Dongyue Li
Postdoctoral Scholar | UCLA

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Profile Highlights

Publications	Published **21** peer-reviewed journal articles, **11** as first author and **1** as corresponding author. **1** Editor's Pick from *Geophysical Research Letters*. **1** Cover-featured Article from *Environmental Science & Technology Letters*. **3** invited talks at AGU Fall Meeting. **3** manuscripts under review. H-index = **9**.
Grants	Awarded the **NASA Earth and Space Science Fellowship** and **CUAHSI Pathfinder Fellowship** (total $95,000). Led or contributed to the development of **5** proposals submitted to federal and state agencies (**4** funded).
Teaching	Lectured in both undergraduate and graduate classes. Took part in mentoring **4** undergraduate students and **3** graduate students. Contributed to **3** student-led journal articles and **1** student's selection for the NASA FINESST Fellowship. Volunteer lecturer at career development workshop for K-12 teachers.
Services	Associate Editor of the *Journal of Hydrometeorology*. Manuscript and proposal reviewer. Meeting and seminar Chair for the department, university, and science community.
Research Areas	Hydrology and water resources, hydrologic extremes (floods and droughts), data assimilation and big-data analytics, remote sensing, hydrologic modeling.

Educational Background

August 2016	**Ph.D.**	Earth Sciences, Ohio State University
June 2011	**M.S.**	Earth Sciences, Ohio State University
July 2009	**B.E.**	Remote Sensing, Information Engineering University, China

Research Experience

Present – September 2016 — Postdoctoral Scholar | Department of Geography, University of California Los Angeles

- Quantifying and forecasting water resource availability
- Examining the mechanisms and impacts of hydrologic extreme events (drought and flood)
- Developing space-time continuous river discharge data for NASA SWOT mission
- Evaluating the ecological and social influences of water cycle changes in the warming climate
- Using big-data analytic to quantify water fluxes and to understand their future changes
- Developing observation System Simulation Experiment (OSSE) for future snow satellite mission

data assimilation | machine learning | remote sensing | hydrologic modeling | river hydraulics | snow | flood and drought | streamflow forecasting | super computing

August 2016 – September 2013 — Graduate Fellow | School of Earth Sciences, Ohio State University

- Large-scale snow water resource availability estimate with satellite data assimilation
- Bayesian data assimilation system development
- Evaluating the hydrologic and socioeconomic role of snow at large scale with hydrologic modeling

data assimilation | remote sensing | snow hydrology | hydrologic modeling | radiative modeling

August 2013 – January 2010 — Graduate Research Associate | School of Earth Sciences, Ohio State University

- Developing novel algorithms for improved remote sensing data processing
- Data assimilation system development for improved snow water resource quantification
- Microwave radiative transfer modeling

remote sensing | data assimilation | radiative transfer modeling

Research Grants

5. California State Water Resource Control Board, "Quantifying Thermal Thresholds for Central Valley Salmonids", 10/2021 - 09/2024, PI: Dongyue Li, Total Budget: $184,682, Status: funded

4. NASA New (Early Career) Investigator Program in Earth Science (NNH20ZDA001N-NIP), "From spaceborne snow observation to seamless snow water resource information: making the most of cutting-edge snow measurements from space", 04/2021 - 05/2024, PI: Dongyue Li, Total Budget: $360,510, Status: declined

3. NASA Surface Water and Ocean Topography Science Team (NNH19ZDA001N-SWOTST), "Development of spatiotemporally continuous runoff using SWOT discharge data products" PI: Dennis P. Lettenmaier, 06/2020 - 05/2024, Total Budget: $738,053, Role: collaborator & proposal contributor, Status: funded (I led the proposal development but didn't serve as an investigator due to policy constraints on postdoc-PI eligibility)

2. NOAA Office of Weather and Air Quality Research (NOAA-OAR-OWAQ-2018-2005521), "Evaluation and diagnosis of National Water Model simulations over CONUS using a novel snow reanalysis dataset", PI: Konstantinos Andreadis, 09/2018 - 08/2020, Total Budget: $573,314, Role: proposal contributor, Status: funded

1. NASA Earth and Space Science Fellowship (NNH13AN53H-NESSF), "Improving the understanding of snow water equivalent and melt timing in the Sierra Nevada by assimilating AMSR-E L2A brightness temperature into a land surface model", PI: Michael Durand, 09/2013 - 08/2016, Budget: $90,000, Role: Student Investigator, Status: funded

Fellowships and Scholarships

2015	Friends of Orton Hall Scholarship ($500)
2013	CUAHSI Pathfinder Fellowship ($5,000)
2010-11	Graduate School Entry Fellowship, Hong Kong Polytechnic University (Tuition waiver + HK $40,000 stipend, didn't enroll)

Awards and Honorable Mentions

2021	Fellow, U.S.-China Clean Energy Research Center for Water-Energy Technologies
2015	Distinguished Senior PhD Student, OSU School of Earth Sciences
2015	Finalist (8 total) in the 29th Edward F. Hayes Graduate Research Forum, OSU
2014	Finalist (10 total) in IEEE IGARSS student paper competition
2013	The Spieker Book Award, OSU School of Earth Sciences
2008	University Distinguished Students Scholarship 3rd Class, top 2.5%
2007	University Distinguished Students Scholarship 2nd Class, top 1.5%
2007	University Honored Student
2006	University Distinguished Students Scholarship 2nd Class, top 1.5%
2006	University Honored Student

Publications

Peer-reviewed articles (§: student under my direct mentorship, #: corresponding author)

21. Huang, H., Fischella, M., Liu, Y., Ban, Z., Fayne, J., **Li.,D.,** Cavanaugh, K., Lettenmaier, D.P. (2022), Changes in mechanisms and characteristics of Western U.S. floods over the last sixty years, *Geophysical Research Letters*, 49(3), e2021GL097022

20. **Li.,D.,** Engel, R.A., Ma, X., Porse, E., Kaplan, J.D., Margulis, S.A., Lettenmaier, D.P. (2021), Stay-at-home orders during the COVID-19 pandemic reduced urban water use, *Environmental Science & Technology Letters*, doi.org/10.1021/acs.estlett.0c00979 **[Front Cover Article]**

19. **Tarouilly, E.§**, **Li.,D.,** Lettenmaier, D.P. (2021), Western U.S. superfloods in the recent instrumental record. *Water Resources Research*, doi.org/10.1029/2020WR029287.

18. Schaperow, J., **Li.,D.,** Margulis, S.A., Lettenmaier, D.P. (2021), A near-global, high resolution land surface parameter dataset for the variable infiltration capacity model, *Scientific Data*, 8(1), 1-14, doi.org/10.1038/s41597-021-00999-4

17. Su, L. Cao, Q., Xiao, M., Mocko, D.M., Barlage, M., **Li.,D.,** Peters-Lidard, C.D., Lettenmaier, D.P. (2021), Drought variability over the conterminous United States for the past century, *Journal of Hydrometeorology*, doi:10.1175/JHM-D-20-0158.1

16. Li, S., Liu, M., Adam, J.C., Su, F., **Li.,D.,** Liu, Z., Yao, Z. (2021), Contribution of snow to the hydrology over the Three-River headwater region, China. *Remote Sensing*, doi.org/10.3390/rs13081585

15. **Li.,D.,** Andreadis, K. M., Margulis, S. A., Lettenmaier, D. P. (2020). A data assimilation framework for generating space-time continuous daily SWOT river discharge data products. *Water Resources Research*, 56(6), doi.org/10.1029/2019WR026999

14. **Li.,D.,** Wigmore O., Durand M.T., Vander-Jagt B., Margulis S.A., Molotch N.P., Bales, R.C. (2019), Potential of balloon photogrammetry for spatially continuous snow depth measurements, *IEEE Geoscience and Remote Sensing Letters*, vol.17, no.10, doi: 10.1109/LGRS.2019.2953481

13. **Li.,D.,** Lettenmaier D.P., Margulis, S.A., Andreadis, K., (2019), The value of high-resolution and spatiotemporally continuous snow information to streamflow forecasts, *Journal of Hydrometeorology*, doi: 10.1175/JHM-D-18-0210.1

12. **Li.,D.,** Lettenmaier D.P., Margulis S.A., Andreadis K. (2019), The role of rain-on-snow events in the extreme floods over the conterminous United States, *Water Resources Research*, doi: 10.1029/2019WR024950

11. **Schaperow, J.§**, **Li.,D.,** Margulis, S.A., Lettenmaier, D.P. (2019), A curve-fitting method for estimating bathymetry from remotely-sensed water surface elevation and water-covered area, *Water Resources Research*, doi: 10.1029/2019WR024938

10. Margulis, S. A., Fang, Y., **Li.,D.,** Lettenmaier, D. P., Andreadis, K. (2019). The utility of infrequent snow depth images for deriving continuous space-time estimates of seasonal snow water equivalent. *Geophysical Research Letters*, 46(10), 5331-5340.

9. Kim, R. S., Durand, M., **Li.,D.,** Baldo, E., Margulis, S. A., Dumont, M., Morin, S. (2019). Estimating alpine snow depth by combining multifrequency passive radiance observations with ensemble snowpack modeling. *Remote Sensing of Environment*, 226, 1-15.

8. **Li.,D.,** Wrzesien, M. L., Durand, M., Adam, J., Lettenmaier, D. P. (2017). How much runoff originates as snow in the western United States, and how will that change in the future? *Geophysical Research Letters*. 44, 6163–6172 **[Editor's Highlight, 2017]**, **[ISI Highly Cited Paper]**

7. **Li.,D.,** Durand, M., Margulis, S. A. (2017). Estimating snow water equivalent in a Sierra Nevada watershed via spaceborne radiance data assimilation. *Water Resources Research*, 53(1), 647-671.

6. Cai, S., **Li.,D.#**, Durand, M., Margulis, S. A. (2017). Examination of the impacts of vegetation on the correlation between snow water equivalent and passive microwave brightness temperature. *Remote Sensing of Environment*, 193, 244-256.

5. Margulis, S. A., Cortés, G., Girotto, M., Huning, L. S., **Li.,D.,** Durand, M. (2016). Characterizing the extreme 2015 snowpack deficit in the Sierra Nevada (USA) and the implications for drought recovery. *Geophysical Research Letters*, 43(12), 6341-6349.

4. **Li.,D.,** Durand, M., Margulis, S. A., (2015). Quantifying spatiotemporal variability of controls on microwave emission from snow covered mountainous regions, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, doi: 10.1109/JSTARS.2015.2440332

3. **Li.,D.,** Durand, M. and Margulis, S.A., (2014), Interpreting the remotely sensed microwave radiance at snow covered mountains via a high-resolution modeling framework, *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium*, pp.1556-1559, doi: 10.1109/IGARSS.2014.6946736

2. **Li.,D.,** Durand, M., Margulis, S. A., (2014). Large-scale high-resolution modeling of microwave radiance of a maritime alpine snowpack, *IEEE Transactions on Geosciences and Remote Sensing*, vol.53, no.5, 2308-2322

1. **Li.,D.,** Durand, M. and Margulis, S.A., (2012). Potential for hydrologic characterization of deep mountain snowpack via passive microwave remote sensing in the Kern River Basin, Sierra Nevada, USA, *Remote Sensing of Environment*, Vol. 125, P34-48

Manuscripts under review

3. **Li.,D.,**, Ma, X., Durand, M., Margulis, S.A., Fang, Y., Liu, Y., Pan, M., Lettenmaier, D.P., The footprint of snow on gloabal water cycle and socioeconomic wellbeing **[PDF]**

2. **Ma, X. §, Li.,D.#,**, Lettenmaier, D.P., Estimating spatiotemporally continuous snow water equivalent with discontinuous satellite snow observations using statistical regression and machine learning **[PDF]**

1. Mehran, A., Clark, E.A., **Li.,D.,** Lettenmaier, D.P., Assessment of the anticipated accuracy of reservoir storage from the Surface Water and Ocean Topography (SWOT) mission **[PDF]**

Published datasets

2. **Li, D.**, Lettenmaier D.P., Margulis S.A., Andreadis K. (2019), "Hydrologic and energy fluxes and HUC-6 level flood risk estimation in the conterminous United States, 1950-2013", doi: 10.6084/m9.figshare.8244398.v2

1. Schaperow, J., **Li, D.**, (2019), "VICGlobal: soil and vegetation parameters for the Variable Infiltration Capacity hydrological model", doi: 10.5281/zenodo.3475601

Conference presentations (invited and first-authored only)

19. [Invited] **Li.,D.,**, Margulis, S.A., Ma, X., Fang, Y., Lettenmaier, D.P. (2021), From space-borne snow observation to seamless snow water resource information: making the most of cutting-edge snow measurements from space, 2021 American Geophysical Union fall meeting, New Orleans, USA.
18. **Li.,D.,** Andreadis, K.M., Margulis, S.A., Lettenmaier, D.P. (2019), A data assimilation framework for generating space-time continuous SWOT river discharge products, 2019 American Geophysical Union fall meeting, San Francisco, USA
17. **Li.,D.,** Margulis, S.A., Lettenmaier, D.P. (2019), Evaluation of the independent effects of mountainous environmental controls on the spatial snow variability, 2019 American Geophysical Union fall meeting, San Francisco, USA
16. **Li.,D.,** Lettenmaier, D.P., Margulis S.A., Andreadis K. (2018), The role of rain-on-snow in historical and future hydrologic extremes across the conterminous U.S., 2018 American Geophysical Union fall meeting, Washington D.C., USA.
15. [Invited] **Li.,D.,** Wrzesien, M. L., Durand, M., Adam, J., Lettenmaier, D. P. (2017), How much runoff originates as snow in the western United States and what its future changes tell us? 2017 American Geophysical Union fall meeting, New Orleans, USA.
14. **Li.,D.,** Lettenmaier D.P., Margulis S.A., Andreadis K. (2017), The value of high-resolution and spatiotemporally continuous snow information to California streamflow estimates. 2017 American Geophysical Union fall meeting, New Orleans, USA.
13. [Invited] Durand, M., Kim, R., **Li.,D.,** Dumont, M., Margulis, S.A. (2017), Snowpack modeling in the context of radiance assimilation for snow water equivalent mapping. 2017 American Geophysical Union fall meeting, New Orleans, USA.
12. **Li.,D.,** Andreadis, K., Lettenmaier, D.P., Margulis, S.A., (2017), "Developing a global assimilation and modeling framework to produce SWOT data products". 2017 SWOT mission science meeting, Toulouse, France
11. **Li.,D.,** Wrzesien, M. L., Durand, M., Adam, J., Lettenmaier, D. P. (2016). "How much western United States streamflow originates as snow?" 73rd Eastern Snow Conference
10. **Li.,D.,** Durand, M., Margulis, S. A. (2017). Estimating snow water equivalent in a mountainous Sierra Nevada watershed with spaceborne radiance data assimilation. 73rd Eastern Snow Conference, Columbus OH
9. **Li.,D.,** Wrzesien, M., Lettenmaier, D.P., Durand, M., Adam, J., (2015), "Quantifying the spatiotemporal contribution of snow to the streamflow in the semi-arid western U.S.", 2015 American Geophysical Union fall meeting, San Francisco, USA
8. **Li.,D.,** Durand, M. and Margulis, S.A., (2015), "Assimilating space-borne passive microwave observations for improved alpine snow water equivalent estimation", European Geophysical Union General Assembly 2015, Vienna, Austria
7. **Li.,D.,** Durand, M. and Margulis, S.A., (2014), "Towards the Improved Estimates of Mountain Snow Water Equivalent Using Space-borne Passive Microwave Measurements: an Ensemble Kalman Batch Reanalysis over the Upper Kern Basin, Sierra Nevada, USA", 2014 American Geophysical Union fall meeting, San Francisco, USA
6. **Li.,D.,** Durand, M. and Margulis, S.A., (2013), "Strategies to improve microwave radiance assimilation in large-scale alpine snow estimate", 2013 American Geophysical Union fall meeting, San Francisco, USA
5. **Li.,D.,** Durand, M. and Margulis, S.A., (2013), "Estimating mountainous snow water equivalent via ensemble Kalman filtering", European Geophysical Union General Assembly 2013, Vienna, Austria
4. **Li.,D.,** Durand, M. and Margulis, S.A., (2012), "Understanding the dominant physical processes in snow evolution and radiance simulations", 2012 American Geophysical Union fall meeting, San Francisco, USA
3. **Li.,D.,** Durand, M. and Margulis, S.A., (2012), "Preliminary work on assimilating downscaled AMSR-E observations into high-resolution model framework for mountain snow estimation", 69th Eastern Snow Conference, Claryville, NY, USA
2. **Li.,D.,** Durand, M. and Margulis, S.A., (2011), "Applying passive microwave remote sensing and land surface models in characterizing mountain snowpack in Sierra Nevada, USA", 2011 American Geophysical Union fall meeting, San Francisco, USA
1. **Li.,D.,** Durand, M. and Margulis, S.A., (2010), "Potential for hydrologic monitoring of deep mountain snowpack via passive microwave remote sensing: Kern River Basin, Sierra Nevada, USA", 2010 American Geophysical Union fall meeting, San Francisco, USA

Teaching Experience

Spring Quarter 2017 | **UCLA | Civil Engineering 251: Hydrologic Data Assimilation**
- Data assimilation application in hydrology

Fall Semester 2015 | **Ohio State University | Earth Sciences 5655: Land Surface Hydrology**
- Chapter 5: Surface energy balance
- Chapter 6: Snow hydrology in the changing climate

Spring Semester 2015	**Ohio State University | Earth Sciences 4450: Water, Ice and Energy in the Earth System** › Chapter 2: Radiance background
Spring Semester 2014	**Ohio State University | Geography 3900: Climate Change: Causes and Consequences (guest lecturer)** › Chapter 9: The cryosphere in the warming future
Student advising 2016-present	**UCLA | Department of Civil & Environment Engineering and Department of Geograpghy** › Mentored four undergraduate students and three graduate students. Contributed to three student-led journal papers and a student's selection for the NASA FINESST Fellowship.

Services

University, department, and science community

2020-	**Associate Editor**	*Journal of Hydrometeorology*
2020-	**Guest Editor**	*Remote Sensing* special issue on "Remote Sensing of Drought Recovery"
2018-21	**Chair**	AGU Fall Meeting session: Applications in Snow Hydrology – Linking Seasonal Snow to Natural Processes and Society
2022-	**Chair**	AGU Frontier in Hydrology Meeting session: Towards Sustainable Groundwater Management: Understanding and Mitigating Groundwater Overdrafts
2012-16	**Treasurer**	OSU student chapter of American Society of Photogrammetry and Remote Sensing
2012	**Coordinator**	Climate, Water and Environment Symposium, OSU School of Earth Sciences

Manuscript review

Reviewed manuscripts for journals including:

- *Nature Climate Change*
- *Nature Communications*
- *Water Resources Research*
- *Geophysical Research Letters*
- *Hydrology and Earth System Sciences*
- *Journal of Hydrology*
- *Journal of Hydrometeorology*
- *Journal of Geophysical Research*

Full manuscript review record on **Publons**

Proposal review

- NASA
- NSF

Fieldwork and workshops

2015	High performance computing workshop, Ohio Supercomputing Center
2015	Pathfinder snow hydrology campaign, Southern Sierra CZO
2015	Hydrologic surveying with aerial photogrammetry, Sequoia Nat'l Park
2013	Snow spatial variability measurement campaign, Storm Peak Lab
2011	Advanced snow microstructure measurement campaign, Storm Peak lab
2011	Data assimilation workshop, UCLA

Academic Affiliations

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- The Institute of Electrical and Electronics Engineers (IEEE)