

## Project Endorsement Form

### 1. PROJECT TITLE

Full title	The Challenger Ocean Glider Mission: Indian Ocean
Acronym	
Website	<a href="http://www.anfog.uwa.edu.au">www.anfog.uwa.edu.au</a>
Keywords (up to 10, describing the project research)	Ocean glider, challenger, Australia, Sri Lanka
New initiative or continuing programme?	New Initiative

### 2. APPLICANTS

#### Lead applicant / Project Leader / key research contact person:

First name	Charitha
Last name	Pattiaratchi
Affiliation	The University of Western Australia
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Country	Australia
Telephone	(08) 6488 3179
Email address	<a href="mailto:Chari.pattiaratchi@uwa.edu.au">Chari.pattiaratchi@uwa.edu.au</a>
Institutional or personal website	<a href="http://coastaloceanography.ecm.uwa.edu.au/">http://coastaloceanography.ecm.uwa.edu.au/</a>

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

First name	Scott
Last name	Glenn
Role in the project	Project Leader
Affiliation	Rutgers University
Country	UWA
Email address	<a href="mailto:glenn@marine.rutgers.edu">glenn@marine.rutgers.edu</a>
Institutional or personal website	<a href="http://challenger.marine.rutgers.edu/">http://challenger.marine.rutgers.edu/</a>

*N.B.: Please note that all these names and contact details will be added to the IIOE-2 membership database.*

### IIOE-2 Joint Project Office (JPO)

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c/o Commonwealth Bureau of Meteorology  
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**3. ABSTRACT– Brief description of the project: (1/4 page maximum)**

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

The Challenger Glider Mission (<http://challenger.marine.rutgers.edu/>) reimagines the historic four-year voyage of the HMS *Challenger*, which began in 1872. Rutgers University, together with The University of Western Australia, has taken up a new challenge: to undertake an ocean glider mission between Fremantle (Western Australia) and Galle (Sri Lanka). The mission distance is 6200 km and will take about 10 months to complete. The mission is scheduled to start in early November 2016 with the deployment of the glider in the Perth Canyon, and end in September 2017 off the southern coast of Sri Lanka. The glider path is shown in Figure 1. The mission will capture and communicate an unprecedented undersea dataset to focus the world's attention on our ability to predict our ocean's future. One of the mission goals is to increase global ocean literacy. This unique dataset will enable students and researchers to focus on the science of regional water bodies, as well as be a part of a global research community all working toward understanding the ocean's role in regulating the changing climate and weather.

The world-class ocean glider to be used in the mission is the Teledyne Webb Slocum electric glider: a 2.2-m autonomous underwater vehicle, which collects data as it moves through the ocean in a saw-tooth shaped trajectory, achieving a forward speed of 25 to 35 kilometres per day. It derives its forward propulsion by means of a buoyancy change, and its steering by means of a tail fin rudder. Its primary vehicle navigation system uses an on-board GPS receiver, coupled with a depth sensor and an altimeter, to provide dead-reckoned navigation. Iridium Communications Inc., through its global satellite circuit switched data service, provides primary two-way communications. The ocean glider will capture continuous readings of ocean temperature, salinity and currents. These data will be transmitted to researchers in near real-time via the Iridium satellite network when the glider surfaces.

**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.

The data collected from the Challenger mission will contribute to science themes 2, 3, 4 and 6 of the IIOE-2 science plan through the collection of *in situ* observations. The glider transect will cover Indonesian waters and the main study regions of the Eastern Indian Ocean Upwelling Research Initiative (EIOURI). It will also traverse the proposed 110oE transect proposed by the Australian national committee – revisiting and repeating the transect undertaken during IIOE-1 some 50 years ago.

The track of the ocean glider will transect through some of the major current systems in the Indian

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Ocean region providing temperature and salinity data to 1000m water depths. These current systems include: The Leeuwin Current, South Indian Counter Current (3 arms), South Equatorial Current and the South-West monsoon Current.

### 5. 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 a figure as an addendum to your proposal).

See Figure 1 – eastern Indian Ocean and tropical regions

### 6. TIMETABLE OF THE PROJECT

Start date:  
November 2015

End date:  
September 2017

### 7. 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:

The Challenger Glider Mission (<http://challenger.marine.rutgers.edu/>) aims to sample all of the ocean basins using ocean gliders.

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

### 8. DATA MANAGEMENT

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.

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*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.*

The data will be freely available through the IMOS and Rutgers University websites following globally accepted metadata standards.

## 9. 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.

Funding through Rutgers University and The University of Western Australia

## 10. 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 data collected would be of immense value to the IIOE-2 and we would like to encourage the uptake of the data.

## 11. 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.

The glider track shown in Figure 1 is a schematic. It is proposed that the glider will 'fly' close to the Indonesian coast.

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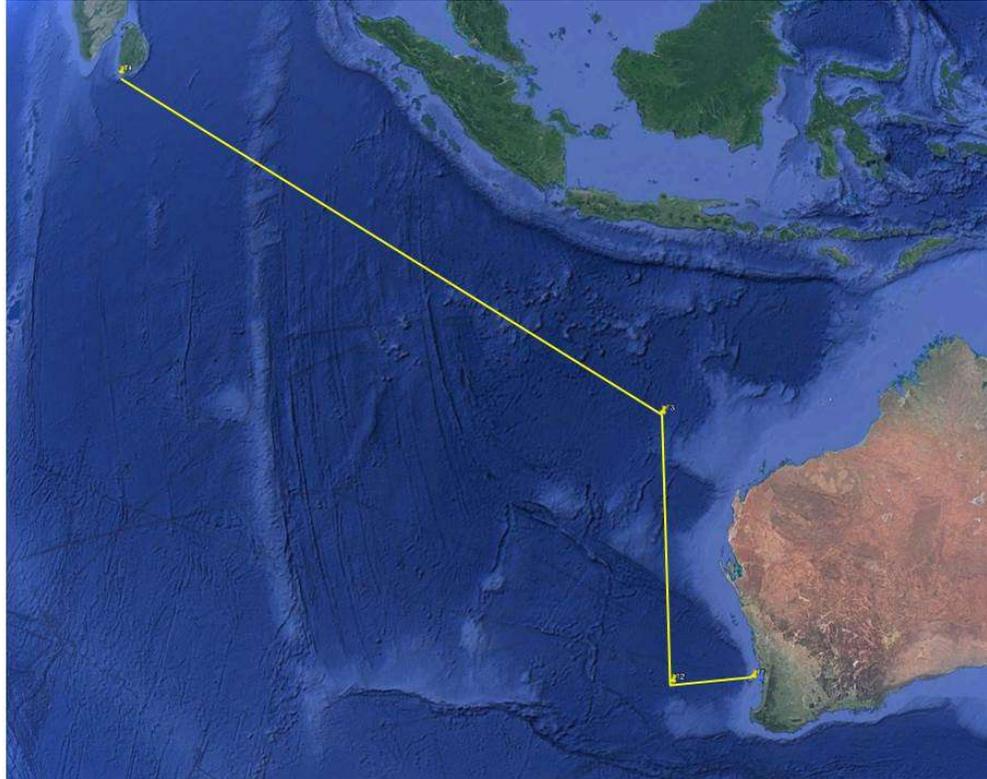


Figure 1. The proposed path of the Challenger Glider Mission Indian Ocean leg. The glider will be launched in the Perth Canyon and traverse west along  $32^{\circ}$  S to  $110^{\circ}$  E ( $\sim 500$  km). On reaching the longitude of  $110^{\circ}$  E, it will travel northwards to repeat an oceanographic transect completed in 1962–63 ( $\sim 1500$  km). At  $18^{\circ}$  S, it will travel towards Sri Lanka ( $\sim 4200$  km).

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