Cédric G. Fichot

Department of Earth and Environment
BOSTON UNIVERSITY

675 Commonwealth Avenue, Boston, MA 02215

Cell: 706-254-1629
Office: 617-353-2182
Email: cgfichot@bu.edu

Web: http://www.bu.edu/earth/people/faculty/cedric-fichot/

CURRENT APPOINTMENT

Since Sep 2016 — Assistant Professor
Department of Earth and Environment
Boston University

EDUCATION

2013 — Ph.D Marine Science
Marine Science Program
University of South Carolina

2004 — M.S. Oceanography
Department of Oceanography
Dalhousie University

2000 — B.S. Oceanography
Florida Institute of Technology

PAST APPOINTMENTS

Jan 2014 – Jun 2016 — Postdoctoral Scholar (Delta Science Fellow)
Jet Propulsion Laboratory
California Institute of Technology

Jun 2013 – Dec 2013 — Research Associate
Department of Biological Sciences
University of South Carolina

Jan 2005 – Dec 2007 — Laboratory Technician and Coordinator
Department of Marine Sciences
University of Georgia

HONORS and AWARDS

Outstanding Postdoctoral Research Award — 2015
Jet Propulsion Laboratory, California Institute of Technology

USC Outstanding Dissertation Award — 2013
The Graduate School, University of South Carolina

NASA Group Achievement Award — 2012
NASA ICESCAPE Project

First-prize, oral presentation — 2012
Graduate Student Day, University of South Carolina

Selection for NSF/NOAA Dissertations Symposium in Chemical Oceanography (DISCO) — 2012
DISCO XVIII

Outstanding Teaching Award — 2009
Marine Science Program, University of South Carolina

Best Student Paper Award — 2004
Ocean Optics Conference XVII, Western Australia

FIELD EXPERIENCE

Research expeditions (280 days at sea)

Oregon Coast: Coastal Carbon in Winter (CCAW) project — 2016
US R/V *Oceanus*: January-February 2016 (10 days)

Middle Atlantic Bight: UNOLS Chief Scientist Training Cruise — 2013
US R/V *Endeavor*: October 2013 (7 days)

Chukchi Sea: NASA ICESCAPE Project — 2010
US R/V *Healy*: June-July 2010 (6 weeks)

Northern Gulf of Mexico: NSF GulfCarbon Project — 2009-2010
US R/V *Cape Hatteras*: March 2010 (2 weeks)
US R/V *Hugh Sharp*: November 2009 (2 weeks)
US R/V *Cape Hatteras*: July 2009 (2 weeks)
US R/V *Cape Hatteras*: April 2009 (2 weeks)
US R/V *Cape Hatteras*: January 2009 (2 weeks)

Beaufort Sea: Canadian Circumpolar Flaw Lead (CFL) project — 2008
CCGS Amundsen: June-July 2008 (4 weeks)

South Atlantic Bight: NASA ICESCAPE Project — 2005-2006
US R/V *Cape Hatteras*: May 2006 (2 weeks)
US R/V *Walton Smith*: November 2005 (2 weeks)
US R/V *Cape Hatteras*: July 2005 (2 weeks)

North Atlantic Ocean: Canadian Surface-Ocean Lower-Atmosphere Study (SOLAS) — 2003
CCGS Martha Black: October-November 2003 (6 weeks)

Gulf of Maine: NSF project — 2002

US R/V *Endeavor*: June-July 2002 (4 weeks)

Gulf of Mexico: NSF SWISS Project 2001
US R/V *Pelican*: August 2001 (2 weeks)

Florida Atlantic Coast: B.S. Honors Project 1999
US R/V *Delphinus*: May 1999 (4 days)

Field work

Plum Island Estuary 2018
LTER boat *Stein*: June-August 2018

Santa Monica Bay: 2015 Hyperion Sewage Treatment Plant Diversion Monitoring 2015
US R/V *La Mer*: August-November 2015

Sapelo Island, GA: GA Seagrant project 2007
Small boat UGA Marine Institute: May-June 2007

Nova Scotia Estuaries: NSERC Project 2004
Small fishing boat: April 2004

TEACHING

Instructor:	*ES 420/620 Aquatic Optics and Remote Sensing*, Boston University	Spring 2017 Spring 2018 Spring 2019
Instructor:	*BI/ES 591 Bio-Optical Oceanography* (field-based), Boston University	Fall 2017
Instructor:	*GE 302 Remote Sensing of Environment*, Boston University	Fall 2018
Teaching Assistant:	*The Ocean Environments*, University of South Carolina	2008
Teaching Assistant:	*Coastal Environments*, University of South Carolina	2008

STUDENT MENTORING

Matthew Weiser: Ph.D student, Earth and Environment, Boston University	2018-Present
Josh Harrington: Ph.D student, Earth and Environment, Boston University	2018-Present
Kunpeng Sun: Visiting Ph.D student, Qingdao University, China	2018-Present
Song Jin: Visiting Ph.D student, Nanjing University, China	2018-Present
Huan Mi: Visiting Ph.D student, Tongji University, China	2017-Present
Xiaohui Zhu: Ph.D student, Earth and Environment, Boston University	2017-Present
NASA DEVELOP Program @ BU node, Rotating Team, Boston University	2018-Present
Ruizhe Guo: M.A student, Earth and Environment, Boston University	2017-2018
Rebecca Trinh: Ph.D student, Columbia University	2016-2017
Christine Elowitt: NASA DEVELOP intern, Jet Propulsion Laboratory	2016

Rebecca Trinh: NASA DEVELOP intern, Jet Propulsion Laboratory 2015-2016

Chia-Jung Lu: Visiting Student from Japan, University of South Carolina 2013

Yuan Shen: M.S. Student, University of South Carolina 2009-2013

Dandan Duan: Visiting Student from China, University of South Carolina 2012

Yulong Zhang: Visiting Student from China, University of South Carolina 2011

Elise Kennedy: Undergraduate Student, University of South Carolina 2010-2012

Chris Parusa: Undergraduate Student, University of South Carolina 2009

FUNDING (*Funding to BU)

*NASA: Delta-X ($664,529) 2019-2021
Co-Investigator: Cedric G. Fichot

*Jet Propulsion Laboratory subcontract ($10,000) 2018
Principal Investigator: Cedric G. Fichot

*NASA: Remote Sensing of Water Quality Program ($430,653) 2018-2020
Principal Investigator: Cedric G. Fichot

*Jet Propulsion Laboratory subcontract ($24,999) 2017
Principal Investigator: Cedric G. Fichot

California SeaGrant: Delta Science Fellows Program ($169, 376) 2014-2016
Principal Investigator: Cedric G. Fichot

Dean's Dissertation Fellowship ($25,000) 2012
From the Graduate School, University of South Carolina

National Science Foundation Chemical Oceanography (Science PI) 2009-2012
Principal Investigators: Ronald Benner and William L. Miller

PEER-REVIEWED PUBLICATIONS (*Supervised Ph.D Student)

Xie H. and **C. G. Fichot**, (in prep.). A global estimate of the photochemical production of methane in the ocean. *Geophys. Res. Lett.*.

Zhu X.*, W. L. Miller, **C. G. Fichot**, (in prep.). An approach to determine the apparent quantum yield of CDOM photobleaching in natural waters. *Environmental Science and Technology.*

Zhang H.*, **C. G. Fichot**, Carly Baracco, Ruizhe Guo, Sydney Neugebauer, Zachary Bengtsson, N. Ganju, and S. Fagherazzi (in review). Determining the drivers of suspended sediment dynamics in tidal marsh-influenced estuaries using high-resolution ocean color remote sensing. *Remote Sensing of Environment*

Balasubramaniam S. V. and **18 authors** (in review). Robust Algorithm for Estimating Total Suspended Solids (TSS) in Inland and Nearshore Coastal Waters. *Remote Sensing of Environment.*

Fichot C. G., K. Matsumoto, B. M. Holt, M. M. Gierach, K. Tokos (2019). Assessing change in the overturning behavior of the Laurentian Great Lakes using remotely sensed lake surface water temperatures. *Remote Sensing of Environment.* doi: 10.1016/j.rse.2019.111427

Mi H.*, S. Fagherazzi, G. Qiao, Y. Hong, and C. G. Fichot (2019). Climate change leads to a doubling of turbidity in a rapidly expanding Tibetan lake. *Science of the Total Environment.* 688, 952-959. doi: 10.1016/j.scitotenv.2019.06.339

Jensen D., M. Simard, K. Cavanaugh, Y Sheng, C. G. Fichot, T. Pavelsky, R. Twilley (2019). Improving the Transferability of Suspended Solid Estimation in Wetland and Deltaic Waters with an Empirical Hyperspectral Approach. *Remote Sensing,11,1629.* doi:10.3390/rs11131629

Thompson D., K. Cawse-Nicholson, Z. Erickson; C. G. Fichot, C. Frankenberg, B-C. Gao, M. Gierach, R. O Green, Vijay N., A. Thompson (2019). A unified approach to estimate land and water reflectances with uncertainties for coastal imaging spectroscopy. *Remote Sensing of Environment.* doi: 10.1016/j.rse.2019.05.017

Needham D., E. B. Fichot , E. Wang , L. Berdjeb , J. Cram , C. G. Fichot, J. Fuhrman (2018). Dynamics of finely resolved, abundant symbiotic marine plankton and other interacting microbes via automated high-frequency sampling. *ISME journal.* doi: http://dx.doi.org/10.1101/216978.

Whelan and 32 authors. (2018) Reviews and syntheses: Carbonyl sulfide as a multi-scale tracer for carbon and water cycles, *Biogeosciences*, 15, 3625-3657.

Shen Y., R. Benner, K. Kaiser, C. G. Fichot, and T. E. Whitledge. (2018). Pan-Arctic distribution of bioavailable dissolved organic matter and linkages with productivity in ocean margins. *Geophys. Res. Lett.*, 45, 1490–1498. https:// doi.org/10.1002/2017GL076647

Cao F., Tzortziou M, Hu C., Mannino A., Fichot C. G., R. Del Vecchio, Najjar R., Novak M. (2018). Remote sensing retrievals of colored dissolved organic matter and dissolved organic carbon dynamics in North American estuaries and their margins. *Remote Sens. Environ.*, 205, 151-165, doi: 10.1016/j.rse.2017.11.014

Trinh R. C., C. G. Fichot, Gierach, M. M., Holt, B., Malakar, N. K., Hulley, G., & Smith, J. (2017). Application of Landsat 8 for Monitoring Impacts of Wastewater Discharge on Coastal Water Quality. *Front. Mar. Sci.*, 4. doi:10.3389/fmars.2017.00329

Lu C-J., Benner R., C. G. Fichot, Fukuda H., Yamashita Y. and Ogawa H. (2016). Sources and Transformations of Dissolved Lignin Phenols and Chromophoric Dissolved Organic Matter in Otsuchi Bay, Japan. *Front. Mar. Sci.,* 3:85, doi: 10.3389/fmars.2016.00085

Shen Y., C. G. Fichot, S. Liang, and R. Benner (2016). Biological hot spots and the accumulation of marine dissolved organic matter in a highly productive ocean margin. *Limnol. Oceanogr.*, doi:10.1002/lno.10290

Strong, A., K. E. Lowry, Z. W. Brown, M. M. Mills, G. L. van Dijken, R. S. Pickart, L. W. Cooper, K. E. Frey, R. Benner, C. G. Fichot, J. T. Mathis, N. R. Bates, and K. R. Arrigo (2016). Mass balance estimates of carbon export in different water masses of the Chukchi Sea Shelf. *Deep-Sea Res. II,* 130,88-99.

Fichot C. G., R. Benner, K. Kaiser, Y. Shen, R. M. W. Amon, H. Ogawa, and C-J. Lu (2016). Predicting dissolved lignin phenol concentrations in the coastal oceans from chromophoric dissolved organic matter (CDOM) absorption coefficients. *Front. Mar. Sci.,* 3:7, doi:10.3389/fmars.2016.00007

Fichot C. G., B. Downing, B. Bergamaschi, L. Windham-Myers, M. Marvin-DiPasquale, D. Thompson, and M. Gierach (2016). High-resolution remote sensing of water quality in the San Francisco Bay-Delta Estuary. *Environ. Sci. Technol.* 50, 573–583. doi:10.1021/acs.est.5b03518

Yamashita Y., C. G. Fichot, Y. Shen, R. Jaffé, and R. Benner (2015). Linkages among fluorescent dissolved organic matter, dissolved amino acids and lignin-derived phenols in a river-influenced ocean margin. *Front. Mar. Sci.*, 2:92, doi: 10.3389/fmars.2015.00092

Launois T., S. Belviso, L. Bopp, C. G. Fichot, and P. Peylin (2015). A new model for the global biogeochemical cycle of carbonyl sulfide Part 1: Assessment of direct marine emissions with an oceanic general circulation and biogeochemistry model. *Atmos. Chem. Phys.*, 15, 2295- 2312, doi:10.5194/acp-15-2295-2015

Ortega-Retuerta E., C. G. Fichot, K. R. Arrigo, G. L. van Dijken, and F. Joux (2014) Response of marine bacterioplankton to a massive under-ice phytoplankton bloom in the Chukchi Sea (Western Arctic Ocean). *Deep-Sea Res. II*, 105, 74-84, doi:10.1016/j.dsr2.2014.03.015

Fichot C. G. and R. Benner (2014). The fate of terrigenous dissolved organic carbon in a river-influenced ocean margin. *Global Biogeochem. Cycles*. doi:10.1002/2013GB004670

Fichot C. G., S. E. Lohrenz, and R. Benner (2014). Pulsed, cross-shelf export of terrigenous dissolved organic carbon from the Mississippi-Atchafalaya river system. *J. Geophys. Res. Oceans*, 119, doi:10.1002/2013JC009424

Cao F., C. G. Fichot, S. B. Hooker, and W. L. Miller (2014). Improved algorithms for accurate retrieval of UV/Visible diffuse attenuation coefficients in optically complex, inshore waters. *Remote Sens. Environ.*, 144, 11-27, doi:10.1016/j.rse.2014.01.003

Fichot C. G., K. Kaiser, S. B. Hooker, R. M. W. Amon, M. Babin, S. B´elanger, S. A. Walker, and R. Benner (2013). Pan-Arctic distributions of continental runoff in the Arctic Ocean. *Nature: Sci. Rep.*, 3, 1053, doi:10.1038/srep01053

→ Highlighted in Science, Editor's Choice, Vol. 339, doi:10.1126/science.339.6119.491-c

Shen Y., C. G. Fichot, and R. Benner (2012). Dissolved organic matter composition and bioavailability reflect ecosystem productivity in the western Arctic Ocean. *Biogeosciences*, 9, 4993- 5005, doi:10.5194/bg-9-4993-2012

Fichot C. G. and R. Benner (2012). The spectral slope coefficient of chromophoric dissolved organic matter ($S_{275\text{-}295}$) as a tracer of terrigenous dissolved organic carbon in river-influenced ocean margins. *Limnol. Oceanogr.*, 57(5), 1453-1466, doi:10.4319/lo.2012.57.5.1453

Shen Y., C. G. Fichot, and R. Benner (2012). Floodplain influence on dissolved organic matter composition and export from the Mississippi-Atchafalaya River system to the Gulf of Mexico. *Limnol. Oceanogr.*, 57(4), 1149-1160, doi:10.4319/lo.2012.57.4.1149

Belviso S., I. Masotti, A. Tagliabue, L. Bopp, P. Brockmann, C. G. Fichot, and 9 authors (2011). DMS dynamics in the most oligotrophic subtropical zones of the global ocean. *Biogeochemistry*, doi:10.1007/s10533-011-9648-1

Fichot C. G., and R. Benner (2011). A novel method to estimate DOC concentrations fromCDOM absorption coefficients in coastal waters. *Geophys. Res. Lett.*, 38, L03610, doi:10.1029/2010GL046152

Fichot C. G., and W. L. Miller (2010). An approach to quantify depth-resolved marine photochemical fluxes using remote sensing: Application to carbon monoxide (CO) photoproduction. *Remote Sens. Environ.*, 114, 1363-1377, doi:10.1016/j.rse.2010.01.019

Zhang Y., H. Xie, C. G. Fichot, G. Chen (2008). Dark production of carbon monoxide (CO) from dissolved organic matter in the St. Lawrence estuarine system: Implication for the global coastal and blue water CO budgets. *J. Geophys. Res. Oceans*, 113, C12020, doi:10.1029/2008JC004811

Fichot C. G., S. Sathyendranath, and W. L. Miller (2008). SeaUV and SeaUVc: Algorithms for the retrieval of diffuse attenuation coefficients (UV/Visible domain) from ocean color. *Remote Sens. Environ.*, 112(4), 1584-1602, doi:10.1016/j.rse.2007.08.009

INVITED ORAL PRESENTATIONS

Lakes and Climate: The Role of Remote Sensing (Workshop): Toulouse, France 2017
→ "Future ocean-color missions for lakes"

Observatoire Midi-Pyrénées: Toulouse, France 2016
→ "Exploiting the optical and chemical signatures of organic matter in coastal systems."

AGU Fall Meeting: San Francisco, CA 2014
Session: "*Variation in Dissolved Organic Matter Composition and Transport as Indicators of Ecological Processes and Watershed Dynamics.*"
→ "Assessing the Fate of Terrigenous Dissolved Organic Carbon in River-influenced Ocean Margins."

ASLO Emerging Issue Workshop: New Orleans, LA 2013
→ "Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters."

Dissertations Symposium in Chemical Oceanography (DISCO): Kauai, HI 2012
→ "Fate and transformations of terrigenous dissolved organic matter in the ocean"

CONTRIBUTED PRESENTATIONS at INTERNATIONAL MEETINGS

Ocean Optics Conference (POSTER) 2018
Dubrovnik, Croatia

American Geophysical Union Fall Meeting (ORAL) 2017
New Orleans, CA

Lakes and Climate: The Role of Remote Sensing Workshop (ORAL) 2017
Toulouse, France

Third International International Ocean Colour Science Conference (POSTER) 2017
Lisbon, Portugal

National Water Quality Monitoring Conference, 10th (ORAL) 2016
Tampa, FL

State of the Estuary Conference, 12th (POSTER) 2015
Oakland, CA

International Ocean Color Science Conference (POSTER) 2015
San Francisco, CA

American Geophysical Union Fall Meeting (ORAL) 2014
San Francisco, CA

Biennial Bay-Delta Science Conference, 8th (POSTER) 2014
Sacramento, CA

Ocean Optics Conference XXII (ORAL+POSTER) 2014
Portland, ME

Aquatic Sciences Meeting (ORAL) 2013
New Orleans, LA

Ocean Sciences Meeting (ORAL+POSTER) 2012

Salt Lake City, UT

Ocean Optics Conference XX (ORAL+POSTER) 2010
Anchorage, AK

Ocean Sciences Meeting (POSTER) 2010
Portland, OR

Ocean Sciences Meeting (ORAL) 2008
Orlando, FL

Ocean Optics Conference XVIII (POSTER) 2006
Montreal, QC

Ocean Sciences Meeting (ORAL) 2006
Honolulu, HI

Ocean Optics Conference XVII (POSTER) 2004
Fremantle, Western Australia

Ocean Sciences Meeting (POSTER) 2004
Honolulu, HI

Ocean Optics Conference XVI (POSTER) 2002
Santa Fe, NM

WORKSHOP and SYMPOSIUM PARTICIPATION

Lakes and Climate: The Role of Remote Sensing 2017
Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS)

Coastal and Inland Water Science A-Team Study 2015
Jet Propulsion Laboratory

Hyperspectral InfraRed Imager (HyspIRI) Symposium 2015
Goddard Space Flight Center (GSFC)

Hyperspectral InfraRed Imager (HyspIRI) Science and Applications Works*hop* 2014
California Institute of Technology

Western States Water Council Remote Sensing Workshop 2014
Jet Propulsion Laboratory

Keck Institute for Space Studies Workshop 2014
"Autonomous Science to Forge a Breakthrough in Quantifying the Global Ocean Carbon Budget"
California Institute of Technology

Gulf of Mexico Coastal Carbon Synthesis Workshop 2013
USGS, St-Petersburg, FL

ASLO Emerging Issue Workshop 2013
"Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters"
New Orleans, LA

GulfCarbon Workshop University of Georgia, Athens, GA 2010

PROFESSIONAL SERVICES

Lead Science Advisor

NASA DEVELOP Program, Massachusetts Node @ Boston University
https://develop.larc.nasa.gov/nodes/MA.html

Reviewer

Journals: Deep-Sea Research II, Geophysical Research Letters, Journal of Geophysical Research-Oceans, Remote Sensing of Environment, Estuarine Coastal and Continental Shelf Research, Biogeosciences, Marine Chemistry, Geochimica et Cosmochimica Acta, Optics Express.

Funding agencies: NSF, NASA, SeaGrant, ACS

Panelist for proposal

Funding agencies: NSF, NASA

Session Chair

DISCO Symposium: Kauai, HI 2012
"The Nitrogen Cycle"

Ocean Optics XVII: Montreal, QC 2006
"Recent advances in the study of chromophoric dissolved organic matter"