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 *Emphasis: Hydrology*
M.E.Sc.	Civil and Environmental Engineering, University of Western Ontario, 2006
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, Civil, Environmental, and Architectural Engineering (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.

TEACHING

Lecturer: Modeling Hydrologic Systems, graduate course at the *University of Colorado, Boulder*.
Adjunct Professor: Applied Hydraulics, Fluid Mechanics Laboratory, undergraduate courses at *Seattle University*.
Other: COMET-MetEd Lead-Instructor: Sedimentation Impacts Under Climate Change (SIUCC) Virtual Course, UCAR, 14–16 June 2016

SYNERGISTIC ACTIVITIES AND AWARDS

2015	Co-organizer, Reservoir Evaporation Workshop, Oct. 2015, CU Boulder
2015	Science-lead, Climate Change and Water Working Group, Aug. 2015 UW Seattle
2014	NASA User Working Group, Distributed Active Archive Center (DAAC) at NSIDC.
2014	Contributor: *Water Programming Blog* (http://waterprogramming.wordpress.com/)
2013 -	Mentor, *Faculty Mentoring Students Program*, CU-Boulder.
2013	Resource Speaker, *Water Education Foundation: Lower Colorado River Tour.*
2013	Lead Session Convener, *American Geophysical Union, Fall Meeting, San Francisco, CA.*
2013	DISCCRS VIII Symposium Scholar: Dissertations Initiative for the Advancement of Climate Change Research
2012 -	Co-chair of Symposium Steering Committee, CU-Boulder Hydrologic Sciences Program.
2012 -	CIRES Members Council, Physical Science Division representative.
2012	Awarded CIRES Visiting Fellowship.
2012	Colloquium chair, 4th International Conference on Climate Change, Seattle, WA.
2011/2012	Vice President, Chi Epsilon, University of Washington Chapter.

PUBLICATIONS

(30) 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.

(29) 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.

(28) 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.

(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.

(26) 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.

(25) 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.

(24) **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, doi:10.1038/sdata.2015.42.

(23) 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.

(22) **Livneh B.**, J.S. Deems, B. Buma, J.J. Barsugli, D. Schneider, N.P. Molotch, K. Wolter, and C.A. Wessman, **2015**: Catchment Response to Bark Beetle Outbreak in the Upper Colorado River Basin, *Journal of Hydrology* 523,196–210.

(21) Pal, I., E. Towler, and **B. Livneh, 2015**: How Can We Better Understand Low River Flows as Climate Changes?*, Eos Opinion, AGU,* 96, doi:10.1029/2015EO033875.

(20) 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, doi:10.1002/2014JD022167.

(19) **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, doi:10.1002/2014WR015442.

(18) 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*, 10.1175/JHM-D-13-0132.1.

(17) **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.

(16) 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.

(15) 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.

(14) 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, doi:10.1016/j.agrformet.2013.03.003.

(13) **Livneh B.**, and D.P. Lettenmaier, **2013**: Regional parameter estimation for the Unified Land Model, *Water Resources Research*, doi:10.1029/2012WR012220.

(12) 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, doi: http://dx.doi.org/10.1175/JHM-D-11-065.1.

(11) **Livneh, B.** and D.P. Lettenmaier, **2012**: Multi-criteria parameter estimation for the unified land model, *Hydrology and Earth System Sciences*, 16, 3029-3048, doi:10.5194/hess-16-3029-2012.

(10) 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, 10.1175/JHM-D-11-046.1.

(9) 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: intercomparison and application of model products, *Journal of Geophysical Research*, 117, doi:10.1029/2011JD016048.

(8) 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, doi:10.1029/2011JD016051.

(7) **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, 10.1175/2011JHM1361.1.

(6) 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* doi.10.1038/ngeo944.

(5) **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.

(4) 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, doi:10.1029/2010JD13470.

(3) 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.

(2) 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.

(1) **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.

Papers in Review:

Yanto, **B. Livneh**, J.R. Kasprzyk, and B. Rajagopalan, **2016**: Modeling the Hydrologic Processes of the Java Island, Indonesia, *Journal of Hydrology: Regional Studies* (in revision).

Livneh B., and M.P. Hoerling, **2016**: Fundamental Physics of Drought in the U.S. Central Great Plains. *Journal of Climate* (in revision).

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* (in revision).

Houle, E.S., **B. Livneh**, and J.R. Kasprzyk, **2016**: Exploring Snow Model Parameter Sensitivity Using Sobol' Variance Decomposition, *Environmental Model and Software* (in revision).

Buma B., and **B. Livneh**, **2016**: What makes watersheds sensitive to forest disturbance? *Geophysical Research Letters* (in revision).

Henn, B., A.J. Newman, **B. Livneh**, C. Daly, and J.D. Lundquist, **2016**: An assessment of differences in gridded precipitation datasets in complex terrain, Journal of Hydrology (in review).

Hallar, A.G., N.P. Molotch, J. Hand, **B. Livneh**, I.B. McCubbin, R. Petersen, J. Michalsky, D. Lowenthal, **2016**: Impacts of Increasing Aridity and Wildfires on Aerosol Loading in the Intermountain Western U.S., *Nature Geoscience* (submitted).

Raseman, W., J.R. Kasprzyk, F. L. Rosario-Ortiz, J.R Stewart, and **B. Livneh, 2016**: Decision support systems for water treatment under climate extremes: A critical review, *Environmental Science: Water Research & Technology* (submitted).

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, **2016**: Reservoir Evaporation: Current Science, Challenges, and Future Needs, *Bulletin of the American Meteorological Society* (submitted).

Working papers:

Hein C.J., S. Gopalakrishnan, J.E. Ten Hoeve, **B. Livneh**, H.D. Adams, E.L. Marino, and S.C. Weiler, **2016**: Transcending Boundaries: Opportunities and challenges in early career interdisciplinary research, *Nature Climate Change* (in prep.).

Non-Peer Reviewed:

Livneh, B., K. Friedrich and P.D. Blanken, **2015**: New Interest in Reservoir Evaporation for Western U.S. Water Resource Management., *Eos Trans. AGU* (in press.).

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. n.d.

Conference Proceedings:

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.

Interviews:

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

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/news/ci_29323219/wests-water-reservoir-managers-face-big-losses-from

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

Reports:

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.

THESIS COMMITTEES

Doctoral Committee:

Jenna Stewart, Mas Yanto, Andrew Verdin, Cameron Bracken, Dan Broman, Srijita Jana (CEAE), Maryam Poshtiri (Civil Engineering, CU-Denver), Dominik Schneider, Theodore Barnhart, Keith Jennings (Geography), Peter Shellito (Geology), Richard Bateman, Brian Rainwater (ATOC)

Masters Committee:

Elizabeth Houle, Taylor Winchell (CEAE), Emily Carbone (Geology)

Undergraduate Honors Committee:

Michal Fagrelius (Geography)

Doctoral Preliminary Exam Committee:
Rebecca Smith (CEAE).

Active Advisees:
Jenna Stewart, Mas Yanto (Ph.D. CEAE), Richard Bateman (Ph.D. ATOC) Andrew Badger (Postdoct, CIRES)
Supervisees:
Imtiaz Rangwala, Lantao Sun, Tao Zhang (CIRES)

PROFESSIONAL MEMBERSHIPS
American Geophysical Union (AGU)
American Meteorological Society (AMS)
American Water Resources Association (AWRA)

REVIEWING
National Science Foundation (NSF): proposal reviewer
National Environment Research Council (NERC, UK): proposal reviewer
US-Israel Binational Science Foundation: proposal reviewer
NOAA: Internal reviewer
NASA Postdoctoral Program (NPP) reviewer.

Journals: *Nature Scientific Data, Nature Climate Change, Journal of Hydrology, Journal of Geophysical Research, Journal of Hydrometeorology, Nature Scientific Data, Earth Interactions, Geophysical Research Letters, Cold Regions Science and Technology, Water Resources Research, Climatic Change, Journal of Climate, Hydrologic Processes, Hydrology and Earth System Sciences, Stochastic Environmental Research and Risk Assessment, Science of the Total Environment, Journal of the Atmospheric Sciences, Geophysical Model Development, Natural Hazards and Earth System Sciences, International Journal of Climatology, Water, Monthly Weather Review.*

EXTERNAL FUNDING
NASA Research Opportunities in Space and Earth Science (Duration: 7/2016-6/2018)
$281,932 Lead-PI: Monitoring soil evaporation using SMAP surface soil moisture in a water balance framework.

NOAA Climate Program Office (Duration: 7/2016-6/2018)
$286,368 Lead-PI: Advancing the use of drought early warning systems in the Upper Colorado River Basin.

Environmental Protection Agency (Duration: 9/2015-8/2018)
$1,250,000 Co-PI: An integrated modeling and decision framework to evaluate adaptation strategies for sustainable drinking water utility management under drought and climate change.

U.S. Bureau of Reclamation (2015)
$59,986 Lead-PI: High-resolution meteorological and hydrologic data extension to trans-boundary basins in southern Canada and northern Mexico.

National Aeronautical and Space Administration, Jet Propulsion Laboratory (2015)
$28,562 Subcontractor/Lead-PI: Observing System Synthetic Experiment (OSSE) Project: Quantify the utility of airborne LiDar surveys of snow information on improving hydrologic forecasts.

Convened Sessions:

Livneh B., S. Shukla, A.A. Harpold and S. Kumar: Understanding the Extent and Impacts of Land Use/Land Cover Change on Hydrology: *H11I Posters, H13S Oral*.

PRESENTATIONS

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, June 2016, Boulder, CO, June, **2016**: A multi-physics modeling framework for the 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

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.

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

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.*

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.*

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

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), 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), Evapotranspiration mini-workshop, North Central Climate Science Center, Fort Collins, CO, May, **2014**. Evapotranspiration via Water Balance Methods in Land Surface Models.

Livneh, B. (Invited), Annual Training Day: Planning Commission and Zoning Board of Appeals, Grand Junction, CO, Mar. **2014**: The Water Wildcard: Climate Impacts on Water Resources.

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. (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., 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. (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., 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.