**HORIZON 2020**

**Research and Innovation action**

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**ARICE: Arctic Research Icebreaker Consortium:**

**A strategy for meeting the needs for marine-based research in the Arctic**

# **Deliverable 4.8.** Performance Evaluation: satisfaction survey of the research cruises

# Submission of Deliverable

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## Abstract

Seven proposals (in eight cruises) were implemented onboard ARICE research icebreakers in the lifetime of the ARICE project.

After the cruise implementation took place, the Principal Investigators were contacted to gather information on the project implementation, data management and overall experience. Survey results are presented below.


# 1. Introduction

Providing coordinated transnational access to a set of Arctic Research Icebreakers has been the central objective of ARICE.

In the first call for proposals launched in 2018, ARICE offered access to PRV Polarstern (DE), RV Sikuliaq (USA) and CCGS Amundsen (CA). In the second call, launched in 2019, the project offered access to IB Oden (SE), MSV Fennica (FI) and RV Kronprins Haakon (NO).

After the scientific and logistic evaluation of the two calls for proposals, seven projects were finally implemented (see D4.6 Selection report of the ARICE call for proposals and D4.9 Report on Cruise implementation, post cruise assessment and lessons learned). The proposals were allocated to RV Sikuliak (1), PRV Polarstern (1), CCGS Amundsen (1), IB Oden (3) and RV Kronprins Haakon (1 proposal in two seasons). Due to logistic constrains, no proposal could be implemented onboard MSV Fennica.

**Table 1:** List of proposals implemented as transnational access through ARICE. (ECS stands for Early Career Researcher).

| Proposal acronym | Vessel | Vessel Country | PI institution | PI Country | PI Gender | PI ECR* | Cruise dates |
|---|---|---|---|---|---|---|---|
| **Go-WEST** | RV Sikuliaq | USA | AWI | Germany | M | N | 07.11.2019 to 02.12.2019 |
| **DEARice** | PRV Polarstern | Germany | WSL Institute | Switzerland | M | N | 20.09.2019 to 12.10.2020 |
| **NoTAC 2021** | PRV Kronprins Haakon | Norway | DTU | Denmark | M | Y | 24.08.2020 to 13.09.2020 |
| **NoTAC 2022** | PRV Kronprins Haakon | Norway | DTU | Denmark | M | Y | 31.07.2021 to 20.08.2021 |

 

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **VACAO** | IB Oden | Sweden | GEOMAR | Germany | M | Y | 25.07.2021 to 20.09.2021 |
| **TRACE** | IB Oden | Sweden | GeoMAR | Germany | M | Y | 25.07.2021 to 20.09.2021 |
| **PROMIS** | IB Oden | Sweden | Marine Biological Association | United Kingdom | F | Y | 25.07.2021 to 20.09.2021 |
| **PECABEAU** | CCGS Amundsen | Canada | Vrije U. | The Netherlands | F | N | 09.09.2021 to 07.10.2021 |

Only one cruise was implemented before the COVID-19 pandemics (GO-WEST, RV Sikuliaq). All others were affected by the COVID-19 pandemics in one way or another.

The effects of the COVID-19 pandemic were critical in the implementation of the projects, demanding complicated logistics, defined by the national protocols for protection against the disease, which caused the need for quarantines and travel restrictions. In addition, the postponed cruises from national polar programmes forced a reschedule of cruise plans and numerous national activities were definitively cancelled. This implied an additional effort both for the researchers of the ARICE projects and for the vessel operators (see D4.9 Report on cruise implementation, post cruise assessment and lessons learned) as the research cruises could not take place as initially planned. Despite of this, the project succeed in implementing the cruise in such difficult times.

## 2. Structure of the satisfaction surveys

The satisfaction survey for ARICE's transnational access activities was divided into five sections. The first section was dedicated to the general information on the implemented projects with seven questions gathering information about the project, PI and science team.

The second section was devoted to the cruise preparation, the communication with the vessel operator, the support from the vessel technicians and operators in the preparation and measures to prevent COVID-19.

The third section addressed the cruise performance and the experience on board during the cruise.

The fourth section focused on the data management and the preparation of the Cruise Summary Reports (CSR). The survey ended with a set of open questions on the overall experience of the science team on board.

The survey was conducted per email and the form is included in this report in Appendix 1.

 

# 3. Results of the satisfaction surveys

## Section 1: General questions

The first part of the survey aimed at obtaining information on the PI of the implemented proposal.

The PIs of the seven proposals are based at 5 different countries, two of them working in countries without polar infrastructure (The Netherlands and Switzerland). Two out of the seven PIs were female. 2 out of 7 were females.

Almost half of the PIs were Early Career Researchers (ECR), considered as within 7 years of the last degree.

Six out of seven PIs expressed their intention to apply for similar TNA opportunities if available in the future.

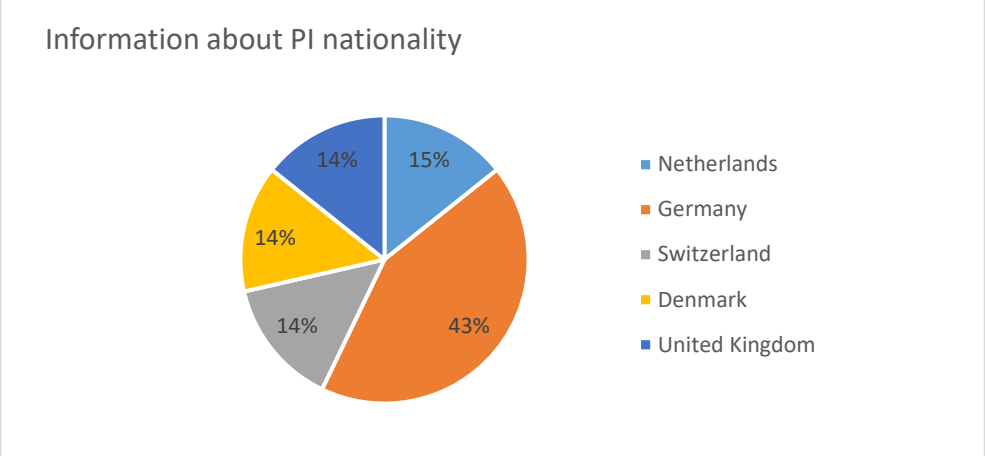


**Fig. 1.** Statistics of PI nationality

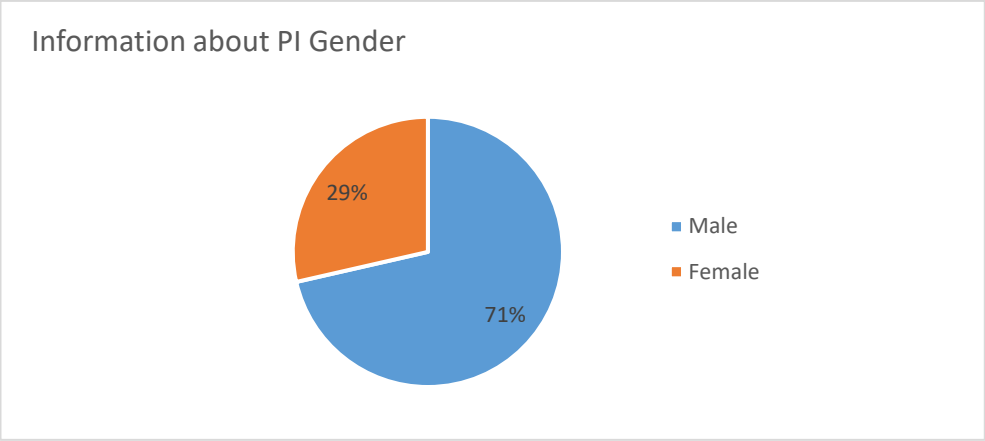


**Fig. 2.** Statistics of PI gender

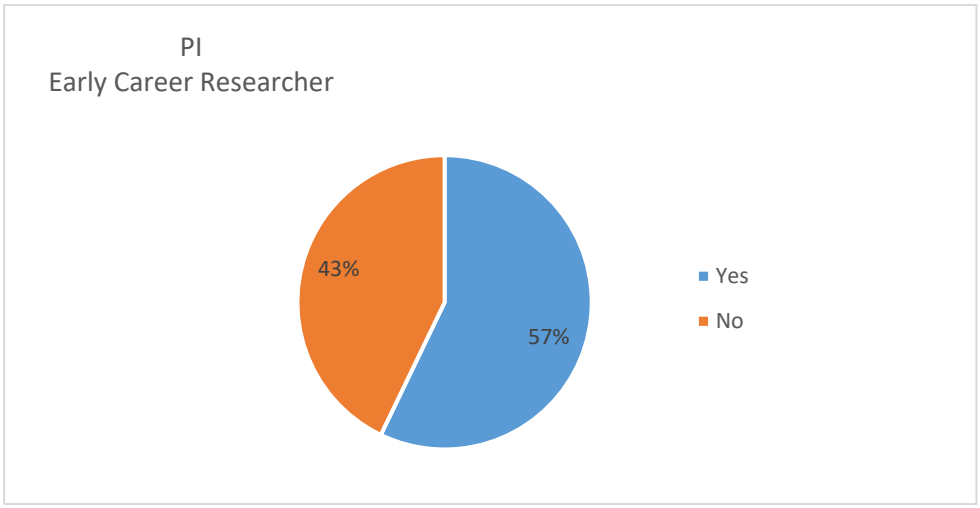


**Fig. 3.** Statistics of PI are or not ECR

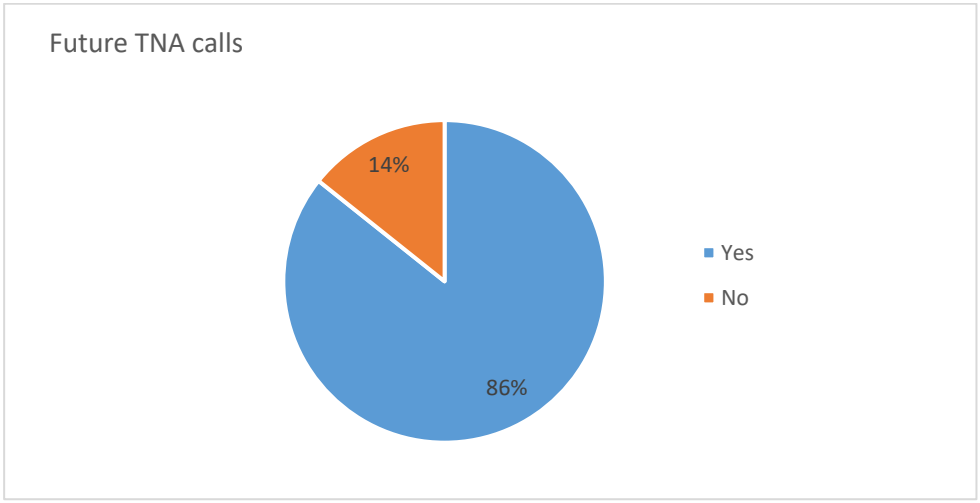


**Fig. 4.** Statistics of intention to present projects in TNA process

## Section 2: Cruise preparation

In this section we intended to evaluate the experience with the operators in the preparation of the campaign. It is crucial to know how the operator's team is able to integrate international teams in their national schedule. All PIs expressed in the comments the availability and help provided by the ship operators during the preparation of the campaigns. In this sense, they all mentioned their different situations with respect to the measures due to the COVID-19 pandemic, as every team was subject to different embarking/disembarking countries, with specific rules, criteria and restrictions. Without any doubt, travel and mobility restrictions imposed in in this time has been the biggest problem that the projects had to face in their preparation.

Both the communication with the ship operators, the documentation necessary to complete the project and the movement of people and cargo was good or very good in all cases.

 

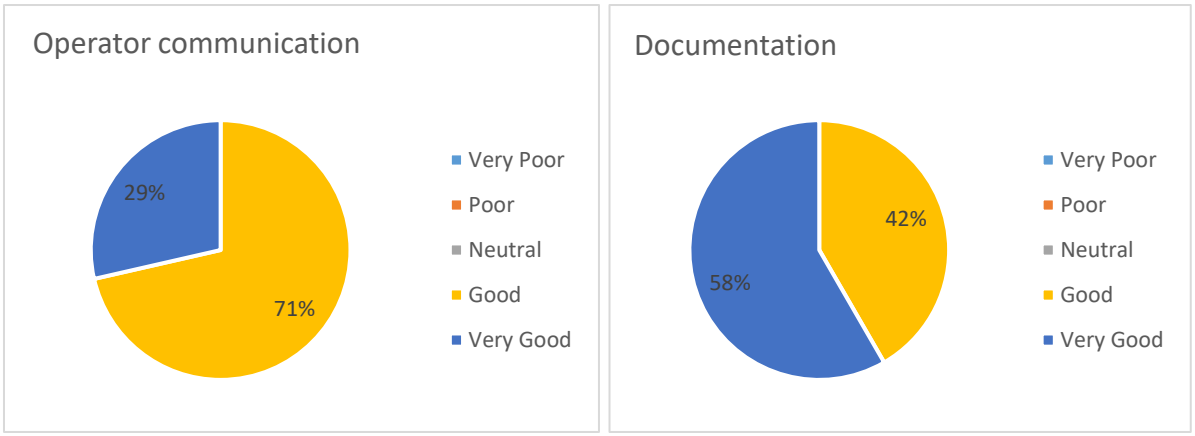


**Fig. 5 & 6.** Statistics of communication with the vessel's operator and documentation for preparation

The information provided by the operators on the ships' own equipment was rated as good and very good. In addition, the information on interoperability between the ship's own equipment and those belonging to the project team was resolved quickly, with the response being good or very good in all cases. The comments reflected the good communication with the ship operators in the technical aspects of both the ship and its equipment.

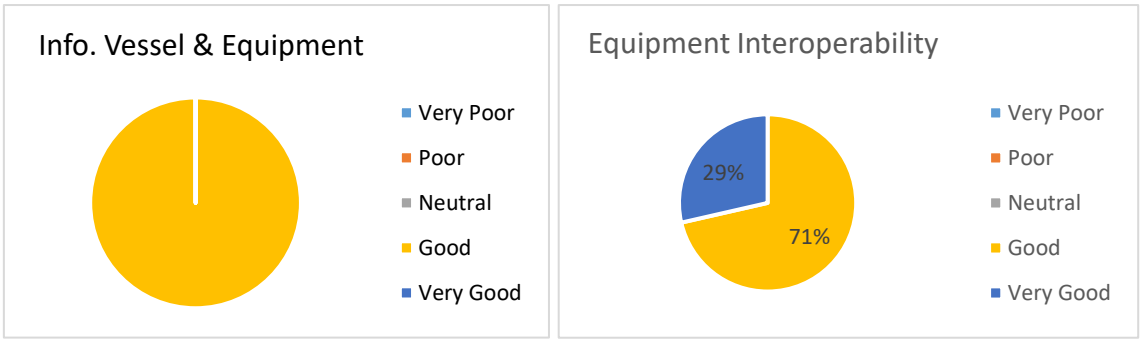


**Fig. 7 & 8.** Statistics of communication with the vessel operators and documentation for preparation

During the period of implementation of the proposals on ships, the logistics of transporting people and cargo has been very complicated due to the COVID-19 pandemic. In this sense, all PIs express their gratitude and state that the help provided by the ship operators and the logistics organization was very good or good.

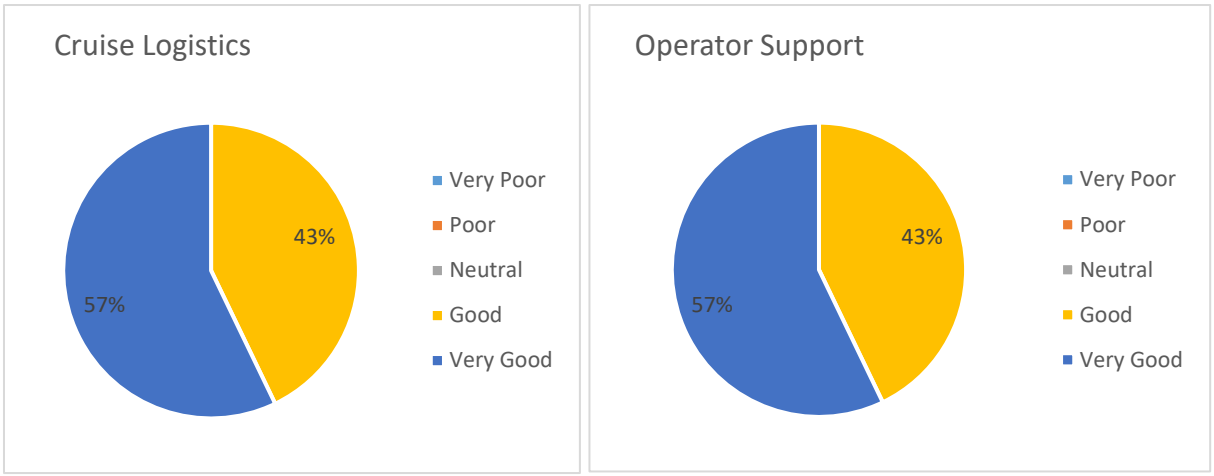


**Fig. 9 & 10.** Statistics support from vessel operators and logistics of the cruises

## Section 3: Cruise performance

The third part of the survey dealt with the effective implementation of the proposals on the vessels, the equipment available on board, technical support and days at sea. In general, the responses continue to be very positive in all aspects, especially in the circumstance of having to share ship time with other projects, thus generating the possibility of synergies between researchers.

Comments were made on the help received by the projects on board by the technical crew of the ships. In some cases the project members carried its own scientific equipment and even though nothing similar was ever deployed from that vessel before, its installation and deployment was carried out without problems.

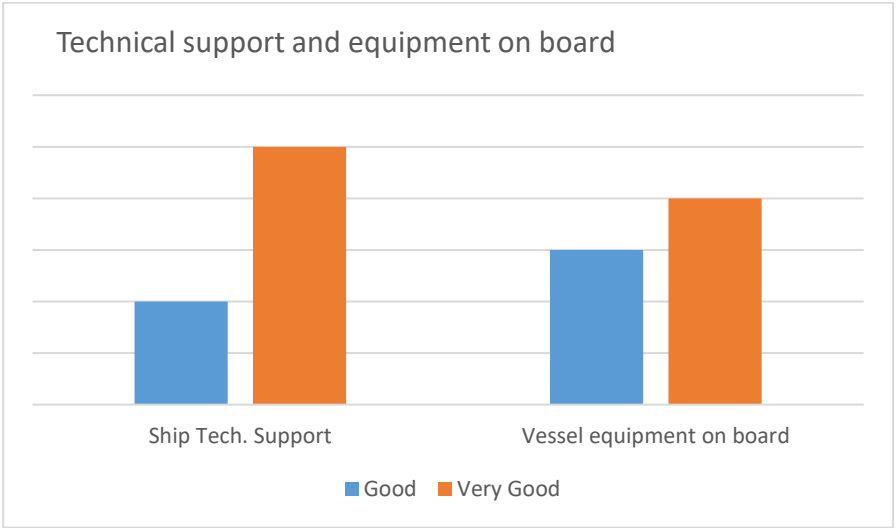


**Fig. 11.** Statistics of technical support and equipment on board

All PIs agree that the days granted in ARICE were appropriate and sufficient to develop the planned activities and stated that during the campaigns they did not suffer losses on the scheduled days.

In addition, as previously indicated, the projects as a whole manifest the positive circumstance of sharing the vessel and ship time during the implementation of their proposals. This circumstance has facilitated collaboration between the different groups present on board and has generated possibilities for future scientific cooperation.

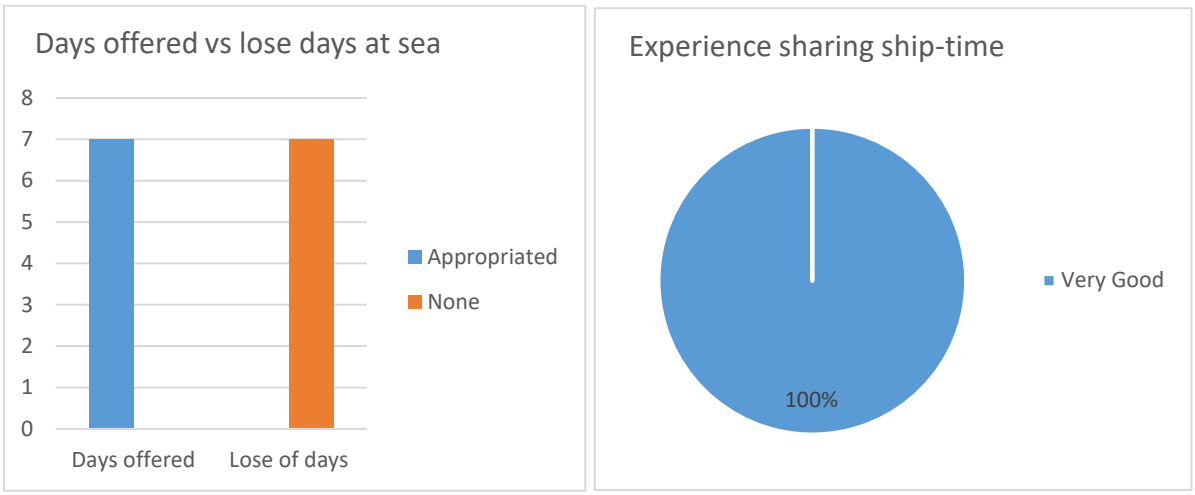


**Fig. 12.** Statistics of days offered and experience sharing ship-time

### Section 4: Data Management Plan

The fourth part was dedicated to the management of the data generated by the researchers on board. In general, in all vessels, the metadata generation and data management plan were clearly specified by the ship and the CSR (Cruise Summary Report) was completed on board or at least initiated on board.

### Section 5: Summary

The last part of the survey requested a general summary of the projects on board. All the projects without exception have achieved all the proposed scientific objectives and all qualify the completion of the project on board as a success.

Regarding the general question of the experience in the implementation of the proposals on international icebreakers, the PIs refer to it as a very satisfactory and positive experience, a unique opportunity to collect the well needed data sets.

## 4.- Final conclusions

From the responses received, it can be stated that the implementation of the 7 proposals on board the vessels of the project consortium has been a success. Without a doubt, despite the problems that the COVID-19 pandemic generated from a logistical point of view, all projects were able to have appropriate logistics thanks to the collaboration and support of the operators. Ships and technical personnel on board always facilitated the carrying out of activities and experiments, advising and even helping with the installation and operation of the scientist's own equipment.

 

The equipment, data management and CSRs were on board as planned and the necessary documentation for carrying out and completing the projects on board was provided in a timely manner.

Lastly, the possibilities for cooperation between researchers generated by sharing space and ship time have been received by the researchers as very positive. This is undoubtedly a beneficial aspect that has generated synergies between the researchers from different projects who were on board the vessels.

 

# Appendix 1

## 1.- General Questions

1. Name of the cruise proposal:

2. PI Institution:

3. PI Country:

4. Were you the cruise-PI of the performed cruise?

5. Were you on board as PI of the scientific crew on the cruise?

6. Were you an Early Career Scientist at the time the cruise took place?

7. Do you plan similar-style cruises in the near future?

## 2.- Cruise Preparation

Please, value from 1 to 5, where:

1. Very Poor; 2. Poor; 3. Neutral; 4. Good; 5. Excellent

8. Was the information about the vessels/infrastructures and the equipment interoperability clear enough to prepare your cruise?
   Value:
   Comment:

9. Was the contact with the vessel operator easily established?
   Value:
   Comment:

10. Was the information required for the cruise preparation, diplomatic clearance, specific trainings or health insurance issues clearly communicated and provided in time?
    Value:
    Comment:

11. Cruise logistics was provided in time to prepare the cruise? (Equipment and vessel capability, cruise dates, shipment dates, cruise logistics, …)
    Value:
    Comment:

 

12. Was the information from the vessel operator sufficient to judge the interoperability of own and ship-based marine equipment?
    Value:
    Comment:

13. Specific regulations needed for COVID and health and safety were answered clearly and timely by the vessel operator?
    Value:
    Comment:

14. Generally, how was the ship operator support during pre-cruise activities (planning, coordination and logistics)?
    Value:
    Comment:

### 3.- Cruise Performance

15. How was the support from crew and marine technicians during time on board?
    Value:
    Comment:

16. Did you lose science days by: Weather, ship's equipment problems, other?
    Y/N:
    Comment:

17. Were there changes in the on-board team compared to the proposal?
    Value:
    Comment:

18. Were the offered days at sea sufficient?
    Value:
    Comment:

19. Did you share ship time with other science teams?
    Value:
    Comment:

20. How was your experience sharing ship time with other science groups?
    Value:
    Comment:

 

21. Was vessel equipped as described?
    Value:
    Comment:

22. Was the required equipment/instrumentation available for the scientific team?
    Value:
    Comment:

### 4.- Data Management Plan (DMP)

23. Was it clear which data to collect and how to feed into the DMP?

24. Did you receive clear instructions to prepare the Cruise Summary Report (CSR)?

25. Was the CSR available to prepare on board?

26. Did you complete metadata and CSR on board?

### 5.- Summary

27. Was the scientific cruise overall successful according to the proposal?
    Value:
    Comment:

28. Were the planned science objectives achieved?
    Value:
    Comment:

29. How was your general experience on board? (Life on board, accommodation, food,…)
    Value:
    Comment:

 