Cruise Participants' Handbook

Information for research cruise participants aboard British Antarctic Survey ships

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

POLAR SCIENCE FOR PLANET EARTH

BAS internet links

1. **Principal scientists handbook** – details of how to lead a cruise on BAS ships:
   https://www.bas.ac.uk/wp-content/uploads/2015/08/Principle-Scientists-Handbook.pdf
2. **Cabin booklet** – ship safety and domestic information (JCR):
   https://www.bas.ac.uk/wp-content/uploads/2015/03/JCR-Cabin-Booklet-2017.pdf
3. **Virtual tour** – Plans/layouts of the ship and photos (JCR):
   https://www.bas.ac.uk/polar-operations/sites-and-facilities/ship/rrs-james-clark-ross-virtual-tour
4. **A guide to going south with British Antarctic Survey:**
   https://www.bas.ac.uk/wp-content/uploads/2015/04/Guide-to-Going-South-2019.pdf
5. **Visitors to the Antarctic** – Personal, financial and medical requirements:
   https://www.bas.ac.uk/for-staff/polar-predeployment-prep/intro-guidelines-and-forms/medical-guidelines-and-forms
6. **BAS ship** – General ship information and specifications (JCR):
   https://www.bas.ac.uk/polar-operations/sites-and-facilities/facility/rrs-james-clark-ross/#list
7. **Computing facilities** on the ship (JCR):
   https://www.bas.ac.uk/polar-operations/sites-and-facilities/facility/rrs-james-clark-ross/rrs-james-clark-ross-computing-facilities
8. **The five-year rolling science and logistics programme, itineraries, current positions, list of agents, ship diaries and webcams for both ships:**
   https://www.bas.ac.uk/polar-operations/sites-and-facilities/ship

BAS Digital Workspace (Intranet) links

The following are only available on the BAS Digital Workspace (internal intranet, not the public website). Please contact Randolph Sliester – BAS Ship Operations Manager (ranies@bas.ac.uk) – if you would like a copy.

9. **Your personal itinerary:**
   http://basweb.nerc-bas.ac.uk/south/main.php
10. **Cargo deadlines:**
    http://basweb/departments/purchasing_and_shipping/deadlines.html
11. **Waste management handbook:**
    http://basweb.nerc-bas.ac.uk/archive/information/manuals/docs/waste_management_handbook.pdf
12. **Ship safety management system (ISM):**
    http://basweb/ships/sms/index.php
13. **Science equipment deployed from JCR previously:**
    http://basweb/ships/sms/rrs_james_clark_ross/science_instructions.php

Cover: *RRS James Clark Ross in Marguerite Bay, heading for Rothera Research Station, Antarctic Peninsula.*

For more information, please visit: **www.bas.ac.uk**

Contents

This handbook should be read by all scientific cruise participants on British Antarctic Survey (BAS) ships. It aims to provide background to the environment in which you will be living and working and advice on how to prepare for your cruise. On page two, there are numbered links to both BAS Internet and Digital Workspace (Intranet) pages which expand on the various topics. To avoid repeating frequent links throughout this guide, an appropriate link number is shown e.g. **[6]**. This guide will give you an idea of what to expect and in turn what is expected of you before, during and after your cruise, and should be read in conjunction with the ship's cabin booklet **[2]**.

If you are a Principal Scientist (PS) you must read the Principal Scientists' handbook **[1]**, which outlines the steps that should be taken in undertaking the leadership of a cruise. This may be of interest even if you are not leading the cruise.

For information regarding activities in Antarctica (off the ship) please refer to the BAS Participants' Handbook – 'A guide to going south with British Antarctic Survey' **[4]**.

In this handbook,

all references to:	**shall also refer to:**
He	She/They
Him	Her/Them
His	Her/Their
Masculine terminology	Either gender or feminine terminology
Person	Persons

Welcome from BAS

This handbook has been prepared to assist you in your research cruise, in order that you might make best use of BAS ship facilities. The handbook is applicable whether you are a BAS/UKRI-NERC employee, or from a University or other external organisation.

BAS shore staff, marine staff and scientists must work closely together to achieve a successful and productive cruise. That requires an understanding of the regulatory framework and working practices within which a research ship must operate safely and efficiently. This handbook aims to provide that understanding.

Shipping, as an industry, is tightly regulated by the International Maritime Organisation (IMO). There is an International Safety Management (ISM) code applicable to all ships including those operated by BAS. This regulates safety, environmental protection and security through the Ship's Safety Management System and regulates all activities on the ship. Cruise participants are as much involved in the regime as are the ship's officers and crew.

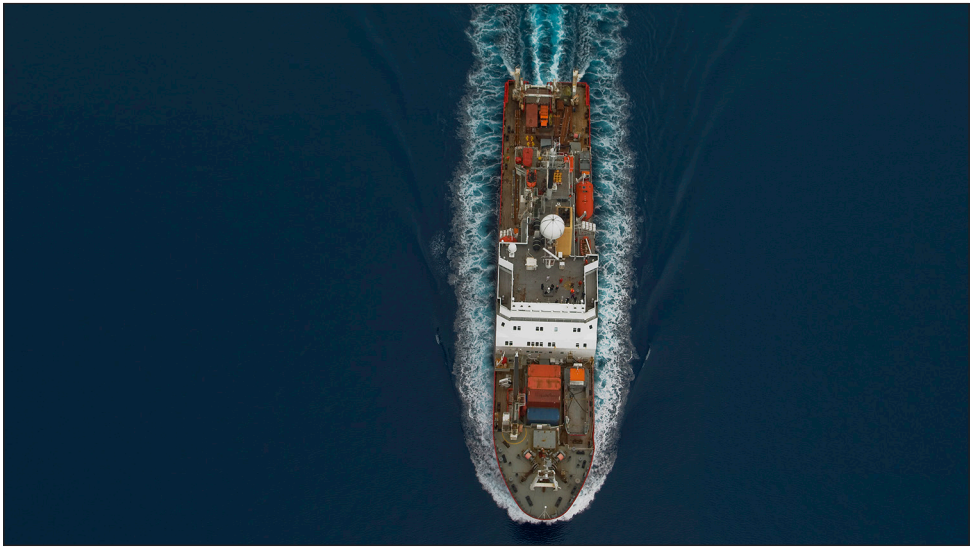
BAS ships have an excellent record of supporting science at sea, and all BAS staff involved in supporting cruises on shore or at sea are dedicated to making your cruise a success. Please let us know of any concerns that you may have and we will do our best to allay them.

Your main contact in BAS for your cruise is Randolph Sliester, Ship Operations Manager (01223 221456 – ranies@bas.ac.uk) but please check with your Principal Scientist (PS) first as the information or answer to your question may already have been given.

Other useful contacts are:

BAS point of contact	**Randolph Sliester** – ranies@bas.ac.uk – (0)1223 221456
	Julia Webb – jufe@bas.ac.uk – (0)1223 221344
Personal arrangements	**Amy Stone** – amyone@bas.ac.uk – (0)1223 221496
BAS Polar Ops Support Team (POST)	Travel, medical, finance
Cargo arrangements	**Kath Nicholson** – kani@bas.ac.uk – (0)1223 221633
BAS Stores & Shipping Team	Transport of equipment, cargo etc.
Health and Safety Advisor	**Jennifer Forster-Davidson** – jenfor@bas.ac.uk – (0)1223 221547 Risk assessments and all other safety matters including radiation protection

Section 1: Pre-cruise planning



PERSONAL

Medical

For most cruises BAS has a doctor or paramedic onboard, appointed by the BAS Medical Unit (BASMU). If one is not carried, due to the nature of the cruise or area of work, an officer with First Aid/medical training will be responsible for medical matters onboard.

All cruise staff are required to be in date with BASMU medical screening requirements as indicated in Section 6. The final decision on fitness will rest with the Senior Medical Officer. Examinations can normally be completed by your GP.

Dental

There will not normally be a dentist onboard. You must ensure a good standard of dental health through your own dentist before joining the cruise and submit the BASMU 7 dental form as confirmation.

Personal medication

If you are taking prescribed drugs at the time of joining the ship, or are on a course of medication approved by a practitioner at the time of the medical examination, you should inform the PS before joining, and the Master and doctor when you join. Take a sufficient supply of your medication for the whole cruise plus the time it will take to return home (with a good margin in case of delays).

Insurance

You should be aware that UKRI-NERC/BAS does not insure its ships, staff or the equipment they carry. **All non-BAS staff should arrange appropriate personal insurance cover.**

Only UKRI-NERC staff are covered for the consequences of accident or illness onboard.

If you bring your own equipment you should satisfy yourself and your parent organisation that

Image: *Aerial view of the RRS James Clark Ross in the Bellingshausen Sea, west of the Antarctic Peninsula.*

For more information, please visit: **www.bas.ac.uk**

you fulfil any insurance requirements deemed to be necessary, including cover for periods in transit.

In the event of an accident on the ship, BAS will appoint an agent ashore to assist with arrangements. All costs incurred will be charged to the individual who may then claim costs back through the insurance company or their parent organisation. **You are advised to carefully check that you have adequate personal insurance cover and that your parent organisation recognise this liability to allow for these potential costs.**

Organisation insurance policies which provide an element of medical cover whilst staff are abroad may also include aspects of hospital cover and repatriation to the UK. Please note that when this type of cover is activated, it will depend on arrangements the Master may make in endeavouring to land the individual concerned. No actions of the insurance company or individual will override the responsibilities of the Master or BAS. Any remedial/support actions by the parent organisation or an insurance company will be subject to agreement by BAS, the agent and the Master.

Safety Training

First Aid

BAS recommends that all cruise participants undertake First Aid At Work training although it is not mandatory. However if you do not have a First Aid At Work certificate this could restrict your recreational activities should you get the opportunity to go ashore in Antarctica or other location.

If you are spending any significant time in Antarctica in transit or working, you will be required to hold a First Aid At Work certificate.

External participants are welcome to contact BAS HR for further information.

Personal Survival

To join a BAS ship you must have completed an **MCA accredited STCW 2010 Personal Survival Techniques course**. You must send a copy of a valid certificate to BAS before joining AND take the ORIGINAL certificate with you to the ship. BAS will organise courses for BAS employees, but visiting scientists must organise and fund their own training.

YOUR ORIGINAL CERTIFICATE MUST BE TAKEN ONBOARD, otherwise you will not be permitted to work on deck.

Please note that PST certificates are only valid for five years.

Details of training colleges in the UK and overseas can be obtained from BAS. If you are involved in specialist high-risk activities such as (but not exclusively) diving, working with explosives, and radio chemicals you must attend appropriate training courses/demonstrate experience. Details of experience and training should be shown in the Hazard Analysis and Risk Assessments.

Travel arrangements and requirements

BAS will make the travel arrangements for your cruise. There is no opportunity for independent travel en route to your Antarctic destination. There is however scope for individuals to make their own travel arrangements when returning from Antarctica (you must ensure BAS POST are aware of your plans). **All personally arranged travel is entirely the responsibility of the individual.**

For up-to-date information on travel policy please refer to the Operations travel pages: *https://www.bas.ac.uk/for-staff/polar-predeployment-prep/intro-guidelines-and-forms*

If you make private arrangements for your return home you must agree this with your PS and inform BAS POST (and the Master) of the details as soon as possible.

Do not leave home without your passport. It should have at least six month's validity in excess of your planned date for return home at the end of the cruise. Some countries require this for transit. BAS can advise on the necessary visa, vaccinations/inoculations **[5]**, introduction letters (not usually necessary) and any other special requirements.

It is your responsibility to ensure that all your travel documents are correct for your planned itinerary **[9]**. If you are at all unsure please contact BAS POST for advice.

WORK-RELATED

Risk assessments

Make sure you have read, fully understood and are **committed to the Hazard Analysis and Risk Assessments for your cruise work**. Remember you may be working in close proximity to someone with other tasks and you should be fully aware of the Risk Assessments for their activities as well. We take your safety very seriously and breaches of RA controls and precautions will not be tolerated.

Laboratory facilities

Refer to Appendix 1 for details of lab facilities etc. on RRS *James Clark Ross*. We hope these details will assist in planning your onboard workspace. Refer to the Lab Code of Practice for use of labs.

Control of substances hazardous to health

Staff accustomed to handling hazardous materials, such as chemicals, in a shore laboratory will find that the marine environment presents them with particular, unfamiliar problems. This should be considered when preparing Risk Assessments. All hazardous substances must be stored and used in a manner that withstands the ship's motion. Adequate means for safe transportation of chemicals to and around the ship must be ensured.

Explosives

If you plan to use explosives, discuss this with the PS. Refer to the BAS 'Code of Practice - Explosives':

http://basweb.nerc-bas.ac.uk/information/manuals/explosives/code_june_2007.pdf

BAS has an Explosives Officer who will be pleased to advise.

Gases

FULL PRESSURE GAS BOTTLES ARE NOT PERMITTED IN LABORATORIES (except for special cases of pure air, which are subject to prior agreement with BAS and the supply of special release arrangements). It is the science team's responsibility to supply any special fittings and piping required for connection to instruments in the laboratory and to reduce the gas pressure for its end use.

The scientific team should ensure gas bottles are supplied in appropriate stillages for securing on external decks. Requirements should be discussed at the cruise planning stage. Adequate protection must be supplied for bottle regulators to avoid impact damage whilst the bottles are being handled, and corrosion while at sea.

Science equipment – preparation and transport

BAS Stores & Shipping deals with the shipping of all materials and equipment for BAS, it manages the loading and discharge of cargo from BAS ships and the freighting of cargo commercially by sea and air.

Please make BAS Polar Operations Support Team Cargo Section aware in the early stages of planning (at the latest at the PS Workshop/meeting) of requirements for shipping equipment for the cruise, and returning equipment, data and samples home.

BAS ships support many scientific cruises, and also carry cargo for many separate destinations. **It is critical that all equipment and materials**

loaded onboard are properly marked and documented to ensure correct identification and shipment. BAS will require details of all non-BAS equipment to be shipped and it must be packed, marked and documented to the BAS specifications. Please adhere strictly to the following requirements:

Packing – general equipment

All equipment should be adequately packed to ensure that it can withstand multiple handling and stowage with other cargo. Packing is particularly important if equipment is being transported by commercial means (sea or air). BAS do not have packing facilities onboard ship or in Stanley.

Packing – hazardous materials

All materials and substances of a hazardous nature including explosives, flammable liquids and solids, radioactive substances, poisons and corrosives must be packed, marked and documented to comply with International Regulations for the carriage of Dangerous Goods by Sea (IMDG Code). This involves packing in UN-tested and approved packs by authorised persons. Before BAS can agree to shipment, details of hazardous material must first be sent to the BAS Stores & Shipping Team for checking and authorisation.

Documentation

Lists of equipment for delivery to BAS ships should always include the following information:

Case number	BAS will allocate number series
Package	Case, bundle, drum etc.
Contents	Detailed list of contents
Value	For customs
Weight	In kg
Dimensions	In cms
Volume	In cubic metres

In the case of hazardous cargo and specimens, there are special Bills of Lading (BOLs) requiring extra information.

From these lists BAS prepares the shipping documents and cargo manifest required by agents, the ship and Customs & Excise. Please note that customs entries are required for the equipment of each cruise participant, this facilitates the re-importation of equipment back into the UK. The information is also used for planning the stowage of equipment onboard to ensure that it can be accessed when required.

Images: Top: *Working on the Rectangular Midwater Trawl (RMT) release mechanism on the JR230 Benthic Pelagic Coupling cruise.*

Bottom: *The AUV 'SeaBED' developed by Woods Hole Oceanographic Institution, off the stern of the RRS James Clark Ross.*

For more information, please visit: **www.bas.ac.uk**

Submission of lists

Delivery and loading

BAS Stores & Shipping Team require the cargo listing a minimum of two weeks before receipt into the docks is planned and the deadlines for the latest receipt of cargo can be found on the Purchasing and Shipping Digial Workspace (Intranet) page or by contacting BAS Stores & Shipping Team.

Installation of any equipment on the ship (including in laboratories) will be as agreed by the PS and the Chief Officer, but all equipment requires documentation.

Non-BAS Freighted Equipment

Commercial shipment

It is possible to commercially ship cargo to meet BAS vessels at non-UK ports, usually Stanley (and occasionally Punta Arenas) in the Antarctic season or a specific cruise mobilisation port. **It should be noted that these options are costly and can be fraught with difficulty.**

Due to cargo limitations, some scientific equipment may be freighted commercially at BAS's discretion.

There are monthly non-BAS sailings to Stanley at present. From receipt of cargo into a UK port it takes six weeks to discharge at Stanley. The above instructions for BAS cargo also apply to commercial seafreight.

It is normally possible to airfreight equipment and materials to non UK ports; however BAS Shipping Section must be consulted. Airfreight to Stanley is not recommended as it can be rejected before takeoff by the MOD/RAF who operate the flights.

BAS CANNOT GUARANTEE ACCESS TO ANY RAF AIR FREIGHT FACILITIES.

Air freighting hazardous materials is normally impossible, and this includes several types of batteries.

Clothing

Participants on BAS cruises will be supplied with clothing suitable for their cruises. All other participants must supply their own clothing to similar standard.

BAS POST (see Contacts) will be happy to give advice on what you need

Section 2: Living and working onboard

LIVING

An explanatory 'Welcome aboard' cabin booklet is in each cabin **[2]**. This explains ship routines, meals, domestic facilities and safety – EVERYONE MUST READ IT.

Travel to/arrival at the ship

BAS POST will advise you of your travel details in good time.

In each port BAS has an appointed agent who will meet and assist you to join the ship. Assistance is arranged with agents by BAS but you can contact them direct in an emergency. They are in constant touch with the ship and BAS **[8]**.

You will usually join the ship a few days prior to sailing. If you arrive before the ship, accommodation will be arranged after liaison with your PS.

Once onboard, hand your passport and PST certificate to the Purser and he will assist you in completing the formalities for sailing. **Read the safety notices in your cabin.**

You will receive a comprehensive safety briefing shortly after boarding.

Accommodation onboard

Scientific staff (except the PS) will be accommodated in two-, three- or four-berth cabins, each with bathroom/shower. However whenever possible we will allocate minimum occupancy within each cabin. It is your responsibility to keep your cabin clean and tidy.

Keys to cabins will be issued by the Purser on joining. Cabins should not be locked at sea but they should be locked in port, when unoccupied.

Scientific staff have full access to the Officers'/Scientists' lounge and the saloon on the JCR. You are asked to observe the dress code in the cabin booklet **[2]** when using these rooms and comply with all signs regarding working gear/footwear.

Access within the ship

There are certain areas of the ship that are out-of-bounds for scientific personnel unless specific permission has been granted. These include; the bridge; the engine control room and all machinery spaces; the galley; non-scientific storerooms; engineering workshops; crew accommodation; and the crew mess room and crew bar.

These constraints are for safety reasons and to permit the crew privacy in their own accommodation.

Should you wish to see the engine room the marine staff will be happy to organise a visit, please ask the Chief Engineer.

Scientific staff are requested to allow the catering staff adequate access to public rooms to facilitate cleaning.

Alcohol and drug policy

BAS has an alcohol and drug policy. Refer to the Cabin Booklet for details **[2]**.

BAS operates a zero tolerance policy towards the use of banned drugs.

Anyone found infringing this policy will be discharged from the ship and may be liable to further disciplinary measures. You may also be breaking local laws when the ship is in port which can result in arrest and criminal proceedings.

Relations with the crew

Marine staff serve onboard for much longer periods than scientific staff. The ship is their home and we ask you to respect the privacy of their accommodation. Marine staff are often on watches so please be quiet in crew accommodation areas.

The deck crew may advise scientists that certain activities on the external decks of the ship are unsafe. Please accept that they have a responsibility for the safety of scientists as well as themselves, and act as requested.

If you require assistance from the ship's deck staff, you should direct your requests to the Chief or Duty Officer to avoid any misunderstandings concerning the working regime.

Communications

There are good communications facilities for both telephone and email onboard BAS ships and an ability to access the internet, although at peak times this can be very slow. Please refer to the ship's Cabin Booklet for detailed information **[2]**.

Going ashore in Antarctica (and BAS operational areas)

If during your cruise you have the opportunity to go ashore or visit an Antarctic station you will be given a briefing on the ship. Limits of travel and activity will be explained as will all safety and environmental aspects. All instructions issued by the Station Leader or the Briefing Officer onboard MUST be followed.

There is general information about living and working in Antarctica in the BAS Participants' Handbook – 'A guide to going south with British Antarctic Survey' **[4]**.

WORKING

Science cruises typically last two to six weeks, during which time scientific work may continue 24-hours-a-day, seven-days-a-week, with personnel working 12-hour shifts. The PS is responsible for cruise personnel, applying the hours of work/rest requirements, and for nominating a watch leader for each shift.

Duties of science team when onboard but not conducting science

BAS ships often have science teams onboard who are not actively engaged in science duties due to the particular role of the ships in the Antarctic. In these circumstances the science team are expected to assist in various shipboard duties. Such duties may include assisting the Stewards or Seamen and assisting with cargo at Antarctic stations. You will be trained to perform the tasks and if you feel that you are insufficiently briefed or not capable of doing the task safely you should report the fact to the PS and the ship will rectify the situation or change the duty.

Laboratory usage

Ships laboratories are small and usually shared by different projects. It is important for everyone to be considerate of other users and work in a tidy manner. It is your responsibility to keep your workspace clean and tidy. All laboratory regulations and guidelines apply as they do in the UK. However there are extra risks in ship laboratories and the ship-specific lab. Code of Practice and Cruise Hazard Analysis and Risk Assessments should be thoroughly read before undertaking any lab work onboard. The Code of Practice, Hazard Analysis and the Risk Assessments for the cruise are available in the laboratories.

Control of substances hazardous to health

Many substances are capable of damaging your health. They include not only recognised hazard substances, such as chemicals used in laboratory processes, but also domestic substances. Product guidelines should be read and adhered to.

Compliance with COSHH is BAS policy.

The ship carries COSHH hazard data sheets. The Safety Officer (Chief Engineer or Second Officer) is responsible for these files, which are kept in the ship's office and the laboratory spaces. In addition, a database of chemical hazard information is available on the ship's computers. Hazard data sheets and COSHH assessments shall be consulted before use of substances.

Hazard data sheets shall be obtained from the supplier when any substance without a filed hazard data sheet is brought onboard. The new hazard data sheet shall be passed to the Safety Officer.

Disposal of hazardous material

Ship's drains

Please refer to the notices in each working area onboard regarding ship's drainage systems and disposal of waste material.

NO radioactive substances, toxic compounds, hazardous chemicals or biological specimens are to be disposed of via laboratory sinks.

For general waste disposal refer to the cabin booklet **[2]**, the ships Waste Management Policy and the Waste Management Handbook **[11]**.

NOTHING OF ANY DESCRIPTION IS EVER TO BE THROWN OVERBOARD.

Accident and incident reporting

ALL accidents, incidents and 'near misses' must be reported to the ship's Safety Officer.

BAS ships have a good safety culture and reporting of 'near misses' **experienced OR witnessed** can help prevent future accidents.

Reports are composed without identifying specific people whenever possible, and you don't have to have been personally involved to make a report.

Do something positive to protect yourself and your colleagues in the future. Learn from 'near misses'.

BIG OR SMALL – REPORT THEM ALL.

Images: Top: *Deploying the CTD, used to measure conductivity (to determine water salinity), temperature and depth.*

Bottom: *Returning to RRS James Clark Ross from Bird Island Research Station, South Georgia.*

For more information, please visit: **www.bas.ac.uk**

Section 3: End of cruise arrangements

Domestic arrangements

At the end of the cruise, vacate your cabin as instructed by the Master/Purser. Cabins and work spaces must be left clean and tidy (as you would hope to find them).

ALL KEYS MUST BE RETURNED TO THE PURSER OR CHIEF OFFICER BEFORE YOU LEAVE THE SHIP.

Ensure you collect your passport and PST certificate from the Purser, remove all personal effects from scientific spaces, and properly dispose of rubbish.

Please make sure that you remove, pack and mark ALL your equipment. Unmarked equipment is almost impossible to trace after a lapse of several months (and probably several science teams and hundreds of tons of equipment and cargo being moved on and off the ship in various ports). BAS is not responsible for anything left on the ship once you have left unless it has been properly documented and packed.

Check that the Master/Purser knows your travel arrangements, so they can ensure that the agent supplies necessary transport etc.

Return of equipment/samples

General equipment

Please address all queries to the BAS Stores & Shipping Team.

Unless otherwise arranged, all science equipment will be returned to the UK on BAS ships at the end of the Antarctic season.

Science equipment and materials should be returned in the same packaging and retain the same case number. This will simplify documentation and allow the original list to be modified with the deletion of items not being returned. Bills of Lading MUST be submitted through the Chief Officer.

As far as sea conditions allow, all your own equipment should be packed, marked and documented as directed by the Chief Officer BEFORE the ship arrives at the final port.

Hazardous waste

All hazardous waste is returned to the UK for disposal. Waste should be documented on a Bill of Lading and the packages marked and identified by numbers issued by the Chief Officer. Refer also to the BAS Waste Management Handbook [11] and Ships Waste Management Policy for guidance.

Samples

Samples collected during a cruise must be documented on a Bill of Lading and the packages identified by a number issued by the Chief Officer. The description of the specimens should be as complete as possible. This is particularly important where import licences are required. The special BOLs for specimens MUST be used.

Personal effects

All personal effects left unaccompanied onboard must be returned to the UK as cargo. A C3 Declaration and a Bill of Lading must be completed before each owner leaves the ship – without these documents BAS cannot obtain clearances from HM Customs in the UK when the goods are landed.

BAS clothing

BAS clothing kit bags must be returned complete to the Chief Officer at the end of a cruise. They will complete the cargo documentation for their return.

Non-BAS movement of equipment

If you have specific requirements to transport your own equipment independently of BAS arrangements, make sure that all necessary documentation and booking details are copied to the Master for the BAS-appointed agents in the port concerned. Failure to do this may lead to problems, extra costs for you and the inability to ensure proper follow up actions when the ship has left port.

Appendix 1: Laboratory layout onboard RRS *James Clark Ross*

The following notes are designed to assist users in allocating spaces to equipment. The standard bench depth is 800mm, without making allowance for obstructions on the bulkheads. Where attachment rails are fitted in bench tops they are normally situated 100mm and 550mm from the front edge.

Upper Deck

Wet Laboratory

Outboard bench – waist height. Two large vulcathene sinks (900x600mm, 400mm deep, h+c fresh plus uncontaminated seawater) separated by 1,550mm of bench with attachment rails. Cupboards under. Extraction hood over forward sink – two 240V waterproof sockets (standard square pin) in bulkhead over sorting table – two 240V waterproof sockets (standard square pin) in bulkhead over.

Aft inboard bench – 1,820mm bench with attachment rails and single kneehole, two drawer units – two 240V waterproof sockets (standard square pin) in bulkhead over. Forward inboard bench – 1,600mm bench with attachment rails and single kneehole, drawer unit – one 240V waterproof socket (standard square pin) in bulkhead over.

Main Laboratory – outboard portion

Outboard bench – waist height. Two large vulcathene sinks (900x600mm, 400mm deep, h+c fresh plus uncontaminated seawater) separated by 2,060mm of bench with attachment rails. Cupboards under. Note that there are no electrical sockets on the bulkhead behind this bench, although there are two 240V double sockets on the adjacent forward bulkhead.

Spur bench – waist height, 2,500mm long by 1,000mm deep (attachment rails standard distances from port edge) with single large kneehole separating drawer units – short run of benchtop forward of it – two 240V double sockets and one 115V double socket in bulkhead at forward end.

Inboard bench – 2,500mm bench with attachment rails and single kneehole with drawer units either side – five 240V double sockets and two 115V double sockets, Ethernet port, clock junction box. Fume cupboard with hazchem cupboard under.

Repeaters for ship's master clock, ship's log, winch monitoring system. Switches for uncontaminated seawater pumps.

Main Laboratory – inboard portion

Main benching – 3,900mm bench with attachment rails and 1,000mm deep for most of its length – one large junction box on bulkhead towards aft end, with 550mm height under – eight 240V double sockets and four 115V double sockets, Ethernet port – three drawer units and one cupboard and two kneeholes. Short length of additional benching forward.

Short bench aft on starboard bulkhead with four 240V double sockets and two 115V double sockets.

Biochemistry Laboratory

Main benching – waist height, 4,650mm bench with attachment rails and two kneeholes – two drawer and two cupboard units under. Vulcathene sink forward, with h+c fresh plus uncontaminated seawater. Gas taps at forward end of main benching. Refrigerator under. Five 240V double sockets, Ethernet port, clock junction box. Junction boxes on bulkhead make attachment of equipment greater than 330mm high difficult on the aft 900mm of the main bench.

Microbiology Laboratory

Main bench is waist height and comprises stainless steel tray approx 2,000mm. Aft of this is 740mm of benchtop without attachment rails. Four cupboard and one drawer unit under, no kneehole. Forward is 1,550mm of benchtop with attachment rails and vulcathene sink – h+c fresh plus uncontaminated seawater – four 240V double sockets along the port bulkhead and two 240V double sockets on the starboard bulkhead

– Ethernet port and clock junction box.

Laminar flow cabinet (Astec SC 1200 AC) with cupboard under. Virtually inaccessible benchtop with attachment rails aft and hazchem cupboard under.

Preparation laboratory

Main bench (forward) – lipped vulcathene waist-height bench without attachment rails surrounds large sink (900x600mm, 400mm deep, h+c fresh plus uncontaminated seawater) and is also partly occupied by the pure water supply unit (Elgastat UHP) – underway instrumentation (SeaBird Electronics thermosalinograph and Turner Designs through-flow fluorometer) on bulkhead – uncontaminated seawater supply enters the laboratory suite here – three 240V double sockets.

Benching to starboard occupied by scintillation counter (Beckman LS 6000SC) with hazchem cupboard under. Wooden three-shelf racking for chemicals or sample bottles. Fume cupboard with h+c fresh – hazchem cupboard under.

Aft bench – waist height 1,600mm with attachment rails and Gallenkamp oven under – two 240V double sockets.

Roller-fronted shelving unit on port side aft.

Chemistry laboratory

Vulcathene-topped benching, waist height, around three sides of the lab, all fitted with Unistrut attachment rail.

Inboard bench 2,355mm long, non-standard 600 mm depth. Attachment rails are standard distance from front of bench, so that the back rail is very close to the bulkhead. There are large junction boxes at the forward end of this bench, limiting the height of attached equipment to about 350mm. Three 240V double sockets, Ethernet port, ship clock junction box. One drawer unit and one cupboard unit under, single kneehole plus stowage space in comer.

Forward bench 2,250mm, again non-standard depth 600mm with the same proviso re the attachment rails. Five 240V double sockets on this bulkhead. Extension of pure water supply. One cupboard and one drawer unit under, single kneehole.

Outboard bench 2,325mm, standard 800mm depth, lipped edge. Vulcathene sink with h+c fresh plus uncontaminated seawater supply. Manifolded gas supply and compressed air. One cupboard unit under but sink and trap take up much space, large kneehole or stowage.

Two four-shelf wooden racks for chemical storage.

Forecastle deck

Winch control room Contains CTD deck unit.

Underway instrumentation and control room – starboard portion

Aft bench contains the Navigation System, ADCP and Oceanlogger PCs. A spur bench consisting of two 800mm units back to back and 2,780mm long extends into the space – on the aft side there is a drawer unit and a cupboard unit separated by a kneehole, whilst the for'ard side comprises a drawer unit cupboard and two kneeholes. Electrical sockets are provided along the bulkhead only, comprising six 240V double sockets and two 115V double sockets. For'ard of this is space for racked equipment, provided with seven 240V double sockets and two 115V double sockets, whilst aft there is a short length of benching 1,200mm long, with cupboard and kneehole under – three 240V double sockets behind.

Underway instrumentation and control room - port portion

The two chart tables (light tables with chart drawers under) occupy the forward part. The XBT deck unit and PC occupy the short length of bench aft, next to the doorway, with a drawer unit and kneehole under, three 240V double sockets on the bulkhead. There is a run of bench along the outboard side of the lab, with a double width spur in the middle with a kneehole to

either side of it (under the main bench). The spur benching extends 1,220mm into the lab, with a total width of 1,600mm and with attachment rail on both sides, running athwartships – there is a kneehole and drawer unit under the aft side of this spur and two drawer units under the forward side. The overall length of the outboard benching is 4,750mm, with attachment rails running the entire length. The lengths of benching either side of the spur are 1,400mm forward and 950mm aft (between the spur and the XBT benching). Power points are provided along the bulkhead only – eight 240V double sockets and two 115V double sockets.

Appendix 2: Duties of science staff on BAS ships

Extracts from BAS ship Safety Management System.

British Antarctic Survey
Marine job descriptions

M.29

PRINCIPAL SCIENTIST/CHARTERERS REP. AND SCIENTIFIC/CHARTER STAFF (SPP)

Principal Scientist/Charterers Rep.

In addition to the duties listed for Scientific/ Charter Staff below the PS or C/Rep shall:

Carry out the duties described in the Principal Scientists Standing Instructions, (for C/Rep own organisation's instructions), MS.23 and MSI/ GEN/23.

Complete/supply Hazard/Risk Assessments/ COSHH hazard data sheets for all aspects of the cruise/charter and ensure that they are displayed in relevant working areas, given to the Master and understood/complied with by the science and support team.

Manage the science and science support staff, (or charter staff) and the scientific/charter aspects of the cruise efficiently and in accordance with the Safety Management System, control and record Hours of Rest/Work.

Liaise with the Master with regard to the general conduct of the cruise/charter.

Liaise with the Chief Officer with regard to all deck operations necessary for scientific work.

Liaise with the Second Officer with regard to the scientific requirements of navigational planning.

Liaise with ships staff and King FID regarding scientific staff undertaking ships duties when not engaged in scientific/charter work.

Ensure all scientific/charter equipment, instruments and packages are in a safe condition for each operation.

Have an overall view of his team's safety and welfare, encourage and assist his team to report all accidents, incidents and near misses (AINMEs) and be a representative at ship safety meetings.

Refer to the Local health and Safety policy – Annex 2, Management Procedures Manual

Inspect the laboratory/scientific spaces at the beginning and end of the cruise with the Chief Officer and complete form MS.AP.

Appoint Watch Leaders (if required). If not, to ensure that the OOW has clear instructions for when scientific staff are unavailable.

Organise (and ensure carried out) the cleaning of laboratories and scientific spaces and ensure they are left clean, tidy, uncontaminated, and safe at the end of the cruise.

Scientific/Charter Staff

Scientific/Charter Staff are employed on BAS ships as Special Purpose Personnel and are subject to the relevant statutory regulations. SPPs are subject to the disciplinary and safety codes of the ship and shall:

Carry out duties assigned by the PS or C/Rep in respect of the scientific/charter scope of work and in compliance with MS.23 and MSI/GEN/23.

Comply with BAS Health and Safety Policy, the Code of Conduct for Laboratories, and the Code of Safe Working Practice for Seafarers.

Ensure all waste, equipment and samples are packed/stowed in correct packaging and in an approved manner.

Attend drills and musters as required by the Master.

Maintain own accommodation, laboratories and other work areas in a clean and tidy state in line with the above mentioned documents, 'good practice' and conducive to providing a safe working environment.

Issue Date: 9th July 2014

British Antarctic Survey
Marine standing instructions

MSI/GEN/23

SPECIAL PURPOSE PERSONNEL (Scientific/ Charter/FID Personnel)

BAS ships are Special Purpose vessels and as such all non-marine crew, SPP, carried have employment duties whilst onboard, either science/charter work or ship support/Antarctic logistics duties.

Refer to Management Procedure MS.23 for details.

This instruction applies to:

Science teams led by a PS or Charterers led by a Charterers Representative (C/Rep).

All other personnel (regardless of seniority within the organisation) transiting in and out of Antarctica, referred to as FIDs. All BAS FIDs have duties onboard as part of their employment with BAS to support the work of the ship in her mission to support Antarctic stations and field camps.

Charterers Personnel

Shall not assist with ship duties. Their duties shall be set by their own organisation through the C/ Rep.

Main Ship Support/Logistic Duties (FIDs and Science Teams not engaged in science duties)

Assisting with the cleanliness and general housekeeping of the ship) and ship maintenance. Generally this will be internal, public rooms/mess room/scullery/galley/stores loading/support duties but may be external weather permitting.

Cargo and logistics work at Antarctic stations.

Input and support of Antarctic field camps.

The ship may also require FIDs to use any specialist skills e.g. carpenters, mechanics, cooks, scientists.

Such personnel shall be assigned to assist with the maintenance of the ship and the Antarctic equipment carried as appropriate to their skills and experience/training.

Regular training will be given as part of working hours in the relevant aspects of the Antarctic logistics work which SPP will be required to do at stations and cield camps.

Any SPP that feels that their assigned task is not within their ability to complete safely should ask the King FID/PS to discuss re-assignment with the ship's officers. Safety literature including the Risk Assessment file is available in recreation spaces and from crew.

As a an SPP:

IF YOU ARE NOT SURE WHAT YOU ARE SUPPOSED TO DO – ASK.

Feel free to request guidance from any member of the crew, PS or King FID.

SPP may not give direct instructions to marine staff. Requests shall be conveyed through the PS, C/Rep or King FID to the relevant Head of Department for action.

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British Antarctic Survey
Marine standing instructions

MSI/GEN/23

SPECIAL PURPOSE PERSONNEL (Scientific/ Charter/FID Personnel) (cont)

Responsibilities of FIDs and Science staff (when not engaged in science duties)

Science personnel on scientific cruises shall be included in ship duty rotas on days when their science (or MOB/Demob) is not taking place. If science staff feel they have work reasons to be excused from ship duties they shall outline their reasons to the PS who shall discuss with the Master. Reduction of or exemption from duties is at the Master's discretion.

In setting duties, the ship's staff and King FID/ PS shall take into account the recent working patterns of the SPPs (e.g. night work or an intense relief work period) and any other work they may have to undertake for BAS/their organisation while on the ship.

On occasions personnel suffer from severe seasickness and the King FID/PS shall liaise with the doctor regarding a person's ability to work. Those on seasick medication (subject to drowsiness) shall not undertake tasks which require alertness or quick reaction, e.g. cargo/ boat work, or operate machinery.

Working hours

Charter teams

As per Section 3 of MSI/GEN/12 – General Working Hours and Rest Periods

Science Teams

(When engaged in science duties)

As per Section 1 of MSI/GEN/12 – General Working Hours and Rest Periods

(When not engaged in science duties)

As laid out for FIDs below.

FIDs

FIDs shall not normally work longer than 8-hours-a-day up to a maximum of 12-hours-a-day (within 06:30 to 20:00 period) (except in an emergency). This length of working day will be the exception rather than the norm. Those working will be expected to take breaks for meals, refreshments, etc. albeit these may be outside the normally accepted meal times (depending on assigned work).

On joining, after a period of working in the Antarctic, there shall be a 24-hour period for ship familiarisation and relaxation. During this 24-hour period it is acceptable for the ship to ask for a few volunteers to help wash up, etc. at each mealtime.

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British Antarctic Survey
Marine standing instructions

MSI/GEN/26

SHORE LEAVE

- Shore leave will be granted whenever and wherever possible. A board shall be placed at the gangway detailing last return onboard time/ sailing details. All personnel shall note these details.
- Personnel shall take all reasonable precautions when going ashore, to ensure their own and colleagues' safety and security. Cycling in dock areas where there are recessed train tracks is dangerous and should be avoided. Cycling on the dock at FIPASS, Stanley is forbidden.
- When passing through the port, personnel shall be vigilant and advise the Ship Security Officer or Duty Officer of anything which arouses suspicion of a threat to port or ship security. BAS identity cards shall be carried.
- Personnel shall be aware that they and their baggage may be searched for unauthorized items especially at higher levels of security.
- All personnel shall mark themselves on and off the ship using the card/peg board provided at the gangway. (Even when the 'Walks Book' is used. See below).
- Personnel shall have respect for the natural environment at all times and at all places when ashore. BAS is an environmental research organisation which expects its employees and collaborators to comply with the highest values of good environmental behaviour. Careless acts, e.g. littering, pollution, damage etc. are not only in themselves harmful to the environment but may also result in significant reputational damage to BAS and the possible loss of future Antarctic permits. Failure to demonstrate good environmental practice will result in disciplinary action being taken.
- Shore leave in remote areas (e.g. Antarctic landings and stations), and anywhere deemed necessary by the Master, shall be strictly controlled.
- South of 60°S the provisions of the Antarctic Treaty shall be respected.
- The Master is responsible for ensuring all personnel are aware of the regulations covering a specific port/landing site. The specific 'Antarctic Treaty Visitor Site Guide' shall be made available before arrival and the Master shall highlight any restrictions on activity ashore under the Treaty.
- A signing out or 'Walks Book' will be located on the Bridge. Before going ashore personnel shall enter the details required. This shall include name, destination, route and expected return time. On return they shall sign back in. Accurate details could save your life in an emergency.
- Limits of travel will be set by the Master. These must be adhered to at all times – even if station personnel grant permission to travel further. When visiting stations, all station rules, safety procedures and guidance shall be followed. The Master shall arrange for the Station Leader to explain the local rules on the ship's arrival.
- A recall signal should be pre-arranged (usually sounding of the ship's whistle) and on this signal all personnel shall return to the ship, landing beach or pre-arranged location. Personnel shall dress in anticipation of worsening weather conditions. Antarctic weather can be unpredictable and changes sudden. Spare clothing shall be carried. Consideration shall be given to carrying food and hot drink also to the carrying of emergency gear including the following: map, compass, First Aid kit, flares and radio. Travel in pairs or groups is recommended.
- More challenging terrain (e.g. glaciated terrain) shall only be travelled on with the permission of the Master by persons experienced in such travel, properly equipped and planned.

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Feedback and further information

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

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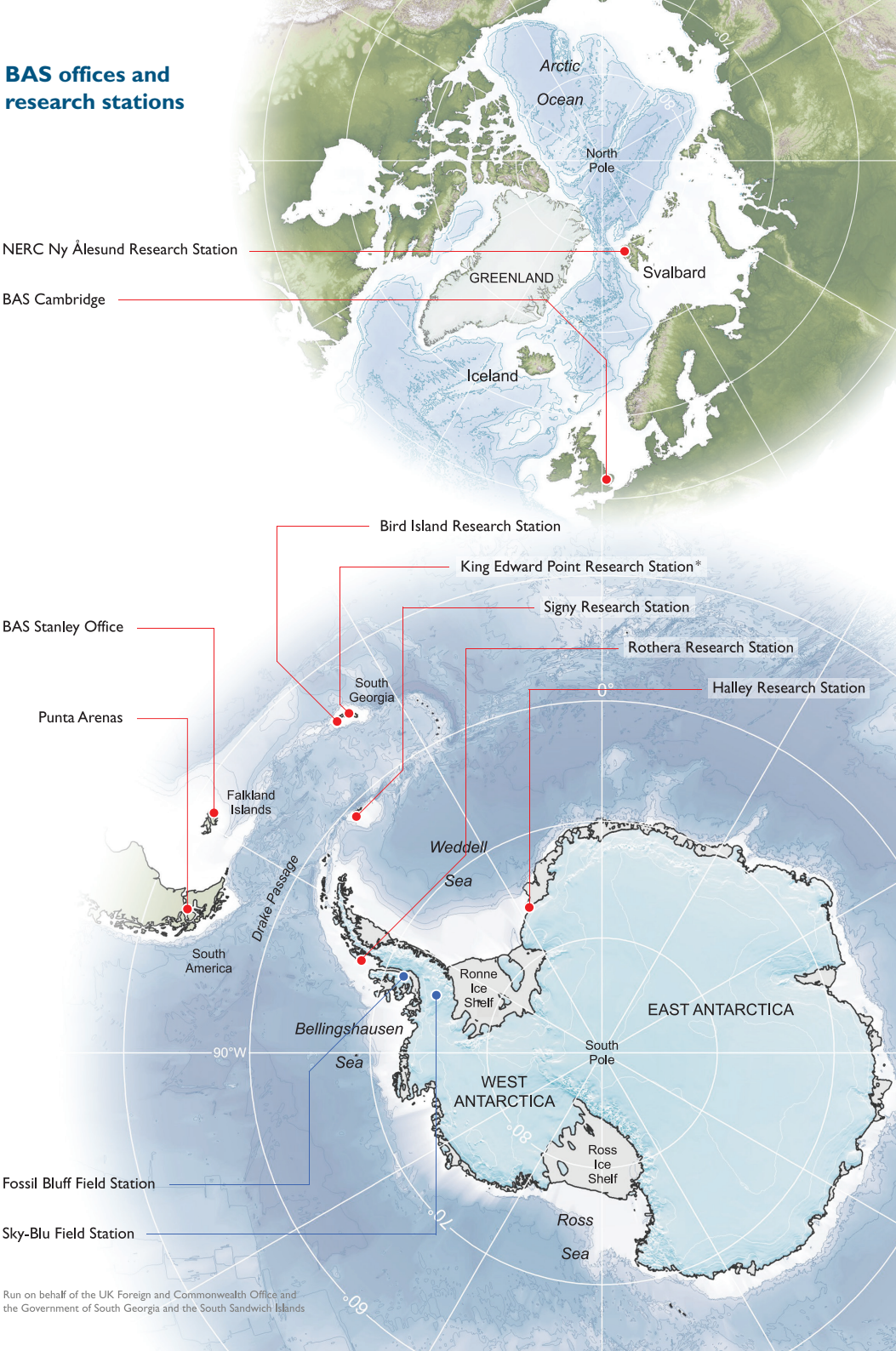

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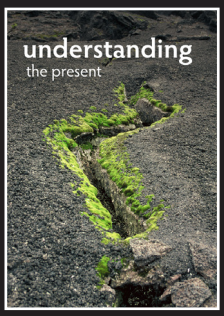

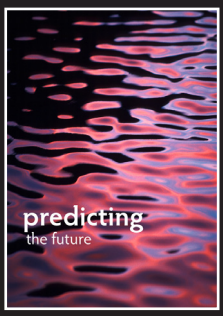

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