

**Natasha Sekhon, PhD**  
(she/her/hers)  
Department of Geology | Occidental College  
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ORCID 0000-0002-4513-2301

## EDUCATION

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| 2021 | Department of Geological Sciences, Jackson School of Geosciences, University of Texas at Austin<br>Ph.D.<br><i>A monitoring and 20th century stalagmite study from a shallow cave in New Mexico: elucidating climate controls on geochemical variability with insight into stalagmite suitability for paleoclimate reconstructions</i><br>Co-advisors: Prof. Dan Breecker and Prof. Jay Banner |
| 2016 | Institute for Geophysics, Jackson School of Geosciences, University of Texas at Austin<br>M.Sc.<br><i>Multidecadal rainfall variability in the South Pacific Convergence Zone using the geochemistry of stalagmites from the Solomon Islands</i><br>Co-advisors: Prof. Terry Quinn and Prof. Jud Partin  |
| 2014 | University of California, Irvine<br>B.Sc. in Earth System Sciences (Honors); Minor in Comparative Literature   |
| 2013 | University of California Education Abroad Program (UCEAP)<br>School of Geosciences, University of Edinburgh, Scotland  |

## ACADEMIC APPOINTMENTS

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|----------------|--|
| 2024 – Present | Assistant Professor, Department of Geology, Occidental College   |
| 2024 – Present | Research Affiliate, Brown University   |
| 2021 – 2023    | Voss Postdoctoral Research Associate & Presidential Postdoctoral Fellow, Department of Earth, Environmental, Planetary Sciences & Institute, Brown for Environment and Society, Brown University |
| 2021 – 2023    | Research Affiliate, Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology  |

## RESEARCH INTERESTS

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Holocene and Quaternary hydroclimate, abrupt climate change, low-temperature stable isotopes, trace element geochemistry, speleology, karst hydrogeology, carbonate critical zone, climate dynamics, time series analysis

## PUBLICATIONS (\* Student Mentee)

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- 2025** \*C Marsh, **N Sekhon**, T Beach, D McGee, \*CK Johnson, DE Ibarra, “Late Holocene hydroclimate variability in the Tropical Andes from fast-growing stalagmites in the Eastern Cordillera of Colombia”, *Paleoceanography and Paleoclimatology*. DOI: [10.1029/2025PA005188](https://doi.org/10.1029/2025PA005188)
- Sekhon, N.**, J. L. Banner, D. O. Breecker, B. A. Black, & N. R. Miller, “Moving towards an understanding of transition metal variability controls in stalagmites: An assessment in sub-annually resolved 20<sup>th</sup>-century stalagmites from semi-arid southwestern United States,” *Geochimica et Cosmochimica Acta*. DOI: [10.1016/j.gca.2025.08.029](https://doi.org/10.1016/j.gca.2025.08.029)
- Sekhon, N.**, Gao, A. \*, Mallick, S., Partin, J. W., Cardenas, M. B., & Ibarra, D. E., “Assessing Matrix and Nonmatrix, Single, and Multipoint Calibration of Trace Elements Using LA-ICP-MS on a Tropical Speleothem,” *Rapid Communications in Mass Spectrometry*, 39(9), e9983. DOI: [10.1002/rcm.9983](https://doi.org/10.1002/rcm.9983)
- MJ Custado, CA Gagnon, B Belanger, **N Sekhon**, J Bernstein-Schalet, CW Kinsley, WD Sharp, JL Oster, DE Ibarra, “Constraining the Modern Hydrological Balance of Bear Lake, Utah-Idaho: Insights from Stable Isotopes ( $\delta^{18}\text{O}$  and  $\delta^2\text{H}$ ),” *Water Resources Research*. 61, e2024WR038264. DOI: [10.1029/2024WR038264](https://doi.org/10.1029/2024WR038264)
- 2024** Kaushal, N., Lechleitner, F. A., Wilhelm, M., Azennoud, K., Bühler, J. C., Braun, K., ... **Sekhon, N** & Zhang, H., “SISALv3: a global speleothem stable isotope and trace element database,” *Earth system science data*, 16(4), 1933-1963. DOI: [10.5194/essd-16-1933-2024](https://doi.org/10.5194/essd-16-1933-2024)
- 2023** Fohlmeister, J., **N. Sekhon**, A. Columbu, K. Rehfeld, L. Sime, C. Veiga-Pires, N. Marwan, & N. Boers, “Global reorganization of atmospheric circulation during Dansgaard-Oeschger cycles,” *Proceedings of the National Academies of Sciences*. DOI: [10.1073/pnas.2302283120](https://doi.org/10.1073/pnas.2302283120)
- Sekhon, N.**, D.M. Tremaine, J. L. Banner, & D. O. Breecker, “Mapping atypical and typical stalagmite morphologies using high resolution X-Ray computed tomography as a non-destructive and rapid test for paleoclimate suitability,” *Journal of Cave and Karst Studies*. DOI: [10.4311/2021ES0122](https://doi.org/10.4311/2021ES0122)
- Covington, M. D., J. B. Martin, L. Toran, J. Macalady, **N.Sekhon**, P. L. Sullivan, A. A. Garcia, J.B. Heffernan, W. D. Graham, “Carbonates in the Critical Zone,” *Earth’s Future*, DOI: [10.1029/2022EF002765](https://doi.org/10.1029/2022EF002765)
- 2022** **Sekhon, N.**, C.P.C. David, M.C.M. Geronia, M.J.G. Custado & D.E. Ibarra, “Investigating the response of hydrological processes to El Niño events using a 100- year dataset from the western Pacific Ocean,” *Journal of Hydrology: Regional Studies* DOI: [10.1016/j.ejrh.2022.101174](https://doi.org/10.1016/j.ejrh.2022.101174)
- David, C.P., M.J., Custado, **N. Sekhon** & D.E. Ibarra, “Forecasting tropical ENSO-induced drought conditions using sea surface heights in the Western Pacific,” *All Earth*. DOI: [10.1080/27669645.2022.2089484](https://doi.org/10.1080/27669645.2022.2089484)
- 2021** Gallagher, T., L. Serach, **N. Sekhon**, H. Zhang, H.Wang, S. Ji, C. Xi, H Lu, & D.O. Breecker, “Regional patterns in Miocene-Pliocene aridity across the Chinese Loess Plateau revealed by high resolution records of paleosol carbonate and

- occluded organic matter,” *Earth and Planetary Science Letters*. DOI: 10.1029/2021PA004344
- 2020** Sekhon, N., V. F. Novello, F. A. Cruz, B.E. Wortham, T.G.R. Ribeiro, & D. O. Breecker, “Diurnal to seasonal cave ventilation in Brazilian Caves,” *Global and Planetary Change*. DOI: 10.1016/j.gloplacha.2020.103378
- Sekhon, N., T. Beach, S. Krause, & S. Eshleman, “Understanding climate trends in Central America through practical problem-based learning,” *Journal of Geography in Higher Education*. DOI: 10.1080/03098265.2020.1833318
- Griffiths, M.L., K.R. Johnson, F.S.R. Pausata, J.C. White, G.M. Henderson, C.T. Wood, H. Yang, V. Ersek, C. Conrad & N. Sekhon, “Mid-to-Late Holocene Megadroughts in the Middle Mekong Basin Linked to Global Climate Changes,” *Nature Communications*. DOI: 10.1038/s41467-020-17927-6
- 2019** Oster, J. L., S. F. Warken, N. Sekhon, M. M. Arienzo, & M. Lachniet, “Speleothem Paleoclimatology for the Caribbean, Central America, and North America,” *Quaternary*. DOI: 10.3390/quat2010005
- Comas-Bru, L., S.P. Harrison, M. Werner, K. Rehfeld, N. Scroxton, C. Veiga-Pires, & SISAL Working Group Members, “Evaluating model outputs using integrated global speleothem records of climate change since the last glacial,” *Climate of the Past*. DOI: 10.5194/cp-15-1557-2019
- 2018** Atsawawanunt, K, S. Harrison, L., Comas-Bru, & SISAL Working Group Members, “The SISAL database: a global resource to document oxygen and carbon isotope records from speleothems,” *Earth System Science Data*. DOI: 10.5194/essd-10-1687- 2018

#### Work In Progress (Lead Author Only)

- Sekhon, N.**, Geronia MC, Wolf A., Belanger BK, Custado JM, Gao A\*, Geraldles M\*, Kong-Johnson C\*, Tabujara S, Gatdula J, Waldek A, David CPC, Ibarra DE, “Discerning hydrological processes and climate dynamics driving modern hydroclimate variability across multiple cave systems covering a 10° latitude distribution in the Philippines”, *Submission to Hydrology and Earth System Sciences*
- Sekhon, N.**, C Kong-Johnson\*, M Geraldles-Vega\*, X Du, MCM Geronia, BB Belanger, CPC David, D McGee, JL Oster, DE Ibarra, “How did Heinrich Events (3-5) modulate the hydroclimate in the deep tropics?”, *Submission to Communications earth & environment*

#### AWARDS & FELLOWSHIPS

- |           |   |
|-----------|---|
| 2025      | Flash Teaching Award for Spring 2025 through the Center for Teaching Excellence (CTE) – Student Nominated |
| 2023      | Geological Society of America Karst Division Early Career Award   |
| 2022      | Brown’s Postdoctoral Excellence Award for Research/Teaching   |
| 2021-2023 | Voss Postdoctoral Research Associate & Presidential Postdoctoral Fellow                                   |
| 2020-2021 | Graduate Student Continuing Fellowship. University of Texas at Austin                                     |

2017	Jackson School of Geosciences Independent Study Fellowship. University of Texas at Austin
2014	Outstanding Senior in Earth and Environmental Sciences. University of California at Irvine Honors in Earth System Sciences, Chancellor's Award for Excellence in Research, Phi Beta Kappa Honor Society. University of California at Irvine.
2012-2013	Maria Rebecca and Maureen Bellettini Award. University of California Education Abroad Program

#### **GRANTS and AWARDS (>5,000\$)**

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2025	<p>National Science Foundation's Paleo Perspectives on Present and Projected Climate call Collaborative Research: <b><i>RUI: Constraining the Tropical Hydroclimate Response to Periods of Abrupt Climate Change Using Cave Deposits, Cave Monitoring, Climate Model Outputs</i></b> Oxy Budget (Lead PI): \$313,621 (2025-2028)</p> <p>National Science Foundation's Paleo Perspectives on Present and Projected Climate call Collaborative Research <b><i>Investigating the Drivers of Regionally Coherent Meridional Variability Across the Australian and Asian Monsoons Over the Common Era</i></b> Oxy Budget (Co-PI): \$120,364 (2025-2028)</p> <p>Occidental's Faculty Led Richter Grant: <b><i>Assessing how anthropogenic activities are altering water quality in tropical rivers through geochemistry.</i></b> \$ 18,000 (Sole PI; Summer 2026)</p> <p>Occidental's Young Initiative Award with Prof. Amy Holmes-Tagchungdarpa, <b><i>Indigenous Wellbeing and Soils in the Sikkim Himalayas: Climate and Culture in Global Affairs</i></b> \$5,000 <u>Submitted 10/25/2025</u> through Rolex Explorers Club grant Call, <b><i>Exploring caves in Northwest India</i></b> Sole PI: \$20,000</p>
2021-2023	Voss Postdoctoral Research Associate & Presidential Research Fellowship \$148,000
2021-2022	National Cave and Karst Research Institute Seed Grant, Co-PI: Utilizing Stalagmites from the Philippines (USPS): Quantifying and understanding interannual hydroclimate variability in the Philippines through cave monitoring and stalagmite analyses. \$24,991
2019	National Cave and Karst Research Institute Fellowship for Research \$5,000

## **GRANTS (<5,000\$)**

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2025	Occidental's Flash Grant with Prof. Shana Goffredi (Dept. of Biology), <b><i>Microbial Communities in Philippines Caves</i></b> \$500 Occidental's Flash Grant with Prof. Amy Holmes-Tagchungdarpa (Dept. of Religious Studies), <b><i>Soils in the Sikkim Himalayas: A Convergence of Climate and Culture</i></b> \$500 WINGS Women of Discovery Flag Carrier Grant: <b><i>Studying the changes in the Indian Summer Monsoon in NW India.</i></b> Sole PI: \$3,000 Occidental's Faculty Enrichment Grant: <b><i>How did tropical rainfall respond to periods of past rapid climate change?</i></b> \$2,500
2022	Kart Records IX Travel Grant, Karst Records Meeting, Innsbruck, Austria \$884
2020	Geological Society of America Graduate Student Research Grant, \$1,375.
2019	Jackson School of Geosciences Match Grant, \$1,000. Patty Daw Memorial Grant, \$752.
2018	Cleveland Grotto Science Fund, \$1,610. DeFord Field Scholarship, \$1,500. Jackson School of Geosciences Match Grant, \$1,000.
2017	Graduate Research Grant for Cave and Karst Research, \$2,000. Jackson School of Geosciences Match Grant, \$1,000. DeFord Field Scholarship, \$1,500. Geological Society of America Graduate Student Research Grant, \$1,750.
2015	Muehlberger Field Scholarship Off-Campus Summer Research, \$1,500. ANSTO Grant, 2 <sup>nd</sup> Summer School in Speleothem Sciences, \$1,500.

## **COURSES AS INSTRUCTOR**

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### **Occidental College**

GEO105- Earth: Our Environment (Spring 2024; Spring 2025; Fall 2025; Spring 2026);  
GEO210- Water in a Changing World (Spring 2024; Fall 2025); GEO297 – Climate in the Philippines (Spring 2026); GEO380- Environmental Geochemistry (Fall 2024); GEO491- Senior Seminar (Fall 2024; Fall 2025)

### **Brown University**

Historical Climatology and Global Climate Change (Co-Instructor on Record, Fall 2022);

## **UNDERGRADUATE RESEARCH STUDENTS**

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### **Occidental College**

Mira Hart (Oxy '26, *Investigating the hydroclimate response in the Philippines to periods of Rapid Climate Change*; Spring 2024, Fall 2024-Present; Directed Research; **Funded by URC SRAP Spring 2024, URC ASP Research Travel, URC SRP Summer 2025, CCF Fellow**)

Alex Witten (Oxy '26, *Using Machine Learning algorithms to find caves in northwest India*; Spring 2025-Present; Directed Research) – with Dr. Magaret (Maggie) Furtner at the National Cave and Karst Research Institute

Christopher Cronk (Oxy '26, *Investigating Sikkim Soils*; Fall 2025-Present; Directed Research) – Co-Advised with Prof. Amy Holmes-Tagchungdarpa

Solvej Lee (Oxy '26, *Investigating Sikkim Soils*; Fall 2025-Present; Directed Research) – Co-Advised with Prof. Amy Holmes-Tagchungdarpa

Street Senan (Oxy '27, *Reconstructing a paleoclimate record from a speleothem in the Philippines*; Spring 2025-Present; Directed Research; **Funded by URC SRP Summer 2025**)

Jivleen Parmer (Oxy '27, *Writing standard of procedure for drilling instrument, sawing stalagmite samples, and general WICK Lab upkeep*; Fall 2024, Spring – Fall 2025; Funded by **URC SRAP Fall 2024**; Directed Research)

Reyli Ramirez (Oxy '27, *Setting up the Water Isotope Climate and Karst Lab*; Summer 2024; **Funded by URC REAP**)

Mae Stone (Oxy '27, *Delineating watersheds in the Sierra Nevada's to Understand Impact of Wildfire to Water Recharge*; Fall 2024; Directed Research)

Grace Meadows (*Critical Theory Social Justice Major and Geology Minor*; Oxy '25, *Exploring the Relationship Between Karst of the Mojave Desert and the Southern Paiutes*; Summer 2024; **Funded by URC SRP**)

Now: Los Angeles City Council District 1

#### **Brown University** (co-supervised with Prof. Dan Ibarra)

Celia Kong-Johson (BA, Geology-Chemistry, Applied Mathematics, 2025)  
**Honors Thesis:** Late Holocene hydroclimate variability in the Philippines  
 Now: Graduate student at UC Berkely

Annabelle Gao (BA, Geology-Chemistry, 23)  
 Resulted in two publications: See Sekhon et al., 2025; Sekhon et al., In Prep  
 MSc, Environmental Geoscience, Aix-Marseille University  
 Now: Graduate student at Boston University

Christina Marsh (BA, Environmental Analytics Program, Pomona College, 2023)  
 NSF REU summer student at Brown University resulted in publication (See Marsh et al., 2025)  
 Now: Graduate student at University of Southern California

#### **The University of Texas at Austin** (co-supervised with Prof. Jay Banner)

Rachel Wright (BS Geosciences, 2018), **Senior Thesis:** Correlating growth banding in Texas speleothems: Paleoclimate Implications. (MSc, Hydrogeology, UC Davis).  
 Now: California State Water Resources Control Board

Kara Posso (BS Geosciences, 2017), **Senior Thesis:** Geochemical and physical response of central Texas cave drip water to changing climate conditions.  
Now: Zara Environmental Consulting, Austin, TX

## CONFERENCE ABSTRACTS

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#Talk | ‡Invited Talk | \*Poster | ^Student Mentee

- 2026**      **N Sekhon**, ^S Senan, ^MZ Hart, ^C Kong-Johnson, J Yambing, X Du, ^MG Vega, BK Belanger, MCM Geronia, S Jalandoni, CP David, JL Oster, D McGee, DE Ibarra, "Reconstructing Tropical Hydroclimate Variability using Speleothems from the Philippines During Abrupt Climate Events," *Submitted to EGU 2026, Vienna, Austria*  
^MZ Hart, ^S Senan, J Yambing, ^MG Vega, BK Belanger, ^C Kong-Johnson, MCM Geronia, S Jalandoni, CP David, JL Oster, D McGee, DE Ibarra, **N Sekhon**, "Using stalagmite geochemistry to reconstruct paleoclimate in the Philippines during Heinrich Events," *Submitted to EGU 2026, Vienna, Austria*
- 2025**      ^S Senan, ^MZ Hart, J Yambing, ^MG Vega, BK Belanger, MCM Geronia, S Jalandoni, CP David, JL Oster, D McGee, DE Ibarra, **N Sekhon**, "Reconstructing Paleoclimate from 44 -11 kya in the Philippines using the Geochemistry of a Stalagmite Sample," *GSA Connects 2025, San Antonio, TX*  
^#MZ Hart, ^S Senan, J Yambing, ^MG Vega, BK Belanger, ^C Kong-Johnson, MCM Geronia, S Jalandoni, CP David, JL Oster, D McGee, DE Ibarra, **N Sekhon**, "Using stalagmite geochemistry to reconstruct paleoclimate in the Philippines during Heinrich Events," *GSA Connects 2025, San Antonio, TX*  
E Kostecki, C Borlina, J Feinberg, ^S Senan, **N Sekhon**, D Ibarra, J Yambing, D McGee, "Using speleothems to study magnetic excursions and environmental conditions in the Philippines," *Mineralogical Society of America 2025, AZ*  
^M Gerald Vega, **N Sekhon**, ^C Kong-Johnson, H Tompkins, BK Belanger, S Jalandoni, CP David, MCM Geronia, D McGee, JL Oster, K Cobb, DE Ibarra, "Moisture Source vs Rainfall Amount in a Last Interglacial Stalagmite from the Philippines," *2025 American Geophysical Union Fall Meeting, New Orleans*.  
M Wittmer, D McGee, J Shakun, J Woodhead, P Swart, A Martinez-Garcia, R Braun, A Jost, **N Sekhon**, "A Northwestern Canadian speleothem calcite  $\delta^{18}O$  and TEX86 record from interglacial Marine Isotope Stage 11," *2025 American Geophysical Union Fall Meeting, New Orleans*.  
\***N Sekhon**, ^C Kong-Johnson, ^M Gerald Vega, X Du, MCM Geronia, BK Belanger, CP David, D McGee, JL Oster, DE Ibarra, "Discerning hydroclimate conditions in the Indo-Pacific Warm Pool during Heinrich Events," *10th International Climate Change: Karst Records Meeting, Cape Town, South Africa, March 2025*  
\*^M Gerald Vega, **N Sekhon**, ^C Kong-Johnson, B Belanger, S Jalandoni, CP David, MCM Geronia, D McGee, JL Oster, K Cobb, DE Ibarra, "Late Pleistocene

high resolution speleothem record from the Philippines provides insight into Southeast Asian monsoon dynamics at varying frequencies,” *10th International Climate Change: Karst Records Meeting*, Cape Town, South Africa, March 2025

## 2024

\*^M Gerald Vega, **N Sekhon**, ^C Kong-Johnson, B Belanger, S Jalandoni, CP David, MCM Geronia, D McGee, JL Oster, K Cobb, DE Ibarra, 2024, “Late Pleistocene, high resolution speleothem record from the Philippines provides insight into Southeast Asian monsoon dynamics at orbital to decadal scales.” *2024 American Geophysical Union Fall Meeting*, Washington DC.

#^C Kong-Johnson, **N Sekhon**, ^M Gerald Vega, B Belanger, S Jalandoni, NS Dela Cruz, CP David, MCM Geronia, K Cobb, J Oster, D McGee, DE Ibarra, 2024, “Comparison of two Philippines speleothem records from the late Holocene to discern the relationship between southeast Asian monsoon systems.” *2024 American Geophysical Union Fall Meeting*, Washington DC.

#^G Meadows, A. Garcia, L. Naylor, K. O. Irving, E. Nicolau, **N Sekhon**, “Understanding the Relationship Between Springs in the Mojave Desert and the Southern Paiutes,” *GSA Connects 2024*, Anaheim, CA.

DE Ibarra, S Miller, MJ Custado, CW Kinsley, BK Belanger, **N Sekhon**, CA Gagnon, W Sharp, JL Oster, “INVESTIGATING LATE PLEISTOCENE STABLE ISOTOPE SYSTEMATICS OF LAKES IN THE WESTERN UNITED STATES.” *AMQUA 2024*.

MJ Custado, CA Gagnon, B Belanger, **N Sekhon**, J Bernstaein-Schalet, CW Kinsley, WD Sharp, JL Oster, DE Ibarra, “Insights into the hydrological balance of Bear Lake (Utah-Idaho) through stable water isotope analysis.” *GSA Connects 2024*, Anaheim, CA.

‡DE Ibarra, **N Sekhon**, C Kong-Johnson, A Gao, BK Belanger, MJ Custado, D McGee, S Mallick, CPC David, MCM Geronia, S Jalandoni, JB Gatdula, N Santos Dela Cruz, M Gerald Vega, JL Oster, 2024, “Developing an understanding of modern and past hydroclimate variability impacts on tropical island nations: A case study from the Philippines.” *GSA Connects 2024*, Anaheim, CA.

DE Ibarra, S Miller, MJ Custado, CW Kinsley, BK Belanger, **N Sekhon**, CA Gagnon, W Sharp, JL Oster, 2024, “INVESTIGATING LATE PLEISTOCENE STABLE ISOTOPE SYSTEMATICS OF LAKES IN THE WESTERN UNITED STATES.” *GSA Conncets 2024*, Anaheim, CA.

^K Neydon, A Garcia, A Acosta-Colon, **N Sekhon**, DE Ibarra, MG Vega, “CHARACTERIZING PALEOCLIMATIC DATA USING PUERTO RICAN STALAGMITES AS ARCHIVES,” *Geological Society of America Southeastern Section Meeting*, Ashville, NC, USA

## 2023

^C Kong-Johnson, **N Sekhon**, CPC David, D McGee, DE Ibarra, “Insights into paleorainfall variability in the Philippines using the geochemistry of a speleothem spanning 28 to 51 kyrs BP,” *AGU Fall Meeting*, San Francisco, CA, USA

‡**N Sekhon**, ^C Kong-Johnson, ^A Gao, BK Belanger, **MJ Custado**, D McGee, S Mallick, CPC David, MCM Geronia, S Jalandoni, JB Gatdula, N Santos Dela Cruz, M



Geraldes Vega, JL Oster, DE Ibarra, "Developing an understanding of modern and past hydroclimate variability impacts on tropical island nations: A case study from the Philippines," *AGU Fall Meeting*, San Francisco, CA, USA

‡**N Sekhon**, ^A Gao, BK Belanger, CPC David, MCM Geronia, S Jalandoni, JB Gatdula, N Santos Dela Cruz, M Geraldes Vega, DE Ibarra, "What it takes to develop speleothem records: a deep-dive into the transfer functions between climate and geochemistry in tropical cave systems from the Philippines," *Geological Society of America Fall Meeting*, Pittsburgh, PA, USA

#**N Sekhon**, ^A Gao, CPC David, MCM Geronia, S Jalandoni, JV Gatdula, NSD Cruz, DE Ibarra, "Leveraging Stable Isotope and Trace element Geochemistry From Continuous Cave Monitoring to Discern Tropical Hydroclimate Variability in the Philippines," *Goldschmidt Conference*, Lyon, France

\***N Sekhon**, ^A Gao, CPC David, MCM Geronia & DE Ibarra, "Insights into tropical hydroclimate using cave dripwater and modern calcite geochemistry from multiple caves in the Philippines," *IAEA International Symposium on Isotope Hydrology*, Vienna, Austria

## 2022

^Marsh, C., **N. Sekhon**, T. Beach, D. McGee & D.E. Ibarra, "Late Holocene hydroclimate changes recorded in  $\delta^{18}\text{O}$  of a stalagmite from Cueva De La Fabrica, Colombia," *Geological Society of America Fall Meeting*, Denver, CO, USA

#**Sekhon, N.**, ^A. Gao, J.W. Partin, S. Mallick & D.E. Ibarra, "Advancing standardization of carbonate LA-ICP-MS analyses using a speleothem sample from the tropic," *Geological Society of America Fall Meeting*, Denver, CO, USA

#**Sekhon, N.**, C.P.C. David, M.C.M. Geronia, M.J.G. Custado & D.E. Ibarra, "A 100 Year Paired River Discharge and Rainfall Data Investigation Into Tropical Droughts in the Philippines Over Interannual Timescale," *Asia Oceania Geosciences Society*, Virtual

\***Sekhon, N.**, ^A. Gao, J.W. Partin, S. Mallick & D.E. Ibarra, "In-situ trace element analyses of a speleothem from the tropics to track paleoflood events through the Holocene," *Karst Records IX Climate Change Meeting*, Innsbruck, Austria

## SELECTED INVITED TALKS

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Voss Symposium, Institute at Brown for Environment Studies	September, 2025
Brown University, Providence, RI	
Rocky Mountain Geobiology Symposium Keynote Speaker	April, 2025
New Mexico Tech, Socorro, NM	
University of Houston: Spring Seminar Series	April, 2025
Department of Earth and Atmospheric Sciences	
20th Philippine Speleological Society (PSS) National Cave Congress	November, 2024
Invited Lecture Via Zoom	
Earth Science Women's Network	November, 2024
Start-Up Setup and Negotiations in Academic Position Panel	
SoCal Grotto Lecture Series	May, 2024

CalTech	
Vanderbilt University: <i>Spring Seminar Series</i>	March, 2024
Department of Earth and Environmental Sciences	
Utrecht University: <i>Spring Seminar Series</i>	February, 2023
Department of Earth Sciences ( <u>Declined due to Visa Timeline</u> )	
University of California, Irvine: <i>Spring Seminar Series</i>	February, 2023
Department of Earth System Sciences	
Occidental College: <i>Fall Seminar Series</i>	November, 2022
Department of Geology	
Washington and Lee University: <i>Fall Seminar Series</i>	November, 2022
Department of Earth and Environmental Geosciences	
James Madison University: <i>Fall Seminar Series</i>	November, 2022
Department of Geology, Geography, and Environmental Studies	
Brown University: <i>Co-Shared Fall Colloquium</i>	September, 2022
Department of Earth, Environmental, and Planetary Sciences	
Cagayan Museum and Historical Research Center Presentation	April, 2022
Tuguegarao City, Philippines	
Brown Alumni Club of Hawaii: <i>Back to Class Technical Event with Prof. Ibarra</i>	March, 2022
Virtual Event	
Department of Geology and Geography	November, 2021
Mount Holyoke College: <i>Fall Seminar Series</i>	
Department of Earth, Environmental and Planetary Sciences, Climate and	November, 2021
Environment Seminar, <i>Brown University</i>	
School of Geosciences, Geosciences Seminar Series	April, 2021
<i>University of Louisiana at Lafayette (Virtual)</i>	
Department of Geology, Palmer Geology Lecture Series	March, 2021
<i>Kent State University (Virtual)</i>	
Environmental Studies Program, Spring Seminar Series	February, 2021
<i>University of Portland (Virtual)</i>	
Department of Geological Sciences, Water, Climate, and	November, 2018
Environment Seminar, <i>University of Texas at Austin</i>	

## SERVICE

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### College-wide Service at Occidental College

International Program Office Committee	<b>AY/2024-Present</b>
First Year Advisor	<b>AY/2024-Present</b>
Guest Lecture in Prof. Darren Larsen's <i>Earth's Climate: Past and Future</i> (GEO245) class through CTE's Guest Faculty Program	<b>Nov 2025</b>
Guest Lecture in Prof. Amy Holmes-Tagchungdarpa's <i>How to Live in the Midst of Dying - Religion and Climate Change</i> (RELS120) class through CTE's Guest Faculty Program	<b>Jan 2025</b>
Guest Lecture in Prof. Malek Moazzam-Doulat's <i>Climate, Refugees and Global Authoritarianism</i> (CTSJ108) class	<b>Jan 2025</b>

Panel member on 'The Causes and Consequences of the LA fires' – Choi Auditorium	<b>Jan 2025</b>
Panel member for the Nepal Film Festival's Climate Change night – Fowler 302	<b>Apr 2025</b>
Participant in URC's Student Research Assistant Program Lightning Talk with Mira Hart - Mosher 1	<b>Apr 2025</b>
Panel member for Board of Trustees June Retreat	<b>Jun 2025</b>
Oxy Melt Summer Volunteer	<b>Jun-July 2025</b>
Data Science Ad-Hoc Committee	<b>Fall/2024</b>

### **Departmental**

Updating Occidental Geology Website	<b>Spring 2026</b>
Member of Geology Department TOP Search Committee	<b>Spring 2024</b>
Member of Geology Department NTT Search Committee	<b>Fall 2024, Fall 2025</b>
Senior Comps Reader for Shayne Klisura ( <b>Spring 2024</b> ), Avya Sloo ( <b>Spring 2025</b> )	
HHMI Day Long workshop on DEI initiatives for students in Geology	<b>Summer 2024</b>
T3 Position Request	<b>Fall 2024</b>
Geology Department Self-Study Report	<b>Spring-Fall 2025</b>

### **Service to the Profession**

#### **Peer Review**

Geochemistry, Geophysics, Geosystems, Frontiers in Earth Sciences, Science, Geophysical Research Letters, Journal of Hydrology, Geochimica et Cosmochimica Acta, Geology, Rapid Communications in Mass Spectrometry, Chemical Geology, Communications earth & environment

#### **Service**

Geological Society of America Karst Division	<b>April 2025 - Present</b>
Karst Water Institute	– Treasurer
	– Board Member

#### **Panelist**

National Science Foundation Reviewer: CAREER and GEO-EMBRACE	<b>Sept 2024</b>
Submissions under the Directorate for Geosciences	
National Cave and Karst Research Institute SEED Grant	<b>Aug 2024</b>

#### **Convening Sessions at Professional Meetings**

*At Geological Society of America Fall Meeting:* Co-Convening T140. Karst Hydrology and Hydrogeology; T142. Frontiers in Karst Research; Chair for T141. Karst Sedimentary and Paleoclimate Records **2022-Present**

*At American Geophysical Union Fall Meeting:* Co-Convening PP01. South-East Asia and the Indo-Pacific: Past, Present, and Future Climate and Environment **2024**

*At International Union for Quaternary Research:* Co-Convening Understanding hydroclimate variability using records from speleothems, marine sediments, and data-model comparison approaches; Chair for Wildfire Through Time: Integrating Paleofire Records, Climate Models, and Ecosystem Dynamics **2027**

**SISAL North America Regional Coordinator** **2017-Present**

Work with members of the North America regional team, led by Prof. Jessica Oster, to

organize, compile, and interpret existing published stalagmite records from North and Central America. SISAL is a PAGES funded initiative to increase interaction between researchers interested in paleoclimatology, karst, and stalagmites.

### Workshops and Professional Development

Invited to participate in MIT-Boston College joint Nahanni NP Field Expedition  
 'Exploring sub-arctic cave systems in Canada for climate change' July, 2025  
 Invited to participate in MIT-Boston College joint Nahanni NP Field Expedition  
(Declined due to Visa Timeline) August, 2024  
 Early Career Geoscience Faculty: Teaching, Research, and Managing Your Career,  
 Macalester College, Saint Paul, MN Jun. 23-27, 2024  
 Carbonate Critical Zone Florida Workshop (Gainesville, Florida) April 4-6, 2022  
 SISAL 5<sup>th</sup> Workshop Virtual Participant Feb 28 – March 4, 2022  
 Carbonate Critical Zone Virtual Workshop August, 2020  
 Introduction to Remote Sensing for Tribal Lands October 6-29, 2020  
 HYSPLIT Workshop Participating Member (online) June 22-25, 2020  
 SISAL 4<sup>th</sup> Workshop Participant (Xi'an, China) October 14-18, 2019  
 SISAL 3<sup>rd</sup> Workshop Participant (Agadir, Morocco) October 8-12, 2018  
 2<sup>nd</sup> Summer School in Speleothem Sciences (Oxford, UK) August 21-27, 2015

### FIELD CAMPAIGNS

Year	Role	Location	Responsibilities
2022- Present	Primary Co-ordinator	Philippines	Field campaign working with collaborators in the Philippines to set up cave monitoring networks in three caves (3 National Parks) for monthly cave variable collection. Responsible for all logistics planning and scientific questioning.
2017-2020	Primary Co-ordinator	New Mexico	Set up and led bi-monthly to bi-weekly trips to Sitting Bull Falls for active cave, stream, rainfall monitoring. Responsible for all logistics planning and scientific questioning.
2017-2021	Primary Co-ordinator	Texas	Led monthly cave monitoring trips to Inner Space Caverns, Westcave, Natural Bridge Caverns, Cave Without A Name for cave monitoring. Trained

Spring 2018	Graduate Field Assistant	Central Texas	undergraduate students for the same. Part of Dr. Banner's Central Texas cave monitoring expeditions. Karst Hydrogeology field course that involved setting up LTC loggers, ISCO deployments, charcoal dye tracing, stream discharge measurements. PI: Dr. Marcus Gary
May-June 2016	Field Assistant	Northwestern Belize	Assisted with soil excavation pits in wetlands, sampling for radiocarbon and stable isotope analysis, tree IDs using DFW, water sampling, sieving anthropological sites to investigate Environmental Changes in the Maya Lowlands. PI: Dr. Tim Beach. CDT sediment traps redeployment and
November 2015	Graduate Field Assistant	Gulf of Mexico	maintenance on R/V Point Sur with PhD student Kaustubh Thirumulai. PI: Dr. Terry Quinn.

## PRESS COVERAGE

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<b>2025</b>	<a href="#">An Underground History of Climate Change</a> Occidental Magazine Spring 2025
<b>2024</b>	<a href="#">Institute at Brown for Environment and Society: 10 Voss Postdoc Spotlight</a> <a href="#">NPR's The Academic Minute</a> with Rachael Warecki, Director of Communications at Occidental College <b>Sekhon N</b> , et al., Tracking Hydroclimate Extremes from Deep In The Tropics; Past Global Changes Horizon, 3, 13-19, 2024 Magazine July 2024, doi.org/10.22498/pages.horiz.3.13
<b>2023</b>	<a href="#">Natural History Museum Abu Dhabi</a> Climate Change Exhibition (opening in 2025), filmed exhibition segment at Brown University (September 2023) Guest post: Pal(a)eoPERCS. EGU Blogs, Biogeosciences Division ( <a href="https://blogs.egu.eu/divisions/bg/2023/03/28/guest-post-palaeopercs/">https://blogs.egu.eu/divisions/bg/2023/03/28/guest-post-palaeopercs/</a> ) <a href="#">PAGES ECN North America</a> : Show and Tell with Dr. Natasha Sekhon and graduate student, Riley Havel
<b>2022</b>	A global palaeo-science community: an interview with Pal(a)eoPERCS. <i>Commun Biol</i> 5, 978 ( <a href="https://doi.org/10.1038/s42003-022-03936-2">https://doi.org/10.1038/s42003-022-03936-2</a> ) <a href="#">High Country Magazine September Issue</a> for collaborative project in Utah, Idaho, Wyoming

### Professional Societies

Geological Society of America | American Geophysical Union | European Geosciences Union | National Speleological Society | Past Global ChangES (PAGES)

### SKILLS

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Communication: public speaking, writing articles for general audiences, radio/disc jockey for UCI and UT Austin Radio Shows, radio interviews at ACL and SXSW with musicians (eg. Jose Gonzalez, Of Monsters and Men)

Computer: Python (Proficient), Adobe Creative Suite (Illustrator, InDesign, Photoshop) (Proficient), MySQL Workbench (Intermediate), LaTeX (Intermediate), Matlab (Intermediate), ImageJ (Intermediate), ArcGIS (Beginner)

Laboratory: Drilling carbonates (paleosols, stalagmites, corals, forams) using a dental drill, Dremel, and New Wave micromill and CNC mill setup, preparing, analyzing, and reducing data of carbonate samples for traditional stable isotopes using an IRMS (MAT253, Delta Thermo V) attached to a KIEL III, IV, Gas Bench, water sample analyses using an IRMS attached to a continuous flow Gas Bench ( $d^{18}O$ ) and TCEA ( $dD$ ), sample preparation and analyzes of waters for L2130 Picarro Cavity Ring Down Spectrometer, sample preparation for organic carbon  $d^{13}C$  and  $d^{15}N$  using an EA attached to an IRMS, water sample preparation (diluting and pipetting) for solution mode ICPMS with a Quadruple sample introduction for trace element concentrations, stalagmite sample preparation, analysis and data reduction (LA-tools package for Python) for LA-ICP-MS analysis of trace element concentrations, preparation of modern cave calcite growth analysis for traditional isotopes and trace element analysis, Confocal Fluorescent Laser Microscope and XRCT imaging of stalagmite sections/cores, XRD analysis, U-Series column chemistry.

Field: ISCO and LTC deployments in surface waters, cave-air monitoring for  $CO_2$ , temperature, relative humidity variability, cave dripwater monitoring set up to collect dripwaters, calculate drip rate to quantify epikarst processes, Ultrameter II for water temperature, pH, TDS, conductivity measurements, modern cave calcite plate deployments to measure modern cave precipitation variability, proficient in surface and cave water and soil sampling, hand held coring equipment to extract stalagmite cores, belay and SRT certified, REI First Aid Training, LAFD's CERT Training Certificates

Languages: English (Native, C2), Hindi (C2), Punjabi (C2), French (Working or Conversational, B2), Spanish (B2), Turkish (Beginner, A1)