

BIOGRAPHICAL SKETCH

Janet Sprintall

Climate, Atmospheric Science and Physical Oceanography,
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Professional Preparation:

Griffith University, QLD, Australia; B.Sc.(First Class Honors), Applied Mathematics, 1985.
University of Sydney, NSW, Australia; M.Sc., Physical Oceanography, conferred 1988.
University of Sydney, NSW, Australia; Ph.D., Physical Oceanography, conferred 1992.

Appointments:

Research Oceanographer, Scripps Institution of Oceanography, 2007 – present
Senior Lecturer, Scripps Institution of Oceanography, 2007 – present
Associate Research Oceanographer, Scripps Institution of Oceanography, 2001 – 2007
Assistant Research Oceanographer, Scripps Institution of Oceanography, 1995 – 2001
JIMO Postdoctoral Fellow, Scripps Institution of Oceanography, 1993-95.
Visiting Scientist, Flinders University, South Australia, May - August 1993.
National Research Council Postdoctoral Associate, NOAA-PMEL Seattle, 1991-93.
Research Assistant, CSIRO Division of Oceanography, Hobart, Australia, 1988.
Mathematics and Computing Tutor, University of Southern QLD, Australia, 1983-84.
Computer Programmer, Earth Sciences Computing Services, QLD, Australia, 1981-82

Research Statement:

Dr. Sprintall is an observational physical oceanographer with interests in the large-scale circulation of mass and heat in the ocean, and a specific focus on measuring and understanding the complexities of inter-basin and inter-ocean exchanges. Current research is focused on understanding the mechanisms responsible for change in Southern Ocean properties and water masses in response to large-scale climate modes, and investigating what controls the gating of the flow through the complex bathymetry of marginal seas, such as in the Indonesian and Solomon archipelagoes.

Publications:

1. Delman, A.S., J. Sprintall, J.L. McClean, L.D. Talley, 2016. A harmonic projection and least-squares method for quantifying Kelvin wave activity. Open for public discussion on *Ocean Science* until April 8, 2016: <http://www.ocean-sci-discuss.net/os-2016-1/>.
2. Delman, A.S., J. Sprintall, J.L. McClean, L.D. Talley, 2016. Anomalous Java cooling at the initiation of positive IOD events. Submitted to *J. Geophys. Res. Oceans*.
3. Hu, S. and J. Sprintall, 2016. Interannual Variability of the Indonesian Throughflow: the Salinity Effect. Submitted to *J. Geophysical Research*

4. Hu, S. and J. Sprintall, 2016. Observed Strengthening of Interbasin Exchange via the Indonesian Seas Due to Rainfall Intensification. Submitted to *Nature Climate Change*
5. Peña-Izquierdo, J., E. van Sebille, J. L. Pelegrí, J. Sprintall, E. Mason and F. Machín, 2015. Water mass pathways to the North Atlantic Oxygen Minimum Zone, *Journal of Geophysical Research*, 120, doi:10.1002/2014JC010557.
6. Delman, A.S., J. L. McClean, J. Sprintall, L. D. Talley, E. Yulaeva and S.R. Jayne, 2015. Effects of Eddy Vorticity Forcing on the Mean State of the Kuroshio Extension, *Journal Physical Oceanography* 45, 1356-1375, doi:http://dx.doi.org/10.1175/JPO-D-13-0259.1.
7. Munro, D.R., N.S. Lovenduski, B.B. Stephens, T. Newberger, K.R. Arrigo, T. Takahashi, P.D. Quay, J. Sprintall N. Freeman and C. Sweeney, 2015. Estimates of net community production in the Southern Ocean determined from time series observations (2002-2011) of nutrients, dissolved organic carbon, and surface ocean pCO₂ in Drake Passage, *Deep-sea Research.*, doi:10.1016/j.dsr2.2014.12.014
8. Hu, D., L. Wu, W. Cai, A. Sen Gupta, A. Ganachaud, B. Qiu, A. L. Gordon, X. Liu, Z., Z. Chen, S. Hu, G. Wang, Q. Wang, J. Sprintall, T. Qu, Y. Kashino, F. Wang, W. K. Kessler, 2015. Pacific Western Boundary currents and their roles in climate, *Nature*, 522:299-308, doi:10.1038/nature14504.
9. Cheng, L., J. Abraham, G. Goni, T. Boyer, S. Wijffels, R. Cowley, V. Gouretski, F. Resengetti, S. Kizu, S. Dong, F. Bringas, M. Goes, L. Houpert, J. Sprintall and J. Zhu, 2015. XBT Science: Assessment of XBT biases and error, *Bulletin of American Meteorology*, BAMS-D-15-00031
10. Drushka, K., S. Gille, and J. Sprintall, 2014. The diurnal salinity cycle in the tropics, *J. Geophys. Res.*, 119, 5874-5890.
11. Goni, G., J. Sprintall, D. Roemmich, A. Gronell Thresher, R. Cowley and M. Baringer, 2014. The Global Network of XBT Temperature Sections in Support of Oceanographic and Climate Studies. in *Oceans and Society: Blue Planet*, S. Djavidnia, V. Cheung, M. Ott and S. Seeyave (eds). Cambridge Scholars Publishing, Newcastle upon Tyne, UK, pp 37-45.
12. Ganachaud, A, Cravatte S, Melet A, Schiller A, Holbrook NJ, Sloyan BM, Widlansky MJ, Bowen M, Verron J, Wiles P, Ridgway K, Sutton P, Sprintall J, Steinberg C, Brassington G, Cai W, Davis R, Gasparin F, Gourdeau L, Hasegawa T, Kessler W, Maes C, Takahashi K, Richards KJ, Send U. 2014. The Southwest Pacific Ocean circulation and climate experiment (SPICE). *Journal of Geophysical Research-Oceans*, 119:7660-7686. doi: 10.1002/2013jc009678
13. Sprintall, J., A. L. Gordon, A. Koch-Larrouy, T. Lee, J. T. Potemra, K. Pujiana, and S. E. Wijffels, 2014. The Indonesian Seas and their impact on the Coupled Ocean- Climate System. *Nature Geoscience*, doi:10.1038/ngeo2188
14. Sprintall, J. and A. Révelard. The Indonesian Throughflow: Response to Indo-Pacific climate variability, *J. Geophysical Research*, DOI: 10.1002/2013JC009533, 2014.
15. Jiang, C., S. T. Gille, J. Sprintall, and C. Sweeney, 2014. Drake Passage Oceanic pCO₂: Evaluating CMIP5 coupled carbon/climate models using in-situ observations, *Journal of Climate*, 27, 76–100. doi: 10.1175/JCLI-D-12-00571.1
16. van Sebille, E., J. Sprintall, F.U. Schwartzkopf, A. Sen Gupta, A. Santosa, M.H. England,

- A. Biastoch, and C.W. Boning, 2014. Pacific to Indian Ocean Connectivity: Tasman Leakage, Indonesian Throughflow and the role of ENSO. *Journal of Geophysical Research*, 119:2, DOI: 10.1002/2013JC009525, 1365-1382.
17. Sprintall, J., G. Siedler, and H. Mercier. Inter-ocean and Interbasin Exchanges, in *Ocean Circulation and Climate, 2nd Ed. A 21st Century Perspective*. Siedler, Griffies, Gould and Church (eds). Elsevier Press, 2014.
 18. Griesel, A., J. L. McClean, S. T. Gille, J. Sprintall, and C. Eden, 2014. Eulerian and Lagrangian isopycnal eddy diffusivities in the Southern Ocean of an eddying model, *J. Phys. Oceanogr.*, 44, doi: 10.1175/JPO-D-13-039.1, 644-661.
 19. Drushka, K., J. Sprintall and S.T. Gille. Subseasonal variations in salinity and barrier layer thickness in the eastern equatorial Indian Ocean. *Journal of Geophysical Research*, DOI: 10.1002/2013JC009422, 2014.
 20. Pujiana, K., A.L. Gordon, and J. Sprintall. Intraseasonal Kelvin Waves in Makassar Strait, *Journal of Geophysical Research*, 118, 2023-2034 doi: 10.1002/jgrc.20069, 2013.
 21. Brannigan, L., Y.-D. Lenn, T.P. Rippeth, E. McDonagh, T.K. Chereskin, and J. Sprintall. Shear and shear-driven diapycnal mixing at the base of the oceanic mixed layer. *Journal of Oceanography*, 43, 1798-1810, doi: <http://dx.doi.org/10.1175/JPO-D-12-0104.1>, 2013.
 22. Polton, J., Y.-D. Lenn; S. Elipot, T. K. Chereskin and J. Sprintall. Can Drake Passage observations match Ekman's classic theory? *Journal of Physical Oceanography*, 43:8, pp 1733-1740, doi: <http://dx.doi.org/10.1175/JPO-D-13-034.1>, 2013.
 23. Stephenson, G.R, S.T. Gille and J. Sprintall. Processes controlling upper-ocean heat content in Drake Passage, *J. Geophys. Res.*, 118, 1-15, doi:10.1001/jgrc.20315, 2013.
 24. Frants, M., G. M. Damerell, S. T. Gille, K. J. Heywood, J. MacKinnon, and J. Sprintall, 2013. An assessment of density-based fine-scale methods for estimating diapycnal diffusivity in the Southern Ocean, *J. Atmos. Ocean. Tech.*, 30:2647-2661. 10.1175/jtech-d-12-00241.1., 2013
 25. Smith, K.L., A.D. Sherman, T.J. Shaw and J. Sprintall. Icebergs as unique Lagrangian ecosystems in Polar Seas, 5:14.1-14.19, *Annual Review of Marine Science*, doi: 10.1146/annurev-marine-121211-172317, 2013.
 26. Sprintall, J., T. K. Chereskin, and C. Sweeney. 2012. High-Resolution underway upper ocean and surface atmospheric observations in Drake Passage: Synergistic measurements for climate science, *Oceanogr.*, 25(3): 70-81, <http://dx.doi.org/10.5670/oceanog.2012.77>.
 27. Stephenson, G.R, S.T. Gille, and J. Sprintall. Seasonal variability of upper-ocean heat content in Drake Passage, *J. Geophys. Res.*, 117, doi:10.1029/2011JC007772, 2012.
 28. Sprintall, J., A. Gordon, P. Flament, and C. Villanoy, Observations of exchange between the South China Sea and the Sulu Sea, *J. Geophys. Res.*, 117, C05036, 2012.
 29. Drushka, K., J. Sprintall, S.T. Gille, and S. Wijffels. In situ observations of Madden-Julian Oscillation mixed layer dynamics in the Indian and western Pacific Oceans, *J. Climate*, doi: 10.1175/2011JCLI0203, 2012.
 30. Jiang, C., S.T. Gille, J. Sprintall, K. Yoshimura, and M. Kanamitsu. Spatial variation in turbulent heat fluxes in Drake Passage. *J. Climate*, doi: 10.1175/2011JCLI4071.1, 2012.

31. Gearheart, G., A. Maturbongs, P. H. Dutton, J. Sprintall, G. L. Kooyman, R. F. Tapilatu and E. Johnstone. Tracking leatherback (*Dermochelys coriacea*) hatchlings at sea using radio and acoustic tags, *Marine Turtle Newsletter*, 130, 2-8, 2011.
32. Stephenson, G., J. Sprintall, S. T. Gille, M. Vernet, J. Helly, and R. Kaufmann, Subsurface melting of a free-floating Antarctic iceberg, *Deep-sea Res.*, 58, 11-12, 1336-1345, 2011.
33. Lenn, Y.D., T. K. Chereskin, J. Sprintall, and J. L. McClean. Near-surface eddy heat and momentum fluxes in the Antarctic Circumpolar Current in Drake Passage, *J. Phys. Oceanogr.*, 41, 1385 - 1407, doi: 10.1175/JPO-D-10-05017.1., 2011.
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36. Gordon, A.L., J. Sprintall and A. Ffield. Regional Oceanography of the Philippine Archipelago, *Oceanography*, 24(1), 14 – 27, 2011.
37. Meredith, M.P., P.L. Woodworth, T.K. Chereskin, D.P. Marshall, L.C. Allison, G.R. Bigg, K. Donohue, K.J. Heywood, C.W. Hughes, A. Hibbert, A. MacHogg, H. L. Johnson, B. A. King, H. Leach, Y.D. Lenn, M. A. Morales Maqueda, D.R. Munday, A.C. Naviera Garabato, C. Provost, J.B. Sallee and J. Sprintall, 2011. Sustained monitoring of the Southern Ocean at Drake Passage: past achievements and future priorities, *Reviews of Geophysics*, 49, RG4005, doi:10.1029/2010RG000348.
38. Tessler, Z. D., A. L. Gordon, L. J. Pratt and J. Sprintall. Transport and Dynamics of Panay Sill Overflow in the Philippine Seas, *Journal of Physical Oceanography*, 40(12), doi: 10.1175/2010JPO4395.1, 2679-2695, 2010.
39. Metzger, E.J., H.E. Hurlburt, X. Xu, A.L. Gordon, J. Sprintall, R.D. Susanto and H.M. van Aken. Simulated and Observed Circulation in the Indonesian Seas: 1/12° Global HYCOM and the INSTANT Observations, *Dynamics of Atmospheres and Oceans*, 50:2, doi: 10.1016/j.dynatmoce.2010.04.002, 275-300, 2010.
40. Pujiana, K., A. L. Gordon, J. Sprintall, and D. Susanto. Intraseasonal Variability in the Makassar Strait Thermocline, *Journal of Marine Research*, 67(6), 757-777, 2010.
41. Sprintall, J., S. E. Wijffels, R. Molcard, and I. Jaya. Direct evidence of the South Java Current system in Ombai Strait, Indonesia. *Dynam. Atmosp. Oceans*, 50:2, doi: 10.1016/j.dynatmoce.2010.02.006, 140-156, 2010.
42. Gordon, A., J. Sprintall, H. M. Van Aken, D. Susanto, S. Wijffels, R. Molcard, A. Ffield, W. Pranowo, and S. Wirasantosa. The Indonesian Throughflow during 2004-2006 as observed by the INSTANT program, *Dynamics of Atmospheres and Oceans*, 50:2, doi:10.1016/j.dynatmoce.2009.12.002, 115-128, 2010.
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44. Drushka, K., J. Sprintall, S.T. Gille, and I. Brodjonegoro. Vertical structure of Kelvin waves in the Indonesian Throughflow Exit Passages, *J. Phys. Oceanogr.*, doi: 10.1175/2010JPO4380.1, 40(9), 1965-1987, 2010.
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48. Sprintall, J., S. Kennan, Y.Y. Kim and P. Niiler. Wind-driven ageostrophic transport in the North Equatorial Counter Current of the Eastern Pacific at 95W, *J. Phys. Oceanogr.*, **39**, 11, 2985-2998, 2009.
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50. Gille, S. T., A Lombrozo, J. Sprintall, G. Stephenson, and R. Scarlet, 2009. Anomalous spiking in spectra of XCTD temperature profiles, *J. Atmos. Ocean. Tech.*, **26**, doi: 10.1175/2009JTECHO668.1, 1157-1164.
51. Griesel, A., S.T. Gille, J. Sprintall, J.L. McClean and M.E. Maltrud. Assessing eddy heat flux and its parameterization: A wavenumber perspective from a 1/10° ocean simulation. *Ocean Modelling*, **29**, 248-260, 2009.
52. Lenn, Y.D., T. Chereskin, and J. Sprintall, 2008. Improving estimates of the Antarctic Circumpolar Current streamlines in Drake Passage. *J. Phys. Oceanogr.*, **38**, 1000-1010.
53. Drushka, K., J. Sprintall, S.T. Gille, and W.S. Pranowo, Observations of the 2004 and 2006 Indian Ocean tsunamis from a pressure gauge array in Indonesia. *J. Geophys. Res.* **113**, C07038, doi:10.1029/2007JC004662, 2008.
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57. Sprintall, J., Antarctic Surface Waters. In Riffenburgh (ed), *Encyclopedia of the Antarctic. Routledge, Taylor and Francis*. New York, pp. 79-81, 2007.

58. Sprintall, J. and S. Mecking. Decadal changes evident from CLIVAR Repeat Hydrography Section I9N: More women oceanographers at Sea! U.S. CLIVAR Variations, Volume 5, Number 2, Washington DC, 2007.
59. Lenn, Y.D., T. 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.
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61. Thompson, A. F., S. T. Gille, J. A. MacKinnon, and J. Sprintall, 2007. Spatial and temporal patterns of small-scale mixing in Drake Passage, *J. Phys. Oceanogr.*, **37**, 572-592.
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63. Dong, S., J. Sprintall, and S. T. Gille. Location of the Polar Front from AMSR-E satellite sea surface temperature measurements, *J. Phys. Oceanogr.*, **36**, 2075-2089, 2006.
64. Talley, L. D., and J. Sprintall. Deep expression of the Indonesian Throughflow: Indonesian Intermediate Water in the South Equatorial Current, *J. Geophys. Res.*, 110, C10009, doi: 10.1029/2004JC002826, 2005.
65. McClean, J.L., D.P. Ivanova, and J. Sprintall, 2005. Remote origins of interannual variability in the Indonesian Throughflow region from data and a global Parallel Ocean Program simulation. *J. Geophys. Res.*, 110, C10013, doi: 10.1029/2004JC002477.
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76. Susanto, D., A. Gordon, J. Sprintall and B. Herunadi, 2000. Intraseasonal variability and tides in Makassar Strait. *Geophysical Research Letters*, 27, 1499-150
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85. Sprintall, J. and G. Meyers, 1991. An optimal XBT sampling network for the eastern Pacific Ocean, *J. Geophys. Res.*, 96, 10539-10552.

Professional Activities:

1. Committee Member, U.S. CLIVAR PSMI Panel, 2015 – present
2. Committee Member, CLIVAR Pacific Panel, 2015 – present
3. Committee Member, Backbone Task Team, TPOS2020, 2015 – present
4. Co-Chair, Western Pacific Task Team, TPOS2020, 2016 – present
5. Committee Member, IQuOD Science Team, 2014 - present
6. Co-Chair, SOOP XBT Science Team, 2011 - present
7. Co-leader, Mentoring Physical Oceanography Women to Increase Retention (MPOWIR) Mentoring Group, 2010 – 2013; 2015 - present
8. Physical Oceanography Representative, The Oceanography Society Council, 2012 – 2014
9. Co-Chair, Executive Committee of the US CLIVAR Science Steering Com., 2012 – 2014.
10. Co-Chair, CLIVAR Indonesian Throughflow Task Team, 2012-2014
11. Invited Speaker, PHODS Conference, Hawaii
12. Committee member, Antarctic Research Vessels Oversight Committee, 2006-2010.

Mentors and Mentoring:

Graduate Advisor:

Prof. Matthias Tomczak (retired)

Post-doctoral Advisors:

Dr. Michael J. McPhaden (NOAA-PMEL, Seattle); Prof. Dean Roemmich (SIO-UCSD)

Graduate Students supervised:

Yueng D. Lenn (PhD, committee member, graduated 2006); Andrew Thompson (PhD, committee member, graduated 2006); Kyla Drushka (PhD, co-advisor, 2006, graduated 2011); Gordon Stephenson (PhD, co-advisor, graduated 2013); Yvonne Firing (PhD, committee member, graduated 2013); Geoffrey Gearheart (PhD, co-advisor, graduated 2014); Andrew Delman (PhD, co-advisor, 2010 – present); Marion Alberty (PhD, co-advisor, 2013 – present).

Postdocs supervised:

Shenfu Dong (2004-2007, now at CIMAS, NOAA-AOML); Alexa Griesel (2005-2009, now at U. Hamburg); ChuanLi Jiang (2008-2011, now at ESR); Kyla Drushka (2013-2014, now at APL/UW).