

# References

- Abraham, E. R., et al., Importance of stirring in the development of an iron-fertilized phytoplankton bloom, *Nature*, 407, 727-730, 2000.
- Adams, J. M., H. Faure, L. Faure-Denard, J. M. McGlade, and F. I. Woodward, Increases in terrestrial carbon storage from the Last Glacial Maximum to the present, *Nature*, 348, 711-714, 1990.
- Adams, J. M., and H. Faure, A new estimate of changing carbon storage on land since the last glacial maximum, based on global land ecosystem reconstruction, *Global and Planetary Change*, 17, 3-24, 1998.
- Adkins, J. F., H. Cheng, E. A. Boyle, E. R. M. Druffel, and R. L. Edwards, Deep-sea coral evidence for rapid change in ventilation of the deep North Atlantic 15,400 years ago, *Science*, 280, 725-728, 1998.
- Aksnes, D. L., and J. K. Egge, A theoretical model for nutrient-uptake in phytoplankton, *Marine Ecology Progress Series*, 70, 65-72, 1991.
- Aksnes, D. L., J. K. Egge, R. Rosland, and B. R. Heimdal, Representation of *Emiliania huxleyi* in phytoplankton simulation models - A 1st approach, *Sarsia*, 79, 291-300, 1994.
- Aksnes, D. L., K. B. Ulvestad, B. M. Balino, J. Berntsen, J. K. Egge, and E. Svendsen, Ecological modelling in coastal waters - Towards predictive physical-chemical-biological simulation models, *Ophelia*, 41, 5-36, 1995.
- Aksnes, D. L., and P. Wassmann, The significance of zooplankton grazing for export production, *Limnology and Oceanography*, 38, 978-985, 1993.
- Altabet, M. A., and W. B. Curry, Testing models of past ocean chemistry using foraminifera  $^{15}\text{N}/^{14}\text{N}$ , *Global Biogeochemical Cycles*, 3, 107-119, 1989.
- Andersen, K. K., A. Armengaud, and C. Genthon, Atmospheric dust under glacial and interglacial conditions, *Geophysical Research Letters*, 25, 2281-2284, 1998.
- Andersen, K. K., and P. D. Ditlevsen, Glacial/interglacial variations of meridional transport and washout of dust: A one-dimensional model, *Journal of Geophysical Research - Atmospheres*, 103, 8955-8962, 1998.
- Andersen, V., P. Nival, and R. P. Harris, Modelling of a phytoplankton ecosystem in an enclosed water column, *J. Mar. Biol. Ass. U.K.*, 67, 407-430, 1987.
- Anderson, R. F., N. Kumar, R. A. Mortlock, P. N. Froelich, P. Kubik, B. Ditttrich-Hannen, and M. Suter, Late-Quaternary changes in productivity of the Southern Ocean, *Journal of Marine Systems*, 17, 497-514, 1998.
- Archer, D., Modeling the calcite lysocline, *Journal of Geophysical Research*, 96, 17037-17050, 1991.
- Archer, D., A data-driven model of the global calcite lysocline, *Global Biogeochemical Cycles*, 10, 511-526, 1996a.
- Archer, D., An atlas of the distribution of calcium carbonate in sediments of the deep sea, *Global Biogeochemical Cycles*, 10, 159-174, 1996b.
- Archer, D., S. Emerson, and C. Reimers, Dissolution of calcite in deep-sea sediments: pH and  $\text{O}_2$  microelectrode results, *Geochimica et Cosmochimica Acta*, 53, 2831-2845, 1989.
- Archer, D. E., E. Gidon, A. Winguth, W. Broecker, R. Pierrehumbert, M. Tobis, and R. Jacob, Atmospheric  $p\text{CO}_2$  sensitivity to the biological pump in the ocean, *Global Biogeochemical Cycles*, in press.
- Archer, D. E., and K. Johnson, A Model of the iron cycle in the ocean, *Global Biogeochemical Cycles*, 14, 269-279, 2000.
- Archer, D., H. Kheshgi, and E. Maier-Reimer, Dynamics of fossil fuel  $\text{CO}_2$  neutralization by marine  $\text{CaCO}_3$ , *Global Biogeochemical Cycles*, 12, 259-276, 1998.
- Archer, D., M. Lyle, K. Rodgers, and P. Froelich, what controls opal preservation in tropical deep-sea sediments, *Paleoceanography*, 8, 7-21, 1993.
- Archer, D., and E. Maier-Reimer, Effect of deep-sea sedimentary calcite preservation on atmospheric  $\text{CO}_2$  concentration, *Nature*, 367, 260-263, 1994.
- Archer, D., A. Winguth, D. Lea, and N. Mahowald, What caused the glacial/interglacial atmospheric  $p\text{CO}_2$  cycles?, *Reviews in Geophysics*, 38, 159-189, 2000.
- Aumont, O., J. C. Orr, P. Monfray, G. Madec, and E. Maier-Reimer, Nutrient trapping in the equatorial Pacific: The ocean circulation solution, *Global Biogeochemical Cycles*, 13, 351-369, 1999.
- Bacastow, R., The effect of temperature change of the warm surface waters of the oceans on atmospheric  $\text{CO}_2$ , *Global Biogeochemical Cycles*, 10, 319-333, 1996.
- Bacastow, R., and E. Maier-Reimer, Ocean-circulation model of the carbon cycle, *Climate Dynamics*, 4, 95-125, 1990.
- Balsam, W. L., Carbonate dissolution on the Muir Seamount (western north Atlantic): Interglacial/glacial changes, *Journal of Sedimentary Petrology*, 53, 719-731, 1983.
- Balsam, W. L., and F. W. McCoy, Atlantic sediments: Glacial/interglacial comparisons, *Paleoceanography*, 2, 531-542, 1987.
- Balsam, W. L., B. L. Otto-Bliesner, and B. C. Deaton, Modern and Last Glacial Maximum eolian sedimentation patterns in the Atlantic Ocean interpreted from sediment iron oxide content, *Paleoceanography*, 10, 493-507, 1995.
- Bareille, G., F. E. Grousset, M. Labracherie, L. D. Labeyrie, and J. R. Petit, Origin of detrital fluxes in the southeast Indian Ocean during the last climatic cycle, *Paleoceanography*, 9, 799-819, 1994.
- Barnola, J. M., D. Raynaud, Y. S. Korotkevich, and C. Lorius, Vostok ice core provides 160,000-year record of atmospheric  $\text{CO}_2$ , *Nature*, 329, 408-414, 1987.
- Basile, I., F. E. Grousset, M. Revel, J. R. Petit, P. E. Biscaye, and N. I. Barkov, Patagonian origin of glacial dust deposited in East Antarctica (Vostok and Dome C) during glacial stages 2, 4 and 6, *Earth and Planetary Science Letters*, 146, 573-589, 1997.
- Bentaleb, I., and M. Fontugne, The role of the southern Indian Ocean in the glacial to interglacial atmospheric  $\text{CO}_2$  change: organic carbon isotope evidences, *Global and Planetary Change*, 17, 25-36, 1998.
- Berelson, W. M., R. F. Anderson, J. Dymond, D. Demaster, D. E. Hammond, R. Collier, S. Honjo, M. Leinen, J. Mcmanus, R. Pope, C. Smith, and M. Stephens, Biogenic budgets of particle rain, benthic remineralization and sediment accumulation in the equatorial Pacific, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 44, 2251-2282, 1997.
- Berger, A., H. Gallee, T. Fichet, I. Marsiat, and C. Tricot, Testing the astronomical theory with a coupled climate-ice-sheet model, *Paleogeography, Paleoclimatology, Paleoecology*, 89, 125-141, 1990.
- Berger, A., J. Guiot, G. Kukla, and P., Pestiaux, Long-term variations of monthly insolation as related to climatic changes, *Geol. Rundsch.*, 70, 748-758, 1981.
- Berger, A., X. S. Li, and M. F. Loutre, Modelling northern hemisphere ice volume over the last 3 Ma, *Quaternary Science Reviews*, 18, 1-11, 1999.
- Berger, A., and M-F. Loutre, Long-term variations in insolation and their effects on climate, the LLN experiments, *Surveys in Geophysics*, 18, 147-161, 1997a.
- Berger, A., and M-F. Loutre, Palaeoclimate sensitivity to  $\text{CO}_2$  and insolation, *Ambio*, 26, 32-37, 1997b.
- Berger, A., M. F. Loutre, H. Gallee, Sensitivity of the LLN climate model to the astronomical and  $\text{CO}_2$  forcings over the last 200 ky, *Climate Dynamics*, 14, 615-629, 1998.

- Berger, W. H., Deep-sea carbonate and the deglaciation preservation spike in pteropods and foraminifera, *Nature*, 269, 301-304, 1977.
- Berger, W. H., Increase of carbon dioxide in the atmosphere during deglaciation: The coral reef hypothesis, *Naturwissenschaften*, 69, 87-88, 1982a.
- Berger, W. H., Deglacial CO<sub>2</sub> buildup: Constraints on the coral-reef model, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 40, 235-253, 1982b.
- Berger, W. H., Quaternary fourier stratigraphy: Orbital templates and Milankovitch anomalies, *Mathematical Geology*, 26, 769-781, 1994.
- Berger, W. H., T. Bickert, G. Wefer, and M. K. Yasuda, Brunhes-Matuyama boundary: 790 k.y. date consistent with ODP Leg 130 oxygen isotope records based on fit to Milankovitch template, *Geophysical Research Letters*, 22, 1525-1528, 1995.
- Berger, W. H., T. Bickert, M. K. Yasuda, and G. Wefer, Reconstruction of atmospheric CO<sub>2</sub> from ice-core data and the deep-sea record of Ontong Java plateau: The Milankovitch chron, *Geologische Rundschau*, 85, 466-495, 1996.
- Berger, W. H., and G. R. Heath, Vertical mixing in pelagic sediments, *Journal of Marine Research*, 26, 134-143, 1968.
- Berger, W. H., and J. S. Killingley, Box cores from the Equatorial Pacific: 14C sedimentation rates and benthic mixing, *Marine Geology*, 45, 93-125, 1982.
- Berger, W. H., and E. Vincent, Deep-sea carbonate: Reading the carbon-isotope signal, *Geologische Rundschau*, 75, 249-269, 1986.
- Berger, W. H., and G. Wefer, Productivity of the glacial ocean - Discussion of the iron hypothesis, *Limnology and Oceanography*, 36, 1899-1918, 1991.
- Berger, W. H., M. K. Yasuda, T. Bickert, G. Wefer, and T. Takayama, Quaternary time scale for the Ontong Java Plateau: Milankovitch template for Ocean Drilling Program site 806, *Geology*, 22, 463-467, 1994.
- Berner, R. A., and S. Honjo, Pelagic sedimentation of aragonite: Its geochemical significance, *Science*, 211, 940-942, 1981.
- Bertrand, P., et al., The glacial ocean productivity hypothesis - The important of regional temporal and spatial studies, *Marine Geology*, 130, 1-9, 1996.
- Betzer, P. R., R. H. Byrne, J. G. Acker, C. S. Lewis, and R. R. Jolly, The oceanic carbonate system: A reassessment of biogenic controls, *Science*, 226, 1074-1077, 1984.
- Bidle, K. D., and F. Azam, Accelerated dissolution of diatom silica by marine bacterial assemblages, *Nature*, 397, 508-512, 1999.
- Birchfield, G. E., and M. Gill, Climate evolution in the Pliocene and Pleistocene from marine-sediment records and simulations: Internal variability versus orbital forcing, *Journal of Geophysical Research*, 98, 10385-10399, 1993.
- Birchfield, G. E., J. Weertman, and A. T. Lunde, A paleoclimate model of Northern Hemisphere ice sheets, *Quaternary Research*, 15, 126-142, 1981.
- Birchfield, G. E., J. Weertman, and A. T. Lunde, A model study of the role of high-latitude topography in the climatic response to orbital insolation anomalies, *Journal of the Atmospheric Sciences*, 39, 71-87, 1982.
- Bird, M. I., J. Lloyd, and G. D. Farquhar, Terrestrial carbon storage at the LGM, *Nature*, 371, 566, 1994.
- Blain, S., P. Treguer, and M. Rodier, Stocks and fluxes of biogenic silica in the western oligotrophic equatorial Pacific, *Journal of Geophysical Research - Oceans*, 104, 3357-3367, 1999.
- Blunier, T., J. Chappellaz, J. Schwander, B. Stauffer, and D. Raynaud, Variations in atmospheric methane concentrations during the Holocene epoch, *Nature*, 374, 46-49, 1995.
- Blunier, T., J. Chappellaz, J. Schwander, A. Dallenbach, B. Stauffer, T. F. Stocker, D. Raynaud, J. Jouzel, H. B. Clausen, C. U. Hammer, and S. J. Johnsen, Asynchrony of Antarctic and Greenland climate change during the last glacial period, *Nature*, 394, 739-743, 1998.
- Blunier, T., J. Schwander, B. Stauffer, T. Stocker, A. Dallenbach, A. Indermuhle, J. Tschumi, J. Chappellaz, D. Raynaud, and J. M. Barnola, Timing of the Antarctic cold reversal and the atmospheric CO<sub>2</sub> increase with respect to the Younger Dryas event, *Geophysical Research Letters*, 24, 2683-2686, 1997.
- Bolin, B., A. Bjorkstrom, K. Holmen, and B. Moore, The simultaneous use of tracers for ocean circulation studies, *Tellus*, 35, 206-236, 1983.
- Bolton, E. W., K. A. Maasch, and J. M. Lilly, A wavelet analysis of Plio-Pleistocene climate indicators: A new view of periodicity evolution, *Geophysical Research Letters*, 22, 2753-2756, 1995.
- Bond, G., et al., Evidence for massive discharges of icebergs into the North Atlantic Ocean during the last glacial period, *Nature*, 360, 245-249, 1992.
- Boudreau, B. P., Is burial velocity a master parameter for bioturbation, *Geochimica et Cosmochimica Acta*, 58, 1243-1249, 1994.
- Boyd, P. W. et al., A mesoscale phytoplankton bloom in the polar Southern Ocean stimulated by iron fertilization, *Nature*, 407, 695-702, 2000.
- Boyle, E. A., The role of vertical chemical fractionation in controlling Late Quaternary atmospheric carbon dioxide, *Journal of Geophysical Research*, 93, 15701-15714, 1988.
- Boyle, E. A., Pumping iron makes thinner diatoms, *Nature*, 393, 733-734, 1998.
- Brickman, D., W. Hyde, and D. G. Wright, Filtering of Milankovitch cycles by the thermohaline circulation, *Journal of Climate*, 12, 1644-1658, 1999.
- Broccoli, A. J., and S. Manabe, The influence of continental ice, atmospheric CO<sub>2</sub>, and land albedo on the climate of the last glacial maximum, *Climate Dynamics*, 1, 87-99, 1987.
- Broecker, W. S., Glacial to interglacial changes in ocean chemistry, *Prog. Oceanog.*, 11, 151-197, 1982a.
- Broecker, W. S., and G. M. Henderson, The sequence of events surrounding Termination II and their implications for the cause of glacial-interglacial CO<sub>2</sub> changes, *Paleoceanography*, 13, 352-364, 1998.
- Broecker, W. S., M. Klas, E. Clark, G. Bonani, S. Ivy, and W. Wolfli, The influence of CaCO<sub>3</sub> dissolution on core top radiocarbon ages for deep-sea sediments, *Paleoceanography*, 6, 593-608, 1991.
- Broecker, W. S., Y. Lao, M. Klas, E. Clark, G. Bonani, S. Ivy, and C. Chen, A search for an early Holocene CaCO<sub>3</sub> preservational event, *Paleoceanography*, 8, 333-339, 1993.
- Broecker, W., J. Lynch-Stieglitz, D. Archer, M. Hofmann, E. Maier-Reimer, O. Marchal, T. Stocker, and N. Gruber, How strong is the Harvardton-Bear constraint?, *Global Biogeochemical Cycles*, 13, 817-820, 1999a.
- Broecker, W., K. Matsumoto, E. Clark, I. Hajdas, and G. Bonani, Radiocarbon age differences between coexisting foraminiferal species, *Paleoceanography*, 14, 431-436, 1999b.
- Broecker, W. S., and T-H. Peng, *Tracers in the Sea*, Lamont-Doherty Geological Observatory, New York, 1982.
- Broecker, W. S., and T-H. Peng, Glacial to interglacial changes in the operation of the global carbon cycle, *Radiocarbon*, 28, 309-327, 1986.
- Broecker, W. S., and T-H. Peng, The cause of the glacial to interglacial atmospheric CO<sub>2</sub> change: A polar alkalinity hypothesis, *Global Biogeochemical Cycles*, 3, 215-239, 1989.
- Broecker, W. S., and T-H. Peng, What caused the glacial to interglacial CO<sub>2</sub> change? in *The Global Carbon Cycle*, edited by Heimann, M., Springer-Verlag, Berlin, 1993.
- Broecker, W. S., T-H. Peng, G. Ostlund, and M. Stuiver, The distribution of bomb radiocarbon in the ocean, *Journal of Geophysical Research*, 90, 6953-6970, 1985.
- Broecker, W. S., and T. Takahashi, The relationship between lysocline depth and in situ carbonate ion concentration, *Deep-Sea Research*, 25, 65-95, 1978.
- Brovkin, V., M. Claussen, V. Petoukhov, and A. Ganopolski, On the stability of the atmosphere-vegetation system in the Sahara/Sahel region, *Journal of Geophysical Research - Atmospheres*, 103, 31613-31624, 1998.
- Brzezinski, M. A., and D. M. Nelson, The annual silica cycle in the Sargasso Sea near Bermuda, *Deep-Sea Research Part I - Oceanographic Research Papers*, 42, 1215-1237, 1995.
- Burkhardt, S., U. Riebesell, and I. Zondervan, Effects of growth rate, CO<sub>2</sub> concentration, and cell size on the stable carbon isotope fractionation in marine phytoplankton, *Geochimica et Cosmochimica Acta*, 63, 3729-3741, 1999.
- Byrne, R. H., J. G. Acker, R. R. Betzer, R. A. Feely, and M. H. Cates, Water column dissolution of aragonite in the Pacific Ocean, *Nature*, 312, 321-326, 1984.
- Calder, N., Arithmetic of ice ages, *Nature*, 252, 216-218, 1974.
- Catubig, N. R., D. E. Archer, R. Francois, P. DeMenocal, W. Howard, and E. F. Yu, Global deep-sea burial rate of calcium

- carbonate during the last glacial maximum, *Paleoceanography*, 13, 298-310, 1998.
- Charette, M. A. and K. O., Buesseler Does iron fertilization lead to rapid carbon export in the Southern Ocean? *Geochemistry Geophysics Geosystems*, 1, 2000.
- Charles, C. D., P. N. Froelich, M. A. Zibello, R. A. Mortlock, and J. J. Morley, Biogenic opal in Southern Ocean sediments over the last 450,000 years: Implications for surface water chemistry and circulation, *Paleoceanography*, 6, 697-728, 1991.
- Charles, C. D., J. Lynch-Stieglitz, U. S. Ninnemann, and R. G. Fairbanks, Climate connections between the hemisphere revealed by deep sea sediment core ice core correlations, *Earth and Planetary Science Letters*, 142, 19-27, 1996.
- Chester, R., K. J. T. Murphy, F. J. Lin, A. S. Berry, G. A. Bradshaw, and P. A. Corcoran, Factors controlling the solubilities of trace metals from non-remote aerosols deposited to the sea surface by the dry deposition model, *Marine Chemistry*, 42, 107-126, 1993.
- Clark, P. U., R. B. Alley, and D. Pollard, Climatology - Northern hemisphere ice-sheet influences on global climate change, *Science*, 286, 1104-1111, 1999.
- Clark, P. U., and D. Pollard, Origin of the middle Pleistocene transition by ice sheet erosion of regolith, *Paleoceanography*, 13, 1-9, 1998.
- Claussen, M., and V. Gayler, The greening of the Sahara during the mid-Holocene: results of an interactive atmosphere-biome model, *Global ecology and Biogeography Letters*, 6, 369-377, 1997.
- CLIMAP project members, The surface of the ice-age Earth, *Science*, 191, 1131-1137, 1976.
- Coale, K. H., J. S. Johnson, S. E. Fitzwater, R. M. Gordon, S. Tanner, F. P. Chavez, L. Ferioli, C. Sakamoto, P. Rogers, F. Millero, P. Steinberg, P. Nightingale, D. Cooper, W. P. Cochlan, M. R. Landry, J. Constantinou, G. Rollwagen, A. Trasvina, and R. Kudela, A massive phytoplankton bloom induced by an ecosystem-scale iron fertilization experiment in the equatorial Pacific Ocean, *Nature*, 383, 495-501, 1996a.
- Coale, K. H., S. E. Fitzwater, R. M. Gordon, K. S. Johnson, and R. T. Barber, Control of community growth and export production by up-welled iron in the equatorial Pacific Ocean, *Nature*, 379, 621-624, 1996b.
- Codispoti, L. A., Is the ocean losing nitrate?, *Nature*, 376, 724, 1995.
- Conkright, M. E., S. Levitus and T. P. Boyer, World Ocean Atlas 1994 Volume 1: Nutrients, *NOAA Atlas NESDIS 1*, U.S. Department of Commerce, Washington, D.C. 150 pp, 1994.
- Crosta, X., J. J. Pichon, and L. H. Burckle, Application of modern analog technique to marine Antarctic diatoms: Reconstruction of maximum sea-ice extent at the Last Glacial Maximum, *Paleoceanography*, 13, 284-297, 1998a.
- Crosta, X., J. J. Pichon, L. H. Burckle, Reappraisal of Antarctic seasonal sea-ice at the Last Glacial Maximum, *Geophysical Research Letters*, 25, 2703-2706, 1998b.
- Crowley, T. J., Calcium-carbonate preservation patterns in the central north Atlantic during the last 150,000 years, *Marine Geology*, 51, 1-14, 1983.
- Crowley, T. J., Ice age carbon, *Nature*, 352, 575-576, 1991.
- Crowley, T. J., Ice-age terrestrial carbon changes revisited, *Global Biogeochemical Cycles*, 9, 377-389, 1995.
- Crowley, T. J., CLIMAP SSTs re-revisited, *Climate Dynamics*, 16, 241-255, 2000.
- Cullen, J. J., Status of the iron hypothesis after the open-ocean enrichment experiment, *Limnology and Oceanography*, 40, 1336-1343, 1995.
- Cullen, J. T., T. W. Lane, F. M. M. Morel, and R. M. Sherrell, Modulation of cadmium uptake in phytoplankton by seawater CO<sub>2</sub> concentration, *Nature*, 402, 165-167, 1999.
- Curry, W. B., and T. J. Crowley, The  $\delta^{13}\text{C}$  of equatorial Atlantic surface waters: Implications for ice age pCO<sub>2</sub> levels, *Paleoceanography*, 2, 489-517, 1987.
- Curry, W. B., J. C. Duplessy, L. D. Labeyrie, and N. J. Shackleton, Changes in the distribution of  $\delta^{13}\text{C}$  of deep water  $\Sigma\text{CO}_2$  between the last glaciation and the Holocene, *Paleoceanography*, 3, 317-341, 1988.
- Dansgaard, W., H. B. Claussen, N. Gundestrup, C. U. Hammer, S. F. Johnsen, P. M. Kristinsdottir, and N. Reeh, A new Greenland deep ice core, *Science*, 218, 1273-1277, 1982.
- De Angelis, M., N. I. Barkov, and V. N. Petrov, Aerosol concentrations over the last climatic cycle (160 kyr) from an Antarctic ice core, *Nature*, 325, 318-321, 1987.
- de Baar, H. J. W., and T. M. de Jong, *Distributions, sources and sinks of iron in seawater*, In: Turner, D., and R. Hunter (eds), The biogeochemistry of iron in seawater, John Wiley & Sons, Chichester, England, in press.
- de Baar, H. J. W., J. T. M. de Jong, R. F. Nolting, K. R. Timmermans, M. A. VanLeeuwe, U. Bathmann, M. R. VanderLoeff, and J. Sildam, Low dissolved Fe and the absence of diatom blooms in remote Pacific waters of the Southern Ocean, *Marine Chemistry*, 66, 1-34, 1999.
- Deblonde, G., and W. R. Peltier, A model of late Pleistocene ice sheet growth with realistic geography and simplified cryodynamics and geodynamics, *Climate Dynamics*, 5, 103-110, 1990.
- Deblonde, G., and W. R. Peltier, A one-dimensional model of continental ice volume fluctuations through the Pleistocene: Implications for the origin of the mid-Pleistocene climate transition, *Journal of Climate*, 4, 318-344, 1991.
- Deblonde, G., W. R. Peltier, and W. T. Hyde, Simulations of continental ice sheet growth over the last glacial-interglacial cycle: Experiments with a one level seasonal energy balance model including seasonal ice albedo feedback, *Palaogeography, Paleoclimatology, Paleoecology*, 98, 37-55, 1992.
- Deblonde, G., and W. R. Peltier, Late Pleistocene ice age scenarios based on observational evidence, *Journal of Climate*, 6, 709-727, 1993.
- DeLaRocha, C. L., M. A. Brzezinski, M. J. DeNiro, and A. Shemesh, Silicon-isotope composition of diatoms as an indicator of past oceanic change, *Nature*, 395, 680-683, 1999.
- DeMaster, D. J., Continental margin biogenic silica accumulation: Coupling of the marine cycles of organic matter and biogenic silica (abstract), *Southern Ocean - JGOFS Symposium*, 2000.
- DeMenocal, P. B., Pliopleistocene African Climate, *Science*, 270, 53-59, 1995.
- DeMenocal, P. B., W. F. Ruddiman, and E. M. Pokras, Influences of high-latitude and low-latitude processes on African terrestrial climate - Pleistocene eolian records from equatorial Atlantic Ocean Drilling Program Site 663, *Paleoceanography*, 8, 209-242, 1993.
- DeNoblet, N. I., I. C. Prentice, S. Joussaume, D. Texier, A. Botta, and A. Haxeltine, Possible role of atmosphere-biosphere interactions in triggering the last glaciation, *Geophysical Research Letters*, 23, 3191-3194, 1996.
- Dickson, A. G., An exact definition of total alkalinity and a procedure for the estimation of alkalinity and total inorganic carbon from titration data, *Deep-Sea Research*, 28, 609-623, 1981.
- Dickson, A. G., Thermodynamics of the dissociation of boric acid in synthetic seawater from 273.15 to 318.15 K, *Deep-Sea Research*, 37, 755-766, 1990.
- Donaghay, P. L., P. S. Liss, R. A. Duce, A. K. Kester, A. K. Hanson, T. Villareal, N. W. Tindale, and D. J. Gifford, The role of episodic atmospheric nutrient inputs in the chemical and biological dynamics of oceanic ecosystems, *Oceanography*, 4, 62-70, 1991.
- Driscoll, N. W., and G. H. Haug, A short circuit in thermohaline circulation: A cause for northern hemisphere glaciation?, *Science*, 282, 436-438, 1998.
- Drbohlav, J., and F. F. Jin, Inter-decadal variability in a zonally averaged ocean model: An adjustment oscillator, *Journal of Physical Oceanography*, 28, 1252-1270, 1998.
- DuBois, L. G., and W. L. Prell, Effects of carbonate dissolution on the radiocarbon age structure of sediment mixed layers, *Deep-Sea Research*, 35, 1875-1885, 1988.
- Duce, R. A., et al., The atmospheric input of trace species to the world ocean, *Global Biogeochemical Cycles*, 5, 193-259, 1991.
- Ducklow, H. W., Ocean biogeochemical fluxes - New production and export of organic matter from the upper ocean, *Reviews of Geophysics*, 33, 1271-1276, 1995.
- Dugdale, R. C., Nutrient limitation in the sea: Dynamics, identification, and significance, *Limn. Oceanogr.*, 12, 685-695, 1967.
- Dugdale, R. C., and F. P. Wilkerson, Silicate regulation of new production in the equatorial Pacific up-welling, *Nature*, 391, 270-273, 1998.

- Dugdale, R. C., F. P. Wilkerson, and H. J. Minas, The role of silicate pump in driving new production, *Deep-Sea Research I*, **42**, 697-719, 1995.
- Duplessy, J. C., N. J. Shackleton, R. G. Fairbanks, L. Laberyie, D. Oppo, and N. Kallel, Deepwater source variations during the last climatic cycle and their impact on the global deepwater circulation, *Paleoceanography*, **3**, 343-360, 1988.
- Edwards, R., P. N. Sedwick, V. Morgan, C. F. Boutron, and S. Hong, Iron in ice cores from Law Dome, East Antarctica: implications for past deposition of aerosol iron, *Annals of Glaciology*, **27**, 365-370, 1998.
- EGge, J. K., Are diatoms poor competitors at low phosphate concentrations?, *Journal of Marine Systems*, **16**, 191-198, 1998.
- EGge, J. K., and D. L. Aksnes, Silicate as regulating nutrient in phytoplankton competition, *Marine Ecology Progress Series*, **83**, 281-289, 1992.
- Elderfield, H., and R. E. M. Rickaby, Oceanic Cd/P ratio and nutrient utilization in the glacial Southern Ocean, *Nature*, **405**, 305-310, 2000.
- Eppley, R. W., Temperature and phytoplankton growth in the sea, *Fishery Bulletin*, **70**, 1063-1085, 1972.
- Erez, J., K. Takahashi, and S. Honjo, In-situ dissolution experiment of Radiolaria in the central North Pacific Ocean, *Earth and Planetary Science Letters*, **59**, 245-254, 1982.
- Erickson, D. J., Variations in the global air-sea transfer velocity field of CO<sub>2</sub>, *Global Biogeochemical Cycles*, **3**, 37-41, 1989.
- Esser, G., and M. Lautenschlager, Estimating the change of carbon in the terrestrial biosphere from 18000 BP to present using a carbon cycle model, *Environmental Pollution*, **83**, 45-53, 1994.
- ETOPO5, Data Announcement 88-MGG-02, Digital relief of the Surface of the Earth. NOAA, National Geophysical Data Centre, Boulder, Colorado, 1988.
- Fairbanks, R. G., A 17,000-year glacio-eustatic sea level record: Influence of glacial melting rates on the Younger Dryas event and deep-ocean circulation, *Nature*, **342**, 637-642, 1989.
- Falkowski, P. G., Species variability in the fractionation of C-13 and C-12 by marine phytoplankton, *Journal of Plankton Research*, **13**, S21-S28, 1991.
- Falkowski, P. G., Evolution of the nitrogen cycle and its influence on the biological sequestration of CO<sub>2</sub> in the ocean, *Nature*, **387**, 272-275, 1997.
- Falkowski, P., et al., The global carbon cycle: A test of our knowledge of earth as a system, *Science*, **290**, 291-296, 2000.
- Farrell, J. W., and W. L. Prell, Climatic change and CaCO<sub>3</sub> preservation: An 800,000 year bathymetric reconstruction from the central equatorial Pacific Ocean, *Paleoceanography*, **4**, 447-466, 1989.
- Farrell, J. W., and W. L. Prell, Pacific CaCO<sub>3</sub> preservation and δ<sup>18</sup>O since 4 Ma: Paleoceanic and paleoclimatic implications, *Paleoceanography*, **6**, 485-498, 1991.
- Fasham, M. J. R., H. W. Ducklow, and S. M. McKelvie, A nitrogen-based model of plankton dynamics in the oceanic mixed layer, *Journal of Marine Research*, **48**, 591-639, 1990.
- Faure, H., J. M. Adams, J. P. Debenay, L. FaureDenard, D. R. Grant, P. A. Pirazzoli, B. Thomassin, A. A. Velichko, and C. Zazo, Carbon storage and continental land surface change since the Last Glacial Maximum, *Quaternary Science Reviews*, **15**, 843-849, 1996.
- Fichefet, T., S. Hovine, and J. C. Duplessy, A model study of the Atlantic thermohaline circulation during the Last Glacial Maximum, *Nature*, **372**, 252-255, 1994.
- Fitzwater, S. E., K. H. Coale, R. M. Gordon, K. S. Johnson, and M. E. Ondrusek, Iron deficiency and phytoplankton growth in the equatorial Pacific, *Deep-Sea Research Part II - Topical Studies in Oceanography*, **43**, 995-1015, 1996.
- France-Lanord, C., and L. A. Derry, Organic carbon burial forcing of the carbon cycle from Himalayan erosion, *Nature*, **390**, 65-67, 1997.
- Francois, R., M. A. Altabet, E-F. Yu, D. M. Sigman, M. P. Bacon, M. Frank, G. Bohrmann, G. Bareille, and L. D. Labeyrie, Contribution of Southern Ocean surface-water stratification to low atmospheric CO<sub>2</sub> concentrations during the last glacial period, *Nature*, **389**, 929-935, 1997.
- Francois, L. M., C. Delire, P. Warnant, and G. Munhoven, Modelling the glacial-interglacial changes in the continental biosphere, *Global and Planetary Change*, **17**, 37-52, 1998.
- Francois, L. M., Y. Godderis, P. Warnant, G. Ramstein, N deNoblet, and S. Lorenz, Carbon stocks and isotopic budgets of the terrestrial biosphere at mid-Holocene and last glacial maximum times, *Chemical Geology*, **159**, 163-189, 1999.
- Friedlingsteir, P., C. Delire, J. F. Muller, and J. C. Gerard, The climate induced variation of the continental biosphere - A model simulation of the Last Glacial Maximum, *Geophysical Research Letters*, **19**, 897-900, 1992.
- Froelich, P. N., V. Blanc, R. A. Mortlock, S. N. Chillrud, W. Dunstan, A. Udomkit, and T-H. Peng, River fluxes of dissolved silica to the ocean were higher during glacial: Ge/Si in diatoms, rivers, and oceans, *Paleoceanography*, **7**, 739-767, 1992.
- Fung, I. Y., S. K. Meyn, I. Tegen, S. C. Doney, J. G. John, and J. K. B. Bishop, Iron supply and demand in the upper ocean, *Global Biogeochemical Cycles*, **14**, 281-295, 2000.
- Gallimore, R. G., and J. E. Kutzbach, Role of orbitally induced changes in tundra area in the onset of glaciation, *Nature*, **381**, 503-505, 1996.
- Ganeshram, R. S., T. F. Pedersen, S. E. Calvert, and J. W. Murray, Large changes in oceanic nutrient inventories from glacial to interglacial periods, *Nature*, **376**, 755-758, 1995.
- Ganopolski, A., C. Kubatzki, M. Claussen, V. Brovkin, and V. Petoukhov, The influence of vegetation-atmosphere-ocean interaction on climate during the mid-Holocene, *Science*, **280**, 1916-1919, 1998a.
- Ganopolski, A., S. Rahmstorf, V. Petoukhov, and M. Claussen, Simulation of modern and glacial climates with a coupled global model of intermediate complexity, *Nature*, **391**, 351-356, 1998b.
- Genthon, C., Simulations of desert dust and sea salt aerosols in Antarctic with a General Circulation Model of the atmosphere, *Tellus Series B*, **44**, 371-389, 1992.
- Gerringa, L. J. A., H. J. W. de Baar, and K. R. Timmermans, A comparison of iron limitation of phytoplankton in natural oceanic waters and laboratory media conditioned with EDTA, *Marine Chemistry*, **68**, 335-346, 2000.
- Gnanadesikan, A., A global model of silicon cycling: Sensitivity to eddy parameterization and dissolution, *Global Biogeochemical Cycles*, **13**, 199-220, 1999a.
- Goericke, R., and B. Fry, Variations of marine plankton δ<sup>13</sup>C with latitude, temperature, and dissolved CO<sub>2</sub> in the world ocean, *Global Biogeochemical Cycles*, **8**, 85-90, 1994.
- Gordon, R. M., K. H. Coale, and K. S. Johnson, Iron distributions in the equatorial Pacific: Implications for new production, *Limnol. Oceanogr.*, **42**, 419-431, 1997.
- Greene, R. M., R. J. Geider, and P. G. Falkowski, Effect of iron limitation on photosynthesis in a marine diatom, *Limnology and Oceanography*, **36**, 1772-1782, 1991.
- Grousset, F. E., P. E. Biscaye, M. Revel, J. R. Petit, K. Pye, S. Joussaume, and J. Jouzel, Antarctic (Dome C) ice core dust at 18 ky BP - Isotopic constraints on origins, *Earth and Planetary Science Letters*, **111**, 175-182, 1992.
- Guilerson, T. P., R. G. Fairbanks, and J. L. Rubenstone, Tropical temperature variations since 20,000 years ago: Modulating inter-hemispheric climate change, *Science*, **263**, 663-665, 1994.
- Guinasso, N. L., and D. R. Schink, Quantitative estimates of biological mixing rates in abyssal sediments, *Journal of Geophysical Research*, **80**, 3032-3043, 1975.
- Hagelberg, T., N. Piasias, and S. Elgar, Linear and nonlinear couplings between orbital forcing and the marine δ<sup>18</sup>O record during the late Neogene, *Paleoceanography*, **6**, 729-746, 1991.
- Hales, S., and S. Emerson, Calcite dissolution in sediments on the Ontong-Java Plateau - *in situ* measurements of pore-water O<sub>2</sub> and pH, *Global Biogeochemical Cycles*, **10**, 527-541, 1996.
- Hales, S., S. Emerson, and D. Archer, Respiration and dissolution in the sediments of the western north Atlantic - Estimates from models of *in situ* microelectrode measurements of pore-water oxygen and pH, *Deep-Sea Research Part I - Oceanographic Research Papers*, **41**, 695-719, 1994.
- Harrison, K. G., Role of increased marine silica input on paleo-pCO<sub>2</sub> levels, *Paleoceanography*, **15**, 292-298, 2000.
- Hausman, E. D., and M. B. McElroy, Role of sea-surface temperature and ocean circulation changes in the reorganization of the global carbon cycle at the last glacial termination, *Global Biogeochemical Cycles*, **13**, 371-381, 1999.
- Hay, W. W., The role of polar deep water formation in global climate change, *Annu. Rev. Earth Planet. Sci.*, **21**, 227-254, 1993.

- Hay, W. W., Tectonics and climate, *Geol. Rundsch.*, 85, 409-437, 1996.
- Heinze, C., Glacial ocean carbon cycle modeling, in *Carbon cycling in the glacial ocean: Constraints on the ocean's role in global change*, edited by Zahn, R., T. F. Pedersen, M. A. Kaminski, and L. Labeyrie, Springer-Verlag, Berlin, 1994.
- Heinze, C., and T. J. Crowley, Sedimentary response to ocean gateway circulation changes, *Paleoceanography*, 12, 742-754, 1997.
- Heinze, C., E. Maier-Reimer, A. M. E. Winguth, and D. Archer, A global oceanic sediment model for long-term climate studies, *Global Biogeochemical Cycles*, 13, 221-250, 1999.
- Heinze, C., E. Maier-Reimer, and K. Winn, Glacial  $p\text{CO}_2$  reduction by the world ocean: Experiments with the Hamburg carbon cycle model, *Paleoceanography*, 6, 395-430, 1991.
- Hendersen, H. M. and N. C., Slowey, Evidence from U-Th dating against Northern Hemisphere forcing of the penultimate deglaciation, *Nature*, 404, 61-66, 2000.
- Hensen, C., H. Landenberger, M. Zabel, and H. D. Schulz, Quantification of diffusive benthic fluxes of nitrate, phosphate, and silicate in the southern Atlantic Ocean, *Global Biogeochemical Cycles*, 12, 193-210, 1998.
- Hinga, K. R., M. A. Arthur, M. E. Q. Pilson, and D. Whitaker, Carbon isotope fractionation by marine phytoplankton in culture - The effects of  $\text{CO}_2$  concentration, pH, temperature, and species, *Global Biogeochemical Cycles*, 8, 91-102, 1994.
- Hofmann, M., W. S. Broecker, and J. Lynch-Stieglitz, Influence of a  $[\text{CO}_2]_{\text{atm}}$  dependent biological C-isotope fractionation on glacial  $^{13}\text{C}/^{12}\text{C}$  ratios in the ocean, *Global Biogeochemical Cycles*, 13, 873-883, 2000.
- Holligan, P. M., and J. E. Robertson, Significance of ocean carbonate budgets for the global carbon cycle, *Global Change Biology*, 2, 85-95, 1996.
- Holtlag, A. A. M., and A. P. VanUlden, A simple scheme for daytime estimates of the surface fluxes from routine weather data, *Journal of Climate and Applied Meteorology*, 22, 517-529, 1983.
- Honjo, S., Material fluxes and modes of sedimentation in the mesopelagic and bathypelagic zones, *Journal of Marine Research*, 38, 53-97, 1980.
- Honjo, S., S. J. Manganini, and J. J. Cole, Sedimentation of biogenic matter in the deep ocean, *Deep Sea Research*, 29, 609-625, 1982.
- Honjo, S., and S. J. Manganini, Annual biogenic particulate fluxes to the interior of the north Atlantic Ocean studies at 34°N 21°W and 48°N 21°W, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 40, 587-607, 1993.
- Hotinski, R. M., L. R. Kump, and R. G. Najjar, Opening Pandora's Box: The impact of open system modeling on interpretations of anoxia, *Paleoceanography*, 15, 267-279, 2000.
- Howard, W. R., and W. L. Prell, Late Quaternary  $\text{CaCO}_3$  production and preservation in the Southern Ocean: Implications for oceanic and atmospheric carbon cycling, *Paleoceanography*, 9, 453-482, 1994.
- Hovine, S., and T. Fichet, A zonally averaged 3-basin ocean circulation model for climate studies, *Climate Dynamics*, 10, 313-331, 1994.
- Hughes, T., Abrupt climatic change related to unstable ice-sheet dynamics: Toward a new paradigm, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 97, 203-234, 1992.
- Hurtt, G. C., and R. A. Armstrong, A pelagic ecosystem model calibrated with BATS data, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 43, 653-683, 1996.
- Hurtt, G. C., and R. A. Armstrong, A pelagic ecosystem model calibrated with BATS and OWSI data, *Deep-Sea Research Part I - Oceanographic Research Papers*, 46, 27-61, 1999.
- Hutchins, D. A., and K. W. Bruland, Iron-limited diatom growth and Si:N uptake ratios in a coastal up-welling regime, *Nature*, 393, 561-564, 1998.
- Hutchins, D. A., G. R. DiTullio, Y. Zhang, and K. W. Bruland, An iron limitation mosaic in the California up-welling regime, *Limnology and Oceanography*, 43, 1037-1054, 1998.
- Hutson, W. H., Bioturbation of deep-sea sediment: Oxygen isotopes and stratigraphic uncertainty, *Geology*, 8, 127-130, 1980.
- Ikehara, M., K. Kawamura, N. Ohkouchi, M. Murayama, T. Nakamura, and A. Taira, Variations of terrestrial input and marine productivity in the Southern Ocean (48 degrees S) during the last two deglaciations, *Paleoceanography*, 15, 170-180, 2000.
- Imbrie, J. et al., The orbital theory of Pleistocene climate: Support from a revised chronology of the marine  $\delta^{18}\text{O}$  record, in *Milankovitch and Climate, Part I*, edited by Berger, A., J. Imbrie, J. Hayes, G. Kukla, and B. Saltzman, D. Reidel, Norwell, Mass., 1984.
- Imbrie, J., A. Berger, E. A. Boyle, S. C. Clemens, A. Duffy, W. R. Howard, G. Kukla, J. Kutzbach, D. G. Martinson, A. McIntyre, A. C. Mix, B. Molina, J. J. Morley, L. C. Peterson, N. G. Pisias, W. L. Prell, M. E. Raymo, N. J. Shackleton, and J. R. Toggweiler, On the structure and origin of major glaciation cycles 2. The 100,000-year cycle, *Paleoceanography*, 8, 669-735, 1993.
- Imbrie, J., and K. P. Imbrie, *Ice ages: Solving the mystery*, Harvard University Press, Cambridge, Mass., 1979.
- Imbrie, J., and J. Z. Imbrie, Modeling the climatic response to orbital variations, *Science*, 207, 943-953, 1980.
- Indermuhle, A., T. F. Stocker, F. Joos, H. Fischer, H. J. Smith, M. Wahlen, B. Deck, D. Mastroianni, J. Tschumi, T. Blunier, R. Meyer, and B. Stauffer, Holocene carbon-cycle dynamics based on  $\text{CO}_2$  trapped in ice at Taylor Dome, Antarctica, *Nature*, 398, 121-126, 1999.
- Ingle, S. E., Solubility of calcite in the ocean, *Marine Chemistry*, 3, 301-319, 1975.
- IPCC, (Intergovernmental Panel on Climate Change), *Climatic Change: The IPCC Scientific Assessment*, Houghton, J. T., G. J. Jenkins, and J. J. Ephraums (eds), Cambridge University Press, Cambridge, UK, 1990.
- Iriondo, M., Patagonian dust in Antarctica, *Quaternary International*, 68-71, 83-86, 2000.
- Iriondo, M., and N. O. Garcia, Climatic variations in the Argentine plains during the last 18,000 years, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 101, 209-220, 1993.
- Jahnke, R. A., D. B. Craven, D. C. McCorkle, and C. E. Reimers,  $\text{CaCO}_3$  dissolution in California continental margin sediments: The influence of organic matter remineralization, *Geochimica et Cosmochimica Acta*, 61, 3587-3604, 1997.
- Jickells, T. D., The inputs of dust derived elements to the Sargasso Sea; a synthesis, *Marine Chemistry*, 68, 5-14, 1999.
- Jickells, T. D., and L. J. Spokes, Atmospheric iron inputs to the oceans, in *The biogeochemistry of iron in seawater*, edited by Turner, D., and R. Hunter, John Wiley & Sons, Chichester, England, in press.
- Johnsen, S. J., et al., The  $\delta^{18}\text{O}$  record along the Greenland Ice Core Project deep ice core and the problem of possible Eemian climatic instability, *Journal of Geophysical Research*, 102, 26397-26410, 1997.
- Johnson, K. S., R. M. Gordon, and K. H. Coale, What controls dissolved iron concentrations in the world ocean?, *Marine Chemistry*, 57, 137-161, 1997a.
- Joos, F., J. C. Orr, and U. Siegenthaler, Ocean carbon transport in a box-diffusion versus a general circulation model, *Journal of Geophysical Research-Oceans*, 102, 12367-12388, 1997.
- Joussaume, S., Paleoclimatic tracers - An investigation using an Atmospheric General Circulation Model under ice age conditions. I. Desert dust, *Journal of Geophysical Research*, 98, 2767-2805, 1993.
- Jouzel, J., N. I. Barkov, J. M. Barnola, M. Bender, J. Chappellaz, C. Genthon, V. M. Kotlyakov, V. Lipenkov, C. Lorius, J. R. Petit, D. Raynaud, G. Raisneck, C. Ritz, T. Sowers, M. Stievenard, F. Yiou, and P. Yiou, Extending the Vostok ice-core record of paleoclimate to the penultimate glacial period, *Nature*, 364, 407-412, 1993.
- Jouzel, J., C. Lorius, J. R. Petit, C. Genthon, N. I. Barkov, V. M. Kotlyakov, and V. M. Petrov, Vostok ice core: A continuous isotope temperature record over the last climatic cycle (160,000 years), *Nature*, 329, 403-408, 1987.
- Jouzel, J., et al., The 2-step shape and timing of the last deglaciation in Antarctica, *Climate Dynamics*, 11, 151-161, 1995.
- Kamatani, A., Dissolution rates of silica from diatoms decomposing at various temperatures, *Marine Biology*, 68, 91-96, 1982.
- Karlin, R., M. Lyle, and R. Zahn, Carbonate variations in the northeast Pacific during the late Quaternary, *Paleoceanography*, 7, 43-61, 1992.
- Keir, R. S., The dissolution kinetics of biogenic calcium carbonates in seawater, *Geochimica et Cosmochimica Acta*, 44, 241-252, 1980.
- Keir, R. S., On the late Pleistocene ocean geochemistry and circulation, *Paleoceanography*, 3, 413-445, 1988.

- Keir, R. S., Cold surface ocean ventilation and its effect on atmospheric CO<sub>2</sub>, *Journal of Geophysical Research*, 98, 849-856, 1993a.
- Keir, R. S., Are atmospheric CO<sub>2</sub> content and Pleistocene climate connected by wind-speed over a polar Mediterranean Sea, *Global and Planetary Change*, 8, 59-68, 1993b.
- Keir, R. S., Is there a component of Pleistocene CO<sub>2</sub> change associated with carbonate dissolution cycles?, *Paleoceanography*, 10, 871-880, 1995.
- Keir, R. S., and W. H. Berger, Atmospheric CO<sub>2</sub> content in the last 120,000 years: The phosphate-extraction model, *Journal of Geophysical Research*, 88, 6027-6038, 1983.
- Keir, R. S., and W. H. Berger, Late Holocene carbonate dissolution in the equatorial Pacific: Reef growth or neoglaciation, *American Geophysical Union Geophysical Monograph*, 32, 208-219, 1985.
- Keir, R. S., and R. L. Michel, Interface dissolution control of the <sup>14</sup>C profile in marine sediment, *Geochimica et Cosmochimica Acta*, 57, 3563-3573, 1993.
- Kim, S.-J., T. J. Crowley, and A. Stossel, Local orbital forcing of Antarctic climate change during the last interglacial, *Science*, 280, 728-730, 1998.
- Klepper, O., B. J. Dehaan, and H. Vanhuet, Biochemical feedbacks in the oceanic carbon cycle, *Ecological Modelling*, 75, 459-469, 1994.
- Kleypas, J. A., Modelled estimates of global reef habitat and carbonate production since the last glacial maximum, *Paleoceanography*, 12, 533-545, 1997.
- Klinger, L. F., J. A. Taylor, and L. G. Franzen, The potential role of peatland dynamics in ice-age initiation, *Quaternary Research*, 45, 89-92, 1996.
- Knox, F., and M. B. McElroy, Changes in atmospheric CO<sub>2</sub>: Influence of the marine biota at high latitudes, *Journal of Geophysical Research - Atmospheres*, 89, 4629-4637, 1984.
- Kriest, I., and G. T. Evans, Representing phytoplankton aggregates in biogeochemical models, *Deep-Sea Research Part I - Oceanographic Research Papers*, 46, 1841-1859, 1999.
- Kukla, G., A. Berger, R. Lotti, and J. Brown, Orbital signature of interglacials, *Nature*, 290, 295-300, 1981.
- Kuma, K., A. Katsumoto, H. Kawakami, F. Takatori, and K. Matsunaga, Spatial variability of Fe(III) hydroxide solubility in the water column of the northern North Pacific Ocean, *Deep-Sea Research Part I - Oceanographic Research Papers*, 45, 91-113, 1998.
- Kumar, N., R. F. Anderson, R. A. Mortlock, P. N. Froelich, P. Kubik, B. Dittrich-Hannen, and M. Suter, Increased biological productivity and export production in the glacial Southern Ocean, *Nature*, 378, 675-680, 1995.
- Kump, L., Oceans of change, *Nature*, 361, 592-593, 1993.
- Kurz, K. D., and E. Maier-Reimer, Iron fertilization of the Austral Ocean - The Hamburg model assessment, *Global Biogeochemical Cycles*, 7, 229-244, 1993.
- Lambeck, K., and M. Nakada, Constraints on the age and duration of the last interglacial period and on sea-level variations, *Nature*, 357, 125-128, 1992.
- Laskar, J., F. Joutel, and F. Boudin, Orbital, precessional, and insolation quantities for the Earth from -20Myr to +10 Myr, *Astron. Astrophys.*, 270, 522-533, 1993.
- Lau, K. M., and H. Weng, Climate signal detection using wavelet transform: How to make a time series sing, *Bulletin of the American Meteorological Society*, 76, 2391-2402, 1995.
- Ledley, T. S., and S. Chu, The initiation of ice sheet growth, Milankovitch solar radiation variations, and the 100 ky ice age cycle, *Climate Dynamics*, 11, 439-445, 1995.
- Lefevre, N., and A. J. Watson, Modelling the geochemical cycle of iron in the oceans and its impact on atmospheric CO<sub>2</sub> concentrations, *Global Biogeochemical Cycles*, 13, 715-736, 1999.
- Legeleux, F., J. L. Reyss, and S. Schmidt, Particle mixing rates in sediments of the northeast tropical Atlantic - Evidence from Pb<sub>210</sub><sub>xs</sub>, Cs<sub>137</sub>, Th<sub>228</sub><sub>xs</sub>, and Th<sub>234</sub><sub>xs</sub> downcore distributions, *Earth and Planetary Science Letters*, 128, 545-562, 1994.
- LeTreau, H., and M. Ghil, Orbital forcing, climatic interactions, and glaciation cycles, *Journal of Geophysical Research*, 88, 5167-5190, 1983.
- Leuenberger, M., U. Siegenthaler, and C. C. Langway, Carbon isotope composition of atmospheric CO<sub>2</sub> during the last ice age from an Antarctic ice core, *Nature*, 357, 488-490, 1992.
- Levitus S. and T.P. Boyer, World Ocean Atlas 1994 Volume 2: Oxygen, *NOAA Atlas NESDIS 2*, U.S. Department of Commerce, Washington, D.C. 186 pp, 1994a.
- Levitus S., R. Burgett and T. P. Boyer, World Ocean Atlas 1994 Volume 3: Salinity, *NOAA Atlas NESDIS 3*, U.S. Department of Commerce, Washington, D.C. 99 pp, 1994b.
- Levitus S. and T. P. Boyer, World Ocean Atlas 1994 Volume 4: Temperature, *NOAA Atlas NESDIS 4*, U.S. Department of Commerce, Washington, D.C. 117 pp, 1994c.
- Leynaert, A., D. M. Nelson, B. Queguiner, and P. Treguer, The silica cycle in the Antarctic Ocean - Is the Weddell Sea atypical?, *Marine Ecology Progress Series*, 96, 1-15, 1993.
- Li, X. S., A. Berger, and M. F. Loutre, CO<sub>2</sub> and Northern Hemisphere ice variations over the middle and late Quaternary, *Climate Dynamics*, 14, 537-544, 1998a.
- Li, X. S., A. Berger, M. F. Loutre, M. A. Maslin, G. H. Haug, and R. Tiedemann, Simulating late Pliocene northern hemisphere climate with the LLN 2-D model, *Geophysical Research Letters*, 25, 915-918, 1998b.
- Lindzen, R. S., A simple model for 100k-year oscillations in glaciation, *Journal of Atmospheric Sciences*, 43, 986-996, 1986.
- Loehle, C., Geologic methane as a source for postglacial CO<sub>2</sub> increases - The hydrocarbon pump hypothesis, *Geophysical Research Letters*, 20, 1415-1418, 1993.
- Lorius, C., J. Jouzel, D. Raynaud, J. Hansen, and H. L. Treut, The ice-core record: Climate sensitivity and future greenhouse warming, *Nature*, 347, 139-145, 1990.
- Loutre, M. F., and A. Berger, No glacial-interglacial cycle in the ice volume simulated under a constant astronomical forcing and a variable CO<sub>2</sub>, *Geophysical Research Letters*, 27, 783-786, 2000.
- Lynch-Stieglitz, J., T. F. Stocker, W. S. Broecker, and R. G. Fairbanks, The influence of air-sea exchange on the isotopic composition of oceanic carbon - Observations and modelling, *Global Biogeochemical Cycles*, 9, 653-665, 1995.
- Maasch, K. A., Statistical detection of the mid-Pleistocene transition, *Climate Dynamics*, 2, 133-143, 1988.
- Mackensen, A., H. W. Hubberten, T., Bickert, G. Fischer, and D. K. Futterer, The  $\delta^{13}\text{C}$  in benthic foraminiferal tests of *Fontbotia wuellerstorfi* relative to the  $\delta^{13}\text{C}$  of dissolved inorganic carbon in Southern Ocean deep-water - Implications for glacial ocean circulation models, *Paleoceanography*, 8, 587-610, 1993.
- Mahowald, N., K. Kohfeld, M. Hansson, Y. Balkanski, S. P. Harrison, I. C. Prentice, M. Schulz, and H. Rodhe, Dust sources and deposition during the last glacial maximum and current climate: A comparison of model results with paleodata from ice cores and marine sediments, *Journal of Geophysical Research - Atmospheres*, 104, 15895-15916, 1999.
- Maier-Reimer, E., Geochemical cycles in an ocean general circulation model. Pre-industrial tracer distributions, *Global Biogeochemical Cycles*, 7, 645-677, 1993.
- Maier-Reimer, E., and K. Hasselmann, Transport and storage of CO<sub>2</sub> in the ocean - and inorganic ocean-circulation carbon cycle model, *Climate Dynamics*, 2, 63-90, 1987.
- Mangini, A., A. Eisenhauer, and P. Walter, A spike of CO<sub>2</sub> in the atmosphere at glacial-interglacial boundaries induced by rapid deposition of manganese in the oceans, *Tellus Series B*, 43, 97-105, 1991.
- Mann, M. E., and J. M. Lees, Robust estimation of background noise and signal detection in climatic time series, *Climate Dynamics*, 33, 409-445, 1996.
- Marchal, O., T. F. Stocker, and F. Joos, Impact of oceanic reorganizations on the ocean carbon cycle and atmospheric carbon dioxide content, *Paleoceanography*, 13, 225-244, 1998a.
- Marchal, O., T. F. Stocker, and F. Joos, A latitude-depth, circulation biogeochemical ocean model for paleoclimate studies. Development and sensitivities, *Tellus Series B - Physical and Physical Meteorology*, 50B, 290-316, 1998b.
- Marchal, O., T. F. Stocker, F. Joos, A. Indermuhle, T. Blunier, and J. Tschumi, Modelling the concentration of atmospheric CO<sub>2</sub> during the Younger Dryas climate event, *Climate Dynamics*, 15, 341-354, 1999.
- Marino, B. D., M. B. McElroy, R. J. Salawitch, and W. G. Spaulding, Glacial-to-interglacial variations in the carbon isotopic composition of atmospheric CO<sub>2</sub>, *Nature*, 357, 461-466, 1992.
- Martin, J. H., Glacial-interglacial CO<sub>2</sub> change: The iron hypothesis, *Paleoceanography*, 5, 1-13, 1990.

- Martin, J. H. and S. E. Fitzwater, Iron deficiency limits phytoplankton growth in the northeast Pacific subantarctic, *Nature*, 331, 341-343, 1988.
- Martin, J. H., S. E. Fitzwater, R. M. Gordon, C. N. Hunter, and S. J. Tanner, Iron, primary production and carbon nitrogen flux studies during the JGOFS North Atlantic Bloom Experiment, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 40, 115-134, 1993.
- Martin, J. H., and R. M. Gordon, Northeast Pacific iron distributions in relation to phytoplankton productivity, *Deep-Sea Research*, 35, 177-196, 1988.
- Martin, J. H., R. M. Gordon, and S. E. Fitzwater, Iron in Antarctic waters, *Nature*, 345, 156-158, 1990.
- Martin, J. H., R. M. Gordon, and S. E. Fitzwater, and W. W. Broenkow, VERTEX - Phytoplankton iron studies in the gulf of Alaska, *Deep-Sea Research Part A - Oceanographic Research Papers*, 36, 649-680, 1989.
- Martin, J. H., G. A. Knauer, D. M. Karl, and W. W. Broenkow, VERTEX: Carbon cycling in the northeast Pacific, *Deep-Sea Research*, 34, 267-285, 1987.
- Martin, W. R., M. Bender, M. Leinen, and J. Orchardo, Benthic organic carbon degradation and biogenic silica dissolution in the central equatorial Pacific, *Deep-Sea Research Part A - Oceanographic Research Papers*, 12, 1481-1516, 1991.
- Martin, W. R., A. P. McNichol, and D. C. McCorkle, The radiocarbon age of calcite dissolving at the sea floor: Estimates from pore water data, *Geochimica et Cosmochimica Acta*, 64, 1391-1404, 2000.
- Martin, W. R., and F. L. Sayles, CaCO<sub>3</sub> dissolution in sediments of the Ceara Rise, western equatorial Atlantic, *Geochimica et Cosmochimica Acta*, 60, 243-263, 1996.
- Maslin, M. A., J. Adams, E. Thomas, H. Faure, and R. Haines-Young, Estimating the carbon transfer between the ocean, atmosphere and the terrestrial biosphere since the Last Glacial Maximum, *Terra Nova*, 7, 358-366, 1995.
- Maslin, M. A., X. S. Li, M. F. Loutre, and A. Berger, The contribution of orbital forcing to the progressive intensification of Northern Hemisphere glaciation, *Quaternary Science Reviews*, 17, 411-426, 1998.
- Matsumoto, K., and J. Lynch-Stieglitz, Similar glacial and Holocene deep water circulation inferred from southeast Pacific benthic foraminiferal carbon isotope composition, *Paleoceanography*, 14, 149-163, 1999.
- Matteucci, G., Orbital forcing in a stochastic resonance model of the Late-Pleistocene climatic variations, *Climate Dynamics*, 3, 179-190, 1989.
- Matteucci, G., Analysis of the probability distribution of the late Pleistocene climatic record: Implications for model validation, *Climate Dynamics*, 5, 35-52, 1990.
- McElroy, M. B., Marine biological controls on atmospheric CO<sub>2</sub> and climate, *Nature*, 302, 328-329, 1993.
- McGuffie, K. and A. Henderson-Sellers, *A climate modelling primer*, John Wiley & Sons, Chichester, England, 1996.
- McManus, J., D. E. Hammond, W. M. Berelson, T. E. Kilgore, D. J. Demaster, O. G. Ragueneau, and R. W. Collier, Early diagenesis of biogenic opal - Dissolution rates, kinetics, and paleoceanographic implications, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 42, 871-903, 1995.
- Michel, E., L. D. Labeyrie, J. C. Duplessy, N. Gortfi, M. Labracherie, and J. L. Turon, Could deep sub-Antarctic convection feed the world deep basins during the Last Glacial Maximum, *Paleoceanography*, 10, 927-941, 1995.
- Mikolajewicz, U., T. J. Crowley, A. Schiller, and R. Voss, Modelling teleconnections between the North Atlantic and North Pacific during the Younger Dryas, *Nature*, 387, 384-387, 1997.
- Millero, F. J., The thermodynamics of the carbonate system in seawater, *Geochimica et Cosmochimica Acta*, 43, 1651-1661, 1979.
- Millero, F. J., The thermodynamics of seawater. Part I. The PVT properties, *Ocean Science and Engineering*, 7, 403-460, 1982.
- Millero, F. J., Thermodynamics of the carbon dioxide system in the oceans, *Geochimica et Cosmochimica Acta*, 59, 661-677, 1995.
- Millero, F. J., and M. L. Sohn, *Chemical Oceanography*, 531 pp., CRC, Boca Raton, Fla., 1992.
- Milliman, J. D., Production and accumulation of calcium carbonate in the ocean: Budget of a nonsteady state, *Global Biogeochemical Cycles*, 7, 927-957, 1993.
- Milliman, J. D., P. J. Troy, W. M. Balch, A. K. Adams, Y. H. Li, and F. T. Mackenzie, Biologically mediated dissolution of calcium carbonate above the chemical lysocline?, *Deep-Sea Research Part I - Oceanographic Research Papers*, 46, 1653-1669, 1999.
- Moldrup, P., C. W. Kruse, T. Yamaguchi, and D. E. Rolston, Modeling diffusion and reaction in soils: I. A diffusion and reaction corrected finite difference calculation scheme, *Soil Science*, 161, 347-354, 1996.
- Monnin, E., et al., Atmospheric CO<sub>2</sub> concentrations over the last glacial termination, *Science*, 291, 112-114, 2001.
- Mook, W. G., <sup>13</sup>C in atmospheric CO<sub>2</sub>, *Netherlands Journal of Sea Research*, 20, 211-223, 1986.
- Mook, W. G., J. C. Bommerson, and W. H. Staverman, Carbon isotope fractionation between dissolved bicarbonate and gaseous carbon dioxide, *Earth and Planetary Science Letters*, 22, 169-176, 1974.
- Moore, J. K., M. R. Abbott, J. G. Richman, and D. M. Nelson, The Southern Ocean at the last glacial maximum: A strong sink for atmospheric carbon dioxide, *Global Biogeochemical Cycles*, 14, 455-475, 2000.
- Mortlock, R. A., C. D. Charles, P. N. Froelich, M. A. Zibello, J. Saltzman, J. D. Hays, and L. H. Burckle, Evidence for lower productivity in the Antarctic Ocean during the last glaciation, *Nature*, 351, 220-222, 1991.
- Mucci, A., The solubility of calcite and aragonite in seawater at various salinities, temperatures and one atmosphere total pressure, *American Journal of Science*, 283, 780-799, 1983.
- Mudelsee, M., and M. Schulz, The Mid-Pleistocene climate transition: onset of 100 ka cycle lags ice volume build-up by 280 ka, *Earth and Planetary Science Letters*, 151, 117-123, 1997.
- Mudelsee, M., and K. Statterger, Exploring the structure of the mid-Pleistocene revolution with advanced methods of time series analysis, *Geologische Rundschau*, 86, 499-511, 1997.
- Muggli, D. L., M. Lecourt, and P. J. Harrison, Effects of iron and nitrogen source on the sinking rate, physiology and metal composition of an oceanic diatom from the subarctic Pacific, *Marine Ecology Progress Series*, 132, 215-227, 1996.
- Muller, R. A., and G. J. MacDonald, Simultaneous presence of orbital inclination and eccentricity in proxy climate records from Ocean Drilling Program Site 806, *Geology*, 25, 3-6, 1997a.
- Muller, R. A., and G. J. MacDonald, Glacial cycles and astronomical forcing, *Science*, 277, 215-218, 1997b.
- Muller, R. A., and G. J. MacDonald, Spectrum of 100-kyr glacial cycle: Orbital inclination, not eccentricity, *Proc. Natl. Acad. Sci.*, 94, 8329-8334, 1997c.
- Munhoven, G., and L. M. Francois, Glacial-interglacial changes in continental weathering: Possible implications for atmospheric CO<sub>2</sub>, in *Carbon cycling in the glacial ocean: Constraints on the ocean's role in global change*, edited by Zahn, R., T. F. Pedersen, M. A. Kaminski, and L. Labeyrie, Springer-Verlag, Berlin, 1994.
- Munhoven, G., and L. M. Francois, Glacial-interglacial variability of atmospheric CO<sub>2</sub> due to changing continental silicate rock weathering: A model study, *Journal of Geophysical Research*, 101, 21423-21437, 1996.
- Najjar, R. G., J. L. Sarmiento, and J. R. Toggweiler, Downward transport and fate of organic matter in the ocean: Simulations with a General Circulation Model, *Global Biogeochemical Cycles*, 6, 45-76, 1992.
- Neftel, A., H. Oeschger, T. Staffelbach, and B. Stauffer, CO<sub>2</sub> record in the Byrd ice core 50,000-5,000 years BP, *Nature*, 331, 609-611, 1985.
- Nelson D. M., J. J. Goering, S. S. Kilham, and R. R. L. Guillard, Kinetics of silicic acid uptake and rates of silica dissolution in the marine diatom *Thalassiosira pseudonana*, *J. Phycol.*, 12, 246-252, 1976.
- Ninnemann, U. S., and C. D. Charles, Regional differences in Quaternary Subantarctic nutrient cycling: Link to intermediate and deep water ventilation, *Paleoceanography*, 12, 560-567, 1999.
- Noriki, S., and S. Tsunogai, Particulate fluxes and major components of settling particles from sediment trap experiments in the Pacific Ocean, *Deep-Sea Research*, 33, 903-912, 1986.
- Nozaki, Y., J. K. Cochran, K. K. Turekian, and G. Keller, Radiocarbon and <sup>210</sup>Pb distributions in submersible-taken

- deep-sea cores from project FAMOUS, *Earth and Planetary Science Letters*, *34*, 167-173, 1977.
- Oerlemans, J., Model experiments on the 100,000-kyr cycle, *Nature*, *287*, 430-432, 1980.
- Oerlemans, J., Glacial cycles and ice-sheet modelling, *Climatic Change*, *4*, 353-374, 1982.
- Oerlemans, J., The role of ice sheets in the Pleistocene climate, *Norsk Geologisk Tidsskrift*, *71*, 155-161, 1991.
- Oeschger, H., J. Beer, U. Siegenthaler, B. Stauffer, W. Dansgaard, and C. C. Langway, Late glacial climate history from ice cores, *American Geophys. Un. Monogr. Ser.*, *29*, 299-306, 1984.
- Oeschger, H., U. Siegenthaler, U. Schotterer, A. Gugelmann, A box diffusion model to study the carbon dioxide exchange in nature, *Tellus*, *2*, 168-192, 1975.
- Officer, C. B., and D. R. Lynch, Determination of mixing parameters from tracer distributions in deep-sea sediment cores, *Marine Geology*, *52*, 59-74, 1983.
- Officer, C. B., and J. H. Ryther, The possible importance of silicon in marine eutrophication, *Marine Ecology Progress Series*, *3*, 83-91, 1980.
- Opdyke, B. N., and J. C. G. Walker, Return of the coral reef hypothesis: Basin to shelf partitioning of CaCO<sub>3</sub> and its effect on atmospheric CO<sub>2</sub>, *Geology*, *20*, 730-736, 1992.
- Oschlies, A., and V. Garçon, An eddy-permitting coupled physical-biological model of the North Atlantic - 1. Sensitivity to advection numerics and mixed layer physics, *Global Biogeochemical Cycles*, *13*, 135-160, 1999.
- Oxburgh, R., The Holocene preservation history of equatorial Pacific sediments, *Paleoceanography*, *13*, 50-62, 1998.
- Oxburgh, R., and W. S. Broecker, Pacific carbonate dissolution revisited, *Palaeogeography, Palaeoclimatology, Palaeoecology*, *103*, 31-39, 1993.
- Paillard, D., The timing of Pleistocene glaciations from a simple multiple-state climate model, *Nature*, *391*, 378-381, 1998.
- Paillard, D., M. Ghil, and H. Treut, Dissolved organic matter and the glacial-interglacial pCO<sub>2</sub> problem, *Global Biogeochemical Cycles*, *7*, 901-914, 1993.
- Palmer, M. R., P. N. Pearson, and S. J. Cobb, Reconstructing past ocean pH-depth profiles, *Science*, *282*, 1468-1471, 1998.
- Palmer, M. R., and G. H. Swihart, Boron isotope geochemistry: An overview, *Rev. Mineralogy*, *33*, 709-744, 1996.
- Park, J., and K. A. Maasch, Plio-Pleistocene time evolution of the 100-kyr cycle in marine paleoclimate records, *Journal of Geophysical Research*, *98*, 447-461, 1993.
- Peltier, W. R., and S. Marshall, Coupled energy-balance/ice-sheet model simulations of the glacial cycle: A possible connection between terminations and terrigenous dust, *Journal of Geophysical Research*, *100*, 14269-14289, 1995.
- Peng, C. H., J. Guiot, and E. VanCampo, Estimating changes in terrestrial vegetation and carbon storage: Using palaeoecological data and models, *Quaternary Science Reviews*, *17*, 719-735, 1998.
- Peng, T.-H., W. S. Broecker, and W. H. Berger, Rates of benthic mixing in deep-sea sediments as determined by radioactive tracers, *Quaternary Research*, *11*, 141-149, 1979.
- Petit, J. R., M. Briat, and A. Royer, Ice age aerosol content from East Antarctic ice core samples and past wind strength, *Nature*, *293*, 391-394, 1981.
- Petit, J. R., et al., Climate and atmospheric history of the past 420000 years from the Vostok ice core, Antarctica, *Nature*, *399*, 429-436, 1999.
- Pisias, N. G., and T. C. Moore, The evolution of Pleistocene climate: A time series approach, *Earth and Planetary Science Letters*, *52*, 450-458, 1991.
- Pisias, N. G., and N. J. Shackleton, Modelling the global climate response to orbital forcing and atmospheric carbon dioxide changes, *Nature*, *310*, 757-759, 1984.
- Pollard, D., An investigation of the astronomical theory of the ice ages using a simple climate-ice sheet model, *Nature*, *272*, 233-235, 1978.
- Pollard, D., A simple ice sheet model yields realistic 100 kyr glacial cycles, *Nature*, *296*, 334-338, 1982.
- Pollard, D., Ice-age simulations with a calving ice-sheet model, *Quaternary Research*, *20*, 30-48, 1983.
- Pondaven, P., C. Fravallo, D. Ruiz-Pino, P. Treguer, B. Queguiner, and C. Jeandel, Modelling the silica pump in the Permanently Open Ocean Zone of the Southern Ocean, *Journal of Marine Systems*, *17*, 587-619, 1998.
- Pondaven, P., D. Ruiz-Pino, J. N. Druon, C. Fravallo, and P. Treguer, Factors controlling silicon and nitrogen biogeochemical cycles in high nutrient, low chlorophyll systems (the Southern Ocean and the North Pacific): Comparison with a mesotrophic system (the North Atlantic), *Deep-Sea Research Part I - Oceanographic Research Papers*, *46*, 1923-1968, 1999.
- Pope, R. H., D. J. Demaster, C. R. Smith, and H. Seltmann, Rapid bioturbation in equatorial Pacific sediments - Evidence from excess Th234 measurements, *Deep-Sea Research Part II - Topical Studies in Oceanography*, *43*, 1339-1364, 1996.
- Popova, E. E., V. A. Ryabchenko, and M. J. R. Fasham, Biological pump and vertical mixing in the Southern Ocean: Their impact on atmospheric CO<sub>2</sub>, *Global Biogeochemical Cycles*, *14*, 477-498, 2000.
- Popp, B. N., T. Trull, F. Kenig, S. G. Wakeham, T. M. Rust, B. Tilbrook, F. B. Griffiths, S. W. Wright, H. J. Marchant, R. R. Bidigare, and E. A. Laws, Controls on the carbon isotopic composition of Southern Ocean phytoplankton, *Global Biogeochemical Cycles*, *13*, 827-843, 1999.
- Prentice, K. C., and I. Y. Fung, The sensitivity of terrestrial carbon storage to climate change, *Nature*, *346*, 48-51, 1990.
- Price, N. M., B. A. Ahner, and F. M. M. Morel, The equatorial Pacific Ocean - Grazer-controlled phytoplankton populations in an iron-limited ecosystem, *Limnology and Oceanography*, *39*, 520-534, 1994.
- Pye, K., Processes of fine particle formation, dust source regions, and climatic changes, in *Paleoclimatology and Paleometrology: Modern and Past Patterns of Global Atmospheric Transport*, edited by Leiner, M. and M. sarnthein, Kluwer Academic Publishers, 1989.
- Rabouille, C., and J. F. Gaillard, The validity of steady-state flux calculations in early diagenesis - A computer simulation of deep-sea silica diagenesis, *Deep-Sea Research Part A - Oceanographic Research Papers*, *37*, 625-646, 1990.
- Rabouille, C., J. F. Gaillard, P. Treguer, and M. A. Vincendeau, Biogenic silica recycling in surficial sediments across the Polar Front of the Southern Ocean (Indian Sector), *Deep-Sea Research Part II - Topical Studies in Oceanography*, *44*, 1151-1176, 1997.
- Rau, G. H., U. Riebesell, and D. Wolf-Gladrow, A model of photosynthetic <sup>13</sup>C fractionation by marine phytoplankton based on diffusive molecular CO<sub>2</sub> uptake, *Marine Ecology Progress Series*, *133*, 275-285, 1996.
- Rau, G. H., U. Riebesell, and D. Wolf-Gladrow, CO<sub>2(aq)</sub>-dependent photosynthetic <sup>13</sup>C fractionation in the ocean: A model versus measurements, *Global Biogeochemical Cycles*, *11*, 267-278, 1997.
- Rau, G. H., T. Takahashi, and D. J. Des Marais, Latitudinal variations in plankton <sup>δ</sup><sup>13</sup>C: Implications for CO<sub>2</sub> and productivity in past oceans, *Nature*, *341*, 516-518, 1989.
- Rau, G. H., T. Takahashi, D. J. Des Marais, D. J. Repeta, and J. H. Martin, The relationship between <sup>δ</sup><sup>13</sup>C: of organic matter and [CO<sub>2(aq)</sub>] in ocean surface water: Data from a JGOFS site in the northeast Atlantic Ocean and a model, *Geochimica et Cosmochimica Acta*, *56*, 1413-1419, 1992.
- Raymo, M. E., The Himalayas, organic carbon burial, and climate change in the Miocene, *Paleoceanography*, *9*, 399-404, 1994.
- Raymo, M. E., The timing of major climate terminations, *Paleoceanography*, *12*, 577-585, 1997.
- Raymo, M. E., and W. F. Ruddiman, Tectonic forcing of late Cenozoic climate, *Nature*, *359*, 117-122, 1992.
- Raymo, M. E., W. F. Ruddiman, and P. N. Froelich, Influence of late Cenozoic mountain building on ocean geochemical cycles, *Geology*, *16*, 649-653, 1988.
- Rea, D. K., Aspects of atmospheric circulation - The late Pleistocene (0 - 950,000 yr) record of eolian deposition in the Pacific Ocean, *Palaeogeography, Palaeoclimatology, Palaeoecology*, *78*, 217-227, 1990.
- Rea, D. K., The paleoclimatic record provided by eolian deposition in the deep-sea - The geologic history of wind, *Reviews of Geophysics*, *32*, 159-195, 1994.
- Rea, D., L. W. Chambers, J. M. Chuey, T. R. Janecek, M. Leinen, and N. G. Pisias, A 420,000-year record of cyclicity in oceanic and atmospheric processes from the eastern equatorial Pacific, *Paleoceanography*, *1*, 577-586, 1986.



- Reader, M. C., I. Fung, and N. McFarlane, The mineral dust aerosol cycle during the Last Glacial Maximum, *Journal of Geophysical Research - Atmospheres*, 104, 9381-9398, 1999.
- Redfield, A. C., B. H. Ketchum, and F. A. Richards, The influence of organisms in the composition of sea water, In: Hill, N. M. (eds), *The Sea*, pp. 26-77, Wiley-Interscience, New York, 1963.
- Rich, J. J., D. Hollander, and G. E. Birchfield, Role of regional bioproductivity in atmospheric CO<sub>2</sub> changes, *Global Biogeochemical Cycles*, 13, 531-553, 1999.
- Rickaby, R. E. M., and H. Elderfield, Planktonic foraminiferal Cd/Ca: Paleonutrients or paleotemperature?, *Paleoceanography*, 14, 293-303, 1999.
- Ridgwell, A. J., Comment on "Does iron fertilization lead to rapid carbon export in the Southern Ocean?" by Matthew A. Charette and Ken O. Buesseler, *Geochemistry Geophysics Geosystems*, 1, 2000.
- Ridgwell, A. J., A. J. Watson, and M. E. Raymo, Is the spectral signature of the 100 kyr glacial cycle consistent with a Milankovitch origin?, *Paleoceanography*, 14, 437-440, 1999.
- Ruddiman, W. F., Tropical Atlantic terrigenous fluxes since 25,000 yrs BP, *Marine Geology*, 136, 189-207, 1997.
- Ruddiman, W. F., G. A. Jones, T-H. Peng, L. K. Glover, B. P. Glass, and P. J. Liebertz, Tests for size and shape dependency in deep-sea mixing, *Sedimentary Geology*, 25, 257-276, 1980.
- Ruddiman, W. F., and M. E. Raymo, Northern hemisphere climate regimes during the past 3 Ma: Possible tectonic connections, *Philosophical Transaction of the Royal Society of London Series B*, 318, 441-430, 1988.
- Rue, E. L., and K. W. Bruland, The role of organic complexation on ambient iron chemistry in the equatorial Pacific Ocean and the response of a mesoscale iron addition experiment, *Limnology and Oceanography*, 42, 901-910, 1997.
- Russell, A. D., and H. J. Spero, Field examination of the oceanic carbonate ion effect on stable isotopes in planktonic foraminifera, *Paleoceanography*, 15, 43-52, 2000.
- Rutherford, S., and S. D'Hondt, Early onset and tropical forcing of 100,000-year Pleistocene glacial cycles, *Nature*, 408, 72-75, 2000.
- Sakai, K., and W. R. Peltier, A simple model of the Atlantic thermohaline circulation - Internal and forced variability with paleoclimatological implications, *Journal of Geophysical Research*, 100, 13455-13479, 1995.
- Sakai, K., and W. R. Peltier, Dansgaard-Oeschger oscillations in a coupled atmosphere-ocean climate model, *Journal of Climate*, 10, 949-970, 1997.
- Sakai, K., and W. R. Peltier, Deglaciation-induced climate variability: An explicit model of the glacial-interglacial transition that simulates both the Bolling/Allerod and Younger-Dryas events, *Journal of the Meteorological Society of Japan*, 76, 1029-1044, 1998.
- Saltzman, B., Carbon dioxide and the  $\delta^{18}\text{O}$  record of late-Quaternary climatic change: A global model, *Climate Dynamics*, 1, 77-85, 1987.
- Saltzman, B., Three basic problems of paleoclimatics modeling: A personal perspective and review, *Climate Dynamics*, 5, 67-78, 1990.
- Saltzman, B., and K. A. Maasch, Carbon cycle instability as a cause of the late Pleistocene ice age oscillations: Modelling the asymmetric response, *Global Biogeochemical Cycles*, 2, 177-185, 1988.
- Saltzman, B., and K. A. Maasch, A first-order global model of late Cenozoic climatic change, *Transactions of the Royal Society of Edinburgh: Earth Sciences*, 81, 315-325, 1990.
- Saltzman, B., and K. A. Maasch, A first-order global model of late Cenozoic climatic change II. Further analysis based on a simplification of CO<sub>2</sub> dynamics, *Climate Dynamics*, 5, 201-210, 1991.
- Saltzman, B., K. A. Maasch, and M. Y. Verbitsky, Possible effects of anthropogenically-increased CO<sub>2</sub> on the dynamics of climate: Implications for ice age cycles, *Geophysical Research Letters*, 20, 1051-1054, 1993.
- Saltzman, B., and A. Sutera, A model of the internal feedback system involved in late Quaternary climatic change, *Journal of the Atmospheric Sciences*, 41, 736-745, 1984.
- Saltzman, B., and A. Sutera, The mid-Quaternary climatic transition as the free response of a three-variable dynamical model, *Journal of the Atmospheric Sciences*, 44, 236-241, 1987.
- Saltzman, B., and M. Y. Verbitsky, Asthenospheric ice-load effects in a global dynamical-system model of the Pleistocene climate, *Climate Dynamics*, 8, 1-11, 1992.
- Saltzman, B., and M. Y. Verbitsky, Multiple instabilities and modes of glacial rhythmicity in the Plio-Pleistocene: A general theory of late Cenozoic climatic change, *Climate Dynamics*, 9, 1-15, 1993.
- Saltzman, B., and M. Y. Verbitsky, CO<sub>2</sub> and glacial cycles, *Nature*, 367, 419, 1994a.
- Saltzman, B., and M. Y. Verbitsky, Late Pleistocene climatic trajectory in the phase space of global ice, ocean state, and CO<sub>2</sub>: Observations and theory, *Paleoceanography*, 9, 767-779, 1994b.
- Sanyal, A., N. G. Hemming, W. S. Broecker, D. W. Lea, H. J. Spero, and G. N. Hanson, Oceanic pH control on the boron isotopic composition of foraminifera: Evidence from culture experiments, *Paleoceanography*, 11, 513-517, 1996.
- Sanyal, A., N. G. Hemming, W. S. Broecker, and G. N. Hanson, Changes in pH in the eastern equatorial Pacific across stage 5-6 boundary based on boron isotopes in foraminifera, *Global Biogeochemical Cycles*, 11, 125-133, 1997.
- Sanyal, A., N. G. Hemming, G. N. Hanson, W. S. Broecker, Evidence for a higher pH in the glacial ocean from boron isotopes in foraminifera, *Nature*, 373, 234-236, 1995.
- Sarmiento, J. L., J. C. Orr, and U. Siegenthaler, A perturbation simulation of CO<sub>2</sub> uptake in an Ocean General Circulation Model, *Journal of Geophysical Research*, 97, 3621-3645, 1992.
- Sarmiento, J. L., R. D. Slater, M. J. R. Fasham, H. W. Ducklow, J. R. Toggweiler, and G. T. Evans, A seasonal 3-dimensional ecosystem model of nitrogen cycling in the north Atlantic euphotic zone, *Global Biogeochemical Cycles*, 7, 417-450, 1993.
- Sarmiento, J. L., and E. T. Sundquist, Revised budget for the oceanic uptake of anthropogenic carbon dioxide, *Nature*, 356, 589-593, 1992.
- Sarmiento, J. L., and J. R. Toggweiler, A new model for the role of the oceans in determining atmospheric pCO<sub>2</sub>, *Nature*, 308, 621-624, 1984.
- Sarmiento, J. L., J. R. Toggweiler, and R. Najjar, Ocean carbon-cycle dynamics and atmospheric pCO<sub>2</sub>, *Phil. Trans. R. Soc. Lond. A*, 325, 3-21, 1988.
- Sayles, F. L., W. G. Deuser, J. E. Goudeau, W. H. Dickinson, T. D. Jickells, and P. King, The benthic cycle of biogenic opal at the Bermuda Atlantic Time Series site, *Deep-Sea Research Part I - Oceanographic Research Papers*, 43, 383-409, 1996.
- Schiffelbein, P., Effect of benthic mixing on the information content of deep-sea stratigraphical signals, *Nature*, 311, 651-653, 1984.
- Schink, D. R., N. L. Guinasso, and K. A. Fanning, Processes affecting the concentration of silica at the sediment-water interface of the Atlantic Ocean, *Journal of Geophysical Research*, 80, 3013-3031, 1975.
- Schluter, M., and E. Sauter, Biogenic silica cycle in surface sediments of the Greenland Sea, *Journal of Marine Systems*, 23, 333-342, 2000.
- Seidov, D., and B. J. Haupt, Last glacial and meltwater interbasin water exchanges and sedimentation in the world ocean, *Paleoceanography*, 14, 760-769, 1999.
- Shackleton, N. J., Carbon-13 in *Uvigerina*: Tropical rainforest history and the equatorial Pacific carbonate dissolution cycles, in *The fate of fossil fuel CO<sub>2</sub> in the oceans*, edited by Andersen, N. R., and A. Malahoff, Plenum Press, New York, 1977.
- Shackleton, N. J., J. Backman, H. Zimmerman, D. V. Kent, M. A. Hall, D. G. Roberts, D. Schmitker, J. G. Baldauf, A. Desprairies, R. Homrighausen, P. Huddleston, J. B. Keene, A. J. Kaltenback, A. O. Krumsiek, A. C. Morton, J. W. Murray, and J. Westberg-Smith, Oxygen isotope calibration of the onset of ice-rafting and history of glaciation in the North Atlantic region, *Nature*, 307, 620-623, 1984.
- Shackleton, N. J., M. A. Hall, J. Line, and C. Shuxi, Carbon isotope data in core V19-30 confirm reduced carbon dioxide concentration in the ice age atmosphere, *Nature*, 306, 319-322, 1983.
- Shackleton, N. J., and N. D. Opdyke, Oxygen isotope and paleomagnetic stratigraphy of equatorial Pacific core V28-238: Oxygen isotope temperature and ice volumes on a 10<sup>5</sup> and 10<sup>6</sup> year scale, *Quaternary Research*, 3, 39-55, 1973.
- Shaffer, G., A model of biogeochemical cycling of phosphorous, nitrogen, oxygen, and sulphur in the ocean: One step toward a

- global climate model, *Journal of Geophysical Research*, *94*, 1979-2004, 1989.
- Shaffer, G., A non-linear climate oscillator controlled by biogeochemical cycling in the ocean: An alternative model of Quaternary ice age cycles, *Climate Dynamics*, *4*, 127-143, 1990.
- Shaffer, G., Effects of the marine biota on global carbon cycling, in *The Global Carbon Cycle*, edited by Heimann, M., Springer-Verlag, Berlin, 1993.
- Shaffer, G., Biogeochemical cycling in the global ocean 2. New production, Redfield ratios, and the remineralization in the organic pump, *Journal of Geophysical Research*, *101*, 3723-3745, 1996.
- Shaffer, G., and J. L. Sarmiento, Biogeochemical cycling in the global ocean 1. A new, analytical model with continuous vertical resolution and high-latitude dynamics, *Journal of Geophysical Research*, *100*, 2659-2672, 1995.
- Short, D. A., J. G. Mengel, T. J. Crowley, W. T. Hyde, and G. R. North, Filtering of Milankovitch cycles by Earth's geography, *Quaternary Research*, *35*, 157-173, 1991.
- Siegel, D. A., T. C. Granata, A. F. Michaels, and T. D. Dickey, Mesoscale eddy diffusion, particle sinking, and the interpretation of sediment trap data, *Journal of Geophysical Research*, *95*, 5305-5311, 1990.
- Siegenthaler, U., and F. Joos, Use of a simple model for studying oceanic tracer distributions and the global carbon cycle, *Tellus*, *44*, 186-207, 1992.
- Siegenthaler, U., and Th. Wenk, Rapid atmospheric CO<sub>2</sub> variations and ocean circulation, *Nature*, *308*, 624-626, 1984.
- Sigman, D. M., M. A. Altabet, R. Francois, D. C. McCorkle, and J. F. Gaillard, The isotopic composition of diatom-bound nitrogen in Southern Ocean sediments, *Paleoceanography*, *14*, 118-134, 1999a.
- Sigman, D. M., M. A. Altabet, D. C. McCorkle, R. Francois, and G. Fischer, The delta N-15 of nitrate in the Southern Ocean: Consumption of nitrate in surface waters, *Global Biogeochemical Cycles*, *13*, 1149-1166, 1999b.
- Sigman, D. M., and E. A. Boyle, Glacial/interglacial variations in atmospheric carbon dioxide, *Nature*, *407*, 859-869, 2000.
- Sigman, D. M., D. C. McCorkle, and W. R. Martin, The calcite lysocline as a constraint on glacial/interglacial low-latitude production changes, *Global Biogeochemical Cycles*, *12*, 409-427, 1998.
- Six, K. D., and E. Maier-Reimer, Effects of plankton dynamics on seasonal carbon fluxes in an ocean general circulation model, *Global Biogeochemical Cycles*, *10*, 559-583, 1996.
- Smith, H. J., M. Wahlen, D. Mastroianni, and K. C. Taylor, The CO<sub>2</sub> concentration of air trapped in GISP2 ice from the Last Glacial Maximum-Holocene transition, *Geophysical Research Letters*, *24*, 1-4, 1997.
- Smith, H. J., H. Fischer, M. Wahlen, D. Mastroianni, and B. Deck, Dual modes of the carbon cycle since the Last Glacial Maximum, *Nature*, *400*, 248-250, 1999.
- Snieder, R. K., The origin of the 100,000 year cycle in a simple ice age model, *Journal of Geophysical Research*, *90*, 5661-5664, 1985.
- Soetaert, K., P. M. J. Herman, J. J. Middelburg, C. Heip, H. S. DeStigter, T. C. E. VanWeering, E. Epping, and W. Helder, Modeling Pb-210-derived mixing activity in ocean margin sediments: Diffusive versus nonlocal mixing, *Journal of Marine Research*, *54*, 1207-1227, 1996.
- Sohrin, Y., S. Iwamoto, M. Matsui, H. Obata, E. Nakayama, K. Suzuki, N. Handa, and M. Ishii, The distribution of Fe in the Australian sector of the Southern Ocean, *Deep-Sea Research Part I - Oceanographic Research Papers*, *47*, 55-84, 2000.
- Sowers, T., M. Bender, L. Labeyrie, D. Martinson, J. Jouzel, D. Raynaud, J. J. Pochon, and Y. S. Korotkevich, A 135,000-year Vostok-SPECMAP common temporal framework, *Paleoceanography*, *8*, 737-766, 1993.
- Sowers, T., M. Bender, D. Raynaud, Y. S. Korotkevich, and J. Orcharto, The  $\delta^{18}\text{O}$  of atmospheric O<sub>2</sub> from air inclusions in the Vostok ice core: Timing of CO<sub>2</sub> and ice volume changes during the penultimate deglaciation, *Paleoceanography*, *6*, 679-696, 1991.
- Spero, H. J., J. Bijma, D. W. Lea, and B. E. Bemis, Effect of seawater carbonate concentration on foraminiferal carbon and oxygen isotopes, *Nature*, *390*, 497-500, 1997.
- Spokes, L. J., and T. D. Jickells, Factors controlling the solubility of aerosol trace metals in the atmosphere and on mixing into seawater, *Aquatic Geochemistry*, *1*, 355-374, 1996.
- Stein, M., G. J. Wasserburg, P. Aharon, J. H. Chen, Z. R. Zhu, A. Bloom, and J. Chappell, TIMS U-series dating and stable isotopes of the last interglacial event in Papua New Guinea, *Geochimica et Cosmochimica Acta*, *57*, 2541-2254, 1993.
- Stephens, M. P., and D. C. Kadko, Glacial-Holocene calcium carbonate dissolution at the central equatorial Pacific sea floor, *Paleoceanography*, *12*, 797-804, 1997.
- Stephens, B. B., and R. F. Keeling, The influence of Antarctic sea ice on glacial-interglacial CO<sub>2</sub> variations, *Nature*, *404*, 171-174, 2000.
- Stocker, T. F., W. S. Broecker, and D. G. Wright, Carbon uptake experiments with a zonally-averaged global ocean circulation model, *Tellus Series B*, *46*, 103-122, 1994.
- Stocker, T. F., and D. G. Wright, A zonally averaged ocean model for the thermohaline circulation. 2. Inter-ocean circulation in the Pacific Atlantic basin system, *Journal of Physical Oceanography*, *21*, 1725-1739, 1991a.
- Stocker, T. F., and D. G. Wright, Rapid transitions of the ocean's deep circulation induced by changes in surface water fluxes, *Nature*, *351*, 729-732, 1991b.
- Stocker, T. F., and D. G. Wright, Rapid changes in ocean circulation and atmospheric radiocarbon, *Paleoceanography*, *11*, 773-795, 1996.
- Stocker, T. F., D. G. Wright, and L. A. Mysak, A zonally averaged, coupled ocean atmosphere model for paleoclimate studies, *Journal of Climate*, *5*, 773-797, 1992.
- Suarez, M. J., and I. M. Held, Modelling climatic response to orbital parameter variations, *Nature*, *263*, 46-47, 1976.
- Suess, E., Particulate organic carbon flux in the oceans - surface productivity and oxygen utilization, *Nature*, *288*, 260-263, 1980.
- Sunda, W. G., and S. A. Huntsman, Iron uptake and growth limitation in oceanic and coastal phytoplankton, *Marine Chemistry*, *50*, 189-206, 1995.
- Sunda, W. G., D. G. Swift, and S. A. Huntsman, Low iron requirement for growth in oceanic phytoplankton, *Nature*, *351*, 55-57, 1991.
- Sundquist, E. T., Influence of deep-sea benthic processes on atmospheric CO<sub>2</sub>, *Phil. Trans. R. Soc. Lond. A*, *331*, 155-165, 1990.
- Takahashi, K., Seasonal fluxes of pelagic diatoms in the sub-Arctic Pacific, 1982-1983, *Deep-Sea Research Part A - Oceanographic Research Papers*, *33*, 1225-1251, 1986.4
- Takeda, S., Influence of iron availability on nutrient consumption ratio of diatoms in oceanic waters, *Nature*, *393*, 774-777, 1998.
- Tans, P. P., I. Y. Fung, and T. Takahashi, Observational constraints on the global atmospheric CO<sub>2</sub> budget, *Science*, *247*, 1431-1438, 1990.
- Tarasov, L., and W. R. Peltier, Terminating the 100 kyr ice age cycle, *Journal of Geophysical Research*, *102*, 21665-21693, 1997.
- Taylor, A. H., and I. Joint, A steady-state analysis of the 'microbial loop' in stratified systems, *Marine Ecology Progress Series*, *59*, 1-17, 1990.
- Taylor, A. H., A. J. Watson, M. Ainsworth, J. E. Robertson, and D. R. Turner, A modelling investigation of the role of phytoplankton in the balance of carbon at the surface of the North Atlantic, *Global Biogeochemical Cycles*, *5*, 151-171, 1991.
- Taylor, S. R., and S. M. McLennan, *The continental crust, its composition and evolution: An examination of the geochemical record preserved in sedimentary rocks*, Blackwell, Oxford, 1985.
- Thompson, L. G., E. Mosey-Thompson, M. W. Davis, P. N. Lin, K. A. Henderson, J. Coledai, J. F. Bolzan, and K. B. Liu, Late glacial stage and Holocene tropical ice core records from Huascarán, Peru, *Science*, *269*, 46-50, 1995.
- Tiedemann, R., M. Sarntheim, and N. J. Shackleton, Astronomic timescale for the Pliocene Atlantic  $\delta^{18}\text{O}$  and dust flux records of Ocean Drilling Program site 659, *Paleoceanography*, *9*, 619-638, 1994.
- Toggweiler, J. R., Variation of atmospheric CO<sub>2</sub> by ventilation of the ocean's deepest water, *Paleoceanography*, *14*, 571-588, 1999.
- Trauth, M. H., TURBO: A dynamic-probabilistic simulation to study the effects of bioturbation on paleoceanographic time series, *Computers & Geosciences*, *24*, 433-441, 1998.

- Trauth, M. H., M. Sarnthein, M. Arnold, Bioturbational mixing depth and carbon flux at the sea floor, *Paleoceanography*, 12, 517-526, 1997.
- Treguer, P., D. M. Nelson, A. J. VanBennekom, D. J. Demaster, A. Leynaert, and B. Queguiner, The silica balance in the world ocean - A re-estimate, *Science*, 268, 375-379, 1995.
- Treguer, P., and P. Pondaven, Silica control of carbon dioxide, *Nature*, 406, 358-359, 2000.
- Tsunogai, S., and S. Noriki, Particulate fluxes of carbonate and organic carbon in the ocean - Is the marine biological activity working as a sink of the atmospheric carbon?, *Tellus Series B*, 43, 256-266, 1991.
- Trenberth, K., J. Olson, and W. Large, *A Global Ocean Wind Stress Climatology based on ECMWF Analyses*. Tech. Rep. NCAR/TN-338+STR, National Centre for Atmospheric Research, Boulder, Colorado, 1989.
- Tromp, T. K., P. VanCappellen, and R. M. Key, A global model for the early diagenesis of organic carbon and organic phosphorous in marine sediments, *Geochimica et Cosmochimica Acta*, 59, 1259-1284, 1995.
- Tyrrell, T., The relative influences of nitrogen and phosphorous on oceanic primary production, *Nature*, 400, 525-531, 1999.
- Tyrrell, T., and A. H. Taylor, A modelling study of *Emiliania huxleyi* in the NE Atlantic, *Journal of Marine Systems*, 9, 83-112, 1996.
- Ullman, W. J., and R. C. Aller, Diffusion coefficient in nearshore marine sediments, *Limnol. Oceanogr.*, 27, 552-556, 1982.
- VanBennekom, A. J., G. W. Berger, S. J. VanDerGaast, and R. T. P. Devries, Primary productivity and the silica cycle in the Southern Ocean (Atlantic sector), *Palaeogeography, Palaeoclimatology, Palaeoecology*, 67, 19-30, 1988.
- VanCampo, E., J. Guiot, and C. Peng, A data-based reappraisal of the terrestrial carbon budget at the Last Glacial Maximum, *Global and Planetary Change*, 8, 189-201, 1993.
- VanCappellen, P., and L. Q. Qiu, Biogenic silica dissolution in sediments of the Southern Ocean .1. Solubility, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 44, 1109-1128, 1997a.
- VanCappellen, P., and L. Q. Qiu, Biogenic silica dissolution in sediments of the Southern Ocean .2. Kinetics, *Deep-Sea Research Part II - Topical Studies in Oceanography*, 44, 1129-1149, 1997b.
- VanderSluijs, J. P., G. J. DeBruyn, and P. Westbroek, Biogenic feedbacks in the carbonate-silicate geochemical cycle and the global climate, *American Journal of Science*, 296, 932-953, 1996.
- Vengosh, A. Y. Kolodny, A. Starinsky, A. R. Chivas, and M. T. McCulloch, Co-precipitation and isotopic fractionation of boron in modern biogenic carbonates, *Geochimica et Cosmochimica Acta*, 55, 2901-2910, 1991.
- Volk, T., and M. I. Hoffert, Ocean carbon pumps: Analysis of relative strengths and efficiencies in ocean-driven atmospheric CO<sub>2</sub> changes, *Geophys. Monogr.*, 32, 99-110, 1985.
- Walker, J. C. G., and B. C., Opdyke, Influence of variable rates of netric carbonate deposition on atmospheric carbon dioxide and pelagic sediments, *Paleoceanography*, 10, 415-427, 1995.
- Wanninkhof, R. Relationship between wind-speed and gas-exchange over the ocean, *Journal of Geophysical Research*, 97, 7373-7382, 1992.
- Watson, A. J., D. C. E. Bakker, A. J. Ridgwell, P. W. Boyd, and C. S. Law, Effect of iron supply on Southern Ocean CO<sub>2</sub> uptake and implications for glacial atmospheric CO<sub>2</sub>, *Nature*, 407, 730-733, 2000.
- Watson, A. J., and N. Lefèvre, The sensitivity of atmospheric CO<sub>2</sub> concentrations to input of iron to the oceans, *Tellus*, 51, 543-460, 1999.
- Weaver, A. J., and E. S. Sarachik, The role of mixed boundary conditions in numerical models of the oceans climate, *Journal of Physical Oceanography*, 21, 1470-1493, 1991.
- Weertman, J., Milankovitch solar radiation variations and ice age ice sheet sizes, *Nature*, 261, 17-20, 1976.
- Weiss, R. F., Carbon dioxide in water and seawater: The solubility of a non-ideal gas, *Marine Chemistry*, 2, 203-215, 1974.
- Wheatcroft, R. A., Experimental tests for particle size-dependent bioturbation in the deep ocean, *Limnology and Oceanography*, 37, 90-104, 1992.
- Wheatcroft, R. A., P. A. Jumars, C. R. Smith, and A. R. M. Nowell, A mechanistic view of the particulate biodiffusion coefficient: Step lengths, rest periods and transport directions, *Journal of Marine Research*, 48, 177-207, 1990.
- Wigley, T. M. L., Spectral analysis and the astronomical theory of climatic change, *Nature*, 264, 629-631, 1976.
- Winton, M., and E. S. Sarachik, Thermohaline oscillations induced by strong steady salinity forcing of Ocean General Circulation Models, *Journal of Physical Oceanography*, 23, 1389-1410, 1993.
- WolfGladrow, D. A., J. Bijma, and R. E. Zeebe, Model simulation of the carbonate chemistry in the microenvironment of symbiont bearing foraminifera, *Marine Chemistry*, 64, 181-198, 1999a.
- WolfGladrow, D. A., U. Riebesell, S. Burkhardt, and J. Bijma, Direct effects of CO<sub>2</sub> concentration on growth and isotopic composition of marine plankton, *Tellus Series B - Chemical and Physical Meteorology*, 51, 461-476, 1999b.
- Wollast, R., and L. Chou, Kinetic study of the dissolution of albite with a continuous flow-through fluidized bed reactor, in *The chemistry of weathering*, edited by Drever, J. I., D. Reidel, Norwell, Mass., 1985.
- Wright, D. G., and T. F., Stocker, A zonally averaged ocean model for the thermohaline circulation. I. Model development and flow dynamics, *Journal of Physical Oceanography*, 21, 1713-1724, 1991.
- Wright, D. G., and T. F., Stocker, Sensitivities of a zonally averaged global circulation model, *Journal of Geophysical Research*, 97, 12707-12730, 1992.
- Yamanaka, Y., and E. Tajika, The role of the vertical fluxes of particulate organic matter and calcite in the oceanic carbon cycle: Studies using an ocean biogeochemical general circulation model, *Global Biogeochemical Cycles*, 10, 361-382, 1996.
- Yamanaka, Y., and E. Tajika, Role of dissolved organic matter in the marine biogeochemical cycle: Studies using an ocean biogeochemical general circulation model, *Global Biogeochemical Cycles*, 11, 599-612, 1997.
- Yang, J. Y., and J. D. Neelin, Sea-ice interaction with the thermohaline circulation, *Geophysical Research Letters*, 20, 217-220, 1993.
- Yang, J. Y., and R. X. Huang, Decadal oscillations driven by the annual cycle in a zonally- averaged coupled ocean-ice model, *Geophysical Research Letters*, 23, 269-272, 1996.
- Yiou, P., E. Baert, M. F. Loure, Spectral analysis of climate data, *Surveys in Geophysics*, 17, 619-663, 1996.
- Yokoyama, Y., K. Lambeck, P. De Deckker, P. Johnston, and L. K. Fifield, Timing of the Last Glacial Maximum from observed sea-level minima, *Nature*, 406, 713-716, 2000.
- Yung, Y. L., T. Lee, C. H. Wang, and Y. T. Shieh, Dust: A diagnostic of the hydrologic cycle during the last glacial maximum, *Science*, 271, 962-963, 1996.
- Zeebe, R. E., J. Bijma, D. A. WolfGladrow, A diffusion-reaction model of carbon isotope fractionation in foraminifera, *Marine Chemistry*, 64, 199-227, 1999.
- Zhaung, G., R. A. Duce, and D. R. Kester, The dissolution of atmospheric iron in surface seawater of the open ocean, *Journal of Geophysical Research*, 95, 16207-16216, 1990.
- Zhang, J., P. D. Quay, and D. O. Wilbur, Carbon isotope fractionation during gas-water exchange and dissolution of CO<sub>2</sub>, *Geochimica et Cosmochimica Acta*, 59, 107-115, 1995.

