derriford Hospital. Such communications are via satellite telephone, fax and e-mail. Non-urgent advice and support is available on a day to day basis.
- Review, purchase and supply of all drugs and equipment for the Antarctic stations, aircraft and ships.

Documentation relating to medical guidelines and forms may be viewed on the BAS website, at:  
[http://www.antarctica.ac.uk/staff/antarctic\\_visitors/medical.php](http://www.antarctica.ac.uk/staff/antarctic_visitors/medical.php).

## 11. INSURANCE (PERSONAL AND EQUIPMENT)

BAS, being a constituent Research Centre of NERC, a non-departmental public body, bears its own risks and meets its own liabilities. Life cover for its employees is provided through the Joint Council's Superannuation Scheme (JSS), unless staff have specifically opted out of that scheme. Personal accident cover for injuries or accidents sustained in the course of their official duties is provided for all staff, whether or not they are members of the scheme, through the Injuries benefit provisions of JSS (NERC Staff Notice 18/90). While such personal accident cover is extended to non-BAS personnel who may be working with the BAS programme in the Antarctic, the provisions of the Injury Benefit Scheme are likely to deliver only minimal benefits to such personnel. **Non-BAS personnel are therefore advised to arrange appropriate accident insurance, prior to their departure to the Antarctic. In line with standard NERC policy, personal accident and equipment insurance for non-NERC staff cannot be charged to AFI.**

Non-BAS personnel are also advised to refer to 'Medical insurance guidelines for non-BAS staff', a document which is available from the following web link:  
[http://www.antarctica.ac.uk/staff/antarctic\\_visitors/medical.php](http://www.antarctica.ac.uk/staff/antarctic_visitors/medical.php).

## 12. SHIPMENT OF CARGO TO/FROM ANTARCTICA

BAS will undertake, within its normal logistic overheads, to ship equipment and materials to BAS Antarctic research stations, on board BAS-NERC vessels. This will include the packing of cargo. Any commercial sea or airfreight costs will be charged to the consignor, and an undertaking to reimburse BAS of all direct costs will be required. **For planning purposes, it is important to assume that cargo will not be freighted by air, unless prior agreement has been reached with BAS that air freighting is essential to the project.**

BAS vessels normally sail in the Autumn of each year: the RRS *James Clark Ross* in September and the RRS *Ernest Shackleton* in early October. The deadline for the receipt of cargo at BAS stores, for packing, is a **minimum of four weeks** prior to loading. BAS vessel itineraries, and the timing of each project, determine the cargo route to be adopted for each project and station. **AFI project leaders must consult Kath Nicholson (BAS Shipping Section, e-mail: [kani@bas.ac.uk](mailto:kani@bas.ac.uk)) no later than the deadline given by the AFI Coordinator (27<sup>th</sup> May, for 2011/12 season), to discuss the appropriate shipping route and to determine the packing deadline.** Principal Investigators will be responsible for arranging delivery of their cargo for packing, by the due date.

ALL chemicals reagents and compressed gases for use on BAS-managed facilities are to be authorised prior to shipment. **A complete list is to be submitted to the AFI Coordinator no later than 2 months before the deadline for delivery of cargo to BAS Cambridge.** Hazardous materials must **not** be consigned via airfreight, and no cargo or hazardous materials may be taken as hand baggage. All cargo carried by BAS vessels must be substantially packed to withstand multiple handling and stowage in a cargo hold.

Cargo consigned for packing must be accompanied by a completed BAS Cargo Packing Note, a copy of which must also be sent electronically to Kath Nicholson, BAS Shipping Section ([kani@bas.ac.uk](mailto:kani@bas.ac.uk)). Please ensure that, in 'Section Ref' of the Cargo Packing Note, you include your name, AFI project number, and a unique numerical identifier. Hazardous materials must be contained in the manufacturer's packaging and accompanied by a Hazard Safety Data Sheet. An electronic version of the Safety Data Sheet should accompany the electronic Cargo Packing Note. Please consult with BAS Shipping Section prior to despatching hazardous materials.

BAS provides cool stow (+4°C) and frozen stow (-20°C or -80°C) on its vessels. Such cargo must be considered separately, for both packing and shipment; please consult BAS Shipping Section for details. You will need to provide (and budget for) special containment for transportation under different conditions - and in any case you will need to discuss the feasibility of your requirements with BAS Shipping Section as soon as possible.

Cargo returning to the UK on BAS vessels normally reaches BAS Cambridge in May or June, following the summer field season. You should allow 2 weeks after the ship docks in the UK, before collecting cargo from BAS Cambridge. Please note that importation of plant material, live fish, animal pathogens and samples from endangered species requires an import licence (see Section 12.1). Also, BAS Science Facilities and Support section must be consulted at the fieldwork planning stage, to facilitate the return of specimens to the UK.

In exceptional circumstances, e.g., for large quantities of kit, or a requirement that equipment is already at Rothera on your arrival (if your project will start very early in the season, before the arrival of the ship), it may be necessary to pre-position the kit a year in advance - i.e. freight it on the ship the previous year. There are strict limitations on the amount of equipment that can be flown in to Rothera on the Dash-7.

## 12.1. IMPORTING OF BIOLOGICAL SAMPLES INTO THE UK

All biological samples derived from BAS southern operations are returned to the UK on BAS vessels. In most cases, these samples must be transported under licence. **Biological samples may not be returned by air freight or hand-carried.** BAS has a legal responsibility to ensure that the importation complies with the regulatory authorities.

BAS currently applies for six different biological import licences/authorizations:

PHL – Plants: Plant Health Order (2005) (Defra). Licence to import move and keep prohibited plants (including seeds) – plants must be washed free from any growing medium.

PHL – Soil: Plant Health Order (2005) (Defra) Licence to import move and keep prohibited soil and sediment separately or associated with other living organic material.  
(*Other than for chemical or physical analysis*)

CITES: *listed endangered species, mainly whale and fur seal.*

CEFAS: live marine macro invertebrates (BAS transport aquarium only).

IAPO/AH: Importation of Animal Pathogens Order (1980) / Animal Health Act (1981) (Defra)  
Animal Pathogens (animal tissue, blood, etc.)

POAO/AH: Products of Animal Origin (England) (2005) / Animal Health Act (1980) (Defra)  
Preserved samples / products of animal origin, including fishery products and marine invertebrates.

BAS will assume responsibility for the licensing arrangements required to import all biological samples returned from Antarctica to BAS Cambridge. The AFI Principal Investigator for each project will be responsible for:

1. Ensuring that BAS is given the information needed to make the licence applications in timely fashion, and to ensure that the biological material will be transferred to laboratories/institutions that hold the appropriate licence(s).
2. Ensuring that a photocopy of the relevant Institution/Departmental licence(s) is sent to the AFI Co-ordinator before the start of the field season at the latest. Any Institution to which the samples will be transferred from BAS must hold the appropriate licence (e. g. Defra or CITES). Under the Research Import Licence terms, BAS is required to submit, to Defra, details of preserved samples of animal origin that have received authorised exemption from veterinary inspection at point of import and will be transferred to external organisations.
3. Liaising with the relevant BAS licence holder or signatory, to discuss requirements. This should occur shortly after submitting the Outline Field Plan. Contact should be established via the AFI Coordinator.
4. Ensuring that the leading field scientist for each project prepares a detailed and accurate listing of the project sample collection on completing their fieldwork. The list must be submitted to the relevant BAS Field Assistant (e. g. Terrestrial Assistant) and the Base Commander, before the AFI scientist leaves an Antarctic station, or before the ship reaches the Falkland Islands, if samples have been collected. In any case, an interim report must be prepared before the end of March.
5. Making the arrangements for collection of the samples from BAS Cambridge at the end of the field season.

**If the required information is not provided, or is incomplete, then samples will not be exported from the Antarctic.**

Special licence condition applying to importation of animal pathogens:

1. Staff having contact with the imported material must not have contact with domestic poultry for at least 48 hours afterwards. Staff having contact with the imported material must give a written undertaking to this effect.
2. The above condition must be incorporated in the Risk Assessment that staff must sign before handling animal materials and their derivatives stored at BAS.

### **13 EQUIPMENT PROVISION AND FIT**

BAS uses, supports, and maintains a wide variety of instrumentation and computer systems. It is essential that any equipment used in Antarctica is robust, reliable and able to be maintained under Antarctic conditions. **Attention to the detail of the design and construction of equipment is necessary to avoid very expensive down-time.**

- Most commercially manufactured hardware will operate in the laboratories and offices on Antarctic stations and ships. Some equipment will fail due to low humidity and high static fields; advice should be sought before purchasing equipment.
- Prototype equipment and units manufactured on a one-off basis must be mechanically robust, electrically safe, and not cause interference with other systems. BAS will reject equipment that is electrically unsafe and would potentially interfere with operational units already on base. **Equipment must be thoroughly tested and trialled before despatch to Antarctica;** the Antarctic is not a suitable place for developing instrumentation. Failure may have very costly and wasteful implications. Adequate spares and maintenance manuals are essential.

- Equipment installed on BAS aircraft and ships is subject to additional constraints. Electrically powered computers and hardware must be compliant with:
  1. The EMC Low Voltage and relevant EEC Directives.
  2. CAA and/or marine industry standards
  3. BS standards for construction and installation

It is essential that any equipment installed on BAS ships and aircraft is benign and does not interfere with navigation equipment. A document is available describing the standards to be achieved for installing equipment on BAS aircraft.

## 14. AFI SCHEDULE

A timetable and schedule of the AFI programme, for those who will participate in the 2011/12 field programme, is posted as a pdf file on the AFI website, at: <http://www.antarctica.ac.uk/afi/docs/timetable.pdf>.

## 15. WHAT TO COST INTO AN AFI PROPOSAL (FULL PROPOSAL)

**Note that the final Announcement of Opportunity for AFI (Round 11) was made in May 2009, with funding decisions announced in April 2010. Proposals which require Antarctic logistic support are now considered through NERC Responsive Mode opportunities, rather than through a separate Initiative.** Further information is available on the AFI website home page <http://www.antarctica.ac.uk/afi/> and also at: <http://www.nerc.ac.uk/funding/available/researchgrants/typesofaward/afi-logisticsupport3.asp>.

The costing of proposals which require Antarctic logistic support is essentially unchanged by the transition from AFI to the use of 'standard' Responsive Mode opportunities for such bids. It is very important that you follow this section carefully. It is not NERC policy to financially supplement a research grant, which means that costs overlooked at the proposal stage cannot be recovered at a later date from NERC.

The normal costs for supporting a project within the existing BAS infrastructure (use of research stations, ships and aircraft within Antarctica) will be covered in the overall support costs and should not be included in the costings for the proposal. However, the cost of any modifications to a ship or aircraft must be included.

If you propose to be working away from a field station, you should assume for costing purposes that you will provide everything needed to run and maintain your equipment, including the supply of portable power.

The return costs for transporting equipment and materials into the field on BAS ships and aircraft will not be charged directly. However, if air-freight costs are incurred, these will be charged directly to the consignor. The costs for transporting your equipment to the BAS packing agents within the UK and for collecting equipment and/or samples from BAS Cambridge at the end of the season will not be covered by BAS and should be included in your project budget.

The following specific costs are the responsibility of the Principal Investigator and should be included in all AFI full proposals (now proposals to Responsive Mode opportunities). **Neither BAS nor NERC is responsible for these costs if you do not include them in your proposal:**

- **The costs of flights, to and from the Falkland Islands (or Punta Arenas),** for the science and technical personnel involved in a project. £3,600 return, per person, is the BAS Business Plan 2010 figure; this should be used for your proposal. **These costs will be 'top-sliced' from your award by NERC.** The travel costs for Field Assistants supporting the project should not be included. The costs for travel to and from Brize Norton (or Heathrow) to join the flight should be included within your application. (For CGS proposals which BAS has agreed to support, these costs, based on standard class rail fare, will be reimbursed.)

- Living and accommodation costs whilst on board ship, at a research station or in the field, from arrival at Stanley southbound until return to Stanley at the end of the field project, should not be costed into the proposal. If additional time is requested in the Falkland Islands, then the additional costs are the responsibility of the person(s) concerned and may not be charged to the award.
- **The costs for specialist ‘clothing’ such as diving suits** may be costed into the proposal, up to a maximum of £350. Diving suits can be supplied by the Principal Investigator – but will need to be approved by BAS. Ancillary diving equipment, e.g. cylinders and demand valves, will be provided by BAS as part of the logistic overheads.
- **The costs of medical examinations for non-BAS personnel:** up to £140 per person should be included in the bid. The costs of a full Antarctic Medical examination conducted to BAS specifications and performed by a GP should be in the region of £60. A Diving Medical will start at around £65, dependent on circumstances. In this case, the Diving Medical will replace the Full Medical and not be an additional charge. No allowance is included for the standard dental check.
- **The costs of transportation of equipment/cargo** to the BAS commercial stores prior to shipment to Antarctica, and for the collection of cargo and/or samples from BAS Cambridge following the field season, should be included in the bid.
- The costs of the Antarctic pre-deployment training course at Girton College, First Aid course and Field Training course (if applicable) will be borne by BAS, but **the costs of travel to and from Cambridge at the beginning and end of the course should be costed into your application.** (For CGS proposals which BAS has agreed to support, these costs, based on standard class rail fare, will be reimbursed.)
- **The costs of specialist safety training should be included,** where this cannot be provided on the BAS course, including SCUBA training, up to a maximum level of £500.
- **The costs to obtain the STCW 95 certificate in Personal Survival Techniques,** estimated at £140 per person (plus travel costs) should be included in your budget, where applicable.
- **The costs of Antarctic fieldwork clothing provision for non-BAS personnel** should be included and charged according to the following rates:

Location	Cost
Ship (RRS <i>James Clark Ross</i> or RRS <i>Ernest Shackleton</i> )	£830
Rothera station	£765
Rothera field	£1,445
South Georgia, Bird Island or Signy	£982

These costs (taken from the BAS Business Plan 2010) are based on the requirement that all issued items remain the property of BAS at the end of the field project. **Together with air fares, the costs of provision of polar clothing to non-BAS personnel will be ‘top-sliced’ from your award, by NERC.**

- **For geologists – your budget should include a contribution towards the cost of consumable items.** Geologists may wish to provide their own field equipment. Alternatively, BAS has a supply of basic items that may be used:

*Durable items:* BAS will not normally charge for the use of basic durable items such as hammers, chisels, and binoculars. However, charges may be made if large quantities of equipment are requested. BAS will charge for loss or damage to durable items.

*Consumable items:* Full cost will be charged for consumable items such as notebooks, pens, camera film and rock-collecting boxes. Participants should budget for charges in the region of £100 per geologist for consumable items.

- **If your proposal includes a CASE studentship**, with BAS as the partner, your proposal should **not** include the CASE partner's contribution without obtaining prior agreement that BAS will fund the associated costs.
- **The costs of any additional expenditure attributable to a project and incurred during fieldwork** should also be included in your proposal.
- **Antarctic allowance payments for BAS staff conducting scientific or technical support work as part of the project should be costed *pro rata* in the budget.** Salaries for staff who will be recruited and employed by BAS should be budgeted for at the rates published in the BAS Business Plan 2010 at the appropriate Band. Note that the column to be used for this purpose is the one labelled *Full Economic Cost*.
- **Recruitment:** Please ensure that, at the outset, each partner is clearly aware of which Institution will be responsible for recruitment. This will normally be the institution of the Principal Investigator, unless the award is split. BAS will not be responsible for recruiting, unless this has been specifically agreed with the BAS Co-Investigator – and will only happen in the case of BAS-led awards or split awards involving BAS. **Any costs associated with recruitment, including advertising, must be included in the proposal.** The recruitment of tied or CASE students will be the responsibility of an Institution that is a degree-awarding body.
- **Costs of BAS Technical Services and support:** The costs for support by any specific BAS technical or scientific personnel in the UK or in Antarctica should be charged according to the BAS Business Plan 2010. This level of support must have been agreed in principle with the appropriate contact point given in the Logistics Questionnaire.
- Newly-awarded Principal Investigators should arrange to visit BAS Operations staff, to discuss their support requirements for the proposed fieldwork. This is intended to ensure that BAS staff who will be supporting the project in the field are well briefed, at an early stage, with detailed logistics information about the project requirements. Normally, a visit by the Principal Investigator – or delegated representative – should be sufficient. However, for relatively complex projects, involving several partner institutions, the Principal Investigator may wish to be accompanied by one or more representatives from the partner institutions. **The costs of travel (standard class rail fare) to BAS Cambridge for this purpose should be included in your proposal.**

NERC rules relating to the eligibility of individuals as Principal Investigator and Co-Investigator are given in the *Summary of eligibility conditions* posted at:

<http://www.nerc.ac.uk/funding/available/researchgrants/eligibility.asp>.

Further details are available in the current version of the *NERC Research Grants Handbook*:

<http://www.nerc.ac.uk/funding/application/researchgrants/grantshandbook.pdf>.

A Post-Doctoral Research Assistant (PDRA) who is not eligible to be a Principal or Co-Investigator, but has made a substantial contribution to the formulation and development of the application and will be closely involved with the project (if funded) may be identified as a 'Researcher Co-Investigator'. A Researcher Co-Investigator must:

- Be the named researcher on the project and seek his/her salary as a Directly Incurred cost.
- Be employed by the same Research Organisation as the either the Principal Investigator or one of the Co-Investigators.
- If applying from a NERC or BBSRC Research Organisation, be employed at Band 6 or higher.

**All applications for funding must be made using the Joint Electronic Submission (Je-S) system**, and must comply with the conditions set out in the latest edition of the *NERC Research Grants Handbook - Research Grants Awarded on Full Economic Cost Basis*.

## 15.1 Full Economic Costing (fEC)

Since 1st September 2005, NERC research grants have been awarded on the basis of a proportion of the full economic cost, calculated in accordance with the TRAC (Transparent Approach to Costing) methodology (Universities and other Higher Education Institutes), or by an equivalent methodology in the case of Research Council component bodies or other academic analogues. The proportion of fEC awarded is currently 80%.

The fEC of a project is calculated as the sum of three separate components, namely: Directly Incurred Costs, Directly Allocated Costs and Indirect Costs. Note that the term 'overheads' is no longer used by the UK Research Councils, although many other funding bodies still use it.

**Directly Incurred Costs** – these include the salaries of additional staff employed specifically for the project; also the costs of equipment, travel and subsistence, and consumables used by the project.

**Directly Allocated Costs** – these consist of:

- (a) payments for Principal Investigator and Co-Investigator staff time (on a *pro rata* basis);
- (b) costs of using major items of equipment or facilities.

BAS staff cost rates, set according to the salary band of the individual, are given in the column (5) labelled *Salary Related i.e. Salary & NI & Pension* of Table 17 (Staff Costs – Annual) of the BAS Business Plan 2010. These costs are per full-time equivalent post for each year (220 working days) of the project. For part of a year (full-time), the costs are calculated on a *pro rata* basis. Note that the effective salary date is 1 April 2010.

**Indirect Costs** – Indirect costs are intended to be a contribution towards the project costs incurred by the institution which is in receipt of the Award. These costs are determined by the respective Finance department as a single figure applied per full-time equivalent post involved in the project.

**Estate Costs** – These may include building and premises costs, basic services and utilities and any clerical staff and equipment maintenance/operational costs not already included under other cost headings. As for Indirect Costs, Estate Costs are determined by the respective Finance department as a single figure applied per full-time equivalent post involved in the project.

**Exceptions** – The Research Councils will pay 100% of the cost for certain items of expenditure, including research student stipends, tuition fees and capital equipment valued at >£50k.

## 15.2 Joint electronic Submission (Je-S)

NERC requires that all research grant proposals be submitted through the research councils' Je-S system. Most UK research organisations are now registered for Je-S and a summary of the registration status (April 2008) of each organisation may be viewed in a pdf file posted at: [http://www.so.stfc.ac.uk/jes/jes1/RODetails\(Web\).pdf](http://www.so.stfc.ac.uk/jes/jes1/RODetails(Web).pdf). Organisations wishing to register for Je-S should contact the Je-S Helpdesk (Tel: 01793 444164). Users wishing to access the system for the first time are asked to check with their central administration on the status of their organisation's Je-S registration before pursuing the option of creating an account through the system.

Using Je-S, researchers can prepare research grant proposals electronically for submitting to NERC (or other Research Councils). The finalised proposals are submitted electronically to the Research Council by authorised representatives of the Principal Investigator's host institution. Further information is available at: <https://je-s.rcuk.ac.uk/jesHandbook/jesHelp.aspx?m=s&s=1>.

Proposals are prepared on-line (though not necessarily in one session; it is possible to 'save' partially completed proposals!) and subsequently submitted on-line. Proposals may also be:

- Downloaded in XML format for off-line working (appropriate tools required);
- Uploaded for approval and submission.

### 15.3 Application for Isotope Research Support from NERC

NERC funds isotope facilities at a number of centres in the UK (see: <http://www.nerc.ac.uk/research/sites/facilities/list.asp>). The NERC-funded work of four of these facilities (NIGL, SUERC Argon Isotope Facility, SUERC Isotope Community Support Facility and the OU Uranium Series Facility) is approved and overseen by the NERC Isotope Geoscience Facilities Steering Committee (NIGFSC).

If your AFI proposal will require support from one of these facilities, then you should discuss in principle your requirements with the Head of the Facility directly, whilst you are preparing your proposal. If your proposed usage is extensive, then you should also contact Dr Lin Kay ([rlfk@nerc.ac.uk](mailto:rlfk@nerc.ac.uk)), Head of Scientific Services Management Team at NERC Swindon Office, to discuss how this support might be provided and funded. If your proposal is successful, you will need to make a formal application for support from one (or more) of these centres, using a standard NIGFSC Application form. The form and guidance notes may be downloaded from <http://www.bgs.ac.uk/nigl/HowToApply.htm>. For normal demands, if accepted by the NIGFSC, then the costs should be met from the NERC central support to the Facility.

## 16. 'PATHWAYS TO IMPACT' DOCUMENTATION

All research proposals submitted to NERC should be accompanied by a *pathways to impact* document that will provide information about:

- those who may benefit from or make use of the research;
- how they might benefit and/or make use of the research;
- methods for disseminating data/knowledge/skills in the most effective and appropriate manner.

Funds will be available to support activities identified in the *pathways to impact* document to ensure that they are encouraged and supported as part of the grant

Further details are provided on the NERC website at:

<http://www.nerc.ac.uk/funding/application/pathwaystoimpact.asp>.

The *pathway to impact* document should be up to 2 pages of A4, with text size and font requirements as for the science proposal (generally minimum font 11 point Arial, 2cm margins).

## 17. BAS MAPPING AND GEOGRAPHIC INFORMATION CENTRE

Staff of the BAS Mapping and Geographic Information Centre (MAGIC) provide an in-house geographic information and mapping support service to BAS staff. New maps are compiled to meet the needs of BAS scientific and operational programmes, and topographic surveys and air photography sorties are undertaken in Antarctica as required by mapping projects. Image analysis and photogrammetric techniques are developed by staff to utilise remotely sensed data for map compilation, and different methodologies are applied during the production of BAS thematic maps, mostly in the geoscientific BAS GEOMAP Series.

MAGIC staff participated in the preparation of the international Antarctic Digital Database (ADD), a collaborative international project. This first digital topographic database of Antarctica, published on CD-ROM in 1993 under the auspices of the Scientific Committee on Antarctic Research (SCAR), was a milestone in Antarctic mapping. It provides the common framework to which multidisciplinary datasets can be referred for GIS applications, facilitating retrieval and evaluation of all data, particularly for monitoring environmental changes in Antarctica. The ADD will evolve to meet the geographical data needs of the international Antarctic scientific community and of programme managers.

## BAS Map Catalogue

BAS publishes a wide range of maps, which are available from:

Mail Order Department  
Stanford's International Map Centre  
12/14 Long Acre  
LONDON WC2E 9LP Tel: 0171 836 1321; Fax: 0171 836 0189 e-mail: [sales@stanfords.co.uk](mailto:sales@stanfords.co.uk)  
web site: <http://www.stanfords.co.uk/go/antarctica/maps-atlases/>

The list of available published maps can be accessed from the BAS Web site at

[http://www.antarctica.ac.uk/about\\_antarctica/geography/maps.php](http://www.antarctica.ac.uk/about_antarctica/geography/maps.php)

## 18 DATA MANAGEMENT AND LONG-TERM STEWARDSHIP OF SAMPLES

### 18.1 Legislation and Policy

This section provides information on NERC policy; BAS strategy, international agreements and UK legislation that govern data management and that are relevant to AFI projects.

#### NERC Data Policy

NERC Data Policy relates to the value of scientific data and the obligations of those collecting or holding data acquired during the course of a NERC-funded project. It emphasizes that data are a resource in their own right and that the management of data must continue beyond the point that publications are produced, enabling data to be re-used by future researchers. Environmental data are often irreplaceable or unique, if only in the timing of collection. For Antarctic-based projects, such data are especially expensive to collect. Thus, it is particularly important that satisfactory mechanisms are in place to preserve scientific data. It must also be recognised that the full dataset, rather than a subset used for publication, may have long-term value; also that this may require processing and documenting by the original collector, in order for the full potential of the data to be accessible.

The NERC Data Policy provides information on the ownership and custody of data, together with the obligations of those holding data. Data generally belong to the employer of the data collector, or to those that funded the data collection. Thus, ownership of data collected by AFI-funded researchers rests with NERC. Ownership can be more complex, however, when data acquisition has been jointly funded. Those holding NERC data must store the data responsibly and take adequate precautions to safeguard them, such as backing-up and ensuring that formats do not become obsolete or undocumented.

NERC has delegated responsibility for its data to seven NERC Designated Data Centres. The Designated Data Centres archive data and respond to requests for access to NERC data. **Note that BAS and NERC include samples and specimens as part of the wider definition of data.**

NERC retains the data, to ensure it is available for future research. Thus, grant holders are required to offer to lodge data and supporting documentation with NERC. Data can be transferred to NERC on the completion of the original research, or can continue to be held at other institutes, provided that a NERC Designated Data Centre is aware of its location and is confident that the data are being managed effectively.

The NERC Data Policy also provides information about planning for the management of data; access to NERC data, and any associated charges.

#### BAS Information Management Strategy

The BAS Information Management Strategy explains why information management and data management have become an important aspect of scientific research at BAS. The strategy provides information on how to manage data and scientific information effectively, and outlines the responsibilities of BAS individuals and teams, together with the terms of reference of committees entrusted with record or data management responsibilities.

## **The Antarctic Treaty**

Section 20 of this Handbook contains information about the provisions of the Antarctic Treaty, which requires that the results of scientific research conducted south of latitude 60° South be made freely available.

## **The Environmental Information Regulations**

The Environmental Information Regulations (2004) allow for environmental information to be requested from UK public authorities. As NERC is a publicly-funded body, requests for environmental information such as data must be responded to within 20 working days of the receipt of the request. Access to information which is unfinished, or in the course of being completed, can be refused. Thus, data that are part of ‘work in progress’ and unpublished do not have to be made available. However, any request refusals using this reason must inform the applicant of when the information will be completed or due for publication.

## **18.2 The Polar Data Centre (PDC)**

The Polar Data Centre (PDC) coordinates the management of data collected by UK funded scientists in the polar regions. It replaced the Antarctic Environmental Data Centre (AEDC) from 1<sup>st</sup> April 2009. The PDC is based within the British Antarctic Survey and is part of the Natural Environment Research Council’s network of data centres. It is the UK’s national Antarctic Data Centre in the SCAR and the PDC Manager is a member of the SCAR Standing Committee on Antarctic Data Management (SCADM). SCADM carries out the management of data and information on behalf of SCAR’s scientific community and is responsible for the Antarctic Data Directory System, centred on:

- The Antarctic Master Directory (AMD);
- The National Antarctic Data Centres (NADCs).

The PDC is responsible for implementing data policies at BAS and for providing access to BAS data. Currently, it also has the responsibility of identifying, preserving and making available AFI data as part of the PDC AFI Data Management Project. Enquiries should be directed to [polardatacentre@bas.ac.uk](mailto:polardatacentre@bas.ac.uk).

## **18.3 Long-term stewardship of samples**

BAS and NERC include samples and specimens as part of the wider definition of data. Many samples collected during the course of Antarctic fieldwork are, by their very nature ‘short-term’ and do not create either storage or archiving problems (e.g. biological tissue, snow or ice samples). However, other samples brought back from the Antarctic have a ‘long-term’ stewardship requirement, necessitating adequate provision for their curation and storage. Your research application should state your proposed arrangements for long-term sample stewardship.

Although BAS will be able to provide long-term storage for some types of samples and specimens, it is unable to guarantee storage facilities; therefore, an alternative may need to be sought. Suitable repositories may include other NERC facilities, or local or national museums. The final storage location must be included in the Data Management Plan and reported to the PDC.

Some storage facilities require the use of pre-allocated specimen numbers. Principal Investigators of AFI-funded projects should contact the PDC, for advice on appropriate management and long-term storage of samples or specimens before the field season commences.

The following points provide some initial guidance on the long-term storage facilities at BAS:

### **Geological Samples**

BAS has a Rock and Fossil collection and an accompanying Geological Database. AFI participants should offer their samples for incorporation within this collection. Each specimen requires a unique

specimen number. Please contact the Geological Database Manager (Alex Tate, [ajtate@bas.ac.uk](mailto:ajtate@bas.ac.uk)) before your fieldwork, to have a block of numbers allocated. These numbers will form part of a national scheme, to cover all geological fieldwork within the British Antarctic Territory.

Inclusion in the Geological Database also requires the completion of a comprehensive register of all numbered rock, fossil or mineral specimens. The database can also incorporate datasets derived from the samples such as thin sections, crushed samples or powders. Copies of field maps, photographs and field notebooks should also be provided and can be held securely in the BAS Archives.

### **Invertebrate Samples**

For invertebrate specimens, contact should be made with Helen Peat ([hjpe@bas.ac.uk](mailto:hjpe@bas.ac.uk)), with respect to possible incorporation in the existing collections.

### **Botanical Collections**

For botanical collections, AFI participants are encouraged to offer collections to BAS for incorporation within the BAS Herbarium. It is recommended that contact is made with the herbarium manager (Helen Peat) prior to collection, to ensure that adequate habitat and locality details are recorded.

## **18.4 Further Information**

The NERC Research Grants Handbook includes sections on the Environmental Information Regulations, Data Availability and Access to NERC Data and summarises some of the key points of the NERC Data Policy. A list of Designated Data Centres and their responsibilities is also provided. The Handbook also provides information about the final report that must be submitted at the end of a project and details about the Output Performance Measures that are collected annually for three years after funding has ceased. Sanctions will be applied to Principle Investigators that fail to produce these reports.

### **Web resources:**

NERC data policy and designated data centres

see <http://www.nerc.ac.uk/research/sites/data/policy.asp> and <http://www.nerc.ac.uk/research/sites/data/>

Polar Data Centre: [http://www.antarctica.ac.uk/about\\_bas/our\\_organisation/eid/pdc/index.php](http://www.antarctica.ac.uk/about_bas/our_organisation/eid/pdc/index.php)

Standing Committee on Antarctic Data Management (SCADM): <http://www.scadm.scar.org/>

BAS Geological Database: <http://www.antarctica.ac.uk/dms/metadata.php?id=GB/NERC/BAS/AEDC/00048>

BAS Data and Collections (all): [http://www.antarctica.ac.uk/bas\\_research/data/index.php](http://www.antarctica.ac.uk/bas_research/data/index.php)

## **19. ENVIRONMENTAL MANAGEMENT AND CONSERVATION IN ANTARCTICA**

### **19.1 Introduction**

Antarctica is the largest and most pristine wilderness on Earth, covering an area of nearly 14 million square km. It is made inhospitable by extreme cold, a massive permanent ice sheet and floating ice shelves. Less than 0.5% of the continent is ice-free.

Scientific research is the major human activity carried out in Antarctica, but there are also significant fisheries and tourist operations. The continent is so important for science because it is an unparalleled natural laboratory for undertaking research of global relevance. However, much of the scientific value of Antarctica will be lost if it is allowed to be polluted or significantly disturbed by human activities. Antarctica is vulnerable to human impact. For example, footprints in moss can destroy hundreds of years of growth and the imprint remain for decades. The **Protocol on Environmental Protection to the Antarctic Treaty (1991)** was adopted in 1991 by

the Antarctic Treaty nations and came into effect on 14<sup>th</sup> January 1998. It provides for the comprehensive protection of the Antarctic environment and a strict regulatory framework governing human activities there.

In summary, the Protocol:

- Designates Antarctica as a ‘natural reserve, devoted to peace and science’.
- Sets out principles for the environmental protection of Antarctica.
- Introduces an indefinite ban on mineral resource activity (other than scientific research), with a mechanism to review the ban after 50 years, or before, if all Treaty nations agree.
- Requires an Environmental Impact Assessment (EIA) of all activities before they can proceed.

Five Annexes to the Protocol describe mandatory regulations for EIA, waste disposal, conservation of flora and fauna, prevention of marine pollution and the protection of special areas. A sixth Annex, dealing with financial liability for environmental damage, has also been agreed.

Detailed information on the Protocol on Environmental Protection to the Antarctic Treaty (1991) can be viewed at: [http://www.antarctica.ac.uk/about\\_antarctica/geopolitical/treaty/update\\_1991.php](http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/update_1991.php).

## 19.2 The Antarctic Act (1994) and Permitting

The UK has enacted domestic legislation to enforce the provisions of the Protocol through the *Antarctic Act 1994*. This legislation introduced a very strict environmental protection regime, with which BAS must comply. UK activities in Antarctica require permits issued on behalf of the Secretary of State for Foreign and Commonwealth Affairs. Specifically, **Section 3** permits are required for any person on a British expedition to Antarctica. The AFI Coordinator will ensure that all AFI-funded field personnel are named on the BAS Section 3 permit. Therefore, **Principal Investigators of AFI-funded projects do not need to apply for a Section 3 permit.**

Additional permits, as identified below, are needed by Principal Investigators whose projects involve the following:

- **Section 6** permit: Collecting of any geological samples – including lake and marine sediment cores. Such samples are deemed to be ‘mineral resources’.
- **Section 7** permit: Interference with fauna or flora.
- **Section 8** permit: Introduction of non-native species.
- **Section 9** permit: Entry into areas protected under the Protocol (Antarctic Specially Protected Areas) or under the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).
- **Section 11** permit: Entry to a site used by the CCAMLR Ecosystem Monitoring Programme (CEMP). It is most unlikely that a funding proposal would require access to such sites.

An application form for a Section 6 permit may be downloaded from the **2011/12 Field Season Preparations** link of the AFI website ([http://www.antarctica.ac.uk/afi/docs/Fieldwork\\_briefing\\_2011\\_12/annex3\\_form.doc](http://www.antarctica.ac.uk/afi/docs/Fieldwork_briefing_2011_12/annex3_form.doc)). The completed form should be sent to the AFI Office at BAS (e-mail to [afibas@bas.ac.uk](mailto:afibas@bas.ac.uk)) no later than the deadline specified by the AFI Coordinator. If your project is likely to require a Section 7, 8, 9 or 11 permit, you should contact the AFI Coordinator in the first instance. The Director of BAS has delegated authority to grant permits for Section 7, 8 or 9 activities to BAS Staff only.

Conducting activities in Antarctica without first obtaining a permit, or breaching of permit conditions, or breach of a prohibition, is an offence punishable by up to 2 years imprisonment and an unlimited fine.

## 19.3 Environmental Impact Assessment

All AFI-funded activities will be subject to an Environmental Impact Assessment (EIA). There are three stages of EIA, to match different levels of predicted impact of proposed activities.

These stages are:

- Preliminary Assessment
- Initial Environmental Evaluation (IEE)
- Comprehensive Environmental Evaluation (CEE)

Most AFI field projects are small-scale and transitory, and are likely to have a negligible environmental impact. In such cases, Preliminary Assessment is the appropriate level. Principal Investigators of funded projects must complete a **Preliminary Environmental Assessment (BAS) form, prior to the commencement of fieldwork**. The relevant form may be downloaded from the **2011/12 Field Season Preparations** link of the AFI website, at [http://www.antarctica.ac.uk/afi/docs/Fieldwork\\_briefing\\_2011\\_12/annex4\\_form.doc](http://www.antarctica.ac.uk/afi/docs/Fieldwork_briefing_2011_12/annex4_form.doc). The completed form should be sent electronically to the AFI Office at BAS (e-mail to [afibas@bas.ac.uk](mailto:afibas@bas.ac.uk)) no later than the deadline specified by the AFI Coordinator. The Preliminary Environment Assessment will be reviewed by the BAS Environment Manager, who and may wish to discuss any likely impact of your fieldwork on the environment or on future scientific activities, and to ensure that appropriate mitigating measures are in place.

## 19.4 Further Information

The general environmental policy of the British Antarctic Survey is to conduct a programme of first class science with the minimum of environmental impact. Further information about environmental policy and management in BAS may be viewed at: [http://www.antarctica.ac.uk/about\\_antarctica/environment/index.php](http://www.antarctica.ac.uk/about_antarctica/environment/index.php). For a complete list of all Protected Areas in Antarctica, please refer to the Antarctic Protected Areas Archive, see: <http://cep.ats.aq/cep/apa/index.html>.

## 20. HEALTH AND SAFETY

### 20.1 Health and safety at BAS

BAS is committed to achieving the highest standards of health and safety. The successful management of health and safety within BAS has several key elements; these are:

- A health and safety policy and arrangements that are continually reviewed. This policy not only seeks to satisfy legal requirements, but to contribute to the health and safety performance at BAS and the development of a positive health and safety culture. The policy influences all activities and decisions.
- Senior management is actively involved in managing health and safety, providing leadership and direction to the continual improvement in health and safety performance that BAS aims to achieve.
- Assessment of the risks involved in all BAS activities, with the intention of eliminating risks or, where this is not possible, reducing them to an acceptable level. BAS designs its facilities, equipment, processes and systems of work to be as safe as is practicable. Externally-funded projects will be expected to conform to the BAS risk assessment systems.
- Training plays an important part in helping BAS to meet the standards it has set. At the annual Pre-Deployment, First Aid and Field Training Courses, BAS will provide appropriate training to ensure that those who will perform fieldwork will operate safely in the Antarctic environment. Scientists participating in a research cruise must have a Personal Survival Techniques (STCW 95) certificate; the ship's Master will require to see the original of the certificate when a scientist first joins the ship. Principal Investigators must ensure that staff they will send to the Antarctic have received appropriate technical safety training.
- BAS aims to keep its staff fully informed about health and safety issues that affect them and their job. It expects staff to co-operate with management and to take an active, responsible part in managing their own health and safety, and that of their colleagues.

- BAS operates an accident, incident, near miss and environmental (AINME) reporting system. The main purpose of this system is to learn lessons that will prevent similar occurrences and improve future health and safety performance of the organisation. Externally-funded personnel will be expected to participate in the BAS AINME procedure. Copies of AINME reports involving AFI-funded scientists may be sent to the employer institute.
- Each research station and ship has a Health and Safety Committee. The point of contact for externally-funded personnel to raise health and safety issues with, whilst in the field, is the Base Commander (if on station), or the Chief Engineer or Principal Scientist, if working onboard ship.
- BAS conducts regular audits and inspections of its facilities and operations, in order to adopt a systematic approach to continually improving health and safety.

For all activities concerned with health and safety on an Antarctic station, the Base Commander is the Safety Officer. On the ships, the Chief Engineers act as Safety Officers.

## 20.2 Risk Assessments

The Health and Safety at Work Act requires BAS, as a responsible employer, to apply all reasonable and practical health and safety requirements to staff, contractors and visitors who may be involved or affected by BAS operations. Several subsequent regulations place a requirement on BAS to conduct risk assessments on aspects of its activities.

**All science and technical projects must be the subject of appropriate Risk Assessments BEFORE project fieldwork commences.** The associated form must be countersigned by the Principal Investigator (or responsible person nominated by the Principal Investigator) before submission – by the due date – to the AFI Coordinator. Each assessment must be signed off as ‘Assessed’ by all the personnel engaged in the activities covered by the assessment, to confirm that they have read, understood and are satisfied with, the assessments for their project. All staff, whether technical or scientific, need to be aware of, and informed about, the risks associated with the tasks they are doing and the substances they are using. They must also be trained in the use of any controls or emergency procedures.

### COSHH assessment

COSHH (Control Of Substances Hazardous to Health) regulations also require a risk assessment to be conducted for all substances hazardous to health. **This includes biological substances as well as chemicals** (see below). COSHH assessments must include details of the measures to be taken to eliminate or reduce the risks, and measures to be followed in the event of an emergency. Assessments and material safety data sheets must be available for consultation in all laboratories and in other areas of stations and ships where these assessments are applicable.

### Biological risk assessment

The COSHH regulations include biological risk. BAS has a stand-alone Biological Risk Assessment procedure. Biological risks must be assessed as a part of the risk assessment process.

To avoid the need to create multiple risk assessments for an activity, wherever possible the major risks should be assessed and then other risks included. For example, where chemical or biological risks are present but do not constitute the major risk, they could be included in a general risk assessment document.

BAS maintains a database of risk assessments, including some generic assessments. Existing risk assessments may be used or adapted, as appropriate.

**As an essential requirement, AFI-funded investigators will be expected to complete formal, written risk assessments of all activities including fieldwork and COSHH using the BAS procedures.** In order to help with this task, guidance notes will be provided by the AFI Coordinator in the briefing letter that you will receive during January preceding your proposed field season. BAS Health and Safety staff will provide advice and support as necessary.

**Where the AFI proposal involves the use of radioisotope(s), approval for the work must be received from the BAS Radiation Protection Supervisor.**

Risk assessments should be continually reviewed as the project progresses, to ensure that they reflect any changes that may affect the health and safety of personnel.

### **20.3 Accident reporting**

All accidents, incidents, near misses and environmental incidents must be reported to BAS using the AINME system available on the local area networks at BAS research stations and ships. All accidents must be recorded in the Medical Officer's accident book. In some cases, these may need to be reported to the appropriate authority in the U.K. It is BAS policy to use this reporting system to identify any necessary improvements needed to minimise the risk of a recurrence. It is everyone's responsibility to ensure that full details are provided in each case. Furthermore, it is important to recognise that the prime purpose of this system is not to apportion blame, but to improve safety for all staff.

### **20.4 Personal responsibility**

All employees, contractors and visitors, including external-funded participants, have a legal duty:

- to exercise reasonable care for the health and safety of themselves and others who may be affected by their acts or omissions;
- to co-operate with BAS management with respect to health and safety;
- not to interfere recklessly with anything provided in the interests of health and safety;
- to report any unsafe acts or conditions to the appropriate manager.

## **21. THE ANTARCTIC TREATY SYSTEM**

The Antarctic Treaty System (ATS) is a suite of arrangements made for the purpose of regulating activities in the Antarctic. At its heart is the Antarctic Treaty, which was established in 1961 and covers the area south of latitude 60°S. The Treaty establishes that:

- Antarctica be used only for peaceful purposes;
- there shall be freedom of scientific research and that results of such research are made freely available;
- military activities are prohibited;
- nuclear explosions and the disposal of radioactive waste are prohibited;
- territorial claims are frozen;
- inspections can be made to ensure the observance of the Treaty requirements.

Since the Antarctic Treaty came into operation, wide ranging regulations and agreements have evolved. Meetings of the Antarctic Treaty Parties have made over 150 recommendations to Governments. In addition, separate Conventions have been agreed, dealing with the Conservation of Antarctic Seals (CCAS) (1972) and the Conservation of the Antarctic Marine Living Resources (CCAMLR) (1982). A third Convention, on the Regulation of Antarctic Mineral Resource Activities (CRAMRA), dealing with mining in the Antarctic, failed to be ratified. CRAMRA was superseded by the Protocol on Environmental Protection to the Antarctic Treaty. This was agreed between the Treaty Parties in 1991 and includes 5 technical annexes which provide for the comprehensive protection of the Antarctic environment.

The Protocol and its 5 Annexes have been ratified by all the Treaty Parties and are now legally binding. To enforce the provisions of the Protocol, the UK has enacted domestic legislation through the *Antarctic Act, 1994* and the *Antarctic Regulations, 1995*. BAS must comply with all of the requirements, to be granted the essential operating permits by FCO.

## 22. UK GOVERNMENT POLICY REGULATING THE NAMING OF PLACES IN ANTARCTICA, SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

The following information is for those who, for the purposes of their work, require the use of place-names, whether this be in scientific papers, maps, charts or official publications. It applies to anyone who is working at a UK institution or organisation, or who undertakes work in the Antarctic whilst funded, partially or fully, by the UK Government.

### Guidelines for place-naming within the British Antarctic Territory:

British Antarctic Territory (BAT) extends anywhere South of 60°S and between and 20° and 80°W.

- Only officially accepted place-names are to be inserted in scientific papers, maps and official publications. **Officially accepted place-names are those which have been approved by the Commissioner for BAT and are listed in the BAT gazetteer. This can currently be found on the web at <http://www.antarctica.ac.uk/apc/gazetteers.html>.**
- Unapproved names in parentheses ( ) are not acceptable, even if they have been submitted to the Antarctic Place-names Committee (APC) and are awaiting approval.

### Guidelines for place-naming in South Georgia and the South Sandwich Islands:

- Only officially accepted place-names are to be inserted in scientific papers, maps and official publications. **Officially accepted place-names are those which have been approved by the Commissioner for SGSSI and are listed in the SGSSI gazetteer.** These names are to be found in *BAS Scientific Report No. 101. The History of Place-names in the Falkland Islands Dependencies (South Georgia and the South Sandwich Islands), 1980, by G Hattersley-Smith*. Additions since 1980 and the full gazetteer are held by the Secretary of the APC, who can be contacted to check if new place-names exist.
- Unapproved names in parentheses ( ) are not acceptable, even if they have been submitted to the Antarctic Place-names Committee (APC) and are awaiting approval.

### Guidelines for place-naming elsewhere in Antarctica:

- Those who require names outside of BAT or who work with international collaborators and require advice about the acceptable forms of names should contact the Secretary of the APC.

### Proposals for new names:

- These can be made directly to the Secretary of the APC at [APC@bas.ac.uk](mailto:APC@bas.ac.uk)
- The APC website <http://www.antarctica.ac.uk/apc/index.html> contains a full list of guidelines and proposal forms as well as a complete list of the BAT Gazetteer for those who wish to submit their own proposals.

## 23. FURTHER INFORMATION

Information about living and working in Antarctica is provided in the BAS Antarctic Handbook. This is provided to all participants in the BAS Antarctic programme. It provides some background to the environment and organisation within which you will be working, outlines some of the steps that you need to take before travelling, and answers the most commonly-asked questions about living and working in the Antarctic. A pdf copy may be viewed at: [http://www.antarctica.ac.uk/staff/antarctic\\_visitors/handbook/handbook.pdf](http://www.antarctica.ac.uk/staff/antarctic_visitors/handbook/handbook.pdf).

The AFI website (<http://www.antarctica.ac.uk/afi>) is used for disseminating information about AFI.

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