



Miguel A. Mariño

Distinguished Professor Emeritus

Hydrologic Sciences,
Civil & Environmental Engineering,
And Biological & Agricultural Engineering

Biography


Miguel Mariño was born in Central Constancia, Cienfuegos, Cuba, on November 10, 1940 and graduated from high school (Marist Brothers) in 1957. At the time, political discontent and unrest were the norm throughout the island, and his parents ruled-out matriculation at any home-based university. As a result, they planned to send him to a small liberal arts college in the U.S. for one or two years, by which time the political unrest was expected to have ended. He then could return to Cuba and enroll in an engineering program in Havana. However, events and history in Cuba took a different turn. As a result, Miguel completed his undergraduate and graduate work in the U.S., returning briefly to Cuba to visit relatives in 1959 for the last time.

Miguel obtained his AA degree in Liberal Arts from Andrew College in Cuthbert, Georgia, in 1959; his BS degree in Petroleum Engineering and MS in Groundwater Hydrology from the New Mexico Institute of Mining and Technology in 1962 and 1965, respectively; and his PhD degree in Civil Engineering Systems from UCLA in 1972. Upon the completion of the PhD, he took a faculty position at UC -

Davis. Miguel remained there throughout his entire academic career, becoming a full professor in 1980 and a distinguished professor in 2003. He retired in 2009 due to health issues.

At UC Davis, Miguel developed courses in groundwater hydrology and water resource systems planning and analysis. For the first few years his research concentrated on groundwater flow and contaminant transport. While teaching and researching he interacted with and advised many students who became his research assistants and, eventually, research collaborators. They inspired him to read about subjects in which he had little






or no expertise. For example, Mohamed Aboufirass's interest in geostatistical methods induced Miguel to work on kriging, cokriging, and other techniques that the two of them employed to solve subsurface hydrology problems. Through collaborations with George Matanga, Richard Cuenca, Eduardo Holzapfel, and Jesús Chávez, Miguel's research emphasis shifted to the application of simulation and optimization techniques in irrigation planning, design, and management. Abbas Afshar and Ahmad Abrishamchi's interest in wastewater management introduced him to this important topic, while Gilles Patry's interests prompted him to engage in work on rainfall-runoff modeling. Miguel had not explored the subject of reservoir management research until the arrival of Slobodan Simonovic. This led to a research proposal involving reservoir modeling, later followed by other reservoir management proposals that enabled the employment of student researchers such as Behzad Mohammadi, Hugo Loaiciga, and Lawrence Flynn. Eventually, Loaiciga and Mohamed Hantush concentrated their efforts on parameter estimation in groundwater, collaborator John Tracy specialized in water and solute transport in soils, and Hantush and Xuefeng Chu focused on pesticide transport modeling.

As this partial list suggests, at UC Davis Miguel mentored many undergraduate and graduate students, supervising the research of 30 doctoral and 59 Master's students. Many of them now are leading researchers and administrators at academic institutions, governmental agencies, and consulting firms.

Over his 40-year academic career, Mariño and his students made significant contributions to: (1) subsurface hydrology, including contaminant transport and groundwater management, as well as agricultural water management, including the planning design, and analysis of irrigation systems; and (2) management of large-scale hydro systems, including multi-reservoirs, water quality, and water distribution systems. Products of the research have been and continue to be used in Australia, Brazil, Canada, Chile, China, Germany, India, Iran, Iraq, Italy, Japan, Korea, Mexico, Morocco, Pakistan, Saudi Arabia, Spain, and Sweden.

Miguel has been an active member of professional societies including the American Society of Civil Engineers (ASCE), the American Geophysical Union (AGU), the American Water Resources Association (AWRA), the International Association



of Hydrological Sciences (IAHR), the American Institute of Hydrology (AIH), and the Universities Council on Water Resources (UCOWR). He has served as chair of several committees of these societies, including president of AIH and Vice President of IAHS' Commission on Water Resources Systems. He also served as associate editor and editor of ASCE's *Journal of Water Resources Planning and Management*, AWRA monographs, and IAHS publications.

In acknowledgment of his research contributions and service to professional societies, Miguel has received many honors and awards, including the Richard R. Torrens Award (ASCE, 1986); Outstanding Journal Paper Award (ASCE, 1986 and 1990); Best Paper Award (Iranian Research Council in the Water Industry, 1993); Best Paper Award (Iranian Supreme Council, 1995); Elected Fellow (AWRA, 1995); Julian Hinds Award (ASCE, 1996); Elected Distinguished Member (ASCE, 1999); Elected Corresponding Member (Mexico NAE, 1999); Best Paper Award (IWRA, 2001); Elected Fellow (AGU, 2001); Elected Honorary Member (AWRA, 2001); Warren A. Hall Medal (UCOWR, 2002); and Omar Khayyam Award (Scientia Iranica and Sharif University of Technology, 2007). Finally, in 2011, Miguel received the California Water and Environmental Modeling Forum's Career Achievement Award in recognition of his significant contributions during four decades in the water resources field. Specifically, he was cited for providing California water managers and decision makers with key physical and geophysical information for various statewide hydrologic studies, including conjunctive use of surface water and groundwater, optimization of water quality systems, evaluation of land subsidence conditions, reservoirs and systems optimization, and the latest research on systems optimization evolutionary algorithms.



Education

1972

Ph.D., Engineering, University of California, Los Angeles, California
Major: Water Resource Systems Engineering
Minor: Operations Research and Business Administration

1965

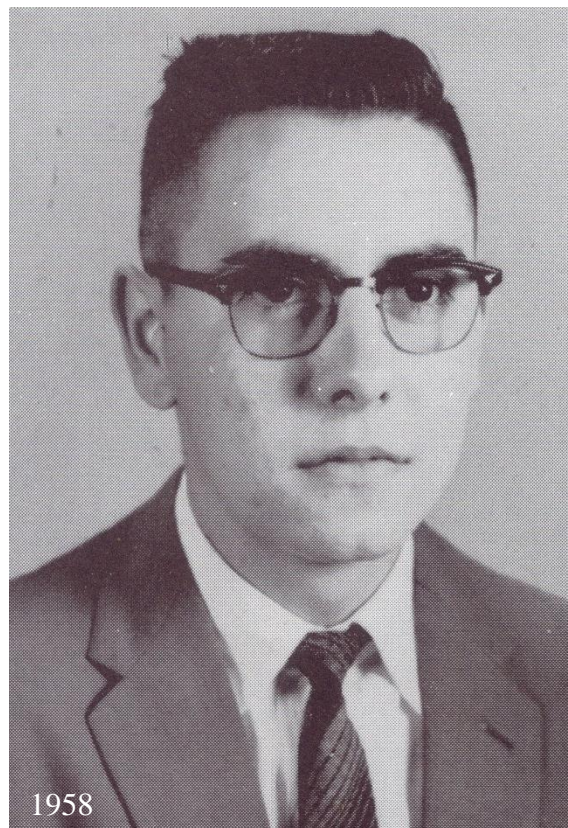
M.S., Groundwater Hydrology, New Mexico Institute of Mining & Technology, Socorro

1962

B.S., Petroleum Engineering, New Mexico Institute of Mining & Technology, Socorro

1959

A.A., Liberal Arts, Andrew College, Cuthbert, GA



Technical Competence

- Simulation of flow and contaminant transport in soils, aquifers, and streams
- Mathematical modeling of pesticide transport and fate in subsurface and surface environments
- Conjunctive use of surface water and groundwater
- Planning, design and management of hydrosystems
- Integrated water resources management
- Estimation techniques for water quantity and quality parameters
- Mathematical modeling of reservoir operations
- Agricultural water management



Honors and Awards

2015

Lifetime Achievement Award, American Society of Civil Engineers-Environmental and Water Resources Institute.

2013

Special Issue of British Journal of Environment and Climate Change "In Honor of Distinguished Professor Miguel A. Mariño: Modelling Approaches to Study Climate Change Impacts on Water and Environmental Systems."

2011

Career Achievement Award, California Water and Environmental Modelling Forum

2007

Omar Khayyam Award, Scientia Iranica & Sharif University of Technology

2005

Life Member, American Society of Civil Engineers

2002

Warren A. Hall Medal, Universities Council on Water Resources

2001

Honorary Member, American Water Resources Association

2001

Fellow, American Geophysical Union

2001

Best Paper Award, International Water Resources Association

Lifetime Achievement Award

Established in 2001, the Environmental & Water Resources Institute Lifetime Achievement Award is presented to members who are judged to have advanced the profession, exhibited technical competence, and significantly contributed to public service, research, or practice in the environmental and water resources profession.

Miguel Mariño is Professor Emeritus of Hydrologic Sciences, Civil & Environmental Engineering, and Biological & Agricultural Engineering at UC Davis. He received both undergraduate and graduate degrees at the New Mexico Institute of Mining & Technology before earning his Ph.D. in Civil Engineering Systems from

UCLA. Mariño has been the recipient of many awards throughout his career, including Distinguished Member from the ASCE in 1999. He currently serves on the Environmental and Water Resources Systems Committee, part of the Environmental & Water Resources Institute.





1999

Corresponding Member, Mexico's National Academy of Engineering

1999

Distinguished Member, American Society of Civil Engineers

1996

Julian Hinds Award, American Society of Civil Engineers

1995

Fellow, American Water Resources Association

1995

Best Paper Award, Iranian Supreme Council

1993

Best Paper Award, Iranian Research Council in the Water Industry

1990

Outstanding Journal Paper Award, American Society of Civil Engineers

1990

Certified Professional Hydrologist (groundwater)

1986

Outstanding Journal Paper Award, American Society of Civil Engineers

1986

Richard R. Torrens Award, American Society of Civil Engineers

1985

Tau Beta Pi, Elected Member



Work Experience

Research and Teaching

<i>July 2009 – Present</i>	Distinguished Professor Emeritus, University of California, Davis
<i>2003 – 2009</i>	Distinguished Professor, University of California, Davis
<i>2008 – 2009</i>	Professor, Further Above-Scale II, University of California, Davis
<i>2003 – 2008</i>	Professor, Further Above-Scale, University of California, Davis
<i>1999 – 2003</i>	Professor, Above-Scale, University of California, Davis
<i>1980 – 1999</i>	Professor, University of California, Davis
<i>1976 – 1980</i>	Associate Professor, University of California, Davis
<i>1972 – 1976</i>	Assistant Professor, University of California, Davis
<i>1969 – 1972</i>	Postgraduate Research Engineer, University of California, Los Angeles

Non-Academic Employment

<i>1965 – 1969</i>	Assistant Hydrologist, Illinois State Water Survey, Champaign-Urbana, IL
<i>1964</i>	Assistant Geohydrologist, New Mexico State Engineers Office, Santa Fe, NM

Professional Society Affiliations

American Society of Civil Engineers (Life Member and Distinguished Member)

- 💧 Member, Groundwater Committee, Irrigation & Drainage Div. (1979-85)
- 💧 Chair, Publications Committee, Wat Res Plng & Managt Div. (1984-88)
- 💧 Member, Publications Committee, Irrigation & Drainage Div. (1988-08)
- 💧 Member, Task Comm. on Systems Analysis Tech., Hydraulics Div. (1989-92)
- 💧 Member, Social and Environ. Objectives Committee, Wat Res Plng & Managt Div. (1993-00)
- 💧 Chair, Water Resources Systems Committee, Wat Res Plng & Managt Div. (1993-94)
- 💧 Chair, Awards Committee, Wat Res Plng & Managt Div. (1994-95)
- 💧 Member, Environmental and Water Resour. Systems Committee, Env & Wat Resour Inst (2000-)
- 💧 Member, International Cooperation Council, EWRI (2000-)
- 💧 Chair, Groundwater Management Committee, EWRI (2003-05)

American Geophysical Union (Member and Fellow)

- 💧 *Member*, Education and Human Resources Committee (1984-86; 1992-94)
- 💧 Co-Chair, Policy Sciences Technical Committee, Hydrology Section (1998-03)
- 💧 Member, Groundwater *Committee*, *Hydrology Section* (2001-)

American Institute of Hydrology (Member)

- 💧 Certified Professional Hydrologist (Groundwater) (1990)
- 💧 Member, Board of Registration (1990-93)
- 💧 President-Elect (2003-04)
- 💧 President (2005-06); Past President (2007-08)

International Association of Hydrological Sciences (Member)

- 💧 Vice President, Commission on Water Resources Systems (1999-07)
- 💧 Chair, Organizing and Tech. Program Committees, International Symposium (1999-00)
- 💧 U.S. National Representative to the IAHS (2003-08)
- 💧 U.S. National Correspondent to the IAHS (2003-08)
- 💧 Co-Convener, Symposia on: Integrated Water Resources Management (1999-00), Regional Management of Water Resources (2000-01), and Sustainable Water for Large Cities (2004-05)

American Water Resources Association (Member, Fellow, and Honorary Member)

- 💧 Member, Editorial Board, Water Resources Bulletin (1978-82)
- 💧 Member, Selection Committee for Boggess Award (1977-91)
- 💧 Member, Publications Committee (1986-94)
- 💧 Member, Awards Committee (1992-96)
- 💧 Member, International Affairs Committee (1994-00)

The Universities Council on Water Resources (Member)

- 💧 Lead Delegate, UC Davis (1995-08)
- 💧 Member, International Programs Committee (1995-98)
- 💧 Member, Board of Directors (1997-00)
- 💧 Chair, Research Committee (1997-00)



International Water Resources Association (Member)

Mexico's National Academy of Engineering (Corresponding Member)

International Union of Geodesy and Geophysics (Member of the U.S. National Comm., National Research Council, (2004-08))

Tau Beta Pi, National Engineering Honor Society (Member)



Publications

Refereed Journal Papers

Ashofteh, P.-S., Bozorg Haddad, O., Loaiciga, H. A. and **Mariño, M. A.** 2016. Evaluation of climate variability and human activities impacts on streamflow at the basin-scale. *Journal of Irrigation and Drainage Engineering*. In Press.

Omid Bozorg Haddad, Ph.D.; Hosein Orouji; Sahar Mohammad-Azari; Hugo A. Loáiciga; **Miguel A. Mariño**, (2015). "Construction Risk Management of Irrigation Dams", *Journal of Irrigation & Drainage Engineering*. In Press

Seifollahi-Aghmiuni, S., Bozorg Haddad, O., **Mariño, M.A.**, (2016). "Generalized Mathematical Simulation Formulation for Reservoir Systems." *Journal of Water Resources Planning and Management*. , 10.1061/(ASCE)WR.1943-5452.0000618, 04016004.

Afshar, A., Massoumi, F., Afshar, A., **Mariño, M.A.**, (2015). "State of the Art Review of Ant Colony Optimization Applications in Water Resource Management," *Journal of Water Resources Management*, 29(11):3891-3904

Fallah-Mehdipour, E., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). "Evaluation of stakeholder utility risk caused by the objective functions in multipurpose multireservoir systems," *Journal of Irrigation and Drainage Engineering*, 141(2), DOI: 10.1061/(ASCE)IR.1943-4774.0000785.

Fallah-Mehdipour, E., Bozorg Haddad, O., Mirzaei-Nodoushan, F., and **Mariño, M.A.**, (2015). Discussion of "Optimal removal of heavy metals pollutants from groundwater using a real genetic algorithm and finite-difference method," *Journal of Computing in Civil Engineering*, 29(1), DOI: 10.1061/(ASCE)CP.1943-5487.0000442.

Bozorg Haddad, O., Ashofteh, P.S., and **Mariño, M.A.**, (2015). "Levee layouts and design optimization in protection of flood areas," *Journal of Irrigation and Drainage Engineering*, 141(8), DOI: 10.1061/(ASCE)IR.1943-4774.0000864.

Bozorg Haddad, O., Ghajarnia, N., Solgi, M., Loáiciga, H.A., and **Mariño, M.A.**, (2015). "Fuzzy multi objective design of water distribution systems," *Environmental Earth Sciences*, In Press.

Bozorg Haddad, O., Mirzaei-Nodoushan, F., Fallah-Mehdipour, E., and **Mariño, M.A.**, (2015). Discussion of "Gene expression models for the prediction of longitudinal dispersion coefficients in transitional and turbulent pipe flow" by A.M.A. Sattar, *Journal of Pipeline Systems-Engineering and Practice*, In Press.

Bozorg Haddad, O., Hamed, F., Fallah-Mehdipour, E., Orouji, H., and **Mariño, M.A.**, (2015). "Application of a hybrid optimization method in Muskingum parameter estimation," *Journal of Irrigation and Drainage Engineering*, Vol. 141, No. 12, December 2015: 04015026, DOI: 10.1061/(ASCE)IR.1943-4774.0000929.

Khorsandi, M., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). "Application of data-driven and optimization methods in identification of location and quantity of pollutants," *Journal of Hazardous, Toxic, and Radioactive Waste*, ASCE 19(2), DOI: 10.1061/(ASCE)HZ.2153-5515.0000238.

Ashofteh, P.S., Bozorg Haddad, O., Akbari-Alashti, H., and **Mariño, M.A.**, (2015). "Determination of irrigation allocation policy under climate change by genetic programming," *Journal of Irrigation and Drainage Engineering*, 141(4), DOI: 10.1061/(ASCE)IR.1943-4774.0000807.

Bozorg Haddad, O., Ashofteh, P.S., Ali-Hamzeh, M., and **Mariño, M.A.**, (2015). "Investigation of reservoir qualitative behavior resulting from biological pollutant sudden entry," *Journal of Irrigation and Drainage Engineering*, 141(8) DOI: 10.1061/(ASCE)IR.1943-4774.0000865.

Ashofteh, P.S., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). Closure to "Risk analysis of water demand for agricultural crops under climate change," *Journal of Hydrologic Engineering*, 20(4), DOI: 10.1061/(ASCE)HE.1943-5584.0001053.

Seifollahi-Aghmiuni, S., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). "A comprehensive mathematical simulation model for watershed resources and demand management," *Journal of Water Resources Planning and Management*, In Press.

Akbari-Alashti, H., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). "Application of fixed length gene genetic programming (FLGGP) in hydropower reservoir operation," *Water Resources Management*, 29(9), 3357-3370.

Akbari-Alashti, H., Bozorg Haddad, O., and **Mariño, M.A.**, (2015). "Evaluation of a developed discrete time-series method in flow forecasting models," *Water Resources Management*, 29(9), 3211-3225.

Bolouri-Yazdeli, Y., Bozorg Haddad, O., Fallah-Mehdipour, E., and **Mariño, M.A.**, (2014). "Evaluation of real-time operation rules in reservoir systems operation," *Water Resources Management*, 28(3), 715-729.

Bozorg Haddad, O., Beygi, S., and **Mariño, M.A.**, (2014). "Reservoir water allocation under abrupt pollution condition," *Journal of Irrigation and Drainage Engineering*, 140(3), DOI: 10.1061/(ASCE)IR.1943-4774.0000679.

Akbari-Alashti, H., Bozorg Haddad, O., Fallah-Mehdipour, E., and **Mariño, M.A.**, (2014). "Multi-reservoir real-time operation rule using fixed length gene genetic programming (FLGGP)," *Proceedings of the Institution of Civil Engineers: Water Management*, 167(10), 561-576. DOI: 10.1680/wama.13.00021

Jahandideh-Tehrani, M., Bozorg Haddad, O., and **Mariño, M.A.** (2014). "Power generation simulation of hydropower reservoir system using system dynamics approach: A case study of Karoon reservoirs system," *Journal of Energy Engineering*, 140(4), DOI: 10.1061/(ASCE)EY.1943-7897.0000179.

Afshar, A., **Mariño, M.A.**, (2014). "Multi-objective consequent management of contaminated network under pressure-deficient conditions," *Journal of American Water Works Association*, 106(10):E470-E480. DOI: <http://dx.doi.org/10.5942/jawwa.2014.106.0125>

Bozorg Haddad, O., E. Fallah-Mehdipour, F. Mirzaei-Nodoushan and **M. A. Mariño**. 2015. Discussion of "A GA-based support vector machine model for the prediction of monthly reservoir storage by J. Su, X. Wang, Y. Liang and B. Chen," *Journal of Hydrologic Engineering*, 20(2), DOI: 10.1061/(ASCE)HE.1943-5584.0001086.

Keshthar, H., O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2014. Discussion of "Optimization of water diversion based on reservoir operation rules -an analysis of the Bihu River reservoir by X. Zhu, C. Zhang, J. Yin, H. Zhou and Y. Jiang," *Journal of Hydrologic Engineering* 20(7), DOI: 10.1061/(ASCE)HE.1943-5584.0001158.

Bozorg Haddad, O., M. Farhangi, E. Fallah-Mehdipour and **M. A. Mariño**. 2014. Effects of inflow uncertainty on the performance of multi-reservoir systems. *Journal of Irrigation and Drainage Engineering*, 140(11), DOI: 10.1061/(ASCE)IR.1943-4774.0000756.

Orouji, H., Bozorg Haddad, O., Fallah-Mehdipour, E., **Mariño, M. A.** and Barati, R.. 2013. Discussion "Estimation of Muskingum parameter by meta-heuristic algorithms," *Proceedings of the Institution of Civil Engineers: Water Management* 167(6):365-367. <http://dx.doi.org/10.1680/wama.13.00073>

Fallah-Mehdipour, E., O. Bozorg Haddad and **M.A. Mariño**. 2014. Genetic programming in groundwater modeling. *Journal of Hydrologic Engineering* 19(12), 10.1061/(ASCE)HE.1943-5584.0000987.

Shokri, A., O. Bozorg Haddad and **M. A. Mariño**. 2014. Multi-objective quantity-quality reservoir operation in sudden pollution. *Water Resources Management* 28(2):567-586.

Ahmadi, M., O. Bozorg Haddad, F. Mirzaei-Nodoushan and **M. A. Mariño**. 2014. Extraction of flexible multi-objective real-time reservoir operation rules. *Water Resources Management* 28(1):131-147.

Bozorg Haddad, O., P. S. Ashofteh, S. Rasoulzadeh-Gharibdoush, and **M. A. Mariño**. 2014. Optimization model for design-operation of pumped-storage and hydropower systems. *Journal of Energy Engineering* 140(2), DOI: 10.1061/(ASCE)EY.1943-7897.0000169.

Hamedi, F., O. Bozorg Haddad, H. Orouji, E. Fallah-Mehdipour and **M. A. Mariño**. 2013. Discussion of "Parameter estimation of the nonlinear Muskingum flood-routing model using a hybrid harmony search algorithm by H. Karahan, G. Gurarsian and Z. W. Geem," *Journal of Hydrologic Engineering* 19(4):845-847.

Bozorg Haddad, O., S. Akbarnejad Nesheli and **M. A. Mariño**. 2014. Discussion of "Simulation-optimization model for in situ bioremediation of groundwater contamination using mesh-free PCM and PSO by M. Mategaonkar and T. Eldho," *Journal of Hazardous, Toxic, and Radioactive Waste Management* 18(2), DOI: 10.1061/(ASCE)HZ.2153-5515.0000212.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**, 2013. Discussion of "Standardization of reference evapotranspiration models for a sub-humid valley rangeland of eastern Himalayas by B. Sahoo, I. Walling, B.C. Deka and B.P. Bhatt," *Journal of Irrigation and Drainage Engineering* 139(9):794-795.

Seifollahi-Aghmiuni, S., O. Bozorg Haddad and **M. A. Mariño**. 2013. Water distribution network risk analysis under simultaneous consumption and roughness uncertainties. *Water Resources Management* 27(7):2595-2610. DOI: 10.1007/s11269-013-0305-4.

Orouji, H., O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2013. Modeling of water quality parameters using data-driven models. *Journal of Environmental Engineering* 139(7):947-957.

Fallah-Mehdipour, E., O. Bozorg Haddad, H. Orouji and **M. A. Mariño**. 2013. Application of genetic programming in stage hydrograph routing of open channels. *Water Resources Management* 27(9):3261-3272.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2013. Prediction and simulation of monthly groundwater levels by genetic programming. *Journal of Hydro-Environment Research* 7(4):253-260 <http://dx.doi.org/10.1016/j.jher.2013.03.005>.

Orouji, H. O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2014. Extraction of decision alternatives in project management: Application of hybrid PSO-SFLA. *Journal of Management in Engineering* 30(1):50-59. DOI: 10.1061/(ASCE)ME.1943-5479.0000186

Soltanjalili, M. O. Bozorg Haddad, S. Seifollahi-Aghmiuni and **M. A. Mariño**. 2013. Water distribution networks simulation by optimization approaches. *Water Science and Technology: Water Supply* 13(4):1063-1079. DOI: 10.2166/WS,2013.086.

Seifollahi-Aghmiuni, S., O. Bozorg Haddad, M. H. Omid and **M. A. Mariño**. 2013. Effects of pipe roughness uncertainty on water distribution network performance during its operational period. *Water Resources Management* 27(5):1581-1599. DOI:10.1007/s11269=013-0259-6.

Bozorg Haddad, O., M. Jahandideh-Tehrani and **M. A. Mariño**. 2013. Discussion of "Assessments of impact of climate change and human activities on runoff with SWAT for the Huifa river basin, northeast China by A. Zhang, C. Zhang, G. Fu, B. Wang, Z. Bao and H. Zheng," *Water Resources Management* 27(7):2071-2073. DOI: 10.1007/s11269-013-0273-8.

Shokri, O. Bozorg Haddad and **M. A. Mariño**. 2013. Algorithm for increasing the speed of evolutionary optimization and its accuracy in multi-objective problems. *Water Resources Management* 27(7):2231-2249. DOI:10.1007/s11269-013-0285-4.

Bozorg Haddad, O., M. M. Rezapour Tabari, E. Fallah-Mehdipour and **M. A. Mariño**. 2013. Groundwater model calibration by meta-heuristic algorithms. *Water Resources Management* 27(7):2515-2529. DOI:10.1007/s11269-013-0300-9.

Ashofteh, P. S., O. Bozorg Haddad and **M. A. Mariño**. 2013. Performance evaluation of AOGCM models under climate change in simulating runoff by statistical indicators and streamflow transition probability. *Proceedings of the Institution of Civil Engineers: Water Management* (In Press).

Bozorg Haddad, O., M. Jahandideh-Tehrani and **M. A. Mariño**. 2013. Discussion of "Investigating the vulnerability of dry-season water supply to climate change: A case study of the Gwangdong reservoir drought management system, Korea by D. Cha, S. Lee and H. Park," *Water Resources Management* 27(7):1893-1896. DOI:10.1007/s11269-012-0234-7.

Orouji, H., O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2013. Estimation of Muskingum parameter by meta-heuristic algorithms. *Proceedings of the Institution of Civil Engineers: Water Management* 166(6):315-324. <http://dx.doi.org/10.1680/wama.11.00068>.

Orouji, H., O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2014. Flood routing in branched river by genetic programming. *Proceedings of the Institution of Civil Engineers: Water Management*, 167(2):115-123., DOI: 10.1680/wama.12.00006.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2013. Extraction of multi-crop planning rules in a reservoir system: Application of evolutionary algorithms. *Journal of Irrigation and Drainage Engineering* 139(6):490-498. doi: 10.1061/(ASCE)IR.1943-4774.0000572.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2013. Extraction of optimal operation rules in aquifer-dam system: Genetic programming approach. *Journal of Irrigation and Drainage Engineering* 139(10):872-879. DOI: 10.1061/(ASCE)IR.1943-4774.0000628.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2014. Discussion of "Genetic algorithm for calibrating a three-axis measuring system" by Q. Wen, Y.-F. Shao and Yi-Z. Yan," *Journal of Aerospace Engineering*, 27(1), 195-197.

Ashofteh, P.-S., O. Bozorg Haddad and **M. A. Mariño**. 2013. Discussion of "Estimating the effects of climate variability and human activities on streamflow in the Hutuo River Basin" by S. Peng, W. Liu, W. Wang, Q. Shao, X. Jiao, Z. Yu, W. Xing, J. Xu, Z. Zhang and Y. Luo," *Journal of Hydrologic Engineering*, ASCE 19(4):836-836. [http://dx.doi.org/10.1061/\(ASCE\)HE.1943-5584.0000834](http://dx.doi.org/10.1061/(ASCE)HE.1943-5584.0000834)

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2014. Discussion of "Performance of shuffled frog-leaping algorithm in finance-based scheduling by A. Alghazi, S. Z. Selimand and A. Elazouni," *Journal of Computing in Civil Engineering*, 28(2): 327-328.

Beigi, S., O. Bozorg Haddad, E. Fallah-Mehdipour and **M. A. Mariño**. 2014. Bargaining models for optimal design of water distribution networks. *Journal of Water Resources Planning and Management* 140(1):92-99. doi: 10.1061/(ASCE)WR.1943-5452.0000324.

Soltanjalili, M., O. Bozorg Haddad and **M. A. Mariño**. 2013. Operating water distribution networks during water shortage conditions using hedging and intermittent water supply concepts. *Journal of Water Resources Planning and Management* 139(6):644-659.

Fallah-Mehdipour, E., O. Bozorg Haddad and **M. A. Mariño**. 2013. Discussion of "Traffic signal optimization with greedy randomized tabu search algorithm by Ta-Yin Hu and Li-Wen Chen," *Journal of Transportation Engineering* 139(9): 957-959

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Seminars and Symposia

"Occurrence and distribution of agricultural pesticides and transport modeling in surface and subsurface environments," (with X. Chu), American Geophysical Union Fall Meeting, San Francisco, California, December 10-14, 2007.

"Pesticide transport and fate in the unsaturated zone of the Fucino Plain, Italy," (with M. Petitta), International Association of Hydrological Sciences, Perugia, Italy, July 3, 2007.

"Social impact assessment of integrated flood risks," (with J. Li), International Association of Hydrological Sciences, Perugia, Italy, July 3, 2007.

"Space and time issues in comparison and evaluation of different pesticide transport models in the vadose zone," (with X. Chu), World Environmental and Water Resources Congress, Tampa, Florida, May 15, 2007.

"Inter-plant economical operation of a cascade hydropower system in electricity market," (with J. Li), 26th Annual Meeting and International Conference, American Institute of Hydrology, Reno, Nevada April 24, 2007.

"ENSO and NAO influences on the Urmia Lake Basin meteorology," (with A. Abrishamchi), American Geophysical Union Fall Meeting, San Francisco, California December 14, 2006.

"Stream flow forecasting and reservoir operation models using fuzzy inference systems," (with A. Abrishamchi), Operations Management Conference, Amer. Soc. of Civil Engineers, Sacramento, California, August 15, 2006.

"Opening of plenary session: Welcoming remarks," 25th Anniversary Annual Meeting and International Conference, American Institute of Hydrology, Baton Rouge, Louisiana, May 23, 2006.

"What AIH can do," 25th Anniversary Annual Meeting and International Conference, American Institute of Hydrology, Baton Rouge, Louisiana May 23, 2006.

"System dynamics modeling of off-channel reservoir operation for flood and water supply management," (with A. Abrishamchi), World Environmental and Water Resources Congress, Omaha, Nebraska, May 21, 2006.

"Simulation of infiltration and surface runoff," (with X. Chu), World Environmental and Water Resources Congress, Omaha, Nebraska, May 21, 2006.

"Pesticide transport models," University of Rome, Italy, April 21, 2006.

"HBMO in engineering optimization," (with O. B. Haddad), 9th International Water Technology Conference, Sharm El-Sheikh, Egypt, March 18, 2005.

"Multireservoir operation by honey-bee mating optimization," (with O. B. Haddad), 1st International Conference on Modeling, Simulation and Applied Optimization, Sharjah, United Arab Emirates, February 2, 2005.

"A new heuristic approach for engineering optimization," (with O. B. Haddad), 1st International Conference on Modeling, Simulation and Applied Optimization, Sharjah, United Arab Emirates, February 1, 2005.

"Citationist for C. T. Haan," recipient of the Ray K. Linsley Award, American Institute of Hydrology, Las Vegas, Nevada, May 26, 2004.

"Citationist for S. J. Burges," recipient of the Ray K. Linsley Award, American Institute of Hydrology, Atlanta, Georgia, May 28, 2003.

"Managing nitrates and pesticides in agriculture," Wuhan University, Wuhan, China, May 22, 2003.

"Water management techniques," Wuhan University, Wuhan, China, May 21, 2003.

"Modeling of diazinon runoff and leaching in a watershed," (with X. Chu), American Water Resources Association Specialty Conference, Kansas City, Missouri, May 13, 2003.

"Integrated water resources management: A complex challenge," (with H. Safavi and A. Afshar), 6th International Conference on Civil Engineering , Isfahan, Iran, April 29-May 1, 2003.

"Agricultural threats to surface water and ground water," University of Sao Carlos, Brazil, April 25, 2003.

"Evaluación del Modelo RISK-N para la Estimación de Recarga de Nitratos al Agua Subterránea," (with J. L. Arumi, R. Oyarzun and L.S. Salgado), Groundwater and Human Development Conference, Mar del Plata, Argentina, October 21-25, 2002.

"Simulation of 2,4D Herbicide Transport Through the Unsaturated Zone Using an Analytical Model," (with L. Candela), 2nd European Conference on Pesticides and Related Organic Micropollutants in the Environment, Corfu, Greece, September 26-29, 2002.

"Models for the Assessment of Pesticide Exposure Levels in Subsurface and Surface Environments," Wuhan University, Wuhan, China, September 4-10, 2002.

"Conjunctive Water Management in California," Wuhan University, Wuhan, China, September 4-10, 2002.

"Pesticide Transport Modeling in Soils, Ground Water and Surface Water," Keynote Speech, 3rd International Conference on Water Resources and Environmental Research, Dresden, Germany, July 22-25, 2002.

"Water Delivery Service as a Determinant of Irrigation Project Performance," (with S. W. Styles), 18th ICID Congress, Montreal, Canada, July 21-28, 2002.

"Integrated Pesticide Transposrt Modeling in Surface and Subsurface Environments," (with X. Chu), California Department of Pesticide Regulation, Sacramento, California, June 24, 2002.

"Introduction to the Julian Hinds Award," Environmental and Water Resources Insitute of the American Society of Civil Engineers, Roanoke, Virginia, May 21, 2002.

"Integrated Pesticide Transport Modeling," (with X. Chu), California Department of Pesticide Regulation, Sacramento, California, July 1, 2002.

"Pesticide Transport Modeling and a Case Study in the Orestimba Creek Basin, California," (with X. Chu), Annual Research Symposium, UC Toxic Substances Research and Teaching Program, Long Beach, California, April 5, 2002.

"Estimating Nitrate Leaching to Groundwater," Universidad de Concepcion, Chillan, Chile, January 15, 2002.

"Soil and Groundwater Contamination," Concha y Toro, Santiago, Chile, January 11, 2002.

"Perspectivas de la Planificación Hidrológica," Alicante, Spain, October 2, 2001.

"Hydraulic Analysis of Baseflow and Bank Storage in Alluvial Stream," (with M. M. Hantush and M. Harada), Wetlands Engineering and River Restoration Conference, Environmental and Water Resources Institute, ASCE, Reno, Nevada, August 27-31, 2001.

"A Forward Dynamic Programming Model for Irrigation Scheduling in an Irrigation District," (with A. D. Teixeira), 4th Inter-Regional Conference on Environment-Water, Fortaleza, Brazil, August 27-30, 2001.

"Models for Pesticide Exposure Assessment in Surface-Subsurface Environments," Central Valley Regional Water Quality Control Board, Sacramento, California, August 7, 2001.

"Conjunctive Management of Surface Water and Groundwater," Keynote Speech, 6th Scientific Assembly of the International Association of Hydrological Sciences, Maastricht, The Netherlands, July 20, 2001.

"Effect of Interaction Between Stream and Riparian Aquifer on Fish Habitat in Lower Reach of Intake Dam," (with M. Harada and M. M. Hantush), 6th Scientific Assembly of the International Association of Hydrological Sciences, Maastricht, The Netherlands, July 18-27, 2001.

Conjunctive Use of Ground Water and Surface Water in California, " Summer Course: La Gestion del Agua: Nuevos y Viejos Paradigmas, Universidad Rey Juan Carlos, Almeria, Spain, July 9-13, 2001.

"Models for Pesticide Exposure Assessment in Surface-Subsurface Environment," (with X. Chu), Annual Spring Specialty Conference, American Water Resources Association, San Antonio, Texas, April 30-May 2, 2001.

"Pesticide Transport Modeling and Exposure Assessment in a Subsurface-Surface System," (with X. Chu), Poster, UC Toxic Substances Research and Teaching Program Symposium, Lake Tahoe, California, April 20-21, 2001.

"Modeling of an LNAPL Lens Formation in the Vadose Zone using a Geotechnical Centrifuge," (with H. Nakajima et al.), Poster, Fall Meeting, American Geophysical Union, San Francisco, California, December 15-19, 2000.

"Pesticide Transport Modeling and Application to the Wadsworth Canal Basin, California," (with X. Chu), Fall Meeting, American Geophysical Union, San Francisco, California, December 15-19, 2000.

"Design Optimization of Trickle Irrigation Systems Using Linear and Nonlinear Programming Models," (with J. C. Saad), Poster, 4th National Irrigation Symposium, Phoenix, Arizona, November, 14-16, 2000.

"Pesticide Transport Modeling: Application to Wadsworth Canal," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, California, September 7, 2000.

"A Characteristic Solution to Nitrate Transport and Fate in Groundwater in Agricultural Watersheds," (with M. M. Hantush), 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.

"Distributed Source Advective-Reactive Contaminant Transport," (with M. M. Hantush), Symposium on Well Hydraulics, 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.

"Modification of Impulse Response Function for Bank Storage in Streams with Linear Storage Model," (with M. Harada and M. M. Hantush), Poster, 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.

"Economic Viability and Selection of Irrigation Systems Using Simulation and Stochastic Dominance," (with J. C. Saad and L. H. Duenhas), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.

"Dynamic Programming Model for Quasi-Real Time Reservoir Operation and Irrigation Scheduling," (with A. D. Teixeira), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.

"Design of Microirrigation Systems in Sloping Lands Using Linear Programming," (with J. C. Saad), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.

"Modeling Nitrate Transport and Fate in Agricultural Drainage and Stream Riparian Zones," (with M. Hantush), Spring Meeting, American Geophysical Union, Washington, D.C., May 30-June 3, 2000.

"Subsurface Transport of Pesticides," Polytechnic University of Catalunya, Barcelona, Spain, May 11, 2000.

"Hydraulic Analysis on Stream-Aquifer Interaction by Storage Function Models," (with M. Harada), International Association for Hydraulic Research Symposium, Omiya, Japan, May 9, 2000.

"Mathematical and Physical Modeling of Density-Viscosity Effects in Contaminant Transport in the Subsurface Environment," (with H. Nakajima), Poster, 13th Annual Research Symposium, UC Toxic Substances Research and Teaching Program, San Diego, California, April 28-29, 2000.

"Development of a Coupled Pesticide Transport and Ecological Model," (with H. Basagaoglu), Poster, 13th Annual Research Symposium, UC Toxic Substances Research and Teaching Program, San Diego, California, April 28-29, 2000.

"Mathematical and Physical Modeling of Density-Viscosity Effects in Contaminant Transport in the Subsurface Environment," (with H. Nakajima), Ecotoxicology Seminar, UC Davis, April 26, 2000.

"Risk Analysis of the Middle Route for the South-to-North Transbasin Transfer in China," (with L. Wang), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.

"Conjunctive Water Resources Supply-Demand Management Model in Baotou City, China," (with X. Chu), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000

"Effects of Spatial Interaction Between Stream and Aquifer on Stream Condition in Alluvial Basin," (with M. Harada), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.

"Opening Remarks" and "Closure," International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.

"Furrow Irrigation Design," University of Concepcion, Chillan, Chile, March 2, 2000.

"The Linear Driving Force Approach for a Radial Diffusive Model," (with H. Basagaoglu), Fall Meeting, American Geophysical Union, San Francisco, California, December 15, 1999.

"Introduction and Presenter of Award," American Institute of Hydrology Conference, San Francisco, California, November 8, 1999.

"Welcome: Opening Remarks" and "Closure," 22nd Biennial Groundwater Conference, San Diego, California, September 20-21, 1999.

"Characterization of Parameters in a Coupled Stochastic Reservoir Operation-Irrigation Scheduling Model," (with A. D. Teixeira), Poster, Envirowater 99, Lausanne, Switzerland, September 1-3, 1999.

"Models for Nitrogen Transformation in Agroecosystems," (with M. M. Hantush), ASCE International Water Resource Engineering Conference, Seattle, Washington, August 8-12, 1999.

"Leaching Models for Subsurface Pollution Assessment in Agroecosystems," (with M. M. Hantush), ASCE Environmental Engineering 1999, Norfolk, Virginia, July 25-28, 1999.

"Modeling of Nitrogen Dynamics in the Subsurface Environment," (with A. J. Gusman), International Union of Geodesy and Geophysics, Birmingham, United Kingdom, July 18-30, 1999.

"Pesticide Transport Models," Annual Meeting, The Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.

"Uncertainty in Leaching Potential of Nonpoint Source Pollutants with Application to a GIS," (with M. M. Hantush, Z. Zhang and E. Hoque), Annual Meeting, The Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.

"Introduction and Presenter of Award," Annual Meeting of the Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.

"Opportunities for Research and Outreach Activities at the Centers for Water and Wildland Resources," County Directors Meeting, Division of Agriculture and Natural Resources, Davis, California, April 28, 1999.

"Pesticide Transport in Subsurface and Surface Water," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, California, April 15-16, 1999.

"Numerical Analysis of Density-Viscosity Effects in Pesticide Transport in the Subsurface Environment," (with H. Nakajima), Poster, 12th Annual Research Symposium, University of California Toxic Substances Research and Teaching Program, Santa Barbara, California, April 9-10, 1999.

"Mathematical Models of Pesticide Transport," VI National Civil Engineering Congress, Puebla, Mexico, January 28-31, 1999.

"New Directions in the Development and Conservation of Water in California," Water Resources Conference, Madrid, Spain, November 16-18, 1998.

"d-form Approximation for a Conjunctive Water Resources Management Problem" (with H. Basagaoglu), International Association of Hydrogeologists Congress and Annual Meeting of the American Institute of Hydrology, Las Vegas, Nevada, September 27 - October 2, 1998.

"Analytical Models for Ranking Pesticides in Soils and Ground Water" (with M. Hantush and M. Islam), Ground Water Management Symposium, American Society of Civil Engineers, Memphis, Tennessee, August 3-7, 1998.

"Conjunctive Management Model for Yolo Basin, California" (with H. Basagaoglu), 25th Annual Conference on Water Resources Planning and Management, American Society of Civil Engineers, Chicago, Illinois, June 7-10, 1998.

"Transport and Fate of Pesticides in the Subsurface Environment," Keynote Address, International Conference on Barriers to Sustainable Management of Water Quantity and Quality, International Association of Hydrological Sciences, Wuhan, China, May 12-15, 1998.

"Numerical Simulation of Pesticide Fate and Transport Through a Groundwater-Wetland System" (with J. Ingersoll), Poster, University of California Toxic Substances Research and Teaching Program, Berkeley, California, April 24-25, 1998.

"Pesticide Modeling in Soils and Groundwater," University of Concepcion, Chillan, Chile, April 21, 1998.

"Irrigation Management Models," University of Concepcion, Chillan, Chile, April 20, 1998.

"Modelling the Fate of Common Pesticides in the Subsurface Zone Below Tropical Agriculture" (with R. E. Volker and I. P. Callow), International Groundwater Conference, International Association of Hydrogeologists, Melbourne, Australia, February 8-13, 1998.

"Application of ARIMA modelling in water resources management" (with T. Hameed), 24th Hydrology and Water Resources Symposium, Auckland, New Zealand, November 24-27, 1997.

"A Modeling Analysis of Groundwater Recharge Potential of Alluvial Fans Using Limited Data" (with A. Munevar), Advances in Ground-Water Hydrology - A Decade of Progress, American Institute of Hydrology, Tampa, FL, November 16-19, 1997.

"Application of CALSIM for Planning Studies in California" (with T. N. Kadir), American Water Resources Association Annual Conference and Symposium, Long Beach, California, October 19-23, 1997.

"Joint Management of Surface and Ground Water Supplies" (with H. Basagaoglu), American Water Resources Association Annual Conference and Symposium, Long Beach, California, October 19-23, 1997.

"Pesticide Transport in the Vadose and Groundwater Zones," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, CA, September 11-13, 1997.

"Effect of Horizontal Anisotropy on Head, Flow and Solute Transport in Heterogeneous Alluvial Region" (with M. Harada and M. Hantush), XXVII Biennial Congress, International Association for Hydraulic Research, San Francisco, California, August 10-15, 1997.

"Comparison of Selected Analytical and Numerical Pesticide Transport Models" (with H. Basagaoglu and J. Gusman), AWRA-UCOWR Annual Meeting, Keystone, Colorado, June 29-July 3, 1997.

"Stream-Aquifer System Management" (with H. Basagaoglu), Water Resources Assessment Workshop, 5th Scientific Assembly of the International Association of Hydrological Sciences, Rabat, Morocco, April 23-May 3, 1997.

"Nutrient Fate and Transport in a Wetland at the Jepson Prairie Reserve, Solano County, California" (with J. Ingersoll), Poster, UC Toxic Substances Research and Teaching Program, San Diego, CA, April 11-12, 1997.

"Groundwater Remediation as a Feedback Control Problem" (with S. Seneviratne), 24th Annual Water Resources Planning and Management Conference, American Society of Civil Engineers, Houston, Texas, April 6-9, 1997.

"Management of Pollution Control," Keynote Speech, UNESCO Workshop on Agricultural Threats to Groundwater Quality, Zaragoza, Spain, October 27-30, 1996.

"Chance Constraint Model for Joint Management of Stream-Aquifer System" (with H. Basagaoglu), Integrated Management of Surface and Ground Water, The Universities Council on Water Resources, San Antonio, Texas, July 30-August 2, 1996.

"A New Model of California's SWP/CVP Systems" (with T. N. Kadir), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.

"Development and Calibration of a Groundwater Model and Its Application to Water Resources Management in Eastern San Joaquin County, California" (with M. Magolske), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.

"Large River Diversion Optimization Considering the Uncertainties Involved" (with A. Afshar), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.

"Computer Packages for Irrigation Planning" (with J. Chavez-Morales and E. Holzapfel), Sixth International Conference on Computers in Agriculture, American Society of Agricultural Engineers, Cancun, Mexico, June 10-14, 1996.

"Water Management in California," International Hydrology Course, Polytechnic University of Catalunya Barcelona, Spain, June 4, 1996.

"Assessment of Pesticides Exposure Levels in Groundwater: Modeling Aspects" (poster paper with M. M. Hantush), Annual Meeting, EPA Center for Ecological Health Research, Davis, California, March 18, 1996.

"The Role of Geohydrologic Processes in Wetland Ecology" (poster paper with C. Green and G. Fogg), Annual Meeting, EPA Center for Ecological Health Research, Davis, California, March 18, 1996.

"Conjunctive Management of Surface and Ground Water Resources" (with H. Basagaoglu), Fall Meeting, American Geophysical Union, San Francisco, California, December 11-15, 1995.

"Contaminant Transport in Aquifers of Fluvial and Alluvial Origin" (poster paper with M. M. Hantush), 20th Biennial Ground Water Conference, San Diego, California, September 11-12, 1995.

"Ground-Water Elevation Recovery in Eastern San Joaquin County, California" (with M. Magolske), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.

"A Linked Reservoir and Surface Water-Ground Water Simulation Model of California's Central Valley System" (with T. N. Kadir), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.

"Optimal Control for Groundwater Remediation" (with F. Ben Jemaa), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.

"Stochastic Contaminant Transport in Dual Porous Media", (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 5-9, 1994.

"Effective Hydraulic Conductivity in Nonstationary Stochastic Groundwater Flow Analysis" (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 5-9, 1994.

"A Sampling Design for Contaminant Distribution in Lake Sediments" (with F. Ben Jemaa), 21st Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Denver, Colorado, May 23-26, 1994.

"Risk Assessment with a Quasi Three-Dimensional Contaminant Transport Model" (with M. Mejia and M. Hantush), 21st Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Denver, Colorado, May 23-26, 1994.

"Design of Groundwater Quality Monitoring Networks", Symposium on Advanced Methods for Groundwater Pollution Control, Udine, Italy, May 5-6, 1994.

"Round-Table Discussion: Water Transfers," Curso de Verano: Agua y el Medio Ambiente, Universidad Complutense, El Escorial, Spain, August 23-27, 1993.

"Uso de Aguas Superficiales y Subterráneas en California," Curso de Verano: Agua y el Medio Ambiente, Universidad Complutense, El Escorial, Spain, August 23-27, 1993.

"Transport Processes and Modeling of Contaminant Transport," SCOPE/UNEP Workshop on Groundwater Pollution, San José, Costa Rica, July 26-30, 1993.

"Transfer Function Modeling of Evapotranspiration," (with T. Hameed), National Conference on Irrigation and Drainage Engineering, Irrigation and Drainage Division, American Society of Civil Engineers, Park City, Utah, July 21-23, 1993.

"Stable Slopes of Alluvial Channels," (with M. N. Cheema), National Conference on Irrigation and Drainage Engineering, Irrigation and Drainage Division, American Society of Civil Engineers, Park City, Utah, July 21-23, 1993.

"Water in Agriculture: Options and Proposals for a Better Use," Symposium: The Water Economy, Aigües de Barcelona, Barcelona, Spain, May 26-28, 1993.

"Optimal State Feedback Estimation in Groundwater: Application to Leaky Aquifers," (with M. M. Hantush), 20th Anniversary Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Seattle, Washington, May 3-5, 1993.

"Optimal Strategy for Aquifer Remediation," (with F. Ben Jemaa), 20th Anniversary Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Seattle, Washington, May 3-5, 1993.

"Water Management in California," Jornada Sobre las Aguas Subterráneas, Instituto Tecnológico GeoMinero de España y Real Academia de Ciencias Exactas, Físicas y Naturales, Madrid, Spain, March 31-April 2, 1993.

"Analysis of Groundwater Flow Subject to Stochastic Recharge: Application to Leaky Aquifers," (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 7-11, 1992.

"Drought Effects on California Agriculture," International Fair, Agriculture and Cattle Sector, Santiago, Chile, November 6, 1992.

"Operation of Reservoir Systems for Optimal Hydropower Production," Empresa Eléctrica Colbun Machicura, Talca, Chile, November 4, 1992.

"Hydrology, Agricultural Engineering and Environmental Engineering: Curricula and Opportunities," Department of Agricultural Engineering, University of Concepción, Chillán, Chile, November 3, 1992.

"Water Use in California: Past, Present and Future Outlook," Department of Agricultural Engineering, University of Concepción, Chillán, Chile, November 2, 1992.

"Optimization Models for Groundwater Development," (with R. Willis), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.

"Stochastic Analysis of Ground-Water Flow in Statistically Nonstationary Aquifers," (with M. M. Hantush), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.

"Forecasting Changes in Ground-Water Parameters," (with F. Ben Jemaa), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.

"Predicting Water Demand in Agricultural Regions Using Time Series Forecasts of Reference Crop Evapotranspiration," (with J. C. Tracy and A. Taghavi), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.

"Monitoring Geohydrological Time Series," (with F. Ben Jemaa), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.

"Stochastic Groundwater Analysis in the Presence of Trends in Heterogeneous Hydraulic Conductivity Fields," (with H. A. Loaiciga, R. B. Leipnik and P. F. Hudak), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.

"Analytical Methods for Regional-Scale Groundwater Quality Monitoring Network Design and Numerical Verification," (with P. F. Hudak and H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.

"Stochastic Optimal Estimation of Aquifer Hydraulic Properties: Kalman Filtering," (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.

"Optimal Network Design for Groundwater Quality and Quantity Parameters," (with F. Ben Jemaa), XX General Assembly of the IUGG, Vienna, Austria, August 11-24, 1991.

"Monitoring Well Network Design," 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.

"Application of Kalman Filtering to Groundwater Flow in Finite Heterogeneous Aquifers," (with M. M. Hantush), 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.

"Geostatistics in Groundwater Sampling Design," (with F. Ben Jemaa), 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.

"Temporal and Spatial Variability of Hydraulic Heads in Finite Heterogeneous Aquifers: Numerical Modeling," (with M. M. Hantush), International Conference on Calibration and Reliability in Groundwater Modelling, The Hague, The Netherlands, September 3-6, 1990.

"Optimal Network Design for Groundwater Quality and Quantity Parameters," (with F. Ben Jemaa), International Conference on Calibration and Reliability in Groundwater Modelling, The Hague, The Netherlands, September 3-6, 1990.

"Stochastic Control of Groundwater Resources," (with H. A. Loaiciga), A Joint Conference: Focus on Environmental Hydrology and Hydrogeology Issues in U.S.A. and Hungary, Budapest, Hungary, June 26-28, 1990.

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"An Approach to Risk Analysis in Water Resources Planning," (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 9, 1985.

"Multireservoir Operation Planning Via Quadratic Programming," (with H. A. Loaiciga), International Symposium on Scientific Basis for Water Resources Management, Jerusalem, Israel, September 19-23, 1985.

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"Water Quality Forecasting in Combined Sewer Catchments," (with G. G. Patry), Urban Water '84, American Society of Civil Engineers, Baltimore, Maryland, May 28-31, 1984.

"Optimization Models for the Planning and Operation of Reservoir Systems," Department of Civil Engineering, Kyoto University, Japan, April 18-20, 1984.

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Reviews

Reviewer for Journal/Book Manuscripts and Research Proposals

- Prentice-Hall, Inc.
- McGraw-Hill Book Co.
- Academic Press
- Marcel Dekker, Inc.
- ASCE Books
- U.S. National Science Foundation
- International Science Foundation
- UNESCO
- Encyclopedia of Water Science
- Water Resources Research
- Water International
- Journal of Environmental Engineering
- Journal of Hydraulic Engineering
- Stochastic Hydrology and Hydraulics
- Journal of Water Resources Planning and Management
- Journal of Hydrology
- Journal of Irrigation and Drainage Engineering
- Journal of Hydrologic Engineering
- Journal of Infrastructure Systems
- Advances in Water Resources
- Hydrological Sciences Journal
- Water Environment Federation
- Hydrology Research (formerly, Nordic Hydrology)
- Journal of Mathematical Geology
- Journal of the American Water Resources Association
- Water Resources Bulletin
- International Association of Science and Technology for Development
- European Journal of Operational Research
- Mathematical and Computer Modelling
- Journal of Engineering Mathematics
- Environmental Science and Technology
- U.S. National Research Council, Policy & Global Affairs Division
- U.S. National Science Foundation, Geosciences Panel
- U.S. Geological Survey (UCOWR)
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture, Water Resources Assessment and Protection Program
- U.S. Department of Agriculture, Small Business Innovation Research Program
- University of California Water Resources Center
- U.C. Toxic Substances Research and Teaching Program
- California Sea Grant College Program
- Soil Science Society of America Journal
- California Agriculture
- Journal of Production Agriculture
- National Geographic Society
- Arab Science and Technology Foundation
- Australian Research Grants Committee
- Australian Research Council
- Australian National University Supercomputer Facility
- Chilean Research Council
- Arabian Journal of Science and Engineering
- Kuwait Journal of Science and Engineering
- Iranian Journal of Science and Technology
- Iranian Journal of Water Resources Engineering
- Ground Water Monitoring and Remediation

- Water Research Institute, Technion-Israel Institute of Technology
- Agro-Ciencia, Chile
- Comisión Interministerial de Ciencia y Tecnología, Spain
- Idaho Board of Education
- NIGEC, South Central Regional Center
- Scientia Iranica
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- Australian Department of Employment, Education, Training and Youth Affairs
- Advances in Modelling and Simulation
- Advances in Engineering Software
- Facta Universitates, Belgrade
- The Academy of Finland
- U.S.-Israel Binational Science Foundation
- National Institute for Global Environmental Change
- The Center for Advanced Study, University of Illinois

External Reviewer for Promotion of Faculty

- University of California, Los Angeles
- University of California, San Diego
- University of California, Santa Barbara
- University of California, Irvine
- University of California, Merced
- University of Colorado
- University of Connecticut
- University of Houston
- University of Idaho
- University of Illinois
- University of Kansas
- University of Kentucky
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- University of Massachusetts
- University of Tennessee
- University of Texas
- University of Utah
- University of Virginia
- Drexel University
- Florida A & M-Florida State University

- Virginia Tech
- Cornell University
- Louisiana State University
- Temple University
- Texas A & M University
- Tufts University
- Colorado State University
- McMaster University, Canada
- Rice University
- Rutgers University
- Virginia Tech
- The City University of New York
- Technion-Israel Institute of Technology
- King Fahd University of Petroleum and Minerals, Saudi Arabia
- Griffith University, Australia
- Applied Sciences University, Amman, Jordan

Student Supervision

Ph.D.

- George B. Matanga, "Application of Optimization and Simulation Techniques to Irrigation Management," 1977. Currently with the U.S. Bureau of Reclamation.
- Richard H. Cuenca, "Transferable Simulation Model for Crop Soil Water Depletion," 1978. Currently a professor at Oregon State University.
- Abbas Afshar, "An Integrated Study of a Wastewater Disposal Plan," 1979. Currently a professor and administrator at Iran University of Science and Technology.
- Ahmad Abrishamchi, "Dynamic Planning in Wastewater Treatment Management," 1979. Currently a professor at Sharif University of Technology, Iran.
- Slobodan P. Simonovic, "Reservoir Systems Planning and Design by Reliability Programming," 1981. Currently a professor and administrator at the University of Western Ontario, Canada.
- Mohamed Aboufirassi, "Identification of Transmissivities in Yolo Basin, California: A Geostatistical Approach," 1982. Currently founder and owner of RESING Consulting Engineers in Marrakech, Morocco.
- Behzad Mohammadi, "Real-Time Operation Models for Large-Scale Hydrosystems," 1982. President, Microwizard, Agoura, California.
- Gilles G. Patry, "Real-Time Forecasting of Water Quantity and Quality in Urban Catchments," 1983. President Emeritus at the University of Ottawa, Canada.
- Hidayat Pawitan, "Space-Time Models of Rainfall Fields at Ground Level," 1983. Currently a professor at Bogor Agricultural University, Indonesia.
- Eduardo A. Holzapfel, "Selection and Design of Surface Irrigation Methods," 1984. Currently a professor and administrator at the University of Concepcion, Chile.
- Jesus Chavez-Morales, "An Optimization and Simulation Methodology for Irrigation Planning," 1985. Currently a professor at Colegio de Postgraduados in Montecillo, Mexico.
- Hugo A. Loaiciga, "Real-Time Forecasting and Control for Flood Routing via Reservoir Operation," 1986. Currently a professor at the University of California , Santa Barbara.

- Lawrence E. Flynn, "Optimal Design and Operation of Water Delivery and Storage Systems," 1987. Currently a Research Scientist at the National Oceanic and Atmospheric Administration, Camp Springs, Maryland.
- David M. Goldman, "Estimating Runoff Prediction Uncertainty Using a Physically-Based Stochastic Watershed Model," 1987. Currently at Cold Regions Research and Engineering Laboratory, U.S. Army Corps of Engineers.
- John C. Tracy, "A Model for the Management of Crop Irrigation and Soil Salinity," 1989. Currently a professor and administrator at the University of Idaho.
- Seyed-Alireza Taghavi-Shirazi, "Groundwater Quality Management Using Optimal Control Theory," 1991. Currently co-owner and co-founder of Water Resources Information and Management Engineers, Inc., Sacramento, California.
- Fethi Ben-Jemaa, "Optimal Design and Analysis of Groundwater Monitoring Networks," 1992. Currently with the California Department of Water Resources, Sacramento.
- Mohamed M. Hantush, "Stochastic Analysis and Optimal Estimation in Groundwater," 1993. Currently with the U.S. Environmental Protection Agency, Cincinnati, Ohio.
- Tahir Hameed, "Water Management Under Uncertain Conditions," 1994. Currently with the New South Wales Department of Land and Water Conservation, Australia.
- Mohammad N. Cheema, "Design and Operation of Alluvial Channels from the Principles of Sediment Transport," 1994. Currently with Snowy Mountains Engineering Corporation, Australia.
- Hakan Basagaoglu, "Development of Conjunctive Management and Soil Pesticide Transport Models," 2000. Currently with Southwest Research Institute, San Antonio, Texas.
- Adunias D. Teixeira, "Dynamic Programming Model for Quasi-Real Time Reservoir Operation and Irrigation Scheduling," 2000. Currently a professor at Federal University of Ceará, Brazil.
- Stuart W. Styles, "Water Delivery Service as a Determinant of Irrigation Project Performance," 2000. Currently a professor and administrator at California Polytechnic State University, San Luis Obispo.
- Hakan Sirin, "Nonequilibrium Sorption Under Physical and Chemical Heterogeneity," 2001. Currently a professor at Anadolu University, Turkey.
- Hideo Nakajima, "Centrifuge Modeling of LNAPL Movement in the Vadose Zone," 2002. Currently with the National Institute of Advanced Industrial Science and Technology, Japan.

- 💧 Xuefeng Chu, "Integrated Pesticide Transport Modeling in Surface and Subsurface Environments," 2002. Currently a professor at North Dakota State University, Fargo.
- 💧 Leila Ostadrahimi, "Optimal Design and Operation of Cyclic Storage System Using a Hybrid Multi-Swarm PSO-LP Algorithm," 2013. Currently Hydraulic Engineer at Hydrologic Engineering Center, U.S Army Corps of Engineers, Davis, CA.
- 💧 Tariq N. Kadir, "Operation Model and an Integrated Hydrologic Simulation Model with Dynamic Hydrology Adjustment of the SWP and CVP Systems in California," 2016. Currently Senior Engineer WR with the California Department of Water Resources, Sacramento, California.
- 💧 Amin Afshar, "Simulation-Optimization Modelling of Water Quality and Consequence Management in Contaminated Water Distribution Networks." 2016.

M.Sc.

Hamad Rahji
Stanley Powell
Hugo Loaiciga
James Fairchild
Mohamed Hantush
Bryan Largay
Keith Larson
Stephen Ferry
Ali Abrishamchi
Gerald Robb
Mohamed
Aboufirassi
John Fio
Abbas Afshar
William
Scharffenberg
Ahmad
Abrishamchi
Wilton Fryer
Michael Archer
Lawrence
Schwankl

Babs Makinde-Odusola
Ali Ghorbanzadeh
Naser Batini
James Seyfried
Said Masoudi
Pedro Gonzalez
Barbara Bauer
Francesca Somma
Arash Massoudieh
Randolph Grose
Monique Beaumon
Yutaka Sumita
Miguel Mejia
Alberto Guinand
Flavio Bonilla
Alireza Taghavi
Loren Metzger
Jake Gusman
Daniel Brogadir
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Thomas Lin

Guillermo Cabrera
Miguel Turcios
Armin Munevar
Hendi Hassan
Il Whan Chung
Donald Walker
Brian O'Brien
Ines Hatton
Anne Marie Collins
Eugene Yates
Jeffrey Olsen
Janice Hubbard
Sean Eagan
Amanollah Zareai
Nathan Pingel
Jonathan Ingersoll
Gregory Eldridge
Rich Juricich
Timothy Andrews

Professional Services

Books and Editorials

- Member, Advisory Board, *British Journal of Climate Change and Environment* (2012-)
- Member, Editorial Board, *International Journal of Optimization in Civil Engineering* (2012-)
- O. Bozorg Haddad, N. Ghajarnia, M. Solgi, H. A. Loaiciga and M. A. Marino wrote a chapter entitled "Metaheuristics and Optimization in Civil Engineering," for a book titled *Modelling and Optimization in Science and Technology*, edited by Xin-She Yang, G. Bekdas and S. M. Nigdeli, to be published by Springer in the summer of 2015
- Committee Member, STANDARD GUIDELINE FOR THE GEOSTATISTICAL ESTIMATION AND BLOCK AVERAGING OF HOMOGENEOUS AND ISOTROPIC SATURATED HYDRAULIC CONDUCTIVITY, ASCE/EWRI (2010)
- Committee Member, STANDARD GUIDELINE FOR FITTING SATURATED HYDRAULIC CONDUCTIVITY USING PROBABILITY DENSITY FUNCTIONS, ASCE/EWRI (2008)
- Committee Member, STANDARD GUIDELINE FOR CALCULATING THE EFFECTIVE SATURATED HYDRAULIC CONDUCTIVITY, ASCE/EWRI (2007)
- Editorial Board, *Journal Aqua - LAC*, UNESCO (2007-08)
- Co-Editor, *Sustainable Water Management Solutions for Large Cities*, Publication No. 293, International Assoc. of Hydrological Sciences, Wallingford, U.K. (2005)
- Assoc. Editor, *Hydrology Research* (2004-09)
- Co-Editor, *Regional Management of Water Resources*, Publication No. 268, International Association of Hydrological Sciences, Wallingford, U.K. (2001)
- Co-Editor, *Integrated Water Resources Management*, Publication No. 272, International Association of Hydrological Sciences, Wallingford, U.K. (2001)
- Topical Editor, *Groundwater*, *The Encyclopedia of Water Science*, Marcel Dekker, Inc. (2000-09)

- 💧 Assoc. Editor, *Hydrological Sciences Journal* (1999-05)
- 💧 Assoc. Editor, *Journal of Hydrologic Engineering*, ASCE (1995-00)
- 💧 Editorial Board, *Iranian Journal of Water Resources Engineering* (1993-08)
- 💧 Editorial Board, *Scientia Iranica* (1992-08)
- 💧 Editor, *Subsurface Flow and Contamination: Methods of Analysis and Parameter Uncertainty*, Monograph Series No. 8, Amer. Water Resources Assoc. (1987)
- 💧 Editor, *Journal of Water Resources Planning and Management*, ASCE (1984-88)
- 💧 Assoc. Editor, *Journal of Water Resources Planning and Management*, ASCE (1982-84)
- 💧 Assoc. Editor, *Water Resources Bulletin*, American Water Resources Assoc. (1982-88)
- 💧 Mariño, M. A. and Luthin, J. N., *Seepage and Groundwater*, Elsevier Scientific Publishing Co., Amsterdam-Oxford-New York (1982)
- 💧 Editor, *Proceedings of the National Symposium on Groundwater Hydrology*, American Water Resources Association (1967)

Contributions to Seminars and Symposia

- 💧 "Occurrence and distribution of agricultural pesticides and transport modeling in surface and subsurface environments," (with X. Chu), American Geophysical Union Fall Meeting, San Francisco, California, December 10-14, 2007.
- 💧 "Pesticide transport and fate in the unsaturated zone of the Fucino Plain, Italy," (with M. Petitta), International Association of Hydrological Sciences, Perugia, Italy, July 3, 2007.
- 💧 "Social impact assessment of integrated flood risks," (with J. Li), International Association of Hydrological Sciences, Perugia, Italy, July 3, 2007.
- 💧 "Space and time issues in comparison and evaluation of different pesticide transport models in the vadose zone," (with X. Chu), World Environmental and Water Resources Congress, Tampa, Florida, May 15, 2007.
- 💧 "Inter-plant economical operation of a cascade hydropower system in electricity market," (with J. Li), 26th Annual Meeting and International Conference, American Institute of Hydrology, Reno, Nevada April 24, 2007.

- "ENSO and NAO influences on the Urmia Lake Basin meteorology," (with A. Abrishamchi), American Geophysical Union Fall Meeting, San Francisco, California December 14, 2006.
- "Stream flow forecasting and reservoir operation models using fuzzy inference systems," (with A. Abrishamchi), Operations Management Conference, Amer. Soc. of Civil Engineers, Sacramento, California, August 15, 2006.
- "Opening of plenary session: Welcoming remarks," 25th Anniversary Annual Meeting and International Conference, American Institute of Hydrology, Baton Rouge, Louisiana, May 23, 2006.
- "What AIH can do," 25th Anniversary Annual Meeting and International Conference, American Institute of Hydrology, Baton Rouge, Louisiana May 23, 2006.
- "System dynamics modeling of off-channel reservoir operation for flood and water supply management," (with A. Abrishamchi), World Environmental and Water Resources Congress, Omaha, Nebraska, May 21, 2006.
- "Simulation of infiltration and surface runoff," (with X. Chu), World Environmental and Water Resources Congress, Omaha, Nebraska, May 21, 2006.
- "Pesticide transport models," University of Rome, Italy, April 21, 2006.
- "HBMO in engineering optimization," (with O. B. Haddad), 9th International Water Technology Conference, Sharm El-Sheikh, Egypt, March 18, 2005.
- "Multireservoir operation by honey-bee mating optimization," (with O. B. Haddad), 1st International Conference on Modeling, Simulation and Applied Optimization, Sharjah, United Arab Emirates, February 2, 2005.
- "A new heuristic approach for engineering optimization," (with O. B. Haddad), 1st International Conference on Modeling, Simulation and Applied Optimization, Sharjah, United Arab Emirates, February 1, 2005.
- "Citationist for C. T. Haan," recipient of the Ray K. Linsley Award, American Institute of Hydrology, Las Vegas, Nevada, May 26, 2004.
- "Citationist for S. J. Burges," recipient of the Ray K. Linsley Award, American Institute of Hydrology, Atlanta, Georgia, May 28, 2003.
- "Managing nitrates and pesticides in agriculture," Wuhan University, Wuhan, China, May 22, 2003.

- 💧 "Water management techniques," Wuhan University, Wuhan, China, May 21, 2003.
- 💧 "Modeling of diazinon runoff and leaching in a watershed," (with X. Chu), American Water Resources Association Specialty Conference, Kansas City, Missouri, May 13, 2003.
- 💧 "Integrated water resources management: A complex challenge," (with H. Safavi and A. Afshar), 6th International Conference on Civil Engineering , Isfahan, Iran, April 29-May 1, 2003.
- 💧 "Agricultural threats to surface water and ground water," University of Sao Carlos, Brazil, April 25, 2003.
- 💧 "Evaluación del Modelo RISK-N para la Estimación de Recarga de Nitratos al Agua Subterránea," (with J. L. Arumi, R. Oyarzun and L.S. Salgado), Groundwater and Human Development Conference, Mar del Plata, Argentina, October 21-25, 2002.
- 💧 "Simulation of 2,4D Herbicide Transport Through the Unsaturated Zone Using an Analytical Model," (with L. Candela), 2nd European Conference on Pesticides and Related Organic Micropollutants in the Environment, Corfu, Greece, September 26-29, 2002.
- 💧 "Models for the Assessment of Pesticide Exposure Levels in Subsurface and Surface Environments," Wuhan University, Wuhan, China, September 4-10, 2002.
- 💧 "Conjunctive Water Management in California," Wuhan University, Wuhan, China, September 4-10, 2002.
- 💧 "Pesticide Transport Modeling in Soils, Ground Water and Surface Water," Keynote Speech, 3rd International Conference on Water Resources and Environmental Research, Dresden, Germany, July 22-25, 2002.
- 💧 "Water Delivery Service as a Determinant of Irrigation Project Performance," (with S. W. Styles), 18th ICID Congress, Montreal, Canada, July 21-28, 2002.
- 💧 "Integrated Pesticide Transport Modeling in Surface and Subsurface Environments," (with X. Chu), California Department of Pesticide Regulation, Sacramento, California, June 24, 2002.
- 💧 "Introduction to the Julian Hinds Award," Environmental and Water Resources Institute of the American Society of Civil Engineers, Roanoke, Virginia, May 21, 2002.
- 💧 "Integrated Pesticide Transport Modeling," (with X. Chu), California Department of Pesticide Regulation, Sacramento, California, July 1, 2002.

- 💧 "Pesticide Transport Modeling and a Case Study in the Orestimba Creek Basin, California," (with X. Chu), Annual Research Symposium, UC Toxic Substances Research and Teaching Program, Long Beach, California, April 5, 2002.
- 💧 "Estimating Nitrate Leaching to Groundwater," Universidad de Concepcion, Chillan, Chile, January 15, 2002.
- 💧 "Soil and Groundwater Contamination," Concha y Toro, Santiago, Chile, January 11, 2002.
- 💧 "Perspectivas de la Planificación Hidrológica," Alicante, Spain, October 2, 2001.
- 💧 "Hydraulic Analysis of Baseflow and Bank Storage in Alluvial Stream," (with M. M. Hantush and M. Harada), Wetlands Engineering and River Restoration Conference, Environmental and Water Resources Institute, ASCE, Reno, Nevada, August 27-31, 2001.
- 💧 "A Forward Dynamic Programming Model for Irrigation Scheduling in an Irrigation District," (with A. D. Teixeira), 4th Inter-Regional Conference on Environment-Water, Fortaleza, Brazil, August 27-30, 2001.
- 💧 "Models for Pesticide Exposure Assessment in Surface-Subsurface Environments," Central Valley Regional Water Quality Control Board, Sacramento, California, August 7, 2001.
- 💧 "Conjunctive Management of Surface Water and Groundwater," Keynote Speech, 6th Scientific Assembly of the International Association of Hydrological Sciences, Maastricht, The Netherlands, July 20, 2001.
- 💧 "Effect of Interaction Between Stream and Riparian Aquifer on Fish Habitat in Lower Reach of Intake Dam," (with M. Harada and M. M. Hantush), 6th Scientific Assembly of the International Association of Hydrological Sciences, Maastricht, The Netherlands, July 18-27, 2001.
- 💧 Conjunctive Use of Ground Water and Surface Water in California, " Summer Course: La Gestion del Agua: Nuevos y Viejos Paradigmas, Universidad Rey Juan Carlos, Almeria, Spain, July 9-13, 2001.
- 💧 "Models for Pesticide Exposure Assessment in Surface-Subsurface Environment," (with X. Chu), Annual Spring Specialty Conference, American Water Resources Association, San Antonio, Texas, April 30-May 2, 2001.
- 💧 "Pesticide Transport Modeling and Exposure Assessment in a Subsurface-Surface System," (with X. Chu), Poster, UC Toxic Substances Research and Teaching Program Symposium, Lake Tahoe, California, April 20-21, 2001.

- "Modeling of an LNAPL Lens Formation in the Vadose Zone using a Geotechnical Centrifuge," (with H. Nakajima et al.), Poster, Fall Meeting, American Geophysical Union, San Francisco, California, December 15-19, 2000.
- "Pesticide Transport Modeling and Application to the Wadsworth Canal Basin, California," (with X. Chu), Fall Meeting, American Geophysical Union, San Francisco, California, December 15-19, 2000.
- "Design Optimization of Trickle Irrigation Systems Using Linear and Nonlinear Programming Models," (with J. C. Saad), Poster, 4th National Irrigation Symposium, Phoenix, Arizona, November, 14-16, 2000.
- "Pesticide Transport Modeling: Application to Wadsworth Canal," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, California, September 7, 2000.
- "A Characteristic Solution to Nitrate Transport and Fate in Groundwater in Agricultural Watersheds," (with M. M. Hantush), 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.
- "Distributed Source Advective-Reactive Contaminant Transport," (with M. M. Hantush), Symposium on Well Hydraulics, 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.
- "Modification of Impulse Response Function for Bank Storage in Streams with Linear Storage Model," (with M. Harada and M. M. Hantush), Poster, 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, Minnesota, July 30-August 2, 2000.
- "Economic Viability and Selection of Irrigation Systems Using Simulation and Stochastic Dominance," (with J. C. Saad and L. H. Duenhas), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.
- "Dynamic Programming Model for Quasi-Real Time Reservoir Operation and Irrigation Scheduling," (with A. D. Teixeira), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.
- "Design of Microirrigation Systems in Sloping Lands Using Linear Programming," (with J. C. Saad), 2000 ASAE Annual International Meeting, American Society of Agricultural Engineers, Milwaukee, Wisconsin, July 9-12, 2000.

- "Modeling Nitrate Transport and Fate in Agricultural Drainage and Stream Riparian Zones," (with M. Hantush), Spring Meeting, American Geophysical Union, Washington, D.C., May 30-June 3, 2000.
- "Subsurface Transport of Pesticides," Polytechnic University of Catalunya, Barcelona, Spain, May 11, 2000.
- "Hydraulic Analysis on Stream-Aquifer Interaction by Storage Function Models," (with M. Harada), International Association for Hydraulic Research Symposium, Omiya, Japan, May 9, 2000.
- "Mathematical and Physical Modeling of Density-Viscosity Effects in Contaminant Transport in the Subsurface Environment," (with H. Nakajima), Poster, 13th Annual Research Symposium, UC Toxic Substances Research and Teaching Program, San Diego, California, April 28-29, 2000.
- "Development of a Coupled Pesticide Transport and Ecological Model," (with H. Basagaoglu), Poster, 13th Annual Research Symposium, UC Toxic Substances Research and Teaching Program, San Diego, California, April 28-29, 2000.
- "Mathematical and Physical Modeling of Density-Viscosity Effects in Contaminant Transport in the Subsurface Environment," (with H. Nakajima), Ecotoxicology Seminar, UC Davis, April 26, 2000.
- "Risk Analysis of the Middle Route for the South-to-North Transbasin Transfer in China," (with L. Wang), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.
- "Conjunctive Water Resources Supply-Demand Management Model in Baotou City, China," (with X. Chu), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.
- "Effects of Spatial Interaction Between Stream and Aquifer on Stream Condition in Alluvial Basin," (with M. Harada), International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.
- "Opening Remarks" and "Closure," International Symposium on Integrated Water Resources Management, Davis, California, April 9-12, 2000.
- "Furrow Irrigation Design," University of Concepcion, Chillan, Chile, March 2, 2000.
- "The Linear Driving Force Approach for a Radial Diffusive Model," (with H. Basagaoglu), Fall Meeting, American Geophysical Union, San Francisco, California, December 15, 1999.

- "Introduction and Presenter of Award," American Institute of Hydrology Conference, San Francisco, California, November 8, 1999.
- "Welcome: Opening Remarks" and "Closure," 22nd Biennial Groundwater Conference, San Diego, California, September 20-21, 1999.
- "Characterization of Parameters in a Coupled Stochastic Reservoir Operation-Irrigation Scheduling Model," (with A. D. Teixeira), Poster, Envirowater 99, Lausanne, Switzerland, September 1-3, 1999.
- "Models for Nitrogen Transformation in Agroecosystems," (with M. M. Hantush), ASCE International Water Resource Engineering Conference, Seattle, Washington, August 8-12, 1999.
- "Leaching Models for Subsurface Pollution Assessment in Agroecosystems," (with M. M. Hantush), ASCE Environmental Engineering 1999, Norfolk, Virginia, July 25-28, 1999.
- "Modeling of Nitrogen Dynamics in the Subsurface Environment," (with A. J. Gusman), International Union of Geodesy and Geophysics, Birmingham, United Kingdom, July 18-30, 1999.
- "Pesticide Transport Models," Annual Meeting, The Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.
- "Uncertainty in Leaching Potential of Nonpoint Source Pollutants with Application to a GIS," (with M. M. Hantush, Z. Zhang and E. Hoque), Annual Meeting, The Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.
- "Introduction and Presenter of Award," Annual Meeting of the Universities Council on Water Resources, Kamuela, Hawaii, June 29-July 2, 1999.
- "Opportunities for Research and Outreach Activities at the Centers for Water and Wildland Resources," County Directors Meeting, Division of Agriculture and Natural Resources, Davis, California, April 28, 1999.
- "Pesticide Transport in Subsurface and Surface Water," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, California, April 15-16, 1999.
- "Numerical Analysis of Density-Viscosity Effects in Pesticide Transport in the Subsurface Environment," (with H. Nakajima), Poster, 12th Annual Research Symposium, University of California Toxic Substances Research and Teaching Program, Santa Barbara, California, April 9-10, 1999.

- "Mathematical Models of Pesticide Transport," VI National Civil Engineering Congress, Puebla, Mexico, January 28-31, 1999.
- "New Directions in the Development and Conservation of Water in California," Water Resources Conference, Madrid, Spain, November 16-18, 1998.
- "d-form Approximation for a Conjunctive Water Resources Management Problem" (with H. Basagaoglu), International Association of Hydrogeologists Congress and Annual Meeting of the American Institute of Hydrology, Las Vegas, Nevada, September 27 - October 2, 1998.
- "Analytical Models for Ranking Pesticides in Soils and Ground Water" (with M. Hantush and M. Islam), Ground Water Management Symposium, American Society of Civil Engineers, Memphis, Tennessee, August 3-7, 1998.
- "Conjunctive Management Model for Yolo Basin, California" (with H. Basagaoglu), 25th Annual Conference on Water Resources Planning and Management, American Society of Civil Engineers, Chicago, Illinois, June 7-10, 1998.
- "Transport and Fate of Pesticides in the Subsurface Environment," Keynote Address, International Conference on Barriers to Sustainable Management of Water Quantity and Quality, International Association of Hydrological Sciences, Wuhan, China, May 12-15, 1998.
- "Numerical Simulation of Pesticide Fate and Transport Through a Groundwater-Wetland System" (with J. Ingersoll), Poster, University of California Toxic Substances Research and Teaching Program, Berkeley, California, April 24-25, 1998.
- "Pesticide Modeling in Soils and Groundwater," University of Concepcion, Chillan, Chile, April 21, 1998.
- "Irrigation Management Models," University of Concepcion, Chillan, Chile, April 20, 1998.
- "Modelling the Fate of Common Pesticides in the Subsurface Zone Below Tropical Agriculture" (with R. E. Volker and I. P. Callow), International Groundwater Conference, International Association of Hydrogeologists, Melbourne, Australia, February 8-13, 1998.
- "Application of ARIMA modelling in water resources management" (with T. Hameed), 24th Hydrology and Water Resources Symposium, Auckland, New Zealand, November 24-27, 1997.

- "A Modeling Analysis of Groundwater Recharge Potential of Alluvial Fans Using Limited Data" (with A. Munevar), Advances in Ground-Water Hydrology - A Decade of Progress, American Institute of Hydrology, Tampa, FL, November 16-19, 1997.
- "Application of CALSIM for Planning Studies in California" (with T. N. Kadir), American Water Resources Association Annual Conference and Symposium, Long Beach, California, October 19-23, 1997.
- "Joint Management of Surface and Ground Water Supplies" (with H. Basagaoglu), American Water Resources Association Annual Conference and Symposium, Long Beach, California, October 19-23, 1997.
- "Pesticide Transport in the Vadose and Groundwater Zones," Science Advisory Committee Meeting, EPA Center for Ecological Health Research, Davis, CA, September 11-13, 1997.
- "Effect of Horizontal Anisotropy on Head, Flow and Solute Transport in Heterogeneous Alluvial Region" (with M. Harada and M. Hantush), XXVII Biennial Congress, International Association for Hydraulic Research, San Francisco, California, August 10-15, 1997.
- "Comparison of Selected Analytical and Numerical Pesticide Transport Models" (with H. Basagaoglu and J. Gusman), AWRA-UCOWR Annual Meeting, Keystone, Colorado, June 29-July 3, 1997.
- "Stream-Aquifer System Management" (with H. Basagaoglu), Water Resources Assessment Workshop, 5th Scientific Assembly of the International Association of Hydrological Sciences, Rabat, Morocco, April 23-May 3, 1997.
- "Nutrient Fate and Transport in a Wetland at the Jepson Prairie Reserve, Solano County, California" (with J. Ingersoll), Poster, UC Toxic Substances Research and Teaching Program, San Diego, CA, April 11-12, 1997.
- "Groundwater Remediation as a Feedback Control Problem" (with S. Seneviratne), 24th Annual Water Resources Planning and Management Conference, American Society of Civil Engineers, Houston, Texas, April 6-9, 1997.
- "Management of Pollution Control," Keynote Speech, UNESCO Workshop on Agricultural Threats to Groundwater Quality, Zaragoza, Spain, October 27-30, 1996.
- "Chance Constraint Model for Joint Management of Stream-Aquifer System" (with H. Basagaoglu), Integrated Management of Surface and Ground Water, The Universities Council on Water Resources, San Antonio, Texas, July 30-August 2, 1996.

- 💧 "A New Model of California's SWP/CVP Systems" (with T. N. Kadir), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.
- 💧 "Development and Calibration of a Groundwater Model and Its Application to Water Resources Management in Eastern San Joaquin County, California" (with M. Magolske), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.
- 💧 "Large River Diversion Optimization Considering the Uncertainties Involved" (with A. Afshar), North American Water and Environment Congress '96, Anaheim, California, June 22-28, 1996.
- 💧 "Computer Packages for Irrigation Planning" (with J. Chavez-Morales and E. Holzapfel), Sixth International Conference on Computers in Agriculture, American Society of Agricultural Engineers, Cancun, Mexico, June 10-14, 1996.
- 💧 "Water Management in California," International Hydrology Course, Polytechnic University of Catalunya Barcelona, Spain, June 4, 1996.
- 💧 "Assessment of Pesticides Exposure Levels in Groundwater: Modeling Aspects" (poster paper with M. M. Hantush), Annual Meeting, EPA Center for Ecological Health Research, Davis, California, March 18, 1996.
- 💧 "The Role of Geohydrologic Processes in Wetland Ecology" (poster paper with C. Green and G. Fogg), Annual Meeting, EPA Center for Ecological Health Research, Davis, California, March 18, 1996.
- 💧 "Conjunctive Management of Surface and Ground Water Resources" (with H. Basagaoglu), Fall Meeting, American Geophysical Union, San Francisco, California, December 11-15, 1995.
- 💧 "Contaminant Transport in Aquifers of Fluvial and Alluvial Origin" (poster paper with M. M. Hantush), 20th Biennial Ground Water Conference, San Diego, California, September 11-12, 1995.
- 💧 "Ground-Water Elevation Recovery in Eastern San Joaquin County, California" (with M. Magolske), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.
- 💧 "A Linked Reservoir and Surface Water-Ground Water Simulation Model of California's Central Valley System" (with T. N. Kadir), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.

- "Optimal Control for Groundwater Remediation" (with F. Ben Jemaa), 1995 National Conference on Water Resources Planning and Management, American Society of Civil Engineers, Boston, Massachusetts, May 7-10, 1995.
- "Stochastic Contaminant Transport in Dual Porous Media", (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 5-9, 1994.
- "Effective Hydraulic Conductivity in Nonstationary Stochastic Groundwater Flow Analysis" (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 5-9, 1994.
- "A Sampling Design for Contaminant Distribution in Lake Sediments" (with F. Ben Jemaa), 21st Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Denver, Colorado, May 23-26, 1994.
- "Risk Assessment with a Quasi Three-Dimensional Contaminant Transport Model" (with M. Mejia and M. Hantush), 21st Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Denver, Colorado, May 23-26, 1994.
- "Design of Groundwater Quality Monitoring Networks", Symposium on Advanced Methods for Groundwater Pollution Control, Udine, Italy, May 5-6, 1994.
- "Round-Table Discussion: Water Transfers," Curso de Verano: Agua y el Medio Ambiente, Universidad Complutense, El Escorial, Spain, August 23-27, 1993.
- "Uso de Aguas Superficiales y Subterráneas en California," Curso de Verano: Agua y el Medio Ambiente, Universidad Complutense, El Escorial, Spain, August 23-27, 1993.
- "Transport Processes and Modeling of Contaminant Transport," SCOPE/UNEP Workshop on Groundwater Pollution, San José, Costa Rica, July 26-30, 1993.
- "Transfer Function Modeling of Evapotranspiration," (with T. Hameed), National Conference on Irrigation and Drainage Engineering, Irrigation and Drainage Division, American Society of Civil Engineers, Park City, Utah, July 21-23, 1993.
- "Stable Slopes of Alluvial Channels," (with M. N. Cheema), National Conference on Irrigation and Drainage Engineering, Irrigation and Drainage Division, American Society of Civil Engineers, Park City, Utah, July 21-23, 1993.
- "Water in Agriculture: Options and Proposals for a Better Use," Symposium: The Water Economy, Aigües de Barcelona, Barcelona, Spain, May 26-28, 1993.

- "Optimal State Feedback Estimation in Groundwater: Application to Leaky Aquifers," (with M. M. Hantush), 20th Anniversary Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Seattle, Washington, May 3-5, 1993.
- "Optimal Strategy for Aquifer Remediation," (with F. Ben Jemaa), 20th Anniversary Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Seattle, Washington, May 3-5, 1993.
- "Water Management in California," Jornada Sobre las Aguas Subterráneas, Instituto Tecnológico GeoMinero de España y Real Academia de Ciencias Exactas, Físicas y Naturales, Madrid, Spain, March 31-April 2, 1993.
- "Analysis of Groundwater Flow Subject to Stochastic Recharge: Application to Leaky Aquifers," (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 7-11, 1992.
- "Drought Effects on California Agriculture," International Fair, Agriculture and Cattle Sector, Santiago, Chile, November 6, 1992.
- "Operation of Reservoir Systems for Optimal Hydropower Production," Empresa Eléctrica Colbun Machicura, Talca, Chile, November 4, 1992.
- "Hydrology, Agricultural Engineering and Environmental Engineering: Curricula and Opportunities," Department of Agricultural Engineering, University of Concepción, Chillán, Chile, November 3, 1992.
- "Water Use in California: Past, Present and Future Outlook," Department of Agricultural Engineering, University of Concepción, Chillán, Chile, November 2, 1992.
- "Optimization Models for Groundwater Development," (with R. Willis), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.
- "Stochastic Analysis of Ground-Water Flow in Statistically Nonstationary Aquifers," (with M. M. Hantush), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.
- "Forecasting Changes in Ground-Water Parameters," (with F. Ben Jemaa), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.

- 💧 "Predicting Water Demand in Agricultural Regions Using Time Series Forecasts of Reference Crop Evapotranspiration," (with J. C. Tracy and A. Taghavi), Water Forum '92, American Society of Civil Engineers, Baltimore, Maryland, August 2-6, 1992.
- 💧 "Monitoring Geohydrological Time Series," (with F. Ben Jemaa), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.
- 💧 "Stochastic Groundwater Analysis in the Presence of Trends in Heterogeneous Hydraulic Conductivity Fields," (with H. A. Loaiciga, R. B. Leipnik and P. F. Hudak), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.
- 💧 "Analytical Methods for Regional-Scale Groundwater Quality Monitoring Network Design and Numerical Verification," (with P. F. Hudak and H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.
- 💧 "Stochastic Optimal Estimation of Aquifer Hydraulic Properties: Kalman Filtering," (with M. M. Hantush), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 2-6, 1991.
- 💧 "Optimal Network Design for Groundwater Quality and Quantity Parameters," (with F. Ben Jemaa), XX General Assembly of the IUGG, Vienna, Austria, August 11-24, 1991.
- 💧 "Monitoring Well Network Design," 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.
- 💧 "Application of Kalman Filtering to Groundwater Flow in Finite Heterogeneous Aquifers," (with M. M. Hantush), 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.
- 💧 "Geostatistics in Groundwater Sampling Design," (with F. Ben Jemaa), 18th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, New Orleans, Louisiana, May 20-23, 1991.
- 💧 "Temporal and Spatial Variability of Hydraulic Heads in Finite Heterogeneous Aquifers: Numerical Modeling," (with M. M. Hantush), International Conference on Calibration and Reliability in Groundwater Modelling, The Hague, The Netherlands, September 3-6, 1990.

- "Optimal Network Design for Groundwater Quality and Quantity Parameters," (with F. Ben Jemaa), International Conference on Calibration and Reliability in Groundwater Modelling, The Hague, The Netherlands, September 3-6, 1990.
- "Stochastic Control of Groundwater Resources," (with H. A. Loaiciga), A Joint Conference: Focus on Environmental Hydrology and Hydrogeology Issues in U.S.A. and Hungary, Budapest, Hungary, June 26-28, 1990.
- "Stochastic Control of Groundwater Resources," (with H. A. Loaiciga), First USA/USSR Joint Conference on Environmental Hydrology and Hydrogeology, Leningrad, U.S.S.R., June 18-21, 1990.
- "Systems Analysis in Groundwater Planning and Management: 2. On-going Research," International Symposium on Water Resource Systems Application, Winnipeg, Canada, June 12-15, 1990.
- "Groundwater Quality Network Design," (with D. P. Walker), 17th Annual Water Resources Planning and Management Specialty Conference, American Society of Civil Engineers, Fort Worth, Texas, April 17-20, 1990.
- "Identification of Aquifer Parameters in Confined Groundwater Flow," (with M. M. Hantush), 17th Annual Water Resources Planning and Management Specialty Conference, American Society of Civil Engineers, Fort Worth, Texas, April 17-20, 1990.
- "Optimization of a Groundwater Well Monitoring Network," (with F. Ben Jemaa), 17th Annual Water Resources Planning and Management Specialty Conference, American Society of Civil Engineers, Fort Worth, Texas, April 17-20, 1990.
- "Drought, Conservation, Technological Innovation and Water Quality Preservation in Coastal, Semiarid Basins of California," (with H. A. Loaiciga), Fall Meeting, American Geophysical Union, San Francisco, California, December 4-8, 1989.
- "Error Analysis and Stochastic Differentiability in Subsurface Flow Modeling," (with H. A. Loaiciga), Fall Meeting, American Geophysical Union, San Francisco, California, December 4-8, 1989.
- "Optimal Allocation of Irrigation Water," 36th North American Meetings, Regional Science Association, Santa Barbara, California, November 10-12, 1989.
- "Modeling of Flow and Contaminant Transport in a Conjunctively Managed Groundwater Basin: A Case Study," (with S. A. Taghavi and R. E. Howitt), International Symposium on Groundwater Management: Quantity and Quality, Benidorm, Spain, October 2-5, 1989.

- "Groundwater Parameter Estimation, Design of Well Monitoring Networks, and Design and Operation of Surface Water/Ground Water Systems," Round-Table Discussions, University of Catalunya, Barcelona, Spain, June 5-9, 1989.
- "On- or Off-Stream Groundwater Storage in Small Scale for Domestic Use," (with A. Afshar), 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "Spillway Design: Optimum Risk Method," (with A. Afshar), 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "Journals in Water Resources: A Panel Discussion," 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "Modeling Time Series for Reservoir Optimization Problems," (with L. E. Flynn), 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "Groundwater Quality Management in the Chino Basin, California," (with A. S. Taghavi), 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "Monthly Forecasting of Streamflows and Sediment Loads," (with J. C. Tracy), 16th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Sacramento, California, May 21-25, 1989.
- "The Effect of Groundwater Flow on Aquifer Degradation in Agricultural Regions," (with J. C. Tracy), Third Scientific Assembly of the International Association of Hydrological Sciences, Symposium 7, Baltimore, Maryland, May 10-19, 1989.
- "The Role of Agricultural Engineering in the Development of Agriculture," Keynote Lecture, Creation of Baccalaureate Program in Agricultural Engineering, University of Concepción, Chillán, Chile, April 28, 1989.
- "Groundwater Hydrology," Series of Lectures, University of Concepción, Chillán, Chile, April 24-27, 1989.
- "Use of Exponential Elements in the Solution of Mass Transport Problems," (with J. C. Tracy), Fall Meeting, American Geophysical Union, San Francisco, California, December 5-9, 1988.

- 💧 "Remembrances from the First National Symposium on Groundwater Hydrology in 1967," International Conference on Advances in Groundwater Hydrology, American Institute of Hydrology, Tampa, Florida, November 16, 1988.
- 💧 "Analysis of Statistical Groundwater Parameter Estimation Techniques," (with J. C. Tracy), International Conference on Advances in Groundwater Hydrology, American Institute of Hydrology, Tampa, Florida, November 18, 1988.
- 💧 "Designing Water Delivery Systems for Improved Utilization," (with L. E. Flynn), International Conference on Irrigation System Evaluation and Water Management, Wuhan, China, September 12-16, 1988.
- 💧 "Stochastic Control of Groundwater Resources," (with H. A. Loaiciga), 8th Symposium on Identification and System Parameter Estimation, International Federation of Automatic Control/International Federation of Operational Research Societies, Beijing, China, August 27-31, 1988.
- 💧 "Groundwater Flow: Theory and Applications," Training Course on Groundwater Hydrology, Hydrologic Engineering Center, Army Corps of Engineers, Davis, California, August 22, 1988.
- 💧 "Conjunctive Use Study of Groundwater and Surface Water in the Chino Basin, California," (with S. A. Taghavi), 15th Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Norfolk, Virginia, June 3-5, 1988.
- 💧 "Stochastic Model for the Management of a Stream-Aquifer System," (with M. M. Hantush), 15th Annual Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Norfolk, Virginia, June 3-5, 1988.
- 💧 "Management of Surface Water and Groundwater Systems," Research Conference, Instituto Nacional de Investigaciones Forestales y Agropecuarias/University of California, Guadalajara, Mexico, March 28-30, 1988.
- 💧 "Issues in the Simulation of Groundwater Flow and Quality," Symposium on Groundwater Quality Issues, University Extension, Davis, California, October 1987.
- 💧 "An Approximate Method to Select the Number of Sampling Points in a Groundwater Quality Monitoring Network," (with H. A. Loaiciga), Spring Meeting, American Geophysical Union, Baltimore, Maryland, May 18-21, 1987.
- 💧 "An Irrigation Planning Model," Center for Research and Agrarian Development, Cordoba, Spain, May 6, 1987.


- "Long-Term Feasibility Analysis of Integrated Agriculture in the San Joaquin Valley, California," (with H. A. Loaiciga), International Symposium on Water for the Future, International Association of Hydrological Sciences-International Association of Hydraulic Research, Rome, Italy, April 6-11, 1987.
- "The Inverse Problem and Groundwater Management," (with H. A. Loaiciga), 14th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Kansas City, Missouri, March 16-18, 1987.
- "Refinements in the Numerical Modeling of Groundwater Problems," (with J. C. Tracy), 14th Annual National Conference, Water Resources Planning and Management Division, American Society of Civil Engineers, Kansas City, Missouri, March 16-18, 1987.
- "Evaluation of Empirical Infiltration Models in Single-Event Rainfall-Runoff Models," (with J. C. Tracy), International Conference on Infiltration Development and Application, Honolulu, Hawaii, January 6-9, 1987.
- "Parameter Uncertainty in Groundwater Quality Management," (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 8-12, 1986.
- "Groundwater Flow and Miscible Displacement Parameter Estimation via Simultaneous System of Equations," (with H. A. Loaiciga), Water Forum '84, World Water Issues in Evolution, American Society of Civil Engineers, Long Beach, California, August 4-6, 1986.
- "An Approach to Risk Analysis in Water Resources Planning," (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 9, 1985.
- "Multireservoir Operation Planning Via Quadratic Programming," (with H. A. Loaiciga), International Symposium on Scientific Basis for Water Resources Management, Jerusalem, Israel, September 19-23, 1985.
- "Groundwater Flow and Modeling," Training Course on Water Supply Hydrology, Hydrologic Engineering Center, Army Corps of Engineers, Davis, California, August 22, 1985.
- "Planning Model for Operation of a Multireservoir System," (with H. A. Loaiciga), Vth World Congress on Water Resources, International Water Resources Association, Brussels, Belgium, June 9-15, 1985.
- "Operation of Reservoir Systems," Polytechnic University of Valencia, Valencia, Spain, April 17, 1985.

- 💧 "Hydrologic and Hydraulic Factors in Conjunctive Use Planning," Round-Table Discussions, A. Sahuquillo, Madrid, Spain, April 12, 1985.
- 💧 "Real-Time Multireservoir Operation for Flood Control," (with H. A. Loaiciga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 3-7, 1984.
- 💧 "Groundwater Flow and Modeling," Training Course on Water Supply Hydrology, Hydrologic Engineering Center, Army Corps of Engineers, Davis, California, August 23, 1984.
- 💧 "Water Quality Forecasting in Combined Sewer Catchments," (with G. G. Patry), Urban Water '84, American Society of Civil Engineers, Baltimore, Maryland, May 28-31, 1984.
- 💧 "Optimization Models for the Planning and Operation of Reservoir Systems," Department of Civil Engineering, Kyoto University, Japan, April 18-20, 1984.
- 💧 "Recursive/Adaptive Modeling in Real-Time Urban Runoff Forecasting," (with G. G. Patry), Engineering Foundation Conference, Ontario, Canada, October 30-November 4, 1983.
- 💧 "Groundwater Flow," Training Course on Water Supply, Hydrologic Engineering Center, Army Corps of Engineers, Davis, California, August 24, 1983.
- 💧 "On the Structure of Transfer Function Models for Real-Time Urban Runoff Forecasting," (with G. G. Patry), Frontiers in Hydraulic Engineering, ASCE Hydraulics Division Conference, Massachusetts Institute of Technology, Cambridge, Massachusetts, August 9-12, 1983.
- 💧 "Time-Variant Nonlinear Functional Runoff Model for Real-Time Forecasting," (with G. G. Patry), Fall Meeting, American Geophysical Union, San Francisco, California, December 7-15, 1982.
- 💧 "Time Domain and Frequency Domain Methods in Rainfall-Runoff Modeling," (with H. A. Loaiciga), Fall Meeting, American Geophysical Union, San Francisco, California, December 7-15, 1982.
- 💧 "Groundwater Modeling," Short Course on Groundwater Modeling, University of California Extension, Davis, California, September 14-17, 1982.
- 💧 "Real-Time Control of Combined Sewer Systems," (with G. G. Patry), First International Seminar on Urban Drainage Systems, Southampton, United Kingdom, September 7-9, 1982.

- 💧 "Application of a Nonlinear Functional Rainfall-Runoff Model to an Urban Watershed," (with G. G. Patry), First International Seminar on Urban Drainage Systems, Southampton, United Kingdom, September 7-9, 1982.
- 💧 "Optimization Models for the Operation of Large-Scale Hydrosystems," (with B. Mohammadi), Symposium on Optimal Allocation of Water Resources, First Scientific Assembly of the International Association of Hydrological Sciences, Exeter, United Kingdom, July 19-30, 1982.
- 💧 "Reservoir Management: A Reliability Programming Approach," (with B. Mohammadi), Spring Meeting, American Geophysical Union, Philadelphia, Pennsylvania, May 30-June 4, 1982.
- 💧 "Investigation of Simple Runoff Forecast Models on an Urban Watershed," (with G. G. Patry), Spring Meeting, American Geophysical Union, Philadelphia, Pennsylvania, May 30-June 4, 1982.
- 💧 "The Role of Systems Analysis in Water Resources," National Conference of Professors and Researchers in Water Resources, Veracruz, Mexico, March 3-6, 1982.
- 💧 "Groundwater Flow," Training Course on Groundwater Hydrology, Hydrologic Engineering Center, Army Corps of Engineers, Davis, California, December 1981.
- 💧 "Multireservoir System Operation with Different Objectives," (with B. Mohammadi), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 7-11, 1981.
- 💧 "Multireservoir Operating Model for Water and Power Optimization," (with B. Mohammadi), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 7-11, 1981.
- 💧 "The Role of Spatial Variability in the Identification of Aquifer Transmissivity," (with M. Aboufirassi), Chapman Conference on Spatial Variability in Hydrologic Modeling, American Geophysical Union, Fort Collins, Colorado, July 21-23, 1981.
- 💧 "Optimization Models of Reservoir Operation of a Single Multipurpose Reservoir," (with B. Mohammadi), International Symposium on Real-Time Operation of Hydrosystems, University of Waterloo, Waterloo, Ontario, Canada, June 24-26, 1981.
- 💧 "Numerical Simulation of Water and Solute Transport in Subsurface Systems," International Symposium on Quality of Groundwater, Amsterdam, The Netherlands, March 23-27, 1981.

- "Hydrologic Contour Mapping Considering the Spatial Variability of Data," (with M. Aboufirassi), Second International Conference and Exhibition on Engineering Software, Imperial College of Science and Technology, London, United Kingdom, March 24-26, 1981.
- "Groundwater Occurrence, Development, and Management," Series of Lectures, Technological Research Institute, São Paulo, Brazil, February 20-March 8, 1981.
- "Determination of Risk-Loss Functions in Reservoir Reliability Programming," (with S. P. Simonovic'), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 8-12, 1980.
- "The Role of Cumulative Distribution Functions in Reservoir Management," (with S.P. Simonovic'), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 8-12, 1980.
- "Analysis of the Transport of Water and Solutes in Soils," Conference on Simulation and the Environment, International Federation for Information Processing, Bangor, North Wales, United Kingdom, September 20, 1979.
- "Optimal Land Allocation in Irrigation Planning," Third World Congress on Water Resources, International Water Resources Association, Mexico City, Mexico, April 25, 1979.
- "Dynamic Planning in Wastewater Treatment Management," (with A. Abrishamchi), Water Resources Planning and Management Division Specialty Conference, American Society of Civil Engineers, Houston, Texas, February 25, 1979.
- "A Galerkin-Finite Element Simulation of Solute Transport in Subsurface Drainage Systems," (with G. B. Matanga), Second International Conference on Finite Elements in Water Resources, London, England, July 10, 1978.
- "Optimal Irrigation Management," (with G. B. Matanga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 9, 1977.
- "Effect of Salinity on Irrigation Management," (with G. B. Matanga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 9, 1977.
- "Groundwater Storage Considerations: Alternative Courses of Action," 11th Biennial Conference on Groundwater, Fresno, California, September 16, 1977.
- "Solute Transport in a Saturated-Unsaturated Porous Medium," Conference on Modeling and Simulation of Land, Air and Water Resources Systems, International Federation for Information Processing, Ghent, Belgium, September 2, 1977.

- "Mathematical Model for Simulating Soil-Moisture Flow Considering Evapotranspiration," (with A. Afshar), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 10, 1976.
- "Achieving Optimum Salt Levels and Plant Growth with a Limited Water Supply," (with G. B. Matanga), Fall Annual Meeting, American Geophysical Union, San Francisco, California, December 6, 1976.
- "Investment Criteria for Installing Subsurface Drains," Show and Tell Meeting, University of California, Water Resources Center, Dixon, California, October 1, 1976.
- "Modeling Movement of Contaminants in Groundwater," Show and Tell Meeting, University of California, Water Resources Center, Los Angeles, California, September 27, 1976.
- "Numerical Simulation of Mass Transport in Aquifers," Symposium on Advances in Groundwater Hydrology, American Water Resources Association, Chicago, Illinois, September 23, 1976.
- "Application of Optimization and Simulation Techniques to Water Allocation in Irrigation," (with G. B. Matanga), 12th American Water Resources Conference, Chicago, Illinois, September 20, 1976.
- "A Finite Element Approach to Free Surface Groundwater Flows," Hydraulics Division Specialty Conference, American Society of Civil Engineers, Purdue University, West Lafayette, Indiana, August 1976.
- "Simulation Models of Nitrogen Transport in Soil Systems," Working Conference on Modeling of Environmental Systems, International Federation for Information Processing, Tokyo, Japan, April 26-28, 1976.
- "Mass Transport of Solutes in Groundwater," Water Resources and Ocean Engineering Convention, American Society of Civil Engineers, San Diego, California, April 4-5, 1976.
- "Nitrogen Transport in Soils," 16th Annual University of California Soil Fertility Conference, University of California, Riverside, California, December 18-19, 1975.
- "Dynamic Response of Aquifer Systems to Recharge," Department of Hydrology and Water Resources, University of Arizona, Tucson, Arizona, February 1975.
- "A Finite Element Simulation of Groundwater Contamination in a Stream-Aquifer System," Water Resources Symposium, American Water Resources Association, Las Croabas, Puerto Rico, November 1974.

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- 💧 "On the Dispersion of Solutes in Porous Media," Battelle-Pacific Northwest Laboratories, Richland, Washington, March 1974.
 - 💧 "On the Planning and Design of Engineering Systems," Department of Civil Engineering, University of Tennessee, Knoxville, Tennessee, February 1974.
 - 💧 "Modeling of Leaky Aquifer Systems," Department of Water Science and Engineering, University of California, Davis, California, April 1973.
 - 💧 "Identification of Parameters in a Leaky Aquifer System," Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, May 1972.
 - 💧 "Aquifer Parameter Identification," Department of Geology, University of Connecticut, Storrs, Connecticut, April 1972.

Courses Taught and Development

💧 Civil Engineering 144	<i>Groundwater Systems Design: Groundwater occurrence distribution and exploration. Quality of groundwater.</i>
💧 Civil Engineering 272A	<i>Advanced Groundwater Hydrology: Flow in confined unconfined, and leak aquifers. Hydraulics of pumping and recharging wells.</i>
💧 Civil Engineering 272B	<i>Advanced Groundwater Hydrology: Numerical methods of fluid flow systems. Flow in the unsaturated zone.</i>
💧 Civil Engineering 273	<i>Water Resource Systems Engineering: Planning, design, and management of water resource systems.</i>
💧 Water Science 149/149A	<i>Groundwater Hydrology: Occurrence distribution, and movement of groundwater. Steady and transient groundwater-flow systems. Aquifer tests.</i>
💧 Water Science 205	<i>Water-Resource Systems Analysis: Deterministic Models.</i>
💧 Water Science 207	<i>Water-Resource Systems Analysis: Stochastic Models.</i>
💧 Water Science 206	<i>Water-Resource Systems Analysis: Water quality Management. Irrigation planning and operation Models.</i>
💧 Hydrologic Sciences 144/ Biological & Agricultural	<i>Groundwater Hydrology: Fundamentals of groundwater Flow and contaminant hydrology. Occurrence, distribution, and movement of groundwater. Well-flow Systems. Aquifer tests. Well construction, operation and maintenance. Groundwater exploration and quality assessment.</i>
💧 Hydrologic Sciences 243/ Biological & Agricultural	<i>Water Resource Planning and Management: Applications of deterministic and stochastic Mathematical programming techniques to water Resource planning, analysis, design, and management.</i>



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