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Dedicated to

José D. Salas
Borland Professor of Hydrology and Water Resources
and Professor of Civil Engineering
Civil Engineering Department
Colorado State University

In recognition of his significant contributions to water resources and hydrologic science and engineering. Dr. Salas has written over 200 reviewed papers and reports, a book, several book chapters and edited several books in the areas of stochastic modeling and simulation of hydrological processes; flood prediction, forecasting and control; drought analysis, prediction, and management; modeling of hydro-climatic processes exhibiting shifting level patterns; modeling of periodic stochastic hydrologic processes; regional frequency analysis of extreme events; analysis of regional drought; and the estimation of return periods and risk for dependent hydrologic processes.
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Linking drought research to water resource management actions

Professor John A. Dracup, Department of Civil and Environmental Engineering, University of California, Berkeley

Scale Dependence Of Dispersivity Estimated From Temporal Moments In Heterogeneous Porous Media

Daniel Fernández-Garcia, Tissa H. Illangasekare, Environmental Science And Engineering Division, Colorado School Of Mines. Harilhar Rajaram Department Of Civil, Environmental And Architectural Engineering, University Of Colorado, Boulder

Short Comings in Applying Regional Hydraulic and Morphologic Databases in Natural Channel Design Projects

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Limiting Source Dimensions of Three-Dimensional Analytical Point Source Model for Solute Transport

A. Noman M. Ahsanuzzaman, University of Oklahoma, Randall Kolar, PhD, University of Oklahoma, Musharraf Zaman, PhD, University of Oklahoma

Collecting continuous flow data on headwater reaches of the Little Snake River, Colorado

Russell J. Anderson, Civil Engineering Department, Colorado State University, Fort Collins, CO, Brian P. Bledsoe, Civil Engineering Department, Colorado State University, Fort Collins, CO

Process controls on stream and river channel width

Russell J. Anderson, Civil Engineering Department, Colorado State University, Fort Collins, CO, Brian P. Bledsoe, Civil Engineering Department, Colorado State University, Fort Collins, CO

Analysis of short-time single-ring infiltration under falling-head conditions with gravitational effects

Rafael Angulo-Jaramillo, Laboratoire d'Etude des Transferts en Hydrologie et Environnement, Grenoble, France, David Elrick, Land Resource Science, University of Guelph, Ontario, Canada, J.-Yves Parlange, Pierre Gerard-Marchant, Department of Biological and Environmental Engineering, Cornell University, Ithaca, NY 14853, Randel Haverkamp, Laboratoire d'Etude des Transferts en Hydrologie et Environnement, Grenoble, France

Local Regression Quantile Estimator for Flood Frequency Analysis

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Electrically Induced Redox Barriers (e’barriers) - Borden Field Experiment

Matthew N. Ballaban, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada, Tom Sale, Department of Civil Engineering, Colorado State University, Fort Collins, Colorado, USA, David Gilbert, Department of Civil Engineering, Colorado State University, Fort Collins, Colorado, USA, Robert W. Gillham, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada

The Application of Quantitative Assessment of Land Use Changes Impact on Water Conservation for Reservoir Watershed

Tien-Yin Chou Director and Professor, GIS Research Center, Feng Chia University, Taichung, Taiwan., Zheng Dao Xie, Chief, Conservation Division, Water Resources Agency, Ministry of Economic Affairs, Taiwan.Mei-Hsin Chen, Lecture and Project Division Manager, GIS Research Center, Feng Chia University, Taichung, Taiwan.

Application of TOPMODEL in the Distributed Model Intercomparison Project (DMIP)

Christina Bandaragoda, Civil and Environmental Engineering Department, Utah State University, Logan, UT, David G. Tarboton, Civil and Environmental Engineering Department, Utah State University, Logan, UT, Ross Woods, National Institute of Water and Atmospheric Research, NIWA, Christchurch, New Zealand

Effective discharge determination

Carmen Bernedo, Water Resources, Hydrologic and Environmental Sciences Division, Civil Engineering Department, Colorado State University, Fort Collins, Jorge A. Ramírez, Water Resources, Hydrologic and Environmental Sciences Division, Civil Engineering Department, Colorado State University, Fort Collins

Development of theoretically based design criteria for a porous V-weir

Chance J. Bitner, Hydraulics Division, Department of Civil Engineering, Colorado State University, Christopher I. Thornton, Hydraulics Division, Department of Civil Engineering, Colorado State University

On the probabilistic characterization of drought events

A. Cancelliere, B. Bonaccorso, and G. Rossi, Civil and Environmental Engineering Department, University of Catania, Catania, Italy, J. D. Salas, Department of Civil Engineering, Colorado State University, Fort Collins, USA (on sabbatical leave at ETH, Zurich, Switzerland)

Cellular automata models of particle interactions in sediment entrainment

Nancy E. Brown, Department of Geosciences, College of Natural Resources, Colorado State University, Fort Collins, CO. e-mail: brune@cnr.colostate.edu, Jorge A. Ramírez, Water Resources, Hydrologic and Environmental Sciences Division, Civil Engineering Department, Colorado State University, Ellen E. Wohl, Department of Geosciences, College of Natural Resources, Colorado State University

Variation of bedload rating and flow competence curves with stream and bed material parameters

Kristin Bunte and Steven R. Abt, Engineering Research Center, Colorado State University, Fort Collins, CO. e-mail: kbunte@engr.colostate.edu, email: sabt@engr.colostate.edu
Calibrated Groundwater Flow and Salinity Transport Modeling in the Lower Arkansas River Basin of Colorado

J. Philip Burkhalter, Timothy K. Gates and John W. Labadie - Dept. of Civil Engineering, Colorado State University, Fort Collins, CO

Shear stress distributions in streams with high bank roughness

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GIS Database Implementation for San Antonio River Authority

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An Objective Method for the Intercomparison of Terrain Stability Models and Incorporation of Parameter Uncertainty

Kiran Chinnayakanahalli, David G. Tarboton, and Robert T Pack, Civil and Environmental Engineering Department, Utah State University, Logan, UT

Information Content in Transient Drawdown Data

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Predicting the Spatial Distribution of Fine Sediment In Stream Networks

Christopher O. Cuhaciyan, Civil Engineering Department, Colorado State University, Fort Collins, CO., Brian P. Bledsoe, Civil Engineering Department, Colorado State University, Fort Collins, CO

Natural And Surfactant Enhanced Dissolution Of Field DNAPLs

Dongping Dai, Satawat Saenton, and Tissa H. Illangasekare, Environmental Science and Engineering Division, Colorado School of Mines Coolbaugh Hall, 14th and Illinois St., Golden, CO 80401

Severe Drought: A Review of the 2002 Water Year in Colorado

Nolan J. Doesken, Colorado Climate Center, Atmospheric Science Department, Colorado State University, Fort Collins, Colorado - Michael A Gillespie, Snow Survey Division, Natural Resources Conservation Service, U.S. Department of Agriculture, Lakewood, Colorado

Drought In An Evolutionary Context: Molecular Evidence From Endemic Colorado River Fishes In Western North America

Marlis R. Douglas, Ph.D., and Michael E. Douglas, Ph.D., Conservation Genetics, Biodiversity and Molecular Ecology, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO, and Patrick C. Brunner, Ph.D., Molecular Systematics and Biodiversity Division, Swiss Federal Research Station, Waedenswil, Switzerland
Long-term effects of dam removal on aquatic biodiversity of the Colorado River

Michael E. Douglas, Ph.D. and Marlis R. Douglas, Ph.D., Conservation Genetics, Biodiversity and Molecular Ecology, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO

Effect of performance of Canal System in Ganges

Kobadak and Pabna integrated rural development project on poverty. S.H.M. Fakhruddin Saad Siddiqui

Spatial and temporal snowpack variation for the Salt River in Arizona

Steven Fassnacht, Watershed Sciences Program, Department of Forest, Rangeland and Watershed Stewardship, Colorado State University, Fort Collins

Improving MODFLOW’s RIVER Package for Unsaturated Stream/Aquifer Flow

Garey Fox, Water Resources, Hydrologic, and Environmental Sciences Division, Department of Civil Engineering, Colorado State University

Estimating Streambed and Aquifer Parameters from a Stream/Aquifer Analysis Test

Garey Fox, Water Resources, Hydrologic, and Environmental Sciences Division, Department of Civil Engineering, Colorado State University

Real Time Monitoring of NAPL Sources Using Photon Attenuation Techniques on Chlorinated Solvents

Jose L. Gago and Tissa Illangasekare, Colorado School of Mines, Environmental Science and Engineering Division, Golden, Colorado

Using CFD to Define the Hydraulic Zone of Influence at Cooling Water Intake Structures

Dan Gessler, Alden Research Laboratory, John Richardson, Alden Research Laboratory, Doug Dixon, Electric Power Research Institute

Microbially Influenced Mass Transfer from Entrapped Pools of Non-Aqueous Phase Tetrachloroethene: Preliminary Results of Small Flow-Cell Experiments

Kent C. Glover, Ann Hoenke, Tissa H. Illangasekare, and Junko Munakata-Marr, Colorado School of Mines, Environmental Science and Engineering Division, Golden, Colorado

Water Release from Cross-linked Polyacrylamide

C.H. Green, G. Butters, and G.E. Cardon, Colorado State University, Dept. of Soil & Crop Sciences

Drought and Water Policy: Implications for Colorado

Neil S. Grigg, Water Resources Planning and Management Division, Civil Engineering Department, Colorado State University, Fort Collins, CO

Engineering Design Parameter Of Storms In Venezuela

Edilberto Guevara. Professor of Civil Engineering, Carabobo University, Valencia. Venezuela
Modeling the Influence of Irrigated Agriculture on Selenium Levels in the Uncompahgre River in Western Colorado

R. Blair Hanna, Water Resources, Hydrologic and Environmental Sciences Division, Civil Engineering Department, Colorado State University, Jim C. Loftis, Civil Engineering Department, Colorado State University, Eric C. Schuck, Department of Agriculture and Resource Economics, Colorado State University, Fort Collins, CO

Development of a Technique for Analyzing $^{15}$N in Waters with Low Nitrate Content

Greg Harp, Watershed Sciences, College of Natural Resources, Department of Geosciences, Colorado State University, Fort Collins, CO.

Fine Sediment Dynamics in the Upper Colorado River During Spring Runoff and Summer Baseflows: Implications for Flow Recommendations and Biological Productivity

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Island Ageing and Dynamics in the Snake River, Western Idaho, USA


Use of Chemical Oxidation to Reduce Rate-Limited Matrix Diffusion of PCE from Low Permeability Materials – A Numerical Study

Jeffrey L. Heiderscheidt, Environmental Science and Engineering Division, Colorado School of Mines, Golden, Colorado, Tissa H. Illangasekare, Professor, Environmental Science and Engineering Division, Colorado School of Mines, Golden, Colorado, Robert L. Siegrist, Professor and Interim Director, Environmental Science and Engineering Division, Colorado School of Mines, Golden, Colorado

Is Pan Evaporation Decreasing Across the Conterminous United States? If it is, so what?

Michael T. Hobbins and Jorge A. Ramírez, Water Resources, Hydrologic and Environmental Sciences Division, Civil Engineering Department, Colorado State University, Fort Collins; Thomas C. Brown, Rocky Mountain Research Station, U. S. Forest Service, Fort Collins

Use of a Rainfall Simulator to Assess Controls on Post-Fire Runoff and Sediment Production, Colorado Front Range

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Assessment of Phosphorus Distribution in a Drought-Impacted Reservoir and Recommendations for Potentially Mitigating Eutrophication Concerns

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Inter-comparison of spatial estimation schemes for precipitation and temperature in hydrologic modeling

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Brett Jordan, Department of Civil Engineering, Colorado State University, Fort Collins CO

History Of Hydraulics and Fluid Mechanics At Colorado State University

Pierre Y. Julien and Robert N. Meroney, Civil Engineering Department, Colorado State University

2002 Municipal Response To Drought In The Colorado Front Range

Douglas Kenney, University of Colorado Natural Resources Law Center, Boulder, Colorado, Roberta Klein CIERES Center for Science and Technology Policy Research, Boulder, Colorado, Adam Morrison, University of Colorado Department of Political Science, Boulder, Colorado

Mass transfer characteristics of entrapped DNAPL during surfactant flushing in two-dimensional flow field.

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Streamflow and sediment yield following the 2000 Bobcat fire, Colorado Front Range

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Depicting channel reaches at sub-link scales using digital elevation models

Alejandro N. Flores, Civil Engineering Department, Colorado State University, Brian P. Bledsoe, Civil Engineering Department, Colorado State University

Factors affecting predictions of stream reach morphology using remotely sensed data: implications for restoration and habitat evaluation

Alejandro N. Flores, Civil Engineering Department, Colorado State University, Brian P. Bledsoe, Civil Engineering Department, Colorado State University
Effects of Drought on Antibiotic Occurrence and Water Quality in a River Influenced by Urban and Agricultural Activity

Ben Lengacher, Kenneth Carlson, Shinwoo Yang, Department of Civil Engineering, Colorado State University, Fort Collins

GIS-based temperature interpolation for distributed modeling of reference evapotranspiration

Shujun Li, Civil and Environmental Engineering Department, Utah State University, Logan, UT, David G. Tarboton, Civil and Environmental Engineering Department, Utah State University, Logan, UT, Mac McKee, Civil and Environmental Engineering Department, Utah State University, Logan, UT

Effects of the Hayman Fire and Thinning on Sediment Production Rates, Channel Morphology, and Water Quality


Coping with Droughts: Region-wide Reservoir Storage estimation for efficient Water Management, and Drought Mitigation

Jens Liebe, Center for Development Research, University of Bonn, Germany, Nick van de Giesen, Center for Development Research, University of Bonn, Germany, Marc Andreini, Center for Development Research, University of Bonn, Germany, and IWMI, Accra, Ghana

Habitat Improvement Techniques for Aquatic Fishery: Application Experiences at Ta-Chia River in Taiwan

Bing-Shyan, Lin, Department of Hydraulics, Feng Chia University, Taichung, Taiwan, Chao-Hsien Yeh Associate Professor, Department of Hydraulics, Feng Chia University, Taiwan, Hui-Pang Lien, Associate Professor, Department of Hydraulics, Feng Chia University, Taiwan, Ching-Hao Tuan, Professor, Department of Soil and Water Conservation, National Chung Hsing University, Taiwan

Climate, Water Resources, and Environmental Sustainability: Ensuring Adequate Water Supplies in the 21st Century

Martyn Clark, Chris Goemans, Charles Howe, Douglas Kenney, Rutherford Platt, Lee Rozakis, James Saunders, Brad Udall, and John Wiener, Center for Science and Technology Policy Research, 1333 Grandview Avenue, Campus Box 488, University of Colorado at Boulder, Boulder, CO 80309-0488

Application of Physical Principles of the Unit Hydrograph Method in Characterizing Streamflows for River Restoration and Management

Margaret A. Matter, Civil Engineering Department, Colorado State University, Luis Garcia, Bioresources and Agricultural Engineering, Civil Engineering Department Colorado State University

South Platte River at Globeville Physical Model

Peter M. McCarthy, Thomas E. Brisbane, and Steven R. Abt, Hydraulics Program, Civil Engineering Department, Colorado State University, Fort Collins
Spatial Relations Between Soil Electrical Conductivity and Soil Water Content, Texture, and Chemistry

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Preliminary Analysis Of Sediment Transport Capacity In The Colorado Plateau


Criteria For Risk Evaluation In Groundwater Management Projects: A Comparative Study

Cinzia Miracapillo, Geologisch-Paläontologisches Institut der Universität Basel,

Influence Of Pool Morphology On The Performance Of The Pitt For DNAPL Characterization

Elena Moreno-Barbero, Dongping Dai and Tissa H. Illangasekare, Division of Environmental Science and Engineering, Colorado School of Mines, Golden, E-mail: emorenob@mines.edu

Identification of the Ordinary High-Water Mark of the Snake River, Western Idaho, USA

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Common themes in channel design failure: Case studies from southern Ontario

John Parish and Paul V. Villard, PARISH Geomorphic Ltd., Georgetown, ON, L7G 4J9, Email: pvillard@parishgeomorphic.com

Electrically Induced Redox Barriers for the Treatment of Ground Water – Warren AFB Field Experiment

Matthew Petersen, Chemical Engineering Department, Colorado State University, Fort Collins, David Gilbert, Civil Engineering Department, Colorado State University, Fort Collins, Tom Sale, Civil Engineering Department, Colorado State University, Fort Collins,

Investigation of the Hydraulic Patterns in a Riffle using Three-Dimensional Velocity Characteristics

Tracy L. Phelps, Department of Earth Resources, Colorado State University, Fort Collins, CO, Ellen E. Wohl, Department of Earth Resources, Colorado State University, Fort Collins, CO

Drought in Colorado -Where are we in 2003?

Roger A. Pielke, Sr., Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado - Colorado State Climatologist
Post-Fire Erosion in the Colorado Front Range: Rates and Recovery

Joseph H. Pietraszek and Lee H. MacDonald, Watershed Science Academic Program, Forest, Range, and Watershed Stewardship Dept., Colorado State University, Fort Collins, Juan de D. Benavides-Solorio, National Council of Science and Technology, Guadalajara, Mexico

Analyzing nonvolatile organic disinfection by-products using gas chromatography/mass spectrometry

Xian Qiming, School of Environment, Nanjing University

AFCEE Source Zone Initiative- Technical Assistance To FE Warren, NAS Fort Worth & AFP 4

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Drought, fire and forests – lessons from 1851 and 2002

William H. Romme, Department of Forest, Range, and Watershed Stewardship, Colorado State University, Fort Collins

Effectiveness of BAER treatments in the Bobcat, Hayman, and Schoonover Fires

Daniella T.M. Rough, Lee H. MacDonald, and Joseph W. Wagenbrenner, Watershed Science Program, College of Natural Resources, Colorado State University, Fort Collins, CO 80523

Relative Effects of Lithology on Fine Sediment Deposition In the Coast Range of Oregon

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Consequences of Incomplete Remediation of the DNAPL-Contaminated Aquifers: Intermediate-Scale Experiments and Numerical Modeling Studies

Satawat Saenton and Tissa H. Illangasekare, Division of Environmental Science and Engineering, Colorado School of Mines, Golden, Colorado, 80401 U.S.A.

Progress in Stochastic Analysis, Modeling, and Simulation: SAMS-2003


Predicting Flow Regime for Ungauged Streams in the Western United States

Stephen C. Sanborn, Civil Engineering Department, Colorado State University, Fort Collins, CO, Brian P. Bledsoe, Civil Engineering Department, Colorado State University, Fort Collins, CO

Storage analysis using stochastic nonparametric streamflow simulation: Case study of the proposed Seaman reservoir expansion in Northern Colorado

Satish Regonda, Balaji Rajagopalan and Kenneth Strzepek Department of Civil Environmental and Architectural Eng., University of Colorado, Boulder, CO
One-Dimensional Column Studies of Emulsified Vegetable Oil for Dense Non-Aqueous Phase Liquid Subsurface Remediation

Shannon Ullmann, Dongping Dai and Tissa H. Illangasekare, Division of Environmental Science and Engineering, Colorado School Of Mines, Golden, CO 80401. Email: sschakel@mines.edu

The Axis of Risk and Uncertainty in Hydrologic Design

J. D. Salas, Department of Civil Engineering, Colorado State University, Fort Collins, USA - P. Burlando, Institute of Hydromechanics and Water Resources Management, ETH, Zurich, Switzerland - J.H. Heo, and D.J. Lee School of Civil & Environmental Engineering, Yonsei University, Seoul, 120-749, Korea

Characterizing the Dynamics of Droughts

José D. Salas, Professor, Department of Civil Engineering, Colorado State University, Fort Collins, Colorado

Aggregation scenarios to model water fluxes in watersheds with spatial changes in soil texture

Jose M. Soria, Feike J. Leij, Rafael Angulo-Jaramillo, Laboratoire d’Etude des Transferts en Hydrologie et Environnement, Grenoble, France, Carlos Fuentes, Instituto Mexicano de Tecnologia del Agua (IMTA), Mexico, Randel Haverkamp, Laboratoire d’Etude des Transferts en Hydrologie et Environnement, Grenoble, France, J.-Yves Parlange, Department of Biological and Environmental Engineering, Cornell University, Ithaca, NY 14853

Effect of Forest Thinning on Soil Moisture after 12 Years

Steve Thomas, Watershed Science Academic Program, Forest, Rangeland, and Watershed Stewardship Dept., Colorado State University, Fort Collins

Role Of Stream Stability And Channel Morphology In Controlling Phosphorus Export From Agricultural Watersheds

Joel A. Tillery, Civil Engineering, Colorado State University, Kenneth H. Carlson, Civil Engineering, Colorado State University, Chester C. Watson, Civil Engineering, Colorado State University

Issues Of Heterogeneity, Characterization, Mass Transfer And Up-Scaling Associated With Partial Source Zone Treatment At DNAPL Contaminated Sites

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Parameter estimation technique for a water balance model and application to measured data

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DNAPL Dissolution in Random Heterogeneity Fields

Alan D. Turner, Environmental Science and Engineering, Center for the Experimental Study of Subsurface Environmental Processes (CESEP), Environmental Science and Engineering Department, Colorado School of Mines, Golden, CO., Tissa H. Illangasekare, Center for the Experimental Study of Subsurface Environmental Processes (CESEP), Environmental Science and Engineering Department, Colorado School of Mines, Golden
Mountain Floodplain Hydrologic Regime Alteration due to Beaver Activity

Cherie J. Westbrook and David J. Cooper, Department of Earth Resources and Graduate Degree Program in Ecology, Colorado State University, Fort Collins, CO 80523, cherie@cnr.colostate.edu

An Investigation of the Downstream Effects of DNAPL Source Zone Remediation.

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Channel Remediation and Restoration Design for Silver Bow Creek, Butte Montana

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Influence of Bedrock Geology on Water Quality in Selected Front Range Reservoirs

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Vegetable Oil Delivery Techniques For Use As A Carbon Source In The Reductive Dechlorination Of Chlorinated Solvents In Saturated Porous Media

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Snow covered area images based representation of spatial distribution pattern of snow in a mountainous watershed

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