Cruise Proposal Preparation Instructions

Revision record

Rev	Date	Comments
0	13 June 2019	Approved by all members of the German Research Vessels Portal
0.1	10 July 2019	Deletion of RV POSEIDON due to its decommissioning in Dec 2019
0.2	04 September 2019	Minor editorial changes, correction of the declaration in Section 8
1.0	04 April 2020	Formal requirements regarding chief scientists, Nagoya Protocol on Access and Benefit Sharing, and combination of educational with research purposes; explanation of third-party funding for cruises on regional vessels and RV POLARSTERN; specifications regarding budget items (Sections 5.2.3, 5.3.2) and list of participants (Section 6).
2.0	01 December 2021	Requirement to include an appendix explaining the framework joint research program for preregistered cruise proposals; revision of section 1.5 (need to name all EEZs); revision of the requirements for the work program (section 3.2) and the budget description (section 5); revision of section 7 (data and sample handling)
2.1	15 June 2023	Updated contact data (Process information, p. 4)
2.2	25 August 2023	Updated contact data (Process information, p. 4)
3.0	12 December 2023	Major adaptations in relation with the new submission system (DFG *elan*) – omission of former Sections 1, 8, 9, and 10 in the Cruise Proposal Template; reference to the possibility to request funds for greenhouse gas emission compensation in the travel costs; recommendation to submit cruise proposals in context with a coordinated program at least 2.5 years before the intended cruise start; updated links in the paragraph about the Nagoya Protocol and biological samples (p. 5); specification of the information about previous cruises required in the CVs of the applicants
4.0	1 October 2024	Major adaptations in relation to the new DFG funding programme SPP 2520 “Research Vessels” and the upcoming commissioning of the new RV METEOR; requirements for proposals earmarked as being reviewed elsewhere; omission of external reviews; recommendations on data management.
4.1	1 January 2026	Minor editorial changes
4.2	1 August 2026	Minor editorial changes

Table of contents

Revision record **1**

Table of contents **2**

General instructions **4**

Process information 4

Cruise proposal variants 5

Formal requirements 5

Review process 8

Data protection 9

***elan* instructions** **10**

Project Data 10

Cruise Data 10

Applicants 11

Cruise dates and large equipment 11

Working areas / EEZs 11

Abstract 12

Concluding information 12

Attachments 12

Template instructions: Regular cruise proposals **14**

1 Motivation 14

1.1 State of the art and preliminary work *14*

1.2 Integration in national and international programmes *14*

1.3 Funding sources *14*

2 Objectives and work program 14

2.1 Objectives *14*

2.2 Work program *14*

2.2.1 Working area, stations, and profiles *15*

2.2.2 Deployment of equipment *15*

2.2.3 Special requirements *15*

2.2.4 Work days at sea *15*

2.2.5 Arrival and departure *15*

2.2.6 Measures to conduct responsible marine research *15*

3 Bibliography 16

4 Cruise participants 16

5 Data and sample handling 16

Explanatory notes on SPP 2520 grant proposals (DFG form 53.01) 18

Template instructions: SPP 2520 corresponding core cruise proposals 19

1 Cruise work program 19
1.1 Working area, stations, and profiles 19
1.2 Deployment of equipment 19
1.3 Special requirements 19
1.4 Work days at sea 19
1.5 Arrival and departure 20
1.6 Measures to conduct responsible marine research 20

2 Cruise participants 20

Appendix 1 21

Declaration of Responsible Research 21

Appendix 2 23

OSPAR Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area 23

Appendix 3 26

Mitigation measures for the operation of seismic and hydroacoustic sources with pulsed sound emissions 26

Appendix 4 29

Checklist Regarding the Handling of Research Data 29

GPF and SPP 2520 General Process Flow Chart 30

General instructions

Process information

Ship time on the global, oceanic and regional German research vessels is allocated in a joint procedure agreed between the institutions operating the vessels and the funding providers. The Review Panel German Research Vessels (GPF), consisting of standing members nominated for one mandate period of four years and further expert reviewers invited to individual panel meetings, evaluates all regular cruise proposals and grant proposals submitted under the current call of DFG's Infrastructure Priority Programme SPP 2520 "Research Vessels", and votes on the inclusion of proposals in the cruise planning process. The respective institutions in charge for operating the vessels are responsible for the preparation of cruise schedules. You can contact the vessel coordinators directly for advice on logistical matters related to the preparation of your cruise proposal:

- RV ALKOR:
  Mareike Keller, GEOMAR, Research Vessel Centre, researchvessels@geomar.de, Tel. +49 431 600 2132
- RV ELISABETH MANN BORGESE:
  Franz Jendersie, Institute for Baltic Sea Research, Warnemünde, Research Vessel Department, vessel.coordination@iow.de, Tel. +49 381 5197 192
- RV HEINCKE and RV POLARSTERN:
  Dr. Ingo Schewe, Alfred Wegener Institute, Logistics and Research Platform Department, polcoord@awi.de, Tel. +49 471 4831 1709
- RV MARIA S. MERIAN, RV METEOR and RV SONNE:
  Prof. Dr. Eleanor Frajka-Williams, University of Hamburg, German Research Fleet Coordination Centre, leitstelle.ldf@uni-hamburg.de, Tel. +49 40 2395 23640

The responsible BMFTR project management offers advice on long-term cruise planning for cruises on RV SONNE:

- Dr. Doreen Sator, Project Management Jülich, MGS 2,
  d.sator@ptj.de, Tel. +49 381 20356 296
- Katinka Wolgast-Grüner, Project Management Jülich, MGS 2,
  k.wolgast-gruener@ptj.de, Tel. +49 381 20356 309

Please contact the GPF Office in Bonn for all other technical and formal matters related to the review process, including advice on funding requirements and regulations in the framework of SPP 2520:

Udo Frinke, Tel. +49 228 885 2742
Inga Rechenberg, Tel. +49 228 885 2711 (SPP 2520)

Dr. Greta Giljan, Tel. +49 228 30818 17
Dr. Tim Haarmann, Tel. +49 228 885 2328
Deputy: Dr. Kristian Sudmann, Tel. +49 228 885 2012
gpf@dfg.de

Cruise proposal variants

There are **two types of cruise proposals: Regular cruise proposals** that request **ship time and berths on the vessels only**, and cruise proposals that are submitted as **grant proposals** within the framework of DFG's Infrastructure Priority Programme **SPP 2520 "Research Vessels"**. For each cruise proposal, you need to choose one of these options.

Regular cruise proposals

Regular cruise proposals include scientific cruises that **already have funding for the cruise from other sources** (which has to be explained in the cruise proposal), but also educational cruises, and cruises for equipment tests.

SPP 2520 grant proposals and corresponding core cruise proposals

If you need to **apply for funds for conducting a scientific cruise** (e.g., travel and transport costs, student assistants, and consumables used on board), and – where appropriate – also for **an initial evaluation of the data and samples** collected, you will have to submit a **research grant proposal within the current call of SPP 2520** instead of a regular cruise proposal. The SPP 2520 grant proposal has to be **combined with** a **corresponding core cruise proposal** that is limited to the cruise data (entered in DFG's *elan* Portal), the specific work program on board, and the list of cruise participants. All other information (scientific motivation, objectives and hypotheses, the overall work program including post-cruise evaluation, data and sample handling, bibliography, and funds requested) have to be given in the SPP 2520 grant proposal (see also p. 18 and the following pages), according to the relevant DFG forms, rules and regulations (DFG forms 54.01, 53.01 EN). The SPP 2520 grant proposal and its corresponding core cruise proposal will be handled and reviewed as one unit.

A graphic overview over the general process is provided on the last page of these instructions.

Formal requirements

Researchers employed at research institutions in Germany who receive their basic funding from public funds and have completed their academic training with a doctorate or equivalent academic achievements, are entitled to submit regular cruise proposals and SPP 2520 grant proposals. Regular cruise proposals for secondary uses of RV POLARSTERN can also be submitted by researchers from foreign research institutions. Researchers not entitled to submit (e.g. retirees, international users of other vessels) can be co-authors of a regular cruise proposal as long as a person entitled to submit assumes responsibility for conducting the cruise and is the contact person for the GPF Office. As mentioned above, for SPP 2520 grant proposals, additionally the rules and regulations of the DFG apply (see DFG form 54.01 and the current call for SPP 2520 proposals published on the website of the DFG and on the Portal deutsche Forschungsschiffe).

As a rule, the main applicant of a cruise proposal should act as chief scientist of the cruise. Deviations from this rule have to be justified in the proposal. GPF and the respective vessel-operating institution formally appoint the chief scientist of each cruise. If an appointed chief scientist needs to be replaced, the change has to be confirmed by GPF and the vessel-operating institution. The newly appointed chief

scientist has to submit a confirmation letter to the GPF Office, declaring his or her willingness to take over all responsibilities involved.

Secondary uses of already planned cruises are possible for RV METEOR, RV MARIA S. MERIAN, RV SONNE, and RV POLARSTERN. The respective chief scientist must be informed of the planned secondary use in advance. Secondary uses are generally open to groups of up to three persons (up to 10 persons for RV POLARSTERN).

When preparing cruise proposals for the primary use of a vessel, please bear in mind the different lead times between the submission of the cruise proposal and the cruise being carried out. As a general rule, these amount to three to four years for RV POLARSTERN, two to three years for RV MARIA S. MERIAN, RV METEOR, and RV SONNE, and one year for other vessels. A lead time of roughly one year should be considered for regular cruise proposals for secondary uses. Regular cruise proposals for both main and secondary use can be submitted anytime. An exception is made for cruise proposals for the primary use of RV POLARSTERN, which may only be accepted subject to prior notice (see AWI's website about scientific proposals).

The lead time for cruises based on SPP 2520 grant proposals is about one and a half to two years minimum for both primary and secondary uses. SPP 2520 grant proposals can only be submitted during a defined period after a call for proposals has been published by DFG. The call usually is open from **July to December each year** and pertains to proposals that can be funded from the year after next. Please note that after a positive decision of DFG's Joint Committee and information of the applicants in summer each year, funding will commence not before January of the following year (e.g., a SPP 2520 proposal submitted in October 2026 will be reviewed in May 2027, and the grant decision letter will be issued in January 2028). These grants therefore can support usually only cruises that begin in May of that year or later due to the necessary lead time for commissioning container transports and making travel arrangements.

Both regular cruise proposals and SPP 2520 grant proposals with their corresponding core cruise proposals have to be submitted via DFG's *elan* Portal (electronic proposal processing system), also linked on the German Research Vessels Portal (www.portal-forschungsschiffe.de/en/cruise-proposals/proposal-submission).

If you plan to access genetic resources, regulations of the Nagoya Protocol (Access and Benefit Sharing, ABS) with its country specific implementations have to be followed. Please note that any work with biological material from the EEZs of other countries might fall under these regulations. Contacting the corresponding appropriate National Focal Point (NFP) or Competent National Authority (CNA) already in the planning phase of your project is advisable. Please familiarize yourself also with the *Recommendations for the Deposit of Biological Evidence in Scientific Collections* and the *Explanations and Model Causes as Support for Nagoya Protocol Relevant Research Projects*, published by DFG's Permanent Senate Commission on Fundamental Issues of Biological Diversity (www.dfg.de/en/dfg_profile/statutory_bodies/senate/biological_diversity/index.html).

With respect to time management, please note that diplomatic proposals for research permits in Exclusive Economic Zones (EEZs) of other states must generally be submitted eight months prior to the start of the cruise. Work in difficult areas (for example where there is the risk of piracy or armed

conflict) must be refrained from. The German Research Fleet Coordination Centre provides information on this.

Special types of regular cruise proposals:

- Regular cruise proposals for cruises that are **integral parts of scientific projects reviewed and funded by other bodies** have to be earmarked by the applicant as such, and need to include the following specific supplements:

  - a **summary description** (1-2 pages) of the scientific aims of the corresponding project and the relevance of the requested cruise for achieving these aims, including information on the dates of submission of and (estimated) decision about the corresponding project proposal;
  - a **letter of confirmation** of the coordinator or PI of the corresponding project affirming the integration of the requested cruise in that project and its necessity for achieving the project's objectives;
  - suitable **excerpts from the corresponding project proposal** to the other funding body that illustrate the justification of the cruise, its scientific questions, objectives, hypotheses, and work program as submitted to the other review process.

  As a consequence of these requirements, cruise proposals earmarked as being an integral part of another project usually cannot be submitted to GPF before the submission of the corresponding project proposal to the other funding body. Based on the information provided, the panel will check whether aims and work program of the cruise have already been scientifically reviewed in a sufficient manner in the review process of the other funding body. If this is the case, these cruise proposals will not undergo additional scientific review, but will be evaluated with particular regard to the appropriateness of the requested number of berths and work days at sea. In case the panel concludes that the excerpts from the corresponding project proposal lack basic information that would have been necessary for an adequate scientific evaluation of the aims and work program of the cruise, the GPF will review the cruise proposal scientifically.

  As cruises in context of projects funded by other bodies are usually less flexible regarding the year and season of implementation, it is advisable to submit the corresponding cruise proposal at least 2.5 years ahead of the intended cruise date. The GPF office and the responsible vessel operator should be informed in due time about the need for ship time for these projects in order to support the mid-term cruise planning processes (under reserve of the pending review process). **Please note that in such cruise proposals, the scientific questions, aims, and hypotheses <u>of the cruise itself</u> have to be explained, instead of repeating the objectives of the corresponding project.** As in all cruise proposals, the panel expects a detailed work program that explains and justifies the ship time requested.

  By definition, cruise proposals earmarked as being an integral part of a corresponding project cannot be submitted as SPP 2520 grant proposals, but have to be funded by the corresponding project.

- Regular cruise proposals for cruises conducted as part of **long-term monitoring programs** on regional research vessels can be proposed for up to five consecutive years. These cruise proposals are subject to the normal scientific review process (see section on "Review process",) unless the requirements described in the previous bullet point are met.

- Regular cruise proposals for **recurrent cruises conducted as part of university student training** on regional research vessels (educational cruises) can be proposed for several consecutive years (usually for the accreditation period of the course). An extract from the university's course catalogue as well as a list of the participant numbers from previous years must be enclosed in the proposal. If you plan to combine an educational cruise with research, both purposes must be clearly separated in the project description and work program.

Please use the relevant templates available on the German Research Vessels Portal and on the *elan* Portal when preparing your regular cruise proposal or SPP 2520 corresponding core cruise proposal, respectively. The format requirements (DIN A4, Arial 11 pt., 1.0 line spacing, standard margins, page numbering, section headings, declarations) may not be modified or deleted. It is not necessary to complete sections of no relevance to your project (for example for cruise proposals for educational cruises). **Only cruise proposals written in English** will be accepted. Please formulate your cruise proposal using concise and self-explanatory language. A regular cruise proposal should be no longer than a maximum of 20 pages; a SPP 2520 corresponding core cruise proposal no longer than a maximum of 8 pages (excluding appendices). With regards to a **resubmission** of a previously rejected cruise proposal, the **edited text passages must be highlighted in colour**.

For SPP 2520 grant proposals, DFG's guidelines for standard research grants submitted in the context of a Priority Programme apply (please refer to the current call for SPP 2520 proposals published by DFG).

Some key information from the regular cruise proposal or SPP 2520 corresponding core cruise proposal, respectively, must be submitted using an online form on the *elan* Portal. Please ensure that the information in the proposal and the online form is identical. The cruise proposal and all appendices must be submitted as PDF files. Only cruise proposals that are successfully submitted in the *elan* Portal are accepted for processing. Users can determine this when they receive a confirmation email. **Drafts and incomplete cruise proposals will not be considered.**

The rules of good research practice must be respected when formulating the cruise proposal (www.dfg.de/en/basics-topics/basics-and-principles-of-funding/good-research-practice).

Review process

Cruise proposals are reviewed by the GPF on biannual panel meetings (usually in May and November). There are **defined deadlines** for the latest submission of a cruise proposal in order to be discussed on the next panel meeting: **January 6** of the same year for the May meeting, and **June 30** of the same year for the November meeting. Please make use of the flexible year-round submission option for regular cruise proposals and submit completed proposals well in advance of the deadlines listed above

whenever possible. Different deadlines apply for SPP 2520 proposals (see current announcement on the DFG's website).

For more information about the review process, please visit the German Research Vessels Portal (www.portal-forschungsschiffe.de/en/review/review-process).

The cruise proposal and the panellists' evaluations create the foundation for the discussion on the GPF meeting. Following this consultation, the GPF as a whole formulates a recommendation for which it is independently responsible. In order to reach an appropriate decision in the competition between cruise proposals, the GPF has a large margin of discretion.

The following types of cruise proposals are not reviewed scientifically:

- Cruises that are conducted in line with research policy considerations;
- Cruises that are integral parts of projects that are reviewed and funded by other bodies – under the condition that the objectives, hypotheses and work program of the cruise have already been adequately assessed in the other review process (see above, p. 7);
- Cruises conducted primarily for the purposes of student training;
- Cruises conducted for testing and developing seagoing large scientific equipment.

These cruise proposals are assessed by the panel with particular regard to the appropriateness of the proposed number of berths and work days at sea. Still, the same requirements apply to the quality of the cruise proposal as for other cruises so that the panel can vote for a rejection should there be any deficiencies in this respect.

Data protection

The data required for processing your cruise proposal will be stored and processed electronically by the GPF Office using DFG's IT infrastructure. When you register in the *elan* Portal, you will be asked to provide various personal data. Your cruise proposal cannot be processed without the requested data. The data are stored in our system and only used to render the service requested by you. This also includes forwarding your data to panellists of the relevant GPF meeting, who may also be based in non-European countries. By submitting the cruise proposal, you consent to the storage and further processing of your data. For further information, please refer to DFG's Privacy Policy website.

You have the right to revoke this consent with future effect at any time. The lawfulness of the processing of your data carried out before the time of revocation shall remain unaffected by the revocation.

elan instructions

The following instructions are valid for both **regular cruise proposals** and **SPP 2520 corresponding core cruise proposals**.

In the *elan* Portal, please choose *Proposal Submission > New Project / Draft Proposal > Cruise Proposals for Research Vessels (GPF Procedure)*. The *elan* Portal and online forms are available in German and in English. **Please make sure that you fill in all fields in English language even if you choose the German version of the online form** (the German summary has to be in German in any case). When filling in the online form, please adhere to the following guideline.

Project Data

Title of the cruise proposal
Please choose an appropriate and concise title for the cruise that refers to the work area. In case of SPP 2520 corresponding core cruise proposals, the title must be identical to the SPP 2520 grant proposal.

Acronym
Please choose a brief acronym (maximum 15 characters) derived from the title to identify your cruise proposal. In case of SPP 2520 corresponding core cruise proposals, the acronym must also be identical to the acronym used for the SPP 2520 grant proposal. For cruises in EEZs of other states, an acronym should be chosen that would **not lead to negative feedback** from the approval authorities in necessary diplomatic applications.

Type of use
Please specify whether this is a cruise proposal for primary use, for secondary use, or for a curricular educational cruise (the latter is not to be chosen for SPP 2520 corresponding core cruise proposals).

The cruise is an integral part of a project reviewed and funded by other bodies
If this is the case, please select the funding source of the other project. Otherwise, please select “not applicable”.
If you have selected a funding source, please provide a short title of the corresponding project or programme in the field “*Name of the project/programme*”.

Cruise Data

Choice of vessel
Please select at least one preferred research vessel for this cruise. If you wish to list several vessels as an alternative, please use the “New row(s)” button. Under “Preference”, please select “primary” for your first choice and “other” for the alternatives.

Further cruise data
Please enter the number of days required for transit from the preferred port of departure to the working area, the number of work days at sea including the transits between stations (so-called in-transit days), and the number of days required for transit from the working area to the preferred port of arrival, each rounded to the nearest whole number. **Please note that transit times from the port of**

departure to the first station and from the last station in the working area to the port of arrival are not to be regarded as work days at sea and may not be added here.

Please name at least one preferred port of departure and one preferred port of arrival. Optionally, potential alternative ports can be listed in the appropriate lines. Under “Cruise period”, please specify the preferred, year, season, and/or month(s).

Please enter the number of berths required for the scientific party (including observers, if necessary). Under “Scientific equipment required”, please list both on-board and external equipment needed during the cruise (including large equipment such as AUVs and ROVs).
Please provide any additional information about special requirements for the cruise (such as limitations regarding the season, planned receptions on board, additional personnel for the ship’s crew required, etc.) under “Remarks”.

Applicants

All applicants first must be registered in the *elan* Portal and have verified their correspondence address in order to be entered as applicants. Please note that a confirmation of your registration usually takes up to 24 hours and will not be conducted on weekends. For SPP 2520 corresponding core cruise proposals, the applicants listed here must be identical to the applicants of the SPP 2520 grant proposal.

Cruise dates and large equipment

Please state the preferred year, season, and/or month(s) for the cruise, and provide reasons for restrictions to limited periods. Please also indicate the number of necessary work and in-transit days within the working areas (excluding transits from the port of departure and/or to the destination port). Lastly, list the large equipment required for the cruise.

Working areas / EEZs

Please state the location of the working areas. Please indicate also all nations from which research permits need to be obtained on the basis of planned work in the respective Exclusive Economic Zones (EEZs). In working areas with notoriously difficult approval procedures, please briefly outline whether alternative working areas are worth considering and whether you have special cooperation agreements with researchers in the respective state.

Please also state the geographic position of the first and last station, and give a short justification for the preferred port of departure and port of arrival.

Involved EEZs of other states
Countries from which permits are required need to be selected from the drop-down menu. Additional entries can be added by clicking on the button in the bottom left corner.

Map of working area
Please upload a high-resolution map of the working area and stations with coordinates in PDF format (A4 upright, maximum file size 10 MB).

Abstract

German abstract
Generally understandable summary of the scientific background and the planned work in German, no more than 2,500 characters. For SPP 2520 corresponding core cruise proposals, the German abstract should be identical to the German abstract of the SPP 2520 grant proposal.

English abstract
Generally understandable summary of the scientific background and the planned work in English, no more than 2,500 characters. For SPP 2520 corresponding core cruise proposals, the English abstract should be identical to the English abstract of the SPP 2520 grant proposal.

Discipline and subject area
In this section, please state the research areas (e.g. physical oceanography, marine geology, geophysics, biogeochemistry, marine biology) and the specific scientific work directions (e.g. seismology, marine microbiology) to which the cruise proposal is primarily assigned.

Concluding information

Please agree to all declarations and obligations by checking the appropriate boxes. If you plan to use seismic and/or hydroacoustic sources with pulsed sound emissions, please select "yes" in the appropriate section in order to confirm that you will follow mitigation measures in accordance with Appendix 3 of the Cruise Proposal Preparation Instructions.

Attachments

Please upload the **cruise proposal** based on the relevant template provided and the **academic CVs** of all applicants here.

The CVs must also be in English and may not have more than four pages per person. Please use DFG's form 53.200 (EN) and include in the section "Qualifications and Career" in addition a **list of all cruise participations over the last 5 years minimum**, plus a complete **list of all cruises conducted as a chief scientist in course of the academic career**. As the upload of CVs is mandatory in the *elan* form for both cruise proposals and SPP grant proposals, we ask for your understanding that SPP 2520 applicants will have to upload their CVs twice (firstly when they submit their SPP 2520 grant proposal, subsequently when they submit their SPP 2520 corresponding core cruise proposal). Both CVs must be identical.

Other potential attachments are:

- Reply letter referring to the preceding review in case of resubmissions (no longer than 1-2 pages);
- Cooperation agreements;
- Further high-resolution maps as specified in Section 2.2.1 (regular cruise proposals) or Section 1.1 (SPP 2520 corresponding core cruise proposals), respectively;
- **For cruise proposals earmarked as integral part of a scientific project reviewed and funded by other bodies**:

- a summary description (1-2 pages) of the scientific aims of the corresponding project and the relevance of the requested cruise for achieving these aims;
- a **letter of confirmation** of the coordinator or PI of the corresponding project;
- and suitable **excerpts from the corresponding project proposal** to the other funding body that illustrate the justification of the cruise, its scientific questions, objectives, hypotheses, and work program.

(see “Special types of cruise proposals”)

Template instructions: Regular cruise proposals

1 Motivation

1.1 State of the art and preliminary work

Please explain briefly and precisely the current state of the art, providing details on the most important relevant publications, in its direct relationship to the cruise proposal. This description should make clear in which context you categorise your own research and to which issues you wish to make a unique, innovative and timely contribution. This description must be comprehensible without references to additional literature. Quotations must be marked using the format "(author(s) [where applicable, et al.], year)".

1.2 Integration in national and international programmes

Please indicate which ongoing national and international projects and programmes the cruise will contribute to and how. The reference to the scientific objectives and working hypotheses indicated in Section 2.1 should be clear. Please briefly outline your existing or planned cooperation with other researchers not involved in the cruise proposal. Working groups from institutions of the Helmholtz Association are asked to explain the reference of the project to the current or upcoming funding period within the framework of the programme-oriented funding (POF) of their institution.

1.3 Funding sources

Please state the funding sources and amount of funding available for the cruise, even in case a corresponding third-party proposal is still under review. If third-party funding is pending, positively evaluated cruise proposals will be included in the cruise planning only preliminarily until funding is confirmed.

2 Objectives and work program

2.1 Objectives

Please provide a concise description of your cruise proposal's research program and scientific objectives. Formulate measurable working hypotheses or questions to be answered. Please indicate if you anticipate results of the cruise that may be relevant to fields other than science (such as science policy, technology, the economy, or society), in addition to expanding scientific knowledge.

2.2 Work program

A detailed description of the cruise work program must be provided in this section. **The quality of the cruise work program is of crucial importance to the evaluation of the cruise proposal. As a thumb rule, this section should therefore amount to about 50% of the proposal length.** The cruise work program must conclusively justify why the individual work days at sea and the large equipment are required. The subsequent data and sample evaluation phase must also be outlined so that it is clear how the scientific objectives will be achieved.

2.2.1 Working area, stations, and profiles

Please state the location of the working area. Please indicate also all nations from which research permits need to be obtained on the basis of planned work in the respective Exclusive Economic Zones (EEZs). In working areas with notoriously difficult approval procedures, please briefly outline whether alternative working areas are worth considering and whether you have special cooperation agreements with researchers in the respective state. In cases of doubt, please confer with the corresponding vessel operator (see Process information).

Please provide a tabled list with the approximate geographic coordinates and water depths of your planned cruise route as well as the number and location of the stations and/or profiles. If the stations can only be determined during the cruise, please specify the coordinates of the perimeters of the working area. In addition, please provide high-resolution maps as attachments to the cruise proposal.

2.2.2 Deployment of equipment

Please provide reasons for the use of all equipment as well as its technical requirements on the vessel. Specify, whether only certain ships are suitable for use. In this section, both on-board equipment such as echo sounding systems, CTD rosette, nets, winches (please specify weight, required cable type and length, and water depths), laboratory containers, isotope containers, as well as external equipment such as ROV, AUV, MeBo, core frames, seismics, OBS, OBH, moorings, landers, fishing gear, and helicopters, must be considered. Please demonstrate that the external equipment is available for use in the project. If moorings are to be deployed, briefly outline how and when the retrieval of the equipment is planned.

2.2.3 Special requirements

In this section, please set out particular requirements for the cruise, such as the undertaking of ice stations, visits of research stations, and coordination with other vessels.

2.2.4 Work days at sea

In the form of a table, please outline what work is to be carried out in the proposed time period (beginning with the first station or start of measurements, and ending with the last station or end of measurements). In addition to an overall estimate of the usage time of equipment and the transit between stations, the chronological sequence of the cruise, and the duration of the equipment use at the respective stations should be outlined. Contingency days may not be requested. Please note that transit times to the first station and from the last station in the working area are not to be regarded as work days at sea.

2.2.5 Arrival and departure

Please estimate the respective transit duration from the preferred port of departure to the working area and from the working area to the preferred destination port.

2.2.6 Measures to conduct responsible marine research

Please explain what measures you will take with regard to the Declaration of Responsible Marine Research (Appendix 1), the Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area (Appendix 2), and the Mitigation measures for the operation of seismic and hydroacoustic sources with pulsed sound emissions (Appendix 3).

3 Bibliography

List the publications cited in Sections 1 and 2 here. Please **highlight** publications by the applicants of the cruise proposal in **bold**. The full list of authors, the full title, the year of publication, the journal, the volume, and the page numbers must be specified for each publication (if applicable, also the DOI).

4 Cruise participants

Please specify the total number of berths required by your working group. In addition, please provide an exhaustive, **tabled list** of anticipated cruise participants including affiliation, nature of activity on board (e.g., science, technician, ROV team), and mode of employment at the host institution (**permanent, fixed-term**). Highlight the chief scientist and the deputy chief scientist. Please provide a justification if the chief scientist is not identical to the lead applicant, or if the cruise is planned without a deputy chief scientist.

For large vessels, primary users must allow any secondary users to participate in the cruise. As a general rule, 3 berths should be reserved on RV MARIA S. MERIAN, RV METEOR and RV SONNE and up to 10 berths on RV POLARSTERN for secondary users. Deviations from this specification are only permitted in duly substantiated cases.

5 Data and sample handling

Data and samples acquired during the cruises with German research vessels must be preserved on a long-term basis and made accessible to the scientific community for use in an appropriate period in accordance with the FAIR Guiding Principles for scientific data management and stewardship. In this section, an appropriate data plan (data responsibility, data use, archiving, and release) must be explained. The quality of this plan is considered in the evaluation of the cruise proposal.

Please use this section to record key information on the handling of data and samples. Your data plan must include at minimum substantive descriptions, addressing the following four aspects:

1) Listing of all intended data and sample types with responsible contact persons;
2) Description of the planned use and the users of data or samples before release;
3) Listing of repositories for each type of data and sample;
4) Specification of the publication date and moratorium period for each type of data and sample. An explicit justification is required for moratoria of more than 3 years.

For a positive evaluation by the GPF Panel, all four aspects must be addressed in the data plan.

Please refer to the data handling checklist in Appendix 4 to structure your descriptions.

Please also describe how the institutions involved in the project will contribute to data and information management.

Please consider the existing standards in your discipline, any current subject-specific recommendations and any existing infrastructure services (such as data repositories, archives or collections). Appropriate safeguarding of data and samples is ensured by their transfer to an established data/sample centre or a data/sample bank that can guarantee long-term data storage. Release for use by other users can be delayed in order to protect publication rights. The data and samples can be provided in a protected state so that only their existence is publicly displayed for the moratorium period.

Explanatory notes on SPP 2520 grant proposals (DFG form 53.01)

SPP 2520 grant proposals apply for a scientific project based on a research cruise that is requested as part of the grant proposal. **For all SPP 2520 grant proposals, the DFG template for research grants (DFG form 53.01 EN) has to be used in its most recent version. Please refer also to DFG's Proposal Preparation Instructions (DFG form 54.01) first.**

The scientific motivation for the project as a whole, the state of the art, and the preliminary work have to be described and explained in the SPP 2520 grant proposal under Section 1 (Starting Point). The relevance of the project for other national or international programmes should also be mentioned in Section 1 if applicable. Please note that projects that are integral parts of programmes with own funding cannot apply for funds in the framework of SPP 2520.

In Section 2 (Objectives and work program), GPF and DFG expect a description of the **overall scientific aims and work program of the project** including the post-cruise initial evaluation phase if applicable. The **total duration** of the project to be entered in Section 2.1 formally can be up to three years, starting from the date of the first call to DFG for funds from the budget granted. Please note: The project usually has to start within one year after issuing DFG's decision letter by submitting the first call for funds to DFG, but an extension of this time limit can be requested from DFG in case the inclusion of the proposal in the cruise schedule is delayed. In Section 2.2, please formulate **measurable working hypotheses or questions** to be answered. In Section 2.3, the **overall work program including the post-cruise work** should be described; for the cruise-specific work program on board (e.g., stations, profiles, deployment of equipment, etc.), please refer to the SPP 2520 corresponding core cruise proposal as explained for the relevant template (see below, p. 19). In Section 2.4, please describe the **handling of research data and samples** as in Section 5 of regular cruise proposals (see above, p. 16), and consult also Appendix 4 of the Cruise Proposal Preparation Instructions. For Section 2.5, please note that DFG asks here for the relevance of sex, gender and/or diversity with respect to the research question (e.g., whether the sex of the organisms investigated is relevant), and not for equal opportunity measures at the research institutions of the applicants.

Regarding Section 3 (Project- and subject-related list of publications) and Section 4 (Supplementary information on the research context), please follow DFG's Proposal Preparation Instructions as described in DFG form 54.01.

In Section 5 (Requested modules/funds), necessary funds for conducting the cruise as well as the preparatory and post-cruise work can be requested according to the relevant funding module guidelines and the agreements within SPP 2520. Familiar cruise funding categories from the previous funding systems of BMFTR and DFG can be requested in the **Basic Module**: All kinds of **personnel costs** under Section 5.1.1 "Funding for Staff"; **consumables, light equipment**, and **acquisition of new equipment** (up to € 10,000) under Section 5.1.2.1 "Equipment up to € 10,000, Software and Consumables"; **cruise and conference travel expenses** under Section 5.1.2.2 "Travel Expenses"; **transport costs, external contracting, internet bandwidth extensions, deployment costs for large equipment,** and **costs for rented equipment** under Section 5.1.2.5 "Other Costs". Other funding categories of the Basic Module and other funding modules available for standard research grants may also be used if justified and necessary for the project. Please note also that "updated cost plans" for METEOR/MERIAN cruises are omitted. The DFG Head Office offers advice on these matters.

Template instructions: SPP 2520 corresponding core cruise proposals

1 Cruise work program

To supplement the research project's overall work program description in the SPP 2520 grant proposal, a detailed description of the **specific work program on board the vessel** must be provided in this section. **The quality of the work program on board is of crucial importance to the evaluation of the SPP 2520 grant proposal as a whole.** The work program must conclusively justify why the individual work days at sea and the large equipment are required. The subsequent initial evaluation phase including a work schedule for scientific employees requested must be outlined in the SPP 2520 grant proposal.

1.1 Working area, stations, and profiles

Please state the location of the working area. Please indicate also all nations from which research permits need to be obtained on the basis of planned work in the respective Exclusive Economic Zones (EEZs). In working areas with notoriously difficult approval procedures, please briefly outline whether alternative working areas are worth considering and whether you have special cooperation agreements with researchers in the respective state. In cases of doubt, please confer with the corresponding vessel operator (see Process information).

Please provide a tabled list with the approximate geographic coordinates and water depths of your planned cruise route as well as the number and location of the stations and/or profiles. If the stations can only be determined during the cruise, please specify the coordinates of the perimeters of the working area. In addition, please provide high-resolution maps as attachments to the cruise proposal.

1.2 Deployment of equipment

Please provide reasons for the use of all equipment as well as its technical requirements on the vessel. Specify, whether only certain ships are suitable for use. In this section, both on-board equipment such as echo sounding systems, CTD rosette, nets, winches (please specify weight, required cable type and length, and water depths), laboratory containers, isotope containers, as well as external equipment such as ROV, AUV, MeBo, core frames, seismics, OBS, OBH, moorings, landers, fishing gear, and helicopters, must be considered. Please demonstrate that the external equipment is available for use in the project. If equipment that needs to be retrieved is going to be deployed, briefly outline how and when the retrieval of the equipment is planned.

1.3 Special requirements

In this section, please set out particular requirements for the cruise, such as the undertaking of ice stations, visits of research stations, and coordination with other vessels.

1.4 Work days at sea

In the form of a table, please outline what work is to be carried out in the proposed time period (beginning with the first station or start of measurements, and ending with the last station or end of measurements). In addition to an overall estimate of the usage time of equipment and the transit between stations, the chronological sequence of the cruise, and the duration of the equipment use at the respective stations should be outlined. Contingency days may not be

requested. Please note that transit times to the first station and from the last station in the working area are not to be regarded as work days at sea.

1.5 Arrival and departure

Please estimate the respective transit duration from the preferred port of departure to the working area and from the working area to the preferred destination port.

1.6 Measures to conduct responsible marine research

Please explain what measures you will take with regard to the Declaration of Responsible Marine Research (Appendix 1), the Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area (Appendix 2), and the Mitigation measures for the operation of seismic and hydroacoustic sources with pulsed sound emissions (Appendix 3).

2 Cruise participants

Please specify the total number of berths required by your working group. In addition, please provide an exhaustive, **tabled list** of anticipated cruise participants including affiliation, nature of activity on board (e.g., science, technician, ROV team), and mode of employment at the host institution (**permanent, fixed-term**). Highlight the chief scientist and the deputy chief scientist. Please provide a justification if the chief scientist is not identical to the lead applicant, or if the cruise is planned without a deputy chief scientist.

For large vessels, primary users must allow any secondary users to participate in the cruise. As a general rule, 3 berths should be reserved on RV MARIA S. MERIAN, RV METEOR and RV SONNE and up to 10 berths on RV POLARSTERN for secondary users. Deviations from this specification are only permitted in duly substantiated cases.

Appendix 1

Declaration of Responsible Research

Preliminary Notes

As marine researchers we value and respect the uniqueness and complexity of the marine environment. We are thus especially interested in conserving this habitat, which is precious in terms of ecology, science, culture and economy. Because of their special knowledge and use of specialized equipment (such as research vessels and manned or unmanned submersible vehicles), scientists are the only group that can monitor and evaluate this unique marine environment. Compared to natural occurrences (such as volcanic/tectonic events, landslides, climate variability, etc.) or interference caused by other human activities (e.g., mining, fishing, shipping industry), the impact of scientific work on the research areas is generally considered to be minor. Nevertheless, the risk exists that certain research activities may have unintended negative effects on individual areas or creatures.

A basic understanding of the extremely complex marine system is the best prerequisite for protecting the oceans and for their ecologically sustainable use. This knowledge, however, is only obtainable by scientific marine research. Marine research should thus be an integrated part and a basic requisite of resource management and conservation of the natural biodiversity of the oceans. Research projects must endeavor to find an approach as non-polluting and ecologically compatible as possible. The following principles should be observed for research proposals and expeditions:

Principles for Responsible Marine Research

As members of the international marine research community and in the spirit of responsible research, we call on all scientists to respect the following principles when investigating the oceans, and urge them:

1) to avoid research activities that may affect regional populations or a large proportion of individual marine organisms.
2) to avoid research activities that provoke change or damage to the marine ecosystem (in terms of physical, chemical, biological or geological harm).
3) to take precautions to protect natural resources (especially protected species or habitats) from disturbance or damage – or to only impact to the minimum extent possible when carrying out research activities in ecologically sensitive areas (e.g., for the North Atlantic and Baltic Sea, the habitats of the OSPAR and HELCOM “List of threatened and/or declining species or habitats” – for other regions there are similar regulations). This applies to all national/international marine sanctuaries.
4) to avoid sampling not essential to the research project.
5) to employ the most appropriate and environmentally friendly methods for investigations – as far as these are possible, in a reasonable manner.
6) to ensure that the transfer of biota between different marine regions is avoided, as this may permanently change the habitat or the composition of communities.
7) to avoid activities that influence other scientific experiments and surveys. This requires that scientists make themselves familiar with present and planned research projects in the pertinent

area. At the same time, your own research projects or plans should be communicated to the international research community via free accessible databases.

8) to ensure that samples are used as extensively as possible among the scientific communities. Samples that can be archived should be stored for future use by members of the scientific community.
9) to promote the international use of data, samples and results via appropriate databases, in order to avoid needless sampling and pollution/stress, and to promote a global understanding of the marine habitat.

German marine research supports appropriate research projects with the aims of acquisition, research, evaluation, and possible ecological improvement of the effects of research activities to the marine environment.

The former DFG Senate's Commission for Earth System Research and the German Marine Research Consortium (KDM) unequivocally support all of the statements of the declaration for responsible marine research – also with respect to the responsibility towards future generations. They call upon all scientists to comply with the above-mentioned principles when planning and conducting research projects. The consideration/application of these principles is mandatory for the approval of research proposals.

Appendix 2

OSPAR Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area

(OSPAR Agreement 2008-1)

BACKGROUND

1. This code of conduct is based on the InterRidge Statement of Commitment to Responsible Research Practices at Deep-Sea Hydrothermal Vents, and an unofficial translation of the German Senatskommission für Ozeanographie / German Marine Consortium KDM, Commitment to Responsible Marine Research. It has been developed within the work program of the OSDPAR Biodiversity Committee by an intersessional correspondence group on marine protected areas working in consultation with a number of deep sea scientists and experts. It is currently being circulated to European scientific bodies for further comment.
2. The OSPAR Maritime Area includes large areas of deep and high sea.[1] These are recognized as containing ecosystems that may have a lower resilience than shallower near-shore areas, including several species and habitats that can be vulnerable to human disturbances.
3. The OSPAR Commission has adopted, and keeps under review, an Initial OSPAR List of Threatened and/or Declining Species and Habitats (OSPAR agreement 2004/6) to guide the setting priorities for its further work on the conservation and protection of marine biodiversity. The species and habitats on this list, especially those occurring in high / deep sea areas, are vulnerable to different actual or potential human activities, including marine scientific research.
4. OSPAR acknowledges the provisions and entitlements of United Nations Convention on the Law of the Sea (UNCLOS) and highlights that the General Principles for the Conduct of Marine Scientific Research set out therein require, inter alia, that marine scientific research shall be conducted in compliance with all relevant regulations adopted in conformity with UNCLOS including those for the protection and preservation of the marine environment.
5. OSPAR recognizes that marine research scientists appreciate the uniqueness and complexity of the marine environment, and are therefore particularly interested in preserving this scientifically, aesthetically, ecologically, and potentially economically valuable environment. Because of the specialized nature of the equipment required to work in the deep-sea, such as manned and unmanned research submersibles, scientists are the primary group of people who have had the opportunity to visit and value these extraordinary habitats. OSPAR also recognizes that scientists have already worked to develop codes of conduct for some deep-sea features, such as hydrothermal vents and cold water corals, and this OSPAR code of conduct has been written to fit harmoniously with those. (Specific provisions concerning the conduct of scientific research in certain deep / high seas habitats will be attached as annexes to this statement as they are developed.)
6. The potential impact of many scientific activities on the marine environment is low in comparison to the potential for disturbance by natural processes (e.g. volcanic/tectonic events, slumps, climate variation, etc.) or other human activities (e.g. mining, fisheries, and shipping). Indeed many areas, especially seamounts and cold coral reefs, have been widely impacted by human

activities, like fisheries, long before being scientifically studied. Nonetheless, there remains the possibility that some scientific activities could have unwanted negative side-effects on particular regions or animals if research activities are not carefully planned and executed. In addition, because only a limited number of sites are currently known and scientists from a wide variety of disciplines frequently work at these single locations, there is the potential for conflicting effects among studies, and multiple impacts, particularly at sites where scientific activity is intense.

7. OSPAR recognizes that protection and sustainable use of the oceans is best served by a fundamental understanding of its complex marine ecosystems, and that can only be achieved through marine research. OSPAR further recognizes that the role of scientists is also of primary importance concerning the implementation of the OSPAR network of Marine Protected Areas, and this should be preceded with the best available science.
8. Thus, marine research is a prerequisite and an integral component of an ecosystem based management of marine resources and the effective conservation of biodiversity of the deep and high seas. Most forms of observation and investigation of natural systems involve some disturbance of the systems being studied. In the interest of environmental stewardship, it must be the goal of research scientists to minimize disturbances as much as possible, while still gathering the information necessary both to understand the systems and to form a basis for sustainable use strategies. Therefore, marine scientists should always evaluate their research plans from a conservative standpoint, and choose the most environmentally friendly research approach.
9. When awarding research grants or research cruise time, the research plans should be assessed against conformity with the following principles.

CONDUCT OF RESPONSIBLE MARINE SCIENCE

10. OSPAR requests all scientists working in the deep seas and high seas of the OSPAR maritime area to adhere to the following principles when conducting their work:

    a. **Species**: avoid, in the course of scientific research, activities which could lead to long-lasting changes in regional populations or substantially reduce the number of individuals present.

    b. **Habitats**: avoid, in the course of scientific research, activities which could lead to substantial physical, chemical, biological or geological changes or damage to marine habitats.

    c. **Threatened and/or declining features**: When working in areas of particular ecological vulnerability, including, inter alia, the features listed in the OSPAR "List of Threatened and/or declining Species and Habitats" utmost care should be taken not to disturb or damage the features as far as possible.

    d. **Management areas / marine protected areas:** When working in areas of particular ecological importance and/or sensitivity, including, inter alia, OSPAR marine protected areas, care has to be taken not to disturb or damage the protected features, and that activities are in compliance with regulations for the area. Further, scientists are requested to respect the importance of management areas like marine protected areas and are asked to assist in their implementation through the use of the best scientific knowledge.

e. **Notification and research planning**: Avoid activities which could disturb the experiments and observations of other scientists.

   This requires that scientists:

   a) make themselves familiar with the status of current and planned research in an area; and

   b) that they ensure that their own research activities and plans are known to the rest of the international research community via appropriate public domain data bases and web sites.

f. **Methods**: Use the most environmentally-friendly and appropriate study methods which are reasonably available.

g. **Transport of biota**: Ensure that transport of biota between different marine regions, which could lead to changes in the environment or the composition of marine communities, does not occur.

h. **Collections**: Avoid collections that are not essential to the conduct of the scientific research, and reduce the number of samples to the necessary minimum.

i. **Collaboration and cooperation:** Ensure the fullest possible use of all biological, chemical and geological samples through collaborations and cooperation within the global community of scientists. Samples which can be archived should be placed in accessible repositories for future use.

j. **Data-sharing:** Practice international sharing of data, samples and results in order to minimize the amount of unnecessary sampling and to further a global understanding of the marine environment.

11. OSPAR supports the individual points of this commitment unreservedly and requests all scientists to adhere to them when planning and carrying out their research.
12. Their application should be a prerequisite for the granting of research funds and ship time.

Appendix 3

Mitigation measures for the operation of seismic and hydroacoustic sources with pulsed sound emissions

Abbreviations and terms used

BP: Bubble Pulser

TPV: Total Primary Volume, the sum of all primary volumes of air guns or GI guns whose signals overlap during signal generation such that they amplify one another.

in^3: Cubic inch(es). 1 in^3 corresponds to a volume of 0.0164 litres; 150 in^3 is approximately 2.5 litres.

IR: Infrared

MB: Multibeam (echosounder)

MMO: Marine Mammal Observer. Person trained in the observation of marine mammals.

MM: Marine Mammal

PAM: Passive Acoustic Monitoring

PV: Primary Volume; the main chamber volume of an air gun or the generator volume of a GI gun

SBP: Sub-Bottom Profiler (e.g. parametric SBP such as Parasound, Innomar SES-2000, Chirp or 3.5 kHz systems)

SS: Sidescan Sonar

Soft start: The emitted seismic energy is increased from minimum to maximum over a period of 20 minutes. The minimum energy is emitted when the smallest chamber volume of a source is triggered with the lowest pressure at which the source will still function.

Adequate visibility: The visibility range is at least twice the applicable mitigation radius.

Applicability

The rules described here apply solely to profile-type surveys of the sea floor.

General rules

- The proposed cruise period should be chosen such that a higher occurrence of marine mammals in the area under investigation is not likely. Breeding and nursery areas of marine mammals must be avoided during periods when marine mammals are present. In exceptional cases, planned measurements require special justification.

- The emitted seismic and hydroacoustic energy should be limited to the level strictly necessary for scientific purposes. Scientific justification for the use of the proposed seismic and hydroacoustic energy should be submitted; this forms part of the review process.
- Seismic measurements must begin with a soft start.
- During a change of profile, only a single seismic source (a 'mitigation pulser') should be triggered approximately every 60 seconds, assuming that no research-relevant data is being collected during the profile change.
- Observation of MMs should be carried out by a suitable number of MMOs from a suitable position with a view of at least 90 degrees from dead ahead to abeam of the sources (e.g. the bridge).
- All observations and measures should be logged in the cruise report.
- The use of explosives is not permitted.

Mitigation measures for the operation of weak seismic and/or hydroacoustic sources (BP, boomer, sparker, MB, SS, SBP, air guns with TPV ≤ 150 in^3 (2.5 litres))

Start of measurements: Before a source is first triggered, in daylight and adequate visibility, operators should scan the area around the vessel up to a distance of 500 m (mitigation radius) for MMs from a suitable position for a period of 60 minutes. Measurements may only commence if no MMs are observed within the mitigation radius.

In darkness, measurements may only commence if the working area is outside known breeding and nursery areas of MMs. If MMs were sighted during daylight hours on the previous day, in darkness the non-presence of MMs in the mitigation radius must be operationally demonstrated using suitable technical aids. If no such technical aids are available, measurements must commence in daylight.

Interruptions: If unscheduled interruptions of less than 5 minutes occur, measurements may continue immediately and without further checks. In the case of interruptions lasting 5-10 minutes, measurements may continue if no MMs have been observed within the mitigation radius. Otherwise, operators must wait until MMs have left this zone before measurements may recommence with a soft start. In the case of interruptions of more than 10 minutes, measurements must begin with a soft start assuming that no MMs have been observed within the mitigation radius. If a seismic source with minimal energy emission (a so-called mitigation pulser) is triggered continuously, measurements are regarded as non-interrupted.

Mitigation measures for the operation of seismic sources with TPV > 150 in^3 (2.5 litres)

Start of measurements: Before a source is first triggered, in daylight and adequate visibility, operators should visually scan the area around the seismic source with a mitigation radius of 750 m for MMs for a period of 60 minutes. Measurements may only commence if no MMs are observed within the mitigation radius.

In darkness or inadequate visibility, measurements may only commence if the working area is outside known breeding and nursery areas of MMs and the use of suitable technical aids (e.g. IR or PAM) has given no indication of the presence of MMs in the mitigation radius within the last 60 minutes. If no such technical aids are available, measurements must commence in daylight.

As measurements progress, the mitigation radius is continuously monitored either visually or with the aid of PAM or IR. If MMs are observed in the mitigation radius, measurements must be paused until the MMs have left the mitigation radius. Measurements must then be continued with a soft start.

Interruptions: In the case of interruptions lasting less than 10 minutes, measurements may continue if no MMs have been observed within the mitigation radius. Otherwise, operators must wait until MMs have left this zone before measurements may recommence with a soft start. In the case of interruptions of more than 10 minutes, measurements must begin with a soft start assuming that no MMs have been observed within the mitigation radius. In darkness, measurements may only recommence if the working area is outside known breeding and nursery areas of MMs and the use of suitable technical aids (e.g. IR or PAM) has given no indication of the presence of MMs in the mitigation radius. If a seismic source with minimal energy emission (a so-called mitigation pulser) is triggered continuously, measurements are regarded as non-interrupted.

Appendix 4

Checklist Regarding the Handling of Research Data

1. Listing of all data and sample types with responsible contact persons

How does your project generate new data? Is existing data reused? Which data types (in terms of data formats like image data or measurement data) arise in your project and in what way are they further processed? To what extent do these arise or what is the anticipated data volume?

2. Documentation and data quality

What approaches are being taken to describe the data in a comprehensible manner (such as the use of available metadata or documentation standards)? What measures are being adopted to ensure high data quality? Are quality controls in place and if so, how do they operate? Which digital methods and tools (e.g. software) are required to use the data?

3. Storage and technical archiving during the project

How is the data to be stored and archived throughout the project duration? What is in place to secure sensitive data throughout the project duration (access and usage rights)?

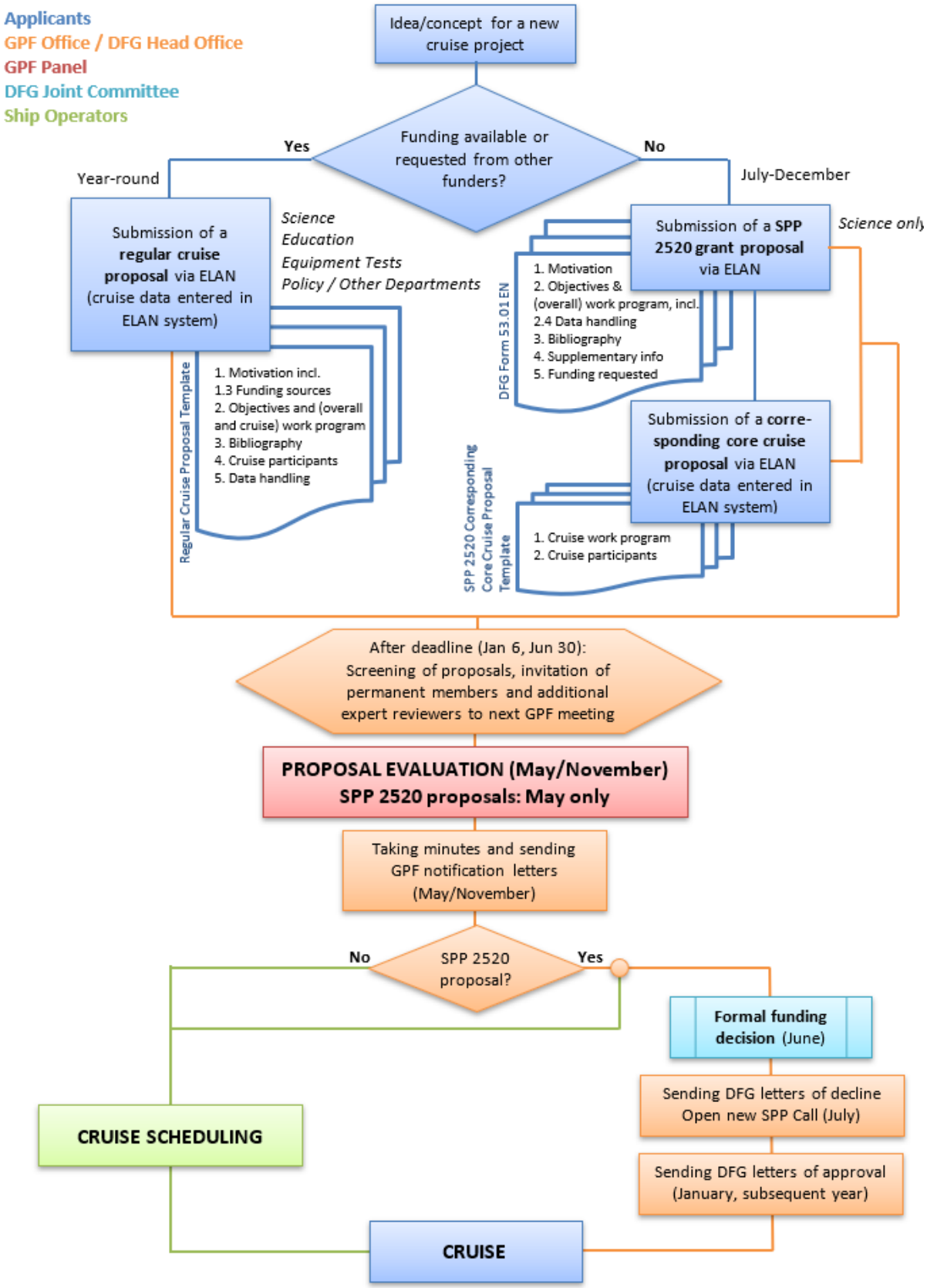
4. Legal obligations and conditions

What are the legal specifics associated with the handling of research data in your project? Do you anticipate any implications or restrictions regarding subsequent publication or accessibility? What is in place to consider aspects of use and copyright law as well as ownership issues? Are there any significant research codes or professional standards to be taken into account?

5. Data exchange and long-term data accessibility

Where and how are samples and raw data (field data), as well as project data derived and processed during the course of the evaluation, stored long-term? Is the lifetime of the storage facilities known, or is the retention time of the data in the storage facility regulated? When is the research data available for use by third parties?

6. Responsibilities and resources

Who is responsible for adequate handling of the research data (description of roles and responsibilities within the project)? Which resources (costs; time or other) are required to implement adequate handling of research data within the project? Who is responsible for curating the data once the project has ended?

GPF and SPP 2520 General Process Flow Chart