Brian Kenneth Arbic–Curriculum Vitae

Department of Earth and Environmental Sciences
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Other U-M Affiliations:
Department of Climate and Space Sciences and Engineering (CLASP)–dry appointment
Applied Physics Program
African Studies Center
Michigan Institute for Computational Discovery and Engineering
Center for the Study of Complex Systems
Center for Network and Storage-Enabled Collaborative Computational Science

Education

1994–2000	Ph.D., Physical Oceanography, *Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program*
1984–1988	B.S., Physics (with distinction; high honors) and Mathematics, *University of Michigan*

Professional Positions

2010–present	Professor, Department of Earth and Environmental Sciences, *University of Michigan.* Associate Professor from 2015-2019, Assistant Professor from 2010-2015.
3/2018–8/2018	Visiting Professor, Laboratoire des Etudes en Géophysique et Océanographie Spatiale (LEGOS), *Université Toulouse III, Centre National de la Recherche Scientifique (CNRS), Centre National d'Études Spatiales (CNES), and Institut de Recherche pour le Développement (IRD)*, Toulouse, France
9/2017—2/2018	Visiting Professor, Institut des Géosciences de L'Environnement (IGE), *Université Grenoble Alpes, and Centre National de la Recherche Scientifique (CNRS)*, Grenoble, France
2008–2010	Assistant Professor, Department of Oceanography, *Florida State University*

2005–2008	Research Associate, Institute for Geophysics, Jackson School of Geosciences, *The University of Texas at Austin* Tenure-track research scientist position
2003–2005	Research Staff Member, Atmospheric and Oceanic Sciences Program, *Princeton University* Supervisor: Professor Jorge Sarmiento
2001–2003	Visiting Scientist, Atmospheric and Oceanic Sciences Program, *Princeton University* Postdoctoral hosts: Drs. Steve Garner and Robert Hallberg
1994–2000	Graduate Student Research Assistant, *Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program* Doctoral thesis advisor: Professor Glenn Flierl Also collaborated with Dr. W. Brechner Owens
1993–1994	Research Assistant, Department of Geology, *University of Michigan* Supervisor: Professor Kenji Satake
1990–1992	Secondary School Teacher, *United States Peace Corps* Taught math and physics in rural secondary schools, first in Liberia (evacuated due to civil war), then in Ghana
1985–1988	Research Assistant, Physics Department, *University of Michigan* Senior thesis supervisor: Dr. Mark Skalsey
1984–1989	Miscellaneous Worked several odd jobs to finance undergraduate education and self

Honors and Awards

2019	John Dewey Award, University of Michigan

The John Dewey Award recipients are selected each year by the College of Literature, Science and Arts Executive Committee from among those recommended for promotion from associate professor to full professor with tenure. Award recipients have demonstrated long-term commitment to the education of undergraduate students.

2014	National Science Foundation (NSF) CAREER Award
1994	NSF Graduate Research Fellowship, declined in favor of:
1994–1997	Office of Naval Research-National Defense Science and Engineering Graduate Fellowship
1988	William Williams Undergraduate Thesis Award, Department of Physics, University of Michigan

Professional Service

2020–present	Co-lead of "EquiSea: The Ocean Science Fund for All" concept to the United Nations Decade of Ocean Science for Sustainable Development
2020–present	Lead of "An Ocean Corps for Ocean Science" concept to the United Nations Decade of Ocean Science for Sustainable Development

2014–present	Principal founder of Coastal Ocean Environment Summer School in Ghana, West Africa (coessing.org)
2020	Co-convenor of town hall and poster session on Capacity Development, American Geophysical Union Ocean Sciences Meeting, San Diego, California
2019	Co-organizer of breakout session on Capacity Development, OceanObs19 meeting, Honolulu, Hawai'i
2017	Co-organizer, Arbitrary Lagrangian-Eulerian (ALE) Working Group Meeting, NOAA Silver Spring
2016	Lead organizer, Workshop on Improving Arbitrary Lagrangian-Eulerian (ALE) Ocean Modeling, NOAA Center for Weather and Climate Prediction
2016	Co-convenor of session "Observing and predicting historic and future surface and internal tides", 2016 American Geophysical Union Ocean Sciences Meeting, New Orleans, Louisiana
2014	Co-organizer/host of 2014 STEM-Africa Conference, "Effective U.S. Strategies for African STEM Collaborations, Capacity Building, and Diaspora Engagement", April 1-4, Ann Arbor, Michigan
2014	Co-convenor of session "Tides and Ocean Mixing: Past, Present, and Future", 2014 American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawai'i
2013	Primary organizer/host of 2013 Layered Ocean Model meeting, May 21-23, Ann Arbor, Michigan
2012	Co-convenor of session"Modeling and Observing the Tides in the Ocean", 2012 American Geophysical Union Ocean Sciences Meeting, Salt Lake City, Utah
2009–2011	Member, advisory committee, Zanzibar Channel Project. Travelled to San Diego to assist PI Jurgen Theiss in preparing students for their summer 2009, summer 2010 , and summer 2011 departures to Zanzibar.
2006	Co-convenor of session"Observing and Modeling Oceanic Internal Tides and their Impact", 2006 American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawai'i
2000–present	Reviewer of manuscripts for the scientific journals *Deep-Sea Research I*, *Deep-Sea Research II*, *Dynamics of Atmospheres and Oceans*, *Dynamics and Statistics of the Climate System*, *Earth's Future*, *Geophysical Research Letters*, *Journal of Geophysical Research Oceans*, *Journal of Physical Oceanography*, *Nature Geoscience*, *Ocean Dynamics*, *Ocean Modelling*, *Paleoceanography*, *Physics of Fluids*

2000–present	Reviewer of proposals for National Science Foundation (Physical Oceanography; Chemical Oceanography; Geophysics; and Office of Polar Programs), Naval Research Laboratory Postdoctoral Fellowship Program, United Kingdom Natural Environment Research Council, and Netherlands Organization for Scientific Research (NWO)
2007–present	Member of proposal review panels for: National Science Foundation Physical Oceanography Program (3 times) National Science Foundation Office of Polar Programs Postdoctoral Fellows Program NASA Ocean Surface Topography Science Team (2 times)

University Service

2012–2017, 2020–present	STEM (Science, Technology, Engineering, Mathematics) Africa Steering Committee, African Studies Center
2019–present	One of two faculty advisors for Students Demand Action, a student gun-safety group
2021	Member, Reappointment Committee for Assistant Professor Ashley Payne, CLASP
2016–2017	University Fulbright Committee
2012–2017	ARCAT (Advanced Research Computing Advisory Team) Committee on University Supercomputing

Departmental Service

In the Department of Earth and Environmental Sciences at the University of Michigan:

2020–present	Member, Departmental Admissions Committee
2019–present	Faculty mentor for Yihe Huang
2010–present	Departmental Computer Committee
2019–2020	Strategic Plan Committee
2018–2019	Departmental Committee for Diversity, Equity, and Inclusion (Member)
2016–2017	Departmental Executive Committee (Member)
2016–2017	Geobiology and Biological Oceanography Faculty Search Committee (Member)
2015–2017	Departmental Faculty Ally for Diversity

2014–2015 Climate Change/Water Cycle Faculty Search Committee (Chair)

2013–2014 Turner Student Awards Committee

2012–2013 Climate Change Faculty Search Committee

2011–2012 Spring Commencement Faculty Marshal from our department

2011–2012 Preliminary Exam Standing Committee

2011–2012 Judge for Michigan Geophysical Union

2010–2011 Turner Postdoctoral Fellowship Committee

2010–2016 Departmental Faculty Advisor for Michigan Geophysical Union

In the Department of Oceanography at Florida State University:

2008–2009 Member, search committee for faculty positions in climate cluster

In the Jackson School of Geosciences at The University of Texas at Austin:

2007–2008 Member, search committee for multiple permanent hires in Climate Systems Science. Committee made seven offers for permanent positions, five of which were accepted.

Extra-Departmental Doctoral Thesis Committee Service

Xiaojian Liu (CLASP, 2016), Justin Perket (Applied Physics, 2015), Colin Zarzycki (AOSS, 2014), Peter Bosler (Applied Math, 2013), Jia Xu (Physics, 2014)

Departmental Doctoral Thesis Committee Service

Yi Wang (2020), Ross Maguire (2018), Ran Feng (2015), Clay Tabor (2015)

Extra-Departmental Preliminary Exam Committee Service

Nicholas Ernst (Applied Physics, 2020), Albert Liu (Applied Physics, 2016), Robert VanDervort (Applied Physics, 2015), Alex Golden (Applied Physics, 2014), Jared Ferguson (Applied Physics, 2013), Diana Thatcher (AOSS, 2013), Michael McDonald (Applied Physics, 2012), Fei He (AOSS), 2012), Chaoyi Jiao (AOSS, 2012), Michelle Reicher (School of Education, 2012), Justin Perket (Applied Physics, 2011)

Departmental Preliminary Exam Committee Service

Justin Casaus (2021), Jackie Wrage (2020), Andrew Vande Guchte (2017), Yi Wang (2017), Hong Shen (2016), Chana Tilevitz (2015), Daniel Lowry (2014), Clay Tabor(2012), Ran Feng (2012), Andrea Bossmann (2012), Petr Yakovlev (2012)

Hour-long Professional Seminars

2020-2021	Hour-long seminars on our Ghana oceanography summer school, provided with collaborators from Ghana and the US, and given at 8 institutions–Lamont-Doherty Earth Observatory of Columbia University, University of Michigan, Woods Hole Oceanographic Institution, Oregon State University, University of Southern Mississippi, University of Rhode Island, Brown University, and Scripps Institution of Oceanography.
2020	Seminar, Task Force Ocean Group, Applied Research Laboratories, The University of Texas at Austin, online
2020	Seminar, Climate and Fluid Physics Group, Australian National University, online
2020	Seminar, Scripps Institution of Oceanography SWOT group, online
2019	Seminar, Department of Civil and Environmental Engineering and Earth Sciences, University of Notre Dame
2019	Seminar, Climate, Ocean, and Sea Ice Modeling (COSIM) Group, Los Alamos National Laboratory
2019	Two seminars, Department of Civil and Environmental Engineering, Stanford University
2019	Seminar, Oden Institute for Computational Engineering and Sciences, The University of Texas at Austin
2019	Seminar, Department of Geosciences, The University of Texas at Austin
2019	Seminar, Institute for Geophysics, The University of Texas at Austin
2019	Scripps Institution of Oceanography
2019	Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami
2018	Physical Oceanography Seminar, Woods Hole Oceanographic Institution
2018	Colloquium, Program in Atmospheres, Oceans, and Climate (PAOC), MIT
2018	Two seminars, Climate, Ocean, and Sea Ice Modeling (COSIM) Group, Los Alamos National Laboratory
2018	Laboratoire d'Océanographie Physique et Spatiale, Brest, France
2018	Laboratoire d'Océanographie et du Climat (LOCEAN), Paris, France
2018	Laboratoire de Meteorologie Dynamique, École Normale Supérieure, Paris, France

2018	Two seminars, Laboratoire des Etudes en Géophysique et Océanographie Spatiale (LEGOS), *Université Toulouse III, Centre National de la Recherche Scientifique (CNRS), Centre National d'Études Spatiales (CNES), and Institut de Recherche pour le Développement (IRD)*, Toulouse, France
2018	Laboratoire de Physique, École Normale Supérieure de Lyon, Lyon, France
2018	Institut des Géosciences de L'Environnement (IGE), *Université Grenoble Alpes, and Centre National de la Recherche Scientifique (CNRS)*, Grenoble, France
2017	Institut des Géosciences de L'Environnement (IGE), *Université Grenoble Alpes, and Centre National de la Recherche Scientifique (CNRS)*, Grenoble, France
2017	Two lectures, Global Ocean Data Assimilation Experiment (GODAE) OceanView International School: New Frontiers in Operational Oceanography, Mallorca, Spain
2017	Department of Earth, Ocean and Atmospheric Sciences, Florida State University
2016	Atmospheric Physics Group Seminar, Department of Physics, University of Toronto
2016	Lyceum Lecture Series on "Our Blue Planet", Western Michigan University
2016	NOAA GFDL
2016	NASA Jet Propulsion Laboratory
2016	Department of Atmospheric and Oceanic Sciences, UCLA
2015	Atmospheric and Oceanic Sciences, McGill University
2015	NOAA GFDL
2014	Laboratoire d'Etudes en Géophysique et Océanographie Spatiales, Toulouse, France
2014	NOAA Great Lakes Environmental Research Laboratory
2014	Applied Physics Seminar, University of Michigan
2014	National Center for Atmospheric Research
2013	Naval Research Laboratory Stennis Space Center

2013	Physical Oceanography Seminar, Florida State University
2013	Two Seminars, Université Grenoble Alpes (Topic: tides)
2013	Two seminars, NOAA GFDL
2013	Sack Lunch Seminar, MIT
2013	Physical Oceanography Seminar, Woods Hole Oceanographic Institution
2013	Ocean and Climate Physics Seminar, Lamont-Doherty Earth Observatory of Columbia University
2013	Applied Physics and Applied Math Seminar, Columbia University
1998–2012	From 1998 through 2012, delivered approximately 120 professional hour-long seminars, at venues throughout the United States, Canada, United Kingdom, and France. Venues include National Center for Atmospheric Research, Columbia University, Princeton University, MIT, Woods Hole Oceanographic Institution, University of Chicago, Johns Hopkins University, University of Washington, Oregon State University, University of California San Diego, University of Victoria, National Oceanography Centres in Liverpool and Southampton (United Kingdom), British Antarctic Survey, and others.

Professional Conference Presentations

2021	NASA Sub-Mesoscale Ocean Dynamics Experiment (S-MODE) online meeting, February 2021
2021	NASA Surface Water Ocean Topography (SWOT) Science Team (SDT) online meeting, February 2021
2021	Office of Naval Research Task Force Ocean online meeting, January 2021
2020	NASA Ocean Surface Topography Science Team (OSTST) online meeting, October 2020
2020	Japan Geoscience Union-American Geophysical Union joint online meeting, invited talk, July 2020.
2020	Department of Energy meeting, kickoff for Integrated Coastal Ocean Modeling (ICOM) project, online meeting, April 2020.
2020	American Geophysical Union Ocean Sciences Meeting, San Diego, California. On 13 abstracts for this meeting. Giving one talk. February 2020
2020	Office of Naval Research Task Force Ocean meeting, Austin, Texas, January 2020

2019	NASA Ocean Surface Topography Science Team (OSTST) meeting, Chicago, Illinois, October 2019
2019	International Union of Geodesy and Geophysics meeting, Montreal, Canada, July 2019
2019	NASA Surface Water Ocean Topography (SWOT) Science Team (SDT) meeting, Bordeaux, France, June 2019
2018	Remote presentation, ECCO (Estimating the circulation and climate of the ocean) meeting, Austin, Texas, October 2018
2018	NASA Surface Water Ocean Topography (SWOT) Oceanographic Campaign Workshop, DC, October 2018
2018	Two talks, NASA Ocean Surface Topography Science Team (OSTST) meeting, Ponta Delgada, Azores, Portugal, September 2018
2018	NASA Surface Water Ocean Topography (SWOT) Science Team (SDT) meeting, Montreal, Canada, June 2018
2018	Gordon Research Conference on "Ocean Mixing", Andover, New Hampshire, June 2018
2018	ONR FLEAT Project Meeting, San Diego, California, April 2018
2018	Workshop on "Scales and Scaling Cascades in Geophysical Systems", Hamburg, Germany, April 2018
2018	Workshop on "Mathematical Aspects of Physical Oceanography", Vienna, Austria, March 2018
2018	Workshop on "Modelling Imbalance in the Atmosphere and Ocean", Banff International Research Station, Banff, Alberta, February 2018
2018	Workshop on "Ocean mesoscale eddy interactions with the atmosphere", Portland, Oregon, February 2018
2018	American Geophysical Union Ocean Sciences Meeting, Portland, Oregon. On 10 abstracts for this meeting. Gave two talks. February 2018
2018	Workshop on Interactions between internal gravity waves and meso/submesoscale currents in the ocean, Portland, Oregon, February 2018
2018	DRAKKAR ocean modeling meeting, Grenoble, France, January 2018
2017	ECCO (Estimating the circulation and climate of the ocean) meeting, Pasadena, California, November 2017
2017	NASA Ocean Surface Topography Science Team (OSTST) meeting, Miami, Florida, October 2017
2017	NASA Surface Water Ocean Topography (SWOT) Science Team (SDT) meeting, Toulouse, France, June 2017
2017	STEM IV: Africa-US Frontiers in Science, Yaounde, Cameroon, May 2017

2017	Center for Network and Storage Enabled Collaborative Computer Science (CNSECCS), University of Michigan, May 2017
2017	Arbitrary Lagrangian-Eulerian (ALE) Working Group Meeting, NOAA Silver Spring, Silver Spring, Maryland, May 2017
2017	ONR FLEAT Program Review, Herndon, Virginia, March 2017
2016	American Geophysical Union Fall meeting, San Francisco, December 2016
2016	Workshop on Improving Arbitrary Lagrangian-Eulerian (ALE) Ocean Modeling, NOAA NCEP, College Park, Maryland, October 2016
2016	NASA Surface Water Ocean Topography (SWOT) Science Team (SDT) meeting, Pasadena, June 2016
2016	High-Resolution Ocean Modeling for Coupled Seamless Predictions, Exeter, United Kingdom, April 2016.
2016	American Geophysical Union Ocean Sciences Meeting, New Orleans, Louisiana, February 2016. On 11 abstracts for this meeting; sent virtually entire research group.
2016	ONR FLEAT DRI Meeting, San Diego, California, January 2016
2015	NSF Climate Process Team Meeting, San Diego, California, October 2015
2015	CLIVAR Workshop on Translating Process Understanding to Improve Climate Models, NOAA GFDL, October 2015
2015	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, Toulouse, France, July 2015
2015	National Oceanographic Partnership Program Meeting, Washington, DC, June 2015
2015	Layered Ocean Model Meeting, Copenhagen, Denmark, May 2015
2015	NASA Workshop: From Space to the Deep Seafloor: Using "Green" Submarine Cable Systems in the Ocean Observing System, Honolulu, Hawai'i, May 2015
2015	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, San Diego, California, January 2015
2014	NASA Workshop: From Space to the Deep Seafloor: Using "Green" Submarine Cable Systems in the Ocean Observing System, Pasadena, California, October 2014
2014	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, Toulouse, France, June 2014
2014	Ocean Scale Interactions: A Tribute to Bach Lien Hua, Brest, France, June 2014

2014	World Climate Research Program (WCRP) Climate Variability (CLIVAR) Working Group on Ocean Model Development (WGOMD) High-Resolution Ocean Climate Modeling Workshop, Kiel, Germany, April 2014
2014	American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawaii, February 2014. On 12 abstracts for this meeting; sent virtually entire research group.
2014	NSF Climate Process Team Meeting, Boulder, Colorado, January 2014
2014	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, Arlington, Virginia, January 2014
2013	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, Paris, France, June 2013
2013	Ocean Turbulence conference, Santa Fe, New Mexico, June 2013
2013	Layered Ocean Model Meeting (Principal Organizer), Ann Arbor, Michigan, May 2013
2013	NSF Climate Process Team Meeting, Boulder, Colorado, January 2013
2013	NASA Surface Water Ocean Topography (SWOT) Science Definition Team (SDT) meeting, Pasadena, California, January 2013
1998–2012	From 1998 through 2012, delivered approximately 45 professional conference presentations, at venues throughout the United States, Canada, United Kingdom, and France. Venues include American Geophysical Union Ocean Sciences meeting, American Geophysical Union Fall Meeting (note invited talk in Fall 2008), European Geophysical Union meeting (note invited talk in Spring 2009), Chris Garrett 65th birthday Festschrift (2008; invited talk), University of Hamburg 2008 meeting on tide modeling (invited talk), University of Hamburg 2010 meeting on submesoscale motions (invited talk), and others.

Community Outreach

2020	Delivered Febaruary 15 Saturday Morning Physics lecture, *Ocean Modeling: Big computers, big science*
2020	Delivered two-hour class, *Understanding the ocean's role in Earth's climate*, to Ann Arbor Elderwise group on January 16.
2014	Participant as science expert during May 31 "Scientists Fair" hosted by Ann Arbor Science and Skeptics
2011	Delivered November 19 Saturday Morning Physics lecture, *Predicting the Maelstrom: The physics of the ocean*
2006	Authored article on *Tides* for World Book Encyclopedia

2006	Delivered presentation on tides to Texas Education Service Center coordinators (mentors of teachers)
1993–present	Have delivered numerous presentations on experience as math and science teacher in Peace Corps

Press & Media:

2018	AGU's EOS ran a story on MS student Molly Range's project on modeling the tsunami caused by the Chicxulub asteroid impact.
2011–2012	A story on my Peace Corps experience and how it ultimately led to Ghanaian Joseph Ansong getting a PhD and coming to work at University of Michigan for a postdoc was posted on the Global Michigan portion of University of Michigan website on December 8, 2011. The story was picked up and posted by the University Record Online (December 12, 2011) and by Michigan Today under Featured Faculty on January 11, 2012.
2007–2008	Ayon Sen's research with Robert Scott and me at The University of Texas at Austin led to him being a national finalist in both the Intel Science Talent Search (one of 40 national finalists, from 1602 initial entries) and the Siemens Competition in Math, Science, and Technology (4th place overall, from 1641 initial entries). This success led to a U.S. News and World Report article in which Ayon was prominently mentioned, a United States Senate Resolution congratulating the Siemens finalists including Ayon, and a Siemens press release.

Externally Funded Research Grants

6/4/2020–6/3/2024	Lead PI on NASA grant *Predictability of stationary and non-stationary internal tides in the US Navy global hydrodynamical model* to University of Michigan, University of Southern Mississipi (USM), Naval Research Laboratory (NRL), University of New Orleans (UNO), Johns Hopkins University (JHU), and Florida State University (FSU). Collaborators are Hans Ngodock and Jay Shriver of NRL, Maarten Buijsman of USM, Innocent Souopgui of UNO, Eric Chassignet, Jim Richman, and Xiaobiao Xu of FSU, and Tom Haine of JHU.

1/16/2020–
9/30/2022 Sole PI on subcontract *Integrated Coastal Modeling*, from the Department of Energy(DOE) Pacific Northwest National Laboratory (PNNL). Subcontract is part of a large project led by PNNL,that includes Los Alamos National Laboratory (LANL), another DOE lab, and multiple academic institutions. Purpose of project is to predict flooding and other hazards for the US east coast over the next several decades. Our role is to help implement and validate tides in the DOE ocean model. LANL collaborators include Drs. Phillip Wolfram, Andrew Roberts, and Nairita Pal. Lead project PI is Dr. Ian Kraucunas of PNNL.

9/16/2019–
9/15/2022 Sole PI on Office of Naval Research grant *Modeling, characterizing, and predicting effects of internal gravity waves on acoustic propagation on basin to global scales* to University of Michigan. Project is made up of related grants at ARiA, Applied Ocean Sciences, Naval Research Laboratory, University of Southern Mississippi, and Florida State University. Project lead is Jason Summers of ARiA. Purpose of project is to determine impacts of internal tides and gravity waves on basin-scale ocean acoustics.

6/1/2019–
5/31/2022 Sole PI on National Science Foundation grant *Collaborative Research: Interactions between Internal Waves, Mesoscale Eddies, and Submesoscale Currents in the California Current System* to University of Michigan. Collaborators on related grants are Roy Barkan (project lead) and Jim McWilliams of UCLA, Maarten Buijsman of University of Southern Mississippi, Jay Shriver of Naval Research Laboratory, and Jim Richman of Florida State University. Purpose of grant is to investigate internal wave spectrum and internal wave-eddy interactions in coupled HYCOM-ROMS simulations of the California Current system. Amount later supplemented by REU (Research Experiences for Undergraduates) award, and a second supplement to help fund the Coastal Ocean Environment Summer School in Ghana.

6/1/2018–
11/30/2020 Sole PI on Office of Naval Research grant *Near-inertial waves in realistically forced HYCOM simulations with high-resolution atmospheric coupling* to University of Michigan. Collaborators on related grant are Maarten Buijsman of University of Soutehrn Mississippi (project lead), Jim Richman of Florida State University, and Jay Shriver of Naval Research Laboratory. Purpose of grant is to investigate near-inertial waves in HYCOM.

9/1/2017–
8/31/2019 Sole PI on Office of Naval Research grant *Connecting global HYCOM to FLEAT* to University of Michigan.

6/1/2017–
5/31/2021 Lead PI on NASA grant *Internal tides and waves in a high-resolution ocean general circulation model with data assimilation* to University of Michigan, University of Southern Mississipi (USM), Naval Research Laboratory (NRL), Florida State University (FSU), and NASA Jet Propulsion Laboratory (JPL). Collaborators are Hans Ngodock and Jay Shriver of NRL, Maarten Buijsman and Innocent Souopgui of USM, Jim Richman of FSU, and Dimitris Menemenlis of NASA JPL.

4/1/2016–
3/31/2020 Lead PI on NASA grant *Modeling internal wave signals and their predictability for SWOT* to University of Michigan, University of Southern Mississipi (USM), Naval Research Laboratory (NRL), and Florida State University (FSU). Collaborators are Hans Ngodock, Jim Richman, and Jay Shriver of NRL, Maarten Buijsman of USM, Eric Chassignet and Xiabiao Xu of FSU, Matthew Alford of Scripps, and James Girton and Zhongxiang Zhao of University of Washington Applied Physics Laboratory. SWOT stands for "Surface Water Ocean Topography". It is a joint NASA/French space agency wide-swath satellite altimeter mission, with a planned launch in 2020.

4/1/2015–
3/31/2018 Sole PI on subcontract to U-Michigan from University of Southern Mississippi (USM) ONR grant *Improving global surface and internal tides through two-way coupling with high resolution coastal models.* Collaborators include Maarten Buijsman (USM; lead PI) and Jim Richman, Jay Shriver, and Alan Wallcraft of Naval Research Laboratory (NRL).

6/1/2014–
5/31/2019 Sole PI on National Science Foundation CAREER Award *CAREER: Diagnosis of forced versus intrinsic low-frequency variability in high-resolution coupled climate models using geostrophic turbulence techniques* to University of Michigan. Collaborators are Steve Griffies of NOAA GFDL, Thierry Penduff of LGGE-MEOM, Bill Dewar of Florida State University, Andrew Hogg of Australian National University, and Jeff Blundell of National Oceanography Centre Southampton. Dates include one-year no-cost extension. Amount later supplemented by two REU (Research Experiences for Undergraduates) awards.

1/9/2013–
1/8/2016 Lead PI on NASA grant *Application of high-resolution global simulations of tides embedded within an eddying general circulation model to SWOT mission planning* to University of Michigan and Naval Research Laboratory (NRL). NRL collaborators are Jim Richman and Jay Shriver. SWOT stands for "Surface Water Ocean Topography". It is a joint NASA/French space agency wide-swath satellite altimeter mission, with a planned launch in 2020.

5/1/2011–
4/30/2015 Sole PI on Office of Naval Research grant *Insertion, validation, and application of barotropic and baroclinic tides in 1/12 and 1/25 degree HYCOM* to University of Michigan. Collaborators include Joe Metzger, Jim Richman, Jay Shriver and Alan Wallcraft of Naval Research Laboratory, Maarten Buijsman (USM), and Eric Chassignet (FSU).

6/1/2010–
5/31/2016 Co-PI on National Science Foundation grant *Collaborative research: Representing internal-wave driven mixing in global ocean models*. Dates include one-year no-cost extension. Multi-institution project led by Professor Jennifer MacKinnon (UC San Diego).

6/1/2010–
5/31/2014 Lead PI on multiple institution National Science Foundation grant *Collaborative research: Impact of bottom boundary layer drag and topographic wave drag on the eddying general circulation*. Amount later supplemented by two REU (Research Experiences for Undergraduates) awards. Co-PIs/collaborators include Eric Chassignet (FSU), Glenn Flierl (MIT), Steve Garner (NOAA GFDL), Steve Jayne (WHOI), Joe LaCasce (University of Oslo), Mat Maltrud (Los Alamos National Lab), Rob Scott (now at University of Brest). End date includes one-year no-cost extension.

2007–2010 Co-PI on Office of Naval Research grant *Effects of small-scale bathymetric roughness on the global internal wave field* to The University of Texas at Austin. Lead PI John Goff. Remaining funds transferred to Florida State University and expended there. End date includes one-year no-cost extension.

2006–2010 Co-PI on National Science Foundation grant *Collaborative research: Understanding tidal resonances in the present-day and ice-age oceans*. Co-PI Samar Khatiwala (Columbia University). Remaining funds transferred to Florida State University and expended there. Amount later supplemented by REU (Research Experiences for Undergraduates) award. End date includes one-year no-cost extension.

2006–2011 Sole PI on Naval Research Laboratory contract to The University of Texas at Austin. Contract research laid groundwork for 2011 Office of Naval Research grant to U-Michigan as well as related grants to Florida State University and Naval Research Laboratory. Remaining funds transferred to Florida State University and expended there.

University Teaching Experience

"F" and "W" denote Fall and Winter semesters, respectively. "GEOSCI" courses became "EARTH" courses in the university course catalogue after our departmental name change took place. Note Q1 asks whether the course is an excellent course, and Q2 asks whether the instructor is an excellent instructor. Both are rated on a scale of 1 to 5 with 1 being low and 5 being high.

Year	Term	Course	Credit hours	Enrollment	Q1/Q2
2021	W	EARTH 222	3	152	4.3/4.5
2020	F	EARTH 255	1	22	3.7/4.2
2020	F	EARTH 421	3	23	4.1/4.4
2020	W	EARTH 222	3	156	4.2/4.6
2019	F	EARTH 255	1	26	4.5/3.9
2019	F	EARTH 421	3	17	4.7/4.8
2018	F	EARTH 255	1	31	3.9/4.1
2018	F	EARTH 421	3	17	4.1/4.4
2017	W	EARTH 222	3	161	4.1/4.7
2016	F	EARTH 255	1	32	3.8/4.0
2016	F	EARTH 421	3	16	4.7/4.9
2016	W	EARTH 222	3	163	4.1/4.6
2015	F	EARTH 255	1	30	3.2/3.9
2015	F	EARTH 421	3	15	4.6/4.6
2015	W	EARTH 222	3	158	4.1/4.6
2014	F	EARTH 255	1	25	3.6/4.2
2014	F	EARTH 421	3	26	4.4/4.9
2014	W	EARTH 222	3	153	4.0/4.5
2014	W	EARTH 496	1	5	5.0/5.0
2013	F	EARTH 255	1	27	3.1/4.3
2013	W	EARTH 222	3	155	4.0/4.4
2013	W	EARTH 421	3	24	4.4/4.6
2012	W	EARTH 421	3	17	4.6/4.9
2011	F	GEOSCI 222	3	151	4.0/4.3
2011	W	GEOSCI 421	3	34	4.1/4.4
2009	F	Oceanography 1001	3	722	3.9/4.1

Further details of all courses:

EARTH 496	"Seminar in Physical Oceanography" is a 1-credit seminar course for upper level undergraduate and graduate students.
EARTH 421	"Introduction to Physical Oceanography" is a 3-credit course for upper level undergraduate and graduate students. From 2012 onward, EARTH 421 has included an optional 2-day field trip on the NOAA R/V Laurentian sailing out of Muskegon, Michigan.
EARTH 255	"Earth and Space Science for Elementary Educators" is a 3-credit course for elementary education majors. I cover 1/3 of the course.
EARTH 222	"Introductory Oceanography" is a 3-credit large lecture course, with an accompanying optional 1-credit laboratory EARTH 223 for which only the Graduate Student Instructors are evaluated.
Oceanography 1001	"Elementary Oceanography" is a 3-credit large lecture course at Florida State University. I taught 3 sections of about 240 students each for 1/3 of term. Q1/Q2 scores given above are Florida State University equivalents.

Teaching developmental activities:

2013	Large Class Initiative, Center for Research on Learning and Teaching
2013	Developed two new labs for EARTH 223 (Introductory Oceanography Lab)
2011	In-class midterm student feedback for Fall 2011 GEOSCI 222, conducted by Center for Research on Learning and Teaching
2011	In-class midterm student feedback for Winter 2011 GEOSCI 421, conducted by Center for Research on Learning and Teaching

Secondary School Teaching Experience

1990–1992	More than 2 years of full-time teaching experience in various mathematics and physics courses taught at Damongo Secondary School in northern Ghana, to approximately 1000 students, as a member of the United States Peace Corps. Also taught briefly in Liberia before evacuation due to civil war.

Postdoctoral and Research Scientist Mentees

2020–present	He Wang (PhD Princeton University). UCAR research scientist.
2020–present	Ritabrata Thakur (PhD International Centre for Theoretical Sciences of the Tata Institute of Fundamental Research, Bangalore, India).
2020–present	Joseph Skitka (PhD Brown University).
2017–2020	Arin Nelson (PhD University of Colorado). Now doing a second postdoc at University of Rhode Island.

2014–2017 Amanda O'Rourke (PhD Princeton University). Now Research Scientist at Johns Hopkins University Applied Physics Laboratory.

2011–2017 Joseph Ansong (PhD University of Alberta). Now Senior Lecturer (equivalent of tenure) in Department of Mathematics at University of Ghana.

2011–2013 David Trossman (PhD University of Washington). Now Senior Scientist at NOAA.

2012–2013 Malte Müller (PhD University of Hamburg). Worked as a postdoctoral subcontractor from University of Victoria. Now Research Scientist at Norwegian Meteorological Institute.

2008–2012 Patrick Timko (PhD Memorial University of Newfoundland). Now Support Scientist at Environment Canada.

University of Michigan Graduate Students Supervised in Research

PhD Students:

2020–present Kristin Barton (Physics).

2013–2019 Paige Martin (Physics). Now a postdoc at Columbia University's Lamont-Doherty Earth Observatory.

2012–2018 Conrad Luecke (Earth and Environmental Sciences). Now a postdoc at the Stennis Space Center branch of Naval Research Laboratory.

2012–2017 Anna Savage (Applied Physics). Now a postdoc at Scripps Institution of Oceanography, University of California San Diego.

2010–2015 Alfredo Wetzel (Applied Math). Now a STARS Instructor at University of Washington.

2010–2015 Andrew Morten (Physics). Now employed as "Software Engineer in Mathematical Optimization" at Mythic, a start-up in Silicon Valley.

MS Students:

2017–2018 Molly Range (Earth and Environmental Sciences major); co-supervised by emeritus professor Ted Moore. Now employed in the private-sector.

Undergraduate Students Supervised in Research at University of Michigan

2019–2021 Charles Light (Electrical Engineering and Computer Science major); co-supervised by Paige Martin and Arin Nelson.

2019–2021 Jonathan Brasch (Electrical Engineering and Computer Science major).

2016–2017 Ji Ye (Earth and Environmental Sciences major); principally supervised by graduate student Anna Savage. Now seeking entry into law school.

2016–2017 Eliana Crawford (Physics major at Kenyon College); principally supervised by postdoc Joseph Ansong. Now employed by the private sector.

2016–2017	Molly Range (Earth and Environmental Sciences major); co-supervised by emeritus professor Ted Moore. Went on to receive an MS degree.
2014–2015	Andrew Miller (Earth and Environmental Sciences major); principally supervised by graduate students Anna Savage and Conrad Luecke.
2014–2016	Houraa Daher (AOSS major); principally supervised by postdoc Joseph Ansong. Now a graduate student in Marine Science at University of Miami.
2012–2014	Brandon Cloutier (Physics and Complex Systems double major); principally supervised by postdoc David Trossman.
2012–2014	Jeremy Upsal (Math major at University of Colorado); principally supervised by postdoc David Trossman. Now a graduate student in Applied Mathematics at University of Washington.
2012	Caroline Kinstle (AOSS major); principally supervised by postdoc David Trossman.
2011–2015	Steve Bassette (Physics and Math double major). Steve is a veteran of the United States Navy.
2010–2012	Aaron Skiba (Aerospace Engineering major). Now postdoc at Cambridge University.
2010–2011	Libo Zeng (Physics major). Now graduate student in Applied Mathematics at University of Washington.

High School Students Supervised in Research at University of Michigan

2014	Hari Sharma, principally supervised by graduate student Anna Savage.

Undergraduate Students Supervised in Research at Florida State University

2009	Byron Conley (Physics major). Went on to receive BS in physics from University of Central Florida, where he is now a graduate student. Byron is a combat veteran of the United States Army campaign in Afghanistan.
2009	Will Godwin (Physics major). Went on to receive a PhD in Medical Physics at University of Florida. Now a resident at Medical University of South Carolina.
2009	Brian Rivera (Physics major).
2009	Joseph Molinari (Mathematics major). Went on to receive MS in Math at FSU. Now employed in the private sector (Aderant).

High School Students Co-Supervised in Research with Collaborator Dr. Robert Scott, at The University of Texas at Austin

2008	Anson Varghese. Went on to complete a BS in Biomedical Engineering from The University of Texas at Austin. Now a medical doctor in Nevada.

2006–2007 Ayon Sen. Went on to complete a BS in Applied Math at Caltech. Now employed in the private sector.

Publications

ISI/Scopus/Google Scholar h-index as of March 6, 2021: 30/32/36
ISI/Scopus/Google Scholar citations as of March 6, 2021: 2397/2524/3558

Advisees are underlined. Note that some advisees, for instance Malte Müller and Patrick Timko, have collaborated with me before and/or after the advisee relationship.

In-review and in-revision manuscripts:

Raja, K.J., M.C. Buijsman, J.F. Shriver, **B.K. Arbic**, and O. Siyanbola (2021), Near-inertial wave energetics modulated by background flows in global model simulations.

Canavati, A., J. Toweh, A.C. Simon, A.C., and **B.K. Arbic** (2021), Electronic Graveyard: What is the solution to Ghana's e-waste dilemma? *World Development Perspectives*, in press. A. Canavati–Undergraduate Student;
J. Toweh–Undergraduate Student.
Based upon research done by the first two authors (both University of Michigan undergraduates) during the 2016 Coastal Environment Summer School in Ghana (https://coessing.org). Partially funded by, and written up for, the Michigan Sustainability Cases project at the University of Michigan (http://www.teachmsc.org/).

Eberhard, E., J. Hicks, J., A.C. Simon, and **B.K. Arbic** (2021), Coping with cocoa complications: How do economic factors impact the land usage decisions of Ghanian cocoa farmers? *World Development Perspectives*, in press.
E. Eberhard–Undergraduate Student; J. Hicks–Undergraduate Student.
Based upon research done by the first two authors (both University of Michigan undergraduates) during the 2016 Coastal Environment Summer School in Ghana (https://coessing.org). Partially funded by, and written up for, the Michigan Sustainability Cases project at the University of Michigan (http://www.teachmsc.org/).

Light, C.X., **B.K. Arbic**, P.E. Martin, L. Brodeau, J.T. Farrar, S.M. Griffies, B.P. Kirtman, L.C. Laurindo, D. Menemenlis, A. Molod, A.D. Nelson, E. Nyadjro, A.K. ORourke, J.F. Shriver, L. Siqueira, R.J. Small, and E. Strobach (2021), Effects of grid spacing on high-frequency precipitation variance in coupled high-resolution global ocean-atmosphere models.
C.X. Light–Undergraduate Student; P.E. Martin–Graduate Student; A.D. Nelson–Postdoc; A.K. O'Rourke–Postdoc.

Moskel, J., E. Shroyer, M.D. Needham, S. Rowe, and **B.K. Arbic** (2021), The Coastal Ocean Environment Summer School in Ghana: Exploring the research capacity building potential of a higher education informal science learning program. In-press for *Journal of Higher Education Outreach and Engagement*.

Nyadjro, E., **B.K. Arbic**, C.E. Buckingham, P.E. Martin, E. Mahu, J. Ansong, J. Adjetey, E. Nyarko, and K. Appeaning-Addo (2021), Enhancing satellite oceanography-driven

research in West Africa: a case study of capacity development in an underserved region.

Ray, R.D., J.-P. Boy, **B.K. Arbic**, G.D. Egbert, S.Y. Erofeeva, L. Petrov, and J.F. Shriver (2021), The Problematic ψ_1 ocean tide.

Nazarian, R.H., C.M. Burns, S. Legg, M.C. Buijsman, H. Kaur, and **B.K. Arbic** (2021), On the magnitude of canyon-induced mixing.

Shakespeare, C.J., **B.K. Arbic**, and A. McC. Hogg (2021), Dissipating and reflecting internal waves.

Klatt, J.M., A. Chennu, **B.K. Arbic**, B.A. Biddanda, D. deBeer, and G.J. Dick (2021), Role of planetary rotation rate in benthic O_2 export and Earths oxygenation.

Range, M.M., **B.K. Arbic**, B.C. Johnson, T.C. Moore, A.J. Adcroft, J.K. Ansong, J. Ritsema, and C.R. Scotese (2021), The Chicxulub impact produced a powerful global tsunami. M.M. Range–Graduate Student.

Moore, T.C., M.M. Range, **B.K. Arbic**, and B.C. Johnson (2021), The global impact of the Cretaceous Paleogene tsunami. M.M. Range–Graduate Student.

Morten, A.J., **B.K. Arbic**, G.R. Flierl, and R.B. Scott (2021), Spatio-temporal spectral transfers in fluid turbulence: Theory and numerical results. A.J. Morten–Graduate Student.

Wetzel, A.N., **B.K. Arbic**, I. Cerovecki, M.C. Hendershott, R.H. Karsten, P.D. Miller, and J.F. Molinari (2021), On stratification, large-scale tides, and temporal changes in surface tidal elevations: Two-layer analytical model. A.N. Wetzel–Graduate Student; J.F. Molinari–Undergraduate Student.

Müller, M., **B.K. Arbic**, J.G. Richman, J.F. Shriver, and R.B. Scott (2021), Nonlinearities in westward propagating mesoscale eddies diagnosed from wavenumber-frequency spectra. M. Müller–Postdoc.

Peer-reviewed scientific journal articles:

2021

81) International Altimetry Team* (2021), Altimetry for the future: Building on 25 years of progress. *Advances in Space Research* **68**, 319-363. doi:10.1016/j.asr.2021.01.022. *Approximately 400 co-authors including **B.K. Arbic**.

80) Shakespeare, C.J., **B.K. Arbic**, and A. McC. Hogg (2021), The impact of abyssal hill roughness on the benthic tide. *Journal of Advances in Modeling Earth Systems* **13**, e2020MS002376. doi:10.1029/2020MS002376.

79) Martin, P.E., **B.K. Arbic**, and A. McC. Hogg (2021), Drivers of atmospheric and oceanic surface temperature variance: A frequency domain approach. *Journal of Climate* **34**, 3975-3990, doi:10.1175/JCLI-D-20-0557.1. P.E. Martin–Graduate Student.

78) Carrère, L., **B.K. Arbic**, B. Dushaw, G. Egbert, S. Erofeeva, F. Lyard, R.D. Ray, C.

Ubelmann, E. Zaron, Z. Zhao, J.F. Shriver, M.C. Buijsman, and N. Picot (2021), Accuracy assessment of global internal tide models using satellite alimetry. *Ocean Science* **17**, 147-180, doi:10.5194/os-17-147-2021.

2020

77) Shakespeare, C.J., **B.K. Arbic**, and A. McC. Hogg (2020), The drag on the barotropic tide due to the generation of baroclinic motion. *Journal of Physical Oceanography* **50**, 3467-3481, doi:10.1175/JPO-D-19-0167.1.

76) Pan, Y., **B.K. Arbic**, A.D. Nelson, D. Menemenlis, W.R. Peltier, W. Xu, and Y. Li (2020), Numerical investigation of mechanisms underlying oceanic internal gravity wave power-law spectra. *Journal of Physical Oceanography* **50**, 2713-2733, doi:10.1175/JPO-D-20-0039.1. A.D. Nelson–Postdoc.

75) Buijsman, M.C., G.R. Stephenson, J.K. Ansong, **B.K. Arbic**, J.A.M. Green, J.G. Richman, J.F. Shriver, C. Vic, A.J. Wallcraft, and Z. Zhao (2020), On the interplay between horizontal resolution and wave drag and their effect on tidal baroclinic mode waves in realistic global ocean simulations. *Ocean Modelling* **152**, 101656, doi:10.1016/j.ocemod.2020.101656. J.K. Ansong–Postdoc.

74) Luecke, C.A., **B.K. Arbic**, J.G. Richman, J.F. Shriver, M.H. Alford, J.K. Ansong, S.L. Bassette, M.C. Buijsman, D. Menemenlis, R.B. Scott, P.G. Timko, G. Voet, A.J. Wallcraft, and L. Zamudio (2020), Statistical comparisons of temperature variance and kinetic energy in global ocean models and observations: Results from mesoscale to internal wave frequencies. *Journal of Geophysical Research Oceans* **125**, e2019JC015306, doi:10.1029/2019JC015306.
C.A. Luecke–Graduate Student;
J.K. Ansong–Postdoc; S.L. Bassette–Undergraduate Student; PG. Timko–Postdoc.

73) Nelson, A.D., **B.K. Arbic**, D. Menemenlis, W.R. Peltier, M.H. Alford, N. Grisouard, and J.M. Klymak (2020), Improved internal wave spectral continuum in a regional ocean model. *Journal of Geophysical Research Oceans* **125**, e2019JC015974, doi:10.1029/2019JC015974.
A.D. Nelson–Postdoc.

72) Haigh, I.D., M.D. Pickering, J.A.M. Green, **B.K. Arbic**, A. Arns, S. Dangendorf, D.F. Hill, K. Horsburgh, T. Howard, D. Idier, D.A. Jay, L. Jänicke, S.B. Lee, M. Müller, M. Schindelegger, S.A. Talke, S.-B. Wilmes, and P.L. Woodworth (2020), The tides they are a-changin': A comprehensive review of past and future non-astronomical changes in tides, their driving mechanisms, and future implications. *Reviews of Geophysics* **57**, e2018RG000636, doi:10.1029/2018RG000636.

71) Martin, P.E., **B.K. Arbic**, A. McC. Hogg, A.E. Kiss, J.R. Munroe, and J.R. Blundell (2020), Frequency-domain analysis of the energy budget in an idealized, coupled ocean-atmosphere model. *Journal of Climate* **33**, 707-726, doi:10.1175/JCLI-D-19-0118.1.
P.E. Martin–Graduate Student.

2019

70) Sulpis, O., C.O. Dufour, D.S. Trossman, A.J. Fassbender, **B.K. Arbic**, B.P. Boudreau,

J.P. Dunne, and A. Mucci (2019), Reduced $CaCO_3$ flux to the seafloor and weaker bottom current speeds curtail benthic $CaCO_3$ dissolution over the 21st century. *Global Biogeochemical Cycles* **33**, 1654-1673, doi:10.1029/2019GB006230. D.S. Trossman–Postdoc.

69) **B.K. Arbic**, O.B. Fringer, J.M. Klymak, F.T. Mayer, D.S. Trossman, and P. Zhu (2019), Connecting process models of topographic wave drag to global eddying general circulation models. *Oceanography* **32**, 146-155, doi:10.5670/oceanog.2019.420. Included in Special issue "FLEAT: FLow Encountering Abrupt Topography". D.S. Trossman–Postdoc.

68) Johnston, T.M.S., M.C. Schönau, T. Paluszkiewicz, J.A. MacKinnon, **B.K. Arbic**, P.L. Colin, M.H. Alford, M. Andres, L. Centurioni, H.C. Graber, K.R. Helfrich, V. Hormann, P.F.J. Lermusiaux, R.C. Musgrave, B.S. Powell, B. Qiu, D.L. Rudnick, H.L. Simmons, L. St. Laurent, E.J. Terrill, D.S. Trossman, G. Voet, H.W. Wijesekera, and K.L. Zeiden (2019), Flow Encountering Abrupt Topography (FLEAT): A multiscale observational and modeling program to understand how topography affects flows in the western North Pacific. *Oceanography* **32**, 10-21, doi:10.5670/oceanog.2019.407. Included in Special issue "FLEAT: FLow Encountering Abrupt Topography". D.S. Trossman–Postdoc.

67) Nelson, A.D., **B.K. Arbic**, E.D. Zaron, A.C. Savage, J.G. Richman, M.C. Buijsman, and J.F. Shriver (2019), Toward realistic nonstationarity of semidiurnal baroclinic tides in a hydrodynamic model. *Journal of Geophysical Research Oceans* **124**, 6632-6642, doi:10.1029/2018JC014737. A.D. Nelson–Postdoc; A.C. Savage–Graduate Student.

66) Howe, B.M., **B.K. Arbic**, J. Aucan, C.R. Barnes, N. Bayliff, N. Becker, R. Butler, L. Doyle, S. Elipot, G.C. Johnson, F. Landerer, S. Lentz, D.S. Luther, M. Müller, J. Mariano, K. Panayotou, C. Rowe, H. Ota, Y.T. Song, M. Thomas, P.N. Thomas, P. Thompson, F. Tilmann, T. Weber, and S. Weinstein (2019), SMART cables for observing the global ocean: Science and implementation. *Frontiers in Marine Science* **6:424**, doi:10.3389/fmars.2019.00424.

65) Sprintall, J., A.L. Gordon, S.E. Wijffels, M. Feng, S. Hu, A. Koch-Larrouy, H. Phillips, D. Nugroho, A. Napitu, K. Pujiana, R.D. Susanto, B. Sloyan, D. Yuan, N.F. Riama, S. Siswanto, A. Kuswardani, Z. Arifin, A.J. Wahyudi, H. Zhou, T. Nagai, J.K. Ansong, R. Bourdalle-Badié, J. Chanut, F. Lyard, **B.K. Arbic**, A. Ramdhani, and A. Setiawan (2019), Detecting change in the Indonesian Seas. *Frontiers in Marine Science* **6:257**, doi:10.3389/fmars.2019.00257.

64) Jeon, C.-H., M.C. Buijsman, A.J. Wallcraft, J.F. Shriver, **B.K. Arbic**, J.G. Richman, and P.G. Hogan (2019), Improving surface tidal accuracy through two-way nesting in a global ocean model. *Ocean Modelling* **137**, 98-113, doi:10.1016/j.ocemod.2019.03.007.

63) Timko, P.G., **B.K. Arbic**, P. Hyder, J.G. Richman, L. Zamudio, E. O'Dea, A.J. Wallcraft, and J.F. Shriver (2019), Assessment of shelf sea tides and tidal mixing fronts in a global ocean model. *Ocean Modelling* **136**, 66-84, doi:10.1016/j.ocemod.2019.02.008.

62) Buijsman, M.C., **B.K. Arbic**, S.M. Kelly, and A.F. Waterhouse (2019), Internal Gravity Waves. *Reference Module in Earth Systems and Environmental Sciences*, Encyclopedia of Ocean Sciences (Third edition), Elsevier **3**, 622-632, doi:10.1016/B978-0-12-409548-9.04160-

9.

2018

61) Sulpis, O., B.P. Boudreau, A. Mucci, C. Jenkins, D.S. Trossman, **B.K. Arbic**, and R.M. Key (2018), Current $CaCO_3$ dissolution at the seafloor caused by anthropogenic CO_2, *Proceedings of the National Academy of Sciences of the United States of America* **115**, 11700-11705, doi:10.1073/pnas.1811488115. D.S. Trossman–Postdoc.

60) Ansong, J.K., **B.K. Arbic**, H.L. Simmons, M.H. Alford, M.C. Buijsman, P.G. Timko, J.G. Richman, J.F. Shriver, and A.J. Wallcraft (2018), Geographical distribution of diurnal and semidiurnal parametric subharmonic instability in a global ocean circulation model. *Journal of Physical Oceanography* **48**, 1409-1431, doi:10.1175/JPO-D-17-0164.1. J.K. Ansong–Postdoc; P.G. Timko–Postdoc.

59) Sérazin, G., T. Penduff, B. Barnier, J.-M. Molines, **B.K. Arbic**, M. Müller, and L. Terray (2018), Inverse cascades of kinetic energy as a source of intrinsic variability: A global OGCM study. *Journal of Physical Oceanography* **48**, 1385-1408, doi:10.1175/JPO-D-17-0136.1. M. Müller–Postdoc.

58) O'Rourke, A.K., **B.K. Arbic**, and S.M. Griffies (2018), Frequency-domain analysis of atmospherically forced versus intrinsic ocean surface kinetic energy variability in GFDL's CM2-O model hierarchy. *Journal of Climate* **31**, 1789-1810, doi:10.1175/JCLI-D-17-0024.1. A.K. O'Rourke–Postdoc.

57) Oliphant, E., M. Finlay, A.C. Simon, and **B.K. Arbic** (2018), Biofuels: Beneficial or bad? Should a Ghanaian chief sell his land for biofuel crop cultivation? *Sustainability* **11**, 16-23, doi:10.1089/sus.2018.29121.eo
Based upon research done by the first two authors (both University of Michigan undergraduates) during the 2016 Coastal Environment Summer School in Ghana (https://coessing.org). Partially funded by, and written up for, the Michigan Sustainability Cases project at the University of Michigan (http://www.teachmsc.org/).

2017

56) MacKinnon, J.A., Z. Zhao, C.B. Whalen, A.F. Waterhouse, D.S. Trossman, O.M. Sun, L.C. St. Laurent, H.L. Simmons, K. Polzin, R. Pinkel, A. Pickering, N.J. Norton, J.D. Nash, R. Musgrave, L.M. Merchant, A.V. Melet, B. Mater, S. Legg, W.G. Large, E. Kunze, J.M. Klymak, M. Jochum, S.R. Jayne, R.W. Hallberg, S.M. Griffies, S. Diggs, G. Danabasoglu, E.P. Chassignet, M.C. Buijsman, F.O. Bryan, B.P. Briegleb, A. Barna, **B.K. Arbic**, J.K. Ansong, and M.H. Alford (2017), Climate process team on internal-wave driven ocean mixing. *Bulletin of the American Meteorological Society* **98**, 2429-2454, doi:10.1175/BAMS-D-16-0030.1. D.S. Trossman–Postdoc; J.K. Ansong–Postdoc.

55) Luecke, C.A., **B.K. Arbic**, S.L. Bassette, J.G. Richman, J.F. Shriver, M.H. Alford, O.M. Smedstad, P.G. Timko, D.S. Trossman,and A.J. Wallcraft (2017), The global mesoscale eddy available potential energy field in models and observations. *Journal of Geophysical Research Oceans* **122**, 9126-9143, doi:10.1002/2017JC013136. C.A. Luecke–Graduate Student;

S.L. Bassette–Undergraduate Student; P.G. Timko–Postdoc; D.S. Trossman–Postdoc.

54) Savage, A.C., **B.K. Arbic**, M.H. Alford, J.K. Ansong, J.T. Farrar, D. Menemenlis, A.K. O'Rourke, J.G. Richman, J.F. Shriver, G. Voet, A.J. Wallcraft, and L. Zamudio (2017), Spectral decomposition of internal gravity wave sea surface height in global models. *Journal of Geophysical Research Oceans* **122**, 7803-7821, doi:10.1002/2017JC013009.
A.C. Savage–Graduate Student; J.K. Ansong–Postdoc; A.K. O'Rourke–Postdoc.

53) Morten, A.J., **B.K. Arbic**, and G.R. Flierl (2017), Wavenumber-frequency analysis of single-layer shallow-water beta-plane quasi-geostrophic turbulence. *Physics of Fluids* **29**, 106602, dx.doi.org/10.1063/1.5003846. Paper featured as an "AIP Scilight".
A.J. Morten–Graduate Student.

52) Buijsman, M.C., **B.K. Arbic**, J.G. Richman, J.F. Shriver, A.J. Wallcraft, and L. Zamudio (2017), Semidiurnal internal tide incoherence in the equatorial Pacific. *Journal of Geophysical Research Oceans* **122**, 5286-5305, doi:10.1002/2016JC012590.

51) Trossman, D.S., **B.K. Arbic**, D.N. Straub, J.G. Richman, E.P. Chassignet, A.J. Wallcraft, and X. Xu (2017), The role of rough topography in mediating impacts of bottom drag in eddying ocean circulation models. *Journal of Physical Oceanography* **47**, 1941-1959, doi:10.1175/JPO-D-16-0229.1. D.S. Trossman–Postdoc.

50) Savage, A.C., **B.K. Arbic**, J.G. Richman, J.F. Shriver, M.H. Alford, M.C. Buijsman, J.T. Farrar, H. Sharma, G. Voet, A.J. Wallcraft, and L. Zamudio (2017), Frequency content of sea surface height variability from internal gravity waves to mesoscale eddies. *Journal of Geophysical Research Oceans* **122**, 2519-2538, doi:10.1002/2016JC012331.
A.C. Savage–Graduate Student; H. Sharma–High School Student.

49) Ansong, J.K., **B.K. Arbic**, M.H. Alford, M.C. Buijsman, J.F. Shriver, Z. Zhao, J.G. Richman, H.L. Simmons, P.G. Timko, A.J. Wallcraft, and L. Zamudio (2017), Semidiurnal internal tide energy fluxes and their variability in a global ocean model and moored observations. *Journal of Geophysical Research Oceans* **122**, 1882-1900, doi:10.1002/2016JC012184.
J.K. Ansong–Postdoc; P.G. Timko–Postdoc.

48) Timko, P.G., **B.K. Arbic**, J.A. Goff, J.K. Ansong, W.H.F. Smith, A. Melet, and A.J. Wallcraft (2017), Impact of synthetic abyssal hill roughness on resolved motions in numerical global ocean tide models. *Ocean Modelling* **112**, 1-16, doi:10.1016/j.ocemod.2017.02.005.
P.G. Timko–Postdoc; J.K. Ansong–Postdoc.

2016

47) Buijsman, M.C., J.K. Ansong, **B.K. Arbic**, J.G. Richman, J.F. Shriver, P.G. Timko, A.J. Wallcraft, C.B. Whalen, and Z. Zhao (2016), Impact of parameterized internal wave drag on the semidiurnal energy balance in a global ocean circulation model. *Journal of Physical Oceanography* **46**, 1399-1419, doi:10.1175/JPO-D-15-0074.1.
J.K. Ansong–Postdoc; P.G. Timko–Postdoc.

46) Trossman, D.S., **B.K. Arbic**, J.G. Richman, S.T. Garner, S.R. Jayne, and A.J. Wallcraft (2016), Impact of topographic internal lee wave drag on an eddying global ocean model.

Ocean Modelling **97**, 109-128, doi:10.1016/j.ocemod.2015.10.013. D.S. Trossman–Postdoc.

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2015

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W.J. Godwin–Undergraduate Student.

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1988

1) **Arbic, B.K.**, S. Hatamian, M. Skalsey, J. Van House, and W. Zheng (1988), Angular correlation test of CPT in polarized positronium. *Physical Review A* **37**, 3189-3194, doi:10.1103/PhysRevA.37.3189.

Peer-reviewed book chapters:

2019

BC3) Contributing author to "Chapter 5: Changing ocean, marine ecosystems, and dependent communities." Coordinating lead authors: N.L. Bindoff, W.W.L. Cheung, and J.G. Kairo. 13 lead authors. 74 contributing authors including **B.K. Arbic**. *Intergovernmental Panel on Climate Change (IPCC) Special Report on the Ocean and Cryosphere in a Changing Climate*, September 2019.

2018

BC2) **Arbic, B.K.**, M.H. Alford, J.K. Ansong, M.C. Buijsman, R.B. Ciotti, J.T. Farrar, R.W. Hallberg, C.E. Henze, C.N. Hill, C.A. Luecke, D. Menemenlis, E.J. Metzger, M. Müller, A.D. Nelson, B.C. Nelson, H.E. Ngodock, R.M. Ponte, J.G. Richman, A.C. Savage, R.B. Scott, J.F. Shriver, H.L. Simmons, I. Souopgui, P.G. Timko, A.J. Wallcraft, L. Zamudio, and Z. Zhao (2018), A primer on global internal tide and internal gravity wave continuum modeling in HYCOM and MITgcm. In *"New Frontiers in Operational Oceanography"*, E. Chassignet, A. Pascual, J. Tintoré, and J. Verron, Eds., GODAE OceanView, 307-392, doi:10.17125/gov2018.ch13. J.K. Ansong–Postdoc; C.A. Luecke–Graduate Student; M. Müller–Postdoc; A.D. Nelson–Postdoc; A.C. Savage–Graduate Student; P.G. Timko–Postdoc.

2001

BC1) Dickson, B., J. Hurrell, N. Bindoff, A. Wong, **B. Arbic**, W.B. Owens, S. Imakawi, and I. Yashayaev (2001), The world during WOCE. In *"Ocean Circulation and Climate"*, G. Siedler, J. Church, and J. Gould, Eds., Academic Press, London, pp. 557-583.

"Grey literature" contributions (white papers, mission documents, encyclopedia articles, etc.):

2017

GL7) One of the lead authors of white paper on *Arbitrary Lagrangian Eulerian (ALE) Working Group Meeting*, prepared in collaboration with developers and users of the GO2, HYCOM, and MOM6 ALE models.

2016

GL6) Lead author of white paper on *Workshop on Improving ALE Ocean Modeling*, prepared in collaboration with developers and users of the GO2, HYCOM, MOM6, and MPAS-OCEAN ALE models.

2015

GL5) Lead author of NASA/CNES SWOT mission white paper *Tides and the SWOT mission: Transition from Science Definition Team to Science Team*, posted on SWOT mission website.

GL4) One of 34 scientists listed as a workshop participant on the document *From space to the deep seafloor: Using SMART submarine cable systems in the ocean observing system, Report of Workshops*, Howe, B.M., and Workshop Participants, 9-10 October 2014, Pasadena, CA, and 26-28 May 2015, Honolulu, HI, 2015.

2014

GL3) **Arbic, B.K.**, M.C. Buijsman, E.P. Chassignet, S.T. Garner, S.R. Jayne, E.J. Met-

zger, J.G. Richman, J.F. Shriver, P.G. Timko, D.S. Trossman, and A.J. Wallcraft (2014), Inserting tides and topographic wave drag into high-resolution eddying simulations. *CLIVAR Exchanges* **65**, 30-33.

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2012

GL1) One of 36 scientists listed as a contributing author to the mission document *SWOT: The Surface Water and Ocean Topography Mission*, Fu et al. 2012, Jet Propulsion Laboratory JPL-Publication 12-05, 228 pp.

Miscellaneous:

Research Cruise Experience–on Woods Hole Oceanographic Institution Directed Cruises:

1997	PRIMER Experiment, R/V Endeavor (4 days)
1997	World Ocean Circulation Experiment 52 West hydrographic section, R/V Knorr (25 days)
1996	GLOBEC experiment, R/V Endeavor (4 days)

Professional Society Memberships:

American Association for the Advancement of Science
American Geophysical Union
American Meteorological Society
The Oceanography Society
Union of Concerned Scientists