

ANNEX 1

CALL FOR PROPOSALS

The FUNDING PARTNERS herewith announce the Joint Call for proposals under the framework of JPI *Oceans* on

Impacts of Deep-Sea Nodule Mining

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1. Introduction

This Call is being conducted as a follow-up of the Joint Action under the framework of JPI *Oceans*, and making use of the availability of RV SONNE in the Clarion Clipperton Fracture Zone (CCZ), subequatorial eastern Pacific.

JPI *Oceans* is an intergovernmental strategic process initiated by the European Parliament that focuses on solving the societal challenges related to our seas and oceans that cannot be investigated solely on the national level. In JPI *Oceans* national and/or regional ministries and agencies responsible for research funding seek to define common long-term strategic priorities for marine and maritime research and technology development for its Member States as a basis for strengthening cooperation and coordination of national investments in these fields.

After limited progress since the first developments in the 1970s, the last decade has seen a steady increase of interest in deep-sea mining to secure mankind's future demands in raw materials. Several European countries, i.e. Belgium, France, Germany, United Kingdom, Russia, and a consortium of former Soviet Union countries, have registered claims with the International Seabed Authority (ISA) to explore mineral resources in the abyss, and the EU is funding large collaborative projects (Blue Mining, Blue Atlantis, Blue Nodules) on the development of marine mining technology within their 'Blue Growth' strategy of the Horizon2020 program. Deep-sea mining will inevitably cause serious harm to abyssal ecosystems, because mineral deposits in focus (polymetallic nodules, Cobalt-rich crusts, and massive sulfides) cover extended areas of the inhabited seafloor that will be disturbed directly and indirectly by mining operations. Hence, binding international legislation has to be established to regulate the exploitation of these resources, in order to minimize harmful environmental consequences and to avoid large-scale, severe, and possibly irreversible damage on time scales of centuries to

millennia. Setting-up such a regulatory framework is the mandate of the International Seabed Authority (ISA) and requires input from independent scientific research.

The actual JPI Oceans joint project “Ecological Aspects of Deep-Sea Mining” has successfully demonstrated how integrated scientific research can be organized in a European transdisciplinary research project and how marine research infrastructure available at the various institutes across Europe can be utilized jointly and efficiently in order to tackle deep-sea research questions, to close scientific knowledge gaps, and also to contribute to the shaping of international regulations.

Hence, for the protection of marine resources recovery, a follow-up trans-disciplinary European research initiative is necessary.

2. Scientific and strategic Framework

One scientific consortium actually funded under the JPI Oceans Pilot Action (Project: “Ecological aspects of deep-sea mining”) has focused on assessing the longer-term impacts expected to occur in the course of deep-sea mining operations by re-visiting several benthic disturbance experiments and seabed dredging scars that were created in polymetallic nodule areas of the eastern equatorial Pacific up to four decades ago.

The main findings are that

- nodule ecosystems comprise of a highly diverse fauna of sessile and mobile species,
- faunal communities and environmental parameters show a high variability even on small spatial scales,
- benthic fauna differs significantly between abyssal seamounts and also from the nodule habitats,
- removing nodules and surface sediment in the course of mining will lead to a loss of seafloor integrity, negatively affecting benthic population densities and ecosystem functions, such as reduced biogeochemical remineralization processes and low productivity of benthic communities, and
- disturbances impact nodule ecosystems for many decades (and possibly much longer) and include all ecosystem compartments and functions.

However, several aspects need to be investigated further and in more detail. Some important topics are

- the fate and impact of the particle plume generated during mining operations,
- the definition of appropriate indicators of ecosystem health and threshold values for “harmful effects” on the environment as well as
- measures to mitigate significant adverse effects,
- an assessment of associated environmental risks, and
- implementation of scientific knowledge and respective uncertainties into improved legislation.

The project phase underway studies simulated impacts of polymetallic nodule mining from seabed ploughing or dredging deployments. In a follow-up phase field work should be linked to the testing of an industrial mining system in the relevant deep-sea environment. Monitoring of the industrial equipment test should particularly aim at reducing the existing uncertainties with respect to the spatial extent and temporal behavior of the generated sediment plume and its impacts on the benthic and pelagic ecosystem from released toxic substances, suspended particle concentrations, blanketing by resettling particles, habitat removal and sediment compaction.

Joint projects should establish a framework of best environmental practices in the management of deep-sea mining operations and test it in the field, at least on a small scale (for example, in the context of the industrial collector trial). This shall include procedures for establishing an environmental baseline of a prospective mine site, a quantitative assessment of the vulnerability and resilience of the ecosystem, an evaluation of the actual environmental impacts at the mine site and in its vicinity, as well as testing of mitigation measures and restoration possibilities. Since environmental responses to an impact in the deep-sea evolve over several decades, besides the obligatory investigation directly after the collector trial, projects should also attempt to accomplish a first follow-up study within the lifetime of the project.

Field work needs to account for the environmental variability in the deep-sea on possibly different spatial scales and should apply state-of-the-art scientific methodologies and technologies. Among others, these should include AUV- and ROV-operated habitat characterization, database annotation systems and molecular tools (e.g. metabarcoding, eDNA, proteome fingerprinting) for analyzing faunal diversity, species richness, and community structure, as well as in situ biogeochemical process investigations and experimentation. Numerical modelling of the investigated processes needs to complement data interpretation and environmental impact and risk assessment.

In addition to advancing the scientific knowledge on deep-sea ecosystems and providing the scientific basis for the current debate on environmental impacts and risks of future seabed mineral extraction, the future joint project is expected to contribute to the shaping of respective regulatory frameworks, such as the exploitation code being developed by ISA.

Aspects outlined in ISA's regulation draft that require further scientific input include

- ❖ the development of environmental standards and protocols for impact and risk assessment,
- ❖ the implementation of an environmental management and monitoring plan as a tool to minimize impacts and manage risks,
- ❖ the definition of appropriate criteria for ecosystem health and acceptable levels of significant adverse change, and
- ❖ the management of scientific uncertainties in legislative frameworks.

Joint projects should also include proposals on how to investigate the science-policy interface that the joint project feeds into. This includes e.g. analyses of the processes where input from scientific partners, but also other actors, contributes to the shaping of regulatory frameworks such as the exploitation code being developed by ISA.

The project shall build upon the knowledge accumulated in former and ongoing joint projects on the environmental impacts of deep-sea mining. An integrative approach and a transdisciplinary partnership are considered essential to achieving the expected impacts, and may require insight from the natural and social sciences as well as the humanities.

3. Procedures and Criteria

An evaluation process will be applied (two-stage only if required by national regulations): Applicants are invited to submit preproposals, which will be evaluated by peer reviewers. Successful applicants will then be asked to submit full funding proposals to their national funding agency, which will eventually be assessed again if required by national guidelines.

In general all proposals should address the topics outlined in the Call text in an integrated way. Applicants are strongly advised to consult their national contact points for this Call prior to planning and submitting proposals (contact person see Further Information).

a) Eligibility

- The Call is open to all proposals that meet the following criteria:
 - All proposals (preproposals and full proposals selected for funding) address the research topics outlined comprehensively in the Call text and entail a harmonized work plan of different international scientific groups fitting to at least one future leg of RV SONNE;
 - Input of national scientific contributions to the joint project must be visible/marked in (pre)proposals;
 - Researchers who are eligible to apply for financial support from any of the participating FUNDING PARTNERS are eligible to apply for funding within this Call for proposals;
 - Researchers from other countries (third countries, incl. ASSOCIATE PARTNERS) can participate in project proposals on the condition that they provide written proof that their part of the project will be covered independently of this Call (in kind); however, they cannot coordinate a project and their contribution to the joint project should not be vital;

- The principal investigator (PI) leading a joint application must be eligible for submitting funding proposals to one of the FUNDING PARTNERS;
 - The transnational collaboration must have a clear added value for the proposed research.
- o Number of applicants per proposal:
 - Each application for a joint project must involve researchers from at least three FUNDING PARTNER countries; no maximum number of partners is specified; (projects should preferably include researchers from all partners supporting this Call)
 - o Funding / Duration:
 - A maximum of four years of project duration,
 - Up of 36 months of personnel funding,
 - Projects of all FUNDING PARTNERS should preferably start on **01.07.2018**.
 - National rules and funding regulations are published on the web sites of respective FUNDING PARTNERS. Links to these rules will be provided on the submission platform.
 - o The general national eligibility criteria specified above by the respective FUNDING PARTNERS have to be followed. For details please contact the national representative(s) for further advice.

b) General Procedure

The following two-stage application procedure will be applied:

1. Preproposals, arranged by the PI into one consortium joint application, are submitted to the LEAD AGENCY (Project Management Juelich, PtJ).
2. Meaningful joint preproposals (30 pages max.) are sent by PtJ to independent, international peer reviewers (jointly selected among FUNDING PARTNERS) for evaluation.
3. Panel members of FUNDING PARTNERS (the MANAGEMENT COMMITTEE) jointly decide on a short-list for funding out of the top-ranked preproposals based on the recommendations (rank list by score) from the peer reviewers.
4. Successful applicants will be asked by their national funding agencies to submit full national proposals, which may, where required, undergo additional reviewing on a national level.

Consent provided, the identity of the reviewers will be made available on the website of the LEAD AGENCY after the funding procedure has been completed.

Strict confidentiality is maintained with respect to the identities of applicants and the contents of the (pre)proposals throughout the duration of the entire procedure.

The list of funded joint projects will be published on the website of the LEAD AGENCY. All participating FUNDING PARTNERS and the JPI Oceans office will publish this list on their web sites.

c) Evaluation

Potential applicants are advised to take careful notice of the aims and scope of the Call as described above. The following criteria will be applied to assess the quality of preproposals:

Main criteria

- Scientific quality is the leading criterion and will be assessed by means of the following criteria:
- Scientific quality, including novelty, originality and innovation of the proposed research
 - Feasibility and applicability of the proposed research in relation to the call objectives
 - Relevance to the call, esp. added value of transnational collaboration
 - Quality of applicants and suitability of the consortium

Additional criteria

The following criteria will also be considered when ranking the joint project proposals:

- Level of integration and collaboration
- Interdisciplinarity
- European added value
- Project governance
- Suitability of budget requirements
- Networking and dissemination activities
- Training opportunities

d) Call Structure and Management

Funded projects are required to report on an annual basis to their national funding agencies under the administrative rules of the relevant funding organization. In addition, the principal investigator is required to submit an annual English summary covering all work packages to the LEAD AGENCY. The principal investigator will be responsible to submit a final report to the LEAD AGENCY, in English, within six months after the end of the project. This report should cover the work undertaken by all of the proposal partners. National participating partners will have to submit reports of their own work to respective national funding agencies.

A kick-off meeting, organized by the principal investigator's (PI) bureau, will be held prior to the first research cruise.

Annual workshops will be conducted under the auspices of the head scientific organizing bureau.

A final conference will be organized by the principal investigator's bureau immediately prior to the end of the funding period.

Participants of funded projects are expected to participate in these meetings and should include the relevant costs in their proposal budgets.

e) Funding

A substantial amount of financial resources has been blocked by the FUNDING PARTNERS from Belgium, Germany, The Netherlands, Norway and Portugal for this Call. Each participant in a consortium will be funded by his or her national partner organization (see point g.). The FUNDING PARTNERS aim at funding one integrative proposal. ASSOCIATE PARTNERS from other countries with in kind contributions are welcome.

f) Eligible budget items

Eligible costs are governed by national regulations. Links to these regulations can be found on the submission platform. Specific questions should be addressed to the national partner organizations, if possible in advance of submitting an application.

g) Further information

Potential applicants are advised to consult the general funding requirements of the national organizations participating in the call and to contact the national contact persons whenever necessary, especially with regard to eligible costs and other country-specific aspects of the Call.

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ASSOCIATE PARTNERS

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- ITALY
- SWEDEN
- INTERNATIONAL SEABED AUTHORITY (Jamaica Headquarters)

h) Call Secretariat

The Call will be run by Project Management Juelich, Div. MGS. The Call secretariat is responsible for organizing the evaluation procedure and for all communication with principal coordinators regarding their applications.

i) Submission of Proposals and Deadline

The language of the application is English. Applications should be submitted electronically to PtJ via the link provided on the JPI secretariat website <https://epss-jpi-oceans.ptj.de>. The use of the official application form for this Call is mandatory. Instructions and guidelines for submitting applications can be found on the website. In case of technical questions, please contact the Call secretariat (show website).

The deadline for submitting preproposals is **01.11.2017, 12:00 CEST**. Applications received after the deadline will not be considered.