# APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH

1. General Information

| | |
|---|---|
| 1.1 Cruise name and/or number: | I-S Overflow - F2013-114 |

| 1.2 Sponsoring institution(s): | | |
|---|---|---|
| Name | Address | Name of Director |
| NSF | Candace Major Program Director, Marine Geology and Geophysics National Science Foundation cmajor@nsf.gov Phone: (703) 292-7597 | Cora Marrett NSF Acting Director |

| 1.3 Scientist in charge of the project: | |
|---|---|
| Name: | Delia Oppo |
| Country: | US |
| Affiliation: | Woods Hole Oceanographic Insitution |
| Address: | , US |
| Telephone: | 508-289-2681 |
| Email: | doppo@whoi.edu |

| 1.4 Entity(ies) /Participant(s) from coastal State involved in the planning of the project: | |
|---|---|
| Name: | See Section 6.2. |
| Country: | |
| Affiliation: | |
| Address: | |
| Telephone: | |
| Fax: | |
| Email: | |
| Website (for CV and photo): | |

2. Description of Project

| 2.1 Nature and objectives of the project: |
|---|
| Sediment multicoring, CTD, and water collection. Paleo-reconstructions of Iceland Scotland Overflow Calibration of seawater proxies |

| 2.2 Relevant previous or future research projects: |
|---|
| Co-Chief of EW93-02 in the same region 1993 Other previous cruises to area (by other PI's) |

| 2.3 Previous publications relating to the project: |
|---|
| 1. Thornalley, D. J. R., Blaschek, M., Davies, F. J., Praetorius, S., Oppo, D. W., McManus, J. F., Hall, I. R., Kleiven, H., Renssen, H., and McCave, I. N.: Long-term variations in Icelandâ€"Scotland overflow strength during the Holocene, Clim. Past Discuss., 9, 1627-1656, doi:10.5194/cpd-9-1627-2013, 2013. 2. Moros, M., E. Jansen, D. W. Oppo, J.S Giraudeau, A. Kuijpers, Reconstruction of the late Holocene changes in the Sub-Arctic Front position at the Reykjanes Ridge, North Atlantic, The Holocene, 22, 877-888, 2012. 3. Praetorius, S. K., J. F. McManus, D. W. Oppo and W. B. Curry, Episodic reductions in bottom-water currents since the last ice age. Nature Geosciences, 449 â€" 452, 2008. 4. Oppo, D. W., J. F. McManus, J. L. Cullen, Evolution and demise of the Last Interglacial warmth in the North Atlantic, Quaternary Science Reviews, 10.1016/j.quascirev.2006.07.006; 2006 5. Oppo, D. W., L. D. Keigwin, J. F. McManus, and J. L. Cullen, Evidence for millennial scale variability during Marine Isotope Stage 5 and Termination II, 6. Oppo, D. W., M. Horowitz, S.J. Lehman, Marine core evidence for reduced deep water production during Termination II followed by a relatively stable substage 5e (Eemian), Paleoceanography, 12, 51-63, 1997. 7. Oppo, D.W. and S. J. Lehman, Mid-depth circulation of the subpolar North Atlantic during the Last Glacial Maximum, Science 259, 1148-1152, 1993. 8. Oppo, D.W. and S. J. Lehman, Suborbital timescale variability of North Atlantic deep water during the past 200,000 years, Paleoceanography, 10, 901-910,1995. And others |

3. Geographical Areas

| 3.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude, including coordinates of cruise track/ way points): |
|---|
| 60-63N 25W-15W |

| 3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the location and depth of sampling stations, the tracks of survey lines, and the locations of installations and equipment. |
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| Chart provided - see Section 10.1. |

4. Methods and Means to be Used

| 4.1 Particulars of vessel: | |
|---|---|
| Name: | ENDEAVOR |
| Type/Class: | Ship |
| Nationality (Flag state): | United States |
| Identification Number (IMO/Lloyds No.): | |
| Owner: | National Science Foundation |
| Operator: | University of Rhode Island |
| Overall length (meters): | 184.00 |
| Maximum draught (meters): | 17.50 |
| Displacement/Gross tonnage: | 784.00 |
| Propulsion: | |
| Cruising: | |
| Maximum speed: | |
| Call sign: | WCE 5063 |
| INMARSAT number and method and capability of communication (including emergency frequencies): | 2182 kHz |
| Name of master: | Tom Glennon |
| Number of crew: | 10 |
| Number of scientists on board: | 10 |

| 4.2 Other craft in the project, including its use: |
|---|
| None |

| 4.3 Particulars of methods and scientific instruments: | | |
|---|---|---|
| Types of samples and measurements | Methods to be used | Instruments to be used |
| Marine sediment Water | Multicoring Niskins attached to multicoring frames CTD Rosette | Multicorer CTD Rosette |

| 4.4 Indicate nature and quantity of substances to be released into the marine environment: |
|---|
| No |

| 4.5 Indicate whether drilling will be carried out. If yes, please specify: |
|---|
| No |

| 4.6 Indicate whether explosives will be used. If yes, please specify type and trade name, chemical content, depth of trade class and stowage, size, depth of detonation, frequency of detonation, and position in latitude and longitude: |
|---|
| No |

| 4.7 Indicate whether protected species be studied. If yes, please specify: |
|---|
| No |

5. Installations and Equipment

| Details of installations and equipment (including dates of laying, servicing, method and anticipated timeframe for recovery, locations and depth, and measurements): |
|---|
| No |

6. Dates

| 6.1 Expected dates of first entry into and final departure from the research area by the research vessel and/or other platforms: |
|---|
| Project Start Date: May 26, 2014 |
| Project End Date: Jun 02, 2014 |

| 6.2 Coastal State-specific details: |
|---|

| Coastal Area | Estimated Entry Date | Estimated Departure Date |
|---|---|---|
| **Iceland** | May 26, 2014 | Jun 02, 2014 |
| **Explanation of multiple entries:**<br>N/A | | |
| **Research will be performed:** between 12-200 nm | | |
| **Extent to which Iceland will be enabled to participate or to be represented in the research project:**<br>A participant is welcome, however we have not arranged this | | |
| **Name, affiliation and contact information for all participants from coastal state Iceland:** | | |

7. Port Calls

| Port | Arrival Date | End Date | Special Logistical Requirements | Shipping Agent |
|---|---|---|---|---|
| Reykjavik | 5/26/2014 | 6/2/2014 | Shipping container? Or leave on ship? | Don't know |

8. Participation of the representative of the coastal State

| 8.1 Modalities of the participation of the representative of the coastal State in the research project: |
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| See Section 6.2. |

| 8.2 Proposed dates and ports for embarkation/disembarkation: |
|---|
| See Section 6.2. |

9. Access to Data, Samples and Research Results

| 9.1 Expected dates of submission to coastal State of preliminary report, which should include the expected dates of submission of the data and research results: |
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| No more than 60 days from the end date of the research as provided in Section 6.1. |

| 9.2 Anticipated dates of submission to the coastal State of the final report: |
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| No more than 2 years from the end date of the research as provided in Section 6.1. |

| 9.3 Proposed means for access by coastal State to data (including format) and samples: |
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| Data will be provided through official channels at no cost to the coastal State(s). Samples will be provided upon request. |

| 9.4 Proposed means to provide coastal State with assessment of data, samples and research results: |
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| Assessment of data, samples and research results will be provided at no cost to the coastal State(s). |

| 9.5 Proposed means to provide assistance in assessment or interpretation of data, samples and research results: |
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| Assistance in further assessment or interpretation will be provided upon request. |

| 9.6 Proposed means of making results internationally available: |
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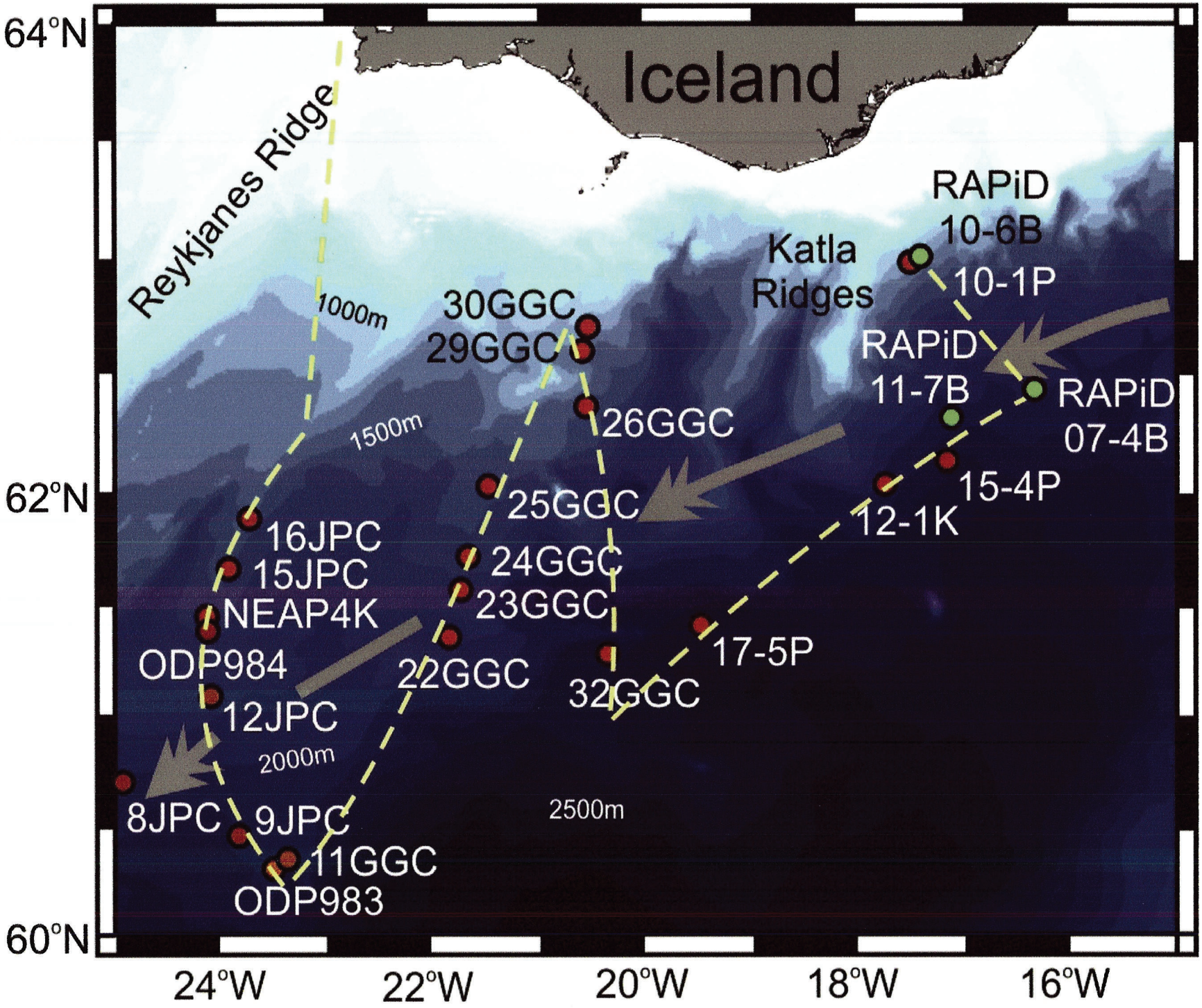
| Preliminary Cruise report will be posted on PI's website and sent to all required international parties, dept of state, etc. in the form requested (Hardcopy, pdf via e-mail, etc.) |

10. List of Supporting Documentation

| 10.1 List of attachments, such as additional forms required by the coastal State, etc.: | | | |
|---|---|---|---|
| Attachment Type | Description | Attachment | Submission Date |
| Proposed Cruise Track | Yellow dashed line denotes proposed cruise track | 8353750000_OppoCruiseTrack.pdf | Oct 29, 2013 |


64°N
62°N
60°N
24°W
22°W
20°W
18°W
16°W
Iceland
Reykjanes Ridge
1000m
1500m
2000m
2500m
Katla
Ridges
RAPiD
10-6B
10-1P
RAPiD
11-7B
RAPiD
07-4B
15-4P
12-1K
17-5P
30GGC
29GGC
26GGC
25GGC
24GGC
23GGC
22GGC
32GGC
16JPC
15JPC
NEAP4K
ODP984
12JPC
8JPC
9JPC
11GGC
ODP983