

NOTIFICATION OF PROPOSED RESEARCH CRUISE

PART A: GENERAL

Note: The ``ship'' is an autonomous vehicle (slocum glider). We have filled out the form to the best of our abilities, but many aspects were not applicable due to the nature of the platform.

1. NAME OF RESEARCH SHIP CRUISE NO.
GI_583 N/A
2. DATES OF CRUISE From October 12, 2026 To August 12, 2027
(Recovery is TBD, but will be before this date)
3. OPERATING AUTHORITY: Woods Hole Oceanographic Institution
TELEPHONE:+1-508-289-2819
TELEFAX:
TELEX:
4. OWNER (if different from no. 3)
5. PARTICULARS OF SHIP:
Name: GI_583 (ocean glider, uncrewed underwater vehicle)
Nationality: USA
Overall length: (in metres) 1.9m
Maximum draught: (in metres) N/A
Net tonnage: 74kg
Propulsion e.g. diesel/steam: Relative buoyancy
Call sign:
Registration port and number (if registered fishing vessel)
6. CREW: N/A (Platform is uncrewed)

Name of master:

Number of crew:
7. SCIENTIFIC PERSONNEL

Name and address of scientist in charge:

Isabela Le Bras
360 Woods Hole Rd.
MS #21
Woods Hole, MA 02543

Tel/telex/fax no.: +1-508-289-
2819

No. of scientists: N/A (no
scientists aboard, platform is
uncrewed)

8. GEOGRAPHICAL AREA IN WHICH SHIP WILL OPERATE (with reference to
latitude and longitude)

9. BRIEF DESCRIPTION OF PURPOSE OF CRUISE

This project seeks to understand the extent to which high-latitude boundary currents—fast, narrow flows skirting the basin edges—are conduits for rapidly transporting newly formed dense waters into the deep ocean, which would greatly improve our mechanistic understanding of the Atlantic Meridional Overturning Circulation (AMOC). However, these boundary currents are poorly observed, particularly during winter, when ship-based measurements are nearly impossible. Long-duration gliders are ideally suited to fill this gap.

We plan to deploy one glider in the vicinity of Denmark Strait in Icelandic waters in October 2026 from the Icelandic vessel R/V Thorunn Thordardottir. We would then conduct transects across the East Greenland Current in the Greenlandic/Danish EEZ while being swept southward to Cape Farewell, where it would be recovered in the spring or summer of 2027. Recovery plans are dependent on glider performance and vessel availability. We would notify all concerned parties regarding recovery plans. This work is funded by the Ann Theodore Foundation in a gift to WHOI via PI Le Bras.

10. DATES AND NAMES OF INTENDED PORTS OF CALL

None

11. ANY SPECIAL REQUIREMENTS AT PORTS OF CALL

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1. PART B: DETAILS

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| 1. | <u>NAME OF RESEARCH SHIP</u>
GI_583 | <u>CRUISE NO.</u>
N/A |
| 2. | <u>DATES OF CRUISE</u> | From October 12, 2026 To August 12, 2027
(Recovery is TBD, but will be before this date) |
| 3. | a) <u>PURPOSE OF RESEARCH</u> | |

This project seeks to understand the extent to which high-latitude boundary currents—fast, narrow flows skirting the basin edges—are conduits for rapidly transporting newly formed dense waters into the deep ocean, which would greatly improve our mechanistic understanding of the Atlantic Meridional Overturning Circulation (AMOC). However, these boundary currents are poorly observed, particularly during winter, when ship-based measurements are nearly impossible. Long-duration gliders are ideally suited to fill this gap.

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b) GENERAL OPERATIONAL METHODS (including full description of any fish gear, trawl type, mesh size, etc.)

Data would be collected via oceanographic electronic sensors embedded in the glider measuring conductivity, temperature, depth (CTD), dissolved oxygen, and fluorescence.

4. ATTACH CHART showing (on an appropriate scale) the geographical area of intended work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment, areas to be fished

Please see attached chart. The green line indicates the planned glider track. We plan to deploy the glider in the vicinity of Denmark Strait at approximately 66.15N, 27.25W. Our aim is to conduct cross-sections of the East Greenland Current between the 500m and 2000m isobaths while being southward in the current. Our target southernmost latitude is 59N, near Cape Farewell.

5. a) TYPES OF SAMPLES REQUIRED (e.g., geological/water/plankton/fish/radionuclide)

No samples will be required.

b) METHODS OF OBTAINING SAMPLES (e.g., dredging/coring/drilling/fishing, etc. When using fishing gear, indicate fish stocks being worked, quantity of each species required, and quantity of fish to be retained on board).

6. DETAILS OF MOORED EQUIPMENT

No moored equipment is involved.

<u>Dates</u> <u>Laying</u>	<u>Recovery</u>	<u>Description</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
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7. ANY HAZARDOUS MATERIALS (chemicals/explosives/gases/radioactives, etc.)
(Use separate sheet if necessary)

a) Type and trade name

b) Chemical content (and formula)

c) IMO IMDG code (reference and UN no.)

d) Quantity and method of storage on board

e) If explosives give dates of detonation

- Method of detonation
- Position of detonation
- Position of detonation
- Frequency of detonation
- Depth of detonation
- Size of explosive charge in kg.

8. DETAIL AND REFERENCE OF

a) Any relevant previous/future cruises

There are no previous deployments and we are not actively planning any future ones.

b) Any previously published research data relating to the proposed cruise

The following publications are related to and inspired the work proposed here:

I. A. Le Bras, J. Callies, T.C. Bil'ò, F. Straneo, J. Holte, H. L. Johnson, "Slantwise Convection in the Irminger Sea", Journal of Geophysical Research: Oceans doi:10.1029/2022JC019071, 127, (2022)

I. A. Le Bras, F. Straneo, J. Holte, M.F. de Jong, and N. P. Holliday, "Rapid export of waters formed by convection near the Irminger Sea's western boundary", Geophysical Research Letters doi.org/10.1029/2019GL085989, (2020)

I. A. Le Bras, F. Straneo, J. Holte, and N. P. Holliday , “Seasonality of Freshwater in the East Greenland Current System from 2014 to 2016”, Journal of Geophysical Research: Oceans 123, (2018)

9. NAMES AND ADDRESSES OF SCIENTISTS OF THE COASTAL STATE(S) IN WHOSE WATERS THE PROPOSED CRUISE TAKES PLACE WITH WHOM PREVIOUS CONTACT HAS BEEN MADE

None so far, but we welcome collaboration.

10. STATE

a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable (Yes/No)

N/A. The vessel is an autonomous platform.

b) Participation of an observer from the coastal state for any part of the cruise together with the dates and the ports for embarkation and disembarkation

N/A (see above)

c) When research data from the intended cruise are likely to be made available to the coastal state and by what means

We will submit a report no more than 30 days from the recovery of the glider. Final data will be made available at the NSF Arctic Data Center (<https://arcticdata.io/>).

PART C. SCIENTIFIC EQUIPMENT

Complete the following table
using a separate page for
each coastal state

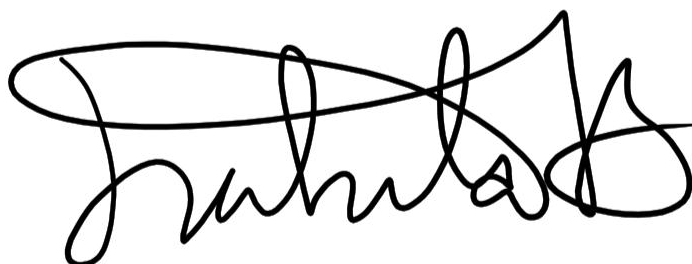
Coastal state: Greenland

Port of call: N/A

Dates: October 12, 2026 – August 12, 2027

Indicate "YES" or "NO"

				DISTANCE FROM COAST		
<u>List scientific work by function</u> e.g.	Water column including sediment sampling of the seabed	Fisheries research within fishing limits	Research concerning the natural resources of the continental shelf or its physical characteristics	Within 3 nm	Between 3-12 nm	Between 12-200 nm
Physical water property measurements (conductivity, temperature, depth; CTD, dissolved oxygen, and fluorescences). Data would be measured via electronic sensors only, no samples will be taken.	YES, water column only	NO	NO, target area is offshore of the 500m isobath.	NO	No	YES



Dr. Isabela Le Bras

Dated: March 27, 2026

(On behalf of the Principal Scientist)

NB IF ANY DETAILS ARE MATERIALLY CHANGED REGARDING DATES/AREA OF OPERATION AFTER THIS FORM HAS BEEN SUBMITTED, THE COASTAL STATE AUTHORITIES MUST BE NOTIFIED IMMEDIATELY