

Ship time on board research vessels is allocated on the basis of scientific cruise proposals. All cruise proposals for the German research vessels POLARSTERN, SONNE, METEOR, MARIA S. MERIAN, ALKOR, HEINCKE, and ELISABETH MANN BORGESSE are reviewed and evaluated by a joint committee in a transparent process in line with standardized criteria. The introduction of a joint review process in 2018 served to implement the Recommendations on the Future Development of the German Marine Research Fleet (2010) prepared by the German Council of Science and Humanities. The archiving and evaluation of results after the completion of a cruise is also subject to a standardized procedure and standardized criteria.

1. Organization of the Review Panel German Research Vessels (GPF)

The mandate of the Review Panel German Research Vessels (GPF) is to evaluate cruise proposals for all research vessels, and issue recommendations for their inclusion in cruise planning. The GPF, together with expert reviewers who cover additional scientific fields and at least one member of the DFG Review Boards, also serves as the review panel for a special DFG funding programme for conducting cruises with the German research vessels and evaluating corresponding initial data and samples (SPP 2520). The GPF is established jointly by the vessel-operating institutions. These institutions, DFG Review Boards in the relevant subject areas, and appropriate scientific societies can nominate members to the GPF. Nominations are formally assessed by the GPF Office and the reviewers are appointed jointly by the BMBF and the DFG, under consultation of the Helmholtz Association.

Because cruise planning for research vessels of oceangoing size takes place several years in advance, efforts should be made, drawing on experience in previous review panels, to keep the same membership on the panel for at least four years. Permanent panel members can be appointed for up to two four-year periods. The guidelines for appointing members and the names of the members of the GPF are both published on the German Research Vessels Portal.

Because research vessels are used by all marine science disciplines (e.g. marine geology, marine geophysics, physical oceanography, marine biology, marine chemistry, atmospheric science and maritime meteorology), it is important to ensure that the full range of disciplines is represented on the GPF. The GPF consists of two subpanels: Oceans and Marginal Seas, and Polar Regions. In selecting members for the Polar Regions subpanel, consideration must also be given to the specific requirements of polar research.

Based on experience with previous panels, it is considered appropriate to have at least 15 to 18 scientific members on a GPF subpanel. This number of members is sufficiently large to have all disciplines represented while ensuring that an adequate number of members can attend panel meetings. Efforts should be made to appoint international members to the panel and to achieve an overlap of personnel of at least 1/3 between the two subpanels. In the selection of members, special emphasis should be given to ensuring that the appropriate scientists can evaluate the international integration of cruise proposals. The organization of subpanels and the chairing of meetings should be the responsibility of two co-chairs, who are elected by the scientific members of the review panel. Representatives of BMBF, DFG, and Helmholtz Association, and the coordinators from the vessel-operating institutions, participate as guests

(without voting rights).

The work of the GPF is supported by a dedicated GPF Office. The main tasks of the GPF Office are: screening and checking cruise proposals received; communication with reviewers; preparation and support for meetings; minute-taking; communication with cruise planners (German Research Fleet Coordination Centre, AWI, GEOMAR and IOW) and the operators of major instrumentation; organizational support for the reporting system; management of the German Research Vessels Portal.

To ensure that the scientific part of the cruise proposals can be coordinated with international partners and programmes, proposals are prepared in English.

2. Steps in the Review Process

Cruise proposals have to be submitted via DFG's elan Portal (electronic proposal processing system, elan.dfg.de), also linked on the German Research Vessels Portal (www.portal-forschungsschiffe.de). In coordination with the vessel-operating institutions and funding providers, the GPF Office publishes a joint standing open call for the submission of cruise proposals (if relevant, for defined regions and topics) via the German Research Vessels Portal.

New cruise proposals can be submitted anytime. Cruise proposals that have been rejected by the GPF following consultation may be resubmitted after revision. Submitted revisions to cruise proposals can be evaluated outside of regular GPF meetings in written consent process if the GPF votes to allow this, in which case a recommendation is produced as to carrying out of the cruise.

Among the cruise proposals received, the GPF Office continuously identifies proposals that (i) are undertaken for research policy considerations, (ii) primarily serve the purposes of student training or (iii) the testing and development of major instrumentation. **These cruise proposals should not undergo scientific review but only need to be evaluated in terms of the appropriateness of the requested ship days.**

For cruise proposals that are earmarked by the applicants as integral part of scientific projects reviewed and funded in other programmes (including those funded by governmental departments other than BMBF), the panel should evaluate if the aims and work program of the cruise have been described and reviewed sufficiently in the corresponding proposal of the scientific project. If this is the case, the panel will evaluate the appropriateness of the requested ship days only, otherwise it will also review such proposals scientifically.

Regularly conducted cruises for the purposes of student training should undergo one evaluation for the duration of a given training programme by the panel and, if required, representatives of the participating universities. 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.

For cruises with the POLARSTERN, calls are issued on a three-yearly basis. Applications for secondary use and the use of transits on POLARSTERN can be submitted within the standing open call as well.

In case applicants wish to apply for funding for conducting a cruise and the initial evaluation of data and samples, grant proposals should be submitted (also via DFG's elan Portal) under the current call for the Infrastructure Priority Programme "Research Vessels" established for this purpose (SPP 2520), which is published by DFG. In parallel, a corresponding core cruise proposal reduced to the cruise-specific work program and logistical information, but without repeating the scientific case, needs to be submitted via DFG's elan Portal as described above. The GPF Office will provide a specific template for this proposal variant.

The GPF Office defines deadlines for the latest submission of regular cruise proposals and SPP 2520 grant proposals in order to be discussed on the upcoming GPF meeting. For each GPF meeting, the GPF Office compiles a suited scientific review panel consisting of GPF members and expert reviewers who cover additional scientific fields needed for evaluation of the proposal portfolio at hand.

For all proposals, the GPF Office selects two rapporteurs from the review panel. The task of the rapporteurs is to assess the scientific quality of a regular cruise proposal or SPP 2520 grant proposal in conjunction with its corresponding core cruise proposal, and to prepare a preliminary assessment for the review panel. Strict confidentiality must be maintained during the review process. Decisions about a regular cruise proposal or a SPP 2520 grant proposal in conjunction with its corresponding core cruise proposal are always decisions of the panel as a whole and may not be tracked back to individual rapporteurs. The rapporteurs are provided with a structured review form. During the same meetings the subpanels also discuss the appropriateness of working days for cruise proposals that do not require scientific review.

Secondary user proposals are evaluated as part of the regular review process. Proposals for secondary use for approved cruises must be submitted with sufficient lead time. In individual cases, the panel can also evaluate secondary user proposals (with the involvement of the GPF Office and the co-chairs) and find a recommendation on carrying out the cruise on a written consent basis.

To avoid any appearance of a conflict of interest in the case of cruise proposals that cover several different institutions, while ensuring a sufficiently large number of panel members for the assessment of a proposal, members of the same university faculty or the same non-university institution should be excluded from reviewing and evaluating one another's proposals. The fact that two individuals work in different institutions in the same city does not constitute a potential conflict of interest. Potential conflicts of interest are disclosed at the meeting and recorded in the meeting documents.

If the number of approved cruise proposals exceeds the available ship days or available major instrumentation, the subpanels can prioritize the proposals to be taken into account in cruise and instrumentation planning. In course of the logistical cruise planning, this prioritization of the positively reviewed proposals should be considered. The combination or shortening of cruises must be agreed with the co-chairs.

To allow cruise proposals to be discussed and evaluated in sufficient detail, it is suggested that a duration of 1-3 days is appropriate for each GPF meeting. Ideally, there should be a central location for meetings, preferably in Berlin or Bonn, and fixed meeting dates.

After the panel voted on each regular cruise proposal or SPP 2520 grant proposal, the proponents and relevant ship operators are informed about the decision. The regular cruise proposal review process ends once the notification letters have been sent out; the SPP 2520 grants proposal review process ends with the submission of the grant decision letter by the DFG Head Office after a final decision by DFG's Joint Committee.

The process envisages a minimum lead time of about two years (or longer in the case of the POLARSTERN; see above) between the submission of a cruise proposal and the carrying out of a cruise. To be able to respond quickly in the event of natural or environmental disasters and cruises intended to study them, it must also be possible for cruise plans to be amended at short notice where there is sufficient scientific or logistical justification. The GPF is appropriately involved in this process in terms of reviewing such proposals on a short notice.

Using the same process for all research vessels enables the efficient deployment of vessels and instrumentation by allowing ship time to be exchanged between vessels where logistically appropriate.

3. Preparation of Cruise Reports

Cruise reports record the work carried out on board and document the storage of data and samples. This information can be compared with the work schedule for the purposes of quality assurance. The cruise reports must specify a binding timetable for the provision of the scientific data and sample material collected during a cruise. There is an identical format for cruise reports for all vessels. Cruise reports must be submitted no more than two months after the end of a cruise. Cruise reports are consistently checked by the GPF Office in line with formal criteria. The GPF Office is responsible for deciding whether a cruise report should be accepted. Cruise reports are published promptly in digital form at the TIB Hannover information center and linked on the PANGAEA data portal.

Cruise reports are not intended to provide documentation of the scientific evaluation.

4. Status Conference and Completion of a Cruise

A cruise is completed once the data and samples collected on a cruise have been scientifically evaluated. In addition to the reporting obligation, the researchers who participate in a cruise are required to attend the Status Conference Research Vessels. The purpose of the status conference is to achieve national networking and public visibility for German marine research. It is designed as an attractive conference with a public profile. The cruise leaders report on the key scientific results. Members of the GPF can also participate in the status conference.

The status conference is organized by the GPF Office together with the funding agencies and the conference host institution, and is held every two years.

Cruise leaders are required to submit a written extended abstract for the status conference using a specified format (key scientific results, publications and presentations, a record in table form of how and where data has been stored), which the GPF Office checks. The extended abstracts will be published in the conference proceedings.

The GPF decides on the basis of the extended abstract and during the status conference whether a cruise may be considered formally completed.

5. Evaluation of the Review Process

The review process was introduced with the submission of cruise proposals on 30 September 2017. As a joint institution of the DFG and the Helmholtz Association, the GPF Office was established as a body independent of individual ship usage interests, in coordination with the BMBF and with the assignment of sufficient personnel. The joint process was evaluated after 3 years by the BMBF, the DFG, the Helmholtz Association, and the vessel-operating institutions. The results of the evaluation and modifications to the review process have been published on the German Research Vessels Portal.