

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 BORGESE are reviewed and evaluated by a joint committee in a transparent process in line with standardised 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 will also be subject to a standardised procedure and standardised criteria.

1. Organisation 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 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. Reviewers 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 a personnel overlap 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 organisation 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; organisational support for the reporting system; and, together with the webmaster, the 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 should be submitted via 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. 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.

New cruise proposals can be submitted anytime. Cruise proposals that have been rejected by the GPF following consultation may be resubmitted once after revision. Submitted revisions to cruise proposals can be evaluated outside 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 or are being financially supported by federal departments other than BMBF, (ii) are integrated and registered as part of coordinated scientific projects (the GPF office should be notified in advance of cruises of this type; this includes scientifically justified cruises that form part of DFG-funded CRCs or the HGF's POF), (iii) primarily serve the purposes of student training or (iv) the testing and development of major instrumentation. These cruise proposals should not undergo (further) scientific review but only need to be evaluated in terms of the appropriateness of the requested ship days. The evaluation is based on written proposed decisions by two scientific members of the GPF. Regularly conducted cruises for the purposes of student training should undergo one evaluation for the duration of a given training programme by members of the GPF and, if required, representatives of the participating universities.

For cruise proposals that do not fall into one of the four above-mentioned categories, the GPF Office selects at least two reviewers per cruise proposal and two rapporteurs from the GPF. International researchers should be involved in the review process if possible to allow the scientific programme and its international integration to be evaluated. The task of the rapporteurs is to assess the utility of the written reviews prior to the GPF meeting, and to prepare on the basis of the reviewers' and their own assessments a proposed decision for the review panel. Strict confidentiality must be maintained during the review process. Apart from the GPF Office and the co-chairs, the names of the reviewers should only be known to the representatives of the BMBF and the DFG. Where the reviewers' opinions on a cruise proposal clearly differ, additional reviews may be obtained.

The written reviews should be obtained in due time prior to the next panel meeting. The reviewers are

provided with a structured review form. At the meetings, all panel members have copies of the anonymous reviews.

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 (at least 1 year for large vessels). In individual cases, the GPF 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. During the same meetings the subpanels also discuss the appropriateness of working days for cruise proposals which do not require *scientific* review.

If the number of approved cruise proposals exceeds the available ship days or available major instrumentation, the subpanels can prioritise the proposals to be taken into account in cruise and instrumentation planning. In course of the logistical cruise planning, this prioritisation 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 subpanel meeting. Ideally, there should be a central location for meetings, preferably in Berlin or Hamburg, and fixed meeting dates.

After the panel voted on each cruise proposal, the proponents and relevant ship operators are informed about the decision. The review process ends once the notification letters have been sent out.

The proposed process envisages a lead time of around 2 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 quality of the report content is also reviewed for a random sample (around 10% of reports). The GPF Office is responsible for deciding whether a cruise report should be accepted. Cruise reports are published promptly on the PANGAEA/TIB databases.

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 a status conference. 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 organised by the GPF Office and is held every two years as a two-day event.

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 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 will be published on the German Research Vessels Portal.