

CURRICULUM VITAE: James K. B. Bishop

Professor of Marine Science,
499 McCone Hall,
Department of Earth and Planetary Science,
University of California, Berkeley
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EDUCATION

B.Sc.(Hon.): Physical and inorganic chemistry: University of British Columbia, Canada, May 1971
Sc.D: Massachusetts Institute of Technology- Woods Hole Oceanographic Institution Joint Program in
Oceanography, June 1977. "The chemistry and vertical flux of oceanic particulate matter."

EMPLOYMENT

Professor	2006-	Earth and Planetary Science, UC Berkeley
Faculty Senior Scientist	2006-	Lawrence Berkeley National Laboratory
Senior Scientist	2006	Lawrence Berkeley National Laboratory
Staff Scientist	1998-2006	Lawrence Berkeley National Laboratory
Adjunct Professor	1998-2006	Earth and Planetary Science, UC Berkeley
Professor	1993-1998	School of Earth and Ocean Science, Univ. Victoria
Physical Scientist (GS15)	1993-1997	NASA Goddard Institute for Space Studies,
Adjunct Sr. Research Sci.	1993-1997	Lamont-Doherty Earth Obs. Columbia University
Research Scientist	1992-1993	Lamont-Doherty Earth Obs. Columbia University
Senior Staff Assoc.	1989-1992	Lamont-Doherty Earth Obs. Columbia University
Assoc. Research Sci.	1978-1989	Lamont-Doherty Earth Obs. Columbia University
Post Doctoral Fellow	1977-1978	Lamont-Doherty Earth Obs. Columbia University

RESEARCH INTERESTS

Ocean Carbon Dynamics; Physical, biological, and chemical controls on the cycles of inorganic and organic chemical species in the ocean. Land/ocean interactions. Satellite and in-situ remote sensing. Ocean robotics

OTHER CONTRIBUTIONS:

July 2006 – Marine Science Track Undergraduate Advisor, Dept. of Earth and Planetary Science
Dec 2011: Proposed / Co-Organized. AGU Fall Meeting Special Session. The Need for Sustained Ocean Observations: Progress, Prospects, and the State of the Art.
IOCCG BIO-ARGO Working Group (2007-2012)
Carbon Cycle Science Ocean Implementation Group (US Carbon Cycle Science Program). 2002-2004
Co-Director, DOE Center for Research on Ocean Carbon Sequestration. Co Proposed/chaired AGU sessions on the science of Ocean Carbon Sequestration. 1999-2002
Dec 2001: Proposed and Co-Chaired. AGU special session: "Pushing the Envelope, A tribute to the career and accomplishments of John M. Edmond".
Member: WCRP, Baseline Surface Radiation Budget Network - Science Panel. 1996-2000
Member: US-Joint Global Ocean Flux Study (JGOFS) Time Series oversight committee. 1992-2000
Member: Canadian-JGOFS Science Steering Committee. 1996-1999.
Director: University of Victoria Regional Inductively Coupled Plasma Mass Spectrometer facility 1993-1998.
Reviewer: Nature, Science, Deep-Sea Research, Marine Chemistry, Journal of Marine Research, Geophysical Research Letters, Limnology and Oceanography, Global Biogeochemical Cycles, Geochimica et Cosmochimica Acta.
Panel member NSF (OCE), NOAA, NOPP, SOI

Co-Developer: (with Prof. Glenn Flierl, MIT; Dr. David Glover, WHOI) of the net-work distributed object-oriented data system for JGOFS. The system provides access to distributed physical, geochemical, and biological data bases. Access <http://www1.whoi.edu/jgofs.html>.

HONORS

UC Berkeley Presidential Chair Fellow (F2007 and S2008)
R&D 100 AWARD Nov 2006. "The Carbon Explorer"

PROFESSIONAL AFFILIATIONS

American Geophysical Union. The Oceanography Society, American Society of Limnology and Oceanography, The Challenger Society

FIELD EXPERIENCE 44 Research Expeditions - 94 weeks at sea;

Bishop Group Members : 8 Expeditions: 25 weeks at sea

Mar	2013	Chief Scientist , R/V New Horizon, NSF Carbon Flux Explorer/PIC, 6 days
Jan	2013	Chief Scientist , R/V New Horizon, NSF PIC/Carbon Flux Explorer, 6 days
Oct	2012	Chief Scientist , R/V Point Sur, NSF PIC/POC, Carbon Explorer, 6 days
May	2012	Chief Scientist , R/V New Horizon, NSF Carbon Flux Explorer/PIC, 10 days
Feb	2012	Chief Scientist , R/V Point Sur, NSF PIC/POC sensor tests/CFE 7 days
Sept	2011	Chief Scientist , R/V Point Sur, NSF Carbon Flux Explorer recovery/PIC, 7 days
July	2011	Chief Scientist , R/V Point Sur, NSF Carbon Flux Explorer deployment/PIC, 6 days
May	2011	Chief Scientist , R/V New Horizon, NSF Carbon Flux Explorer/PIC, 11 days
Oct	2010	Chief Scientist , R/V Sproul, NSF Carbon Flux Explorer, 6 days
July	2009	Participant S.S.V. Robert Seamens (Sea Education) 5 days.
May	2009	G. Cutter, R/V/ Knorr, NSF GEOTRACES - MULVFS, 3.5 weeks
June	2008	G. Cutter, R/V/ Knorr, NSF GEOTRACES - MULVFS, 2 weeks
June	2007	Chief Scientist , R/V Sproul, Carbon Flux Explorer, ONR/NOPP, 3 days
Sept	2006	T. Frank, R/V Wecoma, Carbon Flux Explorer Testing DOE/NSF 10 days
July	2005	K. Buesseler, R/V Revelle, VERTIGO Carbon flux DOE/NSF 42 days.
June	2004	K. Buesseler, R/V Kilo Moana, VERTIGO Carbon flux DOE/NSF 21 days.
June	2003	J. Bullister, R/V Ron Brown A16N, Carbon Explorers, PIC sensor NOAA/ONR, 21 days
Jul	2002	Chief Scientist , R/V Sproul, NOPP, 2 days
Aug	2001	Chief Scientist , R/V New Horizon, NOPP/MULVFS, 14 days
Feb	2001	Chief Scientist , R/V Sproul, NOPP, 2 days
Nov	2000	Chief Scientist , R/V Sproul, NOPP, 2 days
July	2000	J. Sherman, R/V J H Martin, Spray test, 1 day
Feb	1997	F. Whitney, R/V Tully 9704, MULVFS 18 days
May	1996	P. Boyd, R/V Tully 9603, MULVFS 26 days
Feb	1996	F. Whitney, R/V Tully 9601, MULVFS 21 days
May	1993	Chief Scientist , R/V Iselin 9303, MULVFS, - 8 days
Aug.	1992	R. Barber, JGOFS eqpac, MULVFS, 7 weeks
Jan.	1992	J. Murray, JGOFS eqpac, MULVFS, 7 weeks
Nov.	1991	Chief Scientist , R/V Oceanus 246, MULVFS - 5 days.
May.	1990	H. Etcheber, Le Suroit, ECOFER-2, 2 weeks
Sep.	1982	P. Wiebe, Knorr, Warm Core Rings, 3.5 weeks.
Aug.	1982	P. Wiebe, Oceanus 125, Warm Core Rings, 2.5 weeks.
Jun.	1982	P. Wiebe, Oceanus 121, Warm Core Rings, 2.5 weeks.
Apr.	1982	P. Wiebe, Oceanus 118, Warm Core Rings. 2.5 weeks
Sep.	1981	P. Wiebe, Atlantis II-110, Warm Core Gulf Stream Rings. 3 weeks.
Nov.	1979	S. Honjo, R/V Gilliss, Balboa-Balboa, 2 weeks.
Jul.	1979	D.W. Spencer, R/V Knorr, Balboa-Balboa, 3 weeks.

Feb.	1978	S. Honjo, R/V Atlantis II, San Juan-WHOI, 3 weeks.
Jun.	1976	J. Corliss, R/V Melville, Balboa-Balboa, 4 weeks.
Oct.	1974	P. Wiebe, R/V Atlantis II, Bermuda-Woods Hole. 11 days.
Dec.	1973	C. Summerhayes, R/V Chain, Dakar-Capetown, 4 weeks.
Oct.	1973	G. Thompson, R/V Atlantis II, Barbados-San Juan, 4 weeks.
Jun.	1972	A.P. Lisitzin, R/V Dmitri Mendeleev, Los Angeles-Callao, 5 weeks.
Apr.	1972	W. Metcalf, R/V Knorr, Puerto Rico, 2 weeks.

Other Bishop - group Seagoing work

Aug	2013	M. Robert, CCGS Tully, Line P, Part. Inorganic Carbon 16 days - E. Martinez
Jun	2013	M. Robert, CCGS Tully, Line P, C Flux Explorers 16 days - Todd Wood, Amelia Weiss
Feb	2013	M. Robert, CCGS Tully, Line P, PIC, C Explorers 16 days - Todd Wood, Jill Sutton
Aug	2012	M. Robert, CCGS Tully, Line P, Part. Inorganic Carbon 16 days - E. Martinez
Jan.	2005	R. Wanninkof, R/V Ron Brown, A16S. Part. Inorganic Carbon 45 days – A. Thompson
Mar.	2004	P. Verdugo, R/V Kilo Moana, Optical carbon Flux instrument 10 days –Wood/Yegian
Jan.	2002	K. Johnson, R/V Revelle, SOFeX/Carbon Explorers/MULVFS 45 days -Lam/Wood/Guay
April.	2001	US Coast Guard Icebreaker Polar Star, Carbon Explorer 7 days - Todd Wood
Aug.	1996	F. Whitney, R/V Tully 9618, MULVFS 26 days (group)

REFEREED PUBLICATIONS

Submitted:

- Kim, H., J.K.B. Bishop, W. Dietrich, I.Y. Fung. Long-term, high-frequency water chemistry observations of groundwater flowing through weathered argillite underlying a steep forested hillslope. *Geochimica et Cosmochimica Acta*.
- Boss, E., L. Guidi, M.J. Richardson, L. Stemman, W.D. Gardner, J. K. B. Bishop, R.F. Anderson, R. Sherrell. (2013) Optical techniques for in-situ characterization of particles pertinent to GEOTRACES. *Progress in Oceanography*.
- McDonnell, A.M.P., Lam, P.J., Lamborg, C.H., Buesseler, K.O., Sanders, R., Riley, J.S., Marsay, C., Smith, H.E.K., Sargent, E.C., Lampitt, R.S., Bishop, J.K.B. 2013. The oceanographic toolbox for the collection of sinking and suspended marine particles. *Progress in Oceanography*.
- Tostevin, R., A. V. Turchyn, J. Farquhar, D. T. Johnston, D. L. Eldridge, J. K. B. Bishop, M. McIlvin. (201308) Multiple Sulfur Isotope Constraints on the Modern Sulfur Cycle. *Nature Geosciences*.

In Press:

Published Papers: 63

- 63 Kim, H., J.K.B. Bishop, T.J. Wood, and I.Y. Fung (2012), Autonomous water sampling for a long-term monitoring of trace metals in remote environments. *Environ. Sci. Technol.*, 46, 11220–11226; dx.doi.org/10.1021/es3006404.
- 62 Bishop, J. K. B., P. J. Lam and T. J. Wood (2012), Getting good particles: Accurate sampling of particles by large volume in-situ filtration. *Limnol. Oceanogr. Methods* 10:681-710 (2012); DOI: 10.4319/lom.2012.10.681
- 61 Lam, P.J., S.C. Doney, and J.K.B. Bishop (2011) The dynamic ocean biological pump: Insights from a global compilation of particulate organic carbon, CaCO₃, and opal concentration profiles from the mesopelagic. *Global Biogeochemical Cycles*, 25, GB3009, doi:10.1029/2010GB003868.
- 60 S.E. Wilson, D.K. Steinberg, F.-L. E. Chu, J.K.B. Bishop (2010) Feeding ecology of mesopelagic zooplankton of the subtropical and subarctic North Pacific Ocean determined using fatty acid biomarkers. *Deep-Sea Research I*. 57 1278–1294. doi:10.1016/j.dsr.2010.07.005
- 59 Claustre H., J. Bishop, E. Boss, S. Bernard, J.-F. Berthon, C. Coatanoean, K. Johnson, A. Lotiker, O. Ulloa , M. J. Perry, F. D’Ortenzio, O. H. F. D’andon, J. Uitz. (2009) Bio-optical profiling floats as new

- observational tools for biogeochemical and ecosystem studies: potential synergies with ocean color remote sensing. in *Proceedings of OceanObs'09: Sustained Ocean Observations and Information for Society (Vol. 2)*, Venice, Italy, 21-25 September 2009, Hall, J., Harrison D.E. & Stammer, D., Eds., ESA Publication WPP-306., 7 pp.
- 58 Bishop, J.K.B (2009) Autonomous Observations of the Ocean Biological Carbon Pump. *Oceanography*, 22 (2), 182-193.
- 57 Bishop, J.K.B. and T.J. Wood (2009) Year Round Observations of Carbon Biomass and Flux Variability in the Southern Ocean. *Global Biogeochemical Cycles*. 23. GB2019, doi:10.1029/2008GB003206.
- 56 Bishop, J.K.B. and Wood, T.J. (2008) Particulate Matter Chemistry and Dynamics in the Twilight Zone at VERTIGO ALOHA and K2 Sites. *Deep-Sea Research I* 55, 1684-1706. 10.1016/j.dsr.2008.07.012
- 55 Lam, P. J., and J. K. B. Bishop (2008), The continental margin is a key source of iron to the HNLC North Pacific Ocean, *Geophys. Res. Lett.*, 35, L07608, doi:10.1029/2008GL033294.
- 54 Buesseler, K.O., Trull, T.W., Steinberg, D.K., Silver, M.W., Siegel, D.A., Saitoh, S.-I., Lamborg, C.H., Lam, P.J., Karl, D.M., Jiao, N.Z., Honda, M.C., Elskens, M., Dehairs, F., Brown, S.L., Boyd, P.W., Bishop, J.K.B., Bidigare, R.R. VERTIGO (VERTICAL Transport In the Global Ocean): a study of particle sources and flux attenuation in the North Pacific (2008). *Deep-Sea Research II* 55, 1522-1538. doi:10.1016/j.dsr2.2008.04.024
- 53 Dehairs, F., Jacquet, S., Savoye, N., Van Mooy, B.A.S., Buesseler, K., Bishop, J.K.B., Lamborg, C., Elskens, M., Baeyens, W., Boyd, P., Casciotti, K.L., Monnin, C., (2008). Barium in Twilight Zone suspended matter as a proxy for particulate organic carbon remineralization: Results for the North Pacific. *Deep Sea Research II* 55, 1673-1683. doi:10.1016/j.dsr2.2008.04.020 .
- 52 Boyd, P.W., M. P. Gall, M. W. Silver, J.K.B. Bishop. Quantifying the surface-subsurface biogeochemical coupling during the VERTIGO ALOHA and K2 studies (2008). *Deep-Sea Research II* 55. 1578-1593. doi:10.1016/j.dsr2.2008.04.010
- 51 Lam, P.J., J.K.B. Bishop, High Biomass Low Export Regimes in the Southern Ocean. (2007) *Deep-Sea Research II* 10.1016/j.dsr2.2007.01.013. 35 pp. [LBNL# 59452]
- 50 Buesseler, K.O., C. H. Lamborg, P.W. Boyd, P. J. Lam, T. W. Trull, R. R. Bidigare, J.K.B. Bishop, K. L. Casciotti, F. Dehairs, M. Elskens, M. Honda, D. M. Karl, D. Siegel, M. W. Silver, D. K. Steinberg, J. Valdes, B. Van Mooy and S. Wilson (2007). Revisiting Carbon Flux through the Ocean's Twilight Zone, *Science*. 316. 567-570.
- 49 Lam, P.J., J.K.B. Bishop; C. C. Henning, M.A. Marcus, G. A. Waychunas, and I.Y. Fung. (2006) Wintertime phytoplankton bloom in the Subarctic Pacific supported by Continental Shelf Iron., *Global Biogeochemical Cycles*. 20, GB1006, doi:10.1029/2005GB002557. [LBNL# 55467]
- 48 Glover, D.M., C.L. Chandler, S.C. Doney, K.O. Buesseler, G. Heimerdinger, J.K.B. Bishop, and G.R. Flierl. (2006) The U.S. JGOFS Data Management Experience. *Deep Sea Research II*. 53, 793-802. [LBNL #59804]
- 47 Bishop, J.K.B., T.J. Wood, R.E Davis, J.T. Sherman. (2004) Robotic Observations of Enhanced Carbon Biomass and Carbon Export at 55S During SOFeX - *Science*, 304, 417-420. [LBNL# 53136]
- 46 Bishop, J.K.B. R.E. Davis and J.T. Sherman (2002) Robotic Observations of Dust Storm Enhancement of Carbon Biomass in the North Pacific. *Science* 298, 817-821. [LBNL #50120].
- 45 Sheridan, C.C., C. Lee, S.G. Wakeham and J.K.B. Bishop (2002) Suspended particle organic composition and cycling in surface and midwaters of the equatorial Pacific Ocean. *Deep-Sea Research*. I 49 1983-2008.
- 44 Campbell, J.W., D. Antoine, R. Armstrong, K. Arrigo, W. Balch, R. Barber, M. Behrenfeld, R. Bidigare, J. Bishop, M.-E. Carr, W. Esaias, P. Falkowski, N. Hoepffner, R. Iverson, D. Kiefer, S. Lohrenz, J. Marra, A. Morel, J. Ryan, V. Vedernikov, K. Waters, C. Yentsch, and J. Yoder. (2002) Comparison of algorithms for estimating ocean primary productivity from surface chlorophyll, temperature, and irradiance. *Global Biogeochemical Cycles*, 16(3), 10.1029 / 2001GB001444 [LBNL# 48412]
- 43 Guay, C.K. and J.K.B. Bishop (2002) A rapid birefringence method for measuring suspended CaCO₃ concentrations in water, *Deep-Sea Research I*, 49, 197-210 [LBNL #46895].
- 42 Fung, I. Y., S.K. Meyn, I. Tegen, S.C. Doney, J.G. John, and J.K.B. Bishop (2000) Iron supply and demand in the upper ocean. *Global Biogeochemical Cycles*. V14(N1):281-295. [LBNL #44330]

- 41 Bishop, J.K.B., S.E. Calvert, and M. Y.-S. Soon (1999). Spatial and Temporal Variability of POC in the Northeast Subarctic Pacific. *Deep-Sea Research II*. 46(11-12) 2699-2733. [LBNL #44130]
- 40 Boyd, P.W., N.D. Sherry, J.A. Barges, J.K.B. Bishop, S.E. Calvert, M.A. Charette, S.J. Giovannoni, R. Goldblatt, P.J. Harrison, S.B. Moran, S. Roy, M. Soon, S. Strom, D. Thibault, K.L. Vergin, F.A. Whitney and C.S. Wong (1999). Transformations of biogenic particles from the pelagic to the deep ocean realm. *Deep-Sea Research II*. 46(11-12) 2761-2792. [LBNL # 45063]
- 39 Charette, M.A., S.B. Moran and J.K.B. Bishop (1999) ^{234}Th as a tracer of particulate organic carbon export in the subarctic Northeast Pacific Ocean. *Deep-Sea Research II* 46(11-12) 2833-2862. [LBNL #44174]
- 38 Eek, M., M.J. Whiticar, J.K.B. Bishop and C.S. Wong. (1999) Carbon Isotope Composition of Alkenones along Line P - NE Pacific: Effects of pCO₂, Nutrients and Temperature. *Deep-Sea Research II* 46(11-12) 2863-2876. [LBNL #45076]
- 37 Thibault, D., S. Roy, C.S. Wong, and J.K.B. Bishop (1999). The Downward Flux of biogenic material in the NE subarctic Pacific: importance of algal sinking and mesozooplankton herbivory. *Deep-Sea Research II*. 46(11-12) 2669-2698. [LBNL #46479]
- 36 Bishop, J.K.B. (1999) Transmissometer Measurement of POC. *Deep-Sea Research I*. 46(2) 353-369. [LBNL# 43996]
- 35 Bishop, J.K.B., W.B. Rossow and E.G. Dutton (1997) Surface Solar Irradiance from ISCCP 1983-1991. *J. Geophys. Res.* (Atmospheres), 102, 6883-6910.
- 34 Dunne, J.P., J.W. Murray, J. Young, L.S. Balistreri, and J.K.B. Bishop, (1997) ^{234}Th and particle cycling in the central equatorial Pacific. *Deep-Sea Research II*. 44 2049-2084.
- 33 McLaughlin, F.A., Carmack, E.C., Macdonald, R.W. and Bishop, J.K.B. (1996), Physical and Geochemical Properties across the Atlantic/Pacific water mass front in the southern Canadian Basin. *J. Geophys. Res.* 101 (C1) 1183-1197.
- 32 Jeandel, C., Bishop, J.K.B. and Zindler, A.N. (1995). Exchange of Neodymium and its isotopes between seawater, small and large particles in the Sargasso Sea. *Geochimica. et Cosmochimica Acta*. 59, 535-547.
- 31 Luo, S., T.L. Ku, M. Kusakabe, J.K.B. Bishop and Y.L. Yang (1995) Tracing particle cycling in the upper ocean with ^{230}Th and ^{228}Th - an investigation in the equatorial Pacific along 140 W. *Deep Sea Research II*., 42 805-829.
- 30 Ku, T.L., S. Luo, M. Kusakabe, and J.K.B. Bishop (1995). ^{228}Ra -derived nutrient budgets in the upper equatorial Pacific and the role of "new" silicate in limiting productivity. *Deep Sea Research II*. 42, 479-497.
- 29 Liu W.T., Zhang, A. and J.K.B. Bishop (1994). Evaporation and solar irradiance as regulator of sea surface temperature in annual and interannual changes. *J. Geophys. Res.*, 99 (C6), 12,623-12,637.
- 28 Bishop, J.K.B., Smith, R.C. and Baker, K., (1992) Springtime distributions and variability of biogenic particulate matter in Gulf Stream warm-core ring 82B and surrounding N.W. Atlantic waters. *Deep-Sea Research*. 39 (1A) s295-s326.
- 27 Joyce, T.M., Bishop, J.K.B., and Brown, O.B., (1992) Observations of offshore shelf-water transport induced by a warm-core ring. *Deep-Sea Research*. 39 (1A), s97-s114.
- 26 Altabet, M.A., Bishop, J.K.B., and McCarthy, J.J. (1992) Differences in particulate nitrogen concentration and isotope composition for samples collected by bottles and large-volume pumps in Gulf Stream warm-core rings and the Sargasso Sea. *Deep-Sea Research*. 39 (1A), s405-s417.
- 25 Mitchell, B.G., E. Brody, O. Holm-Hansen, C. McClain, J.K.B. Bishop, (1991) Light limitation of phytoplankton biomass and macronutrient utilization in the Southern Ocean. *Limnol. & Oceanogr.* 36(8) 1662-1677.
- 24 Bishop, J.K.B. and W.B. Rossow. (1991) Spatial and temporal variability of global surface solar irradiance. *J. Geophys. Res.*, 96 (C9), 16,839-16,858.
- 23 Bishop, J.K.B. (1991) Getting good weight. in: *Marine Particles: Analysis and Characterization*. D.C. Hurd and D.W. Spencer, eds., Geophysical Monograph 63, 229-234. American Geophysical Union.
- 22 Bishop, J.K.B., (1990) Determination of Ba in seawater using Vanadium/Silicon modifier and direct injection graphite furnace atomic absorption spectrometry. *Analytical Chemistry*. 62, 553-557.

- 21 Bishop, J.K.B. (1989) Regional extremes in particulate matter composition and flux: effects on the chemistry of the ocean interior. In Berger, W.H., Smetacek, V.S., and Wefer, G. eds. Productivity of the ocean present and past. Dahlem Konferenzen. Chichester: John Wiley and Sons Ltd., pp 117-137.
- 20 Bishop, J.K.B. (1988) The barite-opal-organic carbon association in oceanic particulate matter. *Nature* 332, 341-343.
- 19 Conte, M.H. and J.K.B. Bishop (1988) Nanogram quantification of lipid classes in oceanic particles by high-performance thin layer chromatography. *Lipids* 23, 493-500.
- 18 Bishop, J.K.B. and M.Q. Fleisher (1987) Particulate manganese dynamics in Gulf Stream warm-core rings and surrounding waters of the N.W. Atlantic. *Geochimica et Cosmochimica Acta* 51(10), 2807-2826.
- 17 Bishop, J.K.B., J.C. Stepien, and P.H. Wiebe (1987) Particulate matter distributions, chemistry and flux in the Panama Basin: response to environmental forcing. *Progress in Oceanography* 17, 1-59.
- 16 Marra, J., P.H. Wiebe, J.K.B. Bishop, and J.C. Stepien (1987) Primary production and grazing in the plankton of the Panama Bight. *Bulletin of Marine Science* 40, 255-270.
- 15 Bishop, J.K.B., M.H. Conte, P. Wiebe, M. Roman and C. Langdon (1986) Particulate matter production and consumption in deep mixed layers: Observations in a warm core ring. *Deep-Sea Research* 33, 1813-1841.
- 14 Bishop, J.K.B. and T.M. Joyce (1986) Spatial distributions and variability of suspended particulate Matter in Warm Core Ring 82B. *Deep-Sea Research* 33, 1741-1760.
- 13 Conte, M.H., J.K.B. Bishop, and R. Backus (1986) 12-KHZ non- migratory deep scattering layers of Sargasso Sea origin in warm core rings. *Deep-Sea Research*, 33, 1869-1884.
- 12 Bishop, J.K.B. (1986) The correction and suspended mass calibration of Sea Tech transmissometer data. *Deep-Sea Research* 33, 121-134.
- 11 Be, A.W.H., J.K.B. Bishop, M. Sverdløve and W. Gardner (1985) Standing stock, vertical distribution and flux of planktonic foraminifera in the Panama Basin. *Marine Micropaleontology* 9, 307-333.
- 10 Bishop, J.K.B., D. Schupack, R.M. Sherrell and M. Conte (1985) A Multiple Unit Large Volume in-situ Filtration System (MULVFS) for sampling oceanic particulate matter in mesoscale environments. In: A. Zirino, ed., Mapping Strategies in Chemical Oceanography, Advances in Chemistry Series, Vol. 209, American Chemical Society, Washington, D. C., 155-175. ISBN13: 9780841208629. Chapter DOI: 10.1021/ba-1985-0209.ch009
- 9 Lambert, C.E., J.K.B. Bishop, P.E. Biscaye and R. Chesselet (1984) Particulate aluminum, Iron and Manganese as indicators of resuspension processes in the Deep Atlantic. *Earth and Planetary Science Letters* 70, 237-248.
- 8 Bishop, J.K.B., and J. Marra (1984) Variations in primary production and particle flux through the base of the euphotic zone at the site of the Sediment Trap intercomparison Experiment (Panama Basin). *Journal of Marine Research* 42, 189-206.
- 7 Gardner, W.D., J.K.B. Bishop and P.E. Biscaye (1984) Nephelometer observations at the STIE site, Panama Basin. *Journal of Marine Research* 42, 207-219.
- 6 Bishop, J.K.B. and P.E. Biscaye (1982) Chemical Characterization of individual particles from the nepheloid layer in the Atlantic Ocean. *Earth and Planetary Science Letters* 58, 265-275.
- 5 Bishop, J.K.B., R.W. Collier, D.R. Ketten, J.M. Edmond (1980) The Chemistry, biology and vertical flux of particulate matter from the upper 1500 m of the Panama Basin. *Deep-Sea Research* 27A, 615-640.
- 4 Bishop, J.K.B., D.R. Ketten and J.M. Edmond (1978) The chemistry, biology and vertical flux of particulate matter from the upper 400 m of the Cape Basin in the S.E. Atlantic Ocean. *Deep-Sea Research*. 25, 1121-1161.
- 3 Bishop, J.K.B., J.M. Edmond, D.R. Ketten, M.P. Bacon and W.B. Silker (1977) The chemistry, biology, and vertical flux of particulate matter from the upper 400 m of the equatorial Atlantic Ocean. *Deep-Sea Research* 24, 511-548.
- 2 Bishop, J.K.B., J.M. Edmond (1976) A new large volume filtration system for the sampling of oceanic particulate matter. *Journal of Marine Research* 34, 181-198.
- 1 Bishop, J.K.B., W.R. Cullin, M.C.L. Gerry (1971) ³⁵Cl Nuclear quadropole resonance of some phosphorus chlorine compounds. *Canadian Journal of Chemistry* 49, 3910-3913.

Patent Actions

- 6 The Regents of the University of California, Bishop, J.K.B. (2010) Optical Sedimentation Recorder. US Patent application: 12742395; International Application: PCT/US08/12607
- 5 The Regents of the University of California, Bishop, J.K.B. (2009) Optical Sedimentation Recorder. Pub. No.: WO/2009/064373; May 22 2009. International Bureau of the World Intellectual Property Organization (WIPO) of the Patent Cooperation Treaty. (<http://www.wipo.int/pctdb>).
- 4 Bishop, J.K.B. (2008) International Utility Patent Filing Application: PCT/US2008/012607; LBNL Docket: IB-02196-PCT. Optical Sedimentation Recorder.
- 3 Bishop, J.K.B. (2007) US Patent Disclosure IB-2196. Optical Sedimentation Recorder
- 2 Bishop, J.K.B. and C.K.Guay (2006) US Patent #7,030,981: method and apparatus for measuring birefringent particles.
- 1 Bishop, J.K.B. and C.K. Guay (2000) Patent Disclosure: IB-1595: An in-situ optical sensor for measuring particulate inorganic carbon in seawater.

Data Reports/Data Sets/Documentation: 7

- 7 Henning, C. (2006) Report on efforts to model and replicate the paths of the Carbon Explorers deployed April 2001 (NOAA GC04-304 James K.B. Bishop, PI). [LBNL # 61162].
- 6 Flierl, G.R., Bishop, J.K.B., Glover, D.M. and Paranjpe, S., Data Management for JGOFS: Theory and Design. (<http://www1.who.edu/jgoifs.html>).
- 5 Bishop, J.K.B., BR2 data set on surface solar irradiance July 1 1983 - June 30 1991, daily values, 2.5 degree x 2.5 degree gridded data set. see... <http://www.ucar.edu/dss/datasets/ds741.0.html> (November 1994).
- 4 Bishop, J.K.B., McLaren, J., Garraffo, Z., and Rossow, W.B. Documentation and description of surface solar irradiance data sets produced for SeaWiFS. In postscript. 23 pp. Posted to the GISS web page: <http://www.giss.nasa.gov/Data/SeaWiFS>. October 1994.
- 3 Liu, T.W., J.K.B. Bishop, W.B. Rossow and K. Case (1993) Monthly Maps of Ocean Surface Thermal Forcing. 1987-1991. JPL Publication 93-13, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 17 pp.
- 2 Bishop, J.K.B., T.J. Wood, R.E Davis, J.T. Sherman. (2004) SUPPLEMENTAL ON-LINE MATERIALS Robotic Observations of Enhanced Carbon Biomass and Carbon Export at 55S During SOFeX - *Science*, 304, 417-420.; [LBNL# 53136a] - peer reviewed
- 1 Bishop, J.K.B. R.E. Davis and J.T. Sherman (2002) SUPPLEMENTAL ON-LINE MATERIALS: Robotic Observations of Dust Storm Enhancement of Carbon Biomass in the North Pacific. *Science* 298, 817-821. [LBNL #50120a] - peer reviewed.

Planning Documents, Conference/Workshop proceedings: 18

- 18 IOCCG (2011). Bio-Optical Sensors on Argo Floats. Claustre, H. (ed.), Reports of the International Ocean-Colour Coordinating Group, No. 11, IOCCG, Dartmouth, Canada.
- 17 Invited contributing Author: Our Changing Planet (2010): A Report by the U.S. Global Change Research Program and the Subcommittee on Global Change Research A Supplement to the Presidents Budget for Fiscal Year 2010. Chapter 9. Observing and Monitoring the Climate System, p95-96.
- 16 Lam, P.J., J.K.B. Bishop, R. Sherrell, P.J. Morris, B.S. Twining, T.J. Wood, D.C. Ohnemus, M. Charette (2010) In-situ Pumping Sampling protocols for particulate trace metals for GEOTRACES, 12pp.
- 15 Bishop, J.K.B., P.J. Lam, R. Sherrell (2010) Protocols for optics during the GEOTRACES program: Transmissometer and scattering sensors. 7 pp.
- 14 Sherrell, R., H. Planquette, P.J. Lam, J.K.B. Bishop, B.S. Twining, M. Lohan, P. Morris, P. Morton, W. Geibert, M. Charette, W. Moore, M. Saito, A. Milne. (2010) Go-Flo Filtration Cookbook GEOTRACES. 15 pp.
- 13 Claustre H., J. Bishop, E. Boss, S. Bernard, J.-F. Berthon, C. Coatanoean, K. Johnson, A. Lotiker, O. Ulloa, M. J. Perry, F. D'Ortenzio, O. H. F. D'andon, J. Uitz. (2009) Bio-optical profiling floats as new observational tools for biogeochemical and ecosystem studies: potential synergies with ocean color remote sensing. Community White Paper. CWP-4A-04. Ocean Observations 09, Venice, Italy. 7 pp.

- 12 Doney S.C., R. Anderson, J. K. B. Bishop, K. Caldeira, C. Carlson, M.E. Carr, R. Feely, M. Hood, C. Hopkinson, R. Jahnke, D. Karl, J. Kleypas, C. Lee, R. Letelier, C. McClean, C. Sabine, J. Sarmiento, B. Stephens, R. Weller. (2004) Ocean Carbon and Climate Change (OCCC)" An Implementation Strategy for U. S. Ocean Carbon Research. UCAR 108pp.
- 11 Lam, P., and J.K.B. Bishop (2002) "Colloids in the Upper Ocean". DOE nano sciences workshop, LBNL.
- 10 Bishop, J.K.B. "Robotic observations of carbon cycle processes in remote and very stormy oceans." **Key note** presentation IGBP/JGOFS and IGBP/GAIM workshop - Measurements and Modelling of Global Ocean Productivity and Biogeochemical Fluxes", Ispra, Italy.
- 9 Lam, P.J, J.K.B. Bishop, G.A. Waychunas, S. Sutton, "Characterization of Fe in marine particles via micro-XAS: possibilities and limitations. 2001 Annual Report, Advanced Photon Source, Argonne National Laboratory. 2pp.
- 8 Bishop, J.K.B., Guay, C.K., Sherman, J.T., Moore, C.C., and R.E. Davis (2001) Prospects for a "C-Argo": A new approach for exploring ocean carbon system variability. Extended Abstract 01-07, International Workshop on Autonomous Measurements of Biogeochemical Parameters in the Ocean, Honolulu, Hawaii. Sponsors: Japan Ministry of Education, Culture, Sports, Science and Technology and Japan: National Institute for Resources and Environment (NIRE). Feb 20-22 2001. 6 pp.
- 7 Moore, C.C., Bishop, J.K.B., Perry, M.J., Ericksen, C.C., Donaghay, P.L., Hanson, A.K., and M.M. Deksheniaks (2001). Progress in optical sensors for biogeochemical measurements on autonomous platforms. Extended Abstract 02-01, International Workshop on Autonomous Measurements of Biogeochemical Parameters in the Ocean, Honolulu, Hawaii. Sponsors: Japan Ministry of Education, Culture, Sports, Science and Technology and Japan: National Institute for Resources and Environment (NIRE). Feb 20-22 2001.
- 6 Bishop, J.K.B. and Davis, R. E. (2000) Autonomous Observing Strategies for the Ocean Carbon Cycle. In ENERGY 2000, The beginning of a new millennium.. Eds. P. Catania, B. Golchert, C. Zhou, Publ. Balaban International Science Services, L'Aquila, Italy. pp 1256-1261. ISBN 1-58716-016-1.
- 5 Benson, S. Dorchak, T. Jacobs, G., Ekmann, J., Bishop, J.K.B., Grahame, T. (2000) Carbon dioxide reuse and sequestration: the state of the art today. In, ENERGY 2000, The State of the Art. Ed. P. Catania, Publ. Balaban International Science Services, L'Aquila, Italy. pp 205-226.. ISBN 086689-05-56.
- 4 Bishop, J.K.B. (2000) Strategies for Quantifying Global Ocean Carbon Dynamics in the Forbidden Zone. Ocean Carbon Transport, Exchanges and Transformations (OCTET). Proceedings of a workshop sponsored by NSF, NOAA and NASA. March 7-10, 2000. p 65-74.
- 3 Boyd, P., J.K.B. Bishop, F. Whitney (1997) Canadian JGOFS completes second phase of studies in the northeast Pacific. JGOFS Newsletter, 8, 8-9.
- 2 Bishop, J.K.B., W.B. Rossow and E.G. Dutton (1996) Clouds, Aerosols, and the Temporal and Spatial Variability of Surface Solar Irradiance: Surface flux validation for SeaWiFS. Proc. International Workshop on Research Uses of ISCCP data sets. GISS/GSFC April 15-18 1996. New York.
- 1 Bruland, K.W., Bienfang, P.K., Bishop, J.K.B., Eglinton, G., Ittekkot, V.A.W., Lampitt, R., Sarnthein, M., Thiede, J., Walsh, J.J., and Wefer, G. (1989). Group Report: Flux to the Seafloor. In Berger, W.H., Smetacek, V.S., and Wefer, G. eds. Productivity of the ocean present and past. Dahlem Konferenzen. Chichester: John Wiley and Sons Ltd., 193-215.

PUBLICATIONS Abstracts: 110

- 110 Sutton, J. N.; J. K. Bishop; E. A. Martinez; G. A. Weiss; A. Weiss; A. Derr; W. Strubhar; M. Robert; T.J. Wood. (2013). Water column profiles of particulate inorganic carbon in the northeast subarctic Pacific Ocean. AGU 2013 Fall meeting. OS51B-1661.
- 109 Hamilton, C.M.; J. K. Bishop; T.J. Wood (2013) Autonomous Particle Recognition and Analysis of Carbon Flux Explorer Imagery. AGU 2013 Fall meeting. OS53C-1713.
- 108 Kim, H.; J.K.B. Bishop. (2013) Temporal and spatial variability of Fe and Mn in perched groundwater flowing through weathered argillite underlying a steep forested hillslope. AGU 2013 Fall meeting.

- B11B-0375.
- 107 Kim, H.; J.K.B. Bishop, W. Dietrich, I.Y. Fung (2013) Chemical evolution of perched groundwater flowing through weathered bedrock underlying a steep forested hillslope, northern California. Goldschmidt Conference, Italy.
 - 106 Bishop, J.K.B., C. Hann, and T.J. Wood, (2013) Robotic Measurement of particulate flux dynamics in the twilight zone. Oral: ALSO Meeting Session SS16-11:00. New Orleans Feb 16-21 2013.
 - 105 Lerner, P. , J.K.B. Bishop, W. D. Strubhar, A. Bernard, C. Moore (2013) Transmissometer measurement of particle beam attenuation coefficient. Poster ALSO Meeting Session SS53-380. New Orleans Feb 16-21 2013.
 - 104 Martinez, E.J., Bishop, J.K.B. Bernard. A, Wood, T.J, and Robert, M. (2013) In-situ observations of particulate inorganic carbon in the subarctic north Pacific. Poster ASLO Meeting Session SS26 – 11692. New Orleans Feb 16-21 2013.
 - 103 Weiss, G.A., J. K. Bishop, W. Strubhar, T.J. Wood (2012) Understanding the sensitivity of the particulate inorganic carbon sensor to major particle phases. *Eos Trans. AGU, Fall Meet. Suppl. OS41C-1748. Poster.*
 - 102 Orrico, C., J. K. Bishop, G. Weiss, T.J. Wood, W. Strubhar, A. Derr, A. Bernard, C. Moore. Accurately resolving PIC and POC from autonomous floats. *Eos Trans. AGU, Fall Meet. Suppl. OS53C-1990. Poster.*
 - 101 Kim, H., D. M. Rempe, J.K. Bishop, W. Dietrich, I. Fung, T.J. Wood. (2012) Dynamic chemistry in the perched groundwater flowing through weathered bedrock underlying a steep forested hillslope, California. *Eos Trans. AGU, Fall Meet. Suppl. H13C-1355. Poster.*
 - 100 Nicklas, R.W. Kim, H., J.K. Bishop, D. M. Rempe (2012) Development of the weathering profile of a forest hillslope in clay-rich sedimentary system. *Eos Trans. AGU, Fall Meet. Suppl. EP41D-0831. Poster.*
 - 99 Bishop, J.K.B. (2012) Autonomous Exploration of Sedimentation Dynamics in the California Current System. Proc. 15th Biennial Challenger Conference for Marine Sciences. 3-6 Sept 2012. University of East Anglia, Norwich, UK. p36.
 - 98 Bishop, J. K.; Wood, T. J. (2012) Autonomous Exploration of Carbon Flux Sedimentation in the Twilight Zone. Proc. of the 16th Ocean Sciences Meeting, Session O85 (oral 09:30 20120220), Development of a Global Ocean Biogeochemical Observing System Based on Profiling Floats And Gliders, Salt Lake, UT Feb 19-24 2012.
 - 97 Orrico, C. M.; Bishop, J. K.; Wood, T. J.; Weiss, G.; Strubhar, W.; Barnard, A. H.; Derr, A.; Moore, C. (2012): Accurately Resolving PIC and POC from Autonomous Floats., Proc. of the 16th Ocean Sciences Meeting, B1189, Salt Lake, UT Feb 19-24 2012.
 - 96 Bishop, J.K.B. and T.J. Wood (2011) Carbon Flux Explorer observations of ocean carbon sedimentation. *Eos Trans. AGU, Fall Meet. Suppl. OS31B-05.*
 - 95 Weiss, G., J.K.B. Bishop, W. Strubhar, and T.J. Wood (2011). Autonomous Sensing of Particulate Inorganic Carbon Dynamics. *Eos Trans. AGU, Fall Meet. Suppl. OS13D-1563.*
 - 94 Kim, H., J.K.B. Bishop, T.J. Wood, I.Y. Fung, and M. Fong (2011). Automation of high-frequency sampling of environmental waters for reactive species. *Eos Trans. AGU, Fall Meet. Suppl. H41H-1160*
 - 93 Bishop, J.K.B. (2010) Autonomous Birefringence Detection of Particulate Inorganic Carbon Concentration in the Ocean. *Eos Trans. AGU. 91(26), Ocean Sci. Meet. Suppl. IT14B-03.*
 - 92 Ohnemus, D., P.J. Lam, and J. K. B. Bishop (2010) The mini-mulvfs holder: A new 142mm filter holder design for particulate sampling from in-situ pumps. *Eos Trans. AGU. 91(26), Ocean Sci. Meet. Suppl., CO25B-05.*
 - 91 Wood, T.J., J. K. B. Bishop, and P. J. Lam (2010) Large and Small Particle Collection by in-situ Filtration during GEOTRACES Inter Calibration Expeditions. *Eos Trans. AGU. 91(26), Ocean Sci. Meet. Suppl., Abstract CO23A-01.*
 - 90 Bishop, J.K.B. (2008) Spatial Assessment of Particulate Carbon In The Atlantic. Proc. AGU ASLO Ocean Sciences Meeting, Orlando Florida. p34.
 - 89 Lam, P.J, J.K.B. Bishop, J.-M. Lee, T. J. Wood (2008) Tracing The Source of Iron To The HNLC Western Subarctic Pacific. Proc. AGU ASLO Ocean Sciences Meeting, Orlando, Florida. p 223.

- 88 Wilson, S.E., D.K. Steinberg, F.L. Chu, J.K. Bishop (2008) Characterization of Zooplankton Diet and Particle Feeding in the Mesopelagic Zone using Fatty acid Lipid Biomarkers. Proc. AGU ASLO Ocean Sciences Meeting, Orlando, Florida, March 2008. p 444.
- 87 Bishop, J.K.B. (2007) Towards An Autonomous Global Ocean Carbon Observatory. *Eos Trans. Am Geophys. Union.* 88(52), *Fall Meet. Suppl.*, Abstract U23C 1458.
- 86 Bishop, J.K.B. And Wood, T.J. (2007) Towards An Autonomous Global Ocean Carbon Observatory. Proc. 50th Anniversary Of The Global Carbon Dioxide Record Symposium And Celebration. November 28-30, 2007. Kona, Hawaii. Invited Poster.
- 85 Bishop, J.K.B., S.E. Wilson, and T.J. Wood (2006) Optical assessment of particles and sedimentation processes of the Twilight Zone. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS32H-06.
- 84 Lam, P.J., J.K.B. Bishop (2006) Ballasting and Remineralization of POC in the Twiliight Zone of the Southern Ocean. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS24H-05.
- 83 Wood, T. J., J.K.B. Bishop (2006). New Views of the Oceanic Carbon Cycle from Autonomous Explorers. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS53B-05.
- 82 Buesseler, K., J.K.B. Bishop, P. Boyd. K. Casciotti, F. Dehairs, C.H. Lambourg, D. Siegel, M. Silver, D. Steinberg, S. Saito, T. Trull. J. Valdes, B. Van Mooy (2006). What we know from VERTIGO. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS22H-02.
- 81 Dehairs, F., S. Jacquet, N. Savoy, D. Cardinal, W. Bayens, and J. Bishop (2006) Particulate Ba at station ALOHA during VERTIGO I. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS23H-03.
- 80 Lamborg, C.H., Buesseler, K.O., Valdes, J. , Bishop, J.K.B., Casciotti, K.L., Trull, T., Pike, S.M. (2006) , A comparison of remineralization time and space scales for sinking particles at station ALOHA. *Eos Trans. AGU.* 87(36), *Ocean Sci. Meet. Suppl.* OS23H-02.
- 79 Bishop, J.K.B. (2005) New Views of the Oceanic Carbon Cycle from Autonomous Explorers. Seventh International Carbon Dioxide Conference, Boulder, CO. Sept. 2005.
- 78 Lamborg, C.H., Buesseler, K.O., Valdes, J. ,Trull, T., Bishop, J.K.B., Casciotti, K.L., Pike, S.M. Andrews, J.E. III, Manganini, S.J., Bertrand, C. (2005) Element fluxes and recycling during VERTIGO 04: Preliminary Results. SS84-79: Multi-tracer Approaches Towards Understanding Paritcle Fluxes and Dynamics in the Sea. ALSO meeting, June 19-24 2005. Santiago de Compostela, Spain.
- 77 Bishop, J.K.B., Wood, T.J., Lam, P.J. (2005) Autonomous Assessment of the Ocean Carbon Cycle: Prospects for a Carbon ARGO. Invited Poster. International Ocean Research Convergence, UNESCO, Paris, France. June 2005.
- 76 Bishop, J.K.B. (2005) Autonomous Assessment and Understanding of the Ocean Carbon Cycle: Prospects for a Carbon ARGO. Poster. NASA Ocean Color Research Team Meeting, Portland, OR April 24-28 2005.
- 75 Bishop, J.K.B. (2005) Autonomous Monitoring of Ocean Carbon Biomass and Sedimentation. Invited. American Chemical Society, Symposium on Ocean Instrumentation, ACS meeting, San Diego, CA, March 16 2005.
- 74 Bishop, J.K.B. (2005) Autonomous Ocean Carbon Measurement, Monitoring, and Verification: A Vision. *Chapman Conference on The Science and Technology of Carbon Sequestration.* San Diego, CA Jan 16-20 2005.
- 73 Bishop, J.K.B. (2004) Prospects For a Carbon ARGO [II]. *EOS Trans Am Geophys Union.* *AGU Fall meeting.* OS51D-08
- 72 Lam, P.J., J.K.B. Bishop; C. C. Henning, M.A. Marcus, G. A. Waychunas, and I.Y. Fung (2004) Continental Delivery of Iron to Ocean Station Papa in the Subarctic Pacific. *EOS Trans Am Geophys Union.* *AGU Fall meeting.* OS43A-0532
- 71 Lam, P. J.; Bishop, J. K.; Waychunas, G. A.; Marcus, M. A.(2004): IRON HOTSPOTS IN MARINE AGGREGATES OF THE SUBARCTIC PACIFIC. ASLO/TOS Ocean Research Conference Proceedings p51. SS5.03 (oral)
- 70 Buesseler, K. O.; Andrews, J. E.; Bishop, J. K.; Boyd, P. W.; Dehairs, F.; Matear, R.; Sarin, M. M.; Siegel, D. A.; Silver, M. W.; Steinberg, D. K.; Trull, T. W.; Valdes, J. R.: (2004) VERTIGO HERE WE GO. ASLO/TOS Ocean Research Conference Proceedings. p66. SS5.09.188 poster

- 69 Bishop, J.K.B. (2003) "Robotic Assessment of Natural and Purposful Iron Fertilization of The Ocean: Asian Dust and SOFeX (Invited). AAAS Symposium: Understanding and Managing the Global Carbon Cycle, Feb 13-18 2003, Denver CO.
- 68 Wood, T.J., A. Derr and J.K.B. Bishop (2003), Progress on autonomous sensors for POC and PIC. EGS - AGU - EUG Joint Assembly, Nice, France [Withdrawn - due to travel restriction]. April 2003.
- 67 Bishop, J.K.B., T.J. Wood and J.T. Sherman (2003) "Robotic Assessment of Carbon Sequestration in the Southern Ocean". EGS - AGU - EUG Joint Assembly, Nice, France. [Withdrawn - due to travel restriction], April 2003.
- 66 Bishop, J.K.B., T.J. Wood, J.T. Sherman (2002) Carbon Explorer Assessment of Carbon Biomass Variability and Carbon Flux Systematics in the Upper Ocean During SOFeX. *EOS Trans Am Geophys Union*, 83 (47). F799. OS22D-10.
- 65 Lam, P.J., T.J. Wood, J.K.B. Bishop (2002) Large Volume in situ Filtration During SOFeX: An overview of preliminary results. *EOS Trans Am Geophys Union*, 83 (47). F754. OS11A-0218. (Poster)
- 64 Chavez, F. P., G.E. Freiderich, P.G. Stratton, S. Chu, S. Elliot, C. Guay, J. Bishop, S.D. Pierce, M. Landry, F. Chai, R.T. Barber, S.L. Brown (2002) Observations and models of iron fertilization in the southern ocean with emphasis on high nitrate low silicate waters. *EOS Trans Am Geophys Union*, 83 (47). F797. OS22D-03.
- 63 Guay, C. K., J. K. B. Bishop (2002) Long-Term Autonomous Measurements of Biomass Variability in the Vicinity of the Ice Edge in the Southern Ocean. *EOS Trans Am Geophys Union*, 83 (47). F753. OS11A-0215.
- 62 Bishop, J.K.B. (2002) High frequency observations of ocean biological pump processes by robotic SOLO Carbon Explorers. *EOS Trans Am Geophys Union*, 83 (4), OS267. OS32L-08 (INVITED).
- 61 Bishop, J.K.B. and R.E.Davis (2001) Observations of the April 2001 Asian Dust event by Robotic Profiling Observers operating in the subarctic North Pacific Ocean. *EOS, Trans. Am. Geophys. Union*. 82. F648. {OS-32C-09}
- 60 Guay, C.K. and Bishop, J.K.B. (2001) At-sea Validation of a birefringence method for determining PIC concentrations in Seawater. *EOS, Trans. Am. Geophys. Union*. 82. F650, {OS41--0445}
- 59 Bishop, J.K.B. (2000) Prospects for a C Argo. *EOS, Trans. Am. Geophys. Union*. 81 (48) F660. {OS62-D02}
- 58 Bishop, J.K.B. and Caldeira, K. (2000) Purposful Ocean Carbon Sequestration: Science and issues. *EOS, Trans. Am. Geophys. Union*. 81 (48). B11-D02, F245.
- 57 Guay, C.K. and Bishop, J.K.B. (2000) A Rapid Birefringence Method for Measuring Suspended CaCO₃ Concentrations in Seawater. *EOS, Trans. Am. Geophys. Union*. 81 (48), OS71-B01, F669.
- 56 Benson, S. M., Amthor, J., Bishop, J.K.B., Caldeira, K.C. (2000) The Scientific Challenges of Carbon Sequestration. *EOS, Trans. Am. Geophys. Union*. 81 (48) U51B-04, F3
- 55 Guay, C.K. and Bishop, J.K.B. (2000). A rapid birefringence method for measuring suspended CaCO₃ concentrations in seawater. Ocean Optics XV October 16-20, Monaco
- 54 Bishop, J.K.B., S.E. Calvert, and M. Y.-S. Soon (1999). Spatial and Temporal Variability of POC in the Northeast Subarctic Pacific. *EOS, Trans. Am. Geophys. Union*. 80 (49) OS102.
- 53 Caldeira, K., Bishop, J.K.B. (1999) The DOE Center for Research on Ocean Carbon Sequestration (DOCS). *EOS, Trans. Am. Geophys. Union*. 80 (49) OS39.
- 52 Fung, I.Y., S. K. Meyn, I. Tegen, S. C. Doney, J. G. John, J. K. Bishop (1999) Iron Supply and Demand in the Upper Ocean. *EOS, Trans. Am. Geophys. Union*. 80 (49) OS105.
- 51 Boyd, P.W., J. K. Bishop and N. Sherry (1999). A Multidisciplinary Investigation of Particle Transformations From the Pelagic to the Deep Ocean in the NE Subarctic Pacific. *EOS, Trans. Am. Geophys. Union*. 80 (49) OS141.
- 50 Potylitsina, T. and J.K.B. Bishop (1999) Computation and Validation of Surface Solar Irradiance and PAR for the Globe using ISCCP data. *EOS, Trans. Am. Geophys. Union*. 80 (49) OS152 [OS31C-01 Poster]
- 49 Bishop, J.K.B. (1999) Transmissometer measurement of particulate organic carbon. *EOS, Trans. Am. Geophys. Union*.
- 48 Bishop, J. K. B., T. J. Wood, and T. D. Mudge (1998) Continental Margin Iron Inputs and North Pacific

- Bloomlets: Results from MULVFS Deployments During CJGOFS Cruises. *EOS, Trans. Am. Geophys. Union*.
- 47 Eek, M.K. M.J. Whiticar, J.K.B. Bishop, and C.S. Wong (1998) Carbon Isotope Composition of Alkanones along line P - NE Pacific (CJGOFS): Effects of pCO₂, PO₄-3 and Temperature. *EOS, Trans. Am. Geophys. Union*.
 - 46 Charette, M. A., S. B. Moran, J. K. B. Bishop, D. Thibault, and S. Roy (1998) ²³⁴Th as a tracer of Particulate Organic Carbon Export in the Subarctic NE Pacific Ocean during the Canadian JGOFS Program (Phase II). *EOS, Trans. Am. Geophys. Union*.
 - 45 Bishop, J.K.B. (1997) What do transmissometers C? EPOC Meeting September 1997.
 - 44 Thibault, D., S. Roy, J.K.B. Bishop, and C.S. Wong (1996) Pigment Composition of phytoplankton and it's fate in the northeastern Pacific Ocean (CJGOFS) using 3 different sampling techniques. *ASLO*. Santa Fe Meeting.
 - 43 Bishop, J.K.B. and A. Ingalls (1996) Trace Metal Dynamics of Size-Fractionated Particulate Matter: The Importance of Aggregate Microenvironments. *EOS, Trans. Am. Geophys. Union*, 77 (3) OS186.
 - 42 Bishop, J.K.B., W.B. Rossow and E.G. Dutton (1996) Clouds, Aerosols, and the Temporal and Spatial Variability of Surface Solar Irradiance: Surface flux validation for SeaWiFS. *International workshop of research uses of ISCCP data sets, NASA Goddard Institute for Space Studies, NY, April 15-18, 1996*.
 - 41 Sherrell R.M., P. Field, and J. K.B. Bishop (1995), Rare earth element (REE) scavenging in the NE and Central Equatorial Pacific: application of a new ICPMS method. *EOS, Trans. Am. Geophys. Union*, 76, F320.
 - 40 Bishop, J.K.B. and A. Ingalls (1994) Minor Element Dynamics of Size-Fractionated Particulate Matter: EqPac JGOFS cruises. *EOS, Trans. Am. Geophys. Union*, 75, 376.
 - 39 Bishop, J.K.B. and M.Q. Fleisher (1994) Paradox of the particles: Biogeochemical response of large and small particles to El Nino forcing during JGOFS equatorial Pacific survey cruises. *EOS, Trans. Am. Geophys. Union*, 75, 83.
 - 38 Ku, T.L., Luo, S., Kusakabe, M., Bishop, J.K.B., and Y. Tang (1994), ²²⁸Ra derived nutrient budgets in the surface equatorial Pacific During the 1992 ENSO. *EOS, Trans. Am. Geophys. Union*, 75, 82.
 - 37 Luo, S., Ku, T.L., Kusakabe, M., Bishop, J.K.B., Yang, Y.L., Wang, L., and H. Li (1994), Biogeochemical Cycling of Particulate Matter in the Equatorial Pacific: Th-230 and Th-228 Studies. *EOS, Trans. Am. Geophys. Union*, 75, 83.
 - 36 Flierl G.R., Bishop, J.K.B., Glover, D. M. and Paranjpe, S. (1994) A Distributed, Object-based Data Management System. *EOS, Trans. Am. Geophys. Union*, 75, 170.
 - 35 Liu, W.T. and Bishop, J.K.B. (1993) Relating the Variabilities of Solar Irradiance and Sea Surface Temperature. *The Oceanographic Society 3rd annual meeting abstracts*
 - 34 Flierl G.R., Bishop, J.K.B., Glover, D. M. and Paranjpe, S. (1993) A Distributed, Object-based Data Management System for JGOFS. *The Oceanographic Society 3rd annual meeting abstracts*
 - 33 Bishop, J.K.B. and M.Q. Fleisher (1992) Large and Small Particle Distributions During JGOFS EqPac Survey Cruises. *EOS, Trans. Am. Geophys. Union*, 73 (43), 295.
 - 32 Luo, S., Ku, T.-L., Kusakabe, M., Bishop, J.K.B., Yang, Y.L., and L. Wang (1992) Thorium Isotopes and Particle Dynamics in Equatorial Pacific along 140 W. *EOS, Trans. Am. Geophys. Union*, 73 (43), 295.
 - 31 Bishop, J.K.B. (1991) Exchanges of reactive materials between the continental margin and the open N.W. Atlantic. Abstracts of papers, GEOC, 202nd ACS National Meeting, New York City.
 - 30 Bishop, J.K.B. (1991) Spatial and temporal variability of surface solar irradiance estimated using global data from ISCCP. IUGG/IAPSO, Vienna, Austria (August 1991).
 - 29 Bishop, J.K.B. and W.B. Rossow (1990) Investigations of Global Short Wave Surface Irradiance Fields using International Satellite Cloud Climatology Project (ISCCP) data. IAPSO meeting on Space Oceanography. Venice, Italy May 22-26 1990.
 - 28 Bishop, J.K.B. (1990) Barium as a Tracer for Particulate Carbon Export from the Euphotic Zone. *EOS, Trans. Am. Geophys. Union*, 71, 167.
 - 27 Bishop, J.K.B., Smith, R.A. and Baker, K. (1989) Springtime distributions and variability of biogenic particulate matter in N.W. Atlantic Waters. *The Oceanographic Society 1st annual meeting abstracts*.

- p27.
- 26 Jeandel, C., Bishop, J.K.B. and Zindler, A.N. Neodymium: a tool for tracing exchange processes within the oceanic water column? The Sargasso Sea Example. (1989) *EOS, Trans. Am. Geophys. Union*, 71, 153.
 - 25 Bishop, J.K.B. (1988) Is the N. Atlantic south of Iceland a particulate matter hot spot? *EOS, Trans. Am. Geophys. Union*, 69, 1117.
 - 24 Conte, M.H., and Bishop, J.K.B. (1988) Vertical flux of phytoplankton carbon in blooms: deep mixing, sinking, or active transport? *EOS, Trans. Am. Geophys. Union*, 69, 1090.
 - 23 Bishop, J.K.B. (1987) The barite-opal-organic carbon association in oceanic particulate matter. *EOS, Trans. Am. Geophys. Union*, 68, 1754.
 - 22 Conte, M.H. and Bishop, J.K.B. (1987) Particulate lipid composition of large vs. small particles in productive waters. *EOS, Trans. Am. Geophys. Union*, 68, 1730.
 - 21 Bishop, J.K.B. and M.Q. Fleisher (1986) Particulate Manganese in Warm-Core Ring Systems. *EOS, Trans. Am. Geophys. Union*, 67, 1069.
 - 20 Bishop, J.K.B. (1985) Large particle chemistry, distributions and fluxes in warm core ring systems. *EOS, Trans. Am. Geophys. Union*, 66, 115.
 - 19 Conte, M.H. and Bishop, J.K.B. (1985) Particulate organic carbon, nitrogen and phosphorus in WCR 82-B. *EOS, Trans. Am. Geophys. Union*, 66, 115.
 - 18 Bishop, J.K.B. (1983) Rapid changes in particulate matter distributions in the thermostad of 82-B. *EOS, Trans. Am. Geophys. Union*, 64, 1074.
 - 17 Conte, M.H., J.K.B. Bishop and R.H. Backus (1983) Nonmigratory deep 12 kHz sound scatterers in WCR 82B. *EOS, Trans. Am. Geophys. Union*, 64, 1074.
 - 16 Schupack, D., J.K.B. Bishop and T.M. Joyce (1983) Observations of a deep particle maximum in the Gulf Stream and its influence on Warm Core rings. *EOS, Trans. Am. Geophys. Union*, 64, 1073.
 - 15 Bishop, J.K.B. (1983) Biological and physical controls on particulate matter distributions and transport. IUGG/IAPSO PS1:17, Hamburg, Germany (August, 1983).
 - 14 Bishop, J.K.B. (1983) Sampling oceanic particulate matter using large volume in-situ filtration techniques. Abstracts of papers, 185th ACS National Meeting, ANAL 194.
 - 13 Bishop, J.K.B., M.H. Conte, R.M. Sherrell (1982) Particulate matter distributions and fluxes in Warm Core Gulf Stream Ring Systems: in-situ filtration and sediment trap data. *EOS, Trans. Am. Geophys. Union*, 63, 995.
 - 12 Sherrell, R.M. and J.K.B. Bishop (1982) Particulate matter spatial distributions in Warm Core Gulf Stream Ring Systems: transmissometer data. *EOS, Trans. Am. Geophys. Union* 63, 995.
 - 11 Schupack, D. and J.K.B. Bishop (1982) Multiple unit large volume in-situ filtration system for sampling oceanic particulate matter. *EOS, Trans. Am. Geophys. Union* 63, 955.
 - 10 Bishop, J.K.B. (1982) The effects of filtration speed on large particle catch during large volume in-situ filtration. *EOS, Trans. Am. Geophys. Union*, 63, 46.
 - 9 Bishop, J.K.B. (1980) Large Volume in-situ filtration results from the Sediment Trap Intercomparison Experiment (STIE) in the Panama Basin. *EOS, Trans. Am. Geophys. Union*, 61, 1011.
 - 8 Bishop, J.K.B. (1980) Large Volume in-situ filtration studies of particle size distributions and vertical mass flux. *EOS, Trans. Am. Geophys. Union*, 61, 270.
 - 7 Ketten, D.R., J.M. Edmond, J.K.B. Bishop (1979) Reproductive stages of planktonic foraminifera in culture and open ocean. *EOS, Trans. Am. Geophys. Union*, 60, 277.
 - 6 Biscaye, P.E., J.K.B. Bishop (1978) Composition of particles from the nepheloid layer of the Atlantic Ocean (GEOSECS). *EOS, Trans. Am. Geophys. Union*, 59, 1101.
 - 5 Bishop, J.K.B., J.M. Edmond, D.R. Ketten (1977) The chemistry and vertical flux of particulate matter collected in the Galapagos region of the equatorial Pacific Ocean. *EOS, Trans. Am. Geophys. Union*, 58, 1172.
 - 4 Kurz, M.D., J.M. Edmond, J.K.B. Bishop (1977) Trace elements in oceanic particulate matter. *EOS, Trans. Am. Geophys. Union*, 58, 1171.
 - 3 Bishop, J.K.B., J.M. Edmond, D.R. Ketten (1976) The chemistry and vertical flux of particulate matter

- collected by large volume in situ filtration of the surface 400 m at stations in the south east Atlantic Ocean. *EOS, Trans. Am. Geophys. Union*, 57, 938.
- 2 Bishop, J.K.B., J.M. Edmond, D.R. Ketten, M.P. Bacon, W.B. Silker (1975) The chemistry of particulate matter collected by large volume in situ filtrations of the surface 400 m at 2 N, 9 W in the Atlantic Ocean. *EOS, Trans. Am. Geophys. Union*, 56, 1001.
 - 1 Bishop, J.K.B., R.A. Stallard, J.M. Edmond (1974) Large volume particulate matter samples from 0-400 meters in the Atlantic Ocean. *EOS, Trans. Am. Geophys. Union*, 55, 308.

POSTDOCTORAL FELLOW MENTORING

Jill Sutton (F 2012 – present) Phytoplankton Ecophysiology. Line P observations of particulate inorganic carbon.

Alexandra Thompson (2005) UC Berkeley, Miller Postdoctoral Fellow. Co-sponsor. Led LBNL sampling program in Southern Ocean January-February 2005.

Cara Henning (Oct 2004 -) The physical oceanography of the carbon explorers program. Biogeochemical modelling. (50% at LBNL; 50% with Fung UCB).

Christopher Guay (Ph.D. OSU, July 1999). August 1999-October 2001. Two year NOAA Climate Dynamics Postdoctoral Fellowship to develop advanced underwater sensors for carbon system parameters.

Christopher Still (Ph.D. Stanford university; June 2000-May 2001. DOE Hollaender Fellow (with Inez Fung). Terrestrial carbon cycle modelling.

STUDENTS/MENTORING

Graduate students: (bold – primary advisor)

Hannah Bourne – PhD (Fall 2013 -) Ocean biogeochemistry. Committee chair.

Ben Thrunhoffer – PhD (Fall 2013 -) Biogeochemical dynamics of the Eel River Critical Zone Observatory.

Hyojin Kim – PhD (Jan 2009-) Geochemistry of continental waters.

Susan Willis – PhD (2009-2014) Turbulence. Committee member.

Daniella Rempe – PhD (2010 –) Committee member.

Graduate Students Completed: (bold – primary advisor)

Charlene Ng – PhD (2009-2012) Integrative Biology. Algae dynamics Eel River (Dissertation Committee Member).

Claudia Jones - PhD (2007-2012) Geomicrobiology. Qualifying Examination chair

Atif Saleem – MA (June 2010 – May 2011) Biogeochemistry of ground water. Advisor

Amy Engelbrecht - PhD (2008-2010) Paleooceanography. UC Berkeley (Dissertation Committee Member).

Jeffrey Dick - PhD - (2000-2007) (2nd proposal - Ocean phosphorus dynamics). UC Berkeley, EPS, Preorals advisor.

Phoebe Lam - PhD (2001-2005) Marine Particulate Matter in the Twilight Zone: Insights on Iron Cycling and Remineralization of Particulate Organic Carbon in the Ocean. UC Berkeley, Department of Earth and Planetary Science, 178pp: [LBNL #59338]; Committee chair and principal advisor. Now Associate Scientist Woods Hole Oceanographic Institution.

Sun Young Park - PhD - (2000-2005) atmospheric chemistry (2nd Proposal - DOC sensor), UC Berkeley, EPS, Preorals advisor.

Bubnov, P. - M.Sc. (1996-2001). Particulate organic carbon variability in the subarctic Pacific based on transmissometer data - University of Victoria, BC, Canada: Thesis advisor.

Eek, M. (Ph.D.; 2000) methane/ biomarker geochemistry. University of Victoria, BC, Canada. Committee member.

Lu, Beiwei - M.Sc. (1999). Zooplankton distribution along the shelf break off Vancouver Island and its relationship with currents. 80pp. - University of Victoria, BC, Canada. committee member.

McLaughlin, F. - M.Sc. (1996) Geochemical and physical water mass properties and holocarbon ventilation in the southern Canadian Basin of the Arctic Ocean. 219pp - School of Earth and Ocean Sciences, University of Victoria, Victoria, BC, Canada. – thesis advisor.

Maureen H. Conte.- PhD (1989) "The biogeochemistry of particulate lipids in Warm Core Gulf Stream Ring Systems". Columbia University, 584 pp. - Columbia University. – thesis advisor.

Sherrell, R. - Ph.D. (1989) The trace metal geochemistry of suspended oceanic particulate matter. MIT/WHOI. 211 pp. - committee member/external examiner.

Undergraduate Student Thesis Projects (UC Berkeley)

Ernesto Martinez (2014) "Particulate inorganic carbon in the North Pacific"

Christina Hamilton (2013) "Carbon Flux Explorer image analysis"

Paul Lerner (2012) "Line P transmissometer POC estimates 2012 vs. 1996" (Now at Woods Hole)

Michael Fong (2012) "Effects of temperature and Zn-Co substitution on the variability of del-13C in *Thalassiosira pseudonana*" (now at Scripps)

Courtney Hann (2012) "Carbon Flux Explorer biology". (now at OSU)

Gabrielle Weiss (2012) "PIC sensor sensitivity to major particle phases" (University of Hawaii)

Ralph Till (2011) "Particulate Mo Geochemistry" (now at UC Santa Cruz)

Sara Walkup (2010) "trace metal regulation of carbon" (now at Scripps)

Undergraduate Research Apprentice Program (UC Berkeley)

Kelsey Jones (Spring, URAP Fall 2009). Continental water chemistry
Ralph Till (URAP Spring 2009-). Marine particulate matter chemistry.
Timothy Ault (URAP Fall 2009-S 2010). Keck Hydrowatch
Sarah Dendy (URAP Fall 2009). Ocean Robotics
Michael Fong (URAP S2010). Angelo Coast Mountain Reserve water chemistry
Gabrielle Weiss (Summer intern 2010; URAP F2010). Marine particulate matter geochemistry.
Nowlan Wong (URAP, F2010). Angelo Coast Mountain Reserve water chemistry.
Michael Fong (EPS; S2011-F2011)
Stacy Nagelstad (Engineering; F2011, S2012)
Ernesto Martinez (EPS; F2011-)
Kevin Ni (Chem Eng. F2012)
Areeb Aslam (Chem Eng. F2012) CO2
Robert William Nicklas (Chemistry, summer 2012; F2012) Soil Chemistry
Christina Hamilton (EPS, F2012)
Andrew Bower (engineering; S2011-F2011)
Paul Lerner (EPS, F2011-S2012)

Undergraduate Student Interns (Lawrence Berkeley National Laboratory)

Brendan Carter (UC Berkeley) - Scripps (2004-2011).
Lewis Hsu (UC Berkeley, 2005)
Greg Hierson (UC Berkeley, 2005)
Mark Cheevers (UC Berkeley, 2007)

Undergraduate students (U Victoria).

Conneys, A. - B.Sc. (hon) (1998). The Geochemistry of Vancouver Island Natural Waters. Case study: Sooke Lake Reservoir. 142 pp. University of Victoria, Victoria, BC, Canada. – thesis advisor.
Sinnott, G. - B.Sc. (hon) (1998). Ground water Flow and Contaminant Transport Modelling of the Burgoyne Bay Septage Facility, Saltspring Island, British Columbia. 90 pp. University of Victoria, Victoria, BC, Canada. – thesis advisor.
deLeeuw, S. - B.Sc. (hon) (1997). Particulate biogenic silica dynamics in the North Pacific. University of Victoria, Victoria, BC, Canada. – thesis advisor.

Other Mentoring (at LBNL)

Laboratory Science Teacher Professional Development Program (R. Otto)

Jennifer Howard. (June-August 2005)
Katherine Noonan (June-August 2006, 2007, 2009)

Industry Initiatives for Science & Math Education (IISME) Mentor

Katherine Noonan (2010).

High School Student Mentoring (HSSRP at LBNL)

Monson, Oliver (2002) - Assisted in laboratory and at sea R/V Sproul (July 2002).
Lyra Piorotti (2003) - Analysis of remote sensing data in support of Ron Brown Expedition. ICP-MS determination of Ba.

TEACHING

UC Berkeley, Dept of Earth and Planetary Science (1998 -)

EPS 24 Oceans in the News (1) Freshman seminar (S2008 - PRESENT)

Description: "Not one week goes by without major articles in print/online media such as The San Francisco Chronicle, New York Times, etc. News items: Pollution?, an ice-free Arctic Ocean?, Law of the Sea?, Fisheries?, Economics and Commerce?, Sea Level Rise?, An ocean fix for the CO₂ problem?, Ecological discoveries? and more. The seminar delves into the details (down to original documents) of several of these focus areas over the course of the term."

EPS C82 Oceans (2 units; post 2011 3 units) The geology, physics, chemistry, and biology of the world oceans. The application of oceanographic sciences to human problems will be explored through special topics such as energy from the sea, marine pollution, food from the sea, and climate change. (Fall 2003; Fall 2004, Fall 2006 - Fall 2012, Fall 2014) EPS/IB/GEOG C82 has students with very diverse backgrounds (athletes to science majors). Aim of the course is give students a working vocabulary of the ocean and it's role in day to day life. EPS C82 was selected as the first Letters and Science Big Ideas Courses and renamed as "Oceans" and expanded to 3 units in 2012.

EPS 103/203. Introduction to Aquatic and Marine Geochemistry. (3; 4 post 2010) Three hours of lecture per week. Course covers the global water cycle; major processes governing the distribution of chemical species within the hydrosphere; mass balances, fluxes, and reactions in the marine environment from global to submicron scales; relationships to physical, biological, and geological processes; geochemical tracers and tools. A major focus is on carbon chemistry. The aim of this course is to build 'vocabulary' in marine geochemistry for students interested in Marine sciences (*new* Fall 2000; Fall 2002, yearly S 2007 to present) 100%.

EPS 260. Research Seminar. (2) Aimed at orienting new graduate students and senior undergraduate students to the department of Earth and Planetary Science. (F 2009, F2010).

University of Victoria, School of Earth and Ocean Sciences (1993-1998)

EOS 240 - Introduction to Geochemistry (50% effort) [S 1994, S 1995, S 1997] Textbooks: various including Berner and Berner - Global Water Cycle. Includes a laboratory and field program study of the anoxic water column and sediments in Saanich Inlet.

EOS 425* - Aqueous Geochemistry and the Environment (100%) [New F 1996] Textbook: Morel and Hering; Principles and Applications of Aquatic Chemistry MINEQL+ software. Laboratory and Field study of the geochemistry of Lake Cowichan - Mass Balance - pH, alkalinity - CO₂ system, Si, ICP-MS elements - regional geological context.

EOS 430/537* - Isotope and Tracer Geochemistry (75% effort) [New F 1995, F 1996] Textbook: Faure - Isotope Geology and current literature. Includes laboratory on isotope dilution analysis (Ba and Pb) by ICP-MS.

EOS 503 - Global Biogeochemical Cycles (50%) [S 1994, S 1995]. Textbooks: Marine Biogeochemistry - Libes; Global Water Cycle - Berner and Berner. Current literature.
