



National Oceanography Centre
European Way
Southampton
SO14 3ZH
United Kingdom

noc.ac.uk

8th March 2024

Mr Michael Lodge
Secretary-General
International Seabed Authority
Kingston
Jamaica

Dear Secretary General,

Re: Application for observer status

As in accordance with article 169 of the United Nations Convention on the Law of the Sea (UNCLOS), rule 82, paragraph 1 (e), of the Rules of Procedure of the Assembly of the International Seabed Authority (ISA), (ISBA/A/6), and the guidelines for observer status of non-governmental organizations with the ISA (ISBA/25/A/16), I write, on behalf of the National Oceanography Centre (NOC), an independent, self-governing charitable company limited by guarantee, to request observer status at the ISA.

As a world leading marine scientific research organisation, the NOC has a long history in undertaking research of deep sea environments, including the geology and genesis of deep sea mineral formation as well as the environmental characteristics where deep sea minerals are found, which includes the physical, chemical and biological oceanography of the varying mineral settings. The NOC also provides, on behalf of the UKRI-NERC, the provision of research infrastructure accessible to the entire UK marine scientific research community, where we manage two ocean going research vessels and a National Marine Equipment Pool, the largest centralised marine scientific equipment pool in Europe.

The NOC also has a long-standing relationship with the ISA Secretariat, providing independent and impartial scientific information, whether through ISA Technical Studies or participation at ISA led science workshops. The NOC has also been an advocate and supporter of ISA Capacity Development efforts.

To which end please find attached, as an annex, details of the NOC as per the requirement of Enclosure 1 of the aforementioned guidelines for observer status of non-governmental organizations.

Yours sincerely,

A handwritten signature in black ink, appearing to read "John Siddorn".

Dr John Siddorn
NOC CEO

A. Information about the organization

1. Name of organization

National Oceanography Centre

2. Address of headquarters

European Way,
Southampton,
SO14 3ZH,
United Kingdom.

3. Addresses of all branches and/or regional headquarters

Joseph Proudman Building,
6 Brownlow Street,
Liverpool,
L3 5DA,
United Kingdom.

4. Telephone number

+44 (0)23 8059 6666
+44 (0)151 795 4800

5. Fax number

6. Email address

7. Name, title and contact details of focal point

Alan Evans, Head of Marine Policy, alan.evans@noc.ac.uk, +44 (0)7592 101164

8. Background information on the organization

The National Oceanography Centre (NOC) is an independent self-governing organisation – a charitable company limited by guarantee. The NOC is funded by UK Research and Innovation to work on National Capability programmes, and manages on its behalf, the National Marine Equipment Pool – Europe’s largest fleet of autonomous and robotic vehicles, and two state of the art research ships RRS Discovery and RRS James Cook.

With 650 staff employed across Southampton, Liverpool, RRS Discovery and RRS James Cook, we are co-located at both sites with leading UK Universities, giving us a unique position in UK marine research. A truly multi-disciplinary centre, our research encompasses Marine Physics and Ocean Climate, Marine Systems Modelling, Ocean BioGeosciences, and Ocean Technology and Engineering. We are home to the nation’s marine data assets; the British Oceanographic Data Centre (BODC), the British Ocean Sediment Core Research Facility (BOSCORF) and the Discovery Collections.

We work collaboratively with over 40 other UK marine institutions through the NOC Association for Marine Science National Capability Beneficiaries, and engage with users of the UK marine infrastructure through the Marine Facilities Advisory Board, and with the beneficiaries of our long term underpinning National Capability Science programmes.

We facilitate international co-operation in science by representing the UK internationally, leading the UK Delegation of the Intergovernmental Oceanographic Commission of UNESCO, through our membership of the European Marine Board, and through partnerships with other research institutions and organisations worldwide.

9. Is the organization a member of, affiliated to or otherwise associated with another organization that has been granted observer status with the Authority?

IOC-UNESCO – the NOC provides the UK Delegation to the IOC
WMO – the NOC provides experts to specialist WMO working groups
Deep Ocean Stewardship Initiative – the NOC has DOSI members
InterRidge – the NOC hosted the InterRidge office and has a longstanding relationship with the forum
World Ocean Council – the NOC is a member of the WOC

The NOC has/had had working relationships with several others, including:

- Commonwealth
- Durham University's Centre for Borders Research
- Secretariat of the Convention on Biological Diversity
- The Pacific Community
- United Nations Educational, Scientific and Cultural Organization
- International Cable Protection Committee
- Japan Agency for Marine-Earth Science and Technology

The NOC also engages with some of the listed observer States, undertaking collaborative research projects with the USA in particular.

10. Is the organization affiliated to consultants of the Authority, contractors with the Authority, entities in connection with the law of the sea, the offshore and deep-sea mining industry, research institutes or the mineral marketing and processing industry?

- The NOC has worked with Loke (previously UK Seabed Resources) through supporting the delivery of their contractor's capacity development obligations.
- The NOC collaborates with several research organisation in exploring environments where deep sea minerals can be found e.g. mid-oceanic ridge evolution and the presence of hydrothermal vents. We undertake deep sea biological research in abyssal plain environments, where research of ecosystem(s) support development of deep sea environmental regulations. We also explore the oceanic and physical processes leading to the formation of cobalt crusts, working with colleagues in Europe, the USA, and South America in trying to understand the varying factors in crust formation.
- The NOC has worked with industry partners in helping the design process of equipment that would be useful in deep sea environmental monitoring.

11. Relationships with intergovernmental organizations

- The NOC is a host agency of the DOALOS Nippon Fellowship, providing supervisors for Fellows developing thesis on several aspects of the UNCLOS.
- The NOC provides the UK Delegation to the IOC-UNESCO, helping frame the IOCs delivery of programmes or projects in alignment with the UNCLOS
- The NOC provided technical advisers and a member of the UK Government Delegation during negotiations of the BBNJ High Seas Treaty.
- The NOC has a long-standing relationship working with the ISA, where contributions range from providing the first ISA Technical Study in 2001 to signing a Letter of Cooperation in support of the Women in Deep Sea Research (WIDSR) project in 2022. In the intervening period the NOC has provided several members to ISA Boards, supported the development of the ISA Capacity

Development Strategy, provided financial voluntary contributions that enabled the recruitment of two internships, and enabled the participation of NOC experts in workshops run by the ISA and in ISA science initiatives, such as in deep-sea taxonomy.

12. List of publications and/or other relevant documentation (sample only)

Hitchin, B.; Smith, S.; Kröger, K.; Jones, D.O.B.; Jaekel, A.; Mestre, N.C.; Ardron, J.; Escobar, E.; van der Grint, J.; Amaro, T. 2023 Thresholds in deep-seabed mining: A primer for their development. *Marine Policy*, 149, 105505. <https://doi.org/10.1016/j.marpol.2023.105505>

Simon-Lledó, E., Jones, D. O. B. (2023) Research Briefing: Biogeographic boundaries and high diversity in abyssal seafloor communities. *Nature Ecology and Evolution*. DOI: 10.1038/s41559-023-02139-0

Rabone, Muriel; Wiethase, Joris H.; Simon-Lledó, Erik; Emery, Aidan M.; Jones, Daniel O.B.; Dahlgren, Thomas G.; Bribiesca-Contreras, Guadalupe; Wiklund, Helena; Horton, Tammy; Glover, Adrian G. 2023 How many metazoan species live in the world's largest mineral exploration region? *Current Biology*, 33 (12). 2383-2396.e5. <https://doi.org/10.1016/j.cub.2023.04.052>

Dutrieux, Adeline Marie; Lichtschlag, Anna; Barriga, Fernando J. A. S.; Martins, Sofia; Milinovic, Jelena; Murton, Bramley J. . 2023 Metal preservation and mobilization in sediments at the TAG hydrothermal field, Mid-Atlantic Ridge. *Geochemistry, Geophysics, Geosystems*, 24 (6). <https://doi.org/10.1029/2023GC010879>

Josso, Pierre; Hall, Alex; Williams, Christopher; Le Bas, Tim; Lusty, Paul; Murton, Bramley . 2023 Application of random-forest machine learning algorithm for mineral predictive mapping of Fe-Mn crusts in the World Ocean. *Ore Geology Reviews*, 162, 105671. <https://doi.org/10.1016/j.oregeorev.2023.105671>

Weaver, P.P.E.; Aguzzi, J.; Boschen-Rose, R.E.; Colaço, A.; de Stigter, H.; Gollner, S.; Haeckel, M.; Hauton, C.; Helmons, R.; Jones, D.O.B.; Lily, H.; Mestre, N.C.; Mohn, C.; Thomsen, L. 2022 Assessing plume impacts caused by polymetallic nodule mining vehicles. *Marine Policy*, 139, 105011. <https://doi.org/10.1016/j.marpol.2022.105011>

Bergo, Natascha Menezes; Torres-Ballesteros, Adriana; Signori, Camila Negrão; Benites, Mariana; Jovane, Luigi; Murton, Bramley J.; da Rocha, Ulisses Nunes; Pellizari, Vivian Helena. 2022 Spatial patterns of microbial diversity in Fe-Mn deposits and associated sediments in the Atlantic and Pacific oceans. *Science of The Total Environment*, 837, 155792. <https://doi.org/10.1016/j.scitotenv.2022.155792>

Alevizos, Evangelos; Huvenne, Veerle A.I.; Schoening, Timm; Simon-Lledó, Erik; Robert, Katleen; Jones, Daniel O.B. . 2021 Linkages between sediment thickness, geomorphology and Mn nodule occurrence: New evidence from AUV geophysical mapping in the Clarion-Clipperton Zone. *Deep Sea Research Part I: Oceanographic Research Papers*, 179, 103645. <https://doi.org/10.1016/j.dsr.2021.103645>

Corrêa, Paulo Vinicius Ferraz; Jovane, Luigi; Murton, Bramley J.; Sumida, Paulo Yukio Gomes. 2022 Benthic megafauna habitats, community structure and environmental drivers at Rio Grande Rise (SW Atlantic). *Deep Sea Research Part I: Oceanographic Research Papers*, 186, 103811. <https://doi.org/10.1016/j.dsr.2022.103811>

Lehrmann, Berit; Cooper, Matthew J.; Milton, J. Andy; Murton, Bramley J. . 2022 Formation, remobilisation and alteration processes at inactive hydrothermal vents: insights from elemental analysis of Cu-(Fe-)S sulfides from TAG, Mid-Atlantic Ridge. *Mineralium Deposita*. <https://doi.org/10.1007/s00126-022-01106-2>

Bergo, Natascha Menezes; Bendia, Amanda Gonçalves; Ferreira, Juliana Correa Neiva; Murton, Bramley J. ; Brandini, Frederico Pereira; Pellizari, Vivian Helena. 2021 Microbial diversity of deep-sea ferromanganese crust field in the Rio Grande Rise, Southwestern Atlantic Ocean. *Microbial Ecology*. <https://doi.org/10.1007/s00248-020-01670-y>

Josso, Pierre; Lusty, Paul; Chenery, Simon; Murton, Bramley . 2021 Controls on metal enrichment in ferromanganese crusts: temporal changes in oceanic metal flux or phosphatisation? *Geochimica et Cosmochimica Acta*, 308. 60-74. <https://doi.org/10.1016/j.gca.2021.06.002>

Josso, Pierre; Van Peer, Tim; Horstwood, Matthew S.A.; Lusty, Paul; Murton, Bramley . 2021 Geochemical evidence of Milankovitch cycles in Atlantic Ocean ferromanganese crusts. *Earth and Planetary Science Letters*, 553, 116651. <https://doi.org/10.1016/j.epsl.2020.116651>

Milinic, Jelena; Rodrigues, Francisco J. L.; Barriga, Fernando J. A. S.; Murton, Bramley J. . 2021 Ocean-floor sediments as a resource of rare earth elements: an overview of recently studied sites. *Minerals*, 11 (2), 142. <https://doi.org/10.3390/min11020142>

Ortiz Kfour, Luciana; Millo, Christian; Estela de Lima, Amanda; Silveira, Carla Semiramis; Sant'Anna, Lucy Gomes; Marino, Egidio; González, Francisco J.; Sayeg, Isaac Jamil; Hein, James R.; Jovane, Luigi; Bernardini, Simone; Lusty, Paul A.J.; Murton, Bramley J. . 2021 Growth of ferromanganese crusts on bioturbated soft substrate, Tropic Seamount, northeast Atlantic ocean. *Deep Sea Research Part I: Oceanographic Research Papers*, 175, 103586. <https://doi.org/10.1016/j.dsr.2021.103586>

Evans, A.J.; Murton, B.J. 2012 The State of seafloor massive sulphide exploration in 2012: Position Paper. Southampton, National Oceanography Centre, 7pp. (UNSPECIFIED) (Unpublished)

German, C.R.; Connelly, D.P.; Evans, A.J.; Murton, B.J.; Curewitz, D.; Okino, K.; Statham, P.J.; Parson, L.M. 2001 Hydrothermal activity along the central Indian Ridge: ridges, hotspots and philately. *EOS: Transactions American Geophysical Union*, 82 (47, Supplement). p.F663.

Yeo, I.A., Dobson, K., Josso, P., Pearce, R.B., Howarth, S.A., Lusty, P.A., Le Bas, T.P. and Murton, B.J., 2018. Assessment of the mineral resource potential of Atlantic ferromanganese crusts based on their growth history, microstructure, and texture. *Minerals*, 8(8), p.327.

ISA Technical Study no. 30, 2021 "Marine mineral resources: scientific and technological advances". NOC lead author.

ISA Technical Study no. 28, 2021 "Regional Environmental Assessment of northern Mid-Atlantic Ridge". NOC contributing author.

ISA Technical Study no. 17, 2017 "Towards an ISA Environmental Management Strategy for the Area". NOC contributing author.

ISA Technical Study no. 16, 2017 "Environmental Assessments and Management for Exploitation of Minerals in the Area". NOC contributing author.

ISA Technical Study no. 6, 2010 "A Geological Model of Polymetallic Nodule Deposits in the Clarion Clipperton Fracture Zone" . NOC lead author.

ISA Technical Study no. 5, 2009 "Non-living Resources of the Continental Shelf Beyond 200 Nautical Miles: Speculations on the Implementation of Article 82 of the UNCLOS" . NOC lead author.

ISA Technical Study no. 4, 2009 "Issue Associated with the Implementation of Article 82 of the United Nations Convention on the Law of the Sea" . NOC contributing author.

ISA Technical Study no. 1, 2001 "Global Non-Living Resources on the Extended Continental Shelf: Prospects at the year 2000" . NOC lead author.

B. Interest in matters under consideration by the Assembly

13. Briefly outline how your organization intends to demonstrate its interest in matters under consideration by the Assembly, including by answering questions 14 to 17 and by providing any other relevant information related to the application for observer status.

Implementation of Part XI

Development of DSM Exploitation Regulations

Promote and support the development of regulations to enhance the undertaking of MSR under Article 143

14. Briefly outline whether and how the purposes or activities of the organization relate to the work of the Authority.

The NOC is the UK's foremost deep sea research organisation, undertaking research of seafloor surface and sub-surface structure, benthic and pelagic environments and physical and chemical oceanography of the water column. We operate, on behalf of the UKRI-NERC, two ocean going research vessels and the UK marine equipment pool that are accessible to the entire UK marine research community. With a history of open ocean research stemming from mid-oceanic crust formation and evolution to abyssal plain ecosystems the NOC is home to world class researchers in deep seafloor environments, geology and technological development. The NOC has provided two LTC members and continues to engage in various forums of relevance to deep sea environments and deep seafloor mineral genesis.

As a leading organisation undertaking marine scientific research on the High Seas and of The Area, compliant with Part XI of the UN Convention on the Law of the Sea (UNCLOS), and in particular Article 143, and mindful of the ISA Action Plan for Marine Scientific Research in support of the UN Ocean Decade, the NOC is well placed to share knowledge of deep sea environments to the benefit of the mandate of the ISA.

15. Briefly outline whether and how your organization intends to contribute to the work of the Authority, for example by providing specialized information, advice or expertise, or by identifying or helping to procure the services of experts or consultants.

The NOC has a long-standing relationship working with the ISA, where contributions range from providing the first ISA Technical Study in 2001 to signing a Letter of Cooperation in support of the Women in Deep Sea Research (WIDSR) project in 2022. In the intervening period the NOC has delivered or contributed to several ISA sponsored publications, provided several members to ISA Boards, supported the development of the ISA Capacity Development Strategy, provided financial voluntary contributions that enabled the recruitment of two internships, and enabled the participation of NOC experts in workshops run by the ISA and in ISA science initiatives, such as in deep-sea taxonomy. NOC researchers have undertaken scientific expeditions in collaboration with ISA contractors to support their endeavours to understand the environmental conditions within their respective license areas.

16. Briefly outline whether and how your organization has the expertise and the capacity to contribute, within its field of competence, to the work of the Authority, in particular in connection with the law of the sea, the protection of the marine environment, the offshore and deep-sea mining industry, technology, minerals processing and marketing, activities in the Area and marine scientific research in the Area.

The aforementioned mandate, expertise and working relationship with the Authority reflect NOCs ability to contribute to the work of the Authority. The NOC also has experts in science into policy forum, with expertise in developing ocean policy and implementing marine governance frameworks. As the

technical leads in implementing numerous Parts of the UNCLOS as well as providing ongoing advice at national and international levels the NOC is acutely familiar with the mandate of the ISA to not only enable mineral exploitation but equally to protect and preserve the marine environment. And it is in relation to the latter that the NOC has vast experience that it can share in support of the ISA's mandate.

17. Briefly outline whether and how your organization intends to contribute to the capacity-building programmes and initiatives of the Authority (e.g., Secretary-General's award, voluntary commitments of the Authority).

The NOC has been a longstanding supporter of ISA capacity development initiatives where contributions have included: financial voluntary contributions that were used to support two Interns at ISA Headquarters; a Member of the Advisory Panel for the ISA Endowment Fund; an Advisory Board member of the Women in Deep-Sea Research (WIDSR) project; Chair of the session on Key findings of the assessment of the Endowment Fund during the ISA International workshop on Capacity Development, Resources and Needs Assessment, 2020; opportunities for representatives from developing states to participate in seagoing expeditions through a Bursary fund; and are currently providing a member of the Partnership Fund Board.