

Cynthia Gerlein-Safdi
Curriculum vitae, updated April 10, 2019

University of Michigan
Dept. of Climate and Space Sciences and Engineering
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EDUCATION

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| 2019 | Certificate in Science, Technology, and Environmental Policy , Woodrow Wilson School of Public and International Affairs, Princeton University, USA |
| 2017 | Ph.D. , Dept. of Civil and Environmental Engineering, program in Environmental Engineering and Water Resources, Princeton University, USA |
| 2012 | M.Eng. in Geophysics , Geophysics applied to Civil Engineering and Environmental Studies, Engineering School of Geophysics of Strasbourg (EOST), France |
| 2011 | M.Sc. in Environmental Engineering , University of Strasbourg, France |
| 2009 | B.Sc. in Earth and Planetary Sciences , University of Strasbourg, France |

RESEARCH AND PROFESSIONAL EXPERIENCE

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| Sept 2017 to present | University of Michigan (MI, USA), Dept. of Climate and Space Sciences and Engineering. Junior fellow, Michigan Society of Fellows. |
| July 2015 to August 2017 | Harvard University (MA, USA), Dept. of Organismic and Evolutionary Biology. Exchange scholar: Understanding the impact of dew on the leaf energy, water and carbon cycle. <i>Host advisor:</i> Prof. N. Michele Holbrook. |
| Jan to Aug 2012 and Feb to June 2011 | Princeton University (NJ, USA), Dept. of Civil and Environmental Engineering, EcoHydrology Lab. Visiting scholar research collaborator: Using electromagnetic induction methods and ground penetrating radar to map patterns of soil moisture dynamics in Kenyan dryland sites and tree root structure in the Kalahari desert. <i>Advisor:</i> Prof. Kelly Caylor. |
| July to Dec 2011 | Schlumberger Water Services, Water Resources Group (Santiago, Chile): Geophysical engineer: Construction and calibration of seepage modeling profiles of mining sites in Chile. |
| June to August 2010 | Deutsches GeoForschungsZentrum (GFZ, German Research Center for Geosciences, Potsdam, Germany), Dept. of Hydrology. Visiting student: German-Vietnamese WISDOM Project for the design and implementation of an Information System for the Mekong Delta: study of the origin of superficial water in the Mekong Delta using conductivity and upstream rainfall data. <i>Advisor:</i> Dr. Heiko Apel. |
| June to August 2009 | UC Berkeley (CA, USA), Dept. of Earth and Planetary Sciences. Visiting scholar: Deformation of a buoyant bubble at low Reynolds number, a model of interaction between a plume head and a subducting slab. <i>Advisor:</i> Prof. Michael Manga. |

C. Gerlein-Safdi, G. Keppel-Aleks, F. Wang, S.E. Frohling, and D. Mauzerall, 2019, Satellite monitoring of natural reforestation efforts in China's drylands, *in review*, *Nature Sustainability*

F. Wang, X. Pan, **C. Gerlein-Safdi**, L. Gu, S. Wang, X. Cao, and Q. Lu, 2019. Vegetation restoration in Northern China: a contrasted picture, *Land degradation & development*, doi: 10.1002/ldr.3314

C. Gerlein-Safdi, M.C. Koochafkan, M. Chung, F.E. Rockwell, S. Thompson, and K.K. Caylor, 2018, Dew deposition suppresses transpiration and carbon uptake in leaves, *Agricultural and Forest Meteorology*, 259, 305-316, doi: 10.1016/j.agrformet.2018.05.015

C. Gerlein-Safdi, P.P.G. Gauthier, and K.K. Caylor, 2018, Dew-induced transpiration suppression impacts the water and isotope balances of *Colocasia* leaves, *Oecologia*, 187:4, 1041-1051, doi: 10.1007/s00442-018-4199-y

C. Wright, A. Kagawa-Viviani, **C. Gerlein-Safdi**, G. Mosquera, M. Poca, H. Tseng, and K.P. Chun, 2017. Advancing ecohydrology in the changing tropics: Perspectives from early career scientists, *Ecohydrology*, 106:17, e1918, doi: 10.1002/eco.1918

C. Gerlein-Safdi, P.P.G. Gauthier, C.J. Sinkler, and K.K. Caylor, 2017, Leaf water ^{18}O and ^2H maps show directional enrichment discrepancy in *Colocasia esculenta*, *Plant, Cell and Environment*, 40, 2095-2108, doi: 10.1111/pce.13002

J. Cui, L. Tian, **C. Gerlein-Safdi**, and D. Qu, 2017. The influence of memory, sample size effects, and filter paper material on online laser-based plant and soil water isotope measurements, *Rapid Communications in Mass Spectrometry*, 31, 509-522, doi: 10.1002/rcm.7824

F. Wang, X. Zhao, **C. Gerlein-Safdi**, Y. Mu, D. Wang, and Q. Lu, 2017. Global sources, emissions, transport and deposition of dust and sand and their effects on the climate and environment: a review, *Frontiers in Environmental Science and Engineering*, 11:13, doi: 10.1007/s11783-017-0904-z

E. Chang, A. Wolf, **C. Gerlein-Safdi**, and K.K. Caylor, 2016. Improved removal of VOCs for laser-based spectroscopy of water isotopes, *Rapid Communications in Mass Spectrometry*, 30, 784-790, doi: 10.1002/rcm.7497

CONFERENCE, WORKSHOP, AND INVITED PRESENTATIONS

Oral Presentations

UMich CEE
EWRE
seminar series | **C. Gerlein-Safdi**, 2019, Canopy Interception: Understanding leaf wetness and its influence on vegetation water and carbon fluxes, January 2019, Environmental Engineering and Water Resources Seminar Series, CEE department, University of Michigan, Ann Arbor, MI

CYGNSS
Science Team
Meeting | **C. Gerlein-Safdi**, 2019, CYGNSS sensitivity to leaf surface wetness, January 2019, CYGNSS Science Team Meeting, Pasadena, CA

AGU Fall
Meeting 2018 | **C. Gerlein-Safdi**, 2018, Estimating canopy rainfall interception using the CYGNSS satellite constellation, Abstract H32B-06, December 2018, 2018 American Geophysical Union Fall Meeting, Washington D.C.

Society of Fellows Colloquium	C. Gerlein-Safdi , 2018, Water and trees: a space-borne perspective, December 2018, Michigan Society of Fellows Colloquium, University of Michigan, Ann Arbor, MI
UCI CEE Seminar Series	C. Gerlein-Safdi , 2018, Canopy interception: the influence of leaf wetness on vegetation water and carbon fluxes, November 2018, Environmental Engineering Seminar Series, CEE department, UC Irvine, Irvine, CA
2018 GLS Symposium	C. Gerlein-Safdi , 2018, Transpiration suppression from dew deposition on leaves, September 2018, 2018 Green Life Sciences Symposium, Ann Arbor, MI
MUSE Conference 2018	C. Gerlein-Safdi , 2018, Using remote sensing to estimate the effects of reforestation policy in the fight against desertification in China, February 2018, Michigan University-wide Sustainability and Environment Conference 2018, Ann Arbor, MI
AGU Fall Meeting 2017	C. Gerlein-Safdi , 2017, Effects of dew deposition on transpiration and carbon uptake in leaves, Abstract B21K-08, December 2017, 2017 American Geophysical Union Fall Meeting, New Orleans, LA
CLaSP Seminar Series	C. Gerlein-Safdi , 2017, Investigating dew deposition on leaves: effects on leaf water content, CO ₂ , and remote sensing characterization, November 2017, Climate and Space Sciences and Engineering Seminar Series, University of Michigan, Ann Arbor, MI
MUSE Workshop	C. Gerlein-Safdi , 2017, Environmental spatial data from remote sensing, November 2017, Michigan University-wide Sustainability and Environment Workshop Series, University of Michigan, Ann Arbor, MI
Society of Fellows Colloquium	C. Gerlein-Safdi , 2017, Understanding the effects of dew deposition on plants with stable isotopes of water, October 2017, Michigan Society of Fellows Colloquium, University of Michigan, Ann Arbor, MI
ELS XVI	C. Gerlein-Safdi , 2017, Microwave scattering by a dew-wetted leaf, 16 th Electromagnetic and Light Scattering Conference, March 2017, College Park, MD
AGU Fall Meeting 2016	C. Gerlein-Safdi , 2016, Taking Up the Torch: Emerging Issues in Tropical Ecohydrology from Early Career Scientists, Water Sciences Pop-Up Session, 2016 American Geophysical Union Fall Meeting, San Francisco, CA
FFCD 2016	C. Gerlein-Safdi , 2016, Dew deposition effects on leaf water isotopic enrichment from an energy balance perspective, 7th International Conference on Fog, Fog Collection and Dew, July 2016, Wroclaw, Poland
EEWR Seminar Series	C. Gerlein-Safdi , 2015, Water status of hydrophobic leaves improved by the impact of artificial dew deposition on leaf energy balance, Environmental Engineering and Water Resources Seminar Series, March 2015, Civil and Environmental Engineering Department, Princeton University, Princeton, NJ
EEWR Seminar Series	C. Gerlein , 2014, Mapping tree roots using ground penetrating radar, Environmental Engineering and Water Resources Seminar Series, April 2014, Civil and Environmental Engineering Department, Princeton University, Princeton, NJ

First Workshop on Water Vapor Isotopes	C. Gerlein , 2013, Isotopic equilibrium between precipitation and water vapor: evidence from continental rains in central Kenya, First International Workshop on Advances in Observations, Models and Measurements Techniques of Atmospheric Water Vapor Isotopes, Oct. 2013, CNRS, Gif-sur-Yvette, France.
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Poster Presentations

AGU Fall Meeting 2016	C. Gerlein-Safdi , S.E. Frolking, K.K. Caylor, 2016, Characterization of canopy dew formation in tropical forests using active microwave remote sensing, AGU abstract B33F-0681, 2016 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Chapman Conference 2016	C. Gerlein-Safdi , S.E. Frolking, K.K. Caylor, 2016, Satellite and model-based characterization of canopy dew formation in tropical forests, AGU abstract 94662, 2016 American Geophysical Union Chapman Conference on Emerging Issues in Tropical EcoHydrology, Cuenca, Ecuador
AGU Fall Meeting 2015	C. Gerlein-Safdi , C. Sinkler, K.K. Caylor, 2015, Foliar shielding: how non-meteoric water deposition helps leaves survive drought by reducing incoming energy, AGU abstract A33H-0273, 2015 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Fall Meeting 2015	E. Chang, K.K. Caylor, C. Gerlein-Safdi , A. Wolf, 2015, Solid phase extraction using C-18 sorbents to treat organics in water and eliminate spectral interference in isotope ratio infrared spectroscopy, AGU abstract PP11B-2246, 2015 American Geophysical Union Fall Meeting, San Francisco, CA
Harvard 10 th Annual PBI Symposium	C. Gerlein-Safdi , K.K. Caylor, C. Sinkler, 2015, The impact of dew deposition on the leaf energy and water cycles, 10 th Annual Plant Biology Initiative Symposium, Harvard University, Cambridge, MA
AGU Fall Meeting 2014	C. Gerlein-Safdi , C. Sinkler, K.K. Caylor, 2014, Modeling foliar uptake in <i>Colocasia esculenta</i> using high resolution maps of leaf water isotopes, AGU abstract H31G-0684, 2014 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Fall Meeting 2014	C. Sinkler, C. Gerlein-Safdi , K.K. Caylor, 2014, Creating high-resolution maps of leaf water isotopes using IM-CRDS and IRMS techniques, AGU abstract PP31D-1177, 2014 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Fall Meeting 2013	C. Gerlein , K. Soderberg, K.K. Caylor, 2013, Isotopic equilibrium between precipitation and water vapor: evidence from continental rains in central Kenya, AGU abstract GC13A-1057, 2013 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Fall Meeting 2013	C. Gerlein , A. Wolf, K.K. Caylor, 2013, Stable isotopes in plant physiology: using water isotopes to study water fluxes in a temperate forest, AGU abstract H33A-1331, 2013 American Geophysical Union Fall Meeting, San Francisco, CA
AGU Meeting of the Americas 2013	C. Gerlein , F.C. O'Donnell, A. Bhattachan, K.K. Caylor, 2013, Ground penetrating radar measurements show a spatial relationship between coarse root biomass and soil carbon abundance, AGU abstract B43A-07, 2013 American Geophysical Union Meeting of the Americas, Cancún, Mexico
AGU Fall Meeting 2012	F.C. O'Donnell, C. Gerlein , A. Bhattachan, K.K. Caylor, 2012, Ground penetrating radar measurements show a spatial relationship between coarse root biomass and soil carbon abundance, EOS Trans AGU, 93(52), Fall Meet. Suppl., Abstract B23A-0431

AGU Fall Meeting 2009 | M. Lapôtre, **C. Gerlein**, C. Huber, J. Watkins and M. Manga, 2009, Deformation of a buoyant bubble at low Reynolds number, a model of interaction between a plume head and a subducting slab, AGU abstract T13B-1867, 2009 American Geophysical Union Fall Meeting, San Francisco, CA

FELLOWSHIPS, AWARDS, AND RESEARCH GRANTS

2017 – 2020 | Postdoctoral fellowship, Michigan Society of Fellows

2014 – 2017 | Earth and Space Science Fellowship, NASA

2016 – 2017 | Strategic University Research Partnerships Program, NASA Jet Propulsion Lab

2016 – 2017 | Mary and Randall Hack '69 Graduate Award, Princeton Environmental Institute

2014 – 2016 | Science, Technology & Environmental Policy Fellowship, Princeton Env. Institute

2016 | AGU Travel Grant, American Geophysical Union

2014, 15, 16 | Princeton School of Engineering and Applied Sciences Graduate Travel Award

2014, 15, 16 | Princeton Civil and Environmental Engineering Departmental Travel Award

2014 | Scholarship for the SPATIAL stable isotope short course (University of Utah), National Science Foundation

2011 | Mobility outside Europe Program Award, University of Strasbourg

2010 | Award from the Strasbourg Township for support on the last year of MSc. Curriculum

2009 – 2011 | Bourse Boussole award for international study, Alsace Region

2009 – 2010 | Erasmus scholarship for international study, French Ministry of Education

2006 | Award of the feminine vocation for science and technology, French Ministry for Equality between Men and Women

PROFESSIONAL ORGANIZATIONS

- **AGU** – American Geophysical Union, 2009 to present
- **SACNAS** – Society for the Advancement of Latinos/Chicanos and Native Americans in Science, 2018 to present

ACADEMIC SERVICES

- AGU Ecohydrology Technical Committee Member (2018 – present)
- **Journal reviewer:** Agricultural and Forest Meteorology, American Journal of Botany, Earth's Future, Ecohydrology, Hydrology and Earth System Sciences (HESS), Journal of Geophysical Research (JGR) - Atmospheres, Plant Biology, Rapid Communications in Mass Spectrometry, Trees, Water Resources Research (WRR)
- Conference chair:
 - 2017 AGU Fall Meeting, Chair, Session A11F, Early On-Orbit Results of the Cyclone Global Navigation Satellite System

- 2018 Michigan University-wide Sustainability and Environment Conference, Chair, Land use and land cover change session
- ∩ Conference judge and reviewer:
 - 2018 Michigan Engineering Graduate Symposium Reviewer and Judge
 - 2018 SACNAS Research Presentation Reviewer
 - 2018 SACNAS Travel Scholarship Reviewer
 - 2018 Michigan Geophysical Union, University of Michigan, Judge
 - 2018 Undergraduate Research Opportunity Program's (UROP) Annual Research Spring Symposium, University of Michigan, Judge
- ∩ University of Michigan Distinguished Dissertation Awards Reviewer (2018, 2019)
- ∩ University of Michigan Society of Fellows Application Review (2017, 2018)
- ∩ Student representative for EOST Board of Directors (2008 – 2011)

TEACHING AND MENTORING EXPERIENCE

- ∩ **ENSCI 698: Environmental Science Seminar**, Iowa State University, Spring 2019, *Guest*
- ∩ **Association for Women in Science**, University of Michigan, AY 2018/2019, *Mentoring circle*
- ∩ **CLaSP Peer Mentoring Program**, University of Michigan, AY 2018/2019, *Mentor*
- ∩ **Residential graduate student**, Forbes College, Princeton University, AY 2014/2015: organized a year long *Sustainability and the Environment activity series* for the College
- ∩ **FRS125: Global Environmental Change: Science, Technology and Policy**, Princeton University, Fall 2013, *Graduate Instructor*
- ∩ **Introductory programming class for high school girls** (9th and 10th grade), New York City Girls Computer Science and Engineering Conference, April 2013, *Princeton University Graduate Women in Science and Engineering (GWISE) volunteer*
- ∩ **Research mentoring**: Elliot Chang (Princeton University, senior thesis, 2016), Connor Duwan (Princeton University, summer intern, 2015), Craig Sinkler (Princeton University, summer intern, 2014), James O'Donnell (Princeton University, summer intern, 2014)

REFERENCES

- ∩ **Prof. Kelly K. Caylor**
 Director, Earth Research Institute
 Professor, Bren School of Environmental Science & Management and Department of Geography
 University of California, Santa Barbara
 6812 Ellison Hall, Santa Barbara, CA 93106, USA
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 caylor@ucsb.edu

γ **Prof. N. Michele Holbrook**
Professor of Organismic and Evolutionary Biology
Charles Bullard Professor of Forestry
Harvard University
16 Divinity Ave., Room 3119, Cambridge, MA 02138, USA
+1 (617) 496-0603
holbrook@oeb.harvard.edu

γ **Prof. Sally Thompson**
Associate Professor of Engineering and Mathematical Sciences
University of Western Australia
225 Mathematics and Statistics,
35 Stirling Highway, Crawley WA 6009, Perth, Australia
+61 8 6488 8541
sally.thompson@berkeley.edu

γ **Prof. Gretchen Keppel-Aleks**
Assistant Professor of Climate and Space Sciences and Engineering
University of Michigan
2516 CSRB, 2455 Hayward Street, Ann Arbor, MI 48109, USA
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gkeppela@umich.edu

FIELD CAMPAIGNS

- γ **Silas Little Experimental Forest, NJ, USA**, Summer 2013, *8 weeks*
In-situ measurement of the isotopic composition of xylem water.
- γ **Mpala Research Center, Laikipia County, Kenya**, April 2011, *4 weeks*
Mapping soil moisture on an hill slope using ground penetrating radar (GPR) and electromagnetic induction (EMI).
- γ **Montpellier, France**, October 2010, *1 week*
Borehole geophysics and hydrology.
- γ **Rittershoffen/Pechelbronn, Alsace, France**, September 2010, *1 week*
Subsurface geophysics: seismic reflection, gravimetry, resistivity, magnetic and electromagnetic methods
- γ **Digne-les-Bains, Alpes-de-Haute-Provence, France**, May 2009, *10 days*
Sedimentary petrology, facies analysis, deposition environments, stratigraphy, paleontology, cartography, tectonics, alpine geology and geomorphology.

TECHNICAL SKILLS

- γ **Stable Isotope Ecology and Biogeochemistry short courses at the University of Utah:** IsoCAMP (2013), SPATIAL (2014)
- γ **Programming:** Python, C, Fortran
- γ **Numerical Computing:** Matlab, Mathematica, Maple
- γ **Applications:** GIS Training (Princeton University Workshop, Spring 2013), Panoply, SEEP/W 2007, AutoCAD Civil 3D, Petrel, Processing Modflow, 3D Master (3D Groundwater Explorer)

LANGUAGES

French	Native speaker
Spanish	Native speaker
English	Fluent
German	Excellent command: bilingual high school, ten years of German classes. June 2006: Allgemeine Hochschulreife (<i>Abitur</i> , German high school graduation).