

## **CURRICULUM VITAE**

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### **AREAS OF RESEARCH INTEREST**

Surface hydrology, hydroclimate modeling, application of remote sensing in hydrology, rainfall-runoff modeling, flood forecasting and control, identification and stochastic parameter estimation, watershed management, system simulation and analysis, operations research, decision analysis

### **PUBLISHED PAPERS**

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Hsu, K., S. Sorooshian, V.K. Gupta, and X. Gao, "Application of Artificial Neural Network Models in Rain Rate Retrieval from Satellite Passive Microwave Imagery," Western Geophysics Meeting, Hong Kong, July 25-29, 1994, American Geophysical Union, *Eos Transactions*, p. 31, 1994.

Yapo, P., S. Sorooshian, and V. Gupta, "Calibration of Conceptual Rainfall-Runoff Models: Selection of the Data Most Appropriate for Calibration," AGU Fall Meeting, San Francisco, California, December 1994.

Sorooshian, S., "University of Arizona Hydrology Research and Programs," Fall Meeting, Floodplain Management Association, Tucson, Arizona, 1995.

Hsu, K., X. Gao, and S. Sorooshian, "Monthly Rainfall Estimation Using Satellite Infrared Imagery," AGU Spring

Meeting, Baltimore, Maryland, May 1995, American Geophysical Union, Supplement to *Eos Transactions*, p. S108, 1995.

Hsu, K., X. Gao, H. Gupta, and S. Sorooshian, "Estimation of Monthly Rainfall by Integrating Satellite Imagery and Ground-Truth Data," AGU Fall Meeting, San Francisco, California, December 1996, American Geophysical Union, Supplement to *Eos Transactions*, Vol. 77, No. 46, p. F176, 1996.

Winchell, M., H. Gupta, and S. Sorooshian, "Issues Related to the Use of Radar-Estimated Precipitation for Rainfall-Runoff Modeling," AGU Fall Meeting, San Francisco, California, December 1996.

Hsu, K., H. Gupta, X. Gao, and S. Sorooshian, "Analysis of Regional and Seasonal Variation of Rainfall Using Ground- and Satellite-Based Estimates," AGU Spring Meeting, Baltimore, Maryland, May 1997.

Sorooshian, S., K. Hsu, X. Gao, and H. Gupta, "Rainfall Estimation from Combined SSM/I and GOES Imagery Using Artificial Neural Networks," AGU Spring Meeting, Baltimore, Maryland, May 1997.

Xu, L., S. Sorooshian, and X. Gao, "Adjustment of the Brightness Temperature Threshold Used in GOES Precipitation Index (GPI)," AGU Spring Meeting, Baltimore, Maryland, May 1997.

Gupta, H.V., L. Bastidas, S. Sorooshian, and W.J. Shuttleworth, "On the Calibration of Land-Atmosphere Models: How Much Performance Improvement is Possible?," GCIP Mississippi River Climate Conference, St. Louis, Missouri, June 8-12, 1998.

Gupta, H.V., L. Bastidas, S. Sorooshian, and W.J. Shuttleworth, "Advances in the Calibration and Evaluation of Land-Atmosphere Models Using Multi-Criteria Approaches," Invited Presentation, 1998 Western Pacific Geophysics Meeting of the American Geophysical Union, Taipei, Taiwan, July 21-24, 1998.

Hsu, K., H.V. Gupta, S. Sorooshian, and X. Gao, "An Artificial Neural Network Suitable for Recognition and Prediction of Applications in Hydrology," 1998 Western Pacific Geophysics Meeting of the American Geophysical Union, Taipei, Taiwan, July 21-24, 1998.

Gupta, H.V., L. Bastidas, S. Sorooshian, and W.J. Shuttleworth, "Parameter Estimation for Land-Surface Schemes via Multi-Criteria Calibration," Invited Presentation, AGU Fall Meeting, San Francisco, California, December 6-10, 1998.

Bastidas, L., H.V. Gupta, S. Sorooshian, W.J. Shuttleworth, and Z.L. Yang, "Comparison of Land-Surface Schemes by Use of Multi-Criteria Methods," AGU Fall Meeting, San Francisco, California, December 6-10, 1998.

Gupta, H.V., S. Sorooshian, and L. Bastidas, "Multi-Criteria Methods for Improved Calibration of Hydrologic Models," AGU Fall Meeting, San Francisco, California, December 6-10, 1998.

(invited presentation) Sorooshian, S., "Parameter Estimation and Data Assimilation in Hydrologic Modeling: The Past 2 Decades," AGU Fall Meeting, San Francisco, California, December 6-10, 1998.

Hartmann, H.C., T.C. Pagano, T.S. Hogue, A. Farid, A. Comrie, and S. Sorooshian, "Teleconnections Between Winter Circulation Patterns, Surface Climatology, and Vegetation Behavior in the Southwest U.S.," 11<sup>th</sup> Conference on Applied Climatology, American Meteorological Society, Dallas, Texas, January 10-15, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, "The Role and Usability of Climate Forecasts for Flood Control and Water Supply Agencies in Arizona: A Case Study of the 1997-98 El Nino," 14<sup>th</sup> Conference on Hydrology, American Meteorological Society, Dallas, Texas, January 10-15, 1999.

Gupta, H.V., L. Bastidas, S. Sorooshian, W.J. Shuttleworth, and Z.L. Yang, "Using Multi-Criteria Methods to Improve Land-Surface Parameterizations," Invited Presentation, Eleventh Session of the World Climate Research Program (WCRP) Scientific Steering Group for the Global Energy and Water Cycle Experiment (GEWEX), Tucson, Arizona, January 25-29, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, (Invited) "Water Management and Climate Forecasts: A Case Study of the 1997-98 El Nino in Arizona," Arizona Hydrological Society, Tucson, Arizona, February 9, 1999.

Gupta, H.V., L. Bastidas, S. Sorooshian, W.J. Shuttleworth, and Z.L. Yang, "Using Multi-Criteria Methods to Improve Land-Surface Parameterizations," Invited Presentation, International Strategy Forum of the Project for Intercomparison of Land Surface Parameterization Schemes (PILPS), Honolulu, Hawaii, February 23-26, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, (Invited) "Interannual Climate Variability and Water Management in Arizona: A Case Study of the 1997-98 El Nino," Dept. of Hydrology and Water Resources Seminar Series, University of Arizona, Tucson, Arizona, February 24, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, (Invited) "A Case Study of the 1997-98 El Nino in Arizona: A Focus on Water Management," CLIMAS Seminar, Institute for the Study of Planet Earth, University of Arizona, Tucson, Arizona, April 1, 1999.

Mahani, S.E., S. Sorooshian, and X. Gao, "Improving High-Resolution Satellite-Based Precipitation and Cloud Feature Estimation: A Procedure for Pixel-Based Displacement Adjustment Caused by Cloud-Top Height," Poster Presentation, 9th Annual Hydrology Research Exposition "El Dia del Agua", Dept. of Hydrology and Water Resources, University of Arizona, Tucson, Arizona, April 7, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, (Invited) "Water Management and Climate Forecasts: A Case Study of the 1997-98 El Nino in Arizona," 9<sup>th</sup> Annual Hydrology Research Exposition "El Dia del Agua", Dept. of Hydrology and Water Resources, University of Arizona, Tucson, Arizona, April 7, 1999.

Hartmann, H.C. and S. Sorooshian, "Linkages Between Climate Variability, Hydrologic Processes, and Vegetation Dynamics in the Southwest U.S.," 9<sup>th</sup> Annual Hydrology Research Exposition "El Dia del Agua", Dept. of Hydrology and Water Resources, University of Arizona, Tucson, Arizona, April 7, 1999.

Gupta, H.V., S. Sorooshian, and K. Hsu, "Streamflow Forecasting Using Artificial Neural Networks," Invited Presentation, Engineering Research and Development Center, Waterways Experiment Station, Vicksburg, Mississippi, April 27, 1999.

Sorooshian, S., H. Gupta, and L. Bastidas, "Multi-Criteria Methods for Improved Calibration of Hydrologic Models," Seminar Presentation, Dept. of Systems and Industrial Engineering, University of Arizona, April 29, 1999.

Gupta, H.V. and S. Sorooshian, "Parameter Estimation and Data Assimilation in Hydrologic Modeling," Invited Presentation, Dept. of Civil Engineering, Princeton University, Princeton, New Jersey, May 20, 1999.

Mahani, S.E., S. Sorooshian, and X. Gao, "Identification and Adjustment of Pixel Displacements of Cloud Infrared Images in the TRMM TEFLUN Cases," Presentation, AGU Spring Meeting, Boston, Massachusetts, June 1, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, "Improving Hydrologic Forecast Products Through Interaction with Water Management Agencies in Arizona," Presentation, AGU Spring Meeting, Boston, Massachusetts, June 1-4, 1999, *Eos Transactions*, Vol. 80, No. 17S, p. 23, 1999.

Hartmann, H.C., T.C. Pagano, R. Bales, and S. Sorooshian, "The State of Climate and Hydrologic Forecasting for the U.S. Southwest: An Assessment," Presentation, AGU Spring Meeting, Boston, Massachusetts, June 1-4, 1999, *Eos Transactions*, Vol. 80, No. 17S, p. 22, 1999.

Hartmann, H.C., R. Bales, and S. Sorooshian, (Invited) "Weather, Climate, and Hydrologic Forecasting for the Southwest U.S.," 26<sup>th</sup> Annual Conference of the Water Resources Planning and Management Division, American Society of Civil Engineers, Tempe, Arizona, June 6-9, 1999.

Pagano, T.C., H.C. Hartmann, and S. Sorooshian, (Invited) "Seasonal Forecasts and Water Management in Arizona: A Case Study of the 1997-98 El Nino," 26<sup>th</sup> Annual Conference of the Water Resources Planning and Management Division, American Society of Civil Engineers, Tempe, Arizona, June 6-9, 1999.

Bastidas, L., H.V. Gupta, S. Sorooshian, and W.J. Shuttleworth, "Advances in Parameter Identification of Land-Surface Schemes Using Multi-Criteria Methods," Presentation, PILPS Review Meeting, University of Birmingham, Birmingham, United Kingdom, July 20, 1999.

Gupta, H.V. and S. Sorooshian, "Parameter Estimation and Data Assimilation in Hydrologic Modeling," Invited Presentation, Dept. of Civil and Environmental Engineering, Imperial College, London, United Kingdom, July 22, 1999.

Gupta, H.V. and S. Sorooshian, "Parameter Estimation and Data Assimilation in Hydrologic Modeling," Invited Presentation, Institute of Environmental and Natural Sciences, University of Lancaster, Lancaster, United Kingdom, July 30, 1999.

Bastidas, L., H.V. Gupta, S. Sorooshian, W.J. Shuttleworth, and Z.L. Yang, "Effects of Areal Versus Point Information in the Parameter Identification of land-Surface Schemes Using Multi-Criteria Methods," Presentation, 22<sup>nd</sup> General Assembly of the International Union of Geodesy and Geophysics (IUGG) Conference, Birmingham, Birmingham, United Kingdom, July 18-30, 1999.

Sorooshian, S., L.A. Bastidas, and H.V. Gupta, "Application of Multi-Objective Optimization Algorithms for Hydrologic Model Identification and Parameterization," Presentation, 2<sup>nd</sup> International Conference on Multiple Objective Decision Support Systems for Land, Water, and Environmental Management, Brisbane, Australia, August 1-5, 1999.

Sorooshian, S., "A New Perspective on Water Resources: Concerns of the Next Millennium," Presentation, Erice International Seminar, Erice, Italy, August 17-23, 1999.

Sorooshian, S., T.C. Pagano, and H.C. Hartmann, "Climate Forecast Use in Southwestern U.S. Water Management: Lessons Learned from the 1997-98 El Nino," Workshop on the Impacts of the 1997-99 ENSO, Taiwan Central Weather Bureau, Taipei, Taiwan, October 6, 1999.

Bastidas, L.A., H.V. Gupta, K. Blasch, O.L. Sen, S. Sorooshian, and W.J. Shuttleworth, "Constraining LSS by Using Observational Data and Multi-Criteria Techniques", Presentation, NASA Land-Surface Hydrology Program Investigators Meeting, Columbia, Maryland, November 1-2, 1999.

Blasch, K.W., L.A. Bastidas, R.L. Scott, H.V. Gupta, and S. Sorooshian, "Monsoonal/Non-Monsoonal Land-Surface Model Parameterizations for Semi-Arid Riparian Locations," Presentation, NOAA 24<sup>th</sup> Annual Climate Diagnostics and Prediction Workshop, Tucson, Arizona, November 1-5, 1999.

Hartmann, H.C. and S. Sorooshian, "Interaction Between Ecosystems and Climate Indicators in the U.S. Southwest," Presentation, NOAA's 24<sup>th</sup> Annual Climate Diagnostics and Prediction Workshop, Tucson, Arizona, November 1-5, 1999.

Whitaker, P., H.C. Hartmann, T.C. Pagano, R. Bales, and S. Sorooshian, "Seasonal Forecasts for Water Resources in the U.S. Southwest: Applications and Evaluations," Presentation, NOAA's 24<sup>th</sup> Annual Climate Diagnostics and Prediction Workshop, Tucson, Arizona, November 1-5, 1999.

Hartmann, H.C., R. Bales, and S. Sorooshian, "A Guide to Weather, Climate, and Hydrologic Forecasts for the U.S. Southwest," San Pedro Conference, Dept. of Agriculture, Cananea, Mexico and Bisbee, Arizona, November 7-10, 1999.

Whitaker, P., H.C. Hartmann, T.C. Pagano, R. Bales, and S. Sorooshian, "Seasonal Forecasts for Water Resources in the U.S. Southwest: Applications and Evaluations," San Pedro Conference, Dept. of Agriculture, Cananea, Mexico and Bisbee, Arizona, November 7-10, 1999.

Pagano, T.C., H.C. Hartmann, S. Sorooshian, and B. Imam, (Invited) "Colorado River Basin Issues in a Nutshell," Dept. of Hydrology and Water Resources Seminar Series, University of Arizona, Tucson, Arizona, November 16, 1999.

Blasch, K.W., L.A. Bastidas, H.V. Gupta, and S. Sorooshian, "Inferring Areal Scale Parameter Estimates for Land-Surface Models from Available Observational Data," Presentation, AGU Fall Meeting, San Francisco, California, December 13-17, 1999.

Bastidas, L.A., H.V. Gupta, and S. Sorooshian, "Evaluating the Consistency of Multiple-Output Models Using Observational Data," Presentation, AGU Fall Meeting, San Francisco, California, December 13-17, 1999.

Gupta, H., L.A. Bastidas, and S. Sorooshian, (Invited) "Assimilating Data for Estimation of Parameters in Hydrological Modeling," Australian Nuclear Science and Technology Organization (ANSTO), Sydney, Australia, March 1, 2000.

"Water and Climate Change", on the NSF Science and Technology Center for "Sustainability of Water Resources in Semi-Arid Regions", World Water Forum, The Hague, Netherlands, March 17, 2000.

Hogue, T.S., S. Sorooshian, H. Gupta, A. Holz, and D. Braatz, "A Multi-Step Automatic Calibration Scheme (MACS) for River Forecasting Models," Presentation, 10<sup>th</sup> Annual Hydrology Research Exposition "El Dia del Agua", Dept. of Hydrology and Water Resources, University of Arizona, Tucson, Arizona, April 5, 2000.

Whitaker, P., H.C. Hartmann, R. Bales, and S. Sorooshian, "Seasonal Water Supply Forecast Performance: Issues and Evaluations," *Eos Transactions*, American Geophysical Union, Supplement 81(19): S205, Spring Meeting, Washington, D.C., May 30-June 3, 2000.

Hartmann, H.C., T.C. Pagano, C. Brown, R. Bales, and S. Sorooshian, "Seasonal Climate Forecasts for Water Management: Applications and Evaluations," *Eos Transactions*, American Geophysical Union, Supplement 81(19): S206, Spring Meeting, Washington, D.C., May 30-June 3, 2000.

Bastidas, L.A., H.V. Gupta, Y. Liu, and S. Sorooshian, "Comparative Performance Evaluation of Different Levels of LSM Model Complexity," Presentation, AGU Fall Meeting, San Francisco, California, December 15-19, 2000.

Hsu, K.L., X. Gao, S. Sorooshian, and H. Gupta, (Invited) "Rainfall Estimation from Combined Geostationary and TRMM Satellite Information Using an Artificial Neural Network," Presentation, Rainfall Estimation Workshop, Pretoria, South Africa, May 9-11, 2000.

"Hydrologic Sciences: Water Resources Sustainability in a Changing World", IRI Lecture Series on Linking Science to Society, Columbia University, Palisades, New York, June 15, 2000.

(Invited Presentation) Sorooshian, S., H. Gupta, and L. Bastidas, "Assimilating Data for Estimation of Parameters in Hydrologic Modeling," Presentation, Western Pacific Geophysics Meeting of the American Geophysical Union, Tokyo, Japan, July 2000.

Gao, X., K.L. Hsu, S. Sorooshian, and H.V. Gupta, "Evaluation of Tropical Rainfall Derived Using TRMM and GOES Satellite Data," Presentation, Progress in Electronics Research Symposium (PIERS), Cambridge, Massachusetts, July 5-14, 2000.

Hogue, T.S., S. Sorooshian, and H. Gupta, (Invited), "Bridging the Gap Between Research and Operations: Automatic Calibration of NWS River Forecasting Models," Presentation, NWS River Forecast Center Science Conference, NOAA Office of Hydrology, Silver Spring, Maryland, August 8-11, 2000.

Welles, E., H. Hartmann, H. Gupta, and S. Sorooshian, "What is a Good Probability Forecast?," Presentation, Southwest Weather Symposium, Tucson, Arizona, September 21-22, 2000.

Sorooshian, S. and H. Gupta, "Improving Calibration of Flood Forecast Models: A Multi-Criteria Approach," Presentation, International Symposium on Flood Defense, Kassel, Germany, September 20-23, 2000.

Sorooshian, B., B. Imam, D. Reigle, and R. Bales, "UA-Raytheon Partnership: Snow Mapping, Precipitation, and Digital Watershed Report," NSGIC Annual Conference, Lake Tahoe, Nevada, September 29-Oct. 3, 2000.

Sorooshian, S., "Water Issues Pivotal in the 21<sup>st</sup> Century," Honors Forum Series Seminar, University of Arizona Honors College, Tucson, Arizona, March 6, 2001.

(Invited) Sorooshian, S., "Hydrologic Science: The Role of Water Cycle Studies and Its Relevance to Water Resources Sustainability," University of California-Irvine, April 11, 2001.

Gupta, H.V., S. Sorooshian, X. Gao, L. Bastidas, K. Hsu, B. Imam, and S. Mahani, "The Role of Mathematical Models in the Sustainability of Water Resources Systems," International Conference on Hydraulic Structures, Kerman, Iran, May 1-2, 2001.

Sorooshian, S., B. Imam, T. Pagano, and S. Mahani, "Impact of Climate Variability and Change on Regional Water Resources," International Conference on Hydraulic Structures, Kerman, Iran, May 1-2, 2001.

Zahraie, B., M. Karamouz, B. Imam, and S. Sorooshian, "Improved Statistical Streamflow Forecasting by Snow Budget Calculation," AGU Spring Meeting, Boston, Massachusetts, May 29-June 2, 2001.

Claggett, S., B. Imam, S. Sorooshian, and K. Hsu, "Evaluation of Satellite and NEXRAD Precipitation Estimates for Water Resources Applications," AGU Spring Meeting, Boston, Massachusetts, May 29-June 2, 2001.

Hsu, K., X. Gao, and S. Sorooshian, "Rainfall Estimation Using Satellite-Based Cloud Classification Maps," 7<sup>th</sup> International Conference on Precipitation: Predictability of Rainfall at All Scales," Rockport, Maine, June 30-July 3, 2001.

Imam, B., S. Sorooshian, R.C. Bales, H. Hartmann, and T. Pagano, "Utilization of Remote Sensing Information for Water Resources Management in the Southwestern U.S., IGAARS 2001, Sydney, Australia, July 9-13, 2001.

Gupta, H. and S. Sorooshian, "Assimilation of Data for the Calibration of Watershed Models," Keynote talk, International Workshop on Catchment-Scale Hydrological Modeling and Data Assimilation, Wageningen, The Netherlands, September 3-5, 2001.

Gao, X., S. Sorooshian, K. Hsu, R.A. Maddox, Y. Hong, B. Imam, and H.V. Gupta, "Diurnal Variability of Tropical Rainfall Retrieved from Combined GOES and TRMM Satellite Information," 4<sup>th</sup> International Scientific Conference on the Global Water and Energy Cycle Experiment, Paris, France, September 10-14, 2001.

Gao, X., K. Li, S. Sorooshian, and B. Imam, "Summertime Severe Rainfall Prediction Over the Semi-Arid Southwest U.S. Using Mesoscale Modeling: the July 1999 Event in Las Vegas," 4<sup>th</sup> International Scientific Conference on the Global Water and Energy Cycle Experiment, Paris, France, September 10-14, 2001.

Hogue, T.S., L.A. Bastidas, H.V. Gupta, and S. Sorooshian, "Estimating Surface Carbon Fluxes Using Multi-Objective Techniques," 4<sup>th</sup> International Scientific Conference on the Global Water and Energy Cycle Experiment," Paris, France, September 10-14, 2001.

Liu, Y., L.A. Bastidas, H.V. Gupta, and S. Sorooshian, "Multi-Criteria Parameter Estimation for Coupled Land-Surface Models," 4<sup>th</sup> International Scientific Conference on the Global Water and Energy Cycle Experiment, Paris, France, September 10-14, 2001.

Gupta, H., S. Sorooshian, X. Gao, B. Imam, K. Hsu, L. Bastidas, and S. Mahani, "On the Challenge of Predicting Flash Floods from Thunderstorm Rainfall," British Royal Society Meeting on Floods, November 21-22, 2001.

Sorooshian, S., "Overview of SAHRA: Sustainability of semi-Arid Hydrology and Riparian Areas", Presented at the Building Partnerships and Educational Programs for Water/Watershed Education Workshop, Tucson, Arizona, December 5, 2001.

Sorooshian, S., "Hydrologic Sciences: The Role of Water Cycle Studies and Their Relevance to Water Resources Sustainability," 3<sup>rd</sup> International Symposium on Environmental Hydraulics, Arizona State University, Tempe, Arizona, December 6, 2001.

Bastidas, L., K. Hsu, I. Yucel, S. Sorooshian, and J. Shuttleworth, "Applications of Satellite Data Assimilation for Improved Model Estimations in Semi-Arid Lands," AGU Fall Meeting, San Francisco, California, December 10-14, 2001.

Hogue, T.S., L.A. Bastidas, H.V. Gupta, and S. Sorooshian, "Investigation of Carbon Flux Modeling Using Multi-Criteria Techniques," AGU Fall Meeting, San Francisco, California, December 10-14, 2001.

Moradkhani, H., K. Hsu, H.V. Gupta, and S. Sorooshian, "A Hybrid Architecture of Neural Networks in Daily Streamflow Forecasting," AGU Fall Meeting, San Francisco, California, December 10-14, 2001.

Sorooshian, S., "Advances in Parameter Estimation and Data Assimilation for Hydrologic Modeling," AGU Fall Meeting, San Francisco, California, December 10-14, 2001.

Franz, K., H.C. Hartmann, S. Sorooshian, and R. Bales, "Evaluation of Colorado River Basin Ensemble Streamflow Predictions," 82<sup>nd</sup> Annual Meeting of the American Meteorological Society, Orlando, Florida, January 2002.

Sorooshian, S., B. Imam, S. Mahani, T. Pagano, and M. Whitaker, "Hydrologic Sciences and Water Resources Management Issues in a Changing World," Zayed Conference on Water Resources and Integrated Management, Dubai, United Arab Republic, February 2-6, 2002.

Hong, Y., S. Mahani, J. Li, X. Gao, K. Hsu, and S. Sorooshian, "Cloud Classification and Precipitation Estimation Using Satellite Cloud Infrared Imagery," NSF SAHRA 2<sup>nd</sup> Annual Meeting, Tucson, Arizona, February 22-March 1, 2002.

Bastidas, L.A., Y. Liu, H.V. Gupta, and S. Sorooshian, "Calibration of Locally Coupled Land-Surface Models," GLASS Meeting, De Bilt, The Netherlands, April 2002.

Sorooshian, S., "Introduction to SAHRA: An NSF Science and Technology Center for 'Sustainability of semi-Arid Hydrology and Riparian Areas'", UNESCO RCTWS Launching Workshop, Sharma El-Sheikh, Egypt, April 14-16, 2002.

Pagano, T., H. Hartmann, and S. Sorooshian, "An Introduction to Forecast Evaluation," Seminar Series, University of Arizona, Dept. of Hydrology and Water Resources, Tucson, Arizona, April 17, 2002.

Franz, K.J., H.C. Hartmann, S. Sorooshian, and R. Bales, "Evaluation of Ensemble Streamflow Predictions for the Colorado River Basin," "El Dia del Agua", Annual Symposium, Dept. of Hydrology and Water Resources, University of Arizona, April 12, 2002.

Hsu, K., S. Sorooshian, X. Gao, H. Gupta, and B. Imam, "Rainfall Estimation from the PERSIANN Satellite-Based Algorithm," Poster presentation, 27<sup>th</sup> General Assembly of the European Geophysical Society, Nice, France, April 21-26, 2002.

Sorooshian, S., L.A. Bastidas, and H.V. Gupta, (Invited presentation) "Bounding Parameter Sets for Land-Surface Models Using Remotely Sensed Information and Multi-Criteria Methods," 27<sup>th</sup> General Assembly of the European Geophysical Society, Nice, France, April 21-26, 2002.

Hartmann, H.C., T.C. Pagano, and S. Sorooshian, "Customized Online Climate Forecast Evaluations: A Tool for Improving Water and Watershed Management," American Meteorological Society 13<sup>th</sup> Conference on Applied Climatology, Portland, Oregon, May 12-16, 2002.

Bastidas, L.A., Y. Liu, H.V. Gupta, and S. Sorooshian, "Parameter Estimation for Coupled Land-Surface Models," AMS/GAPP Meeting, New Orleans, Louisiana, May 13-17, 2002.

Gupta, H.V., L.A. Bastidas, T.S. Hogue, and S. Sorooshian, "Evaluation of the Carbon Flux Simulations Over the Southwest U.S.," AMS/GAPP Meeting, New Orleans, Louisiana, May 13-17, 2002.

Gao, X., J. Li, R.A. Maddox, K. Hsu, and S. Sorooshian, "A Comparative Study of Satellite Tropical Rainfall Estimation and Mesoscale Modeling for the North American Monsoon Region," Mississippi River Hydrology and Climate Conference, New Orleans, Louisiana, May 13-17, 2002.

Hartmann, H.C., T. Pagano, and S. Sorooshian, "Online Interactive Seasonal Forecast Evaluations: A Tool for Improving Water Resources Management," Mississippi River Climate and Hydrology Conference, New Orleans, Louisiana, May 13-17, 2002.

Gao, X., J. Li, R.A. Maddox, K. Hsu, and S. Sorooshian, "High-Resolution MM5 Simulation of the Convective Storms During the North American Monsoon," Mississippi River Hydrology and Climate Conference, New Orleans, Louisiana, May 13-17, 2002.

Hogue, T.S., L.A. Bastidas, H.V. Gupta, S. Sorooshian, and W. Emmerich, "Modeling of Energy, Water, and Carbon Fluxes in Semi-Arid Regions," AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Khodatalab, N., H. Gupta, S. Sorooshian "Distributed Hydrologic Modeling for Flow Forecasting by using NEXRAD data," poster presentation, AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Hong, Y., K. Hsu, X. Gao, and S. Sorooshian, "Toward High-Quality Precipitation Estimation," AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Misirli, F., H. Gupta, and S. Sorooshian, "Improving Bayesian Recursive Estimation (BaRE) of Parameters for Conceptual Rainfall-Runoff Models," Poster presentation, AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Gao, X., J. Li, S. Sorooshian, and K. Hsu, "A Comparative Study of Satellite Tropical Rainfall Estimation and Mesoscale Modeling for the North American Monsoon Region," AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Hartmann, H.C., T.C. Pagano, K. Franz, S. Sorooshian, and R. Bales, "Evaluating the Uncertainty of Probabilistic Predictions: Techniques, Applications, and Implications," AGU Spring Meeting, Washington, D.C., May 27-31, 2002.

Sorooshian, S., "Impact of Water System Management and Human Demand on Water Resources," Graduate Student

Summer Symposium (GSSP) Lecture Series on Climate Change and the Global Water Cycle, Baltimore, Maryland, June 14, 2002.

Hsu, K., S. Sorooshian, H.V. Gupta, X. Gao, and B. Imam, "Hydrologic Modeling and Analysis Using a Self-Organizing Linear Output Network," International Environmental Modeling and Software Society Conference, Lugano, Switzerland, June 24-27, 2002.

Sorooshian, S., "Water and Ingenuity in the Semi-Arid Southwest: What is the True Limit to Growth?," Invited presentation, 2002 IEEE Nuclear and Space Radiation Effects Conference, Phoenix, Arizona, July 18, 2002.

Mahani, S., K. Hsu, X. Gao, and S. Sorooshian, "Evaluation of Satellite Rainfall Estimation Data Using TRMM Ground Validation Data," International Tropical Rainfall Measurement Mission (TRMM) Science Conference, Honolulu, Hawaii, July 22-26, 2002.

Shamir, E., E. Morin, B. Imam, and S. Sorooshian, "Toward Incorporating Hydrograph Shape Descriptors in Model Parameter Estimation," Second Federal Interagency Hydrologic Modeling Conference, Las Vegas, Nevada, July 28-August 1, 2002.

Franz, K.J., H.C. Hartmann, S. Sorooshian, and R. Bales, "Evaluation of Ensemble Streamflow Predictions for the Colorado River Basin," National Center for Atmospheric Research Forecast Verification Workshop, Boulder, Colorado, July 30-August 1, 2002.

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