Dr. Alysha Inez Coppola

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	Education
6 June 2015	Ph.D. University of California Irvine, Earth System Science, Radiocarbon Studies of Black Carbon in the Marine Environment
9 Sept 2011	M.S.c. University of California Irvine, Earth System Science Aged Black Carbon in Marine Sediments
15 May 2008	B.S. University of Arizona, Chemistry BS thesis: Synthesis and Characterization of Fe-Fe Hydrogenase Mimic
	Appointments
3/2021- 2/2025	Senior scientist, (Oberassistant Ambizione Fellow) ETH Zurich, Zurich Switzerland Department of Earth Science, host: Timothy I. Eglinton
1/2016- 12/2019	Post-doctoral Forschungskredit scholar University of Zurich, Switzerland Biogeochemistry and Soil Science, mentor: Michael W.I. Schmidt
8/15-12/15	Post-doctoral researcher University of California Irvine, USA, Earth System Science, supervisor: Ellen R.M. Druffel
10/11-7/15	PhD Candidate University of California Irvine, USA, defense date: 6 June 2015 Earth System Science, PhD advisor: Ellen R.M. Druffel, Committee members: Eric Saltzman, Claudia Czimczik
09/09-9/11	Graduate Research Assistant University of California Irvine, USA Earth System Science, MS advisor: Ellen R.M. Druffel, MS committee members: Eric Saltzman, John Southon, Francois Primeau, Keith Moore
8/08-8/09	Chemistry Laboratory Coordinator Pima Community College, Tucson AZ USA
5/07-8/07	Summer Research Undergraduate Woods Hole Oceanographic Institution, Woods Hole MA USA, Marine Chemistry and Geochemistry, advisor: Konrad Hughen
1/07-6/08	Undergraduate Researcher University of Arizona Julie Cole Lab, Tucson AZ USA, Paleoceanography, advisor: Julia Cole
10/04-12/06	Research Technician NSF Radiocarbon Accelerator Mass Spectrometry Lab, Tucson AZ USA, Paleoceanography, advisors: George Burr and Warren Beck
	Funded research projects (note: 1CHF is about \$1USD)
9/2019	928,000 CHF (as PI) Swiss National Science Foundation, "Fire and Water: Reconciling the black carbon conundrum in the Mackenzie River- Beaufort Sea." Host: Timothy Eglinton (ETH Zurich), collaborators: Thorsten Dittmar (Uni Oldenburg), Sandra Ardnt (Uni Brussels)

- 4/2018 812,420 CHF (as co-PI) Swiss National Science Foundation, Samuel Abiven soil science lead, "Where on earth is the fire-derived carbon stored? Aging of fire-derived carbon in the terrestrial soil environment."
- 3/2018 25,000 CHF (lead PI) Research grant for consumables- Gesuch an die Stiftung für wissenschaftliche Forschung an der Universität Zürich
- 6/2017 162,959 CHF (lead PI) Swiss Forschungskredit, Univ of Zurich "Mackenzie River suspended export of black carbon through spatial and temporal scales"

Peer reviewed publications h-index: 10, 272 citations as of Mar 2021

2021

1. Wagner, S., **Coppola, A.I.,** Stubbins, A., Dittmar, T., Niggemann, J., Drake, T., and Hongyan Bao. Bridging the combustion continuum: Questions remain about the biolability of dissolved black carbon. (Nature Geoscience, in press)

2020

2. Jones, M., **Coppola, A.I.,** Santin, T.Dittmar, R. Jaffee, C., Doerr, S., and T.A. Quine, Fires prime terrestrial organic carbon for riverine export to the global oceans. Nature Communications, <u>https://www.nature.com/articles/s41467-020-16576-z</u>

2019

- 3. **Coppola, A.I.,** Seidel, M., Vivoli, D., Ward, N., Haghipour, N., Nascimento, G.S, Abiven, S., Richey, J., Eglinton, T.I., Dittmar, T. and M.W.I. Schmidt. Marked isotopic varaibility within and between the Amazon River and marine dissolved black carbon pools. Nature Communications, <u>https://www.nature.com/articles/s41467-019-11543-9</u>
- 4. Lasslop, G., **Coppola, A.I.,** Veraverbeke, S., Vulgarakis, A., Yue, C. Influence of Fire on the Carbon Cycle and Climate. Nature Springer Current Climate Change Reports, https://doi.org/10.1007/s40641-019-00128-9 <u>https://link.springer.com/article/10.1007%2Fs40641-019-00128-9</u>

2018

- Coppola, A.I., Wiedemeier D.B., Galy, V., Haghipour N., Hanke U.M., Wacker L., Nascimento G.S., Usman M., Peucker-Ehrenbrink B., Abiven S., Schmidt M.W.I., and T.I. Eglinton. Global scale evidence for the refractory nature of riverine black carbon (2018) Nature Geoscience, 11, 584-588. DOI: 10.1038/s41561-018-0159-8) rdcu.be/2JjS
- 6. Fatayer, S., **Coppola, A.I.** (co-first author), F.Schulz, Walker, B., Broek, T., Meyer, G., McCarthy, and L.Gross (2018) Direct visualization of individual aromatic compound structures in low molecular weight dissolved organic carbon. Geophysical Research Letters. <u>https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018GL077457</u>

2017

 Hanke, U.M., Reddy, C.M., Braun A.L.L., Coppola, A.I., Hagihpour, N., McIntyre, C.P., Wacker, L., Xu, L., Abiven, S., Schmidt, M.W.I., and T.I. Eglinton (2017). What on Earth have we been burning? Deciphering Sedimentary Records of Pyrogenic Carbon Environmental Science & Technology. DOI: 10.1021/acs.est.7b03243 <u>https://pubs.acs.org/doi/pdf/10.1021/acs.est.7b03243</u> 8. Fassbender et al., (2017) Perspectives on Chemical Oceanography in a changing environment: Participants of the COME ABOARD Meeting examine the field in the context of 40 years of DISCO. Marine Chemistry 196, 181-190 <u>http://dx.doi.org/10.1016/j.marchem.2017.09.002</u> (note: >20 authors, My contribution- I was a group leader facilitating and presenting topics discussion during the DISCO meeting, presented results in COME ABORAD meeting, summarized findings in the paper under "International Collaborations" and edited versions of the draft).

2016

- Coppola, A.I. and E.R.M. Druffel (2016), Black Carbon cycling in the ocean. Geophysical Research Letters, 43, 4477-4482. http://onlinelibrary.wiley.com/doi/10.1002/2016GL068574/full
- 10. Druffel, E.R.M., Griffin, S., **Coppola, A.I.,** and B.D. Walker (2016), Radiocarbon in dissolved organic carbon of the Atlantic Ocean. Geophysical Research Letters. 43, 10, 5279-5286. http://onlinelibrary.wiley.com/doi/10.1002/2016GL068746/full

2015

- 11. **Coppola, A.I.** (2015), Radiocarbon studies of black carbon in the marine environment. Dissertation, University of California, Irvine. ISBN: 9781339230
- Coppola, A.I., Walker, B.W., and E.R.M. Druffel (2015), Solid phase extraction method for quantification and compound specific radiocarbon analysis of black carbon in marine dissolved organic carbon. Marine Chemistry, 177(5):697-705. DOI: 10.1016/j.marchem.2015.10.010. <u>http://www.sciencedirect.com/science/article/pii/S0304420315300566</u>
- 2014
 - 13. **Coppola, A.I.,** L.A. Ziolkowski, E.R.M. Druffel and C.A. Masiello (2014), Aged black carbon in marine sediments and sinking particles. Geophysical Research Letters, 41,7,2427-2433. http://onlinelibrary.wiley.com/doi/10.1002/2013GL059068/full
- 2013
 - 14. **Coppola, A.I.,** L.A. Ziolkowski, and E.R.M. Druffel (2013), Compound specific radiocarbon analysis of black carbon in environmental matrices: assessments of sources and radiocarbon signatures of extraneous carbon. Radiocarbon, 55, 3, 1631-1640. http://escholarship.org/uc/item/0k54g2vm
 - 15. Druffel, E.R.M., Griffin, S., Walker, B.D., **Coppola, A.I.,** and D.S. Glynn (2013), Total uncertainty of radiocarbon measurements of marine dissolved organic carbon and methodological recommendations. Radiocarbon, 55, 2, 1135-1141. http://escholarship.org/uc/item/2gp960bt

In the pipeline publications

- Invited literature review contribution to Nature Reviews Earth & Enviroment: Synthesis on the interconnectivity of black carbon through the land-river-ocean continumn, Nature Reviews Earth & Enviroment
- <u>For submission to Nature Frontiers</u>: Coppola, A.I., Druffel, E.R.M., Broek, T., Meyer, G., McCarthy, M., Gross, L., Eglinton, T.I., McCarthy, M., Walker, B.D.W. Preferential dissolved black carbon cycling in North Central Pacific Refractory Dissolved Organic Carbon
- In prep: Coppola, A.I., Galy, V., Burman, B., Hilton, R., Abiven, Schwab, M., Eglinton, T.I., Mackenzie River suspended export of black carbon through spatial and temporal scales Alysha Inez Coppola, American style-CV updated 17 March 2021, 3 of 8

Supervision of researchers	
Linn Speidel (PhD student, ETH), main supervisor April 2021-2025	
Marcus Schiedung (PhD candidate, University of Zurich) co-supervisor Jan 2019-Dec 2019	
Gabrila Santilli (Technician, PhD) main supervisor Feb 2019-July 2019	
Bastian Buman (MSc University of Zurich) May 2018-present (defense in May 2019)	
Lukas Wallimann (BSc University of Zurich) Jan- June 2019	
Ulrich Hanke (PhD University of Zurich) 2017 now post-doc at Woods Hole Oceanography Institution	
Elena Bruni (BSc University of Zurich) 2016 now MSc and PhD student at ETH Zurich	
Danielle Glynn (BSc University of California Irvine) 2013-2014 now PhD student at UC Santa Cruz	

Serving as Committee Member/Mentoring

2019 Winter	Served on UZH MSc Geography committee- Julian Kaiser "Understanding the construction
	of Fulani herders' identities by the local community in Agogo, Ghana"
2017 Fall	Served on UZH MSc Geography committee- Gianna Hartung "An Empirical Assessment of
	Correction Methods for the Terrain Reversal Effect in Satellite Images"
2016 Fall	Served on UZH MSc Geography committee- Gianna Hartung "An Empirical Assessment of
	Correction Methods for the Terrain Reversal Effect in Satellite Images
2016 Spring	Supervised UZH BSc Geography thesis- Elena Bruni "The Impact of Vegetation Fires on
	Soil, Soil Organic Matter and the Global Carbon Cycle"
2016 Spring	Served on UZH MSc Geography committee
08 to 2009	Supervised 8 chemistry student aides as Coordinator (Chemistry, Pima Community College)

Teaching activities

Instructor of Record

2019 Winter Droughts, small group teaching, University of Zurich, BSc level

2018 Winter Global Carbon Cycle- Reduced, ETH Zurich, Masters level (co-taught)

- 2016-2017 Measurement Uncertainty, University of Zurich, BSc level
- 2016 Winter Soil Science II, co-taught M.W.I. Schmidt, University of Zurich, MS level
- 2016 Winter Hydrological Drought, small group teaching, University of Zurich, BSc level
- 2014 Summer Introduction to Oceanography, University of California Irvine (5 weeks, class size:40)

Guest Lecturer

- 4/2019 MSc level The Dissolved Organic Carbon Pool: Controversies and Insights, ETH Zurich, Switzerland
- 11/2018 MSc level The Marine Organic Carbon Cycle, ETH Zurich, Switzerland
- 10/2018 MSc level Why Organic Carbon Matters, University of Zurich, Switzerland
- 4/2017 MSc level Marine Dissolved Organic Carbon Cycling, ETH Zurich, Switzerland
- 2/2016 MSc level Carbon Cycle Dynamics and Climate Change, University of Zurich, Switzerland
- 11/2015 BSc level Ocean-atmosphere Interactions: Hurricanes and ENSO, Univ. California Irvine
- 10/2014 BSc level Paleoceanography, Claremont College, Claremont, CA
- 6/2014 Professional expertise level Radiocarbon Measurements of Marine Carbon, Radiocarbon in Ecology and Earth System Science Short Course, Keck Carbon Cycle Accelerator Mass Spectrometer facility,
- 11/2013 BSc level Global Biogeochemical Cycles (on UCI's Earth System Science department youtube site <u>https://www.youtube.com/watch?v=EDiFkl1Y26E</u> University of California, Irvine

- 6/2012 Professional expertise level (2012) The Marine Organic Carbon Cycle, Radiocarbon in Ecology and Earth System Science Short Course, Keck Carbon Cycle Accelerator Mass Spectrometer facility,
- 3/2012 BSc level Deep Ocean Circulation, University of California, Irvine
- 9/2011 BSc level Atmospheric Circulation, University of California, Irvine

Teaching Assistant

- 2014 Spring Intro Earth System Science (ESS 25, size: 400), Dept. Earth System Science, Univ.California Irvine
- 2014 Fall Oceanography (ESS 3, size ~400), Dept. Earth System Science, Univ. California Irvine
- 2010 Fall Climate Change (size ~30), Dept. Earth System Science, Univ. California Irvine

Memberships in panels, boards, and scientific reviewing activities

- Reviewer: Nature Climate Change, Global Biogeochemical Cycles, Organic Geochemistry, Marine Chemistry, Radiocarbon, Geophysical Research Letters, Frontiers in Marine Science, Geochimica et Cosmochimica Acta, Environmental Science and Technology, Soil Science, Biogeosciences, European Journal of Soil Science, Limnology and Oceanography Letters, Journal of Environmental Quality
- Funding Agency Reviewer: U.S. National Science Foundation Chemical Oceanography, U.S. National Science Foundation Hydrology, U.S. National Science Foundation Paleo Perspectives on Climate Change

Organization of Conferences and Events

- Convener: The role and impact of fire in the Earth System across spatial and temporal scales (4/2020) Inter/Transdisciplinary Union Session, EGU Vienna. Convener: E Dietze, Coconveners: A. Coppola, G.Lasslop, C. Stoof, S. Veraverbe <u>https://meetingorganizer.copernicus.org/EGU2020/session/34692</u>
 - Fire, Carbon, Climate and Humans Across Space and Time (4/2019) EGU, Vienna, Austria Convener: S. Veraverbeke, co-conveners: A. Coppola, G. Lasslop, Libonati, R., Oom, D., Bistinas, I., Feurdean, A., C. Masiello

Interactions between fire, the Earth system and humans across time and space, (4/2018) EGU Vienna, Austria. Convener: G.Lasslop, co-conveners: A. Coppola, C.

Santin, S. Veraverbeke, Feurdean, A.,

Dissertations in Chemical Oceanography (DISCO, Honolulu, Hawaii) Group Leader

Event organizer: Organizes weekly seminar series Biogeochemistry and Landscape Dynamics Uni Zurich Helped organize the event Women in Science: An Evening of Inspiration and Advice on Building a Successful Career in Science, University of Zurich

Host: Prospective graduate students to the Earth System Science Department, UC Irvine

	Fellowships, recognition, and awards
6/2021	Invited keynote talk for ASLO Biogeochemistry Session
12/2019	Invited keynote talk for AGU Biogeoscience Session B092
6/2018	Ranked 2 nd University of Stockholm Assistant Professor Marine Biogeochemistry position

12/2017 9/2017 3/2016 7/2016 9/2006-2008 7/2008 7/2008	 1,900 CHF - University of Zurich, Field Expedition Travel grant to Fort Providence, Canada 400 CHF - University of Zurich Research Grant \$4,500 USD - Dissertations Symposium in Chemical Oceanography (DISCO XXV) \$230 USD - Gordon Research Seminar, Organic Geochemistry \$20,520 - Physical Sciences Ambassador Fellowship, University of Arizona \$8,000 USD - National Science Foundation Amazon PIRE fellowship \$7,971 USD - National Science Foundation Research Experience for Undergraduates
9/2007	\$1,000 USD - University of Arizona Merck Fellowship
	Outreach and dissemination of results
2018	Scientific American Press Release Interview: <u>https://www.scientificamerican.com/article/first-photos-of-ocean-carbon-molecules-hold-</u> <u>clues-to-future-warming/</u>
2018	Nature Geoscience Press Release Interview: <u>https://phys.org/news/2018-07-charcoal-</u> major-piece-global-carbon.html#jCp
2018	PANGEA data publisher: <u>www.pangaea.de</u> username: alyshacoppola publication PD1_18496
2018	IBM Press Release Interview: on phys.org and IBM blog https://www.ibm.com/blogs/research/2018/06/ocean-carbon-imaged-atomic-scale/ and https://phys.org/news/2018-06-ocean-carbon-imaged-atomic-scale.html
2016	Press Release Interview: in American Geophysical Union Geospace Blogosphere "UCI Sleuths Search the Seas for Soot" http://blogs.agu.org/geospace/2016/05/10/scientists-search-seas-soot/uci- sleuths- search-the-seas-for-soot/
2014	Press Release Interview: NSF News releases "Black Carbon is Ancient by the Time it Reaches the Seafloor" https://www.nsf.gov/news/news_summ.jsp?cntn_id=131161
2015	Blog: Featured on UCI news, and the Earth System Science department twitter and blog https://twitter.com/uciess
2015	Presenter : Gave a TED-like talk as part of UCI Association of Graduate Students at UCI to
2009-2015	Outreach : Developed talks, lesson plans and gave climate change presentations to elementary-high school students as part of non-profit organization, non-profit CLEAN (Climate, Literacy, Empowerment and iNquiry) Education http://sites.uci.edu/clean/
2013	Presenter/Outreach: Developed activities to educate students about water and the environment for the National Water Research Institute during the Children's Water Festival in Irvine, CA.
2011	Blogger : During the CLIVAR A10 and A22 cruise expeditions, I have posted in plain language about how we collect data from repeat hydrography cruises in the CLIVAR cruise blogs. http://clivar-a10.blogspot.ch/ This blog has been used in classrooms for CLEAN lesson plans.
2009-2015	Lab Tours : Lab tours to the general public (Girl Scouts) and Earth System Science BSc classes, highlighting the research in our lab and serving as a female role model for young students

	Field expeditions	
2019	Mackenzie River, Canada (2 weeks): Gabriella Santilli will collect river dissolved and particulate OC, sediment and soils sampling along the river and delta (coordinated by Melissa Schwab, ETH)	
2019	Amazon River, Brazil (2 weeks): River dissolved black carbon samples collected at Amazon River plume (coordinated by Nicholas Ward, PPNL and Jeffery Richey, Uni Washington)	
2018	Mackenzie River, Canada (2 weeks): River dissolved and particulate OC, sediment and soils sampling along the river and delta (coordinated by Robert Hilton, University of Durham and Melissa Schwab, ETH)	
2017	Engadin (Scuol-Tarasp-Val Sinestra-Clozza-Rablonch), Switzerland (3 days): River dissolved and particulate OC, sediment and soils sampling along the Clozza vally stream and biogeochemistry sampling of carbonate ice formation in CO ₂ outgassing zones (coordinated by Eglinton)	
2012	Cape Cod to Barbados (36 days) R/V Atlantis- CLIVAR (Climate and Ocean: Variability, Predictability and Change) A22- Radiocarbon signatures and molecular-level composition of dissolved organic matter and black carbon	
2011	Cape Town to Rio de Janeiro (43 days) R/V NOAA Brown- CLIVAR A10- Radiocarbon signatures and molecular-level composition of dissolved organic matter and black carbon	
2010-2015	Newport Beach Pier, CA- Biogeochemical monitoring of dissolved inorganic and organic carbon concentrations and isotopic composition	
2008	Amazon Tapajos National Forest, Santarem Brazil (17 days)- Amazon-PIRE Amazon Climate Interactions- Logged Canopy Structure and Density Structure in The Tapajos Rainforest using LiDAR	
	Conference presentations and Seminars	
	2019	
Keynote talk	AGU Fall meeting, Session B092 Pyrogenic Organic Matter: Production, Characterization	
Poster Talk Talk	and Cycling AGU Fall Meeting, San Francisco. Abstract ID AGU2019-486748. EGU Meeting, Vienna, Austria. Abstract ID EGU2019-75007.	
Idik	University of Zurich, Landscape Processes and Dynamics Seminar Series, (4/2019)	
	2018	
Invited talk Invited talk Poster	University of Stockholm, Stockholm Sweden (6/2018) ETH Zurich, Laboratory of Ion Beam Physics, Zurich, Switzerland (5/2018) EGU Meeting, Vienna, Austria. Abstract ID EGU 2018-7464.	
	2017	
Invited talk Poster Poster	Lab Initial Study Highlights Presentation, ETH, Zurich Switzerland Chemical Oceanography Gordon Research Conference, New London, New Hampshire, USA Marie Curie International Training Network C-CASCADES workshop, Zurich Switzerland	
2016		
Invited talk Talk	Dissertations Symposium in Chemical Oceanography, DISCO XXV, Honolulu, HI Early Career Perspectives on the Future in Chemical Oceanography, COME ABOARD, Honolulu, HI	
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Invited talk Invited talk Talk Poster Poster Invited talk	Swiss Federal Institute of Aquatic Science and Technology EAWAG, Lucerne Switzerland IBM Zurich Research Laboratory, Rüschlikon, Switzerland, 2016 Gordon Research Seminar, Holderness New Hampshire Ocean Science Meeting, New Orleans, Louisiana USA EGU Meeting, Vienna. Abstract ID EGU 2016-6942. Biogeosciences Seminar, ETH, Zurich Switzerland
Invited talk Invited talk	2015 Soil Science and Biogeochemistry Seminar, University of Zurich, Switzerland Department of Geological Sciences Seminar, University of Florida, Gainesville, FL
Talk Talk Poster	2014 AGU Fall Meeting, San Francisco. Abstract ID: 19010. University of California Irvine, AGS Symposium, Irvine, CA. AGU Ocean Sciences Meeting, Honolulu, Hawaii. USA Abstract#A0066
Poster Poster	2012 21 st International Radiocarbon Conference, Paris, France. AGU Ocean Sciences Meeting, Salt Lake City, Utah. Abstract # 9646
Talk Poster	2011 International Water Association Natural Organic Matter, Costa Mesa, CA. UC Irvine Water Research Center. Irvine, CA Abstract ID #0S33A-1469
Poster Talk	2010 AGU, San Francisco, CA. Abstract # 0S33A-1469. Amazon-Pire Meeting, Para, Brazil.
Talk Poster Talk Poster	2008 University of Arizona Chemistry Department Symposium, Tucson, AZ AGU, San Francisco, CA Geology Symposium, University of Arizona. Tucson, AZ. Rocky Mountain Regional American Chemical Society Meeting, Tucson, AZ USA
	Professional workshops
1/2017	Carbon-CASCADES Mini-Conference- From Land to the Ocean: Processes and Budgets
11/2016	The Anthropocene: Between the Earth and Social Sciences, University of Zurich
9/2016	How to Successfully Plan your Career in Academia, Workshop, ETH/University of Zurich
4/2016	Geoscience Information for Teachers Workshop-hands-on-activities, EGU Meeting, Vienna
12/2014	Communicating Science Workshop, AGU Fall Meeting, San Francisco, CA
2/2014	Connection and Story making in Science, Workshop, AGU Ocean Sciences Conference, Honolulu, HI
2/2014	Oceanography Teaching Resources and Practices Workshop, AGU Ocean Sciences Conference, Honolulu, Hawaii
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Leave of absences: 1.5 years maternity leave of absence from Dec 2019- Mar 2021