# DanielShortGianotti

water, energy, carbon, weather & climate


## contact

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## subjects

water-energy-carbon cycle coupling
terrestrial climate feedbacks
climate predictability
stochastic methods
hydroclimatology
remote sensing
ecohydrology

## current position

2016-Present **Postdoctoral Associate** — Massachusetts Institute of Technology
Parsons Laboratory, Department of Civil & Environmental Engineering

## education

2011-2016 **PhD in Geography and Environment** — Boston University
**Dissertation Title:** *The Potential Predictability of Precipitation over the Continental United States*
**Link:** https://open.bu.edu/handle/2144/19726
**Committee:** Bruce T. Anderson (primary advisor), Guido D. Salvucci, Michael C. Dietze, Dara Entekhabi, & Anthony C. Janetos (chair)

1999-2003 **BS in Mathematics** — Harvey Mudd College

## publications & talks

### Manuscripts in Progress

*in prep* **Emergent coupling of terrestrial photosynthesis to turbulent heat partitioning** — Nature Geoscience

Short Gianotti, DJ, KA McColl, AF Feldman, & D Entekhabi, "Emergent coupling of terrestrial photosynthesis to turbulent heat partitioning," *In preparation* for Nature Geoscience.

*in review* **Observed water- and light-limitation across global ecosystems** — Remote Sensing of Environment

Jonard, Francois, AF Feldman, DJ Short Gianotti, & D Entekhabi, "Observed water- and light- limitation across global ecosystems," *In review* to Remote Sensing of Environment.

*in revision* **Observed landscape responsiveness to climate forcing** — Water Resources Research

Feldman, AF, DJ Short Gianotti, IF Trigo, GD Salvucci, & D Entekhabi, "Observed landscape responsiveness to climate forcing," *In revision* to Water Resources Research.

*in review* **Satellite-based assessment of meteorological and agricultural drought in Mainland Southeast Asia** — Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Li, Y, H Lu, D Entekhabi, DJ Short Gianotti, AF Feldman, K Yang, & W Wang, "Satellite-based assessment of meteorological and agricultural drought in Mainland Southeast Asia," *In review* to Journal of Selected Topics in Applied Earth Observations and Remote Sensing.

*in prep* **A kernel-auto-regressive weather generator for improved subseasonal-to-seasonal precipitation statistics** — Journal of Hydrometeorology

Short Gianotti, DJ, GD Salvucci, & BT Anderson, "A kernel-auto-regressive weather generator for improved subseasonal-to-seasonal precipitation statistics," *In preparation* for Journal of Hydrometeorology.
Preprint: https://doi.org/10.1002/essoar.10503866.1

## Published Journal Articles

2021b **A long term spatially and temporally consistent global daily soil moisture dataset derived from AMSR-E/2** — Scientific Data

P Yao, H Lu, J Shi, T Zhao, K Yang, MH Cosh, DJ Short Gianotti, & D Entekhabi (2021), "A long term spatially and temporally consistent global daily soil moisture dataset derived from AMSR-E/2," *In press* in Scientific Data.

2021a **Patterns of plant rehydration and growth following pulses of soil moisture availability** — Biogeosciences

Feldman, AF, DJ Short Gianotti, AG Konings, P Gentine, & D Entekhabi (2021), "Patterns of plant rehydration and growth following pulses of soil moisture availability," Biogeosciences, 18, 831–847, https://doi.org/10.5194/bg-18-831-2021.
Preprint: https://doi.org/10.5194/bg-2020-380

2020e **Landscape-scale plant water content and carbon flux behavior following moisture pulses: from dryland to mesic environments** — Water Resources Research

Feldman, AF, J Chulakadabba, DJ Short Gianotti, & D Entekhabi (2020), "Landscape-scale plant water content and carbon flux behavior following moisture pulses: from dryland to mesic environments," Water Resources Research. https://doi.org/10.1029/2020WR027592

2020d **Historical landscape drainage estimates derived from satellite-era hydrological dynamics** — Water Resources Research

Akbar, R, DJ Short Gianotti, GD Salvucci, & D Entekhabi (2020), "Historical landscape drainage estimates derived from satellite-era hydrological dynamics," Water Resources Research. https://doi.org/10.1029/2020WR027307

2020c **Land-atmosphere drivers of landscape-scale plant water content loss** Geophysical Research Letters

Feldman, AF, DJ Short Gianotti, IF Trigo, GD Salvucci, & D Entekhabi (2020), "Land- atmosphere drivers of landscape-scale plant water content loss," Geophysical Research Letters. https://doi.org/10.1029/2020GL090331

2020b **Value of chlorophyll fluorescence for quantifying hydrological states and fluxes: Current status and challenges** Agricultural and Forest Meteorology

Jonard, F, S DeCannière, N Brüggemann, P Gentine, DJ Short Gianotti, G Lobet, DG Miralles, C Montzka, BR Pagán, U Rascher, & H Vereecken (2020), "Value of chlorophyll fluorescence for quantifying hydrological states and fluxes: Current status and challenges," Agricultural and Forest Meteorology 291. https://doi.org/10.1016/j.agrformet.2020.108088

2020a **Terrestrial evaporation and moisture drainage in a warmer climate** Geophysical Research Letters

Short Gianotti, DJ, R Akbar, AF Feldman, GD Salvucci, & D Entekhabi (2020), "Terrestrial evaporation and moisture drainage in a warmer climate," Geophysical Research Letters, 47. https://doi.org/10.1029/2019GL086498
Preprint: https://doi.org/10.1002/essoar.10501441.1

2019d **Satellite-based assessment of land surface energy partitioning-soil moisture relationships and effects of confounding variables** Water Resources Research

Feldman, AF, DJ Short Gianotti, I Trigo, GD Salvucci, & D Entekhabi (2019), "Satellite-based assessment of land surface energy partitioning-soil moisture relationships and effects of confounding variables," Water Resources Research 55, 10657–10677. https://doi.org/10.1029/2019WR025874

2019c **Landscape water storage and subsurface correlation from satellite surface soil moisture and precipitation observations** Water Resources Research

Short Gianotti, DJ, GD Salvucci, R Akbar, K McColl, & D Entekhabi (2019), "Landscape water storage and subsurface correlation from satellite surface soil moisture and precipitation observations," Water Resources Research 55, 9111–9132. https://doi.org/10.1029/2019WR025332

2019b **Mapped hydroclimatology of evapotranspiration and drainage runoff using SMAP brightness temperature observations and precipitation information** Water Resources Research

Akbar, R, DJ Short Gianotti, GD Salvucci, & D Entekhabi (2019), "Mapped hydroclimatology of evapotranspiration and drainage runoff using SMAP brightness temperature observations and precipitation information," Water Resources Research 55, 3391–3413. https://doi.org/10.1029/2018WR024459

2019a **Satellite and station observations demonstrate water availability's effect on continental-scale evaporative and photosynthetic land surface dynamics** Water Resources Research

Short Gianotti, DJ, AJ Rigden, GD Salvucci, & D Entekhabi (2019), "Satellite and station observations demonstrate water availability's effect on continental-scale evaporative and photosynthetic land surface dynamics," Water Resources Research 55, 540–554. https://doi.org/10.1029/2018WR023726

2018e **Pulse-response vegetation water uptake is persistent across biomes** Nature Plants

Feldman, AF, DJ Short Gianotti, AG Konings, KA McColl, R Akbar, GD Salvucci, & D Entekhabi (2018), "Pulse-response vegetation water uptake is persistent across biomes," Nature Plants 4 (12), 1026–1033. https://doi.org/10.1038/s41477-018-0304-9

2018d **Partitioning evapotranspiration over the continental United States using weather station data** Geophysical Research Letters

Rigden, AJ, GD Salvucci, D Entekhabi, & DJ Short Gianotti (2018), "Partitioning evapotranspiration over the continental United States using weather station data," Geophysical Research Letters 45 (18), 9605–9613. https://doi.org/10.1029/2018GL079121

2018c **Estimation of landscape soil water losses from satellite observations of soil moisture** Journal of Hydrometeorology

Akbar, R, DJ Short Gianotti, KA McColl, E Haghighi, GD Salvucci, & D Entekhabi (2018), "Estimation of landscape soil water losses from satellite observations of soil moisture," Journal of Hydrometeorology 19 (5), 871–889. https://doi.org/10.1175/JHM-D-17-0200.1

2018b **Hydrological storage length- scales represented by remote sensing estimates of soil moisture and precipitation** Water Resources Research

Akbar, R, DJ Short Gianotti, KA McColl, E Haghighi, GD Salvucci, & D Entekhabi (2018), "Hydrological storage length- scales represented by remote sensing estimates of soil moisture and precipitation," Water Resources Research 54 (3), 1476–1492. https://doi.org/10.1002/2017WR021508

2018a **Soil and atmospheric controls on the land surface energy balance: A generalized framework for distinguishing moisture- and energy-limited evaporation regimes** Water Resources Research

Haighighi, E, DJ Short Gianotti, R Akbar, GD Salvucci, & D Entekhabi (2018), "Soil and atmospheric controls on the land surface energy balance: A generalized framework for distinguishing moisture- and energy-limited evaporation regimes," Water Resources Research 53 (3), 1831–1851. https://doi.org/10.1002/2017WR021729

2017b **Global characterization of surface soil moisture drydowns** Geophysical Research Letters

McColl, K, W Wang, B Peng, R Akbar, D Short Gianotti, M Pan, & D Entekhabi (2017), "Global characterization of surface soil moisture drydowns," Geophysical Research Letters 44 (8), 3682–3690. https://doi.org/10.1002/2017GL072819

2017a **Tracking the Pacific Decadal Precession** Journal of Geophysical Research: Atmospheres

Anderson, BT, JC Furtado, E Di Lorenzo, DJ Short Gianotti (2017), "Tracking the Pacific Decadal Precession," Journal of Geophysical Research: Atmospheres 122 (6) 3214–3227. https://doi.org/10.1002/2016JD025962

2016b **Dominant timescales of potentially predictable precipitation variations across the continental United States** Journal of Climate

Anderson, BT, DJ Short Gianotti, GD Salvucci, & J Furtado (2016), "Dominant timescales of potentially predictable precipitation variations across the continental United States," Journal of Climate 29, 8881–8897. https://doi.org/10.1175/JCLI-D-15-0635.1

2016a **A decadal precession of atmospheric pressures over the North Pacific** Geophysical Research Letters

Anderson, BT, DJ Short Gianotti, J Furtado, & E Di Lorenzo (2016), "A decadal precession of atmospheric pressures over the North Pacific," Geophysical Research Letters 43 (8) 3921–3927. https://doi.org/10.1002/2016GL068206

2015c **Detectability of historical trends in station-based precipitation characteristics over the continental United States** Journal of Geophysical Research

Anderson, BT, DJ Short Gianotti, & GD Salvucci (2015), "Detectability of historical trends in station-based precipitation characteristics over the continental United States," Journal of Geophysical Research 120 (10) 4842–4859. https://doi.org/10.1002/2014JD022960

2015b **Changes in Autumn Senescence in Northern Hemisphere Deciduous Trees: a Meta-Analysis of Autumn Phenology Studies** Annals of Botany

Gill, AL, AS Gallinat, R Sanders-DeMott, AJ Rigden, DJ Short Gianotti, JA Mantooth, & PH Templer (2015), "Changes in Autumn Senescence in Northern Hemisphere Deciduous Trees: a Meta-Analysis of Autumn Phenology Studies," Annals of Botany, (Special Issue on Plants and Climate Change) 116, 875–888. https://doi.org/10.1093/aob/mcv055

2015a **Characterizing the potential predictability of seasonal, station- based heavy precipitation accumulations and extreme dry-spell durations** Journal of Hydrometeorology

Anderson, BT, D Gianotti, & G Salvucci (2015), "Characterizing the potential predictability of seasonal, station- based heavy precipitation accumulations and extreme dry-spell durations," Journal of Hydrometeorology 16 (2) 843–856. https://doi.org/10.1175/JHM-D-14-0111.1

2014a **The Potential Predictability of Precipitation Occurrence, Intensity, and Seasonal Totals over the Continental United States** Journal of Climate

Short Gianotti, DJ, BT Anderson, & GD Salvucci (2014), "The Potential Predictability of Precipitation Occurrence, Intensity, and Seasonal Totals over the Continental United States," Journal of Climate 27 (18), 6904–6918. https://doi.org/10.1175/JCLI-D-13-00695.1

2013b **Shifting seasonality and increasing frequency of precipitation in wet and dry seasons across the US** Geophysical Research Letters

Pal, I, BT Anderson, GD Salvucci, & DJ Gianotti (2013), "Shifting seasonality and increasing frequency of precipitation in wet and dry seasons across the US," Geophysical Research Letters 40 (15), 4030–4035. https://doi.org/10.1002/grl.50760

2013a **What Do Rain Gauges Tell Us about the Limits of Precipitation Predictability?** Journal of Climate

Gianotti, D, BT Anderson, & GD Salvucci (2013), "What Do Rain Gauges Tell Us about the Limits of Precipitation Predictability?" Journal of Climate 26 (15), 5682–5688. https://doi.org/10.1175/JCLI-D-12-00718.1

## Conference Presentations

** denotes presenting author*

2019 **Land Surface Fluxes and Hydrologic Sensitivities in a Warmer Climate** American Geophysical Union Fall Meeting

Short Gianotti, DG*, R Akbar, AF Feldman, GD Salvucci & D Entekhabi (2019) "Land Surface Fluxes and Hydrologic Sensitivities in a Warmer Climate," American Geophysical Union Fall Meeting: H54G-08, San Francisco, CA.

2019 **Satellite-based assessment of land surface energy partitioning-soil moisture relationships and effects of confounding variables** American Geophysical Union Fall Meeting

Feldman, AF*, DJ Short Gianotti, IF Trigo, GD Salvucci, & D Entekhabi (2019) "Satellite-based assessment of land surface energy partitioning-soil moisture relationships and effects of confounding variables," American Geophysical Union Fall Meeting: H53F-05, San Francisco, CA.

2019 **The impact of higher-than-radiometer resolution landscape and weather features on SMAP product** — American Geophysical Union Fall Meeting

Li, Y*, H Lu, D Entekhabi, & DJ Short Gianotti (2019) "The impact of higher-than-radiometer resolution landscape and weather features on SMAP product," American Geophysical Union Fall Meeting: H51S-1771, San Francisco, CA.

2019 **Surface-Subsurface Linkages Derived From SMAP Time Series** — SMAP Science Team Meeting

Short Gianotti, DG, GD Salvucci, R Akbar, R Cuenca, & D Entekhabi* (2019) "Surface-Subsurface Linkages Derived From SMAP Time Series," SMAP Science Team Meeting #13, Arcadia, CA.

2019 **Consequences of the Acceleration of Water Cycle on Surface Water Balance Components Using SMAP Observations** — SMAP Science Team Meeting

Short Gianotti, DG, R Akbar, AF Feldman, GD Salvucci, & D Entekhabi* (2019) "Consequences of the Acceleration of Water Cycle on Surface Water Balance Components Using SMAP Observations," SMAP Science Team Meeting #13, Arcadia, CA.

2019 **Decadal Distribution of ET and Drainage Based on SMAP Based Hydrologic Analogues and Historical Precipitation** — SMAP Science Team Meeting

Entekhabi*, D, R Akbar, & DJ Short Gianotti (2019) "Decadal Distribution of ET and Drainage Based on SMAP Based Hydrologic Analogues and Historical Precipitation," SMAP Science Team Meeting #13, Arcadia, CA.

2019 **Seasonal Hydroclimatology of ET and Drainage from SMAP TB and Precipitation** — SMAP Science Team Meeting

Akbar, R, DJ Short Gianotti, GD Salvucci, & D Entekhabi (2019) "Seasonal Hydroclimatology of ET and Drainage from SMAP TB and Precipitation," SMAP Science Team Meeting #13, Arcadia, CA.

2019 **Satellite-Based Assessment of Surface Energy Partitioning Soil Moisture Relationships** — SMAP Science Team Meeting

AF Feldman, DJ Short Gianotti, I Trigo, GD Salvucci, & D Entekhabi (2019) "Satellite-Based Assessment of Surface Energy Partitioning Soil Moisture Relationships," SMAP Science Team Meeting #13, Arcadia, CA.

2019 **Estimating Surface Soil Moisture from AMSR2 TB with Artificial Neural Network Method and SMAP Products** — IEEE Geoscience and Remote Sensing Society

Yao, P*, H Lu, S Yue, F Yang, H Lyu, K Yang, KA McColl, DJ Short Gianotti, & D Entekhabi (2019) "Estimating Surface Soil Moisture from AMSR2 TB with Artificial Neural Network Method and SMAP Products," IEEE Geoscience and Remote Sensing Society: Paper #2869, Yokohama, Japan.

2018 **Hydrologic length scale of L-band radiometric soil moisture retrievals** — American Geophysical Union Fall Meeting

Short Gianotti, DG*, GD Salvucci, KA McColl, R Akbar, & D Entekhabi (2018) "Hydrologic length scale of L-band radiometric soil moisture retrievals," American Geophysical Union Fall Meeting: H42G-02, Washington, DC.

2018 **Water Exchange Patterns in the Soil-Plant Continuum Based on SMAP Microwave Satellite Measurements** — American Geophysical Union Fall Meeting

Feldman, AF*, DJ Short Gianotti, AG Konings, KA McColl, R Akbar, GD Salvucci, & D Entekhabi (2018) "Water Exchange Patterns in the Soil-Plant Continuum Based on SMAP Microwave Satellite Measurements," American Geophysical Union Fall Meeting: B53D-06, Washington, DC.

2018 **Estimating Surface Soil Moisture from AMSR2 TB with Machine Learning Methods and SMAP Products** — American Geophysical Union Fall Meeting

Lu, H, F Yang, H Lyu, K Yang*, KA McColl, DJ Short Gianotti, & D Entekhabi (2018) "Estimating Surface Soil Moisture from AMSR2 TB with Machine Learning Methods and SMAP Products," American Geophysical Union Fall Meeting: H51W-1649, Washington, DC.

2018 **Partitioning evapotranspiration over the continental United States using SMAP observations and weather station data** — American Geophysical Union Fall Meeting

Salvucci, GD*, AJ Rigden, D Entekhabi, & DJ Short Gianotti (2018) "Partitioning evapotranspiration over the continental United States using SMAP observations and weather station data," American Geophysical Union Fall Meeting: H41F-01, Washington, DC.

2018 **Water Use Efficiency Dependence on Soil Moisture** — Science Utilization of SMAP Meeting

Short Gianotti, DJ, GD Salvucci, AJ Rigden, & D Entekhabi (2018) "Water Use Efficiency Dependence on Soil Moisture," Science Utilization of SMAP Meeting #2, Arcadia, CA.

2018 **Water Exchange Patterns in the Soil-Plant Continuum Based on SMAP Microwave Satellite Measurements** — Science Utilization of SMAP Meeting

Feldman, AF*, DJ Short Gianott, AG Konings, KA McColl, R Akbar, GD Salvucci, & D Entekhabi (2018) "Water Exchange Patterns in the Soil-Plant Continuum Based on SMAP Microwave Satellite Measurements," Science Utilization of SMAP Meeting #2, Arcadia, CA.

2018 **Linkages between water, energy and carbon cycles revealed by SMAP** — SMAP End of Prime Mission Science Meeting

Short Gianotti, DJ, GD Salvucci, AJ Rigden, & D Entekhabi* (2018) "Linkages between water, energy and carbon cycles revealed by SMAP," SMAP End of Prime Mission Science Meeting, Jet Propulsion Laboratory, Pasadena, CA.

2018 **Estimation of ecosystem-scale soil water losses from satellite observations of soil moisture** — SMAP End of Prime Mission Science Meeting

Akbar, R, Short Gianotti, DJ*, K McColl, E Haghighi, GD Salvucci, & D Entekhabi (2018) "Estimation of ecosystem- scale soil water losses from satellite observations of soil moisture," SMAP End of Prime Mission Science Meeting, Jet Propulsion Laboratory, Pasadena, CA.

2017 **Effects of water availability through the coupled land-atmosphere system** — American Geophysical Union Fall Meeting

Short Gianotti, DJ*, AJ Rigden, GD Salvucci, & D Entekhabi (2017) "Effects of water availability through the coupled land-atmosphere system," American Geophysical Union Fall Meeting: H12G-07, New Orleans, LA.

2017 **What determines transitions between energy- and moisture-limited evaporative regimes?** — American Geophysical Union Fall Meeting

Haghighi, E*, Short Gianotti, DJ, R Akbar, GD Salvucci, & D Entekhabi (2017) "What determines transitions between energy- and moisture-limited evaporative regimes?" American Geophysical Union Fall Meeting: H44C-07, New Orleans, LA.

2017 **Soil moisture (SMAP) and vapor pressure deficit controls on evaporation fraction over the Continental U.S.** — American Geophysical Union Fall Meeting

Salvucci, GD*, AJ Rigden, DJ Short Gianotti, & D Entekhabi (2017) "Soil moisture (SMAP) and vapor pressure deficit controls on evaporation fraction over the Continental U.S.," American Geophysical Union Fall Meeting: H12G-01, New Orleans, LA.

2017 **Soil moisture controls on water/energy/carbon coupling** — Science Utilization of SMAP Meeting

Short Gianotti, DJ*, AJ Rigden, GD Salvucci, & D Entekhabi (2017) "Soil moisture controls on water/energy/carbon coupling," Science Utilization of SMAP Meeting, Cambridge, MA.

2017 **Estimation of ecosystem-scale soil water losses from satellite observations of soil moisture** — Science Utilization of SMAP Meeting

Akbar, R*, DJ Short Gianotti, E Haighighi, GD Salvucci, & D Entekhabi (2017) "Estimation of ecosystem-scale soil water losses from satellite observations of soil moisture," Science Utilization of SMAP Meeting, Cambridge, MA.

2017 **The Science Applications of SMAP** — Science Utilization of SMAP Meeting

Entekhabi, D*, SMAP Science Team, DJ Short Gianotti, Akbar, R, AJ Rigden, GD Salvucci, & JS Kimball (2017) "The Science Applications of SMAP," Science Utilization of SMAP Meeting, Cambridge, MA.

2016 **Soil Moisture Controls on Evaporative Fraction** — American Geophysical Union Fall Meeting

Short Gianotti, DJ*, AJ Rigden, GD Salvucci, & D Entekhabi (2016) "Soil Moisture Controls on Evaporative Fraction," American Geophysical Union Fall Meeting: H24C-03, San Francisco, CA.

2015 **California Drought, Weather Variability, and Climate Variability** — AGU Chapman Conference on California Drought: Causes, Impacts, and Policy

Short Gianotti, DJ*, GD Salvucci, & BT Anderson (2015) "California Drought, Weather Variability, and Climate Variability," AGU Chapman Conference on California Drought: Causes, Impacts, and Policy, Irvine CA.

2014 **Characterizing weather and climate variability for precipitation: A data-based stochastic modeling framework** — American Geophysical Union Fall Meeting

Short Gianotti, DJ*, BT Anderson, & GD Salvucci (2014) "Characterizing weather and climate variability for precipitation: A data-based stochastic modeling framework," American Geophysical Union Fall Meeting, San Francisco CA.

2014 **Stochastic analysis of California's recent precipitation drought in the context of the last one hundred years** — American Geophysical Union Fall Meeting

Short Gianotti, DJ*, BT Anderson, & GD Salvucci (2014) "Stochastic analysis of California's recent precipitation drought in the context of the last one hundred years," American Geophysical Union Fall Meeting, San Francisco CA.

2014 **Integrating satellite and tower phenology: a case-study in real-time ecological forecasting** — American Geophysical Union Fall Meeting

Dietze, M*, HE Emery, D Gergel, D Gianotti, JA Mantooth, & AJ Rigden (2014), "Integrating satellite and tower phenology: a case-study in real-time ecological forecasting" American Geophysical Union Fall Meeting, San Francisco CA.

2014 **Predicting phenology: A case-study in real-time ecological forecasting** — Ecological Society of America Annual Meeting

Dietze, M*, HE Emery, D Gergel, D Gianotti, JA Mantooth, & AJ Rigden (2014), "Predicting phenology: A case-study in real-time ecological forecasting," Ecological Society of America Annual Meeting, Sacramento CA.

2013 **Potential Predictability of Precipitation: Occurrence or Intensity?** — Climate Diagnostic and Prediction Workshop

Gianotti, DJ*, BT Anderson, & GD Salvucci (2013), "Potential Predictability of Precipitation: Occurrence or Intensity?" 38th Climate Diagnostic and Prediction Workshop, College Park MD.

2012 **Establishing Potential Predictability of U.S. Precipitation Using Rain Gauge Data** — Climate Diagnostic and Prediction Workshop

Gianotti, DJ*, BT Anderson, & GD Salvucci (2012), "Establishing Potential Predictability of U.S. Precipitation Using Rain Gauge Data," 37th Climate Diagnostic and Prediction Workshop, Fort Collins CO.

2012 **Magnitude and significance of observed trends in precipitation frequency over the U.S.** — Climate Diagnostic and Prediction Workshop

Pal, I*, BT Anderson, G Salvucci, & D Gianotti (2012), "Magnitude and significance of observed trends in precipitation frequency over the U.S.," 37th Climate Diagnostic and Prediction Workshop, Fort Collins CO.

2012 **Historical expansion of the summertime monsoon over the southwestern United States: What can regional models tell us about its causes?** — Regional Spectral Modeling Workshop

Anderson, BT*, D Gianotti, & GD Salvucci (2012), "Historical expansion of the summertime monsoon over the southwestern United States: What can regional models tell us about its causes?" Regional Spectral Modeling Workshop, Scripps Institution of Oceanography, San Diego CA.

2012 **Magnitude and significance of observed trends in precipitation frequency over the U** — American Geophysical Union Fall Meeting

Pal, I*, BT Anderson, G Salvucci, & D Gianotti (2012), "Magnitude and significance of observed trends in precipitation frequency over the US," American Geophysical Union Fall Meeting, San Francisco CA.

2011 **Stochastic and deterministic aspects of observed seasonal-mean precipitation variations and extreme event occurrences over the United States** — American Geophysical Union Fall Meeting

Gianotti, D*, BT Anderson, & G Salvucci (2011), "Stochastic and deterministic aspects of observed seasonal-mean precipitation variations and extreme event occurrences over the United States," American Geophysical Union Fall Meeting, San Francisco CA.

2011 **Detection of historical summertime monsoon precipitation variations and trends over the southwestern United States** — WCRP Open Science Conference

Anderson, BT*, D Gianotti, & GD Salvucci (2011), "Detection of historical summertime monsoon precipitation variations and trends over the southwestern United States," WCRP Open Science Conference, Denver CO.

2011 **Detection of historical precipitation variations and trends over the continental United States** — Department of Energy Principal Investigators Meeting

Anderson, BT*, D Gianotti, & GD Salvucci (2011), "Detection of historical precipitation variations and trends over the continental United States," Department of Energy Principal Investigators Meeting, Washington DC.

2007 **Upgrades to a wastewater lagoon treatment system in a rural sub- Arctic community in Alaska** — International Symposium on Cold Region Development

Schubert, DH*, DJ Gianotti, & K Sauers (2007), "Upgrades to a wastewater lagoon treatment system in a rural sub- Arctic community in Alaska," International Symposium on Cold Region Development, Tampere Finland.

2007 **Application of a Thermal-hydraulic Model to Analyze and Design a Circulating Water System in Alaska** — International Symposium on Cold Region Development

Schubert, DH*, DJ Gianotti, & G Jones (2007), "Application of a Thermal-hydraulic Model to Analyze and Design a Circulating Water System in Alaska," International Symposium on Cold Region Development, Tampere Finland.

2005 **Wastewater treatment lagoon design in rural Alaska** — Alaska Water and Wastewater Management Association

Gianotti, DJ*, C Woolard, & D White (2005),"Wastewater treatment lagoon design in rural Alaska," 45th Alaska Water and Wastewater Management Association Annual Statewide Conference, Juneau AK.

## Invited Talks, Seminars, and Non-Conference Presentations

** denotes presenting author*
*† denotes student advisee*
*‡ denotes invited talk*

2020 **Climatic Changes in Land Surface Evaporation and Drainage to Streams** — Parsons Laboratory, MIT

Short Gianotti, DJ*, R Akbar, AF Feldman, GD Salvucci, D Entekhabi (2020) "Climatic Changes in Land Surface Evaporation and Drainage to Streams," Ralph M. Parsons Laboratory Remote Environmental Science Seminar Series, Massachusetts Institute of Technology.

2020 **Thirsty plants: Tracking their water uptake from space** — Parsons Laboratory, MIT

Feldman, AF*, DJ Short Gianotti, AG Konings, P Gentine, D Entekhabi (2020) "Thirsty plants: Tracking their water uptake from space," Ralph M. Parsons Laboratory Remote Environmental Science Seminar Series, Massachusetts Institute of Technology.

2020 **Water limitation and vegetation response** — Arnold Arboretum, Harvard University

Short Gianotti, DJ*‡ (2020) "Water limitation and vegetation response," Arnold Arboretum of Harvard University Research Talks Series, Arnold Arboretum.

2019 **Water availability controls on vegetated ecosystems** — Massachusetts Institute of Technology

Short Gianotti, DJ* (2019) "Water availability controls on vegetated ecosystems," Ralph M. Parsons Laboratory Environmental Science Seminar Series, Massachusetts Institute of Technology.

2019 **Impacts of Soil Moisture on Ecosystem Carbon and Water Exchanges** — Massachusetts Institute of Technology

Toft*†, N, N Lutz*†, DJ Short Gianotti, & D Entekhabi (2019) "Impacts of Soil Moisture on Ecosystem Carbon and Water Exchanges," Civil & Environmental Engineering Mini-UROP Presentations, Massachusetts Institute of Technology.

2016 **The Potential Predictability of Precipitation over the Continental United States** — Boston University

Short Gianotti, DJ* (2016) "The Potential Predictability of Precipitation over the Continental United States," Dissertation Defense, Boston University.

2015 **Weather models for climate variability** — Boston University

Gianotti, DJ* (2015) "Weather models for climate variability," Dept. of Earth & Env. Graduate Student Presentations, Boston University.

2014 **Real weather, fake weather, and the California Drought** — Boston University

Gianotti, DJ* (2014) "Real weather, fake weather, and the California Drought," Dept. of Earth & Env. Graduate Student Presentations, Boston University.

2012 **How predictable is rain?** — Boston University

Gianotti, DJ* (2012) "How predictable is rain?" Dept. of Geography & Env. Graduate Student Presentations, Boston University.

2012 **Stochastic and deterministic aspects of observed seasonal-mean precipitation variations and extreme event occurrences over the United States** — Boston University

Gianotti, D*, BT Anderson, & G Salvucci (2012), "Stochastic and deterministic aspects of observed seasonal-mean precipitation variations and extreme event occurrences over the United States," Science and Engineering Research Symposium, Boston University.

## Non-Refereed Research Documents

2007 **Upgrades to a wastewater lagoon treatment system in a rural sub-Arctic community in Alaska** — International Symposium on Cold Region Development

Schubert, DH, DJ Gianotti, & K Sauers (2007), "Upgrades to a wastewater lagoon treatment system in a rural sub-Arctic community in Alaska," Proceedings of the 8th International Symposium on Cold Region Development.

2007 **Application of a Thermal-hydraulic Model to Analyze and Design a Circulating Water System in Alaska** — International Symposium on Cold Region Development

Schubert, DH, DJ Gianotti, & G Jones (2007), "Application of a Thermal-hydraulic Model to Analyze and Design a Circulating Water System in Alaska," Proceedings of the 8th International Symposium on Cold Region Development.

2005 **Waste Stabilization Pond Design and Performance Study** — Alaska Department of Environmental Conservation

Woolard, C, D Gianotti, K Hardie, D White, & A Pinto (2005), "Waste Stabilization Pond Design and Performance Study," Prepared for the Alaska Department of Environmental Conservation.

2003 **Fluid drop coalescence in a Hele-Shaw cell** — Harvey Mudd College

Gianotti, DJ (2003), "Fluid drop coalescence in a Hele-Shaw cell," Undergraduate Mathematics Thesis, Advised by A Nadim, *Harvey Mudd College*.

2002 **Internal metrology for the Space Interferometry Mission** — NASA-JPL

Lampe, K, K Hultman, K Hedstrom, D Gianotti, E Deyo, & R Seat (2002), "Internal metrology for the Space Interferometry Mission," Undergraduate Physics Clinic Report, Advised by R Haskell, D MacDonald, & B Nemati, *Harvey Mudd College & NASA-JPL*.

## published software packages

2016 **Occurrence Markov Chain daily precipitation model**

Short Gianotti, DJ (2016) "Occurrence Markov Chain daily precipitation model," http://github.com/dgianotti/OMC-precip,DOI:10.5281/zenodo.45435.

## appointments held

2016-Present **Postdoctoral Associate** — Massachusetts Institute of Technology

2011-2015 **Research Assistant** — Boston University

2011 **Math Teacher** — Boston Public Schools

2004-2010 **Tutor** — Private Practice

2007-2008 **Lab Technician** — California Institute of Technology

2005-2006 **Environmental Engineering Associate** — GV Jones & Associates

2004-2005 **Research Assistant** — University of Alaska, Anchorage

| | | |
|---|---|---|
| 2003-2005 | **Substitute Teacher** | Anchorage School District |
| 2004 | **Staff** | National Youth Science Camp |
| 2001-2003 | **Writing Consultant** | Harvey Mudd College |
| 2002 | **Research Assistant** | Lawrence Berkeley National Lab |

# teaching

## Teaching Fellow:

| | | |
|---|---|---|
| 2015 | **Introduction to Quantitative Environmental Modeling** | Boston University |

## Guest Lecturer:

| | | |
|---|---|---|
| 2016-2018 | **Introduction to Hydrology and Water Resources** | Massachusetts Institute of Technology |
| 2017 | **Introduction to Hydrologic Modeling** | Massachusetts Institute of Technology |

## K-12 Instruction:

| | | |
|---|---|---|
| 2010-2011 | **High school mathematics** | Boston Public Schools |
| 2004-2006 | **Substitute Teacher**<br>All subjects, all ages | Anchorage School District |

## Private Tutoring:

| | |
|---|---|
| 2002-2010 | **Math, physics, writing through advanced undergraduate** |
| 2006-2010 | **Chemistry, biology through introductory undergraduate** |
| 2006-2010 | **All subjects through advanced secondary** |

# mentorship

## Thesis Committee Member:

2018-2019 **Apisada (Ju) Chulakadabba** MIT Civil & Environmental Engineering
*Integration of Satellite and In-situ Data for the Study of Vegetation Responses to Precipitation Pulses in the Southwestern United States*

## First-year Mini-UROP:

2019 **Nicole Toft** MIT Civil & Environmental Engineering
*Impacts of Soil Moisture on Ecosystem Carbon and Water Exchanges*

2019 **Naomi Lutz** MIT Civil & Environmental Engineering
*Impacts of Soil Moisture on Ecosystem Carbon and Water Exchanges*

### Undergraduate UROP:

2019 **Nicole Toft** MIT Civil & Environmental Engineering
*Land-atmosphere interactions at the inter-storm scale*

## professional development

2015 **ComSciCon 2015** Harvard University
Communicating Science Workshop

## professional service

### Non-Journal Reviews

2020 **Sixth Assessment Report** Intergovernmental Panel on Climate Change

Second Order Draft for Working Group I (WGI)

2018 **Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse gas fluxes in Terrestrial Ecosystems** Intergovernmental Panel on Climate Change

First Order Draft for US Global Change Research Program

### Journal Reviews

Bulletin of the American Meteorological Society
Hydrology and Earth System Sciences
Journal of Hydrometeorology
International Journal of Climatology
Remote Sensing of Environment
Geophysical Research Letters
Biogeosciences

### Memberships & Research Communities

American Geophysical Union
Boston Water Group
Boston Area Hydrology Journal Club
Harvard Plants & Climate