

Anne-Sofie Crüger Ahm

Assistant Professor
University of Victoria
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EDUCATION

- 2016 PhD, University of Copenhagen
 Department of Geosciences and Natural Resource Management
 Advisor: Christian J. Bjerrum
- 2014 MSc Geology-Geoscience, University of Copenhagen
 Department of Geosciences and Natural Resource Management
- 2011 BSc Geology-Geoscience, University of Copenhagen
 Department of Geosciences and Natural Resource Management
 including exchange program at the University Center in Svalbard (UNIS)

PROFESSIONAL APPOINTMENTS

- 2022–
present Assistant Professor
 University of Victoria, School of Earth and Ocean Sciences
- 2020–2022 Adjunct faculty
 University of Victoria, School of Earth and Ocean Sciences
- 2019–2022 Simons Foundation Postdoctoral Fellow
 Princeton University, Department of Geosciences
- 2017–2019 Carlsberg Foundation Postdoctoral Fellow
 Princeton University, Department of Geosciences
- 2009–2012 Capital Region of Denmark,
 Corporate Management Environment, Student assistant

PUBLICATIONS

Peer-reviewed published articles

- Accepted* Ruiz, Daniel G., Goldblatt, Colin, **Ahm, Anne-Sofie C.** Climate shapes the oxygenation of Earth's atmosphere across the Great Oxidation Event. *Earth and Planetary Science Letters*.
- 2022 Geyman, Emily C., Wu, Ziman, Nadeau, Matthew D., Edmonson, Stacey, Turner, Andrew, Purkis, Sam J., Howes, Bolton, Dyer, Blake, **Ahm, Anne-Sofie C.**, Yao, Nan, 2022. The origin of carbonate mud and implications for global climate. *PNAS* 119, 43. <https://doi.org/10.1073/pnas.2210617119>
- 2022 Murphy, Jack G., **Ahm, Anne-Sofie C.**, Swart, Peter K., Higgins, John A., 2022. Reconstructing the lithium isotopic composition ($\delta^7\text{Li}$) of seawater from shallow marine carbonate sediments. *Geochim. Cosmo. Acta.* 337, 140-154. <https://doi.org/10.1016/j.gca.2022.09.019>
- 2022 Bryant, Roger N., Present, Theodore M., **Ahm, Anne-Sofie C.**, McClelland, Harry-Luke O., Rationale, Dan, Blättler, Clara L., 2022. Early diagenetic constraints on Permian seawater chemistry from the Capitan Reef. *Geochim. Cosmo. Acta.* 328 <https://doi.org/10.1016/j.gca.2022.04.027>
- 2022 **Ahm, A-S. C.**, Husson, J.M., Local and global controls on carbon isotope chemostratigraphy. *Elements in Geochemical Tracers in Earth System Science*, Cambridge University Press. <https://doi.org/10.1017/9781009028882>
- 2022 Busch, J.F., Hodgin, E.B., **Ahm, A-S. C.**, Husson, J.M., Macdonald, F.A., Bergmann, K.D., Higgins, J.A., Strauss, J.V. Ediacaran Shuram carbon isotope excursion as a global oceanographic event. *Earth and Planetary Science Letters* 570, 117368. <https://doi.org/10.1016/j.epsl.2022.117368>
- 2021 Farrell, U.C., ...**Ahm, A-S. C.**, ...Sperling, E.A., The Sedimentary Geochemistry and Paleoenvironments Project. *Geobiology*. <https://doi.org/10.1111/gbi.12462>
- 2021 **Ahm, A-S. C.**, Bjerrum, C.J., Hoffman, P.F., Macdonald, F.A., Maloof, A.C., Rose, C.V., Strauss, J.V., Higgins, J.A. The Ca and Mg isotope record of the Cryogenian Trezona carbon isotope excursion. *Earth and Planetary Science Letters*. V 568, 117002 <https://doi.org/10.1016/j.epsl.2021.117002>
- 2021 Nelson, L. L., **Ahm, A-S. C.**, Macdonald, F. A., Higgins, J. A., Smith, E. F., Fingerprinting local controls on the Neoproterozoic carbon cycle with the isotopic record of Cryogenian carbonates in the Panamint Range, California. *Earth and Planetary Science Letters*, 566, 116956 <https://doi.org/10.1016/j.epsl.2021.116956>

- 2020 Crockford, P.W, Kunzmann, M., Blättler, C.B., Borianna K-A., Murphy, J.G., **Ahm, A-S. C.**, Sharoni, S., Halverson, G.P., Planavsky, N.J., Halvey, I., Higgins, J.A. Reconstructing Neoproterozoic seawater chemistry from early diagenetic dolomite. *Geology*, v. 49, <https://doi.org/10.1130/G48213.1>
- 2020 Bold, U., **Ahm, A-S. C.**, Schrag, D. P., Higgins, J. A., Jamsran, E., Macdonald, F. A., Effect of dolomitization on isotopic records in Neoproterozoic carbonates of southwestern Mongolia. *Precambrian Geology*, 350, <https://doi.org/10.1016/j.precamres.2020.105902>
- 2020 Gussone, N., **Ahm, A-S. C.**, Lau, K. V., Bradbury, H. J., Calcium isotopes in deep time: Potential and limitations, *Chemical Geology*, 544. <https://doi.org/10.1016/j.chemgeo.2020.119601>
- 2020 Jones, D. S., Brothers, W. R., **Ahm, A-S. C.**, Slater, N., Higgins, J. A., Fike, D. A., Sea level, carbonate mineralogy, and early diagenesis controlled $\delta^{13}\text{C}$ records in Upper Ordovician carbonates, *Geology*, 48, 194-199. <https://doi.org/10.1130/G46861.1>
- 2019 Crockford, P. W., Wing, B. A., Paytan, A., Hayles, J. A., Middleton, J., Torres, M., **Ahm, A-S. C.**, Caxito, F., Uhlein, G., Halverson, G. P., Horner, T. J., Barium-isotopic constraints on the origin of post-Marinoan barites, *Earth and Planetary Science Letters*, 519, 234-244. <https://doi.org/10.1016/j.epsl.2019.05.018>
- 2019 **Ahm, A-S. C.**, Maloof, A. C., Macdonald, F. A., Hoffman, P. F., Bjerrum C. J., Bold, U., Rose, C. V., Strauss, J. V., Higgins, J. A., An early diagenetic deglacial origin for basal Ediacaran cap dolostones, *Earth and Planetary Science Letters*, 506C, 292-307. <https://doi.org/10.1016/j.epsl.2018.10.046>
- 2018 **Ahm, A-S. C.**, Bjerrum, C. J., Blättler, C. L., Swart, P. K., Higgins, J. A., Quantifying early marine diagenesis in shallow water carbonate sediments, *Geochimica et Cosmochimica Acta*, 236, 140-159. <https://doi.org/10.1016/j.gca.2018.02.042>
- 2018 Higgins, J. A., Blättler, C. L., Lundstrom, E. A., Santiago-Ramos, D. P., Akhtar, A. A., **Ahm, A-S. C.**, Bialik, O., Holmden, C., Bradbury, H., Murray, S. T., Swart, P. K., Mineralogy, early marine diagenesis, and the chemistry of shallow-water carbonate sediments, *Geochimica et Cosmochimica Acta*, <https://doi.org/10.1016/j.gca.2017.09.046>
- 2017 **Ahm, A-S. C.**, Bjerrum C. J., Hammarlund, E. U., Disentangling the record of diagenesis, local redox conditions, and global seawater chemistry during the latest Ordovician glaciation, *Earth and Planetary Science Letters*, <https://doi.org/10.1016/j.epsl.2016.09.049>

Manuscripts submitted/in review

In review Ostrander, Chadlin M., Bjerrum, Christian J., **Ahm, Anne-Sofie C. Ahm**, Stenger, Simon R., Butterfield, Nicholas J., Grotzinger, John P., El-Ghali, Mohamed, Harthi, Abdul R., Al-Rawahi, Zuwaina, Nielsen, Sune G. Widespread marine anoxia during generation of the Ediacaran Shuram carbon isotope excursion. In review, *Geobiology*. *Manuscript available upon request*

AWARDS AND FUNDING

in review BCKDF matching funding: State-of-the-Art Multi-Collector Inductively Coupled Mass Spectrometry Laboratory for Earth, Ocean, and Climate Science. (co-PI, CAD 380 000)

in review CFI JELF. State-of-the-Art Multi-Collector Inductively Coupled Mass Spectrometry Laboratory for Earth, Ocean, and Climate Science. (co-PI, CAD 380 000)

2022 NSERC RTI. A novel ion chromatography system for Earth, Ocean, and Environmental Science (PI, CAD 120 691)

2022–2027 NSERC Discovery and Launch. The emergence of oxygenic photosynthesis through the lens of carbonate diagenesis. (PI, CAD 162 500)

2019–2022 Simons Collaboration on the Origins of Life (SCOL) Postdoctoral Fellowship (PI, USD 276 000)

2017–2019 Carlsberg Foundation Internationalisation Fellowship (PI, USD 115 000)

2014 The Danish Institute of Damascus, fieldwork and travel grant, Sultanate of Oman (Co-PI, USD 7000)

INVITED TALKS AND SEMINARS

<i>upcoming</i>	Stanford, Dept. of Earth and Planetary Sciences, Feb 14th 2023
<i>upcoming</i>	UBC, Vancouver, Feb 9th 2023, Department Seminar
2022	AGU 2022, Chicago. Session: Carbonate Sediments Through Time. Chicago
2022	TIMOR Magellan Plus meeting, May 19th, 2022, Vienna
2021	Mountjoy carbonate conference III, Aug 15-19th 2021, Canada (virtual)
2021	Dartmouth College, May 19th, 2021, Department Zoom seminar
2020	Goldschmidt, Session 14B, Hawaii, USA, Jun 21–26th, 2020 (virtual)
2019	Gordon Research Conference on Geochronology, New Hampshire, USA, 2019
2019	Geobiology Conferences, Banff, Canada, June 9–13th, 2019
2019	University of Victoria, SEOS, April 2nd, Department Seminar
2019	University of Houston, March 6th, Department Seminar
2019	Princeton University, Feb 21st, EGGs Seminar
2019	Cornell University, Feb 15th, Department Seminar
2019	University of Göttingen, Germany, Jan 14th, Department Colloquium
2018	University of Southern California, Department Seminar, Dec 3rd
2018	University of California Santa Barbara, Speakers Club, Oct 11th
2017	Geological Society of America annual meeting, Seattle
2016	Cambridge University, Geochemical Seminar.

TEACHING EXPERIENCE

Main instructor

2022	EOS225: Earth System Modelling (undergraduate level)
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Teaching assistant

2015	Paleoclimate (Undergraduate level)
2014	Dynamic stratigraphy (Undergraduate level)
2014	Utah field and methods course, USA (Graduate level)
2013	Field course 2, Slemmestad, Norway (Undergraduate level)
2012	Past climate and sea-level change (Graduate level)
2012	Geological processes and material (Undergraduate level)

Student supervision

2020–	Co-advisor w./ Colin Goldblatt to PhD student Daniel Garduno Ruiz, SEOS, University of Victoria
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Teaching and DEI training

- 2013 Course: Introduction to University Pedagogy, University of Copenhagen
2021 URGE: Unlearning Racism in Geoscience (<https://urgeoscience.org/>)
2021 UVic Indigenous Cultural Acumen Training (ICAT)

FIELD WORK

- 2019 Ontario, Canada: Archean carbonates from the Steep Rock area (1 week)
2018 Death Valley, US: Cryogenian stratigraphy in the Panamint Range (2 weeks)
2015 Sultanate of Oman: The Ediacaran Shuram isotope anomaly. (3 weeks)
2012 Central Nevada: The late Ordovician glaciation and mass extinction. (3 weeks)
2010 Svalbard: Research cruise in Arctic ocean, RV Jan Mayen (2 weeks)

SERVICES TO PROFESSION**Conference sessions**

- 2021 Co-chair of session, AGU Fall Meeting, New Orleans, 13-17 Dec
Evolution of the Earth System
- 2020 Co-chair of session, GSA, Montreal, 25-28 Oct
Evolving Perspectives on the Tonian Biosphere and Environmental Change
- 2019 Co-chair of session, Goldschmidt Conference, Barcelona
Session 07d: Revisiting the Carbon Isotope Record and its Links to Earth
Oxygenation and Climate
- 2018 Co-chair of session, Goldschmidt Conference, Boston
Session 07c: Seafloor Diagenesis, Hydrothermal Processes, and Biogeochem-
istry: Implications for the Earth System Through Time

Organizer of the Princeton Environmental Geology and Geochemistry Seminar (EGGs) Lecture Series 2019

Reviewer ([Publons](#))

American Journal of Science
Cambridge Elements
Earth and Planetary Science Letters
Geochemistry, Geophysics, Geosystems
Geochemical Perspective Letters
Geochimica et Cosmochimica Acta
Geology
Global Biogeochemical Cycles
Nature Communications
Nature Geoscience
Science Advances
The Depositional Record

The National Science Foundation (NSF)
National Cave and Karst Research Institute (NCKRI)