Tel: +1 215 589 5466 www.danalapides.com danalapides@gmail.com

DANA A. LAPIDES, PH.D.

ORISE POSTDOCTORAL FELLOW

RESEARCH INTERESTS

- Climate and hydrology
- Runoff generation mechanisms
- Critical zone science
- Ecohydrology
- Sustainable water resources management
- Analytical process-based modeling
- Groundwater-surface water interactions
- Simple and accurate management tools
- Human-environment interaction
- Headwater and intermittent streams

EDUCATION

MAY 2020 **PH.D**. IN EARTH AND PLANETARY SCIENCE
University of California, Berkeley
Advisers: Sally Thompson (U Western Australia), Michael Manga

FALL 2019 VISITING SCHOLAR AT UNIVERSITY OF WESTERN AUSTRALIA
University of Western Australia, Perth
Host: Sally Thompson

DEC 2015 **B.S.** MATHEMATICS, MINOR IN PHYSICS (SUMMA CUM LAUDE)
Lafayette College, Easton, PA

AUG 2014-JUN 2015 BUDAPEST SEMESTERS IN MATHEMATICS
Budapest University of Technology and Economics, Hungary
Prestigious mathematics program founded by Paul Erdos

PROFESSIONAL RESEARCH APPOINTMENTS

JUL 2021-present **ORISE POSTDOCTORAL FELLOW**
United States Forest Service Southwest Pacific Research Station
Department of Geography, Simon Fraser University
Mentors: Dr. David Dralle, Dr. W. Jesse Hahm
full-time appointment (40 hr/week)
$72,000/Year

- Authored 3+ first-author publications in the field of Hydrology
- Applied methods for modeling age of streamflow
- Learned remote sensing methods, including Google Earth Engine
- Presented 2+ seminars on novel research

NOV 2020-JUN 2021 **WISCONSIN WATER RESOURCES SCIENCE-POLICY FELLOW**
Water Use Section, WI Department of Natural Resources
Mentors: Adam Freihoefer, Alex Latzka, Dr. Jennifer Hauxwell
full-time appointment (40 hr/week)
$55,000/Year

- Developed an improvement to Wisconsin streamflow model for use by managers in the Wisconsin Department of Natural resources
- Published 2 first-author publications in the field of Hydrology

- Developed collaborations across multiple government agencies and universities

JUN 2020- OCT 2020 **POSTDOCTORAL RESEARCHER**

Department of Geography, Simon Fraser University
Supervisors: Dr. W. Jesse Hahm and Dr. David Dralle
full-time appointment (40 hr/week)
$30,000/Year

- Published 1 first-author publication in the field of Hydrology
- Mentored an undergraduate student to produce high-quality research

AUG 2016- MAY 2020 **DOCTORAL RESEARCHER**

Department of Earth and Planetary Science, UC Berkeley
Committee: Dr. Sally Thompson, Dr. Michael Manga, Dr. Laurel Larsen, Dr. Inez Fung
full-time appointment (40 hr/week)
$34,000/Year

- Published 4 first-author publications and 1 second-author publication in the field of Hydrology
- Used hydrological models, theoretical development, statistical modeling, remote sensing, and field validation to explore research questions in hydrology
- Developed and led collaborations across multiple academic institutions and government agencies
- Presented work in conferences and public webinars
- Co-produced new ArcHydro software

JUN 2015- AUG 2015 **MATERIALS SCIENCE RESEARCH EXPERIENCE UNDERGRADUATE**

Northwestern University
Supervisor: Dr. Laurence Marks, Dr. Betty Peng
full-time appointment (40 hr/week)
$5,000 for full appointment

- Synthesized palladium nanoparticles
- Observed TEM imaging
- Collected and analyzed data on nanoparticle synthesis results

JUN 2014- AUG 2014 **GRAPH THEORY RESEARCH EXPERIENCE UNDERGRADUATE (REU)**

Department of Mathematics, Willamette University
Supervisor: Dr. Joshua Laison
full-time appointment (40 hr/week)
$3,500 for full appointment

- Developed and studied a novel mathematical object
- Co-authored 1 research publication in Mathematics

JUN 2013- MAY 2014 **EXCEL RESEARCH SCHOLAR**

Chemical and Biomolecular Engineering, Lafayette College
Supervisor: Dr. James K. Ferri, Dr. Filippo Gambinossi
full-time appointment Jun-Aug (40 hr/week), part-time Sep-May (10 hr/week)
$10/Hour

- Co-authored 1 research publication in Chemical Engineering
- Synthesized thermo-responsive nanoparticles
- Ran experiments to enhance predictability of nanoparticle product

PUBLICATIONS

Peer-reviewed papers:

- **Lapides D**, Hahm WJ, Rempe D, Dralle D. "Missing snowmelt following drought." *Geophysical Research Letters* (In press). https://eartharxiv.org/repository/view/3142/
- Hahm WJ, **Lapides D**, Rempe D, McCormick E, Dralle D. "The age of evapotranspiration: continental-scale." *Geophysical Research Letters* (In press). https://ericamccormick.com/pdfs/Hahm_WRR_preprint.pdf
- **Lapides D**, Dralle D, Rempe D, Dietrich W, and Hahm WJ. "Controls on streamwater age in a saturation overland flow-dominated catchment." *Water Resources Research* (2022). https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2021WR031665
- **Lapides D**, Maitland M, Zipper S, Latzka A, Pruitt A, Greve R. "Advancing environmental flows approaches to streamflow depletion management." *Journal of Hydrology* (2022): 127477. https://www.sciencedirect.com/science/article/abs/pii/S0022169422000221
- **Lapides D**, Sytsma A, Djokic D, Nichols M, Thompson S. " ArcHillslope: an ArcHydro tool for hillslope-scale runoff analysis." *Environmental Modeling & Software,* 153 (2022): 105408.
- **Lapides D.** "Using sporadic streamflow measurements to improve and evaluate a streamflow model in ungauged basins in Wisconsin." *Journal of Hydrologic Engineering*. (2022). https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29HE.1943-5584.0002163
- **Lapides D**, Sytsma A, and Thompson S. "Implications of distinct methodological interpretations and runoff coefficient usage for Rational Method predictions." *JAWRA Journal of the American Water Resources Association* (2021). https://doi.org/10.1111/1752-1688.12949
- **Lapides D**, Leclerc C, Moidu H, Dralle D, and Hahm WJ. "Variability of headwater stream network extents controlled by flow regime and network hydraulic scaling." *Hydrological Processes* (2021). https://onlinelibrary.wiley.com/doi/abs/10.1002/hyp.14079
- **Lapides D**, Sytsma A, Crompton O, and Thompson S. "Rational Method time of concentration can underestimate peak discharge for hillslopes." *Journal of Hydraulic Engineering* (2021). doi:10.1061/(ASCE)HY.1943-7900.0001900.
- **Lapides D**, David C, Sytsma A, Dralle D, and Thompson S. "Analytical solutions to runoff on hillslopes with curvature: numerical and laboratory verification." *Hydrological Processes* (2020). https://onlinelibrary.wiley.com/doi/abs/10.1002/hyp.13879
- **Lapides D** and Manga M. "Large wood as a confounding factor in interpreting the width of spring-fed streams." *Earth Surface Dynamics* 8.1 (2020). http://seismo.berkeley.edu/~manga/lapidesandmanga2020.pdf

- Gambinossi F, **Lapides D**, Anderson C, Chanana M, Ferri J. "Effects of Nanoparticle Surface Chemistry on Adsorption and Fluid Phase Partitioning in Aqueous/Toluene and Cellular Systems." Journal of Nanoscience and Nanotechnology 15.5 (May 2015): 3610-3617(8). https://www.ingentaconnect.com/content/asp/jnn/2015/00000015/00000005/art00037

In review:

- Dralle D, **Lapides D**, Hahm WJ. "Harnessing hyperspectral imagery to map surface water presence and hyporheic flow properties of headwater stream networks."
- **Lapides D**, Grindstaff G, Nichols M. "Topological persistence for feature detection in drylands."
- **Lapides D,** Zipper S, Hammond J. "Identifying hydrologic signatures associated with streamflow depletion caused by groundwater pumping."
- Crompton O, Katul G, **Lapides D**. "Hydrologic connectivity and patch-to-hillslope scale relations in dryland ecosystems."
- Rempe D, McCormick E, Hahm WJ, Persad G, Cummins C, **Lapides D**, Chadwick KD, Dralle D. "Resilience of woody ecosystems to precipitation variability." https://eartharxiv.org/repository/view/3356/
- Jones S, Kawana J, Laison J, **Lapides D.** "Veto Interval Graphs." https://arxiv.org/abs/1709.09259

In preparation:

- **Lapides D,** Zipper S, Hammond J. "How does streamflow depletion from groundwater pumping impact stream temperatures?"
- Crompton O, Katul G, **Lapides D,** Thompson S. "Bridging hydrologic and ecosystem structural connectivity in drylands ecosystems."

GRANTS AND FELLOWSHIPS

2020 - present	Wisconsin Water Resources Science-Policy Fellow ($55,000 stipend)
2016 - 2020	Hellman Graduate Fellowship ($35,000)
2016 - 2018	Berkeley Graduate Fellowship (Tuition and $30,000 stipend)
2015	Barry Goldwater Scholar ($2,000)
2013 - 2015	Creative and Performing Arts Fellow, Lafayette College ($7,500)
2012 - 2015	Marquis Scholarship, Lafayette College ($100,000)
2012	National Merit Scholar ($2,500)

AWARDS AND HONORS

2016	Outstanding Poster Award, MAA Joint Math Meeting
2015	Flash Fiction Contest Winner, Lafayette College
2015	High Honors, Budapest Semesters in Mathematics
2014	Outstanding Presentation Award, MAA MathFest

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2014	3rd Place Presentation Award, AiCHE Mid-Atlantic Regional
2012 - 2015	Dean's List, Lafayette College
2014	Pi Mu Epsilon Mathematical Honors Society

CONFERENCES AND PRESENTATIONS

2022 **Lapides D,** Hahm WJ, Forrest M, Rempe DM, Hickler T, Dralle DN. "Beyond soil: Incorporating plant-available water storage in bedrock into dynamic global vegetation models improves representation of vegetation structure and function." *Research Talk.* December 2022. *AGU Fall Meeting*, Session H26D.

Xu H, Nichols M, **Lapides D,** Crompton O. "Semi-Automatic Identification of earthen Berms in the Semi-Arid Southwestern US from Lidar-based Digital Elevation Models." *Poster*. December 2022. *AGU Fall Meeting,* Session H15K.

Zipper SC, **Lapides D,** Hammond, JC. "Hunting for hints of streamflow depletion in hydrographs." *Poster*. December 2022. *AGU Fall Meeting,* Session H31B.

McCormick EL, Rempe, DM, Hahm WJ, Perad G, Cummins C, **Lapides D,** Chadwick KD, Dralle DN. "Resilience of California's Woody Ecosystems to Precipitation Variability." *Research Talk*. December 2022. *AGU Fall Meeting,* Session B42B.

Dralle DN, , **Lapides D,** Rempe DM, Hahm WJ. "Harnessing hyperspectral imagery to map surface water presence and subsurface flow capacity in headwater stream networks." *Research Talk*. December 2022. *AGU Fall Meeting,* Session H33E.

King E, Hahm WJ, Dietrich WE, Dralle D, Lee M, Jamison HT, Crutchfiel-Peters KL, Dawson TE, Golla JK, Durban JL, **Lapides D,** Rempe DM. "The Evolution of Water Stable Isotopes Through the Critical Zone: Direct Observations from a Vadose-Zone Monitoring System at the Eel River Critical Zone Observatory." *Poster*. December 2022. *AGU Fall Meeting,* Session H31BK.

Lapides D, Hahm WJ, Rempe DM, Whiting J, Dralle DN. "Root-zone storage deficits mediate the production of streamflow from snowmelt." *Research Talk.* Jun 2022. *Frontiers in Hydrology Management*.

Lapides D, Grindstaff G, Nichols M. "Scale-free feature detection in drylands landscapes using topological persistence." *Research Talk.* Jun 2022. *Frontiers in Hydrology Management*.

Lapides D, Hahm WJ, Rempe DM, Dralle DN. "The case of California's missing streamflow." *Science Talk.* Mar 2022. US Forest Service Pacific Southwest Research Station

2021 **Lapides D.** "Mountains, valleys, bedrock, and water: how water moves downhill depends on terrain. ***Invited research seminar.*** Nov. 2021. Zuckerberg Institute for Water Research, Invited talk.

Lapides D, Dralle D, Rempe D, Dietrich W, Hahm WJ. "Where does overland flow come from? stream water age to probe mechanisms." ***Invited research seminar.*** Oct. 2021. Vanderbilt University, Invited talk.

Whiting J, **Lapides D**, Hahm WJ, Sanders MA, Schmidt L, Dietrich W, Rempe D, Dralle D. "How does water storage in unsaturated weathered bedrock control groundwater recharge? Insights from direct observations throughout the weathered bedrock vadose zone in California's Northern Coast Ranges and Southern Sierra Nevada." *American Geophysical Union Fall Meeting*. November 2021. Research Talk.

Lapides D, Dralle D, Rempe D, Dietrich W, Hahm WJ. "Controls on stream water age in a saturation overland flow-dominated catchment." *European Geophysical Union*. April 2021. Research Talk.

Sytsma A, **Lapides D,** O'Neil G, Djokic D, Nichols M, Thompson S. "Introducing the new hillslope analysis toolset." ***Invited ESRI Webinar***. March 2021. Invited Talk.

Lapides D, Maitland B, Pruitt A, Greve R. "Assessing approaches to quantity hydrological alteration on Wisconsin streams." *AWRA Wisconsin Regional Meeting*. March 2021. Research Talk.

Naughton J, Dehnert G, Balgooyen S, Pollesch N, Salus L, Arend A, Voter C, **Lapides D,** Maitland B. "Tackling Wisconsin's water challenges through UW Water Science-Policy Fellowships and agency partnerships." *Wisconsin Water Week*. March 2021. **Plenary Talk.**

Maitland B, Latka A, **Lapides D,** Mitro M, Frater P. "A long-term look at Wisconsin Brook and Brown Trout populations and the role of hydrologic change." *Wisconsin American Fisheries Society Meeting*. February 2021. Research Talk.

2020 David C, **Lapides D,** Dralle D, Thompson S. "Laboratory Methods in Surface Hydrology: Using Engineered Surfaces to Verify Analytical Solutions for Overland Flow on Complex Surfaces." *American Geophysical Union Annual Meeting*. December 2020. Research Talk.

Leclerc C, **Lapides D,** Moidu H, Dralle D, Hahm, WJ. "Variability of headwater stream network extent is highly sensitive to projected impacts of climate change." *American Geophysical Union Annual Meeting. Dec*ember 2020. Research Talk.

Lapides D, Sytsma A, Crompton O, Djokic D, Thompson S. "An ArcGIS Tool for Critical Duration: Rethinking the Rational Method for Divergent Hillslopes in Urban Areas." *American Water Resources Association (AWRA) Geospatial Water Technology Conference*. August 2020. Research Talk.

Lapides D, Sytsma A, Crompton O, Djokic D, Thompson S. "An ArcGIS Tool for Critical Duration: Rethinking the Rational Method for Divergent Hillslopes in Urban Areas." *Stormwater Modelers Meeting*. March 2020. Research Talk.

2019 **Lapides D,** Sytsma A, Crompton O, Thompson S. "Limitations of the rational method on idealized hillslopes." Water Group Seminar. November 2019. Research Talk.

2018 **Lapides D**, Nichols M, Larsen L, Thompson S. "Exploring the impacts of surface-water harvesting berms on the Tohono O'odham Reservation, AZ." Environmental Systems Dynamics Laboratory Meeting, Berkeley, CA. March 2018. Research Talk.

Flesch B, Jones S, Kawana J, Laison J, **Lapides D**. "Veto Interval Graphs." Joint Math Meetings, San Diego, CA. January 2018. Research Talk.

2017 Amidi-Abraham G, **Lapides D,** Noh S. "Where is it going? A checkup on the sediment wave in Redwood Creek following Restoration." 13th Annual River Restoration Symposium, Berkeley, CA. 9 December 2017. Graduate Student Research Talk.

Lapides D, Lin W, Romps D. "Integrating the SPM into ACME." CMDV Principal Investigator Meeting, Baltimore, MD. June 2017.

2016 Dickens R, Hazeltine A, **Lapides D,** Turner H. "Density of Sets with Distance Restrictions." Mathematical Association of America (MAA) Joint Math Meetings (JMM), Seattle, WA. 8 January 2016. Undergraduate Poster Session.

2015 Peng L, **Lapides D**, Marks L. "Synthesis and Characterization of Au-Decorated Pd Nanocrystals." North- western University Material Research, Science and Engineering Center (MRSEC) REU Final Symposium, Evanston, IL. 21 August 2015. Student Research Talk.

Dickens R, Hazeltine A**, Lapides D,** Turner H. "Density of Sets with Distance Restrictions." Budapest Semesters in Mathematics (BSM) Research Symposium, Budapest, Hungary. 20 May 2015. Student Research Talk.

2014 Jones S, Kawana J, **Lapides D,** Laison J. "Veto Interval Graphs." Mathematical Association of America (MMA) MathFest. Hilton Hotel, Portland, OR. 7 August 2014. Student Paper Session.

Lapides D, Ferri J. "Effect of nanoparticle surface chemistry on adsorption and fluid phase partitioning in aqueous/toluene emulsions." Lehigh Poster Symposium. Lehigh University, Bethlehem, PA. 9 April 2014. Poster Presentation.

Lapides D, Ferri J. "Effect of nanoparticle surface chemistry on adsorption and fluid phase partitioning in aqueous/toluene and cellular systems." AIChE Mid-Atlantic Regional Conference. University of Virginia, Richmond, VA. 29 March 2014.

2013 **Lapides D,** Gambinossi F, Chanana M, Ferri J. "Synthesis and Characterization of Thermo-Responsive 2-(2- methoxyethoxy)Ethyl 2-Methylacrylate Copolymer Co-Oligo(ethyleneglycol) Methyl Ether Methacrylate Stabilized Nanoparticles." AIChE Annual Meeting. Hilton, San Francisco, CA. 4 November 2013. Undergraduate Poster Session.

Lapides D, Gambinossi F, Chanana M, Ferri J. "Synthesis and Characterization of Thermo-Responsive 2-(2- methoxyethoxy)Ethyl 2-Methylacrylate Copolymer Co-Oligo(ethyleneglycol) Methyl Ether Methacrylate Stabilized Nanoparticles." Summer Student Research Poster Symposium. Lafayette College, Easton, PA. 23 September 2013. Poster Session.

Lapides D, Gambinossi F, Chanana M, Ferri J. "Synthesis and Characterization of Thermo-Responsive Nanoparticles." Physics Department Colloquium. Lafayette College, Easton, PA. 27 September 2013. Student Research Talk.

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BROAD-AUDIENCE PUBLICATIONS

- **Lapides D,** Rempe D, Dralle D, Hahm WJ. "Scientists dig deep and find a way to accurately predict snowmelt after droughts." *The Conversation*. https://theconversation.com/scientists-dig-deep-and-find-a-way-to-accurately-predict-snowmelt-after-droughts-195172

- Thompson S, Sytsma A, **Lapides D**, Nichols MH. "Our flood predictions are getting worse as the climate changes. We have to understand how hills shape floods." *The Conversation*. https://theconversation.com/our-flood-predictions-are-getting-worse-as-the-climate-changes-we-have-to-understand-how-hills-shape-floods-183820

TEACHING AND MENTORING

2021 GUEST LECTURER, SIMON FRASER
- Course: Hydrology

2020 MENTORED UNDERGRADUATE STUDENT AT SIMON FRASER
- Coauthored MS with student Christine LeClerc (underlined above)
- Mentored Christine Leclerc to give an oral presentation at AGU (underlined above)

2019 - 2020 UNDERGRADUATE RESEARCH APPRENTICESHIP PROGRAM (URAP)
- Coauthored MS with student Cy David (underlined above)
- Mentored Cy David to present a poster at AGU (underlined above)

2018 GRADUATE TEACHING ASSISTANT, UC BERKELEY
- Course: Introduction to Hydrology
- Instructor: Dr. Sally Thompson

2015 MENTORED PEER STUDY LEADER, LAFAYETTE COLLEGE
- Course: Differential Equations
- Instructor: Dr. Justin Corvino

2015 MENTORED PEER STUDY LEADER, LAFAYETTE COLLEGE
- Course: Transition to Theoretical Math
- Instructor: Dr. Justin Corvino

COMMUNITY ENGAGEMENT

2021 FLOW ART-SCIENCE MICROGRANT
Mentor for art student Anna Klein (link)

2017 BAY AREA SCIENTISTS INSPIRING STUDENTS (BASIS) INSTRUCTOR
Developed and taught 6th grade Lesson: All About Volcanoes (link)

2017 - 2018 UC GILL TRACT COMMUNITY FARMER
Volunteer farmer and classroom visit leader (link)

2017, 2019 WORLDWIDE ORGANIZATION OF ORGANIC FARMERS (WWOOF)
Volunteer farmer at Quinto do Barbeito (link)