

**Application for Consent to Conduct Marine Scientific Research
in Areas Under National Jurisdiction of**

United Kingdom

Date: 27 February, 2008

1. General Information

RV Revelle

1.1 Cruise name and/or #:	Knox15
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1.2 Sponsoring institution:	
Name:	Scripps Institution of Oceanography
Address	La Jolla CA 92093-0210
Name of Director:	Prof Tony Haymet

1.3 Scientist in charge of the project (include CV and passport photo):	
	Name: Robert Pinkel, PP # 218265408
	Address: Scripps Institution of Oceanography, La Jolla, CA, 92093-0213
Telephone:	(858) 534-2056
Fax	(858) 534-7132
Email:	rpinkel@ucsd.edu

1.4 Scientist(s) from coastal state involved in the planning of the project:	
Name(s):	NA
Address:	NA

1.5 Submitting officer:	
Name and address:	Rose M. Dufour/ Elizabeth Brenner Scripps Institution of Oceanography University of California, San Diego La Jolla, California 92093-0210
Nationality:	USA
Telephone:	(858) 534-2841
Fax:	(858) 822-5811
Email:	Shipsked@ucsd.edu

2. Description of Project (Attach additional pages as necessary)

2.1 Nature and objectives of the project: Survey upper ocean currents along S-N transit of the Mid Atlantic Ridge during transit from Cape Town South Africa to Fort Lauderdale Florida, USA.

2.2 Relevant previous or future research cruises: None

2.3 Previously published research data relating to the project: None

3. Methods and Means to be Used

3.1 Particulars of vessel:	
Name:	<i>R/V Roger Revelle</i>

Nationality (Flag state):	USA Flag
Owner:	U.S. Navy
Operator:	University of California, San Diego, Scripps Oceanography
Overall length (meters):	84 m. [275']
Maximum draught (meters):	17'
Displacement/Gross tonnage:	3,180 long tons
Propulsion:	Two 3000 hp Propulsion General Electric Bow Thruster: 1180 hp Azimuthing jet Type Elliot Gill Model 50T 35 Propulsors: Two 3000 hp Z-Drives Lips Type FS 2500-450/1510BO
Cruising & Maximum speed:	12 knots
Call sign:	KAOU
Method and capability of communication (including emergency frequencies):	Email, master@rv-revelle.ucsd.edu Inmarsat-B, Telephone, Indian, 011-873-336780030 Alternate, 011-873-336780020 Fax, Primary, 011-873-336780031 Alternate, 011-873-336780021 Telex, Primary, 336780033 (AnsBk=KAOU) Alternate, 336780022 (AnsBk=KAOU) Inmarsat-C, 436780010 Radio, Vessels guard standard GMDSS frequencies for calling, distress and dissemination of marine safety information. MMSI #, 367800100 SELCAL #, 71410 Telex, Primary, 336780033 (AnsBk=KAOU) Alternate, 336780022 (AnsBk=KAOU) Inmarsat-C, 436780010 Radio, Vessels guard standard GMDSS frequencies for calling, distress and dissemination of marine safety information. MMSI #, 367800100 SELCAL #, 71410
Name of master:	Thomas Desjardins
Number of crew:	22
Number of scientists on board:	No more than 37

3.2 Aircraft or other craft to be used in the project:

None

3.3 Particulars of methods and scientific instruments		
Types of samples and data	Methods to be used	Instruments to be used
Temperature, salinity, currents, partial pressure of CO₂, meteorological measurements if available.	Underway measurements from continuously pumped surface seawater and on-board sensors	Thermosalinograph, acoustic doppler sonars ADCP RDI Narrowband and RDI Broadband 150 kHz
Magnetometer if available	Towed Magnetometer.	Geometrics G-886
Bathymetry and sidescan	Swath mapping	EM120 12 kHz 150 deg swath
Sub-bottom acoustic profile	3.5 kHz echo sounder	Knudsen 320B ODEC Bathy 2000 3.5/12
Gravity if available	Gravimeter	Bell Gravimeter

3.4 Indicate whether harmful substances will be used:
None

3.5 Indicate whether drilling will be carried out:
No Drilling will be carried out

3.6 Indicate whether explosives will be used:
No

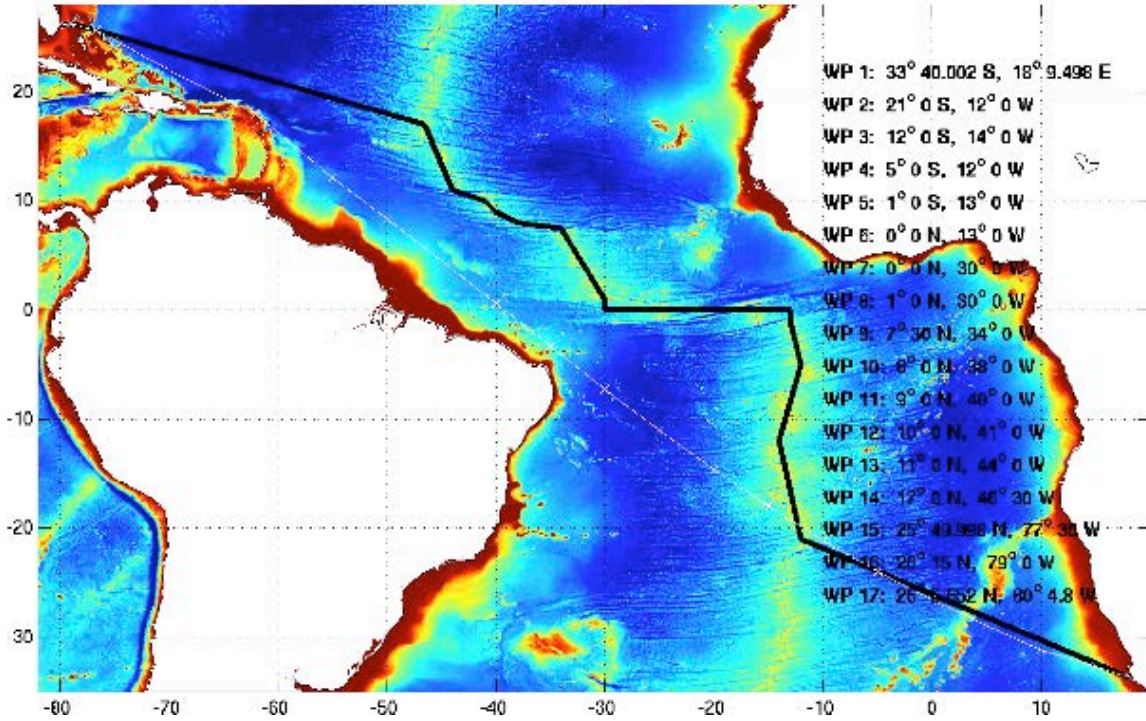
4. Installations and Equipment

Details of installations and equipment (dates of laying, servicing, recovery; exact locations and depth): No equipment will be installed on seafloor.

5. Geographical Areas

5.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude): 200 nm EEZ around Ascension Island 7.56° S, 14.25° W.

5.2 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 positions of intended stations, the tracks of survey lines, and the locations of installations and equipment.



6. Dates

6.1 Expected dates of first entry into and final departure from the research area of the research
 20 March 2008 - 17 April 2008

6.2 Indicated if multiple entry is expected:
 no

7. Port Calls

7.1 Dates and names of intended ports of call:

7.2 Any special logistical requirements at ports of call:
 N/A

7.3 Name/Address/Telephone of shipping agent (if available):
 N/A

8. Participation:

8.1 Extent to which coastal state will be enabled to participate or to be represented in the research project:
 As desired by coastal state

8.2 Proposed dates and ports for embarkation/disembarkation:
 20 March Cape Town, South Africa to 17 April, Ft Lauderdale Florida, USA

9. Access to data, samples and research results

9.1 Expected dates of submission to coastal state of preliminary reports, which should include the expected dates of submission of the final results: 1 June 2008

9.2 Proposed means for access by coastal state to data and samples: email request

9.3 Proposed means to provide coastal state with assessment of data, samples and research results or provide assistance in their assessment or interpretation: Preliminary report

9.4 Proposed means of making results internationally available: Data archived at SIO in accord with US policy for accessibility.
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(Revised June 5, 2002)

CURRICULUM VITAE

ROBERT PINKEL

Professor of Oceanography
Scripps Institution of Oceanography
University of California, San Diego
La Jolla, CA 92093-0213

- BIRTH:** March 30, 1946, Cleveland, Ohio
- EDUCATION:** B.A., 1968, University of Michigan, Physics
M.S., 1969, Scripps Institution of Oceanography, Physical Oceanography
Ph.D., 1974, Scripps Institution of Oceanography, Physical Oceanography
- PROFESSIONAL EXPERIENCE:** Assistant Research Oceanographer, Marine Physical Laboratory, 1975-1983
Associate Professor of Oceanography, Marine Physical Laboratory, 1983-1987
Associate Research Oceanographer, Marine Physical Laboratory, 1983-1987
Professor of Oceanography, Marine Physical Laboratory, 1987-present
Associate Director, Marine Physical Laboratory, 1993-present
- PROFESSIONAL SOCIETIES:** Phi Beta Kappa
Acoustical Society of America
American Geophysical Union
American Association for the Advancement of Science
International Association of Acoustic Remote Sensing
The Oceanography Society
- AWARDS & HONORS:** Fellow, Acoustical Society of America
The Walter Munk Award, The Oceanography Society/ONR
- REPRESENTATIVE COMMITTEES** Applied Ocean Science Group Curricular Coordinator, SIO
Marine Operations Committee, SIO, Chair 1999-2004
Mixed Layer Dynamics Experiment (MILDEX) Administrative Co-ordinator (1983)
International Association of Acoustic Remote Sensing, Founding Member,
U.S. Representative to the Board of Governors of the Association
Acoustical Society of America, Committee on Underwater Acoustics
Scientific Opportunities of Nuclear Submarines (SOONS); Subcommittee
of the UNOLS Fleet Improvement Committee, Chair
Surface Waves Processes Experiment, Co-Organizer (1990)
Marine Boundary Layer Experiment, Co-Organizer (1995)
Hawaii Ocean Mixing Experiment, Program Coordinator 1997-2006
UNOLS Council 2005-present
- RESEARCH ACTIVITIES:** **Physical Oceanography**
Observations of internal wave propagation in the upper ocean at low and mid latitudes, and in the Arctic.
Observations of surface wave/swell propagation, and the incidence of wave breaking.
Observations of small-scale shear and vertical strain in the sea and the incidence of deep-ocean turbulence.
Observations of tidally driven internal waves and ocean mixing
- Ocean Technology**
Development of Repeated Profiling CTD system.
Development of Doppler sonars for use in measuring internal wave motions in the top km of the sea 1974-present.
Development of surface scattering Doppler sonar for measurements of surface wave propagation and Langmuir Cell development. 1985-1988.
Development of coherent Doppler sonar for use in observing high frequency shears in the sea on 1m vertical scales.
Development of broadband codes for improved performance of Doppler sounders 1987-91.
Development of sector-scan multibeam Doppler sonar for sea surface and upper-ocean studies. 1990-Present.

Development of “Wirewalker” (ocean -wave powered) technology as a low cost method of enhancing the versatility of moored array systems.

**SYNERGISTIC
ACTIVITIES:**

Export of Doppler Sonar technology to the three sonar companies now established in San Diego & to others world-wide.
Development & publication (Pinkel & Smith, J. Tech, 1992) of broadband coded pulse technology for Doppler sonars.
Development of a graduate course in oceanographic data analysis at UCSD centered on a set of analysis projects which use recent, state of the art data sets.
Presentation of slide & “show & tell” demonstrations at local schools and civic organizations.
Licensing of WireWalker (wave powered) technology to Brooke Ocean Systems

**PRESENT
STUDENTS:**

Oliver Sun,

GRADUATES

P. Greenblatt, Alliant Systems
R. Williams, U of Puerto Rico
A. Plueddemann, WHOI
J. Sherman, SIO
S. Anderson, Horizon Marine
M. Alford, APL, UW
C. Halle, Exxon-Mobil Upstream Research Corp.
L. Rainville, WHOI

**SCIENTIFIC
COLLABORATORS:**

R. Weller, WHOI
M. Gregg, APL-UW
D. Farmer, Graduate School of Oceanography, URI
J. Smith, SIO
J. Klymak, U. Victoria, Canada

SELECTED PUBLICATIONS

- Price, J.F., R.A. Weller and R. Pinkel. Diurnal cycling: Observations and models of the upper ocean response to diurnal heating, cooling, and wind mixing. *J. Geophys. Res.* 91(C7):8411-8427. (1986).
- Plueddemann, A. and R. Pinkel. Characterization of the patterns of diel migration using a Doppler sonar. *Deep Sea Res.* 36:509-530. (1989).
- Sherman, J. and R. Pinkel. Estimates of the vertical wavenumber-frequency spectra of vertical shear and strain. *J. Phys. Oceanogr.* 21(2):292-303. (1991).
- Pinkel, R. and J.A. Smith. Repeat-sequence coding for improved precision of Doppler sonar and sodar. *J. Atmos. & Oceanic Tech.* 9(2):149-163. (1992).
- Pinkel, R. and S. Anderson. Shear, strain and Richardson number variations in the thermocline: part 1, statistical description. *J. of Phys. Oceanogr.* 27(No. 2)pp. 264-281. (1997).
- Pinkel, R. and S. Anderson. Shear, strain and Richardson number variations in the thermocline: part 2, modeling mixing. *Journal of Physical Oceanography* 27(No. 2)pp. 282-290. (1997)
- Pinkel, R. and M. Merrifield, M. McPhaden, J. Picaut, S. Rutledge, D. Siegel, and L. Washburn. Solitary waves in the western Equatorial Pacific Ocean. *Geophys Res. Lett.*, 24, 1603-1606.
- Pinkel, R. et al. Ocean mixing studies near the Hawaiian Ridge. *EOS, Transactions, American Geophys. Union.* No. 81. Vol. 46: 545,553 (2000).
- Alford, M. H. and R. Pinkel. Observations of overturning in the thermocline: the context of ocean mixing. *J. Phys. Oceanogr.*, 30 (5): 805-832 (2000)
- Rainville, L. and R. Pinkel. Wirewalker: An autonomous wave-powered vertical profiler. *Journal Atmospheric and Oceanic Tech.*, 18 (6): 1048-1051 (2001).
- Pinkel, R., and D. Rudnick, Editorial: The Hawaii Ocean Mixing Experiment, *J. Phys. Oceanogr.* 36, 6, 965-966, (2006)
- Rainville, L. and R. Pinkel, Propagation of low mode internal waves through the ocean. *J. Phys. Oceanogr.*, 36, 6, 1220-1236, (2006)
- Klymak, J. M. , R. Pinkel, C.T. Liu, A.K. Liu, and L. David. Prototypical solitons in the South China Sea. *Geophys. Res. Letters*, 33 L11607, 2006