Chris Hancock (he/him) | Curriculum Vitae

PhD Candidate, Northern Arizona University

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Research Interests

I am a climate and data scientist. My current research combines information from paleoclimate proxies with climate model simulations to reconstruct the response of regional hydroclimate variability to global climate change in the geologic past. To do this, I develop and manage large multi-proxy datasets and utilize analytical techniques such as timeseries analysis, geospatial statistics, and data assimilation. These results provide insight into modern climate dynamics and the impacts of current climate change on the global hydrological cycle.

Education

Northern Arizona University — PhD Earth Science & Environmental Sustainability — 2020 — 2024
Dissertation: *Reconstructing Holocene Hydroclimate through a Data Assimilation Approach*
Advisor: Dr. Nick McKay

University of Denver — MA Geography — 2018 — 2020
Thesis: *Spatial and Temporal Controls on Streamflow Variability in the San Juan Mountains, CO*
Advisor: Dr. J. Michael Daniels

George Washington University — BS Geological Sciences — 2010 — 2014
Minors in Geography and Geographical Information Science
Advisor: Dr. Richard Tollo

Professional Experience

Research Assistant — Northern Arizona University — Aug. 2020 — Present
PaleoDynamics Lab (Advisor: Dr. Nick McKay), Flagstaff, AZ

Raw Water Operations Intern — Denver Water — May 2019 — Aug. 2019
Water Resources Strategy Section, Denver, CO

Support Technician II — Michael Baker International — Jan. 2015 — July 2018
National Flood Insurance Program Contract (FEMA), Alexandria, VA

University Research Aide — George Washington University — Mar. 2014 — Aug. 2014
Geology Department (Advisor: Dr. Richard Tollo), Washington, DC

Student Trainee — U.S. Geological Survey — June 2013 — Aug. 2013
Appalachian Blue Ridge Project, Reston, VA

Publications

Hancock, C. L., Erb, M. P., McKay, N. P., Dee, S. G. (in review). DAMP-21ka: A Data Assimilation of Moisture Patterns for the past 21,000 years. *Climate of the Past*, EGUsphere [preprint]. https://doi.org/10.5194/egusphere-2024-746

McKay, N. P., Kaufman, D. K., Arcusa, S., Kolus, H., Edge, D., Erb, M. P., **Hancock, C. L.**, Routson, C. R., Żarczyński, M., Marshall, L. P., Roberts, G., Telles, F. (in review). The 4.2 ka event is not remarkable in the context of Holocene climate variability. *Nature Communications*

Hancock, C. L., McKay, N. P., Erb, M. P., Kaufman, D. S., Routson, C. R., Ivanovic, R. F., Gregoire, L. J., and Valdes, P. (2023). Global synthesis of regional Holocene hydroclimate variability using proxy and model data. *Paleoceanography and Paleoclimatology*, 38, e2022PA004597. https://doi.org/10.1029/2022PA004597

Erb, M. P., McKay, N. P., Steiger, N., Dee, S., **Hancock, C.,** Ivanovic, R. F., Gregoire, L. J., and Valdes, P. (2022). Reconstructing Holocene temperatures in time and space using paleoclimate data assimilation. *Climate of the Past*, 18, 2599–2629. https://doi.org/10.5194/cp-18-2599-2022, 2022

Conference & Workshop Presentations (First Author Only)

2023 - Hancock, C., Erb, M.P., McKay, N., "DAMP-21ka: Data Assimilation of Moisture Patterns (21 ka - present) using lake-level proxy records" American Geophysical Union (AGU) fall meeting, San Francisco CA. (poster)

- Hancock, C., "Analyzing & compositing proxy data" Data Assimilation Workshop, Flagstaff, AZ. (oral)
- Hancock, C., "Present upcoming Holocene hydroclimate proxy database & reconstruction", PAGES 2k Phase 4 Workshop, Potsdam, Germany. (invited seminar)

2022 - Hancock, C., McKay, N., Erb, M.P., Gregoire, L.J., Ivanovic, R.F., Valdes, P.J., "Global synthesis of regional Holocene hydroclimate variability using proxy and model data" American Geophysical Union (AGU) fall meeting, Chicago IL. (oral)

- Hancock, C., "Analyzing & compositing proxy data" Data Assimilation Workshop, Flagstaff, AZ. (oral)

2021 - Hancock, C., McKay, N., Erb, M.P., Gregoire, L.J., Ivanovic, R.F., Valdes, P.J., "Holocene Hydroclimate: Multi Millennial-Scale Trends in Proxies and Models" American Geophysical Union (AGU) fall meeting, New Orleans LA. (poster)

- Hancock, C. "Hydroclimate of the San Juan Mountains, Colorado" Association of American Geographers (AAG) annual meeting, Seattle WA. (oral)

2019 - Hancock, C. "Hydroclimate of the San Juan Mountains, Colorado" Association of American Geographers (AAG) annual meeting, Washington DC. (poster)

Teaching Experience (Instructor of Record)

Northern Arizona University

Climate Change	ENV 115	Summer 2022

Teaching Experience (Teaching Assistant)

Northern Arizona University

Geological Disasters Lab	GLG 112L	Spring 2022
Senior Seminar in Environmental Sciences	ENV 490C	Spring 2022
Geomorphology Lab	ENV 259L	Fall 2021
Environmental Sustainability	ENV 181	Fall 2021

University of Denver

Environmental Systems Lab	GEOG 1201-3	Fall 2019; Winter/Spring/Summer 2020

George Washington University

Historical Geology Lab	GLG 1002	Spring 2014
Environmental Geology Lab	GLG 1005	Fall 2013

Service

Departmental Committees:	PhD Student Representative — Northern Arizona University	2023 — 2024
	D&I Committee Member — Northern Arizona University	2022 — 2024
	Graduate Student Representative — University of Denver	2019 — 2020
Journal Reviewer:	Earth System Science Data, Nature Communications	

Outreach

ARCS Awards Dinner (Phoenix, AZ) — Achievement Rewards for College Scientists Foundation	4/21/2023
Be in the Know: Water and Future Development in Arizona Event (Payson, AZ) — Arizona Association for Economic Development	11/16/2022

Funding, Grants, & Awards

2023 -	ARCS Scholar Award	$8,500
-	Tom and Rose Bedwell Earth Physics Research Award	$1,550
2022 -	Tom and Rose Bedwell Earth Physics Research Award	$1,000
-	Rod Parnell Fund for Water Resources Research Support	$500
2021 -	Pioneer Natural Resources Research Award	$1,800
-	Tom and Rose Bedwell Earth Physics Research Award	$1,600
-	EarthCube Early Career Travel Grant	$1,500
2019 -	Laurance C. Herold Fund	$850

Technical Skills

Python, R, ArcGIS, QGIS, SQL, GitHub, & Adobe Illustrator