

# YUENG-DJERN LENN

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## Research Interests

My interests lie in understanding, through observations, how oceanic variability at a variety of scales relates to ocean dynamics and how this impacts global climate. Thus far my focus has been on the role of mesoscale eddies in transferring heat and momentum in the Antarctic Circumpolar Current of the Southern Ocean and the consequences of the seasonal, tidal and wind-forced variability on a semi-isolated ecosystem near the Antarctic Peninsula. Current projects include using observations to validate numerical models of the Antarctic Circumpolar Current and investigating vertical and lateral mixing processes in along the Eurasian boundary of the Arctic Ocean.

## Education

### **Ph. D. Oceanography, 2000-2006.**

University of California, San Diego, Scripps Institution of Oceanography.

*Thesis title: Observations of Antarctic Circumpolar Current Dynamics in the Drake Passage and Small-scale Variability near the Antarctic Peninsula.*

Thesis Committee: Drs. Teresa Chereskin (Chair), Janet Sprintall, Sarah Gille, Lynne Talley, Myrl Hendershott, Paul Linden

### **M. Sc. Radiation Physics with Medical Applications, 1997-1998.**

University College London, UK.

*Thesis title: Raman Scattering of Physiological Fluids*

Thesis Advisor: Dr. Roger Springer

### **B.A. Hons Experimental and Theoretical Physics, 1994-1997.**

Corpus Christi College, Cambridge University, UK.

## Publications

**Lenn, Y.-D., T.K. Chereskin, J Sprintall and J. McClean:** Antarctic Circumpolar Current eddy fluxes from Drake Passage observations and the POP model, *in preparation*, February 2009.

**Lenn, Y.-D. et al.:** Vertical mixing at intermediate depths in the Arctic Boundary Current, *accepted at GRL*, January 2009.

**Lenn, Y.-D. and T.K. Chereskin, 2008-:** Observations of Ekman Currents in the Southern Ocean, *in press, JPO*, January 2009.

**Lenn, Y.-D., T.K. Chereskin and J. Sprintall, 2008:** Improving Estimates of the Antarctic Circumpolar Current Streamlines in Drake Passage, *J. Phys. Oceanogr.*, 38(5), 1000-1010.

**Lenn, Y.-D., T.K. Chereskin, J. Sprintall and E. Firing. 2007:** Mean Jets, Mesoscale Variability and Eddy Momentum Fluxes in the Surface-Layer of the Antarctic Circumpolar Current in Drake Passage, *J. Mar. Res.*, 65, 27-58.

**Beal, L. M., T. K. Chereskin, Y.-D. Lenn and S. Elipot. 2006:** Sources and Mixing Characteristics of the Agulhas Current, *J. Phys. Oceanogr.*, 36 (11), 2060-2074.

**Lenn, Y.-D., T.K. Chereskin and R.C. Glatts. 2003:** Seasonal to tidal variability in currents, stratification and acoustic backscatter in Antarctic ecosystem at Deception Island, *Deep-Sea Research Part II-Topical Studies in Oceanography*, 50 (10-11), 1665-1683.

## Research Experience

**Postdoctoral Scholar:** School of Ocean Sciences, Bangor University. My current research focuses on quantifying vertical mixing processes and their relationship to the large-scale circulation of the Arctic Ocean using observations of turbulence and hydrography in the vicinity of the Arctic Eurasian continental shelf. [November 2007-present]

**Postdoctoral Scholar:** Scripps Institution of Oceanography San Diego, California. I worked with Dr Teresa Chereskin to investigate the steady wind-driven Ekman currents and the implications for the turbulent eddy viscosity of the Southern Ocean Ekman layer, using observations of upper ocean currents in Drake Passage. In collaboration with Dr. Julie McClean, I compared numerical model output from the Parallel Ocean Program with the Drake Passage observations of eddy fluxes. [November 2006-November 2007]

**Graduate Student Researcher:** Scripps Institution of Oceanography, San Diego, California. I completed a thesis with Dr Teresa Chereskin in which observations of upper ocean currents, temperature and sea surface height in Drake Passage were used to characterize the mean flow, determine sources of variability and quantify mesoscale eddy fluxes of heat and momentum. I also participated in an interdisciplinary project by analysing moored observations of the temperature and currents and station wind data at Port Foster, Deception Island to determine the influence of seasons, tides and winds on the local circulation and marine ecosystem. During this time, I gained experience at acquiring, processing and analysing both shipboard- and lowered- acoustic Doppler current profile data. [September 2000 - Oct 2006]

**Masters Student:** University College London, United Kingdom. With the supervision of Dr Roger Springer, I undertook experiments to assess the usefulness of the Raman scattering of light by physiological fluids in determining the pH levels. [October 1997 -September 1998]

## Sea-going Experience

**Antarctic Intermediate Water Formation, Southeast Pacific, R/V Knorr:** I was responsible for deploying expendable-CTD probes and processing Lowered-ADCP data. [Aug-Oct 200, 47 days]

**Drake Passage crossing, R/V Laurence M. Gould:** I deployed XBT and kept watch on the shipboard ADCP. [Nov 2003,13 days]

**Agulhas Under-Current Experiment, Agulhas Current, R/V Melville:** LADCP watchstander, LADCP and ADCP processing. [Feb- Mar 2003, 30 days]

**Internal dynamics of the Kuroshio Current, Sea of Japan, R/V Melville:** Assisted in the deployment and recovery of the CTD package. [April 2002,14 days]

## Teaching and Other Work Experience

**Substitute teacher,** Secondary 1 and 2 Level Mathematics and General Science, Methodist Girls' School, Singapore. I was responsible for planning and teaching the lessons, setting assignments and tests and grading. [Jan-Mar 1994]

**Substitute teacher,** Additional Mathematics, Anglo Chinese Junior College, Singapore. I was responsible for planning and teaching the lessons and grading. [July 1997]

**Laser Physicist:** National Cancer Centre, Singapore. Managed and supported the use of medical lasers in an international photodynamic therapy clinical trial [1999 - 2000]

## Recent Presentations: Talks and Posters

**Lenn, Y.-D., 2008:** Observations of mean Ekman currents in Drake Passage, *University of East Anglia, Norwich, UK*, Invited seminar.

**Lenn, Y.-D et al., 2008:** Antarctic Circumpolar Current Eddy fluxes in Drake Passage from Observations and the POP model., *Ocean Sciences, 2008*, .

**Lenn, Y.-D et al., 2007:** Improving estimates of the mean Antarctic Circumpolar Current streamlines in Drake Passage., *IUGG Perugia, 2007*, .

**Lenn, Y.-D. 2006:** Observations of Antarctic Circumpolar Current Dynamics in the Drake Passage, *National Oceanography Centre, Southampton, UK*, Invited speaker.

**Lenn, Y.-D. 2006:** Observations of Antarctic Circumpolar Current Dynamics in the Drake Passage., *Physical Oceanography Dissertation Symposium IV, October 2006, Honolulu*.

**Lenn, Y.-D. and T. K. Chereskin. 2006:** Estimating the Mean Antarctic Circumpolar Current Using Satellite Altimetry and Direct Velocity Observations., *Ocean Sciences, 2007*, Abstract OS25Q-22.

## Prizes and Fellowships

2005 Physical Oceanography Dissertation Symposium IV : – *PODY Award Winner*.

2000-2003 Supplementary Student Fellowship – *Scripps Institution of Oceanography*.

## Memberships and Certifications

**Member:** American Geophysical Union: Ocean Sciences Division [Winter 2001 - present].

**Scuba Diving:** PADI Rescue Diver.

## Service

**Organiser:** Physical Oceanography Distinguished Lecturer Series [Spring 2004].

**Organiser:** Physical Oceanography Students Summer Seminar Series [Summer 2002].

**Steering Committee Member:** Cambridge Chinese Christian Fellowship [1995-1996].

**Executive Committee Member:** Students' Council, Anglo Chinese Junior College [1993-1994].

## References

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### **Dr Lisa Beal**

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