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**Francina Dominguez**  
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## I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

### A. Educational Background

<u>Degree</u>	<u>Field of Study</u>	<u>Institution</u>	<u>Date</u>
B.S.	Civil Engineering	Univ. de los Andes, Bogotá, Colombia	1999
M.S.	Civil and Environ. Eng.	Univ. of Illinois at Urbana-Champaign, Urbana, IL	2003
Ph.D.	Civil and Environ. Eng.	Univ. of Illinois at Urbana-Champaign, Urbana, IL	2006

### B. List of Academic Positions Since Final Degree

Associate Research Scientist, Dept. of Hydrology and Water Resour., Univ. of Arizona, Tucson, AZ. 2007-09  
Research Assistant Professor, Dept. of Civil Eng. and Eng. Mech., Univ. of Arizona, Tucson, AZ. 2008-09  
Assistant Professor, Dept. of Hydrology and Water Resour. (courtesy), Univ. of Arizona, Tucson, AZ. 2009-2015  
Assistant Professor, Dept. of Atmospheric Sciences, Univ. of Arizona, Tucson, AZ. 2009-2015  
Co-Director, Hydrometeorology Program, Univ. of Arizona, Tucson, AZ. 2011-2015  
Assistant Professor, Dept. Atmospheric Sciences, Univ. of Illinois at Urbana-Champaign, Urbana, IL. 2015-2017  
Affiliate Faculty, Dept. Civil and Environ. Eng., Univ. of Illinois at Urbana-Champaign, Urbana, IL. 2016-present  
Associate Professor, Dept. Atmospheric Sciences, Univ. of Illinois at Urbana-Champaign, Urbana, IL. 2017-present

### C. Other Professional Employment

Administrative Assistant, Civil Engineering Department, Universidad de los Andes, Bogotá, Colombia. 1998-99  
Research Assistant, Hydraulics Laboratory Universidad de los Andes, Bogotá, Colombia. 1999-2000  
Technical Engineer, Alcuadrado Arquitectos Ltda. Bogotá, Colombia. 1999-2000  
Technical Engineer, Hidroestudios Ltda. Bogotá, Colombia. 2000-2001  
Research Assistant, Dept. Civil and Environ. Eng., Univ. of Illinois at Urbana-Champaign, Urbana, IL. 2001-2006

### D. Honors, Recognitions, and Prizes

NASA Earth Systems Science (ESS) Fellowship (2003 - 2006). 2003  
Outstanding Student Paper Award, American Geophysical Union Fall Meeting. 2005  
Glenn and Helen Stout Award. Univ. of Illinois at Urbana-Champaign. 2006  
CUAHSI 2007 Early Career Fellowship Award. 2007  
Outstanding Student Paper Award, American Geophysical Union Fall Meeting. 2007  
Best Paper of the Environmental Modeling and Software Society (for Mahmoud et al. 2009). 2009  
NCAR Early Career Scientist Assembly (ECSA) award. 2010  
NSF Early Career Award. 2015  
List of Teachers Ranked as Excellent: Spring 2016 for ATMS 507, Climate Dynamics  
Distinguished Promotion Award, University of Illinois. 2017  
List of Teachers Ranked as Excellent: Spring 2017 for ATMS 507, Climate Dynamics  
Richard and Margaret Romano Professional Scholar 2017-2020  
Henry G. Houghton Award from the American Meteorological Society, 2018

### E. Invited Lectures and Invited Conference Presentations Since Last Promotion

1. "Dominant Modes Of Atmospheric Moisture Transport Over North America. A Study Using Reanalysis Data." European Geosciences Union. Nice, France. May, 2004.
2. "Precipitation Recycling: a Mechanism for Hydroclimatological Stability in the North American Monsoon Region." Special Invited talk to the American Geophysical Union Meeting, Acapulco, Mexico. May, 2007.
3. "New Dynamic Precipitation Recycling Model and the Relocation of Terrestrial Moisture Through Atmospheric Pathways." Cátedra de Climatología Agrícola, Facultad de Agronomía, Universidad de Buenos Aires (video conference). May, 2008.

4. "Hydrologists benefit from improved climate forecasts?" Hydrologic Synthesis Center Capstone, University of British Columbia, Vancouver, Canada. Jul, 2008.
5. "Land-Atmosphere Interactions In The Southwest: It's A Two-Way Street." Department of Civil Engineering, University of Washington, Seattle, WA. Feb, 2009.
6. "Land-Atmosphere Interactions In The Southwest: It's A Two-Way Street." Department of Earth Sciences, University of New Hampshire, Durham, NH. Mar, 2009.
7. "Land-Atmosphere Interactions in the Southwest: It's a two-way street." Arizona State University, Ecosystems Engineering seminar, Global Institute of Sustainability, Phoenix, AZ. Oct, 2009.
8. "Who Benefits from Evaporation from the Southwest?" Biosphere 2, Tucson, AZ. Oct, 2009.
9. "Improving Seasonal Forecasting Capability of the North American Monsoon System Using the WRF Regional Climate Model." HEPEX meeting. Toulouse, France., Jul, 2009.
10. "Can Regional Climate Models Improve Warm Season Forecasts in the North American Monsoon Region?", U.S. Department of Agriculture, Tucson, AZ. Dec, 2009.
11. "Dynamically Downscaled Climate Projections For Ecohydrological Applications Over The Southwest." 3rd USGS Modeling Conference: Understanding and Predicting for a Changing World. Broomfield, CO. Jun, 2010.
12. "Transpiration and Evaporation measurements in a Mountain Ecosystem using Real-Time Field-Based Water Vapor Isotopes." Special Invited talk to the American Geophysical Union Fall Meeting, San Francisco, CA. Dec, 2010.
13. "Future extreme precipitation events in the Southwestern US: climate change and natural modes of variability." Special Invited talk to the American Geophysical Union Fall Meeting, San Francisco, CA. Dec, 2010.
14. "Land-Atmosphere Interactions: Two Ways of Looking at Extreme Events." Department of Atmospheric Sciences and Department of Civil Engineering Joint Seminar, University of Washington, Seattle, WA. Feb, 2012.
15. "Changes in winter precipitation extremes for the Western United States." Workshop on Extreme Events, Arizona State University, Phoenix, AZ. Mar, 2012
16. "Changes in winter precipitation extremes for the Western United States." NARCCAP Users Meeting, Boulder, CO. Apr, 2012
17. "Changes in winter precipitation extremes for the Western United States." Pacific Northwest Climate Change Collaboration (C3) May, 2012 (Virtual Meeting).
18. "Intense Precipitation Events over Western North America: Sources of Moisture and Projected Future Changes." Department of Hydrology and Water Resources, Univ. of Arizona, Departmental Seminar, Tucson, AZ. Feb 2014.
19. "Intense Precipitation Events over Western North America: Sources of Moisture and Projected Future Changes." Department of Atmospheric Sciences, Univ. of Illinois at Urbana-Champaign, Urbana, IL. Mar, 2014.
20. "Possible Future Changes of Atmospheric Rivers in the Southwest US: a Method to Assess Socioeconomic Impacts." Colorado School of Mines, Golden CO. Sep, 2014.
21. "Atmospheric Rivers in the Southwestern US: Climatology and Possible Future Changes" Special Invited talk to the American Geophysical Union Meeting. San Francisco, CA. Dec, 2014.
22. "Hydrometeorology: The Two sides of Land-Atmosphere Interactions." Universidad de Antioquia. Civil Engineering Department. Medellin, Colombia. Feb, 2015.
23. "Land-Atmosphere Interactions - From the South American Continent to the Rio Carcaraña Basin." University of Córdoba, Argentina. Oct, 2015.
24. "From Groundwater to the Atmosphere - a study of the Hydroclimate of the La Plata Basin." Special Invited talk to the American Meteorological Society Annual Meeting. New Orleans, LA. Jan, 2016.
25. "The Role of Shallow Groundwater on Land-Atmosphere Interactions in Southern South America". Invited Speaker Panorama Actual de las Ciencias Atmosféricas. Universidad Nacional Autónoma de México. Aug, 2016
26. "Hydrometeorologic Response to an Intense Convective Event in Argentina". Special Invited talk to the American Geophysical Union Meeting. San Francisco, CA. Dec, 2016.
27. "Untangling Eco-Climate Teleconnections in southern South America". Special Invited talk to the Ecological Society of America. Portland, OR. Aug, 2017.
28. "Tracking an Atmospheric River in a Warmer Climate: from Water Vapor to Economic Impacts". Special Invited talk to the American Meteorological Society. Austin, TX. Jan 2018.
29. "How Tracing Water in the Atmosphere and Below the Earth's Surface can Challenge our Assumptions of the Hydrologic System". Special invited talk to the "Land Atmosphere Interactions and Extremes Workshop", organized as part of the 2018 US Climate Modeling Summit. April 2018.

#### F. Offices Held in Professional Societies

N/A

#### G. Editorships of Journals and Other Learned Publications

Associate Editor, Journal of Hydrometeorology. 2012 - present

Review Editor "Chapter 7 of Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment" Chapter Title: Future Climate: Projected Extremes. 2013

Review Editor in Hydrosphere, Frontiers in Earth Science and Built Environment. 2015 - present

#### H. Grants Received

##### External

*Title:* Use Of Regional Atmospheric Modeling To Improve Short And Long-Term Forecasting Capability Of The North American Monsoon System

*Granting Agency:* National Science Foundation

*Award Amount:* \$ 375,000

*Period of Award:* [07/01/08 - 06/30/11]

*Capacity:* Co-Principal Investigator (Lead-PI: C. Castro, 16% for Dominguez' Group)

*Title:* Hydrologic Extremes In A Changing Climate: How Much Information Can Regional Climate Models Provide?

*Granting Agency:* Department of Energy

*Award Amount:* \$ 540,000

*Period of Award:* [08/01/09 - 07/31/11]

*Capacity:* Principal Investigator (54% for Dominguez' Group, Co-PIs: C. Castro, D. Lettenmaier)

*Title:* Collaborative Research: The Amazon Groundwater and Its Impact on Evapotranspiration and the Climate of South America

*Granting Agency:* National Science Foundation

*Award Amount:* \$ 225,813

*Period of Award:* [07/01/10 - 06/30/13]

*Capacity:* Principal Investigator

*Title:* Collaborative Research - Climate and Population Change and Thresholds of Peak Ecological Water: Integrated Synthesis for Dryland Rivers

*Granting Agency:* National Science Foundation

*Award Amount:* \$ 636,455

*Period of Award:* [01/01/11 - 12/31/13]

*Capacity:* Co-Principal Investigator (Lead-PI: T. Meixner, 22% for Dominguez' Group)

*Title:* Collaborative Research: Processes and Patterns in The North American Monsoon Macrosystem

*Granting Agency:* National Science Foundation

*Award Amount:* \$ 2,949,061

*Period of Award:* [04/01/11 - 03/31/16]

*Capacity:* Co-Principal Investigator (Lead-PI: R. Monson, 5% for Dominguez' Group)

*Title:* A Scientific Basis For Urban Water Planning Under Climate Change (SWAN-Sustainable Water Action: Building Research Links Between EU And US.  
*Granting Agency:* European Union  
*Award Amount:* \$ 554,510  
*Period of Award:* [01/01/12-12/31/15].  
*Capacity:* Co-Principal Investigator (Lead-PI: H. Gupta, 15% for Dominguez' Group)

*Title:* Tracking The Impacts of Variability and Climate Change on Tropical Wetlands: The Evolution of Two Andean Lakes and a Floodplain Ciénagas In Colombia.  
*Granting Agency:* National Science Foundation PEER  
*Award Amount:* \$ 0 (all funds go to Colombian partner, Dominguez supervised student from U. de Antioquia, Colombia)  
*Period of Award:* [01/01/12 - 01/01/14]  
*Capacity:* Co-Principal Investigator (Lead-PI: J. Cañon)

*Title:* Atmospheric Rivers and Changing Flood Risk in the Pacific Coast Region of the Western United States  
*Granting Agency:* National Aeronautics and Space Administration  
*Award Amount:* \$ 1,414,123  
*Period of Award:* [01/01/13 - 01/01/16]  
*Capacity:* Co-Principal Investigator (Lead-PI: D. Lettenmaier, 14% for Dominguez' Group)

*Title:* Hydrologic Response of Atmospheric River Events in the Salt and Verde river basins: Climatology and Possible Future Changes  
*Granting Agency:* United States Geological Survey  
*Award Amount:* \$ 181,355  
*Period of Award:* [04/15/15 - 04/15/17]  
*Capacity:* Principal Investigator

*Title:* The Economic Impact of Climate Change on US Agriculture - Towards More Comprehensive Estimations  
*Granting Agency:* United States Department of Agriculture  
*Award Amount:* \$ 298,159  
*Period of Award:* [08/01/15-07/31/18]  
*Capacity:* Co-Principal Investigator (Lead-PI: S. Dall'erba, 26% for Dominguez' Group)

*Title:* CAREER:Hydroclimatic Response to Natural and Anthropogenic Land Cover Change over South America: a focus on the La Plata River Basin  
*Granting Agency:* National Science Foundation  
*Award Amount:* \$ 574,125  
*Period of Award:* [01/01/15-01/01/20]  
*Capacity:* Principal Investigator

*Title:* RELAMPAGO Hydrometeorology Component: Land Surface Controls on Heavy Precipitation and Flooding in the Carcarana River Basin, Argentina  
*Granting Agency:* National Science Foundation  
*Award Amount:* \$ 478,258  
*Period of Award:* [06/01/16-05/31/19]  
*Capacity:* Principal Investigator

### Internal

*Title:* Intelligent Correction Of Future Climate Projections In The Salt And Verde River Basins For Water Resource Applications  
*Granting Agency:* University of Arizona Water Sustainability Program  
*Award Amount:* \$ 49,000  
*Period of Award:* [01/01/11 - 06/30/11].  
*Capacity:* Principal Investigator

*Title:* The Impact of Climate Change on Arizona's Agriculture: the Ricardian Approach Revisited.  
*Granting Agency:* University of Arizona Water, Environmental and Energy Solutions (WEES) Award  
*Award Amount:* \$ 39,999  
*Period of Award:* [08/15/11 - 06/30/12]. .  
*Capacity:* Co-Principal Investigator (Lead-PI: S. Dall'eba, 18% for Dominguez' Group)

*Title:* Global Virtual Water Trade: Unraveling complexity in the international food?water nexus, identifying impacts of climate change, and evaluating opportunities to save domestic water resources  
*Granting Agency:* University of Illinois, College of ACES  
*Award Amount:* \$ 60,000  
*Period of Award:* [01/01/2018 - 01/01/2019]. .  
*Capacity:* Co-Principal Investigator (Lead-PI: S. Dall'eba, 10% for Dominguez' Group)

### Grants Submitted

*Title:* Collaborative Research: Dynamic Roots as the Biophysical Link Between Deep Moisture and the Atmosphere  
*Granting Agency:* NSF  
*Award Amount:* \$ 344,448  
*Period of Award:* [02/01/2018 - 01/31/2021]  
*Capacity:* Principal Investigator

## II. PUBLICATIONS AND CREATIVE WORKS

- # Denotes any publication derived from a candidate's thesis  
\* Denotes any publication that has undergone stringent editorial review by peers  
+ Denotes any publication that was invited and carries special prestige and recognition  
Underline Denotes student under candidate supervision

### A. Doctoral Thesis

Dominguez, F., 2006: Precipitation Recycling as a Mechanism for Ecoclimatological Stability Through Local and Non-Local Interactions, Dept. of Civil and Environmental Engineering, Univ. of Illinois at Urbana-Champaign, Urbana, IL 160pp

### B. Books Authored or Co-Authored

N/A

### C. Books Edited or Co-Edited

N/A

### D. Chapters in Books

Yang, Z., **F. Dominguez**, H. Gupta, X. Zeng and L. Norman, 2015: Potential Impacts of the developing Phoenix-Tucson 'Sun' Corridor on Regional Climate, In: Water Bankruptcy In The Land Of Plenty: Steps towards a transatlantic and transdisciplinary assessment on the nature and causes of water scarcity in Southern Arizona, Eds: HV Gupta, F Poupeau, MA Sans-Fuentes and A Serrat-Capdevilla, CRC Press.

### E. Monographs

N/A

### F. Articles in Journals

1. # \* **Dominguez, F.** and P. Kumar, 2005: Dominant Modes Of Moisture Flux Anomalies Over North America. *J. Hydromet.*, V. 6, 194-206
2. # \* **Dominguez, F.**, P. Kumar, X. Z. Liang, and M. Ting, 2006: Impact Of Atmospheric Moisture Storage On Precipitation Recycling. *J. Climate*, V. 19, No.6, 1513-1530
3. \* Lyon, S., **F. Dominguez** (and 19 other authors), 2008: Coupling Terrestrial And Atmospheric Water Dynamics To Improve Prediction In A Changing Environment, *Bull. Amer. Meteor. Soc.* V. 89, No. 9, 1275-1279
4. \* + Mahmoud, M, (and 20 other authors including **F. Dominguez**), 2008: A Formal Framework For Scenario Development In Support Of Environmental Decision Making, *Environ. Modell. Softw.* V. 24, No. 7, 798-808
5. # \* **Dominguez, F.**, P. Kumar, and E. R. Vivoni, 2008: Precipitation Recycling Variability And Ecoclimatological Stability – A Study Using NARR Data. Part II: North American Monsoon Region. *J. Climate.* V. 21, No. 20, 5187-5203
6. # \* **Dominguez, F.** and P. Kumar, 2008: Precipitation Recycling Variability And Ecoclimatological Stability – A Study Using NARR Data. Part I: Central USA Plains. *J. Climate.* V. 21, No. 20, 5165-5186
7. **Dominguez, F.**, C. Castro, A. Ellis, 2009: Improving Drought Monitoring and Forecasting in the Southwest. *Southwest Hydrology Magazine*
8. \* **Dominguez, F.** and J. C. Villegas and D. D. Breshears, 2009: Spatial Extent Of The North American Monsoon: Increased Cross-Regional Linkages Via Atmospheric Pathways. *Geophys. Res. Lett.* V. 36, L07401, doi:10.1029/2008GL037012
9. \* **Dominguez, F.** and J. Cañon and J. Valdes, 2009: IPCC-AR4 Climate Simulations For The Southwestern US: The Importance Of Future ENSO Projections. *Climatic Change* doi: 10.1007/s10584-009-9672-5
10. \* Bark, R. H., B. G. Colby, and **F. Dominguez**, 2009: Snow Days? Snowmaking Adaptation And The Future Of Low Latitude, High Elevation Skiing In Arizona, USA. *Climatic Change* doi: 10.1007/s10584-009-9708-x
11. \* DeAngelis, **F. Dominguez**, Y. Fan, A. Robock, M. D. Kustu, and D. Robinson, 2010: Observational Evidence Of Enhanced Precipitation Due To Irrigation Over The High Plains Of The US. *J. Geophys. Res.* V. 115, No: D15115

12. \* **J. Cañon, F. Dominguez** and J. Valdes, 2011: Downscaling Climate Variability Associated With Quasi-Periodic Climate Signals: A New Statistical Approach Using MSSA. *J. Hydrol.* V. 398, No.1-2, 65-75
13. \* **J. Cañon, F. Dominguez** and J. Valdes, 2011: Vegetation Responses To Precipitation And Temperature: A Spatiotemporal Analysis Of Ecoregions In The Colorado River Basin. *Int. J. Remote Sens.* doi:10.1080/01431161.2010.507259
14. \* H. Ajami, T. Meixner, **F. Dominguez** , J. Hogan, T. Maddock III, 2011. Seasonalizing Mountain System Recharge in Semi-Arid Basins–Climate Change Impacts. *Ground Water.* V. 50, No. 4, 585-597, doi: 10.1111/j.1745-6584.2011.00881.x
15. \* **Dominguez, F.**, E. Rivera, D. P. Lettenmaier, and C. L. Castro, 2012: Changes in winter precipitation extremes for the western United States under a warmer climate as simulated by regional climate models. *Geophys. Res. Lett.*, V. 39, L05803, doi:10.1029/2011GL050762
16. \* Mishra, V., **F. Dominguez** , and D. P. Lettenmaier, 2012: Urban precipitation extremes: How reliable are regional climate models? *Geophys. Res. Lett.*, V. 39, L03407, doi:10.1029/2011GL050658.
17. \* **Wi, S., F. Dominguez**, M. Durcik, J. Valdes, H. F. Diaz, and C. L. Castro, 2012: Climate change projection of snowfall in the Colorado River Basin using dynamical downscaling. *Water Resour. Res.* V. 48, W05504, doi: 10.1029/2011WR010674.
18. \* Gao, Y., L. R. Leung, E. P. Salath Jr., **F. Dominguez**, B. Nijssen, and D. P. Lettenmaier, 2012: Moisture flux convergence in regional and global climate models: Implications for droughts in the southwestern United States under climate change. *Geophys. Res. Lett.* V. 39, doi: 10.1029 / 2012GL051560
19. \* Castro, C., H. Chang, **F. Dominguez**, C. Carrillo, J. Kyung-Schemm, and H. Juang, 2012: Can a regional climate model improve the ability to forecast the North American Monsoon? *J. Climate.* V. 25, No. 23, 8212-8237. doi:10.1175/JCLI-D-11-00441.1.
20. \* Gimeno, L., A. Stohl, R. M. Trigo, **F. Dominguez**, K. Yoshimura, L. Yu, A. Drumond, A. M. Durn-Quesada and R. Nieto, 2012: Oceanic And Terrestrial Sources Of Continental Precipitation. *Rev. Geophys.* V. 50, RG4003 / 2012
21. \* Ciancarelli, B., C. L. Castro, C. Woodhouse, **F. Dominguez**, H. Chang, C. Carrillo and D. Griffin, 2013: Dominant patterns of US warm season precipitation variability in a fine resolution observational record, with focus on the southwest. *Int. J. Climatol.* doi: 10.1002/joc.3716
22. \* Tripathi, O. P., and **F. Dominguez**, 2013: Effects of spatial resolution in the simulation of daily and subdaily precipitation in the southwestern US. *J. Geophys. Res. Atmos.* V. 118, doi:10.1002/jgrd.50590.
23. \* Serrat-Capdevila, A., J. B. Valdes, **F. Dominguez** and S. Rajagopal, 2013: Characterizing the water extremes of the new century in the US South-west: a comprehensive assessment from state-of-the-art climate model projections. *Int. J. Water Resour. D.*, 29:2, 152-171, doi: 10.1080/07900627.2012.721717
24. \* Pizarro, R., P. Garcia-Chevesich, R. Valdes, **F. Dominguez**, F. Hossain, P. Ffolliott, C. Olivares, C. Morales, F. Balocchi, P. Bro, 2013: Inland water bodies in Chile can locally increase rainfall intensity. *J. Hydrol.* V. 481, No. 56-63, doi: 10.1016/j.jhydrol.2012.12.012
25. \* **Rivera, E., F. Dominguez** and C. Castro, 2013: Atmospheric Rivers and Extreme Cool Season Precipitation Events in the Verde River Basin of Arizona. *J. Hydromet.* V. 15., No. 813-829. doi: 10.1175/JHM-D-12-0189.1
26. \* Rajagopal S, **F. Dominguez**, HV Gupta, PA Troch, CL Castro, 2014: On physical mechanisms related to climate-induced drying of two semi-arid watersheds in the southwest US. *J. Hydrometeorol.* V. 15, No. 4, 1404-1418.
27. \* **Martinez, A., F. Dominguez**, 2014: Sources of Atmospheric Moisture for the La Plata River Basin. *J. Climate.* V. 27, doi: 10.1175/JCLI-D-14-00022.1
28. \* **Hu, H. and F. Dominguez**, 2015: Evaluation of Oceanic and Terrestrial Sources of Moisture for the North American Monsoon Using Numerical Models and Precipitation Stable Isotopes. *J. Hydrometeorol.* V. 16, No. 19-35. doi: [http://dx.doi.org/ 10.1175/ JHM-D-14-0073.1](http://dx.doi.org/10.1175/JHM-D-14-0073.1)
29. \* Mei, R. and M. Ashfaq, D. Rastogi, L. R. Leung, and **F. Dominguez**, 2015: Dominating Controls for Wetter South Asian Summer Monsoon in the Twenty-First Century. *J. Climate*, V. 28, 3400-3419. doi: <http://dx.doi.org/10.1175/JCLI-D-14-00355.1>
30. \* Villegas J.C., **F. Dominguez**, G. A. Barron-Gafford, H. D. Adams, M. Guardiola-Claramonte, E. D. Sommer, A. Wiede Selvey, J. F. Espeleta, C. B. Zou, D. D. Breshears, T. E. Huxman, 2015: Sensitivity of regional evapotranspiration partitioning to variation in woody plant cover: insights from experimental dryland tree mosaics. *Global Ecol. Biogeogr.* Vo. 24, 1040-1048
31. \* Dall’erba S. and **F. Dominguez**, 2015: The Impact of Climate Change on Agriculture in the South-West United States: the Ricardian Approach Revisited. *Spatial Economic Analysis*, V. 10, No. 4, 1-19.
32. \* Hawkins, G.A., E. R. Vivoni, A. Robles-Morua, G. Mascaró, E. Rivera and **F. Dominguez**, 2015: A Climate Change Projection for Summer Hydrologic Conditions in a Semiarid Watershed of Central Arizona. *J. Arid Environ.* V. 118, 9-20

33. \* Chang, H.-I., C. L. Castro, C. M. Carrillo, and **F. Dominguez**, 2015: The more extreme nature of U.S. warm season climate in the recent observational record and two ‘well-performing’ dynamically downscaled CMIP3 models. *J. Geophys. Res. Atmos.* V. 120, doi:10.1002/2015JD023333.
34. \* Elhakeem, A., W E Elshorbagy, H. AlNaser and **F. Dominguez**, 2015: Downscaling Global Circulation Model Projections of Climate Change for the United Arab Emirates. *J. Water Resour. Plann. Manage.* V. 141, No. 9: 04015007
35. \* Rivera, E. R. and **F. Dominguez**, 2015: Projected changes in atmospheric river events in Arizona as simulated by global and regional climate models. *Clim. Dynam.* doi 10.1007/s00382-015-2927-0
36. \* Yang, Z., **F. Dominguez**, H. Gupta, X. Zeng and L. Norman, 2016: Urban Effects on Regional climate: A Case Study in the Phoenix and Tucson ‘Sun’ Corridor. *Earth Interact.* doi:10.1175/EI-D-15-0027.1.
37. \*Gimeno, L., **F. Dominguez**, R. Nieto, R. Trigo, A. Drumond, C.J.C. Reason, A. Taschetto, A. Ramos, R. Kumar, J. Marengo, 2016: Major mechanisms of atmospheric moisture transport and their role in extreme precipitation events. *Annu. Rev. Env. Resour.* doi:10.1146/annurev-environ-110615-085558
38. \***Dominguez, F.**, G. Miguez-Macho and H. Hu, 2016: WRF with Water Vapor Tracers: a Study of Moisture Sources for the North American Monsoon. *J. Hydrometeorol.* doi: 10.1175/JHM-D-15-0221.1
39. \*Martinez, J. A., **F. Dominguez**, G. Miguez-Macho, 2016: Impacts of a Groundwater Scheme on Hydroclimatological Conditions over Southern South America. *J. Hydrometeorol.* DOI: 10.1175/JHM-D-16-0052.1
40. \*Martinez, J. A., **F. Dominguez**, G. Miguez-Macho, 2016: Effects of a Groundwater Scheme on the Simulation of Soil Moisture and Evapotranspiration over Southern South America. *J. Hydrometeorol.* DOI: 10.1175/JHM-D-16-0051.1
41. \*Pathak, A., S. Ghosh, J. A. Martinez, **F. Dominguez**, P. Kumar, 2016: Role of Oceanic and Land Moisture Sources and Transport in the Seasonal and Inter-annual variability of Summer Monsoon in India. *J. Climate* doi:10.1175/JCLI-D-16-0156.1.
42. \*Hu, H., **F. Dominguez**, Z. Wang, D. Lavers, G. Zhang, F. M. Ralph, 2017: Linking Atmospheric River Hydrological Impacts on the U.S. West Coast to Rossby Wave Breaking. *J. Climate.* 30 (9). 3381-3399
43. \*Hoyos, I., **F. Dominguez**, J. Cañón-Barriga, A. Martínez, R. Nieto, L. Gimeno, P. A. Dirmeyer, 2016: Moisture origin and transport processes in Colombia, northern South America. *Clim. Dyn.* DOI 10.1007/s00382-017-3653-6
44. \*Yang, Z., **F. Dominguez**, X. Zeng, H. Hu, H. Gupta, B. Yang, 2017: Impact of irrigation over the California Central Valley on regional climate. *J. Hydrometeorol.* V. 18. DOI: 10.1175/JHM-D-16-0158.1
45. Duan, J. G., Y. Bai, **F. Dominguez**, E. Rivera, T. Meixner, 2017: Framework for incorporating climate change on flood magnitude and frequency analysis in the upper Santa Cruz River. *J. Hydrol.*, 549, 194-207.
46. Demaria, E.M.C., **F. Dominguez**, H. Hu, G. von Glinski, M. Robles, J. Skindlov and J. Walter, 2017: Observed Hydrologic Impacts of Landfalling Atmospheric Rivers in the Salt and Verde River basins of Arizona, United States. *Water Resour Res* V. 53 I. 12 pp 10025-10042.
47. Niraula, R., T. Meixner, **F. Dominguez**, N. Bhattarai, M. Rodell, H. Ajami, D. Gochis, C. Castro, 2017: How might recharge change under projected climate change in the western US?, *Geophys Res Letters* V. 44 I.20 pp 10407-10418.
48. Eiras-Barca, J., **Dominguez, F.**, Hu, H., Garaboa-Paz, A. D., and Miguez-Macho, G, 2017: Evaluation of the Moisture Sources in two Extreme Landfalling Atmospheric River Events using an Eulerian WRF-Tracers tool, *Earth Syst. Dynam.*, V.8 I.4 pp1247-1261https://doi.org/10.5194/esd-2017-63.
49. **Dominguez, F.**, Dall’erba, S., Huang, S., Avelino, A., Mehran, A., Hu, H., Schmidt, A., Schick, L., and Lettenmaier, D. 2018: Tracking an Atmospheric River in a Warmer Climate: from Water Vapor to Economic Impacts, *Earth Syst. Dynam.*, V. 9, pp 249-266 https://doi.org/10.5194/esd-9-249-2018
50. \*Hu, H., **F. Dominguez**, P. Kumar, J. McDonnell, D. Gochis, 2018: A Numerical Water Tracer Model for Understanding Event-Scale Hydrometeorological Phenomena. *J. Hydrometeorol.* V. 19, pp 947-967. DOI: 10.1175/JHM-D-17-0202.1
51. \*Yang, Z, **F. Dominguez**, X. Zeng, 2018: Large and Local-Scale Features Associated with Heat Waves in the United States in MERRA and the NARCCAP Model Ensemble, *Clim. Dyn.* In press.

G. Creative Works (Exhibitions, Commissions, Competitions, Performances, Art or Architecture Executed)

N/A

H. Patents

N/A

I. Bulletins, Reports, or Conference Proceedings (in print or accepted)

N/A

J. Abstracts (in print or accepted)

1. **Dominguez, F.** and P. Kumar, 2002: Principal Modes of Moisture Flux Transport Over North America as Obtained From Reanalysis I Data. American Geophysical Union Fall Meeting. San Francisco, CA.
2. **Dominguez, F.** and P. Kumar, 2003: Modes of Inter-Annual Variability of Atmospheric Moisture Flux Transport. American Meteorological Society. Long Beach, CA.
3. **Dominguez, F.** and P. Kumar, 2004: Could Atmospheric Storage Play a Significant Role in Regional Precipitation Recycling? American Geophysical Union. San Francisco CA.
4. **Dominguez, F.** and P. Kumar, 2005: Dynamic Precipitation Recycling Model - Small Timescales Reveal new Land/Atmosphere Interactions. American Geophysical Union. San Francisco, CA
5. **Dominguez, F.** P. Kumar, and E. R. Vivoni, 2006: Precipitation Recycling in the North American Monsoon System. NAME SWG-8 Meeting. Tucson, AZ
6. **Dominguez, F.** and P. Kumar, 2006: Understanding Land-Atmosphere Feedbacks through Precipitation Recycling at Daily to Intraseasonal Timescales, American Geophysical Union Meeting. San Francisco, CA.
7. **Dominguez, F.** and P. Kumar, 2007: Land-Atmosphere Feedbacks: Precipitation Recycling In The NAMS Region, American Meteorological Society Meeting. San Antonio, TX.
8. **Dominguez, F.**, J. C. Villegas, D. D. Breshears, 2007: Relocation of Southwestern US Terrestrial Moisture through Atmospheric Pathways American Geophysical Union. San Francisco, CA.
9. **Dominguez, F.**, J. Caon, J. Valdes, 2007: Climate Scenarios for the Southwestern US: Incorporating ENSO Variability Into Downscaled Temperature and Precipitation Projections from GCMs American Geophysical Union Meeting. San Francisco, CA.
10. **Dominguez, F.**, 2008: Climate Change in the Southwest: Bringing Global Model Projections to Local Scenarios. SAHRA Annual Meeting. Tucson, AZ.
11. **Dominguez, F.**, 2009: Looking at Land-Atmosphere Interactions from Two Different Perspectives. University of Arizona, Department of Atmospheric Sciences Seminar, Tucson, AZ.
12. **Dominguez, F.**, C. Castro, H. Chang, 2009: Can Regional Climate Models Improve Warm Season Forecasts in the North American Monsoon Region? American Geophysical Union Meeting. San Francisco, CA.
13. **Dominguez, F.**, Rivera-Fernandez, E. Zhang, X. and Luong, T. and Castro, C., 2011: Extreme Precipitation Events In The NAM Region? Testing A Modified Convective Parameterization Scheme. American Meteorological Society Meeting, Seattle, WA.
14. **Dominguez, F.**, and Rivera, E. and Wi, S. and Lettenmaier, D. P. and Castro, C, 2011: The Changing Character of Winter Precipitation over the Western United States. American Geophysical Union Meeting. San Francisco, CA.
15. **Dominguez, F.**, G. Miguez-Macho, H. Hu, A. Rivera, 2013: Terrestrial and Oceanic Sources of North American Monsoon Moisture: A Multi-Method Approach. American Geophysical Union Fall Meeting, San Francisco, CA.
16. **Dominguez, F.**, G. Miguez-Macho and H. Hu, 2014: Using WRF with Water Vapor Tracers to Study the Moisture Sources for the North American Monsoon. American Geophysical Union Fall Meeting, San Francisco, CA.
17. **Dominguez, F.**, A. Martinez, G. Miguez-Macho, 2016 Impacts of a Groundwater Scheme on Hydroclimatological Conditions over Southern South America. American Geophysical Union Fall Meeting, San Francisco, CA.

My students have given 34 presentations. They are first authors and I am second author in these presentations.

K. Book Reviews (in print or accepted)

N/A

L. Refereed conference papers and presentations

N/A

M. Other

N/A

### III. RESIDENT INSTRUCTION

#### A. Summary of Instruction

##### 1. Descriptive Data

Term	University	Course	Name	Students	Hours	Instructors
SP10	U. Arizona	NATS-101-003	Intro. Weather Climate	150	3	1
FA10	U. Arizona	ATMO-579-001	Boundary Layer and Surface Proc.	12	3	1
SP11	U. Arizona	CE-423/523-001	Hydrology	39	3	1
FA11	U. Arizona	ATMO-451/551A-001	Intro. Physical Meteorology	7	3	1
SP12	U. Arizona	ATMO-170A1-001	Intro. Weather Climate	118	3	1
SP13	U. Arizona	CE-423/523-001	Hydrology	26	3	1
FA13	U. Arizona	ATMO-451/551A-001	Intro. Physical Meteorology	13	3	1
SP14	U. Arizona	ATMO-579-001	Boundary Layer and Surface Proc.	20	3	1
FA14	U. Arizona	ATMO-451/551A-001	Intro. Physical Meteorology	5	3	1
SP15	U. Arizona	ATMO-170A1-001	Intro. Weather Climate	143	3	1
SP16	U. Illinois	ATMS 507	Climate Dynamics	14	3	1
FA16	U. Illinois	ATMS 405	Boundary Layer Processes	7	3	1
SP17	U. Illinois	ATMS 507	Climate Dynamics	22	3	1
FA17	U. Illinois	ATMS 405	Boundary Layer Processes	11	3	1
SP18	U. Illinois	ATMS 507	Climate Dynamics	17	3	1

##### 2. Supervision of Graduate Students

###### **Graduated Ph. D. Students (3)**

<i>Erick R. Rivera</i>	2014	Atmospheric rivers and cool season extreme precipitation events in Arizona
<i>Alejandro Martinez</i>	2015	On the Hydroclimate of Southern South America: Water Vapor Transport and the Role of Shallow Groundwater on Land-Atmosphere
<i>Zhao Yang</i>	2017	Land-Atmosphere Interactions due to Anthropogenic and Natural Changes in the Land Surface: A Numerical Modeling Study

###### **Graduated M.S. Students (7)**

<i>Ryan Fliehman</i>	2012	Examining the Relationship Between Hydroclimatological Variables and High Flow Events
<i>Jacob Meuth</i>	2012	Evapotranspiration Partitioning Using Stable Water Isotopes in a Semi-Arid Evergreen Forest
<i>Maria Cecilia Ro-drignes</i>	2014	Possible influences of Amazon deforestation on the Hydroclimate of South America
<i>Arelis Rivera</i>	2014	A look at water vapor sources for Tucson, AZ during the North American Monsoon season using stable isotope observations
<i>Huancui Hu</i>	2014	Evaluation of Oceanic and Terrestrial Sources of Moisture for the North American Monsoon Using Numerical Models and Precipitation Stable Isotopes
<i>Devon Bracher</i>	2015	Estimating Changes in Atmospheric River-Induced Floods in the Chehalis River Basin
<i>Itinderjot Singh</i>	2016	Extreme Landfalling Atmospheric River Events in Arizona: Possible Future Changes

#### **Current Ph. D. Students (2)**

<i>Huancui Hu</i>	expected 2017	Hydrologic Impacts of Atmospheric Rivers in the Western U.S.
<i>Sujan Pal</i>	expected 2020	Hydroclimatological Modeling of the La Plata River Basin

#### **Current M.S. Students (1)**

<i>Divyansh Chug</i>	expected 2018	Land-atmosphere interactions over South America
<i>Carolina Bieri</i>	expected 2019	Land-Induced Atmospheric Circulation
<i>Sean Matus</i>	expected 2018	Hydrological Impacts of Extreme Precipitation

#### **Graduate Committees Served Upon**

(Univ. of Illinois) (5)

<i>Shijie Shu</i>	2016	Ph.D. Candidate: Quantifying the biogeophysical and biogeochemical influence on permafrost soil organic carbon stability and permafrost carbon cycle feedback
<i>Zach Zobel</i>	2018	Ph.D. Candidate: Evaluations of historical and projected high-resolution dynamically downscaled ensemble over the continental United States.
<i>Emily Hogan</i>	2018	Ph.D. Candidate: How Does Climate Variability Influence Interpretations about Climate Change?
<i>Leila Hernandez</i>	2018	Ph.D. Candidate: Flux Tower Observations in the Critical Zone.
<i>Kunxuan Wang</i>	2018	Ph.D. Candidate: Multifunction Lidar observations of Canopy Structure.

(Univ. of Arizona) (14)

<i>Jennifer Lee May</i>	2010	M.S. Committee
<i>Prafula Pokhrel</i>	2010	Ph.D. Committee
<i>Guillermo Martinez</i>	2010	Ph.D. Committee
<i>Brittany Ciancarelli</i>	2010	M.S. Committee
<i>Seshadri Rajagopal</i>	2011	Ph.D. Committee
<i>Michael Brunke</i>	2012	Ph.D. Comprehensive Exam
<i>Zulia Sanchez</i>	2012	Ph.D. Committee
<i>Carlos Carrillo</i>	2013	Ph.D. Comprehensive Exam

<i>Medhani Hagos</i>	2013	M.S. Committee
<i>Timothy Lahmers</i>	2013	M.S. Committee
<i>Patrick Broxton</i>	2013	Ph.D. Committee
<i>Matthew Switanek</i>	2013	Ph.D. Committee
<i>Thang Luong</i>	2015	Ph.D. Committee
<i>Susan Stillman</i>	2016	Ph.D. Committee

### 3. Supervision of Undergraduate Students

#### *Undergraduates supervised for Capstone Project*

*Amy (Shao Wen) Chen*    Fall 2016    “Possible Future Changes in Atmospheric River Intensity under Climate Change Conditions.”

### 4. Other Contributions to Instructional Programs

Attended two Teaching Workshops: “Using Informal (IEF) and Formal (ICES) Feedback to Improve Teaching and Learning” (Sep 23, 2015) and “Grading Fairly and Efficiently with Rubrics” (Sep 29, 2015).

#### IV. SERVICE (PUBLIC, PROFESSIONAL/DISCIPLINARY, AND UNIVERSITY)

##### A. Summary of Service

###### 1. Public Service

Science Cafe: The Challenges of Monsoon Science. Tucson, AZ. Sep, 2010.

International School of Tucson, Science Club, How hot does it get inside your car? Tucson, AZ. Aug, 2010

Lincoln Trail Elementary 3rd Grade Class, Mahomet IL, class on weather. Oct, 2016

Lincoln Trail Elementary, Mahomet IL, Mentor for Science Olympiad, Spring 2017

Public talk on Climate Change, Pizza M, Urbana, IL. Fall 2017

###### 2. Service to Disciplinary and Professional Societies or Associations

Session Convener “Joint Session Regional Climate Modeling to Improve Climate Variability and Change Projections at the Local Scale III.” 91st AMS Annual Meeting, Seattle, WA 2011.

Session Convener “Climate Extremes: Hydrometeorological Extremes in a Changing Climate: Scales, Impacts, and Implications for Adaptation II.” AGU Fall Meeting, San Francisco, CA. 2011.

Associate Editor Journal of Hydrometeorology. 2012-present.

Session Convener “Regional Climate Modeling to Improve Climate Variability and Change Projections at the Local Scale.” American Meteorological Society Annual Meeting, Austin, TX. 2013.

Member Committee - American Geophysical Union Hydrology Section and Union Awards nominations of under-represented groups. 2013.

Task Committee on Use of Atmospheric Models to Estimate PMP (led by U.S. Army Corps of Engineers). 2014-present

Review Editor in Hydrosphere, part of the journal Frontiers in Earth Science and Built Environment. 2015-present.

American Meteorological Society Hydrology Committee. 2015-present.

Session Convener “Regional climate modeling predicting future changes in extreme precipitation events - Towards More Resilient Engineering Design.” American Meteorological Society Annual Meeting, New Orleans, LA. 2016.

Meeting Organizer “8th European Geophysical Union Leonardo Conference: From evaporation to precipitation: the atmospheric moisture transport” Ourense, Spain. 2016.

Session Convener “Methodology, Evaluation, and Application of Climate Downscaling” American Meteorological Society Annual Meeting, Seattle, WA, 2017.

Session Convener “Monsoons of the Americas: Advancing Understanding and Improving Prediction through Observations and Models” American Meteorological Society Annual Meeting, Austin, TX, 2018.

Manuscript Reviews for the following journals:

- Water Resources Research
- Journal of Hydrometeorology
- Geophysical Research Letters

- Journal of Climate
- Hydrological Sciences Journal
- Hydrology and Earth System Sciences
- Journal of Geophysical Research
- Journal of Arid Environments
- International Journal of Climatology
- Theoretical and Applied Climatology
- Hydrological Processes
- Climate Dynamics

Proposal Review for the following organizations:

- National Science Foundation
- Department of Energy
- Natural Environment Research Council (UK)
- Netherlands Organisation for Scientific Research NOW. Proposal for the Planetary Boundaries Freshwater Cycle.

### 3. Service to the University

University of Illinois:

- Member of the Department of Atmospheric Sciences Graduate Affairs Committee. 2015-2017.
- Search Committee for Sponsored Research Business Analyst, School of Earth, Society and Environment
- Graduate Admissions Committee. 2017-present
- Search Committee for Faculty Director for Diversity and Inclusion. College of Liberal Arts and Sciences.

University of Arizona:

- Co-director of the University of Arizona's Hydrometeorology Program. 2011-2015.
- Executive Committee Global Change GIDP. 2013-2015.
- Search Committee for the Head of Department of Hydrology and Water Resources. 2011.