CURRICULUM VITAE

Jennifer Guohong Duan, Ph.D., P.E., D.WRE
Associate Professor
Department of Civil Engineering and Engineering Mechanics
The University of Arizona
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EDUCATION

Ph.D. 1998 Computational Hydroscience and Engineering, University of Mississippi
Dissertation: Numerical Simulation of Meandering Migration Processes with an Enhanced Two Dimensional Model
Advisor: Prof. Sam S. Y. Wang

M.S. 1992 Hydraulic Engineering, Tsinghua University
Thesis: Bed Forms and Flow Resistance of Light Weighted Bed Material
Advisor: Prof. Guixian Wang

B.C.E. 1989 Hydraulics and River Mechanics, Wuhan University

CERTIFICATION

Professional Engineer (PE) Arizona No: Civil 54391 (active); Nevada, No: Civil 015263 (no-active).
Diplomat, American Academy of Water Resource Engineers, 2003-present.

EMPLOYMENT HISTORY

08/2015 – present Joint Associate Professor, Department of Agriculture and Biosystem Engineering, the University of Arizona, Tucson, Arizona.

08/2014 - present Delbert R. Lewis Distinguished Professor, Department of Civil Engineering and Engineering Mechanics, the University of Arizona, Tucson. Arizona.

06/2011 – present Associate Professor, Department of Civil Engineering and Engineering Mechanics, the University of Arizona, Tucson, Arizona.

08/2006 – present Joint Assistant Professor, Department of Hydrology and Water Resource, the University of Arizona, Tucson, Arizona.

08/2006 – 04/2011 Assistant Professor, Department of Civil Engineering and Engineering Mechanics, the University of Arizona, Tucson, Arizona.

07/2005 – 08/2006 Associate Research Professor, Division of Hydrologic Sciences, Desert

Research Institute, Nevada Higher Education System, Nevada.

07/2005 – 12/2005 Visiting Associate Professor, National Center for Earth Surface Dynamics, St. Anthony Falls Lab., University of Minnesota.

01/1999 – 07/2005 Assistant Research Professor, Division of Hydrologic Sciences, Desert Research Institute, University and Community College System of Nevada, Nevada.

01/1994 – 12/1998 Research Assistant, Center for Computational Hydro-science and Engineering, University of Mississippi, Mississippi.

04/1992 – 12/1993 Research Associate, Department of Hydraulic Engineering, Tsinghua University, Beijing, P.R. China.

AWARD and HONOR

Delbert R. Lewis Distinguished Professor, Department of Civil Engineering and Engineering Mechanics, University of Arizona, Tucson, AZ 85721.

Diplomat, American Academy of Water Resource Engineers, American Society of Civil Engineers since 2006.

NSF CAREER Award: Hydrologic Science Program, 2008.

Award for Excellence at the Student Interface Award: College of Engineering, University of Arizona, 2007.

Associate Editor, Journal of Hydrology.

Panelist, Geoscience Panel, NSF Graduate Research Fellowship, 2009.

Panelist, Civil Engineering Panel, Department of Defense, SMART Scholarship Program, 2009.

Panelist, Civil and Environmental Engineering Panel, NSF Graduate Research Fellowship, 2010.

TEACHING EXPERIENCE

CE 218: Fluid Mechanics, University of Arizona

CE 422/522: Open Channel Flow, University of Arizona

CE 429/529: Special Topics: Computational Hydraulics, University of Arizona

CE 622: Sediment Transport Engineering, University of Arizona

Training Course: Flow Simulation Using HEC-RAS 5.0 (2D Model).

INVITED SEMINARS

"Advanced Computational Modeling of Unsteady Flow and Sediment Transport Processes", State-Key Laboratory of Hydroinformatics, Tianjin University, China, June 2014.

"Simulation of Meandering Channel Processes and Bank Erosion", State-Key Laboratory of Hydraulic Engineering, Tsinghua Univ., China, June 2012.

"Simulation of Erosion and Sedimentation in Irrigation Furrows", USDA-ARS, Arid Land Agricultural Research Center, Maricopa, Arizona, April 2010.

"Turbulence Bursts around Experimental Spur Dikes and Numerical Simulations of Dam Break Flow using Finite Volume Method", National Center for Hydroscience and Engineering, the University of Mississippi, July 2009.

"Evaluation of Sediment Transport Models for the Rillito River, Tucson", Pima County Regional Flood Control District, Tucson, Arizona, Oct 2008.

"Computational Simulation of Meandering River Meandering Processes", Maricopa Regional Flood Control District, Phoenix, Arizona, March 2008.

"Numerical Simulation of Meandering Evolution Processes", USDA-ARS, Arid Land Agricultural Research Center, Maricopa, Arizona, Feb. 2008.

"Computational Simulation of Meandering River Meandering Processes", Department of Agriculture and Biosystem Engineering, Univ. of Arizona, Tucson, Sept 2007.

"Computational Simulation of Meandering River Meandering Processes", Department of Mathematics, Univ. of Arizona, Tucson, April 2007.

"Computational Simulation of Meandering River Meandering Processes", Department of Hydrology and Water Resource, Univ. of Arizona, Tucson, March 2007.

"Application of EnSed2D to Stream Restorations", Department of Geography, Arizona State University, Phoenix, Nov., 2006.

"Development and Application of EnSed2D to Stream Restorations", Department of Air, Land, and Water, University of California, Davis, April, 2006.

"Development and Application of EnSed2D to Stream Restorations", National Center for Earth Surface Dynamics, University of Minnesota, Sept., 2005.

"Computational Modeling of Gravel Transport in a Mountain River", National Center for Computational Hydrosciences and Engineering, University of Mississippi, Feb. 2005.

"Numerical Simulation of Meandering Evolution", Iowa Institute of Hydraulic Research, University of Iowa, Iowa City, Oct. 2003.

"Computational Simulation of Suspended Sediment Concentration Field in a Spur-dike Field", Colorado State University, Feb. 2002.

"Numerical Simulation of Flow and Mass Dispersion in Meandering Streams", Swiss Federal Institute of Hydraulic Research, Lausanne, Switzerland, Jan. 2001.

TEACHING AND MENTORING GRANTS

At the University of Arizona (Aug. 2006- Present)
(One Teaching Grant $38,550, Several Mentoring Grants $19,000)

NASA Space Grant for Undergraduate Student Internship: 2014-2015, amount $4,000.
This grant aims to involve undergraduate students into PI's research. Mr. Jonathan Schimdt from Civil Engineering and Engineering Mechanics Department was chosen as the intern.

DOD High School Apprentices Program (HSAP), Department of the Army – Material Command, single PI, June 2012- Aug 2012, $9,090, Project title: Upgrading an Experimental Flume of Hydraulic Engineering Education and Research – High School Apprentices Program Supplement.

DOD High School Apprentices Program (HSAP), Department of the Army – Material Command, single PI, June 2011- Aug 2011, $9,060, Project title: Training of High School Apprentices in Hydraulic Engineering.

State of Arizona, TRIF, Anyplace Access for Arizonans Initiative, single PI, April 2009 -July 2010, $38,550. Project title: Distance Learning Course: Sediment Transport Analysis.

Faculty and Student Interaction Grant: Fall 2007 for CE 422 class, amount: $600
This grant program is to support the interactions between faculty and students. The PI uses this grant for an engineering field trip for CE 422 class.

NASA Space Grant for Undergraduate Student Internship: 2007-2008, amount $4,000.
This grant aims to involve undergraduate students into PI's research. Mr. Sam Akisa from Mechanical Engineering Department was chosen as the intern.

NASA Space Grant for Undergraduate Student Internship: 2008-2009, amount $,4000.
This grant aims to involve undergraduate students into PI's research. Mr. Ramsey Coronado from Environmental Engineering Department was chosen as the intern.

At the Desert Research Institute (1999-2006)

NSF-Nevada ESPCOR Graduate Student Fellowship, from June 2005 - Dec 2005, amount: $6,900. This NSF funded fellowship is to support one graduate student to participate a research project proposed by the PI.

RESEARCH GRANTS

At the University of Arizona (Aug. 2006- now)
(17 Projects, over $2.5 million funded grants)

Pima County Regional Flood Control District, PI, from Jan 2017– Jan 2018, amount $85,000.

Title: Sediment Transport and Erosion Study at the Alta Valley, Tucson, Arizona.

Arizona Board of Regents, PI, Jennifer G Duan, Co-PI, Hongki Jo (50%), June 2016 – June 2017, $30,000. Project Title: Bridge Scour Assessment and Infrastructure Reliability Analysis.

Pima County Regional Flood Control District, PI, from June 2014– Oct 2016, amount $90,000. Title: Sediment Transport and Stream Monitoring of the Lower Santa Cruz River, Tucson

Arizona Department of Agricultural, PI, Chuck Gerba, Co-PI, Jennifer G. Duan (50%), Nov. 2014 – Oct 2015, $50,000. Project Title: Pathogen Transport in Irrigation Canals.

US Department of Defense, PI (100% effort), Sept 2014 – Sept 2017, $462,000. Project title: Watershed Erosion and Sedimentation Assessment of BMGR West.

National Science Foundation, Sensors, Dynamic and Controls Program, Division of Engineering, PI, Co-PI: Hongki Jo, 55% effort, amount $310,000, 01/01/2015 – 12/31/2017. Project Title: Flood Induced Bridge Scour Prediction Using Bio-inspired Smart Sensor Network.

Pima County Department of Transportation (subcontract from Parsons Brinckerhoff, Inc), PI, from Dec 2013– Dec 2015, amount $114,000. Title: Bridge Scour and Sediment Transport Analysis at the Proposed Sunset Bridge Site, Tucson

Pima County Regional Flood Control District, PI, from July 2012– June 2014, amount $84,000. Title: Sediment Transport Models for the Lower Santa Cruz River, Tucson

US Bureau of Reclamation, Department of Interior, PI (100% effort), Sept 2012– Oct 2013, $75,000. Project title: Simulating Dam-break Flow and Fluvial Processes in the Elwha River Basin.

US Department of Defense, Army Research Office, Department of Defense Research Instrument Program (DURIP), single PI (100% effort), May 2011 – June 2012, $50,000. Project title: Upgrading an Experimental Flume for Hydraulic Engineering Education and Research.

National Science Foundation, Division of Environmental Biology, Ecosystem Studies, PI: Thomas Meixner, Co-PIs: Francina Dominguez, Guohong Duan, Thomas Maddock, David A. Plane, 15% effort, amount $636,455, 01/01/2011 – 12/31/2013. Project Title: Collaborative Research: WSC-Category 3 - Climate and population change and thresholds of peak ecological water: integrated synthesis for dryland rivers.

State of Arizona, Water Sustainability Program, single PI (100% effort), Jan 2011- June 2011, amount $31,476. Title: "Experimental and Numerical Modeling Study of Sediment Transport in Unsteady Flow".

NSF CAREER Award, NSF Hydrology Science, single PI (100% effort), amount $415,000 from Dec 2008 – Nov. 2013. Project Title: Integrated experimental and numerical study of non-uniform sediment transport in meandering channels

US Department of Defense, Army Research Office, Department of Defense Research Instrument Program (DURIP), single PI (100% effort), May 2009 – Dec 2010, $149,520. Project title: Upgrading an Experimental Flume for Hydraulic Engineering Education and Research.

US Department of Defense, Army Research Office, Terrestrial Science Program, Research Grant, single PI (100% effort), May 2007 – June 2010, $233,589. Project title: Impact of dike structures on alluvial rivers.

US Department of Agriculture, Agricultural Research Service, Cooperative Research Agreement, single-PI (100% effort), from Oct 2008 to Sept 2010, $72,355. Project Title: Erosion and sediment transport model for the winSRFR software.

National Science Foundation, Hydrological Science Program, single PI (100% effort), from Dec 2006 – March 2008, amount $28,339. Project Title: Experimental Study of bed load sorting around spur dikes

Department of Defense, Army Corps of Engineers, Engineering Research and Development Center, Research Project, single PI (100% effort), from Dec 2006 to May 2007, $10,939. Title: Mechanism of Bed Load Transport in the Las Vegas Wash.

Pima County Regional Flood Control District, research project, single PI (100% effort), from July 2007 – June 2008, amount $51,190. Title: Evaluation of Sediment Transport Models for the Rillito River, Tucson

National Science Foundation, Hydrological Science Program, single PI (100% effort), from March 2008 – Feb 2010, amount $79,613. Project Title: Preliminary investigation of non-uniform sediment transport in meandering channels.

At the Desert Research Institute (Jan. 1999-Aug. 2006)

Principal Investigator (20% effort), co-PIs: Don Sada, Douglas Boyle, Mike Young, Tom Bullard, Ken Adams. "Urban Flood Demonstration Program in Arid and Semi-Arid Region", funded by the US Army Corps of Engineers, Engineering Research and Development Center, total $1,200,000. From Sept. 2006 to Oct.2007.

Principal Investigator (100% effort), "Urban Flood Demonstration Program in Arid and Semi-Arid Region: Hydraulic Modeling of Flow and Sediment Transport in the Rio Grande River and the Salt River", funded by the US Army Corps of Engineers, Engineering Research and Development Center, total $300,000. From Sept. 2005 to Oct.2006.

Principal Investigator (100% effort), "Urban Flood Demonstration program in the Las Vegas Valley – Sediment Transport, Bank Erosion and Supercritical Flow Channel (Phase II)", funded by the US Army Corps of Engineers, Engineering Research and Development Center, total $135,000. From April 1, 2004 to Dec. 2004.

Principal Investigator (70% effort) and Co-PI: Richard French , "Investigation and Simulation of Streambank Erosion Processes in the Upper Jordan River" funded by Department of

Defense, Army Research Office, EPSCoR program, total $316,800. From June 2000 to Dec 2004.

Principal Investigator (100% effort), "Modeling Flow and Sediment Transport with an Enhanced Two-dimensional Model in Kankakee River, Illinois", funded by the Corps of Engineers, Rock Island District and DRI ARI, total $92,778. From Nov. 2001 to Dec. 2002.

Principal Investigator, (100% effort) "Upper Spanish Creek Watershed Assessment and Restoration Strategy", funded by CALFED Bay-Delta Watershed Program, total $170,000. From Jan 2004 to Dec 2005.

Principal Investigator, (100% effort) "Experimental Study of Bed Load Sediment Sorting Around Spur Dikes", funded by the NSF Science and Technology Center, National Center of Earth Surface Dynamics at the University of Minnesota. Total NSF funding: $30,000. From Feb. 2005 to August 2005.

Investigator (20% effort), PI: Mike Young, "Quantify Bed Load Transport from the Las Vegas Wash to Lake Mead", funded by Bureau of Reclamation, total $138,000. From Oct. 2004 to March 2006.

Principal Investigator (20% effort), Shawn Benner (co-PI), Douglas Boyle (Co-PI), "Developing Scopes for DRI and COE Urban Flooding and Urban Channel Restoration Program", funded by the Engineers Research and Development Center, the US Army Corps of Engineers, $184,721. From March 1st, 2003 to July 30th, 2003.

Principal Investigator (100% effort), "Urban Flood Demonstration program in the Las Vegas Valley – Sediment Transport, Bank Erosion and Supercritical Flow Channel (Phase I)", funded by the Engineers Research and Development Center, the US Army Corps of Engineers, $140,000. From July 1st, 2003 to March 30th, 2004.

Principal contractor (100% effort), host "Urban Flooding and Channel Restoration" workshop and assist the development of Urban Flooding and Channel Restoration R&D program for U.S. Army Corps of Engineers (USACE), Engineering Research and Development Center (ERDC), Waterways Experiment Station (WES), funded by WES-ERDC, total $2,400.

Investigator (20% effort), "Water Quality Assessment and GIS-Based Watershed Modeling and Assessment within the California Portions of the Truckee River Basin" by McKay, Alan W., Duan, Jennifer G., Minor Tim, Bullard, Thomas F., Mihevc, Todd M., and Mcgraw, David, funded by the EPA California Regional Office. Total $134,000 in which $30,000 was budgeted for Dr. Duan's modeling study. From March 2000 to April 2002.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Editorial Board:

- Associate Editor, *Journal of Hydrology (2015-present)*

Memberships:

- Member of American Society of Civil Engineering (ASCE)
- Member of the International Association of Hydraulic Research (IAHR).

• Member of American Geophysical Union.

Local/Community

- Member, Reviving Santa Cruz River Technical Committee, Pima County Regional Flood Control District, Tucson, Arizona.

University, College, Department

- Member, Committee on Academic Freedom and Tenure (CAFT), General Faculty Standing Committee, University of Arizona, Faculty Center, 1216 East Mabel, Tucson, Arizona.
- Director, Graduate Program Committee, Department of Civil Engineering and Engineering Mechanics, July 2014-present.
- College of Engineering, Graduate Studies Advisory Committee, Sept. 2013-Aug. 2014
- University of Arizona Research Computing Governance Committee, Sept 2012-Aug.2013.
- Faculty Advisor, Women in Civil Engineering Student organization, 2009-present.
- Graduate Study Committee, CEEM, 2007-2012.

Committee Activities:

- Chair, ASCE Computational Modeling of Sediment Transport Processes Task Committee 2002-2009.
- Vice Chair, ASCE Technical Committee of Computational Hydraulics 2005-2007.
- Chair, ASCE Technical Committee of Computational Hydraulics since 2008-2010.
- Member, 3D Free Surface Flow Model Verification/Validation Monograph Task Committee since 2010-2013.
- Member, ASCE Sediment Technical Committee 2009-2013.

DRI Committee Served:

• CWES Director search committee;
• Vice President-Academic Affair search committee;
• Surface Water Hydrologist search committee in 2000;
• CAVE interim director search committee;
• DHS post-doc search committee;
• Ecological Engineer search committee in 2005;
• Surface Water Hydrologist search committee in 2005.

Professional Service:

• Reviewer of NSF Hydrologic Sciences Program,
• Reviewer of NSF Geophysical Sciences Program.
• Reviewer of NSF ADVANCE Program.
• Reviewer of Terrestrial and Earth Science Program of Army Research Office of DOD.
• Reviewer of Journal of Hydraulic Engineering.
• Reviewer of Journal of Hydraulic Research.
• Reviewer of California Federal Program.

Conference Sponsored/Organized:

- Track Chair, Hydraulics and Waterways, ASCE-EWRI Congress 2009, Kansas City, Kansas.

- Chair, Urban Flooding and Channel Restoration Workshop, in collaboration with the Corps of Engineers, Engineering Research and Development Center, Las Vegas, April 15-16, 2001.

- Moderator, ASCE World Water and Environmental Congress 2004, Salt Lake City.

- Moderator, ASCE World Water and Environmental Congress 2005, Anchorage, Alaska.

GRADUATE STUDENTS ADVISEE

Graduated with degree:

Jaeho Shim, Ph.D., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in Dec 2016. Dissertation Title: Experimental and Numerical Studies of Grain Scaled Bed Load Transport.

Khalid A Abdalrazaak al Asadi, **Ph.D.**, Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in Jan 2016. Dissertation Title: "Experimental Study and Numerical Simulation of Vegetated Alluvial Channels."

Ross Morgan, MS, Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in Dec 2015. Non-Thesis option.

Bai Yang, **Ph.D**., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in May 2014. Dissertation Title: "1D Numerical Model of Unsteady Flow and Sediment Transport in Vegetated Channel". ***Current Employment:*** Bi Gui Yuan Corporation, Guang Zhou, China.

Chunshui Yu, Ph.D., Department of Hydrology and Water Resource, Univ. of Arizona, graduated in July 2013. Dissertation Title "Two Dimensional Simulation of Unsteady Flow and Sediment Transport". ***Current Employment:*** Post-doc Research Associate, University of Arizona, Arizona.

Ari Posner, Ph.D., Department of Hydrology and Water Resource, Univ. of Arizona, graduated in Dec 2011. Dissertation Title: "River Hydrodynamic and Sediment Modeling, Restoration, and Uncertainty". ***Current Employment:*** Research Geomorphologist, Hydrological Research Center, San Diego, California.

Shiyan Zhang, Ph.D., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in July 2011. Dissertation Title: "Numerical Study of Sediment Transport under Unsteady Flow". ***Current Employment***: Assistant Professor, Institute of Geoscience and Geographer, Chinese Academy of Science, Beijing, China.

Anu Acharya, Ph.D., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in Jan 2011. Dissertation Title: "Experimental Study and Numerical Simulations of Flow and Sediment Transport around a Series of Spur Dikes***", Current***

employment: Natural Resource Specialist, Oregon State Department, Salem, Oregon.

Francisco Barrios, MS., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in July 2010. Thesis "Application of Flo-2D Model for Fllod Analysis in the Delgado Wash, Sahuarita, Arizona".***Current:*** Hydraulic Engineer, Tetra Tech, Inc.

Ryan Hummel, MS., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in Dec 2010. Thesis "Sediment Transport Study for the Pantano Wash, Tucson, AZ". ***Current:*** Hydraulic Engineer, Wetland Concept Inc, Denver, Colorado.

Mary Yaeger, MS, Department of Hydrology and Water Resource, Univ. of Arizona, graduated in May 2009. Thesis: "Experimental Study of Turbulence Flow Field around Dike". ***Current:*** Ph.D. student at University of Illinois, Urbana-Champion.

Monica Salguero, MS., Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, graduated in July 2008. Thesis: "Simulating Sediment Transport in the Rillito River Using HEC-6 Model". ***Current:*** Hydraulic Engineer, Tetra Tech, Inc.

Dong Chen, Ph.D. Hydrologic Science Program, University of Nevada Reno, May 2005. Dissertation: "Computational Simulation of Meandering Evolution and Width Adjustments". ***Current position:*** Professor, Institute of Geoscience, Chinese Academy of Science, Beijing China.

Jen Weller, MS. Hydrologic Science Program, University of Nevada Reno, Nov 2005. Thesis: "Predicting Bed Load Transport in the Upper Spanish Creek"

In progress:

Kang Zhou, Ph.D. student, Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, in progress.

Michael Poteuck, MS student, Department of Civil Engineering and Engineering Mechanics, Univ. of Arizona, in progress.

PUBLICATIONS

Book/Book Chapter

Duan, J.G. (2001) Chapter 13: Simulation of Streambank Erosion Processes with a Two-dimensional Numerical Model. Landscape Erosion and Evolution Modeling, RS Harmon and WW Doe, III, eds. Kluwer Academic/Plenum Publishers, New York, 535p, 389-427.

Referred Journals

Web of Science Citation Report:

36. Al-Asadi, K. and Duan, JD (2017) “Assessing methods for estimating roughness coefficient in a vegetated marsh area using Delft3D”, *Journal of Hydroinformatics*, in press.

35. Duan, J. G., Bai, Y, Dominguez, F., Rivera, E., Meixner, T. “Framework for Assessing climate change impact on flood magnitude and frequency in upper Santa Cruz River”, *Journal of Hydrology*, in press.

34. Yu, C. and Duan, Jennifer G., “Simulation of surface runoff using hydrodynamic model”, *Journal of Hydrologic Engineering*, doi:10.1061/(ASCE)HE.1943-5584.0001497.

33. Shim, J. and Duan, Jennifer G. “Experimental study of bed-load transport using particle motion tracking”, *International Journal of Sediment Research*, http://dx.doi.org/10.1016/j.ijsr.2016.10.002.

32. Zhou, K., Sassi, H.P., Morrison, C. M., Duan, J. G., and Gerba, C. “Entrainment of Escherichia coli and MS2 Bacteriophage from bed sediment in irrigation canals”, *Journal of Irrigation and Drainage Engineering*, DOI:10.1061/(ASCE)IR.1943-4774.0001169.

31. Al-Asadi, K. and Duan, J. (2015). "Three-Dimensional Hydrodynamic Simulation of Tidal Flow through a Vegetated Marsh Area." *J. Hydraul. Eng.*, 10.1061/(ASCE)HY.1943-7900.0001052, 06015014.

30. Yu, C.S. and Duan, J.G. (2014) “High Resolution Numerical Schemes for Solving Kinematic Wave Equation”, *Journal of Hydrology*, DOI: 10.1016/j.jhydrol.2014.08.003.

29. Yu, C.S. and Duan, J.G. (2014) “Two-dimensional hydrodynamic model for surface flow routing”, *Journal of Hydraulic Engineering*, DOI:10.1061/(ASCE).HY.1943-7900.0000913.

28. Bai, Y. and Duan, J.G. (2014) “Simulating unsteady flow and sediment transport in vegetated channel network”, *J. of Hydrol.*, http://dx.doi.org/10.1016/j.jhydrol.2014.04.030.

27. Acharya A. Acharya Anil, and Duan, JD (2013). “Three dimesnioanl simulation of flow field around series of spur dikes”, *International Refereed Journal of Engineering and Science (IRJES)*, Vol.2, Issue 7, pp.36-57.

26. Zhang, S., Duan, J. G., and Strelkoff, T. S. (2013) “Gain-scale non-equilibrium sediment transport model for unsteady flow.” *Journal of Hydraulic Engineering*, 139(1), 22-36.

25. Yu, C.S. and Duan, J.G. (2012) “Two-dimensional depth-averaged unsteady turbulent flow model over obstacles”, *Journal of Hydraulic Research*, 50:6, 599-611.

24. He, L., Duan, J .G., Wang, G. Q., and Fu, X. D. (2012), “Numerical Simulation of Unsteady Hyperconcentrated Sediment-Laden Flow in the Lower Yellow River” *J. Hydraul. Eng.*, Vol 138:11, 958-969.

23. Hummel, R., Duan, J. G. and Zhang, S. (2012), Comparison of Unsteady and Quasi-Unsteady Flow Models in Simulating Sediment Transport in an Ephemeral Arizona Stream. *Journal of the American Water Resources Association*. Vol. 48(5), doi: 10.1111/j.1752-1688.2012.00663.x, 987-998.

22. Posner, A. J. and Duan, J. G. (2012) “Simulating river meandering processes using stochastic bank erosion coefficient” *J. Geomorphology*, Vo. 163 (SI), 26-36, doi:10.1016/j.geomorph.2011.05.025.

21.Duan, J. G., He, L., Wang, G. Q. and Fu, X. D. (2011), “Turbulent bursts around an experimental spur dike.” *International J. of Sediment Res.*, Vol 26, No. 4, 471-486.

20.Zhang, S., Duan, J. G., and Strelkoff, T. S., Bautista, E. (2011). "Simulation of unsteady flow and soil erosion in irrigation furrows." *J. Irrigation and Drainage Eng*., Vol 138, No. 4, 294-303.

19. Zhang, S**.** and Duan, J. G. (2011), "1D finite volume model of unsteady sediment transport model." *J. Hydrology,* Vol. 405, Issue 1-2, 57-68.

18. Liu, F., Fu, X.D, Wang, G.Q., and Duan, J.G. (2011). "Physically based simulation of dam breach development for Tangjiashan Quake dam, China", Journal of *Environmental Earth Sciences*, doi 10.1007/s12665-011-1025-9, in press.

17. Duan, J. G., and Julien, P. Y. (2010). "Numerical simulation of meandering evolution." *J. Hydrol.*, 391, 34-46, doi:10.1016/j.jhydrol.2010.07.005.

16.Duan, J. G., and He, L., Fu, X.D., Wang G. X. (2009). "Mean flow and turbulence around experimental spur dike." *Advances in Water Resources, Vol. 32(12), 1717-1725.*

15.Duan, J. G. (2009). "Mean flow and turbulence around a laboratory spur dike." *J. Hydraul. Eng.*, 135(10), 803-811.

14.Chen, D., and Duan, J. G. (2008). "Case study: two-dimensional model simulation of channel migration processes in West Jordan River, Utah." *J. Hydraul. Eng.*, 134(3), 315-327.

13.Duan, J. G., and Scott, S. (2007). "Selective bed-load transport in Las Vegas Wash, a gravel-bed stream." *J. Hydrol.*, Vol. 342, Issue 3-4, 320-330. doi:10.1016/j.jhydrol.2007.06.001.

12.Duan, J. G., Barkdoll, B., and French, R. (2006). "Lodging velocity for an emergent aquatic plant in open channels." *J. Hydraul. Eng.*, 132(10), 1015-1020.

11.Duan, J. G. and Nanda, S. K. (2006). "Two-dimensional depth-averaged model simulation of suspended sediment concentration distribution in a groyne field." *J. Hydrol.*, Vol.327, No. 3-4, 426-437.

10.Duan, J. G., Chen, L., and Scott, S. (2006). "Application of surface-based bed load transport equations to desert gravel-bed stream." *J. Hydraul. Res.*, 44(5), 624-630.

9.Chen, D., and Duan, J. G. (2006). "Simulating meandering channel evolution with an analytical model." *J. Hydraul. Res.*, 44(3), 363-373.

8.Duan, J. G. (2005). "Analytical approach to calculate rate of bank erosion." *J. Hydraul. Eng.*, 131(11), 980-990.

7.Chen, D., and Duan, J. G. (2005). "Modeling width adjustment in meandering channels." *J. Hydrol.*, Vol. 321, Issue 1-4, 59-76. doi:10.1016/j.jhydrol.

6.Duan, J. G., and Julien, P. Y. (2005). "Numerical simulation of the inception of meandering channel." *Earth Surface Processes and Land Forms*, 30 (9), 1093-1110.

5.Duan, J. G. (2004). "Simulation of flow and mass dispersion in meandering channels." *J. Hydraul. Eng.*, 130(10), 964-976.

4.Duan, J. G., French, R.H., and Miller, J. (2002). "The lodging velocity for emergent aquatic plants in open channels." *J. of the American Water Resources Association*, Vol. 38, No.1, 255-263.

3.Duan, J. G., Wang, S.S.Y., and Jia, Y. F. (2001). "The applications of the enhanced CCHE2D model to study the alluvial channel migration processes." *J. Hydraul. Res.*, 39(5), 469-480.

Technical Notes

2.Julien, P. Y., Friesen, N., Duan, J. G., Eykholt, R. (2010). "Celerity and amplification of supercritical surface waves." *J. Hydraul. Eng.*, Vol. 136(9), 656-661.

1.Duan, J. G. and Barkdoll, B. (2008). "Surface-based fractional transport predictor: Deterministic or stochastic." *J. Hydraul. Eng.*, 134(3), 350-353.

Discussions and Closures

Zhong, D. Y. and Duan, J. G. (2008). Closure to "Analytical approach to calculate rate of bank erosion" by J. G. Duan, *J. Hydraul. Eng.,* 134 (2), 281-282.

Duan, J. G. (2006). Closure to "Simulation of flow and pollutant dispersion in meandering channels" by J. G. Duan, *J. Hydraul. Eng.*, 132 (3), 341-342.

Duan, J. G. (2004). Discussion of "3D CFD modeling of a self-forming meandering channel" by Nils Reidar B. Olsen, *J. Hydraul. Eng.*, 130 (8), 837-838.

Duan, J. G. (2001). Discussion of "Numerical analysis of river channel processes with bank erosion", *J. Hydraul. Eng.*, 127 (8), 702-703.

Forum Articles

Barkdoll B. D. and Duan J. D. (2008). "Sediment modeling: issues and future directions." *J. Hydraul. Eng.*, 134 (3), 285-285.

Barkdoll, B., Duan, J. G., et al. (2004). "Computational modeling of sediment transport processes – Task Committee of Computational Modeling of Sediment Transport Processes." *J. Hydraul. Eng.*, 130 (7), 3-5.

Note: *J. Hydraul. Eng. (**Impact Factor**=0.7-1.8)*
*J. Hydrol. (**Impact Factor**=1.2-2.5)*
*J. Hydraul. Res. (**Impact Factor**=0.7-1.0)*
*J. Earth Surface Proc. and Land Forms (**Impact Factor**=1.49)*
*Journal of the American Water Resources Association (**Impact Factor**=0.9-1.61)*

Papers in Progress

Shim, J., Duan, J. G., and Jo, Hongki "Simulating dam break flow induced scour around bridge pier by SPH model", *J. of Hydraulic Engineering*, in review.

Asadi K. and Duan, Jennifer G., " Assessing methods for estimating friction coefficient in a vegetated marsh area", *Journal of Hydroinformatics*, in review.

Asadi K. and Duan, Jennifer G., "Experimental study of bed resistance and bed load transport in vegetated Channel", *Journal of Hydrology*, in revision.

Yu, C. and Duan, Jennifer G., "A well-balanced numerical scheme for solving the variable-density shallow water equations", *Journal of Applied Mathematics Model*, in revision.

Shim, J. and Duan, Jennifer G. "Experimental and theoretical study of bed load particle velocity", *Advances in Water Resources*, in review.

Meixner, T, Shamir, E., and Duan, J. G. "Hydrologic connectivity in an arid climate: a case study of the Lower Santa Cruz River, Arizona." *Journal of American Water Resource Association*, in revision (Nov. 2009).

Referred Conference Papers

Bai, Y. and Duan, J. (2015) Using a Two-Dimensional Watershed Model to Estimate Flood Magnitude and Frequency under Changing Climate. World Environmental and Water Resources Congress 2015: pp. 1163-1172. doi: 10.1061/9780784479162.115

Shim, J. and Duan, J. (2015) Stochastic Properties of Bed Load Transport. World Environmental and Water Resources Congress 2015: pp. 1841-1850. doi: 10.1061/9780784479162.180

Duan, J.D., Yu, C.S, and Lui, L. (2014), Simulation of Lake Mill drawdown experiments using SRH2D model, Proceedings of 10th Federal Interagency Sedimentation Conference, Reno, Nevada.

Yu, C. and Duan, J. (2014) Two-Dimensional Finite Volume Model for Sediment Transport in Unsteady Flow. World Environmental and Water Resources Congress 2014: pp. 1432-1441. doi: 10.1061/9780784413548.144

Al-Asadi, K. and Duan, J. (2014) Three-Dimensional Simulation of Tidal Flow in Vegetated Marsh Area. World Environmental and Water Resources Congress 2014: pp. 1422-1431. doi: 10.1061/9780784413548.143

Duan, J. and Yu, C.S. (2013). Two Dimensional Finite Volume Model for Overland and Channel Flow Simulation, *Proceedings of 35th IAHR conference, Chengdu, China.*

Yang Bai and Duan, J.G. (2013). "1D flow and sediment transport model for vegetated channel network." *Proceedings of 35th IAHR conference, num A 11703, Page 1-9.*

Duan, J. (2013) A Simple Total Sediment Load Formula. World Environmental and Water Resources Congress 2013: pp. 1942-1950. doi: 10.1061/9780784412947.190

Shim, J. and Duan, J. (2013) Experiment Study of Bed Load Particle Velocity. World Environmental and Water Resources Congress 2013: pp. 1962-1970. doi: 10.1061/9780784412947.192

Yu, C. and Duan, J. (2013) A Surface Flow Routing Algorithm Based on Shallow Water Equation with Kinematic Wave Approximation. World Environmental and Water Resources Congress 2013: pp. 1619-1628. doi: 10.1061/9780784412947.159

Duan, J. G. and Yu, C.S. (2012) "On numerical methods for solving kinematic wave equation." Proceedings of 10th International Conference on Hydroscience and Engineering, 10 pages.

Zhang, S., Duan, J. G. (2011). "Numerical Simulation of Non-equilibrium Sediment Transport in Unsteady Flow." EWRI World Environmental and Water Resources Congress 2011, Palm Spring, CA, USA. (Oral presentation)

Acharya, A. and Duan, J.G. (2011) "Three dimensional simulation of flow around series of spur dikes." ASCE Conf. Proc. doi:10.1061/41173(414)218 ASCE EWRI World Water Congress 2011.

Duan, J. G. and Yu, C.S. (2011) "Depth-averaged two dimensional model using Cartesian cut-cell approach." ASCE Conf. Proc. doi:10.1061/41173(414)212. ASCE EWRI World Water Congress 2011.

Ryan, H. and Duan, J.G. (2011) "Modeling sediment transport in the Pantano Wash, Tucson." ASCE Conf. Proc. doi:10.1061/41173(414)441ASCE EWRI World Water Congress 2011 .

Zhang, S. Y., Duan, J. G., and Strelkoff, T. S. (2010). "Simulation of unsteady flow and soil erosion in irrigation furrows." *ASCE Conf. Proc.* 371, 216, ASCE World Water Congress 2010, Providence, Rhode Island, DOI: 10.1061/41114(371)216.

Yaeger, M. and Duan, J. G. (2010). "Mean flow and turbulence around two series of experimental dikes." *ASCE Conf. Proc.* 371, 178, DOI: 10.1061/41114(371)178.

Duan,J. G., He, L., Wang, G. Q., and Fu, X. D. (2010). "Turbulent burst around experimental spur dike." *ASCE Conf. Proc.* 371, 179, DOI: 10.1061/41114(371)179

Zhang, S. Y. and Duan, J. G. (2009). "Comparison of numerical schemes in finite volume model for dam break flow simulation." *Proceedings of the 33rd IAHR Congress*, August 9-12, Vancouver, Canada, 10 pages.

Duan, J. G., and He, L. (2009). "Comparison of mean flow and turbulence around experimental spur dike." *ASCE Conf. Proc. 342*, 302, DOI: 10.1061/41036(342)302.

Duan, J. G., Acharya, A., Yaeger, M., and Zhang, S. Y. (2008). "Evaluation of flow and sediment models for the Rillito River." *ASCE Conf. Proc. 316*, 228, DOI: 10.1061/40976(316)228.

Duan, J. G., Acharya, A., and Yeager, M. (2008). "Sediment sorting around experimental spur dike." *ASCE Conf. Proc. 316*, 231 (2008), DOI: 10.1061/40976(316)231.

Duan, J. G., Acharya, A., and Yaeger, M. (2007). "Sediment sorting around an experimental spur dike." *Proceedings of the 7th IAHR Eco-hydraulics Conference*, Dec 4-8, Phoenix, Arizona, USA, 10 pages.

Chen, D., Zhang, Y. X., Duan, J. G., Stone, M. and Acharya, K. (2007). "Two-dimensional simulation of hydrodynamic and sediment transport in a gravel bed channel: The Salt River." ASCE Conf. Proc. 243, 351, DOI: 10.1061/40927(243)351.

Duan, J. G., Chen, D., Weller, J., and Benoit, T. (2007). "Two-dimensional simulation of flow hydraulics and bed-load transport in a mountain gravel-bed stream: the Upper Spanish Creek." *ASCE Conf. Proc. 243*, 106, DOI: 10.1061/40927(243)106.

Duan, J. G. (2006). "Three-dimensional mean flow and turbulence around a spur dike." *ASCE Conf. Proc. 200*, 65, DOI: 10.1061/40856(200)65.

Chen, D. and Duan, J. G. (2006). "Modeling channel morphologic change in the West Jordan River, Utah." *ASCE Conf. Proc. 200*, 63 (2006), DOI: 10.1061/40856(200)63.

Duan, J. G. and Julien, P. Y. (2006). "Numerical simulation of meandering evolution." *ASCE Conf. Proc. 200*, 64, DOI: 10.1061/40856(200)64.

Duan, J. G. (2005). "Unsteady flow simulation of alternate bars in semi-circle bend." *Proceedings of the 4th IAHR Symposium on River, Coastal and Estuarine Morpho-dynamics*, Vol. 2, Gray Parker and Marcelo Garcia editors, Taylor & Francis Group, 753-760.

Duan, J. G. (2005). "Two-dimensional model simulation of flow field around bridge piers." *ASCE Conf. Proc. 173*, 449, DOI: 10.1061/40792(173)449.

Chen, D., and Duan, J. G. (2004). "Simulation of Meandering Channel Evolution with an Analytical Model." *ASCE Conf. Proc. 138, 259*, DOI: 10.1061/40737(2004)259.

Duan, J. G. and Schwar, M. T. (2003). "Modeling of flow and sediment transport at a river confluence with the EnSed2D model." *ASCE Conf. Proc. 118*, 170, DOI: 10.1061/40685(2003)170.

Duan, J. G. (2002). Simulation of meandering channel migration processes with an enhanced two-dimensional numerical model, *Proceedings of the 2nd Federal Interagency Hydrologic Modeling Conference*, Las Vegas, August, 10 pages.

Duan, J. G. and French, R. (2001). "Simulation of meandering channel migration processes with an enhanced two-Dimensional numerical model." *ASCE Conf. Proc. 111*, 281 (2001), DOI: 10.1061/40569(2001)281.

Duan, J. G. (2001). "An analytical approach to estimate soil erosion from roadside ditches in mountain forest." *Proceedings of the Seventh Federal Interagency Sedimentation Conference,* V.55-62.

Duan, J. G. and Wilcox, J. (2000). "Erosion analysis in Ward Creek, California, by using a two-dimensional numerical model (CCHE2D)." *Proceedings of 4th International Conference on Hydroscience and Engineering (ICHE)*, 59.

Duan, J. G. (2000). "Assessment of non-point source sediment load from the California portion of the Truckee River watershed." *ASCE Conf. Proc. 104*, 271, DOI: 10.1061/40517(2000)271.

Duan, J. G., Jia, Y. and Wang, S. S. Y. (1999). "Simulation of meandering channel migration processes with the enhanced CCHE2D." *Proceedings of the 28th Congress of the IAHR*, in CD-Rom.

Duan, J. G., Wang, S. S. Y. and Jia, Y. (1999). "Simulation of meandering channel flow with an enhanced two-dimensional numerical model." *Proceedings of the 1999 ASCE Annual International Conference*, in CD-Rom.

Duan, J. G., Li, L. and Wang, S. S. Y. (1998). "Two-dimensional bank erosion model for cohesive bank material." *Proceedings of Water Resources Engineering'98*, Memphis, 1398-1403.

Duan, J. G., Jia, Y. and Wang, S. S. Y. (1998). "Bed shear stress in sine-generated channels." *Proceedings of Water Resources Engineering'98*, Memphis, 1374-1379.

Duan, J. G., Jia, Y. and Wang, S. S. Y. (1997). "Meandering process simulation with a two-dimensional numerical model." *Proceedings of the Conference on Management of Landscapes Distributed by Channel Incision*, Sam S. Y. Wang, E. J. Langendon and F. D. Shields, Jr. (eds), ISBN 0937099-05-8, 389-394.

Duan, J. G. and Wang, G. (1996). "Depth-averaged equations for free surface flows." *Proceedings of North American Water and Environmental Congress'96*, American Society of Civil Engineering, 863-869.

Duan, G. and Wang, G. (1992). "Analysis of bed forms and flow resistance of light-weight materials." *Proceeding of the National Symposium on Basic Theories of Sediment Transportation*, Beijing, P.R. China, 861-867.

Technical Report

Duan, J.G., Yu, C.S., Yang, B. (2015). "Bridge Scour Analysis at the Proposed Sunset Bridge Site." Technical Report, submitted to the Pima County Department of Transportation, Dept. of Civil Engineering and Engineering Mechanics, Univ. of Arizona, 108 pages.

Duan, J. G., Yu, C. S., Khalid, A., Liu, L. (2014). "Comparative Modeling Studies of Reservoir Drawdown Induced Erosion and Sedimentation." *Technical Report*, submitted to the Bureau of Reclamation, Dept. of Civil Engineering and Engineering Mechanics, Univ. of Arizona, 63 pages.

Duan, J.G. and Barrios, F. (2010). "Application of Flo-2D Model for Flood Analysis in the Delgado Wash, Sahuarita, Arizona." *Technical Report*, submitted to the City of Sahuarita, Arizona, 127 pages.

Duan, J. G., Acharya A., Yaeger M., Zhang, S. Y., and Eslauger, M. (2007). "Evaluation of sediment transport model for the Rillito River." *Technical Report*, submitted to the Pima County Flood Control District, Dept. of Civil Engineering and Engineering Mechanics, Univ. of Arizona, 327 pages.

Duan, J. G. and Chen, L. (2004). "Sediment transport in the Las Vegas Wash." *Technical Report*, submitted to the US Army Corps of Engineers, Desert Research Institute, 35 pages.

Duan, J. G. and Chen, L. (2003). "Review of sediment transport models." *Technical Report*, Desert Research Institute, Las Vegas, NV 89119, 71 pages.

Duan, J. G. and Chen, D. (2003). "Hydraulic characteristics of supercritical flow in flood control channels in the Las Vegas valley." *Technical Report*, Desert Research Institute, Las Vegas, NV 89119, 35 pages.

Duan, J. G. (2003). "Investigation of flow hydraulics and sediment transport processes at the confluence of the Kankakee and Iroquois rivers with the EnSed2D model." *Technical Report*, submitted to the Army Corps of Engineers, Desert Research Institute, Las Vegas, NV 89119, 88 pages.

Duan, J. G. and Chen, D. (2003). "The EnSed2D model, Version 1.0, Users' Manual." *Technical Report*, Desert Research Institute, Las Vegas, NV 89119, 59 pages.

Chen, D. and Duan, G. J. (2003). "Post-processing of the survey data." *Technical Report*, Desert Research Institute, Las Vegas, NV 89119, 23 pages.

McGraw, D., Mckay, A., Duan, J. G., Bullard, T., Minor, T., and Kuchnicki, J. (2001). "Water

quality assessment and modeling of the California Portion of the Truckee River basin." *Technical Report*, Desert Research Institute, Reno, Nevada, 289pages

Conference Abstract

Yu, C. and Duan, J.G. (2013) Surface flow routing over irregular terrain, AGU conference, San Francisco.

Bai, Y. and Duan, J.G. (2012) Simulating unsteady flow and sediment transport in vegetated channel network, AGU conference, San Francisco.

Yu, C and Duan, J.G. (2012) A unified hydrodynamic and watershed model, AGU Conference, San Francisco.

Zhang, S. Y., Duan, J.G., and Strelkoff T. (2012) A grain scale non-equilibrium sediment transport model for unsteady flow, AGU Conference, San Francisco.

Yu, C. and Duan, J.G. (2011) Two-dimensional Model for Unsteady Flows, AGU Conference, San Francisco.

Posner, A. and Duan, J.G. (2011) Simulation of Sediment Plug in Rio Grande River Using Delft3D model, AGU Conference, San Francisco.

Posner, A. and Duan, J. G. (2010) Simulation of Meandering River Evolution Process using Stochastic Bank Erosion Coefficient, AGU Conference, San Francisco.

Duan, J. G., Julien, P., Zhang, S. Y., and Acharya, A. (2009) Numerical Simulation of meandering Evolution Processes, AGU Conference, San Francisco.

Yaeger M., and Duan J. G. (2008) Comparison of Mean Flow and Turbulence around Series of Experimental Dikes, AGU Conference, San Francisco.

Acharya, A., and Duan J. G. (2008) Statistical Properties of Total Sediment Transport Formulas, AGU Conference, San Francisco.

Duan, J. G., and He, L. (2008) Turbulent Bursts around Experiment Spur Dikes, AGU Conference, San Francisco.

Yaeger M., and Duan, J. G. (2007) Evaluation of Sediment Transport Models for the Rillito River, Tucson, AGU Conference, San Francisco.

Chen D., and Duan, G. J. (2005) Case Study: Numerical Simulation of Meandering Channel Evolution of the West Jordan River, AGU Conference, San Francisco.

Weller, J., and Duan, G. J. (2005) Predicting Bed Load Transport in the Upper Spanish Creek, AGU Conference, San Francisco.

Duan, G. J. (2005) Numerical Simulation of Meandering Evolution, AGU Conference, San

Francisco.

Chen D., and Duan, G. J. (2004) Simulation of Meandering Channel Migration and Widening Processes with an Analytical Model, AGU meeting in San Francisco.

Chen, D., and Duan, G. J. (2003) Analytical prediction of meandering channel evolution, Proceedings of American Geophysical Union Annual Conference, San Francisco, 2003.

Duan, J. G., and French, D. (1999) Hydrodynamic Control of Emergent Aquatic Plants in Open Channels, AGU 1999 Fall Meeting, F364.