

Education

B.A. Biochemistry and Cell Biology cum laude, University of California at San Diego, 1981.

Ph.D. Marine Chemistry, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program, 1986.

Professional Experience

- Lab Technician, Scripps Institute of Oceanography, part-time, Sept. 1980 to Aug. 1981.
- M.I.T. Research Assistantship, Massachusetts Institute of Technology, Fall 1981 to Spring 1983.
- Graduate Research Assistant, Woods Hole Oceanographic Institution, Spring 1983 to Fall 1986.
- Post-Doctoral Investigator, Woods Hole Oceanographic Institution, Sept. 1986 to Feb. 1987.
- Visiting Investigator, Woods Hole Oceanographic Institution, Feb. 1987 to Sept. 1988.
- Assistant Scientist, Woods Hole Oceanographic Institution, Sept. 1988 to Sept. 1992.
- Adjunct Associate Scientist, Bermuda Biological Station for Research, Jan. 1992 to Jan. 1996.
- Associate Scientist, Woods Hole Oceanographic Institution, Sept. 1992 to March 1996.
- Associate Program Director, National Science Foundation, Ocean Sciences Division/Chemical Oceanography Program, Sept. 1996 to Sept. 1998.
- Associate Scientist w/Tenure, Woods Hole Oceanographic Institution, March 1996 to Sept. 2000.
- Executive Scientist, US JGOFS Planning and Data Management Office, Dec. 1998 to Oct. 2005.
- Department Chair, Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution, May 2003 to Sept. 2007.
- Senior Scientist, Woods Hole Oceanographic Institution, Sept. 2000 to present.
- Director, Center for Marine and Environmental Radioactivity, Jan. 2013 to present.

Professional Affiliations & Awards

- Member, Geochemical Society, 1982 to 1993.
- Editorial Board, Journal of Environmental Radioactivity, 1987 to 1993.
- Member, American Geophysical Union, 1984 to present.
- Member, The Oceanography Society, 1989 to present.
- Chair, Scientific Committee on Oceanic Research Working Group 116, Sediment Trap and 234Th Methods for Carbon Export Flux Determination, 2000 to 2007.
- Fellow, Ocean Life Institute, WHOI 2001 to 2003.
- Directors Award for Collaborative Integration, US NSF, 2007.
- Paul M. Fye Chair, WHOI, 2008 to 2013.
- Fellow, American Geophysical Union, 2009.

- Times Higher Education top cited scientist in Oceanography, 2000 to 2010.
- Foreign member of the Royal Netherlands Academy of Arts and Sciences, 2013 to present.
- Japan Society for the Promotion of Science Short term “S” Fellowship (highest level fellowship for overseas researchers), 2013.
- Co-Chair, Scientific Committee on Oceanic Research (SCOR) Working Group Radioactivity in the Ocean, 5 decades later (RiO5), with Minhan Dai of Xiamen University, China
- Elected a Fellow of the American Association for the Advancement of Science (AAAS), 2018.
- Awarded the 2019 John H. Martin Award with co-authors by Association for the Sciences of Limnology and Oceanography for Boyd et al., (2000). A mesoscale phytoplankton bloom in the polar Southern Ocean stimulated by iron fertilisation. *Nature*, 407, 695-702.
- 2021 NASA Robert H. Goddard Honor Award- EXPORTS team. D. Siegel & others, including K. Buesseler.

Research Interests

- Upper-ocean biogeochemical cycles and fluxes of carbon and associated elements as part of the ocean biological pump.
- Improvement in methods to quantify and assess suspended and sinking particles abundances, sources and transport in the ocean.
- Use of man-made and naturally occurring radionuclides to study ocean processes.
- Assessment of radioactivity associated with the releases from Chernobyl, Fukushima, the Marshall Islands and other localized sources.
- Assessment of the ocean’s role in regulating climate and to what degree ocean carbon dioxide removal might be enhanced in a responsible, transparent and quantifiable way.
- Education of public audiences regarding radioactivity in the oceans and training of the next generation of ocean radiochemists

Research Publications (Most recent to oldest)

- 203 Johnson et al. including K. Buesseler (2023) Assessment of oceanographic conditions during the North Atlantic Export Processes in the Ocean from RemoTe Sensing (EXPORTS) field campaign. *Progress in Oceanography*, preprint. DOI: <https://doi.org/10.31223/X5C097>
- 202 Rypina, I., Macdonald, A., Yoshida, S., Manning, J., Gregory, M., Rozen, M., Buesseler, K. (2022) Spreading Pathways of Pilgrim Nuclear Power Station Wastewater in and around Cape Cod Bay: Estimates from Ocean Drifter Observations. *Journal of Environmental Radioactivity*, in press.
- 201 Buesseler, K., Leinen, M., Ramakrishna, K. (2022) Removing carbon dioxide: first, do not harm. *Nature Correspondence*, 606, 864. doi: <https://doi.org/10.1038/d41586-022-01774-0>
- 200 Ceballos-Romero, E., Buesseler, K.O., Villa-Alfageme, M., (2022) Revisiting five decades of ²³⁴Th data: a comprehensive global oceanic compilation. *Earth System Science Data Discussions*, 1-64. DOI: 10.5194/essd-2021-259.
- 199 Ceballos-Romero, Elena; Buesseler, Ken O; Muñoz-Nevado, Carlos; Villa-Alfageme, María (2021): More than 50 years of Th-234 data: a comprehensive global oceanic compilation. PANGAEA, <https://doi.pangaea.de/10.1594/PANGAEA.918125>.
- 198 National Academies of Sciences, Engineering, and Medicine. *Authors: Doney, S.C., Buck, H., Buesseler, K., Iglesias-Rodriguez, M.D., Moran, K., Oschlies, A., Renforth, P., Roman, J., Sant, G.N., Siegel, D.A., Webb, R., White, A.* (2021) A Research Strategy for Ocean-based Carbon Dioxide Removal and Sequestration. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26278>.

- 197 Durkin, C. Buesseler, K.O., Cetinic, I., Estapa, M., Kelly, R.P., Omand, M. (2021) A visual
tour of carbon export by sinking particles. *Global Biogeochemical Cycles*, 35,
e2021GB006985. DOI: 10.1029/2021GB006985.
- 196 Siegel, D., et al including Buesseler, K.O. (2021) An operational overview of the EXport
Processes in the Ocean from RemoTe Sensing (EXPORTS) Northeast Pacific Field
Deployment. *Elementa*, 9(1), 00107. DOI: 10.1525/elementa.2020.00107.
- 195 Roca-Marti, M., Benitez-Nelson, C.R., Umhau, B.P., Wyatt, A.M., Clevenger, S.J., Pike, S.,
Horner, T.J., Estapa, M.L., Resplandy, L., Buesseler, K.O. (2021) Concentrations, ratios
and sinking fluxes of major bioelements at Ocean Station Papa (pdf). *Elementa*, 9(1),
00166. DOI: 10.1525/elementa.2020.00166.
- 194 Estapa, M., Buesseler, K., Durkin, C.A., Omand, M., Benitez-Nelson, C.R., Roca-Marti, M.,
Breves, E., Kelly, R.P., Pike, S. (2021) Biogenic sinking particle fluxes and sediment trap
collection efficiency at Ocean Station Papa (pdf). *Elementa*, 9(1), 00122. DOI:
10.1525/elementa.2020.00122.
- 193 Clevenger, S.J., Benitez-Nelson, C.R., Drysdale, J., Pike, S., Puigcorbé, V., Buesseler, K.O.
(2021) Review of the analysis of ²³⁴Th in small volume (2-4 L) seawater samples:
improvements and recommendations. *Journal of Radioanalytical and Nuclear Chemistry*,
329, 1-13. DOI: 10.1007/s10967-021-07772-2
- 192 Buesseler, K.O. (2020) Opening the floodgates at Fukushima. *Science*, 369(6504), 621-
622. DOI: 10.1126/science.abc1507.
- 191 Buesseler, K.O., Benitez-Nelson, C.R., Roca-Marti, M., Wyatt, A.M., Resplandy, L.,
Clevenger, S.J., Drysdale, J.A., Estapa, M.L., Pike, S., Umhau, B.P. (2020) High resolution
spatial and temporal measurements of particulate organic carbon flux using thorium-234
in the northeast Pacific Ocean during the EXport Processes in the Ocean from RemoTe
Sensing field campaign. *Elementa*, 8(1), 030. DOI: 10.1525/elementa.030
- 190 Kenyon, J.A., Buesseler, K.O., Casacuberta, N., Castrillejo, M., Otosaka, S., Masqué, P.,
Drysdale, J.A., Pike, S.M., Senial, V. (2020) Distribution and evolution of Fukushima Dai-
ichi derived ¹³⁷Cs, ⁹⁰Sr, and ¹²⁹I in surface seawater off the coast of Japan.
Environmental Science and Technology, 54(23), 15066-15075. DOI:
10.1021/acs.est.0c05321.
- 189 Martin, A., Boyd, P., Buesseler, K. et al. (2020) The ocean's twilight zone must be studied
now, before it is too late (pdf). *Nature Comments*, 508, 26-28. DOI: 10.1038/d41586-
020-00915-7
- 188 Black, E.E., Kienast, S.S., Lemaitre, N., Lam, P.J., Anderson, R.F., Planquette, H., Planchon,
F., Buesseler, K.O. (2020) Ironing our the question of Fe residence time in the dynamic
upper ocean. *Global Biogeochemical Cycles*, 34(9), e2020GB006592. DOI:
<https://doi.org/10.1029/2020GB006592>
- 187 Macdonald, A., S. Yoshida, S. Pike, K. Buesseler, I. Rypina, S. Jayne, V. Rossi, J. Kenyon,
J.A. Drysdale (2020). A Fukushima Tracer Perspective on Four Years of North Pacific
Mode Water Evolution. *Deep-Sea Research Part I*, 166, 103379. DOI:
<https://doi.org/10.1016/j.dsr.2020.103379>
- 186 Jin, D., Hoagland, P., Buesseler, K. (2020) The value of scientific research on the ocean's
biological carbon pump (pdf). *Science of the Total Environment*, 749, 141357. DOI:
doi.org/10.1016/j.scitotenv.2020.141357

- 185 Buesseler, K.O., Boyd, P.W., Black, E.E., Siegel, D.A. (2020) Metrics that matter for
assessing the ocean biological carbon pump. *PNAS Perspective*, 117(18), 9679-9687. DOI:
10.1073/pnas.1918114117
- 184 Nagao, S., Terasaki, S., Ochiai, S., Fukushi, K., Tomihara, S., Charette, M.A., Buesseler,
K.O. (2020) Desorption behavior of Fukushima-derived radiocesium in sand collected
from Yotsukura Beach in Fukushima prefecture. *Analytical Sciences*, 36, 569-575.
- 183 Onrubia, J.A., Petrova, M.V., Puicorbé, V., Black, E.E., Valk, O., Dufour, A., Hamelin, B.,
Buesseler, K.O., Masqué, P., Le Moigne, F.A.C, Sonke, J.E., van der Loeff, M.R.,
Heimbürger-Boavida, L.-E. (2020) Mercury export flux in the Arctic Ocean estimated
from ²³⁴Th/²³⁸U disequilibria. *ACS Earth and Space Chemistry*, 4(5), 795-801. DOI:
10.1021/acsearthspacechem.0c00055
- 182 Estapa, M., Valdes, J., Tradd, K., Sugar, J., Omand, M., Buesseler, K. (2020) The neutrally
buoyant sediment trap: two decades of progress. *Journal of Atmospheric and Oceanic
Technology*, 37, 957-973. DOI: 10.1175/JTECH-D-19-0118.1
- 181 Baker, C., Estapa, M., Iversen, M., Lampitt, R., Buesseler, K. (2020) Are all sediment traps
created equal? An intercomparison study of carbon export methodologies at the PAP-SO
site. *Progress in Oceanography*, 184, Art102317. DOI: 10.1016/j.pocean.2020.102317
- 180 Drysdale, J.A. & Buesseler, K.O. (2020) Uranium adsorption behaviour of amidoximated
fibers under coastal ocean conditions. *Progress in Nuclear Energy*, 119, Art 103170. DOI:
10.1016/j.pnucene.2019.103170
- 179 Black, E.E., Lam, P.J., Lee, J.-M., Buesseler, K.O. (2019) Insights from the ²³⁸U-²³⁴Th
method into the coupling of biological export and the cycling of cadmium, cobalt, and
manganese in the southeast Pacific Ocean. *Global Biogeochemical Cycles*, 33 (1), 15-36.
- 178 Haji, M.N, Drysdale, J.A., Buesseler, K.O., Slocum, A.H. (2019) Results of an Ocean Trial of
the Symbiotic Machine for Ocean uRanium Extraction. *Environmental Science and
Technology*, 53 (4), 2229-2237.
- 177 Hayes, C.T., Black, E.E., Anderson, R.F., Barkaran, M., Buesseler, K.O., Charette, M.A. et
al. (2018) Flux of particulate elements in the North Atlantic Ocean constrained by
multiple radionuclides. *Global Biogeochemical Cycles*, 32 (12), 1738-1758.
- 176 Bisson, K.M., Siegel, D.A., DeVries, T., Cael, B.B., Buesseler, K.O. (2018) How data set
characteristics influence ocean carbon export models. *Global Biogeochemical Cycles*, 32
(9), 1312-1328.
- 175 Schlitzer, R., and others, including K.O. Buesseler (The GEOTRACES Group) (2018). The
GEOTRACES Intermediate Data Product 2017. *Chemical Geology*, 493, 210-223.
- 174 Buesseler, K., M.A. Charette, S. Pike, P. Henderson, and L. Kipp (2018). Lingering
radioactivity at the Bikini and Enewetak Atolls. *Science of the Total Environment*, 621,
1185-1198.
- 173 Black, Erin, Ken Buesseler, Steven Pike, and Phoebe Lam (2018). ²³⁴Th as a tracer of
particulate export and remineralization in the Southeastern Tropical Pacific. *Marine
Chemistry*, 201, 35-50.
- 172 Vives i Battle, J., M. Aoyama, C. Bradshaw, J. Brown, K. Buesseler, N. Casacuberta Arola,
M. Christl, C. Duffa, N. Impens, M. Iosjpe, P. Masqué, and J. Nishikawa (2018). Marine
radioecology after the Fukushima Dai-ichi nuclear accident: Are we better positioned to
understand the impact of radionuclides in marine ecosystems? *Science of the Total
Environment*, 618, 80-92.

- 171 Haji, M.N., Gonzalez, J., Drysdale, J., Buessler, K., Slocum, A.H. (2018) Effects of protective shell enclosures on uranium adsorbing polymers. *Industrial & Engineering Chemistry Research*, 57 (45), 15534-15541. DOI: 10.1021/acs.iecr.8b03583
- 170 Benitez-Nelson, C.R., Buessler, K., Dai, M., Aoyama, M., Casacuberta, N., Charmasson, S., Johnson, A., Godoy, J.M., Maderich, V., Masqué, P., Moore, W., Morris, P.J., Smith, J.N. (2018) Radioactivity in the marine environment: Understanding the basics of radioactivity. ASLO e-Lectures, vol. 8 (1), 1-58. DOI: 10.1002/loe2.10010
- 169 Benitez-Nelson, C.R., Buessler, K., Dai, M., Aoyama, M., Casacuberta, N., Charmasson, S., Johnson, A., Godoy, J.M., Maderich, V., Masqué, P., Moore, W., Morris, P.J., van der Loeff, M.R., Smith, J.N. (2018) Radioactivity in the marine environment: Uranium-Thorium Decay Series. ASLO e-Lectures, vol. 8 (1), 59-113. DOI: 10.1002/loe2.10009
- 168 Benitez-Nelson, C.R., Buessler, K., Dai, M., Aoyama, M., Casacuberta, N., Charmasson, S., Godoy, J.M., Johnson, A., Maderich, V., Masqué, P., Moore, W., Morris, P.J., Smith, J.N. (2018) Radioactivity in the marine environment: Cosmogenic and anthropogenic radionuclides. ASLO e-Lectures, vol. 8 (1), 114-169. DOI: 10.1002/loe2.10008
- 167 Benitez-Nelson, C.R., Charmasson, S., Buessler, K., Dai, M., Aoyama, M., Casacuberta, N., Godoy, J.M., Johnson, A., Maderich, V., Masqué, P., Metian, M., Moore, W., Morris, P.J., Smith, J.N. (2018) Radioactivity in the marine environment: Understanding the basics of radioecology. ASLO e-Lectures, vol. 8 (1), 114-169. DOI: 10.1002/loe2.10007
- 166 Casacuberta, N., M. Christl, K.O. Buessler, Y. Lau, M. Castrillejo, H.-A. Syna, I and P. Masque (2017). Potential releases of I-129, U-236, and Pu isotopes from the Fukushima Dai-ichi nuclear power plants to the ocean from 2013 to 2015. *Environmental Science and Technology*, 51(17), 9826-9835.
- 165 Lerner, P., O. Marchal, P. Lam, K. Buessler, and M. Charette (2017). Kinetics of thorium and particle cycling along the U.S. GEOTRACES North Atlantic Transect. *Deep-Sea Research I*, 125, 106-128.
- 164 Fassbender, A.F., H.I. Palevsky, T.R. Martz, A.E. Ingalls, Martha Gledhill, S.E. Fawcett, J.A. Brandes, L.I. Aluwihare, the participants of COME ABOARD (includes K. Buessler), and DISCO XXV (2017). Perspectives on Chemical Oceanography in the 21st century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO. *Marine Chemistry*, 196, 181-190, doi.org/10.1016/j.marchem.2017.09.002.
- 163 Smith, John, Vincent Rossi, Ken Buessler, Jay Cullen, Jack Cornett, Richard Nelson, Alison Macdonald, Marie Robert, and Jonathan Kellogg (2017). Time series measurements of the transport of the Fukushima radioactivity plume through the northeast Pacific Ocean. *Environmental Science and Technology*, 51, 10494-10502. DOI: 10.1021/acs.est.7b02712.
- 162 Sanial, Virginie, Ken O. Buessler, Matthew A. Charette, and Seiya Nagao (2017). Unexpected source of Fukushima derived radiocesium to the coastal ocean of Japan. *PNAS*, 11(42), 11092-11096.
- 161 Estapa, M., C. Durkin, K. Buessler, R. Johnson and M. Feen (2017). Carbon flux from bio-optical profiling floats: calibrating transmissometers for use as optical sediment traps. *Deep-Sea Research I*, 120, 100-111.
- 160 Lerner, P., O. Marchal, P.J. Lam, K. Buessler and M. Charette (2017). Kinetics of thorium and particle cycling along the U.S. GEOTRACES North Atlantic Transect. *Deep-Sea Research I*, 125, 106-128.

- 159 Buesseler, K., M. Dai, M. Aoyama, C. Benitez-Nelson, S. Charmasson, K. Higley, V. Maderich, P. Masqué, P.J. Morris, D. Oughton, and J.N. Smith (2017). Fukushima Daiichi-Derived Radionuclides in the Ocean: Transport, Fate, and Impacts. *Annual Review of Marine Science*, 9, 173-203. DOI: 10.1146/annurev-marine-010816-060733.
- 158 Zhou, Kuanbo, Kanchan Maiti, Minhan Dai, Shuh-Ji Kao, and Ken Buesseler (2016). Does adsorption of dissolved organic carbon and thorium onto membrane filters affect the carbon to thorium ratios, a primary parameter in estimating export carbon flux? *Marine Chemistry*, 184, 1-10.
- 157 Durkin, C., B. Van Mooy, S. Dyrman and K. Buesseler (2016). Sinking phytoplankton associated with carbon flux in the Atlantic Ocean. *Environmental Science and Technology*. DOI: 10.1002/Ino.10253.
- 156 Lerner, P., P.J. Lam, O. Marchal, R.F. Anderson, K. Buesseler, M. Charette, R.L. Edwards, C.T. Hayes, K.F. Huang, Y. Lu and L.F. Robinson (2016). Testing models of thorium and particle cycling in the ocean using data from station GT11-22 of the U.S. GEOTRACES North Atlantic Section. *Deep-Sea Research I*, 113, 57-79.
- 155 Siegel, David, Ken Buesseler, Mike Behrenfeld, Claudia Benitez-Nelson, Emmanuel Boss, Mark Brzezinski, Adrian Burd, Craig Carlson, Eric D'Asaro, Scott Doney, Mary Jane Perry, Rachel Stanley and Deborah Steinberg (2016). Prediction of the Export and Fate of Global Ocean Net Primary Production: The EXPORTS Science Plan. *Frontiers in Marine Science*, 3, 22. DOI: 10.3389/fmars.2016.00022.
- 154 Gill, G., L.-J. Kuo, C. Janke, J. Park, R. Jeters, G. Bonheyo, H.-B. Pan, C. Wai, T. Khangaonkar, L. Bianucci, J. Wood, M.G. Warner, S. Peterson, D. Abrecht, R. Mayes, C. Tsouris, Y. Oyola, J. Strivens, N. Schlafer, R.S. Addleman, W. Chouyyok, S. Das, J. Kim, K. Buesseler, C. Breier, and E. D'Alessandro (2016). The Uranium from Seawater Program at PNNL: Overview of Marine Testing, Adsorbent Characterization, Adsorbent Durability, Adsorbent Toxicity, and Deployment Studies. *Industrial & Engineering Chemistry Research*, 55(15), 4264-4277. DOI: 10.1021/acs.iecr.5b03649.
- 153 Castrillejo, M., N. Casacuberta, C. Breier, S. Pike, P. Masque and K. Buesseler (2016). Reassessment of ⁹⁰Sr, ¹³⁷Cs and ¹³⁴Cs in the coast off Japan derived from the Fukushima Dai-ichi nuclear accident. *Environmental Science and Technology*, 50, 173-180. DOI: 10.1021/acs.est.5b03903.
- 152 Estapa, M.L., D.A. Siegel, K.O. Buesseler, R.H.R. Stanley, M.W. Lomas, and N.B. Nelson (2015). Decoupling of net community production and export production at submesoscales in the Sargasso Sea. *Global Biogeochemical Cycles*, 29, 1266-1282. DOI: 10.1002/2014GB004913.
- 151 Yoshida, S., A.M. Macdonald, S.R. Jayne, I.I. Rypina and K. Buesseler (2015). Observed eastward progression of the Fukushima ¹³⁴Cs signal across the North Pacific. *Geophysical Research Letters*, 42, 7139-7147. DOI: 10.1002/2015GL065259.
- 150 Maiti, K., M.A. Charette, K.O. Buesseler, K. Zhou, P. Henderson, W.S. Moore, P. Morris, and L. Kipp (2015). Determination of particulate and dissolved ²²⁸Th in seawater using a delayed coincidence counter. *Marine Chemistry*, 177(1), 196-202.
- 149 Schlitzer, R., and others, including K.O. Buesseler (The GEOTRACES Group) (2015). The GEOTRACES Intermediate Data Product 2014. *Marine Chemistry*, 177(1), 1-8.

- 148 Breier, C.A.F., S.M. Pike, F. Sebesta, K. Tradd; J.A. Breier and K.O. Buesseler (2015). New applications of KNiFC-PAN resin for broad scale monitoring of radiocesium following the Fukushima Dai-ichi nuclear disaster. *Journal of Radioanalytical and Nuclear Chemistry*, 307(3), 2193-2200. DOI: 10.1007/s10967-015-4421-x.
- 147 Baumann, Z., N.S. Fisher, C.J. Gobler, K.O. Buesseler, J.A. George, C. F. Breier and J. Nishikawa (2015). Fukushima 137Cs at the base of planktonic food webs off Japan. *Deep-Sea Research II*, 106, 9-16.
- 146 Pike, S., A.S Adekola, J. Colaresi, G. Ilie, W.F. Mueller, K.M. Yocum and K.O. Buesseler (2015). Improved Gamma-Spectroscopy of marine samples via low background Small Anode Germanium (SAGe) Well Detector. *Journal of Radioanalytical and Nuclear Chemistry*, 307(2), 2369-2364. DOI: 10.1007/s10967.
- 145 McDonnell, A.M.P., P.W. Boyd, K.O. Buesseler (2015). Effects of sinking velocities and microbial respiration rates on the attenuation of particulate carbon fluxes through the mesopelagic zone. *Global Biogeochemical Cycles*. 29 (2), 175-193. DOI: 10.1002/2014GB004935.
- 144 Buesseler, K.O., C.R. German, M.C. Honda, S. Otsuka, E.E. Black, H. Kawakami, S.J. Manganini, and S.M. Pike (2015). Tracking the Fate of Particle Associated Fukushima Daiichi Cesium in the Ocean off Japan. *Environmental Science and Technology*, 2015, 49 (16), 9807-9816. DOI: 10.1021/acs.est.5b02635.
- 143 Durkin, C., M.L. Estapa, and K.O. Buesseler (2015). Observations of carbon export by small sinking particles in the upper mesopelagic. *Marine Chemistry*, 175, 72-81.
- 142 Owens, S.A., S. Pike and K.O. Buesseler (2015). Thorium-234 as a tracer of particle dynamics and upper ocean export in the Atlantic Ocean. *Deep Sea Research II*, 116, 42-59.
- 141 McDonnell, A.M.P., P.J. Lam, C.H. Lamborg, K.O. Buesseler, R. Sanders, J.S. Riley, C. Marsay, H.E.K. Smith, E.C. Sargent, R.S. Lampitt and J.K.B. Bishop (2015). The oceanographic toolbox for the collection of sinking and suspended marine particles. *Progress in Oceanography*, 13, 17-31.
- 140 Rypina, I.I., S.R. Jayne, S. Yoshida, A.M. Macdonald, and K. Buesseler (2014). Drifter-based estimate of the 5-year dispersal of Fukushima-derived radionuclides. *Journal of Geophysical Research: Oceans*, 119, 8177–8193. DOI: 10.1002/2014JC010306.
- 139 Dulaquais, G., M. Boye, R. Middag, S. Owens, V. Puigcorbe, K. Buesseler, P. Masqué, H. de Baar and X. Carton (2014). Contrasting biogeochemical cycles of cobalt in the surface western Atlantic Ocean. *Global Biogeochemical Cycles*, 28 (12), 1387–1412. DOI: 10.1002/2014GB004903.
- 138 Buesseler, Ken O. (2014). Fukushima and Ocean Radioactivity. *Oceanography*, 27(1), 92–105. DOI: 10.5670/oceanog.2014.02.
- 137 Black, E.E., and K.O. Buesseler (2014). Spatial variability and the fate of cesium in coastal sediments near Fukushima, Japan. *Biogeosciences*, 11, 5123-5137. DOI: 10.5194/bg-11-5123-2014.
- 136 Guilderson, T.P. S.J. Tumey, T.A. Brown, and K.O. Buesseler (2014). The 129-iodine content of subtropical Pacific waters: impact of Fukushima and other anthropogenic 129-iodine sources. *Biogeosciences*, 11, 4839-4852. DOI: 10.5194/bg-11-4839-2014.

- 135 Siegel, D.A., K.O. Buesseler, S.C. Doney, S.F. Sailley, M.J. Behrenfeld and P.W. Boyd (2014). Global assessment of ocean carbon export by combining satellite observations and food-web models, *Global Biogeochemical Cycles*, 181-196. DOI: 10.1002/2013GB004743.
- 134 Kameník, J., H. Dulaiova, K.O. Buesseler, S.M. Pike and K. Šťastná (2013). Cesium-134 and 137 activities in the central North Pacific Ocean after the Fukushima Dai-ichi nuclear power plant accident. *Biogeosciences*, 10, 6045-6052. DOI: 10.5194/bg-10-6045-2013.
- 132 Povinec, P.P., M. Aoyama, D. Biddulph, R. Breier, K. Buesseler, C.C. Chang, R. Golser, X.L. Hou, M. Jeřkovský, A.J.T. Jull, J. Kaizer, M. Nakano, H. Nies, L. Palcsu, L. Papp, M.K. Pham, P. Steier and L.Y. Zhang (2013). Cesium, iodine and tritium in NW Pacific waters – a comparison of the Fukushima impact with global fallout. *Biogeosciences*, 10, 6377–6416. DOI: 10.5194/bgd-10-6377-2013.
- 132 Estapa, M.L., K.O. Buesseler, E. Boss and G.P. Gerbi (2013). Autonomous, high-resolution observations of particle flux in the oligotrophic ocean. *Biogeosciences*, 10, 5517-5531. DOI: 10.5194/bg-10-5517-2013.
- 131 Rypina, I.I., S.R. Jayne, S. Yoshida, A.M. Macdonald, E. Douglass and K. Buesseler (2013). Short-term dispersal of Fukushima-derived radionuclides off Japan: Modeling efforts and model-data intercomparison. *Biogeosciences*, 10, 4973-4990. DOI: 10.5194/bg-10-4973-2013.
- 130 Casacuberta, N., P. Masqué, J. Garcia-Orellana, R. García-Tenorio and K.O. Buesseler (2013). ⁹⁰Sr and ⁸⁹Sr in seawater off Japan as a consequence of the Fukushima Dai-ichi nuclear accident. *Biogeosciences*, 10, 3649-3659. DOI: 10.5194/bg-10-3649-2013.
- 129 Maiti, K., M.A. Charette, K.O. Buesseler and M. Kahru (2013). An inverse relationship between production and export in the Southern Ocean. *Geophysical Research Letters*, 40, 1-5. DOI: 10.1002/grl.50219.
- 128 Charette, M.A., C.F. Breier, P.B. Henderson, S.M. Pike, I.I. Rypina, S.R. Jayne and K.O. Buesseler (2013). Radium-based estimates of cesium isotope transport and total direct ocean discharges from the Fukushima Nuclear Power Plant accident. *Biogeosciences*, 10, 2159-2167. DOI: 10.5194/bg-10-2159-2013.
- 127 Owens, S.A., K.O. Buesseler, C.H. Lamborg, J. Valdes, M.W. Lomas, R.J. Johnson, D.K. Steinberg and D.A Siegel (2013). A new time-series of particle export from neutrally buoyant sediment traps at the Bermuda Atlantic time-series study site. *Deep-Sea Research I*, 72, 34-47.
- 126 Tumey, S.J., T.P. Guilderson, T.A. Brown, T. Broek, K.O. Buesseler (2012). Input of I-129 into the Western Pacific Ocean Resulting from the Fukushima Nuclear Event. *Journal of Radioanalytical and Nuclear Chemistry*, 296, 957-962. DOI: 10.1007/s10967-012-2217-9.
- 125 Pike, S.M., K.O. Buesseler, C.F. Breier, H. Dulaiova, K. Stastna, and F. Sebesta (2012). Extraction of cesium in seawater off Japan using AMP-PAN resin and quantification via gamma spectroscopy and inductively coupled mass spectrometry. *Journal of Radioanalytical and Nuclear Chemistry*, 296(1), 369-374. DOI: 10.1007/s10967-012-2014-5.

- 124 Maiti, K., K.O. Buesseler, S.M. Pike, C. Benitez-Nelson, P. Cai, W. Chen, K. Cochran, M. Dai, F. Dehairs, B. Gasser, R.P. Kelly, P. Masque, L.A. Miller, J.C. Miquel, S.B. Moran, P.J. Morris, F. Peine, F. Planchon, A.A. Renfro, M. Rutgers van der Loeff, P.H. Santschi, R. Turnewitsch, J.T. Waples, and C. Xu (2012). Intercalibration studies of short-lived thorium-234 in the water column and marine particles. *Limnology and Oceanography Methods*, 10(9), 631-644.
- 123 McDonnell, A.M.P, and K.O. Buesseler (2012). A new method for the estimation of sinking particle fluxes from measurements of particle size distribution, sinking velocity, and carbon density. *Limnology and Oceanography Methods*, 10(5), 329-346.
- 122 Buesseler, K.O., S.R. Jayne, N.S. Fisher, I.I. Rypina, H. Baumann, Z. Baumann, C.F. Breier, E.M. Douglass, J. George, A.M. Macdonald, H. Miyamoto, J. Nishikawa, S.M. Pike and S. Yoshida (2012). Fukushima-derived radionuclides in the ocean and biota off Japan. *PNAS*, 109(16), 5984-5988. DOI: 10.1073/pnas.1120794109.
- 121 Buesseler, K., M. Aoyama, and M. Fukasawa (2011). Impacts of the Fukushima nuclear power plants on marine radioactivity. *Environmental Science and Technology*, 45, 9931-9935.
- 120 Baeyens, W., A.R. Bowie, K. Buesseler, M. Elskens, Y. Gao, C. Lamborg, M. Leermakers, T. Remenyi and H. Zhang (2011). Size-fractionated labile trace elements in the Northwest Pacific and Southern Oceans. *Marine Chemistry*, 126, 108-113.
- 119 Owens, S.A., Buesseler, K.O., and K.W.W. Sims (2011). Re-evaluating the ²³⁸U-salinity relationship in seawater: Implications for the ²³⁸U- ²³⁴Th disequilibrium method. *Marine Chemistry*, 127, 31-39.
- 118 Buesseler, K. O., A.M.P. McDonnell, O.M.E. Schofield, D.K. Steinberg, and H.W. Ducklow (2010). High particle export over the continental shelf of the west Antarctic Peninsula. *Geophysical Research Letters*, 37, L22606. DOI: 10.1029/2010GL045448.
- 117 McDonnell, Andrew M.P., and Ken O. Buesseler (2010). Variability in the average sinking velocity of marine particles. *Environmental Science and Technology*, 55(5), 2085-2096.
- 116 Maiti, Kanchan, Claudia R. Benitez-Nelson and Ken O. Buesseler (2010). Insights into particle formation and remineralization using the short-lived radionuclide, thorium-234. *Geophysical Research Letters*, 37, L15608. DOI: 10.1029/2010GL044063.
- 115 Burd, Adrian B., Dennis A. Hansell, Deborah K. Steinberg, Thomas R. Anderson, Javier Arístegui, Federico Baltar, Steven R. Beaufré, Ken O. Buesseler, Frank DeHairs, George A. Jackson, David C. Kadko, Rolf Koppelman, Richard S. Lampitt, Toshi Nagata, Thomas Reinthaler, Carol Robinson, Bruce H. Robison, Christian Tamburini and Tsuneo Tanaka (2010). Assessing the apparent imbalance between geochemical and biochemical indicators of meso- and bathypelagic biological activity: What the @\$#! is wrong with present calculations of carbon budgets? *Deep-Sea Research II*, 57(16), 1429-1592.
- 114 Pike, S.M., H. Dulaiova, K.O. Buesseler (2009). Assessment of size-fractionated species of curium-244 via alpha spectroscopy in groundwater. *Journal of Radioanalytical and Nuclear Chemistry*, 282, 1009. DOI: 10.1007/s10967-009-0214-4.
- 113 Buesseler, K.O., S. Pike, K. Maiti, C.H. Lamborg, D.A. Siegel and T.W. Trull (2009). Thorium-234 as a tracer of spatial, temporal and vertical variability in particle flux in the North Pacific. *Deep-Sea Research I*, 56 (1143-1167) DOI: 10.1016/j.dsr.2009.04.001.
- 112 Buesseler, Ken O., and Philip W. Boyd (2009). Shedding light on processes that control particle export and flux attenuation in the twilight zone of the open ocean. *Limnology and Oceanography*, 54(4), 1210-1232.

- 111 Buesseler, Ken O., Daniel I. Kaplan, Min Han Dai and Steven Pike (2009). Source-Dependent and Source-Independent Controls on Plutonium Oxidation State and Colloid Associations in Groundwater. *Environmental Science and Technology* 2009, 43 (5), 1322-1328 DOI: 10.1021/es8028318.
- 110 Trull, T.W., S. Bray, K.O. Buesseler, C. Lamborg, S. Manganini, C. Moy, and J. Valdes (2008). In-situ measurement of mesopelagic particle sinking rates and the control of carbon transfer to the ocean interior during the Vertical Flux in the Global Ocean (VERTIGO) voyages in the North Pacific. *Deep-Sea Research II*, 55(14-15), 1684-1695.
- 109 Dehairs, F., S. Jacquet, N. Savoye, B.A.S. Van Mooy, K.O. Buesseler, J.K.B. Bishop, C.H. Lamborg, M. Elskens, W. Baeyens, P.W. Boyd, K.L. Casciotti and C. Monnin (2008). Barium in twilight zone suspended matter as a potential proxy for particulate organic carbon mineralization: Results for the North Pacific. *Deep-Sea Research II*, 55(14-15), 1673-1683.
- 108 Elskens, M., N. Brion, K.O. Buesseler, B.A.S. Van Mooy, P. Boyd, F. Dehairs. N. Savoyes and W. Baeyens (2008). Primary, new and export production in the NW Pacific Subarctic Gyre during the VERTIGO K2 experiments. *Deep-Sea Research II*, 55(14-15), 1594-1604.
- 107 Wilson, S.E., D.K. Steinberg, and K.O. Buesseler (2008). Changes in fecal pellet characteristics with depth as indicators of zooplankton repackaging of particles in the mesopelagic zone. *Deep-Sea Research II*, 55(14-15), 1636-1647.
- 106 Lamborg, C.H., K.O. Buesseler, and P.J. Lam (2008). Sinking fluxes of minor and trace elements in the North Pacific Ocean measured during the VERTIGO program. *Deep-Sea Research II*, 55(14-15), 1564-1577.
- 105 Lamborg, C. et al. (2008). The flux of bio- and lithogenic material associated with sinking particles in the mesopelagic "Twilight Zone" of the northwest and north central Pacific Ocean. *Deep-Sea Research II*, 55(14-15), 1540-1563.
- 104 Buesseler, K.O., T.W. Trull, D.K. Steinberg, M.W. Silver, D.A. Siegel, S.-I. Saitoh, C.H. Lamborg, P.J. Lam, D.M. Karl, N.Z. Jiao, M.C. Honda, M. Elskens, F. Dehairs, S.L. Brown, P.W. Boyd, J.K.B. Bishop and R.R. Bidigare (2008b). VERTIGO (VERTical Transport In the Global Ocean): a study of particle sources and flux attenuation in the North Pacific. *Deep-Sea Research II*, 55(14-15), 1522-1539.
- 103 Buesseler, K.O. and R.S. Lampitt (2008). Introduction to Understanding the Ocean's Biological Pump: results from VERTIGO. *Deep-Sea Research II*, 55(14-15), 1519-1521.
- 102 Buesseler, K.O., C. Lamborg, P. Cai, R. Escube, R. Johnson, S. Pike, P. Masque, D. McGillicuddy and E. Verdeny (2008). Particle fluxes associated with mesoscale eddies in the Sargasso Sea. *Deep-Sea Research II*, 55, 1426-1444.
- 101 Steinberg, D.K., B.A.S. Van Mooy, K.O. Buesseler, P.W. Boyd, T. Kobari and D.M. Karl (2008). Bacterial vs. zooplankton control of sinking particle flux in the ocean's twilight zone. *Limnology and Oceanography*, 53(4), 1327-1338.
- 100 Andrews, J.E., C. Hartin, and K.O. Buesseler (2008). Beryllium-7 analyses in seawater by low background gamma spectroscopy. *Journal of Radioanalytical and Nuclear Chemistry*, 277(1), 253-259.
- 99 Siegel, D.A., E. Fields and K.O. Buesseler (2008). A bottom-up view of the biological pump: Modeling statistical funnels above ocean sediment traps. *Deep-Sea Research I*, 55(1), 108-127.

- 98 Buesseler, K.O., A.N. Antia, M. Chen, S.W. Fowler, W.D. Gardner, Ö. Gustaffson, K. Harada, A.F. Michaels, M. Rutgers van der Loeff, M. Sarin, D.K. Steinberg and T. Trull (2007). An assessment of the use of sediment traps for estimating upper ocean particle fluxes. *Journal of Marine Research*, 65(3), 345-416.
- 97 McGillicuddy, Jr., D.J., L.A. Anderson, N.R. Bates, T. Bibby, K.O. Buesseler, C. Carlson, C.S. Davis, C. Ewart, P.G. Falkowski, S.A. Goldthwait, D.A. Hansell, W.J. Jenkins, R. Johnson, V.K. Kosnyrev, J.R. Ledwell, Q.P. Li, D.A. Siegel, and D.K. Steinberg (2007). Eddy-Wind Interactions Stimulate Extraordinary Mid-Ocean Plankton Blooms. *Science*, 316, 1021-1026. DOI: 10.1126/science.1136256.
- 96 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. DOI: 10.1126/science.1137959.
- 95 Hassellöv, M., K.O. Buesseler, S.M. Pike and M. Dai (2007). Application of cross-flow filtration for the determination of colloidal abundances in suboxic ferrous-rich ground waters. *Science of the Total Environment*, 372(2-3), 636-644.
- 94 Boyd, P.W., T. Jickells, C.S. Law, S. Blain, E.A. Boyle, K.O. Buesseler, K.H. Coale, J.J. Cullen, H.J.W. de Baar, M. Follows, M. Harvey, C. Lancelot, M. Lefevre, N.P.J. Owens, R. Pollard, R.B. Rivkin, J. Sarmiento, V. Schoemann, V. Smetacek, S. Takeda, A. Tsuda, S. Turner and A.J. Watson (2007). A synthesis of mesoscale iron-enrichment experiments 1993-2005: key findings and implications for ocean biogeochemistry. *Science*, 315, 612-617.
- 93 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(5-7), 793-802.
- 92 Savoye, N., C. Benitez-Nelson, A.B. Burd, J.K. Cochran, M. Charette, K.O. Buesseler, G.A. Jackson, M. Roy-Barman, S. Schmidt and M. Elskens (2006). ²³⁴Th sorption and export models in the water column: a review. *Marine Chemistry*, 100, 234-249.
- 91 Rutgers van der Loeff, M., M.M. Sarin, M. Baskaran, C. Benitez-Nelson, K.O. Buesseler, M. Charette, M. Dai, Ö. Gustafsson, P. Masque, P.J. Morris, K. Orlandini, A. Rodriguez y Baena, N. Savoye, S. Schmidt, R. Turnewitsch, I. Vöge and J.T. Waples (2006). A review of present techniques and methodological advances in analyzing ²³⁴Th in aquatic systems. *Marine Chemistry*, 100, 190-212.
- 90 Buesseler, K.O., C.R. Benitez-Nelson, S.B. Moran, A. Burd, M. Charette, J. K. Cochran, L. Coppola, N.S. Fisher, S.W. Fowler, W.D. Gardner, L.D. Guo, O. Gustafsson, C. Lamborg, P. Masque, J.C. Miquel, U. Passow, P.H. Santschi, N. Savoye, G. Stewart and T. Trull (2006). An assessment of particulate organic carbon to thorium-234 ratios in the ocean and their impact on the application of ²³⁴Th as a POC flux proxy. *Marine Chemistry*, 100, 213-233.
- 89 Ball, L.A., J.E. Andrews and K.O. Buesseler (2005). Thorium fluxes and carbon export from the Ross Sea: A preliminary report. *Antarctic Journal of the United States*, 33, 262-260.

- 88 de Baar, H., P. Boyd, K. Coale, A. Tsuda, D. Bakker, Y. Bozec, M. Brzezinski, K. Buesseler, M. Boye, P. Croot, F. Gervais, M. Gorbunov, P. Harrison, W. Hiscock, P. Laan, C. Lancelot, M. Lepasqueur, A. Marchetti, J. Nishioka, Y. Nojiri, T. van Oijen, U. Riebesell, S. Takeda, K. Timmermans, M. Veldhuis and others (2005). Synthesis of iron fertilization experiments: From the Iron Age in the Age of Enlightenment. *Journal of Geophysical Research*, 110, C09S16. DOI: 10.1029/2004JC002601.
- 87 Povinec, P.P., A. Aarkrog, K.O. Buesseler, R. Delfanti, K. Hirose, G.H. Hong, T. Ito, H.D. Livingston, H. Nies, B.E. Noshkin, S. Shima and O. Togawa (2005). 90Sr, 137Cs and 239,240Pu surface water time series in the Pacific and Indian Oceans - WOMARS results. *Journal of Environmental Radioactivity*, 81, 63-87.
- 86 Pike, S.M., K.O. Buesseler, J. Andrews and N. Savoye (2005). Quantification of 234Th recovery in small volume sea water samples by inductively coupled plasma mass spectrometry. (PDF) *Journal of Radioanalytical and Nuclear Chemistry*, 263(2), 355-360.
- 85 Dai, M., K. O. Buesseler, S. M. Pike (2005). Plutonium in groundwater at the 100K-Area of the U.S. DOE Hanford Site. (PDF) *Journal of Contaminant Hydrology*, 76, 167-189.
- 84 Buesseler, K.O., J.E. Andrews, S. Pike, M.A. Charette, L.E. Goldson, M.A. Brzezinski and V.P. Lance (2005). Particle export during the Southern Ocean Iron Experiment (SOFEX). (PDF) *Limnology and Oceanography*, 50, 311-327.
- 83 Stanley, R.H.R., K.O. Buesseler, S.J. Manganini, D.K. Steinberg and J.R. Valdes (2004). A Comparison of Major and Minor Elemental Fluxes collected using Neutrally Buoyant and Surface-Tethered Traps (PDF). *Deep-Sea Research Part I*, 51, 1387-1395.
- 82 Savoye, N., K.O. Buesseler, D. Cardinal and F. Dehairs (2004). 234Th deficit and excess in the Southern Ocean during spring 2001: particle export and mineralization. *Geophysical Research Letters*, 31, L12301. DOI: 10.1029/2004GL019744.
- 81 Coale, K.H., K.S. Johnson, F.P. Chavez, K.O. Buesseler, R.T. Barber, M.A. Brzezinski, W.P. Cochlan, F.J. Millero, P.G. Falkowski, J.E. Bauer, R.H. Wanninkhof, R.M. Kudela, M.A. Altabet, B.E. Hales, T. Takahashi, M.R. Landry, R.R. Bidigare, X. Wang, Z. Chase, P.G. Stratton, G.E. Friederich, M.Y. Gorbunov, V.P. Lance, A.K. Hilting, M.R. Hiscock, M. Demarest, W.T. Hiscock, K.F. Sullivan, S.J. Tanner, R. M. Gordon, C.L. Hunter, V.A. Elrod, S.E. Fitwater, J.L. Jones, S. Tozzi, M. Koblizek, A.E. Roberts, J. Herndon, J. Brewster, N. Ladizinsky, G. Smith, D. Cooper, D. Timothy, S.L. Brown, K.E. Selph, C.C. Sheridan, B.S. Twining and Z.I. Johnson (2004). Southern Ocean Iron Enrichment Experiment (SOFEX): Carbon cycling in high- and low-Si waters. *Science*, 304, 408-414.
- 80 Buesseler, K.O., J.E. Andrews, S.M. Pike and M.A. Charette (2004). The effects of iron fertilization on carbon sequestration in the Southern Ocean. *Science*, 304, 414-417.
- 79 Charette, M.A. and K.O. Buesseler (2004). Submarine groundwater discharge of nutrients and copper in an urban subestuary of Chesapeake Bay (Elizabeth River) (PDF). *Limnology and Oceanography*, 49(2), 376-385.
- 78 Sweeney, E. N., McGillicuddy, D.J., and K.O. Buesseler (2003). Biogeochemical Impacts due to Mesoscale Eddy Activity in the Sargasso Sea as Measured at the Bermuda Atlantic Time Series (BATS) Site. (PDF) *Deep-Sea Research Part I*, 50, 3017-3039.
- 77 Buesseler, K.O., Boyd, P.W. (2003). Will Ocean Fertilization Work? *Science*, 300, 67-68.
- 76 Buesseler, K.O., Barber, R.T., Dickson, M-L, Hiscock, M.R., Moore, J.K., and R. Sambrotto (2003). The effect of marginal ice-edge dynamics on production and export in the Southern Ocean along 170°W. (PDF) *Deep-Sea Research Part II*. 50(3-4), 579 - 603.

- 75 Buesseler, K. O., Dai, M. and M. Hassellöv (2003). Commentary on: "Trace Metal Levels in Uncontaminated Groundwater of a Coastal Watershed: Importance of Colloidal Forms" by Sañudo-Wilhelmy et al." (PDF) *Environmental Science and Technology*. 37(30), 657-658.
- 74 Rutgers van der Loeff, M.M, K.O. Buesseler, U. Bathmann, I. Hense and J. Andrews (2002). Comparison of carbon and opal export rates between summer and spring bloom periods in the region of the Antarctic Polar Front, SE Atlantic. (PDF) *Deep-Sea Research Part II*, 49(18), 3849-3870.
- 73 Dai, M. H., J. M. Kelley and K. O. Buesseler (2002). Sources and migration of plutonium in groundwater at the Savannah River Site. (PDF) *Environmental Science and Technology*. 36, 3690-3699.
- 72 Nelson, D.M., R.F. Anderson, R.T. Barber, M.A. Brzezinski, K.O. Buesseler, Z. Chase, R.W. Collier, M.-L. Dickson, R.François, M. Hiscock, S. Honjo, J. Marra, W.R. Martin, R.N. Sambrotto, F.L. Sayles and D.E. Sigmon (2002). Vertical budgets for organic carbon and biogenic silica in the Pacific sector of the Southern Ocean, 1996-1998. (PDF) *Deep-Sea Research Part II*, 49(9-10), 1645-1673.
- 71 Benitez-Nelson, C., K. O. Buesseler, D. Karl and J. Andrews (2001). A time-series study of particular matter export in the North Pacific Subtropical Gyre based upon $^{234}\text{Th}:$ ^{238}U disequilibrium. (PDF) *Deep-Sea Research Part I*, 48, 2595-2611.
- 70 Benitez-Nelson, C., K. O. Buesseler, Rutgers van der Loeff, M., Andrews, J., Ball, L., Crossin, G., and M. Charette (2001). Testing a new small-volume technique for determining thorium-234 in seawater. *Journal of Radioanalytical and Nuclear Chemistry*, 248(3), 795-799.
- 69 Buesseler, K.O., L. Ball, J. Andrews, J. K. Cochran, D. J. Hirschberg, M. P. Bacon, A. Flier and M. Brzezinski (2001). Upper ocean export of particulate organic carbon and biogenic silica in the Southern Ocean along 170°W . (PDF) *Deep-Sea Research Part II*, 48, 4275-4297.
- 68 Charette, M. A., K. O. Buesseler and J. E. Andrews (2001). Utility of radium isotopes for evaluating the input and transport of groundwater-derived nitrogen to a Cape Cod estuary. *Limnology and Oceanography*, 46(2), 465-470.
- 67 Buesseler, K. O., C. Benitez-Nelson, Rutgers van der Loeff, M., Andrews, J., Ball, L., Crossin, G., and M. Charette (2001). An intercomparison of small- and large-volume techniques for thorium-234 in seawater. (PDF) *Marine Chemistry*, 74, 15-28.
- 66 Nodder, S. D., Charette, M. A., Waite, A. M., Trull, T. W., Boyd, P. W., Zeldis, J., and K. O. Buesseler (2001) Particle transformations and export flux during an in situ iron-stimulated algal bloom in the Southern Ocean (PDF). *Geophysical Research Letters*, 28(12), 2409-2412.
- 65 Dai, M.H., K.O. Buesseler, J.M. Kelley, J. E. Andrews, S. Pike and J.F. Wacker (2001). Size Fractionated plutonium Isotopes in a Coastal Environment. *Journal Environmental Radioactivity*, 53(1), 9-25.
- 64 Cochran, J. K, K. O. Buesseler, M. P. Bacon, H. W. Wang, D. J. Hirschberg, L. Ball, J. Andrews, G. Crossin and A. Flier (2000). Short-lived thorium isotopes (^{234}Th , ^{228}Th) as indicators of POC export and particle cycling in the Ross Sea, Southern Ocean. *Deep-Sea Research Part II*, 47 (15-16), 3451-3490.

- 63 Charette, M. A. and K. O. Buesseler (2000). Does iron fertilization lead to rapid carbon export in the Southern Ocean? *Geochemistry, Geophysics, Geosystems*, 1, Paper 2000GC000069.
- 62 Boyd, P. W., A. Watson, C. S. Law, E. Abraham, T. Trull, R. Murdoch, D. C. E. Bakker, A. R. Bowie, K. Buesseler, H. Chang, M. Charette, P. Croot, K. Downing, R. Frew, M. Gall, M. Hadfield, J. Hall, M. Harvey, G. Jameson, J. Laroche, M. Liddicoat, R. Ling, M.T. Maldonado, R.M. McKay, S. Nodder, S. Pickmere, R. Pridmore, S. Rintoul, K. Safi, P. Sutton, R. Strzepek, K. Tanneberger, S. Turner, A. Waite & J. Zeldis (2000). A mesoscale phytoplankton bloom in the polar Southern Ocean stimulated by iron fertilisation. *Nature*, 407, 695-702.
- 61 Buesseler, K.O. and M. Charette (2000). Commentary on: How accurate are the ²³⁴Th based particulate residence times in the ocean? by G. Kim, N. Hussain, and T. Church. *Geophysical Research Letters*, 27(13), 1939-1940.
- 60 Benitez-Nelson, C., Buesseler, K., and G. Crossin. (2000). Upper ocean carbon export, horizontal transport, and vertical eddy diffusivity in the southwestern Gulf of Maine. *Continental Shelf Research*, 20, 707-736.
- 59 Buesseler, K.O., Steinberg, D.K., Michaels, A.F., Johnson, R.J., Andrews, J.E., Valdes, J.R., and J.F. Price (2000). A comparison of the quantity and quality of material caught in a neutrally buoyant versus surface-tethered sediment trap. (PDF) *Deep-Sea Research Part I*, 47, 277-294.
- 58 Bidigare, R.R., Hanson, K.L., Buesseler, K.O., Wakeham, S.G., Freeman, K.H., Pancost, R.D., Millero, F.J., Steinberg, P., Popp, B.N., Latasa, M., Landry, M.R. and E.A. Laws (1999). Iron-stimulated changes in ¹³C fractionation and export by equatorial Pacific phytoplankton. *Paleoceanography*, 14(5), 589-595.
- 57 Staneva, J., K.O. Buesseler, E. Stanev, and H.D. Livingston (1999). Application of radiotracers to study Black Sea circulation: Validation of numerical simulations against observed weapon testing and Chernobyl ¹³⁷Cs tracers. *Journal of Geophysical Research*, 104 (C5), 11099-11114.
- 56 Benitez-Nelson, C. and K. Buesseler. (1999). ³²P, ³³P, ⁷Be and ²¹⁰Pb as tracers of aerosol residence times and stratosphere/troposphere exchange. *Journal of Geophysical Research*, 104 (D9), 11745-11754. DOI: 10.1029/1998JD100101.
- 55 Benitez-Nelson, C. and K. Buesseler. (1999). Temporal variability of inorganic and organic phosphorus in the coastal ocean. *Nature*, 398, 502-505.
- 54 Stanev, E., K. O. Buesseler, J. V. Staneva, and H. D. Livingston (1999). The fate of Chernobyl ⁹⁰Sr in the Black Sea: validation of numerical simulations against observed data. *Journal Environmental Radioactivity*, 43 (2), 187-204.
- 53 Stokozov, N.A. and K.O. Buesseler (1999). Mixing Model for the NW Black Sea Using Sr-90 and Salinity as Tracers. *Journal Environmental Radioactivity*, 43 (2), 173-186.
- 52 Lee, C., D. W. Murray, R. T. Barber, K. O. Buesseler, J. Dymond, J. I. Hedges, S. Honjo, S. J. Manganini, J. Marra, C. Moser, M. L. Peterson, W. L. Prell and S. G. Wakeham (1998). Particulate organic carbon fluxes: Results from the U.S. JGOFS Arabian Sea Process Study. *Deep-Sea Research Part II, Arabian Sea Volume*, 45 (10-11), 2489-2501.
- 51 Buesseler, K. O., L. Ball, J. Andrews, C. Benitez-Nelson, R. Belostock, F. Chai and Y. Chao (1998). Upper Ocean Export of Particulate Organic Carbon in the Arabian Sea derived from Thorium-234. *Deep-Sea Research Part II, Arabian Sea Volume*, 45 (10-11), 2461-2487.

- 50 Gustafsson, Ö., K. O. Buesseler, W. Rockwell Geyer, S. Bradley Moran and P. M. Gschwend (1998). On the Relative Significance of Horizontal and Vertical Transport of Chemicals in the Coastal Ocean: Application of a Two-Dimensional Th-234 Cycling Model. *Cont. Shelf Res.* 18, 805-829.
- 49 Dai, M., K. O. Buesseler, P. Ripple, J. Andrews, R. Belastock, O. Gustafsson and S. B. Moran (1998). Evaluation of two cross-flow ultrafiltration membranes for their ability to isolate marine organic colloids. *Marine Chemistry*, 62, 117-136.
- 48 Benitez-Nelson, C. and K. O. Buesseler (1998). New techniques for the measurement of ³²P and ³³P activities in rain and seawater. *Analytical Chemistry*, 70 (1), 64-72.
- 47 Buesseler, K.O. (1998). The de-coupling of production and particulate export in the surface ocean. *Global Biogeochemical Cycles*, 12 (2), 297-310.
- 46 Gustafsson, Ö., P.M. Gschwend and K.O. Buesseler (1997). Settling Removal Rates of PCBs into the Northwestern Atlantic Derived from ²³⁸U-²³⁴Th Disequilibria. *Environmental Science and Technology*, 31, 3544-3550.
- 45 Buesseler, K. O. (1997). The Isotopic Signature of Fallout Plutonium in the North Pacific. *Journal of Environmental Radioactivity*, 36 (1), 69-83.
- 44 Gustafsson, Ö., P.M. Gschwend and K.O. Buesseler (1997). Using ²³⁴Th disequilibria to estimate the vertical removal rates of polycyclic aromatic hydrocarbons from the surface ocean. *Marine Chemistry*, 57, 11-23.
- 43 Buesseler, K.O. and H.D. Livingston (1997). Time-series profiles of ¹³⁴Cs, ¹³⁷Cs and ⁹⁰Sr in the Black Sea. NATO ARW on "Sensitivity of North Sea, Baltic Sea and Black Sea to Anthropogenic and Climatic Changes" (E. Ozsoy and A. Mikaelyan, eds.) Kluwer Academic Publishers, The Netherlands, 239-251.
- 42 Gustafsson, Ö., K. O. Buesseler, and P. M. Gschwend (1996). On the Integrity of Cross-Flow Filtration for Marine Organic Colloids. *Marine Chemistry*, 55(1/2), 93-112.
- 41 Buesseler, K., J. Bauer, R. Chen, T Eglinton, Ö. Gustafsson, W. Landing, K. Mopper, S. B. Moran, P. Santschi, R. Vernon Clark, M. Wells (1996). An Intercomparison of Cross-Flow filtration Techniques Used for Sampling Marine Colloids: Overview and Organic Carbon Results. *Marine Chemistry*, 55(1/2), 1-31.
- 40 Buesseler, K.O. and H.D. Livingston (1996). Natural and Man-Made Radionuclides in the Black Sea. In: Radionuclides in the Oceans, Inputs and Inventories, P. Guéguéniat, P. Germain and H. Métivier, eds. Institut de Protection et de Surete Nucleaire, Cherbourg, France, 199-217.
- 39 Murnane, R. J., J. K. Cochran, K. O. Buesseler, and M. P. Bacon (1996). Least-squares Estimates of Thorium, Particle, and Nutrient Cycling Rate Constants from the JGOFS North Atlantic Bloom Experiment. *Deep-Sea Research Part I*, 43(2), 239-258.
- 38 Moran, S. B., J. A. Hoff, K. O. Buesseler, and R. L. Edwards (1995). High Precision ²³⁰Th and ²³²Th in the Norwegian Sea by Thermal Ionization Mass Spectrometry. *Geophysical Research Letters*, 22(19), 2589-2592.
- 37 Cochran, J. K., D. J. Hirschberg, H. D. Livingston, K. O. Buesseler, and R. M. Key (1995). Natural and Anthropogenic Radionuclide Distributions in the Nansen Basin, Arctic Ocean: Scavenging Rates and Circulation Timescales. *Deep-Sea Research Part II*, 42(6), 1495-1517.
- 36 Buesseler, K. O., J. A. Andrews, M. C. Hartman, R. Belastock, and F. Chai (1995). Regional Estimates of the Export Flux of Particulate Organic Carbon Derived from Thorium-234 During the JGOFS EQPAC Program. *Deep-Sea Research Part II*, 42(2-3), 777-804.

- 35 Waser, N. A., A. P. Fler, T. R. Hammar, K. O. Buesseler and M. P. Bacon (1994). Determination of Natural ^{32}P and ^{33}P in Rainwater, Marine Particles and Plankton by Low-Level Beta Counting. *Nuclear Instruments and Methods in Physics Research, A*, 338, 560-567.
- 34 Michaels, A. F., N. R. Bates, K. O. Buesseler, C. A. Carlson, and A. H. Knap (1994). Carbon System Imbalances in the Sargasso Sea. *Nature*, 372, 537-540.
- 33 Hartman, M. C. and K. O. Buesseler (1994). Adsorbers for In-Situ Collection and At-Sea Gamma Analysis of Dissolved Thorium-234 in Seawater. WHOI Technical Report, WHOI-94-15.
- 32 Buesseler, K. O., A. F. Michaels, D. A. Siegel, A. H. Knap (1994). A Three Dimensional Time-Dependent Approach to Calibrating Sediment Trap Fluxes. *Global Biogeochemical Cycles*, 8(2), 179-193.
- 31 Buesseler, K. O., H. D. Livingston, L. Ivanov, and A. Romanov (1994). Stability of the Oxidic/Anoxic Interface in the Black Sea. *Deep-Sea Research Part I*, 41(2), 283-296.
- 30 Buesseler, K. O. and C. R. Benitez (1994). Determination of mass accumulation rates and sediment radionuclide inventories in the deep Black Sea. *Deep-Sea Research Part I*, 41(11/12), 1605-1615.
- 29 Polikarpov, G. G., K. O. Buesseler, S. A. Casso, L. G. Kulebakina, H. D. Livingston and N. A. Stokosov (1993). Discharge of ^{90}Sr from 1986-1990 with the waters of Dnepr River to the Black Sea. *Aquatic Resources*, 20(3), 387-390 (in Russian).
- 28 Moran, S. B., and K. O. Buesseler (1993). Size-fractionated ^{234}Th in continental shelf waters off New England: implications for the role of colloids in oceanic trace metal scavenging. *Journal of Marine Research*, 51, 893-922.
- 27 Cochran, J. K., K. O. Buesseler, M. P. Bacon and H. D. Livingston (1993). Thorium isotopes as indicators of particle dynamics in the upper watercolumn: Results from the JGOFS North Atlantic Bloom Experiment. *Deep-Sea Research*, 40(8), 1569-1595.
- 26 Buesseler, K. O. (1993). Thermal ionization mass spectrometry. In: Development and evaluation of alternative radioanalytical methods, including mass spectrometry for marine materials, Proceedings of an Advisory Group Meeting, Monaco, 6-9 June 1989, International Atomic Energy Agency, IAEA-TECDOC-683, pg. 45-52.
- 25 Keafer, B. A., K. O. Buesseler and D. M. Anderson (1992). Burial of living dinoflagellate cysts in estuarine and nearshore sediments. *Marine Micropaleontology*, 20, 147-161.
- 24 Moran, S. B. and K. O. Buesseler (1992). Short residence time of colloids in the upper ocean off Bermuda. *Nature*, 359, 221-223.
- 23 Buesseler, K. O., M. P. Bacon, J. K. Cochran and H. D. Livingston (1992). Carbon and nitrogen export during the JGOFS North Atlantic bloom experiment estimated from ^{234}Th : ^{238}U disequilibria. *Deep-Sea Research*, 39(7/8), 1115-1137.
- 22 Buesseler, K.O., J.K. Cochran, M.P. Bacon, H.D. Livingston, S.A. Casso, D. Hirschberg, M.C. Hartman and A.P. Fler (1992). Determination of thorium isotopes in seawater by non-destructive and radiochemical procedures. *Deep-Sea Research*, 39(7/8), 1103-1114.
- 21 Polikarpov, G. G., H. D. Livingston, L. G. Kulebakina, K. O. Buesseler, N. A. Stokozov and S. A. Casso (1992). Inflow of Chernobyl ^{90}Sr to the Black Sea from the Dnepr River. *Estuarine, Coastal and Shelf Science*, 34, 315-320.
- 20 Buesseler, K. O., H. D. Livingston and S. A. Casso (1991). Ruthenium-106 in the Black Sea. In: Black Sea Oceanography (E. Izdar and J.W. Murray, eds.), Kluwer Academic Publishers, Netherlands, pp. 229-243.

- 19 Sanchez, A. L., J. Gastaud, V. Noshkin and K. Buesseler (1991). plutonium oxidation states in the southwestern Black Sea: Evidence regarding the origin of the cold intermediate layer. *Deep-Sea Research*, 38(Suppl. 2), S845–S854.
- 18 Buesseler, K. O., H. D. Livingston and S. A. Casso (1991). Mixing between oxic and anoxic waters of the Black Sea as traced by Chernobyl cesium isotopes. *Deep-Sea Research*, 38(Suppl. 2), S725–S745.
- 17 Buesseler, K. O. (1991). Do upper-ocean sediment traps provide an accurate record of particle flux? (PDF) *Nature*, 353, 420–423.
- 16 Druffel, E. R. M., L. L. King, R. A. Belastock and K. O. Buesseler (1990). Growth rate of a deep-sea coral using ^{210}Pb and other isotopes. *Geochimica et Cosmochimica Acta*, 54(5), 1493–1500.
- 15 Cochran, J. K., T. McKibbin-Vaughan, M. M. Dornblaser, D. Hirschberg, H. D. Livingston and K. O. Buesseler (1990). ^{210}Pb scavenging in the open ocean. *Earth and Planetary Science Letters*, 97, 332–352.
- 14 Buesseler, K. O., H. D. Livingston, S. Honjo, B. J. Hay, T. Konuk and S. Kempe (1990). Scavenging and particle deposition in the southwestern Black Sea--evidence from Chernobyl radiotracers. *Deep-Sea Research*, 37(3), 413–430.
- 13 Buesseler, K. O., S. A. Casso, M. C. Hartman and H. D. Livingston (1990). Determination of fission-products and actinides in the Black Sea following the Chernobyl accident. *Journal of Radioanalytical and Nuclear Chemistry, Articles*, 138(1), 33–47.
- 12 Livingston, H. D., K. O. Buesseler, E. Izdar and T. Konuk (1988). Characteristics of Chernobyl fallout in the southern Black Sea. In: *Radionuclides: A Tool for Oceanography* (J. C. Guary, P. Guegueniat and R. J. Pentreath, eds.), Elsevier, Essex, U.K., pp. 204–216.
- 11 Anderson, R. A., R. F. Bopp, K. O. Buesseler and P. E. Biscaye (1988). Mixing of particles and organic constituents in sediments from the continental shelf and slope off Cape Cod: SEEP-I Results. *Continental Shelf Research*, 8(5-7), 925–946.
- 10 Buesseler, K. O. (1987). Chernobyl: Oceanographic studies in the Black Sea. *Oceanus*, 30(3), 23–30.
- 9 Buesseler, K. O. and E. R. Sholkovitz (1987). The geochemistry of fallout plutonium in the North Atlantic: II. $^{240}\text{Pu}/^{239}\text{Pu}$ ratios and their significance. *Geochimica et Cosmochimica Acta*, 51, 2623–2637.
- 8 Buesseler, K. O. and E. R. Sholkovitz (1987). The geochemistry of fallout plutonium in the North Atlantic: I. A pore water study in shelf, slope and deep-sea sediments. *Geochimica et Cosmochimica Acta*, 51, 2605–2622.
- 7 Buesseler, K. O., H. D. Livingston, S. Honjo, B. J. Hay, S. J. Manganini, E. T. Degens, V. Ittekkot, E. Izdar and T. Konuk (1987). Chernobyl radionuclides in a Black Sea sediment trap. *Nature*, 329, 825–828.
- 6 Buesseler, K. O. and J. Halverson (1987). The mass spectrometric analysis of fallout ^{239}Pu and ^{240}Pu in marine samples. *Journal of Environmental Radioactivity*, 5(6), 425–444.
- 5 Kempe, S., H. Nies, V. Ittekkot, E. T. Degens, K. O. Buesseler, H. D. Livingston, S. Honjo, B. J. Hay, S. J. Manganini, E. Izdar and T. Konuk (1987). Comparison of Chernobyl nuclide deposition in the Black Sea and in the North Sea. In: *Particle Flux in the Ocean* (E. T. Degens, E. Izdar and S. Honjo, eds.), Mitt. Geol.-Palaont. Inst., Univ. Hamburg, Hamburg, Germany. SCOPE UNEP Sonderband, Vol. 62, pp. 165–178.

- 4 Buesseler, K. O. (1986). Plutonium isotopes in the North Atlantic. Ph.D. Thesis, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Oceanography, 220 pp..
- 3 Buesseler, K. O., H. D. Livingston and E. R. Sholkovitz (1985). $^{239,240}\text{Pu}$ and excess ^{210}Pb inventories along the shelf and slope of the northeast U.S.A. *Earth and Planetary Science Letters*, 76(1-2), 10–22.
- 2 Buesseler, K. O., G. Benoit and E. R. Sholkovitz (1985). A pore water study of plutonium in a seasonally anoxic lake. *Journal of Environmental Radioactivity*, 2, 283–292.
- 1 Buesseler, K. O., B. Brown and E. Borchardt (1980). A Limnological Investigation of Lake Itasca. Itasca Biological Station publication #1384.

Non-peer Reviewed

K. Buesseler, Jin, D., Lourantidou, M., Levin, D., Ramakrishna, K., Renaud, P. (2022) [The Ocean Twilight Zone's Roll in Climate Change](#). J. Ausubel et al (eds), Woods Hole Oceanographic Institution, 32pp. DOI: 10.1575/1912/28074