

Firat Y. Testik, *Ph.D.*
Professor

Civil and Environmental Engineering Department
University of Texas at San Antonio

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EDUCATION

Ph.D., Arizona State University, 2003, Aerospace Engineering

M.S., University of Minnesota, 2000, Aerospace Engineering

B.S., Orta Dogu Teknik Universitesi, 1999, Aerospace Engineering

PROFESSIONAL EMPLOYMENT HISTORY

University of Texas at San Antonio (2017 – Present)

Full Professor (with Tenure) of Civil and Environmental Engineering Department

University of Texas at San Antonio (2015 – 2017)

Associate Professor (with Tenure) of Civil and Environmental Engineering Department

Clemson University (2012 – 2015)

Associate Professor (with Tenure) of Glenn Department of Civil Engineering

Clemson University (2006 – 2012)

Assistant Professor of Glenn Department of Civil Engineering

Duke University (2005 –2006)

Postdoctoral Research Associate of Civil and Environmental Engineering Department

Tubitak-Sage Missile Company (2004)

Senior Researcher of Internal Combustion Division

Arizona State University (2004)

Postdoctoral Research Associate of Mechanical and Aerospace Engineering Department

Arizona State University (2000-2003)

Research Associate of Mechanical and Aerospace Engineering Department

University of Minnesota (1999-2000)

Research and Teaching Assistant of Aerospace Engineering and Mechanics Department

Roketsan Missile Company (1998)

Summer Intern of Guidance and Control Division

Istanbul Airlines (1997)

Summer Intern of Engineering Division

MEMBERSHIPS

Member, American Society of Civil Engineers, *ASCE*, (2006- Present)

Member, American Physical Society, *APS*, (2005- Present)

Member, American Geophysical Union, *AGU*, (2005- Present)

Member, European Geophysical Union, *EGU*, (2016- Present)

Member, American Meteorological Society, *AMS*, (2016 - Present)

Member, American Society of Engineering Education, *ASEE*, (2017 - 2019)

Member, International Assoc. for Hydro-Environment Engineering and Research, *IAHR*, (2018)

Member, The American Shore & Beach Preservation Association, *ASBPA*, (2010- 2013; 2018-Present)

Member, The Scientific Research Society, *Sigma Xi*, (2005-2010)

Member, The Oceanography Society, *TOS*, (2005-2006)

HONORS AND AWARDS

- 1) **UTSA Innovation Award** (2016).
- 2) **ENCORA-YPEP Travel Award** (2008).
- 3) **Vermont – EPSCoR Travel Award** (2008).
- 4) **ASCE-ExCEED Teaching Fellow** (2007)
- 5) **Student Affairs’ Tribute**, Arizona State University (2003).

- 6) **NATO Science Fellow** (1999-2003).
- 7) **Sabancı Foundation Scholarship** (1995-1999).

PROFESSIONAL ACTIVITIES

1) Conference/Meeting Session Convener:

- (i) “General session on precipitation”, American Geophysical Union Spring Meeting, Acapulco, Mexico (May 2007).
- (ii) “Hydrometeorological Processes: Observation, Modeling and Analysis”, American Geophysical Union Spring Meeting, Acapulco, Mexico (May 2007).
- (iii) “Rainfall measurement, estimation, and validation: advances and hydrologic applications”, American Geophysical Union Fall Meeting, San Francisco (Dec. 2007).
- (iv) “General session on precipitation”, American Geophysical Union Spring Meeting, Fort Lauderdale, USA (May 2008).
- (v) “General Session on Precipitation”, American Geophysical Union Joint Assembly – Meeting of the Americas, Toronto, Canada (May 2009).
- (vi) “General Session on Precipitation”, American Geophysical Union Joint Assembly – Meeting of the Americas, Foz do Iguassu, Brazil (August 2010).
- (vii) “Advances in Precipitation Observations and Analysis”, American Geophysical Union Fall Meeting, San Francisco (Dec. 2014).
- (viii) Upcoming: “Environmental Gravity Currents”, IAHR 8th International Symposium on Environmental Hydraulics, University of Notre Dame, Indiana (June 2018).

2) Session Chair:

- (i) “Hydrometeorological Processes: Observation, Modeling and Analysis”, American Geophysical Union Spring Meeting, Acapulco, Mexico (May 2007).
- (ii) “General session on precipitation”, American Geophysical Union Spring Meeting, Acapulco, Mexico (May 2007).
- (iii) “Advances in Precipitation Observations and Analysis”, American Geophysical Union Fall Meeting, San Francisco (Dec. 2014).
- (iv) “Drops: Pinch-off and Coalescence”, American Physical Society – Division of Fluid Dynamics Annual Meeting, Boston (Nov. 2015).

3) Member of the *Precipitation Committee*, American Geophysical Union (2009 – 2010)

4) Research Publicity:

- (i) Advising on raindrop collisions are provided to *BBC* for a documentary titled “Invisible Worlds” (2010).
- (ii) Book interview for the *AGU-EOS* magazine (EOS, Vol. 92, No. 43) for the research book titled: “Rainfall: State of the Science” (2011).

- (iii) Article interview for the Clemson University *Decipher* magazine (Vol. 3) for the Creative Inquiry project led with the title: “High-speed imaging of Rainfall” (2014).
- (iv) Article interview for the *Landscape Architecture Magazine* (the magazine of the American Society of Landscape Architects) for our NSF project (Award # OCE 1760158) on Hurricane-driven beach sand sorting (2017, December issue).

5) Conference/Symposium Organization Committees:

- (i) Program Committee member, REAS’ 03 - Research in Engineering and Applied Sciences Symposium, Tempe, Arizona (2003).
- (ii) International Steering Committee member, 35th International Conference on Coastal Engineering, Antalya, Turkey (Nov. 2016).
- (iii) International Scientific Committee member, IAHR 8th International Symposium on Environmental Hydraulics, University of Notre Dame, Indiana (June 2018).

PUBLICATIONS

Books

- 1) **Testik F.Y.**, and Gebremichael, M., 2010. “Rainfall: State of the Science”, American Geophysical Union, December 2010.

Book Chapters

- 2) Kaye, N.B., Khan, A.A., **Testik, F.Y.**, 2018, “Environmental Fluid Mechanics” book chapter in *Handbook of Environmental Engineering*, Ed. Myer Kutz, Wiley.
- 3) Gebremichael, M., **Testik, F.Y.**, 2010, “Microphysics, Measurement, and Analyses of Rainfall” book chapter in *Rainfall: State of the Science*, Eds. **F.Y. Testik** and M. Gebremichael, American Geophysical Union.
- 4) Jones, B.K., Saylor, J.R., **Testik, F.Y.**, 2010, “Raindrop Morphodynamics” book chapter in *Rainfall: State of the Science*, Eds. **F.Y. Testik** and M. Gebremichael, American Geophysical Union.
- 5) Voropayev, S.I., **Testik, F.Y.**, Fernando H.J.S., Balasubramanian, S., 2007, “Sediment transport, ripple dynamics, and object burial under shoaling waves” book chapter in *Particle Laden Flow: From Geophysical to Kolmogorov Scales*, Eds. B.J. Geurts, H.J.H. Clercx, W.S.J. Uijttewaalt, Springer Science.

Refereed Journal Publications (“*” indicates Advisee)

- 6) Ikeda*, J., **Testik, F.Y.**, 2019, “Morphodynamics of beach-cliff systems in the Santa Barbara littoral cell”, *Ocean Engineering*, 172, 350-360.

- 7) Nasouri, R., Matamoros, A., Montoya Rodriguez, A. H., **Testik, F.Y.**, 2019 “Vulnerability of coastal bridges under extreme hurricane conditions”, *Bridge Structures* (In Press)
- 8) Pei*, B., **Testik, F.Y.**, 2018, “A Regression-free rainfall estimation algorithm for dual-polarization radars”, *Journal of Atmospheric and Oceanic Technology*, 35, doi: 10.1175/JTECH-D-17-0201.1.
- 9) Pei*, B., Pang, W., **Testik, F.Y.**, Ravichandran, N., Liu, F., 2018, “Selection of hazard-consistent hurricane scenarios for regional combined hurricane wind and flood loss estimation”, *Natural Hazards*, 91(2), doi: 10.1007/s11069-017-3149-z.
- 10) **Testik, F.Y.**, Rahman*, M.K., 2017, “First in situ observations of binary raindrop collisions”, *Geophysical Research Letters*, 44, doi: 10.1002/2017GL072516.
- 11) **Testik, F.Y.**, Pei*, B., 2017, “Wind effects on the shape of raindrop size distribution”, *Journal of Hydrometeorology*, doi: 10.1175/JHM-D-16-0211.1.
- 12) Chowdhury*, M.N., Khan, A.A., **Testik, F.Y.**, 2017, “Numerical investigation of circular turbulent jets in shallow water”, *Journal of Hydraulic Engineering*, 10.1061/(ASCE)HY.1943-7900.0001327.
- 13) Afrin*, T., Kaye, N.B., Khan, A.A., **Testik, F.Y.**, 2017, “Numerical investigation of free overfall from a circular pipe flowing full upstream”, *Journal of Hydraulic Engineering*, doi: 10.1061/(ASCE)HY.1943-7900.0001289.
- 14) Afrin*, T., Kaye, N.B., Khan, A.A., **Testik, F.Y.**, 2016, “Parametric study of perforated pipe underdrains surrounded by loose aggregate”, *Journal of Hydraulic Engineering*, 10.1061/(ASCE)HY.1943-7900.0001214, 04016066.
- 15) **Testik, F.Y.**, Rahman*, M.K., 2016, “High-speed optical disdrometer for rainfall microphysical observations”, *Journal of Atmospheric and Oceanic Technology*, doi: 10.1175/JTECH-D-15-0098.1.
- 16) **Testik, F.Y.**, Ungarish, M., 2016, “On the self-similar propagation of gravity currents through an array of emergent vegetation-like obstacles”, *Physics of Fluids*, 28, 056605, doi: 10.1063/1.4947251.
- 17) Chowdhury*, N., **Testik, F.Y.**, Hornack, M. C., Khan, A., 2016, “Free Fall of Water Drops in Laboratory Rainfall Simulations”, *Atmospheric Research*, 168, 158-168.
- 18) Afrin*, T., Khan, A.A., Kaye, N.B., **Testik, F.Y.**, 2016 “Numerical model for the hydraulic performance of perforated pipe under-drains surrounded by loose aggregate”, *Journal of Hydraulic Engineering*, doi: 10.1061/(ASCE)HY.1943-7900.0001134, 04016018.
- 19) **Testik, F.Y.**, Yilmaz*, N.A., 2015, “Anatomy and propagation dynamics of continuous-flux release bottom gravity currents through emergent aquatic vegetation”, *Physics of Fluids*, 27, 056603.
- 20) Chowdhury*, M.R., **Testik, F.Y.**, 2014, “Axisymmetric underflows from impinging buoyant jets of dense cohesive particle-laden fluids”, *Journal of Hydraulic Engineering*, 141(3), 04014079. [This article was **selected** for the **Research Highlight**].

- 21) Pei*, B., **Testik, F.Y.**, and Gebremichael, M., 2014, "Impacts of raindrop fall velocity and axis ratio errors on dual-polarization radar rainfall estimation", *Journal of Hydrometeorology*, doi: 10.1175/JHM-D-13-0201.1.
- 22) Yilmaz*, N.A., **Testik, F.Y.**, Chowdhury*, M.R., 2014, "Laminar flow of constant-flux release bottom gravity currents: friction factor – Reynolds number relationship", *Journal of Hydraulic Research*, doi: 10.1080/00221686.2013.878402.
- 23) Pei*, B., Pang, W., **Testik, F.Y.**, Ravichandran, N., Liu, F., 2014, "Mapping joint hurricane wind and surge hazards for Charleston, South Carolina", *Natural Hazards*, doi: 10.1007/s11069-014-1185-5.
- 24) Jacobson*, M.R., **Testik, F.Y.**, 2014, "Turbulent entrainment into fluid mud gravity currents", *Environmental Fluid Mechanics*, 14 (2), 541-563.
- 25) Chowdhury*, M.R., **Testik, F.Y.**, 2014, "A review of gravity currents formed by submerged single-port discharges in inland and coastal waters", *Environmental Fluid Mechanics*, 14 (2), 265-293.
- 26) **Testik, F.Y.**, 2014, "Preface: Gravity currents in the environment", *Environmental Fluid Mechanics*, 14 (2), 263-264.
- 27) Jacobson*, M.R., and **Testik, F.Y.**, 2013, "On the Concentration Structure of High-Concentration Constant-Volume Fluid Mud Gravity Currents" *Physics of Fluids*, 25, 016602.
- 28) Johnson*, E.B., **Testik, F.Y.**, Ravichandran, N., Schooler*, J., 2013, "Levee scour from overtopping storm waves and scour countermeasures", *Ocean Engineering*, 57, p.p. 72-82.
- 29) Pei*, B., Pang, W., **Testik, F.Y.**, Ravichandran, N., 2013, "Uncertainty Quantification for Hurricane Storm Surge Predictions along the U.S. Eastern Coast and Gulf of Mexico", *Natural Hazards Review*, 14(2), p.p. 79-88.
- 30) Heiliger*, C., Kaye, N., **Testik, F.Y.**, 2013, "A computational study of the role of particle size standard deviation on the collision frequency in differential settling", *International Journal of Sediment Research*, 28(1), p.p. 34-45.
- 31) Chowdhury*, M.R., **Testik, F.Y.**, 2012, "Viscous Propagation of Two-Dimensional non-Newtonian Gravity Currents", *Fluid Dynamics Research*, 44, 045502.
- 32) Prat O.P., Barros, A.P., **Testik F.Y.**, 2012, "On the influence of raindrop collision outcomes on equilibrium drop size distributions", *Journal of the Atmospheric Sciences*, 69 (5) p.p. 1534-1546.
- 33) Mills, B.H., Saylor, J.R., **Testik, F.Y.**, 2012, "An experimental study of Mesler entrainment dependence on drop Weber number and axis ratio" *AIChE Journal*, 58 (1), p.p. 46-58.
- 34) Chowdhury*, M.R., **Testik, F.Y.**, 2011, "Laboratory testing of mathematical models for high-concentration fluid-mud turbidity currents" *Ocean Engineering*, 38 (1), 256-270.
- 35) Young*, D.M., **Testik, F.Y.**, 2011, "Wave reflection by submerged vertical and semicircular breakwaters" *Ocean Engineering*, 38 (10), 1269-1276.
- 36) **Testik, F.Y.**, Barros, A.P., Bliven, L.F., 2011, "Towards a physical characterization of raindrop collision outcomes" *Journal of the Atmospheric Sciences*, 68 (5), 1097-1113.

- 37) Barros, A.P., Prat, O.P., **Testik, F.Y.**, 2010, "Size distribution of raindrops", *Nature – Physics*, 6, 232.
- 38) Malek-Mohammadi*, S., and **Testik, F.Y.**, 2010, "A New Methodology for Laboratory Generation of Solitary Waves", *ASCE - Journal of Waterway, Port, Coastal, and Ocean Engineering*, 136 (5), 286-294.
- 39) **Testik, F.Y.**, 2009, "Outcome Regimes of Binary Raindrop Collisions", *Atmospheric Research*, 94, 389-399, doi: 10.1016/j.atmosres.2009.06.017.
- 40) Young*, D.M., **Testik, F.Y.**, 2009, "Onshore scour characteristics around submerged vertical and semicircular breakwaters" *Coastal Engineering*, 56, 868-875.
- 41) Chowdhury*, M.R., **Testik, F.Y.** and Khan, A.A., 2009, "Three-dimensional flow structure at the frontal zone of a gravity-driven fluid mud flow" *Journal of Visualization*, 12 (4).
- 42) Barros, A.P., Prat O.P., Shrestha, P., **Testik F.Y.**, Bliven, L.F., 2008, "Revisiting Low and List (1982): Evaluation of Raindrop Collision Parameterizations Using Laboratory Observations and Modelling", *Journal of the Atmospheric Sciences*, 65(9), 2983-2993.
- 43) **Testik, F.Y.**, Young, D.M.*, 2008, "Breakup patterns for binary drop collisions", *J. Visualization*, 11(1).
- 44) **Testik, F.Y.**, Barros, A.P., 2007, "Towards elucidating the microstructure of rainfall: a survey", *Reviews of Geophysics*, 45, RG2003, doi: 10.1029/2005RG000182.
- 45) **Testik, F.Y.**, Voropayev, S.I., Fernando H.J.S., Balasubramanian, S., 2007, "Studies of scour/burial of Mines in the shoaling zone: laboratory modeling and validation with field observations" *IEEE – Journal of Oceanic Engineering*, 32 (1).
- 46) **Testik, F.Y.**, Barros, A.P., L.F. Bliven, 2006, "Field Observations of Raindrop Oscillations by High-speed Imaging", *Journal of the Atmospheric Sciences*, 63 (10), p.p. 2663–2667.
- 47) **Testik, F.Y.**, Voropayev, S.I., Balasubramanian, S., Fernando H.J.S., 2006, "Self-similarity of asymmetric sand-ripple profiles formed under nonlinear shoaling waves", *Physics of Fluids*, 18, 108101.
- 48) **Testik, F.Y.**, Voropayev, S.I., Fernando H.J.S., 2005, "Flow around a short horizontal bottom cylinder under steady and oscillatory flows", *Physics of Fluids*, 17, 047103.
- 49) **Testik, F.Y.**, Voropayev, S.I., and Fernando H.J.S., 2005, "Adjustment of sand ripples under changing water waves", *Physics of Fluids*, 17, 072104.
- 50) Voropayev, S.I., Smirnov S.A., **Testik F.Y.**, 2004, "On the case when steady converging/diverging flow of a non-Newtonian fluid in a round cone permits an exact solution", *Mechanics Research Communications*, 31 (4) p.p. 477-482.
- 51) Voropayev, S.I., **Testik, F.Y.**, Fernando H.J.S., Boyer D.L., 2003, "Burial and scour around short cylinder under progressive shoaling waves", *Ocean Engineering*, 30 (13) p.p. 1647-1667.
- 52) Voropayev, S.I., **Testik, F.Y.**, Fernando H.J.S., Boyer, D.L., 2003, "Morphodynamics and cobbles behavior in and near the surf zone", *Ocean Engineering*, 30 (14) p.p. 1741-1764.

Conference Proceedings

- 53) Nasouri, R., Shahriar, A., Matamaros, A., Montoya, A., **Testik, F. Y.**, “Evaluating the hydrodynamic response of coastal bridges during an extreme weather event”, *Proceedings of the 2019 Transet Conference, San Antonio, TX*, MATEC Web of Conferences. (April 11-12, 2019)
- 54) Matamaros, A., **Testik, F. Y.**, “Coastal Bridges under Hurricane Stresses along the Texas and Louisiana Coast.” *2018 Tran-SET Conference, New Orleans, LA* (April 3-4 2018).
- 55) Pei*, B., Pang, W., **Testik, F. Y.**, and Ravichandran, N., “An agent-based framework for modeling the effectiveness of hurricane mitigation incentives.” *12th International Conference on Applications of Statistics and Probability in Civil Engineering, ICASP12* Vancouver, Canada (July 12-15, 2015).
- 56) Pei*, B., Pang, W., **Testik, F. Y.**, and Ravichandran, N., “Regional Combined Hurricane Wind and Flood Loss Estimation – A FEMA HAZUS-MH Implementation.” *Structures Congress*, American Society of Civil Engineers, Boston, Massachusetts (Apr. 3-5, 2014).
- 57) Pang, W., Pei*, B., **Testik, F.Y.**, and Ravichandran, N., “Hurricane selection for joint wind and storm surge risk assessment”, *11th International Conference on Structural Safety & Reliability*, New York, NY, (Jun. 16-20, 2013).
- 58) Pei*, B., Pang, W., **Testik, F.Y.**, and Ravichandran, N., “Loss estimation considering joint probability of hurricane wind and storm surge for the County of Charleston, SC”, *12th Americas Conference on Wind Engineering*, Seattle, WA, (Jun. 16-20, 2013).
- 59) Johnson*, E.B., Schooler*, J., **Testik, F.Y.**, Ravichandran, N., “Effectiveness of levee scour protection measures for storm waves”, *ASBPA National Coastal Conference*, San Diego, CA, (Oct. 9-12 2012).
- 60) Pei*, B., Pang, W., **Testik, F.Y.**, Ravichandran, N., “Joint Distributions of Hurricane Wind and Storm Surge for the U.S. Eastern Coast and Gulf of Mexico”, *ATC-SEI Advances in Hurricane Engineering Conference*, Miami, FL, (Oct 24-26, 2012).
- 61) Mun*, J.W., **Testik, F.Y.**, “Simulations of the Wave Field around a Submerged Breakwater in a Numerical Wave Tank”, *2012 National Conference on Beach Preservation Technology*, Stuart, Florida (February 8-10, 2012).
- 62) Chowdhury*, M.R., **Testik, F.Y.**, “Subaqueous cohesive sediment gravity flows from open water pipeline dredge disposal: laboratory experiments and mathematical modeling”, *ASCE-COPRI Coastal Engineering Practice*, San Diego, CA, (August 21-24 2011).
- 63) Kim, N.H., **Testik, F.Y.**, Mun*, J.W., “A study on beach morphology change caused by overwash on the Iho Beach”, *Korean Society of Civil Engineers Conference*, (October 2010).
- 64) Pang, W., **Testik, F.Y.**, Lee, K.H., “Development of a Synthetic Coastal Hurricane Surge Database for South Carolina”, *Hurricane Hugo 20th Anniversary Symposium on Building Safer Communities*, Charleston, SC (October 2009)
- 65) Young*, D.M., **Testik, F.Y.**, “Wave field and scour characteristics around submerged vertical and semicircular breakwaters” *Workshop on Coastal Technology*, Trondheim, Norway (May 2008).

- 66) **Testik, F.Y.**, Voropayev, S.I., Fernando, H.J.S., Balasubramanian, S., “Sand Ripple Dynamics and Degradation under Oscillatory Flow and Turbulence”, *5th IAHR International Symposium on ‘River, Coastal and Estuarine Morphodynamics’*, RCEM2007, Enschede, The Netherlands, (September 2007).
- 67) Voropayev, S.I., **Testik, F.Y.** and Fernando H.J.S., “Evolution of sandy beach under nonlinear progressive waves”, *Proceedings of the International Symposium on Shallow Flows*, Delft University of Technology, The Netherlands (June 2003).
- 68) Grilli, S.T., Voropayev, S.I., **Testik, F.Y.**, Fernando, H.J.S., “Numerical modeling and experiments of wave shoaling over semi-buried cylinders in sandy bottom”, *Proceedings of the 13th International Offshore and Polar Engineering Conference*, Honolulu, Hawaii, USA (May 2003).
- 69) Voropayev, S.I., **Testik, F.Y.**, Boyer D.L., Fernando H.J.S., “Migrating ripples and burial of cobbles/mines in a coastal zone”, *Proceedings of the 2001 International Symposium on Environmental Hydraulics*, Arizona State University, Tempe, Arizona, (December 2001).
- 70) **Testik, F.Y.**, “Steady Flow of a Viscous Non-Newtonian Fluid in a Round Cone”, *Proceedings of the Research in Engineering and Applied Sciences (REAS’03)*, Arizona State University, Tempe, Arizona (September 2003).
- 71) **Testik, F.Y.**, “Migrating Sand Ripples under Nonlinear Waves on a Slope: Accordion Model”, *Proceedings of the Research in Engineering and Applied Sciences (REAS’03)*, Arizona State University, Tempe, Arizona (September 2003).
- 72) Voropayev, S.I., **Testik, F.Y.**, Boyer D.L., Fernando H.J.S., “Morphodynamics and burial/scouring of cobbles in a coastal zone”, *Transactions, American Geophysical Union, (Abstract)* Vol. 83, No.4 (2002).

Technical Reports

- 73) Matamoros, A. and **Testik, F.Y.**, 2018, "Coastal Bridges under Hurricane Stresses along the Texas and Louisiana Coast". *Publications*. 29. https://digitalcommons.lsu.edu/transet_pubs/29

PRESENTATIONS & ABSTRACTS

Professional Meetings

- 74) Nasouri, R., Matamoros, A., Montoya Rodriguez, A. H., **Testik, F. Y.**, “Vulnerability of Coastal Bridges under Extreme Hurricane Conditions”, 10th New York City Bridge Conference, Bridge Engineering Association, New York City, NY (August 26, 2019).
- 75) **Testik, F.Y.**, Lamm*, B., Ikeda*, J., “Dynamics of Corpus Christi – Port Aransas area beaches post-hurricane Harvey”, 2018 National Coastal Conference of the American Shore and Beach Preservation Association, Galveston, Texas (October 31 – November 2, 2018).

- 76) **Testik, F.Y.**, Ikeda*, J., “Suspended sediment size and concentration characteristics of particle-driven gravity currents”, 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, USA (November 18–20, 2018).
- 77) Pei*, B., **Testik, F.Y.**, “Dual-polarization radar rainfall estimation using a database of simulated raindrop size distributions”, 10th European Conference on Radar in Meteorology and Hydrology (ERAD 2018), Ede-Wageningen, The Netherlands (July 1-6, 2018).
- 78) Ikeda*, J., **Testik, F.Y.**, “Non-cohesive turbidity currents: Deposition and propagation characteristics”, IAHR 8th International Symposium on Environmental Hydraulics, University of Notre Dame, Indiana (June 2018).
- 79) **Testik, F.Y.**, Lamm*, B., Ikeda*, J., “Beach sand size distribution post-hurricane Harvey”, European Geosciences Union General Assembly, Vienna, Austria (April 8-13, 2018).
- 80) Nasouri, R., Matamoros, A., **Testik, F. Y.**, Montoya Rodriguez, A. H., “Coastal Bridges under Hurricane Stress along the Texas Louisiana Coast”, 2018 TranSet Conference, TranSet Transportation Center, New Orleans, LA. (April 4, 2018).
- 81) **Testik, F.Y.**, Ikeda, J., “Sediment deposits from non-cohesive turbidity currents”, Dynamics of Gravity Currents Workshop, Santa Barbara, CA, USA (September 25-27, 2017).
- 82) Flynn, A., Rahman*, K., **Testik, F.Y.**, “Fall speeds of freezing and frozen raindrops”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA, USA (December 12-16, 2016).
- 83) Rahman*, K., **Testik, F.Y.**, “Raindrop shape and fall speed interactions”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA, USA (December 12-16, 2016).
- 84) **Testik, F.Y.**, Rahman*, K., “Raindrop fall velocity deviations from the terminal velocities”, 17th International Conference on Clouds & Precipitation, Manchester, UK (July 25-29, 2016).
- 85) Rahman*, K., **Testik, F.Y.**, “A field study on the raindrop fall velocity”, European Geosciences Union General Assembly, Vienna, Austria (April 17-22, 2016).
- 86) **Testik, F.Y.**, Rahman*, K., “Field observations of raindrop-raindrop collisions”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA, USA (December 14-18, 2015).
- 87) **Testik, F.Y.**, Rahman*, K., “Binary raindrop collisions”, Abstract, Proceedings of 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA, USA (November 22–24, 2015).
- 88) Rahman*, K., Tokay, A., **Testik, F.Y.**, “A comparative study of rainfall observations during GPM-IPHEX field campaign”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA, USA (December 15-19, 2014).
- 89) **Testik, F.Y.**, Rahman*, K., “A new optical disdrometer for monitoring precipitation microphysics”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA, USA (December 15-19, 2014).
- 90) **Testik, F.Y.**, Yilmaz*, N.A., “Fluid-Mud Gravity Currents through Vegetation”, Abstract, Proceedings of 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA, USA (November 23–25, 2014).

- 91) Afrin*, T., Khan, A.A., Kaye, N.B., **Testik, F.Y.**, “Numerical model for hydraulic performance of a perforated pipe under-drain surrounded by loose aggregate”, South Carolina Water Resources Conference, Columbia, SC (October 15-16, 2014).
- 92) **Testik, F.Y.**, Chowdhury*, N., Hornack*, M., Khan, A.A., “Free-fall of water drops generated in the laboratory for rainfall simulations” Abstract, Proceedings of 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, USA (November 24–26, 2013).
- 93) **Testik, F.Y.**, Rahman*, K., “Introducing a new high-speed imaging system for measuring raindrop characteristics”, Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA (December 9-13, 2013).
- 94) **Testik, F.Y.**, Yilmaz*, N.A., Chowdhury*, M.R., “Laminar flow of constant-flux release gravity currents: Friction factor-Reynolds number relationship” Abstract, Proceedings of 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, CA, USA (November 18–20, 2012).
- 95) Yilmaz*, N.A., **Testik, F.Y.**, "Fluid-Mud Gravity Current Propagation through Aquatic Vegetation", Abstract, Proceedings of AGU Fall Meeting, San Francisco, CA (December 3-7, 2012).
- 96) Johnson*, E., **Testik, F.Y.**, Ravichandran, N., "Levee scour protection for storm waves", Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 5-9, 2011).
- 97) Yilmaz*, N.A., **Testik, F.Y.**, "Numerical simulation of fluid mud gravity currents", Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 5-9, 2011).
- 98) Jacobson*, M., **Testik, F.Y.**, “Turbulent entrainment into non-Newtonian fluid mud turbidity currents” Abstract, *Proceedings of 64th Annual Meeting of the APS Division of Fluid Dynamics*, Baltimore, MD, USA (November 20–22, 2011).
- 99) Chowdhury*, M.R., **Testik, F.Y.**, “Transitions of the Propagation Phases for non-Newtonian Gravity Currents” Abstract, *Proceedings of 64th Annual Meeting of the APS Division of Fluid Dynamics*, Baltimore, MD, USA (November 20–22, 2011).
- 100) Chowdhury*, M.R., **Testik, F.Y.**, “Laboratory testing of mathematical models for high-concentration fluid-mud turbidity currents” Abstract, *Proceedings of 63rd Annual Meeting of the APS Division of Fluid Dynamics*, Long Beach, CA, USA (November 21–23, 2010).
- 101) Saylor, J.R., Mills, B.H., **Testik, F.Y.**, ”The dependence of Mesler entrainment on Weber number and drop axis ratio”, Abstract, *Proceedings of 62nd Annual Meeting of the APS Division of Fluid Dynamics*, Minneapolis, Minnesota, USA (November 22–24, 2009).
- 102) A.P. Barros, O.P. Prat, P. Shrestha, **F.Y. Testik**, L.F. Bliven, “Evaluation of Raindrop Collision Parameterizations Using Laboratory Observations and Modeling”, *9th International Precipitation Conference*, Paris, France, (November 12-14, 2007).
- 103) **Testik, F.Y.**, Voropayev, S.I., Fernando, H.J.S, “Laboratory Experiments on Sandbar Formation and Migration Under Breaking Waves”, Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 11-15, 2006).

- 104) Mohammadi*, S.M., Young*, D.M., **Testik, F.Y.**, 2006, "Experimental Modeling of the Coastal Impacts of Tsunamis", Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 11-15, 2006).
- 105) Zeweldi, D.A., **Testik, F.Y.**, and Gebremichael M., 2006 "Sensitivity of Polarimetric Radar Rainfall Retrievals to Retrieval Algorithm Parameterizations", Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 11-15, 2006).
- 106) **Testik, F.Y.**, Barros, A.P., L.F. Bliven, "Oscillations of Raindrops Captured by High-speed Imaging", Abstract, *Proceedings of AGU Fall Meeting*, San Francisco, CA (December 5-9, 2005).

PATENTS

- 1) **Testik, F.Y.** (2015) "Optical System for Measuring Particle Characteristics." PCT/US2015/027214. 23 April 2015. This is an international patent application under PCT. This application claims filing benefits of U.S. Provisional Patent Application serial number 61/985,756 having a filing date of April 29, 2014 (expired in Oct. 2017).

SPONSORED RESEARCH

Federal/External Grants

- 1) [NSF Award # AGS 1741250] **National Science Foundation, PI** (share: 100%), ≈ \$430,581 (Mar. 2018 – Feb. 2021).
- 2) [NSF Award # OCE 1760158] "RAPID: Hurricane-driven beach sand sorting from dune to shoreline: The case of Hurricane Harvey" **National Science Foundation, PI**, ≈ \$38,662 (Sept. 2017 – Aug. 2020).
- 3) [USDOT – University Transportation Centers Program – # 18STTSA04] "Structural vulnerability of coastal bridges under extreme hurricane conditions", **US Department of Transportation, co-PI**, ≈ \$100,000 (≈ 33% share as one of the three co-PIs) (Mar. 2018 – Sep. 2019).
- 4) [USDOT – University Transportation Centers Program – 01635022] "Coastal bridges under hurricane stresses along the Texas and Louisiana Coast", **US Department of Transportation, PI**, ≈ \$120,000 (≈ 50% share as one of the two PIs) (May 2017 – Nov. 2018).
- 5) [NSF Award # AGS 1612681 - grant transfer to UTSA] "Critical raindrop characteristics: Fall speed, shape, and size distributions" **National Science Foundation, PI**, ≈ \$135,177 (Nov. 2015 – Aug. 2018).
- 6) [NSF Award # IIP 1612717 - grant transfer to UTSA] "I-Corps: Advanced Optical Disdrometer for Precipitation Observations" **National Science Foundation, PI**, ≈ \$22,254 (Oct. 2015 – Apr. 2017).

- 7) [NSF Award # AGS 1144846] “Critical raindrop characteristics: Fall speed, shape, and size distributions” **National Science Foundation, PI**, ≈ \$504,150 (Sept. 2012 – Dec. 2015).
- 8) [NSF Award # IIP 1449705] “I-Corps: Advanced Optical Disdrometer for Precipitation Observations” **National Science Foundation, PI**, ≈ \$50,000 (Aug. 2014 – Feb. 2016).
- 9) [USACE Award # W912HZ-09-C-0068] “Jet disposal of dredge spoil: transport, entrainment, and deposition of fluid mud” **US Army Corps of Engineers, PI**, \$248,844 (June 2009 - June 2012).
- 10) [PADI Award # 5039] “Sediment transport and morphodynamics around submerged artificial reefs” **PADI Foundation, PI**, \$6,000 (2012).

Other Grants

UTSA

- 11) “Probing into rainfall” MORESE project, **PI**, ≈ \$10,000 (Jan. 2016- Dec. 2016).

Clemson University

- 12) “Levee scour protection for storm waves for robust levee designs” NSF-SMP of Clemson University, **PI**, ≈\$35,000 (2011-2012).
- 13) “Robust Design and Retrofitting of Levee-Floodwall System Subjected to Storm Surge in the Face of Uncertainty” Departmental Robust Design Initiative, **Co-PI**, ≈ \$75,000 (2013-2015).
- 14) “Robust design of coastal structures subject to storm surges” Departmental Robust Design Initiative, **Co-PI**, ≈ \$75,000 (2011-2014).
- 15) “High-speed Imaging of Rainfall” Creative Inquiry Grant, **PI**, ≈ \$ 10,000 (2013-2015).
- 16) “Instrumentation of remote-controlled aircraft for monitoring water resources” Creative Inquiry Grant, **PI**, \$ 10,000 (2009-2010).
- 17) “Coastal structures under extreme waves” Creative Inquiry Grant, **PI**, \$ 10,000 (2008-2009).
- 18) “Sand Segregation in the Coastal Zone” Clemson University Research Grant, **PI**, \$3,475 (2006-2007).
- 19) “Laboratory development”, Civil Engineering Department, Clemson University, Research Infrastructure Development Grant, **Co-PI**, \$8,400 (2008).

GRADUATE STUDENT ADVISING

Doctoral Graduates

- 1) Malek-Mohammadi, Siamak (CE, PhD), “Laboratory Generation and Physics of Propagation of Solitary Waves and Water Surface Depressions”, (December, 2009).

- 2) Mijanur Chowdhury (CE, PhD), “Fluid Mud Underflows in Coastal Dredge Disposal” (September, 2011).
- 3) Nazli A. Yilmaz (CE, PhD), “Fluid mud gravity currents through aquatic vegetation” (August, 2014).
- 4) Bin Pei (CE, PhD, Co-advised), “Hazard Quantification and Loss Estimation for Combined Hurricane Wind and Flood” (May 2015).
- 5) Tanjina Afrin (CE, PhD, Co-advised until Aug. 2015), “Numerical Investigation of Porous and Non-porous Pipe with Free Overfall” (May 2016).
- 6) Kalimur Rahman (CEE, PhD, UTSA), “Rainfall microphysical observations using the High-speed Optical Disdrometer” (Dec. 2017).
- 7) Jin Ikeda (CEE, PhD, UTSA), “Laboratory Study on Particle Size Effects on Constant-volume Particle-driven Gravity Currents” (May 2019).

Masters Graduates

- 8) David Morgan Young (CE, MSc), “A laboratory study on the effects of submerged vertical and semicircular breakwaters on near-field coastal hydrodynamics and morphodynamics”, (December, 2007).
- 9) Chad Heiliger (CE, MSc, Co-advised), “Settling of cohesive sediment” (December, 2010).
- 10) Mathew Hornack (CE, MSc), “Wave reflection characteristics for permeable and impermeable submerged breakwaters” (March, 2011).
- 11) Michael Jacobson (CE, MSc), “Entrainment and diffusion processes for fluid-mud gravity current propagation” (February, 2012).
- 12) Earnest Johnson (CE, MSc student, Co-advised), “Levee scour protection for storm waves for robust levee designs” (August, 2012).
- 13) Bin Pei (CE, MSc, Co-advised), “Development of an error quantification methodology for hurricane storm surge simulations” (September, 2012).
- 14) Benjamin Lamm (CEE, MSc, UTSA), “Evolution of beach sand size distribution and morphology post-hurricane Harvey” (May, 2018).

Current Graduate Student Advising

- 15) Rupayan Saha (CEE, PhD student, UTSA), “Wind effects on rainfall microphysics” (Expected graduation: May 2022).
- 16) Abdullah Bolek (CEE, PhD student, UTSA), “Turbulence effects on rainfall microphysics” (Expected graduation: May 2022).

Dissertation/Thesis/Graduation Project Committees & Graduate and Undergraduate Research Experiences

- 1) Served as a chair/co-chair/member of the dissertation/thesis/graduation project committees for **33 graduate students**
- 2) Provided semester-long research experiences for **13 graduate students**
- 3) Provided multi-semester (1-4 semesters) research experiences for **41 undergraduate students**

TEACHING

Courses Taught at the University of Texas at San Antonio

- 1) **CE 3603 Fluid Mechanics**
Fall 2015 (55 students); Fall 2016 (37 students); Spring 2017 (39 students); Fall 2017 (47 students); Spring 2018 (51 students); Fall 2018 (47 students); Spring 2019 (55 students); Fall 2019 (49 students)
- 2) **CE 3603 Laboratory: Fluid Mechanics Laboratory**
Fall 2015, Fall 2016; Spring 2017; Fall 2017; Spring 2018; Fall 2018; Spring 2019; Fall 2019
- 3) **CE 5703 Coastal Engineering**
Spring 2016 (3 students); Spring 2017 (7 students) ; Fall 2019 (7 students)
- 4) **CE 5991 Graduate Seminar**
Fall 2018 (6 students)
- 5) **CE 6221 Graduate Seminar: Environmental Science and Engineering**
Fall 2018 (6 students)
- 6) **CE 6951 Independent Study**
Summer 2017 (1 student)
- 7) **CE 6952 Independent Study**
Spring 2016 (1 student)
- 8) **CE 6953 Independent Study**
Spring 2016 (1 student); Summer 2016 (1 student); Spring 2019 – 2 sections (1 student)

Courses Taught at Clemson University

- 9) **CE 860 Advance Fluid Mechanics**
Fall 2008 (7 students); Fall 2009 (5 students); Spring 2011 (9 students); Fall 2013 (9 students)

10) CE 341 Fluid Mechanics

Spring 2007 (29 students); Fall 2007 (42 students); Spring 2008 (53 students); Spring 2009 (51 students); Fall 2009 [2 Sections with total of 93 students]; Fall 2010 (54 students); Fall 2011 [2 Sections with total of 127 students]; Spring 2013 (78 students); Spring 2014 (80 students).

11) CE341L Fluid Mechanics Laboratory

Spring 2007; Fall 2007; Spring 2008; Spring 2009; Fall 2009; Fall 2010; Fall 2011; Spring 2013; Spring 2014.

12) CE 462/662 Coastal Engineering I

Fall 2006 (17 students); Fall 2007 (9 students); Spring 2009 (21 students); Fall 2010 (28 students); Spring 2012 (39 students); Spring 2013 (24 students); Spring 2014 (18 students).

13) CE 208 Dynamics

Spring 2008 (36 students); Summer 2010 (10 students); Summer 2011 (10 students); Summer 2012 (13 students); Summer 2013 (16 students); Fall 2013 (27 students).

14) EM 202 Dynamics

Summer 2008 (9 students); Summer 2009 (26 students)

15) CE299 / CE399 / CE499 Creative Inquiry

Fall 2008 (7 students); Spring 2009 (7 students); Fall 2009 (10 students); Spring 2013 (2 students); Fall 2013 (3 students); Spring 2014 (5 students); Fall 2014 (4 students); Spring 2015 (4 students)

16) CE889 Special Problems

Fall 2010, Summer 2011, Fall 2012, Spring 2012

17) CE 490 Special Projects

Spring 2008

18) CE 891 and 991 Graduate Research

Every semester from Fall 2006 to present

19) Served as a Teaching Assistant at University of Minnesota (1999-2000) [Courses: AEM2012, Dynamics, Fall 1999; AEM4202, Aerodynamics, Fall 1999; AEM4203, Aerospace Propulsion, Spring 2000; AEM4602, Aeromechanics Laboratory, Spring 2000.]

UNIVERSITY AND PUBLIC SERVICE

Editorial Services

1) Book Series on Environmental Fluid Mechanics (World Scientific Publishing Company)

Series Editor (March 2017 – Present)

2) *Environmental Fluid Mechanics* (Springer)

Guest Editor for the Special Issue on “Gravity Currents in the Environment” (Published in April 2014)

3) *Environmental Fluid Mechanics* (Springer)

Editorial Board Member (January 2015 – Present)

4) *Ocean Engineering* (Elsevier)

Editorial Board Member (September 2011 – June 2014; June 2015 – June 2017)

Associate Editor (June 2014 – June 2015)

Referee Service for Journals and Conferences (multiple times for most journals)

- 1) Geophysical Research Letters – AGU
- 2) Journal of Fluid Mechanics – Cambridge University Press
- 3) Journal of Hydraulic Engineering - ASCE
- 4) Journal of Oceanic Engineering - IEEE
- 5) Water Resources Research - AGU
- 6) Advances in Water Resources - AGU
- 7) Journal of Geophysical Research – Oceans – AGU
- 8) Journal of Geophysical Research – Atmospheres - AGU
- 9) Ocean Engineering –Elsevier
- 10) Journal of Applied Mechanics Review - ASME
- 11) Environmental Fluid Mechanics Journal - Springer
- 12) Journal of Engineering Mechanics - ASCE
- 13) Coastal Engineering – Elsevier
- 14) International Journal of Heat and Fluid Flow – Elsevier
- 15) Quarterly Journal of the Royal Meteorological Society – Wiley
- 16) Journal of Waterway, Port, Ocean and Coastal Engineering - ASCE
- 17) Natural Hazards - Springer
- 18) Atmospheric Research – Elsevier
- 19) Reviews of Scientific Instruments – American Institute of Physics
- 20) Journal of Hydraulic Research – Taylor & Francis
- 21) Nonlinear Problems in Geophysics – EGU
- 22) Journal of Hydrology – Elsevier
- 23) Journal of Atmospheric and Oceanic Technology – AMS
- 24) Journal of Wind Engineering and Industrial Aerodynamics - Elsevier

- 25) IFCEE 2015 – The 2015 International Foundations Congress & Equipment Exposition, San Antonio, Texas (Conference)
- 26) REAS’ 03 - Research in Engineering and Applied Sciences Symposium, Tempe, Arizona (Conference)
- 27) ISOPE 2007 – International Polar and Offshore Engineering Conference, Lisbon, Portugal (Conference)

Referee Service for Funding Agencies (multiple times for most agencies)

- 1) National Science Foundation (NSF)
 - (a) Panel Review (2015; 2016 – 2 times; 2017)
 - (b) Mail-in Review (2012; 2013; 2014; 2017 – 2 times; 2019)
- 2) Department of Homeland Security (DHS)
 - (a) Panel Review (2014)
 - (b) Mail-in Review (2017)
- 3) National Institute for Water Resources (NIWR) and US Geological Survey (USGS)
Mail-in Review (2007; 2009)
- 4) SERDP Program, Department of Defense (DoD).
Mail-in Review (2011; 2012; 2014)
- 5) National Research Council (NRC)
 - (a) Panel Review (2014; 2016; 2017; 2018; 2019)
 - (b) Mail-in Review (2014 – at 3 different times; 2015 – at 3 different times; 2016 - at 2 different times; 2017 – at 2 different cycles; 2018 – at 2 different cycles; 2019 – at 1 cycle)
- 6) American Society for Engineering Education (ASEE)
Panel Review (2013)
- 7) ConTex program (Mexico’s National Council of Science and Technology and University of Texas collaboration)
Mail-in Review (2017)
- 8) GREAT (UTSA internal grant program) - 2019

Referee Service for Tenure & Promotion

- 1) Canada
- 2) India
- 3) United States

Committees

Committee Service at the University of Texas at San Antonio

Department: Department Annual Evaluation Committee (2016 - 2017)
Department: Department Faculty Review and Advisory Committee (2015 – Present)
Department: Member, Environmental Science and Engineering Doctoral Committee (2015 – 2017)
Department: Laboratory Development and Safety Committee (2015 – 2016; 2018-Present)
Department: Undergraduate Studies Committee (ABET, curriculum, etc.) (2019-Present)
Department: Comprehensive Performance Evaluation Review (2017-Present)
College: Diversity Advocate in Faculty Search Committee (2017 – 2018)
College: College Administration Committee (2018 – Present) (Chair since Sept. 2019)
College: College Faculty Advisory Committee (2019 – Present)
College: College Executive Advisory Committee (2019 – Present)
University: UTSA Graduate Council (2016 - 2018)
University: Faculty Grievance Committee (2017 – 2019)
University: Office of Information Technology Faculty Advisory Committee (2018 – Present)

Committee Service at Clemson University

University: Faculty Activity System (FAS) Steering Committee (2012 – 2014)
Department: Accreditation and Assessment (ABET) Committee (2008 - 2015)
Department: Advisory Committee (2011 - 2015)
Department: Curriculum Committee (2006 - 2009) & (2012 – 2014)
Department: Laboratory & Safety Committee (2007-2010)
Department: Mays' Professor Search Committee (2010)
Department: Faculty Search Committee for Two Positions (2012-2013)

MISCELLANEOUS ACTIVITIES

- 1) Provide ***External Referee Service for Faculty Tenure & Promotion.***
- 2) Participated in the ***NSF I-Corps*** workshops, Austin, Texas (October 14-17, 2014) and (December 10-12, 2014).
- 3) Participated in the ***NASA GPM-IPHEX*** field experimental campaign (May 2014).

- 4) “NSF Lower Atmospheric Observing Facilities (LAOF) Workshop”, San Francisco, CA (December 4th, 2012).
- 5) “National Coastal Conference: Celebrating the diversity of the coast" by ASBPA, Charleston, SC (October 12, 2010).
- 6) “Water Dynamics Workshop” by NSF-EPSCoR in Burlington, Vermont (November 9-12, 2008).
- 7) **ASCE-EXCEED 5-day Teaching Workshop** (Teaching Excellence in Civil Engineering Education), Flagstaff, Arizona (July, 2007).
- 8) “Morphodynamics in Coastal Engineering Workshop” at the University of Florida, Gainesville, FL (October 17-18, 2006).
- 9) Miscellaneous teaching and professional development workshops since 2006.