

Jonah Bloch-Johnson

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Research Scientist, National Centre for Atmospheric Science
Department of Meteorology, University of Reading, Reading, UK

EMPLOYMENT

University of Reading (2019 - present), postdoctoral researcher at the National Centre for Atmospheric Science. Principal investigator: Jonathan Gregory

Almanac Environmental Services (2008 - 2012), CEO and co-founder. Managed a team of programmers creating web applications that helped consumers track their environmental impact. Secured funding from the NYC SeedStart incubator. Press in Crain's [↗](#) and WNYC [↗](#).

EDUCATION

University of Chicago (2012 - 2018), Ph.D. in Geophysical Sciences. Supervisors: Dorian Abbot, Raymond T. Pierrehumbert

Thesis: Causes and Implications of Time-Varying Climate Sensitivity

Columbia University (2005 - 2008), B.A. in Mathematics and Music.

Thesis: ϕ -Normal Numbers

Oberlin College and Conservatory (2003 - 2005), pursued B.A. in Mathematics and B.M. in Music Composition.

PUBLICATIONS

in preparation

Bloch-Johnson and Gregory: **Nonlinear Climate Sensitivity. Part 1: A Taxonomy**

Bloch-Johnson and Gregory: **Nonlinear Climate Sensitivity. Part 2: A Closer Look at Spatial Feedbacks**

Risi and co-authors including Bloch-Johnson: **Amplification of temperature changes with altitude in the tropics and subtropics**

in review

Bloch-Johnson, Rugenstein, Alessi, Proistosescu, Zhao, Zhang, Williams, Gregory, Cole, Dong, Duffy, Kang, and Zhou: **The Green's Function Model Intercomparison Project (GFMIIP) Protocol**, *Journal of Advances in Modeling Earth Systems* (preprint: [↗](#))

2023

Gregory, Bloch-Johnson, Couldrey, Exarchou, Griffies, Kuhlbrodt, Newsom, Saenko, Suzuki, Wu, Urakawa, and Zanna: **A new conceptual model of global ocean heat uptake**, *Climate Dynamics*

Cael, Bloch-Johnson, Ceppi, Fredriksen, Goodwin, Gregory, Smith, and Williams: **Energy budget diagnosis of changing climate feedback**, *Science Advances* [↗](#)

Williams, Jeevanjee, and Bloch-Johnson: **Circus tents, convective thresholds and the non-linear climate response to tropical SSTs**, *GRL* [↗](#)

2022

Bloch-Johnson, Rugenstein, Gregory, Cael, and Andrews: **Climate impact assessments should not discount 'hot' models** *correspondence in Nature* [↗](#), in reply to Hausfather et al. 2022 [↗](#)

Cael, Britten, Calafat, Bloch-Johnson, Stainforth, and Goodwin: **Climate nonlinearities: selection, uncertainty, projections, and damages** *ERL* [↗](#)

2021

Bloch-Johnson, Rugenstein, Stolpe, Rohrschneider, Zheng, and Gregory: **Climate sensitivity increases under higher CO₂ levels due to feedback temperature dependence** *GRL* [↗](#) [📄](#) (SI: [📄](#))

Callahan, Chen, Rugenstein, Bloch-Johnson, Yang, Stein, and Moyer: **Robust long-term decrease in ENSO amplitude under elevated CO₂** [↗](#)

Schwarzwald, Poppick, Rugenstein, Bloch-Johnson, Wang, McInerney, and Moyer: **Changes in future precipitation mean and variability across scales** [↗](#)

Zhang, Bloch-Johnson, Romps, and Abbot: **Evolving CO₂ Rather Than SST Leads to a Factor of Ten Decrease in GCM Convergence Time** *JAMES* [↗](#)

2020

Bloch-Johnson, Rugenstein, and Abbot: **Spatial radiative feedbacks from internal variability using multiple regression** *J. Climate* [↗](#) [📄](#) (SI: [📄](#))

2019

Rugenstein, Bloch-Johnson, Gregory, Andrews, Mauritsen, Li, Frölicher, Paynter, Danabasoglu, Yang, Dufresne, Cao, Schmidt, Abe-Ouchi, Geoffroy, and Knutti: **Equilibrium climate sensitivity estimated by equilibrating climate models** *GRL* [↗](#) [📄](#)

Rugenstein, Bloch-Johnson, Abe-Ouchi, Andrews, Beyerle, Cao, Chadha, Danabasoglu, Dufresne, Duan, Foujols, Frölicher, Geoffroy, Gregory, Knutti, Li, Marzocchi, Mauritsen, Menary, Moyer, Nazarenko, Paynter, Saint-Martin, Schmidt, Yamamoto, and Yang: **LongRunMIP - motivation and design for a large collection of millennial-length AO-GCM simulations** *BAMS* [↗](#) [📄](#)

2018

Abbot, Bloch-Johnson, Checlair, Farahat, Graham, Plotkin, Popovic, and Spaulding-Astudillo: **Decrease in hysteresis of planetary climate for planets with long solar days** *The Astrophysical Journal* [↗](#) [📄](#)

2017

Köhler, Stap, von der Heydt, de Boer, van de Wal, and Bloch-Johnson: **A state-dependent quantification of climate sensitivity based on paleodata of the last 2.1 million years** *Paleoceanography* [↗](#)

2015

Bloch-Johnson, Pierrehumbert, and Abbot: **Feedback temperature dependence determines the risk of high warming** *GRL* [↗](#) [📄](#) (SI: [📄](#))



GRANTS AND FELLOWSHIPS

NSF Grant 1623064, Abbot, Bloch-Johnson, Cronin, and Tziperman; Collaborative Research: Using a Hierarchy of Models to Constrain the Temperature Dependence of Climate Sensitivity
NSF USSP Fellowship, for attendance of the Urbino Summer School for Paleoclimate (Urbino, Italy; 2015).

INVITED TALKS

University of Exeter, June 2023: Nonlinear simple climate models
Oxford University, AOPP Seminar, Mar 2023: Simple models of nonlinear climate change
Columbia University, SEAS Colloquium in Climate Science, Oct 2022: Simple models of nonlinear climate change
US CLIVAR, PSMI Panel Annual Meeting, Sep 2022: The Green's Function Model Intercomparison Project (GFMIP)
Scripps Institution of Oceanography, Department Seminar, Jul 2022: Incorporating nonlinearities into the climate forcing and feedback framework
US CLIVAR, Pattern Effect Workshop, May 2022: The Green's Function Model Intercomparison Project (GFMIP)
Colorado State University, Department of Atmospheric Science Colloquium, May 2022: Incorporating nonlinearities into the climate forcing and feedback framework
Princeton University, AOS/GEO/HMEI Climate Seminar, Nov 2021: Classifying climate nonlinearities
Scripps Institution of Oceanography, Climate Journal Club, Apr 2021: Spatial radiative feedbacks from internal variability using multiple regression
University of Wisconsin, Madison, AOS Department Seminar Nov 2017: Time-varying climate feedbacks
Max Planck Institute for Meteorology, Seminar, Aug 2015: Feedback Temperature Dependence: Ramifications for the Long Tail of Climate Sensitivity and the PETM

PRESENTATIONS

Princeton University, October 2023: Spatial radiative feedbacks (oral)
CFMIP Annual Meeting, July 2023: A simple model of nonlinear radiative feedbacks (oral)
Tropical Tropospheric Lapse Rate Workshop, July 2023: Some thoughts on the tropical lapse rate pattern effect (oral)
UK Met Office, June 2023: A two-region model of radiative feedback (oral)
ECS & Cloud Feedback Virtual Symposium, April 2023: A two-region model of radiative feedback (oral; watch: )
CFMIP Annual Meeting, Sep 2022: A two-region model of the pattern effect and feedback temperature dependence (oral) and Developing the Green's Function Model Intercomparison Project (GFMIP) protocol (poster)
AGU Fall Meeting, Dec 2021: Classifying climate nonlinearities (oral; watch: )

CFMIP Annual Meeting, Sep 2021: Classifying climate nonlinearities (poster)
AGU Fall Meeting, Dec 2020: Equilibrium climate sensitivity increases with CO₂ concentration (oral)
CFMIP Annual Meeting, Sep 2020: Time-varying effective climate sensitivity vs. inconstant equilibrium climate sensitivity (poster)
CFMIP Annual Meeting, Sep 2019: Limitations of the Green's function approach to analyzing spatial radiative feedbacks (oral)
CFMIP Annual Meeting, Sep 2018: Spatial cloud feedbacks from interannual variability (oral)
AMS Annual Meeting, Jan 2018: Climate feedbacks from natural variability (oral)
AGU Fall Meeting, Dec 2017: Nonlinear equilibrium climate sensitivity in a perturbed physics ensemble (poster)
AGU Fall Meeting, Dec 2016: Nonlinear climate sensitivity in a perturbed physics ensemble (poster)
AGU Fall Meeting, Dec 2015: Feedback temperature dependence can cause extreme warming under anthropogenic emissions (poster)
AGU Fall Meeting, The Temperature Dependence of Feedbacks and Equilibrium Climate Sensitivity (oral)

ACADEMIC SERVICE

Green's Function Model Intercomparison Project (GFMIIP), 2021-present; Head organizer
ECS & Cloud Feedback Virtual Symposium, 2021-present; Steering committee member [↗](#)
LongRunMIP, 2016-present; Co-organizer [↗](#)
Global Cupcake 2023; Reading, UK - Co-organizer of workshop on coupled climate system [↗](#)
Rosbypalooza, 2016; Chicago, IL - Head organizer of inaugural workshop [↗](#)
Climate Data Hackathon at University of Chicago, 2014; Co-organizer
MCRN Climate Data Hackathon, 2014; Head organizer
Reviewer for *Climate Dynamics*, *Climate of the Past*, *Geoscientific Model Development*, *Geophysical Research Letters*, *Journal of Climate*, *Science Advances*

OUTREACH

istheweatherweird.com: Co-creator [↗](#)
Weather and Climate @ Reading blog posts: Jan 2020, A Topsy Earth? [↗](#); Dec 2021, The Climate Feedback: More Than The Sum Of Its Parts [↗](#)
Johnson College Prep High School: Feb 2016, "A career in climate science" (talk)
Pint of Science Chicago: May 2015, "Let's talk about feedbacks" (talk)

TEACHING

2015-2018	TA, The Atmosphere
2017	TA, Global Energy & Climate Challenge
2014	TA, Natural Hazards
2012-2013	TA and software developer, Global Warming: Understanding the Forecast