

# Patricia A. Beddows

Department of Earth & Planetary Sciences | Environmental Science Program  
Northwestern University

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## PROFESSIONAL FOCI

- Leadership in earth and environmental science education and program development
- Problem-based learning (PBL) and experiential education beyond the classroom
- Open-source instrument hardware and software development, for underwater and remote research
- Karst, and caves - hydrogeology, geomorphology, geochemistry, and sedimentology
- Active dynamics and paleo records of sea level, climate change, and landscape evolution
- Applied research includes water resources, contaminant transport, and geo-archaeology

## EDUCATION

Post-Doctoral Fellow, School of Geography & Earth Sciences, McMaster University, Canada 2004–2008  
Funding - Canadian Foundation for Climate & Atmospheric Science (CFCAS).  
Mentors – Profs. Henry Schwarcz and Derek Ford  
Holocene Paleotemperature Records from Stable Isotopic Analysis of Speleothems, & Fluid Inclusions

Ph.D. School of Geographical Sciences, University of Bristol, UK 1999 – 2004  
Groundwater Hydrology of a Coastal Conduit Carbonate Aquifer: Caribbean Coast of the Yucatán Peninsula, México. 303 p. Mentors – Profs. Peter Smart & Fiona Whitaker

M.Sc. Geography & Geology, McMaster University, Canada. Mentor – Prof. Derek Ford 1996 – 1999

B.A. Geography & Geology, McMaster University, Canada 1991 – 1995

## AWARDS, HONORS, AND FELLOWSHIPS

**NU Phi Beta Kappa Award for Advocacy and Mentorship – Inaugural awardee** 2023  
For “inventive, indefatigable boosterism”

**Women Divers Hall of Fame** 2021  
International professional honor society for outstanding contributions to the exploration, understanding, safety and enjoyment of our underwater world and support the underwater world.

**ASG – Associated Student Government – Faculty Honor Roll** 2018  
Recognition for problem-based learning course, EARTH 360: Field Methods and Instrumentation

**SAF Field Discovery Awards. Research team member.** 2017  
*Proyecto Arqueológico Subacuático Hoyo Negro, Tulum, Quintana Roo (Underwater Archaeological Project Hoyo Negro, Tulum)*. Archaeological excavations and surveys that have yielded major discoveries significantly furthering or even altering our knowledge of the human past, locally and/or globally.

**WCAS Weinberg College Arts and Sciences Alumni Teaching Award** 2015  
Recognized for excellence as an undergraduate teacher. \$5000 award.

**2015 Hackaday Prize Quarter-Finalist: Build Something that Matters** 2015  
Joint with Edward Mallon. Technology development challenge. Quarter finalist for open-source long-lived datalogger hardware+software. The Cave Pearl Project. <https://hackaday.io/project/6961-the-cave-pearl-project>

**Overseas Research Studentship (ORS) Award (3 years), from "Universities UK" £58 200** 1999 – 2002

**1<sup>st</sup> Place - Canadian Productivity Award – Institutional Division** 1994  
Inaugural employee/developer at Custom Course Ware (CCW) – see employment below.

## EMPLOYMENT &amp; APPOINTMENTS

**Northwestern University, IL, USA**

Director, Environmental Science Program	Fall 2019 – present
Assistant Chair, Earth & Planetary Sciences	2008 – present
Associate Professor of Instruction, Earth & Planetary Sciences	Spring 2019 – present
Assistant Professor of Instruction, Earth & Planetary Sciences	2014 – 2019
Lecturer, Earth & Planetary Sciences	2008 – 2014

**McMaster University, ON, Canada**

Post-Doctoral Research Fellow, School of Geography & Earth Sciences	2004 – 2008
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**Custom Course Ware (CCW), McMaster University Bookstore (full & part time)** 1993 – 1999

Full time	June 1995 – September 1996, and February 1997 - Sept. 1999
Integral in the development of “course pack” printing-on-demand business established 1992, novel at the time. Refined business practices: copyright contracts, scanning, compilation, meta-data management, and printing/binding as one of the first test sites for the Xerox Docutech.	

## RESEARCH FUNDING &amp; SUPPORT

2023-2024 \$10,000	<b>Beddows P.A.</b> , with collaborators King, R, and Villareal, M. <b>Buffett Institute for Global Affairs</b> - Global Connection Seed Grant
2015 – 2020 \$28,046 Sub-Award	<b>Beddows P.A.</b> , Glover J.B. (PI with +\$232k), with Rissolo D., Smith D.M., Goodman B. <b>National Science Foundation</b> – Division of Behavioral and Cognitive Science Collaborative Research: Investigation into Long Term Human Coastal Adaptation The Costa Escondida Project: An Interdisciplinary Investigation of Two Ancient Maya Ports and Their Surrounding Coastline
2019 \$1,000	Rosales-Lagarde, L. (PI), <b>Beddows, P.A.</b> <b>CUAHSI</b> - Consortium of Universities for the Advancement of Hydrologic Science, sponsored by National Science Foundation. Instrumentation Discovery Travel Grant. Pedagogical exchange of problem-based instrumentation course to Nevada State College, including peer-mentoring of Rosales-Lagarde in construction of Cave Pearl data loggers.
2018 \$28,436	van Hengstum, P. (PI), Donnelly J.P., Steadman D.W., Albury N.A., <b>Beddows P.A.</b> , Feakins S. <b>National Geographic Society</b> 15,000 years of disaster, drought, and deluges on a Caribbean Island: Implications for island biogeography, future climate change, and human migration in the tropical Americas
2014 – 2015 \$14,760	Mallon E.K. (PI), <b>Beddows P.A.</b> <b>National Geographic Society</b> / Waitt Grants Program #W331-14 The Cave Pearl – A DIY Submersible Data Logger for Research in Flooded Caves
2013 – 2015 \$28,399	<b>Beddows P.A.</b> Booster Grant. <b>Initiative for Sustainability and Energy at Northwestern (ISEN)</b> Discharge of Sequestered P and Fe with Impact on Coastal Carbonate Factories
2011 \$79,738	Glover J.B., Rissolo D., <b>Beddows P.A.</b> , Smith D.M., Goodman B. <b>National Oceanic and Atmospheric Administration (NOAA)</b> - Office of Ocean Exploration and Research The Costa Escondida Project: Exploring the Hidden World of the Maritime Maya
2010 \$13 800	<b>Beddows P.A.</b> Equipment Grant. <b>Initiative for Sustainability &amp; Energy at Northwestern (ISEN)</b> CR100 Climate Station

2009 – 2011	Lucero L. (PI), <b>Beddows P.A.</b>	
\$22 000	<b>National Geographic Society</b> - Research and Exploration Grant Diving the Sacred Pool at Cara Blanca, Belize.	
2001	Smart P.L. (PI), Whitaker F.F., <b>Beddows P.A.</b> , Smith S.L.	
£15 000	<b>Royal Geographical Society London</b> Ralph Brown Expedition Award	
2001	Smart P.L. (PI), Whitaker F.F., <b>Beddows P.A.</b> , Smith S.L.	
£10 000	<b>Royal Geographical Society London</b> Gilchrist Expedition Award	
1999 – 2002	Overseas Research Student Award (3 years), from "Universities UK"	£58 200
1999 – 2002	University Research Scholarship (3 years), University of Bristol	£81 000
1999 – 2002	Special Opportunity Grant, Federal Government of Canada. 3 awards	\$ 9 000
2002	British Geomorphological Research Group, Student Opportunity Grant	£ 200
2000 – 2002	University of Bristol Geographical Contingency Fund (2 awards)	£ 1 048
2000-2002	Alumni Foundation (2 awards)	£ 750
2001	Royal Society UK, Dudley Stamp Memorial Trust Award	£ 300
2000	Ghar Parau Award, Science Research Fund, British Cave Research Ass.	£ 900
1996 – 1998	Graduate Student Scholarship, McMaster University	\$22 000
1997	Graduate Studies Travel Bursary, McMaster University	\$ 500

## PUBLICATIONS – Peer Reviewed Articles & Edited Chapters

### \* Student contributions

Web of Science Indexed publications (22 underlined numbers)

H-Index: = 13. Average citations per item = 40

Google Scholar H Index = 20, Total citations > 2000

36. Osburn, M.R., \*Selensky, M.J., **Beddows, P.A.**, Jacobson, A., DeFranco, K., and G. Merediz-Alonso (2023) Microbial biogeography of the eastern Yucatán carbonate aquifer. *Applied and Environmental Microbiology*. 89(11): e01682-23 (co-advised Selensky on this PhD chapter project w/Osburn PI)
35. Bernal, J.P., Revolorio, F., Cu-Xi, M., Lases-Hernández, F., Piacsek, P., Lachniet, M. **Beddows, P.A.**, Lucia, G., López-Aguilar, K., Capella-Vizcaíno, S., López-Martínez, R. and O. Vásquez (2023) Variability of trace-elements and  $\delta^{18}\text{O}$  in drip water from Gruta Rey Marcos, Guatemala: Seasonal and environmental effects and its implications for paleoclimate reconstructions. *Frontiers in Earth Sciences*. 11:1112957. <https://doi.org/10.3389/feart.2023.1112957>
34. Glover, J.B, Rissolo, D., **Beddows, P.A.**, Jaijel, R., Smith, D., Goodman-Tchernov, B. (2022) The Proyecto Costa Escondida: Historical ecology and the study of past coastal landscapes in the Maya Area. *Journal of Island and Coastal Archaeology*. DOI10.1080/15564894.2022.2061652
33. Little, S.N., van Hengstum, P.J., **Beddows, P.A.**, Donnelly, J.P., Winkler, T.S., Albury, N.A. (2021) Unique habitat for benthic foraminifera in subtidal blue holes on carbonate platforms. *Frontiers in Ecology and Evolution – Special Issue "Living on the Edge: Biodiversity, Adaptation, and Evolution in Extreme Groundwater Habitats"*. 9: 794728. DOI: 10.3389/fevo.2021.794728
32. **Beddows, P.A.**, Mallon, E.K. (2018) Cave Pearl Data Logger – A flexible Arduino based logging platform for long-term monitoring in harsh environments. *Sensors*. 18, 530:1-26. DOI: 10.3390/s18020530. 9000+ pdf downloads and top 10% of publications in Altmetrics (Aug 2020).
31. \*Johnson, D.B., **Beddows, P.A.**, Flynn, T.M., Osburn, M.R. (2018) Microbial diversity and biomarker analysis of modern freshwater microbialites from Laguna Bacalar, Mexico. *Geobiology*, 16(3):319-337. DOI 10.1111/gbi.12283.

30. Jaijfel, R., Glover, J.B., Rissolo, D., **Beddows, P.A.**, Smith, D., Ben-Avraham, Z., Goodman-Tchernov, B. (2018) Coastal reconstruction of Vista Alegre, an ancient maritime Maya settlement. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 487:25-36. DOI: 10.1016/j.palaeo.2018.02.003
29. Jaijfel, R., Kanari, M., Glover, J.B., Rissolo, D., **Beddows, P.A.**, Ben-Avraham, Z., Goodman Tchernov, B.N. (2018) Shallow geophysical exploration at the ancient maritime Maya site Vista Alegre, Yucatan Mexico. *Journal of Archaeological Science: Reports*. 19:52-63. DOI: 10.1016/j.jasrep.2018.02.018
28. Chatters, J.C., Rissolo, D., Arroyo Cabrales, J., Stafford, T.W., Kemp, B.M., Alvarez, A., Nava Blank, A., **Beddows, P.A.**, Reinhardt, E., Kovacs, S., Collins, S., Morell Hart, S. Chavez Arce, R., Bird, S. and Luna Erreguerena, L. (2017) Hoyo Negro: Tapping the paleoanthropological and paleoecological potential of a deeply submerged underground chamber on the Yucatan Peninsula, Mexico (Ch.6) in Campbell, P.B. (ed) *The Archeology of Underwater Caves*. Highfield Press, p. 119-129.
27. **Beddows, P.A.**, Glover, J., Rissolo, D., \*Carter, A., Goodman, B., Jaijfel, R., Smith D. (2016) Proyecto Costa Escondida: Recent interdisciplinary research in search of freshwater along the North Coast of Quintana Roo, Mexico. *Water - Wiley Interdisciplinary Reviews*. 3(5):749-761. DOI: 10.1002/wat2.1161
26. **Beddows, P.A.**, Mandic, M., Ford, D.C., Schwarcz, H.P. (2016) Oxygen and hydrogen isotopic variations between adjacent drips in three caves at increasing elevation in a temperate coastal rainforest, Vancouver Island, Canada. *Geochimica et Cosmochimica Acta*. 172:370-386. DOI: 10.1016/j.gca.2015.08.017
25. Chatters, J.D. Kennett, D.J., Asmerom, Y., Kemp, B.M., Polyak, V., Nava Blank, A., **Beddows, P.A.**, Reinhardt, E., Arroyo-Cabrales, J., Bolnick, D.A., Malhi, R.S., Culleton, B., Luna Erreguerena, P., Rissolo, D., Morell-Hart, S., Stafford, T.W. (2014) Late Pleistocene human skeleton and mtDNA from Mexico links Paleoamericans and modern Native Americans. *Science*. 344(6185):750-754. DOI: 10.1126/science.1252619
24. \*Torres-Talamante, O., Alcocer, J., **Beddows, P.A.**, Escobar-Briones, E., Lugo, A. (2011) Key role of the chemolimnion in meromictic cenotes of the Yucatan Peninsula, Mexico. *Hydrobiologia*. 677(1):107-127. DOI: 10.1007/s10750-011-0746-9
23. Metcalfe, C., **Beddows, P.A.**, Gold Bouchot, G., Metcalfe, T., Li, H., Van Lavieren, H. (2011) Contaminants in the coastal karst aquifer systems along the Caribbean coast of the Yucatan Peninsula, Mexico. *Environmental Pollution*. 159(4):991-997. DOI: 10.1016/j.envpol.2010. 11.031.
22. **Beddows, P.A.** (2011) Hydrogeochemistry and geological context of the Pools of Cara Blanca, Belize, as a foundation for Holocene paleoenvironmental reconstruction; in Lucero, L. (ed) *Valley of Peace Archeological Report 2010*. 38 pp.
21. \*van Hengstum, P.J., Reinhardt, E.G., **Beddows, P.A.**, Gabriel, J. (2010) Linkages between Holocene paleoclimate and paleohydrogeology preserved in a Yucatan underwater cave. *Quaternary Science Reviews* 29(19-20):2788-2798. DOI:10.1016/j.quascirev.2010.06.034
20. \*van Hengstum, P.J., Reinhardt, E.G., **Beddows, P.A.**, Schwarcz, H.P., Gabriel, J.J. (2009) Foraminifera and testate amoebae (thecamoebians) in an anchialine cave: Surface distributions from Aktun Ha (Carwash) cave system, Mexico. *Limnology and Oceanography*. 54:391-396. DOI: 10.4319/lo.2009.54.1.0391
19. \*Gabriel, J.J., Reinhardt, E.G., Peros, M.C., Davidson, D.E., van Hengstum, P.J., **Beddows, P.A.** (2009) Palaeoenvironmental evolution of Cenote Aktun Ha (Carwash) on the Yucatan Peninsula, Mexico and its response to Holocene sea level rise. *Journal of Paleolimnology*. 42(2):199-213. DOI: 10.1007/s10933-00809271-x
18. \*van Hengstum, P.J., Reinhardt, E.G., **Beddows, P.A.**, Huang, R.J., Gabriel, J.J. (2008) Thecamoebians (testate amoebae) and foraminifera from three anchialine cenotes in Mexico: Low salinity (1.5-4.5 psu) faunal transitions. *Journal of Foraminiferal Research*. 38:305-317. DOI: 10.2113/gsjfr.38.4.305

17. \*Zhang, R., Schwarcz, H.P., Ford, D.C., Serefiddin-Schroeder, F., **Beddows, P.A.** (2008) Absolute palaeotemperature record from 10 to 6 ka inferred from fluid inclusion D/H ratios of a stalagmite from Vancouver Island. British Columbia. *Geochimica Cosmochimica et Acta*. 72(4):1014-1026. DOI:10.1016/j.gca.2007.12.002
16. Ufnar, D., Gröcke, D.R., **Beddows, P.A.** (2008) Assessing pedogenic calcite stable-isotope values: Can positive linear covariant trends be used to quantify paleo-evaporation rates? *Chemical Geology*. 256(1-2):46-51, 10.1016/j.chemgeo. 2008.07.022.
15. **Beddows, P.A.**, Brunton, F.R., Buck, M.J., Cowell, D.W. and Parker, S. (2008) Root Cave Project, southern Ontario; in Summary of Field Work and Other Activities 2008, Ontario Geological Survey, Open File Report 6226, p.35-1 to 35-9.
14. **Beddows, P.A.**, Schwarcz, H.P., \*Zhang, R., Ford, D.C. (2008) Cave drip monitoring as a foundation for better paleo-climate reconstruction. In W.R. Elliott (ed.), *Proceedings of the 2007 National Cave and Karst Management Symposium*, St. Louis, USA. 204-211.
13. **Beddows, P.A.**, Hendrickson, M.R., Webster, K.H., Kras, S.M. (2008) Mapping flooded caves from above: Surface karst inventory of the Yucatan Peninsula. In W.R. Elliott (ed.), *Proceedings of the 2007 National Cave and Karst Management Symposium*, St. Louis, USA. 193-197.
12. **Beddows, P.A.**, Hendrickson, M.R. (2008) When the survey is not enough: Using temperature, salinity, and in-conduit dye tracing to reveal active flow paths. In W.R. Elliott (ed.), *Proceedings of the 2007 National Cave and Karst Management Symposium*, St. Louis, USA. 198-203.
11. **Beddows, P.A.**, Smart, P.L., Whitaker, F.F., Smith, S.L. (2007) Decoupled fresh-saline groundwater circulation of a coastal carbonate aquifer: Spatial patterns of temperature and specific electrical conductivity. *Journal of Hydrology*. 346(1-2): 18-32, DOI:10.1016/j.jhydrol. 2007.08.013.
10. **Beddows, P.A.** Blanchon, P., Escobar, E., Torres-Talamante, O. (2007) Los cenotes de la península de Yucatán. *Arqueología Mexicana*, 16(83):32-35 (In Spanish)
9. Smart, P.L., **Beddows, P.A.**, Doerr, S., Smith, S.L., Whitaker, F.F. (2006) Cave development on the Caribbean coast of the Yucatan Peninsula, Quintana Roo, Mexico. *Geological Society of America Special Paper 404: Perspectives on Karst Geomorphology, Hydrology, & Geochemistry*, 105-128, DOI:10.1130/2006. 2404(10).
8. **Beddows, P.A.** (2003) Yucatán Phreas, Mexico. In Gunn, J. (ed) Encyclopaedia of Cave and Karst Science, Routledge Taylor & Francis Group, New York, USA. 794-796.
7. **Beddows, P.A.** (2003) Cave Hydrology of the Caribbean Yucatan Coast, Bulletin 11, Association of Mexican Cave Studies, Houston, USA. 96 pp.
6. **Beddows, P.A.**, Smart, P.L., Whitaker, F.F. & Smith, S.L. (2002) Density stratified groundwater circulation on the Caribbean Coast of Yucatan peninsula, Mexico. In Martin, J.B., Wicks, C.M., & Sasowsky, I.D. (eds) *Karst Waters Institute Special Publication 7: Hydrogeology and Biology of Post-Paleozoic Carbonate Aquifers*, 129-134.
5. Smart, P.L., **Beddows, P.A.**, Doerr, S., Smith, L.S. & Whitaker, F. (2002) Hydrochemical processes and cave development on the Caribbean Coast, Yucatan Peninsula, Mexico. In Martin, J.B., Wicks, C.M., & Sasowsky, I.D. (eds) *Karst Waters Institute Special Publication 7: Hydrogeology and Biology of Post-Paleozoic Carbonate Aquifers*, 79-83.
4. Smith, S.L., Whitaker, F.F., Parkes, R.J., Smart, P.L., **Beddows, P.A.** & Bottrell, S.H. (2002) Geochemistry and geomicrobiology of saline groundwaters: Yucatán Peninsula, Mexico. In Martin, J.B., Wicks, C.M., & Sasowsky, I.D. (eds) *Karst Waters Institute Special Publication 7: Hydrogeology and Biology of Post-Paleozoic Carbonate Aquifers*, 135-137.
3. **Beddows, P.A.** (2002) Where does the Sewage Go? Karst groundwater system of the Municipalidad de Solidaridad, Quintana Roo, Mexico. *Association for Mexican Cave Studies Activities*, 47-52.

2. Worthington, S.R.H., Ford, D.C. & **Beddows, P.A.** (2001) Characteristics of porosity and permeability enhancement in unconfined carbonate aquifers due to the development of dissolutional channel systems. *Technical Documents in Hydrology - Present state and future trends of karst studies*. IHP-V, UNESCO, Paris 1(49): 13-29.
1. Worthington, S., Ford, D.C. & **Beddows, P.A.** (2000) Porosity and permeability enhancement in unconfined carbonate aquifers as a result of solution. In Klimchouk, A. Ford, D., Palmer, A. & Dreybrodt, W.(eds) Speleogenesis: Evolution of Karst Aquifers, Cave Books, St Louis (ISBN 978-1-57958-399-6), 463-471.

### MANUSCRIPTS - REVIEW – early 2024

38. **Beddows, P.A.**, Metcalfe, C., Merediz Alonso, G., López Tamayo, A., Lases-Hernandez, F.M. (To be submitted **early 2024**) Tracking wastewater contamination in the “Maya Riviera” Region of the Yucatán Peninsula, México. *Environmental Pollution*.
37. \*Monroy-Ríos, E., **Beddows, P.A.** (To be submitted **early 2024**) Hydrogeothermal convective circulation model for the formation of the Chicxulub Ring of Cenotes in the Yucatan Peninsula, Mexico. *Geochemistry, Geophysics, Geosystems*.

### MANUSCRIPTS - IN PROGRESS

39. \*Monroy-Ríos, E., **Beddows, P.A.** Glover, J., Rissolo, D., Hendy, I., Schwartz, B., Jensen, A., Scotese, C. Tectonic displacement of the Yucatan Platform.
40. Little, S.N., van Hengstum, P.J., Donnelly, J.P., Sullivan, R.M., Winkler, T.S., **Beddows, P.A.**, Tamalavage, A.E., Fall, P.A., Albury, N.A. Dry season rainfall on the Little Bahama Bank in the Common Era.
41. \*Jenson, A.A., Schwartz, B.F., Gao, Y., Li, Y., **Beddows, P.A.** (Final field data collected in 2022 post COVID) Evidence of uplift in the Yucatan Peninsula using water table folia as sea level proxies: Quintana Roo, Mexico. *Target journal - Nature Geoscience*
42. Lases-Hernandez, F.M., Bernal, J.P., **Beddows, P.A.** Prior calcite precipitation in the karst Río Secreto Cave, in the northeastern Yucatán Peninsula, México. *Target Journal - Chemical Geology*.

### INVITED SEMINARS & PROFESSIONAL TALKS

UNAM – Instituto de Geociencias - Juruquilla	Invitation accepted - Pending booking
Scripps Institution of Oceanography	Invitation accepted - Pending booking
Northwestern Family Weekend	Oct 20, 2023
Blue-Green Humanities, Organized by Tracy Davis	Sept 30, 2023
<b>Keynote</b> – Comisión Nacional del Agua (México) Consejo de Cuenca de la Península de Yucatán	Mar, 2023
Live casted. Two day gala event at Cancun Convention Center, with State Governor in attendance.	
NU Alumnae Associate – Women in Science course series	Fall 2022
Consejo de Cuenca de la Península de Yucatán	March 2022
Centinelas del Agua – Dia Mundial del Agua	March 2022
Red de Planetarios de Quintana Roo ( <b>16,000+ views</b> )	March 2022
Green House, Residence Hall, Northwestern University	February 2022
Northwestern Energy Technology Group (NETG)	February 2022
NU Alumnae Association – Health of Our Planet: Past, Present and Future course series.	Spring 2021
Willard Residential Hall, Northwestern University	September 2021
TeachX – Northwestern University selected presenter. Panel coordinator.	May 2021
Nevada State College	September 2019
Grupo X-Caret (at Xel Ha)	July 2019
Chicago Scuba Meetup	June 2019
Northern Illinois University, Department of Geology and Environmental Geosciences	April 2019

TeachX – Northwestern University selected presenter	2018
Rio Secreto Nature Reserve	2017 & 2018
Geological Society of America – Invited speaker in Session - T120. Karst Processes & Speleogenesis: Advances in Monitoring, Modeling, & Measurements	2015
Centinelas del Agua, Playa del Carmen in Rio Secreto	2015
Northwestern Science Café - Skeletons in the Cave: Survival in a Changing World	2015
NU Knowledge at Noon	2015
Northwestern Faculty Alumni Association	2015
Comisión Nacional del Agua (CONAGUA)	2012
Northwestern University, Department of Earth and Planetary Sciences	2012
Florida International University, Civil and Environmental Engineering – WATERSCAPES Speaker	2010
University of Illinois at Chicago, Department of Earth and Environmental Sciences	2009
Northern Illinois University, Department of Geology and Environmental Geosciences	2009
Northwestern University, Department of Earth and Planetary Sciences	2008
Université de Montréal, Département de géographie	2008
Johns Hopkins University, Department of Earth and Planetary Sciences	2008
Nipissing University, Geography Department	2008
University of Toronto, Physical and Environmental Sciences	2008
University of Toronto, Department of Geology	2008
Kutztown University, Department of Geology	2008
Western Kentucky, Department of Geography and Geology	2008
University of Dayton, Department of Geology	2008
Universidad Nacional Autónoma de México. Instituto de Ciencias del Mar y Limnología (ICMyL) Puerto Morelos, México [in Spanish]	2007
University of Lethbridge, Geography Department	2007
Foro del Agua, Municipalidad de Solidaridad, Quintana Roo, México [in Spanish]	2006
McMaster University, School of Geography & Earth Sciences, Canada	2006
University of Victoria, Department of Geography, Canada	2006
University of Regina, Department of Geography, Canada	2006
University of Akron, Department of Geology, USA	2005
University of South Florida, Department of Environmental Science & Policy	2003
Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Departamento de Oceanografía Física, Ensenada, México [in Spanish]	2002

## CONFERENCE CONTRIBUTIONS – Oral and Poster

\* Student contributions

- Bernal J.P., Piaseck P., Cu Xi M., Revolorio F., Lachniet M.S., **Beddows P.A.**, Lucia G., Lopez Martínez R., Vázquez O. (2022) Understanding the variability of trace-elements and  $\delta^{18}\text{O}$  in drip water from Gruta Rey Marcos, Guatemala. *AGU Fall Meeting 2022*, Chicago.
- Bernal J.P., Cu Xi M., Lachniet M.S., Revolorio F., Piaseck P., **Beddows P.A.**, Correa-Metrio A., Corona Martinez L., Lucia G., Vázquez O. (2022) A multi-proxy paleohydrological reconstruction for Northern Central America and southern Mexico in orbital and sub-orbital timescales; speleothem  $\delta^{18}\text{O}$  and trace element records from Gruta Rey Marcos, Guatemala. *AGU Fall Meeting 2022*, Chicago.
- Chatter, J.C., **Beddows, P.A.**, Reinhardt, E., Bernal, J.P. (2022) Radiometric dating in the submerged caves of the Yucatan Peninsula. *Society of American Archaeology*. March 30 – April 2, Chicago, Ill.
- Lases Hernández, F., Medina Elizalde, M., Bernal Uruchurtu, J.P., **Beddows, P.A.**, Burns, S., Serrato Marks, G., Travis-Taylor, L., McGee, D., Frappier, A.B. (2021) Retos y perspectivas para la reconstrucción paleoclimática a partir de estalagmitas en la Península de Yucatán. *XV Congreso Nacional Mexicano de Espeleología: El Caribe comienza en las cuevas*. Playa del Carmen. 29 October – 2 November 2021.

- Beddows, P.A.**, Rosales Lagarde, L., Davis, B., Mallon, E.K. (2021) Jumping the institutional gulf: An Innovative course for primary data skills. Cross institutional coordinated panel discussion. *Northwestern University TEACHx*. Evanston, May 2021.
- Rissolo, D., Jaijel, R., Goodman-Tchernov, B., **Beddows, P.A.**, Smith, D., Glover, J.B. (2020) Paleocoastal reconstruction of an ancient Maya trading port, Quintana Roo, Mexico. *AGU Ocean Sciences Meeting*. San Diego. February 17, 2020.
- Beddows, P.A.**, Mallon, E.K. (2019) Global broader impacts: Reach of a web-based open-source project. *Northwestern University TEACHx*. Evanston, May 2019.
- Lases-Hernández, F., Bernal, J.P., Medina-Elizalde, M., **Beddows, P.A.**, Burns, S. (2019) Long-term monitoring of drip water trace elements and Cl variability of Río Secreto Cave in the Yucatan Peninsula, Mexico. *Goldschmidt*, August 2019. Barcelona, Spain.
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## PEER-REVIEW & RELATED ACTIVITIES LETTERS OF RECOMMENDATION

**Recommendation Letters** - In support of applications for professional and academic opportunities, for undergraduate students, PhD students, and peers. Count began in 2020:

2023	72	2021	51
2022	62	2020	49

**Women Divers Hall of Fame – Marine Conservation Scholarship Panel** 2023, and 2024

**National Science Foundation – Panel Reviewer** December 2020, September 2021  
REU - Research Experiences for Undergraduates Program

**Northwestern Undergraduate Research Grants – URG** 2011 – 2015  
Reviewer of 100+ academic and summer applications annually, and additional identification of awards for ISEN funding. **ISEN Representative** – Of the funded URG projects, undertaking additional selection and presenting short-list for ISEN support.

**Grant / Fellowship Reviews – last 10 years – Individual application reviews (not panels)**

- PAPIIT – Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica (México)
- NSF - National Science Foundation

NGS - National Geographic Society  
 Waitt Foundation  
 GWIS - Graduate Women in Science  
 McArthur Foundation

### Peer Review – Journal Articles – last 10 years

Water Resources Research	
Geophysical Research Letters	Limnology and Oceanography
Hydrology and Earth System Science	Geochimica et Cosmochimica Acta
Journal of Hydrology	Hydrological Processes
Hydrogeology Journal	Journal of Paleolimnology
Hydrobiologia	Geosciences
Journal of Cave and Karst Studies	Ecohydrology
Paleogeography, Paleoclimatology, Paleoecology	

## CONSULTANCIES IN THE PUBLIC & PRIVATE SECTORS

**ELAW – Environmental Law Alliance Worldwide** 2018 - present  
 Extensive consultation and advisement on environmental impact of the development plans in the Yucatán Peninsula of Mexico, with a specific focus on the Tren Maya megaproject.

**Scientific Advisor** ongoing 20+ years

**Municipalities of:** Tulum, Solidaridad, and Bacalar, Quintana Roo, México

**CNA - Comisión Nacional del Agua** - Consejo de Cuencas [ National Water Commission of Mexico ]

**Non-government organizations:** Amigos de Sian Ka'an (ASK), Centinelas de Agua, Centro Ecológico Akumal (CEA), Razonatura, Centro México de Derecho Ambiental (CEMDA), environmental lawyer Luis Leal, and others. Frequent consultation at nearly monthly frequency on science and technical issues related to groundwater and coastal issues. Provision of technical/educational presentations in Spanish in QR. Participation in government planning meetings.

The last 6 years include advisement on transport of organic contamination (sewage effluent) in the drinking water and cave systems, site specific development issues, review of the environmental impact assessments, establishing a monitoring network for watershed quality, and water quantity and dynamics, and the planning of a Recharge Zone Hydrological Reserve.

**Scientific Advisor: The Nature Conservancy International (TNC)** 2009 – 2010

Active member of panel through evaluation phase.

Contributions to writing and final editing of Plan de Conservación Akumal Tulum, 2009. 57pp.

**National Geographic contracted to Sea Studios of Monterrey** 2007-2008

**a. *Dirty Secrets*** Released 2008. An episode of National Geographic's Strange Days on Planet Earth. On-camera scientist and scientific advisor.

**b. *Coral Connections*** Released 2008. Scientific advisor.

**BBC Natural History Unit, Bristol, U.K.** 2004 - 2005

***Secrets of Mayan Underworld*** Released 2005. Scientific advisor. (Remunerated)

**BBC Natural History Unit, Bristol, U.K.** 2004 - 2006

***Planet Earth: Caves*** Released 2006. Scientific advisor. (Remunerated)

## PROFESSIONAL SERVICE

**Northwestern University 2021 TeachX – Connections.** Panel Coordinator 2021  
*Jumping the Institutional Gulf: An Innovative Course for Primary Data Skills.*

Panelists: Prof. Laura Rosales Lagarde, Nevada State University. Dr. Brian Davis, Indiana University, South Bend. Mr. Edward Mallon, Triple Point Design.

ABSTRACT - In EARTH 360 at Northwestern University, students with no prior electronics or coding experience assemble, program, and gather data. Variants of the course are now offered at Nevada State College and Indiana University South Bend. This panel brings together our collaborating faculty dedicated to empowering students as knowledge 'creators' from these wide-ranging US institutions from R1 (NU), satellite campus of a large state university (IUSB), and small state college (NSC). These educators will discuss their successes, and ongoing challenges overcoming institutional, personal, and pedagogical barriers to running problem-based courses that combine aspects of engineering and environmental science. Student personal growth has been phenomenal, with often-uncomfortable development of trouble-shooting skills that are hard to teach with commercial lab equipment.

**Northwestern Annual Climate Change Symposium –  
 Global Problems, Local Solution**

March 8, 2012

**Problems to Solutions**

October 18, 2010

**Problems to Policy** - [news.medill.northwestern.edu/climatechange/page.aspx?id=145853](https://news.medill.northwestern.edu/climatechange/page.aspx?id=145853)

November 4, 2009

Departmental coordinator full day symposium cosponsored by Department of Earth and Planetary Sciences, the Initiative for Sustainability and Energy at Northwestern (ISEN), Environmental Policy and Culture Program (EPC) and Environmental Sciences Program (ENVR SCI).

**Organizer: International Union of Speleology Field Trip**

July 2009

Post-congress field trip to the Yucatan Peninsula for ~20 international participants.

**Co-Chair Special Session (in absentia): American Geophysical Union - Acapulco**

May 2006

Paleoenvironmental Records from Cave Sediments (PP07)

**Co-Organizer: Post conference field trip, Caribbean coast of Yucatan Peninsula**

April 2003

Salt Water Intrusion & Coastal Aquifers: Monitoring, Modeling, Management. Mérida, México.

**Organizer: Conference facilities and local arrangements, Bristol, UK.**

8 March 2003

British Cave Research Association Science Symposium held in the School of Geographical Sciences, University of Bristol.

**Chair: Biology Session & Geology Session**

27-29 September 2002

British Cave Research Association Hidden Earth Annual Meeting, Monmouth, UK

## PROFESSIONAL AFFILIATIONS

### Active

American Geophysical Union	AGU
Geological Society of America	GSA
American Association for the Advancement of Science	AAAS
National Speleological Association, including Cave Diving and Geology sections	NSS-CDS
Canadian Association of Geographers	CAG
Royal Geographical Society with Institute of British Geographers, Fellow	RGS-IBG
Geological Association of Canada	GAC

### Previous

British Cave Research Association	BCRA
Canadian Geomorphology Research Group	CGRG
Canadian Geophysical Union	CGU
Canadian Quaternary Association	CANQUA
Société Québécois de Speleologie	SQS
University of Bristol Speleological Society	UBSS

## TEACHING & ADVISING

### TEACHING & MENTORING AWARDS & HONORS

NU Phi Beta Kappa Award for Advocacy and Mentorship – Inaugural awardee For “inventive, indefatigable boosterism”	2023
ASG – Associated Student Government – Faculty Honor Roll Recognition for work with EARTH 360: Field Methods and Instrumentation	2018-2019
WCAS Weinberg College Arts and Sciences Alumni Teaching Award Recognized for excellence as undergraduate teachers. \$5000 award.	2015

### Areas of Undergraduate and Graduate Teaching - LAST 5 YEARS IN PURPLE

Earth & Planetary Sciences	EARTH 102, EARTH 360, EARTH 331, 390 Hydrology, EARTH 399
Environmental Science	ENVR SCI 201, ENVR SCI 203, ENVR SCI 390, ENVR SCI 399
Civil & Environmental Engineering	CIV ENV 201
Environmental Policy & Culture	ENV POL 397-1 & 397-02
The Graduate School	EARTH 519 – Responsible Conduct of Research

### Specific Courses Taught – LAST 3 YEARS IN PURPLE

#### **EARTH 360 | ENVR SCI 390 – Instrumentation & Field Methods**

Fall 2015, 2016; Winter 2018, 2019, 2021, 2022; Fall 2023

Previously co-taught with Dr. van der Lee.

Winter 2010, 2011, Spring 2012

Practicum. Problem based learning course. Enrollment - 5 – 15. Reached 19 in 2023.

Theory and practicum on electronic instrumentation for monitoring and measurement in earth sciences, including data loggers, hands-on design and construction of electronic sensors, signal processing, data management, and network design. Prerequisites: Majors/minors in EARTH or ENVR SCI, or completion of three 300-level EARTH or any other 300 level science courses, or consent of the instructor.

#### **EARTH 390 | ENVR SCI 390 – Hydrology - Hydrogeology**

Spring 2021, Winter 2023

Enrollment – 16 in 2021. 20 in 2023

Conceptual and quantitative knowledge of hydrology, limnology, and shallow hydrogeology. Standard equations and quantitative approaches include mass-balance modeling, flood frequency/recurrence intervals, Darcy's law, and Fourier transform analysis on hydrological time series. Term paper or data project on approved topic of choice, using journal quality style guide.

#### **ENVR SCI 201 (previously x-listed w/ CIV ENV) – Earth – A Habitable Planet (Intro. Earth System Science).**

Lecture based class. Enrollment of 50 - 100

Spring 2013, 2014, 2015, 2016, 2017, Fall 2019

Overview of the physical processes governing environmental systems, from lithosphere to hydrosphere to atmosphere. Physical science perspectives on current debates such as those over water resources, energy, and climate change.

#### **ENVR SCI 203 – Humans in the Environment**

Lecture based class. Enrollment ~ 65

Spring 2022, Spring 2023

Interdisciplinary study of how humans interact with the living and nonliving parts of their environment. We examine current environmental challenges, such as climate change, environmental determinants of health, sustainability, energy production and conservations, environmental ethics. A case study approach and Life Cycle Assessment (LCA) will be used to emphasize the processes of scientific inquiry and discovery.

**EARTH 102-6** – Climate Change: The Scientific Evidence Winter 2015, 2016, 2017, 2018, Fall 2019

**EARTH 102-6** – Voyages of Discovery Fall 2011, Winter 2013

Freshman writing seminars. Enrollment – 15

Climate Change represents a massive global experiment with unknown consequences. In this course we will discuss the scientific evidence for modern-day global warming including melting ice sheets, long-term temperature records from ice cores and extreme weather events such as hurricanes. Current trends and the role of human activities will be examined in the context of the geologic record of natural climate variability and the feedbacks inherent in the climate system. Anticipated future impacts include droughts, floods, sea level rise, spread of infectious diseases, drinking water shortages, habitat loss, and extinctions. Given these forecasts, strategies for managing the effects of global warming will be assessed. This writing seminar specifically aims to develop effective scientific writing and visual communication for the natural and physical sciences.

**EARTH 519** – Responsible Conduct of Research (RCR) Annually from 2011 to present 2023

Weekly seminar/discussion series with material drawn from NSF, AAS, and AGU. Fulfillment of the NSF mandated RCR requirements for the EARTH and PBC programs.

Enrollment – 5 – 15, including graduate students from **Plant Biology and Conservation**

Graduate students and post-doctoral Fellows must complete the RCR Training in their first year of the program. This course includes weekly meetings, and fulfillment of 9 online "CITI" modules.

**EARTH 331** – Field Problems in Sedimentary Geology Summer/Fall 2016

26-day field camp observing and mapping sections in outcrop and core in Utah and Colorado, with Fall quarter workshop class for development of research reports.

Enrollment – 6

Field methods in stratigraphy and sedimentology; interpretation of depositional systems and paleo-environments; methods of observations, data recording and analysis, and presentation of geological information (maps, cross sections). Course involves 2.5-week field trip to Colorado/Utah in late August - mid September and meets through the Fall quarter. Prerequisite: EARTH 330.

**ENVR\_POL 397-1 / 397-2** – Environmental Field School Summer 2012

Field Internship with National Parks and National Forests. Summer 2013 to present (non-credit based). Seminar sessions and guided readings.

### Other Academic Courses and Programs

**Co-curricular Experiential Field Trip to Yucatan Peninsula, Mexico** – Lead Coordinator and Instructor

Carbonate hydro-geochemistry & sedimentology; Coastal environments

Field practicum. ~30% content renewal in each offering.

Video 2009 trip - [www.vimeo.com/6402811](http://www.vimeo.com/6402811)

Video 2017 trip - <https://www.youtube.com/watch?v=1NdODr6YokA>

Year	Days	Students	Collaborating Instructional Staff
2024	10	approx	Booked & Pending for March 2024.
2023			Cancelled.
2022			Cancelled.
2020	8	17	Booked, but cancelled due to COVID
2019			Cancelled due to university financial restrictions.



2017	10	12	Dr. Sageman, Dr. Horton, Dr. Masterson, Ms. Schellinger
2015	10	15	Dr. Osburn, Dr. Rossi
2013	10	16	Sole faculty, and Mr. Fortwengler (Shell geologist & alumni)
2011	10	13	Dr. Bina, Dr. Jacobson, Mr. Fortwengler (Shell geologist & alumni)
2010	10	13	Dr. van der Lee, Dr. Jacobson, & Dr. Weiss (GSU faculty).
2009	8	18	Dr. Sageman and Dr. Jurdy.

**Director – EPC Environmental Field School** 2013 - 2018  
**Co- Director - EPC Environmental Field School** 2012  
 Placement of summer student research interns in National Parks, National Forests and closely allied federal agencies. Supervision and mentorship in research contribution spring-boarding from the experience (see ENV POL 398 under Teaching).

**Students in Tutorial or Advisory Registration 399, 499**

**EARTH 399-0 - INDEPENDENT STUDY  
 UNDERGRADUATE - STUDENT RESEARCH CREDIT**

David (Max) **JONES** Summer URG mentor, 399 in Winter 2024  
 Effects of Predator Exclusion Devices on Green Sea Turtle Nest Conditions in Costa Rica. Building set of Cave Pearl Logger temperature sensors for use in nest and beach monitoring.  
 Summer 2023 Undergraduate Research Grant (URG) of \$3500.

Maddy **BAGNALL** 399 Winter 2023, and planned Spring 2024  
 Calculation of tidal damping and lag with distance inland from the Caribbean Coast, and aquifer storativity and transmissivity coefficients. Research effort started in Winter of Sophomore year.

Lucy **WEIDNER** Three x 399 - Fall 2020 +Winter/Spring 2021  
 Thesis: Quantifying the Yucatan Peninsula Holocene fire history and ecological succession – Charcoal and stable isotope analysis of coastal and lake cores the Vista Alegre Maritime Maya Port  
 Summer 2020 Undergraduate Research Grant (URG) of \$3500 through the Baker Program in Undergraduate Research, and Lane Fund for Environmental Studies.  
 Winter 2021 Academic Year Research Grant (URG) of \$1000 for stable isotope analysis.  
 University of Edinburgh MS 2021 – 2022  
 Now Research Associate - Climate Risk Analyst, Resilience and Adaptation at **WTW**

Isaac **BEST** Winter 2021  
 R based dynamic front end for NU Campus climate station, with climate change context.

Timothy **ELLIS** Summer 2020  
 Undergraduate Research Assistant Program mentee, with \$3500 award, collaboratively with Robin Mattheus, Illinois Geological Survey – ISGS). Project - Mapping the subsurface architecture of the Zion Beach Ridge Plain, Waukegan

Katherine A. **HAILE** Three x 399 Fall 2018, Winter & Spring 2019  
 Thesis: Coastal mangrove basin hydrological dynamics in response to changing boundary conditions of ocean and climate. \*Department Honors\*  
 Construction of Cave Pearl loggers with Atlas electrical conductivity + water level + temperature.  
 Fourier transform analysis on 20+ time series and determination of lags/damping.  
 Summer 2018 URAP – Skill acquisition in assembly of commercial multi-sensor Hydrolabs.

2018-2019 Academic year Undergraduate Research Grant (URG) \$1000 + 50% international travel for 13 days Dec. 2018 Yucatan Peninsula field campaign, followed by ~2 weeks March 2019.

Abigail **LAMMERS** 399 Winter 2018  
a. Code “library” for the Arduino microcontroller board, for the calculation of flow direction and magnetometer corrections on the LSM303DLHC accelerometer, used as a pendulum flow meter.  
b. Online open-source application written in R for visualization and statistical analysis of flow velocity data from open water and cave deployments.  
Presented at the Geological Society of American Annual Meeting, October 2018

Peter **CARLIN** Two x 399 in Winter/Spring 2016  
Field permeability assessment using open-source hardware design. URG Summer 2016  
WCAS Summer Research Grant for \$3000 + 50% travel with 2 weeks field campaign in southern Mexico.  
Now - Quarry Supervisor & Engineer In Training, Lehigh Hanson

Jay **LARSON** 399 in Spring 2015  
Report - Yucatan Peninsula Climate Atlas.  
Now - Senior Data Scientist at Zoro US

Brendan **McMANUS** 399 in Winter 2015  
Report - Northwestern waste audit, including direct physical measure.  
Now - Assistant Site Supervisor at Venture Outdoors

Kelly K. **CAI** Three x 399 in Fall to Spring 2014-15  
Thesis - Bacteriological assessment of vadose zone connectivity at Mammoth Cave National Park, USA  
Summer field experience with Environmental Field School – Mammoth Cave National Park.  
Presented at the Geological Society of American North Central Meeting, May 2015  
Followed by – Associate Environmental Engineer, Parsons Corp.  
Now – Data analyst, Data Group at Columbia University

Henrik **WESTERKAM** One x 399 in Fall 0214  
Independent research project, based on summer field experience with Environmental Field School  
Report – Backcountry visitor impact assessment at Katmai National Park and Preserve and the Alagnak Wild River 2007-2014.  
Followed by – NASA, the Nature Conservancy, National Park Service, National Audubon Society, University of South Carolina. Then MS Clark University. Now – National Audubon Society.

Zachary D. **KISFALUSI** Three x 399, Fall 2013 to Spring 2014  
Thesis - Urban hydrology of northern Cook County  
Followed by - funded MSc program in hydrology at Illinois State University.  
Now – Hydrologist, USGS Colorado Water Science Center

K. T. **McMONIGAL** Four x 399 over Spring 2013 to Spring 2014  
Thesis - Developing a new paleo sea level proxy: Calcite rafts of the Yucatan Peninsula, Mexico \*Honors\*  
Undergraduate Research Grant (URG) for \$1000  
WCAS Summer Research Grant for \$3000 + 50% travel.  
Best Poster Award at the 2015 Northwestern University Undergraduate Research Symposium.  
Presented at the Geological Society of America (GSA) Annual Meeting, Vancouver BC Fall 2014, and GSA North Central Meeting, Madison, Spring 2015  
PhD 2020, Rosentiel School of Marine Sciences, Miami, in Physical Oceanography.  
Post-Doctoral Fellow as of 2021 – University of South Carolina  
Faculty – Assistant Professor as of 2023. University of Alaska, Fairbanks.

Ellie J. **BENSINGER** 2013 Winter  
 Thesis - Variation in charcoal abundance in cores from Maya Port City of Vista Alegre, Quintana Roo. 14pp.  
 Followed by – Performing professional actor – IMDB <https://www.imdb.com/name/nm3927723/>

Peter D. **ILHARDT** Three x 399 in Fall 2012 to Spring 2013  
 Thesis - Investigation of potential microbialite formations from Yucatán Peninsula cenotes. 41pp.  
 Department Honors, and Phi Beta Kapa (PBK) – National Academic Honor Society  
 Undergraduate Research Grant (URG) for \$1000 + 50% travel.  
 Post Bac - Science intern at Mammoth Cave International Center for Science and Learning (organized by Beddows).  
 MSc program, Department of Geosciences, Penn State. Completed in Spring 2017.  
 Now - Research Technologist, Dept. of Plant Sciences, Penn State

Alice M. **CARTER** Three x 399 in Fall 2011 to Spring 2012  
Multiproxy reconstruction of the Alegre Maritime Maya coastal archeological site using sediment cores.  
 WCAS Honors. Phi Beta Kapa.  
 Awarded Undergraduate Research Grant (URG) for \$1000 + 50% travel.  
 Presented at the Geological Society of America  
 Peer Reviewed - Beddows, P.A., Glover, J., Rissolo, D., \***Carter, A.**, Goodman, B., Jaijel, R., Smith D. (2016)  
 Proyecto Costa Escondida: Recent interdisciplinary research in search of freshwater along the North Coast of Quintana Roo, Mexico. *Wiley Interdisciplinary Reviews – Water*. 3(5):749-761. DOI: 10.1002/wat2.1161  
 Followed by – Instructor Assistant / Technician, Marine Biological Laboratories Wood’s Hole +  
 Field Research Technician, Toolik Field Station Alaska  
 PhD at Duke University in 2022, and since 2022 Post Doctoral Researcher, University of Montana

Peter E. **CARLSON** Three x 399 in Fall 2011 to Spring 2012  
Lacustrine gypsum as a paleo-precipitation indicator in inland Belize.  
 Awarded Undergraduate Research Grant (URG) for \$1000  
 WCAS Honors. Phi Beta Kapa.  
 Followed by - PhD program at University of Texas, Jackson School of Geoscience.  
 Now – Post Doctoral Fellow, Washington University in St.Louis

Violet C. **ZERBE** One x 399 in 2011 Fall  
 Independent research based on primary and historical data collection over Environmental Field School.  
 Thesis - Analysis of the Francis Creek Bypass project: Evolution of an engineered alpine stream (36 pp.)

**EARTH 499-0 - INDEPENDENT STUDY  
 GRADUATE - STUDENT RESEARCH CREDIT**

Maria **VILLAREAL** 2024 Winter  
 Anastasia **MONTGOMERY** 499 in 2020 Winter  
 Matthew **SELENSKY** 499 in 2019 Fall  
 Karyn **DeFRANCO** 499 in Winter 2019, and Fall 2019  
 Emiliano **MONROY-RIOS** Five x 499 in 2011 Spring, 2011 Fall, 2012 Winter, 2012 Fall, 2013 Winter  
 Gregory O. **LEHN** Two x 499 in 2011 Winter, 2010 Fall

## Ph.D. ADVISING AND MENTORING

### Primary PhD Advisor.

Maria **VILLAREAL** – PhD Student, Earth & Planetary Sciences 2023 – present  
Submarine groundwater discharge and hydrogeology of Guam, and south Pacific Islands.

Emiliano **MONROY-RIOS** – PhD Candidate, Earth & Planetary Sciences 2011- 2020  
Hydrogeochemistry of the Yucatan Platform. Submarine groundwater discharge, with a focus on geological sources of phosphate. \$104 000. CONACYT Mexican Graduate Student Fellowship over 4 years.

### Secondary Advisor (Mentoring Secondary Qualifying Exam Proposal / project )

Matthew **SELENSKY** – PhD Student, Earth & Planetary Sciences 2019 – 2023  
Secondary advisor, with Primary advisor Prof. M. Osburn

Anastasia **MONTGOMERY** – PhD Student, Earth & Planetary Sciences 2019 – 2023  
Secondary advisor, with Primary advisor Prof. D. Horton

Karyn **DeFRANCO** – PhD Student, Earth & Planetary Sciences 2018 – 2020  
Secondary advisor, with Primary advisor Prof. A. Jacobson. MSc in Spring 2020

Greg **LEHN** – PhD, Earth & Planetary Sciences 2010 – 2016  
Advisor on Second Research Proposal - Phreatic calcite rafts as a novel paleoenvironmental record of hydrochemistry and water level. Committee Member. Primary advisor Prof. A. Jacobson.

### Committee Member

Ry'yan **Clark** Spring 2021 - 2022  
MS in Plant Biology and Conservation Graduate Program  
Primary Advisor – Louise Egerton Warburton

Chuxuan **Li** – PhD Candidate Fall 2020 - present  
Primary Advisor – Daniel Horton

Fernanda **LASES FERNANDEZ** – PhD Candidate 2016 – 2020  
Universidad Nacional Autónoma de México (UNAM), Centro de Geociencias, Mexico  
Project Title – Vadose and groundwater hydrology of the Yucatan Peninsula - Implications for paleoclimate reconstruction from speleothem archives.  
Primary Advisors – Juan Pablo Bernal Uruchurtu.  
Now Assistant Professor at UNAM - Merida

Aubri **JENSON** – PhD Candidate, 2015 – 2020  
Texas State University, Department of Biology, USA  
Project Title - Hydrogeology and speleogenesis of the Yucatan Peninsula, Mexico.  
Primary Advisor – Benjamin Schwartz  
Now Environmental consultant – Zara Environmental.

Vivian **TANG** – PhD Candidate 2016 – Sept 2020  
Primary Advisor – Suzan van der Lee  
Now Postdoctoral Fellow – University of Illinois

Chelsi **McNEILL** – PhD Candidate 2016 – 2020  
McMaster University, School of Geography and Earth Sciences, Canada  
Project Title - Holocene palaeo-environmental reconstruction from cenote and lake sediment cores in the Yucatan Peninsula of Mexico  
Primary Advisors – Eduard Reinhardt

**OTHER ADVISING /  
MENTORING / TEACHING ROLES**

<b>Director, Environmental Science Program</b>	Fall 2019 to present
Directorship for program, including full DUS role.	
~100 STEM majors in program, with 25 – 30 graduating majors.	
~200 advising sessions were formally booked in the last year, with numerous occurring on invite to jump on zoom on receipt of emails with questions (based on my availability).	
72 Recommendation letters in 2023.	
<b>Director of Undergraduate Studies – EARTH (DUS)</b>	Winter 2011, Fall/Winter 2015-16, Winter 2018 to Fall 2019
<b>Director of Graduate Studies (DGS) - EARTH</b>	Fall 2012
<b>WCAS Freshman Advisor</b> – as instructor on Fall writing seminar	Fall 2011, Fall 2019
<b>Curriculum Committee - EARTH - member</b>	2009 – present
Redevelopment of undergraduate major program, with CRC approval received in 2017.	
Proactive – consultation as DUS on individual or cohort aspects for review.	
Ongoing review of curricular offering and scheduling, with present committee focus on PhD Program.	

**SERVICE – MEMBERSHIP & OFFICES**  
Department Level

<b>Direct Line Supervisor - Research Staff</b>	
Research Associates / Lab Managers	
Isotope Ratio Mass Spectrometer Lab (IRMS)	Dr. Andy Masterson - To Nov 2022
Radiogenic Lab (including class 10 clean lab)	Dr. Meagan Ankney - To Dec 2021
Research Lab Manager / Technologist	Ms. Grace Schellinger - To Jun 2023
Research Associate / Geophysical Computing Research	Dr. Mitch Barklage – To Winter 2019
<b>Staff Hiring – Search Committee</b>	
Department Research Lab Manager	2024 – active
Chair – Financial Assistant – Search completed by BA Collins	2023
Member - Research Assistant Professor – IRMS Lab	2023
Chair - Program Assistant – 2 positions	2023
Chair - IT Consultant	2013
Member, IRMS Lab Manager	2012, 2016
Member, Program Assistant	2015, 2017
Member, Business Manager	2015
<b>MDAM Digital Image Database &amp; REACH Hallway monitors</b>	<b>2019 - present</b>
Work in progress – moving digital assets in MDAM with metadata, and cascade of content into hallway REACH monitors, working with Program Assistant.	
<b>Digital Image Database - Simple but effective hard-drive collection</b>	2008 – 2018
Collect and organize digital image assets, including recovery of historical images.	
<b>Webpage oversight, and content contributor</b>	2009 – present
Active involvement with ongoing critical evaluation and renewal of content, working closely with PA.	
Test department for WCAS in launching new Cascade content management system with development and trial of new department level templates.	
Relaunch of webpage using second generation Cascade WCAS templates.	Summer/Fall 2017

- EPicentreS department annual newsletter.** 2008 – 2020  
16 – 20 page professionally printed Department Newsletter, aimed primarily at physical mailing to alumni. Contributing author, editing/proof reading
- Computing – committee member** 2008 – 2020
- Graduate recruitment – GSA Booth, social media outreach, direct mailing initiatives** 2009 – 2023  
Goal is to significantly increase the number of URM applicants, in support of diversity graduate recruitment. 6000+ emails in 2020 and 2022 to diversity communities, such as SACNA, GEM, other prospective groups.
- Undergraduate Recruitment to EARTH program** 2009 – 2019  
Active involvement with prospective undergraduate students in support of recruitment to EPS. Declared majors in EPS have approximately doubled since 2008, with more students declaring their major earlier in the program. **EARTH Booth at Academic Directions (Majors's) Fair** 2010 – 2015, 2017, 2018, 2019
- Corporate Recruitment – Chevron and Shell** 2009 – 2020  
Coordinated site visits of recruiters from Shell and Chevron, both of whom are EPS Alums. Two EPS students full time hired and numerous summer internships due to these efforts.
- Education beyond the Classroom - Activities with EARTH undergraduate and graduate students – Organization & Instruction**
- Mammoth Cave National Park weekends 2011, 2012, 2014, 2019  
GSA – Group conference, with specific inclusion of non-presenting undergraduates 2018  
Glacial Park + Volo Bog (Joint with ISP) 2009, 2010, 2013  
Chicago water ways - Kayaking Trip through Chicago 2009, 2010  
+ frequent participant on trips/activities organized by others in the department for faculty/student interaction
- GIS Training Weekends for undergraduate and graduate students (2 day sessions)** 2010, 2011  
Coordination with NU GIS Expert Chieko Maene for the provision of 2 day workshops in introductory GIS for earth science and plant biology and conservation science students, both undergraduate and graduate.
- Tech Infill Space Development – New office and teaching facilities** 2008 – 2013  
Member of the departmental Tech-Infill space committee. Principal liaison with weekly+ interaction with FM project managers and contractors. In 2011, role as departmental liaison significantly increased, with move-in completed summer/fall 2012.
- ILEPS Development – Integrated Laboratories for Earth and Planetary Sciences** 2008 – 2011  
**Phased Move-In from Locy Hall to Hogan** 2010 – 2013  
Coordination of the design, construction, and commissioning of the new integrated laboratory. Intense coordination between FM, the design firm (HED), the contractors (Power Construction), and the leading research faculty within Earth and Planetary Sciences, to ensure that full operation of the facilities is achieved. In 2010, four of the 6 modules reached operation. Completion of the Clean Lab and TIMS facility (A. Jacobson) and the Mineral Physics lab (S. Jacobsen) achieved in 2011. Ribbon cutting November 2011.

## SERVICE – MEMBERSHIP & OFFICES

### WCAS College Level

- Director – Environmental Sciences Program** Fall 2019 - present  
100+ STEM majors in program in through 2022 and 2023.  
Responsible for all aspects of final delivery of academic, financial, and community administration. Provide group and individual mentoring. Organized development opportunities along with undergraduate representatives, including regular community building activities. Typical weeks included 5-10 meetings, with peak weeks ~20.

**Member, Program Faculty Committee, Environmental Sciences Program** ~2010 – present  
 Member, selection committee for Visiting Assistant Professor – 2 rounds 2014, and 2017

**Interim Director – Environmental Sciences Program** 2014 – 2015  
 80+ majors active in program. Responsible for academic administration. Provided mentoring to students on request. Organized development opportunities along with undergraduate representatives. Typical weeks included 5-10 meetings, with peak weeks ~20.

### University Level – Senate, Residential College

**SILC - Spatial Intelligence and Learning Center** 2022 - present  
 Faculty member

**The Graduate School (TGS) Diversity and Inclusion Council** 2019 – 2023

**Office of Fellowships** 2008 – present  
 Participant in mock interviews and mentorship activities of Northwestern students and recent alumni in their preparation for competition for national and international awards of prestige.

**International Travel Safety Advisory Board, Office of Global Safety and Security** 2015 – present  
 Active committee projects include Wilderness First Aid Coordination and defining international travel with respect to Northwestern graduate students and post-docs.

**Faculty Fellow, Jones Residential College for the Fine and Performing Arts** 2010 – 2017  
 Mentorship, including interaction with residential students over meals, at special events, and supporting personal growth and educational activities within and beyond the residential college.

**Faculty Senate Elected Member, Northwestern University** 2011 – 2013

**Faculty Senate Benefits Committee, Northwestern University** 2011 – 2013

## SERVICE – MEMBERSHIP & OFFICES

### Beyond Northwestern

**National Directory of Summer undergraduate research Experiences.** ~ 2016 – present  
 I have been motivated by the unbelievable effort by students and myself in pairing up students with suitable opportunities – notably summer NSF-REU programs. Simply finding the basic program information of start dates was requiring our 100 ENVR SCI majors to each troll 100's of program webpages.

In ~2016 I launched a national directory of summer undergraduate research programs, that is now a heavily-used public resource, compiling key program and student characteristics: application deadline, start-end dates, year of study, source institution type, accessibility including ASL or mobility, citizenship/DACA status, and dozens of other factors. The directory reaches 200-300 entries a year now, and information is efficiently populated by program officers, and cleaned for tabular presentation using a set of scripts. See [https://docs.google.com/spreadsheets/d/1KQzflqkaMaJD3YJj367158hjs\\_g89xV8RLm1Vlq\\_4mk/edit#gid=1169082352](https://docs.google.com/spreadsheets/d/1KQzflqkaMaJD3YJj367158hjs_g89xV8RLm1Vlq_4mk/edit#gid=1169082352)

**NSF Summit on the Future of Undergraduate Geoscience Education** 2014, 2016, 2017  
 Three-day workshop, hosted at the Jackson School of Geoscience, Austin.  
 Topical meetings at GSA Annual Conferences.

## COMMUNITY WORK

### PUBLIC EDUCATION & OUTREACH

**The Cave Pearl Project – Project page geared to educators and developers** 2013 – present  
 Reached < 1,000,000 visitor counts in 2023 <https://thecavepearlproject.org/>  
 Ongoing reportage of the development of open-source instruments using the Arduino micro-controller platform, in support of distributed and economical environmental monitoring.

Extensive content and teaching resources to enable STEM educators in adopting the platform in educational environments.

**EPS Climate Station at Northwestern University** 2010 – present  
PI for acquisition and establishing the Northwestern Climate Station which will support undergraduate and graduate learning and research on campus, and serve as an icon or NU's commitment to earth and environmental science. Funding from ISEN secured (\$13 800). Co-development beside NU CO<sub>2</sub> station, PI'ed by Dr. Jacobson.

**Project Excite: Department of Earth and Planetary Sciences** 2009 – 2015  
Coordinator for faculty and graduate student let activities within the department, including 2 days of small group activities for select students from the 3<sup>rd</sup> and 4<sup>th</sup> grade from Chicago Public School District 86. Supported development of new activities by graduate students including "Global Warming in a Bottle", "How Big is a Dinosaur", "Deep Sea Vents", "Making Earthquakes". Project Excite is collaborative project with the Northwestern Center for Talent Development (CTD), Evanston/Skokie School District 65, and Evanston Township High School District (ETHS) 202. ~50 – 75 children a year.

**Center for Talent Development – Coordinated with Dr. Steven McGee OF SESP** 2010  
**NASA Summer Education Outreach – Chicago High Schools** 2011  
Lead scientific advisor, and embedded scientist for this 5 week long summer effort, with 8-9 high school students from Chicago Public schools. Educational material and program development on climate change using remotely sensed and NASA data. Recruited and organized EPS graduate students to provide education extension, and pedagogical support. Ongoing work includes translation of 2010 summer experience into fixed pedagogical materials for inclusion in the Chicago Public School curriculum.

**ETHS Biology internships –** 7 students, 2010 & 2012  
20+ contact hours each (total 140 contact hours) providing skill developing and mentorship. Separation, cataloguing and photographic documentation, and identification of bones from cave sediments. Dendrochronology using tree sections from NU campus. Greenhouse gas in a bottle experiments.

**High School Student Tours – Analytical lab facilities and collections** 2010 – 2019  
Educational tours of research facilities with added discussion of careers in Earth Science. Support of minority inclusion in STEM fields. Typically 1-5 groups per year, with 20 participants each.

## EDUCATIONAL PUBLICATIONS

(general audience / not peer-reviewed)

**Beddows, P.A.** (2010) Yucatán Underground. *Canadian Caver* 71.

**Beddows, P.A.** (2007) Counting cave drips -An Exercise of global significance. *Canadian Caver* 64, 8-13.

**Beddows, P., Smart, P., Whitaker, F. & Smith, S.** (2005) ¿A donde van las aguas residuales? El acuífero cárstico de la Municipalidad de Solidaridad, Quintana Roo, México: Where does the Sewage Go? The karst groundwater system of the Municipalidad de Solidaridad, Quintana Roo, Mexico. *Revista de Medio Ambiente, Turismo y Sustentabilidad*. 1(1) 121-128.

**Beddows, P.A.** (2004) Cave development in continental & coastal limestone regions. In Matthes, A., et al. (eds) *IANTD Cave Diver Training Manual*, IANTD, 90–96.

**Beddows, P.A.** (2003) Introduction to the Yucatan Peninsula hydrogeology: A World class example of a coastal carbonate density stratified aquifer. In *Cavern Guide Training Program*, Asociación de Prestadores de Servicios Acuáticos (Riviera Maya Association of Dive & Watersports Operators - APSA) 45-54.



**Beddows, P.A.** (2003) Introduction to the hydrogeology of the Caribbean coast of the Yucatan Peninsula. In Ward, B. (ed) Salt Water Intrusion & Coastal Aquifer Conference (SWICA) Field Trip to the Caribbean Coast of the Yucatan Peninsula (April), 13-22.

## PROFESSIONAL TRAINING & SKILLS

**Languages:** Mother tongues of French and English, although French is now rarely used.  
Fluent in Spanish as a second language.

**SCUBA - Cave Diver, and other technical SCUBA certifications** 1996 – present  
Full Cave Diving Certification and membership – Backmount, and Side Mount (lateral) - Cave Diving Section of the National Speleological Society (NSS-CDS) and National Association of Cave Diving (NACD).  
Ice Diver (ACUC). Oxygen Provider (DAN/ACUC). Nitrox enriched air (IANTD & ACUC).  
Open water SCUBA Instructor (ACUC – License and insurance allowed to lapse in 2008).

**MBA Kellogg School of Business Certificate - Management Skills for Innovative University Leaders** 2013  
NU Faculty leadership program to introduce business concepts and specific tools and frameworks for effective leadership. Selected and sponsored by WCAS. Nine days.

**NU Learning, Teaching, and Assessment Forum** 2013  
One day event showcasing teaching and assessment innovations, strategies, practices, and outcomes.

**Grantsmanship for the Research Professional, Northwestern University** 2009  
Two-day course instructed by Dr. Holly Falk- Krzesinski.  
Enhancing skills for effective grant opportunity identification, preparation, writing, and submission for investigators and administrators.

**Students in the lab: Quality-time or predictable demo? Centre for Leadership in Learning** 2007  
**McMaster University.** Designing effective experiential learning modules in the lab and field. Three days.

**Making Lecture Presentations, Centre for Leadership in Learning** November 2004  
**McMaster University** Eighteen-hour enquiry-based course focused on the question of "What makes for an effective lecture?" which included development of lecture skills through active participation.

**Environmental Data Acquisition Training, Observatoire Royale de Belgique** May 2004  
Design, construction, and implementation of data acquisition systems including data loggers and geophysical sensors. Four days.

**Time Series & Tidal Analysis Methods, International Centre for Earth Tides** November 2002  
**Observatoire Royale de Belgique.** Two weeks individual training on tidal data pre-processing and analysis.

## MEDIA

**The Daily Northwestern** April 10, 2023  
Faculty, students say implementing LEDs on campus long overdue. By Kristen Axtman  
<https://dailynorthwestern.com/2023/04/10/campus/faculty-students-say-implementing-leds-on-campus-long-overdue/>

**Northwestern Now** Nov. 10, 2023  
Behold the underwater caves of Yucatán, home to diverse microbial communities: New study constructs most extensive map yet of the cave system's microbiome. By Amanda Morris  
<https://news.northwestern.edu/stories/2023/11/yucatan-underwater-caves-host-diverse-microbial-communities/?linkId=249600499>  
Derivative articles:

PhysOrg <https://phys.org/news/2023-11-yucatn-underwater-caves-host-diverse.html>

Science Daily [https://www.spacedaily.com/reports/Yucatan\\_underwater\\_caves\\_host\\_diverse\\_microbial\\_communities\\_999.html](https://www.spacedaily.com/reports/Yucatan_underwater_caves_host_diverse_microbial_communities_999.html)

**El Pais**

De la taza del baño al cenote: así llega desde cocaína hasta viagra al acuífero de Yucatán July 15, 2022  
By Teresa de Miguel. <https://elpais.com/mexico/2022-07-15/de-la-taza-del-bano-al-cenote-asi-llega-desde-cocaina-hasta-viagra-al-acuifero-de-yucatan.html>

**HELIX – Northwestern Science in Society**

July 22, 2019

Open-Source Underwater - Instrument design aids Northwestern professor's exploration of underground world <https://helix.northwestern.edu/article/open-source-underwater>

**Medill Reports**

**A Teen's fall and death during the last ice age, by T. Chen** Sept. 14, 2018  
<https://news.medill.northwestern.edu/chicago/a-teens-fall-and-death-during-the-last-ice-age/>

**Science and Tourism in the Rio Secreto Caves of the Yucatan Peninsula, by B. Callan** June 18, 2018  
<https://news.medill.northwestern.edu/chicago/science-and-tourism-explore-the-rio-secreto-caves-of-the-yucatan/>

**Maritime Maya and Building an Ancient Island Pyramid, by B. Callan** June 12, 2018  
<https://news.medill.northwestern.edu/chicago/the-maritime-maya-and-building-an-ancient-island-pyramid/>

**Hackaday.com – Underwater logging for Science, by Al Williams** Feb. 16, 2018  
Prominent online tech 'zine review of the Cave Pearl project and publication.  
<https://hackaday.com/2018/02/16/underwater-logging-for-science/>

**Adafruit.com - Submersible Data Logger Systems from the Cave Pearl Project** Dec. 22, 2017  
#CitizenScience #underwater #arduino  
<https://blog.adafruit.com/2017/12/22/submersible-data-logger-systems-from-the-cave-pearl-project-citizenscience-underwater-arduino/>

**The Cave Pearl Project Interviews – YouTube** Sept. 2015  
Developing and open source Arduino based data logger system for underwater research.  
Length 7:03. Over 1600 views by end of 2017.  
<https://www.youtube.com/watch?v=kJGhwMB4eew>

**WTTW – Chicago Tonight - Diving for Bones.** Live broadcast. Length: 11:48. May 27, 2014  
<http://chicagotonight.wttw.com/2014/05/27/diving-bones>

**Women in Science Magazine (AWIS) - Diving into the Underground for Research.** Summer 2014  
<http://magazine.awis.org/i/330312-summer-2014/34> pgs. 34-37

**Northwestern Magazine – Cave Woman** (Feature article) by Elizabeth Blackwell. Fall 2014  
<http://www.northwestern.edu/magazine/fall2014/feature/cave-woman.html>

**Northwestern University Office for Research - Center Piece Magazine,** Fall 2014  
**Connecting Caves to Coral Reefs,** pgs. 30-34.  
[https://issuu.com/northwesternuniversityresearch/docs/cp\\_fall2014](https://issuu.com/northwesternuniversityresearch/docs/cp_fall2014)

**Eureka Alert - One of oldest human skeletons in North America is discovered, 15 May** 2014  
[https://www.eurekaalert.org/pub\\_releases/2014-05/nu-ooo051314.php](https://www.eurekaalert.org/pub_releases/2014-05/nu-ooo051314.php)

**Helix Magazine for Science in Society**

Cave diving Northwestern geologist found her calling as a kid, by W. Schutt June 18, 2014  
<https://helix.northwestern.edu/article/cave-diving-northwestern-geologist-found-her-calling-kid>

**and cross-pub – Medill Reports**

<http://newsarchive.medill.northwestern.edu/chicago/news-231337.html> June 11, 2014

**The Daily Northwestern. Northwestern professor contributes research on one of the oldest skeletons in North America.** By Rebecca Savransky May 19, 2014

<http://dailynorthwestern.com/2014/05/20/campus/northwestern-professor-contributes-research-on-one-of-the-oldest-skeletons-in-north-america/>

**NOAA Ocean Exploration - Signature Exploration** 2011

Selected for full media presence development by NOAA for Exploring the Hidden World of the Maritime Maya - Contributing Author and Co-PI on project.

<http://oceanexplorer.noaa.gov/explorations/11maya/welcome.html>

**International Research Press Coverage - 5 newswires by United Nations University** 2011

Featuring publication of "Contaminants in the coastal karst aquifer systems along the Caribbean coast of the Yucatan Peninsula, Mexico", including to Reuters (English, French, Spanish), United Press International, AFP Press Agency, EFE, IPS. Press generated in excess of 200 online story derivatives from 32 countries, and print distribution of 2.5 million readership.

e.g. <http://www.sciencedaily.com/releases/2011/02/110206132900.htm>

**Press "Who knew Northwestern University had its own glacier? And now it's melting fast"** 2011

Instigated and supported writing of article on the Northwestern Glacier by Chris Bentley, for Medill Report

<http://news.medill.northwestern.edu/chicago/news.aspx?id=178796>

**National Geographic "Diver Vanishes into Portal to the Maya Underworld"** 2010

Video - <http://video.nationalgeographic.com/video/player/news/history-archaeology-news/belize-maya-pools-vin.html>

Ranking - <http://news.nationalgeographic.com/news/2010/11/101130-best-news-videos-2010-science-nature-watch/>

Second most watched video in 2010 on National Geographic online. Length 3:43.

**EPS Yucatan 2009 Video "Fun, Sun, and Science"** 2010

Coordinated production of documentary short film of the EPS experiential educational trip to the Yucatan Peninsula Mexico. Produced by Lauren Pond.

Awarded **First Place**, in the American Geological Institute Life in the Field Video Contest. Length 5:38. <http://www.vimeo.com/6402811>

**National Geographic contracted to Sea Studios of Monterrey** 2007 – 2008

*a. Dirty Secrets* Released 2008. An episode of National Geographic's Strange Days on Planet Earth. On-camera scientist and scientific advisor.

*b. Coral Connections* Released 2008. Scientific advisor.

**CBC - "Cave Research - Paleoenvironmental research in Rats Nest Cave"** 2006

On-camera scientist and research consultant. Aired nationally on Saturday Report + Provincially in Alberta on CBC News at Six in both Edmonton and Calgary.

**BBC Natural History Unit, Bristol, U.K.** 2004 – 2005

*Secrets of Mayan Underworld* Released 2005. Scientific advisor.

**BBC Natural History Unit, Bristol, U.K.** 2004 – 2006

*Planet Earth: Caves* Released 2006. Scientific advisor.