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Amornthammarong, N. and J.-Z. Zhang, 2008: Shipboard Fluorometric Flow Analyzer for High-Resolution Underway Measurement of Ammonium in Seawater. *Analytical Chemistry*, **80**(4): 1019-1026; DOI: 10.1021/ac701942f.

Arguez, A. J. J. O'Brien, and S. R. Smith, 2008: Air Temperature Impacts over Eastern North America and Europe Associated with North Atlantic SST Variability. *International Journal of Climatology*, doi:10.1002/joc.1700, in press.

Baringer, M. O., and C. S. Meinen, 2008: The Meridional Overturning Circulation", in "State of the Climate in 2007", D. H. Levinson and J. H. Lawrimore (eds.), *Bull. Am. Met. Soc.*, 89(7), s49-s51, doi:10.1175/BAMS-89-7-StateoftheClimate.

Bond, N. and M. F. Cronin, 2008: Regional weather patterns during anomalous air-sea fluxes at the Kuroshio, Extension Observatory (KEO). *J. Climate*, 21, 1680-1697.

Bourlès, B., R. Lumpkin, M.J. McPhaden, F. Hernandez, P. Nobre, E. Campos, L. Yu, S. Planton, A. Busalacchi, A.D. Moura, J. Servain, and J. Trotte, 2008: The PIRATA Program: History, Accomplishments, and Future Directions. *Bulletin of the American Meteorological Society*, 89, 1111–1125.

Bullister, J.L., and D.P. Wisegarver, 2008: The shipboard analysis of trace levels of sulfur hexafluoride, chlorofluorocarbon-11 and chlorofluorocarbon-12 in seawater. *Deep-Sea Res. I*, 55, 1063–1074.

Carson, M. and D.E. Harrison, 2008: Is the upper ocean warming? Comparisons of 50-year trends from different analyses. *J. Climate*, 21(10), 2259–2268.

Chanson, M. and F.J. Millero, 2007: Effect of filtration on the total alkalinity of open-ocean seawater, *Limnol. Oceanogr. Methods*, 5, 293-295.

Chierici, M., A. Olsen, J. Triñanes, and R. Wanninkhof, 2008: Algorithms to estimate the carbon dioxide uptake in the northern North Atlantic using ship-observations, satellite and model data. *Deep -Sea Res.*, in press.

Chiodi, A.M. and D.E. Harrison, 2008: Hurricane Alley SST variability in 2005 and 2006. *J. Climate*, 21(18), 4710–4722.

Cronin, M. F., C. Meinig, C. L. Sabine, H. Ichikawa, and H. Tomita, 2008: Surface mooring network in the Kuroshio, Extension. *IEEE Systems Special Issue on GEOSS*, 2,

424-430.

Davis, R.E., M.O. Ohman, B. Hodges, D.L. Rudnick, J.T. Sherman, 2008. Glider surveillance of physics and biology in the southern California Current. *Limnol. Oceanogr.* **53**, 2151-2168.

De Szoeki, S.P., C.W. Fairall, and S. Pezoa, 2008: Ship observations coasting South America in the tropical Pacific Ocean. *J. Clim.*, in press.

Dickson, A.G., Sabine, C.L. and Christian, J.R. (Eds.), 2007: Guide to Best Practices for Ocean CO₂ Measurements. *PICES Special Publication 3*, 191 pp.

DiNezio, P. N., L. J. Gramer, W. E. Johns, C. S. Meinen, and M. O. Baringer, 2008: "Observed Interannual Variability of the Florida Current: Wind Forcing and the North Atlantic Oscillation", *J. Phys. Oceanogr.*, in press.

Doney, S. C., I. Lima, J. K. Moore, K. Lindsay, M. Behrenfeld, N. Mahowald, M. Maltrud, D. M. Glover, D. McGillicuddy, and T. Takahashi, 2008: Skill metrics for confronting global upper ocean ecosystem-biogeochemistry models against field and remote sensing data. *Jour. Marine Systems, Special Issue "Skill Assessment for Coupled Biological/Physical Models of Marine Systems"* (Available on line, May 29, 2008), in press.

Donohue, K. A., and colleagues, 2008: An integrated system study of the Kuroshio Extension. *EOS Trans. AGU*, 89,161-162.

Elipot, S. and R. Lumpkin, 2008: Spectral description of oceanic near-surface variability. *Geophys. Res. Letters*, **35**, L05605, doi:10.1029/2007GL032874.

Fairall, C. W., J. E. Hare, T. Uttal, D. Hazen, Meghan Cronin, Nicholas A. Bond, and Dana Veron, 2008: A seven-cruise sample of clouds, radiation, and surface forcing in the Equatorial Eastern Pacific. *J. Clim.*, **21**, 655-673.

Feely, R.A., 2008: Ocean Acidification. In State of the Climate in 2007, D. H. Levinson and J. H. Lawrimore (eds.). *Bull. Am. Meteorol. Soc.*, 89(7), S58.

Feely, R.A., C.L. Sabine, J.M. Hernandez-Ayon, D. Ianson, and B. Hales, 2008b: Evidence for upwelling of corrosive "acidified" water onto the Continental Shelf. *Science*, 320(5882), doi: 10.1126/science.1155676, 1490–1492.

Fine, R.A., W.M. Smethie, Jr., J.L. Bullister, M. Rhein, D.-H. Min, M.J. Warner, A. Poisson, and R.F. Weiss, 2008: Decadal ventilation and mixing of Indian Ocean waters. *Deep-Sea Res. I*, **55**, 20–37.

Foltz, G.R. and M.J. McPhaden, 2008: Seasonal mixed layer salinity balance of the tropical North Atlantic Ocean. *J. Geophys. Res.* **113**, C02013, doi:10.1029/2007JC004178.

Foltz, G.R., and M.J. McPhaden, 2008: Impact of barrier layer thickness on SST in the central tropical North Atlantic. *J. Climate*, in press.

Foltz, G.R., and M.J. McPhaden, 2008: Impact of Saharan dust on tropical North Atlantic SST. *J. Climate*, 21, 5048-5060.

Foltz, G.R., and M.J. McPhaden, 2008: Trends in Saharan dust and tropical Atlantic climate during 1980-2006. *Geophys. Res. Lett.*, in press.

Friederich, G.E., J. Ledesma, O. Ulloa and F.P. Chavez, 2008: Air-Sea carbon dioxide fluxes in the coastal southeastern tropical Pacific. *Progress in Oceanography*, in press.

Ghate, Virendra P., Bruce A. Albrecht, Christopher W. Fairall and Robert A. Weller, 2008: Climatology of marine stratocumulus cloud fraction in the South-East Pacific using surface longwave radiative flux observations. *J. Clim.*, in press.

Giles, K.A., S.W. Laxon and A.L. Ridout, 2008: Circumpolar thinning of Arctic sea ice following the 2007 record ice extent minimum, *Geophys. Res. Lett.*, 35, L22502, doi:10.1029/2008GL035710.

Gledhill, D.K., R. Wanninkhof, F.J. Millero, M. Eakin, 2008: Ocean Acidification of the greater Caribbean region 1996-2006, *J. Geophys. Res.* doi:10.1029/2007JC004629.

Gourdeau, L., W. S. Kessler, R. E. Davis, J. Sherman, C. Maes and E. Kesternare, 2008: Zonal jets entering the Coral Sea. *J. Phys. Oceanogr.*, **38**, 715-725.

Greene, J.S., M. Klatt, M.L. Morrissey, and S. Postawko, 2008: "The Comprehensive Pacific Rainfall Database: An enhanced tool for research and education", *Journal of Atmospheric and Oceanic Technology*, 25, pp. 71-82.

Griffa, A., R. Lumpkin and M. Veneziani, 2007: Cyclonic and anticyclonic motion in the upper ocean. *Geophys. Res. Letters*, **35**, L01608, doi:10.1029/2007GL032100.

Haas, C., A. Pfaffling, S. Hendricks, L. Rabenstein, J.-L. Etienne, and I. Rigor, 2008: Reduced ice thickness in Arctic Transpolar Drift favors rapid ice retreat, *Geophys. Res. Lett.*, 35, L17501, doi:10.1029/2008GL034457.

Huang, B., Y. Xue, and D. W. Behringer, 2008: Impacts of Argo salinity in NCEP Global Ocean Data Assimilation System: The tropical Indian Ocean. *J. Geophys. Res.*, 113, C08002.

Huang, Xiao-Lan and Jia-Zhong Zhang, 2008: Kinetic Spectrophotometric Determination of Submicromolar Orthophosphate by Molybdate Reduction, *Microchemical Journal*, **89**:58-71, doi:10.1016/j.microc.2007.12.001.

Jiang, L.-Q., W.-J. Cai, Y. Wang, R. Wanninkhof, and H. Lüger, 2007: Air-sea CO₂ fluxes on the U.S. South Atlantic Bight: Spatial and seasonal variability, *J Geophys. Res.*, 113, C07019, doi:07010.01029/02007JC004366.

Johns, W.E., L.M. Beal, M.O. Baringer, J.R. Molina, S.A. Cunningham, T. Kanzow, and D. Rayner, 2008: "Variability of shallow and deep western boundary currents off the Bahamas during 2004-2005: Results from the 26°N RAPID-MOC array", *J. Phys. Oceanogr.*, 38(3), 605-623.

Johnson, G. C., 2008: Quantifying Antarctic Bottom Water and North Atlantic Deep Water volumes. *Journal of Geophysical Research*, **113**, C05027, doi:10.1029/2007JC004477.

Johnson, G. C., J. M. Lyman, and J. K. Willis, 2008: Global Oceans: Ocean Heat Content. In *State of the Climate in 2007*, D. H. Levinson and J. H. Lawrimore, Eds., *Bulletin of the American Meteorological Society*, **89**, 7, S39–S41, doi: 10.1175/BAMS-89-7-StateoftheClimate.

Johnson, G. C., S. G. Purkey, and J. L. Bullister, 2008: Warming and freshening in the abyssal southeastern Indian Ocean. *Journal of Climate*, doi:10.1175/2008JCLI2384.1.

Johnson, G. C., S. Mecking, B. M. Sloyan, and S. E. Wijffels, 2007: Recent bottom water warming in the Pacific Ocean. *Journal of Climate*, **20**, 5365-5375, doi: 10.1175/2007JCLI1879.1.

Joyce, R. J., Pingping Xie, Yelena Yarosh, John E. Janowiak and Phillip A. Arkin, 2008: The use of TRMM data in the CMORPH suite of precipitation analyses, Special Issue on Precipitation Measurements from Space, *J. Meteor. Soc. of Jpn.*

Kanzow, T., J. J-M. Hirschi, C. S. Meinen, D. Rayner, S. A. Cunningham, J. Marotzke, W. E. Johns, H. L. Bryden, L. M. Beal, M. O. Baringer, 2008: "A prototype system of observing the Atlantic Meridional Overturning Circulation - scientific basis, measurement and risk mitigation strategies, and first results", *J. Operational Oceanogr.*, 1, 19 - 28.

Kara, A. B., A. J. Wallcraft, C. N. Barron, E. J. Metzger, H. E. Hurlburt, and M. A. Bourassa, 2008: Accuracy of 10 m Wind Speeds from Satellites and NWP Products Near Land-Sea Boundaries. *Journal of Geophysical Research - Oceans*, 113, C04009, doi:doi:10.1029/2007JC004324.

Kubota, M., N. Iwabe, M. F. Cronin, and H. Tomita, 2008: Surface heat fluxes from the NCEP/NCAR and NCEP/DOE, reanalyses at the KEO buoy site. *J. Geophys. Rev.*, 113, C02009, doi:10.1020/2007JC004338.

Kwok, R., G. F. Cunningham, H. J. Zwally, and D. Yi, 2007: Ice, Cloud, and land Elevation Satellite (ICESat) over Arctic sea ice: Retrieval of freeboard, *J. Geophys. Res.*, 112, C12013, doi:10.1029/2006JC003978.

LeBel, D.A., W.M. Smethie, Jr., M. Rhein, D. Kieke, R.A. Fine, J.L. Bullister, D.-H. Min, W. Roether, R.F. Weiss, C. Andri , D. Smythe-Wright, and E.P. Jones, 2008: The formation rate of North Atlantic Deep Water and Eighteen Degree Water calculated from CFC-11 inventories observed during WOCE. *Deep-Sea Res. I*, 55, 891–910.

Lee, T. and M.J. McPhaden, 2008: Decadal phase change in large-scale sea level and winds in the Indo-Pacific region at the end of the 20th century. *Geophys. Res. Lett.*, 35, L01605, doi:10.1029/2007GL032419.

Levine, N., M. S. C. Doney, R. Wanninkhof, K. Lindsay, and I. Y. Fung, 2007: The impact of ocean carbon system variability on the detection of temporal increases in anthropogenic CO₂. *J Geophys. Res.*, in press.

Levinson, D.H., J.H. Lawrimore, et al., 2008: State of the Climate in 2007. *Bulletin of the American Meteorological Society*, 89, S1–S179.

Li, P.Q., D.A. Hansell, and J.-Z. Zhang, 2008: Underway monitoring of nanomolar nitrate plus nitrite and phosphate in oligotrophic seawater. *Limnology and Oceanography: Methods*, 6:319-326.

Lumpkin, R. and G. Goni, 2008: State of the Ocean in 2007: Surface Currents. In “State of the Climate in 2007”, *Bulletin of the American Meteorological Society*, 89, in press.

Lyman, J. M., and G. C. Johnson, 2008a: Equatorial Kelvin Wave influences may reach the Bering Sea during 2002 to 2005. *Geophysical Research Letters*, 35, L14607, doi:10.1029/2008GL034761.

Lyman, J. M., and G. C. Johnson, 2008b: Estimating global upper ocean heat content despite irregular sampling. *Journal of Climate*, doi:10.1175/2008JCLI2259.1.

Mainelli, M., M. DeMaria, L. Shay, G. Goni, 2007: Application of oceanic heat content estimation to operational forecasting of recent Atlantic category 5 hurricanes. *Weather and Forecasting*, in press.

McNeil, B.I., N. Metzl, R.M. Key, R.J. Matear and A. Corbiere, 2007: An empirical estimate of the Southern Ocean air-sea CO₂ flux. *Global Biogeochem. Cycles*, 21(3), GB3011, doi:10.1029/2007GB002991.

McPhaden, M. J., G. Meyers, K. Ando, Y. Masumoto, V. S. N. Murty, M. Ravichandran, F. Syamsudin, J. Vialard, L. Yu, and W. Yu, 2008: RAMA: The Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction. *Bulletin of the American Meteorological Society*, in press.

McPhaden, M.J., 2008: Evolution of the 2006-07 El Niño: The Role of Intraseasonal to Interannual Time Scale Dynamics. *Adv. Geosci.*, 14, 219-230.

McPhaden, M.J., M.F. Cronin, and D.C. McClurg, 2008: Meridional structure of the surface mixed layer temperature balance on seasonal time scales in the eastern tropical Pacific. *J. Climate*, 21, 3240-3260.

Mecking, S., C. Langdon, R.A. Feely, C.L. Sabine, C.A. Deutsch, and D.-H. Min, 2008: Climate variability in the North Pacific thermocline diagnosed from oxygen measurements: An update based on the U.S. CLIVAR/CO₂ Repeat Hydrography cruises. *Global Biogeochem. Cy.*, 22, GB3015, doi: 10.1029/2007GB003101.

Meredith, M. P., A. C. Naveira Garabato, A. L. Gordon, and G. C. Johnson, 2008: Evolution of the deep and bottom waters of the Scotia Sea, Southern Ocean, during 1995–2005. *Journal of Climate*, 21.

Merrifield, M., G.T. Mitchum, S. Gill and P. Woodworth, 2008: Sea Level in State of the Climate in 2007, Levinson, D. H., and J. H. Lawrimore, Eds., *Bull. Amer. Met. Soc.*, **89**, S1-S179, doi:10.1175/BAMS-89-7-StateoftheClimate.

Millero, F.J., 2007: The marine inorganic carbon cycle, *Chem. Rev.*, 107, 308-341.

Millero, F.J., J. Waters, R. Woosley, F. Huang, M. Chanson, 2008a: The effect of composition on the density of Indian Ocean waters. *Deep-Sea-Res. I*, 55, 460-470, doi:10.1016/j.dsr.2008.01.006.

Millero, F.J., R. Feistel, D.G. Wright, T.J. McDougall, 2008c: The composition of Standard Seawater and the definition of the Reference-Composition Salinity Scale. *Deep-Sea Res. I*, 55(1), 50-72, doi:10.1016/j.dsr.2007.10.001.

Morey, S. L., D. S. Dukhovskoy, and M. A. Bourassa, 2007: Connectivity between variability of the Apalachicola River flow and the biophysical oceanic properties of the northern West Florida Shelf. *Continental Shelf Research*, in press.

Morrissey, M.L. and J.S. Greene, 2008: A theoretical framework for the sampling error variance for three-dimensional climate averages of ICOADS monthly ship data, *Theoretical and Applied Climatology*, doi 10.1007/s00704-008-0027-3.

Morrissey, M.L., 2008: Superposition of the Neyman-Scott Rectangular Pulses Model and the Poisson White Noise Model for the Representation of Tropical Rain Rates. *Journal of Hydrometeorology*: doi: 10.1175/2008JHM1039.1

Nagura, M. and M. J. McPhaden, 2008: The dynamics of zonal current variations in the central equatorial Indian Ocean. *Geophys. Res. Lett.*, in press.

Nghiem, S.V, I.G. Rigor, D.K. Perovich, P. Clemente-Colon, J.W. Weatherly and G. Neumann, 2007: Rapid reduction of Arctic perennial sea ice, *Geophys. Res. Lett.*, 34, L19504, doi:10.1029/2007GL031138.

Park, G.-H., K. Lee, R. Wanninkhof, J.-Z. Zhang, D.A. Hansell, and R.A. Feely, 2008: Large, non-Redfieldian drawdown of nutrients and carbon in the extratropical North Atlantic Ocean (46°N): Evidence for dinitrogen fixation? *Limnol. Oceanogr.*, 53(5), 1697–1704.

Perovich, D. K., J. A. Richter-Menge, K. F. Jones, and B. Light, 2008: Sunlight, water, and ice: Extreme Arctic sea ice melt during the summer of 2007, *Geophys. Res. Lett.*, 35, L11501, doi:10.1029/2008GL034007.

Reay, D.S., F. Dentener, P. Smith, J. Grace, and R.A. Feely, 2008: Global nitrogen deposition and carbon sinks. *Nature GeoSci.*, 1, doi: 10.1039/ngeo230, 430–437.

Reynolds, R. W., T. M. Smith, C. Liu, D. B. Chelton, K. S. Casey, and M. G. Schlax, 2007: Daily high-resolution blended analyses for sea surface temperature. *J. Climate*, 20, 5473-5496.

Sabine, C.L., R.A. Feely, and R. Wanninkhof, 2008: The global ocean carbon cycle. In *State of the Climate in 2007*, D. H. Levinson and J. H. Lawrimore (eds.). *Bull. Am. Meteorol. Soc.*, 89(7), S52–S56.

Sabine, C.L., R.A. Feely, F.J. Millero, A.G. Dickson, C. Langdon, S. Mecking, and D. Greeley, 2008: Decadal changes in Pacific carbon. *J. Geophys. Res.*, 113, C07021, doi: 10.1029/2007JC004577.

Sallée, J-B., K. Speer, R. Morrow and R. Lumpkin, 2008: An estimate of Lagrangian eddy statistics and diffusion in the mixed layer of the Southern Ocean. *J. Marine Res.*, accepted July 2008.

Sarmiento, J. L., J. Simeon, A. Gnanadesikan, N. Gruber, R. M. Key, and R. Schlitzer, 2007: Deep ocean biogeochemistry of silicic acid and nitrate. *Global Biogeochem. Cycles*, 21, GB1S90, doi:10.1029/2006GB002720.

Schmid, C., R. L. Molinari, R. Sabina, Y.-H. Daneshzadeh, X. Xia, E. Forteza and H. Yang, 2007: The Real-Time Data Management System for Argo Profiling Float Observations. *J. Atmos. Ocean. Technol.*, 24(9), 1608-1628, doi=10.1175/JTECH2070.1.

Smith, T.M., R. W. Reynolds, T. C. Peterson, and J. Lawrimore, 2008: Improvements to NOAA's historical merged land-ocean surface temperature analysis (1880-2006). *J. Climate*, 21, 2283-2296.

Sonnerup, R.E., J.L. Bullister, and M.J. Warner, 2008: Improved estimates of ventilation rate changes and CO₂ uptake in the Pacific Ocean using chlorofluorocarbons and sulfur hexafluoride. *J. Geophys. Res.*, in press.

Stramma, L., G. C. Johnson, J. Sprintall, and V. Mohrholz, 2008: Expanding oxygen-minimum zones in the tropical oceans, *Science*, **320**, 655-658, doi:10.1126/science.1153847.

Strutton, P. G., W. Evans, and F. P. Chavez, 2008: Equatorial Pacific chemical and biological variability, 1997–2003, *Global Biogeochem.Cycles*, **22**, GB2001, doi:10.1029/2007GB003045.

Swart, S., S. Speich, I. Ansorge, G. Goni, S. Gladyshev, J. Lutjeharms, 2007: Transport and variability of the Antarctic Circumpolar Current south of Africa, *J. Geophys. Res.*, in press.

Sweeney, C., E. Gloor, A. R. Jacobson, R. M. Key, G. McKinley, J. L. Sarmiento, and R. Wanninkhof, 2007: Constraining global air-sea gas exchange for CO₂ with recent bomb C-14 measurements, *Global Biogeochemical Cycles*, **21**, doi:10.1029/2006GB002784.

Takahashi, T., S.C. Sutherland, R. Wanninkhof, C. Sweeney, R.A. Feely, D.W. Chipman, B. Hales, G. Friederich, F. Chavez, A. Watson, D.C.E. Bakker, U. Schuster, N. Metzl, H. Yoshikawa-Inoue, M. Ishii, T. Midorikawa, C. Sabine, M. Hopemma, J. Olafsson, T.S. Arnarson, B. Tilbrook, T. Johannessen, A. Olsen, R. Bellerby, H.J.W. de Baar, Y. Nojiri, C.S. Wong, and B. Delille, 2008: Climatological mean and decadal change in surface ocean pCO₂, and net sea-air CO₂ flux over the global oceans. *Deep-Sea Res.*, in press.

Thomas, H., F. Prowe, I. D. Lima, S. Doney, R. Wanninkhof, and R. J. Greatbach, 2008: Changes in the North Atlantic Oscillation govern uptake in the North Atlantic, *Global Biogeochem cycles*, in press.

Uehara, H., S. Kizu, K. Hanawa, Y. Yoshikawa, and D. Roemmich, 2008: Estimation of heat and freshwater transports in the North Pacific using high-resolution expendable bathythermograph data. *Journal of Geophysical Research*, **113**, C02014, doi:10.1029/2007JC004165.

Vialard, J., G. Foltz, M.J. McPhaden, J.P. Duvel and C. de Boyer Montégut, 2008: Strong Indian Ocean sea surface temperature signals associated with the Madden-Julian oscillation in late 2007 and early 2008. *Geophys. Res. Lett.*, **35**, L19608, doi:10.1029/2008GL035238.

Vialard, J., J. P. Duvel, M. J. McPhaden, P. Bouret-Aubertot, B. Ward, E. Keys, D. Bourass, R. Weller, P. Minnett, A. Weils, C. Cassous, L. Yard, T. Fristedt, F. Marsac, C. Menkes, S. Kennan, 2008: CIRENE: Air-sea interactions in the Seychelles-Chagos thermocline ridge region. *Bull. Amer. Meteor. Soc.*, in press

- Wang, Z. A., X. Liu, R. H. Byrne, and R. Wanninkhof, 2007: Simultaneous Spectrophotometric Flow-Through Measurements of Multiple Inorganic Carbon Parameters in Seawater: At-sea Test and Comparison, *Analytica Chimica Acta*, 596, 23-36.
- Wanninkhof, R., 2007: The impact of different gas exchange formulations and wind speed products on global air-sea CO₂ fluxes, in *Transport at the Air Sea Interface, Measurements, Models and Parametrizations*, edited by C. S. Garbe, et al., pp. 1-23, Springer, Heidelberg.
- Wanninkhof, R., A. Olsen, and J. Triñanes, 2007: Air-Sea CO₂ Fluxes in the Caribbean Sea from 2002-2004, *Journal of Marine Systems*, 66, 272-284.
- Weller, R. A., Bradley, E. F., Edson, J., Fairall, C., Brooks, I., Yelland, M. J., and Pascal, R. W., 2008: Sensors for physical fluxes at the sea surface: energy, heat, water, salt, *Ocean Sci. Discuss.*, 5, 327-373.
- White, D., L. Hinzman, L. Alessa, J. Cassano, M. Chambers, K. Falkner, J. Francis, B. Gutowski, M. Holland, M. Holmes, H. Huntington, D. Kane, A. Kliskey, C. Lee, J. McClelland, B. Peterson, F. Straneo, M. Steele, R. Woodgate, D. Yang, K. Yoshikawa, T. Zhang, 2007: The Arctic Freshwater System: changes and impacts, *Journal of Geophysical Research*, 112, G04S54, doi:10.1029/2006JG000353.
- Wijffels, S. E., J. Willis, C. M. Domingues, P. Barker, N. J. White, A. Gronell, K. Ridgway, and J. A. Church, 2008: Changing expendable bathythermograph fall-rates and their impact on estimates of thermohaline sea level rise, *Journal of Climate*, in press, doi:10.1175/2008JCLI2290.1
- Willis, J. K., D. P. Chambers, and R. S. Nerem, 2008a: Closing the globally averaged sea level budget on seasonal to interannual time scales. *Journal of Geophysical Research - Oceans*, **113**, C06015, doi:10.1029/2007JC004517.
- Willis, J. K., J. M. Lyman, J. M., G. C. Johnson, and J. Gilson, 2008b: In situ data biases and recent ocean heat content variability. *Journal of Atmospheric and Oceanic Technology*, doi:10.1175/2008JTECHO608.1.
- Willis, J., J. Lyman, G. Johnson, and J. Gilson, 2008: In situ data biases and recent ocean heat content variability. *Journal of Atmospheric and Oceanic Technology*, in press.
- Yoneyama, K. et al, 2007: Mismo field experiment in the tropical Indian Ocean. *Bull. Am. Meteor. Soc.*, in press.
- Yu, L., 2007: Global variations in oceanic evaporation (1958-2005): The role of the changing wind speed. *Journal of Climate*. 20, 5376-5390.
- Yu, L., R. A. Weller, 2008: Objectively analyzed air-sea heat fluxes (OAFlux) for the global ice-free oceans. *Bull. Amer. Meteor. Soc.*, 88(4), 527-533.

Zhang, H.-M., R.W. Reynolds, R. Lumpkin, R. Molinari, K. Arzayus, M. Johnson, T.M. Smith, 2008: An Integrated Global Ocean Observing System for Sea Surface Temperature Using Satellites and In situ Data: Research-to-Operations, *Bulletin of the American Meteorological Society*, (Dec 2008 issue), DOI: 10.1175/2008BAMS2577.1.

Zhang, S., A. Rosati and M.J. Harrison, 2007: Detection of Multi-Decadal Oceanic Variability by Ocean Data Assimilation System in the Context of a “Perfect” Coupled Model. *JGR Oceans*, in press.

Zhang, X. and M.J. McPhaden, 2008: Eastern equatorial Pacific forcing of ENSO sea surface temperature anomalies. *J. Climate*, 21, 6070-6079.

Submitted

Anderson, D. and H.-M. Zhang, 2008: Shallow ocean overturning and the heat and carbon content of the Glacial Tropical Ocean. *Global and Planetary Change*, submitted.

Bentamy, A., 2008: Characterization of ASCAT measurements based on buoy and QuikSCAT wind vector observations. *Ocean Sci. Discuss.*, 5, 77–101, (www.ocean-sci-discuss.net/5/77/2008/)

Chang, Y.S., A. Rosati, and G.A. Vecchi, 2008: Basin Patterns of Global Sea Level Changes for 2004-2007. *GRL*, submitted.

Chanson, M., F. J. Millero, and R. Wanninkhof, 2008: Synthesis and analysis of the carbonate parameters in the Atlantic Ocean based on decadal repeat occupations of the meridional section A16, *Global Biogeochemical Cycles*, re-submitted after revision.

Colbo, K. and R. A. Weller, 2008: The accuracy of the IMET sensor package in the subtropics. *J. Atmos. Oceanic Technol.*, submitted.

Cravatte, S.E., T. Delcroix, D. Zhang, M.J. McPhaden, and J. Leloup, 2008: Observed freshening of the warming western tropical Pacific and extension of the Warm/Fresh Pool in recent decades. *Clim. Dyn.*, submitted.

Douglass, E. M., D. Roemmich, and D. Stammer, 2008a: Data-sensitivity of the ECCO state estimate in a regional setting, *Journal of Atmospheric and Oceanic Technology*, submitted.

Douglass, E.M., D. Roemmich and D. Stammer, 2008b: Interannual variability in North Pacific heat and freshwater budgets, *Deep-Sea Research*, submitted.

Ghate, Virendra P., Bruce A. Albrecht, Christopher W. Fairall, and Robert A. Weller, 2008: Climatology of Surface Meteorology, Surface Fluxes, Cloud Fraction and

Radiative Forcing over South-East Pacific from Buoy Observations, *J. Climate*, submitted.

Ishii, M., H.Y. Inoue, S. Saito, T. Tokieda, D. Sasano, T. Midorikawa, A. Nakadate, K. Nemoto, N. Metzl, C. Sabine, R.A. Feely, R. Wanninkhof, and C.S. Wong, 2008: Spatial variability and decadal trend of the oceanic CO₂ in the western equatorial Pacific warm/fresh water. *Deep-Sea Res. II.*, submitted.

Johnson, G. C., and S. G. Purkey. 2008: Deep Caribbean Sea warming. *Deep-Sea Research I*, submitted.

Johnson, G. C., S. G. Purkey, and J. M. Toole, 2008: Reduced Antarctic meridional overturning circulation reaches the North Atlantic Ocean. *Geophysical Research Letters*, submitted.

Joyce, T., Y-O. Kwon, and L. Yu, 2008: On the relationship between path shifts in the Gulf Stream and the Kuroshio Extension and synoptic wintertime atmospheric variability. *Journal of Climate*, submitted.

Kamenkovich, I., W. Cheng, E.S. Sarachik, and D.E. Harrison, "Simulation of the ARGO observing system in a global ocean model". *J. Geophys. Res.*, submitted.

Lumpkin, R. and S. L. Garzoli, 2008: Interannual to Decadal Variability in the South-western Atlantic's Surface Circulation. *Geophys. Res. Lett.*, submitted.

Marshall, J., W. Dewar, J. Edson, R. Ferrari, D. Fratantoni, M. Gregg, T. Joyce, K. Kelly, R. Lumpkin, R. Samelson, E. Skyllingstad, F. Straneo, L. Talley, J. Toole and R. Weller, 2008: CLIMODE: a mode water dynamics experiment in support of CLIVAR. *Bulletin of the American Meteorological Society*, submitted.

McPhaden, M. J., G. R. Foltz, T. Lee, V. S. N. Murty, M. Ravichandran, G. A. Vecchi, J. Vialard, J. D. Wiggert, L. Yu, 2008: Ocean-atmosphere interactions during cyclone Nargis. *EOS, Trans. AGU*, submitted.

Meinen, C. S., M. O. Baringer, and R. F. Garcia, 2008: "Florida Current Transport Variability: An Analysis of Annual and Longer-Period Signals", *J. Geophys. Res.*, submitted.

Mizobata, K., K. Shimada, R. Woodgate, S.-I. Saitoh, and J. Wang: Estimation of heat flux through the eastern Bering Strait, *Journal of Oceanography*, submitted.

Nof, D., S. van Gorder, and L. Yu, 2008: Analytical versus numerical modeling: Will Europe cool or warm due to a slowing meridional overturning cell? *Deep Sea Research*, submitted.

Rodgers, K. B., R. M. Key, A. Gnanadesikan, J. L. Sarmiento, O. Aumont, L. Bopp, A. Ishida, M. Ishii, C. L. Monaco, E. Maier-Reimer, N. Metzl, F. F. Pérez, R. Wanninkhof,

P. Wetzels, C. D. Winn, and Y. Yamanaka, 2008: Altimetry helps to explain patchy changes in hydrographic carbon measurements, *J. Geophys. Res.*, submitted.

Rodgers, K.B., R.M. Key, A. Gnanadesikan, J.L. Sarmiento, O. Aumont, L. Bopp, S.C. Doney, J.P. Dunne, D.M. Glover, A. Ishida, M. Ishii, A. Jacobson, C. Lo Monaco, E. Maier-Reimer, N. Metzl, F.F. Pérez, A. Rios, R. Wanninkhof, P. Wetzels, C.D. Winn, and Y. Yamanaka, 2008: Altimetry helps to explain patchy changes in hydrographic carbon measurements. *J. Geophys. Res.*, submitted.

Sabine, C. L., Feely, R. A., Wanninkhof, R. and Takahashi, T.: The global ocean carbon cycle. *Bulletin of the American Meteorological Society*, submitted.

Schmid, C., 2008: Comparative analysis of surface heat flux data sets in the Atlantic Ocean. *J. Climate*, submitted.

Vandemark, D., R. K. Varner, P. Beckman, J. Salisbury, R. Talbot, V. R. Sawyer, W. R. McGillis, and C. L. Sabine, 2008: Atmospheric CO₂ in the coastal marine boundary layer: observations and implications. *Mar. Chem.*, submitted.

Yu, L., 2008: On surface salinity skin effect under evaporation conditions and implications for remote sensing of ocean salinity. *Journal of Physical Oceanography*, submitted.

Yu, L., X. Jin, and R. A. Weller, 2008: Air-sea turbulent heat flux estimates at the global buoy sites. *J. Geophys. Res.*, submitted.

Zhang, J., M. Steele, and R. Woodgate: The role of Pacific water in the dramatic retreat of arctic sea ice during summer 2007, *Journal of Polar Science*, submitted.

Zhang, S. and A. Rosati, 2008: Impact of an Ensemble Circulation-Dependent Inflation Filter on Oceanic Climate Detection within “Biased” Coupled GCMs. *Journal of Climate*, submitted.

In Preparation

Chiodi, A.M., and D.E. Harrison: The annual range of Southern Hemisphere SST; Comparison with surface heating and possible reasons for the high-latitude fall off. Intended *J. Climate*.

DiNezio, P., and G. Goni, 2008: Identifying and estimating biases between XBT and Argo observations using satellite altimetry, *J. of Clim.*, to be submitted.

Harrison, D.E., R.D. Romea, G. Vecchi, and A. Chiodi: Effects of surface forcing on the seasonal cycle of the eastern equatorial Pacific. Intended *J. Phys. Oceanogr.*

Kamenkovich, I., W. Cheng, E.S. Sarachik, and D.E. Harrison, "Effects of mesoscale variability on the accuracy of the ARGO observing system", to be submitted.

Schmid, C., 2008: Variability of the mixed layer heat budget in tropical Atlantic, in preparation.

Snowden, D., G. Goni and M. Baringer, 2008: A comparison of six expandable bathythermograph data acquisition systems: Temperature and fall rate errors, *J. Geophys. Res.*, to be submitted.

Wanninkhof, R., S. Doney, J. L. Bullister, N. M. Levine, M. J. Warner, and N. Gruber, 2008: Decadal Changes in Inorganic Carbon along Meridional Section A16 in the Atlantic Ocean from 1989- 2005: Separating Natural Variability from Anthropogenic Input. *J Geophys. Res.*, in preparation.

Woodgate, R. A., R. Lindsay, K. Aagaard and T. Weingartner: On the Bering Strait Heat Flux and its influence on Arctic Sea ice, in preparation.

Books and Book Chapters

Gruber, A., B. Rudolf, M.L. Morrissey, T. Kurino, J. Janowiak, R. Ferraro, R. Francis, A. Chang and R.F. Adler, 2007: "The Global Precipitation Climatology Project" in "Measuring Precipitation from Space - EURAINSAT and the future" Levizzani, Vincenzo; Bauer, Peter; Turk, F. Joseph (editors), 2007, Approx. 745 p., Hardcover ISBN: 978-1-4020-5834-9. P. 25-36.

Morrissey, M.L. and J.S. Greene, 2007: "Ground Validation for the Global Precipitation Climatology Project" in "Measuring Precipitation from Space - EURAINSAT and the future" Levizzani, Vincenzo; Bauer, Peter; Turk, F. Joseph (editors), 2007, Approx. 745 p., Hardcover ISBN: 978-1-4020-5834-9. P. 381-392.

Pennington, J.T., Castro, C.G., Collins, C.A., Evans, W.W. IV, Friederich, G.E., Michisaki, R.P., Chavez, F.P., 2008: A carbon budget for the northern and central California coastal upwelling system. Continental Margins Task Team, The Synthesis Book. Chapter 2.2, California Current System, in press.

Yu, L., 2008: Sea surface exchanges of momentum, heat, and freshwater determined by satellite remote sensing. *Encyclopedia of Ocean Sciences*, Steve A. Thorpe and Karl K. Turekian, Eds, in press.

Reports and Proceedings

Bourassa, M. A., D. Dukhovskoy, S. L. Morey, and J. J. O'Brien, 2007: Innovations in Modeling Gulf of Mexico Surface Turbulent Fluxes, *FLUX NEWS*, 3, 9.

Bourassa, M. A., P. J. Hughes and S. R. Smith, 2008: Surface Turbulent Flux Product Comparison, *FLUX NEWS*, 5, 22-24.

Carson, M. and D.E. Harrison, 2008: Upper Ocean Warming: Spatial patterns of Trends and interdecadal variability. NOAA Tech. Memorandum OAR-PMEL-138, NTIS: PB-2008107952, 31pp.

Chavez, F.P., T. Takahashi, W.-J. Cai, G. Friederich, B. Hales, R. Wanninkhof, and R.A. Feely, 2007: Coastal Oceans. In: *The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle*. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [King, A.W., L. Dilling, G.P. Zimmerman, D.M. Fairman, R.A. Houghton, G. Marland, A.Z. Rose, and T.J. Wilbanks (eds.)]. National Oceanic and Atmospheric Administration, National Climatic Data Center, Asheville, NC, USA, pp. 157-166.

Chiodi, A.M. and D.E. Harrison, 2008: Characterizing the interannual variability of the equatorial Pacific: an OLR Perspective. NOAA Tech. Memorandum OAR PMEL-140. NTIS:PB-2008112890, Seattle, WA 30pp.

Cronin, M.F., C. Meinig, C.L. Sabine, H. Ichikawa, and H. Tomita, 2008: Surface mooring network in the Kuroshio Extension. IEEE Systems Special Issue on GEOSS, 2(3), 424–430.

Feely, R.A., C.L. Sabine, F.J. Millero, A.G. Dickson, R.A. Fine, C.A. Carlson, J. Toole, T.M. Joyce, W.M. Smethie, A.P. McNichol, and R.M. Key, 2008a: Carbon dioxide, hydrographic, and chemical data obtained during the R/V Knorr repeat hydrography cruises in the Atlantic Ocean: CLIVAR CO₂ sections A20_2003 (22 September–20 October 2003) and A22_2003 (23 October–13 November, 2003). ORNL/CDIAC-154, NDP-089, A. Kozyr (ed.), Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, TN, 46 pp.

Huai-Min Zhang, Richard W. Reynolds, Lei Shi, and John J. Bates, 2008: Blended High Resolution Sea Surface Flux Parameters from Multiple Satellites. *FLUXNEWS – Newsletter of the WCRP Working Group on Surface Fluxes*, Issue 5, Jan 2008, pp. 25-27.

Kamphaus, R., M. Cronin, C. Sabine, S. Emerson, C. Meinig, and M. Robert, 2008: New surface mooring at Station Papa monitors climate. PICES Press, 16(2), 26–27.

Lueger, H., R. Wanninkhof, A. Olsen, J. Triñanes, T. Johannessen, D. Wallace, and A. Koertzinger, 2008: The CO₂ air-sea flux in the North Atlantic estimated from satellite data and ARGO profiling float data, *NOAA Technical Memorandum*, OAR AOML-96, 28 pp.

Lumpkin, R. and B. King, 2008: First CLIVAR Global Synthesis and Observation Panel Workshop on Ocean Velocity Measurements and their Application. Meeting report.

Melling, H., K.K.Falkner, R.A.Woodgate, S.Prinsenber, A.Muenchow, D.Greenberg, T.Agnew, R.Samelson, C.Lee, B.Petrie, 2008: Freshwater Fluxes via Pacific and Arctic Outflows across the Canadian Polar Shelf, ASOF special volume, Springer-Verlag.

Millero, F.J., R.J. Woosley, J.F. Waters, M. Chanson, N.L. Williams, R. Okazaki, A. Suarez, G. Lando, C.A. Moore, 2008b: Global Ocean Repeat Hydrography Study: pH and Total Alkalinity Measurements in the Pacific Ocean P18 15th December 2007-18/21 January 2008-23 February 2008, University of Miami Technical Report, No. RSMAS-2008-03.

Smith, S. R., and L. Petit de la Villeon, 2008: Report of the 2nd Joint GOSUD/SAMOS Workshop. Center for Ocean-Atmospheric Prediction Studies, Florida State University, 71 pp. [Available from COAPS, The Florida State University, Tallahassee, FL 32306-2840].

Takahashi, T., S.C. Sutherland, and A. Kozyr, 2007: Global Ocean Surface Water Partial Pressure of CO₂ Database: Measurements Performed During 1968 - 2006 (Version 1.0). ORNL/CDIAC-152, NDP-088. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, 20 pp.

Takahashi, T., Sutherland, S. C. and Kozyr, A., 2008: Global Ocean Surface Water Partial Pressure of CO₂ Database: Measurements Performed during 1968-2007 (Version 2007). ORNL/CDIAC-152, NDP-088. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U. S. Department of Energy, Oak Ridge, TN 37831, pp.20. (With 4.1 million pCO₂ measurements in global surface ocean waters).

Upper Ocean Processes Group, 2007: "Inductive telemetry for UOP Ocean Reference Station Moorings", UOP Tech Note, December 2007, contributed by A. Plueddemann, J. Lord, G. Allsup and N. Galbraith. <http://uop.whoi.edu/techdocs/technotes.html>

Upper Ocean Processes Group, 2007: "The Oceanscience underway CTD", UOP Tech Note, August 2007, contributed by S. Whelan and Jochen Klinke. <http://uop.whoi.edu/techdocs/technotes.html>.

Whelan, Sean P., Al Plueddemann, Roger Lukas, Jeffrey Lord, Paul Lethaby, Jeffrey Snyder, Jason Smith, Frank Bahr, Nan Galbraith, and Chris Sabine, 2008: WHOI Hawaii Ocean Timeseries Station (WHOTS): WHOTS-4 2007 Mooring Turnaround Cruise Report. *Technical Report, WHOI-2008-4*, UOP 2008-02, 120 pages.

Woodgate, R. A., 2008a: Mooring Cruise report for RUSALCA Sever cruise to the Bering Strait - Aug/Sept 2007, 17 pp, University of Washington. Available at <http://psc.apl.washington.edu/BeringStrait.html>.

Woodgate, R. A., 2008b: Mooring Cruise report for RUSALCA Lavrentiev to the Bering Strait, October 2008, 24pp, University of Washington. Available at <http://psc.apl.washington.edu/BeringStrait.html>.

Woodgate, R.A., K.Aagaard and T.Weingarter, 2007: First steps in calibrating the Bering Strait Throughflow, APL internal report, 20pp, <http://psc.apl..washington.edu/BeringStrait.html>.

Yu, L., J. Xin, and R. A. Weller, 2008: Multidecade global flux datasets from the Objectively Analyzed Air-sea Fluxes (OAFlux) project: Latent and sensible heat fluxes, ocean evaporation, and related surface meteorological variables. Woods Hole Oceanographic Institution, OAFlux Project Tech. Rep. OA-2008-01, 64 pp.

Abstracts

Panteleev, G., T.Kikuchi, D.Nechaev, A.Proshutinsky, R.Woodgate, M.Yaremchuk, J.Zhang, 2008: Toward the reanalysis of the of the circulation in the Chukchi and East Siberian Seas, abstract AGU 2008.