PROFESSIONAL PREPARATION

Ph.D.   University of California at Los Angeles, 2010, Civil Engineering
M.S.   University of California at Berkeley, 1999, Civil and Environmental Engineering
B.S.   University of Virginia, 1998, Civil Engineering

APPOINTMENTS

Associate Professor, 2018 – present   Civil and Environmental Engineering, University of Maryland
Assistant Professor, 2012 – 2018   Civil and Environmental Engineering, University of Maryland
Postdoctoral Fellow, 2010 – 2011   NASA Goddard Space Flight Center
Research Assistant, 2005 – 2010   Civil Engineering, University of California at Los Angeles
Staff Engineer, 1999 – 2004   United Research Services (URS) Corporation

RESEARCH INTERESTS

Hydrology, hydrometeorology, snow and land surface modeling, satellite-based remote sensing, hydrologic data assimilation, flood forecasting, autonomous tasking and agile remote sensing, artificial intelligence and machine learning applications

AWARDS

NASA GRACE – GRACE-FO Science Team Member, 2020; NASA High Mountain Asia (HiMAT2) Science Team Member, 2020; Fulbright-Nehru Scholar in India, 2019-2020; Engineers Without Borders (EWB) Outstanding Mentor, 2018; NASA High Mountain Asia Science Team (HiMAT), 2016; NASA GRACE-FO Science Team, 2016; Kent Teaching Award for Outstanding Junior Faculty, 2015; NASA New Investigator Program Award, 2014; NASA Postdoctoral Fellowship, 2010; UCLA Edward K. Rice Engineering Ph.D. Student of the Year, 2010; UCLA Outstanding Civil Engineering Ph.D. Student of the Year, 2010; American Geophysical Union Outstanding Student Paper Award, 2009, 2008, and 2007; NASA Earth System Science Graduate Fellowship, 2007;

FIVE RELEVANT PUBLICATIONS

1. Yin, G.*, **B. A. Forman**, B. D. Loomis, and S. B. Luthcke. "Comparison of vertical surface deformation estimates derived from space-based gravimetry, ground-based GPS, and model-based hydrologic loading over snow-dominated watersheds in the United States", *Journal of Geophysical Research - Solid Earth*, doi: 10.1029/2020JB019432, 2020.

2. Ahmad, J. A.*, **B. A. Forman**, and S. V. Kumar. "Soil moisture estimation in South Asia via assimilation of SMAP retrievals", *Hydrology and Earth System Sciences* 26(8), 2221-2243, doi.org/10.5194/hess-26-2221-2022, 2022.

3. Wang, L.*, **B. A. Forman**, and E. Kim. "Exploring the spatiotemporal coverage of terrestrial snow mass using a suite of satellite constellation configurations", *Remote Sensing*, 14, 1–18, doi.org/10.3390/rs14030633, 2022.

4. Park, J.*, **B. A. Forman**, and S. V. Kumar. "Estimation of snow mass information via assimilation of C-band synthetic aperture radar backscatter observations into an advanced land surface model", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 15, 862–875, doi:10.1109/JSTARS.2021.3133513, 2022.

5. **Forman, B. A.**, S. V. Kumar, W. Nie, and A. Getirana. "An observation-based, autonomous monitoring system for flood forecasting and fire-driven hydrological change.", *Water Resources Research*, In Preparation.

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*Graduate Student Advisee

FIVE OTHER PUBLICATIONS OF INTEREST

1. Ahmad, J.*, **B. A. Forman**, and Y. Kwon. "Interpreting machine learning predictions of passive microwave brightness temperatures over snow-covered terrain", *Frontiers in Earth Science*, 7:212, doi: 10.3389/feart.2019.00212, 2019.

2. Yoon, Y., S. V. Kumar, **B. A. Forman**, B. Zaitchik, Y. Kwon*, R. I. Rosenberg, Y. Qian, S. Rupper, V. Maggioni, P. Houser, D. Kirschbaum, A. Richey, and A. Arendt. "Evaluating the uncertainty of precipitation and terrestrial water budget components over High Mountain Asia", *Frontiers in Earth Science*, doi:10.3389/feart.2019.00120, 2019.

3. Liu, L.*, M. Hejazi, G. Iyer, and **B. A. Forman**. "Implications of water constraints on electricity capacity expansion in the United States", *Nature Sustainability*, doi:10.1038/s41893-019-0235-0, 2019.

4. Durand, M., A. Barros, J. Dozier, R. Adler, S. Cooley, D. Entekhabi, **B. A. Forman**, A. G. Konings, W. P. Kustas, J. D. Lundquist, T. M. Pavelsky, M. Rodell, and S. Steele-Dunne. "Achieving breakthroughs in global hydrologic science by unlocking the power of multisensor, multidisciplinary Earth observations", *AGU Advances*, 2(4), 1-13, doi.org/10.1029/2021av000455, 2021.

5. Kumar, S. V., J. Kolassa, J., R. Reichle, W. Crow, G. De Lannoy, P. De Rosnay, N. MacBean, M. Girotto, A. Fox, T. Quaife, C. Draper, **B. A. Forman**, G. Balsamao, S. Steele-Dunne, C. Albergel, B. Bonan, J. Calvet, J. Dong, H. Liddy, and B. Ruston. "An agenda for land data assimilation priorities: Realizing the promise of terrestrial water, energy, and vegetation observations from space", *Journal of Advances in Modeling Earth Systems*, doi.org/10.1029/2022MS003259, 2022.

SYNERGISTIC ACTIVITIES AND SERVICE

1. Member, Joint Mass Change Mission Expert Group (JMCMEG), European Space Agency (ESA) and NASA, 2022 – present
2. Chair, Remote Sensing Technical Committee, American Geophysical Union, 2019 – 2021
3. Member, NASA Applied Sciences – Water Resources Review Panel, 2013, 2014, 2016, 2018
4. Faculty advisor for UMD chapter of Engineers Without Borders (EWB-UMD) Peru Drinking Water Disinfection Project <u>and</u> Peru Gold River Bridge Project

COLLABORATORS AND OTHER AFFILIATIONS

Collaborators:

Steve Chien (NASA JPL), Gabrielle De Lannoy (Leuven University), Chris Derksen (Environment Canada), Robert Field (NASA GISS), Augusto Getirana (NASA GSFC), Paul Grogan (Stevens Institute), Ethan Gutmann (NCAR), Paul Houser (George Mason), Edward Kim (NASA GSFC), Randy Koster (NASA GSFC), Sujay Kumar (NASA GSFC), Jessica Lundquist (U. Washington), Viviana Maggioni (George Mason), Wanshu Nie (NASA GSFC), Rolf Reichle (NASA GSFC), Matt Rodell (NASA GSFC), Ben Zaitchik (Johns Hopkins)

Graduate and Postdoctoral Advisors:

Steven Margulis (graduate advisor at UCLA), Rolf Reichle (postdoctoral mentor at NASA GSFC)

Thesis and Postdoctoral Advisees:

Dr. Jawairia Ahmad (UMD), Dr. Yonghwan Kwon (ESSIC), Dr. Lu Liu (UMD), Colin McLaughlin (UMD), Alireza Moghadassi (UMD,) Dr. Jongmin Park (UMD), Meghan Ryan (UMD), Dr. Jing Tao (ESSIC), Dr. Jing Wang (UMD), Dr. Lizhao Wang (UMD), Dr. Yuan Xue (UMD), Dr. Gaohong Yin (UMD), Bincheng Yu (UMD)