Business Plan 2013

British Antarctic Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

POLAR SCIENCE FOR PLANET EARTH

Executive summary

The BAS Business Plan 2013 sets the agenda and priorities for the Survey to achieve its objectives during Financial Year 2013/14 and presents a firm budget for 2013/14 and 2014/15 with an indicative budget for 2015/16. There will be a one year Government-wide spending review for 2015/16 announced on 26th June 2013, with the effect on BAS being known by late 2013. Although the Government has protected the cash value of the science budget from significant cuts over the period 2010/11 to 2014/15, the impact of inflation is starting to significantly constrain BAS activities. This plan does not take into account the possible partition of the Antarctic element of the BAS budget that was announced by the Science Minister in November 2012.

BAS Vision

By 2020 the British Antarctic Survey will be recognised as a world-leading centre for polar research and expertise, addressing issues of global importance.

BAS Mission

- 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 provides a focus for national and international co-operation in polar science, and access for scientists to the polar regions. BAS delivers and co-ordinates major research programmes, including those requiring significant technology or infrastructure. It exploits research outcomes, engages with the public, provides expert independent advice to the British Government and other stakeholders, and helps to discharge the UK's responsibilities under the Antarctic Treaty System and to administer the British Antarctic Territory.

BAS Priorities for Financial Year 2013-14

- Continue to deliver excellent science
- Develop an even closer working relationship with the NERC community
- Implement more transparent processes for access to national assets
- Maintain the effectiveness of BAS and enhance the cost efficiency of how we operate across all areas of our activity
- Contribute to the development and implementation of the new NERC strategy and funding model
- Further enhance and diversify our science, operations and engineering and services capability to win funds in an increasingly challenging financial environment
- Integrate the BAS Air Unit with the NERC Airborne Research and Survey Facility (ARSF) to create a single NERC Research Aircraft Service to be managed by BAS
- Complete the first year (of three) of the Royal Research Ship *James Clark Ross* (JCR) life extension project and initiate the planning and design work for a replacement polar research vessel
- Agree the vision for the BAS-Cambridge University Innovation Centre and complete the first phase of its implementation
- Maintain expenditure within budget in 2013/14 and achieve a balanced budget thereafter

Financial resources

This Business Plan provides a detailed financial plan for the three years 2013/14 to 2015/16. The budgets for 2013/14 and 2014/15 are based on relatively secure income, whereas 2015/16 is reliant on the Government continuing to protect the science budget, which will only be known after the forthcoming one-year spending review. Whereas the budget appears balanced over the coming years, there is no contingency for unforeseen events or the impact of inflation and/or currency movements. This suggests that urgent action is needed to secure robust funding from a variety of sources to avoid the risk of a significant downsizing of activities.

The budgets as presented exclude the ARSF, which currently has a National Capability (NC) allocation of approximately £1M. The forecast income budgets also exclude the anticipated positive impact of the Innovation Centre. It is expected that the impact of both of these activities will be incorporated into the Business Plan 2014.

Cover: *Travelling by ski-doo to a remote field station on the Kongsvegen Glacier, Svalbard, Arctic.*

For more information, please visit our website: **www.antarctica.ac.uk**

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Above: *The view back towards Rothera Research Station from the northern end of Rothera Point on Adelaide Island.*

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1. Director's foreword

This is the first (and last!) introduction to the BAS Business Plan I have written and it comes at a time of enormous change and opportunity for the Survey. In October 2013 we will be welcoming Professor Jane Francis as the new BAS Director and I will retire. This change will lead to some re-organisation within BAS.

Professor Alan Rodger
Interim Director British Antarctic Survey

NERC's new strategy, The Business of the Environment, underscores the essential requirement to deliver excellent science but also places far greater emphasis on the impact of our science, and the utilisation of our skills and assets to contribute to the wider Government agenda and business needs. Our Business Plan has been developed within this context.

As a publicly-funded organisation, BAS has had the unique advantage of a cash protected resource budget since 2010/11. This was further affirmed by NERC's public commitment to fund BAS at "flat cash" levels across the period 2010-2015. In addition, the government has been encouraging capital investment and this has benefitted BAS and will continue to do so for the next two years. In particular, during 2013/14 we will be embarking on a multi-million-pound life extension project for the JCR.

Nevertheless, BAS's real resource income is reducing year-on-year as we see the impact of price and modest wage inflation. Success in bidding for competitive NERC Research Programme (RP) and NERC Responsive Mode (RM) funding has partially helped to fill the gap, but more needs to be done to diversify our science income streams beyond NERC and the EU. We have been successful in bringing in income through charging for the use of our ships, aircraft, and bases, but the variability of this income makes planning more difficult.

In February 2013, it was announced by the Science Minister that BAS was to receive a £3M investment in an Innovation Centre to encourage closer collaboration between BAS and Cambridge University who are making a financial contribution to the Centre. This is an exciting opportunity that we will exploit to its maximum potential by creating an environment that will support the creation of new innovative collaborations.

Another challenge for BAS that must be completed in 2013/14 is the creation of a NERC Research Aircraft Service. This will bring together the BAS Air Unit and the ARSF into a single entity to be managed by BAS. It is expected that the combined unit will be more efficient and provides an excellent opportunity to use the Twin Otters and Dash-7 worldwide, rather than confining them to the polar regions.

During 2013/14, NERC will be completing its new strategy and new funding model. BAS will be contributing to both of these initiatives at various levels and assessing the impact on our PSPE strategy and business planning. Although, the new strategy is likely to be at a high level it will have a direct impact on BAS. The funding model changes are also likely to have a significant impact on BAS and their effect will need to be carefully reviewed.

Along with the other NERC centres, BAS has been participating in the NERC-driven Research Centre evaluation exercise. The purpose of the evaluation is to provide evidence on the science excellence and impact of NERC Centres. This evidence will be used to inform internal and external stakeholders of centre excellence and impact. Although not explicitly stated the results will undoubtedly have an impact on future NC allocations from NERC to BAS.

At a strategic level, the pressing issue facing BAS is determining the impact of partitioning our budget between Antarctic and non-Antarctic activities. It is clear that the concept of partitioning our budget is supported at all levels of Government and within NERC. During the course of 2013/14 the focus will be on determining what the partition will mean in practice and how it will affect the management and governance of BAS.

One of the key tools available to us to be successful in a changing world is this, our Business Plan. It sets out our top level objectives for the medium and longer term and in detail our intentions for the forthcoming years. These in turn are backed up by detailed financial forecasts.

In 2011 we introduced the BAS Management Tool and, after a period of learning how best to use it, we now have a tool that provides enhanced capability for managing BAS. We do recognise that the web interface requires improvement and this will be addressed. We continue to focus on our three sectors of activity: Science; Expertise; and Impact (see Figure 1). Importantly, these radiate outwards from our core Vision and Mission to specific team and group targets and activities, which in turn inform all individual Forward Job Plans (FJPs). In this way, each one of us can see our role and contribution to making BAS a successful organisation.

Thus even though we live in changing times, this Business Plan provides us with a foundation upon which we can build.

For external readers, this Business Plan will, I hope, prove useful in providing you with information about our activities and intentions. For BAS staff this is a very important source of information, please keep it easily to hand.

2. NERC's Strategy – The Business of the Environment

The fundamental objectives of the new NERC strategy are:

- To understand and predict how our planet works
- To manage the environment responsibly as we innovate in new ways of living, doing business, escaping poverty and growing economies

Key actions of the strategy are:

- To foster UK and international partnerships so that business, Government, civil society and scientists can work together
- To address the great environmental management opportunities and challenges
- To utilise existing knowledge
- To drive UK innovation, economic growth and societal wellbeing

BAS's business plan has been developed to deliver these objectives and support these actions.

3. Scope and purpose of the Plan

BAS Business Plan 2013 marks the fifth full year of the BAS science programme, PSPE. It contributes to NERC's existing Science Strategy, Next Generation Science for Planet Earth, 2007-2012, through a programme of world-class polar research and by the delivery of NC to provide survey, long-term observations and interdependent research. Although it is noted that the NERC Science Strategy is being refreshed in 2013, the existing strategy still provides solid foundations for BAS science. The BAS science programme also helps sustain for the UK an active and influential regional presence and leadership in Antarctic affairs. The Plan reflects the financial agreement reached with NERC and sets the agenda and priorities for the Survey to achieve its Mission during Financial Year 2013/14. The Plan was approved by the BAS Board and is used to shape the work, direction, and management of BAS during 2013/14. It is published on the BAS Intranet *(basweb.nerc-bas.ac.uk)* and on the Survey's website *(www.antarctica.ac.uk)*.

4. BAS strategic priorities

4.1 **Short-term overview.** Polar Science for Planet Earth (PSPE) is now established as the science centrepiece of the BAS Vision and is producing strong scientific outputs. Clearly these need to be maintained, and the quality of the science enhanced further. BAS has been increasing science activity in the Arctic usually in partnership with others; this trend needs to continue. However, PSPE will be revisited and updated to reflect changes in the external and internal environment since 2009 in consultation with the NERC community.

BAS is committed to on-going support and delivery of the UK's polar science in an excellent, effective and efficient way. A formal decision is due on whether to extend the Royal Research Ship *Ernest Shackleton* (ES) lease contract beyond 2014 and work on a polar ship replacement project has started. In the coming year BAS, jointly with Cambridge University, will be starting work on the newly funded Innovation Centre that is planned to open in April 2015. The creation of the BAS managed NERC Research Aircraft Service will also be completed during 2013/14.

4.2 **Medium-term overview (2-5 years).** In this medium-term timeframe, BAS expects to partition its budget in recognition of the need to ring-fence the Antarctic element of its activities. Diversification of science funding will also take place, with special emphasis on exploiting the newly-created Innovation Centre. A life extension refit (to 2019) of the JCR is planned to be completed by summer 2015. Other infrastructure work that should commence during this period includes the next phases of Rothera Research Station refurbishment. Also BAS may need to operate in new ways, if the ownership model for the other NERC Research Centres alters.

4.3 **The longer-term (5-10 years).** BAS will continue to increase its activities in the Arctic, deliver NERC and EU science, and meet the requirements of HMG in the Antarctic and sub-Antarctic regions. It is likely that BAS scientific expertise will be applied to questions away from the poles where this is possible and effective. One of the major infrastructure issues in this timeframe will be the replacement of the JCR and the ES, possibly by a single multi-purpose vessel. The refurbishment of Rothera Research Station should be completed and options for the upgrade of offices and laboratories at Cambridge will have been considered. The budget partition will be fully established and working effectively.

4.4 **Supporting NERC's Strategic Actions.** In addition to the wide ranging engagement with and contribution to NERC's corporate activities, BAS will:

- Contribute proactively to the development and delivery of NERC's new strategy
- Strengthen collaboration with other NERC Centres, the wider NERC community in HEIs, and commercial business interests and the impact agenda
- Actively support the establishment of a partition in the BAS budget
- Fully participate in the NERC Centre evaluation process and consequent activities emerging from it
- Continue to develop support mechanisms with NERC to meet the evolving needs of the wider UK science community wanting to use NC infrastructure and facilities
- Manage the NERC Arctic Research Programme and the West Antarctic Ice Sheet Stability Programme (iSTAR)
- Continue to develop the role of the NERC Arctic Office at BAS Cambridge
- Continue to support Science into Policy: including informing and advising senior Ministers and officials across UK Government (BIS, FCO, DEFRA, DECC, DfT and MoD)
- Deliver long-term workforce planning by utilising NERC's people policy guidelines

5. BAS Management Tool

BAS ensures linkage between its strategic objectives and its operational activities through use of the BAS Management Tool (BMT). A schematic of how the tool aids the directing of the work of all employees of BAS is provided in Figure 2. By linking the Vision and Mission to strategic targets, to group targets and finally to individual work plans we aim for aligned, efficient and effective delivery of organisational objectives.

Figure 2. The 'core of' the BAS Management Tool and how individual and team targets are linked to the BAS Vision

The latest (June 2013) BAS Management Tool Strategic Aims, guiding activity in a one-to-three year time frame are as follows:

SCIENCE

Science	Areas	Strategic Aims
S1	Chemistry and Past Climate	The Chemistry and Past Climate programme concentrates on the Quaternary period (the last 2.6 million years). Ice core and other palaeorecords can be analysed for that period. Although many aspects of the Earth were similar to the present, large climate changes, as well as periods warmer than today, can be observed. BAS scientists investigate how different parts of the Earth System interacted to produce the large climate changes that occurred naturally in the past, and complement this with investigations on how changing sea-ice and ocean conditions affect the present chemistry of the polar atmosphere.
S2	Climate	The Climate programme uses observations from both polar regions to improve our understanding of how natural and human-induced factors contribute to climate change.
S3	Ecosystems	The Ecosystems programme undertakes integrated analyses of Antarctic ecosystems and develops understanding of the large-scale operation of Arctic ecosystems and the role of polar ecosystems in the Earth System
S4	Environmental Change and Evolution	The Environmental Change and Evolution programme addresses key aspects in the polar regions of geological and ice-sheet structure, marine and terrestrial biodiversity, and natural complexity, that influence the unique role of the polar regions in environmental change and evolution.
S5	IceSheets	The IceSheets programme examines the role of ice sheets in the Earth System, and the processes that control ice-sheet change. It monitors current change and sets this in context with the past. BAS scientists produce tools to predict how ice sheets will change over time, allowing more accurate projections for increases in global sea level.
S6	Polar Oceans	The Polar Oceans programme investigates the role of processes and changes both in the shelf sea and in open-ocean environments, and will further our understanding of polar control of the Earth System.
S7	Science Strategy, Facilities and Funding	The Science Board sets the overall science strategy for British Antarctic Survey through the development of Polar Science for Planet Earth, and evaluates the excellence and impact of BAS's science. Science Facilities provide effective support to the science programmes, and maintain and develop their infrastructure. The expertise of the science, technical and support staff is developed and utilised to generate external income both through the UK Research Councils, the EU, business and elsewhere.

EXPERTISE

Expertise	Areas	Strategic Aims
E1	People Skills & Culture	To attract, develop, motivate and retain world class talent and to create an organisational structure and processes that are flexible, responsive and goal oriented.
E2	Operations, Logistics & Infrastructure	To optimise Operations and Logistics activities to ensure cost effective support to the approved science programmes in the polar regions. To manage infrastructure effectively and efficiently to ensure optimum utilisation of facilities.
E3	Safety, Health & Environment	To protect the safety and health of our staff, and minimise our negative effect on the environment. To maintain BAS's very influential role within the Antarctic Treaty system on all these issues.
E4	Engineering & Technology	To research, develop and provide innovation, engineering and technology to better deliver PSPE Science and meet NERC Technology Theme objectives.
E5	Business Sustainability	To support delivery through astute financial management, workforce planning, resource management and further development of our grant-winning capability.
E6	Knowledge	To be recognised as a world-leading centre of excellence, both externally and internally, through effective science communication and corporate communication activities. To further develop our information and knowledge management capability for the benefit of users.

6. BAS deliverables in the 2013 Business Plan

Utilising the combination of our science, organisational responsibilities, strategic objectives, operational activities, management tools and the culture of our organisation BAS will aim to be recognised as one of the world's leading polar research institute through:

- Delivering and co-ordinating major polar scientific research programmes aligned with UK and NERC's science strategy
- Providing a focus for national and international co-operation in polar science
- Providing access for scientists to the polar regions
- Exploiting research outcomes for maximum impact
- Engaging with the public to enhance their understanding of and engagement in the polar regions
- Broadening the range of its funding
- Providing expert independent advice to the UK Government and other stakeholders
- Discharging part of the UK's responsibilities under the Antarctic Treaty System
- Assisting with the administration of the British Antarctic Territory

7. Grant funding and submissions

7.1 **Preparing submissions for external funding.** Staff must discuss emerging ideas for external funding bids with the most appropriate Science Leaders, Science Programme Co-ordinators, or Board Member in the case of Operations and Engineering. All external funding bids are subject to scrutiny prior to submission by the Proposal Outline Review Panel to ensure they are of sufficient quality and fit to the PSPE strategy. The BAS Programme Office (BPO) co-ordinates the submission of all external bids and helps substantially in their preparation (see *basweb.nerc-bas.ac.uk/departments/programme_office* here for further details).

7.2 **Improving grant success.** BAS aims to further improve grant award outcomes by focussing on submitting fewer proposals, but of higher value and of higher quality. Handling grant submission effectively requires strict adherence to the deadlines published on the BAS intranet.

7.3 **Research Programme (RP).** RPs are a key mechanism for NERC to deliver its strategic science objectives. None of the recently-announced investment (£50M) in RPs has an explicit polar component but several could. These include Drivers of Variability on Atmospheric Circulation, Technologies Proof of Concept, Valuing Nature and Volatiles, Geodynamics and Solid Earth Controls on the Habitable Planet. It is essential for BAS staff to engage with the UK community to develop programmes that provide BAS with opportunities to bid for these funds. Information concerning the approved theme action plans is available via *www.nerc.ac.uk/research/themes/tap*. NERC is changing the way of developing its RP portfolio too. There will be some traditional RP programmes valued at approximately £10M but additionally there will be £4M highly timely programmes that can be fast-tracked through the NERC approval processes. BAS staff must be pro-active in developing contributions to both funding streams.

7.4 **Responsive Mode (RM).** NERC's approach to RM research is unchanged as shown at *www.nerc.ac.uk/research/responsive*, but improvement in the peer review processes will be implemented in 2013/14.

8. BAS National Capability

NERC is currently undertaking a review of NC funding and the outcomes from this review are not yet clear enough to be reflected in this Business Plan. Therefore for 2013/14, the main BAS elements of NC remain unchanged as:

- A programme of sustained observing systems, mapping and survey, to provide baseline measurements of polar environments, all in the context of international programmes
- A programme of long-term polar science addressing issues of global importance
- Maintaining a body of nationally and internationally recognised scientists to provide leadership in strategic and discipline-based polar science
- Maintaining the Antarctic Infrastructure, providing the UK's Antarctic regional presence and developing the UK's access to Arctic infrastructure
- Maintaining our excellent Safety, Health and Environment management systems
- A leadership role within the Antarctic Treaty System, especially management of collaborative international research projects in Antarctica
- Hosting NERC's Arctic Office, and the management of NERC's Arctic research station at Ny Ålesund, Svalbard
- Active programmes for knowledge exchange, commercialisation, and public engagement
- Data and information management for the UK polar community
- Providing the British presence on South Georgia, funded in full by the FCO and the Government of South Georgia and South Sandwich Islands (GSGSSI)
- Scientific leadership and advice to policy makers in UK Government, (including BIS, the FCO, DECC, DEFRA, MoD and DoT) and in the Overseas Territories (BAT, SGSSI, FI)
- Advice to UK Government on other polar issues as required
- Scientific leadership and advice to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), for sustainable fisheries in the Southern Ocean and the setting of the fishing licences that provide the GSGSSI's main income
- A vibrant and excellent research studentship programme

BAS will have to develop through 2013/14 processes that demonstrate greater ease and transparency in access.

9. Polar Science for Planet Earth (PSPE)

The BAS science strategy, PSPE, was established in 2009 and requires refreshing. This will be carried out in conjunction with the NERC community later in the year. Until then we will pursue the present strategy.

9.1 PSPE addresses questions of global importance or of a fundamental nature about the Earth System through research that is best undertaken in the polar regions: our premise being that the polar regions are (fundamental) functional units of the Earth System. The themes of PSPE are to unlock the past, understand the present, predict the future, and explore the unknown. The BAS Science Board provides advice on scientific priorities and requirements to deliver PSPE.

PSPE comprises six interdependent science programmes:

- **Chemistry and Past Climate**
  Investigates how different parts of the Earth System interacted to produce the large climate changes that occurred naturally in the past, and complement this with investigations on how changing sea-ice and ocean conditions affect the present chemistry of the polar atmosphere.
- **Climate**
  The Climate programme uses observations from both polar regions to improve our understanding of how natural and human-induced factors contribute to climate change.
- **Ecosystems**
  The Ecosystems programme undertakes integrated analyses of Antarctic and Arctic ecosystems and develops understanding of the role of polar ecosystems in the Earth System.
- **Environmental Change and Evolution**
  The Environmental Change and Evolution programme addresses key aspects in the polar regions of geological and ice-sheet structure, marine and terrestrial biodiversity, and natural complexity, that influence the unique role of the polar regions in environmental change and evolution.
- **IceSheets**
  The IceSheets programme examines the role of ice sheets in the Earth System, and the processes that control ice-sheet change. It monitors current change and sets this in context with the past.
- **Polar Oceans**
  The Polar Oceans programme investigates the role of processes and changes both in the shelf sea and in open-ocean environments, and will further our understanding of polar control of the Earth System.

9.2 **Science Quality Assurance.** BAS fully endorses the NERC Ethics Policy and the RCUK Policy and Code of Conduct on the Governance of Good Research Conduct. All staff have a responsibility to ensure that these high standards are maintained; countersigners have oversight of specific areas of science.

10. Collaboration and partnerships

10.1 **UK collaboration.** BAS continues to strengthen its links and collaborations within the UK, across NERC, with Higher Education Institutes (HEIs) and with Government departments. The existing scientist-to-scientist collaborations within the NERC research centre community and with HEIs are an excellent foundation for the increased collaboration required by the NERC Strategy. The Innovation Centre will initially act as a platform for increasing collaborations with Cambridge University in particular. All arrangements involving BAS resources are codified, normally in Letters or Memoranda of Understanding (see *basweb/departments/programme_office/agreements.html*).

10.2 **International leadership.** The leadership of international partnerships is a strategic BAS priority, in line with NERC's requirement for Research Centres to provide a focus for international co-operation and the co-ordination of major programmes solving complex scientific problems. The aim is to build on the Survey's world-class science reputation and leadership role for the UK in polar affairs. This includes maintaining a leading role within the Scientific Committee for Antarctic Research (SCAR), the Council of Managers of National Antarctic Programmes (COMNAP) and increasingly in Arctic affairs. BAS has strong and active working agreements with Germany, the Netherlands, Norway, China, South Korea, Malaysia, and the USA. BAS is also involved in several European polar science initiatives.

10.3 **NERC Arctic Office.** BAS hosts and manages the NERC Arctic Office to facilitate the development and delivery of NERC's scientific interests in the Arctic and to respond to the growing UK national requirement in this area. It initiates the co-ordination of Arctic science opportunities, and provides a source of advice for the safe execution of Arctic fieldwork. In addition BAS is developing stronger links with Denmark and Norway, including new science and logistical opportunities in Greenland, Svalbard, and the wider Arctic.

Images: Top: *Winter image of Halley VI Research Station on the Brunt Ice Shelf, Antarctica.* **Bottom:** *Deployment of the benthic sledge on a snowy morning, from RRS James Clark Ross.*

11. Research studentships within BAS

11.1 BAS maintains a vibrant community of around 50 research students. These students are seen as vital to the maintenance of strong research groups and project teams, and thus to the achievement of key aspects of the BAS Vision and Mission.

11.2 All aspects of the admission and management of research students are included in the BAS Student Manual, which is published on the Intranet. BAS will normally agree joint studentships with any leading university department within the UK. BAS currently enjoys recognised University Partner Institute status with the University of Cambridge and is an Affiliated Research Centre of the Open University.

11.3 From late 2013, NERC will be allocating PhD studentships through Doctoral Training Partnership (DTPs) (*www.nerc.ac.uk/funding/available/postgrad/doctoral.asp*). There is currently an ongoing competition to decide who will receive DTPs. There will also be the opportunity to become CASE partners whereby BAS makes a contribution to the student's stipend using project funds. In all circumstances the Programme Office must be consulted at the earliest opportunity.

12. People, culture and skills

12.1 **BAS Culture.** BAS promotes the core expectations that NERC has defined for its staff through a culture that is:

- **Positive** – Positive attitude, energy, realism, enjoy the work
- **Responsible** – Safety conscious, environmentally friendly, accountable for one's actions, honourable, ethical, respectful towards one another, open and fair
- **Imaginative** – Creative, flexible, thinking of better ways, constructively challenging, learning from experience, problem solving, entrepreneurial and outward looking
- **Co-operative** – Open, communicative, loyal to one another, working in the best interests of BAS and science
- **Excellent** – Professional, efficient and effective, successful and recognised, high quality, applying best practice and developing our people

These BAS cultural values are a fundamental element in the way we operate and are embedded in day-to-day business processes and reward mechanisms.

12.2. **People and Skills Action Plan.** The NERC and BAS Strategy will be delivered through having a core resource of talented and engaged people with the right skills. BAS has a People and Skills Action Plan to address the four key challenges that underpin NERC's Strategy in this area:

- Attracting, developing and retaining the most capable people in delivering our organisational goals and objectives
- Promoting a positive culture of flexibility and adaptability throughout our community
- Delivering training priorities to meet identified skills gaps and development needs
- Promoting polar science to the wider community and assisting NERC in attracting young, talented people into environmental science

12.3 **Attracting and developing the best people.** BAS actively uses its world-renowned reputation to underpin the employment philosophy that 'excellence attracts excellence'. Fundamental to ensuring we attract and retain the best people is the need to maintain the Survey's national and international reputation for scientific, operational and engineering excellence. We have a culture of fairness and transparency and as well as providing promotional opportunities from within, encourage a wide variety of external applications from diverse backgrounds both nationally and internationally. The BAS recruitment website is the main source of external job vacancies.

12.4 **Training priorities.** BAS training priorities, within both the local and NERC context, are focused on nurturing our talent and in developing our organisational capability to meet future needs. Given our diverse workforce, such training extends to all our staff (including scientists, engineers, technicians, managers, support staff, mariners and pilots). Our underpinning philosophy is to maximise the capabilities of all of our staff for mutual benefit. Development and training are BAS Board priorities, using mechanisms such as Investor in People, Career Development Panels and Merit Promotion reviews. We believe a cornerstone to having the best people with the right skills is the development of tools such as workforce planning and succession planning in creating and supporting vibrant integrated research communities. BAS continues to increase its active participation in Leadership for NERC (L4N).

13. Supporting science – operations, logistics and infrastructure

15.1 The maintenance of research stations, ships, aircraft and well-found laboratories is funded mostly from BAS NC funding. The planning for field operations seeks to optimise the use of the logistic infrastructure for approved science and its support within the available capacity and funds. The Operations and Logistics Group will continue to modify the planning and co-ordination of field activity and the management of aircraft, ship and research stations as required by the NERC and BAS strategy.

13.2 **Project management.** NERC has adopted PRINCE 2 as its project management methodology. BAS has used this approach since 2001 and continues to apply it widely. All capital acquisitions are assessed to establish those that need to be managed as formal projects.

13.3 **Marine operations.** BAS marine operations are complex, highly cost-effective and delivered in a professional manner. BAS participates in the following NERC-wide activities:

- Joint ships' programming led by the NERC marine planning team to ensure transparent access
- Joint NOC/BAS studies into improvements to the marine technical support function across the whole fleet
- Assess opportunities to bring closer together the terms and conditions of service of NERC seagoing staff

13.4 **Aircraft.** During 2013/14, BAS will be integrating its airborne survey capability with that previously carried out by the NERC ARSF. It is likely that this will involve the disposal of the Dornier 228 aircraft currently operated by ARSF. The work previously done by the Dornier will be delivered by the existing BAS Twin Otters following a modification programme to be completed over the next two years. Enhancements to the Dash-7, such as the creation of an instrument hatch, will expand the airborne survey capability currently offered by NERC to the science community. The wider utilisation of BAS aircraft will be managed through a transparent access mechanism similar to that operated for NERC ships.

13.5 **Rothera.** A phased redevelopment programme has been established for Rothera. This is a major undertaking to be carried out over a number of years, including the replacement of site services and the introduction of sustainable energy solutions. The first phase of redevelopment was completed in 2008. Further phases are currently unfunded and therefore targeted works are taking place annually. In 2012/13 the generators were replaced, whilst in 2013/14 work will start to upgrade the sewage treatment plant.

13.6 **Halley.** The new Halley station (Halley VI) has now been completed and is in full use. The previous station has been dismantled and removed from the ice shelf. A key requirement now is to develop new science projects with the NERC science community and international partners.

13.7 **Science facilities.** The laboratories supporting science, both in Cambridge and on stations and ships, are kept under regular review. The reviews take account of demand by all science users and external developments in both technology and services. The Netherland's Gerritsz Laboratory at Rothera has been completed and is now in full use.

14. Support to the Foreign and Commonwealth Office (FCO) and other Government departments

14.1 BAS provides a range of support to the FCO as part of its mission to sustain for the UK an active and influential regional presence and a leadership role in Antarctic affairs. BAS experts are key members of the UK Government delegation to: Antarctic Treaty Consultative Meetings; CCAMLR; and the Committee for Environmental Protection. BAS also helps administer the British Antarctic Territory, and gives advice on application of the UK Antarctic Act as required. BAS is determining, in consultation with NERC, BIS and the BAS review group, what constitutes the "Partitioned Budget". BAS is also increasingly being called upon to provide advice to the FCO on Arctic affairs.

14.2 BAS also has a responsibility to provide scientific advice to policy makers in other Government departments, such as BIS, DECC and DEFRA, MOD, DofT and Non-Departmental Public Bodies, such as the Joint Nature Conservation Committee, the UK Hydrographic Office, the Environment Agency and the Marine and Coastguard Agency. BAS is continuing its efforts to transfer polar science results into these policy fora.

14.3 **Support for South Georgia.** BAS took over the UK's presence at King Edward Point (KEP) in South Georgia from the Ministry of Defence in March 2001. The arrangements that define this commitment are set out in an MOU between BAS and the FCO and the Government of South Georgia and South Sandwich Islands (GSGSSI). The MOU codifies the BAS directed fisheries research programme and the operation of the research station at KEP, South Georgia for the FCO and GSGSSI.

15. Safety, Health and Environment

15.1 BAS implements employment, safety, health and environment and other workplace legislation effectively and pragmatically. This includes maintaining a culture that is ethical, non-discriminatory and safety conscious.

15.2 BAS aims to be positive, open, pragmatic and effective in its approach to health and safety. BAS safety policy is firmly embedded in the NERC Safety Management System, tailored in detail to meet the special needs of the BAS operation. Accident, incident, near miss and environmental reporting allows safety performance to be improved through lessons learnt. BAS is accredited to the OHSAS 18001 standard for safety management for the Cambridge site and the ships, which is audited annually by the British Standards Institute.

15.3 Safety Management and Environmental Protection are integrated into a cross BAS Management Team led by the Board Member for Operations and Engineering. Regular discussions with the trade unions on these issues have proved efficient and beneficial. Health, safety, and environment are mandatory items on all BAS Committee agendas.

16. Environmental management

16.1 **Environment Office.** Environmental issues have significant prominence within the Antarctic Treaty System, and 'minimising our effects on the environment' is a strategic priority to achieve the BAS Vision. The BAS Environment Office acts as the focal point for environmental activity, with appropriate research and monitoring organised jointly with the science programmes. The BAS Environment Office is also a source of significant technical advice to the FCO in support of the work of the ATCM, and Committee for Environmental Protection. BAS is registered to the ISO 14001 standard for environmental management for the Cambridge site and the ships.

16.2 **Environmental improvements within NERC.** BAS is fully involved with the NERC Environmental Management Group, the corporate group that is taking forward environmental initiatives.

Images: Top: *The brittlestar Ophiacantha from 500m depth on the Bellingshausen Sea continental shelf.* **Bottom:** *BAS ski-equipped Twin Otter aircraft in open country on the Antarctic Peninsula.*

For more information, please visit our website: **www.antarctica.ac.uk**

17. Finance

17.1 **Income and expenditure.** This Plan marks a period of continuing financial austerity combined with uncertainty for BAS income due to a combination of the one-year spending review 2015/16, decisions on the budget partition, and the implementation of a new NC funding model. Despite the high level of uncertainty, BAS has produced a robust Plan for 2013/14 and 2014/15 and this is reflected in our updated Centre Activity and Resource Plan (CARP). This is partly due to the flat cash funding agreement in place between NERC and BAS, but also due to ambitious, but achievable, income targets and cost-cutting measures in place across the Survey. Pay band increases are constrained to 1% by Government decree, but this is now having a significant impact on recruitment and retention.

17.2 **Sustainability of the BAS Programme.** With the actions that have been taken, and those planned, the BAS Board judge the resource budget for the next two financial years to be balanced. There is however no remaining flexibility to accommodate unexpected events whether externally derived, such as specific cost inflation pressure, or internally derived, such as inadvertent overspending. The cost pressure that BAS has been under in previous years will continue for the foreseeable future and as a result there is always the risk that mitigating actions will need to be taken within the financial year if events dictate.

Capital funding has become much more accessible to BAS over the last two years as the government has reversed its initial decision to cut science capital expenditure by 50%. This has enabled BAS to maintain and enhance its asset base and there is a healthy capital plan in place for the next two years.

17.3 **Managing BAS budgets.** BAS budget holders are held accountable for the effective management of their financial allocations. This requires budget owners to remain at or below budget unless specific agreement to do otherwise is forthcoming. Maintaining forecasting accuracy provides confidence in the overall financial management, and helps the BAS Board to judge the appropriate level of expenditure controls during a financial year when these are needed to avoid overspending. The last two years have been disappointing in this regard and renewed efforts will be put in place this year to improve the accuracy of financial budgeting and forecasting.

17.4 **Capital Investment Programme.** There is an ongoing need for capital investment in BAS science equipment and infrastructure and this is increasing as the assets age. For the coming financial year BAS has an extensive capital programme that will require close monitoring to ensure that projects are completed on time. A formal approval process is maintained for all capital investment activity and options.

17.5 **Large facilities replacement.** The Halley VI Research Station on the Brunt Ice Shelf was completed in February 2012. Critical future projects for BAS include the replacement of both ships post 2019 and the refurbishment of Rothera. Neither of these have firm funding commitments, but they are visible in NERC's long term asset strategy.

17.6 **Pricing guidance.** Special arrangements continue to apply to certain funding schemes such as EU grants whilst others involve a judgement within the overall Treasury accounting guidelines. Advice should be sought from the Finance Department when required.

18. Information management

18.1 The BAS Information Strategy Committee sets the strategic direction for information in BAS and provides information governance, including risk, security and compliance. It ensures that all BAS data and information assets are managed effectively and fully exploited. BAS is committed to implementing the NERC Science Information Strategy and will continue to play a key role in the implementation team. BAS will continue to improve the security and accessibility of the data in line with the NERC Data Policy, developing innovative ways to collect, transfer, curate and visualise data.

18.2 The completion of the intranet development project is planned for 2013/14 with the objective of creating a single definitive source for accurate and useful information for BAS staff. BAS gives its full support to NERC-wide information management initiatives and will continue to encourage the uptake of iShare. In late 2013, the Resource Management System (RMS) upgrade will be implemented in all NERC centres.

19. Knowledge exchange – commercialisation

Ensuring that our science and knowledge is used to contribute to economic well being and quality of life has become increasingly important. BAS is committed to NERC and wider Government objectives to use and exchange knowledge to address environmental issues. BAS achieves this by working with policy makers, business and industry and non-Government organisations, and engaging with the public. BAS also plays a part in NERC's commercialisation activities facilitating the commercial exploitation of research outputs and intellectual property. Whilst the Innovation Centre will not focus entirely on commercialisation it will become a focal point for applied collaborative research and hence does provide an opportunity to boost BAS's commercialisation outputs. More generally, BAS will continue to play an active role in the NERC Knowledge Exchange Network.

20. Science and society

The portfolio of the BAS Communications Team (Press, Public Relations & Education) is a blend of science communication, public engagement and corporate communications activities. A primary goal is greater integration of science communication and corporate communication activities to deliver a coherent narrative to support the strategic and tactical objectives articulated in the BAS Business Management Tool.

Science communication is intended to explain and engage target audiences in the scientific results from BAS peer-reviewed research.

Corporate communication explains and engages specific business-related stakeholders (internal and external) in BAS science and operational activity.

21. Management of externally-funded projects

BAS manages a number of externally funded activities, the main ones of which are the NERC Arctic Station, KEP station on South Georgia, the management of the Arctic Research Programme (ARP), and the West Antarctic Icesheet programme (iSTAR). A fundamental principle is that all external arrangements with a call on BAS resources are codified through a Service Level Agreement, Memorandum of Understanding or Letter of Understanding.

22. Additional mandatory requirements

22.1 **International Safety Management (ISM).** ISM is an international maritime safety standard that all ship operators must meet. BAS Cambridge, the JCR and the ES have achieved continuous accreditation since 2002. The Maritime & Coastguard Agency (MCA) audits BAS Cambridge annually and the ships every two-and-a-half years. These audits also cover the International Ships and Ports Security Code (ISPS). BAS is assisting the MCA and FCO with expert technical advice regarding the international discussions on the proposed Polar Shipping Code.

22.2 **Aircraft regulation.** BAS fully meets the requirements of Air Safety Support International (ASSI), which assumed regulatory authority for the airworthiness of the Survey's aircraft in September 2006.

22.3 **Antarctic permits.** All UK activities in Antarctica are regulated by FCO permits under the Antarctic Act 1994. This requires the approval of all UK science activities, including permission for significant changes such as major new science projects and logistical activities. All planning for science projects and programmes and their support must satisfy

the permitting regulations. The BAS Director is an authorised signatory under the Act on behalf of the Secretary of State and one of BAS's roles is to provide advice to all UK science projects regulated by the Act.

22.4 **South Georgia permits.** The Government of South Georgia and South Sandwich Islands (GSGSSI) has a permitting regime similar to that used for Antarctica.

22.5 **Risk management.** NERC has a risk management policy and a risk strategy to meet HMG Treasury corporate governance requirements. The purpose is to ensure that organisations identify, evaluate and manage their key risks. The Board Member for Corporate Services is the BAS Risk Manager, and the risk register is on the BAS Intranet (*basweb.nerc-bas.ac.uk/busplan/risk-register.pdf*). All BAS Board papers include a mandatory assessment of the risk implications. BAS also inputs into the NERC risk assessment process.

22.6 **Business Continuity Management.** The BAS Incident Plan is the Survey's primary Business Continuity Management (BCM) mechanism to meet NERC-wide corporate governance requirements. The Plan provides a flexible response to unexpected events that are not covered by standard management practices for business interruption, such as system redundancy and the off-site back-up of data. The Board reviews its BCM position annually.

22.7 **Research Councils' Shared Services.** Responsibility for BAS finance and human resource administrative transactions transferred to the Shared Business Services (SBS) on 1st April 2010; formal responsibility for strategic procurement transferred to the SBS on 1st April 2008. The SBS was originally established (and owned) by the seven Research Councils with the vision of providing shared administrative services to the Councils. Ownership has now transferred to the Government department for Business, Innovation, and Science (BIS) and the customer base has expanded to take in some BIS departments. Further expansion plans are in place and the ability of BAS to drive business critical changes within the SBS are now negligible. However, care has been taken throughout to retain within BAS the resources and expertise necessary to maintain Antarctic-specific administrative functions, such as support of the Antarctic Employment Pool and Personal Accounts.

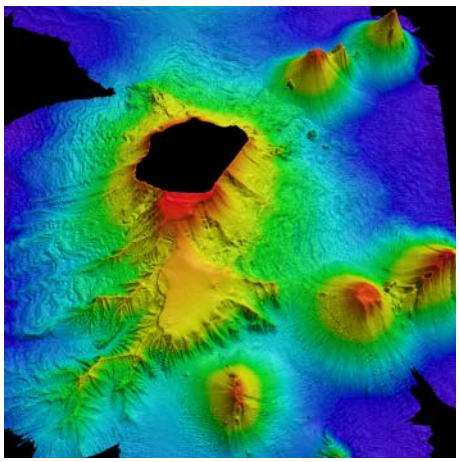
23. Planning assumptions

23.1 BAS planning reflects NERC's emerging strategy 2013 and its Delivery Plan 2011-2015.

23.2 Planning is based on the defining characteristics of NERC Research Centres, which are to provide within NERC's mission and science strategy:

- Excellent scientific research, monitoring and survey not obtainable elsewhere within the UK at competitive quality, timeliness and cost
- An integrated, well-managed national capability to provide reliable and independent advice to Government and other interested organisations
- A focus for international co-operation; for technology expensive projects; and for co-ordinating distributed major programmes solving complex scientific problems

The term 'national capability' covers the development and maintenance of trained staff, enabling infrastructure, data gathering, and management and delivery.



23.3 **Costing principle.** Costings are based on approved requirements and levels of service. New requirements are not to be funded without appropriate prior approval. Unplanned non-pay inflation has to be managed in year except where there is unavoidable cost growth.

23.4 **Staff numbers.** The Plan takes into account the previous and current redundancy exercises and any other known changes to staffing levels consequential of assumptions regarding income and expenditure. Future actual staff level changes will be dependent upon the actual future financial position. Costings in the financial tables reflect salary projections.

23.5 **Science.** Costings reflect the approved Polar Science for Planet Earth programmes, long term monitoring and survey and well-found laboratory support for delivering Polar Science for Planet Earth.

23.6 **Cambridge facilities.** Maintenance (and associated expenditure) from 2013 onwards has been costed on the long-term assumption that the BAS Cambridge site will be maintained in accordance with NERC Estate Management standards, the recommendations of periodic condition surveys and in conformity with existing and anticipated safety, fire and security regulations.

Images: Top: *RRS James Clark Ross moored in sea ice in the Weddell Sea, Antarctica.* **Bottom:** *Bathymetry data showing the sub-sea and island volcanos which form part of the South Sandwich Island chain.*

23.7 **Halley.** Planning assumptions for Halley VI are based on agreed occupancy and utilisation levels, but there still remains some uncertainty around the costs of operating Halley. For example, there is no overall pattern for fuel usage as the generators have not been fully functional for a complete season.

23.8 **Other research stations.** Support for Bird Island, KEP, Rothera and Signy is planned on the assumption of a long-term presence. The KEP station is governed by the MOU with the FCO and GSGSSI. Capital expenditure plans are included in Table 8. Expenditure on field stations, such as Sky-Blu and Fossil Bluff is planned on a year-to-year basis.

23.9 **South Georgia.** GSGSSI and BAS have agreed that scientific fieldwork can be undertaken across South Georgia, not just at KEP and Bird Island.

23.10 **Ships.** Expenditure plans for the JCR and ES are based on maintenance 'in class' with the respective Classification Societies (Lloyds Register and DNV). Maintenance and refit assumes an annual average of 315 operational days for each ship. The life extension of the JCR is not expected to take the vessel out of service for an extended period as the work is to be completed in stages over the next three years.

- JCR – owned by NERC with circa 160 science days/year in the Antarctic and 60 science days/year in the Arctic
- ES – bare boat charter from the owners, GC Rieber, until 2014 with an extension of up to 2019, with circa 130 days/year in the Antarctic. GC Rieber have declined their option to time charter the ES for 2013, so BAS will market the vessel with support from professional brokers. The ES is typically available for charter for up to 180 days/year

23.11 **Aircraft.** Plans for the maintenance of the Survey's aircraft are in accordance with the schedules laid down by Air Safety Support International (ASSI) to the standards required for a Corporate Operator's Category Certificate of Airworthiness. The operational hours of the aircraft are assumed to be:

- Twin Otters until 2016, with an overall potential of 1660 hrs/yr for field operations per season
- DHC-7 until 2016, with an average of 450 hrs/yr for field operations and 19 international flights to/from Antarctica per year

Note that the assumptions above exclude mobilisation/demobilisation flying time between Canada and Punta Arenas. Where BAS aircraft are required for survey work outside Antarctica it must costed at full cost and charged to the relevant project.

23.12 **KEP.** Funding of KEP is through an MOU with the FCO and GSGSSI and is ring-fenced. Core science money is not used to fund the project (nor vice versa). The BAS presence is assumed to be long term.

23.13 **Vehicles.** Expenditure plans are based on maintaining a vehicle fleet to meet the needs of the approved field programme and specific station requirements.

23.14 **Health and Safety.** General infrastructure and project expenditure plans take into account the health and safety of the Survey's staff and known and anticipated UK and EU legislation, qualified only by the practicalities of implementation in Antarctica.

23.15 **Environment and waste management.** Capital and recurrent expenditure plans are based on the UK's obligations under the Protocol on Environmental Protection to the Antarctic Treaty and 1994 Antarctic Act (conditions attaching to permits issued by FCO).

23.16 **Information and technology support.** Plans are based on the requirements of approved projects, scientific cruises, the maintenance and support of the Antarctic and ship-based networks and Cambridge computing.

Income and expenditure summary (Resource)

	£Ms		
	2013/14	**2014/15**	**2015/16**
NERC Income	42.894	43.775	42.849
External Science Income	1.830	1.205	0.880
External Sundry Income	3.250	3.673	3.675
Total Income	**47.974**	**48.653**	**47.404**
Science: Pay	8.724	8.877	8.424
Science: Non-Pay	2.897	2.298	2.368
Support Services: Pay	1.508	1.598	1.567
Support Services: Non-Pay	1.687	1.708	1.704
Operations and Engineering: Pay	11.207	11.500	11.530
Operations and Engineering: Non-Pay	20.881	21.415	20.536
KEP - South Georgia: Pay	0.520	0.529	0.509
KEP - South Georgia: Non-Pay	0.449	0.440	0.462
Arctic Station: Pay	0.054	0.055	0.055
Arctic Station: Non-Pay	0.144	0.148	0.153
Total Expenditure	**48.071**	**48.568**	**47.308**
Surplus/(Deficit)	**-0.097**	**0.085**	**0.096**

BAS images and maps

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www.photo.antarctica.ac.uk

The British Antarctic Survey also has a selection of maps available to purchase at:
www.stanfords.co.uk

Feedback and further information

We welcome your feedback and comments on this document. These should be addressed to:

Board Member for Corporate Services

British Antarctic Survey
High Cross, Madingley Road
Cambridge, CB3 0ET, UK

Email: **iaig1@bas.ac.uk**

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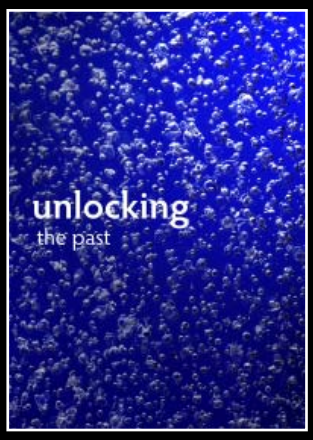
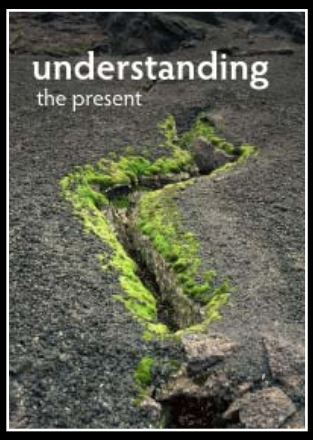
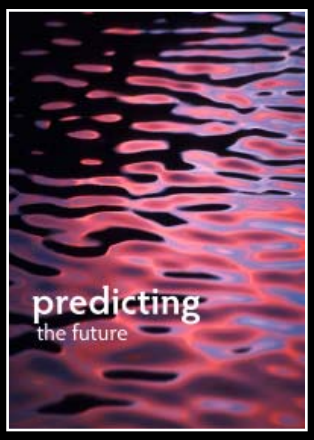
www.antarctica.ac.uk







British Antarctic Survey (BAS), a component of the Natural Environment Research Council, delivers world-leading, interdisciplinary research in the polar regions. Its skilled science and support staff based in Cambridge, Antarctica and the Arctic, work together to deliver research that underpins a productive economy and contributes to a sustainable world. Its numerous national and international collaborations, leadership role in Antarctic affairs and excellent infrastructure help ensure that the UK maintains a world-leading position. BAS has over 450 staff and operates five research stations in and around Antarctica and one in the Arctic. BAS has two Royal Research Ships and five aircraft supporting its activities in the polar regions.

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