

Project Endorsement Form

1. PROJECT TITLE

Full title	The origin of 85°E Ridge and its role in the Plate tectonic history of the bay of Bengal
Acronym	85ERBB
Website	
Keywords (up to 10, describing the project research)	Bay of Bengal; 85°E Ridge; tectonic evolution; Cretaceous period; Kerguelen hotspot; Rajmahal-Sylhet Traps; magnetic anomalies; Bengal Fan; gravity anomaly; Bangladesh
New initiative or continuing programme?	New

2. APPLICANTS

Lead applicant / Project Leader / key research contact person:

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Other key participants / research team leaders: (repeat as needed)

First name	Kolluru
Last name	Krishna
Role in the project	Project implementation, Geophysical data acquisition, processing and interpretation
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First name	Manik
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N.B.: Please note that all these names and contact details will be added to the IIOE-2 membership database.

3. ABSTRACT– Brief description of the project: (1/4 page maximum)

This will be placed on the IIOE-2 Website after endorsement.

The 85°E Ridge is a prominent aseismic buried ridge in the Bay of Bengal, Northeastern Indian Ocean possessing a negative gravity anomaly. Several hypothesis have been proposed for the origin of the ridge ranging from continental

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sliver to abandoned spreading center, volcanic trace etc. The latest explanation by Talwani et al (2016) suggests it is largely a transform fault (fracture zone), but does not explain its extraordinary width nor associated negative gravity anomaly. Further their study is able to characterize the nature of the crust in the Bay of Bengal and onshore Bangladesh. At the same time, Sibuet et al (2016) have offered diverging views about the nature of the crust beneath the northern Bay of Bengal. A major challenge for the plate model that honours thinned continental crust in the Bengal Basin is to provide enough space for the production of ocean floor in the northern Bay of Bengal for the period 123 - 84 Ma whilst keeping other boundary conditions unchanged. To resolve these issues, it is necessary to conduct new seismic refraction and reflection experiments as available refraction/sonobuoy data collected in the 1960s and 70s (Curry et al., 1982) are inadequate to resolve the questions. Solutions for relatively small scale regional tectonic problems like this must be incorporated into the complete plate circuit in order to fully assess their impact.

4. LINKS TO IIOE-2 SCIENCE PLAN:(1/2 page maximum)

How do you anticipate your project to contribute to the IIOE-2 strategy and science delivery, with reference to which (either one or more) of the six IIOE-2 Science Plan themes that your project responds. Please state the specific issues and questions addressed by your project in the context of the IIOE-2 Science Plan themes and key issues.

This project comes under the IIOE-2 Science Plan theme 5 “Marine Geology and Deep Ocean Biogeochemistry and Ecology”, subheading 5C “Regional tectonics of the Northern Indian Ocean.

The scientific motivation is

“The nature of the crust beneath the northern Bay of Bengal, particularly the Bangladesh margin, is ambiguous. A unified model for the nature of crust would allow precise plate reconstructions for Greater India and East Antarctica. The 85°E Ridge and the associated prominent negative gravity anomaly in the western Bay of Bengal is a major unsolved enigma: What is its structure; its origin; is it loading the crust; why is there a negative gravity anomaly; and how does it fit into global plate reconstructions?”

The scientific questions are

“What is the structure and evolution of the 85°E Ridge?

What is the nature of the crust beneath the Bangladesh Margin?

How and where are the microcontinents like Elan Bank and Southern Kerguelen Plateau split from the Indian subcontinent?”

5. INTERNATIONAL COLLABORATION(S):

Is the project part of a related multi-national activity? **YES**

If No, would you welcome international collaboration in your project? **N.A.**

6. REGION(S) OF STUDY

Provide a description of ‘where’ the research is to be conducted (for field based activities) and/or the region or regions to which the research pertains (you are encouraged to consider providing either the coordinates of the area of studies or the coordinates of the planned cruise tracks, as well as a figure as an addendum to your proposal).

The region of study is the northern Bay of Bengal, off the East Coast of India.
Between 84°E to 92°E longitudes and 8°N to 20°N latitudes.

7. TIMETABLE OF THE PROJECT

Start date: April 2020

End date: March 2025

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8. LINKAGES WITH OTHER PROJECTS / PROGRAMMES / INITIATIVES

Is the project part of a related national or multi-national activity?

If yes, provide the related activity title and website for reference, if available:

NO

Is your project part of, or affiliated to, another SCOR, IOC or IOGOOS activity or project?

If "yes", please indicate which activity or project:

NO

9. DATA MANAGEMENT AND SHARING

1. Will new data be collected as part of this project (yes or no?)

Yes

2. Contact information if any, of the person in charge of the data management from whom the metadata can be accessed by interested IIOE-2 stakeholders.

Please note that for all IIOE-2-endorsed projects, IIOE-2 will have developed its own metadata portal. Once the project is endorsed, the project leader will be asked to provide the metadata information of the project.

3. Recognizing the need for an initial period of exclusive data use, would you be willing to provide timely access to all data generated under this project and associated metadata in accordance with relevant national and funding agency data sharing policies? **YES/NO**

Dr. Maria Ana Desa, CSIR-National Institute of Oceanography, Dona Paula, Goa
YES

10. FUNDING

Please note that IIOE-2 strongly encourages funded/resourced projects. However, IIOE-2 may endorse projects yet to receive funding/resourcing if IIOE-2 endorsement can be clearly shown to significantly aid in prospects for funding/resourcing.

Has funding and resources to successfully achieve and undertake the project been obtained? Indicate the sources of funding and resources that have been approached and/or secured.

NO.

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11. BENEFITS FROM IIOE-2 ENDORSEMENT (1/4 page maximum)

Specify why you are seeking endorsement and how the activity would benefit from endorsement, and how the IIOE-2 SC could assist in the implementation of your project.

The project is based on a topic that is of global interest. Preliminary initial investigations were carried out during the IIOE-1 in the 1960s. Later the Indian scientists contributed significantly to understand the Bay of Bengal. In addition, scientists from Australia, UK, USA, Russia, etc. have been contributing to solve the important issues. The IIOE-2 platform being a worldwide network of experienced scientists interested in studying the Indian Ocean in detail, an endorsement from IIOE-2 will benefit the project in many ways. The project will get the required publicity to rope in more scientists who could be interested. US scientists are contemplating a similar project (Hood et al., 2018). Getting funding may be a lot easier with an endorsement from IIOE-2. Logistics and implementation of the project will be smoother. Protocol for data sharing and joint manuscript writing is available and will be strictly followed.

12. OPTIONAL: OTHER COMMENTS/INFORMATION/MATERIAL (length and detail may be at the discretion of and as deemed necessary by the applicant)

Please feel free to provide any other comments, information or materials that you feel relevant to your proposal for the IIOE-2 Steering Committee's information and benefit. You may provide this as general information or provide the additional comments/information/materials as relevant to any of the specific Sections above.

We envisage a two ship experiment for collection of multinational seismic reflection and refraction data. Ocean Bottom Seismometers may be hired from Russia. Ship time may be arranged on Indian/foreign vessels.



(Signature of the PI)

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