

7.0 References

- Anderson, L.A. 1995. On the hydrogen and oxygen content of marine phytoplankton. *Deep Sea Res.* 42: 1675-1680.
- Anderson, L.A., and Sarmiento, J.L. 1994. Redfield ratios of remineralization determined by nutrient data analysis. *Global Biogeochem. Cycles* 8: 65-80.
- Bates, N.R., Michaels, A.F., and Knap, A.H. 1996a. Seasonal and interannual variability of the oceanic carbon dioxide system at the US JGOFS Bermuda Atlantic Time-series site. *Deep Sea Res. II*, 43(2-3): 347-383.
- Brewer, P.G. 1978. Direct observation of the oceanic CO₂ increase. *Geophys. Res. Lett.* 5: 997-1000.
- Brewer, P.G., Bradshaw, A.L., and Williams, R.T. 1986. Measurements of total carbon dioxide and alkalinity in the North Atlantic Ocean in 1981. In J.R. Trabalka and D.E. Reichle (Eds.) *The Changing Carbon Cycle: A global analysis*. Springer-Verlag, New York, pp. 348-370.
- Brewer, P.G., Glover, D.M., Goyet, C.M., and Schafer D.K. 1995. The pH of the North Atlantic Ocean: Improvements to the global model for sound absorption in sea water. *J. of Geophys. Res.* 100(C5): 8761-8776.
- Broecker, W.S. 1974. 'NO', a conservative water-mass tracer. *Earth Planet Sci. Lett.* 23: 100-107.
- Chen, C-T. A. 1990. Rates of calcium carbonate dissolution and organic carbon decomposition in the North Pacific Ocean. *J. Oceanogr.* 46(5): 201- 210.
- Chen, C.-T. A. 1993. Anthropogenic CO₂ distribution in the North Pacific Ocean. *J. Oceanogr.* 49: 257-270.
- Chen, C.-T. A., and Millero, F. J. 1979. Gradual increase of oceanic CO₂. *Nature* 277: 205-206.
- Chen, H., Wanninkhof, R. Feely, R.A., and Greeley, D. 1995. Measurement of fugacity of carbon dioxide in sub-surface water: an evaluation of a method based on infrared analysis. NOAA technical report ERL AOML-85, 52 pp. NOAA/AOML.
- Clayton, T., and Byrne, R.H. 1993. Spectrophotometric seawater pH measurements: total hydrogen ion concentration scale calibration of m-cresol purple and at-sea results. *Deep Sea Res.* 40: 2115-2129.
- Coatanoan, C., Goyet, C., Gruber, N., Sabine C.L., and Warner, M. 2001. Comparison of two approaches to quantify anthropogenic CO₂ in the ocean: Results from the northern Indian Ocean. *Global Biogeochem. Cycles* 15: 11-25.
- Deutsch, C., Gruber, N., Key, R.M., Sarmiento J.L., and Ganachaud, A. 2001. Denitrification and N₂ fixation in the Pacific Ocean. *Global Biogeochem. Cycles* 15: 483-506.
- DelValls, T. A., and Dickson, A.G. 1998. The pH of buffers based on 2-amino-2-hydroxymethyl-1,3-propanediol ("tris") in synthetic seawater. *Deep Sea Res.* 45: 1541-1554.
- Dickson, A.G. 1992. The determination of total dissolved inorganic carbon in sea water using extraction/coulometry: the first stage of a collaborative study. U.S. Department of Energy. Report No. DOE/RL/01830T-H14 .
- Dickson, A.G., and Riley, J.P. 1979. The estimation of acid dissociation constants in seawater media from potentiometric titrations with strong base: I. The ionic product of water-K_w. *Mar. Chem* 7: 89-99.
- Dickson, A.G., and Millero, F.J. 1987. A comparison of the equilibrium constants for the dissociation of carbonic acid in seawater media. *Deep Sea Res.* 34: 1733-1743.
- Dickson, A.G., and Millero, F.J. 1989. Corrigenda. *Deep Sea Res.* 36: 983.
- Dickson A.G., Afghan, J.D., and Anderson, G.C. 2003a. Sea water reference materials for CO₂ analysis: A method for the certification of total alkalinity. *Mar. Chem.* 80: 185-197.
- Dickson A.G., Anderson, G.C., and Afghan, J.D. 2003b. Sea water based reference materials for CO₂ analysis: Preparation, distribution

- and use. Accreditation and Quality Assurance (under revision).
- DOE 1994. Handbook of methods for the analysis of the various parameters of the carbon dioxide system in sea water, version 2.0 (A. Dickson and C. Goyet, Eds.).
- Dore, J.E., Carrillo, C. J., Hebel, D. V., and Karl, D. M. 2001. Carbon cycle observations at the Hawaii Ocean Time-series Station ALOHA. Synthesis of Pacific Ocean Global CO₂ Survey Data. Proceedings of the Symposium on North Pacific CO₂ Data Synthesis, October 18–21, 2000, Tsukuba, Japan.
- Emerson, S., Mecking, S., and Abell, J. 2001. The biological pump in the subtropical North Pacific Ocean: Nutrient sources, redfield ratios, and recent changes. *Global Biogeochem. Cycles* 15: 535-554.
- Feely, R.A., Sabine, C.L., Key, R.M., and Peng, T.-H. 1999. CO₂ survey synthesis results: Estimating the anthropogenic carbon dioxide sink in the Pacific Ocean, U.S. *JGOFS News* 9(4): 1-4.
- Feely, R.A., Sabine, C.L., Lee, K., Millero, F.J., Lamb, M.F., Greeley, D., Bullister, J.L., Key, R.M., Peng, T.-H., Kozyr, A., Ono, T., and Wong, C.S. 2002. *In situ* calcium carbonate dissolution in the Pacific Ocean. *Global Biogeochem. Cycles* 16(4): 1144, 10.1029/2002GB001866.
- Goyet, C., and Davis, D. 1997. Estimation of total CO₂ concentration throughout the water column. *Deep Sea Res.* 44(5): 859-877.
- Gruber, N. 1998. Anthropogenic CO₂ in the Atlantic Ocean. *Global Biogeochem. Cycles* 12: 165-191.
- Gruber, N., and Sarmiento, J.L. 1997. Global patterns of marine nitrogen fixation and denitrification. *Global Biogeochem. Cycles* 11: 235-266.
- Gruber, N., Sarmiento, J.L., and Stocker, T.F. 1996. An improved method for detecting anthropogenic CO₂ in the oceans. *Global Biogeochem Cycles* 10: 809-837.
- Guenther, P.R., Keeling, C.D., and Emanuele III, G. 1994. Oceanic CO₂ measurements for the WOCE Hydrographic Survey in the Pacific Ocean, 1990–1991: Shore based analyses. S.I.O. Ref. Series Data Rep. 129 pp.
- Inoue, H.Y., Matsueda, H. Ishii, M., Fushimi, K., Hirota, M., Asanuma, I., and Takasugi, Y. 1995. Long-term trend of the partial pressure of carbon dioxide (*p*CO₂) in surface waters of the western North Pacific, 1984-1993. *Tellus* 47B: 391-413.
- Ishii, M., Inoue, H., Y. Matsueda, H., and Tanoue, E. 1998. Close coupling between seasonal biological production and dynamics of dissolved inorganic carbon in the Indian Ocean sector and the western Pacific Ocean sector of the Antarctic Ocean. *Deep Sea Res.* 45: 1187-1209.
- Johnson, K.M. 1992. Operator's manual: Single operator multiparameter metabolic analyzer (SOMMA) for total carbon dioxide (CT) with coulometric detection. Brookhaven National Laboratory, Brookhaven, N.Y. 70 pp.
- Johnson, K.M., King, A.E., and Sieburth, J. McN. 1985. Coulometric DIC analyses for marine studies: An introduction. *Mar. Chem.* 16: 61–82.
- Johnson, K.M., Williams, P.J., Brandstrom, L., and Sieburth, J. McN. 1987. Coulometric total carbon analysis for marine studies: Automation and calibration. *Mar. Chem.* 21: 117–133.
- Johnson, K.M., Wills, K.D., Butler, D.B., Johnson, W.K., and Wong, C.S. 1993. Coulometric total carbon dioxide analysis for marine studies: Maximizing the performance of an automated continuous gas extraction system and coulometric detector. *Mar. Chem.* 44: 167–189.
- Johnson, K.M., Dickson, A.G., Eiseheid, G., Goyet, C., Guenther, P., Key, R.M., Millero, F.J., Purkerson, D., Sabine, C.L., Schottle, R.G., Wallace, D.R.W., Wilke R.J., and Winn, C.D. 1998. Coulometric total carbon dioxide analysis for marine studies: Assessment of the quality of total inorganic carbon measurements during the WOCE

- Indian Ocean CO₂ Survey 1994–1996. *Mar. Chem.* 63: 21-37.
- Karl, D. M. 1999. A sea of change: Biogeochemical variability in the North Pacific subtropical gyre. *Ecosystems*. 2: 181-214.
- Karl, D. M., Letelier, R., Tupas, L., Dore, J., Christian, J., and Hebel, D. 1997. The role of nitrogen fixation in biogeochemical cycling in the subtropical North Pacific Ocean. *Nature*. 388: 230-234.
- Keeling, C.D., and Whorf, T.P. 2000. Atmospheric CO₂ records from sites in the SIO air sampling network. *In Trends: A Compendium of Data on Global Change. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn., U.S.A.*
- Keller, K., Slater, R.D., Bender, M., and Key, R.M. 2002. Possible biological or physical explanations for decadal scale trends in North Pacific nutrient concentrations and oxygen utilization. *Deep Sea Res. II*, 49(1-3): 345-362.
- Körtzinger, A., Rhein, M., Mintrop, L. 1999. Anthropogenic CO₂ and CFCs in the North Atlantic Ocean – A comparison of man-made tracers. *Geophys. Res. Lett.* 26: 2065-2068.
- Lamb, M.F., Sabine, C.L., Feely, R.A., Wanninkhof, R., Key, R.M., Johnson, G.C., Millero, F.J., Lee, K., Peng, T.-H., Kozyr, A., Bullister, J.L., Greeley, D., Byrne, R.H., Chipman, D.W., Dickson, A.G., Goyet, C., Guenther, P.R., Ishii, M., Johnson, K.M., Keeling, C.D., Ono, T., Shitashima, K., Tilbrook, B., Takahashi, T., Wallace, D.W.R., Watanabe, Y., Winn, C., and Wong, C.S. 2002. Consistency and synthesis of Pacific Ocean CO₂ survey data. *Deep Sea Res. II*, 49: 21-58.
- Lewis, E., and Wallace, D. W. R. 1998. Program developed for CO₂ system calculations. Oak Ridge, Oak Ridge National Laboratory. <http://cdiac.esd.ornl.gov/oceans/>
- McPhaden, M.J., and Zhang, D. 2002. Slowdown of the meridional overturning circulation in the upper Pacific Ocean. *Nature*. 415: 603–608.
- McNeil, B.I., Matear, R.J., Key, R.M., Bullister, J.L., and Sarmiento J.L. 2002. Anthropogenic CO₂ uptake by the ocean based on the global chlorofluorocarbon dataset. *Science* 299: 235-239.
- Merzbach, C., Culberson, C.H., Hawley, J.E., and Pytkowicz, R.M. 1973. Measurement of the apparent dissociation constants of carbonic acid in seawater at atmospheric pressure. *Limnol. Oceanogr.* 18: 897–907.
- Metzl, N., Louanchi, F., and Poisson, A. 1998. Seasonal and interannual variations of sea surface carbon dioxide in the subtropical Indian Ocean. *Mar. Chem.* 60: 131-146.
- Millero, F.J. 1995. Thermodynamics of the carbon dioxide system in the oceans. *Geochim. Cosmochim. Acta* 59: 661-677.
- Millero, F.J., Zhang, J.Z., Lee, K., and Campbell D.M. 1993. Titration alkalinity of seawater. *Mar. Chem.* 44: 153-165.
- Nojiri, Y., Fujinuma, Y., Zeng, J., and Wong, C.S. 1999. Monitoring of pCO₂ with complete seasonal coverage utilizing a cargo ship M/S Skaugran between Japan and Canada/US. *In* Nojiri, Y. (Ed.) *Proceedings of the Second International Symposium of CO₂ in the Oceans. CGERReport, CGER-1037-'99*, pp. 17–23.
- Ono T., Watanabe, S., Okuda, K., and Fukasawa, M. 1998. Distribution of total carbonate and related properties in the North Pacific along 30N. *J. Geophys. Res.* 103: 30873-30883.
- Ono, T., Midorikawa, T., Watanabe, Y.W., Tadokoro, K., and Saino, T. 2001. Temporal increases of phosphate and apparent oxygen utilization in the subsurface waters of western subarctic Pacific from 1968 to 1998. *Geophys. Res. Lett.* 28(17): 3285-3288.
- Orr, J.C., Maier-Reimer, E., Mikolajewicz, U., Monfray, P., Sarmiento, J.L., Toggweiler, J.R., Taylor, N.K., Palmer, J., Gruber, N., Sabine, C.L., Le Quere, C., Key R.M., and

- Boutin, J. 2001. Global oceanic uptake of anthropogenic carbon dioxide as predicted by four 3-D ocean models. *Global Biogeochem. Cycles* 15: 43-60.
- Peng, T.-H., Wanninkhof, R., Bullister, J.L., Feely, R.A., and Takahashi, T. 1998. Quantification of decadal anthropogenic CO₂ uptake in the ocean based on dissolved inorganic carbon measurements. *Nature* 396: 560-563.
- Peng, T.-H., Wanninkhof, R., and Feely, R.A. 2003. Increases of anthropogenic CO₂ in the Pacific Ocean over the last two decades. *Deep Sea Res. II* (submitted).
- Reid, J.L. 1997. On the total geostrophic circulation of the Pacific Ocean: flow patterns, tracers, and transports. *Prog. Oceanog.* 39: 263-352.
- SCOR 1985. Oceanic CO₂ measurements. Res. 3rd Meet. Working Group 75, Les Houches, France, October.
- Sabine, C.L., and Feely, R.A. 2001. Comparison of recent Indian Ocean anthropogenic CO₂ estimates with a historical approach. *Global Biogeochem. Cycles* 15: 31-42.
- Sabine, C.L., Key, R.M., Johnson, K.M., Millero, F.J., Poisson, A., Sarmiento, J.L., Wallace, D.W.R., and Winn, C.D. 1999. Anthropogenic CO₂ inventory of the Indian Ocean. *Global Biogeochem. Cycles* 13: 179-198.
- Sabine, C.L., Feely, R.A., Key, R.M., Bullister, J.L., Millero, F.J., Lee, K., Peng, T.-H., Tilbrook, B., Ono, T., and Wong, C.S. 2002. Distribution of anthropogenic CO₂ in the Pacific Ocean. *Global Biogeochem. Cycles* 16(4): 1083, 10.1029/2001GB00163.
- Slansky, C.M., Feely, R.A., and Wanninkhof, R. 1997. The stepwise linear regression method for calculating anthropogenic CO₂ invasion into the North Pacific Ocean. *In* S. Tsunogai (Ed.) *Biogeochemical Processes in the North Pacific*. Proceedings of the International Marine Science Symposium on Biogeochemical Processes in the North Pacific, 12–14 November 1996. Mutsu, Japan, Japan Marine Science Foundation, pp. 70–79.
- Stuiver, M., Quay, P.D., and Ostlund, H.G. 1983. Abyssal Water Carbon-14 Distribution and the Age of the World Oceans. *Science* 219: 849-851.
- Takahashi, T., Feely, R.A., Weiss, R.F., Wanninkhof, R.H., Chipman, D.W., Sutherland, S.C., Takahashi, T.T., 1997. Global air–sea flux of CO₂: an estimate based on measurements of sea-air *p*CO₂ difference. *The Proceedings of the National Academic of Sciences USA* 94, pp. 8292–8299.
- Takahashi, T., Wanninkhof, R.H., Feely, R.A., Weiss, R.F., Chipman, D.W., Bates, N., Olafsson, J., Sabine, C.L., and Sutherland, S.C. 1999. Net air-sea CO₂ flux over global oceans: An improved estimate based on sea-air *p*CO₂ difference. *In* Proceedings of 2nd International Symposium on CO₂ in the Oceans, CGER-IO37-99. CGER/NIES, Tsukuba, Japan, pp. 9-15.
- Tsunogai, S., Ono, T., and Watanabe, S. 1993. Increase in total carbonate in the Western North Pacific Water and a hypothesis on the missing sink of anthropogenic carbon. *J. Oceanogr.* 49: 305–315.
- UNESCO Technical Papers in Marine Science No. 60. 1991. Reference materials for oceanic carbon dioxide measurements 41 pp.
- Wallace, D.W.R. 1995. Monitoring global ocean inventories. OOSDP Background Rep. 5: 54pp., Ocean Obsrv. syst. Dev. Panel, Texas A&M Univ., College Station, TX.
- Wanninkhof, R. 1992. Relationship between gas exchange and wind speed over the ocean. *J. Geophys. Res.* 97: 7373-7381.
- Wanninkhof, R., and Thoning, K. 1993. Measurement of fugacity of CO₂ in surface water using continuous and discrete sampling methods. *Mar. Chem.* 44: 189-204.
- Wanninkhof, R., Doney, S.C., Peng, T.-H., Bullister, J.L., Lee K., and Feely, R.A. 1999. Comparison of methods to determine

- the anthropogenic CO₂ invasion into the Atlantic Ocean. *Tellus* 51B: 511-530.
- Warner, M.J., Bullister, J.L., Wisegarver, D.P., Gammon, R.H., and Weiss, R.F. 1996. Basin-wide distributions of chlorofluorocarbons CFC-11 and CFC-12 in the North Pacific: 1985-1989. *J. Geophys. Res.* 101: 20525-20542.
- Winn, C.D., Li, Y.-H., Mackenzie, F.T., and Karl, D.M. 1998. Rising surface ocean dissolved inorganic carbon at the Hawaii Ocean Time-series site. *Mar. Chem.* 60: 33-47.
- Xu, Y., Watanabe, Y.W., Aoki, S., Harada, K. 2000. Simulations of storage of anthropogenic carbon dioxide in the North Pacific using an ocean general circulation model. *Mar. Chem.* 72: 221-238.
- Zeng, J., Nojiri, Y., Murphy, P.P., and Wong, C.S. 2002. A comparison of $\Delta p\text{CO}_2$ distributions in the northern North Pacific using results from a commercial vessel in 1995-1999. *Deep Sea Res. II.* 49: 5303-5315.