Ben Livneh, Ph.D.
Assistant Professor, Department of Civil, Environmental, and Architectural Engineering (CEAE)
Fellow, Cooperative Institute for Research in Environmental Sciences (CIRES)
University of Colorado, Boulder

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

POSITIONS HELD:

2015-	Assistant Professor, CEAE and CIRES Fellow, CU-Boulder.
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

2018	New (Early Career) Investigator Award in Earth Sciences, *NASA*
2017	Ralph E. Power Junior Faculty Enhancement Award*, Oak Ridge Associated Universities*
2012	CIRES Visiting Postdoctoral Fellowship Award.

REFEREED JOURNAL PUBLICATIONS

Underline denotes a CU graduate student and *asterisk denotes a CU postdoctoral scientist.
In my field, the order of authorship reflects degree of contribution.
As of Nov, 2019 my H-Index is 27 (Google Scholar), 23 (Web of Knowledge), with 3064 total citations (Google Scholar) and 2083 (Web of Science).

1. Steinberg, D., B.K. Mignone, J. Macknick, Y. Sun, K. Eurek, [P]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,* https://doi.org/10.1007/s10584-019-02506-6.
2. 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.
3. 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.
4. 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.
5. 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.

6. Fan Y., M. Clark, D. M. Lawrence, S. Swenson, L. E. Band, S. L. Brantley, P. D. Brooks, W. E. Dietrich, A. Flores, G. Grant, J. W. Kirchner, D. S. Mackay, J. McDonnell, P. C. D. Milly, P. L. Sullivan, C. Tague, H. Ajami, N. Chaney, A. Hartmann, P. Hazenberg, J. McNamara, J. Pelletier, J. Perket, E. Rouholahnejad-Freund, T. Wagener, X. Zeng, E. Beighley, J. Buzan, M. Huang, **B Livneh**, B. P. Mohanty, B. Nijssen, M. Safeeq, C. Shen, W. van Verseveld, J. Volk, D. Yamazaki, **2019**: Hillslope Hydrology in Global Change Research and Earth System Modeling, *Water Resources Research*, AGU Centennial Volume on GRAND CHALLENGES IN THE EARTH AND SPACE SCIENCES, 55(2), 1737-1772, https://doi.org/10.1029/2018WR023903.
7. Small, E.E., *A.M. Badger., R. Abolafia-Rosenzweig and **B. Livneh**, **2018**: Estimating soil evaporation using drying rates determined from satellite-based soil moisture records, *Remote Sensing,* 10(12), 1945; https://doi.org/10.3390/rs10121945.
8. *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.
9. 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.
10. 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.
11. 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. Finnessey, 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.
12. Shellito, P., E. E. Small, and **B. Livneh**, **2018**: Controls on surface soil drying rates observed by SMAP and simulated by the Noah land surface model, *Hydrology and Earth System Sciences,* 22(3), 1649, https://doi.org/10.5194/hess-22-1649-2018.
13. 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.
14. 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.
15. 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.
16. Yanto, **B. Livneh**, and B. Rajagopalan, **2017**: Development of a gridded meteorological dataset over Java island, Indonesia 1985–2014, *Nature Scientific Data*, 4, 170072, https://doi.org/10.1038/sdata.2017.72.
17. 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.
18. 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.
19. 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.

20. 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.
21. 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.
22. 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.
23. **Livneh B.**, and M.P. Hoerling, **2016**: The Physics of Drought in the U.S. Central Great Plains. *Journal of Climate*, 29, 6783-6804, https://doi.org/10.1175/JCLI-D-15-0697.1.
24. Cheng L., M.P. Hoerling, A. AghaKouchak, **B. Livneh**, and X-W. Qian, **2016**: How Has Human-Induced Climate Change Affected California Drought Risk?, *Journal of Climate,* 29, 111–120, https://doi.org/10.1175/JCLI-D-15-0260.1.
25. Raleigh, M.S., **B. Livneh**, K. Lapo and J.D. Lundquist, **2016**: How does availability of meteorological forcing data impact physically-based snowpack simulations in different climates? *Journal of Hydrometeorology*, 17, 99–120, https://doi.org/10.1175/JHM-D-14-0235.1.
26. Mizukami N., M.P. Clark, E.D. Gutmann, P.A. Mendoza, A.J. Newman, **B. Livneh**, B. Nijssen, L. Hay, L.D. Brekke and J.R. Arnold, **2016**: Implications of the methodological choices for hydrologic portrayals over the Contiguous United States: statistically downscaled forcing data and hydrologic models, *Journal of Hydrometeorology* 17, 73–98, https://doi.org/10.1175/JHM-D-14-0187.1.
27. **Livneh B**., R. Kumar, and L. Samaniego, **2015**: Influence of Soil Textural Properties on Hydrologic Fluxes in the Mississippi River Basin, *Hydrological Processes*, 29, 4638–4655, https://doi.org/10.1002/hyp.10601.
28. Lundquist J.D., M. Hughes, B. Henn, E. Gutmann, and **B. Livneh**, J. Dozier, and P. Neiman, **2015**: High-elevation precipitation patterns: using snow measurements to diagnose when and why gridded datasets succeed or fail across the Sierra Nevada, California, *Journal of Hydrometeorology* 16, 1773–1792, https://doi.org/10.1175/JHM-D-15-0019.1.
29. **Livneh B.**, T.J. Bohn, D.S. Pierce, F. Munoz-Ariola, B. Nijssen, R. Vose, D. Cayan, and L.D. Brekke, **2015**: A spatially comprehensive, hydrometeorological data set for Mexico, the U.S., and southern Canada 1950-2013, *Nature Scientific Data*, 2, 150042, https://doi.org/10.1038/sdata.2015.42.
30. Funk, C., S. Shukla, A. Hoell, and **B. Livneh**, **2015**: Assessing the contributions of East African and west Pacific warming to the 2014 boreal spring East African drought, *Bulletin of the American Meteorological Society*, 96(12), S77-S82, https://doi.org/10.1175/BAMS-D-15-00106.1.
31. Buma B., and **B. Livneh**, **2015**: Potential effects of forest disturbances and management on water resources in a warmer climate, *Forest Science*, http://dx.doi.org/10.5849/forsci.14-164.
32. **Livneh B.**, J.S. Deems, B. Buma, J.J. Barsugli, ᶜD. Schneider, N.P. Molotch, K. Wolter, and C.A. Wessman, **2015**: Catchment Response to Bark Beetle Outbreak and Dust-on-Snow in the Upper Colorado River Basin, *Journal of Hydrology* 523,196–210, https://doi.org/10.1016/j.jhydrol.2015.01.039.
33. Pal, I., E. Towler, and **B. Livneh, 2015**: How Can We Better Understand Low River Flows as Climate Changes?*, Eos Opinion, AGU,* 96, http://dx.doi.org/10.1029/2015EO033875. (**Editor-only reviewed*)
34. **Livneh, B**., J.S. Deems, D. Schneider, J.J. Barsugli, and N.P. Molotch, **2014**: Filling in the gaps: Inferring spatially distributed precipitation from gauge observations over complex terrain, *Water Resources Research*, 50, https://doi.org/10.1002/2014WR015442.
35. Chen F., M. Barlage , M. Tiwari , R. Rasmussen , J. Jin , D.P. Lettenmaier, **B. Livneh**, C. Lin , G. Michuez-Macho , G-Y. Niu , L. Wen , Z-L. Yang, **2014**: Modeling seasonal snowpack evolution in the complex terrain and forested Colorado Headwaters region: A model inter-comparison study, *Journal of Geophysical Research*, 119(13), 13,795-13,819, https://doi.org/10.1002/2014JD022167.
36. Kumar, S.V., C.D. Peters-Lidard, D. Mocko, Y. Liu, K. Arsenault, Y. Xia, M.B. Ek, G. Riggs, **B. Livneh**, and M., Cosh, **2014**: Assimilation of passive microwave-based soil moisture and snow depth

retrievals for drought estimation, *Journal of Hydrometeorology*, *15*(6), 2446-2469 https://doi.org/10.1175/JHM-D-13-0132.1.

37. **Livneh B.**, E.A. Rosenberg, C. Lin, B. Nijssen, V. Mishra, K.M. Andreadis, E.P. Maurer, and D.P. Lettenmaier, **2013**: A Long-Term Hydrologically Based Dataset of Land Surface Fluxes and States for the Conterminous United States: Update and Extensions, *Journal of Climate*, 26, 9384–9392, https://doi.org/10.1175/JCLI-D-12-00508.1.
38. Kumar, R., **B. Livneh**, and L. Samaniego, **2013**: Towards computationally efficient large-scale hydrologic predictions with the multi-scale regionalization scheme, *Water Resources Research,* 49(9), 5700-5714, https://doi.org/10.1002/wrcr.20431.
39. Xia Y., M. B. Ek, J. Sheffield, **B. Livneh**, H. Wei, S. Feng, L. Luo, J. Meng, and E. Wood, **2013**: Validation of Noah-simulated Soil temperature in the North American Land Data Assimilation System Phase 2, *Journal of Applied Meteorology and Climatology*, 52, 455–471, https://doi.org/10.1175/JAMC-D-12-033.1.
40. Bohn, T. J., **B. Livneh**, J. W. Oyler, S. W. Running, B. Nijssen, and D. P. Lettenmaier, **2013**: Global evaluation of MTCLIM and related algorithms for forcing of ecological and hydrological models, *Agriculture Forest Meteorology*, 176, 38-49, https://doi.org/10.1016/j.agrformet.2013.03.003.
41. **Livneh B.**, and D.P. Lettenmaier, **2013**: Regional parameter estimation for the Unified Land Model, *Water Resources Research*, 49(1), 100-114, https://doi.org/10.1029/2012WR012220.
42. Sheffield, J., **B. Livneh**, and E.F. Wood, **2012**: Representation of Terrestrial Hydrology and Large Scale Drought of the Continental US from the North American Regional Reanalysis, *Journal of Hydrometeorology,* 13, 856–876, https://doi.org/10.1175/JHM-D-11-065.1.
43. **Livneh, B.** and D.P. Lettenmaier, **2012**: Multi-criteria parameter estimation for the unified land model, *Hydrology and Earth System Sciences*, 16, 3029-3048, https://doi.org/10.5194/hess-16-3029-2012.
44. Mahanama, S.P., **B. Livneh**, R.D. Koster, D.P. Lettenmaier, and R.H. Reichle, **2012**: Soil Moisture, Snow, and Seasonal Streamflow Forecasts in the United States, *Journal of Hydrometeorology*, 13, 189-203, https://doi.org/10.1175/JHM-D-11-046.1.
45. Xia Y., K. Mitchell, M. Ek, J. Sheffield, B. Cosgrove, L. Luo, C. Alonge, H. Wei, J. Meng, **B. Livneh**, D.P. Lettenmaier, V. Koren, Q. Duan, K. Mo, Y. Fan, and D. Mocko, **2012**: Continental-scale water and energy flux analysis and validation for the North American Land Data Assimilation System Project Phase 2 (NLDAS-2), part 1: inter-comparison and application of model products, *Journal of Geophysical Research*, 117, https://doi.org/10.1029/2011JD016048.
46. Xia Y., K. Mitchell, M. Ek, B. Cosgrove, J. Sheffield, L. Luo, C. Alonge, H. Wei, J. Meng, **B. Livneh**, Q. Duan, and D. Lohmann, **2012**: Continental-scale water and energy flux analysis and validation for the North American Land Data Assimilation System Project Phase 2 (NLDAS-2), part 2: Validation of Model-simulated streamflow, *Journal of Geophysical Research,* 117, https://doi.org/10.1029/2011JD016051.
47. **Livneh, B.**, P.J. Restrepo, and D.P. Lettenmaier, **2011**: Development of a Unified Land Model for prediction of surface hydrology and land-atmosphere interactions, *Journal of Hydrometeorology*, 12(6), 1299-1320, https://doi.org/10.1175/2011JHM1361.1.
48. Koster, R.D., S.P. Mahanama, **B. Livneh**, D.P. Lettenmaier, and R.H. Reichle, **2010**: Skill in Streamflow Forecasts Derived from Large-Scale Estimates of Soil Moisture and Snow, *Nature Geoscience*, 3(9), 613, https://doi.org/10.1038/ngeo944.
49. **Livneh, B**., Y. Xia, K.E. Mitchell, M.B. Ek, and D.P. Lettenmaier, **2010**: Noah LSM Snow Model Diagnostics and Enhancements, *Journal of Hydrometeorology*, 11(3), 721-738, https://doi.org/10.1175/2009JHM1174.1.
50. Barlage, M., F. Chen, M. Tewari, K. Ikeda, D. Gochis, J. Dudhia, R. Rasmussen, **B. Livneh**, M. Ek, and K. Mitchell, **2010**: Noah Land Surface Model Modifications to Improve Snowpack Prediction in the Colorado Rocky Mountains, *Journal of Geophysical Research*, 115 (D22), https://doi.org/10.1029/2009JD013470.
51. Casola, J.H., L. Cuo, **B. Livneh**, D.P. Lettenmaier, M. Stoelinga, P.W. Mote and J. M. Wallace, **2009**: Assessing the Impacts of Global Warming on Snowpack in the Washington Cascades, *Journal of Climate*, 22(10), 2758-2772, https://doi.org/10.1175/2008JCLI2612.1.

52. **Livneh B.**, and M.H. El Naggar, **2008**: Axial testing and numerical modeling of square shaft helical piles under compressive and tensile loading, *Canadian Geotechnical Journal*, 45(8), 1142-1155, https://doi.org/10.1139/T08-044.

Papers in Preparation, Review, and in-Press:

(1) 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,* (*in revision*).

(2) Kampf, S., S. Schmeer, L. MacDonald, B. Gannon, F. Saavedra, M. E. Miller, A. Heldmeyer, **B. Livneh, 2020:** High Park Fire hillslope erosion data and watershed simulations, *Journal of Environmental Management*, (*in revision*).

(3) 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* (*in revision*).

PEER REVIEWED CHAPTERS

Conant, R.T., D. Kluck, M. Anderson, *A. Badger, B.M. Boustead, J. Derner, L. Farris, M. Hayes, **B. Livneh,** S. McNeeley, D. Peck, M. Shulski, and V. Small, **2018:** Northern Great Plains. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 941–986. doi: 10.7930/NCA4.2018.CH22

CONFERENCE PROCEEDINGS PAPERS (NOT PEER REVIEWED):

Brucker, C.B., A.J. Heldmyer, **B. Livneh**, F.L. Rosario-Ortiz, and J.T. Minear, **2019**: Wildfires in the West: Characterizing Drivers of Post-Disturbance Hydrologic and Sediment Response through Laboratory Analysis, *Sedimentation and Hydrology Conference*, June 2019 (Editor reviewed, full paper) https://www.sedhyd.org/2019/openconf/modules/request.php?module=oc_proceedings&action=view.php&id=112&file=1/112.pdf&a=Accept

Heldmyer, A.J. and B. Livneh, 2019: Wildfire in the West: Characterizing Spatial Trends in Post-Disturbance Hydrologic and Sediment Response at the Watershed Scale, *Federal Interagency Sedimentation and Hydrologic Modeling Conference*, June 2019, (Editor reviewed, full paper) https://www.sedhyd.org/2019/openconf/modules/request.php?module=oc_proceedings&action=view.php&id=205&file=1/205.pdf&a=Accept

*Badger, A. M., **B. Livneh**, and N. P. Molotch, **2019**: On the role of spatial snow distribution on alpine catchment hydrology, World Environmental and Water Resources Congress, May, pp. 215-225, https://ascelibrary.org/doi/10.1061/9780784482346.022 (full paper).

Heldmyer, A.J., **B. Livneh**, W. Farmer, J. Driscoll, and N. Molotch, **2019**: Evaluating the Potential to Regionalize Station-Observed SWE across the Western U.S., *World Environmental and Water Resources Congress*, May 2019, https:///doi.org/10.1061/9780784482346.029 (full paper).

Livneh, B., *A.M. Badger, and J.J. Lukas, **2017**: Assessing the robustness of snow-based drought indicators in the Upper Colorado River Basin under future climate change, *World Environmental and Water Resources Congress*, May 2017-03, p 15, https://doi.org/10.1061/97807844806l8.051 (full paper).

Stewart, J.R., B. Rajagopalan, J.R. Kasprzyk, W.J. Raseman, and **B. Livneh, 2017:** The Use of Ensemble Modeling of Suspended Sediment to Characterize Uncertainty, *World Environmental and Water Resources Congress*, May 2017-03, p 15, https://doi.org/10.1061/9780784480625.019 (full paper).

Livneh, B., and J. S. Deems**, 2013:** "Merging Satellite and Model Information to Improve Snowpack and Water Supply Forecasting", *Climate Change Technology Conference*, Montreal, QC, Canada, Paper Number 1569695429 (mini paper).

JOURNAL AND WEB-BASED ARTICLES (NOT PEER REVIEWED):

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. Published on 01 March 2019.

Luce, C. H., Lute, A. C. Kormos, P., and **Livneh, B. 2017**. Modeled historical streamflow metrics for the contiguous United States and National Forest Lands. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2017-0046.

Livneh, B., K. Friedrich, and P. D. Blanken, **2016**: New interest in reservoir evaporation in western United States, *Eos*, *AGU,* 97, https://doi.org/10.1029/2016EO048679. Published on 23 March 2016.

Livneh, B., and D. W. Pierce, **2016**: New, Higher Resolution Climate Observations and Model Projections From Mexico Through Southern Canada, *Knowledge Stream, USBR Research and Development Office Magazine: Climate Variability and Extremes*, Summer 2016-03, p 17.

Livneh, B., E. Marino and J. E. Ten Hoeve, **2014**: Emerging Ideas and Interdisciplinary Perspectives on Climate Change, *Eos Trans. AGU*, 95(7), 65.

Gordon, E.S., Pugh, E.T. and **Livneh B.**, **2014:** Bark Beetles: Cause for Concern in Snowy Western Watersheds? *Utility Intelligence and Infrastructure*. Ellwood Media Lab. Web.

Ek, M. B., Xia, Y., Wood, E., Sheffield, J., Luo, L., Lettenmaier, D. P., **Livneh, B.**, … & Wei, H., **2011**: North American Land Data Assimilation System Phase 2 (NLDAS-2): Development and applications. GEWEX News, 2, 6-8. https://www.gewex.org/gewex-content/files_mf/1432209506May2011.pdf.

Munoz-Arriola, F., S. Shukla, T. Bohn, C. Zhu, **B. Livneh**, D.P. Lettenmaier, R. Lobato-Sanchez, A. Wagner-Gomez, **2009**. Prediccion de la Hidrologia Superficial en Norte America, *Resumen del Clima de la Frontera*, Julio 13: 1-5.

Interviews:

Livneh B. among several others, **2018**: University of Colorado professors, scholars helped author federal climate report, Boulder Daily Camera interview on publication of the 4th National Climate Assessment, 2018: http://www.dailycamera.com/cu-news/ci_32294222/university-colorado-professors-scholars-helped-author-federal-climate.

Livneh, B. and K. Jennings, Mar., *televised interview on Denver 9 News,* **2018**: http://www.9news.com/video/news/new-research-shows-that-colorado-gets-the-warmest-snow/73-8042155

Livneh, B., Mar., **2018**: *Inside the Greenhouse: http://www.insidethegreenhouse.org/media/ben-livneh-cires*

Livneh, B., Nov., **2017**: "UNL shares the consequences of climate change in Nebraska" in The Daily Nebraskan, Interview by Denise Munoz, http://www.dailynebraskan.com/news/unl-shares-the-consequences-of-climate-change-in-nebraska/article_1d7dc04e-c2a5-11e7-86b5-17e34615c6e6.html

Livneh, B. KGNU Morning Magazine interview on the science and state of reservoir evaporation, January, **2016**. http://www.kgnu.org/morningmag/1/1/2016.

Livneh, B. "West's water reservoir managers face big losses from evaporation". Interview by Bruce Finlay *The Denver Post*, December, **2015**. http://www.denverpost.com/2015/12/29/wests-water-reservoir-managers-face-big-losses-from-evaporation/.

Livneh, B. "More water flowing from bark beetle infested watersheds". Interview by J. Gilles. *Environmental Monitor*, March, **2015**. http://www.fondriest.com/news/more-water-flowing-from-bark-beetle-infested-watersheds.htm.

SCIENTIFIC REPORTS

Kasprzyk, J.R., J.R. Stewart, A.J. Heldmyer, K. Reeves, W. Raseman, R. Balaji, R.S. Summers, F. Rosario-Ortiz, and **B. Livneh, 2019**: An Integrated Modeling and Decision Framework to Evaluate Adaptation Strategies for Sustainable Drinking Water Utility Management Under Drought and Climate Change, *Water Research Foundation,* Nov 2019, available at: https://www.waterrf.org/system/files/resource/2019-10/DRPT-4636.pdf

Livneh, B., M.P. Hoerling, *A.M. Badger, and J. Eischeid, **2016**: Causes for Hydrologic Extremes in the Upper Missouri River Basin, *NOAA Climate Assessment Report,* July 2016, available at: https://www.esrl.noaa.gov/psd/csi/factsheets/pdf/mrb-climate-assessment-report-hydroextremes_2016.pdf

Downscaled CMIP3 and CMIP5 Climate Projections – Addendum Release of Downscaled CMIP5 Climate Projections (LOCA) and Comparison with Preceding Information, July **2016**.

Severe Flooding on the Colorado Front Range, September 2013, Lukas J., …, **Livneh B.**, et al., **2013**, Western Water Assessment Report, http://wwa.colorado.edu/resources/front-range-floods/assessment.pdf?album=1&pid=43#top_display_media.

Online Lectures:

Livneh, B. "Groundwater Resources in the Western U.S." *Coursera*, Water in the Western U.S., Video Lecture, **2015**. https://www.coursera.org/course/waterwestus.

PUBLIC DATASETS

Jennings K.S., Winchell T.S., **Livneh B**, Molotch N.P. (**2018**) Data from: Spatial variation of the rain-snow temperature threshold across the Northern Hemisphere. Dryad Digital Repository. https://doi.org/10.5061/dryad.c9h35

Yanto, **Livneh B**, Rajagopalan B, (**2017**) Development of a gridded meteorological data set over the Java island, Indonesia 1985-2014, http://dx.doi.org/10.5061/dryad.36rs0 (Date Published: May 22, 2017).

Livneh, Ben; Bohn, Theodore J.; Pierce, David W.; Muñoz-Arriola, Francisco; Nijssen, Bart; Vose, Russell; Cayan, Daniel R.; Brekke, Levi (**2016**) A spatially comprehensive, hydrologic model-based data set for Mexico, the U.S., and southern Canada, 1950-2013,. NOAA National Centers for Environmental Information. Dataset. https://doi.org/10.7289/v5qz27zg.

FUNDING (Grants based at CU-Boulder, unless otherwise specified)

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 Grant*.
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 (JTTI) (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.

CIRES Innovative Research Program 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 - 3/2021)
$269,754 *REESEN: 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.

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.

ORAU Ralph E. Power Junior Faculty Enhancement Award (Duration: 6/2017 - 5/2018)
$5,000 **Livneh B. PI.** $5,000 matching funds from CIRES.

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.

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.

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.

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.

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.

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.**

NOAA, Regional Integrated Science Assessment (Duration 2015-2019)
$4,084,000 *Western Water Assessment: Building Climate Resilience By Design.*
Lead-PI: L. Dilling; Co-PIs: W. Travis, N. Molotch, J. Barsugli, **Livneh B.**

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.

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)
CVEN 5363 Modeling Hydrologic Systems (graduate)

At Seattle University (Adjunct Professor):
Applied Hydraulics (undergraduate).
Fluid Mechanics Laboratory (undergraduate).

Other teaching:
COMET-MetEd: Sedimentation Impacts Under Climate Change (SIUCC) Virtual Course, UCAR, 2016 (Lead-Instructor)
Water in the Western U.S. *Coursera* Online Course, 2015 (Lead-Instructor for the Groundwater module).

STUDENT ADVISING COMMITTEES

Active Advisees:
Aaron Heldmyer (Ph.D. CEAE), began 2016, prelim exam 2018.
Ronnie Abolafia-Rosenzweig (Ph.D. CEAE), began, 2017, prelim exam 2019.
Elsa Culler (Ph.D. CEAE) began, 2017, prelim exam 2019.
Carli Brucker (Ph.D. CEAE, 2018-).
Nels Bjarke (Ph.D., CEAE, 2019-).
Michelle O'Donnell (MS CEAE, 2018-).

Supervisees:
Andrew Badger (Postdoc., CIRES, 2015-2019)
Javier Cepeda (Associate Scientist, CIRES, 2018-2019)

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

Jenna Stewart (MS, CEAE graduated Spring 2017)
Leah Bensching (MS, CEAE, graduated Spring 2019)
Elizabeth Houle (MS, CEAE, Co-advised with Prof Kasprzyk, graduated Spring 2015)

Stephanie Redfern (PhD, ATOC, temporary advisor, Fall 2017).

Undergraduate Research Advising:
CEAE: Rollin Jones (UROP; 2019), Clair Butler (UROP; 2019), Casey Bangs (2018), Yashwanth Kumar (2017 Summer research, visiting from IIT Gandhinagar).
ENVS: Baxter Wilson (Primary Advisor, 2016).
GEOG: Michal Fagrelius (Honors Committee, 2013).
GEOL: Brielle Kissack (2016 Summer research).
Research Experiences for Community College Students (RECCS, NSF-funded): Alex Brunson (2019).

Undergraduate General Advising:
CEAE: Ryan Martin, Haoyu Nie, Bailey Vigil, Jack Costello, Kayla Hoag, Ginger Lucas.

Doctoral Committee (Excludes students for whom I primarily or co-advise):
CU-Boulder, CEAE: Kelsey Reeves, Brian Straight, Sarah Baker, Mas Yanto, Andrew Verdin, Cameron Bracken, Dan Broman, Srijita Jana, Adam Wlostowski;
ASEN: Michael Croteau;
GEOG: Dominik Schneider, Theodore Barnhart, Keith Jennings, Qinghuan Zhang;
GEOL: Peter Shellito, Tom Enzminger,
ATOC: Richard Bateman*, Brian Rainwater, William Frey,
ENVS: Christa Torrens.
CU-Denver, Civil Engineering: Maryam Poshtiri

Masters Committee (Thesis option, unless otherwise stated):
CEAE: Colleen Wilson, Elizabeth Houle, Taylor Winchell, Jenna Stewart, 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:
Rebecca Smith (CEAE).

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.

SERVICE

2019	Mentor, *Mentoring 365 Live, American Geophysical Union*
2018	Co-organizer, Workshop on Colorado River Drought: *The New Normal*, Sep. 2018, NOAA-ESRL
2018	Co-organizer, Workshop on Drought Early Warning Systems, Aug. 2018, Glenwood Spgs, CO
2018 -	Uncertainty Technical Committee, Hydrology Section, *American Geophysical Union*
2017 -	Co-Author, *4th National Climate Assessment, Northern Great Plains Chapter*
2017 -	Editorial Board Member, *Scientific Data, Nature*
2017 -	Associate Editor, *Journal of Hydrometeorology*
2017 -	Surface Water Hydrology Technical Committee, Water Resources Division, ASCE
2016 - 2019	Associate Editor, *Journal of the American Water Resources Association*
2015	Co-organizer, Reservoir Evaporation Workshop, Oct. 2015, CU Boulder
2015	Science-lead, *Climate Change and Water Working Group*, Aug. 2015 Seattle
2014 -	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.
2013-2017	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., 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

Proposals

National Science Foundation (NSF): proposal reviewer (2015, 2018)
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)
Nebraska Research Initiative (NRI) reviewer (2017)
US Bureau of Reclamation (S&T Program) reviewer (2015-)
US-Israel Binational Science Foundation: proposal reviewer (2014)

Journals: *Climatic Change, Climate Dynamics, Cold Regions Science and Technology, Ecohydrology, Earth Interactions, Environmental Modeling and Software, 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 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:

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*.

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*.

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*.

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*.

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*.

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*.

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*.

2013 Co-chair of Symposium Steering Committee, *CU-Boulder Hydrologic Sciences Program*.

INVITED PANELIST

The Future of Skiing: The Science Behind Snow, Arapahoe Basin Ski Area, Dillon, CO, Apr **2018**. Co-panelists: Jennifer Kay, Marca Hagenstad, Lindsay Bourgoine.

State-of-the-art Uncertainty Analysis in Hydroclimate Modeling, World Environmental and Water Resources Congress, Sacramento, CA, May **2017**. Co-panelists: Jery Stedinger, Soroosh Sorooshian, Paul Bloch.

Updating the National-scale Water Balance for Chile: Experts Workshop, Universidad de Chile, Santiago, Chile, Mar **2017**. Co-panelists: John Pomeroy, Scott Tyler, Graham Fogg.

Downscaling climate and hydrology data, Climate Change and Water Working Group (CCAWWG), Seattle, WA, Aug **2015**. Co-panelists: Martyn Clark, Bart Nijssen.

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

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.

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.

Livneh, B. (Invited), American Geophysical Union Fall Meeting, Washington, DC, Dec. **2018**: *H12H-22 What makes watersheds sensitive to forest disturbance?*

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.*

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.*

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]

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.

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.

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.*

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].

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.

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.

Livneh B. (Invited), Missouri River Basin Federal Climate Collaboration Webinar, Aug., **2016**: Hydrologic Extremes in the Upper Missouri Basin and Central Great Plains.

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.

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.

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.

Livneh B. (Invited), Columbia Water Center, New York, New York, Apr., **2016**: From Scarcity to Overabundance: Hydrologic Extremes in the Northern and Central Great Plains, USA.

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.*

Livneh, B. (Invited), Climate Change and Water Working Group (CCAWWG), Seattle, WA, August **2015,** Summary of Intermountain West Climate Networks.

Livneh, B. (Invited), American Meteorological Society, Mountain Meteorology Webinar Series, July, **2014**. The treatment of snow in numerical model land surface schemes.

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.

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.

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.

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.

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

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.*

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.*

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?.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

*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.*

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.

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*

*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.*

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.*

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.*

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.*

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.*

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*.

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?*

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.*

*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.*

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.*

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.*

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.*

Migone, B., K. Averyt, D. C. Steinberg, J. Macknick, K. Eurek, 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.*

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?*

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.*

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.*

B. Livneh. (Invited), Earthlab Extremes Collider, Boulder, CO, May **2018**: *Regional Extremes: What, Why, and How.*

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.*

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.

Abolafia-Rosenzsweig, 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*.

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*.

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*.

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*.

*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.*

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. Srubar 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.*

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.*

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.*

Sun, Y., K. Eurek, 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.*

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.*

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.*

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.*

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.*

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.*

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.*

Livneh, B., CVEN 5333 Advanced Hydrology, Guest Lecture, CU-Boulder, Oct., **2017**: *An Overview of Distributed Hydrologic Modeling.*

Livneh, B. (Invited), EarthLab Postdoctoral Mentoring Series, University of Colorado, Sep., **2017**: *How to write a strong academic research statement.*

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.*

Livneh, B. (Invited), International English Center, University of Colorado, May., **2017**: *Drought in Colorado: What you should know.*

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.*

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.*

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.*

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.*

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.*

*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.*

Macknick, J., K. Averyt, **B. Livneh**, *A. Badger, D.C. Steinberg, K. Eurek, 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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

Livneh, B., CEAE Water Resources Seminar, CU-Boulder, Sep **2016**: *Hydrologic Interactions Across Multiple Scales: Drought, Disturbance and Responses.*

Livneh, B. (Invited), International English Center, University of Colorado, Aug., **2016**: *Drought in Colorado: What you should know.*

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.*

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.*

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.*

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.*

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.*

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.

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.*

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*.

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.*

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.*

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.*

Hoerling, M.P., and **Livneh B.,** American Geophysical Union Fall Meeting, San Francisco, CA, Dec. **2015**: *The Physics of Great Plains Drought.*

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.*

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.*

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.*

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?*

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.*

Livneh, B. (Invited), U.S. Army Corps of Engineers, Omaha, NE, Nov **2015**: *Assessing Causes for Hydrologic Extremes in the Upper Missouri Basin.*

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.

Livneh, B., CEAE Water Resources Seminar, CU-Boulder, Nov **2015**: *Hydrologic Interactions Across Multiple Scales: Drought, Disturbance and Responses.*

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.*

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.

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.

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.

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.

Livneh, B., (Invited), CU-Boulder Hydrologic Sciences Symposium, Boulder, CO, Apr. **2015**, Establishing Proximal Causes of Soil Moisture Deficits Accompanying Great Plains Drought Development.

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.

Livneh, B., T.J. Bohn, R. Vose, and F. Munoz-Arriola. Tercera Reunión Annual de la Red de Desastres Hidrometeorológicos y Climaticos (REDESCLIM). Mexico City, Nov. **2014**. Base de Datos Hidroclimatica Subcontinental ("Hydroclimatic Subcontinental Database").

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 Meterological Observations over the Continental US, Mexico, and Southern Canada, 1950-2013: Assessment over the North American Monsoon Region.

Livneh, B. (Invited), International English Center, University of Colorado, Aug., **2014**. Drought in Colorado: *What you should know*.

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.

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.

Livneh, B. (Invited), National Centers for Atmospheric Research (NCAR) Seminar, Boulder, CO, Feb. **2014**: Hydrologic Interactions Across Multiple Scales: Stressors, Thresholds, and Responses.

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.

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.

Livneh, B. (Invited), Guest Lecture, Geology 5700, University of Colorado, Boulder, Apr. **2013**: Parameter Selection for Hydrologic Models.

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.

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.

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.

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.

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.

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.

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.

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*).

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.

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*).

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.

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*).

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.

Livneh, B., and D.P. Lettenmaier, UBC-UW Hydrology Symposium,University of British Columbia, Vancouver, BC, Canada, 25 Sep. **2009**, Evapotranspiration Parititioning in Land Surface Models.

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*).

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.

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.