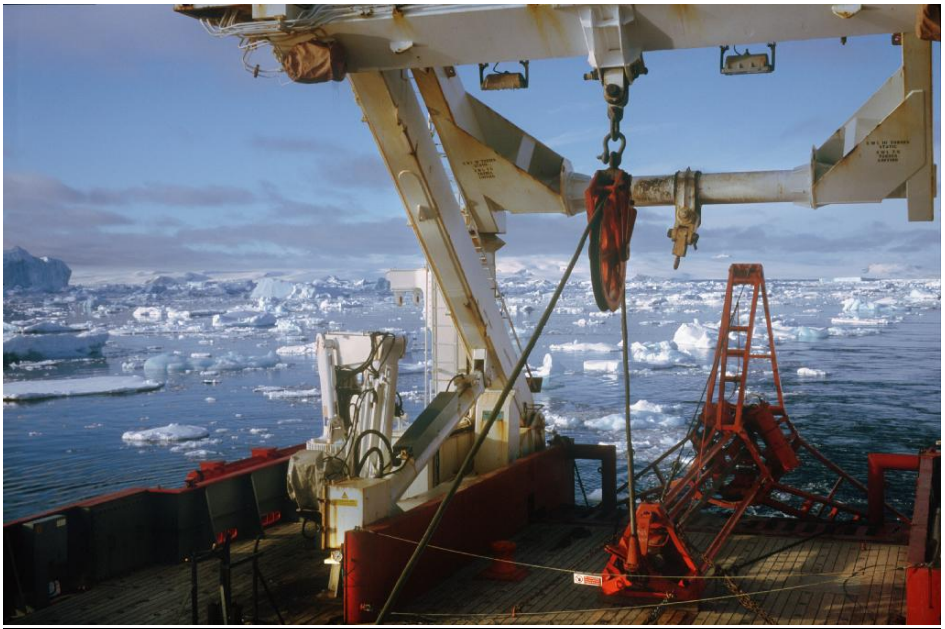
PRINCIPAL SCIENTIST'S HANDBOOK

Leading a Research Cruise

Aboard ships of the British Antarctic Survey



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Web Links

BAS INTERNET / intranet LINKS

1) Cruise Participants Handbook
http://www.antarctica.ac.uk/living_and_working/research_ships/documents/cruise_participants_handbook.pdf

2) Information on a specific cruise. Open the site and select the cruise you want to view.
http://www.antarctica.ac.uk/living_and_working/research_ships/cruises/index.php

3) Cabin Booklet – Safety and ship domestic Information**:**
ES: http://www.antarctica.ac.uk/living_and_working/research_ships/rrs_ernest_shackleton/es_cabin_info.pdf
JCR: http://www.antarctica.ac.uk/living_and_working/research_ships/documents/JCR_cabin_book_C.pdf

4) Virtual Tour:
JCR: http://www.antarctica.ac.uk/living_and_working/virtual/james_clark_ross/index.php
ES: http://www.antarctica.ac.uk/living_and_working/virtual/ernest_shackleton/index.php

5) Your personal itinerary
http://basweb.nerc-bas.ac.uk/south/main.php

6) Visitors to the Antarctic: **Personal, Financial and Medical issues**:
http://www.antarctica.ac.uk/staff/antarctic_visitors/introduction.php

7) Participants' Handbook: A guide to going South with British Antarctic Survey:
http://www.antarctica.ac.uk/staff/antarctic_visitors/bas_participants_handbook.pdf

8) Code of practice for safety in laboratories on JCR:
http://www.antarctica.ac.uk/living_and_working/research_ships/laboratories_code_of_practice.pdf

9) BAS Ships - General ship information and specifications**:**
JCR: http://www.antarctica.ac.uk/living_and_working/research_ships/rrs_james_clark_ross/technical_data.php
ES: http://www.antarctica.ac.uk/living_and_working/research_ships/rrs_ernest_shackleton/technical_data.php

10) Computing Facilities on ships
JCR: http://www.antarctica.ac.uk/staff/antarctic_visitors/computing/rrs_james_clark_ross.php
ES: http://www.antarctica.ac.uk/staff/antarctic_visitors/computing/rrs_ernest_shackleton.php

11) Science and Logistics programme, Itineraries, Current Positions, List of Agents, Ship Diaries and Webcams for both ships
http://www.antarctica.ac.uk/living_and_working/research_ships/index.php

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

12) Cargo Deadlines:
http://basweb/departments/purchasing_and_shipping/deadlines.html

13) Waste Management Handbook
http://basweb/information/manuals/docs/waste_management_handbook.pdf

14) Ship Safety Management System (ISM)
http://basweb/ships/sms/index.php

15) Science equipment deployed from JCR previously
http://basweb/ships/sms/rrs_james_clark_ross/science_instructions.php

16) NMF Sea Systems and NERC Cruise Planning Website:
http://mfpapps.noc.ac.uk/mfp/mfp.php

It is essential that as Principal Scientist you read the "Cruise Participant's Handbook" in conjunction with these team leader guidelines.

CONTENTS

INTRODUCTION

This handbook is provided for Principal Scientists but is useful information for any Cruise Participant. It is a guide for the leader of a scientific research cruise aboard BAS ships RRS James Clark Ross (JCR) and RRS Ernest Shackleton (ES), and highlights the responsibilities before, during and after the cruise. On the reverse of the title page there are numbered links to both the BAS Internet and Intranet sites which expand on the various topics. To avoid repeating frequent links throughout this guide, an appropriate link number is shown eg [6]. **Please read this guide carefully and in detail.**

Principal Scientist Qualifications (For the conduct of a major cruise)

BAS requires a PS to: Not be a student.
Be Band 6 or above.
Have previous experience as a team member on at least one **major** cruise.
Have the appointment approved by the Science Project Co-ordinator.

Any exceptions need to be agreed in discussion between Operations Delivery Group with the Science Project Co-ordinator (within BAS) and on a case-by-case basis.

The PS and all the scientific team should read the Cruise Participants Handbook [1] and the ships Cabin Booklet [3] before leaving for the cruise.

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

Section 1

PRE-CRUISE PLANNING

INITIAL CONTACTS

For internal BAS cruises, initial contacts are science projects Field Operations Working Committee (FOWC) representatives, and within the Operations Delivery Group the Ship Operations Manager. For external PS', once the cruise is approved contact BAS Ship Operations Manager.

BAS CONTACTS

MAIN POINT OF CONTACT -	Randolph Sliester, Ship Operations Manager (Ship itineraries, diplomatic clearance, ship operations). ranies@bas.ac.uk (01223) 221456
Personal Arrangements - BAS Operations Delivery Team	Chris Aldridge chrdri@bas.ac.uk (01223 221458) (Travel. Medical, Finance)
Cargo arrangements - BAS Operations Cargo Section	Kath Nicholson kani@bas.ac.uk (Transport of equipment, cargo etc)
Antarctic and Marine Engineering -	Neil French nefren@bas.ac.uk (Allocation and maintenance of BAS instrumentation and technical support)
Head of Information & Communications Technology -	Jeremy Armitage jsar@bas.ac.uk
Health and Safety Advisor -	Steve Marshall smar@bas.ac.uk (Risk assessments and all other safety matters, including radiation protection)

Institute Diving Officer - John Hall jhal@bas.ac.uk

NMF Sea Systems and NERC CONTACTS

NMF Sea Systems [16] and NMEP scientific equipment, allocation, logistics, freight and technical support.

Colin Day Tel: 02380 596125 Facsimile: 02380 596267
E-Mail ukorsops@noc.soton.ac.uk

NERC – for information on allocation of sea time and funding for NERC cruises

Beth Woodward Tel: Tel: 01793 442597 E-Mail beod1@nerc.ac.uk

CHECK YOUR CRUISE DETAILS

Cruise numbering is not time sequential to allow itinerary flexibility.

The itinerary is subject to change especially for future Antarctic seasons.

All documents appertaining to your cruise will appear on the BAS Cruise Web Site [2] under the appropriate number. You can access all the BAS planning documents you need from this webpage as well.

TIMETABLE

Not later than 1st January of the year **preceding** the calendar year in which your cruise is due. **For cruises where equipment has to be sent to Antarctica ahead of the cruise, the shipping date should be used as the baseline year.** Later submission could mean that equipment you require is unavailable	Principal Scientists submit the basic paperwork required for a cruise. Contact list, Summary, BAS Equipment list, NMF SEA SYSTEMS online equipment request, (SME or ME form) [16]
Eight months before cruise	Dip Clear application to BAS
From March/April of the year preceding your cruise	Cruise meeting
From March of the preceding year until three months before your cruise	All **personnel and medical forms** to be submitted to BAS. Liaison on outstanding issues with appropriate BAS sections
Seven months before cruise	Last date for **Diplomatic Clearance** application to BAS
Six months before cruise	Last date for **Additional Antarctic Permit** application to BAS
Three months before cruise	Last date for **Hazard and Risk Assessments** to BAS
August/Sept/Oct	Months which Cargo is received for JCR for the Antarctic season. Final dates announced each year [12]
Late Oct	Month which Cargo is received for ES for the Antarctic season. Final dates announced each year [12]
In the month before cruise	Cruise Directive prepared and issued.
2 or 3 days before cruise	Scientific team join ship to mobilise equipment
Onboard	Brief Master, give RAs, Brief Crew

	Supply science track chart to Second Officer/Master Re-emphasise RAs to science/technical team Crew safety brief by ship's Officer
End of cruise	Complete Post Cruise Assessment while still on the ship. Ensure all equipment and samples properly labelled/manifested Ensure all workspaces left clean and tidy Ensure all chemicals ready for appropriate transport/disposal
After cruise	Any required data/samples/information from foreign EEZs supplied to appropriate organisations within time limit of DipClear Copies of Cruise Report supplied as Section 3 Invoice from BAS to PS for any charges incurred outside cruise agreed costs.

SCIENCE TEAM ORGANISATION

EQUIPMENT AND TECHNICAL SUPPORT

Equipment, technical and logistic support are allocated to your project on the basis of information obtained in BAS project planning, the original NERC SME Application [16], and subsequent discussions between you and BAS Ship Operations.

For equipment and support from NMF SEA SYSTEMS [16] it is your responsibility to discuss requirements and make all arrangements directly with them, whilst keeping BAS informed. Remember to discuss your equipment and how it will be laid out/deployed on the deck with the Ship Operations Manager (and NMF Sea Systems if involved).

BAS aims to satisfy the needs of each project, however sufficient resources may not always be available to cover all requirements. Many systems require technical staff support, which will affect the number of scientific berths available.

TECHNICAL SUPPORT STAFF ALLOCATION

BAS technical staff onboard will normally include at least two people covering instrumentation engineering and IT/communications (see BAS contacts list AME & ICT). This is necessary to ensure that the wide range of ship fitted equipment, the data acquisition system, and other scientific equipment are properly maintained and run. Please be aware that in some situations the level of staffing will not allow for full 24-hour operation of the scientific equipment and systems on the ship during the cruise. If it is envisaged that your scientific programme will require 24-hour operations, you will need to discuss the staffing implications with BAS, to ensure that your objectives can be met. BAS Technical staff support the equipment but do not operate it. It is the PS responsibility to supply a suitably trained operator for equipment required.

For technical support for non BAS equipment, the support required should be discussed at an early stage with the supplier (most commonly NMF Sea Systems [16]).

You should therefore establish numbers of technical support personnel required for your cruise BEFORE you confirm numbers of berths available for your own staff.

SCIENTIFIC/TECHNICAL TEAM

BAS recommends the size of cruise teams to not exceed 25, based on past operational experience, including technical support (but not including the ships's scientific Scientific Boatswain and Deck Engineer). This provides most personnel with a single-berth cabin.

It is the responsibility of the Principal Scientist to ensure that training needs are met. Refer to the Cruise Participant's Handbook [1] for details.

CRUISE WORKSHOP / MEETING

BAS will invite you to a meeting to discuss your cruise. Details of research, transportation, equipment, timing, support, risk assessments, and any special equipment handling, stowage or operational problems will be discussed. It is up to you who attends as science and technical representatives for your cruise.

TRAVEL ARRANGEMENTS

For up to date information on travel policy please refer to the Operations travel pages:
http://basweb/operations/aircraft/index.php

TRAVEL REQUIREMENTS, MEDICAL FITNESS AND SURVIVAL TRAINING

BAS can advise on the necessary visa, vaccination/inoculation and other special requirements for specific travel. Non UK citizens should advise BAS of their nationality and check their visa requirements well in advance of travel.

All science personnel must comply with BAS medical requirements and hold a Personal Survival Techniques certificate. **No one will be allowed on a BAS ship without these being in place**. The Personal Survival Techniques certificate must be stamped compliant with STCW95 V1 1-1.

COSTS/EXPENSES (Travel/accommodation/freight/storage/customs duties/any3rd party)

Although BAS makes the travel arrangements, responsibility for payment of expenses incurred on behalf of non-BAS staff rests with the Principal Scientist. Normally BAS will arrange to recover such expenditure from the Principal Scientist's Organisation, **unless some alternative, prior, written arrangement is agreed** with the BAS Ship Ops Manager.

BAS will arrange for your team to be met on arrival and transported to an hotel or the ship. BAS will also arrange for transport from the ship to hotel/airport after the cruise.

Hotel, transport and immigration charges will be charged to the Principal Scientists Organisation, but please note that these costs may not be available to be presented for several months after the cruise.

BAS will charge **all project expenses** incurred by your team by invoice to the Principal Scientist. It is the PS' responsibility to arrange payment to BAS. We will not invoice collaborators, individuals etc separately **unless previously agreed in writing** with the BAS Ship Ops Manager and NERC. However see arrangements for personal onboard accounts in the Cruise Participant's Handbook.[1]

INSURANCE

Please note that NERC/BAS does not insure its ships, staff or the equipment they carry.
All non-BAS staff should arrange appropriate Personal Insurance cover

Principal Scientists should fully understand the insurance criteria in the Cruise Participants Handbook. It is your responsibility to explain the insurance requirements to every member of your team.

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

Principal Scientists must ensure that provision has been made for or by every member of their team either by providing commercial insurance cover or by ensuring their parent organisation will provide indemnity. This should cover at least the costs of unscheduled port calls, local hospital bills, emergency evacuation (e.g. by helicopter) and repatriation to the UK.

PERMITS and DIPLOMATIC CLEARANCE REQUIREMENTS

ANTARCTICA

BAS receives a permit for its general operations in Antarctica from the FCO as a requirement of the Antarctic Act. You should apply to the BAS Environment Office for **additional** permits to undertake any of the following:

- Taking of, or harmful interference with, native flora or fauna.
- Introduction of non-native species into Antarctic.
- Entry into Antarctic Specially Protected Areas.
- Mineral resource activities.

Applications should normally be submitted at least six months before the permit is required.

Carrying out activities without a permit, breach of permit condition or breach of a prohibition is an offence punishable by up to 2 years imprisonment and an unlimited fine.

For more information (copy and paste link)
http://www.antarctica.ac.uk/about_antarctica/geopolitical/environmental_issues/antarctic_act_1994.php

EXCLUSIVE ECONOMIC ZONES

For work in the Exclusive Economic Zones (EEZ's) of any country, Diplomatic Clearance is required through the Foreign and Commonwealth Office. Six months' notice is required by FCO. Clearance is also required in UK waters from various authorities. Documents should be submitted to BAS at least **SEVEN** months before the Cruise. Because clearance applications are often affected by other considerations, such as economic and political factors, all applications must be treated formally through BAS/FCO.

Please ensure that you answer all the questions on the forms. You MUST complete a separate form for EACH coastal state in whose waters you wish to work.

Please explain of the aims of your research in non-technical language where possible.

Supply a clear and unambiguous chart/map showing your proposed tracks and stations, in A4 size. Show latitudes and longitudes of the overall area around the perimeter and the outline of the nearest coast, so that maritime limits can be inserted if required.

APPROACHES TO A FOREIGN STATE

For information, the approach to a foreign state by the Foreign and Commonwealth Office varies with the type of research proposed but the application process with BAS remains the same. **All approaches must be made through BAS**.

You will complete the Dip Clear application form and return it to BAS Ship Operations Delivery who will submit it to the FCO - please take care to satisfy yourself that what you have requested is very clearly stated.

RESPONSES FROM FOREIGN STATES

Foreign States often issue permission very late, however the FCO have a track and check system to follow the application. The Foreign Government sends a 'Note' giving the response to the FCO, it is then copied to BAS and the Master.

Approval

Conditions set by the foreign state, such as carriage of an observer, or a requirement for the ship to make position/intention reports to the foreign authorities, will be arranged by BAS through the ship's Master.

Requests for data, reports etc to be supplied to various foreign organisations are your responsibility. Failure to comply may lead to refusal or difficulties for your or other applications in future.

Refusal

If permission is refused this must be honoured. The Master will not carry out scientific work within waters for which prior approval is not held.

BERTHS/PAYMENTS FOR FOREIGN OBSERVERS

BAS is obliged to offer a foreign state the opportunity of placing an observer onboard for any cruise undertaking work within that country's claimed waters. Where the possibility of multiple observers occurs, BAS and the FCO will endeavour to minimise the berth problem by requesting that a single observer acts for all countries. Note that some nations will not accept this. In our recent experience most countries do not require an observer.

BAS will offer a free berth and victualling to observers. They are expected to settle their own cash requirements onboard in Sterling. BAS will not accept responsibility for an observer's airfares, travel costs or daily allowances onboard. If a foreign state insists on costs of travel or daily allowance being paid to observers, BAS /FCO will endeavour to negotiate with the foreign state, to avoid the problem. A Principal Scientist should be aware that if such negotiations fail, costs will be charged to their project.

LOGISTICS AND SCIENCE WORK PREPARATION

ENVIRONMENTAL ASSESSMENT

An Environmental Impact Assessment should be made for any research cruise. Obviously there are certain activities that require much higher levels of assessment. BAS has a Preliminary Environmental Assessment which should be completed early in the planning process.

ACOUSTIC DISTURBANCE

NERC policy requires researchers to adhere to general UK environmental policies in existence in this respect eg Joint Nature Conservation Committee (JNCC) guidelines and in addition any specific requirements outlined by BAS Environmental Office for the activity and area of operation.

Principal Scientists are encouraged at the time of grant application to include the costs of an EIA and Marine Mammal Observers in the total cost of their grant as NERC do not fund these as part of a cruise. The onus is on the researcher to ensure that these precautions are taken/carried out.

HAZARD ANALYSIS and RISK ASSESSMENTS

You must ensure at an early planning stage that all elements and especially potentially hazardous operations of your cruise are identified and the BAS Hazard Analysis completed. This lays out the safe systems of work for activities which are commonly done on cruises.

You are expected to comply with those systems and invited to add additional controls if you feel they are inadequate for your specific tasks.

You should also add Risk Assessments for tasks which are not covered in the Analysis.

This system is designed to remove the need for your team to have to complete Risk Assessments for those common tasks.
The BAS Health and Safety Advisor may be consulted and the Ships Operations Manager must receive final copies of the Hazard Analysis and other Risk Assessments by the date agreed at the cruise meeting/workshop.

It is the Principal Scientist's responsibility to ensure that all scientific personnel have read, understood, are conversant with and have signed acceptance of the Hazard Analysis and Risk Assessments.

Please note that, your Risk Assessments should allow for all aspects of the process INCLUDING as a minimum, transport, loading, installation and operation of equipment and also unloading, and subsequent disposal or transport back to your laboratory.

You should make your team aware that failure to follow RA Controls and Precautions is a serious breach of BAS safety rules. You are responsible for your team's conduct in this respect.

BAS Generic Risk Assessments: http://basweb.nerc-bas.ac.uk/procedures/index.php

BAS Ship Risk Assessments and Procedures: http://basweb/ships/sms/index.php

Please contact NMF Sea Systems [16] for advice in preparing Risk Assessments related to NMF Sea Systems equipment.

CHEMICALS

You will be asked to complete a BAS Chemical Approvals Register Request (CAR Form).
ALL chemicals to be used on the cruise with quantities and person responsible must be declared in the planning stages, with details of planned packing and use etc

GASES

Please refer to Section 2 in the Cruise Participant's Handbook [1] for more details.

Please make sure your team are aware that:

Requirements should be discussed at the cruise planning stage.

FULL PRESSURE GAS BOTTLES ARE NOT PERMITTED IN LABORATORIES (except for special cases of pure air, subject to prior agreement with BAS and the supply of special release arrangements).

The PS and the science team are responsible for ensuring that:

Gas bottles are supplied in appropriate stillages for securing on external decks

Special fittings and piping required for connection to instruments in the laboratory and to reduce the gas pressure for its end use are supplied.

Adequate protection is supplied for bottle regulators to avoid impact damage and corrosion.

Full information about the gas is available to the Chief Officer/Master

LIFTING EQUIPMENT

Each component of equipment that is used for lifting, such as cables, strops, shackles etc must have a test certificate to demonstrate that it is suitable for the use planned. These certificates must be taken to the ship.

SCIENCE EQUIPMENT – PREPARATION AND TRANSPORT

Refer to Section 2 in the Cruise Participant's Handbook [1] for more details.

It is your responsibility to ensure that your team are aware that:

They must make BAS Operations Delivery (Cargo) aware in the early stages of planning (at the latest at the cruise meeting) of requirements for shipping equipment for the cruise, and returning equipment, data and samples home.

It is critical that all equipment and materials 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.

The science team must adhere strictly to the BAS requirements.
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.

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.

Details of hazardous material must first be sent to the BAS Operations Delivery Cargo Section for checking and authorisation before BAS can agree to shipment,

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

Case Number	Package	Contents	Value	Weight	Dimensions	Volume
Bas will allocate number series.	Case, Bundle, Drum etc	Detailed list of contents	For customs.	In Kg	In cms	In cu metres

Customs entries are required for the equipment of each cruise participant, this facilitates the re-importation of equipment back into the UK.

BAS Operations Delivery Cargo Section require the cargo listing at least two weeks before receipt into the docks.

Deadlines for the latest receipt of cargo can be found on the OPAL Intranet page [12] or by contacting BAS Operations Delivery Cargo Section.

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

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 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 Operations Delivery Cargo 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 AIRFREIGHT FACILITIES

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

COMPUTING FACILITIES, EMAIL and INTERNET

The Principal Scientist should ensure that the scientific team and collaborators are all aware of the limitations imposed by limited bandwidth on BAS ships.
All cruise participants should refer to the Computing Facilities on ships [10] link and take steps to reduce their reliance on internet services.

Download and save any information from the internet that you can prior to the cruise.
Try not to design work programmes that rely on internet connection unless there is no alternative.
Consider reduction of files and/or compression of files that need to be sent from the ship.

We suggest that you have an image re-sizing programme available to your team to reduce the size of images that they may wish to send by email.

It should be noted that in the extreme north or south latitudes the ship can be beyond the footprint/range of communication satellites and this event all internet connection is lost and alternative very limited communication means are used.

Section 2

LIVING AND WORKING ONBOARD

CONDUCT OF A RESEARCH CRUISE

JOINING THE SHIP

Cabins for your team will be allocated by yourself in liaison with the Purser/ Catering Officer. If possible please send a list of proposed cabin occupants is to the Purser before joining.

Cabin Type
The Principal Scientist's suite has a bedroom, office/day room and bathroom with shower. All other scientific staff will be accommodated in one, two, three or four berth cabins, each with bathroom/shower.

BRIEFING THE MASTER

You should brief the Master at the earliest, mutually convenient, opportunity regarding your cruise intentions, working requirements, tracks, diplomatic clearances, use of the BAS/other technical staff and the crew for your work. Please make the Second Officer and Master aware of the work areas as well as the likely positions for stations or survey lines as early as possible.

If you expect to commence scientific operations shortly after leaving port, please ensure that the Second Officer has details of your way points, or station positions, well before sailing time. This is to ensure adequate time for proper passage planning.

You must give the Master a copy of all your Hazard Analysis and any Risk/COSHH Assessments. Make sure that the Hazard Analysis and RAs are available in all relevant work areas on the ship and your team know where they are kept.

You are asked to give a short explanatory talk to the crew about your research intensions early in the voyage. The more the Master and crew know about your aims, and the objectives of your research, the more enthusiastic their assistance will be.

During the cruise you should always inform the Second Officer/Master as soon as possible of expected or changed navigational requirements.

For emergency reasons the Bridge retains laboratory keys.

PRINCIPAL SCIENTIST'S LIABILITIES

If an accident occurs, and the Principal Scientist is deemed to have acted reasonably and within the guidelines laid down by Council (See the NERC Safety Policy), then it is likely that Council itself would accept responsibility and defend any civil action. This would be true whether or not the Principal Scientist was employed by NERC.

However, if negligence was claimed against an individual then he or she could be prosecuted personally. Any proven liability would then be their responsibility alone to meet.

RESPONSIBILITIES

The Principal Scientist is responsible to the Master for the safe conduct of scientific work and for the conduct of the members of the scientific team whilst onboard.

The Master retains overall responsibility for the safety of the ship and everyone onboard, and shall exercise over-riding authority at his discretion.

The Master is responsible for proceeding on a cruise in accordance with the BAS itinerary, and for implementing the scientific programme in accordance with the requirements of the Principal Scientist.

The route of communication for the scientific team to the ship's management is through the Master. For practical matters pertaining to the utilisation of crew it is through the Chief Officer and for technical support matters the appropriate member of the technical support team.

All members of the scientific team shall be entered on the List of Crew by the Master and shall abide by the clauses contained within the ships Articles. This is a legal requirement.

For simplicity, all cruise correspondence; invoices and authority for commitments or changes to the cruise programme shall be directed to the Principal Scientist. It is in the interest of the Principal Scientist to obtain agreement from all members of the scientific team and collaborators that they will settle invoices for services that they have caused to be incurred.

The Principal scientist is responsible for:

Maintaining an overview of all scientific operations and shall agree with the Master safe deck working practices and responsibilities for safe deployment/recovery of overside equipment.

All equipment brought onto the ship from whatever source. He should keep an oversight of any equipment maintained by specific technicians/scientists especially if those technicians/scientists are leaving the ship before demobilisation and assure himself, as far as he is able, that the equipment is properly prepared for transport, any damage noted and advised to the supplier, with necessary explanation/investigation.

All safety documents such as Hazard Analysis Sheets, Risk Assessments, Procedures and Hazard Data sheets (COSHH) being supplied to the Master on joining and distribution of appropriate copies within the labs, on deck and at all worksites.

Ensuring that all scientific team members/collaborators/technicians are fully aware of the contents of the safety documents above and the Lab Code of Practice and that they strictly adhere to them

CRUISE MOBILISATION / DEMOBILISATION

All work required by ship's staff for mobilising/demobilising a scientific cruise shall be coordinated by the Chief Officer. Siting of deck equipment shall be agreed with the Chief Officer in liaison with the Deck Engineer (JCR) or Chief Engineer (ES) to ensure that the required ship's services are provided.

All equipment is to be properly secured in a safe, appropriate position.
Cables shall be secured properly and sufficient space left around the equipment for ventilation purposes.

All single-phase mains powered laboratory equipment shall operate through a suitable plug and a correctly rated fuse. Unless such equipment is double insulated, it shall be connected to mains earth.

All portable electrical equipment must be tested to comply with the Electricity at Work regulations (Portable Appliance or PAT Testing) prior to delivery onboard.

Only competent staff shall make connections to any electrical circuit breaker, fuse or distribution box, and then only with the permission of the ETO and subject to conditions imposed by him.

Where mains powered laboratory equipment may come into contact with water (e.g. in the Wet Laboratory), it shall be fed from a supply, which is protected by an Earth Leakage Circuit Breaker. To check whether a particular outlet socket is protected, the ETO should be contacted.

Cables shall be correctly terminated and labelled.

Approved methods of deck and bulkhead penetration shall be used.

Cables shall not be trailed through doorways, ports or windows.

Ship's tools, equipment and workshops shall only be used after permission has been granted from the appropriate ship's personnel.

Tools and equipment shall only be operated by competent scientific and support staff trained in their use.

Prior to the cruise you and the Chief Officer shall jointly inspect the scientific spaces to check that they are tidy, clean and ready for use. Any hazardous substances from the previous cruise must be removed, and all equipment for the coming cruise must be secured and ready for sea. The Chief Officer will log this check on form MS.AP

For details of the Ships Safety Management System [14] and form MS.AP see [14- appropriate ship “Forms”]

HAZARDOUS CHEMICALS

A list of ALL chemicals carried onboard along with their quantity and concentration must be lodged with the Master.

The responsibility for the safe handling of all chemical supplies for use in the scientific programme lies with the Principal Scientist. If it is necessary to provide antidotes or special stowages for specific substances, you should ensure that BAS and the Master have copies of the lists (CAR Form) BEFORE you join the ship. Should you require advice on this topic you should refer to your local COSHH Adviser.

It is your responsibility to ensure that the hazard data sheets applicable to the cruise are kept filed with the main laboratory COSHH files. Hazard data sheets shall also be available in the space where the substance is being used.

Reference to Hazard data sheets and their location shall be made following any accident or incident involving a substance hazardous to health.

All Hazard Data Sheets must be removed from work spaces and noticeboards before leaving the ship to avoid confusion during the next cruise.

REQUESTS / COMPLAINTS

INFORMAL

Minor or informal request/complaints arising onboard, should be directed through you, as the Principal Scientist, and thence to the Master. The Master will ensure that the issue is dealt with, if this is possible, or he will inform BAS Management and request guidance.

Clearly, good communication between staff onboard a ship will enable the majority of minor complaints to be solved to mutual satisfaction without recourse to formal procedures.

FORMAL

Under normal circumstances any feedback, difficulties, or complaints, arising from any of the BAS or NMF Sea Systems services should be reported on the Post Cruise Assessment.
However, if you are seriously dissatisfied with the services of BAS or NMF Sea Systems you should register the complaint by writing to the BAS Ships Operations Manager or the Superintendent at NMF Sea Systems within 28 days of the event. A response will be sent within a further 28 days.

SHIP'S FACILITIES AND SCIENTIFIC OPERATIONS

GENERAL

All facilities onboard are at the disposal of the Principal Scientist in furtherance of the scientific programme, conditional upon the safe management and operation of the ship and equipment.
The Officer of the Watch (OOW) follows the requirements of the Principal Scientist/ Watch Leader with regard to scientific operations, but the authority of the Master is final and at no time shall the safety of the ship be compromised by those operations. The Master shall be kept informed of any major changes in planned scientific operations.

STATION/DEPLOYMENT LIAISON

Prior to the first deployment of any scientific instrument the Master will brief all Watch Keeping Officers.

Copies of Form MS.AQ, [14] relating to all items of equipment to be deployed on the cruise, shall be available on the Bridge.

The Principal Scientist shall liaise with the Chief Officer with regard to all winch, gantry or crane operations necessary for scientific work.

Prior to coming on station for the deployment of equipment, all personnel involved shall be advised. Deployment of scientific equipment shall only commence when the OOW is satisfied that it is safe to proceed and has given permission to do so.

The OOW shall only get the ship underway at the end of a station once he has received confirmation that all equipment is safely and securely stowed.

TECHNICAL SUPPORT STAFF

Technical staff are present to maintain and operate, or to supervise the safe operation of scientific equipment, and generally to assist the Principal Scientist in the successful conduct of the cruise, regardless of their affiliation.

Technical staff shall supervise operations within their particular area of expertise and it should be noted that each institute has a responsibility to maintain equipment in a safe working order for use on subsequent cruises.

WORKING ROUTINES

The working routine for scientific purposes will largely depend upon the Principal Scientist's programme. In most cases there will be a requirement for watches to be maintained in the laboratories, on the data logging and instrumentation, and for this, as well as for work on the external decks, the Principal Scientist is requested to discuss the routines with the Master and technical staff.

If scientific staff are keeping watches, the PS shall appoint a Watch Leader to each watch. The Watch Leader shall be the liaison point between scientific and ship's personnel. Watch Leaders shall be properly briefed as to their responsibilities as the stand-in for the Principal Scientist.

Principal Scientists should note that there are formal restrictions on both the lengths of continuous duty periods and required rest periods in between duty periods (for both the ship's staff and Science Teams). The Chief Officer will advise details. (For reference Hours of work and rest on BAS ships are regulated in accordance with the statutory requirements as set out in MSN 1767 (M) (Merchant Shipping (Hours of Work) Regulations 2002 and STCW 95 and subsequent amendments.)
It is the PS' responsibility to ensure the science team complete Hours of Rest record forms.

Marine watch keeping times are usually standardised as follows:

0000 - 0400,	0400 - 0800	All local time on the ship
0800 - 1200,	1200 - 1600	
1600 - 2000,	2000 - 2400	

The ship's routines are based on these timings and any different watch rotas should take into account that meal times will not be altered.

In darkness and in conditions of poor visibility and/or sea ice, it is mandatory to use deck crew as Bridge lookouts. Principal Scientists should bear this in mind when planning their scientific programme, because there will be fewer ship's crew available to assist on deck with their equipment.

The Master may suspend operations at his discretion to comply with Hours of Work Regulations.

BOAT/SEA ICE OPERATIONS

The Master will assess the feasibility of a particular boat or sea ice operation, having due regard for the weather and any other constraints and has the final responsibility to allow your team to undertake such work. Once agreed any additional Risk Assessment controls and Procedures shall be followed precisely. The Master may stop the work at his discretion at any time.

DIVING OPERATIONS

There are currently no recompression facilities available on BAS ships. If you require diving operations to be supported from a BAS ship you must contact the BAS Institute Diving Officer in the **earliest stages** of cruise planning to assess whether or not such operations are possible.

LOSS OF OR DAMAGE TO SCIENTIFIC EQUIPMENT

In the event of the loss of, or extensive damage to equipment, other than trivial and consumable items, you are required to inform the Master (and NMF Sea Systems if their equipment is involved) without delay. Depending upon the equipment and the circumstances, an explanatory report may be required in writing.

A summary of scientific equipment defects must be passed to BAS via the Master at the end of the cruise to permit remedial action to be taken as soon as possible.

Masters will record the position of loss of equipment as accurately as possible and, if practicable, to mark it with a Dhan buoy with a view to relocation and recovery. **It is recommended that acoustic beacons and other devices eg flashing or static lights are fitted to valuable equipment to assist in relocation.** You will need to confirm that a Dhan buoy marking facility is available before the cruise starts.

Please label and return any defective items that have been removed from scientific equipment or instruments to the appropriate spares box, and make a note on the spares list in the box. Please inform the appropriate person so that provision for repair can be made.

If vital items of equipment are lost overboard, and recovery is crucial to the continuation of the cruise, the Principal Scientist should liaise with the Master and BAS to determine the options available. You are not permitted to commit expenditure of public funds to engage commercial assistance (e.g. divers) without BAS/Masters approval.

SAFETY ONBOARD

GENERAL

All operations onboard BAS ships are governed by the International Safety Management Code and codified in the Ship Safety Management System [14]. All onboard are obliged to comply with these regulations.

Information concerning details of safety equipment, safety/emergency signals and procedures as well as general ship's routine can be found in the Cabin Booklet [3] in each cabin. Notices in each cabin give details of emergency muster points and the correct donning of survival equipment.

As the person in charge of the scientific team you are responsible for ensuring that all the members of your team are aware of their legal obligations and BAS requirements regarding safety. You should encourage and support a culture of safety awareness from all personnel.

Ship's officers will give a pre-sailing safety familiarisation talk for your team as soon as practicable after joining**. You must ensure that all members of the scientific team are available for this training, regardless of whether they have sailed on the vessel before or not.** Sailing will be delayed until completion.

LOCAL HEALTH AND SAFETY RULES

The Principal Scientist must be conversant with the following -

- H&S at Work Act - NERC Statement of Policy Organisation and Arrangements
- MS Act 1979 - NERC Statement of Safety at Sea Policy Organisation and Arrangements
- NERC - BAS H&S at Work - Policy Statement
- BAS - Local H&S at Sea Policy
- BAS - Principal Scientist's Handbook (this document)
- BAS - Cruise Participant's Handbook [1]
- BAS - Ship Cabin Booklet [3]
- BAS Laboratory Code of Practice including COSHH regulations [8]
- Relevant sections of the BAS Safety Management System [14]

CONDUCT OF RADIOLOGICAL WORK

Experiments which use radioactive material must be identified at the cruise planning stage. The ship is not equipped with a purpose-built radiation laboratory, and it is important that the BAS Radiation Protection Supervisor is consulted about any work with radioisotopes. BAS will not allow such work if not satisfied that potential hazards can be reduced to acceptable levels.

On ship, the safe use of radioisotopes, and of instruments producing ionising radiation, in the scientific programme will be an area of special responsibility of the Principal Scientist. You need to liaise with the Master, Chief Officer and Ship's Safety Officer prior to and during the cruise to ensure that radiological work is undertaken with due regard for the safety of the scientists concerned and the ship as a whole.

Implications for waste disposal must be identified during pre-cruise planning, and approved by the BAS Radiation Protection Supervisor. Consideration should also be paid to possible effects on work with stable isotopes.

Radiological work on the ship will be supervised by BAS, irrespective of the affiliation of the individuals carrying out the work. The Master retains ultimate responsibility for this, as with other areas of health and safety. This responsibility is delegated to the Principal Scientist, who may in turn choose to appoint a Radiation Protection Supervisor from the group of qualified workers.

The BAS Radiation Protection Supervisor will help and advise at all stages of the project. Acceptable working standards are set out in 'local rules' for radiological work on the vessel, available from the Radiation Protection Supervisor.

During the course of radiological work on the ship, regular monitoring of the workplace and its surroundings must be undertaken. The results should be recorded. On the completion of this work, final decontamination and monitoring should be undertaken. The record of the monitoring should be passed to the Chief Officer, together with a declaration signed by the Principal Scientist that no contamination remains.

Comprehensive instructions on the correct consignment of radioactive waste are contained in the BAS Waste Management Handbook. It is the responsibility of the Principal Scientist to ensure that scientists working with radioisotopes read and follow these instructions.

Under most circumstances, BAS will undertake to arrange for the safe disposal of radioactive waste, provided that it fulfills conditions established in BAS waste management policy, and that realistic estimates have been provided in advance of the amount type and activity. The disposal of this waste is potentially problematic, therefore all radioactive waste must be carefully packaged, labelled and documented. All such waste is returned to the UK for disposal, usually via Rechem International.

EXPLOSIVES

Details of explosives required for your cruise will have been discussed at the cruise planning stage. The appointed Shotfirer is responsible to the Master for the safe deployment of explosives, and is jointly responsible with the Chief Officer for the safe storage and handling. Note that very few ports permit loading explosives, so passage to a specific load port may be necessary, and you are advised to take the extra costs/time into account.

WORK ON THE SEA ICE IN THE ARCTIC

There are additional procedures in place for parties working on sea ice in the Arctic. [14] – Go to Standing instructions - MSI/SCI/08.

This includes the need for rifles and trained riflemen to be supplied by the Principal Scientist. This is something which needs to be addressed **early** in the planning process.

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 you and your 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. Your team will be trained to perform the tasks and if anyone feels that they are insufficiently briefed you should report the fact and the ship will rectify the situation or change the duty.

As PS you are the point of contact between the science team and the ship’s officers.
Any difficulties in performing this work should be discussed with the Master.

Section 3

END OF CRUISE ARRANGEMENTS

EQUIPMENT AND LABORATORIES

At the end of a cruise it is the PRINCIPAL SCIENTIST'S RESPONSIBILITY to ensure that ALL the laboratories are left CLEAN AND TIDY. Bench tops are to be cleared, Stauff rail bolts removed from redundant bench pallets, rubbish stored in plastic sacks, and drawers or cupboards cleared. Form MS. AP (handover of scientific spaces) is to be completed jointly between the PS and the Chief Officer.

All unused chemicals shall be safely packed in containers designed for the purpose, for return to the Principal Scientist's (or designated alternative) laboratory or approved disposal facility. If any chemicals are to be left onboard for use on future specific cruises, prior permission must be sought from BAS, through the Master. Containers must be properly labelled with details of the current and future cruises.

The Dangerous Substances in Harbours Regulations Act of 1987, requires that authorities are notified at the port of arrival of any hazardous items on board. You are requested to pass this information to the Master well in advance of the end of the cruise.

It is the Principal Scientist's responsibility to leave the laboratories free of contamination (chemical and radioactive) in all respects. It is the ship's responsibility to keep fume cupboard logs up to date and correct.

Many hazardous chemicals in seawater solution require shore disposal under licence. You are asked to identify the requirement and the quantities involved, and discuss disposal arrangements with BAS at the Cruise planning stage.

BAS reserves the right to arrange shore disposal at your expense if chemicals are left on board without prior agreement for both their stowage and subsequent disposal.

All Hazard Analysis Sheets and Risk Assessments must be removed from work spaces and noticeboards before leaving the ship to avoid confusion during the next cruise.

Access to future cruises may be limited in cases where there is failure to observe these important rules.

RETURN OF EQUIPMENT/SAMPLES

GENERAL EQUIPMENT

Unless otherwise pre-arranged, all science equipment will be returned on BAS ships.

Equipment and materials should be returned in the same packaging and retain the same case number. This simplifies documentation.

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

HAZARDOUS WASTE

All hazardous waste is returned to the UK for disposal. It is the Principal Scientist's responsibility to arrange for adequate supply of waste packaging materials (drums etc) for each cruise. Waste should be documented on a Bill of Lading and the packages correctly marked and identified by numbers issued by the Chief Officer. Refer also to the BAS Waste Management Handbook and Ships Waste Management Policy for guidance.

SAMPLES

Samples collected 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.

PERSONAL EFFECTS

All personal effects left unaccompanied onboard will be returned to the UK as cargo. A C3 Declaration and a Bill of Lading must be completed before you leave 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. He 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 BAS OPAL Cargo Section and the Master for the 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 the port.

Please address all queries to the BAS Operations Delivery Cargo Section.

CRUISE ASSESSMENT

You are required to complete a Post Cruise Assessment at the end of the cruise. Any recommendations (which should also be included in the Cruise Report) should be attached. The Master will forward this to the Ships Operations Manager who will circulate to marine depts. in BAS and to NERC. The various depts. will discuss with the PS any problems or recommendations and results of discussions will be recorded in the BAS Cruise Database with the original form. A summary of the forms will be presented to the BAS Ship Ops Working Committee and the NERC Cruise Programme Review Group.

CRUISE REPORT and DATA

BAS REQUIREMENTS

[Scientists using the EM120 swath bathymetry and TOPAS systems on JCR are required to acknowledge use of this equipment in their and collaborating scientist's reports/publications by specific reference to UK NERC Grant GR3/JIF/02.]

The cruise report should be completed as soon as possible after the end of the cruise. Send one copy as a single integrated pdf file to BAS Archives Service (basarchives@bas.ac.uk), **and to BAS Ship Ops Manager for the cruise web site** and two hard copies to the ship. It is common practice for science participants to have their own copy. BAS PS' should circulate a report in their science project. Any questions can be addressed to the BAS Archives Service in the first instance – email: basarchives@bas.ac.uk, tel: 01223 221400 (ask for the Archives Service).

FOREIGN & COMMONWEALTH OFFICE REQUIREMENTS

If research has been undertaken in the waters of a foreign state, you must send a copy of your Cruise Report to that state as a condition of the Diplomatic Clearance. You are asked to bear in mind that failure to comply may incur penalties and have a detrimental effect on subsequent applications for you and others to work in those waters.
There may be a requirement to submit copies of data in addition to the Cruise Report and this will usually be specified in the Diplomatic Clearance.

It is a courtesy to send a copy to a foreign observer if there was one on the cruise. They may also request copies of data (in digital form if available), or duplicates of particular samples. BAS will endeavour to seek clarification of these requests if it is not possible for your contacts within a foreign scientific community to determine such needs in advance.

THE ONUS IS ON YOU, AS PRINCIPAL SCIENTIST, TO ENSURE THAT YOU COMPLY WITH ALL THESE REQUIREMENTS. Sending a copy to your scientific colleagues is not sufficient - a copy must also be sent via the official channels.

You are expected to supply copy data and the Cruise Report at your project's own cost.

NERC AND NMF SEA SYSTEMS REQUIREMENTS

For NMF Sea Systems -supported cruises, **electronic** copies of your cruise report should be sent as soon as possible after the cruise to:

Dr Beth Woodward - Marine Planning Officer
Natural Environment Research Council
Polaris House
North Star Avenue
Swindon
Wiltshire SN2 IEU

and

Head of NMF Sea Systems
National Marine Facilities
National Oceanography Centre, Southampton
European Way, Empress Dock
Southampton S014 3ZH

Failure to comply will affect the allocation of future sea time.

NERC DATA CENTRE REQUIREMENTS

To ensure effective implementation of NERC Data Policy, the Principal Scientist must discuss with the relevant NERC Data Centre the data management plans and requirements well in advance of the cruise. This is an integral part of the cruise planning process. The NERC Data Centre with primary responsibility is the British Oceanographic Data Centre (BODC). For BAS and AFI cruises, the Antarctic Environmental Data Centre (AEDC) should also be contacted.

The PS must ensure that BODC are sent copies of the full cruise report and, subsequently, that copies of datasets and documentation produced from the cruise are sent to the relevant Data Centre as agreed in the data management plan, for post processing and/or long-term archiving.

BODC: http://www.bodc.ac.uk/data/data_submission/general_data_submission.html

AEDC: http://www.antarctica.ac.uk/Resources/AEDC/index.html

A BODC Cruise Summary Report Form ("ROSCOP Form"), plus a track chart, should be completed at the end of the cruise and handed to the Master. This an internationally agreed coded format that is forwarded to the Foreign Office for sending to any foreign state in whose waters your cruise may have entered. It is also sent to BODC to update the UK data bank.
It provides a simple "Who, What, When and Where" summary of scientific data collection. The immediacy of this summary can achieve much in convincing a foreign state's authorities of our positive intentions to comply with clearance conditions.

It is the PS responsibility to comply with BAS, NERC and FCO data management policies and failure to comply may affect future applications for funding/support.

APPENDIX 1

Extract from BAS Ship safety management System

Please refer to other important extracts which are included in the Cruise Participants Handbook [1])

BRITISH ANTARCTIC SURVEY
Marine Job Descriptions

Job Description 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 Principal Scientist 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 condusive to providing a safe working environment.