Fabián A. BOMBARDELLI, Ph.D.
Formerly, Gerald T. and Lillian P. Orlob Endowed Professor (2017-2022)
Member of the Academy of Engineering, Buenos Aires Province, Argentina (since 2021/22)
Doctor Honoris Causa, National University of La Plata, Argentina (2022/23)
Fellow EWRI 2021

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EDUCATION

- *Ph.D. in "Civil and Environmental Engineering,"* CEE, University of Illinois, Urbana-Champaign (UIUC), USA (May 2004; defended on September 15, 2003). GPA: 4.0 (perfect score). The CEE Department of the University of Illinois at Urbana-Champaign is usually ranked as number one or two by the US News and Reports in CEE.
Dissertation title: "Turbulence in multiphase models for aeration bubble plumes."
Advisor: *Prof. Marcelo H. García*, M. T. Geoffrey Yeh Professor of Civil and Environmental Engineering. Director of the Ven Te Chow Hydrosystems Laboratory; Co-advisor: *Prof. Gustavo C. Buscaglia*, formerly, Balseiro Institute, Argentina.
This research focused on the physics and numerical representation of bubble plumes. It consisted on the development of novel theoretical and numerical models, based on the theory of multicomponent fluids, for an accurate representation of turbulence phenomena in aeration bubbly flows, where mass-transfer processes are of major importance. It involved measurements of bubble plumes in a large tank (at the Urbana-Champaign Sanitary District), mathematical modeling, simulations with a one-dimensional (1D) code, and parallel numerical computations in two (2D) and three dimensions (3D) in high-performance computers (at the National Center for Supercomputing Applications, NCSA, Illinois). Emphasis was put on the theoretical and numerical parts. Turbulence was analyzed via a k-ε model and a Large-Eddy-Simulation (LES) approach. A new length scale was proposed to relate mean-flow variables in prototypes and scale models of bubble plumes. In this work, traditional 1D models for bubble plumes were explained for the first time in light of the two-phase flow theory. Coherent turbulence structures induced by bubble plumes were characterized.

- *Master (Magister) in "Numerical Simulation and Control,"* University of Buenos Aires, Buenos Aires, Argentina (defended January 5, 1999). GPA: 8.33/10.
Dissertation title: "A quasi-three-dimensional model for the simulation of wind-induced shallow-water flows." (In Spanish.)
Advisor: *Prof. Angel N. Menéndez* (Ph.D. University of Iowa, USA, 1983).

In this research, a novel theoretical model was developed for the analysis of wind-induced flows. A vertical distribution of horizontal velocities was adopted, allowing for the transformation of a 2D, depth-integrated, numerical model, into a quasi-3D one. Several runs with the resulting numerical model demonstrated the advantages of the approach, which provides satisfactory predictions with a smaller computational cost.
This Master degree was chartered in 1996. I was the *first* candidate to be awarded this degree at the University of Buenos Aires.

- Thesis of Scholarship, National Institute for Water (INA), Argentina (1993).

Title of thesis: "Quantification of the pollutant transport in Blanca Bay." (In Spanish; equivalent to a Master degree with no courses.)
Advisor: *Prof. Angel N. Menéndez*.
This research focused on the development of the first 2D, depth-integrated, hydrodynamic numerical model for Blanca Bay in Argentina, and on the study of the transport of pollutants in that water body. Analyzed contaminants were of organic nature.

- *Hydraulic Engineer* (a six-year program; equivalent to a Master degree), National University of La Plata, Argentina (1992). Several additional courses (9 more courses) were attended, pertaining to the Civil Engineering field. GPA: 9.42/10.

RESEARCH INTERESTS

Multiphase flows, turbulence physics, computational methods and algorithm development, environmental fluid dynamics, river mechanics and water quality, open-channel flow resistance, sediment transport, verification and validation and uncertainty quantification in civil engineering.

PROFESSIONAL AND RESEARCH EXPERIENCE

Since arriving in the United States:

- Research Assistant, CEE Department, University of Illinois, Urbana-Champaign, August 1998 to December 2003.
- Assistant Professor, CEE Department, University of California, Davis (UC Davis), January 2004 to July 2011.
- Associate Professor, CEE Department, UC Davis, July 2011 to July 2017.
- Professor, CEE Department, UC Davis, July 2017 to date.
- Invited Visiting Professor, University of Concepción, Concepción, Chile (September-October 2006).
- Expert assisting the Argentinean Government in the Matanza-Riachuelo Project (2008 and 2010), associated with water quality. This project was supported by the World Bank. I performed the technical assistance for the agency Sanitary Works and Water (AySA) of Argentina, recommending the analysis of the possibility of building SEPA (Side-stream Elevation Pool Aeration) stations in the Riachuelo (2008). In 2010, I collaborated in the numerical simulation of the flow on designed SEPA stations for the Matanza-Riachuelo, in an extended research group (AySA).

- Expert assisting the United Nations Office of Project Services (UNOPS) on an environmental mining project in Peru (2011). We analyzed an environmental assessment report and made recommendations.
- Expert assisting the United Nations Office of Project Services (UNOPS) on a water-balance modeling project in Peru (2013). In this project, we assisted the federal government of Peru where two states had a dispute over water.
- Invited Visiting Professor, National University of La Plata, Buenos Aires, Argentina (September 2014-present).
- Gerald T. and Lillian P. Orlob Endowed Professor in Water Resources, Department of CEE, UC Davis, since January, 2018 (officially since July, 2017), until 2022. This is devoted to leaders in water resources.
- Associate Director of the Center for Watershed Sciences (CWS), UC Davis (2020-present).

Prior to coming to the United States:

- Bureau of Public Roads of Buenos Aires Province, Argentina (1989 to 1991) as an undergraduate student, in use of a scholarship (awarded after a public contest). I devoted my activities to the development and application of techniques for the design of bridges crossing water courses (from the hydraulics point of view).
- National Institute for Water (1992 to 1998; from 1992 to 1993, in use of a scholarship). As a Research engineer in the Computational Hydraulics Department of the Laboratory of Applied Hydraulics, I participated in the numerical simulation of the largest rivers and water bodies in Argentina, including the Paraná, Uruguay and de la Plata Rivers. I addressed problems of wave propagation in coastal areas and harbors, pollutant transport and hydrodynamics in 1D and 2D, flow in porous media, erosion downstream of dams, wind-induced flows, and thermal problems in rivers. I also participated on environmental impact assessments. I focused on the development and use of numerical techniques based on the methods of finite differences, finite volumes, and finite elements. I was promoted to higher ranks within the institution in 1993 and 1995, via two public contests in which I was awarded the position.
- Member (1994-1995), Vice-president (1996) and, then, Coordinator (1997) of the Institute for Environmental Engineering, Association of Engineers of Buenos Aires Province.
- Consultant in hydraulics (sewage systems, 1993), flooding in urban areas (1994), and coastal engineering (1997), employing numerical and theoretical techniques.
- Consultant in structural engineering (1993 and 1997), participating in an engineering private company.
- Co-manager of a private consulting company in Buenos Aires city (1997-1998). I participated in the design, and verification by computational means, of a notable metal structure for the waterfront of the city of Buenos Aires, which was built in 1997.

TEACHING EXPERIENCE

- Teaching Assistant of CEE 353, "*Analysis and design of hydraulic systems*," Prof. Marcelo García, instructor, CEE Department, University of Illinois, Urbana-Champaign, Spring 2003. In addition, classes delivered in Prof. Marcelo García's course on "*Open-channel hydraulics*," University of Illinois, Urbana-Champaign, Fall 2002. This course is offered only for graduate students.

- Instructor of the following courses at the CEE Department, UC Davis:
    1. **ECI 146**, "*Water resources simulation*" (for senior undergraduate students, almost every winter quarter). This is an elective course. Please see website: http://fabianbombardelli.com/ECI146/default_ECI_146.htm
    2. **ECI 141**, "*Engineering hydraulics*" (for undergraduate students, almost every spring quarter since 2008). This is an elective course. Please see website: http://fabianbombardelli.com/ECI141/default_ECI_141.htm
    3. **ECI 193**, Final Design Course in Civil Engineering.
    4. **ECI 278**, "*Hydrodynamics (Geophysical fluid dynamics)*" (for graduate students, every other fall quarter since 2005).
    5. **ECI 279**, "*Advanced mechanics of fluids*" (for graduate students, every other fall quarter).
    6. **ECI 289B**, "*Urban hydraulics and hydrology*" (for graduate students, springs 2004, 2005, 2007, 2009, 2010), with average Students' evaluations of my teaching of about 4.52/5.
    7. **ECI 260**, "*Sediment transport*" (for graduate students), summer 2014, spring 2015, fall 2017.
    8. **ECI 290,** *"Seminar course"* (for graduate students), fall 2010, 2013.
    9. Freshman Seminar "*Computer simulation in civil and environmental engineering*," taught in collaboration with Profs. YueYue Fan and Amit Kanvinde, at UC Davis, almost every fall since 2005 to 2013.

It is worth mentioning that in ECI 146 there was a tremendous growth of enrollment in the class from 13 students the first year I taught it (2004), to 20 in 2005, to 36 in 2006. Now it is a 50+ student class, with 81 during the 2016 offering.

- Webinar on "*Criteria for Verification and Validation of flow and transport models*," developed and taught for the American Society of Civil Engineers (ASCE), June 18, 2014.
- Short course on *"Verification and Validation (V&V) in computational environmental fluid mechanics,"* taught at the ASCE-EWRI World Environmental & Water Resources Congress, Austin, Texas, May 17, 2015. Co-taught with Dr. Kaveh Zamani. This was repeated with 8 hours in Davis, on May 2017, and as a 5-hour workshop in Minneapolis, as part of the 2018 ASCE-EWRI World Environmental & Water Resources Congress, and in 2019 in Pittsburgh.

Instructor and associate instructor in *international* courses:

- "*Sediment transport during hydrological extreme events*," October 2000, University of Córdoba, Prof. García leading instructor (in Spanish). This was a short course dedicated to the cutting-edge techniques for analysis of sediment transport under flooding events. It was part of the technical program of the Latin-American Congress on Hydraulics, 2000, Córdoba, Argentina.
- "*Water resources simulation*," September 2006, University of Concepción, Concepción, Chile (Invited Visiting Professor). This was a one-week long course for students of the fifth year of Civil Engineering, and it was largely based on ECI 146 of UC Davis. (In Spanish.)
- "*Introduction to the theory of sediment transport*," October 2006, University of Concepción, Concepción, Chile (Invited Visiting Professor). This was a one-week long course for students of the fifth year of Civil Engineering. I developed this course especially for my visit to Chile. (In Spanish.)

- "*Physical, mathematical and numerical description of turbulent flows, with emphasis on applications in hydraulics*," September 2014, National University of La Plata, Buenos Aires, Argentina (Invited Visiting Professor). This was a 40-hour course for graduate students. Attendance: 26 students. (In Spanish.)
- *"Geophysical fluid dynamics,"* September 2016, Private Technical University of Loja, Loja, Ecuador (Invited Visiting Professor). This was a 40-hour course for graduate students. Attendance: 15 students. (In Spanish.)
- *"Numerical simulation of multi-phase flows in one, two and three dimensions. Application to the cases of air-water and solid-water flows,"* Pre-Congress course, Latin American Congress of Hydraulics, Lima, Peru. This was a 16-hour course for congress attendees (29). (In Spanish.)
- *"Geophysical fluid dynamics,"* April 2022, National University of La Plata, Argentina (remotely on Zoom). This was a two-week course for graduate students. Attendance: 28 students. (In Spanish.)
- *"Sediment transport,"* April 2024, National University of La Plata, Argentina (remotely on Zoom). This was a two-week course for graduate students. Attendance: 33 students. (In Spanish.)

Instructor and associate instructor of the following *graduate* courses in Argentina (before my arrival in United States):

- "*Environment and engineering*," August 1996, National University of La Plata. This short course was constituted by a group of seminars related to the role of engineering in environmental studies and environmental impact assessments. I also organized and coordinated the event.
- "*Advanced numerical analysis*," 1998, University of Buenos Aires, Prof. Menéndez leading instructor. This course was devoted to the numerical solution of partial differential equations via standard and special techniques. It included the methods of finite differences, finite elements, boundary elements, finite volumes, and some techniques based on splitting.

Teaching assistant of the following *undergraduate* courses in Argentina:

- "*Structures*," 1987, National University of La Plata.
- "*Basic hydraulics*" (Open-channel and pipe hydraulics), 1988 to 1997, National University of La Plata.
- "*Rock mechanics*," 1988 to 1998, National University of La Plata.
- "*Numerical analysis*," 1997 and 1998, University of Buenos Aires.

MAIN RECENT DIRECTIONS OF RESEARCH

- Hierarchical theoretical and numerical modeling of the problem of sediment transport in open channels at the water-depth scale.
- High-resolution numerical simulation of bed-load transport in rivers using Lagrangian models.
- Sediment transport at large scales, including sediment resuspension in lakes.
- Sediment-associated transport of toxic metals and pesticides in water bodies.

- Theoretical analysis of the fundamental aspects of turbulence in the scour induced by jets on granular beds, and other configurations.
- Theoretical and numerical modeling, scaling and observation of bubble plumes.
- Mathematical modeling and numerical simulation of the two-phase flow in stepped spillways and drop shafts.
- Three-dimensional (3D) numerical simulation of flow and transport in rivers, estuaries, and bays.
- Model verification and validation (V&V) and uncertainty quantification (UQ) of numerical codes.
- Hybrid turbulence models for two-phase flows (a new concept).

FUNDED PROJECTS

Prof. Bombardelli has brought close to 3.5 million dollars in research funds at the UC Davis, as both PI and Co-PI through 19 projects, as detailed below. Funding sources encompass federal as well as state agencies, and private companies (under sub-contract with local agencies).

As Principal Investigator

1) "Incorporating sediment-transport capabilities to DSM2," funded by the *California Department of Water Resources (CA DWR)*. Total budget: $109,661. Period: April 1, 2009-March 30, 2011.
2) "Comparison of flow and transport models for the Sacramento-San Joaquin Delta," funded by the *California Water Resources Control Board*. Total budget: $58,580. Period: January 1, 2009-September 30, 2010 (extended).
3) "Modeling sea water intrusion and trapping at the Russian River, California," funded by the *Sonoma County Water Agency (SCWA)*, under subcontract with *Phillip Williams and Associates* (*ESA-PWA*). Total budget: $173,796. Period: January 1, 2011-December 31, 2011 (extended).
4) "Assessment of different approaches for the computation of residence times in the Sacramento-San Joaquin Delta," funded by the *CA Water Resources Control Board*. Total budget: $76,413. Period: August 1, 2010-July 31, 2011 (extended).
5) "Federal Emergency Management Agency (FEMA) study: 2-dimensional (2-D) flow models in flood mapping," funded by the *Federal Emergency Management Agency (FEMA)* via the *CA DWR*. Total budget: $84,465. Period: May 1, 2013-October 31, 2013.
6) "Numerical water quality and contaminant modeling (EL-9)," funded by the *United States Army Corps of Engineers (USACE)*. Total budget: $496,346. Period: January 1, 2016-December 31, 2018 (extended).
7) "Understanding physical processes and water-quality transport mechanisms in Californian small coastal inlets for resilient coastal systems under scenarios of climate change," funded by *UC Mexus*. Total budget: $24,358. Period: August 1, 2018-June 30, 2021 (extended).
8) "California State Water Project Physical and Numerical Hydraulic Modeling," funded by the *California Department of Water Resources (CA DWR)*. Total budget: $399,997. Period: August 15, 2019-August 14, 2024.

9) “California State Water Project Physical and Numerical Hydraulic Modeling,” funded by the *California Department of Water Resources (CA DWR)*. *Additional* funding: $125,060. Period: August 15, 2019-August 14, 2024.
10) “Assessment of Long Island silt diversion alternatives via numerical and field methods,” funded by the *Long Island Property Owners Association (LIPOA), Delta of the Sacramento and San Joaquin Rivers*. Total budget: $45,264. Period: September 20, 2022-December 31, 2023 (extended).
11) “Artificial intelligence applications for forecasting shoreline evolution and flows in small estuaries at the Cali-Baja region,” funded by the *University of California Alianza MX*. Total budget: $49,930. Period: May 1, 2024-April 30, 2026.

I also received a *gift* (PI) from the Hidden Valley Lake Association for $5,000 in 2015. Funding was also secured for the Journal RIBAGUA, in 2023, thanks to the work of Ms. Estíbaliz Serrano, of $25,000.

As Co-Principal Investigator

12) “Quantifying sediment resuspension linkages to nutrient enrichment in the existing and future Salton Sea,” funded by the *CA DWR*; Prof. S. Geoffrey Schladow, PI. Total budget: $86,498. Period: May 2005-May 2006.
13) “Quantification and source identification of mercury transport in highways,” funded by *Caltrans*; Dr. Peter Green, PI (Task order 7). Total budget: $260,000. Period: October 1, 2005-September 30, 2006.
14) “Modeling non-point source contributions of host specific fecal contamination in San Pablo Bay,” funded by the *UC Water Resources Center*; Prof. Stefan Wuertz, PI. Total budget: $60,000. Period: October 1, 2006-September 30, 2008.
15) “Quantitative pathogen detection and microbial source tracking combined with modeling fate and transport of Bacteroidales in San Pablo Bay,” funded by *CICEET, the Cooperative Institute for Coastal and Estuarine Environmental Technology*, as co-PI; Prof. Stefan Wuertz, PI. Total budget: $219,709. Period: November 1, 2006-October 31, 2008.
16) “Predicting and managing changes in water quality in Lake Tahoe,” funded by the *Southern Nevada Public Land Management Act (SNPLMA)*; Prof. S. Geoffrey Schladow, PI. Total budget: $327,363. Period: June 1, 2007-May 31, 2009 (extended).
17) “Potential for engineered floodplains and wetlands as fine particle BMPs: Case study of Trout Creek and Upper Truckee River,” funded by *SNPLMA*; Prof. S. Geoffrey Schladow, PI. Total budget: $275,178. Period: June 1, 2008-May 30, 2010 (extended).
18) “Scour monitoring and failure prediction for safe and resilient transportation infrastructure,” funded by the *National Science Foundation (NSF)*; Prof. Kenneth Loh, PI. Total budget: $339,733. Period: October 1, 2012-September 30, 2015 (extended).
19) “Pyrethroids in urban stream sediments: System modeling, recovery rates, and sampling strategies,” funded by the *California Department of Pesticide Regulation (DPR)*; Prof. Thomas Young, PI. Total budget: $211,856. Period: November 17, 2014-September 30, 2017.

As external collaborator

20) "Experimental and numerical modeling of air-water flows in hydraulic structures," funded by the *National Science Foundation of Portugal*; Prof. J. Matos, PI. Total budget: €139,468. February 1, 2010-January 31, 2013. I was listed as a "key member" in the project.
21) "Study of rheology of concrete-based materials for the development of concrete infrastructure possessing more durability and sustainability," funded by the *Chilean National Agency for Research and Development*; Profs. Patricio Moreno-Casas and Juan Pablo Toro, PIs. Total budget: Approximately $30,000. Duration: 1 year.

It is worth commenting that the second time I submitted my Career Proposal to the NSF, the proposal was qualified as "Recommended" but not funded.

MAIN AWARDS AND RECOGNITIONS

- *Glenn and Helen Stout Water Resources Research Award* for "academic achievement and outstanding research in hydrosystems," 2001, Ven Te Chow Hydrosystems Laboratory, Department of CEE, University of Illinois, Urbana-Champaign (UIUC).
- *First Prize* (**Best Paper**) in the Student Technical Paper Competition for the 2003 World Water Environmental & Water Resources Congress, Philadelphia, PA, EWRI/ASCE (June). Paper entitled: "Characterization of coherent structures from parallel, LES computations of wandering effects in bubble plumes."
- *Finalist Award* in the 11th Student Technical Paper Competition, 2003 ASME Pressure Vessels and Piping Conference, Cleveland, OH, ASME International (July). Paper entitled: "Parallel computations of the dynamic behavior of bubble plumes."
- Finalist in the international competition for the Lorenz Straub Award, for the most meritorious thesis of hydraulic engineering or related fields of year 2004. I was nominated for the award by the CEE Department of the UIUC. Although I did not receive the award, *all* finalist theses were judged to be of award caliber (please see my website).
- *Journal of Hydraulic Research, Willi H. Hager, **Best Reviewer Award**, International Association for Hydro-Environmental Engineering and Research (IAHR), for the years 2009-2010.* Received during the Awards ceremony at the 2011 IAHR Congress, Brisbane, Australia, July 2011.
- *Outstanding Reviewer recognition for the year 2011, Journal of Hydraulic Engineering, ASCE, 2012.*
- University of Illinois, 2015 *CEE Young Alumni Award*, received on March 11, 2015. Awarded by the CEE Alumni Association of the UIUC. "The Young Alumnus/Alumna Achievement Award recognizes a recent graduate who has achieved distinction in his or her field and reached a level of accomplishment significantly greater than that of other recent graduates." The citation reads: "*For an outstanding academic career at the University of California at Davis in research, teaching and service; for his leadership in multi-phase flows for environmental applications; for his unparalleled set of research skills in theory, numerical computations, laboratory observations and field work; and for his active role assisting the United Nations and the government of Argentina on diverse projects in Latin America.*"

- Nominated for the Arthur Ippen Award, IAHR, January 2015, by Profs Hubert Chanson (Australia), Marcelo García (United States) and Jorge Matos (Portugal), and Dr. Arturo Marcano (Venezuela).
- 2015 *ASCE Outstanding Civil Engineering Faculty Advisor Award, Sacramento Section*. Received on October 6, 2015, Sacramento, CA. Please see: http://asce-sacto.org/gallery.php?id=8
- 2015 *Outstanding ASCE Faculty Advisor Award in the State of California (Region 9)*. Received on March 18, 2016, Sacramento, CA.
- Nominated for the Outstanding Teaching Award of the College of Engineering, University of California, Davis, 2016; 2017.
- The paper by Reardon et al. (2016), published in the *Lake and Reservoir Management journal*, was nominated for the Lebounty Best Paper Award for the year 2016, with other 4 papers.
- *Lillian P. and Gerald T. Orlob Endowed Professorship in Water Resources, CEE Department, UC Davis (2017-2022)*.
- The paper by Bombardelli et al. (2018), published in *Physics of Fluids*, was selected as "Featured Article" by the Editors of the journal.
- Appointed Visiting Fellow at the Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Italy. This position was for a month visit in December, 2019. 20+ applications were received from around the world, and only a few were selected.
- Appointed as *Editor in Chief* of the *Journal of Hydraulic Engineering, ASCE*, since March 1, 2020.
- ***Fellow of the Environmental & Water Resources Institute (EWRI) of the ASCE*, May 2021.**
- *Corresponding Member of the Academy of Engineering of Buenos Aires Province* (State), Argentina. Selection: July 2021. Incorporation: July 7, 2022. Please see: https://www.youtube.com/watch?v=TOiLqXnf6DQ&t=962s&ab_channel=AcademiadelaIngenier%C3%ADa-PBA
- Appointed Visiting Fellow at the Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Italy. This position was for a month visit from June 21 to July 21, 2023.
- *Doctor Honoris Causa*, National University of La Plata, 2022/23. Please see: https://www.iahr.org/index/detail/1219 and https://unlp.edu.ar/institucional/la-unlp-distinguio-con-el-doctorado-honoris-causa-a-fabian-bombardelli-74268/
- The paper by Zabaleta et al. (2024), accepted in Physics of Fluids, was selected as "Featured Article" by the Editors of the journal.

OTHER RECOGNITIONS

- Honor Society Phi Kappa Phi (2000), UIUC.
- Voted Member of the Hydrologic Sciences Graduate Group, University of California, Davis, June 2004.
- Listed in *Marquis Who's Who in America*, 2004/2005; also in subsequent editions.
- Listed in *Marquis Who's Who in Science and Engineering*, 2005-2006 issue, page 185; listed also in subsequent editions.
- Listed in *Marquis Who's Who in the World*, 2005, 2008.

- *Invited contribution* (paper and presentation) to the Mini-symposium on "Fluvial Hydraulics and River Morphodynamics," 7th International Conference on Hydro-Science and Engineering, Philadelphia, September 2006. *Invited contribution* (paper and presentation) to the "Workshop on Environmental and Extreme Multiphase Flows," Gainsville, Florida, April 2012. Presentation entitled: "Eulerian-Eulerian and Eulerian-Lagrangian models for sediment transport in open channels." *Invited contribution* (presentation) to the *Mini-symposium on "Turbulent modeling and simulation," on "Advances in Computational Mechanics," a conference to honor the 70th birthday of Prof. Thomas Hughes*, San Diego, February 26, 2013. Presentation entitled: "Methods for the simulation of environmental turbulent flows." *Invited contribution* (presentation) to the Mini-symposium on "Computational modeling of turbulent and complex flows with applications III," on the 11th. World Congress on Computational Mechanics (WCCM XI), Barcelona, July 23, 2014. Presentation entitled: "Comparison of performance of turbulence closures in free-surface flows past hydraulic structures."
- Invited and voted Member (participant) of the Hydraulic Structures Section, IAHR (2007-date) and Member of the Leadership Team (2009-2011; 2019-2021).
- Invited/volunteer Session/s Chairperson-Moderator in diverse conferences worldwide: 1) 9th Int. Symposium on Environmental Hydraulics (ISEH), Seoul, South Korea, June 2021, on-line; 2) ASCE/EWRI World Environmental and Water Resources Congress, June 2021 (in two sessions), on-line, more than 30 attendees at peak; 3) ASCE/EWRI World Environmental and Water Resources Congress, Pittsburgh, Pennsylvania, June 2019 (in four sessions); 4) ASCE/EWRI World Environmental and Water Resources Congress, Minneapolis, Minnesota, June 2018 (in three sessions); 5) IAHR 7th International Symposium on Hydraulic Structures, Aachen, Germany; 6) ASCE/EWRI World Environmental and Water Resources Congress, West Palm Beach, Florida, May 2016 (on May 24); 7) ASCE/EWRI World Environmental and Water Resources Congress, Portland, Oregon, June 2014 (on June 4); 8) Third International Symposium on Shallow Flows, Iowa, June 2012 (on June 4; invited); 9) XXV Latin American Congress on Hydraulics, San Jose, Costa Rica, September 2012 (invited); 10) River Flow 2012, San Jose, Costa Rica, September 2012 (invited); 11) 6th Biennial Bay-Delta Conference, Sacramento, California, September 2010; 12) River Flow 2008, Cezme, Izmir, Turkey, September (invited); 13) Fifth Symposium on Environmental Hydraulics, Tempe, Arizona, December 2007 (invited); 14) 7th International Conference on Hydro-Science and Engineering, Philadelphia, September 2006 (invited); 15) XXXI IAHR Congress, Seoul, South Korea, September 2005 (invited); 16) ENIEF'04, XIV Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November 2004 (invited).
- Invited/volunteer Session Organizer in different conferences: 1) American Geophysical Union (AGU) Fall meeting, December 2016, session on "Advances in mechanistic approaches for the analysis and simulation of sediment suspended-load and bed-load in streams," San Francisco; 2) American Geophysical Union (AGU) Fall meeting, December 2014, session on "Verification, validation, uncertainty quantification and scaling challenges in geophysical and surface processes models II," San Francisco; 3) 2013 Floodplain Management Conference, Member of the "2-D Modeling Symposium," Anaheim, CA (invited); 4) ASCE-EWRI 2011 Water Environmental & Water Resources Congress, Palm Spring, California, session on "Verification and validation of 3D free-surface models;" 5) 6th Biennial Bay-Delta Conference, Sacramento, California, September 2010; 6) ENIEF'06, XV

Congress on Numerical Methods and their Applications, Santa Fe, Argentina, November 2006; 7) MECOM'05. VIII Congress on Computational Mechanics, Buenos Aires, Argentina, November 2005; 8) ENIEF'04, XIV Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November 2004 (invited).

- Voted Member the Executive Committee of the Hydrologic Sciences Graduate Group, University of California, Davis (2011-2013).
- Member, and Vice Chair of the task committee on "Verification and validation of 3D free surface models," within the ASCE/EWRI Committee on Computational Hydraulics (2010-2012). Chair of the task committee for the period 2012-2016. Member of the ASCE/EWRI Committee on Computational Hydraulics.
- In 2018, I was nominated to participate on the elections for IAHR Council Member for North America; finally, another person was selected afterwards.
- Voted Member of the Leadership Team of the Hydraulic Structures Section, IAHR. This position is voted by the members of the Hydraulic Structures Section attending the Biennial IAHR Congress. This vote was held in Panama City, 2019.

AWARDS, HONORS AND RECOGNITIONS FOR MY STUDENTS

- UC Davis and Humanities Graduate Research Award, for Sanjeev K. Jha, 2007.
- Eugene Cota-Robles Fellowship, for Kristin E. Reardon, 2007.
- Nortek© 2008 Student Equipment Grant Award, for Kristin E. Reardon, 2008.
- *Best Dissertation Award on Hydraulics in Portugal*, for my student and collaborator Ines Osorio de Castro Meireles, 2011.
- Nomination of the Ph.D. Thesis by Dane Behrens for the Zuhar Munir Award by the Dept. of CEE, UC Davis, 2013.
- Outstanding Graduate Student Teaching Assistant, for Kaveh Zamani, 2014.
- Achievement Rewards for College Scientists (ARCS) Award, for Lily Tomkovic, 2016.
- Certificate of Commendation for being in the top 5% of all ASCE chapters in the Nation, 2017.
- California Lake Management Society Scholarship for Sergio Valbuena-Mateus, 2021.
- David and Dana Loury Foundation Fellowship for Sergio Valbuena-Mateus, 2022.
- Goldman and Schladow Limnology Fellowship for Sergio Valbuena-Mateus, 2022.
- Certificate of Commendation for the ASCE Chapter, 2024.

EDITORSHIP AND PARTICIPATION IN SCIENTIFIC COMMITTEES

- Member of the Scientific Committee of the following conferences:
    1. 7th. Int. Conf. on Lake Management and Conservation, San Martín de los Andes, Argentina, 1997. Rapporteur during the conference. (Invited.)
    2. ENIEF'04, XIV Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November 2004. (Invited.)
    3. River Flow 2008, Izmir, Cezme, Turkey, September. (Invited.)
    4. Second International Junior Researcher and Engineer Workshop, International Association for Hydraulic Engineering and Research, IAHR, Pisa, Italy, July-August 2008. (Invited.)

5. Second International Symposium on Shallow Flows, Hong Kong, December 2008 (http://www.ce.ust.hk/issf/). (Invited.)
6. RCEM 2009, River, Coastal and Estuarine Morphodynamics, Santa Fe, Argentina, September.
7. Third International Junior Researcher and Engineer Workshop, IAHR, Edinburgh, May 2010. (Invited.)
8. River Flow 2010, Braunschweig, Germany.
9. RCEM 2011, River, Coastal and Estuarine Morphodynamics, Beijing, China. (Invited.)
10. 34th World IAHR Congress, Brisbane, Australia, 2011. Although there was no formal panel of Editors, I was invited by Prof. Hubert Chanson to edit Section 5.2 on eco-hydrology, involving the management of 28 papers, selecting 2 o 3 reviewers for each, and making a decision on the suitability for inclusion in the proceedings of the congress.
11. Fourth IAHR International Symposium on Hydraulic Structures, Porto, Portugal, February 2012. (Invited.)
12. Fourth International Junior Researcher and Engineer Workshop, IAHR, Logan, Utah, June 2012. (Invited.)
13. River Flow 2012, San José, Costa Rica, September.
14. RCEM 2013, River, Coastal and Estuarine Morphodynamics, Cantabria, Spain. (Invited.)
15. Jornadas de Ingeniería del Agua (Water Engineering Meeting), Valencia, Spain, 2013. (Invited.)
16. Latin American Congress on Hydraulics, Santiago, Chile, September 2014. (Invited.)
17. Second International Workshop on Hydraulic Structures, organized by IAHR Hydraulic Structures section, Coimbra, Portugal, May 2015. (Invited.)
18. RCEM 2015, River, Coastal and Estuarine Morphodynamics, Iquitos, Peru. (Invited.)
19. River Flow 2016, Saint Louis, July.
20. Latin American Congress on Hydraulics, Lima, Peru, September 2016. (Invited.)
21. Ríos (Rivers), Córdoba, Argentina, November, 2017. (Invited.)
22. 13th International Conference on Hydroinformatics (HIC 2018), held in Palermo, Italy, July 2018. (Invited.)
23. 7th International Symposium on Hydraulic Structures, Aachen, Germany, held in May 2018. (Invited.)
24. Latin American Congress on Hydraulics, Buenos Aires, Argentina, held in September 2018. (Invited.)
25. IAHR World Congress, Panama City, Panama, held in September 2019. (Invited.)
26. IAHR International Symposium on Hydraulic Structures, Santiago de Chile, Chile, May 2020. (Invited.) This event was cancelled due to Covid-19.
27. River Flow 2020, Delft, The Netherlands, July. (Invited.) This event was held virtually due to Covid-19.
28. IAHR World Congress, Granada, Spain, held in June 2022.
29. Latin American Congress on Hydraulics, Foz do Iguassu, Brazil, held in November 2022. (Invited.)
30. 9th International Symposium of Hydraulic Structures, Roorkee, India, held in October 2022. (Invited.)

31. IAHR World Congress, Vienna, Austria, held in August 2023. Please see: https://rivers.boku.ac.at/iahr/international-scientific-committee/
32. 10th International Symposium of Hydraulic Structures, Zürich, Switzerland, June 2024. (Invited.)

- Invited Member of the Editorial Board of the Open Journal of Civil Engineering (2007-2017).
- Co-editor of the Newsletter of the Hydraulic Structures Section of IAHR (2007-2012).
- Guest Co-Editor of Special Issue of the journal Environmental Fluid Mechanics, Springer, titled: "Progress in the observation and modeling of turbulent multi-phase flows." (2007-2009), with Prof. Hubert Chanson. The Special Issue was published in April 2009.
- "Acting" Associate Editor of Environmental Fluid Mechanics, Springer. The Editor-in-Chief of the journal requested me to manage some more papers in addition to those of the Special Issue (2009-2010).
- *Member of the Editorial Board* of Environmental Fluid Mechanics, Springer, 2011-present. The appointment was renewed by Prof. H. J. Fernando in 2014.
- *Associate Editor* of the Journal of Hydraulic Engineering, ASCE, since February 2013. (Invited by then Editor in Chief Prof. Terry Sturm.)
- *Member of the Reviewer Board* of the International Journal of Sediment Research, since January 2014. (Invited.)
- Guest Co-Editor of another Special Issue of the journal Environmental Fluid Mechanics, Springer, based on Two-phase flows, with Prof. Hubert Chanson. The Special Issue was published in February, 2017.
- ***Founding Editor in Chief*** of the new "Revista Iberoamericana del Agua, RIBAGUA," published by Taylor and Francis, under the umbrella of the IAHR. The first issue was launched in October 2014.
- *Track Chair of "Hydraulics and Waterways"* of the 2018 ASCE-EWRI World Environmental and Water Resources Congress, Minneapolis, Minnesota. (Invited.)
- *Track Chair of "Hydraulics and Waterways"* of the 2019 ASCE-EWRI World Environmental and Water Resources Congress, Pittsburgh, Pennsylvania. (Invited.)
- *Associate Editor* of the Journal of Hydro-environment Research, Elsevier, since February 2018. Invited by the then Editor in Chief Prof. Joseph Lee.
- *Track Chair of "Hydraulics and Waterways"* of the 2020 ASCE-EWRI World Environmental and Water Resources Congress, Henderson, Nevada. (The event was cancelled due to Covid-19.)
- Guest Co-Editor of a Special Issue of the journal Environmental Fluid Mechanics, Springer, on "Environmental Fluid Mechanics in Hydraulic Engineering," with Profs Hubert Chanson and Oscar Castro-Orgaz. Published in April, 2020.

INVITED SESSION KEYNOTE LECTURES AND PLENARY LECTURES

- Invited **Keynote Speaker** in ENIEF'04, XIV Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November 2004. Delivered on November 9, 2004. Paper: "Simulation of wandering phenomena in bubble plumes via a k-ε model and a Large-Eddy-Simulation (LES) approach."

- Invited **Session Lecturer** in McMAT 2007, ASME Conference on Applied Mechanics and Materials, Austin, Texas, June. Invited by Dr. Victor Calo. Delivered on June 4. Presentation: "Hierarchical modeling of bubble plumes."
- Invited **Keynote Speaker** in ENIEF'08, XVIII Congress on Numerical Methods and their Applications, San Luis, Argentina, November 2008. Invited by Dr. Marcela Goldsmidt. Delivered on November 12, 2008. Presentation: "Eulerian and Lagrangian theoretical and numerical models for the simulation of multi-phase turbulent flows." (In Spanish.)
- Invited **Lecture Speaker**, 16th. Congress of Asia and Pacific Division of the IAHR, and 3rd. Int. Symposium on Hydraulic Structures, Nanjing, China, October 2008. (I could not attend the meeting due to last moment health problems.)
- Invited **Session Speaker**, The Meeting of the Americas, Foz do Iguacu, Brazil, August, 2010. Session on Rivers (Delivered on my behalf by Prof. García, on August 11, 2010). Presentation: "Challenges to the understanding and modeling of flow and transport in the Delta of the Sacramento and San Joaquin Rivers, California."
- Invited ***Plenary Speaker***, Fourth IAHR International Symposium on Hydraulic Structures, Porto, Portugal. Presentation delivered on February 10, 2012: "Computational multi-phase fluid dynamics applied to the design and optimization of hydraulic structures."
- Invited ***Plenary Speaker***, Latin American Congress on Hydraulics, San José, Costa Rica. Presentation delivered on September 11, 2012: "The closing and stratification habits of a small estuary in California." (In Spanish.)
- Invited ***Plenary Speaker***, Meeting on water quality, organized by AySA (Argentine Water and Sanitary Works), Buenos Aires, Argentina. Presentation delivered on November 8, 2012: "Modeling of water courses for the analysis of quality: Fundamentals, limitations and promises via examples." (In Spanish.)
- Invited ***Plenary Speaker***, Experimental methods in hydraulics III (MEH III), Santa Fe, Argentina. Presentation delivered on March 22, 2013: "Approximation to the quantification of sediment resuspension in lakes." (In Spanish.)
- Invited ***Plenary Speaker***, Water Engineering Meeting, Valencia, Spain. Presentation delivered on October, 2013: "Experimental and numerical results of flow over stepped spillways and other associated flows." (In Spanish.)
- Invited ***Plenary Speaker***, Latin American Congress on Hydraulics, Santiago, Chile. Presentation delivered on August 26, 2014: "How to write a good journal paper." (In Spanish. This presentation was associated to RIBAGUA.)
- Invited **Session Speaker** in ENIEF'14, XXI Congress on Numerical Methods and their Applications, Bariloche, Argentina. Presentation delivered on September 23, 2014: "Turbulence closures in free-surface flows past hydraulic structures." (In Spanish with slides in English.)
- Invited ***Plenary Speaker***, Experimental methods in hydraulics IV (MEH IV), La Plata, Argentina. Presentation delivered on March 22, 2015: "Closure and stratification habits of an estuary in California." (In Spanish.)
- Invited **Session Speaker** in South Korea. Presentation delivered on October 29, 2015: "Computational Multi-phase Fluid Dynamics (CMPFD) for rivers and hydraulic structures: Where we are and where we go." This presentation took part of a special session (called Global Session) of the Korean Society of Civil Engineers (KSCE) 2015 Convention on "River restoration program for coexistence between nature and human."

- Invited ***Plenary Speaker*** in Arequipa, Peru. Presentation delivered on December 3, 2016: "Modeling of sediment transport and water quality and their relation with eutrophication." This presentation took part in the "International seminar on simulation of water quality in reservoirs." (In Spanish.)
- Invited ***Plenary Speaker***, Experimental methods in hydraulics V (MEH V), Ezeiza, Argentina. Presentation delivered on June 7, 2017: "Recent developments for scour in plunging ponds: New experiments, theory, and numerical simulations."
- Invited ***Semi-Plenary Speaker***, Latin American Congress on Hydraulics, Buenos Aires, Argentina, September 2018. Presentation delivered on September 20, 2018: "New experiments, theory, and numerical simulations for the problem of scour induced by jets."
- Invited ***Plenary Speaker***, 8th International Symposium on Hydraulic Structures, Santiago de Chile, Chile, May 2020. (This event was cancelled due to Covid-19.) Title of the Keynote Lecture: "Seeing is believing: Using Hybrid turbulence closures to uncover the features of flows past hydraulic structures."
- Invited ***Keynote Speaker***, Congress of ECITEC of the National Engineering University, Peru, on-line. Presentation delivered on November 5, 2020: "Numerical simulation of water resources." (In Spanish.)
- Invited ***Keynote Speaker***, National Congress of Civil Engineering, Peru, on-line. Presentation delivered on June 29, 2021: "Recent advances in the research of phenomena in lacustrine regions." (In Spanish; more than 200 attendees.)
- Invited ***Keynote Speaker***, International Workshop on Sustainable Urban Drainage, Ningbo University, China, August, 2021 (on-line). Presentation delivered on August 5, 2021: "Time-dependent turbulent closures for the simulation of flow past structures in urban drainage." (74 attendees at peak.)
- Invited ***Keynote Speaker***, 9th International Symposium of Hydraulic Structures (ISHS), Roorkee, India, October 2022. Presentation delivered on October 26, 2022. Title of presentation: "Fluid mechanics past hydraulic structures: A shift in paradigm." (On line.)
- Invited ***Keynote Speaker***, 4th International Symposium on Outfall Systems (ISOS), Buenos Aires, Argentina, March 2023. Presentation delivered on March 27, 2023. Title of presentation: "Numerical modeling of flows past hydraulic structures using hybrid turbulence closures." (In Spanish.)
- Invited ***Keynote Speaker***, First Workshop on Scour around Hydraulic and Costal Structures, Hohai, China, September, 2023. Presentation delivered on September 5. Title of presentation: "On the use of the Phenomenological Theory of Turbulence (PTT) to provide a universal scour formula." (On line.)
- Invited ***Keynote Speaker***, International Workshop on Sustainable Urban Drainage, Ningbo University, China, October, 2023 (on-line). Presentation delivered on October 21, 2023. Title of presentation: "Numerical simulation (and modeling) of air entrainment processes in stepped spillways: from engineering." (On line.)

SEMINARS AND OTHER LECTURES

1. Invited Seminar at the Department of Eart Sciences, Autonomous University of Baja California South, Mexico. Presentation delivered on August 18, 2023: "Habits of migration and closure of a small estuary in California." (On line, and in Spanish.)

2. Invited Lecture at the Pre-Congress Symposium on "Youth contributions to hydric security" ("Aportaciones de la juventud hacia la Seguridad Hídrica") as part of the National Congress on Hydraulics, Mexico, México Young Professionals Network. Presentation delivered on October 19, 2022: "How to write a scientific article." (On line, and in Spanish.)
3. Invited Lecture at the Virtual Symposium on "Protection of freshwater mussels: Science and mitigation of sediment-related impacts." June 2, 2021. (107 participants at peak.)
4. Invited Seminar at the Department of Mechanical Engineering, University of Pisa, Pisa (Italy). Presentation delivered on December 13, 2019: "Climate, global change, and water resources."
5. Invited Seminar at the Department of CEE, UIUC. Presentation delivered on May 17, 2019: "From Chow to García: The tale of the intimate details of boundary layers under macro-roughness." Second Workshop in honor of Prof. Marcelo H. García.
6. Invited Seminar at the Department of Energy, Systems, Territory and Construction Engineering, University of Pisa, Pisa (Italy). Presentation delivered on May 14, 2018: "Computational multi-phase fluid dynamics (CMPFD) for hydraulic structures."
7. Invited Seminars at the "Development and application study of sediment transport formula in Taiwan's rivers. International academic and practical workshop." Presentations delivered on August 11, 2017, Taipei, Taiwan: "Eulerian-Eulerian and Eulerian-Lagrangian models for the simulation of suspended- and bed-load: Progress and challenges," and "Closure and sediment-transport habits of a rivermouth in semi-arid climates."
8. Invited Seminar at the Institute of Mechanics of Fluids and Environmental Engineering (IMFIA) of the University of the Republic, Montevideo, Uruguay. Presentation delivered on March 9, 2017: "Numerical simulations of two-phase flows past hydraulic structures."
9. Invited presentation at the Sonoma County Water Agency on the NOAA Habitat Blueprint Russian River Water Quality to inform time-dependent availability of estuarine habitat for salmonids. Presentation delivered on July, 26, 2016, in Santa Rosa, CA: "Flow and water quality in the Russian River: Modeling results."
10. Invited Seminar at the Department of CEE, Washington State University. Presentation delivered on April 25, 2016: "Explaining sediment transport with computations and theory."
11. Invited Seminar at the Continuum Mechanics and Fluid Mechanics Units of the Okinawa Institute of Science and Technology (OIST), Okinawa, Japan. Presentation delivered on March 25, 2016: "What you see is what you understand: Explaining multi-phase flows at different scales with computational and theoretical approaches."
12. Invited Seminar at the Civil Engineering Department of the Yonsei University, Seoul, South Korea. Presentation delivered on October 26, 2015: "Stratification and closure analysis of a small estuary in California."
13. Invited presentation at the Environmental Seminar Series, Department of CEE, UC Davis, January 13, 2015: "Stratification and closure analysis of a small estuary in California."
14. Invited Seminar at the Department of CEE, Stanford University. Presentation delivered on November 4, 2014: "Assessment of the performance of turbulence closures in free surface flows past hydraulic structures."
15. Invited Seminar at the National University of Córdoba, Argentina. Presentation delivered on September 9, 2014: "Analysis and comparison of turbulence closures in free surface flows past hydraulic structures."
16. Invited Seminar at the CEE Department at UC Davis. Presentation delivered on September 30, 2013: "Computational Fluid Dynamics for multi-phase flows in hydraulic structures."

17. Invited Seminar at the Institute of Hydraulic Research, Federal University of Rio Grande do Sul, Porto Alegre, Brazil, on August 7, 2013: "Computational Multi-phase Fluid Dynamics (CMPFD) for hydraulic structures." (In Spanish.)
18. Invited Seminar at the Institute of Hydraulic Research, Federal University of Rio Grande do Sul, Porto Alegre, Brazil, on August 6, 2013: "Approximation to the quantification of sediment resuspension in lakes." (In Spanish.)
19. Invited Seminar at the Andean University, Cuzco, Peru. Presentation delivered on July 2013: "Hydrological simulation in Andean basins: use of the WEAP model and the EBHICA project."
20. Invited Seminar at the National University of Saint Anthony Abad, Cuzco, Peru. Presentation delivered on July 2013: "Hydrological simulation in Andean basins: use of the WEAP model and the EBHICA project."
21. Seminar presentation at the private company CBEC, on September 28, 2012: "Recent research projects regarding sediment fate and transport at UC Davis."
22. Invited presentation at the Sonoma County Water Agency on the Russian River project, on April 12, 2012: "Russian River: Modeling results, lesson learned and future work."
23. Invited Seminar at the Bodega Marine Laboratory, UC Davis. Presentation delivered on August 18, 2010: "The science and art of modeling estuaries and bays."
24. Invited Seminar at the United States Army Corps of Engineers, Sacramento District. Presentation delivered on June 17, 2010: "Time and spatial scales of a migrating rivermouth."
25. Seminar at the Hydrologic Sciences Graduate Group Seminar Series, UC Davis. Presentation delivered on April 29, 2010: "Understanding and modeling multi-phase flows in the environment: The cases of bubble plumes, sediment transport in rivers, and density currents."
26. Invited Seminar at the Idaho Water Resources Research Institute, University of Idaho, Boise, Idaho. Presentation delivered on April 20, 2010, televised to the University of Idaho, Boise, University of Idaho, Idaho Falls, and University of Idaho, Moscow: "Time and spatial scales of a migrating rivermouth."
27. Second presentation organized by the California Department of Water Resources, Sacramento, to the Technical Advisory Committee of the DSM2 Project, January 27, 2010. Title: "Incorporating sediment-transport capabilities to DSM2. Development plan."
28. Invited Seminar at the Department of CEE, Stanford University. Presentation delivered on October 19, 2009: "Numerical simulation of two-phase flows: from bubble plumes to sediment transport in streams."
29. Invited Seminar at the Department of CEE, UIUC. Presentation delivered on August 17, 2009: "Sediment transport at different scales." Workshop in honor of Prof. Marcelo H. García.
30. Presentation at the reduced UnTRIM Users Meeting, Trento, Italy. Presentation delivered on May 12, 2009: "Numerical simulation of complex flows: from viscous models to Direct Numerical Simulations."
31. Invited Seminar at the Department of CEE, University of Iowa, Iowa. Presentation delivered on April 17, 2009: "Two-phase flow models of environmental importance: from bubble plumes to sediment transport in open channels."
32. Invited Seminar at the Department of CEE, UIUC. Presentation delivered on April 10, 2009: "An attempt for a unified two-phase flow theory for sediment transport in open channels."

33. First presentation organized by the California Department of Water Resources, Sacramento, to the Technical Advisory Committee of the DSM2 Project, July 20, 2009. Title: "Incorporating sediment-transport capabilities to DSM2. Development plan."
34. Second Workshop "Fecal contamination in San Francisco Bay: New predictive tools for decision makers." Presentation delivered on February 13, 2009: "Modeling transport and fate of Bacteroidales in San Pablo Bay - Part II."
35. Invited Seminar at the United States Army Corps of Engineers Research and Development Center, Vicksburg, Mississippi. Presentation delivered on March 21, 2008: "A general framework for the analysis of two-phase flows in hydraulic applications."
36. First Workshop "Fecal contamination in San Francisco Bay: New predictive tools for decision makers." Presentation delivered on January 25, 2008: "Modeling transport and fate of Bacteroidales in San Pablo Bay."
37. Presentation organized by the California Department of Water Resources, Sacramento, delivered on October 23, 2007: "Incorporating sediment-transport capabilities to DSM2."
38. Invited Seminar at the Department of Civil Engineering, University of Concepción, Concepción, Chile. Presentation delivered on October 5, 2006: "Parameterization of flow resistance in Hydraulics." (In Spanish.)
39. Invited Seminar at the Department of Civil Engineering, University of Concepción, Concepción, Chile. Presentation delivered on October 5, 2006: "Models for the computation of the transport and fate of mercury in water bodies." (In Spanish.)
40. Invited Seminar at the Department of Civil Engineering, University of Concepción, Concepción, Chile. Presentation delivered on October 5: "Modeling density currents in the lab and the field." (In Spanish.)
41. Invited Seminar at the Department of Civil Engineering, University of Concepción, Concepción, Chile. Presentation delivered on October 2: "Intermediate asymptotics, turbulence, and the basic equations of fluid mechanics." (In Spanish.)
42. Invited Seminar at the Department of Civil Engineering, University of Concepción, Concepción, Chile. Presentation delivered on September 28, 2006: "Lagrangian models for the motion of particles close to river beds." (In Spanish.)
43. Invited Seminar at the Northwest Hydraulic Consultants, West Sacramento. Presentation delivered on August 24, 2005: "Three-dimensional CFD modeling: going from science to engineering."
44. Seminar at the Department of CEE, UC Davis. Presentation delivered on May 27, 2005: "Intermediate asymptotics, turbulence, and the equations of fluid dynamics."
45. Seminar at the Department of CEE, UC Davis. Presentation delivered on May 21, 2004: "Density currents in the lab and the field: learning how to model very complex dense underflows."
46. Seminar of Ph.D. defense, Department of CEE, UIUC. Presentation delivered on September 15, 2003: "Turbulence in multiphase models for aeration bubble plumes."
47. Invited Seminar at the Department of CEE, UC Davis. Presentation delivered on May 8, 2003: "Turbulence in multiphase models for aeration bubble plumes."
48. Seminar at the Department of CEE, UIUC. Presentation delivered on September 25, 2002: "Theoretical and numerical modeling of turbulent processes in aeration bubble plumes."
49. Seminar at the Department of CEE, UIUC, for proposal defense. Presentation delivered on September 26, 2001: "Turbulence in multiphase models for aeration bubble plumes."

50. Seminar at the Department of CEE, UIUC. Presentation delivered on February 25, 2001: "Numerical simulation of 3D free-surface flows: issues, challenges, and applications."

PRESENTATION AT OTHER CONFERENCES

1. National Water Congress, La Plata, Argentina, June, 1994.
2. Latin-American Congress on Hydraulics, IAHR, Santiago de Chile, Chile, October, 1994.
3. ENIEF'95, IX Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November, 1995.
4. Int. Conf. on Pollution Processes in Coastal Environments, Mar del Plata, Argentina, October, 1996.
5. 3rd Int. Conf. on River Flood Hydraulics, Stellenbosch, South Africa, September, 1997.
6. Fourth World Congress on Computational Mechanics, Buenos Aires, Argentina, July, 1998.
7. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA, September, 1999.
8. 1999 Int. Water Resources Engineering Conf., ASCE, Seattle, WA, USA, September, 1999.
9. 4th. Int. Conf. on Hydroinformatics, IAHR, Iowa City, IA, USA, July, 2000.
10. Latin-American Congress on Hydraulics, IAHR, Córdoba, Argentina, October, 2000 (2 papers).
11. 3rd. Int. Symposium on Environmental Hydraulics, Tempe, AZ, USA, December, 2001.
12. Hydraulic Measurement and Experimental Methods Conf., Estes Park, CO, USA, August 2002.
13. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA, September, 2002.
14. 2003 World Water and Environmental Resources Congress, Environmental & Water Resources Institute (EWRI), ASCE, Philadelphia, PA, USA, June, 2003.
15. Pressure Vessel and Piping Division Conf., ASME, Cleveland, OH, USA, July, 2003.
16. ENIEF'04, XIV Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, November, 2004.
17. XXXI IAHR World Congress, Seoul, South Korea, September, 2005.
18. American Physical Society (APS) Fluid Dynamics Division Meeting, Chicago, IL, USA, November 2005.
19. Fourth IAHR Symposium on River, Coastal, and Estuarine Morphodynamics, Urbana, IL, USA, November, 2005.
20. Annual Conf. American Institute of Hydrology, Baton Rouge, LO, USA, May, 2006.
21. Int. Conference on Fluvial Hydraulics, Lisbon, Portugal, September, 2006.
22. Int. Conf. on Advances in HydroScience and Engineering, Philadelphia, PA, September, 2006.
23. McMAT 2007, ASME Applied Mechanics and Materials Conference, June, 2007 (2 papers).
24. World *FLOW-3D*® User's Conf., Dallas, TX, USA, September 2007.
25. 5th. Int. Symposium on Environmental Hydraulics, Tempe, AZ, USA, December, 2007.
26. ENIEF'08, XVI Congress on Numerical Methods and their Applications, San Juan, Argentina, November, 2008.
27. River Flow 2008, Cezme, Izmir, Turkey, September.
28. 2011 World Water and Environmental Resources Congress, Environmental & Water Resources Institute (EWRI), ASCE, Palm Springs, CA, USA, May, 2011.
29. World *FLOW-3D*® User's Conf., Santa Fe, USA, September 2011.
30. AGU Fall meeting, San Francisco, CA, USA, December, 2011.

31. Conference on Shallow Flows, Iowa City, Iowa, USA, June 2012.
32. World *FLOW-3D*® User's Conf., San Francisco, USA, September 2012.
33. Special presentation at the Flood Management Conference, Anaheim, CA, USA. September 3, 2013, as part of the 2D Modeling Symposium: "Issues with the 2D modeling of floods for mapping purposes."
34. 2018 World Water and Environmental Resources Congress, Environmental & Water Resources Institute (EWRI), ASCE, Minneapolis, Minnesota, June 2018 (two presentations).
35. 7th International Symposium on Hydraulic Structures, Aachen, Germany, May 17, 2018.
36. 39th IAHR World Congress, Panama City, Panama, September 3, 2019.

LIST OF PUBLICATIONS

Peer-reviewed archival journal papers

1) Gioia, G., and **Bombardelli, F. A.** (2002). "Scaling and similarity in rough channel flows." *Phys. Rev. Letters*, 88(1), 014501.
2) Wade, R. J., Rhoads, B. L., Rodríguez, J. F., Daniels, M., Wilson, D., Herricks, E. E., **Bombardelli, F. A.**, García, M. H., and Schwartz, J. (2002). "Integrating science and technology to support stream naturalization near Chicago, Illinois." *J. American Water Resources Association*, AWRA, 38(4), 931-944.
3) Buscaglia, G. C., **Bombardelli, F. A.**, and García, M. H. (2002). "Numerical modeling of large-scale bubble plumes accounting for mass transfer effects." *Int. J. Multiphase Flow*, Elsevier, 28(11), 1763-1785.
4) **Bombardelli, F. A.**, and García, M. H. (2003). "Hydraulic design of large-diameter pipes." *J. Hyd. Engrg.*, ASCE, 129(11), 839-846.
5) Rodríguez, J. F., **Bombardelli, F. A.**, García, M. H., Frothingham, K., Rhoads, B. L., and Abad, J. D. (2004). "High-resolution numerical simulation of flow through a highly sinuous river reach." *Water Resources Management*, Kluwer Academic Publishers, 18, 177-199.
6) Gioia, G., and **Bombardelli, F. A.** (2005). "Localized turbulent flows on scouring granular beds." *Phys. Rev. Letters*, 95, 014501.
7) Gioia, G., Chakraborty, P., and **Bombardelli, F. A.** (2006). "Rough-pipe flows and the existence of fully developed turbulence." *Phys. Fluids*, 18, 038107.
8) **Bombardelli, F. A.**, and Gioia, G. (2006). "Scouring of granular beds by jet-driven axisymmetric turbulent cauldrons." *Phys. Fluids*, 18, 088101.
9) **Bombardelli, F. A.**, Buscaglia, G. C., Rehmann, C. R., Rincón, L. E., and García, M. H. (2007). "Modeling and scaling of aeration bubble plumes: a two-phase flow analysis." *J. Hyd. Res.*, IAHR, 45(5), 617-630.
10) **Bombardelli, F. A.**, González, A. E.*, and Niño, Y. I. (2008). "Computation of the particle Basset force with a fractional-derivative approach." *J. Hyd. Engrg.*, ASCE, 134(10), 1513-1520.
11) **Bombardelli, F. A.**, and Jha, S. K.* (2008/2009). "Hierarchical modeling of the dilute transport of suspended sediment in open channels." *Environmental Fluid Mechanics*, 9(2), 207-236.
12) Jha, S. K.*, and **Bombardelli, F. A.** (2009). "Two-phase modeling of turbulence in dilute sediment-laden, open-channel flows." *Environmental Fluid Mechanics*, 9(2), 237-266.

13) **Bombardelli, F. A.**, Cantero, M. I., García, M. H., and Buscaglia, G. C. (2009). "Numerical aspects of the simulation of discontinuous saline underflows: the lock exchange problem." *J. Hyd. Res.*, IAHR, 47(6), 777-789.
14) **Bombardelli, F. A.**, and Chanson, H. (2009). "Progress in the observation and modeling of turbulent multi-phase flows." *Environmental Fluid Mechanics*, 9(2), 121-123.
15) Chung, E. G.*, **Bombardelli, F. A.**, and Schladow, G. (2009a). "Sediment resuspension in a shallow lake." *Water Resources Research*, 45, W05422.
16) Chung, E. G.*, **Bombardelli, F. A.**, and Schladow, G. (2009b). "Modeling linkages between sediment resuspension and water quality in a shallow, eutrophic, wind-exposed lake." *Ecological Modeling*, 220(9-10), 1251-1265.
17) Behrens, D. K.*, **Bombardelli, F. A.**, Largier, J. L., and Twohy, E. (2009). "Characterization of time and spatial scales of a migrating rivermouth." *Geophysical Research Letters*, 36, L09402.
18) Massoudieh, A.*, **Bombardelli, F. A.**, and Ginn, T. R. (2010). "A biogeochemical model of contaminant fate and transport in river water and sediments." *J. Contaminant Hydrology*, 112, 103-117.
19) Jha, S. K.*, and **Bombardelli, F. A.** (2010). "Toward two-phase flow modelling of non-dilute sediment transport in open channels." *J. Geophys. Res., Earth Surface*, 115, F03015.
20) **Bombardelli, F. A.**, Meireles, I.*, and Matos, J. (2011). "Laboratory measurements and multi-block numerical simulations of the mean flow and turbulence in the non-aerated skimming flow region of steep stepped spillways." *Environmental Fluid Mechanics*, 11(3), 263-288.
21) Jha, S. K.*, and **Bombardelli, F. A.** (2011). "Theoretical/numerical model for the transport of non-uniform suspended sediment in open channels." *Advances in Water Resources*, 34(5), 577-591.
22) Meireles, I.*, Renna, F., Matos, J., and **Bombardelli, F. A.** (2012). "Skimming, non-aerated flow on stepped spillways over roller compacted concrete dams." *J. Hyd Engrg.*, ASCE, 138(10), 870-877.
23) Moreno, P. A.*, and **Bombardelli, F. A.** (2012). "3D numerical simulation of particle-particle collisions in saltation mode near stream beds." *Acta Geophysica*, 60(6), 1661-1688.
24) Behrens, D. K.*, **Bombardelli, F. A.**, Largier, J. L., and Twohy, E. (2013). "Episodic closure of the tidal inlet at the mouth of the Russian River - A small bar-built estuary in California." *Geomorphology*, 189, 66-80.
25) Fleenor, W. E., and **Bombardelli, F. A.** (2013). "Simplified 1-D hydrodynamic and salinity transport modeling of the Sacramento-San Joaquin Delta: Sea level rise and water diversion effects." *San Francisco Estuary and Watershed Science Journal*, 11(4), December.
26) Meireles, I.*, **Bombardelli, F. A.**, and Matos, J. (2014). "Air entrainment onset in skimming flows on steep stepped spillways: an analysis." *J. Hyd. Res.*, IAHR, 52(3), 375-385.
27) Zamani, K.*, and **Bombardelli, F. A.** (2014). "Analytical solutions of nonlinear and variable-parameter transport equations for verification of numerical solvers." *Environmental Fluid Mechanics*, 14(4), 711-742.
28) Fazel, K.*, Scharffenberg, W. A., and **Bombardelli, F. A.** (2014). "Assessment of the meltrate function in a temperature index snow model using observed data." *J. Hydrologic Eng.*, ASCE, 19(7), 1275-1282.

29) Loh, K. J., Tom, C., Benassini, J., and **Bombardelli, F. A.** (2014). "A distributed piezo-polymer scour net for bridge scour hole topography monitoring." *Structural Monitoring and Maintenance (2288-6605)*, Techno-Press, 1(2), 183-195.
30) Reardon, K.[*], **Bombardelli, F. A.**, Moreno, P. A., Rueda-Valdivia, F., and Schladow, G. S. (2014). "Wind-driven nearshore sediment resuspension in a deep lake during winter." *Water Resources Research*, 50(11), 8826-8844.
31) Moreno, P. A.[*], and **Bombardelli, F. A.** (2015/2016). "Computation of the Basset force: Recent advances and environmental flow applications." *Environmental Fluid Mechanics*, 16(1), 193-208.
32) Behrens, D. K.[*], **Bombardelli, F. A.**, and Largier, J. L. (2015/2016). "Landward propagation of saline waters following closure of a bar-built estuary: Russian River (California, USA)." *Estuaries and Coasts*, 39(3), 621-638.
33) Reardon, K.[*], Moreno, P. A.[*], **Bombardelli, F. A.**, and Schladow, G. S. (2016). "Seasonal nearshore sediment resuspension and water clarity in Lake Tahoe." *Lake Research and Management*, 132(2), 132-145.
34) Toro, J. P.[*], **Bombardelli, F. A.**, Paik, J., Meireles, I.[*], and Amador, A. (2016). "Characterization of turbulence statistics on the non-aerated skimming flow over stepped spillways: A numerical study." *Environmental Fluid Mechanics*, 16(6), 1195-1221.
35) de Dios[*], M., **Bombardelli, F. A.**, García, C. M., Liscia, S., Lopardo, R. A., and Parravicini, J. (2016/2017). "Experimental characterization of three dimensional flow vortical structures in submerged hydraulic jumps." *J. Hydro-Env. Res.*, IAHR, 15, 1-12.
36) Zamani, K.[*], **Bombardelli, F. A.**, and Kamrani-Moghaddam, B. (2016/2017). "Comparison of current methods for the evaluation of Einstein's integrals." *J. Hyd. Engrg.*, ASCE, 143(4), Article Number: 06016026.
37) Castillo, L. G., Carrillo, J. M., and **Bombardelli, F. A.** (2016/2017). "Distribution of mean flow and turbulence statistics in a plunge pool." *J. Hydroinformatics*, 19(2), 173-190, doi: 10.2166/hydro.2016.044.
38) Gualtieri, C., Angeloudis, A., **Bombardelli, F. A.**, Jha, S. K.[*], Stoesser, T. (2017). "On the values for the turbulent Schmidt number in environmental flows." *Fluids*, MDPI, 2, 17.
39) Liang, L.[*], Yu, X., and **Bombardelli, F. A.** (2017). "A general mixture model for sediment laden flows." *Advances in Water Resources*, 107, 108-125.
40) Toro, J. P.[*], **Bombardelli, F. A.**, and Paik, J. (2017). "Detached eddy simulation of the non-aerated skimming flow in stepped spillways." *J. Hyd. Engrg.*, ASCE, 143(9), article 04017032.
41) Bayón, A., Toro, J. P.[*], **Bombardelli, F. A.**, Matos, J., and López-Jiménez, P. A. (2017/2018). "Influence of VOF technique, turbulence model and discretization scheme on the numerical simulation of the non-aerated, skimming flow in stepped spillways." *J. Hydro-Env. Res.*, IAHR, 19, 137-149.
42) Gorgoglione, A., **Bombardelli, F. A.**, Pitton, B. J. L., Oki, L. R., Haver, D. L., and Young, T. (2017/2018). "Role of sediments in insecticide runoff from concrete surfaces: Analysis and modeling." *Int. J. Env. Res. Public Health*, MDPI, 15(7), 1464.
43) Liang, L.[*], Yu, X., and **Bombardelli, F. A.** (2017/2018). "A general formulation of relative motion between two phases in sediment-laden flows." *Int. J. Multiphase Flow*, 109, 63-83.
44) **Bombardelli, F. A.**, Palermo, M., and Pagliara, S. (2018). "Temporal evolution of jet induced scour depth in cohensionless granular beds and the phenomenological theory of turbulence." *Phys. Fluids*, 30(8): 085109.

45) Son, M., **Bombardelli, F. A.**, Park, B., and Byun, J. (2017/2018). "On the inverse relationship between concentration and size of cohesive sediment." *Journal of Coastal Research*, BioOne, 85, 56-60.
46) Gorgoglione, A., **Bombardelli, F. A.**, Pitton, B. J. L., Oki, L. R., Haver, D. L., and Young, T. (2017/2018/2019). "Uncertainty in the parameterization of sediment build-up and wash-off processes in the simulation of water quality in urban areas." *Environmental Software and Modeling*, 111, 170-181.
47) Moreno, P. A.[*], **Bombardelli, F. A.**, and Toro, J. P.[*] (2017/2018). "Generalized algorithms for particle motion and collision with stream beds." *Int. J. Sediment Res.*, 34(4): 295-306.
48) Roberts, D. C., Moreno-Casas[*], **Bombardelli, F. A.**, Hook, S. J., Hargreaves, B. R., and Schladow, S. G. (2019). "Predicting wave-induced sediment resuspension at the perimeter of lakes using a steady-state spectral wave model." *Water Resources Research*, 55(2): 1279-1295.
49) Zabaleta, F.[*], **Bombardelli, F. A.**, and Toro, J. P.[*] (2020). "Towards a more complete understanding of the physics of air entrainment in the skimming flow over stepped spillways." *Environmental Fluid Mechanics*, 20: 375–392.
50) Palermo, M., Pagliara, S., and **Bombardelli, F. A.** (2020). "A theoretical approach for shear stress estimation at 2D equilibrium scour hole due to confined sub-vertical plunging jets." *J. Hyd. Engrg.*, ASCE, 146(4): 04020009.
51) Durand, J., **Bombardelli, F. A.**, Fleenor, W. E., Henneberry, Y., Herman, J., Jeffres, C., Leinfelder–Miles, M., Lund, J. R., Lusardi, R., Manfree, A. D., Medellín–Azuara, J., Milligan, B., and Moyle, P. B. (2020). "Drought and the Sacramento-San Joaquin Delta, 2012–2016: Environmental review and lessons." San Francisco Estuary and Watershed Science Journal, 18(2).
52) Zhou, K., Duan, J. G., and **Bombardelli, F. A.** (2020). "Experimental and theoretical study of local scour around three-pier group." *J. Hyd. Engrg.*, ASCE, 04020069.
53) Battiston, C. C., **Bombardelli, F. A.**, Camaño Schettini, S. B., Marques, M. G. (2020). "Mean flow and turbulence statistics through a sluice gate in a navigation lock system: A numerical study." *European J. Mechanics-B Fluids*, 84: 155-163.
54) Roberts, D. C., Egan, G. C., Forrest, A. L., Largier, J. L., **Bombardelli, F. A.**, Laval, B. E., Monismith, S., and Schladow, S. G. (2021). "The setup and relaxation of spring upwelling in a deep, rotationally influenced lake." *Limnology and Oceanography*, 66 (4): 1168-1189.
55) Erpicum, S. E., Crookston, B. M., **Bombardelli, F. A.**, Bung, D. B., Felder, S., Mulligan, S., Oertel, M., and Palermo, M. (2021). "Hydraulic structures engineering: An evolving science in a changing world." *WIRE's Water*, 8(2), e1505 (March/April).
56) Palermo, M., **Bombardelli, F. A.**, Pagliara, S., and Kuroiwa, J. (2021). "Time-dependent scour processes on granular beds at large scale." *Environmental Fluid Mechanics*, 21(4), 791-816.
57) Wang, J., **Bombardelli, F. A.**, and Dong, X. (2021). "Physically based scaling models to predict gas transfer velocity in streams and rivers" *Water Resources Research*, 57(3), e2020WR028757.
58) Di Nardi, J., Palermo, M., **Bombardelli, F. A.**, and Pagliara, S. (2021). "The phenomenological theory of turbulence and the scour evolution downstream of grade-control structures under steady discharges." *Water*, 13(17), 2359.

59) Valbuena-Mateus, S.*, **Bombardelli, F. A.**, Largier, J. L., Cortés, A., Roberts, D. C., Forrest, A., Schladow, G. S. (2022). "3D flow structures during upwelling events in lakes of moderate length scales." published online, *Water Resources Research*, 58(3), e2021WR030666.
60) Lai, Y., Liu, X., **Bombardelli, F. A.**, and Song, Y. (2022). "Three-dimensional numerical modeling of local scour: A state-of-the-art review and perspective." *J. Hyd. Engrg.*, ASCE, 03122002.
61) Di Nardi, J., Palermo, M., **Bombardelli, F. A.**, and Pagliara, S. (2022). "First principles based approach for 3D scour processes under variable jet discharge." *Water Resources Research*, 58(11), e2021WR030346.
62) Di Nardi, J., Palermo, M., **Bombardelli, F. A.**, and Pagliara, S. (2023). "Scour evolution downstream of grade-control structures under unsteady flows: A theoretical analysis." *J. Hydro-Environment Research*, 48(5), 1-14.
63) Zabaleta, F.*, Márquez Damián, S., and **Bombardelli, F. A.** (2023). "A novel three-phase mixture approach for the numerical modeling of self-aerated flows." *Computer Methods in Applied Mechanics and Engineering*, 408, 115958.
64) Castro-Orgaz, O., Gamero-Ojeda, P. P., Cantero-Chinchilla, F. N., Morales de Luna, T., Hager, W., and **Bombardelli, F. A.** (2023). "Variational RANS modeling of hydraulic jumps." *Ocean Engineering*, 283, 115037.
65) Cui, Z., Fang, H., Huang, L., Ni, K., and **Bombardelli, F. A.** (2023). "Attachment efficiency among fine sediment considering surface heterogeneity." *J. of Hyd. Res.*, IAHR, 61(4), 452-469.
66) Cui, Z., Huang, L., Fang, H., Hang, D., and **Bombardelli, F. A.** (2023). "Exploring cohesive sediment flocculation with surface heterogeneity: A theoretical Lagrangian-type flocculation model." *Water Resources Research*, 10.1029/2022WR034374.
67) Stagl-Hughes, K., Forrest, A. L., Cortes, A., and **Bombardelli, F. A.** (2024). "Transitional circulation patterns from full ice-cover to ice-off in a seasonally ice-covered lake." *Aquatic Sciences*, 86, Article number 40.
68) Zabaleta, F.*, **Bombardelli, F. A.**, and Márquez Damián, S. (2024). "Numerical modeling of self-aerated flows: Turbulence modeling and the onset of air entrainment." accepted for publication, *Phys. Fluids*.
69) Valbuena-Mateus, S.*, **Bombardelli, F. A.**, Largier, J. L., and Schladow, G. S. (2024). "Boat effects on lake water clarity and the efficacy of a no-wake zone policy." under review.

Peer-reviewed archival journal papers in preparation

70) Valbuena-Mateus, S.*, **Bombardelli, F. A.**, Largier, J. L., and Schladow, G. S. (2024). "Determining the threshold for rotational effects in lake upwelling."
71) McInerney, J. B. T., Largier, J. L., Lee, K., **Bombardelli, F. A.,** Schladow, G. S., and Forrest, A. L. (2024). "Seasonal variation of suspended material driven by internal wave mechanics in a deep lake."
72) Loguercio, M., **Bombardelli, F. A.**, Zamani, K., and Zabaleta, F. (2024). "Numerical simulation of air entrainment and transport in low-Froude-number hydraulic jumps."

Discussions, closures, prefaces, forum articles, and book reviews

73) **Bombardelli, F. A.**, Hirt, C. W., and García, M. H. (2001). "Discussion on'Computations of curved free surface water flow on spiral concentrators,' by B. W. Matthews, C. A. J. Fletcher, A. C. Partridge, and S. Vasquez." *J. Hyd. Engrg.*, ASCE, 127(7), 629-631.
74) **Bombardelli, F. A.** (2003). "Review of the book 'The hydraulics of stepped chutes and spillways,' by Hubert Chanson." *J. Hyd. Res.*, IAHR, 41, 327-328.
75) **Bombardelli, F. A.**, and García, M. H. (2005). "Closure to Discussion of 'Hydraulic design of large-diameter pipes,' by Thomas Walski." *J. Hyd. Engrg.*, ASCE, 131(3), 224-225.
76) **Bombardelli, F. A.**, and González, A. E.* (2008). "Discussion of 'Analytical approach to calculate rate of bank erosion' by J. G. Duan." *J. Hyd. Engrg.*, ASCE, 134(2), 280-281.
77) **Bombardelli, F. A.**, and Zamani, K.* (2009). "Review of the book 'Fluid Mechanics of Environmental Interfaces', Edited by Carlo Gualtieri and Dragutin Mihailovic". *Environmental Fluid Mechanics*, 9, 569-571.
78) **Bombardelli, F. A.**, and Jha, S. K.* (2011). "Discussion of 'Closure problem to jet scour' by G. J. C. M. Hoffmans." *J. Hyd. Res.*, IAHR, 49(2), 277-279.
79) Meireles, I.*, Renna, F., Matos, J., and **Bombardelli, F. A.** (2014). "Closure to Discussion of 'Skimming, non-aerated flow on stepped spillways over roller compacted concrete dams,' by different authors." *J. Hyd. Engrg.*, ASCE, 140(10), Article Number: 07014013.
80) Meireles, I.*, **Bombardelli, F. A.**, and Matos, J. (2016). "Closure to Discussion of 'Air entrainment onset in skimming flows on steep stepped spillways: an analysis.' by different authors." *J. Hyd. Res.*, IAHR, 54(2), 222-223.
81) **Bombardelli, F. A.**, and Chanson, H. (2017). "Environmental multi-phase fluid mechanics: what, why, how, where to?" *Environmental Fluid Mechanics*, 17(1), 1-5, Preface of the Special Issue. (With review by the Editor in Chief.)
82) Zamani, K.*, and **Bombardelli, F. A.** (2018). "Closure to Discussion of 'Comparison of current methods for the evaluation of Einstein's integrals' by Kaveh Zamani, Fabián A. Bombardelli, and Babak Kamrani-Moghaddam." *J. Hyd. Engrg.*, ASCE, 144(11).
83) Chanson, H., **Bombardelli, F. A.**, and Castro-Orgaz, O. (2020). "Environmental fluid mechanics in hydraulic engineering." *Environmental Fluid Mechanics*, 17(1), 227-232, Preface of the Special Issue.
84) Palermo, M., Papanicolaou, A. T., Crookston, B. M., **Bombardelli, F. A.**, and Ettema, R. (2020). "A new ASCE monograph: Scour at channel-control structures." Forum Article, 146(7), 02520003.

Book chapters

85) **Bombardelli, F. A.**, and Abrishamchi, A. (2006). "Numerical simulation of standing waves driven by surface jets." Chapter 28 in: *Coastal Hydrology and Processes*, V. P. Singh, and Y. J. Xu (Eds.), Water Resources Publication, LLC, Highlands Ranch, CO, 343-354.
86) Rhoads, B. L., García, M. H., Rodríguez, J. F., **Bombardelli, F. A.**, Abad, J. D., and Daniels, M. (2008). "Methods for evaluating the geomorphological performance of naturalized rivers: examples from the Chicago Metropolitan Area." Chapter 11 in: *River restoration: Managing the uncertainty in restoring physical habitat*, D. Sears, and S. Darby (Eds.), John Wiley and Sons, Ltd., Chichester, U.K., 209-228. **(With referee.)**

87) Massoudieh, A.*, Zagar, D., Green, P. G., Cabrera-Toledo, C.*, Horvat, M., Ginn, T. R., Barkouki, T., Weathers, T., and **Bombardelli, F. A.** (2009). "Modeling mercury fate and transport in aquatic systems." Chapter 13 in Advances in Environmental Fluid Mechanics, D. Mihailovic, and C. Gualtieri (Eds.), World Scientific, 275-308.
88) **Bombardelli, F. A.** (2012). "Water distribution systems." Chapter 1, Vol. 2, in: *Handbook of Environmental Fluid Mechanics*, H. J. Fernando (Ed.), 3-17.
89) **Bombardelli, F. A.**, and Moreno, P. A.* (2012). "Exchanges at the bed sediments-water column interface." Chapter 8 in: *Fluid Mechanics of Environmental Interfaces*, Second Edition, C. Gualtieri, and D. T. Mihailovic (Eds.), 221-253.
90) Jha, S. K.*, and **Bombardelli, F. A.** (2014). "Modeling the diffusion and transport of suspended sediment in open channels, using two-phase flow theory." Chapter 3 in: *Modeling and simulation of diffusive processes. Methods and applications*, S. K. Basu and N. Kumar (Eds.), Springer, 51-68.
91) Lai, Y., Liu, X., **Bombardelli, F. A.**, and Song, Y. (2024). "Numerical modeling of scour." to be published in a book on Scour by ASCE.
92) **Bombardelli, F. A.**, Papanicolaou, A. N., Teal, M. J., and Richards, D. L. (2024). "Basic concepts." to be published in a book on Scour by ASCE.

Journal papers and prefaces in Spanish

93) Lopardo, R. A., and **Bombardelli, F. A.** (1995). "The incorporation of environmental topics in the hydraulic engineering teaching activities." Journal of the Chilean Society of Hydraulic Engineering, Santiago de Chile, Chile, Vol. 10, Nº 1, 34-42.
94) **Bombardelli, F. A.**, and Menéndez, A. N. (1995). "Towards the quantification of the impact of outflows in Blanca Bay." Journal of the Association of Engineers of Buenos Aires Province, Argentina, Nº 135, 21-30.
95) Lopardo, R. A., and **Bombardelli, F. A.** (2000). "Some ideas about the education of the hydraulic engineer in the XXI century." Journal of the Association of Engineers of Buenos Aires Province, Argentina, Nº 139, 1-9.
96) **Bombardelli, F. A.**, and Aurín, R. (2015). "Introduction by the Editors." RIBAGUA, 2(1), 1-2.
97) Grassa, J. M., González Herrero, J. M., Lorente, P., Uriarte, A., **Bombardelli, F. A.**, Mora, J., Medina, R., Medina, J., and Gómez Barquín, G. (2016). "Introduction to the Special Issue related to the XIII Spanish Workshop of Coastal and Harbor Engineering." RIBAGUA, 3(2), 1-3.
98) Mora, J., **Bombardelli, F. A.**, and Aurín, R. (2017). "Introduction by the Editors." RIBAGUA, 4(2), 71-73.
99) **Bombardelli, F. A.**, and Kuroiwa, J. (2022). "Introducción de una nueva etapa en RIBAGUA." RIBAGUA, published on-line.

Papers published in proceedings of special conferences and symposia with referee

100) Zabaleta, F.*, Márquez Damián, S., and **Bombardelli, F. A.** (2022). "Numerical simulation of air entrainment in stepped spillways." in Proc. of 9th. Int. Symposium on Hydraulic Structures, Roorkee, India, held in October.

101) Zabaleta, F.*, **Bombardelli, F. A.**, and Valbuena-Mateus, S. A.* (2022). "Preliminary evaluation and design of a new energy dissipation stilling basin via numerical and experimental modeling." in Proc. of 9th. Int. Symposium on Hydraulic Structures, Roorkee, India, held in October.

102) Valbuena-Mateus, S. A.*, **Bombardelli, F. A.**, and Schladow, S. G. (2020). "Boat induced sediment resuspension and water clarity in shallow flows." in Proc. of River Flow 2020, Delft, The Netherlands.

103) Zabaleta, F.*, and **Bombardelli, F. A.** (2020). "Eddy-resolving simulation of flows over macro-roughness." in Proc. of River Flow 2020, Delft, The Netherlands.

104) **Bombardelli, F. A.** (2020). "Seeing is believing: Using Hybrid turbulence closures to uncover the features of flows past hydraulic structures." Keynote Lecture, in Proc. of the 8th International Symposium of Hydraulic Structures, Santiago, Chile.

105) Palermo, M., **Bombardelli, F. A.**, and Pagliara, S. (2018). "From developing to developed phase in the scour evolution due to vertical and sub-vertical plunging jets: new experiments and theory." in Proc. of the 7th Int. Symposium on Hydraulic Structures, Aachen, Germany.

106) **Bombardelli, F. A.** (2012). "Computational multi-phase fluid dynamics to address flows past hydraulic structures." Fourth Int. Symposium on Hydraulic Structures, Porto, Portugal, February, 2012. (In CD. This paper was the source of the Keynote Lecture.)

107) Behrens, D. K.*, **Bombardelli, F. A.**, Largier, J. L., and Twohy, E. (2009). "Interpreting the dynamics of a northern California rivermouth using a multi-decadal dataset." in Proc. RCEM 2009, 6th Symposium on River, Coastal, and Estuarine Morphodynamics, Santa Fe, Argentina.

108) Jha, S. K.*, and **Bombardelli, F. A.** (2007). "Two-phase flow theoretical and numerical models for sediment-laden open-channel flow." in Proc. RCEM 2007, 5th Symposium on River, Coastal, and Estuarine Morphodynamics, Twente, Netherlands, September.

109) González, A. E.*, **Bombardelli, F. A.**, and Niño, Y. I. (2007). "Improving the prediction capability of numerical models for particle motion in water bodies." Published on-line in Advances in HydroScience and Engineering, Philadelphia, PA. (Invited paper for a special session.)

110) González, A. E.*, **Bombardelli, F. A.**, and Niño, Y. I. (2006). "Towards a Direct Numerical Simulation (DNS) of particle motion close to river beds." in River Flow 2006, Proc. Int. Conference on Fluvial Hydraulics, Lisbon, Portugal, R. M. L. Ferreira, E. C. T. L. Alves, J. G. A. B. Leal and A. H. Cardoso (Eds.), Vol. 1, 799-806, Taylor & Francis Group, London.

111) Massoudieh, A.*, **Bombardelli, F. A.**, Ginn, T. R., and Green, P. G. (2006). "Mathematical modeling of the biogeochemistry of dissolved and sediment associated trace metal contaminants in riverine systems." in River Flow 2006, Proc. Int. Conference on Fluvial Hydraulics, Lisbon, Portugal, R. M. L. Ferreira, E. C. T. L. Alves, J. G. A. B. Leal and A. H. Cardoso (Eds.), Vol. 2, 1993-1999, Taylor & Francis Group, London.

112) **Bombardelli, F. A.**, and Gioia, G. (2005). "Towards a theoretical model for scour phenomena." in Proc. RCEM 2005, 4th IAHR Symposium on River, Coastal, and Estuarine Morphodynamics, Urbana, IL, USA, G. Parker, and M. García (Eds.), Vol. 2, 931-936.

113) **Bombardelli, F. A.** (2003). "Characterization of coherent structures from parallel, LES computations of wandering effects in bubble plumes." in Proc. 2003 World Water and

Environmental Resources Congress, Environmental & Water Resources Institute (EWRI), ASCE, Philadelphia, PA, USA, P. Bizier and P. DeBarry (Eds.). (This paper was awarded the First Prize in the Student Paper Competition.) (In CD.)

114) **Bombardelli, F. A.**, Buscaglia, G. C., and García, M. H. (2003). "Parallel computations of the dynamic behavior of bubble plumes." in Proc. Pressure Vessel and Piping Division Conf., ASME, Cleveland, OH, USA. Residual stress, fitness-for-service, and manufacturing processes, PVP-Vol. 464, F. W. Brust (Ed.). (This paper was selected Finalist (top 5 papers) in the 11th Annual Student Paper Competition.)

115) **Bombardelli, F. A.**, Menéndez, A. N., and Brea, J. D. (1997). "A mathematical model for the lower Paraná River Delta." in River Flood Hydraulics, J. Watts (Ed.), Proc. 3rd Int. Conf. on River Flood Hydraulics, Stellenbosch, South Africa, 137-146.

Papers published in international conferences with referee

116) Palermo, M., Pagliara, S., and **Bombardelli, F. A.** (2019). "Suspended cohesionless material in a 2D scour pothole due to plunging jets." in Proc. 38th. IAHR World Congress, Panama City, Panama.

117) Moreno, P. A.*, and **Bombardelli, F. A.** (2013). "Analysis of particle diffusion due to inter-particle collisions in bed-load motion." in Proc. of the 35th IAHR World Congress, Vols. I and II, 4560-4566.

118) Gualtieri, C., and **Bombardelli, F. A.** (2013). "Parameterization of the turbulent Schmidt number in the numerical simulation of open-channel flows." in Proc. of the 35th IAHR World Congress, Vols. III and IV.

119) **Bombardelli, F. A.** (2012). "On the use of the phenomenological theory of turbulence for addressing shallow flows." in Proc. 3rd. Int. Symposium on Shallow Flows, Iowa City, IO, USA.

120) Zamani, K.*, and **Bombardelli, F. A.** (2012). "One-dimensional, mass conservative, spatially-dependent transport equation: New analytical solution," PACAM XII, Applied Mechanics in the Americas, Trinidad and Tobago.

121) Ateljevich, E., Zamani, K.*, **Bombardelli, F. A.**, and Anderson, J. (2011). "Using software quality and algorithm testing to verify a one-dimensional transport model." in Proc. World Environmental and Water Resources Congress (EWRI), ASCE, 4587-4596.

122) Moreno, P. A.*, **Bombardelli, F. A.**, González, A. E.*, and Calo, V. M. (2011). "Three dimensional model for particle saltation close to stream beds, including a detailed description of the particle interaction with turbulence and inter-particle collisions." in Proc. World Environmental and Water Resources Congress (EWRI), ASCE, 2075-2084.

123) Massoudieh, A.*, Ginn, T. R., **Bombardelli, F. A.** (2009). "Modeling sediment-water interactions and biogeochemical reactive contaminant transport of mercury species in riverine system." in Proc. 33rd Congress of the IAHR, Water Engineering for a Sustainable Environment. (In CD.)

124) Battiston, C. C.*, **Bombardelli, F. A.**, Camaño Schettini, S. B., Marques, M. G. (2009). "Numerical simulations of the flow through a reverse tainter gate in a conduit." in Proc. 33rd Congress of the IAHR, Water Engineering for a Sustainable Environment. (In CD.)

125) Meireles, I.*, **Bombardelli, F. A.**, and Matos, J. (2009). "Experimental testing and numerical simulation of the non-aerated skimming flow over steeply sloping stepped

spillways." in Proc. 33rd Congress of the IAHR, Water Engineering for a Sustainable Environment. (In CD.)

126) Behrens, D. K.*, **Bombardelli, F. A.**, and Largier, J. L. (2008). "Using a parametric model for analyzing the stability of river mouths: The case of the Russian River, California." in Proc. of the 31st Int. Conference on Coastal Engineering, Hamburg, Germany, September.

127) González, A. E.*, and **Bombardelli, F. A.** (2005). "Two-phase flow theoretical and numerical models for hydraulic jumps, including air entrainment." in Proc. XXXI IAHR Congress, Seoul, South Korea. (In CD.)

128) Rincón, L. E., **Bombardelli, F. A.**, and García, M. H. (2004). "Experimental evidence for scaling laws in bubble plumes." in Proc. 2004 World Water and Environmental Resources Congress, Environmental and Water Resources Institute (EWRI), ASCE, Salt Lake City, Utah, USA. (In CD.)

129) **Bombardelli, F. A.**, Buscaglia, G. C., García, M. H., and Dari, E. A. (2004). "Simulation of wandering phenomena in bubble plumes via a k-ε model and a Large-Eddy-Simulation (LES) approach." in Computational Mechanics XXIII, Proc. ENIEF'04, XIV Congress on Numerical Methods and their Applications, G. C. Buscaglia, E. A. Dari, and O. M. Zamonsky (Eds.), San Carlos de Bariloche, Argentina. (This paper served for a Keynote Lecture in the Congress.) (In CD.)

130) **Bombardelli, F. A.**, Cantero, M. I., Buscaglia, G. C., and García, M. H. (2004). "Comparative study of convergence of CFD commercial codes when simulating dense underflows." in Computational Mechanics XXIII, Proc. ENIEF'04, XIV Congress on Numerical Methods and their Applications, G. C. Buscaglia, E. A. Dari, and O. M. Zamonsky (Eds.), San Carlos de Bariloche, Argentina. (In CD.)

131) **Bombardelli, F. A.**, García, C. M., Cantero, M. I., Rincón, L., Waratuke, A., Rehmann, C. R., and García, M. H. (2003). "Issues regarding the measurement of turbulent properties in bubble plumes." Proc. 2003 World Water and Environmental Resources Congress, Environmental & Water Resources Institute (EWRI), ASCE, Philadelphia, PA, USA, P. Bizier and P. DeBarry (Eds.). (In CD.)

132) García, M. H., **Bombardelli, F. A.**, Guala, M., and Caisley, M. (2003). "Hydraulics and turbulence of flow in canoe chutes." Proc. XXX IAHR Congress, Water Engineering & Research in a Learning Society, Thessaloniki, Greece. (In CD.)

133) Cantero, M. I., García, M. H., Buscaglia, G. C., **Bombardelli, F. A.**, and Dari, E. A. (2003). "Multidimensional CFD simulation of a discontinuous density current." in Proc. XXX IAHR Congress, Water Engineering & Research in a Learning Society, Thessaloniki, Greece. (In CD.)

134) **Bombardelli, F. A.**, Rodríguez, J. F., and García, M. H. (2002). "Computational river mechanics: 3D simulations at the reach scale." in Proc. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA. (In CD.)

135) **Bombardelli, F. A.**, Cantero, M. I., Buscaglia, G. C., and García, M. H. (2002). "Comparative analysis of convergence of FLOW-3D® for simulation of dense underflows." in Proc. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA. (In CD.)

136) Buscaglia, G. C., Dari, E. A., **Bombardelli, F. A.**, and García, M. H. (2002). "Numerical modeling of flow and mass transfer in bubble plumes." in Computational Mechanics, Proc. MECOM'02, First South American Congress on Computational Mechanics, Paraná, Argentina, Vol. XXI, 541-565. (In CD.)

137) Schwartz, J. S., Herricks, E. E., Rodríguez, J. F., Rhoads, B. L., García, M. H., and **Bombardelli, F. A.** (2002). "Physical habitat analysis and design of in-channel structures on a Chicago, IL urban drainage: a stream naturalization design process." Proc. 9th. Int. Conf. on Urban Stormwater Drainage, Portland, OR, USA. (In CD.)

138) García, C. M., **Bombardelli, F. A.**, Buscaglia, G. C., Cantero, M. I., Rincón, L., Soga, C., Waratuke, A., Rehmann, C. R., and García, M. H. (2002). "Turbulence in bubble plumes." Proc. Hydraulic Measurement and Experimental Methods Conf., Wahl, T. L., Pugh, C. A., Oberg, K. A., and Vermeyen, T. B. (Eds.), ASCE, Estes Park, CO, USA. (In CD.)

139) **Bombardelli, F. A.**, Guala, M., García, C. M., Briskin, B., and García, M. H. (2002). "Mean flow, turbulence, and free-surface location in a canoe chute model." Proc. Hydraulic Measurement and Experimental Methods Conf., Wahl, T. L., Pugh, C. A., Oberg, K. A., and Vermeyen, T. B. (Eds.), ASCE, Estes Park, CO, USA. (In CD.)

140) Rodríguez, J. F., Belby, B., **Bombardelli, F. A.**, García, C. M., Rhoads, B. L., and García, M. H. (2001). "Numerical and physical modeling of pool-riffle sequences for low gradient urban streams." in Proc. 3rd. Int. Symposium on Environmental Hydraulics, Tempe, AZ, USA. (In CD.)

141) **Bombardelli, F. A.**, and García, M. H. (2001). "Simulation of density currents in urban environments. Application to the Chicago River, Illinois." in Proc. 3rd. Int. Symposium on Environmental Hydraulics, Tempe, AZ, USA. (In CD.)

142) Wade, R. J., Rhoads, B. L., Rodríguez, J. F., Newelll, M., Wilson, D., Herricks, E. E., **Bombardelli, F. A.**, and García, M. H. (2001). "Integrating science and technology to support stream naturalization near Chicago, Illinois." in Proc. Watershed Management Symposium, Chevy Chase, MD, USA.

143) Rodríguez, J. F., García, M. H., **Bombardelli, F. A.**, and Guzmán, J. M. (2000). "Naturalization of urban streams using in-channel structures." in Proc. Joint Conf. on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, MN, USA. (In CD.)

144) Caisley, M. E., García, M. H., and **Bombardelli, F. A.** (2000). "Prediction of the behavior of hydraulic jumps in canoe chutes." in Proc. Joint Conf. on Water Resources Engineering and Water Resources Planning and Management, ASCE, Minneapolis, MN, USA. (In CD.)

145) **Bombardelli, F. A.**, García, M. H., and Caisley, M. E. (2000). "2D and 3D numerical simulation of abrupt transitions in open-channel flows. Application to the design of canoe chutes." in Proc. 4th. Int. Conf. on Hydroinformatics, IAHR, Iowa City, IA, USA. (In CD.)

146) Rodríguez, J. F., **Bombardelli, F. A.**, García, M. H., Guzmán, J. M., Frothingham, K., and Rhoads, B. L. (2000). "Numerical modeling of meandering streams." in Proc. 4th. Int. Conf. on Hydroinformatics, IAHR, Iowa City, IA, USA. (In CD.)

147) Caisley, M. E., **Bombardelli, F. A.**, and García, M. H. (1999). "Physical and numerical studies of canoe chutes for low-head dams in Illinois." in Proc. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA. (In CD.)

148) **Bombardelli, F. A.**, and García, M. H. (1999). "Numerical exploration of conceptual models for hydraulic jumps." in Proc. World *FLOW-3D*® User's Conf., Santa Fe, NM, USA. (In CD.)

149) **Bombardelli, F. A.**, and Menéndez, A. N. (1999). "A physics-based quasi-3D numerical model for the simulation of wind-induced shallow water flows." in Proc. 1999 Int. Water Resources Engineering Conf., ASCE, Seattle, WA, USA. (In CD.)

150) **Bombardelli, F. A.**, and García, M. H. (1999). "Numerical simulation of wind-induced resuspension of bed sediments in shallow lakes." in Proc. 1999 Int. Water Resources Engineering Conf., ASCE, Seattle, WA, USA. (In CD.)

151) Lopardo, R. A., and **Bombardelli, F. A.** (1999). "On the interdisciplinary formation for the water-environment engineering." in Proc. Int. Symposium: The Learning Society And The Water Environment, A. Van Der Beken, M. Mihailescu, P. Hubert and J. Bogardi (Eds.), Paris, France.

152) Menéndez, A. N., Tarela, P. A., and **Bombardelli, F. A.** (1999). "A study on the hydraulic impact of a harbour remodeling project." in Proc. Fifth Int. Conf. on Coastal and Port Engineering in Developing Countries, Cape Town, South Africa.

153) **Bombardelli, F. A.**, Menéndez, A. N., Tarela, P. A., and Vilela, C. de P. X. (1998). "2D simulation of the thermal behaviour of a reduced tidal zone." in Proc. Fourth World Congress on Computational Mechanics, Buenos Aires, Argentina. (In CD.)

154) **Bombardelli, F. A.**, and Menéndez, A. N. (1996). "2D mathematical modelling of pollutant transport in coastal zones." in Proc. Int. Conf. on Pollution Processes in Coastal Environments, Mar del Plata, Argentina, pp. 36-41.

155) **Bombardelli, F. A.**, and Lopardo, R. A. (1996). "Analysis of the man-coastal space interactions from the point of view of environmental engineering." in Preprints Int. Symposium on Coastal Ocean Space Utilization, COSU'96, Buenos Aires, Argentina, 51-60.

156) **Bombardelli, F. A.**, and Lopardo, R. A. (1995). "Aspects related to the education of hydraulic engineers for the XXI century." Proc. XXVI IAHR Congress, HYDRA 2000, London, United Kingdom.

157) Vilela, C. de P. X., Menéndez, A. N., and **Bombardelli, F. A.** (1995). "Practical aspects of mathematical modelling of wave patterns in ports and coastal regions." Proc. 4th. Int. Conf. on Coastal and Port Engineering in Developing Countries, Rio de Janeiro, Brazil, Vol. II, 921-929.

Papers published in international conferences with referee in Spanish

158) Estay Abiuso, G., Niño, Y., and **Bombardelli, F. A.** (2018). "Estudio numérico mediante simulaciones de grandes vórtices (LES) de la turbulencia en canales con lecho de grava." in Proc. Latin-American Congress on Hydraulics, IAHR, Buenos Aires, Argentina.

159) Moreno, P. A.[*], and **Bombardelli, F. A.** (2014). "Evaluation of the inter-particle collisions for the transport as bed-load using a Lagrangian model in 3D." in Proc. Latin-American Congress on Hydraulics, IAHR, Santiago, Chile.

160) de Dios[*], M., **Bombardelli, F. A.**, Liscia, S., and Lopardo, R. A. (2014). "Experimental characterization and numerical simulation of a submerged hydraulic jump." in Proc. Latin-American Congress on Hydraulics, IAHR, Santiago, Chile.

161) Toro, J. P.[*], **Bombardelli, F. A.**, Paik, J., and Amador, A. (2014). "Numerical simulation of the mean flow and turbulence statistics in the non-aerated zone of stepped spillways." in Proc. Latin-American Congress on Hydraulics, IAHR, Santiago, Chile.

162) Tarela, P. A., Menéndez, A. N., **Bombardelli, F. A.**, and Jaime, P. (1998). "A methodology for the prediction of the two-dimensional evolution of riverbeds." in Proc. XVIII Latin-American Congress on Hydraulics, IAHR, Oaxaca, México, Vol. 2, 41-50.

163) **Bombardelli, F. A.**, Menéndez, A. N., Tarela, P. A., and Jaime, P. (1998). "The hydrosedimentologic modeling as a tool for the quantification of environmental impacts." in Proc. XVIII Latin-American Congress on Hydraulics, IAHR, Oaxaca, México, Vol. 2, 325-334.

164) **Bombardelli, F. A.**, and Menéndez, A. N. (1998). "Study of the feedback mechanism of the thermal outflow of Central Costanera." in Proc. XVII National Water Congress and II Simposyum on Water Resources of Mercosur, Santa Fe, Argentina.

165) Tarela, P. A., Menéndez, A. N., **Bombardelli, F. A.**, and Vilela, C. de P. X. (1997). "Hydrosedimentologic modeling of water intakes affected by a tidal regime." in *Computational Mechanics*, Proc. 10th. *Congress on Numerical Methods and their Applications*, San Carlos de Bariloche, Argentina, Vol. XVIII, 153-162.

166) **Bombardelli, F. A.**, and Menéndez, A. N. (1996). "Simulation of free-surface flows with wind and tides." in *Computational Mechanics*, Proc. V Argentine Congress on Computational Mechanics, San Miguel de Tucumán, Argentina, Vol. XVI, 183-192.

167) **Bombardelli, F. A.**, and Menéndez, A. N. (1995). "FMPIMP: a code for the determination of the hydrodynamics in porous media in unsteady regime." in *Computational Mechanics*, Proc. ENIEF '95, 9th. Congress on Numerical Methods and their Applications, San Carlos de Bariloche, Argentina, Vol. XV, 161-170.

168) Lopardo, R. A., and **Bombardelli, F. A.** (1995). "On the influence of the environmental concept on hydraulic design." in Proc. XII Chilean Congress of Hydraulic Engineering, Santiago de Chile, Chile, 535-546.

169) **Bombardelli, F. A.**, Menéndez, A. N., and Montalvo, J. L. (1994). "Methodology for the estimation of erosive actions downstream of a dam." in Proc. XVI Latin-American Congress on Hydraulics, IAHR, Santiago de Chile, Chile, Vol. 2, 37-48.

170) Lopardo, R. A., **Bombardelli, F. A.**, and De Lío, J. C. (1993). "Hydraulics laboratory and environmental engineering." in Proc. X Brazilian Symposium on Water Resources and I Symposium on Water Resources of Mercosur, Gramado, Brazil, 145-154.

* Student (current or former)

OTHER PUBLICATIONS

More than 50 abstracts and 50 reports.

MULTI-MEDIA RELEASES

1) The research done at the University of Illinois about canoe chutes was discussed in the News Gazette, Champaign, on June 4, 2001.
2) My Ph.D. work about bubble plumes was featured in the Spring 2004 issue of "Access," the magazine of the National Center for Supercomputing Applications, NCSA. In addition, the article "Toil and bubble" was featured in a CD containing special research developed at facilities of NCSA.
3) The work associated with density currents in the Chicago River was featured on the webpage of the College of Engineering of the University of Illinois, Urbana-Champaign during summer

2005. It was also featured on the Illinois CEE Alumni Association Newsletter (Spring/Summer 2005).

4) "How IAHR journals can help publish via Open Access," Video, 7 July, 2021, IAHR. Please see: Fabian Bombardelli - How IAHR journals can help publish via Open Access
5) Meet the Editor, Website, 2021, American Society of Civil Engineers (ASCE). Please see: Meet the Editor: Journal of Hydraulic Engineering | ASCE Library
6) Incorporation to the Academy of Engineering of the Province of Buenos Aires, Argentina, Video, July 7, 2022, Academy of Engineering of Buenos Aires Province, Argentina. Please see: https://www.youtube.com/watch?v=TOiLqXnf6DQ&t=24s

ADVISING

ALUMNI

Prof. Bombardelli advised and co-advised to completion **14 Ph.D.**, and **31 Master** students at UC Davis and elsewhere. Some of the Ph.D. students currently occupy faculty positions in universities in USA and worldwide.

Ph.D. advisees as main advisor

- **Andrea E. González, *Ph.D.***, August 2008 (Master in Environmental Process Engineering, the Johns Hopkins University, 2004). Ph.D. Thesis: "Numerical modeling of sediment transport near the bed using a two-phase flow approach." Currently: Leader of a research and development division in a mining company, Chile.
- **Sanjeev K. Jha, *Ph.D.***, May 2009 (Master, Indian Institute of Technology at Kanpur, 2005). Ph.D. Thesis: "Theoretical and numerical modeling of suspended sediment transport in open channels using an Eulerian-Eulerian two-phase flow approach." Currently: Associate Professor, Department of Earth and Environmental Science, Indian Institute of Science Education and Research, Bhopal, India.
- **Dane Behrens, *Ph.D.***, December 2012 (Master of Science, UC Davis, 2008). Co-advised with Prof. John Largier, from the Bodega Marine Laboratory, UC Davis; I was Dane's major co-advisor. Ph.D. Thesis: "The Russian River Estuary: Inlet morphology, management, and estuarine scalar response." Currently: Project engineer at ESA-PWA, San Francisco, California.
- **Patricio A. Moreno, *Ph.D.***, May 2014 (Master of Science, University of Tennessee, Knoxville, 2004). Ph.D. Thesis: "Two-phase flow, three-dimensional approach for saltating particles near the bed at finite Reynolds numbers." Currently: Assistant Professor, University of los Andes, Santiago de Chile, Chile.
- **Kaveh Zamani, *Ph.D.***, December 2015 (Master of Science, Sharif University, Iran, 2006). Ph.D. Thesis: "Methods for the verification and validation and uncertainty quantification of environmental fluid mechanics codes." Formerly: Post-Doctoral fellow, Water Research Laboratory, University of New South Wales, Sydney, Australia; currently: Department of Water Resources, California.
- **Juan Pablo Toro, *Ph.D.***, December 2016 (M.S., UC Davis, 2013). Ph.D. Thesis: "Turbulence models for the prediction of flows under macroroughness conditions." Currently: Assistant Professor, Andrés Bello University, Santiago de Chile, Chile.

- **Lily Tomkovic, *Ph.D.***, March 2022 (M.S., UC Davis, 2018). Ph.D. Thesis: "Numerical modeling of floodplains: Evaluating ecological outcomes." Currently: Department of Water Resources, California.
- **Federico Zabaleta, *Ph.D.***, September 2023 (M.S., UC Davis, 2020). Ph.D. Thesis: "Numerical modeling of self-aerated flows for hydraulic structures and environmental applications." Currently: Post-doctoral Fellow, Center for Turbulence Research (CTR), Stanford University.

Co-advised Ph.D.s

- **Arash Massoudieh, *Ph.D.***, December 2006 (Master of Science in Civil/Coastal Engineering, University of Tehran, Iran, 2000). Co-advised with Prof. Timothy R. Ginn; Prof. Ginn, major co-advisor. Ph.D. Thesis: "Mathematical and numerical modeling of contaminant transport in aqueous systems involving mobile solid phases." Currently: Professor, Catholic University of America, USA.
- **Eu Gene Chung, *Ph.D.***, September 2007 (Master of Science, Seoul National University, 1999). Co-advised with Prof. Geoffrey S. Schladow; Prof. Schladow, major co-advisor. Ph.D. Thesis: "Modeling sediment resuspension linkages to nutrient cycles in a shallow, eutrophic lake: Case study of the Salton Sea." Currently: Researcher in South Korea.
- **Ines Osorio de Castro Meireles, *Ph.D.***, March 2011 (Master of Science, Technical Superior Institute, Lisbon, Portugal, 2004). Although my name did not appear explicitly in the list of advisors, I heavily contributed to Ines' Dissertation, as demonstrated by the papers we have published together. Ph.D. Thesis: "Hydraulics of stepped chutes: Experimental-numerical-theoretical study." Currently: Faculty member, University of Aveiro, Aveiro, Portugal.
- **Kristin E. Reardon, *Ph.D.***, December 2014 (Master, Universität Stuttgart, Germany, 2004). Co-advised with Prof. Geoffrey S. Schladow; Prof. Schladow, major co-advisor. Ph.D. Thesis: "Nearshore sediment resuspension at Lake Tahoe." Currently: Engineer at CH2M, Alaska.
- **Mariano de Dios, *Ph.D.***, May 2021. Ph.D. Thesis: "Experimental characterization and numerical simulation of three-dimensional processes of high turbulence in shear layers: Submerged hydraulic jump." National University of La Plata, Argentina.
- **Sergio Valbuena-Mateus, *Ph.D.***, March 2023 (M.S., UC Davis, 2020). Co-advised with Prof. Geoff Schladow. Ph.D. Thesis: "Three-dimensional numerical modeling of lake upwelling."

Master advisees

- **Anthony McDonald, *M.S.*** (Plan 1, with thesis), December 2007 (B.S., University of California, Davis, 2006). M.S. Thesis: "Advection-diffusion-reaction modeling of *Bacteroidales* in estuaries with specific application to the San Pablo Bay." Currently: Engineer at the California DWR.
- **Dane Behrens, *M.S.*** (Plan 1, with thesis), June 2008 (B.S., University of California, Davis, 2006). Co-advised with Prof. John Largier, from the Bodega Marine Laboratory, UC Davis; I was Dane's major co-advisor. M.S. Thesis: "Inlet closure and morphological behavior in a Northern California estuary: The case of the Russian River." Currently: Project engineer at ESA-PWA, San Francisco, California.

- **Joseph Waltz, *M.S.*** (Plan 1, with thesis), June 2010 (B.S., University of California, Davis, 2008). M.S. Thesis: "A study on internal flow features and air entrainment effects in hydraulic jumps using numerical modeling techniques."
- **James R. Kohne, *M.S.*** (Plan 1, with thesis), summer 2010 (B.S., University of California, Davis, 2008). M.S. Thesis: "Comparing Delta flow and transport models: Theoretical and numerical basis."
- **Khalida Fazel, *M.S.*** (Plan 1, with thesis), summer 2011 (B.S., University of California, Davis, 2009). M.S. Thesis: "Data-driven snowmelt modeling with atemperature index method." Currently: Project engineer at a private company in Sacramento.
- **Swetcha V. Reddy, *M.S.*** (Plan 1, with thesis), summer 2012 (B.S., Ramaiah Institute of Technology, Bangalore, India, 2009). M.S. Thesis: "Comparing Delta flow and transport models: Numerical results of flow and salinity." Formerly: Project engineer at a private company (nhc, Northwest Hydraulic Consultants); currently: Engineer in India.
- **Kamaldeep Singh, *M.S.*** (Plan 1, with thesis), summer 2012 (B.S., University of California, Davis, 2008). M.S. Thesis: "A literature review of the concept of residence time as applied to estuaries." Currently: Engineer at the California DWR.
- **Shreya R. Hegde, *M.S.*** (Plan 1, with thesis), summer 2013 (B.S., Ramaiah Institute of Technology, Bangalore, India, 2009). M.S. Thesis: "Numerical simulation of management scenarios in a small stratified estuary: The case of the Russian River Estuary, California." Formerly: Project engineer at a private company in Davis; currently: Engineer in India.
- **Devinder Dhillon, *M.S.*** (Plan 1, with thesis), winter 2014 (B.S., University of California, Davis, 2012). M.S. Thesis: "Issues of 2-D modeling for flood mapping." Currently: Engineer at the California DWR.
- **Alex C. K. Yuen, *M.S.*** (Plan 1, with thesis), winter 2014 (B.S., University of California, Davis, 2010). M.S. Thesis: "A study on the generation of bottom shear stress in Gust Microcosms using numerical modeling techniques."
- **Emily Pappalardo, *M.S.*** (Plan 1, with thesis), winter 2014 (B.S., California Polytechnic University, San Luis Obispo, 2009). M.S. Thesis: "The importance of levee performance in the reduction and evaluation of risk in the Sacramento-San Joaquin Delta."
- **Di Ning, *M.S.*** (Plan 1, with thesis), summer 2014 (B.S., Zhejiang University, China, 2012). M.S. Thesis: "A computational study on hydraulic jump, including air entrainment." Currently: Project engineer at a private company.
- **Juan Pablo Toro, *M.S.*** (Plan 2, without thesis), spring 2013 (degree in Engineering, Catholic University, Santiago, Chile). Currently: Assistant Professor, Andrés Bello University, Santiago de Chile, Chile.
- **David Ho, *M.S.*** (Plan 2, without thesis), fall 2014 (B.S., University of California, Davis, 2011). M.S. Project: "Predicting fry Chinook salmon rearing habitat using 2-D hydrodynamic model and habitat suitability curves."
- **Steve Micko, *M.S.*** (Plan 1, with thesis), spring 2015 (B.S., University of California, Davis, 2013). M.S. Thesis: "Algorithms for the simulation of structures in three-dimensional numerical models."
- **Thomas Handley, *M.S.*** (Plan 1, with thesis), summer 2015. M.S. Thesis: "Cost-effective methods for accurately measuring shallow water bathymetry with single-beam sonar."
- **Feng Yu, *M.S.*** (Plan 1, with thesis), summer 2015 (B.S., University of California, Davis, 2010). M.S. Thesis: "On the use of spectral wave models in lakes: Cases of Salton Sea and Lake Tahoe."

- **Sukhpreet Mann, *M.S.*** (Plan 2, without thesis), fall 2015 (B.S., University of California, Davis, 2013). M.S. work: "Data analysis of the water properties in the Hidden Valley Lake."
- **James Courtney, *M.S.*** (Plan 1, with thesis), spring 2016. M.S. Thesis: "Quality control of water resources models with a software package to facilitate verification, validation, and uncertainty quantification."
- **Scott Greenwood, *M.S.*** (Plan 2, without thesis), spring 2016. M.S. work: "Numerical simulation of the Cache-Lindsey estuary with the code Delft-3D."
- **Katrina Harrison, *M.S.*** (Plan 1, with thesis), spring 2016. M.S. Thesis: "Comparison of 1-D and 3-D hydrodynamic and salinity transport model predictions of the Sacramento–San Joaquin Delta: Sea level rise and water diversion effects."
- **Sherif Eldash, *M.S.*** (Plan 1, with thesis), winter 2017. M.S. Thesis: "Small-scale aeration systems (SSAS) to improve the dissolved oxygen concentrations in small ponds: Potential application to Lake Spafford."
- **Jeanette Newmiller, *M.S.*** (Plan 1, with thesis), summer 2017. M.S. Thesis: "River hydraulics on a steep slope: Can a 2D model push the limits of the hydrostatic assumption?"
- **Lily Tomkovic, *M.S.*** (Plan 2, without thesis), fall 2018 (B.S., University of California, Davis, 2013). M.S. work: "Numerical simulation for the Yolo Bypass."
- **Sergio Valbuena, *M.S.*** (Plan 2, without thesis), summer 2020 (Bachelor of Science, Colombian University of Engineering, Julio Garavito, 2016). M.S. work: "Numerical simulation of flow induced by boats."
- **Federico Zabaleta, *M.S.*** (Plan 2, without thesis), fall 2020 (Hydraulic Engineer, National University of La Plata, Argentina). M.S. work: "Numerical simulation of flow past stepped spillways using Detached-Eddy Simulation."
- **Yujia Cai, *M.S.*** (Plan 2, without thesis), spring 2021. M.S. work: "Numerical simulation of standing waves driven by a surface jet."
- **Katie Stagl Hughes, *M.S.*** (Plan 2, without thesis), summer 2022. M.S. work: "Under-ice lake circulation: A review."
- **Arturo A. Palomino-Lazo, *M.S.*** (Plan 1, with thesis), spring 2023 (B.S., University of California, Davis, 2016). M.S. Thesis: "Conceptual foundations for orthogonal gridding in three dimensions."
- **María Cecilia Lopardo, *Magister in Ecohydrology***, National University of La Plata, Argentina, November 13, 2023. M. Thesis: "Ecohydrological evaluation of a catchment in the Pampas regions with intense agricultural activities."
- **Ziyang Tian, *M.S.*** (Plan 2, without thesis), fall 2023. M.S. work: "Assessment of Long Island silt diversion alternatives via numerical and field methods."

CURRENT STUDENTS

1) Mr. Arturo A. Palomino-Lazo, Ph.D. student (M.S., University of California, Davis, 2023).
2) Ms. Katie Stagl Hughes, Ph.D. student (B.S., University of Portland, 2017).
3) Mr. Ziyang Tian, Ph.D. student (M.S., University of California, Davis, 2023).
4) Mr. Germán Spadari, Ph.D. student, M.S. University of Hannover, Germany.
5) Ms. Brenda Vath, Ph.D. student, National University of La Plata, Argentina.
6) Ms. Leiza D'Angelo, Ph.D. student, National University of La Plata, Argentina.
7) Ms. Guadalupe Jaca Pozzi, Ph.D. student, National University of La Plata, Argentina.

UNDERGRADUATE RESEARCH EXPERIENCE

1) Mr. Yoshi Banks (2007).
2) Mr. Ryan Moniz (2007-2008).
3) Mr. Jeff Tolentino (2008).
4) Ms. Tonya Freeborn (2008).
5) Mr. Matthew Lim (2008).
6) Mr. José Cornejo (2008-2009).
7) Mrs. Shima Shafiepour (2009).
8) Ms. Parinaz Aghili (2009).
9) Mr. Michael Alcantara (2010).
10) Mr. Devinder Dhillon (2012).
11) Mr. Feng Yu (2012).
12) Mr. Erik Maroney (2014).
13) Mr. Sasha Leidmann (2013).
14) Mr. Joshua Cho (2015).
15) Mr. Hayden Lee (2016).
16) Mr. Terry Fung (2016).
17) Mr. Julius Ratemo (2020).
18) Ms. Jessica Ha (2021/22).
19) Tzu Tung (Thomas) Chen and Zixuan (Andy) Wang (2023).

VISITING SCHOLARS AND COLLABORATIONS

1) Dr. Ali Abrishamchi, Ph.D., UC Davis (2006).
2) Prof. Victor Calo, Professor (with tenure), Curtin University, Australia (2006-present).
3) Prof. Ines Meireles, Ph.D., Assistant Professor, University of Aveiro, Portugal (2007-present).
4) Prof. Vitor Sousa, Ph.D., Assistant Professor, Technical Institute of Lisbon, Portugal (2007-present).
5) Prof. Jorge Matos, Technical Institute of Lisbon, Portugal (2007-present).
6) Dr. Cristiane C. Battiston, Institute of Hydraulic Research, Porto Alegre, Brazil (2008-2009).
7) Dr. Goloka Behari Sahoo, Post-Doc, UC Davis (2009-2010).
8) Prof. Michele Palermo, University of Pisa, Italy (2012-present).
9) Prof. Stefano Pagliara, University of Pisa, Italy (2012-present).
10) Prof. Joongcheol Paik, Associate Professor, South Korea (2013-present).
11) Mr. Lixin Liang, Ph.D. student from Tsinghua University (2015-present).
12) Prof. Seung Oh Lee, South Korea (2016-present).
13) Prof. Carlo Gualtieri, University Federico II, Napoli, Italy (2013-present).
14) Prof. Sergio Liscia, National University of La Plata (2014-present).
15) Prof. Luis Castillo Elsitdié, Polytechnic University of Cartagena, Spain (2015-present).
16) Mr. Simone Pagliara, ETH, Zurich (2021-present).

REFEREE WORK

Journal papers

1) Water Resources Research, American Geophysical Union (AGU).
2) Journal of Hydraulic Engineering, ASCE.
3) Journal of Hydraulic Research, IAHR.
4) Int. Journal for Sediment Research.
5) Transportation Research. Part B (2004), Prof. Michael Zhang, Associate Editor.
6) Nordic Hydrology (2004), Prof. Miguel Mariño, Associate Editor.
7) Journal of Applied Mechanics, ASME (2004 and 2006).
8) Journal of Environmental Engineering, ASCE.
9) Water Research.
10) Geophysical Research Letters (2006, 2008, 2011).
11) Journal of Hydrologic Engineering, ASCE.
12) Journal of Fluid Mechanics.
13) Physics of Fluids.
14) Scientia Iranica (2007, 2008-2014).
15) European Journal Mechanics-B (2007).
16) Advances in Water Resources, AGU.
17) Computer Methods in Applied Mechanics and Engineering.
18) Environmental Fluid Mechanics.
19) International Journal Multiphase Flow.
20) Water Environment Research (2008), Prof. T. Holsen, Editor.
21) Computers and Mathematics with Applications (2009-2010), Li-Shi Luo, Managing Guest Editor.
22) Journal of the American Water Works Association (2009).
23) Journal of Engineering Mechanics, ASCE (2010).
24) Journal of Hydro-environment and Research, IAHR (2011, 2014).
25) Experiments in Fluids (2011), Noel Clemens, Editor-in-Chief.
26) Hydrobiologia (2012), Prof. P. Noges, Editor-in-Chief.
27) Transactions of the ASABE, American Society of Agricultural and Biological Engineers (2012), Prof. Mark Grismer, Associate Editor.
28) Nuclear Engineering and Design (2013).
29) Natural Hazards.
30) Journal of Geophysical Research, Earth Surface, AGU.
31) Journal of Hydrology.
32) Int. Journal of Nonlinear Sciences and Numerical Simulation.
33) Int. Journal of Heat and Fluid Flow.
34) Limnology and Oceanography, AGU.
35) Revista "Información Tecnológica," SciELO, Chile (2016).
36) The Canadian Journal of Chemical Engineering (2017).
37) Physical Review Letters.
38) Chemical Engineering Science.
39) Scientific Data.
40) Fluid Dynamics Research.

Proposals

1) France-Berkeley Fund, 2006.
2) International Science and Technology Center (ISTC) and Science and Technology Center in Ukraine (STCU), 2006.
3) Cooperative Institute for Coastal and Estuarine Technology (CICEET), 2008.
4) Research Grants Council of Hong Kong (2009-2010).
5) National Science Foundation (NSF), 2013.
6) Delta Stewardship Council, Delta Science Program, 2016-2017.
7) Israel Science Foundation, 2018.

Books and book proposals

1) John Wiley and Sons (2005).
2) Taylor and Francis, A. A. Balkema (2006).
3) Cambridge Press (2016).

International M.S., Ph.D. and award committees, and faculty review

1) Ines Meireles, Ph.D. *defense* committee (in situ), University of Aveiro, Aveiro, Portugal (2011).
2) Cristiane Battiston, Ph.D. *defense* committee (in situ), Institute of Hydraulic Research, Federal University of Rio Grande do Sul, Porto Alegre, Brazil (2013).
3) Reviewer of a promotion case of an Adjunct Professor at the University of Iowa, Iowa, USA (2015).
4) Member of the international committee for the selection of the Best paper Award, Int. Journal of Sediment Research (2016).
5) Reviewer of the Fluid Mechanics Unit, Okinawa Institute of Technology, Okinawa, Japan (2016).
6) Reviewer of the M.S. Theses of M. Reichstetter and G. Zhang, University of Queensland, Australia.
7) Pablo Santoro, Ph.D. *defense* committee (in situ), Institute of Mechanics of Fluids and Environmental Engineering (IMFIA), University of the Republic, Montevideo, Uruguay (March 2017).
8) Pedro Lopes, Ph.D. *defense* committee (in situ), University of Coimbra, Coimbra, Portugal (March 2017).
9) Hernán J. Gómez Zambrano, Ph.D. *defense* committee, College of Mining, Medellín, Colombia, National University of Colombia (June 2017).
10) Cristina Fernandez, Ph.D. Thesis committee, Technical University of Catalonia (UPC), Barcelona, Spain (fall 2018).
11) Esmaael Bayat, Ph.D. Thesis committee, The University of Newcastle, Australia (July 2019).
12) Rajib Kamal, Ph.D. *evaluation* committee, University of Alberta, Canada (December 2019).
13) Evaluation of tenure cases for faculty at National University of Seoul, South Korea, and the George Mason University (2019).
14) Evaluation of tenure case for faculty at the University of Wisconsin, Milwakee (2020).

15) Evaluation of tenure case for faculty at the University of Buffalo and the Stony Brook University, N.Y. (2022).
16) Nicolás Badano, Ph.D. *defense* committee (remote), University of Buenos Aires, Ciudad Autónoma de Buenos Aires, Argentina (2021).
17) David Menéndez Arean, Ph.D. *defense* committee (remote), University of Buenos Aires, Ciudad Autónoma de Buenos Aires, Argentina (2021).

MEMBERSHIP

- International Association for Hydraulic Engineering and Research (IAHR) student chapter, 2001-2003; Individual Member since 2007 (#9863).
- American Geophysical Union (AGU).
- Association of Engineers of Buenos Aires Province, Argentina, 1991-2003.
- Argentine Association for Computational Mechanics (AMCA), since 1995.
- Phi Kappa Phi, USA (2000-2004).
- The Planetary Society, USA (2000-2003).
- International Water Resources Association (IWRA), student chapter, 2001-2003.
- American Society of Civil Engineers (ASCE), student chapter, 2003. Associate Member since 2006.
- American Physical Society (APS), 2005-2010.

SERVICE AT UC DAVIS

1) Member of the Computer Committee of the CEE Department, 2004-2010.
2) Voted Member of the Hydrologic Sciences Graduate Group of the University of California, Davis, 2004.
3) Water Resources Engineering Group Coordinator, 2004-2005.
4) Coordinator of the Fall quarter Takashi Asano Seminar series, together with Prof. Stefan Wuertz, 2004, 2007, 2008; Fall 2006 together with Prof. Dan Chang; and 2011 with Prof. Thomas Young.
5) Committee for the selection of the recipient of the Ray Krone Professorship for the CEE Department, 2008.
6) Undergraduate curricula and ABET committee of the CEE Department.
7) USEC: University Service Evaluation Committee, led by Prof. Yannis Dafalias.
8) Water Resources Engineering Group representative to the Graduate Program Committee (GPC; 2010-2014); fall 2015.
9) Reviewer of Hellman Fellowships for young faculty, UC Davis (2013).
10) Liason of the Water Resources Engineering Group and the U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC), since 2010.
11) Reviewer of applications of continuing students for fellowships (campus). I reviewed applications for awards such as the Dissertation Year Fellowship, the Crosby, and Donald Fellowship, for students of the Geology Department, Department of Biomedical Engineering, etc. (2014/2015/2016).
12) Decision day, College of Engineering, since several years ago.
13) Faculty Advisor of the ASCE UC Davis Chapter (2013-present). In this role, I helped the students of the chapter to raise funding for the organization of the MidPac competition

held at UC Davis in 2015. In 2016, the ASCE UC Davis Chapter received the highest degree in its entire history (to the best of my knowledge), and in 2017 it received a Certificate of Commendation for being in the top 5% of all chapters in the Nation.

14) Reviewer for the prestigious Presidential Post-Doctoral Fellowships of the University of California (January 2016).
15) Water Resources Engineering Group representative to the Graduate Program Committee (GPC; 2017-2020).
16) Water Resources Engineering Group representative to the Space Committee (2017-2020).
17) Special committee for the future of room 1104 in Ghausi Hall. The last action of this committee was to write a letter to the Dean proposing a plan for the immediate future.

SYNERGISTIC ACTIVITIES

1) Attendance of the NSF Workshop for the Advancement and Retention of Underrepresented and Minority Engineering Educators (WEE), Arlington, Virginia, October 2003.
2) Attendance of the NSF Workshop on Proposal Writing, San Diego, California, April 2005.
3) Organization of two workshops on "Modeling transport and fate of Bacteroidales in San Pablo Bay," January 25, 2008, and February 13, 2009, in collaboration with Prof. Stefan Wuertz.
4) Member of the Delta Solution Team (led by Profs Lund, Howitt, Mount and Moyle), Watershed Sciences. Associated faculty of the Tahoe Research Center, UC Davis (2007-present).
5) Participant of a team of modelers who submitted a letter to agencies in California recommending improvements of models for decision-making in the Sacramento-San Joaquin Delta (2009).

PARTICIPATION IN PH.D. QUALIFYING EXAMS AT UC DAVIS

1) Mr. Arash Massoudieh, CEE Department, March 5, 2004.
2) Mr. Kramer Akli, Department of Applied Science. Thesis work: "Inertial confinement fusion: the fast ignition scheme," March 9, 2004.
3) Mr. Ali Ercan, CEE Department, August 31, 2004.
4) Mrs. Marisa Escobar, Department of Land, Air and Water Resources, December 1, 2004.
5) Mrs. Lara Leininger, CEE Department (Structures Group), May 2005.
6) Mr. Ismail Haltas, CEE Department, May 2005 (Chair of the exam Committee).
7) Mr. Alireza Tabarrei, CEE Department (Structures Group), August 2005.
8) Mrs. Andrea E. González, CEE Department, August 31, 2005.
9) Mr. David Rosenberg, CEE Department, November 2005.
10) Mr. Stanford Gibson, CEE Department, January 27, 2006.
11) Mrs. Laura DiPalermo, CEE Department, May 5, 2006 (Chair of the exam Committee).
12) Mr. Todd Steissberg, CEE Department, June 13, 2006.
13) Mr. Marcelo Olivares, CEE Department, September 2006 (Chair of the exam Committee).
14) Mr. Wesley Chen, CEE Department, September 2006.
15) Mr. Tsun-Hua Yang, CEE Department, December 5, 2006.

16) Mr. Stephen Andrews, CEE Department, February 20, 2007 (Chair of the exam Committee).
17) Mr. Sanjeev K. Jha, CEE Department, March 20, 2007.
18) Ms. Elcin Tan, CEE Department, December 2007.
19) Mr. Dong Soon Park, CEE Department (Geotechnical Group), March 24, 2009.
20) Mr. Ali Abrishamchi, CEE Department, April 13, 2009.
21) Mrs. Kristin Reardon, CEE Department, April 14, 2009 (Chair of the exam Committee).
22) Mr. Dane Behrens, CEE Department, May 19, 2009.
23) Mr. Ehan Rasa, Land Air and Water Resources Department, May 27, 2009.
24) Mrs. Hanieh Haeri, CEE Department, June 2009 (Chair of the exam Committee).
25) Mr. James Polsinelli, Mathematics Department, July 7, 2009.
26) Mrs. Kara Carr, CEE Department, July 14, 2009 (Chair of the exam Committee).
27) Mr. Owen Ransom, CEE Department, February 18, 2010.
28) Mr. Won Sik Choi, Land Air and Water Resources Department (Atmospheric Sciences), August 2, 2010.
29) Mr. Kaveh Zamani, CEE Department, September 30, 2010.
30) Mr. Tuan Le, CEE Department, March 16, 2011.
31) Mr. Micah Fuller, CEE Department, March 17, 2011.
32) Mr. Patricio Moreno, CEE Department, November 9, 2011.
33) Mr. Dustig Bambic, CEE Department, May 31, 2012.
34) Mr. Tyler Hatch, CEE Department, September 20, 2012.
35) Mr. James Polsinelli, CEE Department, May 31, 2013.
36) Mr. Toan Trinh, CEE Department, January 8, 2014.
37) Mr. Juan Pablo Toro Labbé, CEE Department, December 5, 2014.
38) Ms. Merve Gorguner, CEE Department, August 24, 2015.
39) Ms. Frances Riviera-Hernández, Earth and Planetary Sciences, UC Davis, April 26, 2016.
40) Mr. Tongbi Tu, CEE Department, August, 2016.
41) Mr. Derek Roberts, CEE Department, February 17, 2017.
42) Mrs. Alessia Siclari, CEE Department, March 20, 2017.
43) Mr. Bohan Zhou, Mathematics Department, May 11, 2017.
44) Ms. Lily Tomkovic, CEE Department, March 2, 2018.
45) Ms. Alishan Kol, CEE Department, May 30, 2018.
46) Ms. Anh Nugyen, CEE Department, July 28, 2018.
47) Mr. Federico Zabaleta, CEE Department, September, 2019.
48) Mr. Sergio Valbuena, CEE Department, May, 2020.
49) Ms. Katie Stagl Hughes, CEE Department, June, 2020.
50) Mr. Andrew Friedrichs, CEE Department, September 17, 2020.
51) Mr. Micah Swann, CEE Department, November, 2021.
52) Mr. Andrew Schmalenbach, CEE Department, August, 2022.
53) Ms. Naditha Imbulana, CEE Department, September, 2022.
54) Ms. Diane Wang, CEE Department, September, 2023.
55) Mr. Kenneth Larrieu, CEE Department, October, 2023.

SOME CODES AND TOOLKITS RECENTLY DEVELOPED AT UC DAVIS

1. Code for the prediction of self-aerated flows (2020-2022), in collaboration with Federico Zabaleta.
2. VAVUQ, toolkit for the Verification and Validation of codes for different purposes in general and for water-resources codes in particular (2015-2016). Developed in collaboration with Drs. Zamani and Fleenor and Mr. James Courtney. Please see: http://vavuq.org/
3. Codes for the computation of the Einstein's integrals (2015-2016). Developed in collaboration with Dr. Zamani.
4. Modification of the code STWAVE developed by the U.S. Army Corps of Engineers (2010-2012) for wave propagation in 2D, in collaboration with Dr. Moreno and Prof. Schladow.
5. *Saltate*, a 3D code for the particle motion as bed-load in open channels (2005-date). The code includes the Basset force and particle collisions with the walls and inter-particle collisions. Developed in collaboration with Drs. Andrea González and Patricio Moreno.
6. *DSM2-STM*, subroutines for the water-quality transport in 1D models in channel networks. Developed in collaboration with Drs. Zamani, Eli Ateljevich (DWR) and Jamie Anderson (DWR) (2009-2011).
7. *CTFM* and *PTFM*, 1D codes for the two-phase flow analysis of sediment transport in suspension in the water column (2007-2009). Developed in collaboration with Dr. Sanjeev Jha.