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PEER-REVIEWED: PAPERS, CHAPTERS, EXTENDED ABSTRACTS

Hobbins MT, and Barsugli JJ (2020), Threatening the vigor of the Colorado River: Loss of sunlight-reflecting snow spurs evaporation and ebbs river flow. *Science*, 367(6483): 1192-1193, doi:10.1126/science.abb3624, <u>https://doi.org/10.1126/science.abb3624</u>.

Pendergrass AG, Meehl GA, Pulwarty RS, **Hobbins MT**, Hoell A, AghaKouchak A, Bonfils CJW, Gallant AJE, Hoerling M, Hoffmann D, Kaatz L, Lehner F, Llewellyn D, Mote P, Neale RB, Overpeck JT, Sheffield A, Stahl K, Svoboda MD, Wheeler MC, Wood AW, and Woodhouse CA (2020), Flash droughts present a new challenge for subseasonal-to-seasonal prediction. *Nature Climate Change*, doi:10.1038/s41558-020-0709-0, <u>https://doi.org/10.1038/s41558-020-0709-0</u>.

Zhang B, Xia Y, Long B, **Hobbins MT**, Zhao X, Hain CR, Li Y, and Anderson MC (2020), Evaluation and comparison of multiple evapotranspiration data models over the contiguous United States: Implications for the next phase of NLDAS (NLDAS-Testbed) development. *Agricultural and Forest Meteorology*, 280(107810), doi:10.1016/j.agrformet.2019.107810, https://doi.org/10.1016/j.agrformet.2019.107810.

Hobbins MT, Dewes CF, Huntington JL, McEvoy DJ, Rangwala I, Shukla S, and Yocum HM (2019), Evaporative demand: Dynamics and opportunities in drought early warning, monitoring, and vulnerability assessment. *Proceedings of the 6th Interagency Conference on Research in the Watersheds*, Shepherdstown, WV, 23-26 July, doi:10.2737/SRS-GTR-243, <u>https://doi.org/10.2737/SRS-GTR-243</u>.

Rangwala I, and **Hobbins MT** (2019), Flash droughts in the Mountain West: Emerging risks under a warmer climate. *Mountain Views*, 13(1): 34-37, https://www.fs.fed.us/psw/cirmount/publications/pdf/Mtn_Views_may_19.pdf.

Hobbins MT, Senay GB, Gowda PH, and Artan GA (2019), Evapotranspiration and evaporative demand. Chapter 3 in: *Statistical Analysis of Hydrological Variables: Methods and Applications*, edited by Teegavarapu R, Salas JD, and Stedinger JR, American Society of Civil Engineers-Environmental Water Resources Institute, Reston, VA, ISBN:9780784415177, doi:10.1061/9780784415177.ch03, https://doi.org/10.1061/9780784415177.ch03.

Hobbins MT, Rangwala I, Barsugli JJ, and Dewes CF (2019), Extremes in evaporative demand and their implications for drought and drought monitoring in the 21st Century. Chapter 25 in: *Extreme Hydrology and Climate Variability: Monitoring, Modeling, Adaptation and Mitigation*, edited by Melesse AM, Abtew W, and Senay GB, Elsevier, New York, NY, ISBN:9780128159989, <u>https://www.elsevier.com/books/extreme-hydrology-and-climate-variability/melesse/978-0-12-815998-9</u>.

McEvoy DJ, **Hobbins MT**, Brown TJ, VanderMolen KA, Wall TU, Huntington JL, and Svoboda MD (2019), Establishing relationships between drought and wildfire danger indices: A test case for the California-Nevada Drought Early Warning System. *Climate*, 7(52), doi:10.3390/cli7040052. <u>https://www.mdpi.com/2225-1154/7/4/52</u>.

McNeeley SM, Dewes CF, Stiles CJ, Beeton TA, Rangwala I, **Hobbins MT**, and Knutson CL (2018), Anatomy of an interrupted irrigation season: Micro-drought at the Wind River Indian Reservation. *Climate Risk Management*, 19: 61-82, doi:10.1016/j.crm.2017.09.004. https://doi.org/10.1016/j.crm.2017.09.004.

Hobbins MT, McEvoy DJ, and Hain CR (2017), Evapotranspiration, evaporative demand, and drought. Chapter 11 in: *Drought and Water Crises: Integrating Science, Management, and Policy*, edited by Wilhite DA and Pulwarty RS, CRC Press, Boca Raton, FL, doi:10.1201/9781315265551 ISBN-13:978-1-138-03564-5,

https://www.taylorfrancis.com/books/9781315265551/chapters/10.1201/b22009-14.

Shukla S, McEvoy DJ, **Hobbins MT**, Husak GJ, Huntington JL, Funk CC, and Verdin JP (2017), Examining the value of global seasonal reference evapotranspiration forecasts to support FEWS NET's food security outlooks. *Journal of Applied Meteorology and Climatology*, 56: 2941-2949, doi:10.1175/JAMC-D-17-0104.1, https://doi.org/10.1175/JAMC-D-17-0104.1.

Dewes CF, Rangwala I, Barsugli JJ, **Hobbins MT**, and Kumar S (2017), Drought risk assessment under climate change is sensitive to methodological choices for the estimation of evaporative demand. *PLoS ONE*, 12(3): e0174045, doi:10.1371/journal.pone.0174045, https://doi.org/10.1371/journal.pone.0174045.

Hobbins MT, and Huntington JL (2016), Evapotranspiration and evaporative demand. Chapter 42 in: *Handbook of Applied Hydrology*, edited by Singh VP, McGraw-Hill Education, New York, NY, ISBN-13:978-0071835091, <u>https://www.amazon.com/Handbook-Applied-Hydrology-Second-Vijay/dp/0071835091</u>.

Hobbins MT, Wood AW, McEvoy DJ, Huntington JL, Morton CG, Anderson MC, and Hain CR (2016), The Evaporative Demand Drought Index: Part I - Linking drought evolution to variations in evaporative demand. *Journal of Hydrometeorology*, 17: 1745-1761, doi:10.1175/JHM-D-15-0121.1, https://doi.org/10.1175/JHM-D-15-0121.1.

McEvoy DJ, Huntington JL, **Hobbins MT**, Wood AW, Morton CG, Anderson MC, and Hain CR (2016), The Evaporative Demand Drought Index: Part II - CONUS-wide assessment against common drought indicators. *Journal of Hydrometeorology*, 17: 1763-1779, doi:10.1175/JHM-D-15-0122.1, <u>http://doi.org/10.1175/JHM-D-15-0122.1</u>.

Hobbins MT (2016), The variability of ASCE Standardized Reference Evapotranspiration: A rigorous, CONUS-wide decomposition and attribution. *Trans. ASABE*, 59(2): 561-576, doi:10.13031/trans.59.10975, WINNER: 2017 ASABE Superior Paper Award, http://doi.org/10.13031/trans.59.10975.

McEvoy DJ, Huntington JL, Mejia JF, and **Hobbins MT** (2016), Improved seasonal drought forecasts using reference evapotranspiration anomalies. *Geophysical Research Letters*, 43: 377-385, doi:10.1002/2015GL067009, <u>https://doi.org/10.1002/2015GL067009</u>.

Moorhead J, Gowda PH, **Hobbins MT**, Senay GB, Paul G, Marek T, and Porter D (2015), Accuracy assessment of NOAA gridded daily reference evapotranspiration for the Texas High Plains. *Journal of the American Water Resources Association*, 51(5): 1262-1271, doi:10.1111/1752-1688.12303, <u>https://doi.org/10.1111/1752-1688.12303</u>.

King DA, Bachelet DM, Symstad AJ, Ferschweiler K, and Hobbins MT (2015), Estimation of potential evapotranspiration from extraterrestrial radiation, air temperature and humidity to assess

future climate change effects on the vegetation of the Northern Great Plains, USA. *Ecological Modelling*, 297: 86-97, doi:10.1016/j.ecolmodel.2014.10.037, https://doi.org/10.1016/j.ecolmodel.2014.10.037.

Xia Y, **Hobbins MT**, Mu Q, and Ek MB (2015), Evaluation of NLDAS-2 evapotranspiration against tower flux site observations. *Hydrological Processes*, 29: 1757-1771, doi:10.1002/hyp.10299, https://doi.org/10.1002/hyp.10299.

Hobbins MT (2014), Measuring the atmosphere's thirst. *Dry Times: National Integrated Drought Information System Newsletter*, 4(1): 14-15, <u>https://www.drought.gov/drought/sites/drought.gov.drought/files/media/whatisnidis/Newsletter/NIDIS-Newsletter-April-2014.pdf</u>.

Bardsley TJ, Wood AW, **Hobbins MT**, Kirkham T, Briefer L, Niermeyer J, and Burian SJ (2013), Planning for an uncertain future: Climate change sensitivity assessment towards adaptation planning for public water supply. *Earth Interactions*, 17(23), doi:10.1175/2012EI000501.1, <u>https://doi.org/10.1175/2012EI000501.1</u>.

Lim WH, Roderick ML, **Hobbins MT**, Wong SC, and Farquhar GD (2013), The energy balance of a US Class A evaporation pan. *Agricultural and Forest Meteorology*, 182-183: 314-331, doi:10.1016/j.agrformet.2013.07.001, <u>https://doi.org/10.1016/j.agrformet.2013.07.001</u>.

Hobbins MT, Wood AW, Streubel D, and Werner K (2012), What drives the variability of evaporative demand across the conterminous United States? *Journal of Hydrometeorology*, 13: 1195-1214, doi:10.1175/JHM-D-11-0101.1, <u>http://doi.org/10.1175/JHM-D-11-0101.1</u>.

Lim WH, Roderick ML, **Hobbins MT**, Wong SC, Groeneveld PJ, Sun F, and Farquhar GD (2012), The aerodynamics of pan evaporation. *Agricultural and Forest Meteorology*, 152: 31-43, doi:10.1016/j.agrformet.2011.08.006, https://doi.org/10.1016/j.agrformet.2011.08.006.

Szilagyi J, **Hobbins MT**, and Jozsa J (2009), Modified advection-aridity model of evapotranspiration. *Journal of Hydrologic Engineering*, 14(6): 569-574, doi:10.1061/(ASCE)HE.1943-5584.0000026, <u>https://doi.org/10.1061/(ASCE)HE.1943-5584.0000026</u>.

Roderick ML, **Hobbins MT**, and Farquhar GD (2009), Pan evaporation trends and the terrestrial water balance. I. Principles and observations. *Geography Compass*, 3(2): 746-760, doi:10.1111/j.1749-8198.2008.00213.x, https://doi.org/10.1111/j.1749-8198.2008.00213.x.

Roderick ML, **Hobbins MT**, and Farquhar GD (2009), Pan evaporation trends and the terrestrial water balance. II. Energy balance and interpretation. *Geography Compass*, 3(2): 761-780, doi:10.1111/j.1749-8198.2008.00214.x, https://doi.org/10.1111/j.1749-8198.2008.00214.x.

Brown TC, **Hobbins MT**, and Ramírez JA (2008), Spatial distribution of water supply in the coterminous United States. *Journal of the American Water Resources Association*, 44(6): 1474-1487, doi:10.1111/j.1752-1688.2008.00252.x, https://www.fs.fed.us/rm/value/docs/spatial distribution water supply.pdf.

Hobbins MT, Dai A, Roderick ML, and Farquhar GD (2008), Revisiting the parameterization of potential evaporation as a driver of long-term water balance trends. *Geophysical Research Letters*, 35, L12403, doi:10.1029/2008GL033840, https://doi.org/10.1029/2008GL033840.

Roderick ML, Rotstayn LD, Farquhar GD, and **Hobbins MT** (2007), On the attribution of changing pan evaporation. *Geophysical Research Letters*, 34, L17403, doi:10.1029/2007GL031166, https://doi.org/10.1029/2007GL031166.

Ramírez JA, **Hobbins MT**, and Brown TC (2005), Observational evidence of the complementary relationship in regional evaporation lends strong support for Bouchet's hypothesis. *Geophysical Research Letters*, 32, L15401, doi:10.1029/2005GL023549, https://doi.org/10.1029/2005GL023549.

Hobbins MT, Ramírez JA, and Brown TC (2004), Trends in pan evaporation and actual evaporation across the conterminous U.S.: Paradoxical or complementary? *Geophysical Research Letters*, 31, L13503, doi:10.1029/2004GL0198426, https://doi.org/10.1029/2004GL019846.

Hobbins MT, Ramírez JA, and Brown TC (2004), Developing a long-term, high-resolution, continental-scale, spatially distributed time-series of topographically corrected solar radiation. *Proceedings of the 24th Annual AGU Hydrology Days*, Colorado State University, Fort Collins, CO, 10-12 March, <u>http://hydrologydays.colostate.edu/Papers_2004/Hobbins_paper.pdf</u>.

Hobbins MT, Ramírez JA, Brown TC, and Claessens LHJM (2001), The complementary relationship in estimation of regional evapotranspiration: The Complementary Relationship Areal Evapotranspiration and Advection-aridity models. *Water Resources Research*, 37(5): 1367-1387, doi:10.1029/2000WR900358, https://doi.org/10.1029/2000WR900358.

Hobbins MT, Ramírez JA, and Brown TC (2001), The complementary relationship in estimation of regional evapotranspiration: An enhanced Advection-aridity model. *Water Resources Research*, 37(5): 1389-1403, doi:10.1029/2000WR900359, https://doi.org/10.1029/2000WR900359.

Hobbins MT, Ramírez JA, and Brown TC (2001), Trends in regional evapotranspiration across the United States under the complementary relationship hypothesis. *Proceedings of the 21st Annual AGU Hydrology Days*, Colorado State University, Fort Collins, CO, 2-5 April, pp. 106-121, <u>https://www.fs.fed.us/rm/value/docs/et-trends.pdf</u>.

Hobbins MT, Ramírez JA, and Brown TC (1999), The complementary relationship in regional evapotranspiration: The CRAE model and the Advection-aridity approach. *Proceedings of the 19th Annual AGU Hydrology Days*, Colorado State University, Fort Collins, CO, 16-20 August, pp. 199-212.

PEER-REVIEWED: DISSERTATION, THESIS

Hobbins MT (2004), Regional evapotranspiration and pan evaporation: Complementary interactions and long-term trends across the conterminous United States. *Doctoral dissertation*, Hydrologic Science and Engineering Program, Civil and Environmental Engineering Department, Colorado State University, Fort Collins, CO, USA, 232 pp.

Hobbins MT (2000), Evaluating and enhancing two implementations of the complementary relationship in regional evapotranspiration. *Master's thesis*, Hydrologic Science and Engineering Program, Civil and Environmental Engineering Department, Colorado State University, Fort Collins, CO, USA, 214 pp.

PEER-REVIEWED: DATASETS

Rangwala I, Smith LL, Senay GB, Barsugli JJ, Kagone S, and **Hobbins MT** (2019), Landscape Evaporative Response Index (LERI): A high-resolution monitoring and assessment of evapotranspiration across the contiguous United States. U.S. Geological Survey ScienceBase, doi:10.21429/43r4-3q68, <u>https://doi.org/10.21429/43r4-3q68</u>.

Hobbins MT, Barsugli JJ, Dewes CF, and Rangwala I (2017), Monthly pan evaporation data across the continental United States between 1950-2001. U.S. Geological Survey ScienceBase, doi:10.21429/C9MW25, <u>https://doi.org/10.21429/C9MW25</u>.

SUBMITTED FOR PEER REVIEW

Kew SF, Philip SY, Hauser M, **Hobbins MT**, Wanders N, van Oldenborgh GJ, van der Wiel K, Veldkamp TIE, Kimutai J, Funk CC, and Otto FEL (2019), Impact of precipitation and increasing temperatures on drought in eastern Africa. Submitted to *Earth System Dynamics*, ms:esd-2019-20.

Roj S, McEvoy DJ, Huntington JL, **Hobbins MT**, and Dunkerly C (2019), Validating forecast reference evapotranspiration in Nevada using the Nevada Integrated Climate and Evapotranspiration Network. Submitted to *Agricultural Water Management*.

TECHNICAL REPORTS, WHITE PAPERS

Hobbins MT, Glaudemans M, Huntington JL, McEvoy DJ, Rangwala I, Ray AJ, Tan X, and Yocum HM (2020), Operationalizing an Evaporative Demand Drought Index (EDDI) service for drought monitoring and early warning. Final project report to NOAA Joint Technology Transfer Initiative Program, *NOAA Physical Sciences Division*, Boulder, CO, 19 March.

McEvoy DJ, Brown TJ, Wall TU, **Hobbins MT**, Huntington JL, and Svoboda MD (2018), Developing a wildfire component for the NIDIS California Drought Early Warning System. Annual progress report to NOAA Sectoral Applications Research Program, *Western Regional Climate Center*, Reno, NV, April.

Lukas JJ, Hobbins MT, Rangwala I, and the EDDI Team (2017), The EDDI User Guide. *Western Water Assessment*, University of Colorado, Boulder, CO, <u>https://www.esrl.noaa.gov/psd/eddi/pdf/EDDI_UserGuide_v1.0.pdf</u>.

Brown TJ, McEvoy DJ, Wall TU, **Hobbins MT**, Huntington JL, Svoboda MD (2017), Developing a wildfire component for the NIDIS California Drought Early Warning System. Annual progress report to NOAA Sectoral Applications Research Program, *Western Regional Climate Center*, Reno, NV, April.

Rangwala I, **Hobbins MT**, Barsugli JJ, and Dewes CF (2015), EDDI: A powerful tool for early drought warning. 2-pager document, *Western Water Assessment*, University of Colorado, Boulder, CO, <u>https://wwa.colorado.edu/publications/reports/EDDI_2-pager.pdf</u>.

Allen RG, Anderson MC, Bolten J, Cestti R, Dunsmoor L, Fisher JB, Hain CR, Harshadeep N, **Hobbins MT**, Huntington JL, Hook S, Kilic A, Kustas WP, Lee C, Mendez-Costabel M, Melton FS, Morse T, Tracy J, Verdin JP, Willardson T, Wolff S, and Woodward D (2015), Evapotranspiration mapping for water security: recommendations and requirements. *Recommendations of the Participants of the 2015 Workshop on Evapotranspiration Mapping for Water Security*, Washington, D.C., 15-17 September,

https://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/15647/2289356/36-4e32f7da6d33bb4e962dc0d8d0a03113_MeltonForrestS.pdf.

Hobbins MT (2010), What are evapotranspiration and forecast reference crop evapotranspiration (FRET)? NOAA National Weather Service Western Regional Headquarters, https://www.wrh.noaa.gov/forecast/evap/FRET/ExplainingFRETscientific.pdf.

Brown TC, **Hobbins MT**, and Ramírez JA (2005), The source of water supply in the United States. RMRS-RWU 4851 Discussion Paper, *Rocky Mountain Research Station*, US Forest Service, Fort Collins, CO, <u>https://www.fs.fed.us/rm/value/docs/water%20supply%20final-e.pdf</u>.

Ramírez JA, **Hobbins MT**, and Brown TC (2002), Adapting the complementary relationship for mountainous areas of the United States. Final report, Cooperative Agreement 28-JV7-945 between Colorado State University and Rocky Mountain Research Station, *Colorado State University*, Fort Collins, CO,

https://mountainscholar.org/bitstream/handle/10217/4210/of_13.pdf?sequence=1.

Hobbins MT, Ramírez JA, and Brown TC (2000), The complementary relationship in the estimation of regional evapotranspiration: An enhanced Advection-Aridity model. Open File Report No.13, *Colorado Water Resources Research Institute*, Colorado State University, Fort Collins, CO, <u>https://mountainscholar.org/bitstream/handle/10217/4210/of_13.pdf?sequence=1</u>.

Hobbins MT, and Bowen BD (1995), Water quality discipline report: I-5 high occupancy vehicle lane project, Mounts Road to Fife Interchange, *Washington State Department of Transportation*, Olympia, WA.

Hobbins MT (1995), National pollution discharge elimination system permit application: Pierce County, *Washington State Department of Transportation*, Olympia, WA.

Hobbins MT (1995), Global positioning system protocol, *Washington State Department of Transportation*, Olympia, WA.

Hobbins MT (1995), Outfall inventory and field-screening project report: WSDOT Olympic Region, *Washington State Department of Transportation*, Olympia, WA.

PRESS COVERAGE OF PROJECTS

Morton MC (2020), Predicting fast moving flash droughts. *Eos*, 101, 26 March, <u>https://doi.org/10.1029/2020EO141841</u>.

Rangwala I (2020), Monitoring and predicting drought on our grasslands. The National Grasslands Council, Grasslands News. *The USDA National Grasslands Council*, 18 March, <u>https://tinyurl.com/sbb7bag</u>.

Glick N (2020), More studies, faster forecasting needed to fight flash drought, says paper. *Wyoming Public Media*, 12 March, <u>https://www.wyomingpublicmedia.org/post/more-studies-faster-forecasting-needed-fight-flash-drought-says-paper</u>.

Samuel M (2020), How more flash drought research could be helpful in Georgia. *WABE.org*, 11 March, <u>https://www.wabe.org/with-flash-drought-more-research-could-lead-to-better-predictions/</u>.

IANR News (2020), Husker who coined 'flash drought' helps define emerging phenomenon. *Institute of Agriculture and Natural Resources News*, 11 March, <u>https://ianrnews.unl.edu/husker-who-coined-flash-drought-helps-define-emerging-phenomenon</u>.

Lotus J (2020), Scientists' ability to predict 'flash droughts' could assist farmers. United Press International, 5 March, <u>https://www.upi.com/Top_News/US/2020/03/05/Scientists-ability-to-predict-flash-droughts-could-assist-farmers/4561583195759/?upi_ss=drought</u>.

Dailyhunt (2020), Flash droughts: Why early-warning, mitigation techniques are needed, *Dailyhunt News*, 4 March, <u>https://m.dailyhunt.in/news/india/english/down+to+earth-epaper-dearth/flash+droughts+why+early+warning+mitigation+techniques+are+needed-newsid-169484130</u>.

Stark AM (2020), Flash droughts present challenge for warning system, *Phys.org*, 3 March, <u>https://phys.org/news/2020-03-droughts.html</u>.

Simon M (2020), Think flash floods are bad? Buckle up for flash droughts. *Wired*, 2 March, <u>https://www.wired.com/story/flash-droughts/</u>.

DeLuisi B (2020), Study delves into the challenging issue of intense, quickly-developing 'flash droughts'. *NOAA Physical Sciences Division News*, 2 March, https://www.esrl.noaa.gov/psd/news/2020/030220.html.

Leonard D (2019), Forecasters: California fire season could last into December; expect more large blazes. *Washington Post*, 4 November, <u>https://www.washingtonpost.com/weather/2019/11/04/forecasters-california-fire-season-could-last-into-december-expect-more-large-blazes/</u>.

North Ops Predictive Services (2019), NorthOps outlook calls for warmer and drier than normal conditions through January. *YubaNet.com*, 2 October, <u>https://yubanet.com/regional/northops-outlook-calls-for-warmer-and-drier-than-normal-conditions-through-january/</u>.

Miller K (2019), Parched Florida: West Palm Beach had its driest September on record. *The Palm Beach Post*, 1 October, <u>https://www.palmbeachpost.com/news/20191001/parched-florida-west-palm-beach-had-its-driest-september-on-record</u>.

Curran A (2019), Record heat likely over next several days: Rain chances stay low and fire danger increases. *WSFA12 News*, 26 September, <u>https://www.wsfa.com/2019/09/26/record-heat-likely-next-few-days/</u>.

Mellish K (2019), Drought spreads and worsens. *95.5 WSB*, 26 September, <u>https://www.wsbradio.com/weather/drought-spreads-and-worsens/RWecjyExZR4Q6LpVET440L/</u>.

Leonard D (2019), This year's fire season in California could be 'very active.' *Washington Post*, 5 August, <u>https://www.washingtonpost.com/weather/2019/08/05/this-years-fire-season-california-could-be-very-active/</u>.

NIDIS (2019), Improving fire risk management with drought early warning information in California and Nevada. Dry Times: National Integrated Drought Information System Newsletter, 16 May, https://www.drought.gov/drought/news/improving-fire-risk-management-drought-early-warning-information-california-and-nevada.

McEvoy DJ (2018), Daniel McEvoy: Evaporation and fire. *KPCC National Public Radio, Take Two*, 14 November, (A Martínez, Interviewer. Audio file: 14:25-18:53), https://www.scpr.org/programs/take-two/2018/11/14/19138/.

Albert V (2018), California fires fueled by drought so bad it's called "Negative Rain." *The Daily Beast*, 13 November, <u>https://www.thedailybeast.com/california-fires-fueled-by-negative-rain?ref=scroll</u>.

Foreman L (2018), Climate scientist driven from home by California wildfire rips 'uninformed' Trump. *The Daily Beast*, 10 November, <u>https://www.thedailybeast.com/the-california-wildfires-were-caused-by-climate-change-not-poor-forest-management?ref=scroll</u>.

Simon M (2018), The terrifying science behind California's massive Camp Fire. *Wired*, 9 November, <u>https://www.wired.com/story/the-terrifying-science-behind-californias-massive-camp-fire/</u>.

USGS (2018), 10 things you may not know about drought. USGS Climate Adaptation Science Centers, 23 July, <u>https://www.usgs.gov/center-news/10-things-you-may-not-know-about-drought</u>.

Scott K (2018), Webinar profiles southern plains drought. *High Plains/Midwest Ag Journal*, 11 June, <u>https://www.hpj.com/ag_news/webinar-profiles-southern-plains-drought/article_9335a5ce-7f5c-5b6c-9dab-f6b914746421.html</u>.

Fialka JJ (2018), A Wyoming reservation shows the new face of drought. *Scientific American*, 6 June, <u>https://www.scientificamerican.com/article/a-wyoming-reservation-shows-the-new-face-of-drought/</u>.

Fialka JJ (2018), A slow disaster scorched Wyo. No one saw it come or go. *E&R News Climatewire*, 6 June, <u>https://www.eenews.net/stories/1060083629</u>.

Middleton L, and Rangwala I (2018), EDDI, a new drought index, provides early warning of flash droughts. *EcoPress*, 17 January, <u>https://www.nrel.colostate.edu/eddi-a-new-drought-index-provides-early-warning-of-flash-droughts</u>.

Stein TE (2017), A new NOAA tool is helping to predict US droughts, global famine. *NOAA Research News*, 30 November, <u>https://research.noaa.gov/article/ArtMID/587/ArticleID/12/A-new-NOAA-tool-is-helping-to-predict-US-droughts-global-famine</u>.

McEvoy DJ, and Hain CR (2017), Monitoring the demand side of drought with EDDI and ESI. *The Climate Observer*, July,

https://mrcc.illinois.edu/cliwatch/eNews/observer_201707_full.html?utm_source=eNews+201 7-07&utm_medium=email&utm_campaign=eNewsA.

Throssell C (2017), Data that forecasts ET is now at your fingertips. *Golfdom*, 11 January, <u>https://www.golfdom.com/et-phone-home-to-help-with-irrigation/</u>.

DeLuisi B (2016), New tool effectively identifies both rapid-onset and sustained droughts. NOAA Physical Sciences Division News, 20 July, https://www.esrl.noaa.gov/psd/news/2016/072016.html.

Masters J (2016), Could the imminent U.S. heat wave trigger a flash drought? *Weather Underground*, 19 July, <u>https://www.wunderground.com/blog/JeffMasters/could-the-imminent-us-heat-wave-trigger-a-flash-drought.html</u>.

ENN (2013), Climate change likely to affect streams that quench Salt Lake City's thirst. *Environmental News Network*, 5 November,

https://www.enn.com/articles/46639?utm_source=feedburner&utm_medium=feed&utm_camp_aign=Feed%3A+EnvironmentalNewsNetwork+%28Environmental+News+Network%29.