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CSIRO Marine and Atmospheric Research

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Qualifications:

Ph.D. Mathematics, School of Mathematics, University of New South Wales, Sydney, NSW, Australia, 1996-1999.

B.Sc. (Hons 1st class) Mathematics, School of Mathematics, University of New South Wales, Sydney, NSW Australia, 1992-1995.

Employment history:

Research Scientist, CSIRO Marine and Atmospheric Research, Hobart, TAS, Australia (12/2002-present).

Postdoctoral Research Associate, School of Mathematics, University of New South Wales, Sydney, NSW, Australia (6/2001-11/2002).

Postdoctoral Research Associate, College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, Oregon, USA (11/1998-5/2001).

Undergraduate tutor/associate lecturer/course coordinator, School of Mathematics and Center for Marine and Coastal Studies, University of New South Wales, Sydney, NSW, Australia (197-1998,2001-2002).

Research funding from competitive grants:

Nectar Virtual Laboratory: Marine Virtual Laboratory (MARVL), 2012-2014; Funding to CSIRO: AU\$344,250 (stage 1), AU\$360,000 (Stage 2).

ONR/ONRIFO NICOP award, 2010-2012: Combining ensemble and variational data assimilation, US\$360,000.

Managing Climate Variability Program, Grains Research and Development Corporation, 2009-2011: Improving Forecast Accuracy, especially with Improved Indian Ocean Initialisation, AU\$306,000.

ARC Discovery Project, 2009-2011: Coastal cold core eddies of the East Australian Current and their fisheries potential, AU\$240,000.

ONR/ONRIFO NICOP award, 2007-2009: Optimal sampling strategies for oceanic applications, US\$245,000.

ONR/ONRIFO NICOP award, 2004-2006: Enhanced Ocean Prediction using Ensemble Kalman Filter Techniques, US\$264,200.

Australian Postgraduate Research Award, 1996-1998: Effects of the East Australian Current on the near shore zone, AU\$48,000.

National Greenhouse Advisory Committee supplementary scholarship, 1996-1998: AU\$12,000.

Awards:

CSIRO Julius Career Award recipient, 2008-2010, AU\$150,000.

Finalist - DSTO Eureka Prize for Outstanding Science in Support of Defense or National Security, 2008.

Journal articles (peer reviewed):

Preprints of all articles are available from www.cmar.csiro.au/staff/oke/pubs.htm

- [1] Everett, J. D., M. E. Baird, P. R. Oke, I. M. Suthers, 2012: An Avenue of Eddies: Quantifying the biophysical properties of mesoscale eddies in the Tasman Sea, *Geophysical Research Letters*, **39**, 16, L16402, doi:10.1029/2012GL053091.
- [2] Oke, P. R., G. B. Brassington, J. A. Cummings, M. Martin, F. Hernandez, 2012: GODAE inter-comparisons in the Tasman and Coral Seas. *Journal of Operational Oceanography*, **5**, 11-24.

- [3] Oke, P. R., and P. Sakov 2012: Assessing the footprint of a regional ocean observing system. *Journal of Marine Systems*, **105-108**, 30-51, dx.doi.org/10.1016/j.jmarsys.2012.05.009.
- [4] Sakov P., F. Counillon, L. Bertino, K. A. Lisaeter, P. R. Oke, A. Korabely, 2012: TOPAZ4: an ocean-sea ice data assimilation system for the North Atlantic and Arctic, *Ocean Science*, **8**, 633-656, doi:10.5194/os-8-633-2012.
- [5] Jones, E. M., P. R. Oke, F. Rizwi, L. Murray, 2012: Assimilation of glider and mooring data into a coastal ocean model. *Ocean Modelling*, **47**, 1-13.
- [6] O'Kane, T. J., P. R. Oke, P. A. Sandery, 2011: Predicting the East Australian Current. *Ocean Modelling*, **38**, 251-266.
- [7] Hill, K. L., S. R. Rintoul, P. R. Oke, K. Ridgway, 2011: Rapid response of the East Australian Current to remote wind forcing: the role of barotropic-baroclinic interactions. *Journal of Marine Research*, **68**, 413-431.
- [8] Hill, K. L., S. R. Rintoul, K. R. Ridgway, and P. R. Oke (2011), Decadal changes in the South Pacific western boundary current system revealed in observations and ocean state estimates, *J. Geophys. Res.*, **116**, C01009, doi:10.1029/2009JC005926.
- [9] Oke, P. R., D. A. Griffin, 2011: The cold-core eddy and strong upwelling off the coast of New South Wales in early 2007. *Deep Sea Research*, **58**, 574-591.
- [10] Suthers, I. M., J. W. Young, M. E. Baird, M. Roughan, J. D. Everett, G. B. Brassington, M. Byrne, S. A. Condie, J. R. Hartog, C. S. Hassler, A. J. Hobday, N. J. Holbrook, H. A. Malcolm, P. R. Oke, P. A. Thompson, Ken Ridgway. 2011: The strengthening East Australian Current, its eddies and biological effects – an introduction and overview. *Deep Sea Research*, **58**, 538-546.
- [11] Yin, Y., O. Alves, P. R. Oke, 2010: An ensemble ocean data assimilation system for seasonal prediction. *Monthly Weather Review*, doi:10.1175/2010MWR3419.1.
- [12] O'Kane, T. J., P. R. Oke, P. A. Sandery, 2010: Ensemble prediction study of the East Australian Current. *ANZIAM Journal*, **52**, C38-C55.
- [13] Langlais, C., A. Schiller, P. R. Oke, 2009: Southern Ocean fronts in the Bluelink reanalysis. *Mercator Newsletter*, **36**, 67-76.
- [14] Schiller, A., S. E. Wijffels, J. Sprintall, R. Molcard, P. R. Oke, 2010: Pathways of Intraseasonal Variability in the Indonesian Throughflow Region. *Dynamics of Atmospheres and Oceans*, **50**, 174-200.
- [15] Oke, P. R., G. B. Brassington, D. A. Griffin, A. Schiller, 2010: Ocean Data Assimilation: a case for ensemble optimal interpolation. *Australian Meteorological and Oceanographic Journal*, **59**, 67-76.
- [16] Andreu-Burillo, I., G. B. Brassington, P. R. Oke, H. Beggs, 2010: Including a new data stream in the Bluelink Ocean Data Assimilation System. *Australian Meteorological and Oceanographic Journal*, **59**, 77-86.
- [17] Oke, P. R., M. Balmaseda, M. Benkiran, J. A. Cummings, E. Dombrowsky, Y. Fujii, S. Guinehut, G. Larnicol, P.-Y. Le Traon, M. J. Martin, 2009: Observing System Evaluations using GODAE systems, *Oceanography*, **22**(3), 144-153.
- [18] Cummings, J., L. Bertino, P. Brasseur, I. Fukumori, M. Kamachi, M. Martin, P. R. Oke, C. Emmanuel Testut, J. Verron, A. Weaver, 2009: Ocean data assimilation systems for GODAE, *Oceanography*, **22**(3), 96-109.
- [19] Hurlburt, H. E., G. B. Brassington, Y. Drillet, M. Kamachi, M. Benkiran, R. Bourdalle-Badie, E. P. Chassignet, G. A. Jacobbs, O. Le Galloudec, J.-M. Lellouche, E. J. Metzger, P. R. Oke, T. F. Pugh, A. Schiller, O. M. Smedstad, B. Tranchant, H. Tsujino, N. Usui, A. J. Walcraft, 2009: Global and Basin-Scale Ocean Analyses and Forecasts. *Oceanography*, **22**(3), 80-97.
- [20] Oke, P. R., E. W. Schulz, P. Sakov 2009: A comparison of shelf observation platforms for assimilation into an eddy-resolving ocean model. *Dynamics of Atmospheres and Oceans*, **48**, 121-142.
- [21] Oke, P. R., G. B. Brassington, D. A. Griffin A. Schiller, 2009: Data assimilation in the Australian Bluelink system. *Mercator Newsletter*, **34**, 35-44.
- [22] Schiller, A., K. R. Ridgway, C. R. Steinberg, P. R. Oke 2009: Dynamics of three anomalous SST events in the Coral Sea. *Geophysical Research Letters*, **36**, L06606, doi:10.1029/2008GL036997.
- [23] Oke, P. R., G. B. Brassington, D. A. Griffin, A. Schiller 2008: The Bluelink Ocean Data Assimilation System (BODAS). *Ocean Modelling*, **20**, 46-70.

- [24] Sakov, P., P. R. Oke 2008: A deterministic formulation of the ensemble Kalman filter: an alternative to ensemble square root filters. *Tellus-A*, **60A**, 361-371.
- [25] Schiller, A., P. R. Oke, G. B. Brassington, M. Entel, R. Fiedler, D. A. Griffin, J. Mansbridge, K. Ridgway 2008: Eddy-resolving ocean circulation in the Asian-Australian region inferred from an ocean reanalysis effort. *Progress in Oceanography*, **76**, 334-365.
- [26] Sakov, P., P. R. Oke 2008: Implications of the form of ensemble transformations in ensemble square root filters. *Monthly Weather Review*, **136**, 1042-1053.
- [27] Oke, P. R., P. Sakov 2008: Representation error of oceanic observations for data assimilation. *Journal of Atmospheric and Oceanic Technology*, **25**, 1004-1017.
- [28] Sakov, P., P. R. Oke 2008: Objective array design: Application to the tropical Indian Ocean. *Journal of Atmospheric and Oceanic Technology*, **25**, 794-807.
- [29] Turner, M. R. J., J. P. Walker, P. R. Oke 2008: Ensemble member generation for sequential data assimilation. *Remote Sensing of Environment*, **112**, 1421-1433 doi:10.1016/j.rse.2007.02.042.
- [30] Oke, P. R., A. Schiller 2007: Impact of Argo, SST and altimeter data on an eddy-resolving ocean reanalysis *Geophysical Research Letters*, **34**, L19601, doi:10.1029/2007 GL031549.
- [31] Oke, P. R., A. Schiller 2007: A model-based assessment and design of an optimal mooring array for the Indian Ocean. *Journal of Climate*, **20**, 3269-3283.
- [32] Oke, P. R., P. Sakov, S. P. Corney 2007: Impacts of localisation in the EnKF and EnOI: Experiments with a small model. *Ocean Dynamics*, **57**, 32-45.
- [33] Brassington, G. B., A. Schiller, P. R. Oke, T. Pugh, G. Warren 2007: Bluelink delivers first ocean forecasts. *Mercator News Letter*, **24**, 20-30.
- [34] Oke, P. R., A. Schiller, G. A. Griffin, G. B. Brassington 2005: Ensemble data assimilation for an eddy-resolving ocean model. *Quarterly Journal of the Royal Meteorological Society*, **131**, 3301-3311.
- [35] Oke, P. R., M. H. England 2004: Oceanic response to changes in the latitude of the Southern Hemisphere subpolar westerly winds. *Journal of Climate*, **17**, 1040-1054.
- [36] Baird M. E., P. R. Oke, I. M. Suthers, J. H. Middleton 2004: A plankton population model with bio-mechanical descriptions of biological processes in an idealized 2-D ocean basin. *Journal of Marine Systems*, **50**, 199-222.
- [37] Oke, P. R., M. H. England, J. H. Middleton 2003: On the dynamical balances of an observed thermal front off central eastern Australia. *Journal of Geophysical Research*, **108(C4)**, 3106, doi: 10.1029/ 2002JC001370.
- [38] Roughan M., P. R. Oke, J. H. Middleton 2003: A modeling study of the climatological current field and the trajectories of upwelled particles in the East Australian Current. *Journal of Physical Oceanography*, **33**, 2551-2564.
- [39] Oke, P. R., J. S. Allen, R. N. Miller, G. D. Egbert, P. M. Kosro 2002: Assimilation of surface velocity data into a primitive equation coastal ocean model. *Journal of Geophysical Research*, **107(C9)**, 3122-3147.
- [40] Oke, P. R., J. S. Allen, R. N. Miller, G. D. Egbert, J. A. Austin, J. A. Barth, T. Boyd, P. M. Kosro, M. D. Levine 2002: A modeling study of the three-dimensional continental shelf circulation off Oregon: Part I. Model-data Comparisons. *Journal of Physical Oceanography*, **32**, 1360-1382.
- [41] Oke, P. R., J. S. Allen, R. N. Miller, G. D. Egbert 2002: A modeling study of the three-dimensional continental shelf circulation off Oregon: Part II. Dynamical Analysis. *Journal of Physical Oceanography*, **32**, 1383-1403.
- [42] Oke, P. R., J. H. Middleton 2001: Nutrient Enrichment off Port Stephens: the Role of the East Australian Current. *Continental Shelf Research*, **21**, 587-606.
- [43] Oke, P. R., J. H. Middleton 2000: Topographically Induced Upwelling off Eastern Australia. *Journal of Physical Oceanography*, **30**, 512-531.

Other publications (non-peer reviewed):

- [1] Oke, P. R., M. Cahill, 2012: The dependence of short-range ocean forecasts on satellite altimetry. Proceedings of 20 years of Progress in Radar Altimetry Symposium 2012, Venice, Italy.
- [2] Oke, P. R., and T. J. O'Kane, 2011: Observing System Design and Assessment. In Operational Oceanography in the 21st Century, A. Schiller, G. B. Brassington, Eds., Springer, 123-154.

- [3] Griffin, D. A., Oke, P. R. and Cahill, M. L., 2010. Use of ENVISAT RA2 sea level observations in the Bluelink ocean modelling system. Proceedings of the Envisat Symposium 2010, Bergen, Norway (ESA SP-686, 2010).
- [4] Oke, P., Balmaseda, M., Benkiran, M., Cummings, J., Dombrowsky, E., Fujii, Y., Guinehut, S., Larnicol, G., Le Traon, P. and Martin, M., (2010). "Observational Requirements of GODAE Systems" in *Proceedings of OceanObs'09: Sustained Ocean Observations and Information for Society (Vol. 2)*, Venice, Italy, 21-25 September 2009, Hall, J., Harrison, D.E. & Stammer, D., Eds., ESA Publication WPP-306, doi:10.5270/OceanObs09.cwp.67.
- [5] Heimbach, P., Forget, G., Ponte, R., Wunsch, C., Balmaseda, M., Awaji, T., Baehr, J., Behringer, D., Carton, J., Ferry, N., Fischer, A., Fukumori, I., Giese, B., Haines, K., Harrison, E., Hernandez, F., Kamachi, M., Keppenne, C., Köhl, A., Lee, T., Menemenlis, D., Oke, P., Remy, E., Rienecker, M., Rosati, A., Smith, D., Speer, K., Stammer, D. and Weaver, A., (2010). "Observational Requirements for Global-Scale Ocean Climate Analysis: Lessons from Ocean State Estimation" in *Proceedings of OceanObs'09: Sustained Ocean Observations and Information for Society (Vol. 2)*, Venice, Italy, 21-25 September 2009, Hall, J., Harrison, D.E. & Stammer, D., Eds., ESA Publication WPP-306, doi:10.5270/OceanObs09.cwp.42.
- [6] Brassington, G. B., T. Pugh, C. Spillman, E. Schulz, H. Beggs, A. Schiller, P. R. Oke, 2007: BLUElink> Development of operational oceanography and servicing in Australia, *Journal of Research and Practice in Information Technology*, **39**, 151-164.
- [7] Oke, P. R., and G. B. Brassington, 2006: The Bluelink Ocean Data Assimilation System. *BMRC Research Report*, **123**, 48-51.
- [8] Brassington, G. B., P. R. Oke, T. Pugh, G. Warren, 2006: The Bluelink project – towards marine forecasting. *BMRC Research Report*, **123**, 96-101.
- [9] Brassington, G. B., P. R. Oke, and T. Pugh, 2006: Bluelink: Operational ocean prediction in Australia. In: *Advances in Geosciences* (Ed: Wing-Huen Ip), Volume 5: Oceans and Atmospheres (Ed: Hyo Choi), 87-95.
- [10] Oke, P. R. 2006: The Bluelink Ocean Data Assimilation System: An ensemble-based approach for an eddy-resolving application. Proceedings of the fourth WMO International Symposium on Assimilation of Observations in Meteorology and Oceanography, Prague, Czech Republic, 18-22 April 2005.
- [11] Brassington, G. B., G. Warren, N. Smith, A. Schiller and P. R. Oke, 2005: Progress on operational ocean prediction for Australia. *Bulletin of the Australian Meteorological and Oceanographic Society*, **18**, 104-109.
- [12] England, M. H., and P. R. Oke, 2001: Ocean modelling and prediction. In: *Environmental Modelling and Prediction* (Eds: G. B. Peng, L. M. Leslie and Shao, Y.), Springer-Verlag, 125-171.
- [13] Oke, P. R., R. N. Miller, J. S. Allen, G. D. Egbert, P. M. Kosro 1999: Assimilation of surface velocity data into a coastal ocean model. Proceedings of the 3rd conference on coastal prediction, New Orleans, LA, AMS, 92-96.
- [14] Oke, P. R., and J. H. Middleton 1998: A modelling study of upwelling off Port Stephens, NSW. EPA internal reports pp. 74.

Theses:

- Oke, P. R., 1999: Effects of the East Australian Current on the Near-shore Zone. *School of Mathematics, University of New South Wales, Sydney, Australia*, pp. 184.
- Oke, P. R., 1995: Dynamics of the ocean surface mixed layer. *School of Mathematics, University of New South Wales, Sydney, Australia*, pp. 107.

Academic supervision:

- Postdoctoral: Dr. Stuart Corney (CSIRO: 3/2004-8/2006)
- PhD: Dr. Matthew Turner (UMelb: 1/2004-7/2006)
 Dr. Katy Hill (UTas: 7/2007-4/2009)
- Masters: Ms Karen Guihou (UToulon: 2009)

Previous supervisors/employers:

Graduate:	Prof. Jason H. Middleton Dr. John. F. Middleton	j.middleton@unsw.edu.au middleton.john@saugov.sa.gov.au
Postdoctoral:	Prof. John S. Allen Prof. Robert N. Miller Dr. Gary D. Egbert Prof. Matthew H. England	jallen@coas.oregonstate.edu miller@coas.oregonstate.edu egbert@coas.oregonstate.edu matthew@maths.unsw.edu.au
CSIRO:	Dr. Andreas Schiller Dr. David Griffin	andreas.schiller@csiro.au david.griffin@csiro.au

Scientific Seminars:

- CSIRO Marine and Atmospheric Research: 7/2000, 5/2002, 4/2003, 6/2004, 3/2005, 8/2006, 2/2008, 3/2008, 7/2011.
- Oregon State University: 2/1999, 4/2001, 5/2002, 11/2004, 7/2009, 5/2011.
- Naval Research Laboratories, SSC: 1/2002, 11/2004, 7/2009.
- Naval Research Laboratories, Monterey: 7/2009.
- University of New South Wales: 5/1997, 8/1998, 3/2000, 8/2008.
- IFREMER: 12/2004
- L'Ocean, UPMC: 5/2009
- LDEO, Columbia University: 6/2009
- Mercator Ocean: 6/2009
- CERFACS: 6/2009
- MBARI: 7/2009

Conference proceedings:

Invited presentations are marked with an asterisk*

- *IUGG Meeting, Melbourne, Australia, 6/2011.
- GODAE OceanView and CLIVAR GSOP technical workshop on observing system evaluation and inter-comparison, Santa Cruz, California, USA.
- *5th WMO Symposium on Data Assimilation, Melbourne, Australia, 11/2009.
- *1st GODAE OceanView Science Team Meeting, Toulouse, France, 6/2009.
- 2nd GODAE OSE Workshop, Toulouse, France, 6/2009.
- *Final GODAE Symposium, Nice, France, 11/2008.
- AGU Western Pacific Geophysics Meeting, Cairns, Australia, 7/2008.
- *GODAE OSE/OSSE meeting, Paris, France 11/2007.
- GHRSSST Meeting, Melbourne, Australia, 5/2007.
- GODAE Symposium on Ocean Data Assimilation and Prediction in Asia-Oceania, Beijing, China, 10/2006.
- AGU Ocean Sciences, Hawaii, USA, 2/2006.
- *4th WMO Symposium on Assimilation of Observations in Meteorology and Oceanography, Prague, Czech Republic, 4/2005.
- *Indian Ocean Modeling Workshop, IPRC, Hobart, TAS, Australia, 3/2005.
- *6th POGO meeting, Brest, France, 12/2004.
- *Indian Ocean Modeling Workshop, IPRC, Honolulu, Hawaii, USA, 12/2004.
- CLIVAR reanalysis workshop, Boulder, Colorado, USA, 11/2004.
- Second GODAE Symposium, St Petersburg, Florida, USA, 11/2004.
- Australian Argo meeting, Hobart, Australia, 3/2004.

- AGU Ocean Sciences Meeting, Portland, OR, USA, 1/2004.
- BMRC Ensemble Kalman Filter Workshop, Melbourne, Australia, 11/2003.
- TPAC Coupled Ocean and Atmospheres Workshop, Hobart, Australia, 5/2003.
- EGS-AGU-EUG Joint Assembly, Nice, France, 4/2003.
- AGU Western Pacific Geophysics Meeting, Wellington, New Zealand, 7/2002.
- 2nd joint terrain-following modeling communities meeting, Boulder, CO, USA, 8/2001.
- 1st International Radio-wave Oceanography Workshop, Mt Hood, OR, USA, 4/2001.
- 81st Annual AMS Meeting, Albuquerque, NM, USA, 1/2001.
- Pacific NW Oceanographic Research Meeting, Hatfield Marine Center, OR, USA, 1/2001.
- 47th Annual Eastern Pacific Ocean Conference, Vancouver Island, Canada, 9/2000.
- AGU Ocean Sciences Meeting, San Antonio, TX, USA, 1/2000.
- 7th AMOS National Conference, Melbourne, Australia, 2/2000.
- 3rd Conference on Coastal Atmospheric and Oceanic Prediction and Processes, NO USA, 11/1999.
- 46th Annual Eastern Pacific Ocean Conference, Fallen Leaf Lake, CA, USA, 9/1999.
- AGU Fall meeting, San Francisco, CA, USA, 12/1998.
- IAMAS/IAPSO Joint Assembly, Melbourne, Australia, 7/1997.
- AGU Western Pacific Geophysics Meeting, Brisbane, Australia, 7/1996.