Brian Kenneth Arbic–Curriculum Vitae

Department of Earth and Environmental Sciences
University of Michigan (U-M)
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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

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

2022	JPL Science Visitor and Colloquium Program, NASA JPL

Visited JPL for about three weeks, and gave 4 seminars.

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

2007–present	Member of proposal review panels for: NSF Physical Oceanography Program (3 times) NSF Office of Polar Programs Postdoctoral Fellows Program NASA Ocean Surface Topography Science Team (2 times) NASA Astrobiology

2000–present	Reviewer of proposals for NSF (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)
2000–present	Reviewer of manuscripts for multiple scientific journals, including *Earth's Future*, *Geophysical Research Letters*, *Journal of Geophysical Research Oceans*, *Journal of Physical Oceanography*, *Nature Geoscience*, *Ocean Dynamics*, *Ocean Modelling*, *Paleoceanography*, and several others.
2023–present	Co-lead guest editor, Special issue on Capacity Sharing, *Oceanography* magazine, The Oceanography Society (`https://tos.org/capacity-sharing-special-issue`).
2023–present	Co-chair, Working group 9, with theme "Deliver skills, knowledge and technology to all", for the United Nations Decade of Ocean Science for Sustainable Development (`https://oceandecade.org`).
2023–present	Member, Programme Committee, 2024 Ocean Decade Conference in Barcelona (`https://oceandecade.org/events/2024-ocean-decade-conference`).
2020–present	Lead of "Global Ocean Corps and Conveyor", a global capacity development programmme endorsed by the United Nations Decade of Ocean Science for Sustainable Development (`https://globaloceancorps.org`).
2014–present	Principal founder of Coastal Ocean Environment Summer School in Ghana, West Africa (`https://coessing.org`), a capacity development project endorsed by the United Nations Decade of Ocean Science for Sustainable Development.
2020–present	Co-lead of "EquiSea: The Ocean Science Fund for All" (`https://equisea.org`).
2022	Co-convenor of session on Capacity Development, American Geophysical Union Ocean Sciences Meeting, Virtual
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

2006–2016	Co-convenor of sessions on tides at 2006, 2012, 2014, and 2016 American Geophysical Union Ocean Sciences meetings
2013	Primary organizer/host of 2013 Layered Ocean Model meeting, May 21-23, Ann Arbor, Michigan

University Service

2023–2024, 2025–2027	Member, Divisional Evaluation Committee, College of Literature, Science and the Arts. This committee evaluates all tenure and promotion cases in the natural sciences at U-M.
2012–2017, 2020–present	STEM (Science, Technology, Engineering, Mathematics) Africa Steering Committee, African Studies Center
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

Major Departmental Service

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

2022–present	Faculty mentor for incoming Assistant Professor Jessica Fayne
2023	Chair, Tenure and Promotion Committee for Professor Sierra Petersen
2022–2024	Departmental Executive Committee (Member)
2022	Member, ForALL Preview Committee
2022	Member, Postdoc to Faculty Transition Search Committee
2021	Chair, Postdoc to Faculty Transition Search Committee
2021	Member, Tenure and Promotion Committee for Professor Yihe Huang
2020–2022	Member, Departmental Admissions Committee
2019–2021	Faculty mentor for Assistant Professor Yihe Huang
2019–2020	Strategic Plan Committee
2016–2017	Departmental Executive Committee (Member)

2016–2017 Geobiology and Biological Oceanography Faculty Search Committee

2015–2017 Departmental Faculty Ally for Diversity

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

2012–2013 Climate Change Faculty Search Committee

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.

Doctoral Thesis and Preliminary Exam Committee Service

2010–present Not counting students in my research group, I have served on 13 doctoral thesis committees (11 at U-M, two in France) and 25 doctoral preliminary exam committees (all at U-M).

Hour-long Professional Seminars

2020-2024 Hour-long seminars on our West Africa oceanography summer school, performed with collaborators from Ghana and the US, have been given at approximately 25 institutions.

2013–2024 From 1998 through 2024, in addition to seminars on the West Africa school, I have delivered approximately 170 professional hour-long seminars on research topics, at venues throughout the United States, Canada, United Kingdom, France, Austria, and Germany.

Professional Conference Presentations

2013–2024 From 1998 through 2024, have delivered approximately 100 professional conference presentations, at venues throughout the United States, Canada, United Kingdom, France, Germany, Austrian, Japan, and Cameroon, including the Gordon Conference, American Geophysical Union Ocean Sciences meeting, American Geophysical Union Fall Meeting, CLIVAR (Climate Variability) program, project meetings for Office of Naval Research (ONR), Department of Energy (DOE), National Oceanic and Atmospheric Administration (NOAA), NASA Surface Water Ocean Topography (SWOT), NASA Ocean Surface Topography Science Team (OSTST), NSF Climate Process Team, and others.

Selected Community Outreach and Media

2023	Co-delivered September 25 public outreach lecture at Chelsea Retirement Community on our Chicxulub impact megatsunami research.
2023	Co-delivered April 12 Science Café public outreach lecture on our Chicxulub impact megatsunami research.
2020	Delivered February 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.
2011	Delivered November 19 Saturday Morning Physics lecture, *Predicting the Maelstrom: The physics of the ocean*
1993–present	Have delivered numerous presentations on experience as math and science teacher in Peace Corps

Press & Media:

2022	As of December 24, 2023, the Range et al. 2022 paper is the number two paper in the history of *AGU Advances*, with respect to the amount of media coverage engendered, according to `https://nature.altmetric.com/details/136771691`.
2021	The Ocean Corps project was written up in article by the *University of Michigan Record*.
2021	As of December 24, 2023, the Klatt et al. 2021 paper is the number fifteen paper in the history of *Nature Geosciences*, with respect to the amount of media coverage engendered, according to `https://nature.altmetric.com/details/110991165`.
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 coming to work at U-M for a postdoc was posted on the University Record Online (December 12, 2011) and two other U-M sites.
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 and the Siemens Competition in Math, Science, and Technology. Ayon's success was reported on in a U.S. News and World Report article and a Siemens press release.

Externally Funded Research Grants

"ONR" stands for "Office of Naval Research" and "DOE" denotes "Department of Energy".

2023–2026 Lead PI on NASA grant *Impact of changes in sea level and ocean stratification on tides and lunar orbital parameters* to U-M. Collaborators are at NASA JPL (which recieved a separate allotment of funds), NASA Goddard, and University of Bonn.

2023–2026 Lead PI on NSF grant *Collaborative Research: Probing internal gravity wave dynamics and dissipation using global observations and numerical simulations* to U-M. Amount includes support to run summer schools in Kenya in 2025 and 2026. Collaborators on related grants are at WHOI and USM, and NASA funds are used to support collaborators at NASA JPL.

2022–2025 Co-PI on subcontract *Diagnosis and validation of the time and spatial variability of remotely generated internal waves in global ocean simulations* from USM. Subcontract is part of a large ONR-funded project led by Maarten Buijsman at USM, that also includes NRL. Related projects, that Arbic is involved in as an unpaid collaborator, are led by Amy Waterhouse (Scripps Institution of Oceanography), Eric Chassignet (Florida State University), and Edward Zaron (Oregon State University). All of these projects are funded by a multi-agency call from the National Oceanographic Partnership Program (NOPP).

2022–2025 Sole PI on ONR grant *Expanding the Ghana/Nigeria oceanography summer school to include acoustics modules and relationships to UN Decade programmes*. Provided support for 2022, 2023, and 2023 summer schools in West Africa.

2020–2024 Lead PI on NASA grant *Predictability of stationary and non-stationary internal tides in the US Navy global hydrodynamical model* to U-M, USM, NRL, UNO, JHU, and FSU.

2020–2024 Co-PI on subcontract *Integrated Coastal Modeling*, from the 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. Dates include no-cost extensions.

2019–2023 Co-PI on ONR grant *Modeling, characterizing, and predicting effects of internal gravity waves on acoustic propagation on basin to global scales* to U-M. Project is made up of related grants at Applied Research in Acoustics (ARiA), Applied Ocean Sciences, NRL, USM, and FSU. Dates include one-year no-cost extension.

2019–2024 Co-PI on NSF grant *Collaborative Research: Interactions between Internal Waves, Mesoscale Eddies, and Submesoscale Currents in the California Current System* to U-M. Amount includes one REU (Research Experiences for Undergraduates) supplemental award, and a second supplement to help fund the Coastal Ocean Environment Summer School in Ghana. Collaborators on related grants are at UCLA and USM. Dates include two-year no-cost extension.

2018–2021 Co-PI on ONR grant *Near-inertial waves in realistically forced HYCOM simulations with high-resolution atmospheric coupling* to U-M. Collaborators on related grants are at USM and NRL. Dates include one-year no-cost extension.

2017–2019 Sole PI on ONR grant *Connecting global HYCOM to FLEAT* to U-M.

2017–2022 Lead PI on NASA grant *Internal tides and waves in a high-resolution ocean general circulation model with data assimilation* to U-M, USM, NRL, FSU, and NASA Jet Propulsion Laboratory (JPL). Dates include one-year no-cost extension.

2016–2020 Lead PI on NASA grant *Modeling internal wave signals and their predictability for SWOT* to U-M, USM, NRL, and FSU. 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.

2015–2018 Co-PI on subcontract to U-M from USM ONR grant *Improving global surface and internal tides through two-way coupling with high resolution coastal models*.

2014–2019 Sole PI on NSF CAREER Award *CAREER: Diagnosis of forced versus intrinsic low-frequency variability in high-resolution coupled climate models using geostrophic turbulence techniques* to U-M. Dates include one-year no-cost extension. Amount includes two REU (Research Experiences for Undergraduates) awards.

2013–2016 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 U-M and NRL.

2011–2015 Sole PI on ONR grant *Insertion, validation, and application of barotropic and baroclinic tides in 1/12 and 1/25 degree HYCOM* to U-M.

2010–2016 Co-PI on NSF grant *Collaborative research: Representing internal-wave driven mixing in global ocean models*. Dates include one-year no-cost extension, preceded by two-year creativity extension granted in 2013. Multi-institution project led by Professor Jennifer MacKinnon (UC San Diego).

2010–2014 Lead PI on multiple institution NSF grant *Collaborative research: Impact of bottom boundary layer drag and topographic wave drag on the eddying general circulation*. Amount includes two REU (Research Experiences for Undergraduates) awards. Co-PIs/collaborators are from FSU, MIT, NOAA GFDL, WHOI, University of Oslo, Los Alamos National Laboratory, and University of Brest. End date includes one-year no-cost extension.

2007–2010 Co-PI on ONR 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 FSU and expended there. End date includes one-year no-cost extension.

2006–2010 Co-PI on NSF grant *Collaborative research: Understanding tidal resonances in the present-day and ice-age oceans*, University of Texas portion $220,091. Collaborative grant with Columbia University. Remaining funds transferred to FSU and expended there. Amount includes one REU (Research Experiences for Undergraduates) award. End date includes one-year no-cost extension.

2006–2011 Sole PI on NRL contract to The University of Texas at Austin. Contract research laid groundwork for 2011 ONR grant to U-M as well as related $2.1M and $3.7M tide grants to FSU and NRL. Remaining funds transferred to FSU and expended there.

University Teaching Experience

"F" and "W" denote Fall and Winter semesters, respectively. "GEOSCI" courses became "EARTH" courses in the U-M course catalogue in 2012. 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. Q1 and Q2 scores were discontinued beginning with the Fall 2021 semester, but I add them in manually whenever I remember to do so.

Year	Term	Course	Credit hours	Enrollment	Q1/Q2
2023	F	EARTH 421	3	15	4.8/4.8
2023	W	EARTH 110	1	164	
2022	F	EARTH 255	1	36	4.0/3.8
2022	F	EARTH 421	3	18	4.3/4.2
2021	F	EARTH 255	1	22	
2021	F	EARTH 421	3	22	
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

University Teaching Experience Continued

Year	Term	Course	Credit hours	Enrollment	Q1/Q2
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" was 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 onwards (except for the height of COVID-19 in 2020 and 2021), EARTH 421 has included an optional 2-day field trip on the NOAA R/V Laurentian.

EARTH 255 "Introduction to Astronomy, Geology, and Climate Science" was an introductory 3-credit science course, designed at first for elementary education majors and then made open to all. I covered 1/3 of the course.

EARTH 222 "Introductory Oceanography" is a 3-credit large-enrollment introductory course.

EARTH 110 "Evolving Oceans" is a 1-credit large-enrollment mini-course focused on anthropogenic changes to the oceans.

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.

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

2023–present	Yadidya Badarvada (PhD Indian Institute of Technology Delhi, New Delhi, India).
2020–present	He Wang (PhD Princeton University). UCAR Project Scientist II.
2020–2023	Ritabrata Thakur (PhD International Centre for Theoretical Sciences of the Tata Institute of Fundamental Research, Bangalore, India). Now a faculty member at Indian Institute of Technology Delhi.
2020–2023	Joseph Skitka (PhD Brown University). Now doing a second postdoc, at Woods Hole Oceanographic Institution.
2017–2020	Arin Nelson (PhD University of Colorado). Now Research Scientist at Naval Undersea Warfare Center.
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 tenured professor) in Department of Mathematics at University of Ghana.
2011–2013	David Trossman (PhD University of Washington). Now employed as a contractor with University of Maryland ESSIC.
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 Research Scientist at Environment Canada.

University of Michigan Graduate Students Supervised in Research

PhD Students:

2022–present	Anthony Chen (Applied Math).
2021–present	Lisa Nguyen (Applied Physics).
2021–present	Avik Mondal (Physics).
2020–2023	Kristin Barton (Physics).
2013–2019	Paige Martin (Physics). Now a contractor, helping to write NASA's Open Science Plan.
2012–2018	Conrad Luecke (Earth and Environmental Sciences). Now Research Scientist at Naval Research Laboratory.
2012–2017	Anna Savage (Applied Physics). Now employed by the private sector company Running Tide.

2010–2015	Alfredo Wetzel (Applied Math). Now employed in Australia.
2010–2015	Andrew Morten (Physics). Now a "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 by Whirlpool.

Undergraduate Students Supervised in Research at University of Michigan

2021–2022	Lingxiao Guan (Electrical Engineering and Computer Science major); co-supervised by Joseph Skitka and Ritabrata Thakur.
2021	Daniel Garcia (Electrical Engineering and Computer Science major); co-supervised by Joseph Skitka and Ritabrata Thakur.
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.
2016–2017	Eliana Crawford (Physics major at Kenyon College); principally supervised by postdoc Joseph Ansong.
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.
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.
2012	Caroline Kinstle (AOSS major); principally supervised by postdoc David Trossman.
2011–2015	Steve Bassette (Physics and Math double major)
2010–2012	Aaron Skiba (Aerospace Engineering major)
2010–2011	Libo Zeng (Physics major)

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)
2009	Will Godwin (Physics major)
2009	Brian Rivera (Physics major)
2009	Joseph Molinari (Mathematics major)

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

2008	Anson Varghese
2006–2007	Ayon Sen

Publications

ISI/Scopus/Google Scholar h-index as of January 19, 2024: 41/41/46
ISI/Scopus/Google Scholar citations as of January 19, 2024: 4107/4385/6053

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

Manuscripts in-press/revision/review/advanced preparation:

Skitka, J., **B.K. Arbic**, Y. Ma, K. Momeni, Y. Pan, W.R. Peltier, D. Menemenlis, and R. Thakur (2024), Internal-wave dissipation mechanisms and vertical structure in a high-resolution regional ocean model. J. Skitka–Postdoc; R. Thakur–Postdoc.

Siyanbola, O.Q., M.C. Buijsman, A. Delpech, R. Barkan, Y. Pan, and **B.K. Arbic** (2024), Interactions of remotely generated internal tides with the U.S. West Coast continental margin.

Yadidya, B., **B.K. Arbic**, J.F. Shriver, A.D. Nelson, E.D. Zaron, M.C. Buijsman, and R. Thakur (2024), Phase-accurate internal tides in a global ocean forecast model: Potential applications for nadir and wide-swath altimetry.
B. Yadidya–Postdoc; R. Thakur–Postdoc.

Wang, H., R.W. Hallberg, A.J. Wallcraft, **B.K. Arbic**, and E.P. Chassignet (2024), Improving global barotropic tides with sub-grid scale topography.

H. Wang–UCAR Project Scientist II.

Momeni, K., Y. Ma, W.R. Peltier, D. Menemenlis, R. Thakur, Y. Pan, **B.K. Arbic**, J. Skitka, and M.H. Alford (2024), Breaking internal waves and ocean diapycnal diffusivity in a high-resolution regional ocean model: Evidence of a wave-turbulence cascade.
R. Thakur–Postdoc; J. Skitka–Postdoc.

Delpech, A., R. Barkan, K. Srinivasan, J.C. McWilliams, **B.K. Arbic**, O.Q. Siyanbola, and M.C. Buijsman (2024), Eddy-internal wave interactions and their contribution to cross-scale energy fluxes: A case study in the California Current.

Schönau, M.C., L. Hiron, J. Ragland, K.J. Raja, J. Skitka, M.S. Solano, X. Xu, **B.K. Arbic**, M.C. Buijsman, E.P. Chassignet, E. Coelho, R.W. Helber, J.F. Shriver, J.E. Summers, K.L. Verlinden, and A.J. Wallcraft (2024), An overview to modeling, characterizing, and predicting the effects of internal gravity waves on acoustic propagation at basin to global scales. J. Skitka–Postdoc.

Buijsman, M.C., **B.K. Arbic**, E.P. Chassignet, L. Hiron, J.F. Shriver, M. Solano, and X. Xu (2024), Variance in baroclinic modes across frequency bands in a global ocean simulation with atmospheric and tidal forcing.

Raja, K.J., M.C. Buijsman, A. Bozec, R.W. Helber, J.F. Shriver, A. Wallcraft, E.P. Chassignet, and **B.K. Arbic** (2024), Spurious internal wave generation during data assimilation in eddy resolving ocean model simulations.

Ansong, J.K., **B.K. Arbic**, A.D. Nelson, M.H. Alford, E. Kunze, D. Menemenlis, A.C. Savage, J.F. Shriver, A.J. Wallcraft, and M.C. Buijsman (2024a), Surface and sub-surface kinetic energy wavenumber-frequency spectra in global ocean models and observations.
J.K. Ansong–Postdoc; A.D. Nelson–Postdoc; A.C. Savage–Graduate Student.

Ansong, J.K., **B.K. Arbic**, D. Menemenlis, A.J. Wallcraft, R. Bourdalle-Badié, J. Chanut, F. Birol, M. Schindelegger, R.D. Ray, E.P. Chassignet, A.J. Adcroft, R.W. Hallberg, L. Carrère, G. Dibarboure, N. Picot, M.C. Buijsman, J.G. Richman, J.F. Shriver, C.N. Hill, M.R. Mazloff, A.T. Nguyen, R.M. Ponte, A. Koch-Larrouy, and F. Lyard (2024b), Importance of damping in comparison of internal tides in several hydrodynamical models with altimetry. J.K. Ansong–Postdoc.

Mondal, A., A.J. Morten, **B.K. Arbic**, G.R. Flierl, R.B. Scott, and J. Skitka (2024), Spatio-temporal spectral transfers in fluid turbulence: Theory and numerical results.
A. Mondal and A.J. Morten–Graduate Students; J. Skitka–Postdoc.

Wetzel, A.N., **B.K. Arbic**, I. Cerovecki, M.C. Hendershott, R.H. Karsten, P.D. Miller, and J.F. Molinari (2024), 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 (2024), Nonlinearities in westward propagating mesoscale eddies diagnosed from wavenumber-frequency spectra.
M. Müller–Postdoc.

Peer-reviewed scientific journal articles:

2024

106) Skitka, J., **B.K. Arbic**, R. Thakur, D. Menemenlis, W.R. Peltier, Y. Pan, K. Momeni, and Y. Ma (2024), Probing the nonlinear interactions of supertidal internal waves using a high-resolution regional ocean model. *Journal of Physical Oceanography* **54**, 399-425.
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J. Skitka–Postdoc; R. Thakur–Postdoc.

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105) Solano, M.S., M.C. Buijsman, J.F. Shriver, J. Magalhaes, J. da Silva, C. Jackson, **B.K. Arbic**, and R. Barkan (2023), Nonlinear internal tides in a realistically forced global ocean simulation. *Journal of Geophysical Research Oceans* **128**, e2023JC019913.
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104) Geoffroy, G., J. Nycander, M.C. Buijsman, J.F. Shriver, and **B.K. Arbic** (2023), Validating the spatial variability in the semidiurnal internal tide in a realistic global ocean simulation with Argo and mooring data. *Ocean Science* **19**, 811-835.
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103) Delpech, A., R. Barkan, L. Renault, J. McWilliams, O.Q. Siyanbola, M.C. Buijsman, and **B.K. Arbic** (2023), Wind-current feedback is an energy sink for oceanic internal waves. *Scientific Reports*, **13**, 5915.
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102) Pal, N., K.N. Barton, M.R. Petersen, S.R. Brus, D. Engwirda, **B.K. Arbic**, A.F. Roberts, J.J. Westerink, and D. Wirasaet (2023), Barotropic tides in MPAS-Ocean (E3SM V2): Impact of ice shelf cavities. *Geoscientific Model Development*, **16**, 1297-1314.
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K.N. Barton–Graduate Student.

101) Brus, S.R., K.N. Barton, N. Pal, A.F. Roberts, D. Engwirda, M.R. Petersen, **B.K. Arbic**, D. Wirasaet, J.J. Westerink, and M. Schindelegger (2023), Scalable self attraction and loading calculations for unstructured ocean tide models. *Ocean Modelling* **182**, 102160.
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K.N. Barton–Graduate Student.

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Roberts, J.J. Westerink, D. Wirasaet, and M. Schindelegger (2022), Global barotropic tide modeling using inline self-attraction and loading in MPAS-Ocean. *Journal of Advances in Modeling Earth Systems* **14**, e2022MS003207.
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Link to Editor's highlight of paper in EOS:
https://eos.org/editor-highlights/accurate-ocean-tides-for-earth-system-models
K.N. Barton–Graduate Student.

98) **Arbic, B.K.**, S. Elipot, J.M. Brasch, D. Menemenlis, A.L. Ponte, J.F. Shriver, X. Yu, E.D. Zaron, M.H. Alford, M.C. Buijsman, R. Abernathey, D. Garcia, L. Guan, P.E. Martin, and A.D. Nelson (2022), Near-surface oceanic kinetic energy distributions from drifter observations and numerical models. *Journal of Geophysical Research: Oceans*, **127**, e2022JC018551.
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J.M. Brasch–Undergraduate Student; D. Garcia–Undergraduate Student;
L. Guan–Undergraduate Student; P.E. Martin–Graduate Student; A.D. Nelson–Postdoc.

97) Xu, X., E.P. Chassignet, A.J. Wallcraft, **B.K. Arbic**, M.C. Buijsman, and M. Solano (2022), On the spatial variability of the mesoscale sea surface height wavenumber spectra in the Atlantic Ocean. *Journal of Geophysical Research: Oceans*, **127**, e2022JC018769.
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M.M. Range–Molly began project as an Undergraduate Student,
then continued it as her MS project; J.K. Ansong—Postdoc; H. Wang–UCAR Project Scientist II.

95) Crawford, E.B., **B.K. Arbic**, N.D. Sheldon, J.K. Ansong, and P.G. Timko (2022), Investigating the behavior of mid-Archean tides and potential implications for biogeochemical cycling. *Precambrian Research*, **380**, 106799.
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Schubert, B. Fox-Kemper, W.K. Dewar, and A. Wallcraft (2022), Cloud-based framework for inter-comparing submesoscale-permitting realistic ocean models. *Geoscientific Model Development*, **15**, 5829-5856.
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91) Canavati, A., J. Toweh, A.C. Simon, A.C., and **B.K. Arbic** (2022), The world's electronic graveyard: What is the solution to Ghana's e-waste dilemma? *World Development Perspectives*. **26**, 100433.
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89) Raja, K.J., M.C. Buijsman, J.F. Shriver, **B.K. Arbic**, and O. Siyanbola (2022), Near-inertial wave energetics modulated by background flows in a global model simulation. *Journal of Physical Oceanography*. **52**, 823-840.
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88) 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. O'Rourke, J.F. Shriver, L. Siqueira, R.J. Small, and E. Strobach (2022), Effects of grid spacing on high-frequency precipitation variance in coupled high-resolution global ocean-atmosphere models. *Climate Dynamics*. **59**, 2887-2913.
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C.X. Light–Undergraduate Student; P.E. Martin–Graduate Student; A.D. Nelson–Postdoc; A.K. O'Rourke–Postdoc.

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H. Daher–Undergraduate Student; J.K. Ansong–Postdoc;
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P.E. Martin–Graduate Student.

77) 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. https://doi.org/10.5194/os-17-147-2021

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A.D. Nelson–Postdoc.

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J.K. Ansong–Postdoc.

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C.A. Luecke–Graduate Student;
J.K. Ansong–Postdoc; S.L. Bassette–Undergraduate Student; PG. Timko–Postdoc.

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A.D. Nelson–Postdoc.

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P.E. Martin–Graduate Student.

2019

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A.D. Nelson–Postdoc; A.C. Savage–Graduate Student.

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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**.
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M. Müller–Postdoc.

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2017

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D.S. Trossman–Postdoc; J.K. Ansong–Postdoc.

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C.A. Luecke–Graduate Student;
S.L. Bassette–Undergraduate Student; P.G. Timko–Postdoc; D.S. Trossman–Postdoc.

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A.J. Morten–Graduate Student.

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A. Varghese–High School Student.

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1988

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Peer-reviewed book chapters:

2022

BC4) Miloslavich, P., R. Zitoun, E.R. Urban Jr., F. Muller-Karger, N.J. Bax, **B.K. Arbic**, A. Lara-López, C. Delgado, M. Metian, S. Seeyave, P.W. Swarzenski, J. Uku, and A. Valauri-Orton (2022), Developing capacity for ocean science and technology. In *"Blue Economy: An ocean science perspective"*, E.R. Urban Jr., and V. Ittekkot, Eds., Springer, 467-504.
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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.
https://doi.org/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.):

2022

GL10) **Arbic, B.K.**, O. Ajoku, J.K. Ansong, M.C. Ford, M. Foster-Martinez, W. Johnson, E. Mahu, P.E. Martin, E. Nyadjro, T. Osborne, K. Roche, A. Valauri-Orton, A.T.S. Hwai, and J.P. Walsh (2022), Global Ocean Corps and Conveyor: A capacity development program. *Marine Technology Society Journal*, **56**, 102-103.
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2021

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2019

GL8) 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.
https://doi.org/10.1016/B978-0-12-409548-9.04160-9

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. Metzger, 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.

GL2) Chassignet, E.P., J.G. Richman, E.J. Metzger, X. Xu, P.G. Hogan, **B.K. Arbic**, and A.J. Wallcraft (2014), HYCOM high-resolution eddying simulations. *CLIVAR Exchanges* **65**, 22-25.

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.
Cloud-based framework for inter-comparing submesoscale-permitting realistic ocean models

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