

Seung Hun Baek

Department of Earth & Planetary Sciences, Yale University
210 Whitney Avenue, New Haven, CT 06511

Nationality: USA

Tel: (703)-307-4414

Email: seunghun.baek@yale.edu

RESEARCH INTERESTS

Global hydroclimate (extreme events, variability, impacts)

APPOINTMENTS

Postdoctoral Associate, Yale University

2020-present

Graduate Research Assistant, Columbia University

2015-2020

EDUCATION

Ph.D., Earth & Environmental Sciences, Columbia University

2015-2020

B.A., Environmental Science, Columbia University

2010-2014

FELLOWSHIPS AND AWARDS

- Richard Foster Flint Postdoctoral Fellowship (\$130K), Yale University (2020-2022)
- 1st Place (\$500), Expert Scored Poster Presentation, Yale Climate Day (2021)
- Nominee, Schmidt Science Fellows (2019)
- Honorable Mention, National Science Foundation Research Fellowship (2016)
- Dean's Fellow (5-yr full funding), Columbia University (2015-2020)

PUBLICATIONS PENDING

14. **S.H. Baek** and J.M. Lora. Dual mode modulations of northwestern European hydroclimate over the last millennium, *in preparation*.
13. **S.H. Baek**, J. Kanzaki, N. Planavsky, J. M. Lora, C. Reinhard, S. Zhang. Enhanced weathering potential on global croplands under a changing climate, *in preparation*.
12. **S.H. Baek**, J.M. Battalio, J.M. Lora. Atmospheric river variability over the last millennium driven by annular modes, *submitted*.

PEER REVIEWED PUBLICATIONS

11. **S.H. Baek**, Y. Kushnir, M. Ting, J.E. Smerdon, J.M. Lora (2022). Regional Signatures of Forced North Atlantic SST Variability: A Limited Role for Aerosols and Greenhouse Gases, *Geophysical Research Letters*, <https://doi.org/10.1029/2022GL097794>.
10. Scholz, S.R., R. Seager, M. Ting, Y. Kushnir, J.E. Smerdon, B.I. Cook, E.R. Cook, **S.H. Baek** (2022). Changing hydroclimate dynamics and the 19th to 20th century wetting trend in the English Channel region of northwest Europe, *Climate Dynamics*, <https://doi.org/10.1007/s00382-021-05977-5>.
9. **S.H. Baek**, Y. Kushnir, W.A. Robinson, J.M. Lora, D.E. Lee, M. Ting (2021). An Atmospheric Bridge Between the Subpolar and Tropical Atlantic Regions: A Perplexing Asymmetric Teleconnection, *Geophysical Research Letters*, <https://doi.org/10.1029/2021GL096602>
8. **S.H. Baek** and J.M. Lora (2021). Counterbalancing influences of aerosols and greenhouse gases on atmospheric rivers, *Nature Climate Change*, <https://doi.org/10.1038/s41558-021-01166-8>.

PEER REVIEWED PUBLICATIONS (CONTINUED)

7. **Baek, S.H.**, J.E. Smerdon, B.I. Cook, A.P. Williams (2021). US Pacific Coastal Droughts are Predominantly Driven by Internal Atmospheric Variability, *Journal of Climate*, <https://doi.org/10.1175/JCLI-D-20-0365.1>
6. **Baek, S.H.**, J.E. Smerdon, G. Dobrin, J.G. Naimark, E.R. Cook, B.I. Cook, R. Seager, M.A. Cane (2020). A quantitative hydroclimatic context for the European Great Famine of 1315-1317, *Communications Earth & Environment*, <https://doi.org/10.1038/s43247-020-00016-3>
5. Williams, A.P., E.R. Cook, J.E. Smerdon, B.I. Cook, J.T. Abatzoglou, K. Bolles, **S.H. Baek**, A. Badger, B. Livneh (2020). Large contribution from anthropogenic warming to a developing North American megadrought, *Science*, <https://doi.org/10.1126/science.aaz9600>
4. **Baek, S.H.**, N.J. Steiger, J.E. Smerdon, R. Seager (2019). Oceanic drivers of spatially widespread droughts in the contiguous US over the Common Era, *Geophysical Research Letters*, <https://doi.org/10.1029/2019GL082838>
3. **Baek, S.H.**, J.E. Smerdon, R. Seager, A. P. Williams, B. I. Cook (2019). Pacific Ocean forcing and atmospheric variability are the dominant causes of spatially widespread droughts in the contiguous United States, *Journal of Geophysical Research – Atmospheres*, <https://doi.org/10.1029/2018JD029219>.
2. Smerdon, J.E., J. Luterbacher, S. Phipps, K.J. Anchukaitis, T.R. Ault, S. Coats, K.M. Cobb, B.I. Cook, C. Colose, T. Felis, A. Gallant, J.H. Jungclaus, B. Konecky, A. LeGrande, S. Lewis, A.S. Lopatka, W. Man, J.S. Mankin, J.T. Maxwell, B.L. Otto-Bliesner, J.W. Partin, D. Singh, N.J. Steiger, S. Stevenson, J.E. Tierney, D. Zanchettin, H. Zhang, A. Atwood, L. Andreu-Hayles, **S.H. Baek**, B. Buckley, E.R. Cook, R. D'Arrigo, S.G. Dee, M. Griffiths, C. Kulkarni, Y. Kushnir, F. Lehner, C. Leland, H.W. Linderholm, A. Okazaki, J. Palmer, E. Piovano, C.C. Raible, M.P. Rao, J. Scheff, G.A. Schmidt, R. Seager, M. Widmann, A.P. Williams, E. Xoplaki (2017), Comparing proxy and model estimates of hydroclimate variability and change over the Common Era, *Climate of the Past*, <https://doi.org/10.5194/cp-13-1851-2017>.
1. **Baek, S.H.**, J.E. Smerdon, S. Coats, A. P. Williams, B.I. Cook, E.R. Cook, and R. Seager (2017), Precipitation, temperature, and teleconnection signals across the combined North American, Monsoon Asia, and Old World Drought Atlases, *Journal of Climate*, <https://doi.org/10.1175/JCLI-D-16-0766.1>

INVITED TALKS

- 2022 **Baek, S.H.** Extreme Precipitation: Links to Climate Variability and Change. *Seminar, Department of Earth and Environmental Sciences*, University of Illinois Chicago.
- 2021 **Baek, S.H.** Extreme Precipitation: Links to Internal Modes of Variability and Climate Change. *Atmosphere Ocean Climate Dynamics Seminar*, Yale University.
- 2021 **Baek, S.H.** Hydroclimatic Black Swans: Continental-Scale Droughts and Pluvials. *Departmental Seminar, Division of Environmental Science and Technology*, Pohang University of Science and Technology.
- 2020 **Baek, S.H.** Characterizing the Oceanic and Atmospheric Drivers of Spatially Widespread Droughts over the contiguous United States. *Informal Seminar*, Geophysical Fluid Dynamics Laboratory.

CONFERENCE PRESENTATIONS AND WORKSHOPS

- 2022 **Baek, S.H.**, J.M. Battalio, J.M. Lora. Atmospheric river variability over the last millennium driven by annular modes (Oral Presentation). *4th International Atmospheric River Conference 2022*
- 2022 **Baek, S.H.** and J.M. Lora. Counterbalancing Influences of Aerosols and GHGs on Atmospheric Rivers. (Poster Presentation). *American Meteorological Society: 23rd Conference on Atmospheric and Fluid Dynamics*.
- 2022 **Baek, S.H.**, Y. Kushnir, W.A. Robinson, J.M. Lora, D.E. Lee, M. Ting. An Atmospheric Bridge Between the Subpolar and Tropical Atlantic Regions: A Perplexing Asymmetric Teleconnection. (Oral Presentation). *European Geosciences Union General Assembly 2022: The North Atlantic: Natural Variability and Global Change*.
- 2022 **Baek, S.H.**, Y. Kushnir, W.A. Robinson, J.M. Lora, D.E. Lee, M. Ting. An Atmospheric Bridge Between the Subpolar and Tropical Atlantic Regions: A Perplexing Asymmetric Teleconnection. (Oral Presentation). *US Atlantic Meridional Overturning Circulation Science Team Meeting*.
- 2022 **Baek, S.H.** and J.M. Lora. Counterbalancing Influences of Aerosols and GHGs on Atmospheric Rivers. (Oral Presentation). *American Meteorological Society: 35th Conference on Climate Variability and Change*.
- 2021 **Baek, S.H.** and J.M. Lora. Counterbalancing Influences of Aerosols and GHGs on Atmospheric Rivers. (Poster Presentation). *Yale Climate Day*.
- 2019 **Baek, S.H.**, J.E. Smerdon, M. Ting, Y. Kushnir, R. Seager. Untangling Observed Atlantic Multidecadal Variability (Oral Presentation). *American Geophysical Union Fall Meeting 2019: Dynamics of Interbasin Interactions from Seasonal to Centennial Timescales I*.
- 2019 **Baek, S.H.**, J.E. Smerdon, M. Ting, Y. Kushnir, R. Seager. Untangling Observed Atlantic Multidecadal Variability (Poster Presentation). *US Climate Variability and Predictability Program: The Large Ensembles Workshop*.
- 2018 **Baek, S.H.**, N.J. Steiger, J.E. Smerdon. Parsing the dominant ocean influences on spatially widespread droughts in the contiguous US over the Common Era (Oral Presentation). *American Geophysical Union Fall Meeting 2018: Climate of the Common Era*.
- 2017 **Baek, S.H.**, J.E. Smerdon, R. Seager, A.P. Williams, B. I. Cook. Parsing the contributions of ocean forcings and atmospheric variability to spatially widespread droughts in the contiguous United States (Oral Presentation). *American Geophysical Union Fall Meeting 2017: Hydroclimatic Extremes: Droughts*.
- 2017 **Baek, S.H.**, J.E. Smerdon, S. Coats, A.P. Williams, B.I. Cook, E.R. Cook, R. Seager. Precipitation, temperature, and teleconnection signals across the combined North American, Monsoon Asia, and Old World Drought Atlases (Poster Presentation). *PAGES OSM Open Science Meeting: Large-scale hydroclimate variability and change of the Common Era: Patterns, Impacts, and Processes*.

TEACHING EXPERIENCE

- 2019 Fall *Teaching Assistant, UN2200 Earth Environmental System: Earth System*
- 2017 Spring *Teaching Assistant, UN2310 Earth Environmental System: Life System*
- 2016 Fall *Teaching Assistant, W4008 Introduction to Atmospheric Science*

JOURNAL REFEREEING

Journal of Climate, Geophysical Research Letters, Journal of Geophysical Research – Atmospheres, Journal of Hydrology: Regional Studies