

GUIDO DANIEL SALVUCCI

Department of Earth and Environment
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Principal Fields of Interest:

Vadose zone hydrology: land surface water and energy balance processes; groundwater-vadose zone interactions; analytical descriptions of infiltration, drainage and evaporation processes.

Remote sensing: estimation of evapotranspiration and water budget at large scales;

Stochastic hydrology: spatial and temporal aggregation and disaggregation of hydrologic fields; measurement-model scale discrepancies; hypothesis testing in land-atmosphere interactions.

Hydroclimatology: coupled atmospheric water and energy balance processes

Education:

Ph.D., Department of Civil and Environmental Engineering (Hydrology). Massachusetts Institute of Technology, Cambridge, Massachusetts. May, 1994. Thesis Title: Hillslope and Climatic Controls on Hydrologic Fluxes. Thesis Advisor: Dara Entekhabi

M.S., Department of Civil and Environmental Engineering (Hydrology and Hydroclimatology). Massachusetts Institute of Technology, Cambridge, Massachusetts. 1992.

B.S., Department of Applied Science (Atmospheric Fluid Dynamics). New York University, New York, New York. 1989

B.E., Department of Civil Engineering (Water Resources and Hydrology). The Cooper Union for the Advancement of Arts and Science, New York, New York. 1989

Employment:

Professor, Department of Earth and Environment,
Boston University, Boston, Massachusetts, July, 2012 – present.

Professor, Joint Appointment in the Departments of Geography and Earth Science,
Boston University, Boston, Massachusetts, September, 2005 – July, 2012.

Associate Professor, Joint Appointment in the Departments of Geography and Earth Science, Boston University, Boston, Massachusetts, September, 2000 – August, 2005.

Assistant Professor, Joint Appointment in the Departments of Geography and Earth Science,
Boston University, Boston, Massachusetts, September, 1994 – August, 2000

Awards and Honors:

James B. Macelwane Medal of the American Geophysical Union, 2003.

Fellow of the American Geophysical Union, 2003.

Editor's Award, Journal of Hydrometeorology, American Meteorological Society, 2005.

Dean's Teaching Recognition Award, College of Arts and Sciences, 2000.

Recipient of National Aeronautics and Space Administration New Investigator Program grant, 1996.

Visiting Appointments:

Visiting Scholar, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts. 2000, 2011, 2018

Lecturer, Vadose Zone Hydrology: Issues at the Boundary Between Groundwater and Surface Water, Short Course, June, 1998, Institute of Hydraulics, University of Perugia, Italy.

Visiting Researcher, CSIRO Division of Water Resources, Canberra, ACT, AU, July-August, 1995.

Teaching Experience:

Water Resources and Environment, Department of Geography, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Introduction to Hydrogeology and Aquatic Chemistry, Department of Earth Sciences, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Terrestrial Biogeosciences Seminar and Practicum, Department of Earth and Environment, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Models for Hydrologic Analysis, Department of Geography, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Dynamic Landsurface Hydrology, Departments of Earth Sciences and Geography, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Introduction to Quantitative Environmental Modeling, Department of Geography, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Geodynamics of the Earth II: Fluids and Fluid Transport, Departments of Earth Sciences Geography, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Land Atmosphere Interactions, Lecturer on Surface Hydrology, June 22 – July 1, 2015, Alpine Summer School, Valle d'Aosta, Italy.

Data, Models and Analysis in Earth and Environment, Departments of Earth and Environment, College of Arts and Sciences, Boston University, Boston, Massachusetts.

Academic Service:

Chair, Department of Earth and Environment, Boston University, College of Arts and Sciences, July 2020-present

Interim Chair, Department of Earth and Environment, Boston University, College of Arts and Sciences, July 2019-2020

College Appointment, Promotion and Tenure Committee, Boston University, College of Arts and Sciences, September 2002- December 2002; September 2014-May 2015; September 2015-May 2016; September 2016-May 2017

Chair, College Appointment, Promotion and Tenure Committee, Boston University, College of Arts and Sciences, September 2016-May 2017

Member, Vision Committee, Department of Earth and Environment, 2012.

Chair, Department of Earth Sciences, Boston University, College of Arts and Sciences, September 2005- August 2010.

Co-Chair, Certificate Ph.D. Program in Terrestrial Biogeosciences offered by the departments of Geography and Environment, Earth Sciences, and Biology, September 2009-present

Associate Chair, Department of Geography, Boston University, College of Arts and Sciences, September, 2003- August, 2005.

University Appointment, Promotion and Tenure Committee, Boston University, June 2004- May 2005.

Academic Policy Committee, Boston University, College of Arts and Sciences, September 1995- August 1997

Environmental Science Faculty Advisory Committee, Center for Energy and Environmental Studies, Boston University, Boston, Massachusetts, September 1994-present.

Various Committees (Searches, Curriculum, Library etc), Departments of Earth Sciences and Geography, Boston University, College of Arts and Sciences, September 1994-present

Professional Service:

Editorial:

Editor for *AMS's Journal of Hydrometeorology*, 1/1/2008-12/31/2010.

Associate Editor for *AMS's Journal of Hydrometeorology*, 12/31/2010-4/1/2012.

Associate Editor for *AGU's Water Resources Research*, 1998-2001.

Editorial Board for *Advances in Water Resources*, 2000-2020

Advisory Panels and Committees:

Workshop Member, Vegetation-Precipitation Coupling in the Tropics: Challenges and Opportunities, *Organization for Tropical Studies*, La Selva Biological Station, Costa Rica, March, 2015.

Workshop Member, Community Modeling and Long-Term Predictions of the Regional-Scale Integrated Water Cycle, *Department of Energy*, September, 2012

Committee Member, 'Committee on Strategic Advice on the U.S. Climate Change Science Program, *National Research Council*, 2006-2009.

Panelist, "Review of GEWEX Americas Prediction Project (GAPP) Science and Implementation Plan", workshop held by the *National Research Council* Board of Atmospheric Sciences and Climate, March-June, 2005.

Panelist, "Groundwater Fluxes Across Interfaces", workshop held by the *National Research Council* Committee on Hydrologic Sciences, Egg Harbor Wisconsin, 5/12/2002-5/15/2002.

Fellows Selection Committee of the Hydrology Section of the *American Geophysical Union*, 2004 – 2006

Editorial Search Committee for *Journal of Geophysical Research D* of the *American Geophysical Union*, 2004

Science Steering Group, NASA Water Cycle Initiative, July 2001-July 2002.

Surface Water Committee of the Hydrology Section of the *American Geophysical Union*, July 1994 - present

Committee on Hydrologic Science, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), 2002.

Working Group and chair of science subcommittee for the NSF initiated Consortium for Hydrologic Research, Jan-March 2001.

Review Panels:

Proposal Review Panel *National Oceanic and Atmospheric Administration, Climate Prediction Program for the Americas* (December 2009)

Proposal Review Panel *National Aeronautics and Space Administration, Terrestrial Hydrology Program* (September 2008)

Proposal Review Panel *National Science Foundation Earth Sciences Division, Hydrology Program* (Twice per year, 2003-2005)

Proposal Review Panel *National Aeronautics and Space Administration GEWEX panel* (1997)

Special Sessions Chaired:

Chair of special session: “Scaling in time and space, methodological approaches”, at the Catchment Scale Hydrologic Modeling and Data Assimilation Workshop, Princeton University, Princeton, NJ, October 26, 2004

Scientific Technical Committee and Session Chair for AGU Chapman Conference *State-of-the-Art in Hillslope Hydrology*, Sunriver Oregon, October 8-12, 2001

Co-Convener and Co-Chair of special session: Diagnosing and Modeling Rate-Limiting Processes in Soil Hydrology, at the Spring 2000 meeting of the *American Geophysical Union*

Co-Convener and Co-Chair of special session: Sources of variation of soil moisture, at the Spring 1998 meeting of the *American Geophysical Union*

Chair of special session: Coupled land and atmospheric processes, at the 13th Conference on Hydrology at the February 1997 annual meeting of the *American Meteorological Society*

Co-Convener and Co-Chair of special session: The role of unchanneled flows, soil moisture content, and rain variability in the formation of floods, at the Spring 1995 meeting of the *American Geophysical Union*

Manuscript Reviewer: *Water Resources Research, American Society of Civil Engineers Journal of Irrigation and Drainage Engineering, Geophysical Research Letters, Advances in Water Resources, Geology, Journal of Coastal Research, Agricultural and Forest Meteorology, United States Geological Survey Water Resources Division Manuscript Reviews, Hydrological Processes, Journal of Hydrometeorology, Journal of Geophysical Research Atmospheres, Journal of Hydrology, Groundwater, Transport in Porous Media.*

Proposal Reviewer: *National Science Foundation, National Aeronautics and Space Administration, and National Oceanic and Atmospheric Administration, U. S. Army Research Office*

Professional Accreditation:

Engineer in Training, New York State. 1989

Professional Society Affiliation:

American Geophysical Union

American Meteorological Society

Graduate Student Advisees (First Reader)

completed:

Michael R. Ravella, M.A., 1998.: Thesis Title: Field Observations of the Relation Between Near Surface Soil Moisture and the Similar Media Parameter Alpha. (Currently Consultant)

Etsuko Amano, M.A., 1997.: Thesis Title: Estimation of Interstorm Soil-Limited Evaporation over Bare and Sparsely Vegetated Surfaces Using Remote Sensing.

Thambirajah Saravanapavan, MA, 1999.: Thesis Title: Analysis of rate-limiting processes in soil evaporation with implications for soil resistance models. (Currently Consultant)

John B. Levine, Ph.D., 2002: Thesis Title: Coupled saturated-unsaturated zone modeling of hydrologic processes (Currently Consultant)

Hideki Kanamaru, Ph.D., 2002: Thesis Title: Diagnostic Study of Atmospheric Water and Energy Budgets from Observations and Atmospheric General Circulation Models. (Currently Climate Modeling Officer at United Nations Food and Agricultural Organization)

Vania Toninelli, Ph.D., 2003: (co-advised) Student at Polytechnic Institute of Milan:
Thesis Title: Parameter Estimation of Water Balance Models.

Jennifer Saleem, Ph.D., 2005: Thesis Title: Observational analyses of hydrologic scaling: The roles of heterogeneity and non-local interaction as inferred from soil moisture and precipitation data. (Currently Assistant Professor at East Carolina University, Department of Geography)

Mutlu Ozdogan, Ph.D., 2005: The effect of irrigation on the regional hydroclimatology of southern Turkey. (Currently Assistant Professor at University of Wisconsin, Department of Forest Ecology and Management)

Corey Pettijohn, Ph.D., 2008: Thesis Topic: Land-atmosphere evaporation feedback processes. (Currently Postdoctoral Research Associate at Oregon State University)

Jian Sun, Ph.D., 2011: Thesis Topic: Parameter Estimation of Coupled Water and Energy Balance Model Based on Stationary Constraints on Temperature and Moisture.

Sam Tuttle, MA, 2011: A Model for Estimating Evapotranspiration at the Watershed Scale

Sam Tuttle, Ph.D., 2015: Interrelation between Soil Moisture and Precipitation at Large Scales, Inferred from Satellite Observations

Daniel Gianotti, Ph.D., 2016: Potential Predictability of Precipitation over the Continental United States

Angela Rigden, Ph.D., 2017: Sources of variation in 20th Century Evapotranspiration

current:

Kyounggho Ryu, Ph.D. Expected August 2024: Coupled Land-Boundary Layer Processes

Principal-Investigator Proposals:

Salvucci, G.D, Explaining observed soil moisture-PI precipitation feedbacks using SMAP and cloud-topped mixed layer models, *National Aeronautics and Space Administration, Terrestrial Hydrology Program*, 9/9/2020-9/8/2024, \$403,617

Salvucci, G.D, An exploration of multi decadal, continental scale evapotranspiration inferred from weather data, *National Science Foundation, Hydrologic Sciences Program*, \$333,635, 2/15/15-2/14/18

Salvucci, G.D, A New Approach for Validating Satellite Estimates of Soil Moisture, *National Aeronautics and Space Administration, Terrestrial Hydrology Program*, 8/16/12-8/15/016, \$297,424

Salvucci, G.D (BU-PI) and D. Entekhabi (MIT-PI), Estimation of evaporation efficiency linking water and energy balance based on remotely sensed measurements, *National Aeronautics and Space Administration (NEWS program)*, 5/1/06-4/31/09, \$599,434 (BU portion \$ 269,285)

Salvucci, G.D., New scale appropriate diagnostics for evaluating land surface parameterizations and water balance using remotely sensed data, *National Aeronautics and Space Administration (GWEC)* 2/15/02-2/14/05, \$280,000.

Salvucci, G.D., C. Woodcock, M.A. Friedl, and B. Anderson, The effects of agricultural expansion on regional hydrology in Southeastern Turkey, *National Aeronautics and Space Administration (LCLUC)* 8/15/01-8/14/04, \$541,982.

Salvucci, G.D., Scale dependence in water balance sensitivity to soil moisture, *National Science Foundation, Division of Earth Sciences, Hydrologic Sciences Program*, 8/1/00-7/31/03, \$184,616, Sole-Principal Investigator

Salvucci, G.D., Direct estimation of the form and scale-dependence of soil moisture control on land surface water balance, *National Aeronautics and Space Administration Land Surface Hydrology Program*, 8/1/99-7/31/00, \$50,000, Sole-Principal Investigator

Salvucci, G.D., Thermal and hydrologic signatures of soil controls on evaporation: A combined water and energy balance approach with implications for remote sensing of evaporation, *National Aeronautics and Space Administration, Mission to Planet Earth*, 7/1/96-6/30/00, \$286,917, Sole-Principal Investigator

Salvucci, G.D., Integrated modeling of groundwater, unsaturated zone, and surface hydrologic processes over prairie topography, *National Science Foundation, Division of Earth Sciences, Hydrologic Sciences Program*, 8/1/97-7/31/99, \$51,412, Sole-Principal Investigator

Salvucci, G.D., Direct use of satellite remote sensing in the estimation of hydrologic transports, *National Aeronautics and Space Administration* 5/1/98-4/31/01, \$131,000, Boston University Principal Investigator, Project is Parallel Submission with D. Entekhabi, Principal Investigator and R.L. Bras, Co-Investigator, at Massachusetts Institute of Technology,

Funded Co-Investigator Proposals:

Anderson, B., and G.D. Salvucci, Inherent Predictability of Observed Seasonal Mean Precipitation Variations Over the Continental United States, *National Science Foundation, Division of Atmospheric and Geospace Sciences, Climate and Large-scale Dynamics Program*, \$405,249, 9/1/2010-8/31/2013

Anderson, B., and G.D. Salvucci, Detection of historical and future precipitation variations and extremes over the continental United States, *Department of Energy*, \$484,944, 9/1/2011-8/31/2014

Phillips, N., G.D. Salvucci and M.A. Friedl, Vegetation Control of Ecohydrologic Processes, *National Science Foundation, Division of Earth Sciences, Water Cycle Program*, 1/1/03-12/31/05, \$338,412.

Anderson, B., and G.D. Salvucci, Proposal to perform event-based studies of interannual variations in summertime precipitation over the southwestern United States, *National Oceanic and Atmospheric Administration*, 1/1/03-12/31/05, \$259,047.

Moghaddam, M. (PI), S. Sorooshian, S. Wofsy, R. Cuenca, E. Rodriguez, D. Entekhabi, S. Saatchi, G. Salvucci, R. Yahya, and D. Moller, Dual low frequency radar for soil moisture under vegetation and at depth, Instrument Incubator Program, *National Aeronautics and Space Administration*, 9/1/01-8/31/04, \$4,015,000. (BU Subcontract is \$64,256)

Woodcock, C.E., F. El Baz, C. Cleveland, M. Friedl, S. Gopal, R. Kaufmann, J. Key, D. Dye, R. Myneni, G.D. Salvucci, and A. Strahler, Center for Excellence in Remote Sensing at Boston

University, *National Aeronautics and Space Administration*, 1/1/98-12/31/98, \$380,000.

Proposals as Collaborator:

Kurtz, A, Silica sources and water flowpaths in a tropical watershed: a combined Ge/Si, oxygen isotope, and hydrometric study, *National Science Foundation, Division of Earth Sciences, Hydrologic Sciences Program*, 2006-2008, \$162,500

Journal Publications:

(* denotes student advisee)

Working Papers (In Progress)

Salvucci, G.D., and K. Ryu, 2024, and others, Terrestrial Evaporation and Boundary Layer Feedbacks, for submission to *Nature*.

Ryu, K, and G.D. Salvucci, 2024. Boundary Layer Interactions Explain Observed Patterns of Soil Moisture-Precipitation Feedback across the Conterminous United States, for submission to *Science*

In Review

Ryu, K, and G.D. Salvucci, 2024. Modifications to the CLASS Boundary Layer Model for Improved Interaction between the Mixed Layer and Clouds, submitted to *Journals of Advances in Modeling Earth Systems*

Published

Feldman, A. F., Short Gianotti, D. J., Dong, J., Trigo, I. F., Salvucci, G. D., & Entekhabi, D. (2023). Tropical surface temperature response to vegetation cover changes and the role of drylands. *Glob Chang Biol*, 29(1), 110-125. doi:[10.1111/gcb.16455](https://doi.org/10.1111/gcb.16455)

Feldman, A. F., Short Gianotti, D. J., Trigo, I. F., Salvucci, G. D., & Entekhabi, D. (2022). Observed landscape responsiveness to climate forcing. *Water Resources Research*, 5(1), doi.org/10.1029/2021WR030316

- Harrison, J. L., Blagden, M., Green, M. B., Salvucci, G. D., & Templer, P. H. (2020). Water sources for red maple trees in a northern hardwood forest under a changing climate. *Ecohydrology*, 13(8). doi:[10.1002/eco.2248](https://doi.org/10.1002/eco.2248)
- Akbar, R., Short Gianotti, D. J., Salvucci, G. D., & Entekhabi, D. (2020). Partitioning of Historical Precipitation Into Evaporation and Runoff Based on Hydrologic Dynamics Identified With Recent SMAP Satellite Measurements. *Water Resources Research*, 56(12). doi:[10.1029/2020wr027307](https://doi.org/10.1029/2020wr027307)
- Feldman, A. F., Short Gianotti, D. J., Trigo, I. F., Salvucci, G. D., & Entekhabi, D. (2020). Land-Atmosphere Drivers of Landscape-Scale Plant Water Content Loss. *Geophysical Research Letters*, 47(22). doi:[10.1029/2020gl090331](https://doi.org/10.1029/2020gl090331)
- Short Gianotti, D. J., Akbar, R., Feldman, A. F., Salvucci, G. D., & Entekhabi, D. (2020). Terrestrial Evaporation and Moisture Drainage in a Warmer Climate. *Geophysical Research Letters*, 47(5). doi:[10.1029/2019gl086498](https://doi.org/10.1029/2019gl086498)
- Short Gianotti, D. J., Salvucci, G. D., Akbar, R., McColl, K. A., Cuenca, R., & Entekhabi, D. (2019). Landscape Water Storage and Subsurface Correlation From Satellite Surface Soil Moisture and Precipitation Observations. *Water Resources Research*, 55(11), 9111-9132. doi:[10.1029/2019wr025332](https://doi.org/10.1029/2019wr025332)
- Akbar, R., Short Gianotti, D. J., Salvucci, G. D., & Entekhabi, D. (2019). Mapped Hydroclimatology of Evapotranspiration and Drainage Runoff Using SMAP Brightness Temperature Observations and Precipitation Information. *Water Resources Research*, 55(4), 3391-3413. doi:[10.1029/2018wr024459](https://doi.org/10.1029/2018wr024459)
- Anderegg, W. R. L., Trugman, A. T., Bowling, D. R., Salvucci, G., & Tuttle, S. E. (2019). Plant functional traits and climate influence drought intensification and land-atmosphere feedbacks. *Proceedings of the National Academy of Sciences*, 116(28), 14071-14076. doi:[10.1073/pnas.1904747116](https://doi.org/10.1073/pnas.1904747116)
- Feldman, A. F., Short Gianotti, D. J., Trigo, I. F., Salvucci, G. D., & Entekhabi, D. (2019). Satellite-Based Assessment of Land Surface Energy Partitioning–Soil Moisture Relationships and Effects of Confounding Variables. *Water Resources Research*, 55(12), 10657-10677. doi:[10.1029/2019wr025874](https://doi.org/10.1029/2019wr025874)
- McColl, K. A., Salvucci, G. D., & Gentine, P. (2019). Surface Flux Equilibrium Theory Explains an Empirical Estimate of Water-Limited Daily Evapotranspiration. *Journal of Advances in Modeling Earth Systems*, 11(7), 2036-2049. doi:[10.1029/2019ms001685](https://doi.org/10.1029/2019ms001685)
- Short Gianotti, D. J., A. J. Rigden, G. D. Salvucci, and 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(1), 540-554, <https://doi.org/10.1029/2018WR023726>

- Feldman, A.F., Gianotti, D.J, Konings, A.G. McColl, K.A., Akbar, R., Salvucci, G.D., and D. Entekhabi, 2018, Moisture pulse-reserve in the soil-plant continuum observed across biomes, *Nature Plants*, 4 (12), 1026-1033, DOI: 10.1038/s41477-018-0304-9
- Rigden**, A. J., G.D. Salvucci, Entekhabi, D., and D. J. Gianotti, 2018, Partitioning evapotranspiration over the continental United States using weather station data, *Geophys. Res. Lett.*, Vol 45, 18, DOI: 10.1029/2018GL079121
- Akbar, R., Gianotti, D.J., McColl, K., Haghghi, E., Salvucci, G.D., and D. Entekhabi, 2018, Estimation of landscape soil water loss from satellite observations of soil moisture, *Journal of Hydrometeorology*, 19(5), 871-889, DOI: 10.1175/JHM-D-17-0200.1
- Akbar, R., Gianotti, D.J., McColl, K., Haghghi, E., Salvucci, G.D., and D. Entekhabi, 2018, Hydrologic storage length scales represented by remote sensing estimates of soil moisture and precipitation, *Water Resources Research*, 54(3), 1476-1492, DOI: 10.1002/2017WR021508
- Haghghi, E., Gianotti, D.J., Akbar, R., Salvucci, G.D., and D. Entekhabi, 2018, Soil and atmospheric controls on the land surface energy balance: A generalized framework for distinguishing moisture-limited and energy-limited evaporation regimes *Water Resources Research*, 54(3), 1831-1852, DOI: 10.1002/2017WR021729
- Rigden**, A. J., D. Li, and G.D. Salvucci, 2018, Dependence of thermal roughness length on friction velocity across land cover types: a synthesis analysis using AmeriFlux data, *Agriculture and Forest Meteorology*, 249, 512-519, <https://doi.org/10.1016/j.agrformet.2017.06.003>
- Tuttle**, S.E., and G. D. Salvucci, 2017. Confounding factors in determining causal soil moisture-precipitation feedback, *Water Resources Research*, 53, doi: [10.1002/2016WR019869](https://doi.org/10.1002/2016WR019869).
- Li, D., A.J. Rigden, G.D. Salvucci, and H.P. Liu, 2017, Reconciling the Reynolds number dependence of scalar roughness length and laminar resistance. *Geophys. Res. Lett.*, Vol 44, 7, DOI:10.1002/2017GL072864
- Rigden, A. J. and G. D. Salvucci, 2017, Stomatal response to humidity and CO2 implicated in recent decline in U.S. evaporation. *Glob Change Biol.* 23, 1140-1151, doi:10.1111/gcb.13439
- Anderson, B.T , D. J. Gianotti**, Salvucci, G.D., and J.C. Furtado, 2016, Dominant timescales of potentially predictable precipitation variations across the continental United States, *Journal of Climate.*, Vol 29, 24, 8881-8897, 10.1175/JCLI-D-15-0635.1
- Gentine, P., A. Chhang, A.J. Rigden**, and Salvucci, G. D., 2016, Evaporative fraction estimates using weather station data and boundary layer theory, *Geophys. Res. Lett.*, Vol 43, 22, DOI: 10.1002/2016GL070819
- Farhardi **,L., Entekhabi, D., Salvucci, G.D.,2016, Mapping Land Water and Energy Balance Relations Through Conditional Sampling of Remote Sensing Estimates of Atmospheric Forcing and Surface States, 52(4), 2737-2752, *Water Resources Research*,

10.1002/2015WR017680

- Tuttle**, S.E., and G. D. Salvucci, 2016. Empirical Evidence of Contrasting Soil Moisture-Precipitation Feedbacks Across the U.S., *Science*, Vol. 352, Issue 6287, pp. 825-828 DOI: 10.1126/science.aaa7185
- Koster, R.D., Salvucci, G.D., Rigden**, A. J., Jung, M., Collatz, G. J., and S.G. Schubert, 2015. A The pattern across the continental United States of evapotranspiration variability associated with water availability, *Front. Earth Sci.*, <http://dx.doi.org/10.3389/feart.2015.00035>
- Anderson, B.T , D. J. Gianotti**, G.D. Salvucci, 2015, Detectability of historical trends in station-based precipitation characteristics over the continental United States, *Journal of Geophysical Research-Atmospheres*, 120(10), 4842-4859, 10.1002/2014JD022960.
- Anderson, B.T , D. J. Gianotti**, G.D. 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, 10.1175/JHM-D-14-0111.1.
- Rigden, A.J., and G. D. Salvucci, 2015, Evapotranspiration based on Equilibrated Relative Humidity (ETRHEQ): Evaluation over the Continental United States, *Water Resources Research*, 51(4), 2951-2973, 10.1002/2014WR016072
- Gianotti**, D. J., Anderson, B.T., G.D. Salvucci, 2014, The potential predictability of precipitation occurrence, intensity, and seasonal totals over the continental United States, *Journal of Climate*, 27(18), 6904-6918, 10.1175/JCLI-D-13-00695.1
- Lintner, B. R., Gentine, P., Findell, K. L., and G.D. Salvucci, G. D., The Budyko and complementary relationships in an idealized model of large-scale land-atmosphere coupling, *Hydrol. Earth Syst. Sci. Discuss.*, 11, 9435-9473, doi:10.5194/hessd-11-9435-2014, 2014
- Farhardi **,L., Entekhabi, D., Salvucci, G.D., and J. Sun**, 2014, Estimation of Land surface Water and Energy Balance Parameters Using Conditional Sampling of Surface States,*Water Resources Research*, 50(2), 1805-1822, 10.1002/2013WR014049
- Sun** J., and G.D. Salvucci, 2014, Performance assessment of a new stationarity-based parameter estimation method with a simplified land surface model using in-situ and remotely sensed surface states, *Journal of Hydrometeorology*, 15(1), 340-358, 10.1175/JHM-D-12-0118.1
- Tuttle**, S.E., and G. D. Salvucci, 2014. A new approach for validating satellite estimates of soil moisture using large-scale precipitation: comparing AMSR-E products, *Remote Sensing of Environment*, 142, 207-222.
- Pal, I.**, B.T. Anderson, G.D. Salvucci, and Gianotti**, D. 2013. Shifting seasonality and increasing frequency of precipitation in wet and dry seasons across the U.S.. *Geophys. Res. Lett.* doi: 10.1002/grl.50760

- Gianotti**, D. J., Anderson, B.T., G.D. Salvucci, 2013, What do rain gauges tell us about the limits of precipitation predictability?, *Journal of Climate*, 26(15), 5682-5688. DOI: 10.1175/JCLI-D-12-00718.1
- Lintner, B.R., Gentine, P., Findell, K. L., D'Andrea, F., Sobel, A.H., and G.D. Salvucci, 2013. An idealized prototype for large-scale land-atmosphere coupling, *Journal of Climate*, 26(7), 2379-2389, doi: 10.1175/JCLI-D-11-00561.1
- Salvucci, G.D., and P. Gentine, 2013. Emergent relation between surface vapor conductance and relative humidity profiles yields evaporation from weather data, *Proceedings of the National Academy of Sciences*, 110 (16), 6287-6291, DOI: 10.1073/pnas.1215844110
- Gentine, P. , D'Odorico, P., Lintner B. R., Sivandran, G., and G. Salvucci, 2012., Interdependence of climate, soil, and vegetation as constrained by the Budyko curve, *Geophysical Research Letters*, 39, DOI: 10.1029/2012GL053492
- Sun**, J., G.D. Salvucci, and D. Entekhabi, 2012. Estimates of Evapotranspiration from MODIS and AMSR-E Land Surface Temperature and Moisture over the Southern Great Plains, *Remote Sensing of Environment*, 127, 44-59, DOI: 10.1016/j.rse.2012.08.020.
- Tuttle**, S.E., G.D. Salvucci, 2012, A new method for calibrating a simple, watershed-scale model of evapotranspiration: maximizing the correlation between observed streamflow and model-inferred storage, *Water Resources Research*, 48, W05556, DOI: 10.1029/2011WR011189
- Shokri, N., and G.D. Salvucci, 2011, Effects of the depth of water table on the evaporation from porous media, *Vadose Zone Journal*, 10 (4), 1309-1318, DOI: 10.2136/vzj2011.0027.
- Salvucci, G.D., and Entekhabi, D, 2011, An alternate and robust approach to calibration for the estimation of land surface model parameters based on remotely sensed observations, *Geophysical Research Letters*, 38, L16404, doi:10.1029/2011GL048366
- Sun**, J, and G.D. Salvucci, L. Farhardi, and D. Entekhabi, 2011, Parameter Estimation of Coupled Water and Energy Balance Models Based on Stationary Constraints on Temperature and Moisture, *Water Resources Research*, 47, W02512, doi:10.1029/2010WR009293
- Kurtz, A. C., F. Lugolobi**, and G. Salvucci, 2011, Germanium-silicon as a flow path tracer: Application to the Rio Icaos watershed, *Water Resour. Res.*, 47, W06516, doi:10.1029/2010WR009853
- Renninger**, H.J., N. Phillips, and G.D. Salvucci, 2010, Wet vs. dry season transpiration in an Amazonian rainforest palm, *Iriarte deltoidea*, *Biotropica*, 42(4), 470-479
- Anderson, B, Wang**, J., Salvucci, G.D., Ghopal, S., and S. Islam, 2010, Observed trends in summertime precipitation over the southwestern United States, *Journal of Climate*, 23(7), 1937-1944

- Pettijohn, J. C.** , and G. D. Salvucci, 2009, A new two-dimensional physical basis for the complementary relation between terrestrial and pan evaporation, 10(2), 565-574, *Journal of Hydrometeorology*.
- Anderson, B, Wang**, J., Ghopal, S., Salvucci, G.D., 2009, Influence of daily rainfall characteristics on regional summertime precipitation over the Southwestern United States, 10(5), 1218-1230, *Journal of Hydrometeorology*.
- Pettijohn, J. C.** , G. D. Salvucci, N.G. Phillips, and M.J. Daley, 2009, Mechanisms of moisture stress in a mid-latitude temperature forest: Implications for feedforward and feedback controls from an irrigation experiment, 220(7), 968-978, *Ecological Modeling*
- Anderson, B, G.D. Salvucci, A.C. Ruane, J.O. Roads, and M. Kanamitsu, 2008, A new metric for estimating the influence of evaporation on seasonal precipitation rates, 9(3), 576-588, *Journal of Hydrometeorology*.
- Lyon, S., and twenty others, including Salvucci, G.D., 2008, Coupling terrestrial and atmospheric water dynamics to improve prediction in a changing environment, 89(9), 1275-1279, *Bulletin of the American Meteorological Society*
- Wang, **J, R.L. Bras, M. Lerdau, , and G. D. Salvucci , 2007, A maximum hypothesis of transpiration, 112, 938-951, *Journal of Geophysical Research: Biogeosciences*, 112, G03010, doi:10.1029/2006JG000255.
- Wang, **J, B. Anderson, and G. D. Salvucci , 2007, Stochastic modeling of daily summertime rainfall over the Southwestern U.S. Part 2: intraseasonal variability, 8(4), 938-951, *Journal of Hydrometeorology*.
- Ozdogan, **M., C. Woodcock, G.D. Salvucci, and H. Demir, 2006, Changes in summer irrigated crop area and water use in Southeastern Turkey: Implications for current and future water resources, 20(3), 467-488, *Water Resources Management*
- Wang, **J, B. Anderson, and G. D. Salvucci , 2006, Stochastic modeling of daily summertime rainfall over the Southwestern U.S. Part 1: interannual variability, 7(4),739-754, *Journal of Hydrometeorology*.
- Pettijohn, J. C.** , and G. D. Salvucci, 2006, Impact of an unstressed canopy conductance on the Bouchet-Morton Complementary Relationship, 42(9), W09418, *Water Resources Research*
- Ozdogan, **M., G. D. Salvucci , and B. Anderson, 2006: Examination of the Bouchet-Morton complementary relationship using a mesoscale climate model and observations under a progressive irrigation scenario, 7(2), 235-251, *Journal of Hydrometeorology*.
- Saleem, **J.A., and G. D. Salvucci, 2005: Investigating hydrologic scaling: observed effects of heterogeneity and non-local processes across hillslope, watershed and regional scales,

Water Resources Research, 41, W11417, doi:10.1029/2005WR004032

Wang, J, Salvucci, G.D., and R.L. Bras 2004, An extremum principle of evaporation, *Water Resources Research*, 40, W09303.

Kanamaru, **H., Salvucci, G.D., and D. Entekhabi, 2004: Central United States atmospheric water and energy budgets adjusted for diurnal sampling biases using top of atmosphere radiation, *Journal of Climate* 17(6), 2454-2465.

Ozdogan, **M., and G. D. Salvucci, 2004: Irrigation induced changes in potential evapotranspiration in Southeastern Turkey: Test and application of Bouchet's complementary hypothesis, *Water Resources Research*, 40, W040301.

Kanamaru, **H., and G. D. Salvucci, 2003, Correcting wind induced errors in atmospheric water and energy budgets with application to the Mississippi river basin, *Journal of Hydrometeorology*, 4(3), 518-529.

Salvucci, G.D., **J. A. Saleem, and R. Kaufmann, 2002: Investigating soil moisture feedbacks on precipitation with tests of Granger causality, *Advances in Water Resources*, 25, 1305-1312. (Invited paper for the 25th Anniversary Issue).

Saleem, **J.A., and G. D. Salvucci, 2002: Comparison of soil wetness indices for inducing functional similarity of hydrologic response across sites in Illinois, in *Journal of Hydrometeorology*, 3, 80-91.

Dong, **J., G.D. Salvucci, and R. Myneni, 2001: Improving numerical precision of simulated soil water fluxes in land surface models, *Journal of Geophysical Research*, 106(D13), 14,357-14,368.

Salvucci, G.D., and Levine, **J.B., 2001: Influence of groundwater-vadose zone interactions on the spatial distribution of hydrologic fluxes, in *Spatial Patterns in Catchment Hydrology - Observations and Modelling*, Edited by R. Grayson and G. Blöschl, Cambridge University Press.

Salvucci, G. D, 2001: Estimating the moisture dependence of root zone water loss using conditionally averaged precipitation, *Water Resources Research*, 37(5), 1357-1366.

Salvucci, G.D., and **C. Song, 2000: Derived distributions of storm depth and frequency conditioned on monthly total precipitation: Adding value to historical and satellite-derived estimates of monthly precipitation, *Journal of Hydrometeorology*, 1(2), 113-120.

Saravanapavan, **T., and G. D. Salvucci, 2000: Analysis of rate-limiting processes in soil evaporation with implications for soil resistance models, *Advances in Water Resources*, 23, 493-502.

Levine, **J.B., G.D. Salvucci, 1999: Characteristic rate and time scales of supply-limited transpiration under a Richards/Cowan framework, *Water Resources Research*, 35(12), 3947-3954.

- Kim, C.P., G.D. Salvucci, and D. Entekhabi, 1999: Groundwater-Surface water interaction over simple hillslopes, *Hydrology and Earth Systems Science*, 3(3), 375-384.
- Levine, **J.B. and G.D. Salvucci, 1999. Equilibrium analysis of groundwater-vadose zone interactions and the resulting spatial distribution of hydrologic fluxes across a Canadian prairie, *Water Resources Research*, 35(5), 1369-1383.
- Amano, **E., and G.D. Salvucci, 1999: Detection and use of three signatures of soil limited evaporation at FIFE, *Remote Sensing of Environment*, 67(1), 108-122.
- Seely, **B., K. Lajtha, and G.D. Salvucci, 1998: Differences in N fluxes along a gradient of soil texture in a coastal forest ecosystem on Cape Cod, *Biogeochemistry*, 42(3), 325-343.
- Salvucci, G.D., 1998: Limiting relations between soil moisture and texture with implications for measured, modeled and remotely sensed estimates, *Geophysical Research Letters*, 25(10), 1757-1760.
- Hatton, T.J., G.D. Salvucci, and H.Wu, 1997: Eagleson's optimality theory of an ecohydrological equilibrium: quo vadis ?, *Functional Ecology*, 11, 665-674.
- Salvucci, G.D., 1997: Soil and moisture independent estimation of stage-two evaporation from potential evaporation and albedo or surface temperature, *Water Resources Research*, 33(1), 111-122.
- Salvucci, G.D., 1996: Series solution for Richards equation under concentration boundary conditions and uniform initial conditions, *Water Resources Research*, 32(8), 2401-2407.
- Salvucci, G.D. and D. Entekhabi, 1995: Hillslope and climatic controls on hydrologic fluxes, *Water Resources Research*, 31(7), 1725-1739.
- Salvucci, G.D. and D. Entekhabi, 1995: Ponded infiltration into soils bounded by a water table, *Water Resources Research*, 31(11), 2751-2759.
- Salvucci, G.D. and D. Entekhabi, 1994: Explicit expression for Green-Ampt (Delta function diffusivity) infiltration rate and cumulative storage, *Water Resources Research*, 30(9), 2661-2663.
- Salvucci, G.D. and D. Entekhabi, 1994: Equivalent steady soil moisture profile and the time compression approximation in water balance modeling, *Water Resources Research*, 30(10), 2737-2750.
- Salvucci, G.D. and D. Entekhabi, 1994: Comparison of the Eagleson statistical-dynamical water balance model with numerical simulations, *Water Resources Research*, 30(10), 2751-2758.
- Gong, G., D. Entekhabi and G.D. Salvucci, 1994: Regional and seasonal estimates of spatial

rainstorm coverage based on station precipitation observations, *Journal of Climate*, 7(10), 1495-1505.

Salvucci, G.D., 1993: An approximate solution for steady vertical flux of moisture through an unsaturated homogeneous soil, *Water Resources Research*, 29(11), 3749-3753.

Conference and Seminar Contributions:

Invited

Salvucci, G.D, Diagnosing observed land-precipitation feedbacks with cloud-topped mixed layer and LES models, Harvard University Center for Environment, Workshop on Continental Climate, June 15, 2023

Salvucci, G.D, Estimation of evaporation from equilibrium diurnal boundary layer humidity, Harvard University Center for Environment, Climate Tea Series, March 20, 2018

Salvucci, G.D, Soil Moisture (SMAP) and Vapor Pressure Deficit Controls on Evaporation over the U.S. with implications for climate change projections, U.C. Berkeley, Berkeley Atmospheric Sciences Center, October 24, 2017

Salvucci, G.D, and others, Soil Moisture (SMAP) and Vapor Pressure Deficit Controls on Evaporative Fraction over the Continental U.S (Invited), presented at 2017 Fall Meeting, AGU, New Orleans, LA., 12-16 Dec.

Salvucci, G.D, and others, Estimation of evaporation from equilibrium diurnal boundary layer humidity (Invited), presented at 2017 Fall Meeting, AGU, New Orleans, LA., 12-16 Dec.

Tuttle, S.E., and G.D. Salvucci, Empirical evidence of contrasting soil moisture-precipitation feedbacks across the United States and effects of confounding factors (Invited), presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.

Salvucci, G.D, Evaporation and Relative Humidity, ETH Zurich, Dept of Environmental Systems Science, Soil and Terrestrial Environmental Physics Group, June 9, 2016

Salvucci, G.D, and A.J. Rigden, Vegetation stress from increased vapor pressure deficit implicated in recent decline in U.S. evaporation, European Geophysical Union, April, 2016

Salvucci, G.D, Estimating Evapotranspiration from Weather Data with Application to Trend Detection and Attribution over the U.S., Environmental Sciences Seminar Series, MIT Dept of Civil and Environmental Engineering, October 8, 2015

- Salvucci, G.D, An exploration of multi decadal, continental scale evapotranspiration inferred from weather data, Wageningen University Symposium: State of the art measurements of hydrological processes at the catchment scale, Keynote Lecture on Evaporation, September 11, 2015.
- Salvucci, G.D, Methods for estimating and evaluating surface hydrologic variables and their interactions, Land-atmosphere interactions: coupling between the energy, water and carbon cycles, Alpine Summer School organized by Institute of Atmospheric Sciences and Climate (ISAC) - CNR (Turin, Italy), Course XXIII, Valsavarenche, Italy, June 22 - July 1, 2015
- Salvucci, G.D, An exploration of multi decadal, continental scale evapotranspiration inferred from weather data, San Francisco State University, Dawdy Lecture, April 14, 2015, Department of Earth and Climate Sciences
- Salvucci, G.D, ETRHEQ (ET from Relative Humidity at Equilibrium): Derivation and Application to ET Trend Detection and Attribution, workshop on Vegetation-Precipitation Coupling in the Tropics: Challenges and Opportunities, *Organization for Tropical Studies*, La Selva Biological Station, Costa Rica, March, 2015.
- Salvucci, G.D. and P. Gentine, Variability of Relative Humidity Reveals and Estimates Land Surface Controls on Evapotranspiration, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec
- Salvucci, G.D. , A Simple Method for Estimating Column Soil Moisture from Surface Moisture Without a Land Surface Model and its Application to Diagnostics of Land-Atmosphere Interaction, H42E-02, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec
- Salvucci, G.D., “New insights into old methods for estimating evapotranspiration based on land-atmosphere coupling over heterogenous surfaces ”, Columbia University, Department of Earth and Environmental Engineering, October 2011.
- Salvucci, G.D., “The Bouchet-Morton Evaporation Complementarity Hypothesis: An example of land-atmosphere coupling, a method for estimating evaporation, and an aid for interpreting the historical pan evaporation record”, CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences) Biennial Science Meeting, Boulder, Colorado, July 2010.
- Salvucci, G.D., “The Bouchet-Morton Evaporation Complementarity Hypothesis: An example of land-atmosphere coupling, a method for estimating evaporation, and an aid for interpreting the historical pan evaporation record”, University of Virginia, Department of Environmental Sciences, February 2010.
- Kurtz, A.C., F. Lugolobi, G.D. Salvucci, 2009, Major Elements, Trace Elements, and Isotopes as Biogeochemical Tracers, Fall Meeting, *American Geophysical Union*, session: Water in the Critical Zone, EOS Transactions AGU, 90(52), Fall Meeting Supplement, H31I-06.

- Salvucci, G.D., “The Bouchet-Morton Evaporation Complementarity Hypothesis: An example of land-atmosphere coupling, a method for estimating evaporation, and an aid for interpreting the historical pan evaporation record”, City College of New York, NOAA CREST Center, October 2009
- Salvucci, G.D., “The Bouchet-Morton Evaporation Complementarity Hypothesis: An example of land-atmosphere interaction”, Boston University Terrestrial Biogeosciences Seminar, November 2009
- Salvucci, G.D., Sun, J., “Parameter Estimation of Coupled Water and Energy Balance Model Based on Stationary Constraints on Temperature and Moisture”, at the Fourth CNR-Princeton Workshop on New Frontiers in Hydrology, Sapienza University of Rome, July 1-3, 2009
- Salvucci, G.D., Sun, J. Entekhabi, D. and L. Farhadi, 2007, Estimation of coupled water and energy balance model parameters from equilibrium constraints on temperature and moisture, EOS Transactions AGU, 88(52), Fall Meeting Supplement, H52C-01
- Salvucci, G.D., , NCAR, Young Faculty Forum. 1. The Bouchet-Morton Complementarity Hypothesis: An example of land-atmosphere coupling 2. Dynamic modeling of equilibrium water tables, July 2007.
- Salvucci, G.D., ‘Examination of the Bouchet-Morton complementarity relationship throughout a period of increasing irrigation, Annual Meeting, *American Meteorological Society, 18th Conference* , February 2006.
- Salvucci, G.D., ‘Extension of a flux estimation methodology based on soil moisture conditional averaging to groundwater systems with application to estimation, model specification, and scaling of groundwater-surface interactions, Fall Meeting, *American Geophysical Union*, December 2005.
- Salvucci, G.D., “New insights into the Bouchet-Morton Complementarity Hypothesis”, at the Third CNR-Princeton Workshop on New Frontiers in Hydrology, Princeton University, May 18-20, 2005
- Salvucci, G.D., “Estimating model error from the nonstationarity of model increments: Application to parameter estimation of water and energy balance models”, Cornell University, Department of Biological and Environmental Engineering, October 14, 2005
- Salvucci, G.D., “Estimating model error from the nonstationarity of model increments: Application to parameter estimation of water and energy balance models, University of Nevada at Reno, Department of Geological Sciences and the Desert Research Institute, October 21, 2005
- Salvucci, G.D., “Estimating model error from the nonstationarity of model increments: Application to parameter estimation of water and energy balance models, Stanford University, Department of Geological and Environmental Sciences, December 7, 2005
- Salvucci, G.D., “Exploiting Equilibrium Tendencies of Soil Moisture Dynamics for Parameter Estimation, Hypothesis Testing, and Scaling Studies”, Tufts University, Department of Civil and

- Environmental Engineering, April 21, 2004.
- Salvucci, G.D., “Exploiting Equilibrium Tendencies of Soil Moisture Dynamics for Parameter Estimation, Hypothesis Testing, and Scaling Studies”, at the Second CNR-Princeton Workshop on New Frontiers in Hydrology, Capri, Italy, October 22, 2003.
- Salvucci, G.D., “Exploiting Equilibrium Tendencies of Soil Moisture Dynamics for Parameter Estimation, Hypothesis Testing, and Scaling Studies”, Ralph M. Parsons Hydrology Seminar Series, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, May 8, 2003.
- Salvucci, G.D., “Lateral Processes and Heterogeneity in the Scale Dependence of Water Balance Sensitivity to Moisture”, at the First CNR-Princeton Workshop on New Frontiers in Hydrology, Princeton University, October 23-25, 2002.
- Salvucci, G.D., “Hydrologic Modeling and Prediction Systems”, at the Goddard Space Flight Center Summer Seminar Series, 6/14/2002.
- Salvucci, G.D., J. A. Saleem, and R. Kaufmann, Investigating soil moisture feedbacks on precipitation with tests of Granger causality, at session “Land-Atmosphere Interactions” at the Spring Meeting, *American Geophysical Union*, May 2002.
- Salvucci, G.D., *Plenary talk*: “Signatures of Lateral Processes in the Scale Dependence of Water Balance Sensitivity to Moisture” AGU Chapman Conference *State-of-the-Art in Hillslope Hydrology*, Sunriver Oregon, October 10, 2001.
- Salvucci, G.D., Inferring water limited evapotranspiration efficiency from precipitation and soil moisture measurements, at session “Eco-hydrological dynamics of water-controlled Ecosystems” at the Spring Meeting, *American Geophysical Union*, May 2001.
- Salvucci, G.D., Estimation of the form and scale dependence of water balance dependence on soil moisture using conditional statistical sampling, Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Cambridge, Massachusetts, October 24, 2000.
- Salvucci, G.D., Empirical estimation of the form and scale dependence of water balance sensitivity to soil moisture, University of New Hampshire, Department of Earth Sciences, Durham, New Hampshire, April 6, 2000.
- Entekhabi, D., and G.D. Salvucci, On the role of soil moisture in hydrometeorology and hydroclimatology, GEWEX/BAHC (Global Energy and Water Cycle Experiment/Biological Aspects of the Hydrologic Cycle) Soil Moisture Workshop, Norman, Oklahoma, May 16, 2000.
- Entekhabi, D., J. Wang, J. Wang, and G. D. Salvucci, Using satellite remote sensing observations in constraining estimates of water vapor convergence based on reanalysis data, *World Climate Research Program Second International Conference on Reanalyses*, August 23-27, 1999.

- Salvucci, G.D., Derived distributions of storm depth and frequency conditioned on monthly total precipitation: Adding value to historical and satellite-derived estimates of monthly precipitation, Global Precipitation Climatology Project (GPCP) User Workshop (sponsored by the international Global Energy and Water Exchange (GEWEX) Scientific Steering Committee), Silver Springs, Maryland, May 10-12, 1999.
- Salvucci, G.D., Characterization of Hydrologic Processes for Modeling and Remote Sensing Retrieval, Harvard University, Division of Engineering and Applied Sciences, Cambridge, Massachusetts, May 11, 1998.
- Salvucci, G.D., Characterization of Hydrologic Processes for Modeling and Remote Sensing Retrieval, Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Cambridge, Massachusetts, May 18, 1998.
- Salvucci, G.D., Characterization of Hydrologic Processes for Modeling and Remote Sensing Retrieval, Cornell University, Department of Agricultural and Biological Engineering, Ithaca, New York, June 5, 1998.
- Salvucci, G.D., Estimation and Prediction of Hydrologic Processes through Simple Models, Measurable Parameters, and Statistical Aggregation, Boston College Department of Geology and Geophysics, Boston, Massachusetts, December 4, 1997.
- Salvucci, G.D. and E. Amano**, Surface and satellite estimates of the transition between soil and atmosphere limits on evaporation., Spring 1997, *American Geophysical Union*
- Salvucci, G.D., Estimation of soil limited evaporation from surface observations, Department of Geography and Environmental Engineering, Johns Hopkins University, Baltimore, Maryland, December 10, 1996
- Salvucci, G.D. and D. Entekhabi: Hillslope and climatic controls on hydrologic fluxes, XXI General Assembly (1995) of the *International Union of Geodesy and Geophysics*, July 5, 1995.
- Hatton, T., Salvucci, G.D., and W. Wu, Statistical-dynamical alternatives to modelling with the unknowable, CSIRO Division of Water Resources, Canberra, ACT, AU, July 27, 1995.
- Salvucci, G.D., Analysis of spatial structure of hydrologic fluxes at the hillslope scale using an equilibrium model, CSIRO Division of Environmental Mechanics, Canberra, ACT, AU, July 28, 1995.

Contributed

- Gianotti, D., Rigden, A., G.D. Salvucci and D. Entekhabi, Effects of water availability through the coupled land atmosphere system, presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- Li, D., Rigden, A., G.D. Salvucci and H. Liu, Reconciling the Reynolds number dependence of scalar roughness length and laminar resistance, presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- Haghighi, E., Gianotti, D., Akbar, R., Salvucci, G.D., and D. Entekhabi, What determines transitions between energy- and moisture-limited evaporation regimes, presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- Salvucci, G.D. and A. Rigden, Exploration of Boundary-Layer Mechanisms responsible for the ability of ETRHEQ (Evapotranspiration from Relative Humidity at Equilibrium) to estimate Evaporation, Canopy Conductance and Evaporative Fraction from meteorological measurements, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.
- Rigden, A., G.D. Salvucci, Interannual variability, correlated errors, and trend detection of evapotranspiration at AmeriFlux sites presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.
- Gianotti, D., Rigden, A., G.D. Salvucci and D. Entekhabi, Soil Moisture Controls on Evaporative Fraction, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec.
- Rigden, A., G.D. Salvucci, Stomatal response to decreasing humidity implicated in recent decline in U.S. evaporation, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.
- Salvucci, G.D. and A. Rigden, Surface vapor conductance derived from the ETRHEQ: Dependence on environmental variables and similarity to Oren's stomatal stress model for vapor pressure deficit, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.
- Gianotti, D., B. Anderson, and G.D. Salvucci, California drought, weather variability, and climate variability, AGU Chapman Conference on California Drought, April 2015.
- Gianotti, D., B. Anderson, and G.D. Salvucci, Characterizing weather and climate variability for precipitation: A data-based stochastic modeling framework, presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Rigden, A., G.D. Salvucci, and S.E. Tuttle, Evapotranspiration Controls Imposed by Soil Moisture: A Spatial Analysis across the United States, presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Tuttle, S.E., and G.D. Salvucci, Empirical evidence of contrasting feedbacks between remotely sensed soil moisture and gauge-based precipitation in arid vs. humid areas of the United States., presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.

- Salvucci, G.D., Gianotti, D., B. Anderson, Stochastic analysis of California's recent precipitation drought in the context of the last one hundred years, presented at 2014 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec
- Gianotti, D., B. Anderson, and G.D. Salvucci, Potential Predictability of Precipitation: Intensity or Occurrence?, NOAA's 38th Climate Diagnostics and Prediction Workshop (College Park, MD) October 22, 2013
- Tuttle, S.E., and G.D. Salvucci, Using Large-Scale Precipitation to Validate AMSR-E Satellite Soil Moisture Estimates by Means of Mutual Information, presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec. (Won Outstanding Student Paper Award).
- Rigden, A., G.D. Salvucci, and P. Gentine, Multi-decadal Estimation of Trends in Evapotranspiration from Weather Station Data using a New Approach, presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec
- Salvucci, G.D., Rigden, A., P. Gentine, and B.R. Lintner, Unique relation between surface-limited evaporation and relative humidity profiles holds in both field data and climate model simulations, presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec
- Lintner, B.R., Gentine, P., Findell, K., Salvucci, G.D., D'Odorico P., and G. Sivadran, The Budyko and complementary relationships in the large-scale coupled land-atmosphere system, presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec
- Salvucci, G.D., Rigden, A., and P. Gentine, Multi-decadal estimation of evapotranspiration from weather station data using a new approach, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec
- Tuttle, S.E., and G.D. Salvucci, Comparison of AMSR-E Soil Moisture Products, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec
- Salvucci, G.D., and Entekhabi, D, An alternate and robust approach to calibration for the estimation of land surface model parameters based on remotely sensed observations, 26th Conference on Hydrology. *American Meteorological Society*, New Orleans, LA, USA, January 22-26, 2012
- Gianotti, D., B. Anderson, and G.D. Salvucci, Stochastic and deterministic aspects of observed seasonal-mean precipitation variations and extreme event occurrences over the United States, NG51-E1679, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Tuttle, S.E., and G.D. Salvucci, A new method for calibrating a simple, watershed-scale model of evapotranspiration: maximizing the correlation between observed streamflow and model-inferred storage, H31F-1239, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Sun, J., G.D. Salvucci, and D. Entekhabi, Parameters Estimation of Coupled Water and Energy Balance Model Based on Stationary Constraints of Surface States, presented at 2010 Fall Meeting,

- AGU, San Francisco, Calif., 13-17 Dec
- Tuttle, S.E., and G.D. Salvucci, A Model for Estimating Evapotranspiration on a Watershed Scale, H11C-0815, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Shokri, N., and G.D. Salvucci, Evaporation from porous media in the presence of a water table, H33E-1195, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Farhardi, L., D. Entekhab, G.D. Salvucci, and J. Sun, Use of multi-platform and frequency remote sensing data for mapping latent and sensible heat flux over the Gourma Region in West Africa, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec
- Farhadi, L., Entekhabi, D. and G. Salvucci., 2009, New approach in estimating parameters of water and energy balance equation using conditional sampling of surface states, EOS Transactions AGU, 90(52), Fall Meeting Supplement, H41G-0972
- Sun, J. and G.D. Salvucci, 2008, Parameters Estimation of Coupled Water and Energy Balance Model Based on Stationary Constraints of Surface States, EOS Transactions AGU.
- Pettijohn, J.C., G.D. Salvucci, 2008, A new two-Dimensional Physical Basis for the Complementary Relation Between Terrestrial and pan Evaporation, EOS Transactions AGU.
- Wang, J., Anderson, B T, and G.D. Salvucci., 2007, Potential Predictability of Summertime Rainfall Extremes Over the Southwestern US, EOS Transactions AGU, 88(52), Fall Meeting Supplement, GC11A-0130
- Farhadi, L., Entekhabi, D. and G. Salvucci., 2007, Estimation of Land Surface Water and Energy Balance Closure Relation Using Conditional Sampling, EOS Transactions AGU, 88(52), Fall Meeting Supplement, H14A-04
- Pettijohn, J.C., G.D. Salvucci, Phillips and Daley, 2006, Vegetative and Atmospheric Controls on the Bouchet-Morton Complementary Relationship Hypothesis, EOS Transactions AGU, 87(52), Fall Meeting Supplement, H54C-07
- Lugolobi, F., Kurtz, A.C., and G.D. Salvucci, 2006, Silica Sources and Water Flowpaths During Storm Events at Rio Icacos, Puerto Rico, EOS Transactions AGU, 87(52), Fall Meeting Supplement, H11I-01.
- Pettijohn, J. C.***, G. D. Salvucci, Phillips, N.G., and M. J. Daley, TI: Testing the Bouchet- Morton Complementary Hypothesis at Harvard Forest using Sap Flux Data, Winter 2005, *American Geophysical Union*.
- Salvucci, G.D., Exploiting equilibrium tendencies of soil moisture dynamics for evaporation estimation, Winter 2005, *American Geophysical Union*.
- Wang, **J, B. Anderson, and G. D. Salvucci: Stochastic Daily Rainfall Events and Their Role in

- Producing the Intraseasonal Extremes of Summertime Precipitation Over the Southwestern U.S Winter 2005, *American Geophysical Union*.
- Ozdogan**, M., and G. D. Salvucci, The Effects of Future Irrigation Projects on Crop Water Requirements in Southeastern Turkey - Implications for Planning and Management, Winter 2004, *American Geophysical Union*
- Wang**, J., Anderson, B, and G. D. Salvucci, Stochastic modeling of daily summertime rainfall over the southwestern US and its relation to interannual variability, Winter 2004, *American Geophysical Union*
- Pettijohn, J. C.**, and G. D. Salvucci, An evaluation of complementary relationship assumptions, Winter 2004, *American Geophysical Union*. *Paper won Outstanding Student Paper Award*
- Saleem**, J.A., and G. D. Salvucci, Observational Analyses of Hydrologic Scaling: the Role of Non-Local Interactions as Inferred From Soil Moisture and Precipitation Data, Winter 2004, *American Geophysical Union*
- Salvucci, G.D., Exploiting equilibrium tendencies of soil moisture dynamics for parameter estimation, at the Catchment Scale Hydrologic Modeling and Data Assimilation Workshop, Princeton University, Princeton, NJ, October 26, 2004.
- Ozdogan**, M., and G. D. Salvucci, Test and Application of Bouchet's Complementary Relationship within a Mesoscale Numerical Model, Spring 2004, *American Geophysical Union*
- Kanamaru, **H, G. D. Salvucci, D. Entekhabi: Central United States atmospheric water and energy budgets adjusted for diurnal sampling biases using top of atmosphere radiation, Spring 2004, *American Geophysical Union*
- Saleem**, J.A., and G. D. Salvucci, Evaluating the Influence of Spatial Processes and Information on Local Moisture-Outflow Relations: Characterizing the Scale of Interaction Using Soil Moisture and Precipitation Observations, Winter 2003, *American Geophysical Union*
- Salvucci, G.D., and M. Gioioso, Estimation of Drainage and Evapotranspiration from Time Series of Soil Moisture, Potential Evaporation, and Precipitation, Winter, 2003, *American Geophysical Union*
- Ozdogan**, M., and G. D. Salvucci, Irrigation Induced Changes in Areal Evapotranspiration in Southeastern Turkey: Test and Application of Bouchet's Complementary Relationship, Winter 2003, *American Geophysical Union*
- Wang, J, R. L. Bras, M. Lerda, G. D. Salvucci, and S. Wofsy, Transpiration: A Test of Optimality Hypothesis, Winter 2003, *American Geophysical Union*
- Toninelli**, V., Salvucci, G. D. and M. Mancini, Parameter estimation technique for a water balance model and application to measured data, *European Geophysical Society*, 2003.

- Toninelli**, V., Salvucci, G. D., Scale effects in the dependence of water balance fluxes on soil moisture, *Hydrology Days*, 2002
- Saleem**, J.A., and G. D. Salvucci, Detecting Spatial Interactions and Interdependence of Moisture – Outflow Relations Among Regional Sites: a Statistical Method and its Application, Spring 2002 *American Geophysical Union*.
- Kanamaru, **H, G. D. Salvucci, D. Entekhabi: Atmospheric water and energy budgets of the Mississippi basin and a third independent estimate of runoff constrained by top of atmosphere radiation, *NOAA Mississippi River Climate and Hydrology Conference*, May 14, 2002.
- Salvucci, G. D, New scale appropriate diagnostics for evaluating land surface parameterizations and water balance using remotely sensed data, Spring 2001 *American Geophysical Union*.
- Salvucci, G. D. and D. Entekhabi, Sources of variation in an estimate of columnar atmospheric water vapor convergence climatology based on remotely sensed top of atmosphere net radiation and energy balance, Spring 2001, *American Geophysical Union*.
- Saleem**, J.A., and G. D. Salvucci, Comparison of soil wetness indices for inducing functional similarity of hydrologic response across sites in Illinois, Spring 2001, *American Geophysical Union*.
- Salvucci, G. D, Estimating the moisture dependence of root zone water loss using conditionally averaged precipitation, Spring 2000, *American Geophysical Union*.
- Kanamaru, **H, G. D. Salvucci, D. Entekhabi, J. Wang, and R.L. Bras, A third independent estimate of runoff over the mississippi basin based on coupled water and energy balance and top of atmosphere radiation, Spring 2000, *American Geophysical Union*.
- Kanamaru, **H, G. D. Salvucci, D. Entekhabi, J. Wang, and R.L. Bras, The mean annual cycle of water and energy budgets of the atmosphere over the Mississippi basin, *World Climate Research Program Second International Conference on Reanalyses*, August 23-27, 1999.
- Salvucci, G. D, and **C. Song, Derived distributions of storm depth and frequency conditioned on monthly total precipitation: Adding value to historical and satellite-derived estimates of monthly precipitation, Spring 1999 *American Geophysical Union*.
- Kanamaru, **H, G. D. Salvucci, D. Entekhabi, J. Wang, and R.L. Bras, The mean annual cycle of water and energy budgets over the Mississippi basin, Spring 1999 *American Geophysical Union*.
- Saravanapavan, **T., and G.D. Salvucci, Impacts of a water resources project on local climate conditions: An analysis of the Mahaweli Development Project in Sri Lanka, Spring 1999 *American Geophysical Union*

- Levine, **J. B. and G.D. Salvucci, Characteristic rate and time scales of supply limited transpiration under a Richards-Cowan framework, Spring 1999 *American Geophysical Union*
- Salvucci, G. D, Empirical estimation of evaporation efficiency from monthly moisture and precipitation statistics, Fall 1998 *American Geophysical Union*
- Saravanapavan, **T., and G.D. Salvucci, Limiting processes in soil evaporation, Fall 1998 *American Geophysical Union*
- Levine, **J. B. and G.D. Salvucci, Comparison of predicted water balance under changing climate conditions: 3-dimensional model vs. 1-dimensional model, Fall 1998 *American Geophysical Union*
- Ravella, **M. and G.D. Salvucci, Spatial variability of near surface soil moisture during field drydown conditions, Spring 1998 *American Geophysical Union*
- Levine, **J. B. and G.D. Salvucci, Equilibrium Analysis of Groundwater-Vadose Zone Interactions and the Resulting Spatial Distribution of Hydrologic Fluxes Across a Canadian Prairie, Spring 1998 *American Geophysical Union*
- Salvucci, G.D. and M. Ravella**, Limiting relations between soil moisture and soil texture based on similar media theory, Fall 1997 *American Geophysical Union*
- Ravella, **M. and G.D. Salvucci, Field observations of the relation between near surface soil moisture and the similar media parameter alpha, Fall 1997 *American Geophysical Union*
- Amano, **E. and G.D. Salvucci, Estimation of stage-two evaporation over semi-arid areas using satellite remote sensing data, Spring 1997 *American Geophysical Union*
- Salvucci, G.D., Surface and subsurface moisture dynamics during transitions between atmosphere and soil limited evaporation, Feb 1997 *American Meteorological Society*
- Salvucci, G.D., The relation of stage one and stage two drying and its application to estimating evaporation, Spring 1996 *American Geophysical Union*
- Salvucci, G.D. and D. Entekhabi: Poned infiltration into soils bounded by a water table, Spring 1995 *American Geophysical Union*
- Salvucci, G.D. and D. Entekhabi: Hillslope and climatic controls on hydrologic fluxes, January, 1995 *American Meteorological Society*
- Kim, C.P., D. Entekhabi, and G.D. Salvucci: Long term mean of transient hillslope hydrologic behavior, January, 1995 *American Meteorological Society*
- Salvucci, G.D. and D. Entekhabi: An analytic model for equilibrium surface water balance and

recharge to the water table, Spring 1994 *American Geophysical Union*

Gong, G., D. Entekhabi and G.D. Salvucci: Regional and seasonal estimates of spatial rainstorm coverage based on station precipitation observations, *Fourth International Conference on Precipitation*, Iowa City, April 1993

Salvucci, G.D.: Approximate solution to steady state moisture flux in unsaturated homogeneous soils, Spring 1992 *American Geophysical Union*

Salvucci, G.D. and P.S. Eagleson: A test of ecological optimality at a semiarid watershed in central Arizona, Fall 1991 *American Geophysical Union*

Technical Reports:

Salvucci, G.D. and D. Entekhabi, 1993: Use and characterization of steady-state moisture profile in setting flux capacities prior to storm and interstorm events, *Massachusetts Institute of Technology, Department of Civil and Environmental Engineering Technical Report No. 338*, 101 pages.

Salvucci, G.D. and P.S. Eagleson 1992: A test of ecological optimality for semiarid vegetation, *Massachusetts Institute of Technology, Department of Civil and Environmental Engineering Technical Report No. 335*, 195 pages.