CURRICULUM VITAE
GEORGE SERBAN CONSTANTINESCU

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IIHR – Hydroscience and Engineering
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PROFESSIONAL PREPARATION:
Civil Engineering Institute, Bucharest, Romania: Civil & Env. Engrg., M.S., 1992
1990-1991 1-year undergraduate studies fellowship at Ecole Speciale des Travaux Publics du batiment et de l'industrie (ESTP), Paris, France
The University of Iowa: Civil & Environmental Engineering, Ph.D., 1997
Postdoctoral Institutions: Arizona State Univ. (1998-1999) & Stanford Univ. (1999-2003)

APPOINTMENTS:

2016-2016	Visiting Professor, Institute of Freshwater Ecology and Inland Fisheries Berlin, Germany (2 months)
2015-present	Professor, Dept. Civil and Environmental Engineering, University of Iowa
2015-2015	Visiting Professor, EPFL Lausanne, Physics of aquatic systems laboratory (Host: Prof. J Wuest), Switzerland (6 months)
2009-2015:	Associate Professor, Dept. Civil and Environmental Engineering, University of Iowa.
2012-2012:	Visiting Professor, Institute of Freshwater Ecology and Inland Fisheries Berlin, Germany (2 months)
2010-2010:	Visiting Professor, ETH Zurich, Institute for hydraulics, hydrology and glaciology (VAW, Host: Prof. W Hager & R. Boes), Switzerland (6 months)
2004-2009:	Assistant Professor, Dept. Civil and Environmental Engineering, University of Iowa.
2000-2003:	Research Engineer, ASCI-Dept. of Energy Center for Integrated Turbulence Simulations (CITS) & Center for Turbulence Research, Stanford University.
1999-2000:	Postdoctoral Associate, Center for Turbulence Research, Stanford University.
1998-1999:	Postdoctoral Associate, Department of Mechanical and Aerospace Engineering, Arizona State University.

CURRENT PRINCIPAL FIELDS OF INTEREST:
My main areas of research are:

1) **Flow, mixing and transport processes around hydraulic structures and flow obstructions** (flow and contaminant transport processes at river groynes, flow and transport processes around bridge piers and abutments, design of hydraulic structures to reduce flood hazard, design of water pump intakes and urban hydraulics structures such as culverts, study of flow disturbances and measurement errors induced by a boat-mounted Acoustic-Doppler Current Profiler in a channel)

2) **Eco-hydraulics** (flow in vegetated channels, restoration of ecological habitats in rivers, fish passage studies for several hydropower dams in the Pacific Northwest, temperature stratification studies in the forebays of hydropower dams, prediction of the flow and bed shear stress distribution in river reaches for mussel population models, flow around isolated and clusters of freshwater mussels)

3) **Stratified flows** (study of the physics of intrusion gravity currents and bottom-propagating gravity currents propagating over smooth flat and inclined surfaces and over surfaces containing large-scale roughness elements –ribs, dunes, cyclic steps-, interaction of gravity currents with pipes situated at or close to the bed, interaction of gravity currents with submerged dams, study of the ejection of a non-buoyant or buoyant miscible contaminant from bottom-river cavities)

4) **Shallow flows (**quasi 2D large-scale turbulent structures, shallow mixing layers; investigation of flow hydrodynamics, mixing, stratification effects and erosion mechanisms at river confluences; shallow wakes; shallow open channel flow past bedforms**)**

5) **Flow in porous media** (unidirectional and oscillatory flow in channels containing patches of emerged/submerged vegetation and aquatic canopies, gravity currents propagating into a porous medium or in a channel containing a porous layer, flow past porous barriers and fences, snow drift implications, flow past porous cylinders)

6) **Prediction of flow, sediment transport, and bathymetry changes in open channels with alluvial beds** (prediction of flow, sediment transport and morphological processes in curved bends and river meanders, study of the flow physics using eddy resolving techniques, improvement of sediment pick-up formulas used in RANS based solvers with a movable bed)

7) **Lake hydrodynamics and lake ecology:** wind induced circulation in stratified lakes, bio-convection induced by swimming bacteria in stratified lakes, generation of gravity currents like intrusions by diurnal cooling in the near-shore regions of lakes

8) **Hydrology applications of fluid mechanics:** numerical simulation of floods in watersheds using 1D Saint-Venant solvers, numerical simulations of flood propagation in natural streams using 3D RANS models with deformable free surface capabilities, prediction of the air flow fields around rain gauges

9) **Wind engineering and fluid-structure interactions**: optimization of snow fence design, prediction of wind loads on traffic signs and trusses used to support the signs

10) **Other topics**: development of methodology to assess performance of methods used to generate turbulent inflow conditions (synthetic turbulence) in CFD simulations, recognition and characterization of coherent structures in turbulent flows, close range photogrammetry for tracking temporal evolution of snow deposits.

MAIN RESEARCH AREAS BEFORE JOINING THE UNIVERSITY OF IOWA:
1) Development and validation of a differential preconditioner operator to be used for multistage artificial-compressibility algorithms in conjunction with multi-grid methods on highly skewed meshes.
2) Development of multi-block capability for a general fully 3D non-hydrostatic viscous flow solver using RANS models with near-wall modeling capabilities, investigation of physics of pump-intake flows.
3) Development of a Detached Eddy Simulation (DES) module for prediction of massively separated flows at high Reynolds numbers. Investigation of flow physics of massively separated flows (flow past sphere, flow past ellipsoids at angle of attack) using LES and hybrid RANS-LES (e.g., DES) methods.
4) Computational aero-acoustics of compressible jets using LES and highly-accurate numerical discretizations (blend of compact Pade schemes and spectral methods) needed to accurately predict the mixing noise radiated by round jets, and the spatio-temporal distribution of acoustic sources.
5) Development of a new method to treat the governing equations near the polar axis for finite-differences Navier-Stokes codes written in cylindrical or spherical coordinates.
6) Participated in the development and validation of a new massively parallel (MPI) and modular multi-physics finite-volume non-dissipative LES code (CDP) using unstructured meshes that can be used to predict single and multi-phase flows (Lagrangian-Eulerian

approach). Implemented a low-Mach-number module for combustion simulation. Performed non-reacting and reacting flow simulations in a combustor of a jet aircraft engine of realistic geometry.

JOURNAL EDITORSHIP:
-Associate Editor, IAHR Journal of Hydraulic Research, 2007-present
-Associate Editor, ASCE Journal of Hydraulic Engineering, 2010-present
-Associate Editor, IAHR Journal of Ecohydraulics, 2015-present
-Associate Editor, Journal of Hydrology, 2016-present
-Guest Editor, Environmental Fluid Mechanics journal; special issue focusing on Shallow Flows

REVIEWER

-Scientific Journals: Journal of Fluid Mechanics, Journal of Computational Physics, Physics of Fluids, Journal of Hydraulics Engineering (ASCE), Water Resources Research (AGU), Journal Geophysical Research – Earth Surface (AGU), Journal of Hydraulics Research (IAHR), Journal of Engineering Mechanics (ASCE), Journal of Fluids Engineering (ASME), AIAA Journal, Numerical Heat Transfer, International Journal of Heat and Fluid Flow, Journal of Boundary Layer Meteorology, International Journal for Numerical Methods in Fluids, Advances in Water Resources, European Journal of Mechanics – B / Fluids, Atmosphere and Ocean, Journal of Turbulence.

-Research Agencies: National Science Foundation, European Research Council-Advanced Grants, Swiss National Science Foundation, Switzerland, The Research Commission of the Swiss Federal Institute Technology (ETH), Zurich, Switzerland, the American Chemistry Society - Petroleum Research Fund, the Israeli Science Foundation.

TECHNICAL COMMITTES
-Chair, IAHR Fluid Mechanics Committee, 2009-2013
-Chair, ASCE Eco-hydraulics Technical Committee, 2008-2012
-Chair, IAHR Science and Engineering Harmonization Committee, 2014-present

-Chair, ASCE 'Mass exchange processes around in-stream structures for habitat restoration' Task Committee, 2005-2013
-Co-opted Member, IAHR Fluvial Hydraulics Committee, 2013-present
-Member, ASCE Computational Hydraulics Technical Committee, 2005-2009
-Member, IAHR Fluid Mechanics Committee, 2005-present
-Member (NSF-sponsored) Community Surface Dynamics Modeling System, Cyber-informatics and Numerics Working Group, 2009-present

SCIENTIFIC MEETINGS:
-Organizer and Chair of the *3rd IAHR International Symposium on Shallow Flows*, Iowa City, IA, USA, June 2012 (http://www.iihr.uiowa.edu/shallowflowsconference-2)

-Organizer and Chair of the 8th *International conference on fluvial hydraulics, River Flow 2016*, St Louis, Missouri in July 2016 (http://www.riverflow2016.org)

-Convener of the Open Channel Hydraulics sessions at the *Fifth International Symposium on Environmental Hydraulics*, Tempe, AZ, 2007
-Chair of the Computational Hydraulics Sub-Track at the *Annual ASCE-EWRI Water & Environmental Congress, Tampa, Florida, 2007*
-Co-Chair of the Hydraulics and Waterways Track at the *Annual ASCE-EWRI Water & Environmental Congress,* 2009.
-Co-chair of the "Mechanics of water flow" and "Waterway restoration" sub-tracks for the *XXXIIIst International Association Hydraulic Research Congress,* Vancouver, Canada, 2009.

-Member International Scientific Committee:
-Turbine 99-III IAHR/ERCOFTAC Workshop on draft tube flow, Porjus, Sweden, 2005
-Ninth International Symposium on Fluid Control, Measurement and Visualization, FLUCOME 2007, Tallahassee, Florida.
-5th International Symposium on Environmental Hydraulics, Athens, Greece, 2010
-2nd International Mini-Symposium on River Dynamics, Morphodynamics and Ecology, Aquatic Vegetation in Natural Streams: Science and Practice, Duino, Italy, July 2011
- Sixth International Symposium on Environmental Hydraulics, Singapore, 2013
-XXXIVst International Association Hydraulic Research Congress, Chengdu, China, 2013.
-7th International conference on fluvial hydraulics, River Flow 2014, Lausanne, Switzerland, 2014
-9th Symposium on River Coastal and Estuarine Morphodynamics (RCEM 2015), Iquitus, Peru, 2015
-4th International Symposium of Shallow Flows, Eindhoven, The Netherlands, June 2017
-9th International conference on fluvial hydraulics, River Flow 2018, Lyon, France, 2018
-XXXVIIIst International Association Hydraulic Research Congress, Panama, 2019

INVITED TALKS/PAPERS AT CONFERENCES, SYMPOSIA AND WORKSHOPS

-Arthur Ippen Lecture, XXXIVst International Association Hydraulic Research Congress, Chengdu, China, 2013.
-Gerhard Jirka Memorial Colloquium, Karlsruhe, Germany June 2011
- Fifth International Symposium on Environmental Hydraulics, Tempe, AZ, December 2007
-7th International Conference on Hydroscience and Engineering, ICHE 2006, Philadelphia, September 2006
- US-China Workshop on Advanced Computational Modeling in Hydroscience and Engineering, Univ. Mississippi, Oxford, Mississippi, September 2005
- Second MIT Conference on Computational Fluid and Solid Mechanics, Boston, MA,, June 2003

TEACHING EXPERIENCE:

057:010 Dynamics
057:007 Statics
053:071 Principles of hydraulics and hydrology
053:144 Open Channel Flows
053:272 Environmental dispersion processes
053:195 Introductory flow and transport computations in pipes and channels
053:273 Computational hydraulics
053:279 Advanced topics in comput. hydraulics and environmental fluid mechanics
058:278 Turbulent flows
Under development: 053:279 Coherent structures and turbulence modeling in environmental hydraulics

OTHER TEACHING ACTIVITIES:

-Invited lecturer, *6th Environmental Fluid Mechanics Summer School*, Horw, Switzerland, June 2012
-Co-organizer of a Master Class on 'Numerical solutions of fluvial processes', *6th International conference on fluvial hydraulics: River Flows 2012*, San Jose, Costa Rica
-Short course on 'Fundamentals of eddy resolving numerical simulations' taught during my sabbatical leave at VAW-ETH Zurich
-Short course on "Coherent structures and LES applications in environmental hydraulics" at the *XXXIVst International Association Hydraulic Research Congress,* Chengdu, China, 2013

- Short 2-day course on "LES for hydraulics and environmental fluid mechanics" at the *XXXIVst International Association Hydraulic Research Congress,* The Hague, The Netherlands, 2015
-Short 2-day course on "LES, sediment transport and sediment entrainment mechanisms" presented as part of the SEDITRANS European biannual meeting, held at Universite Catholique de Louvain, Belgium, Dec. 7-9, 2015.
-co-organizer of a Master class on Turbulence and Mixing Phenomena at the *8th International conference on fluvial hydraulics: River Flows 2016*, Saint Louis, USA, 2016

HONORS:

-2001- **Best Technical Note Award** in the ASCE Journal of Hydraulic Engineering, awarded by the Env. and Water Resources Institute (EWRI)
-2011- **Hilgard Award** for Best Paper in the ASCE Journal of Hydraulic Engineering, awarded by the Env. and Water Resources Institute (EWRI)
-2013 - **Arthur Ippen Award** awarded by the International Association of Hydraulic Research (IAHR). This is the top international award in the area of hydraulics for researchers under 45 years. It is awarded to one individual every two years.
-2014 – Univ. Iowa College of Engineering **Faculty Excellence Award for Research**

GRADUATE THESIS ADVISOR/COADVISOR (graduation date is indicated in parenthesis):

10Ph.D. students (Univ. Iowa) + 1PhD student (KAIST, Korea):
S.K. Ooi (2007, co-chair, topic: high resolution LES simulations of lock release gravity currents)
A. McCoy (2007, chair, topic: LES investigation of flow and mass exchange processes past river groynes)
J. Zeng (2007, chair, topic: development and validation of a fully 3D non-hydrostatic RANS numerical model to predict sediment transport and bed morphology changes in curved open channels with loose bed)
M. Koken (2008, chair, topic: numerical and experimental studies of flow and scour processes around isolated spur dikes in a shallow channel)
Md. Haque (2007, co-chair, topic: prediction of flow and temperature stratification at hydropower bays using steady and unsteady RANS models)
G. Kirkil (2008, chair, topic: LES and DES studies of flow past circular and rectangular bridge piers at different stages of the scouring process, investigation of scale effects)
T. Tokyay (2010, chair, topic: numerical investigation of gravity currents propagating over dunes and rough beds, and interaction of gravity currents with submerged dams using high resolution LES simulations)
H. C. Ho (2010, co-chair, topic: Investigation of unsteady and non-uniform flow and sediment transport characteristics at culvert sites)
K. Basnet (2015, chair, topic: flow past porous barriers and porous fences, design of snow fences)
Z. Cheng (2016, chair, topic: shallow mixing layers and river confluences)

K.S. Chang (2006, co-chair, student graduated from Korean Advanced Institute of Science and Technology, KAIST, Korea, topic: LES and DES simulations of flow past bottom cavities and study of ejection of non-buoyant or buoyant contaminants), thesis received Best Thesis Award from the School of Mechanical, Aerospace and Systems Engineering, KAIST, 2007.

5 M.S. students (thesis option):
T. Tokyay (2005, chair, topic: LES of pump intake flows)
M. McConville (2005, co-chair, topic: RANS investigations of flow in the vicinity of hydropower dams)
J. Benson (2007, co-chair, topic: RANS and LES studies of flow past fish passage structures)
C. Choi (2013, chair, topic: numerical simulation of floods using 1D models)
H. Xu (2015**,** co-chair, topic: prototyping hydroinformatics-based systems for supporting decision making in culvert design and monitoring**)**

Current Ph.D. students

D. Horna Munoz (chair, topic: 3D RANS modeling of river floods)
H. Xu (co-chair, topic: Hydroinformatics)

Current M.S. students

SUPERVISION OF POSTDOCTORAL ASSOCIATES:
Dr. Ayse Y. Ozan 2010-2012 (gravity currents propagating through a porous medium and a surface vegetation layer, gravity currents over inclined surfaces)
Dr. Jelena Markovic Brancovic 2011-2012 (Fulbright Fellow, gravity currents propagating over cyclic steps)

VISITING SCHOLARS WORKING IN MY RESEARCH GROUP:
K.S. Chang (Korean Advanced Institute of Science and Technology, Korea, 14 months), W. Debler (Univ. of Graz, Austria, 6 months), C. Braun (Karlsruhe University, Germany, 6 weeks), B. Hall (Univ. California Santa Barbara, 2 weeks), A. Burks & M. Clark (5 weeks, NSF, Iowa AGEP and Alliance Summer Program), S. Kashyap (University of Ottawa, 6 months), Dr.. Y.A. Mohamed (Zagazig Univ., Egypt, 6 months), Prof. Suilang Huang (Nankai Univ., China, 3 months), Dr. Fatima Jahra (Hiroshima University, Japan, 2 months), Dr. Qin Zhao (Xihua Univ., China, 12 months), Prof. J. Schneider (Graz Univ. of Technology, 3 months), Pengwei Wu (Wuhan University, China, 1 year)

Participation in Ph.D. Committees as a regular member (ME-Mechanical Engrg., CEE-Civil & Environmental Engineering)**:**
M. Kandasamy (ME, 2005), J. Shao (ME, 2006), C. Polatel (CEE, 2006), K. Strom (CEE, 2006), Y. Zhao (ME, 2006), J. Daraio (CEE, 2008), N. Sakamoto (ME, 2008), S. Mousavirad (ME, 2009), S. Shiv (ME, 2009), Hans Bihs (CE, 2011, Norwegian Univ. of Science and Technology), Zhang Xinhui (ME, 2011), H. Hamiradjaze (CE, 2011), Bon Guk Koo (ME, 2011), Antonio Arenas (CEE, 2011), Akira Hanaoka (ME, 2014), Michael Thad (ME, 2013), Kyutae Lee (CEE, 2013), Yushi Wang (CEE, 2013), N. Nissen (CEE 2013), Oscar Hernandez Murcia (CEE, 2014),

RESEARCH GRANTS AND CONTRACTS
-Funding sources: U.S. Army Corps of Engineers, Federal Department of Transportation, National Science Foundation, Argonne National Laboratory, Iowa Department of Transportation, Mid-Western Transportation Center (MTC), U.S.-Canada Great Lakes Fishery Commission, South Florida Water Management District, Taylor-Made Adidas Golf Company.
-Total funding 2004-present: around $2.8 million as PI/co-PI.
-I also got funding (e.g., Ph.D. student support) from the Iowa Flood Center and the Univ. of Iowa Office for Research (two Carver Grants) and was awarded a Presidential Faculty Fellowship Award and two Old Gold Fellowships

PUBLICATIONS:

Books

Rodi, W, **Constantinescu, G**. and Stoesser, T. (2013) "Large Eddy Simulation in hydraulics" IAHR Monograph, CRC Press, Taylor & Francis Group (ISBN-10: 1138000247) 310 pages

Constantinescu, G., Garcia, M. and Hanes, D. (2016) "Proceedings of the 8th International Conference on Fluvial Hydraulics –River Flow 2016", CRC Press, Taylor & Francis Group, ISBN: 978-1-138-02913-2
625 pages

<mark>Chapter book marian</mark>

CD-ROM Publications
Constantinescu, G. and Fernando, H. (2012) "Proceedings of the 3rd International Symposium on Shallow Flows", Iowa City, IA, USA

Journal Papers

Under review:

1- Keylock, C.J., Al-Safir, M., Higham, J., Brevis, W. and Constantinescu, G.S. (2015) "A framework for determining the nonlinear temporal structure of flow modes extracted using decomposition methods" submitted to *Flow Turbulence Combustion*

2- Ettema, R, Constantinescu, G. and Melville, B. (2016) "Flow field complexity and design estimation of pier scour depth: Sixty years since Laursen and Toch " submitted to *J Hydraulic Engineering*

3- Cheng, Z., Koken, M. and Constantinescu, G. (2016) "Approximate methodology to account for effects of coherent structures on sediment entrainment in RANS simulations with a movable bed and applications to pier scour" submitted to *Advances in Water Resources*

4- Steenhauer, K., Tokyay, T. and Constantinescu, G. (2016) "Dynamics and structure of planar gravity currents propagating down an inclined surface", *Physics of Fluids*

5- Sukhodolov, A., Krick, J., Sukhodolova, T., Cheng, Z., Rhoads, B. and Constantinescu, G. (2016) "Turbulent flow structure at a discordant river confluence: Asymmetric jet dynamics with implications for channel morphology" submitted to *J. Geophysical Research Earth Surface*

6- Guillem-Ludena, S., Cheng, Z., Constantinewcu, G. and Franca, M.J. (2016) "Hydrodynamics of mountain river confluences and its relationship to sediment transport," submitted to *J. Geophysical Research Earth Surface*

7- <mark>*Paper Jack*</mark>

8- Sommer, T, Danza, F., Berg, J., Sengupta, A., Constantinescu, G., Tokyay, T., Bürgmann, H., Dressler, Y., Schubert, C. and Wüest, A. (2016) "Bacteria induced mixing in natural waters" submitted to *Nature*

Published/In press:

79-Yuksel-Ozan, A., Constantinescu, G. and H. Nepf (2016) "Free surface gravity currents propagating in an open channel containing a porous layer at the free surface," *Journal of Fluid Mechanics,* 809, 601-627, doi:10.1017/jfm2016.698

78-Yuksel-Ozan, A. and Constantinescu, G. (2016) "Front velocity and structure of bottom gravity currents with a low volume of release propagating in a porous medium" *Environmental Fluid Mechanics*

77-Keylock, C.J., Chang, K.S. and Constantinescu, G.S. (2016) "Large eddy simulation of the velocity-intermittency structure for flow over a field of symmetric dunes" *Journal of Fluid Mechanics* 805, 656-685, doi:10.1017/jfm2016.519

76-Chang, K.S. and Constantinescu, G. (2016) "2D eddy resolving simulations of flow past a circular patch of cylinders*" Journal of Hydrodynamics*

75-Constantinescu, G., Miyawaki, S., Rhoads, B and Sukhodolov, A. (2016), "Influence of planform geometry and momentum ratio on thermal mixing at a stream confluence with a concordant bed," *Environmental Fluid Mechanics,* 16(4), 845-873, DOI 10.1007/s10652-016-9457-0.

74-Basnet, K., Muste, M., Constantinescu, G., Ho, H. and Xu, H. (2016) "Close range photogrammetry for dynamically tracking drifted snow deposition" *Cold Regions Science and Technology,* 121, 141-153, http://dx.doi.org/10.1016/j.coldregions.2015.08.013

73-Kirkil, G. and Constantinescu G. (2015) "Effects of cylinder Reynolds number on the turbulent horseshoe vortex system and near wake of a surface-mounted circular cylinder," *Physics of Fluids,* 27:075102*,* DOI:10.1063/1.4923063

72- Chang, K.S. and Constantinescu, G. (2015) "Numerical investigation of flow and turbulence structure through and around a circular array of rigid cylinders," *J. Fluid Mechanics,* 776, 161-199, doi:10.1017/jfm2015.321

71-Tokyay, T and Constantinescu, G. (2015) "The effects of a submerged non-erodible triangular obstacle on bottom propagating gravity currents" *Physics of Fluids* 27(5): 056601 (2015), DOI:10.1063/1.4919384

70-Orr, T.S., Domaradzki, J.A., Spedding, G.R. and Constantinescu, G.S. (2015), "Description of the near wake of a sphere in a steady horizontal motion through a linearly stratified fluid at Re=1000" *Physics of Fluids,* 27, 035113 (2015), DOI:10.1063/1.4915139

69- Ozan, A.Y., Constantinescu, G. and Hogg A.J. (2015) "Lock-exchange gravity currents propagating in a channel containing an array of obstacles," *J. Fluid Mechanics,* 765, 544-575, doi:10.1017/jfm2014.735

68- Choi, C. Constantinescu, G. and Mantilla, R. (2015), "Implementation of a Hydraulic Routing Model for Dendritic Networks with Offline Coupling to a Distributed Hydrological Model," *Journal of Hydrologic Engineering,* 20(11)*,* 04015023, http://dx.doi.org/10.1061/(ASCE)HE.1943-5584.0001152

67- Basnet, K, Constantinescu, G., Muste, M. and Ho, H. (2015). "Method to assess efficiency and improve design of snow fences," *ASCE Journal of Engineering Mechanics,* 141(3), 04014136, http://dx.doi.org/10.1061/(ASCE)EM.1943-7889.0000871

66-Constantinescu, G., Miyawaki, S., Rhoads, B and Sukhodolov, A. (2014), "Numerical evaluation of the effects of planform geometry and inflow conditions on flow, turbulence structure, and bed shear velocity at a stream confluence with a concordant bed, *J. Geophys. Res. Earth Surf.*, 119, 2079-2097, doi:10.1002/2014JF003244

65- Tokyay, T., **Constantinescu, G**. and Meiburg, E. (2014), "Lock exchange gravity currents with a low volume of release propagating over an array of obstacles," *J. Geophysical Research Oceans,* 119, 2752-2768, doi:10:1002/2013JC009721

64-Koken, M. and **Constantinescu G**. (2014) "Flow structure and scour mechanisms at spur dikes with sloped sidewalls" *Journal of Hydraulic Engineering*, 140(7), 04014031, DOI:10.1061/(ASCE)HY.1943-7900.0000876.

63-**Constantinescu, G**. (2014), "LE of shallow mixing interfaces: A review" *Environmental Fluid Mechanics*, 14, 971-996, DOI 10.1007/s10652-013-9303-6.

62-**Constantinescu, G**. (2014), "LES of lock-exchange compositional gravity currents: A brief review of some recent results" *Environmental Fluid Mechanics*, 14, 295-317, DOI 10.1007/s10652-013-9289-0

61-Blanckaert, K., **Constantinescu, G.,** Uijttewaal, W. and Chen Q. (2013) "Hydro- and morphodynamics in curved river reaches. Recent results and directions for future research," *Advances in Geosciences,* 37, 19-25, doi:10.5194/adgeo-37-19-2013

60- Koken, M., **Constantinescu G.** and Blanckaert, K. (2013) "Hydrodynamic processes, sediment erosion mechanisms, and Reynolds-number-induced scale effects in an open channel bend of strong curvature with flat bathymetry" *J. Geophysical Research-Earth Surface,* 118, 2308-2324, doi:10.1002/2013JF002760

59- Chang, K.S. and **Constantinescu, G.** (2013), "Coherent structures in developing flow over 2D dunes," *Water Resources Research,* 49, 2466-2460, doi: 10.1002/wrcr.20239

58-**Constantinescu, G**., Kashyap, S., Tokyay, T., Rennie, C.D. and Townsend, R.D. (2013), "Hydrodynamics processes and sediment erosion mechanisms in an open channel bend of strong curvature with deformed bathymetry," *J. Geophysical Research Earth Surface,* Vol. 118, 480-496, doi:10.1002/jgrf.20042

57-Chang, W.Y, **Constantinescu, G**, Lien, H.G., Tsai, W.F., J.S. Lai and C.H. Loh (2013) "Flow structure and sediment entrainment mechanisms around bridge piers of varying geometrical complexity," *ASCE Journal of Hydraulic Engineering,* Vol. 139(8), 812-826, http://dx.doi.org/10.1061/(ASCE)HY.1943-7900.0000742

56-**Constantinescu, G**., Miyawaki, S. and Liao, Q. (2013), "Flow and turbulence structure past a cluster of freshwater mussels," *ASCE Journal of Hydraulic Engineering.* Vol 139(4), 347-358, doi: 10.1061/(ASCE)HY.1943-7900.0000692

55-**Constantinescu, G.,** Miyawaki, S., Rhoads, B and Sukhodolov, A. (2012), "Numerical analysis of the effect of momentum ratio on the dynamics and sediment entrainment capacity of coherent flow structures at a stream confluence," *J. Geophysical Research-Earth Surface,* Vol. 117, F04028, doi:10.1029/2012JF002452

54-Keylock, C.J., **Constantinescu, G.** and Hardy, R.J. (2012), "The application of computational fluid dynamics to natural river channels: Eddy resolving versus mean flow approaches," *Geomorphology,* Vol. 179, 1-20, http://dx.doi.org/10.1016/j.geomorph.2012.09.006

53-Kashyap, S., **Constantinescu, G.**, Rennie, C., Post, G. and Townsend, R. (2012), "Influence of channel aspect ratio and curvature on flow, secondary circulation and bed shear stress in a bend," *ASCE Journal of Hydraulic Engineering,* Vol. 138(12), 1045-1059, DOI:10.1061/(ASCE)HY.1943-7900.0000643

52-Kirkil, G. and **Constantinescu, G**. (2012), "The laminar necklace vortex system and wake structure in a shallow channel flow past a bottom-mounted circular cylinder," *Physics of Fluids,* **24**, 073602, http://dx.doi.org/10.1063/1.4731291

51-Borden, Z., Meiburg, E. and Constantinescu, G. (2012), "Internal bores: An improved model via a detailed analysis of energy budget," *Journal of Fluid Mechanics,* Vol. 703, 279-314, doi: 10.1017/jfm.2012.213

50- Tokyay, T., **Constantinescu, G**. and Meiburg, E. (2012), "Tail structure and bed friction velocity distribution of gravity currents propagating over an array of obstacles," *Journal of Fluid Mechanics*, Vol. 694, 252-291, doi:10.1017/jfm.2011.542

49- Neary, V.S., **Constantinescu, S.G**., Bennett, S.J. and Diplas, P. (2012), "Effects of vegetation on turbulence, sediment and stream morphology," *ASCE Journal of Hydraulic Engineering,* Vol. 138(9), 765-776, doi: 10.1061/(ASCE)HY.1943-7900.0000168.

48-Keylock, C.J., Tokyay, T. E. and **Constantinescu, G.** (2011), "A method for characterizing the sensitivity of turbulent flow fields to the structure of inlet turbulence," *Journal of Turbulence,* Vol 12(45), 1-30, http://dx.doi.org/10.1080/14685248.2011.636047.

47- Chang, W.Y., **Constantinescu, G.,** Tsai, W.F. and Lien, H.C. (2011) "Coherent structures dynamics and sediment erosion mechanisms around an in-stream rectangular cylinder at low and moderate angles of attack" *Water Resources Research,* W12532, doi: 10.1029/2011WR010586

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Constantinescu, G. (2015). "On the role of coherent structures in controlling mixing at river confluences." Department of Engineering, University Rome Tre, Italy, November, 2015

Constantinescu, G. (2015). "Flow hydrodynamics, transport and mixing at river confluences." Department of Civil and Environmental Engineering, School of Natural Environment, Architecture and Building, Ecole Federale Polytechnique de Lausanne (EPFL), Switzerland, September, 2015

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