

Ben Livneh, Ph.D.

PERSONAL INFORMATION

Contact: University of Colorado Boulder
216 UCB, Boulder CO, 80309
Phone: 303-735-0288
Email: ben.livneh@colorado.edu
Website: <https://ciresgroups.colorado.edu/livneh/>

EDUCATION

Ph.D. Civil and Environmental Engineering, University of Washington, 2012
Advisor: Dr. Dennis Lettenmaier
M.E.Sc. Civil and Environmental Engineering, University of Western Ontario, 2006
Advisor: Dr. M. Hesham El Naggar
B.E.Sc. Civil and Environmental Engineering, University of Western Ontario, 2004

PROFESSIONAL EXPERIENCE

2021-present Director, Western Water Assessment, University of Colorado, Boulder
2015-present Assistant Professor, Department of Civil, Environmental, and Architectural Engineering (CEAE), and Fellow, Cooperative Institute for Research in Environmental Sciences (CIRES) University of Colorado Boulder, Boulder, CO. (CU-Boulder).
2022-2023 Visiting Professor, Technion, Israel Institute of Technology, Haifa, Israel
2014-2015 CIRES Research Scientist II, CU-Boulder.
2013, 2014 Lecturer, CEAE, CU-Boulder.
2013-2014 CIRES Research Scientist I, CU-Boulder.
2012-2013 CIRES Visiting Fellow, CU-Boulder.
2008,2010,2011 Adjunct Professor, Civil and Environmental Engineering, Seattle University.
2006-2012 Research Assistant, Land Surface Hydrology Group, University of Washington.
2006 Design and CAD Engineer, Lican Developments, Windsor, ON.
2003-2006 V.P. Sales and Engineering, Univercycle Recycling Co., Windsor, ON, Jiang Ying, China.
2004-2006 Graduate Teaching Assistant, Civil and Environmental Engineering, Univ. of Western Ontario
2002 Engineer Assistant, Quality Engineering Company, Southfield, MI, USA.
2001 Event Manager, Canada Summer Games, London, ON.

AWARDS

2022 Hydrologic Sciences Early Career Award, *American Geophysical Union (AGU)*
2020 Young Researcher Award, *Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder*
2018 New (Early Career) Investigator Award in Earth Sciences, *National Aeronautics and Space Administration (NASA)*
2017 Ralph E. Power Junior Faculty Enhancement Award, *Oak Ridge Associated Universities*
2012 Visiting Postdoctoral Fellowship Award, *CIRES*

REFEREED JOURNAL PUBLICATIONS

Statistics: As of July, 2021: an H-Index of 28 with over 3400 citations according to [Web of Science/Publons author search](#); H-index of 31 with over 5000 citations according to [Google Scholar author search](#).

Key: Underline denotes a CU graduate student author, *italicized underline* denotes a CU undergraduate student author, and *asterisk denotes a CU postdoctoral scientist, advised by B. Livneh. In my field, the order of authorship reflects degree of contribution, with the exception that in some cases the last author oversees the research and is the project principal investigator.

- (1) Modi, P.A., E. Small, J.R. Kasprzyk, and **B. Livneh**, 2022: Investigating the role of snow water equivalent on streamflow predictability during drought, *Journal of Hydrometeorology*, 23(10), 1607-1625, <https://doi.org/10.1175/JHM-D-21-0229.1>.
- (2) Heldmyer, A.J., **B. Livneh**, J.L. McCreight, L. Read, J.R. Kasprzyk, and J.T. Minear, 2022: An observationally based channel parameterization for the National Water Model, *Hydrology and Earth System Science, HESS*, 26, 6121–6136, <https://hess.copernicus.org/articles/26/6121/2022/>.
- (3) Holland, M., C. Thomas, **B. Livneh**, A. Johnson, S. Tatge, and E. Thomas, 2022: Development and validation of an in-situ groundwater abstraction sensor network, hydrologic statistical model, and blockchain trading platform: A demonstration in Solano County, California, *ACS ES&T Water*, <https://doi.org/10.1021/acsestwater.2c00214>.
- (4) Brucker, C.P., **B. Livneh**, J.T. Minear, and F.L. Rosario-Ortiz, 2022: A Critical Review of Simulation Experiment Techniques used to Analyze Wildfire Effects on Water Quality and Supply, *Environmental Science: Processes & Impacts*, 24, 1110, <https://doi.org/10.1039/d2em00045h>.
- (5) Wobus, C., E. Small, J. Carbone, P. Modi, W. Szafranski, H. Kamen, and **B. Livneh**, 2022: Water allocation, return flows, and economic value in arid basins: Results from a coupled natural-human system model, *Water*, <https://doi.org/10.3390/w14203280>.
- (6) Hoell, A., X-W. Quan, M. Hoerling, R. Fu, J. Mankin, I. Simpson, R. Seager, C. He, F. Lehner, J. Lisonbee, **B. Livneh**, and Amanda Sheffield, 2022: Record Low 2020 North American Monsoon Rains Reignites American Southwestern Drought, *Bulletin of the American Meteorological Society*, 103(3), S26-S32, <https://doi.org/10.1175/BAMS-D-21-0129.1>.
- (7) Williams, A.P., **B. Livneh**, K.A. McKinnon, W.D. Hansen, J.S. Mankin, B.I. Cook, J.E. Smerdon, A.M. Varuolo-Clarke, N.R. Bjarke, C.S. Juang, and D.P. Lettenmaier, 2022: Growing impact of wildfire on western United States water supply, *Proceedings of the National Academies of Science*, 119(10), e2114069119, <https://doi.org/10.1073/pnas.2114069119>.
- (8) Hale, K.E., A.N. Wlostowski, S.P. Anderson, *A.M. Badger, K.N. Musselman, **B. Livneh**, and N.P. Molotch, 2022: Streamflow sensitivity to climate warming through the lens of surface water input, *Journal of Hydrology: Regional Studies*, 39, 100976, <https://doi.org/10.1016/j.ejrh.2021.100976>.
- (9) Culler, E.S., *A.M. Badger, J.T. Minear, K.F. Tiampo, S. Zeigler, and **B. Livneh**, 2021: A Multi-sensor Evaluation of Precipitation Uncertainty for Landslide-triggering Storm Events, *Hydrological Processes*, 35(7), e14260, <https://doi.org/10.1002/hyp.14260>.
- (10) Heldmyer, A.J., **B. Livneh**, B. Rajagopalan, and N. Molotch, 2021: Investigating the Relationship Between Peak Snow-Water Equivalent and Snow Timing Indices in the Western U.S. and Alaska, *Water Resources Research*, 57, e2020WR029395, <https://doi.org/10.1029/2020WR029395>.
- (11) Abolafia-Rosenzweig, R., M. Pan, J.L. Zeng, and **B. Livneh**, 2021: A remotely sensed ensemble to observe the terrestrial water budget over major global river basins, *Remote Sensing of Environment*, 252, 112191, <https://doi.org/10.1016/j.rse.2020.112191>.

- (12) *Badger, A.M., N.R. Bjarke, N. Molotch, and **B. Livneh**, 2021: The sensitivity of runoff generation to spatial snowpack uniformity in an alpine watershed: Green Lakes Valley, Niwot Ridge Long Term Ecological Research Station, *Hydrological Processes*, e14331, <https://doi.org/10.1002/hyp.14331>.
- (13) Pierce, D. W., L. Su, D. R. Cayan, M.D. Risser, **B. Livneh**, and D.P. Lettenmaier, 2021: An extreme-preserving long-term gridded daily precipitation data set for the conterminous United States, *Journal of Hydrometeorology*, 22(7), 1883-1895, <https://doi.org/10.1175/JHM-D-20-0212.1>.
- (14) Bjarke, N.R., **B. Livneh**, S. Elmendorf, N. Molotch, E. Hinckley, J. Morse, N. Emery, P. Johnson, and K. Suding, 2021: Catchment scale observations at the Niwot Ridge Long-Term Ecological Research site, *Hydrological Processes*, <https://doi.org/10.1002/hyp.14320>.
- (15) Abolafia-Rosenzweig, R., *A.M. Badger, E.E. Small, and **B. Livneh**, 2020: A Continental-scale Soil Evaporation Dataset Derived from Soil Moisture Active Passive Satellite Drying Rates, *Scientific Data*, 7(1), 1-10, <https://doi.org/10.1038/s41597-020-00748-z>.
- (16) Barsugli, J. J., A. Ray, **B. Livneh**, C. Dewes, A. Heldmyer, I. Rangwala, J. Guinotte, and S. Torbit, 2020: Projections of mountain snowpack loss for wolverine denning elevations in the Rocky Mountains, *Earth's Future*, 8(10), <https://doi.org/10.1029/2020EF001537>.
- (17) Wang, G., C. Kirchhoff, A. Seth, J. T. Abatzoglou, **B. Livneh**, D. W. Pierce, L. Fomenko, and T. Ding, 2020: Projected Changes of Precipitation Characteristics Depend on Downscaling Method and Training Data: the U.S. Northeast as an Example, *Journal of Hydrometeorology*, 1-55, <https://doi.org/10.1175/JHM-D-19-0275.1>.
- (18) Kumar, S., M.N. Newman, D.M., Lawrence, M-H. Lo, S. Akula, C-W., Lan, **B. Livneh**, and D. Lombardozzi, 2020: The GLACE-Hydrology Experiment: Effects of Land-Atmosphere Coupling on Soil, *Journal of Climate*, 33(15), 6511–6529, <https://doi.org/10.1175/JCLI-D-19-0598.1>.
- (19) Kampf, S., B. Gannon, C. Wilson, F. Saavedra, M. E. Miller, A. Heldmyer, **B. Livneh**, P. Nelson, and L. MacDonald, 2020: PEMP: Post-fire Erosion Model Inter-comparison Project, *Journal of Environmental Management*, 268, <https://doi.org/10.1016/j.jenvman.2020.110704>.
- (20) **Livneh, B.**, and *A.M. Badger, 2020: Drought less predictable under declining future snowpack, *Nature Climate Change*, 10, 452–458, <https://doi.org/10.1038/s41558-020-0754-8>.
- (21) Williams, A.P., E.R. Cook, J.E. Smerdon, B.I. Cook, R. Seager, J.T. Abatzoglou, K. Bolles, S.H. Baek, *A. Badger, and **B. Livneh**, 2020: Large contribution from anthropogenic warming to an emerging North American megadrought, *Science*, 368(6488), 314-318, <https://doi.org/10.1126/science.aaz9600>.
- (22) Steinberg, D., B.K. Mignone, J. Macknick, Y. Sun, K. Eurek, *Badger, A.M., **B. Livneh**, and K.B. Averyt, 2020: Decomposing supply-side and demand-side impacts of climate change on the U.S. electricity system through 2050, *Climatic Change*, 158(2), 125-139, <https://doi.org/10.1007/s10584-019-02506-6>.
- (23) Abolafia-Rosenzweig, R., **Livneh, B.**, Small, E. E., & Kumar, S. V., 2019: Soil moisture data assimilation to estimate irrigation water use. *Journal of Advances in Modeling Earth Systems*, 11, <https://doi.org/10.1029/2019MS001797>.
- (24) Hoerling, M.P., J.J. Barsugli, **B. Livneh**, J. Eischeid, X. Quan, and *A. M. Badger, 2019: Causes for the Century-Long Decline in Colorado River Flow, *Journal of Climate*, 32, 8181-8203, <https://doi.org/10.1175/JCLI-D-19-0207.1>.
- (25) Kumar, S., Newman, M.N, Wang Y., and **B. Livneh**, 2019: Potential Reemergence of Seasonal Soil Moisture Anomalies in North America, *Journal of Climate*, 32(8), <https://doi.org/10.1175/JCLI-D-18-0540.1>.
- (26) Morrill, C., E. Meador, **B. Livneh**, D.T. Liefert, B. N. Shuman, 2019: Quantitative model-data comparison of Mid-Holocene lake level change in the central Rocky Mountains, *Climate Dynamics*, 1-18, <https://doi.org/10.1007/s00382-019-04633-3>.

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- (29) *Badger, A.M., **B. Livneh**, Hoerling, M.P., and J.K. Eischeid, **2018**: Understanding the 2011 Upper Missouri River Basin floods in the context of a changing climate, *Journal of Hydrology: Regional Studies*, 19, 110-123, <https://doi.org/10.1016/j.ejrh.2018.08.004>.
- (30) Hein C.J., S. Gopalakrishnan, J.E. Ten Hoeve, **B. Livneh**, H.D. Adams, E.L. Marino, and S.C. Weiler, **2018**: Overcoming Early Career Barriers to Interdisciplinary Climate Change Research, *Wiley Interdisciplinary Reviews Climate Change*, 9(5) e530, <https://doi.org/10.1002/wcc.530>.
- (31) Jennings, K.S., T. Winchell, **B. Livneh**, and N.P. Molotch, **2018**: Spatial variation of the rain-snow temperature threshold across the Northern Hemisphere, *Nature Communications*, 9(1), 1148, <https://doi.org/10.1038/s41467-018-03629-7>.
- (32) Friedrich, K., R. Grossman, J. Huntington, P. Blanken, J. Lenters, K. Holman, D. Gochis, **B. Livneh**, J. Prairie, E. Skeie, N. Healey, K. Dahm, C. Pearson, T. Fennessey, S. Hook, and T. Kowalski, **2018**: Reservoir Evaporation in the Western United States: Current Science, Challenges, and Future Needs, *Bulletin of the American Meteorological Society*, 99(1), 167-187, <https://doi.org/10.1175/BAMS-D-15-00224.1>.
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- (34) Henn, B., A.J. Newman, **B. Livneh**, C. Daly, and J.D. Lundquist, **2018**: An assessment of differences in gridded precipitation datasets in complex terrain, *Journal of Hydrology*, 556, 1205-1219, <https://doi.org/10.1016/j.jhydrol.2017.03.008>.
- (35) Marlier, M.E., M. Xiao, R. Engel, **B. Livneh**, J.T. Abatsoglou, and D.P. Lettenmaier, **2017**: The 2015 drought in Washington State: A harbinger of things to come? *Environmental Research Letters*, 12 114008, <https://doi.org/10.1088/1748-9326/aa8fde>.
- (36) Stewart, J.S., **B. Livneh**, J.R. Kasprzyk, J.T. Minear, B. Rajagopalan, and W.J. Raseman, **2017**: A multi-algorithm approach to land surface modeling of suspended sediment in the Colorado Front Range, *Journal of Advances in Models Earth Systems*, 9(7), 2526-2544, <https://doi.org/10.1002/2017MS001120>.
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- (38) Hallar, A.G., N.P. Molotch, J. Hand, **B. Livneh**, I.B. McCubbin, R. Petersen, J. Michalsky, D. Lowenthal, **2017**: Impacts of Increasing Aridity and Wildfires on Aerosol Loading in the Intermountain Western U.S., *Environmental Research Letters*, 12(1), 014006, <http://dx.doi.org/10.1088/1748-9326/aa510a>.
- (39) Houle, E.S., **B. Livneh**, and J.R. Kasprzyk, **2017**: Exploring Snow Model Parameter Sensitivity Using Sobol' Variance Decomposition, *Environmental Model and Software*, 89, 144–158, <https://doi.org/10.1016/j.envsoft.2016.11.024>.

- (40) Buma, B., and **B. Livneh**, 2017: Key landscape and biotic indicators of watersheds sensitivity to forest disturbance identified using remote sensing and historical hydrography data. *Environmental Research Letters*, 12(7), 074028, <https://doi.org/10.1088/1748-9326/aa7091>.
- (41) Raseman, W. J., J.R. Kasprzyk, F.L. Rosario-Ortiz, J.R. Stewart, and **B. Livneh**, 2017: Emerging investigators series: a critical review of decision support systems for water treatment: making the case for incorporating climate change and climate extremes. *Environmental Science: Water Research & Technology*, 3(1), 18-36, doi.org: <https://doi.org/10.1039/C6EW00121A>.
- (42) Yanto, **B. Livneh**, B. Rajagopalan, B., and J. R. Kasprzyk, 2017: Hydrological model application under data scarcity for multiple watersheds, Java Island, Indonesia. *Journal of Hydrology: Regional Studies*, 9, 127-139, <https://doi.org/10.1016/j.ejrh.2016.09.007>.
- (43) Barnhart, T.B., N.P. Molotch, **B. Livneh**, A.A. Harpold, J.F. Knowles, and D. Schneider, 2016: Snowmelt Rate Dictates Streamflow, *Geophysical Research Letters*, 43, 8006–8016, <https://doi.org/10.1002/2016GL069690>.
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- (2) **Heldmyer, A.J., N.R. Bjarke**, and **B. Livneh**, **2023**: A 21st century perspective on snow drought in the Upper Colorado River Basin, *Journal of the American Water Resources Association*, (accepted).

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- (1) Barsugli, J. J., M. P. Hoerling, and **B. Livneh**, **2019**: Is the recent drought on the Colorado River the new normal?, *Eos*, *100*, <https://doi.org/10.1029/2019EO117173>.
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FUNDING GRANTS (BASED AT CU-BOULDER, UNLESS OTHERWISE SPECIFIED)

AWARDS WITH B. LIVNEH AS LEAD-PI

North Central Climate Adaptation Science Center (NCCASC) (Duration: 8/2021 - 8/2023)

\$249,973 *Estimating Future High-Mountain Snowpack to Inform Terrestrial and Aquatic Species Status Assessments, Recovery Plans, and Monitoring.*
PI: Livneh B. Co-PI: Jennifer Balch.

NOAA Climate Program Office. Modeling, Analysis, Predictions, and Projections (MAPP) (Duration: 9/2020 - 8/2023)

\$508,951 *Identifying alternatives to snow-based streamflow predictions to advance future drought predictability.*
PI: Livneh B. Co-PI: Benet Duncan, Joseph Kasprzyk.

National Science Foundation. Dynamics of Coupled Natural Human Systems (CNH2-S) (Duration: 8/2020 - 8/2023)

\$743,315 *Water-mediated coupling of natural-human systems: drought and water allocation across spatial scales.*
PI: Livneh B. Co-PI: Eric Small (CU-Boulder), Jared Carbone (Colorado School of Mines), Cameron Wobus (Lynker Technologies).

CU Boulder Earthlab Ideas Collider (June 2020)

\$8,000 *Projecting Rocky Mountain Snow Persistence and Depth Under Climate Change*
PI: Ben Livneh; Co-PI: Robin O’Malley (USGS, North Central Climate Adaptation and Science Center), Aparna Bamzai-Dodson (USGS, NC CASC).

CIRES Innovative Research Program (Duration: 9/2018 - 12/2019)

\$24,980 *A terrestrial simulator of wildfire impacts on watersheds across the western U.S.*
PI: Livneh B.

Niwot Ridge Long Term Ecological Research (LTER-NSF) (Duration: 5/2018 - 5/2019)

\$18,664 *Catchment Integration of Sensor Array Observations to Understand Hydrologic Connectivity*
PI: Livneh B.

NASA New (Early Career) Investigator Program (Duration: 3/2018 - 5/2023)

\$269,754 *REESSEN: A Remotely Sensed Ensemble to Understand Human Impacts on the Water Cycle.*
PI: Livneh B.

College of Engineering Water-Energy Nexus Interdisciplinary Research Theme (Duration: 3/2018 - 5/2019)

\$14,001 *Toward water and energy security via improved characterization of reservoir sedimentation.*
PI: Livneh B. Co-PI: J.R. Kasprzyk.

ORAU Ralph E. Power Junior Faculty Enhancement Award (Duration: 6/2017 - 5/2018)

\$5,000 **Livneh B. PI.** \$5,000 matching funds from CIRES.

Niwot Ridge Long Term Ecological Research (LTER-NSF) (Duration: 5/2017 - 5/2018)

\$31,500 *Catchment Integration of Sensor Array Observations to Understand Hydrologic Connectivity*
PI: Livneh B.

NASA Research Opportunities in Space and Earth Science (Duration: 8/2016 - 8/2019)

\$293,288 *Monitoring soil evaporation using SMAP surface soil moisture in a water balance framework.*
PI: Livneh B.; Co-PI: E. Small.

NOAA Climate Program Office. The Sectoral Applications Research Program (Duration: 7/2016 - 6/2019)

\$286,368 *Advancing the use of drought early warning systems in the Upper Colorado River Basin.*
PI: Livneh B; Co-PIs: L. Dilling, W. Travis.

U.S. Bureau of Reclamation (Duration: 10/2014 - 5/2015)

\$59,986 *High-resolution meteorological and hydrologic data extension to trans-boundary basins in southern Canada and northern Mexico.*
PI: Livneh B.

AWARDS WITH B. LIVNEH AS CO-PI (AWARDS BASED AT CU-BOULDER UNLESS SPECIFIED OTHERWISE)

Deloitte (Duration: 9/2022 - 8/2024)

\$499,545 *Environmental Markets Platform.*
PI: Evan Thomas; Co-PIs: Krister Andersson, Amy Javernick-Will, **B. Livneh**, Jason Neff

NOAA Climate Program Office. Regional Integrated Sciences and Assessments (Duration: 9/2021 - 8/2026)

\$5,034,962 *Western Water Assessment: Building resilience to compound hazards in the Intermountain West.*
PIs: Lisa Dilling, Benet Duncan; Co-PIs: **B. Livneh**, Noah Molotch, Karen Bailey; Corrine Knapp (University of Wyoming); Court Strong (University of Utah).

National Science Foundation. Chemical, Bioengineering, Environmental and Transport Systems (CBET) (Duration: 9/2021 - 8/2024)

\$450,000 *Collaborative Research: Anthropogenic water management, Climate Change, and Environmental Sustainability in the Southwestern US (ACCESS).*
PI-Yadu Pokhrel (Michigan State University).
CU Boulder lead-PI: B. Livneh Co-PI: Elizabeth Payton. **CU-Boulder portion: \$135,001.**

NASA Early Stage Innovations (ESI) program (Duration: 1/21/2021 – 12/31/2023)

\$521,215 *Studying the impact of water storage changes on earthquake seismicity using GRACE data.*
PI: Kristy Tiampo; Co-PI: Steve Nerem, **Livneh B.** CU-portion: \$521,215.

NOAA Climate Program Office. Modeling, Analysis, Predictions, and Projections (MAPP) (Duration: 9/2019 - 8/2021)

\$315,612 *Physically-Based Evaluation of CMIP6 Hydrologic Projections for the Western United States.*
PI: Joseph Barsugli; Co-PI: **Livneh B.** CU-portion: \$178,196.

Colorado Water Institute (Duration: 7/2019 - 6/2020)

\$50,000 *Streamflow estimation in Colorado ungauged basins*
PI: S. Kampf (CSU); Co-PIs: **Livneh B.**, G. Richard (Fort Lewis College), A. Bhaskar (CSU), J. Sholtes (Colorado Mesa University). CU portion: \$13,511.

NOAA Climate Program Office. Joint Technology Transfer Initiative (JTII) (Duration: 10/2018 - 9/2020)

\$468,833 *Calibration of Channel Properties to Improve Streamflow Estimates in the National Water Model.*
PI: Toby Minear; Co-PI: **Livneh B.**

Center for Water, Earth Science and Technology (CWEST CU-Boulder) (Duration: 9/2018 - 8/2019)

\$6,000 *A new approach for spatial SWE Mapping: applications improve snowmelt representation in the National Hydrologic Model.*
Funding awarded to PhD student Aaron Heldmyer, Livneh B. Graduate Advisor.

Colorado Water Institute (Duration: 7/2018 - 6/2019)

\$49,963 *Streamflow estimation in Colorado ungauged basins.*
PI: S. Kampf (CSU); Co-PIs: **Livneh B.**, G. Richard (Fort Lewis College), A. Bhaskar (CSU), J. Sholtes (Colorado Mesa University). CU portion: \$13,591.

NASA Research Opportunities in Space and Earth Science (Duration: 6/2017 - 7/2021)

\$989,449 *The Interaction of Mass Movements with Natural Hazards Under Changing Hydrologic Conditions*
PI: K. Tiampo; **Co-PIs: Livneh B., J.T. Minear, M. Willis.**

U.S. Bureau of Reclamation (Duration: 5/2017 - 4/2018)

\$30,000 *Reservoir Sediment Prediction over the Western U.S..*
PI: B. Greimann (USBR); Co-PI: **Livneh B.**, CU portion: \$20,000.

Colorado Water Institute (Duration: 3/2017 - 2/2018)

\$4,999 *Diagnosing the Role of External Forcings on Streamflow Variability.*
Funding awarded to MS student Leah Bensching, Livneh B. Graduate Advisor.

U.S. Fish and Wildlife Service (Duration: 7/2016 - 3/2018)

\$130,000 *Wolverine Climate Change Snow Refugia Study.*
Lead-PI: J. Barsugli (NOAA/CIRES); **Co-PI: Livneh B.** CU portion: \$69,927.

Environmental Protection Agency (Duration: 9/2015 - 8/2018)

\$1,250,000 *An integrated modeling and decision framework to evaluate adaptation strategies for sustainable drinking water utility management under drought and climate change.*
PI: B. Rajagopalan; Co-PI: R.S. Summers, **B. Livneh**, J. Kasprzyk, F. Rosario-Ortiz.

NOAA Climate Program Office. Regional Integrated Sciences and Assessments (Duration: 9/2015 - 8/2019)

\$4,084,000 *Western Water Assessment: Building climate resilience by design.*
PI: Lisa Dilling, Co-PI: Bill Travis, Noah Molotch, Joseph Barsugli, **Livneh B.**

U.S. Army Corps of Engineers, NWD MRBWM (Duration: 10/2015 - 7/2016)

\$146,500 *Assessing Causes of Hydrologic Climate Extremes in the Upper Missouri Basin.*
PI: M. Hoerling (NOAA); Co-PI: **Livneh B.**

National Aeronautical and Space Administration, Jet Propulsion Laboratory (2/2015 – 6/2015)

\$28,562 *Observing System Synthetic Experiment (OSSE) Project: Quantify the utility of airborne LiDar surveys of snow information on improving hydrologic forecasts.*
Subcontractor/Lead-PI: Livneh B.

TEACHING

AT THE UNIVERSITY OF COLORADO BOULDER (ASSISTANT PROFESSOR)

CVEN 4333 Engineering Hydrology (undergraduate)	2016-present
CVEN 5363 Modeling Hydrologic Systems (graduate)	2013-present

AT SEATTLE UNIVERSITY (ADJUNCT PROFESSOR)

Applied Hydraulics (undergraduate).	2008, 2010
Fluid Mechanics Laboratory (undergraduate).	2011

OTHER TEACHING

COMET-MetEd: Lead Instructor for course titled: *Sedimentation Impacts Under Climate Change (SIUCC)*
Virtual Course, University Corporation for Atmospheric Research 2016
Coursera: Lead Instructor for the Groundwater module of a course titled: *Water in the Western U.S.*, Online
Course 2015

ONLINE LECTURES

Livneh, B. “Groundwater Resources in the Western U.S.” *Coursera*, [Water in the Western U.S.](https://www.coursera.org/course/waterwestus), Video
Lecture, 2015. <https://www.coursera.org/course/waterwestus>.

STUDENT ADVISING AND COMMITTEES

ACTIVE ADVISEES (B. LIVNEH PRIMARY ADVISOR UNLESS STATED OTHERWISE)

Carli Brucker (Ph.D. CEAE, 2018-).
Nels Bjarke (Ph.D., CEAE, 2019-).
Melanie Holland (MS Report Option, 2020; Ph.D., CEAE, 2020-, co-advised with E. Thomas)
Parthkumar Modi (Ph.D., CEAE, 2020-).
Kaitlyn Bishay (Ph.D., CEAE, 2021-)
Jasmine Garland (Ph.D., CEAE, 2022-, co-advised with K. Baker)

SUPERVISEES (B. LIVNEH PRIMARY ADVISOR UNLESS STATED OTHERWISE)

Justin Pflug (Postdoc., CIRES, 2021-)
Fangfang Yao (Postdoc., CIRES, 2020-)
Andrew Badger (Postdoc., CIRES, 2015-2019)
Javier Cepeda (Associate Scientist, CIRES, 2018-2019)

STUDENTS GRADUATED WITH B. LIVNEH AS PRIMARY ADVISOR

Aaron J. Heldmyer (Ph.D. CEAE, Summer 2021—successfully defended July, 2021)
Ph.D Dissertation: “*Understanding Tradeoffs between Complexity and Transferability in Hydrologic Prediction*”.

Elsa S. Culler (Ph.D. CEAE, Summer 2021—successfully defended July, 2021)
Ph.D Dissertation: “*The Hydrologic Processes Triggering Post-Wildfire Landslides from Watershed to Global Scales*”.

Ronnie Abolafia-Rosenzweig (Ph.D. CEAE, Fall 2020)
Ph.D Dissertation: “*Including human activity in estimates of the terrestrial water cycle using models and remote sensing*”. [Link](#).

Michelle O’Donnell (MS CEAE, Summer 2020)
MS Thesis: “*How Will Non-Stationarity of Snowpack and Precipitation Affect the Utility of SWE as a Predictor of Seasonal Drought?*”. [Link](#).

Leah Benschling (MS, CEAE, Spring 2019)

MS Thesis: “*Diagnosing Drivers of Reservoir Sedimentation in the Western Us: a Case Study of Prineville Reservoir, Oregon*”. [Link](#).

Jenna Stewart (MS, CEAE ,Spring 2017)

MS Thesis: “*A Multi-Algorithm Approach to Suspended Sediment Modeling in the Colorado Front Range*”. [Link](#).

Stephanie Redfern (Ph.D., ATOC, temporary advisor, Fall 2017).

GRADUATED STUDENTS WITH B. LIVNEH AS CO-ADVISOR

Mas Yanto (Ph.D., CEAE, Co-advised with Prof. Balaji, Spring 2016)

Ph.D Dissertation: “*Development of Data and Modeling Tools for Understanding and Forecasting Indonesian Hydroclimate*”. [Link](#).

Elizabeth Houle (MS, CEAE, Co-advised with Prof Kasprzyk, Spring 2015)

MS Thesis: “*Inter-Model Diagnostics for Two Snow Models and Implications for Management*”. [Link](#).

UNDERGRADUATE RESEARCH ADVISING

B. LIVNEH PRIMARY ADVISOR UNLESS STATED OTHERWISE)

Undergraduate Research Opportunities Program (UROP)

2019: Rollin Jones (CEAE), Clair Butler (CEAE)

College of Engineering Discovery Learning Apprenticeship

2020-2021: Cole Pradiges (CEAE), Sarah Lundell (Computer Science)

2019-2020: Yuexuan Meng (CEAE), Jun Lin Zeng (CEAE)

Research Experiences for Community College Students (RECCS, NSF-funded)

2019: Alex Brunson

Other CEAE summer-research advising

2017: Yashwanth Kumar visiting summer research student from India Institute of Technology Gandhinagar

2018: Casey Bangs

2020: Abbey Turner

2021: Claire Butler

Other undergraduate advising

2013: Michal Fagrelus (Honors Committee, GEOG)

2016: Baxter Wilson (Research Advisor, ENVS)

2016: Brielle Kissack (Summer research, GEOL).

UNDERGRADUATE GENERAL ADVISING

CEAE: Ryan Martin, Haoyu Nie, Bailey Vigil, Jack Costello, Kayla Hoag, Ginger Lucas, Benjamin Simon.

DOCTORAL COMMITTEE (EXCLUDES STUDENTS WHOM I PRIMARILY ADVISE OR CO-ADVISE)

CEAE: David Woodson, Alvaro Ossandon, Benjamin Abel, Kelsey Reeves, Brian Straight, Sarah Baker, Mas Yanto, Andrew Verdin, Cameron Bracken, Daniel Broman, Srijita Jana, Adam Wlostowski;

Aerospace Engineering: Michael Croteau;

GEOG: Dominik Schneider, Theodore Barnhart, Keith Jennings, Qinghuan Zhang, Kehan Yang;

GEOL: Brianne Corsa, Hannah Bonner, Peter Shellito, Thomas Enzinger, Claudia Corona.

ATOC: Richard Bateman*, Brian Rainwater, William Frey, Eric Keenan, Jonah Shaw (COMPS-II committee, 2022) , Mikell Warms (COMPS-II committee, 2022).

ENVS: Christa Torrens.

CU-Denver, Civil Engineering: Maryam Poshtiri

MASTERS COMMITTEE (THESIS OPTION, UNLESS OTHERWISE STATED)

CEAE: Colleen Wilson, Taylor Winchell, Timothy Clarkin, Erin Jenkins, Brennan Middleton (non-thesis MS), Trisha Shrum (report-based MS), Conor Felletter (report-based MS);

GEOL: Emily Carbone;

EBIO: Eric Gordon;

APPM: Gregory Benton.

DOCTORAL PRELIMINARY EXAM COMMITTEE

CEAE: Rebecca Smith, Kelsey Reeves, Alvaro Ossandon, Benjamin Abel, David Woodson, Prasad Thota, Dylan Blaskey.

ATOC: Jonah Shaw (COMPS-II committee, 2022) , Mikell Warms (COMPS-II committee, 2022).

MENTORING

2020-2021 CIRES Mentoring Program

2020 College of Engineering and Applied Science First-Year Under-Represented Minorities Mentoring

2019-2020 AGU Mentoring365

2013-2015 Mentor, *Faculty Mentoring Students Program*, CU-Boulder.

STUDENT AWARDS

Leah Bensching: \$4,999, Colorado Water Institute: “*Diagnosing the Role of External Forcings on Streamflow Variability*”. March, 2017.

Aaron Heldmyer: \$8,781, Center for Water, Earth Science and Technology Fellowship: “*A new approach for spatial SWE Mapping: applications improve snowmelt representation in the National Hydrologic Model*”. June 2018.

Carli Brucker: Hydrologic Sciences Symposium: Best Student Presentation: “*Simulator of Wildfire Impacts on Watersheds across the Western U.S.*” April 2019.

Michelle O’Donnell: NSF Graduate Research Fellowship Program: April, 2019.

Carli Brucker: Fulbright Student Research Award, Fulbright Commission to Indonesia, 2021-2022.

SERVICE

JOURNAL EDITORIAL SERVICE

- 2021 - Senior editorial board member, *Scientific Data (Nature)*
- 2020 - Lead-organizer and Guest Associate Editor of special collection in the journal *Earth's Future* (AGU), titled *CMIP6: Trends, Interactions, Evaluation, and Impacts*
- 2017 - Associate Editor, *Journal of Hydrometeorology* (AMS)
- 2017 - 2021 Editorial Board Member, *Scientific Data* (Nature)
- 2016 - 2019 Associate Editor, *Journal of the American Water Resources Association* (AWRA)

PROPOSAL REVIEW PANELIST

- 2022 Panelist *NASA Subseasonal-to-Seasonal Hydrometeorological Prediction* [panel held virtually, July 2022].
- 2021 Panelist *NASA Cyclone Global Navigation Satellite System (CYGNSS)* [panel held virtually, February 2021].
- 2020 Lead Panelist, *NASA Postdoctoral Program (NPP)* [panel held virtually, Dec. 18, 2020].
- 2020 Lead Panelist, *NASA Postdoctoral Program (NPP)* [panel held virtually, Aug. 20, 2020].
- 2020 Lead Panelist, *NASA Postdoctoral Program (NPP)* [panel held virtually, Apr. 23, 2020].
- 2017 Panelist *NASA Terrestrial Hydrology Program (THP)*, Silver Spring MD, November 2017.

OTHER SERVICE

- 2020 Mentor, College of Engineering and Applied Science *First-Year Under-Represented Minorities Mentoring Program*, University of Colorado Boulder
- 2020 - Faculty Representative for the University of Colorado Boulder, *Consortium of Universities for the Advancement of Hydrologic Science*
- 2020 - Ecohydrology Technical Committee Member, Hydrology Section, *American Geophysical Union*
- 2019 - Lead, NOAA-funded CMIP6 Task Force
- 2019 - Mentor, *Mentoring 365 Live*, *American Geophysical Union*
- 2018 - 2020 Uncertainty Technical Committee Member, Hydrology Section, *American Geophysical Union*
- 2017 - 2018 Co-Author, *4th National Climate Assessment*, *Northern Great Plains Chapter*
- 2017 - Surface Water Hydrology Technical Committee, Water Resources Division, ASCE
- 2015 Science-lead, *Climate Change and Water Working Group*, Aug. 2015 Seattle
- 2014 - 2018 Annual speaker, International English Center, *Go English Program*, CU-Boulder
- 2014 - NASA User Working Group, Distributed Active Archive Center (DAAC) at NSIDC.
- 2014 Contributor: *Water Programming Blog* (<http://waterprogramming.wordpress.com/>)
- 2013-2015 Mentor, *Faculty Mentoring Students Program*, CU-Boulder.
- 2013 Resource Speaker, *Water Education Foundation: Lower Colorado River Tour*.
- 2013-2020 Lead Session Convener, *American Geophysical Union, Fall Meeting, San Francisco, CA*.
- 2013 Symposium Scholar, *DISCCRS VIII: Dissertations Initiative for the Advancement of Climate Change Research*

WORKSHOPS ORGANIZED

Livneh B., lead-PI of workshop grant: co-organized with Robin O'Malley, Alisa Wade, and Aparana Bamzai-Dodson, Video-enabled remote workshop, June, **2020**: Projecting Rocky Mountain Snow Persistence and Depth Under Climate Change, Earthlab Ideas Collider, Boulder, CO.

Goals: Bring state, federal and tribal land and resource managers in the region together with university researchers to identify snow modeling and snowpack tool needs to support habitat assessment and planning.

Link: <https://www.usgs.gov/center-news/snow-collider-workshop-held-improve-projections-future-snow-north-central-us>

Livneh B., co-organized with Martin Hoerling and Joseph Barsugli, Boulder Colorado, September, **2018**: Colorado River Drought—*The New Normal?* National Oceanic and Atmospheric Administration Earth Science Research Laboratory (NOAA-ESRL), Boulder, CO.

Goals: Is the recent drought on the Colorado River “the new normal”? A Workshop on understanding the causes of the historical changes in flow of the Colorado River.

Livneh B., co-organized with the Western Water Assessment, Glenwood Springs Colorado, August, **2018**: Advancing Drought Early Warning in the Early Warning in the Upper Colorado River Basin. Colorado River District, Glenwood Springs, CO.

Goals: Connecting physical and social science findings with regional water managers. Focus on decisions surrounding drought management and the implications of changing snowpack for water supply forecasting.

Livneh B., co-organized with CU faculty, Katja Friedrich and Peter Blanken, University of Colorado, Boulder, October, **2015**, Reservoir Evaporation Workshop.

Goals: Bring together national and state agencies with university scientists to define the state of the science and identify key needs.

REVIEWING

PANELIST FOR PROPOSAL REVIEW

Panelist NASA Cyclone Global Navigation Satellite System (CYGNSS), held virtually, February 2021.

Lead Panelist NASA Postdoctoral Program (NPP), virtual panels held April 2020, August 2020, December 2020.

Panelist NASA Terrestrial Hydrology Program (THP), Silver Spring MD, November 2017.

PROPOSAL REVIEW

U.S. Agency for International Development (USAID) Partnerships for Enhanced Engagement in Research (PEER) Program (2020)

National Science Foundation (NSF) Hydrological Sciences Program: proposal reviewer (2015, 2018, 2020)

National Environment Research Council (NERC, UK): proposal reviewer (2014)

NOAA: Internal reviewer (2015)

NASA Postdoctoral Program (NPP) reviewer (2015-)

NASA Graduate Fellowships (NESSF) reviewer (2017)

NASA Established Program to Stimulate Competitive Research (EPSCoR) reviewer (2020)

Nebraska Research Initiative (NRI) reviewer (2017)

US Bureau of Reclamation (S&T Program) reviewer (2015-)

JOURNAL REVIEWER

Climatic Change, Climate Dynamics, Cold Regions Science and Technology, Earth's Future, Ecohydrology, Earth Interactions, Environmental Modeling and Software, Environmental Research Letters, Geophysical Model Development, Geophysical Research Letters, Hydrologic Processes, Hydrology and Earth System Sciences, International Journal of Climatology, Journal of Climate, Journal of Geophysical Research, Journal of Hydrology, Journal of Hydrometeorology, Journal of the Atmospheric Sciences, Journal of Water Resource Planning and Management, Monthly Weather Review, Natural Hazards and Earth System Sciences, Nature Climate Change, Nature Partner Journals Climate and Atmospheric Science, Nature Reviews Earth and Environment, Nature Scientific Data, Nature Scientific Reports, Science of the Total Environment, Stochastic Environmental Research and Risk Assessment, Water, Water Resources Research.

REPORTS

California's Fourth Climate Change Assessment (2018).

CONVENED CONFERENCE SESSIONS

- (1) **Livneh B.**, and S. Shukla, American Geophysical Union Frontiers in Hydrology Meeting, San Juan, Puerto Rico, June. **2022**: Understanding and Mitigating Challenges to Water Security Through Observations, Projections, and Early Warning and Action Capabilities: *Hybrid Oral 511, Enlightening 518*.
- (2) Skiles, M., **B. Livneh**, C. Vuyovich, and M.S. Raleigh, American Geophysical Union Frontiers in Hydrology Meeting, San Juan, Puerto Rico, June. **2022**: Future of Snow: Innovative Techniques to Measure Seasonal Snow Across the Globe: *Oral 412, 418, Online discussion 442, 421*.
- (3) Shukla S., **B. Livneh**, Flores, F., and Wilson, S, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: Advances in Quantifying Impacts and Extent of Land-Use/Land-Cover Change on Hydrology and Climate Change: *Oral H42A, H43B, H44A, Posters H45C, H45D*.
- (4) **Livneh B.**, and S. Shukla, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: Advances in Quantifying Impacts and Extents of Land Use/Land Cover Change in Hydrology I Posters: *Oral H094, Posters H083*.
- (5) **Livneh B.**, S. Shukla, N. Zegre, and C. Mohr, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: Advances in Quantifying Impacts and Extents of Land Use/Land Cover Change in Hydrology I Posters: *Oral H11B, H12C, Posters H13K*.
- (6) **Livneh B.**, and S. Shukla, American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: Advances in Quantifying Impacts and Extents of Land Use/Land Cover Change in Hydrology I Posters: *Oral H21A, Posters H11J*.
- (7) **Livneh B.**, S. Zipper, S. Shukla, and L. Condon, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: Understanding the Extent and Impacts of Land-Use/Land-Cover and Climate Change on Water Resources: *Oral H42H, Posters H42J*.
- (8) **Livneh B.**, N. Montaldo, S. Shukla, and G. Vico, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Understanding the Extent and Impacts of Land-Use/Land-Cover and Climate Change on Ecohydrology: *Oral H33R, Posters H33G*.

- (9) **Livneh B.**, S. Shukla, A.A. Harpold and S. Kumar, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Understanding the Extent and Impacts of Land Use/Land Cover Change on Hydrology: *Oral H13S, Posters H11I*.
- (10) **Livneh B.**, S. Shukla, and A. Gaughan, and B. Buma, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2014**: Understanding the Extent and Impacts of Land Use/Land Cover Change on Hydrology: *Oral H51T, Posters H53E*.
- (11) **Livneh B.**, S. Archfield, and R. Kumar, and R. Singh, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2013**: Regional Hydroclimatic Observations, Patterns, Changes, and Implications for Modeling: *Oral H32E, Posters H33G*.
- (12) **Livneh B.**, Co-chair of Symposium Steering Committee, **2013**: *CU-Boulder Hydrologic Sciences Program*.

INVITED PANELIST

- (1) The human side of climate solutions, Fulbright Scholar meeting, Fort Collins, CO, Apr. **2022**. Panelists: **Ben Livneh**, Rebecca Bollinger, Alex Hager, Olga Wilhelmi.
- (2) Latest Drought Science, Yampa Basin Rendezvous, A Dialogue on Drought, Water Availability, and Conservation, held virtually, Sep. **2021**. Panelists: **Ben Livneh**, Angeline Pendergrass, Chris Milly, Michael Dettinger.
- (3) The Impacts of Climate Change on Snowpack and Streamflow in the Western U.S., held virtually, Apr. **2021**. Panelists: **Ben Livneh**, Noah Molotch.
- (4) Pacific Northwest Drought Early Warning System 2020 Drought and Climate Outlook, held virtually, Dec. **2020**. Panelists: John Abatzoglou, Andrea Bair, Daniel Leavell, Bart Nijssen, and **Ben Livneh**.
- (5) Oregon-Washington Water Year 2020 Recap and 2021 Outlook Meeting, held virtually, Oct. **2020**. Panelists: Kirby Cook, **Ben Livneh**, Jeff Marti, Steve Jilk, Kelsey Jensco, Guillaume Mauger, Steve King, and Bart Nijssen.
- (6) Wyoming Fish and Game Department Climate Workshop, held virtually, Apr **2020**. Panelists: Bryan Shuman, Imtiaz Rangwala, **Ben Livneh**, Annika Walters, Molly Cross, Patrick Donnelly.
- (7) The Future of Skiing: The Science Behind Snow, Arapahoe Basin Ski Area, Dillon, CO, Apr **2018**. Panelists: Jennifer Kay, Marca Hagenstad, Lindsay Bourgoine.
- (8) State-of-the-art Uncertainty Analysis in Hydroclimate Modeling, World Environmental and Water Resources Congress, Sacramento, CA, May **2017**. Panelists: Jery Stedinger, Soroosh Sorooshian, **Ben Livneh**, Paul Bloch.
- (9) Updating the National-scale Water Balance for Chile: Experts Workshop, Universidad de Chile, Santiago, Chile, Mar **2017**. Panelists: John Pomeroy, Scott Tyler, **Ben Livneh**, Graham Fogg.
- (10) Downscaling climate and hydrology data, Climate Change and Water Working Group (CCAWWG), Seattle, WA, Aug **2015**. Panelists: Martyn Clark, **Ben Livneh**, Bart Nijssen.
- (11) Strengths, Weaknesses, and Motivations for Creating a Large-Scale Hydrologically Consistent Dataset, Workshop on Quantitative Evaluation of Downscaled Data, National Centers for Atmospheric Research (NCAR), Aug **2013**.

INVITED TALKS

- (1) **Livneh, B.** (Invited), Grand Water Research Institute and Environmental Engineering Dept, Haifa, Israel, January **2023**: Drought: the impacts of low snow on water supply prediction and the role of wildfire on landslide vulnerability.
- (2) **Livneh, B.** (Invited Keynote Speaker), Urban Water Institute, 29th Annual Water Conference, San Diego, CA, August. **2022**: As drought lingers, larger and more destructive wild fires pose new threats to water supply.
- (3) **Livneh, B.** (Invited), American Meteorological Society, Mountain Meteorology Conference, Park City, UT, July. **2022**: The Role of Extreme Rainfall on Landslide Susceptibility in Post-Wildfire Environments.
- (4) **Livneh, B.** (Invited), NOAA Drought and Heatwave Event Attribution Workshop: The Science and Its Potential Applications, held virtually, May. **2022**: Low snow and drought impacts on water supply predictability in the western U.S.
- (5) **Livneh, B.** (Invited), Hydrologic Sciences Symposium, University of Colorado Boulder, Apr. **2022**: Living in the extreme: Snow drought impacts and the future of water supply predictability in the western U.S.
- (6) **Livneh, B.** (Invited), The human side of climate solutions, Fulbright Scholar meeting, Colorado State University, Apr. **2022**: Western water management in the face of climate change.
- (7) **Livneh, B.** and J.R. Kasprzyk (Invited), Association of American Universities Data Exchange (AAUDE) Annual Meeting, Boulder, CO., Apr. **2022**: Melting snow and water rights: Challenges for Western water management.
- (8) **Livneh, B.** (Invited), NOAA Drought Task Force, held virtually, Mar. **2022**: A song of ice and fire: The impact of declining snowpack on water supply prediction and the role of wildfire on landslide susceptibility.
- (9) **Livneh, B.** (Invited), NASA Global Modeling and Assimilation Office (GMAO) Virtual Seminar Series, held virtually, Feb. **2022**: A song of ice and fire: The impact of declining snowpack on water supply prediction and the role of wildfire on landslide susceptibility.
- (10) **Livneh, B.** (Invited), Colorado Water Conference, Denver CO and virtually, Jan. **2022**: Introducing the Western Water Assessment.
- (11) **Livneh, B.** (Invited), NOAA-RISA Network Meeting, held virtually, Dec. **2021**: Justice, Equity, Diversity, and Inclusion at Western Water Assessment.
- (12) **Livneh, B.** (Invited Plenary Speaker), Department of Energy Workshop titled “Understanding and Predictability of Integrated Mountainous Hydroclimate”, held virtually, Nov. **2021**: Understanding and predicting snowmelt-driven water supply variability in the montane western U.S.
- (13) **Livneh, B.** (Invited), Colorado State University, Water Engineering and Science Seminar, held virtually, Oct. **2021**: A song of ice and fire: The changing role of snow in water supply prediction and the impact of wildfire on landslide susceptibility.
- (14) **Livneh, B.** (Invited), Yampa Basin Rendezvous, A Dialogue on Drought, Water Availability, and Conservation, *held virtually*, Sep. **2021**: Past and future snow-drought in the Upper Colorado River Basin, implications for water supply prediction.
- (15) **Livneh, B.** (Invited), The Impacts of Climate Change on Snowpack and Streamflow in the Western U.S. Webinar, *held virtually*, Apr. **2021**: Understanding snow-drought in the Upper Colorado River Basin and implications for water supply.
- (16) **Livneh, B.** (Invited), Niwot Ridge and City of Boulder Water and Climate Summit, *held virtually*, Feb. **2021**: Alternatives to Snow-Based Prediction of Seasonal Water Supply.
- (17) **Livneh, B.** (Invited), American Meteorological Society Annual Meeting, held virtually, Jan. **2021**: Joint 11.2 The Resilience of Computational Approaches for Future Water Supply Predictions in California.

- (18) **Livneh, B.** (Invited), Pacific Northwest Drought Early Warning System 2020 Drought and Climate Outlook, held virtually, Dec. **2020**: Identifying Alternatives to Snow-based Streamflow Predictions to Advance Future Drought Predictability.
- (19) **Livneh, B.** (Invited), Oregon-Washington Water Year 2020 Recap & 2021 Outlook Meeting, held virtually, Oct. **2020**: *Future Changes in Drought Predictability in the Western U.S.*
- (20) **Livneh, B.** (Invited), North Central Climate Adaptation Science Center (NC CASC), Snow Collider, Projecting Rocky Mountain Snow Persistence and Depth Under Climate Change Workshop, held virtually, Jun. **2020**: *Recent experiences in modeling mountain snow in the western U.S.*
- (21) **Livneh, B.** and **N.R. Bjarke** (Invited), Wyoming Fish and Game Department Climate Workshop, held virtually, Apr. **2020**: *Climate change impacts on Wyoming Streamflow and Snowpack.*
- (22) **Livneh, B.** (Invited), Colorado School of Mines, Economics-Business Seminar Series, Golden, CO., Sep. **2019**: Predicting the fate of our water: A look at the changing roles of snow and forests for water supply prediction.
- (23) **Livneh, B.** (Invited), Texas Water Development Board Meeting, Austin, TX, Feb. **2019**: Estimating reservoir evaporation: Evaluating current and future practices and research-to-operations pathways.
- (24) **Livneh, B.** (Invited), American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: *H12H-22 What makes watersheds sensitive to forest disturbance?*
- (25) **Livneh B.** (Invited), Princeton University, Princeton NJ, July **2018**: Understanding Natural and Anthropogenic Impacts on the Water Cycle through Analysis of Soil Moisture and Snowpack.
- (26) **Livneh B.** (Invited), NASA Goddard Space Flight Center, College Park, MD, July **2018**: Using Soil Moisture and Snowpack Variability to Predict Variations in the Water Cycle.
- (27) **Livneh B.** (Invited), National Centers for Environmental Prediction, Environmental Modeling Center, College Park, MD, July **2018**: *Hydrologic Prediction through Changes in Soil Moisture and Snowpack: Estimating Natural and Anthropogenic Fluxes.* [Video: <https://www.youtube.com/watch?v=uvFH7xWAeJE>]
- (28) **Livneh, B.** (Invited), The Future of Skiing: The Science Behind Snow, Arapahoe Basin Ski Area, Dillon, CO. Apr., **2018**: *The importance of Snowpack on Water Resources in the Upper Colorado River Basin.*
- (29) **Livneh, B.** (Invited), Rocky Mountain National Park Science Symposium, Continental Divide Research Learning Center, Mar., **2018**: *Assessing the impacts of land-cover changes and snowpack changes on hydrology in the western U.S.*
- (30) **Livneh, B.** (Invited), A.M. Badger, J.J. Lukas, L. Dilling, and R. Page, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: *H14H-01 Characterizing Drought Risk Management and Assessing the Robustness of Snowpack-based Drought Indicators in the Upper Colorado River Basin.*
- (31) **Livneh, B.** (Invited), University of Nebraska, School of Natural Resources, Fall Seminar Series: Our Natural Resources in a Changing Environment Oct., **2017**: *The Role of Climate on Hydrologic Extremes in the Northern Great Plains Region: Updates from the National Climate Assessment* [Video: <https://mediahub.unl.edu/media/8608>].
- (32) **Livneh, B.** (Invited), Updating the National-scale Water Balance for Chile: Experts Workshop, Universidad de Chile, Santiago, Chile, Mar **2017**: *Continental-scale Hydrometeorology: Application to an Extreme Hydrologic Event.*
- (33) **Livneh, B.** (Invited), Frontiers in Geosciences Lecture, Los Alamos National Laboratory, Los Alamos, NM, Feb **2017**: *Watershed Response to Hydrologic Disturbances: Local, Regional, and National Perspectives.*
- (34) **Livneh B.** (Invited), Missouri River Basin Federal Climate Collaboration Webinar, Aug., **2016**: *Hydrologic Extremes in the Upper Missouri Basin and Central Great Plains.*

- (35) **Livneh B.** (Invited), United States Geological Survey, Lakewood, CO, June, **2016**: Modeling Watershed Response to Hydrologic Extremes in the Upper Missouri River Basin and Colorado Front Range.
- (36) **Livneh B.** (Invited), and J.R. Stewart, U.S. Bureau of Reclamation— Sedimentation and River Hydraulics Group, Lakewood, CO, May, **2016**: *Development of a multi-physics modeling framework for analyzing the effects of disturbance on suspended sediment flow in the Colorado Front Range.*
- (37) **Livneh B.** (Invited), Lamont Doherty Earth Observing Laboratory, Palisades, NY, Apr., **2016**: *A Land-Surface Perspective of Extremes in the Upper Missouri Basin and Central Great Plains.*
- (38) **Livneh B.** (Invited), Columbia Water Center, Columbia University, New York, New York, Apr., **2016**: From Scarcity to Overabundance: Hydrologic Extremes in the Northern and Central Great Plains, USA.
- (39) **Livneh B.** (Invited), J.S. Deems, B. Buma, J.S. Stewart, J.J. Barsulgi, D. Schneider, N.P. Molotch, C.A. Wessman, and K. Wolter, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: *Hydrologic impacts of land cover disturbances in the Upper Colorado River Basin.*
- (40) **Livneh, B.** (Invited), Climate Change and Water Working Group (CCAWWG), Seattle, WA, August **2015**, *Summary of Intermountain West Climate Networks.*
- (41) **Livneh, B.** (Invited), American Meteorological Society, Mountain Meteorology Webinar Series, July, **2014**. *The treatment of snow in numerical model land surface schemes.*
- (42) **Livneh, B.** (Invited) and J.S. Deems, Wyoming State Engineers Forum, Cheyenne, WY, May, **2014**. Beetles and Dust: unraveling influences on snowmelt and streamflow timing in the Upper Colorado River Basin.
- (43) **Livneh, B.** (Invited) Workshop on Quantitative Evaluation of Downscaled Data, National Centers for Atmospheric Research (NCAR), Aug., **2013**: *Strengths, Weaknesses, and Motivations for Creating a Large-Scale Hydrologically Consistent Dataset.*
- (44) **Livneh, B.** (Invited), Water Education Foundation, Lower Colorado River Tour, Las Vegas, NV, Hoover Dam, AZ, Imperial Irrigation District, CA, Mar. **2013**, *Colorado River Spring 2013 Runoff Outlook: Climate Change Projections on the Colorado River Basin – The Long Perspective from GCMs and Tree Rings.*
- (45) **Livneh, B.** (Invited), J.S. Deems, and B. Buma, National Centers for Atmospheric Research (NCAR) Seminar, Boulder, CO, Jan. **2013**, *Deciphering the impacts of competing hydrologic disturbance factors in the Upper Colorado River Basin.*
- (46) **Livneh, B.** (Invited), Helmholtz Centre for Environmental Research – UFZ, Leipzig, Germany, May, **2012**, *Development of a Unified Land Model and Multi-Criteria Parameter Identification.*

PRESENTATIONS

- (1) **Bjarke, N., B. Livneh,** and J. Barsugli, American Geophysical Union Frontiers in Hydrology Meeting, San Juan, Puerto Rico, June. **2022**: Identifying regions of enhanced vulnerability to projected aridification.
- (2) **Livneh B.,** C. Wobus, E. Small, J. Carbone, **P. Modi,** H. Kamen, and W. Szafranski, American Geophysical Union Frontiers in Hydrology Meeting, San Juan, Puerto Rico, June. **2022**: Understanding the dynamics of water allocation using a physical-economic model within a stream-dominated system.
- (3) **Walker, S., B. Ely, P. Modi,** B. Duncan, J. Kasprzyk, and **Livneh, B.,** EWRI World Congress Meeting, Atlanta, GA. USA, June. **2022**: Towards Machine Learning-Aided Predictions of Water Availability and Droughts in Snow-Dominated Basins.
- (4) **Modi, P. Walker, S., B. Ely,** B. Duncan, J. Kasprzyk, and **Livneh, B.,** EWRI World Congress Meeting, Atlanta, GA. USA, June. **2022**: Evaluating the Performance of Ensemble Streamflow Prediction (ESP) in Future Climate Conditions to Advance Drought Predictability.

- (5) Bjarke, N.R., J. Barsugli, M.P. Hoerling, X-W, Qian, and **Livneh, B.**, NOAA Drought and Heatwave Event Attribution Workshop: The Science and Its Potential Applications, held virtually, May. **2022**: When record breaking heat waves should not surprise: An analysis of the 2021 Pacific Northwest Heat wave.
- (6) **Livneh, B.** (Invited), Guest Lecture, ATOC 4800/5000-ENVS 5830, Climate, Environment & Policy, University of Colorado, Boulder, Mar. **2022**: A song of ice and fire: Declining snowpack, water supply prediction and wildfire influences on landslide susceptibility.
- (7) **Livneh B.**, A Heldmyer, and P. Modi, American Meteorological Society Annual Meeting, held virtually, Jan. **2022**: New Classification of Snow Drought and the Changing Role of Snowpack in Predicting the Water Supply at Seasonal Lead Times
- (8) Bjarke, NR, **B Livneh**, and JJ Barsugli, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *A25H-1775 - Evaluating the portrayal of heavy precipitation in the HighResMIP ensemble.*
- (9) Pflug, JM*, SA Margulis, and **B Livneh**, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *C43B-01 - Assessing changes in terrestrial and aquatic snow-driven habitat using climate change analogues.*
- (10) Kamen, H, J Carbone, W Szafranski, C Wobus, P Modi, EE Small, and **B Livneh**, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC13B-07The Impacts of Drought and Water Allocation Practices on River Systems and Communities: A Coupled Water Supply System and Economic Modeling Approach.*
- (11) Modi P, EE Small, and **B Livneh**, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC23A-05 - Diagnosing the Role of Snowpack Conditions on Streamflow Predictability During Drought.*
- (12) **Livneh B**, NR Bjarke, K Marvel, A Pendergrass, JJ Barsugli, ED Gutmann, AP Williams, KN Musselman, F Lehner, KM Grise, D Schmidt, and MP Hoerling, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC23D-05 - The primary drivers of climate change impacts on the terrestrial water cycle.*
- (13) Hoell A, X-W Quan, MP Hoerling, R Fu, JS Mankin, I Simpson, R Seager, C He, F Lehner, J Lisonbee, **B Livneh**, and A Sheffield, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC45G-0891 - Record Low North American Monsoon Rainfall in 2020 Reignites Drought over the American Southwest.*
- (14) Willams AP, **B Livneh**, KA McKinnon, W Hansen, JS Mankin, B Cook, A Varuolo-Clarke, JA Smerdon, NR Bjarke, C Juang, and DP Lettenmaier, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC52A-01 - Growing Impact of Wildfire on Western United States Water Supply.*
- (15) Yao F, **B Livneh**, R Balaji, J Wang, J-F Cretaux, Y Wada, M Nguyen, and LH Pitcher, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *GC55K-0553 - Multi-decadal global lake volume variability impacted by climate and human activities.*
- (16) Brucker C, **B Livneh**, and F Rosario-Ortiz, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *H54H-06 - Upscaling Small-Scale Post-Wildfire Hydrologic and Water Quality Effects to the Catchment Scale.*
- (17) Bishay K, NR Bjarke, P Modi, JM Pflug, and **B Livneh**, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *H55F-0805 - Evaluating the Role of Snowpack Uniformity on Seasonal Water Supply.*
- (18) Holland M, E Thomas, **B Livneh**, and C Thomas, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *H55Q-0936 - Development and Validation of In-Situ Groundwater Pump Sensor Network and Groundwater Abstraction Prediction Model in Solano County, California.*
- (19) Cassotto R, JT Minear, KF Tiampo, **B Livneh**, MJ Willis, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *NH15F-0515 - The evolution of post-wildfire landslide susceptibility in the western United States.*

- (20) Bjarke, NR, B Livneh, and JJ Barsugli, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2021**: *U43D-21 Why Were We Surprised by June 2021 Extreme Daily High Temperatures?*
- (21) Lundell, S., Culler, E., Cassotto, R., Minear, T., & Livneh, B., CSDMS 2021 Annual Meeting, Online. May 19, **2021**. *Skill of a debris flow model at different temporal resolutions in the Matilija Creek Watershed.*
- (22) Livneh, B., Modi, P., Small, E., Kasprzyk, J., Ely, B., and Duncan, B. European Geophysical Union General Assembly **2021**: Evaluating seasonal drought prediction in snow-fed systems past, present, and future: towards identifying resilient prediction techniques, online, 19–30 Apr **2021**, EGU21-1786, <https://doi.org/10.5194/egusphere-egu21-1786>.
- (23) Bjarke, N., Livneh, B., Barsugli, J., Quan, X. W., and Hoerling, M., European Geophysical Union General Assembly **2021**: *A multi-resolution analysis of historical and future precipitation variability across the western United States*, online, 19–30 Apr **2021**, EGU21-16396, <https://doi.org/10.5194/egusphere-egu21-16396>.
- (24) Culler, E., Livneh, B., Tiampo, K., and Rajagopalan, B, European Geophysical Union General Assembly **2021**: *A data-driven evaluation of post-fire landslide susceptibility*, online, 19–30 Apr 2021, EGU21-14025 <https://doi.org/10.5194/egusphere-egu21-14025>.
- (25) Lundell, S., Culler, E., Cassotto, R., Minear, T., & Livneh, B., DLA & YOU'RE@CU Undergraduate Research Symposium, Online, April, 21, **2021**: *Landslide Modeling for Variability Analysis.*
- (26) Pierce, DW, DR Cayan, MD Risser, **B Livneh**, and DP Lettenmaier, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H175-09 - An Extreme-Preserving Long-Term Gridded Daily Precipitation Data Set for the Conterminous United States.*
- (27) Livneh, B, M O'Donnell, P. Modi, *AM Badger, and NR Bjarke, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H190-03 - Seasonal Drought Prediction: The Changing Role of Snow in Water Supply Forecasting across the Western U.S.*
- (28) Brucker, C, B Livneh, F Rosario-Ortiz, P Wilkerson, A Heldmyer, and JT Minear, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H087-0019 - An observational framework for quantifying post-fire sediment and water quality response.*
- (29) Culler, ES, *AM Badger, **B Livneh**, KF Tiampo, and JT Minear, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: NH030-0028, *An evaluation of uncertainty in extreme landslide-triggering precipitation.*
- (30) Bjarke, NR, **B Livneh**, JJ Barsugli, and MP Hoerling, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H102-11 - Precipitation variability and the future of water in the West: A multi-catchment analysis.*
- (31) *Yao, F, J Wang, **B Livneh**, B Rajagopalan, J-F Cretaux, and Y. Wada, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H025-07 - Quantifying and attributing recent changes in global lake and reservoir storage using satellite observations and hydrological modeling.*
- (32) Minear, JT, JL McCreight, L Read, T Enzinger, AJ Heldmyer, and **B Livneh**, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *H014-06 - Utilizing Discharge Flow Measurements to Estimate Continental-Scale Hydraulic Resistance and Channel Geometry.*
- (33) Modi, P, EE Small, CW Wobus, J Carbone, and **B Livneh**, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: *GC025-0006 - The Impacts of Drought and Water Allocation Practices on River Systems and Communities.*
- (34) Wang, G, C Kirchoff, J Abatzoglou, **B Livneh**, and D Pierce, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: GC090-08: Projected changes of precipitation extremes in the U.S. Northeast based on two downscaled climate datasets LOCA and MACA.

- (35) Knowles, JF, AM Badger, MB Berkelhammer, JA Biederman, NR Bjarke, P Blanken, M Bretfeld, SP Burns, BE Ewers, JM Frank, L Lestak, **B Livneh**, DE Reed, RL Scott, and NP Molotch, American Geophysical Union Fall Meeting, held virtually, Dec. **2020**: B064-0003 - Bark Beetle Impacts on Forest Evapotranspiration and its Partitioning.
- (36) Culler, E., **Livneh, B.**, Tiampo, K.F., Rajagopalan, B., AGU Hydrology Days, Fort Collins, CO, **2020** A data-driven approach to identifying landslide triggers across burned landscapes.
- (37) Abolafia-Rosenzweig, R., **B. Livneh**, and M. Pan, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H44G-07 - REESEN: A remotely-sensed ensemble for estimating the terrestrial water balance.
- (38) O'Donnell, M., *A. Badger, A. Wood, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H14E-07 - The implications of changes in peak SWE timing and magnitude for drought prediction in the Western U.S.
- (39) Kampf, S., A. Eurich, J. Hammond, **B. Livneh**, K. Puntenney, G. Richard, J. Sholtes, and H. Harrison, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H31A-08 - What is the fate of snowmelt water in the Colorado Rocky Mountains?.
- (40) Heldmyer, A.J., **B. Livneh**, W. Farmer, J. Driscoll, and N. Molotch, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: C33C-1592 - An observationally-based spatial SWE model for the western United States and Alaska.
- (41) Brucker, C., **B. Livneh**, A. Heldmyer, F. Rosario-Ortiz, and J.T. Minear, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H23S-2179 - An observational framework for quantifying post-fire runoff and sediment response.
- (42) Culler, E.S., **B. Livneh**, K. Tiampo, and B. Rajagopalan, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H23S-2176 - A data-driven approach to identifying post-fire landslide triggers.
- (43) Bjarke, N.R., **B. Livneh**, and J. Cepeda, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H23J-2037 - Implications of Hydrometeorological Data Infilling for Portrayal of Hydrological Variability in High Alpine Environments.
- (44) **Livneh, B.**, R. Abolafia-Rosenzweig, *A. Badger, and E. Small, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H54E-03 - A SMAP-based Continental-scale Soil Evaporation Dataset.
- (45) Barsugli, J.J., M. Hoerling, **B. Livneh**, and Q. Xiaowei, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: A11Q-2746 - Evaluating hydrologic realism across scales in mountainous regions: a Budyko approach.
- (46) Safeeq, M., **B. Livneh**, R. Bart, C. Kumar, and S. Shukla, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H33M-2151 - Assessment of hydrologic impacts of climate change in the Sierra Nevada: comparisons between radiative change and CO2 fertilization.
- (47) Kumar, S., M. Newman, D. Lawrence, M-H., Lo, S. Akula, C-W, Lan, **B. Livneh**, and D. Lombardozzi, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2019**: H54G-06 - The GLACE-Hydrology Experiment: Effects of Land-Atmosphere Coupling on Soil Moisture Variability and Drought Predictability.
- (48) Culler, E.S., **B. Livneh** and K. Tiampo, 13th Annual Earth System and Space Science Poster Conference, Boulder, CO, Dec **2019**: A data-driven approach to identifying post-fire landslide triggers
- (49) Barsugli, Joseph J , Andrea J. Ray, **B. Livneh**, Candida Dewes, Aaron Heldmeyer, Imtiaz Rangwala, John Guinotte and Stephen Torbit, The Wildlife Society and American Fisheries Society Joint Conference, Reno, NV, Sep., **2019**: High-Resolution Projections of Snowpack Persistence in Occupied and Potential Wolverine Habitat in the Rocky Mountains. Presentation.

- (50) Brucker, C.B., A.J. Heldmyer, **B. Livneh**, F.L. Rosario-Ortiz, and J.T. Minear, Sedimentation and Hydrology Conference, Reno, NV, June 2019: Wildfires in the West: Characterizing Drivers of Post-Disturbance Hydrologic and Sediment Response through Laboratory Analysis.
- (51) Heldmyer, A.J. and **B. Livneh**, Federal Interagency Sedimentation and Hydrologic Modeling Conference, Reno, NV, June 2019: 205: Wildfire in the West: Assessing the Detectability of a Post-fire Signal at the Watershed Scale.
- (52) Culler, E.S., **B. Livneh** and K. Tiampo, Community Surface Dynamics Modeling System Annual Meeting, Boulder, CO, May 2019: Modeling the hydrology of a post-fire landslide: Case study of the Thomas Fire, CA.
- (53) O'Donnell, M.C., JR Kasprzyk, **B Livneh**, and L Bensching, ASCE World Environmental & Water Resources Congress, Pittsburgh, PA, May 2019: Exploring Regional Rates of Reservoir Sedimentation.
- (54) *Badger, A. M., **B. Livneh**, and N. P. Molotch, World Environmental and Water Resources Congress, Pittsburgh, PA, May 2019: On the role of spatial snow distribution on alpine catchment hydrology.
- (55) **Livneh, B.**, L. Dilling, A. M. *Badger, and R. Page, CIRES Rendezvous, Boulder, CO, May 2019: Advancing the use of drought early warning systems in the Upper Colorado River Basin: A transdisciplinary project.
- (56) Abolafia-Rosenzweig, R., **Livneh, B.** and Small, E.E., CIRES Rendezvous, Boulder, Colorado, May 2019: A data assimilation framework to estimate irrigation: merging soil moisture retrievals with land surface models
- (57) *Badger, A. M., **B. Livneh**, and N. P. Molotch, Hydrologic Sciences Research Symposium, Boulder, CO, April 2019: The role of spatial snow variability on alpine catchment hydrology.
- (58) Brucker, C.B., A.J. Heldmyer, B. Livneh, F.L. Rosario-Ortiz, and J.T. Minear, Hydrologic Sciences Symposium, Boulder, CO, April 2019: Simulator of Wildfire Impacts on Watersheds across the Western U.S.
- (59) Heldmyer, A.J., **B. Livneh**, W. Farmer, J. Driscoll, and N. Molotch, Hydrologic Sciences Student Research Symposium, Boulder, CO, Apr. 2019: An Observationally-based spatial SWE model for the western United States: applications in montane subdomains.
- (60) **Livneh, B.**, Workshop on Adaptation Strategies for Sustainable Drinking Water Utility Management Under Drought and Climate Change, Boulder, CO., Mar., 2019: Modeling watershed-scale sediment response to climate and wildfire.
- (61) **Livneh, B.**, *A.M. Badger, J. Cepeda, N.P. Molotch, and K. Suding, City of Boulder Climate Change Seminar, Jan. 2019: Hydrologic Response to Climatic Variability in the Green Lakes Valley Watershed.
- (62) Abolafia-Rosenzweig, R., B. Livneh, Y. Xia, P.A. Dirmyer, S.V. Kumar, C.D. Peters-Lidard, H. Wei, and J. Kain, American Meteorological Society Annual Meeting, Phoenix, AZ, Jan. 2019: 2B.3 Comparing Operational NLDAS-2 and Experimental NLDAS-3 Soil Moisture with Observational Soil Moisture Data from In-Situ Networks and SMAP Remote Sensing.
- (63) Barsugli, J.J., M. Hoerling, J. Eischeid, K. Wolter, and **B. Livneh**, American Meteorological Society Annual Meeting, Phoenix, AZ, Jan. 2019: 6.4 How Well Do Observations Constrain the Sensitivity of the Upper Colorado River Basin Streamflow to Temperature and Precipitation Trends?
- (64) Culler, E.S., **B. Livneh**, B. Corsa and K. Tiampo, American Geophysical Union Fall Meeting, Washington, DC, Dec. 2018: H23L-2104: A Global Analysis of the Role of Wildfires on Landslide Susceptibility.
- (65) *Badger, A.M., **B. Livneh**, K. Tiampo, J.T. Minear, and C. Williams, American Geophysical Union Fall Meeting, Washington, DC, Dec. 2018: H51C-08 Evaluating Differences in Precipitation Datasets for Characterizing Cascading Hazards.

- (66) Raseman W.J, J.R. Kasprzyk, R.S. Summers, B. Rajagopalan, F. Rosario-Ortiz, W. Kleiber, and B. Livneh, American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: H21Q-1932 Advancing Stochastic Water Quality and Simulation-Optimization Techniques for Potable Water Systems Facing Source Water Quality Degradation.
- (67) Heldmyer, A.J, and **B. Livneh**, American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: H23L-2130 Wildfire in the West: Characterizing Spatial Trends in Post-disturbance Hydrologic and Sediment Response at the Watershed Scale.
- (68) **Livneh, B.**, R. Abolafia-Rosenzweig, E.S. Small, A.M. Badger, and S. V. Kumar, American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: H23A-06 A framework for predicting irrigation through soil moisture data assimilation.
- (69) Migone, B., K. Averyt, D. C. Steinberg, J. Macknick, K. Eureka, Y. Sun, *A. M. Badger, and **B. Livneh**, USAEE/IAEE North American Conference, Washington, DC, September **2018**: Decomposing supply and demand-side impacts of climate change on the U.S. electricity system through 2050.
- (70) **Livneh B.**, *Badger, A.M, and Lukas, J.J., Advancing Drought Early Warning Workshop, Glenwood Springs, CO, Aug **2018**: Snowpack-streamflow modeling results: How well does snowpack predict streamflow in a future climate?
- (71) Minear, J.T., Tiampo, K., **B. Livneh**, M. Willis, C. Williams, *A. Badger, and M. Jacquemart, Asia Oceania Geosciences Society Meeting, Honolulu, Hawaii, USA, June, **2018**: The Interaction of Mass Movements with Natural Hazards Under Changing Hydrologic Conditions.
- (72) **Livneh, B.**, ^PA.M. Badger, J.J. Lukas, L. Dilling, and R. Page, Global Energy and Water Cycle Experiment (GEWEX) Meeting, Canmore, Alberta, Canada, May, **2018**: Characterizing Drought Risk Management and Assessing the Robustness of Snowpack-based Drought Indicators in the western U.S.
- (73) **B. Livneh.** (Invited), Earthlab Extremes Collider, Boulder, CO, May **2018**: Regional Extremes: What, Why, and How.
- (74) Shellito P., E.E. Small, and B. Livneh, Global Energy and Water Cycle Experiment (GEWEX) Meeting, Canmore, Alberta, Canada, May, **2018**: Controls on surface soil drying rates observed by SMAP and simulated by the Noah land surface model.
- (75) Heldmyer, A.J., **B. Livneh**, and S. Kampf, CIRES Rendezvous, Boulder, CO, May **2018**: Sedimentation and runoff in the Colorado Front Range: Diagnosing fire-related changes.
- (76) Abolafia-Rosenzweig, R., **B. Livneh**, E.S. Small, and ^PA.M. Badger, Colorado State University, Hydrology Days, Fort Collins, CO, Mar. **2018**: Evaluation of soil moisture data assimilation to improve hydrologic partitioning over agricultural areas.
- (77) Heldmyer, A.J., **B. Livneh**, and S. Kampf, Colorado State University, Hydrology Days, Fort Collins, CO, Mar. **2018**: Assessing the Impacts of Wildfire on Sedimentation and Runoff in the Colorado Front Range.
- (78) Newman, M, S. Kumar, Y. Want, and **Livneh, B.**, American Meteorological Society Annual Meeting, Austin, TX, Jan. **2018**: Potential Reemergence of Seasonal Soil Moisture Anomalies in North America.
- (79) **Livneh, B.**, E.S. Small, *A.M. Badger, and R. Abolafia-Rosenzweig, American Meteorological Society Annual Meeting, Austin, TX, Jan. **2018**: Using SMAP Satellite Observations to Estimate Terrestrial Evaporation Rates.
- (80) *Badger, A.M., **B. Livneh**, E.E. Small, and R. Abolafia-Rosenzweig, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: H11M-02 A Method for a Multi-Platform Approach to Generate Gridded Surface Evaporation.
- (81) Kasprzyk, J.R. R. Smith, W. J. Raseman, M.A. DeRousseau, L. Dilling, K. Ozekin, R.S. Summers, R. Balaji, B. Livneh, F. Rosario-Ortiz, L. Sprain., and W.V. Sruar III, American Geophysical Union Fall

Meeting, New Orleans, LA, Dec. **2017**: PA41A-0289 Collaborative Workshops for Assessment and Creation of Multi-Objective Decision Support for Multiple Sectors.

- (82) Ray, A.J, J.J. Barsugli, J.M. Guinotte, **B. Livneh**, C. Dewes, I. Rangwala, A. Heldmyer, and S. Torbit, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: GC31A-0993 Co-production of Snow Projections for a Study of Snow Persistence Projections for the American Wolverine *Gulo gulo*.
- (83) Heldmyer, A.J, **B. Livneh**, J.J. Barsugli, J.M. Guinotte C. Dewes, and S. Torbit, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: C53A-1006 Simulation of Current and Projected Montane Snowpacks for the Preservation of the Wolverine in the Western U.S.
- (84) Sun, Y., K. Eureka, J. Macknick, D.C. Steinberg, K. Averyt, *A. Badger, and **B. Livneh**, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: GC31D-1033 Decomposing climate-induced temperature and water effects on the expansion and operation of the US electricity system.
- (85) Jennings, K.S., T. Winchell, **Livneh, B.**, and N.P. Molotch, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: H41N-05: Precipitation phase partitioning variability across the Northern Hemisphere.
- (86) Kumar, S.J., M. Newman, D.M. Lawrence, **Livneh, B.**, and D. Lombardozzi, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: H42B-02: Land-atmosphere coupling and soil moisture memory contribute to long-term agricultural drought.
- (87) S. Redfern, **Livneh, B.**, N.P. Molotch, K. Suding, J.C. Neff, and E. Hinkley, American Geophysical Union Fall Meeting, New Orleans, LA, Dec. **2017**: H43C-1656: Catchment Integration of Sensor Array Observations to Understand Hydrologic Connectivity.
- (88) **Livneh, B.**, *A.M. Badger, J. J. Lukas, R. Page, and L. Dilling, Upper Colorado River Basin Water Forum, Colorado Mesa State University, Nov **2017**: Assessing the robustness of spring snowpack as a drought indicator in the Upper Colorado River Basin under future climate change.
- (89) Heldmyer, A.J., **Livneh, B.**, and B. Rajagopalan, Upper Colorado River Basin Water Forum, Colorado Mesa State University, Nov **2017**: Assessing the Impacts of Drought and Wildfire on the Colorado Front Range.
- (90) **Livneh, B.** NASA SUSMAP Workshop, Massachusetts Institute of Technology (MIT), Oct., **2017**: Using the SMAP soil drying cycle to produce a unique estimate of direct evaporation from soil: E-SMAP.
- (91) **Livneh, B.**, CVEN 5333 Advanced Hydrology, Guest Lecture, CU-Boulder, Oct., **2017**: An Overview of Distributed Hydrologic Modeling.
- (92) **Livneh, B.** (Invited), EarthLab Postdoctoral Mentoring Series, University of Colorado, Sep., **2017**: How to write a strong academic research statement.
- (93) **Livneh, B.**, S. Redfern, N.P. Molotch, E. Hinckley, and J. Neff, Niwot Ridge Annual Team Meeting, University of Colorado, Jul. **2017**: Integration of Sensor Array Observations to Understand Hydrologic Connectivity.
- (94) **Livneh, B.** (Invited), International English Center, University of Colorado, May., **2017**: Drought in Colorado: What you should know.
- (95) **Livneh, B.**, *A.M. Badger, and J. J. Lukas, World Environmental and Water Resources Congress, Sacramento, CA, May **2017**: Assessing the robustness of snow-based drought indicators in the Upper Colorado River Basin under future climate change.
- (96) Stewart, J.R., B. Rajagopalan, J.R. Kasprzyk, W.J. Raseman, and **B. Livneh**, World Environmental and Water Resources Congress, Sacramento, CA, May **2017**: The Use of Ensemble Modeling of Suspended Sediment to Characterize Uncertainty.

- (97) Carbone, E., E.E. Small, *A. Badger, and **B. Livneh**, CU-Boulder Hydrologic Sciences Symposium, Boulder CO, Apr. **2017**: Generating a global soil evaporation dataset using SMAP soil moisture data to estimate components of the surface water balance.
- (98) Kasprzyk, J.R., J.R. Stewart, and **B. Livneh**, CU-Boulder Hydrologic Sciences Symposium, Boulder CO, Apr. **2017**: Improving the Holistic Calibration of Simulated Hydrologic Processes using Multiple Objectives.
- (99) **Livneh B.** National Climate Assessment, Northern Great Plains Regional Engagement Workshop, Fort Collins, CO, Feb, **2017**: Impacts of Climate Change on Northern Great Plains Water Resources.
- (100) *Badger, A.M., J.K. Eischeid, M.P. Hoerling, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Analysis of Recent Changes in Extreme Hydrologic Events in the Upper Missouri River Basin.
- (101) Macknick, J., K. Averyt, **B. Livneh**, *A. Badger, D.C. Steinberg, K. Eureka, and R.L. Newmark, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Isolating the effects of climate-mediated changes in temperature and water availability on the capacity expansion and operations of the U.S. power sector.
- (102) Zhang, Q., M.W. Williams, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Streamflow predictions under climate scenarios in the Boulder Creek Watershed at Orodell.
- (103) Stewart, J., W.J. Raseman, J.R. Kasprzyk, R. Balaji, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Ensemble Modeling of Suspended Sediment in Steep Mountain Catchments.
- (104) Raseman, W.J., J.R. Kasprzyk, F. Rosario-Ortiz, R.S. Summers, J. Stewart, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Multi-objective Optimization for the Robust Performance of Drinking Water Treatment Plants under Climate Change and Climate Extremes.
- (105) **Livneh, B.**, *A. Badger, N.P. Molotch, C. Bueno de Mesquita, and K. Suding, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Hydrologic Response to Climatic and Vegetation Change in an Extreme Alpine Environment.
- (106) Carbone, E., E.E. Small, *A. Badger, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Generating a global soil evaporation dataset using SMAP soil moisture data to estimate components of the surface water balance.
- (107) Kumar, S., M. Newman, D.M. Lawrence, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Intensified multi-year droughts in California due to land-atmosphere interactions and land-memory processes.
- (108) Yanto, M., J.R. Kasprzyk, B. Rajagopalan, and **B. Livneh**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2016**: Multi-objective Optimization Based Calibration of Hydrologic Model and Ensemble Hydrologic Forecast for Java Island, Indonesia.
- (109) **Livneh, B.**, CEAE Water Resources Seminar, CU-Boulder, Sep **2016**: Hydrologic Interactions Across Multiple Scales: Drought, Disturbance and Responses.
- (110) **Livneh, B.** (Invited), International English Center, University of Colorado, Aug., **2016**: Drought in Colorado: What you should know.
- (111) Kumar S., M. Newman, Y. Wang, and **B. Livneh**, 21st Annual CESM Workshop, 20-23, Breckenridge, Colorado USA June **2016**: Potential re-emergence of seasonal soil moisture anomalies in North America.
- (112) **Livneh B.** (Invited) and J.R. Stewart, Sedimentation Impacts Under Climate Change (SIUCC) Virtual Course, Boulder, CO, June, **2016**: A multi-physics modeling framework for the Colorado Front Range.

- (113) Barnhart, T.B., N.P. Molotch, **B. Livneh**, A.A. Harpold, J.F. Knowles, and D. Schneider, Western Snow Conference, Seattle, WA., Apr. **2016**: Rapid Snowmelt Leads to Greater Streamflow Across the Western United States.
- (114) Winchell, T.S., **Livneh, B.**, Molotch, N.P., Western Snow Conference, Seattle, WA, Apr. **2016**: Variation of the Rain-Snow Temperature Threshold Over North America.
- (115) Barnhart, T.B., **B. Livneh**, D.J. Gochis, and N.P. Molotch, University of Colorado Hydrologic Sciences Symposium, Boulder, CO., Mar. **2016**: Streamflow Sensitivity to Changes in Snowpack Across Trans-Basin Diversions.
- (116) Barnhart, T.B., **B. Livneh**, D.J. Gochis, and N.P. Molotch, Water Sustainability and Climate Principle Investigator Meeting, Arlington, VA., **2016**: Streamflow Sensitivity to Changes in Snowpack Across Trans-Basin Diversions, poster.
- (117) Newman M, Wang, Y., Kumar S., and **Livneh, B.**, National Centers for Atmospheric Research, Boulder, CO, Feb. **2016**: Potential re-emergence of seasonal soil moisture anomalies in North America.
- (118) **Livneh, B.**, K. Friedrich, R. Grossman, J. Huntington, and P. Blanken, American Meteorological Society Annual Meeting, New Orleans, LA, Jan. **2016**: Estimating reservoir evaporation: Evaluating current and future practices and research-to-operations pathways.
- (119) Kim J, Cifelli R., Johnson L.E., **Livneh, B.**, and V. Chandrasekar, American Meteorological Society Annual Meeting, New Orleans, LA, Jan. **2016**: Comparison of Semi-Distributed and Fully Distributed Hydrological Models in Complex Terrain.
- (120) **Livneh, B.**, and M.P. Hoerling, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Assessing Causes of Hydrologic Extremes in the Upper Missouri Basin.
- (121) Barnhart, B., **Livneh B.**, N.P. Molotch, J. Knowles, A.A. Harpold, and D. Schneider, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Rapid Snowmelt Leads to Greater Streamflow Across the Western United States.
- (122) Hoerling, M.P., and **Livneh B.**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: The Physics of Great Plains Drought.
- (123) Buma B., and **Livneh B.**, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Quantifying the Sensitivity of Water Yield to Forest Disturbances Across a Diverse Set of Unmanaged Watersheds throughout the Continental United States.
- (124) M. Yanto, **B. Livneh**, B. Rajagopalan, and J.R. Kasprzyk, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Hydrologic Modeling and Parameter Estimation under Data Scarcity for Java Island, Indonesia.
- (125) Kim J, Cifelli R., Johnson L.E., **Livneh, B.**, and V. Chandrasekar, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: Effect of Rainfall Spatial Distribution on Flood Forecasting in Complex Terrain.
- (126) Cheng L., Hoerling M.P., Aghakouchak A., **Livneh B.**, Qian X-W., Eischeid J, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: How Has Human-induced Climate Change Affected California Drought Risk?
- (127) Kim J, Cifelli R., Johnson L.E., **Livneh, B.**, and V. Chandrasekar, America Water Resources Association, 2015 Annual Water Resources Conference, Denver, CO, Nov **2015**: Comparison of Distributed Rainfall-Runoff models: A Case Study for the Storm Event on December 10, 2014.
- (128) **Livneh, B.** (Invited), U.S. Army Corps of Engineers, Omaha, NE, Nov **2015**: Assessing Causes for Hydrologic Extremes in the Upper Missouri Basin.

- (129) Hoerling M. P., and **Livneh, B.**, Implications of a Changing Arctic on Water Resources and Agriculture in the Central U.S., Lincoln, NE, Nov **2015**: *The Physics of Great Plains Drought.*
- (130) **Livneh, B.**, CEAE Water Resources Seminar, CU-Boulder, Nov **2015**: Hydrologic Interactions Across Multiple Scales: Drought, Disturbance and Responses.
- (131) **Livneh, B.**, and M. P. Hoerling, Climate Diagnostics and Prediction Workshop, Denver, CO, Oct **2015**: *The Physics of Great Plains Drought: It's Predictability and It's Changed Risk in a Warmer World.*
- (132) Newman, M., Y. Wang, S. Kumar, and **Livneh, B.**, Climate Diagnostics and Prediction Workshop, Denver, CO, Oct **2015**: *The Seasonal and spatial dependence of soil moisture memory over North America.*
- (133) **Livneh, B.** (Invited) ATOC 7500 Seminar Series: Reading the IPCC Working Group II and III Reports: Impacts and Mitigation, University of Colorado, Boulder, August **2015**, *IPCC AR5 Working Group II Chapters 3 & 4: Fresh Water Resources/ Terrestrial and Inland Water Systems.*
- (134) **Livneh, B.**, Webinar for Climate Science Centers and National Center for Environmental Prediction, June **2015**, Development of a spatially comprehensive, daily hydrometeorological data set for Mexico, the conterminous U.S., and southern Canada: 1950-2013.
- (135) **Livneh, B.**, and M. P. Hoerling, North Central Climate Science Center Conference, Fort Collins, CO, May **2015**, *Assessing Antecedent Soil Moisture Impacts on Great Plains Drought Development.*
- (136) **Livneh, B.**, (Invited), CU-Boulder Hydrologic Sciences Symposium, Boulder, CO, Apr. **2015**, Establishing Proximal Causes of Soil Moisture Deficits Accompanying Great Plains Drought Development.
- (137) **Livneh, B.**, and M. P. Hoerling, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2014**, Exploring the linkage between drought, high temperatures, and hydrologic sensitivities: A case study of the 2012 Great Plains drought.
- (138) **Livneh, B.**, T.J. Bohn, R. Vose, and F. Munoz-Arriola. Tercera Reunión Annual de la Red de Desastres Hidrometeorológicos y Climáticos (REDESCLIM). Mexico City, Nov. **2014**. *Base de Datos Hidroclimática Subcontinental ("Hydroclimatic Subcontinental Database")*.
- (139) Bohn, T.J., **B. Livneh**, F. Munoz-Arriola, A. Robles-Morua, D.W. Pierce, R.S. Vose, and E.R. Vivoni, Mexican Geophysical Union (UGM) Annual Meeting, Puerto Vallarta, Jalisco, Mexico, Nov. **2014**. *Long-Term Gridded Meteorological Observations over the Continental US, Mexico, and Southern Canada, 1950-2013: Assessment over the North American Monsoon Region.*
- (140) **Livneh, B.** (Invited), International English Center, University of Colorado, Aug., **2014**. *Drought in Colorado: What you should know.*
- (141) **Livneh, B.** (Invited), Evapotranspiration mini-workshop, North Central Climate Science Center, Fort Collins, CO, May, **2014**. *Evapotranspiration via Water Balance Methods in Land Surface Models.*
- (142) B. Buma, **B. Livneh**, C. A. Wessman, Alaskan Coastal Rainforest Center lecture series, University of Alaska Southeast, Juneau AK, March, **2014**: *Linking forest ecology, hydrology, and management to explore the implications of climate change on a critical ecosystem service.*
- (143) **Livneh, B.** (Invited), National Centers for Atmospheric Research (NCAR) Seminar, Boulder, CO, Feb. **2014**: *Hydrologic Interactions Across Multiple Scales: Stressors, Thresholds, and Responses.*
- (144) **Livneh, B.**, and J.S. Deems, AGU Chapman Conference on Seasonal to Interannual Hydroclimate Forecasts and Water Management, Jul., **2013**: *From catchments to regional scales: hydrologic impacts of land cover disturbances in the Upper Colorado River Basin.*
- (145) **Livneh, B.**, and J. S. Deems, Climate Change Technology Conference, Montreal, QC, May, **2013**: *Merging Satellite and Model Information to Improve Snowpack and Water Supply Forecasting.*
- (146) **Livneh, B.** (Invited), Guest Lecture, Geology 5700, University of Colorado, Boulder, Apr. **2013**: *Parameter Selection for Hydrologic Models.*

- (147) **Livneh, B.** (Invited), J.S. Deems, and B. Buma, San Juan Bark Beetles & Watersheds Workshop, Durango, CO., Apr. **2013**: *Beetles, Dust, and Climate Change: Unraveling Snowmelt Perturbations in the Intermountain West.*
- (148) **Livneh, B.**, E.A. Rosenberg, C. Lin, B. Nijssen, V. Mishra, K. Andreadis, E.P. Maurer, and D.P. Lettenmaier, American Meteorological Society Annual Meeting, Austin, TX, Jan. **2013**, *A long-term hydrologically based dataset of land surface fluxes and states for climatic modeling and analysis over the conterminous United States.*
- (149) **Livneh, B.**, J.S. Deems, B. Buma, J.J. Barsugli, D. Schneider, N. Molotch, and C. Wessman, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2012**, *Interpreting changes to Upper Colorado River Basin hydrologic response via alternate climatic and land-cover scenarios.*
- (150) **Livneh, B.**, J.S. Deems, B. Buma, J.J. Barsugli, D. Schneider, and C. Wessman, Upper Colorado River Basin Water Conference, Grand Junction, CO, Nov. **2012**, *Modeling Hydrologic Impacts of Bark Beetles and Desert Dust on Tributary Catchments of the Upper Colorado River Basin.*
- (151) **Livneh, B.** (Invited), CU-Boulder Hydrology and Water Resource Seminar, Boulder, CO, Sep. **2012**, Development of a Land Surface Model and the Prediction of Land-Atmosphere Fluxes and Streamflow Forecasting.
- (152) **Livneh, B.**, B. Thrasher, and D.P. Lettenmaier, Climate Change Conference, Seattle, WA, Jul. **2012**, Updates and extensions to a long-term Hydrologically based dataset over the Conterminous United States.
- (153) **Livneh, B.**, and D.P. Lettenmaier, European Geosciences Union General Assembly, Vienna Austria, Apr, **2012**, *Transferability of land surface model parameters using remote sensing and in situ observations.*
- (154) **Livneh, B.**, and D.P. Lettenmaier, AGU Fall Meeting, San Fransisco, CA., Dec. **2011**, *Land Surface Model parameter regionalization via remote sensing and observations (poster).*
- (155) **Livneh B.** (co-presented with T.J. Bohn), University of Washington Hydrology Seminar, Aug. **2011**, Evaluating performance of MTCLIM and other hydrometeorological algorithms against a global set of station data.
- (156) **Livneh, B.**, P.J. Restrepo, and D.P. Lettemnaier, 91st AMS Annual Meeting, Seattle, WA, Jan. **2011**, *Application of a Unified Land Model for estimation of the terrestrial water balance (poster).*
- (157) Koster, R. D., S. Mahanama, **B. Livneh**, D. P. Lettenmaier, and R. H. Reichle, 91st AMS Annual Meeting, Seattle, WA, **2011**, *Predicting hydrological drought: relative contributions of soil moisture and snow information to seasonal streamflow forecast skill.*
- (158) **Livneh, B.**, P.J. Restrepo, and D.P. Lettemnaier, AGU Fall Meeting, San Fransisco, CA., Dec. **2010**, *Exploring terrestrial and atmospheric constraints in land surface model validation (poster).*
- (159) **Livneh, B.**, D.P. Lettenmaier and K.E. Mitchell, University of Washington Climate Impacts Group, Seattle, WA, Jan. **2010**, *Noah LSM Snow Model Diagnostics and Enhancements.*
- (160) **Livneh, B.**, and D.P. Lettenmaier, UBC-UW Hydrology Symposium, University of British Columbia, Vancouver, BC, Canada, 25 Sep. **2009**, *Evapotranspiration Partitioning in Land Surface Models.*
- (161) **Livneh, B.**, Y. Xia, K.E. Mitchell, M.B. Ek, and D.P. Lettenmaier, CPPA PI's Meeting, Washington, DC, Sep **2008**, *Noah LSM snow model diagnostics and enhancements (poster).*
- (162) **Livneh, B.**, E.P. Salathe, and D.P. Lettenmaier, UW/UBC, Hydrology Conference, Seattle, WA, Sep. **2008**, *Understanding the sensitivity of Washington State snowpacks to climate change.*
- (163) **Livneh, B.**, D.P. Lettenmaier and K.E. Mitchell, AGU Fall Meeting, San Fransisco, CA., Dec. **2007**, *Diagnosis of Performance of the Noah LSM Snow Model.*