

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 30 SEP 2012		2. REPORT TYPE		3. DATES COVERED 00-00-2012 to 00-00-2012	
4. TITLE AND SUBTITLE Ocean Electric Field for Oceanography				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Washington, Applied Physics Laboratory, 1013 NE 40th St, Seattle, WA, 98105				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Ocean Electric Field for Oceanography

Thomas B. Sanford
Applied Physics Laboratory and School of Oceanography
University of Washington
1013 NE 40th Street
Seattle, Washington 98105
Phone: (206) 543-1365 fax: (206) 543-6785 email: sanford@apl.washington.edu

Award Number: N00014-08-1-1278

LONG-TERM GOALS

The long-term goals are to provide advice to ONR, promote graduate education in navy relevant fields and advance the use of motionally induced electric and magnetic fields for basic and applied studies.

APPROACH

The SECNAV/CNO Chairs in Oceanographic Sciences periodically meet with the CNR to discuss ocean research issues and opportunities and to provide comments on ONR policies and activities. Two graduate students were supported on this grant; both are engaged in ONR-supported research projects.

WORK COMPLETED

- Joined other Chairs in meeting with CNR, RADM Carr and RADM Klunder on 7 Nov 2011
- Supported the education and research of two graduate students in UW School of Oceanography
- Kevin Taylor and Nathan Lauffenburger, grad students, defended MS dissertations in Fall 2011
- Conducted OKMC field experiment in June 2012 with partial support from this grant
- Met with RADM Klunder during briefing at APL-UW on 17 August 2012
- Prepared several papers for publication with partial support from this grant

PUBLICATIONS (wholly or in part supported by this grant)

- Gawarkiewicz, G. et al. (2011). Can we accurately predict circulation and internal waves northeast of Taiwan? Chasing Uncertainty in the Cold Dome. *Oceanography*, 24(4):110–121, <http://dx.doi.org/10.5670/oceanog.2011.99>
- Lien, R-C, T.B. Sanford, S. Jan, M-H Chang and B-b Ma (2012). Internal tides on the East China Sea Continental Slope. *J. Mar. Res.* (submitted)
- Mrvaljevic, R.A., P.G. Black, L.R. Centurioni, E.A. D'Asaro, S.R. Jayne, C. Lee, R-C Lien, J. Morzel, P.P. Niiler, L. Rainville, T.B. Sanford and T-Y Tang (2012). Evolution of the cold wake of Typhoon Fanapi. *Geophys. Res. Ltrs.* (in review)

Szuts, Z.B. and T. B. Sanford (2012). Observations of vertically-averaged velocity in the North Atlantic Current, *Deep-Sea Res. Part II*, (in press)

Sanford, T.B. (2012). Spatial Structure of Thermocline and Abyssal Internal Waves, *Deep-Sea Res. Part II*, (in press)

Terker, S.R., T.B. Sanford, J.H. Dunlap and J.B. Girton (2012). EM-POGO: A simple, absolute velocity profiler, *Deep-Sea Res. Part II*, (in press)

Lectures and Presentations

At least half a dozen presentations at ONR review and workshop meetings for QPE, ITOP, LatMix, ONR Chairs, PLUS INP, RIVIT II, plus conference presentations:

N.E. Lauffenburger, T.B. Sanford, R-C Lien: Separating internal waves and vortical motions in the open ocean. 2012 Ocean Sciences Meeting, Salt Lake City UT

Mrvaljevic, R.K., T.B. Sanford and others: What happened to the wake of typhoon Fanapi? 2012 Ocean Sciences Meeting, Salt Lake City UT

HONORS/AWARDS/PRIZES

None