

## Anne-Sofie Crüger Ahm

Simons Foundation Postdoctoral Fellow  
Princeton University  
Department of Geosciences, Guyot Hall  
Princeton, NJ 08544, USA

ascahm@gmail.com  
aahm@princeton.edu  
ORCID: 0000-0002-5142-0326  
Phone: +1-609-216-6060

Adjunct, School of Earth and Ocean Sciences  
University of Victoria, BC, Canada

annesofieahm@uvic.ca

### 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 courses at The University Center in Svalbard (UNIS)

### PROFESSIONAL APPOINTMENTS

- 2022–      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

- 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. Restricting 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*, <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 in review / in preparation**

- in review* **Ahm, A-S. C.**, Bjerrum, C.J., Hoffman, P.F., The Ca and Mg isotope record of the Cryogenian Trezona carbon isotope excursion. Submitted to Earth and Planetary Science Letters. Preprint available on [www.eartharxiv.org](http://www.eartharxiv.org) <https://doi.org/10.31223/X5KP5G>
- in review* **Ahm, A-S. C.**, Husson, J.M., Local and global controls on carbon isotope chemostratigraphy. Submitted to Cambridge Elements. Preprint available on [www.eartharxiv.org](http://www.eartharxiv.org) <https://doi.org/10.31223/X5V607>
- in review* Nelson, L. L., **Ahm, A-S. C.**, Macdonald, F. A., Higgins, J. A., Smith, E. F., Isotopic effects of dolomitization on Cryogenian strata in the Panamint Range, California. Submitted to Earth and Planetary Science Letters.
- Akhtar, A. A., **Ahm, A-S. C.**, Higgins, J. A., Mixed marine and meteoric early diagenetic alteration of shallow water carbonate sediments: insights from paired  $\delta^{44/40}\text{Ca}$  and  $\delta^{26}\text{Mg}$  values. Manuscript in preparation.
- 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. Manuscript in preparation.

**AWARDS AND FUNDING**

- 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

- 2020 Keynote Speaker, Session 14B, Goldschmidt, Hawaii, USA, Jun 21–26th, 2020
- 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

### 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 co-supervision

- 2020– PhD student Daniel Garduno Ruiz, University of Victoria
- 2018– PhD student Lyle Nelson, Johns Hopkins University
- 2018– PhD student Mary Lonsdale, Johns Hopkins University
- 2017– PhD student Jack Murphy, Princeton University
- 2017– PhD student Alliya Akhtar, Princeton University
- 2016 Bachelor student Simon Stenger, University of Copenhagen
- 2013 Master student Simone LaFontain, University of Copenhagen

### Teaching and DEI training

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

**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**

- 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 Biogeochemistry: Implications for the Earth System Through Time

**Organizer of the Princeton Environmental Geology and Geochemistry Seminar (EGGs) Lecture Series 2019****Reviewer ([Publons](#))**

Earth and Planetary Science Letters  
Nature Communications  
Science Advances  
The Depositional Record  
Geochemistry, Geophysics, Geosystems  
Geochimica et Cosmochimica Acta  
Geology  
The National Science Foundation (NSF)

## Professional Memberships

- 2020– Geochemical Society  
2018– [Ca Isotope Community](#)  
2018–2019 American Geophysical Union (AGU)  
2015–2019 Geological Society of America  
2012–2016 European Association of Geochemistry  
2008– Geological Society of Denmark

## CONFERENCE PROCEEDINGS

- 2020 **Ahm, A-S. C.**, Maloof, A. C., Bjerrum C. J., Hoffman, P. F., Macdonald, F. A., Rose, C. V., Strauss, J. V., Higgins, J. A., Ca and Mg isotope record of the Trezona carbon isotope excursion (poster), *Gordon Research Conference, Geobiology, Galveston, TX*
- 2018 **Ahm, A-S. C.**, Maloof, A. C., Bjerrum C. J., Bold, U., Hoffman, P. F., Macdonald, F. A., Rose, C. V., Strauss, J. V., Higgins, J. A., An early diagenetic deglacial origin for basal Ediacaran “cap dolostones” (talk), *AGU, Washington DC 2018*
- 2018 **Ahm, A-S. C.**, Maloof, A. C., Bjerrum C. J., Bold, U., Hoffman, P. F., Macdonald, F. A., Rose, C. V., Strauss, J. V., Higgins, J. A., An early diagenetic deglacial origin for basal Ediacaran “cap dolostones” (talk), *Goldschmidt Conference, Boston 2018*
- 2018 **Ahm, A-S. C.**, Maloof, A. C., Bjerrum C. J., Bold, U., Hoffman, P. F., Macdonald, F. A., Rose, C. V., Strauss, J. V., Higgins, J. A., An early diagenetic deglacial origin for basal Ediacaran cap dolostones (poster), *Gordon Conference, Geobiology, Galveston Texas*
- 2017 **Ahm, A-S. C.**, Higgins, J. A., Hoffman, P. F., Macdonald, F. A., Maloof, A. C., Rose, C. V., Bjerrum, C. J., The Ca and Mg isotopic record of the descent into a Snowball Earth (talk), *International Symposium on the Ediacaran-Cambrian, Newfoundland*
- 2017 **Ahm, A-S. C.**, Higgins, J. A., Hoffman, P. F., Macdonald, F. A., Maloof, A. C., Rose, C. V., Bjerrum, C. J., The Ca and Mg isotopic record of the descent into a Snowball Earth (poster), *Geobiology Conference, Banff, Canada*

- 2017 **Ahm, A-S. C.**, Bjerrum C. J., Blättler, C. L., Higgins, J. A., What can carbonate diagenesis tell us about ancient seawater chemistry? (poster), *Northeaster Geobiology Symposium, Connecticut*
- 2016 **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 (poster), *Northeastern Geobiology Symposium, Harvard University*
- 2015 **Ahm, A-S. C.**, Higgins, J. A., Hoffman, P. F., Macdonald, F. A., Maloof, A. C., Rose, C. V., Bjerrum C., J., The Ca and Mg isotope record of the descent and escape of the end-Cryogenian glaciation (talk), *Geological Society of America Annual meeting*
- 2015 **Ahm, A-S. C.**, Higgins, J. A., Hoffman, P. F., Macdonald, F. A., Maloof, A. C., Rose, C. V., Bjerrum C., J., Ca and Mg Isotope stratigraphy of the Trezona C isotope excursion: Geochemical record of the descent into a Snowball? (poster), *Goldschmidt Conference, Prague*
- 2014 **Ahm, A-S. C.**, Bjerrum C. J., Hammarlund, E. U., Persistent deep water anoxia through the Hirnantian mass extinction event (talk), *PhD Conference, IGN, University of Copenhagen*
- 2014 **Ahm, A-S. C.**, and Bjerrum C., J., The link between the rise of land plants, cloud-albedo, and carbon cycle perturbation (poster), *Goldschmidt Conference, Sacramento*
- 2013 **Ahm, A-S. C.**, Bjerrum C. J., Hammarlund, E. U., Regional deep water anoxic conditions during the Hirnantian extinction event (poster), *Goldschmidt Conference, Florence*
- 2013 **Ahm, A-S. C.**, Bjerrum C. J., The hurdles of the Neoproterozoic era (poster), *Geological Society of Denmark annual meeting, Copenhagen*