CURRICULUM VITAE

Enrica Viparelli – March 2023
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APPOINTMENTS

January 2023 -
Professor, Department of Civil and Environmental Engineering, University of South Carolina, Columbia (UofSC).

January 2018 – December 2022
Tenured Associate Professor, Department of Civil and Environmental Engineering, University of South Carolina, Columbia (UofSC).

January 2012 – December 2017
Assistant Professor, Department of Civil and Environmental Engineering, University of South Carolina, Columbia.

EDUCATION

January 2008 – December 2011,
Post-doctoral research associate at the Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, advisor Professor Gary Parker.

November 2004 – November 2007,
Doctorate in Engineering of Hydraulic, Transportation and Landscape Systems, University of Naples Federico II. Thesis title: A procedure to store and access the stratigraphy of non–cohesive deposits and its validation with laboratory and field data
Advisor: Giacomo Rasulo; Co-advisor: Gary Parker.
The research work (i.e. the development of a numerical model and the laboratory experiments) was conducted at the Hydrosystems Laboratory, University of Illinois at Urbana – Champaign, November 2005 – December 2006; February 2007 – June 2007.

September 1998 - October 2002.
Laurea cum laude in Environmental and Landscape Engineering (MS equivalent).
Thesis title: Criterio di progettazione delle opere di protezione delle difese spondali, (Design criteria of riverbank protections), Department of Hydraulic and Environmental Engineering, University of Naples Federico II.
Advisor: Giacomo Rasulo.

AWARDS

Aspire II The impact of harbor modification on coastal floods – the case of Charleston, SC, awarded by the University of South Carolina VPR for research, 2020, $99,979.

CAREER: Quantifying the response of rivers and floodplains to changes in climate and land use, US National Science Foundation, 2018, $697,553.

Aspire III, An annular flume to perform collaborative research on suspended transport of fine sediment, natural tracers and contaminants, awarded by the University of South Carolina VPR for research, 2016, $99,140.

My proposal *Bedforms in gravel bed rivers* resulted in the award of a scholarship (April 2005- March 2007) sponsored by C.U.G.RI. (Consorzio interUniversitario per la previsione e la prevenzione dei Grandi RIschi) which allowed me to pursue part of my graduate research at the University of Illinois.

Students of my research group received the following awards

- Ricardo R. Hernandez Moreira ($1,000), data sharing contest, Graduate Student/Early Career AGU Travel Grant Contest (NSF-funded Sediment Experimentalists Network), http://sedimentexperiments.blogspot.com/2015/11/november-newsletter.html
- Bradley Huffman ($500), data sharing contest, Graduate Student/Early Career AGU Travel Grant Contest (NSF-funded Sediment Experimentalists Network), http://sedimentexperiments.blogspot.com/2015/11/november-newsletter.html
- Sanaz Borhani ($500), General Travel Grant to the Fall Meeting of the American Geophysical Union.
- Sanaz Borhani and Elena Bastianon, NSF-funded Community Surface Dynamics Modeling Systems (CSDMS) student scholarships to the CSDMS annual meeting
- The following students received a Travel Grant from the University of South Carolina ($500): Ricardo R. Hernandez Moreira, Sanaz Borhani, Basim Al-Zaidi, Zeyad Sulaiman, Sadegh Jafarinik, Elena Bastianon and Mahsa Ahmadpoor.
- Sydeny Sanders, Brandon Fryson, Shilpkumar Patel, William Logan and Amanda Balkus were recipients of the McNair junoir fellowship.
- Amanda Balkus, William Logan and Brandon Fryson received a travel grant from the Department of Civil and Environmental Engineering, University of South Carolina ($500)
- Sydney Sanders, Brandon Fryson, Jeffrey Okeke and Christian Pellott were the recipients of the University of South Carolina SCAMP grants.
- Ricardo R. Hernandez Moreira, Sadegh Jafarinik, Sanaz Borhani, Basim Al-Zaidi, Zeyad Sulaiman, Elena Bastianon and Mahsa Ahmadpoor received the Eliatamby fellowship awarded by the Department of Civil and Environmental Engineering of the University of South Carolina.

RESEARCH INTERESTS

Sediment transport; river and coastal restoration; linked physical/hydrological/ecological modeling of river, delta and estuarine morphodynamics; transport of tracers and contaminants; submarine sedimentation processes; hydraulic engineering with particular focus on the design and analysis of hydraulic structures.

RESEARCH ACTIVITIES

1) Basic research
   a) numerical and experimental modeling of the spatial distribution of mix-size and/or mix-density sediments;
   b) submarine sedimentation processes;
   c) bedform dynamics;
   d) exchange of fine sediment (i.e. mud or wash load) between a river and its floodplain and implications for channel morphology;
   e) morphodynamics of alluvial and bedrock channels;
   f) probabilistic morphodynamic modeling;
   g) understanding and modeling feedback between of morphodynamic and ecological processes.

2) Applied research
   a) river, delta and estuarine morphodynamics;
   b) river and coastal restoration;

c) fate and transport of both bed material (sand or gravel) and wash load (mud or sand and mud) from different sources;
d) evolution of channel morphology as the bed and/or the floodplain experience aggradation and degradation;
e) fate and transport of sediment tracers and contaminants, e.g. radionuclides and particulate matter;
f) design and analysis of hydraulic networks and structures with physical and numerical models.

3) Multidisciplinary, site-specific projects

a) International collaboration to study the impacts of flow regulation on the wellbeing of Himalayan tigers. International collaboration through TU Delft, Netherlands. Utrecht University, Netherlands, lead institution (2021 – present);
b) Understanding the morphodyanamics of a forested floodplain, the Congaree River, South Carolina (2018 – present) – collaboration with Profs. Torres and Sullivan University of South Carolina at Columbia and Aiken;
c) Understanding the impacts of flow regulation and sediment re-injections on an alpine, gravel bed river. The case of the Buech River, France (2017 – present) – collaboration with Prof. Tal, Aix Marseille, France;
d) Understanding the impacts of hydroelectric plants on the morphology of the Rhone River, France (2019 – 2022) – collaboration with Prof. Tal, Aix Marseille, France;
e) Understanding causes of channel bed degradation in engineered rivers, the case of the Rhine River, Netherlands (2016 – 2021) - collaboration with Prof. Blom, TU Delft, Netherlands, and agencies managing the Rhine River and the Elba River, Netherlands and Germany;
f) Quantifying the impacts of flow regulation on the lowermost 1000 km of the Missouri River, USA (2013 – 2018) - collaboration with Prof. Blum Kansas State University;
g) Quantifying the impacts of controlled flow releases combined with sand augmentations on the long-term evolution of the Nile River and its delta, Egypt (2013 – 2018) - collaboration with Prof. Moussa, Nile Research Institute, Egypt;
h) Modeling the effect of regulated flow regime downstream of dams on the long-term evolution of channel-floodplain complexes on the Ain River, France (2013 – 2016) – collaboration with Prof. Lauer, Seattle University, and Prof. Piegay, University of Lyon, France;
i) Modeling the impacts of engineered, land-building diversions on the lowermost 500 km of the Mississippi River, Louisiana (2010 – 2015) – effort of the National Center for Earth Surface Dynamics started during my post-doc;
j) Modeling the ecological succession on newly developed deltaic land, the case of Wax Lake Delta, Louisiana (2009 – 2012) – effort of the National Center for Earth Surface Dynamics started during my post-doc;
k) Modeling channel-floodplain morphodynamics in the Minnesota River basin, Minnesota, to constrain the cause of an increase in sedimentation farther downstream using sediment fingerprints (2008 – 2013) – Minnesota Pollution Control Agency-funded effort with researchers at the University of Minnesota (Minneapolis and Duluth) and Johns Hopkins during my post-doc;
l) Modeling the impacts of coarse sediment augmentations combined with high flow releases from the dams on the spawning gravel quality on the Trinity River, California (2007-2011) - effort of the National Center for Earth Surface Dynamics in collaboration with the Trinity River Restoration Program started during my doctoral studies.
m) While in Italy, I was involved in a wide range of engineering problems with the C.U.G.RI. (Consorzio interUniversitario per la previsione e la prevenzione dei Grandi RIschi), principal consultant of the City Council of Naples on water resources management. In particular, under Professor G. Rasulo's supervision I have been working on the design and the analysis of a) drop shafts, b) storm water systems, and c) irrigation and reclamation canals.

INFRASTRUCTURE DEVELOPMENT

Improvement of testing capabilities of the Hydraulics Laboratory at the University of South Carolina (USC) since 2012. I designed and supervised the construction of a head tank with pumping system and supply lines, 4 flumes and the modification of a fifth facility. Improvement of lab safety and instrumentation. Preparation of a university aluminum boat to perform field work in rivers and shallow channels. So far, this boat has been used by three different research groups.

FUNDED RESEARCH

I have been involved in research projects funded in the USA and in the Netherlands for more than $11 millions ($11.4 millions of external funding). Funding to USC $6.4M, external funding to USC $6M.

a) *Modeling dam and levee breach and the impact of hydraulic structures on channel routing and flood inundation*. Cooperative Institute for Research to Operations in Hydrology (CIROH), University of Alabama/NOAA. Role: Co-PI Awarded amount $750,000.
b) *The Use of Biopolymers to strengthen earthen infrastructure*, US Army Corps of Engineers, Engineer Research and Development Center. Role: Co-PI. Awarded amount $4,000,000 (2021-2025).
c) *Save the Tiger! Save the grasslands! Save the water!* Netherlands Organisation for Scientific Research (NWO-STW), University of Utrecht, Netherlands, lead institution. Collaborative research performed at Delft University of Technology, Netherlands. Awarded amount $3,290,000. (2021-2026).
d) *Improvement to the ALGE Aqueous Contaminant Transport Model*, National Nuclear Security Administration, Office of Defense Nuclear Nonproliferation Research and Development. Savannah River National Laboratory leading institution. Role: PI. Awarded amount $1,545,000, $241,776 at USC (2020-2023).
e) *Aspire II: The impact of harbor modification on coastal floods – the case of Charleston, SC*, University of South Carolina VPR for Research. Role: PI. Awarded amount $99,979 (2020-2022).
f) *CAREER: Quantifying the response of rivers and floodplains to changes in climate and land use*. Role: PI. NSF. total awarded $574,553, REU supplements $123,000. (2018-2023)
g) *Experiments on the influence of suspended bed material at high shear stresses*, ExxonMobil Upstream Research Company. Role: PI. Awarded amount $95,000 (2019-2021).
h) *WATER2015 research proposal Long-term bed degradation in rivers: causes and mitigation* Netherlands Organisation for Scientific Research (NWO-STW). Awarded amount $428,070. Research performed at Delft University of Technology, Netherlands (2016-2021)
i) *Development of SRNL's ALGE3D code for use as national response asset*. Savannah River National Laboratory leading institution. Role: PI. Awarded amount $400,000, $49,991 at USC. (2018-2019).
j) *Statistically based morphodynamic modeling of bedload transport, erosion and deposition: from the grain scale to the lab scale*. Army Research Office. Role: PI. USC lead institution. Awarded amount $49,816, $30,816 at USC (2016-2017).
k) *ASPIRE 3: An annular flume to perform collaborative research on suspended transport of fine sediment, natural tracers and contaminants*. University of South Carolina VPR for Research. Role: PI. Awarded amount $99,140 (2016-2017).
l) *The internal structure of deposits emplaced under upper plane bed / sheet flow transport conditions: Laboratory experiments and numerical modeling*. NSF. Role: PI. Awarded amount $201,723 (2013-2017)
m) *Accelerated Simulation of Submarine Strata*. Shell International Exploration and Production Company. Role: Co-PI. Awarded amount $182,399 (2013-2016).

n) *Numerical Models for the Restoration of the Mississippi Delta*, Subaward Agreement from NCED (National Center for Earth Surface Dynamics, a NSF Science and Technology Center). Role: PI at USC. Awarded amount $24,177 (2012).
o) *ASPIRE 1: Integrated multi physics and statistical model of particle resuspension with application to environmental systems*. University of South Carolina VPR for Research. Role: Co-PI. Awarded amount $12,797 (2016-2017).
p) *Rapid Assessment of Bridge Scouring and Recovery Following Extreme Flood Events*. University of South Carolina VPR for Research. Role: Co-PI. Awarded amount $27,183 (2015-2016).
q) *Collection of perishable data from failed geosystems during a 1000-yr flood event: Dams*. University of South Carolina VPR for Research. Role: Co-PI. Awarded amount $30,000 (2015-2016).
r) *Collection of Perishable Data from Failed Geosystems During a 1000-yr Flood Event: Pipe Culverts*. University of South Carolina VPR for Research. Role: Co-PI. Awarded amount $30,000 (2015-2016).
s) *Collection and analysis of perishable data on failure of earth dams and their impact on water quality*. University of South Carolina VPR for Research. Role: Co-PI. Awarded amount $29,833 (2015-2016).
t) *Research Engagement Collaboratives Seed Grant Proposal "Coastal Health, Sustainability and Adaptation"*. University of South Carolina. Role: Co-PI. Awarded amount $23,417 (2013).

Pending proposals

a) *STEM: supporting students with interests on the impacts of a warming climate on coasts and coastal communities from BS to PhD*. $2,497,740. Role: PI. Project duration: 6 years. Submitted to NSF
b) *CIROH: Investigation of the operationalization of hydraulic models for flood inundation modeling*. $875,486. Role: Co-PI. Project duration: 2 years. Submitted to NOAA/University of Alabama
c) *Center for new digital and climate norms (New-DCN) – proactively preserving and transforming transportation systems*. $1,050,000. Role: Co-PI. US Department of Transportation

TEACHING EXPERIENCE

At the University of South Carolina at Columbia

a) I am mentoring one post-doctoral researcher in the Department of Civil and Environmental Engineering at the University of South Carolina (CEE);
b) I am co-supervising one post-doctoral researcher with Profs. Yankovsky and Torres in the School of the Earth, Ocean and Environment at the University of South Carolina, and one post-doctoral researcher with Prof. Chaudhry in CEE;
c) I am advising two PhD and five MS students in CEE;
d) I am co-advising one MS student with Prof. Hoque in CEE;
e) I am mentoring eleven undergraduate students conducting research in CEE;
f) I supervised two post-doctoral researchers, one from May 2012 to May 2013 and the other from August 2019 to April 2020 in CEE;
g) I co-advised one post-doctoral researcher at Delft University of Technology (TU Delft), Netherlands, with Prof. A. Blom;
h) I advised five PhD students, two MS student, and three ME students in CEE;
i) I co-advised one PhD student and one MS student, advisor Prof. Imran in CEE, one PhD student at TU Delft, Netherlands, advisor Prof. Blom, and one MS student at the University of Illinois Urbana-Champaign (UIUC), advisor Prof. Parker;
j) I mentored a total of 28 undergraduate students on different research projects in CEE. In this group, 18 students have been involved in research for two consecutive semesters or more (ten for more than one year), nine have pursued graduate studies;

k) Within the group of 39 undergraduate students mentored in the performance of research, 17 students happened to be women, 8 African American, 2 Latino and 1 American Indian. In addition, 3 undergraduate students were the first in their families to go to college and 3 were at the Honors College;
l) I supervised four high school students during summer research experiences.
m) I hosted four international visitors and two US visitors:
    i. Prof. Gary Parker, University of Illinois at Urbana-Champaign (one week, 2012 and 2014, May 11- May 16, 2021)
    ii. Dr. Eke, Post-doctoral research associate at Utah State University (July-September 2015), and Regional Economist Idaho (May 11- May 15, 2021);
    iii. Clement Delibes, MS student, Ecole Nationale Supérieure d'Electronique Informatique, Télécommunications, Mathématique et Mécanique de Bordeaux, France (summer 2016);
    iv. Prof. Solari, Associate Professor at the University of Florence, Italy (February 2013 and 2015);
    v. Prof. Blom, Associate Professor at TU Delft, Netherlands (December 2014), and
    vi. Victor Chavarrias, PhD student at TU Delft working with Prof. Blom (October 2014).

n) I taught the following undergraduate level courses:
    i. *Introduction to Civil Engineering* in the Fall semester 2019;
    ii. *Numerical Methods in Civil Engineering* in the Fall semesters 2020 and 2021;
    iii. *Introduction to Water Resources Engineering* in the Fall semesters 2012, 2020 and 2021, in the Spring semesters 2013 and 2019;
    iv. *Fluid Mechanics* in the Fall semesters 2013, 2017, 2018 and 2019, in the Spring semesters 2015, 2016 and 2017;
    v. *River Basin Management* (new course introduced and co-taught with Dr. V. Samadi) Fall semester 2017;
    vi. *Aqueducts and drainage systems* (new course) Spring semester 2018;
    vii. *Introduction to Water Resources Engineering Laboratory* Spring semester 2014; and
    viii. five sections of *Independent Study/Research in Civil and Environmental Engineering*.

o) I taught the following graduate courses:
    i. *Delta Morphodynamics* in the Spring semester 2013;
    ii. *Large scale sediment transport modeling* in the Fall semester 2014;
    iii. *Sediment transport and River Mechanics* in the Spring semesters 2015, 2016, 2020, co-taught with Prof. Parker in the Spring semester 2022;
    iv. *Morphodynamic Modeling* in the Fall semester 2015 and in the Spring semester 2023; and
    v. seven different sections of the *Research in Civil Engineering*, i.e. independent study – six 3 credit hours sections and one 6 credit hours sections.

p) I co-taught the *Sediment transport* course with Prof. Izumi at the Hokkaido Summer Institute, Hokkaido University, Japan, in 2020, 2021 and 2022 and I will teach it in 2023.
q) I will teach *Bedrock, bedrock-alluvium transitions, and fixed beds* in the Physics of River Systems at Delft, University of Technology, Netherlands.

At the University of Illinois at Urbana-Champaign

a) Occasional guest lecturer in a graduate class, *River Morphodynamics* and *Environmental Fluid Mechanics*.
b) I supervised 6 undergraduate and 8 graduate students on a one-by-one basis during the performance of research.

At the University of Naples Federico II, Italy

a) Teaching Assistant for a class on River Basin Management during my doctoral studies (November 2004 – November 2005; December 2006- February 2007, June 2007 – November 2007, i.e. when in Naples).
b) Authorized from the University of Naples Federico II to participate in academic activities as a tutor, and to classes the Department of Hydraulic and Environmental Engineering.

SERVICE

1) Associate editor for the Journal of Geophysical Research – Earth Surface of the American Geophysical Union.

2) Board Member of the biannual Symposium on River, Coastal and Estuarine Morphodynamics (RCEM)

3) Reviewer for the following journals

Journal of Hydraulic Research; Computers & Geosciences; Geomorphology; Earth Surface Processes and Landforms; Water Resources Research; ASCE Journal of Hydraulic Engineering; International Journal of Sedimentary Research; Journal of Asian Earth Sciences; Journal of Geophysical Research; Journal of Hydrology; Geophysical Research Letters; Marine Geology; Geology; Earth Surface Dynamics (ESurf); PLOS ONE; Marine Geology; Journal of Mountain Science; Oxford University Press – book review; the Journal of Hydro-Environment Research; Journal of Sedimentary Research; Water.

4) Reviewer for the following funding agency

NSF, Army Research Office, American Chemical Society Petroleum Research Fund, MIUR

5) Participation to the National Science Foundation Panels Geomorphology and Land-use Dynamics, Environmental Sustainability, Sedimentary Geology and Paleobiology, Division of Earth Science, for the Postdoctoral Fellowship.

6) Participation in the organization of workshops and conference sessions

a) *The Digital River*, River Flow 2020 Master Class with Prof. Popescu.
b) Chair of the *Workshop on channel bed degradation*, TU Delft, Netherlands, January 2020.
c) American Geophysical Union Fall Meeting 2017, Session Title: Sorting by Particle Property and Other "Granular" Mechanisms and Their Influence on Earth and Planetary Surface Processes, Oral and Poster, Session Organizers and Conveners, Hill, K. M., Viparelli, E., Kaitna, R. and Frey, P.
d) *Advances in delta sedimentology and stratigraphy in ancient and modern settings*, 31st Meeting of the International Association of Sedimentologists, June 22-25, 2015, Krakow, Poland. Session Organizers and Conveners: I. Martini, E. Viparelli, and A. Blom.
e) *From abrading particles to river concavity*, workshop on modeling mixed-sediment river morphodynamics, 27-29 May 2015, Delft University of Technology, Netherlands. Organizers A. Blom and E. Viparelli.
f) American Geophysical Union Fall Meeting 2013, Session Title: *Morphodynamics Characteristics of Non-normal Flow Conditions*, Oral and Poster, Session Organizers and Conveners J.A. Nittrouer, and E. Viparelli.
g) ASCE EWRI 2014 Congress, Hydraulics & Waterways Track, Session Title: *Sediment Source Tracking*.

6) At the University of South Carolina at Columbia (i.e. since 2012)

a) Member of the Graduate Program Committee in the Department of Civil and Environmental Engineering, October 2013 - present.
b) Member of the Undergraduate Program Committee in the Department of Civil and Environmental Engineering, August 2012 – August 2020.
c) Member of 16 PhD Committees (I did not advise nor co-advise these students), 13 in the Department of Civil and Environmental Engineering, 2 in the Department of Mechanical Engineering, and one in the School of the Earth, Oceans and Environment at the University of South Carolina.
d) Member of 3 PhD Committees in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign.
e) Member of 1 PhD committee in the Faculty of Engineering and Geosciences at Delft University of Technology, Delft, Netherlands.
f) Member of 1 MS committee and 3 ME committees in the Department of Civil and Environmental Engineering at the University of South Carolina (I did not advise nor co-advise these students).
g) Member of 2 MS committee in the Faculty of Engineering and Geosciences at Delft University of Technology, Delft, Netherlands.
h) PhD Opponent at the University of Stockholm, Sweden, 2017.
i) Faculty advisor for the ASCE student chapter, May 2014 – August 2020.
j) Organizer of the Departmental Seminar series in the Spring and Fall semesters 2014.
k) Instructor of Fluid Mechanics for the Fundamental of Engineering review class, Spring 2013 – Fall 2014, and Fall 2017.

7) At the University of Illinois at Urbana-Champaign (i.e. 2008 – 2011)

As a postdoctoral researcher associated with the National Center for Earth-surface Dynamics (NSF Science and Technology Center, http://nced.umn.edu), I played an active role in selecting, modifying and supplying codes to the Community Surface Dynamics Modeling System (http://csdms.colorado.edu), which can be integrated into larger codes describing river/landscape evolution. To date I have supplied 27 System-compliant codes.

JOURNAL PAPERS AND BOOK CHAPTERS

In review

1) Sanders, S., Jafarinik, S., Hernandez Moreira, R., Johnson, R., Balkus, A., Ahmadpoor, M., Fryson, B., McQueen, B., Fedele, J & Viparelli, E., Influence of sand supply and grain size on upper regime bedforms, Journal of Geophysical Research: Earth Surface.

Published

1) van der Steeg, S., Torres, R., Viparelli, E., Xu, H., Elias, E. & Sullivan, J. (2023). Circulation in a coastal plain floodplain, Congaree River, South Carolina, USA, *Water Resources Research*, 59, e2022WR032982.
2) Czapiga, M. J., Blom, A. & Viparelli, E. (2022). Efficacy of longitudinal training walls to mitigate riverbed erosion, *Water Resources Research*, 58, e2022WR033072.
3) Viparelli, E., Balkus, A., Vázquez-Tarrío, D., Hill, K. M., Tal., M. & Fedele, J. (2022). Streamwise and vertical dispersal of tracer stones in an equilibrium bed, *Water Resources Research*, 58, e2022WR033137
4) Czapiga, M J., Blom, A. and Viparelli, E., (2022), Sediment Nourishments to Mitigate Channel Bed Incision in Engineered Rivers, *Journal of Hydraulic Engineering*, 148 (6), 04022009.
5) Xu, H., Torres, R., van der Steeg, S., & Viparelli, E. (2021). Geomorphology of the Congaree River floodplain: implications for an inundation continuum. *Water Resources Research* 57 (12), e2020WR029456

6) Viparelli, E., & Eke E. (2021). Equilibrium of self-formed, single-thread, sand-bed rivers. *Geophysical Research Letters* 48 (20), e2021GL094591.
7) van der Steeg, S., Xu, H., Torres, R., Viparelli, E., Elias, E., Sullivan, J., Lakshimi, V., & Shelley, D. (2021). A novel approach for quantifying complexity in floodplain flows: Congaree River, South Carolina, USA. *Geophysical Research Letters* 48 (20), e2021GL094190
8) Sulaiman, Z., Viparelli, E., Torres, R., Yankovski, A., & Grego, J. (2021). The influence of tides on coastal plain channel geomorphology: the Altamaha River, Georgia, USA. *Journal of Geophysical Research: Earth Surface*, 126 (7), e2020JF005839
9) Bastianon, E., Viparelli, E., Cantelli, A., & Imran, J. (2021). 2D numerical simulation of the filling process of submarine minibasins: study of deposit architecture. *Journal of Sedimentary Research*, 91 (4), 399-414
10) Ylla Arbos, C., Blom, A., Viparelli, E., Reneerkens, M., Frings, R. M., & Schielen, R. M. J. (2021). River response to anthropogenic Modification: Channel Steepening and Gravel Front Fading in an Incising River. *Geophysical Research Letters*, 48, e2020GL091338.
11) Jafarinik, S., & Viparelli, E. (2020). Alluvial morphodynamics of low-slope bedrock reaches transporting non-uniform bed material. *Water Resources Research*, 56 (10), e2020WR027345
12) Xu, H., van der Steeg, S., Sullivan, J. Shelley, D., Cely, J., Viparelli, E., Lakshmi, V., & Torres, R. (2020). Intermittent Channel Systems of a Low-Relief, Low-Gradient Floodplain: Comparison of Automatic Extraction Methods. *Water Resources Research*, 56 (9), e2020WR027603.
13) Li, C., Viparelli, E., & Parker, G. (2020). Response of the Minnesota River to variant sediment loading. *Journal of Hydraulic Engineering*, 146 (9), 04020064.
14) Hernandez Moreira, R. R., Jafarinik, S., Sanders, S., Kendall, C. G. St. C., Parker, G., & Viparelli, E. (2020). Emplacement of massive deposits by sheet flow. *Sedimentology*, 67 (4), 1951-1972.
15) Jafarinik, S., Hernandez Moreira, R. R., & Viparelli, E. (2019). Alluvial Morphodynamics of Bedrock Reaches Transporting Mixed-Size Sand. Laboratory Experiments. *Journal of Geophysical Research: Earth Surface*, 124 (2), 3067-3089
16) Viparelli, E. Borhani, S., Torres, R., & Kendall, C. G. St. C. (2019). Equilibrium of tidal channels carrying non-uniform sand and interacting with the ocean. *Geomorphology*, 329, 1-16 **Invited**
17) Chavarrias, V., Blom, A., Orru', C., Martin-Vide, J. P., & Viparelli, E. (2018). A sand-gravel Gilbert delta subject to base level change. *Journal of Geophysical Research: Earth Surface*, 123 (5), 1160-1179.
18) Ohata, K., Naruse, H., Yokokawa, M., & Viparelli, E. (2017). New bedform phase diagrams and discriminant functions for formative conditions of bedforms in open-channel flows. *Journal of Geophysical Research: Earth Surface*, 122 (11), 2139-2158.
19) Blom, A., Chavarrias, V., Ferguson, R. I., & Viparelli, E. (2017). Advance, retreat, and halt of abrupt gravel-sand transitions in alluvial rivers. *Geophysical Research Letters*, 44 (19), 9751-9760.
20) Blom, A., Arkesteijn, L., Chavarrias, V., & Viparelli, E. (2017). The equilibrium alluvial river under variable flow, and its channel-forming discharge. *Journal of Geophysical Research: Earth Surface*, 122 (10), 1924-1948.
21) Tabrizi, A. A., LaRocque, L. A., Chaudhry, M. A., Imran, J., & Viparelli, E. (2017). Embankment failures during the historic 2015 October flood, South Carolina: Case Study. *Journal of Hydraulic Engineering*, 143 (8): 05017001.
22) Ismail, H., Viparelli, E., & Imran, J. (2016). Confluence of density currents over an erodible bed. *Journal of Geophysical Research: Earth Surface*, 121 (7), 1251–1272.
23) Blom. A., Viparelli, E., & Chavarrias, V. (2016). The graded alluvial river: profile concavity and downstream fining. *Geophysical Research Letters*, 43, 6285-6293.
24) Lauer, J. W., Viparelli, E., & Piegay, A. (2016). Morphodynamics and Sediment Tracers in 1-D (MAST-1D): 1-D sediment transport that includes exchange with an off-channel sediment reservoir. *Advances in Water Resources*, 93A, 135-149.

25) Li C., Czapiga, M., Eke E., Viparelli, E., & Parker G. (2016). Closure to 'Variable Shields number model for river bankfull geometry: bankfull shear velocity is viscosity-dependent but grain size-independent'. *Journal of Hydraulic Research*, 53 (1), 36-48.
26) Viparelli, E., Solari, L., & Hill, K. M. (2015). Downstream lightening and upward heavying, experiments with sediments differing in density. *Sedimentology*, 62, 1384-1407.
27) Dale A., Casman, E., Lowry, G., Lead, J., Viparelli, E., & Baalousha, M. (2015). Modeling nanomaterial environmental fate in aquatic systems. *Environmental Science and Technology*, 49 (5), 2587-2593.
28) Viparelli, E., Nittrouer, J. A., & Parker, G. (2015). Modeling flow and sediment transport dynamics in the lowermost Mississippi River, Louisiana, USA, with an upstream alluvial-bedrock transition and a downstream bedrock-alluvial transition: implications for land-building using engineered diversions. *Journal of Geophysical Research: Earth Surface*, 120 (3), 534-563.
29) Zhang, L., Parker, G., Stark, C. S., Inoue, T., Viparelli, E., Fu, X. D., & Izumi, N. (2015). Macro-roughness model of bedrock-alluvial river morphodynamics. *Earth Surface Dynamics*, 3, 113 – 138.
30) Nittrouer, J. A., & Viparelli, E. (2014). Reply to 'Is sand in the Mississippi River delta a sustainable resource?'. *Nature Geoscience*, 7, 852.
31) Eke, E., Czapiga, M., Viparelli, E., Imran, J., Sun, T., & Parker, G. (2014). Coevolution of width and sinuosity in meandering rivers. *Journal of Fluid Mechanics*, 760, 127-174.
32) Li C., Czapiga, M., Eke E., Viparelli, E., & Parker G. (2015). Variable Shields number model for river bankfull geometry: bankfull shear velocity is viscosity-dependent but grain size-independent. *Journal of Hydraulic Research*, 53 (1), 36-48.
33) Nittrouer J.A., & Viparelli, E. (2014). Sand as a stable and sustainable resource for nourishing the Mississippi River Delta. *Nature Geoscience*, 7 (5), 350-354.
34) Viparelli, E., Blom, A., Ferrer-Boix, C., & Kuprenas, R. (2014). Comparison between experimental and numerical stratigraphy emplaced by a prograding delta, *Earth Surface Dynamics*, 2, 323-338.
35) Viparelli, E., Lauer, W.J., Belmont, P., & Parker, G. (2013). A numerical model to develop long-term sediment budgets using isotopic sediment fingerprints. *Computers and Geoscience*, 53, 114-122.
36) Belmont, P., Gran, K.B., Schottler, S.P., Wilcock, P.R., Day, S.S., Jennings, C., Lauer, J.W., Viparelli, E., Willenbring, J.K., Engstrom, D.R., & Parker, G. (2011). Large shift in source of fine sediment in the Upper Mississippi River. *Environmental Science and Technology*, 45(20), 8804-8810.
37) Eke, E., Viparelli, E., & Parker, G. (2011). Field-scale numerical modeling of breaching as a mechanism for generating continuous turbidity currents. *Geosphere*, 7 (5), 1063-1076.
38) Paola C., Twilley, R.R., Edmonds, D.A., Kim, W., Mohrig, D., Parker, G., Viparelli, E., & Voller, V.R. (2011). Natural Processes in Delta Restoration. *Annual Review of Marine Science*, 3, 67–91.
39) Viparelli E., Gaeuman, D., Wilcock, P.R., & Parker, G. (2011). A model to predict the evolution of a gravel bed river under an imposed cyclic hydrograph and its application to the Trinity River. *Water Resources Research*, 47, W02533.
40) Viparelli E., Haydel, R., Salvaro, M., Wilcock, P.R., & Parker, G. (2010). Modeling of River Morphodynamics with creation/consumption of grain size stratigraphy. Part 1: Laboratory experiments. *Journal of Hydraulic Research*, 48 (6), 715-726.
41) Viparelli E., Sequeiros, O.E., Cantelli, A., Wilcock, P.R., & Parker, G. (2010). Modeling of River Morphodynamics with creation/consumption of grain size stratigraphy. Part 2: Numerical model. *Journal of Hydraulic Research*, 48 (6), 727-741.
42) Ganti V., Meerschaert, M.M., Foufoula-Georgiou, E., Viparelli, E., & Parker, G. (2010). Normal and Anomalous Diffusion of Gravel Tracer Particles in Rivers. *Journal of Geophysical Research*, 115, F00A12.
43) Sequeiros O.E., Cantelli, A., Viparelli, E., White, J.D.L., Garcia, M.H., & Parker, G. (2009). Modeling turbidity currents with non-uniform sediment and reverse buoyancy. *Water Resources Research*, Vol. 45, W06408.

INVITED SEMINARS/PRESENTATIONS

1) Role of bed level variability on tracer dispersal in an equilibrium bed. 15th International Symposium on River Sedimentation. Sept. 05-08, 2023, Florence, Italy. **Keynote**
2) *Measuring sediment fluxes between the Congaree River channel and its floodplain*. Preliminary results. Congaree National Park Research Symposium. January 6-7, 2022
3) *Bankfull geometry of self-formed, single thread, sand bed rivers*. 12th River, Coastal and Estuarine Morphodynamics Symposium. December 9, 2021. **Keynote**
4) Seminar at the Hydrosystems Laboratory, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, October 8, 2021, *Tracer dispersal in gravel bed rivers, an equilibrium sorting model.*
5) Seminar, Department of Civil and Environmental Engineering, University of South Carolina, March 3, 2021, *Streamwise and vertical dispersal of tracer stones in an equilibrium bed*.
6) American Geophysical Union Fall Meeting 2019, *Channel-floodplain response to changes in flow regime*
7) American Geophysical Union Fall Meeting 2019, *An attempt to model the internal structure of alluvial deposits in 1D*
8) American Geophysical Union Fall Meeting 2018, *An attempt to model the continuum of channel patterns in 1D*.
9) American Geophysical Union Fall Meeting 2017, *Massive units deposited by bedload transport in sheet flow mode*.
10) American Geophysical Union Fall Meeting 2017, *Coupling MAST-1D, a sediment routing model for channel-floodplain complexes, with channel migration relationships to predict reach-averaged river morphodynamics. Preliminary results*.
11) *Sorting patterns and bedform geometries downstream of a stable alluvial-bedrock transitions*, Sediment Experimentalists Meeting, May 18-19, 2017 Tsukuba University, Tsukuba, Japan.
12) Guest lecture in the River Morphodynamics class at the University of Illinois at Urbana Champaign, March 16, 2017, *Modeling transport of sediment and tracers in a channel-floodplain systems*.
13) Seminar at the Department of Geography, Planning and the Environment, Aix-Marseille Universite', Marseille, France, December 2, 2016, *An introduction to 1D morphodynamic modeling*.
14) Seminar in the Department of Civil, Environmental and Geo-Engineering, University of Minnesota, Minneapolis, March 7, 2016, Title: *Modeling alluvial-bedrock and bedrock-alluvial transition in large, low slope sand bed rivers and implications for land-building in the Mississippi River delta*.
15) 8th International Gravel Bed River Workshop, 14-18 September, 2015, Disaster Prevention Research Institute, Kyoto University, Japan, Invited, Title: *Modeling stratigraphy-based GBR Morphodynamics*.
16) Seminar at the Hydrosystems Laboratory, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, March 6 2015, Title: *Modeling the long term evolution of the alluvial-bedrock and bedrock-alluvial transitions of the lowermost Mississippi River. Implications for land-building diversion projects*.
17) American Geophysical Union Fall Meeting 2014. *Downstream lightening and upward heavying, sorting of sediments of uniform grain size but differing in density*.
18) American Geophysical Union Fall Meeting 2014, *MAST-1D, a Model to Route Sediment and Tracers in Channel-Floodplain Complexes*.
19) M.S. Yalin Memorial Mini-Colloquium on Fluvial Eco-Hydraulics and Morphodynamics: new insights and challenges, November 28-29, 2013, Palermo, Italy. Invited, Title: *Modeling ecological succession on a delta top. Preliminary results on Wax Lake Delta, Louisiana, USA*,

20) Soil to Sea Geomorphology 2013, May 17-18 Johns Hopkins University, Baltimore, MD, Keynote, Title: *Where is this sediment coming from? Where is that sediment going? Examples and future plans on sediment routing*.
21) Seminar in the Mechanical Engineering Department at the University of South Carolina, October 26, 2012, Title: *A mushy layer formulation to model sand transport in the Lowermost Mississippi River*.
22) Seminar at the National Oceanography Centre, Southampton, UK, July 13 2011, Title: *Laboratory experiments on linked submarine minibasins. Preliminary Results*.
23) Seminar in the Department of Civil and Environmental Engineering at the University of South Carolina, May 31, 2011, Title: *The inundation model, a tool of delta restoration to help in the prediction of the ecological succession on newly created deltaic land in coastal Louisiana*.
24) Seminar in the Department of Civil and Environmental Engineering at Queen's University, Canada, October 5 2010, Title: *The spawning gravel refresher, a tool to help in the design of gravel augmentations: Application to the Trinity River, California, USA*.
25) Seminar in the Department of Civil and Environmental Engineering at the University of South Carolina, August 10, 2010, Title: *Where is the sediment coming from? Basin-scale routing model for sediment/radionuclides in the lower Minnesota River*.
26) Seminar at the Hydrosystems Laboratory, University of Illinois at Urbana-Champaign, November 2009, Title: *A model to design gravel augmentations on the Trinity River in California*.

REFEREED CONFERENCE PAPERS

1) Viparelli, E., & Eke, E. (2020). Channel-floodplain response to changes in sediment supply and floodplain width. In Uijttewaal et al. Eds. River Flow 2020 (Taylor & Francis 2020).
2) Al-Zaidi, B., Viparelli, E., & Moussa, A. (2016). Preliminary morphodynamic results on the impact of the High Aswan Dam on the Nile River, Egypt. In Constantinescu, Garcia and Hanes (eds.) Proceedings River Flow 2016, Taylor & Francis Group, London, ISBN 978-1-138-02913-2.
3) Parker, G., Fernandez. R., Viparelli, E., Stark, C.P., Zhang, L., Fu, X., Inoue, T., Izumi, N., & Shimizu, Y. (2013). Interaction between waves of alluviation and incision in mixed bedrock-alluvial rivers. 12th International Symposium on river Sedimentation, September 2-5, Kyoto, Japan.
4) Viparelli, E., Blom, A., & Parker, G. (2012). Modeling stratigraphy formed by prograding Gilbert deltas. In River Flow 2012: Proceedings of the International Conference on Fluvial Hydraulics, San Jose, Costa Rica, 5-7 September.
5) Yeh T., Cantelli, A., Viparelli, E., Blois, G., & Parker, G. (2011). Experimental study on linked submarine minibasins in case of non-uniform sediment: preliminary results. Proceedings 7th IAHR Symposium on River, Coastal and Estuarine Morphodynamics, RCEM.
6) Viparelli E., Blom, A., & Parker, G. (2011). Numerical prediction of the stratigraphy of bedload-dominated deltas: preliminary results. Proceedings, 7th IAHR Symposium on River, Coastal and Estuarine Morphodynamics, RCEM.
7) Viparelli E., Solari, L., & Parker, G. (2010). Indagine sperimentale sul trasporto e deposito di materiale con granulometria uniforme e diversa densità. *XXXII Convegno di Idraulica e Costruzioni Idrauliche*, Palermo, 14-17 Settembre (in Italian).
8) Ferrer-Boix C.G, Viparelli, E., Cantelli, A., Haydel, R.G, Parker, G., & Martin-Vide, J.P. (2010). Incision and width changes caused by dam removal. Experiments and data analysis. Proceedings River Flow 2010, Braunschweig, Germany, September 8-10.
9) Del Giudice G., Rasulo, G. & Viparelli, E. (2004). Corsi d'acqua alluvionati: criteri di stima dell'escavazione al piede delle opere di difesa longitudinali. *XXIX Convegno di Idraulica e Costruzioni Idrauliche*, Trento (in Italian).

10) Del Giudice G., Rasulo, G. & Viparelli, E. (2004). Bar height formulas to predict the maximum scour depth at riverbanks. Proceedings, Second International Conference on Fluvial Hydraulics River Flow 2004, Napoli.

NON-REFEREED CONFERENCE PAPERS

1. O'Donal, H., Czapiga, M., Elalfy, E., Viparelli, E. & Chaudhry, M. H. Effect of Dam Height on Breaching Due to Overtopping of Non-Cohesive Earthen Dams. Submitted to the 2023 World Environmental & Water Resources Congress
2. Elalfy, E., Viparelli, E., Czapiga, M., Imran, J. & Chaurdhry, M. H. A Case Study of dam failure during the historic October 2015 Flood in South Carolina. Submitted to the 2023 World Environmental & Water Resources Congress
3. Kendall, C.G., Moore, P., Viparelli, E., De Keyser, T.L., Alsharan, A., & Kloot, C. (2014). Analysis of Sequence Stratigraphic Models for the Jurassic Cretaceous Sedimentary Fill of the Intrashelf Basins of the Eastern Margin of the Arabian Plate. *Search and Discovery* Article #90189 adapted from poster presentation at AAPG Annual Convention and Exhibition, Houston, Texas, April 6-9.
4. Lauer, J. W., Li, C., Viparelli, E., & Piegay, H. (2014). MAST-1D: A size-specific sediment transport and tracer model with off-channel storage. *Proceedings World Environmental & Water Resources Congress*, Portland, Oregon, June 1-5.
5. Moore P., Kendall, C.G., & Viparelli, E. (2013). Sedpack A - A Qualitative Computer Simulation for Understanding Sequence Stratigraphy Modeling Concepts and Parameters. *Search and Discovery* article #90163 adapted from poster presentation at AAPG annual convention and exhibitions, 19-22 May, Pittsburgh, PA.
6. Viparelli, E., Yeh, T., Cantelli, A., Leslie, E., Robertson, A., & Parker, G. (2012). Stratigraphy of Linked Submarine Minibasins in Laboratory Experiments. *Search and Discovery* Article #40960 Adapted from poster presentation at AAPG Annual Convention and Exhibition, Long Beach, California, April 22-25.
7. Konsoer, K.M., Zinger, J.A., Hernandez, J., Viparelli, E., & Parker, G. (2012). Relations for bankfull hydraulic geometry of sinuous channels in submarine and subaerial settings. *Search and Discovery* Article #90142, APG Annual Convention and Exhibition, Long Beach, California, April 22-25.
8. Viparelli E., Shaw, J., Bevington, A., Meselhe, E., Mohrig, D., Twilley, R., & Parker, G. (2011). Inundation model as an aid for predicting ecological succession in newly created deltaic land associated with Mississippi River diversions: application to the Wax Lake Delta. *Proceedings, World Environmental & Water Resources Congress,* May 22- 26 - Palm Springs, CA.
9. Viparelli E., Blom, A., & Parker, G. (2011). Numerical prediction of the stratigraphy of bedload-dominated deltas: preliminary results. *Proceedings, 7th IAHR Symposium on River, Coastal and Estuarine Morphodynamics, RCEM*.
10. Abad, J.D., Cataño-Lopera, Y.A., Viparelli, E., & García, M.H. (2009). Flow structure and hydraulic capacity for drop shafts: application to Tunnel and Reservoir Plan (TARP) project, Chicago, Illinois. *33rd IAHR Congress: Water Engineering for a Sustainable Environment*, Vancouver, Canada, August.

ABSTRACTS

1) Fryson, B., Harrison, G., Caspino, W., K. Yunus, Glover, E., Cantelli, A. & Viparelli, E. Effect of sediment quantity and caliber on braided channel geometry. Submitted to the 2022 AGU Fall Meeting
2) Van der Steeeg, S., Haiqing, X., Torres, R. & Viparelli, E. The controls on surface-water circulation in a low gradient river floodplain: Congaree River, South Carolina, USA. Submitted to the 2022 AGU Fall Meeting

3) Dykstra, S. L., Viparelli, E., Szot, O., Talke, S., Yankovsky, A. & Torres, R. Water Level Trend Variability from Tidal Oscillations, Charleston Harbor, USA. Submitted to the 2022 AGU Fall Meeting
4) Logan, W., Benitez-Nelson, N., Ahmadpoor, M., Torres, R. & Viparelli, E., Quantitative Geomorphology of the Congaree River Throughout the Last Century. Submitted to the 2022 AGU Fall Meeting
5) Ahmadpoor, M., White, S., Logan, W., Torres, R., Johnson, R., Fryson, B. & Viparelli, E., Bedrock Control on Channel Sinuosity: Congaree River, South Carolina, USA. Submitted to the 2022 AGU Fall Meeting
6) Balkus, A. & Viparelli, E. Streamwise and Vertical Dispersal of Tracer Stones from a Continuously Supplied Source. Submitted to the 2022 AGU Fall Meeting
7) Viparelli, E., Grego, Lynch J., Equilibrium entrainment and deposition of mix-size sediment transported as bedload. Submitted to the 2022 AGU Fall Meeting
8) Viparelli, E., Ahmadpoor, M., van der Steeg, S., Xu, H., Sullivan, J., Shelley, D., & Torres, R. (2022). Measuring sediment fluxes between the Congaree River channel and its floodplain. Preliminary results. Congaree National Park Research Symposium, January 6-7. **Invited**.
9) Viparelli, E., Balkus, A., Vazquez Tarrio, D., Fedele, J., Hill, K. M., & Tal, M. (2021). Analytical solution for tracer stone dispersal in bedload dominated rivers. EP43A-03, Fall Meeting, American Geophysical Union.
10) Balkus, A., & Viparelli, E. (2021). Modeling tracer stone dispersal with continuously supplied tracers. EP45B-1524, Fall Meeting, American Geophysical Union.
11) Sanders, S., Johnson, R., McQueen, B., Balkus, A., Fryson, B., Jafarinik, S., Hernandez-Moreira, R. R., Fedele, J., & Viparelli, E. (2021). Evolution of upper regime bedforms with grain size and sediment supply. EP55F-1177, Fall Meeting, American Geophysical Union.
12) Ahmadpoor, M., van der Steeg, S., Xu, H., Logan, W., Torres, R., Sullivan, J., & Viparelli, E. (2021). Overbank deposition rates and grain sizes in the Congaree River floodplain, SC. EP35B-118, Fall Meeting, American Geophysical Union.
13) Czapiga, M., Blom, A., & Viparelli, E. (2021). Mitigating long-term channel bed erosion in engineered rivers. EP45D-1545, Fall Meeting, American Geophysical Union.
14) van der Steeg, S., Xu., H., Torres, R., Viparelli, E., Chassereau Sullivan J., & Lakshimi, V. (2021). Complexity in floodplain flows, Congaree River, South Carolina, USA. EP53A-02, Fall Meeting, American Geophysical Union.
15) Xu, H., Torres, R., van der Steeg, S., & Viparelli, E. (2021). Geomorphology and inundation continuum of the Congaree River floodplain. EP55E-1155, Fall Meeting, American Geophysical Union.
16) Dykstra, S., Torres, R., Yankovsky, A., & Viparelli, E. (2021). The role of dams on tides and storm surge, Charleston Harbor. EP55E-1149, Fall Meeting, American Geophysical Union.
17) Xu, H., van der Steeg, S., Torres R., & Viparelli, E. (2020). Intermittent channel systems of a low-relied and low-gradient (LRLG) fluvial-tidal floodplain. H154-10, Fall Meeting, American Geophysical Union.
18) van der Steeg, S., Xu, H., Torres, R., & Viparelli, E. (2020). Controls on floodplain inundation. EP008-03, Fall Meeting, American Geophysical Union.
19) Eke, E., & Viparelli, E. (2020). Floodplain and channel dynamics in a meandering river bend. EP005-07, Fall Meeting, American Geophysical Union.
20) van der Steeg, S., Xu, H., Torres, R., Sullivan, J., Lakshimi, V., & Viparelli, E. (2019). Validation of a floodplain circulation model: The Congaree River & Floodplain. EP53G-2261, Fall Meeting, American Geophysical Union.
21) Xu, H., van der Steeg, S., Torres, R., Sullivan, J., & Viparelli, E. (2019). Floodplain flow directions and the origins of floodplain channels. EP53G-2263, Fall Meeting, American Geophysical Union.

22) Viparelli, E., & Eke, E. (2019). Channel-floodplain response to changes in flow regime. EP43B-07 Fall Meeting, American Geophysical Union. **Invited**.
23) Jafarinik, S., Coutaz, J., Tal, M., & Viparelli, E. (2019). Immediate impacts and sustainability of sediment augmentations on an alpine gravel bed river: results from 1D morphodynamic modeling of the lower Buech River, SE France. EP51E-2141, Fall Meeting, American Geophysical Union.
24) Viparelli, E., & Jafarinik, S. (2019). An attempt to model the internal structure of alluvial deposits in 1D. EP51B-01, Fall Meeting American Geophysical Union. **Invited**.
25) Blom, A., & Viparelli, E. (2019). Quasi-equilibrium and equilibrium in fluvial channel geometry: The presence of multiple stable equilibrium states. 14th International Symposium on River Sedimentation, September 16-19, Chengdu, China. **Invited Plenary report**.
26) Charchi Aghdam, A., Viparelli, E., & Farouk, T. (2019). Implementing a shallow water mathematical modeling approach for simulating plasma interaction in multiphase configuration. APS Gaseous Electronics Conference 2019, abstract id.FT1.038
27) Tal, M., Jafarinik, S., Coutaz, J., & Viparelli, E. (2019). 1D morphodynamic modelling to evaluate decadal scale impacts of a sediment reinjection on an alpine gravel-bed river (the Buech River, SE France). Recontres SHF 2019; Changement global et morphodynamique des rivieres, des bassins versants a la mer.
28) Siele, M., Blom, A., & Viparelli, E. (2019). Causes of channel bed degradation in engineered rivers: application to a schematic river. 11th River, Coastal and Estuarine Morphodynamics symposium.
29) Czapiga, M. J., Rudolph, M., Viparelli, E., & Blom, A. (2019). Evaluation of mitigation measures for channel bed degradation in highly-engineered rivers. 11th River, Coastal and Estuarine Morphodynamics symposium, RCEM.
30) Czapiga, M. J., Rudolph, M., Viparelli, E., & Blom, A. (2019). Towards Best Practices for Mitigation of Channel Degradation. NRC Days 2019: Land of Rivers – Utrecht, Netherlands, January 31- February 1.
31) Viparelli, E., Eke, E. C., &, Banks, D. (2018). An attempt to model the continuum of channel patterns in 1D. EP31A-01, Fall Meeting American Geophysical Union. **Invited**.
32) Xu, H., van der Steeg, S., Torres, R., Sullivan, J., Lakshimi, V. & Viparelli, E. (2018). Analyses of low-gradient floodplain topography and floodplain-surface channels by automatic LiDAR DEM processing, EP33D-2456, Fall Meeting American Geophysical Union.
33) Sulaiman, Z., Viparelli, E. & Torres, R. (2018). Changes in channel characteristics associated with the river transport capacity along the fluvial-tidal transition zone, EP13D-2123, Fall Meeting American Geophysical Union.
34) van der Steeg, S., Xu, H., Torres, R., Lakshimi, V., Sullivan, J. & Viparelli, E. (2018). Through-bank flooding of floodplains, EP52C-19, Fall Meeting American Geophysical Union.
35) Borhani, S. & Viparelli, E. (2018). Modeling tracer dispersal during channel bed aggradation and degradation, EP41B-2657, Fall Meeting American Geophysical Union.
36) Siele, M., Blom, A., & Viparelli, E. (2018). Time scales of degradational response of engineered channels to changes in the upstream controls and channel width. River Flow 2018, Lyon-Villeurbanne, France, September 5-8.
37) Hill, K. M., Ghasemi, A., Borhani, S., & Viparelli, E. (2018). Use of discrete element modeling for a physics-based link between bed surface variability and particle entrainment statistics. European Geosciences Union (EGU2018-11760).
38) Blom, A., Emmanouil, A., Siele, M., & Viparelli, E. (2018). Transient response regarding bel elevation and surface texture in the Rhine River. European Geosciences Union (EGU2018-2745).
39) Al-Zaidi, B., Moussa, A., & Viparelli, E. (2017). Modeling the impact of controlled flow and sediment releases for the restoration of the Nile Delta, Egypt. EP21B-1852, Fall Meeting, American Geophysical Union.
40) Viparelli, E., Eke, E., & Lauer, W. J. (2017). Coupling MAST-1D, a sediment routing model for channel-floodplain complexes, with channel migration relationships to predict reach-averaged

river morphodyamics. Preliminary Results. EP33G-03, Fall Meeting, American Geophysical Union. **Invited**.

41) Borhani, S., Ghasemi, A., Hill. K. M., & Viparelli, E. (2017). Statistically Based Morphodynamic Modeling of Tracer Slowdown. EP43E-1917, Fall Meeting, American Geophysical Union.
42) Ghasemi, A., Borhani, S., Viparelli, E. & Hill, K. M. (2017). Discrete element method modeling of bedload transport: towards a physics-based link between bed surface variability and particle entrainment statistics, EP43E-1739, Fall Meeting, American Geophysical Union.
43) Viparelli, E., Hernandez Moreira, R. R., Jafarinik, S., Sanders, S., Huffman, B., Parker, G., & Kendall, C. G. St. C. (2017). Massive units deposited by bedload transport in sheet flow mode. EP53F-02, Fall Meeting, American Geophysical Union. **Invited**.
44) Bastianon, E., Viparelli, E., Cantelli, A., & Imran, J. (2017). 3D Numerical Investigation of the Role of the Slope in the 'Fill-and-Spill' process in Submarine Minibasins. EP-41E-08, Fall Meeting, American Geophysical Union.
45) Blom, A., Arkesteijn, L., Chavarrias, V., & Viparelli, E. (2017). Response of the Alluvial River through Adjustments of Slope, Surface Texture and Width. EP-31E-06, Fall Meeting, American Geophysical Union.
46) Viparelli, E., Hernandez Moreira, R. R., Huffman, B., & Kendall, C. G. St. C. (2017). Experimental study of upper regime bedforms and the associated modes of bedload transport. JpGU-AGU Joint Meeting.
47) Emmanouli, A., Blom, A., Viparelli, E., & Frings, R. (2017). Long-term bed degradation in rivers: set-up for research. NCR days information 2017, Wageningen, Netherlands
48) Siele, M., Blom, A., Frings, R., & Viparelli, E. (2017). Long-term bed degradation in rivers: causes. NCR days information 2017, Wageningen, Netherlands.
49) Blum, M., Viparelli, E., Sulaiman, Z., & Pettit, B. S. (2016). Bed degradation and sediment export from the Missouri River after dam construction and river training: significance to Lower Mississippi River sediment loads. EP31B-0935, Fall Meeting, American Geophysical Union.
50) Blom, A., Arkesteijn, L., & Viparelli, E. (2016). The graded alluvial river: variable flow and the dominant discharge. EP53G-04, Fall Meeting, American Geophysical Union.
51) Al-Zaidi, B., Moussa, A., & Viparelli, E. (2016). Modeling the impact of controlled flow and sediment releases for the restoration of the Nile River-Delta system, Egypt. EP31B-0937, Fall Meeting, American Geophysical Union.
52) Sulaiman, Z., Blum, M., Leaphart, G., & Viparelli, E. (2016). Numerical simulation of Missouri River bed evolution downstream of Gavins Point Dam. EP31B-0936, Fall Meeting, American Geophysical Union.
53) Huffman, B., Vougaris, G., Cahl, D., Rekleitis, I., Viparelli, E., & Ziehl, P. (2016). Rapid Assessment of Bridge Scouring Following Extreme Flood Events. SC Floods Conference, University of South Carolina, Columbia, November 18.
54) Viparelli, E., Hernandez Moreira, R. R., & Blom, A. (2016). Vertically continuous mass conservation in morphodynamic modeling of upper regime. CSDMS Meeting 2016: Capturing Climate Change Sustainability, Boulder, Colorado, May 17-19. **Invited**.
55) Blom, A., Viparelli, E., & Chavarrias, V. (2016). Equilibrium, quasi-equilibrium and transient river longitudinal profiles. CMG 2016: 31st IUGG Conference on mathematical geophysics. Geophysics from mathematics to experiments, June 6-10, Paris, France.
56) Sulaiman, Z., & Viparelli E. (2016). Can we quantify the changes in channel bankfull geometry of river reaches that are not in equilibrium? 2016 World Environmental and Water Resources Congress, Palm Beach, Florida, May 22-26.
57) Borhani, S., Mahjabeen, N., Rankey, E., Abdo, K., Kendall, C. G. St. C., Imran, J., & Viparelli, E. (2015). The Role of Sea Level Rise and in Situ Carbonate Accumulation on the Morphodynamic Evolution of a Carbonate Tidal Channel. The Case of the Bahamas Islands. EP23B-0970 Fall Meeting, American Geophysical Union.

58) Bastianon, E., Viparelli, E., Cantelli, A., & Imran, J. (2015). The Role of Slope in the Fill and Spill Process of Linked Submarine Minibasins. Model Validation and Numerical Runs at Laboratory Scale. EP41D-07, Fall Meeting, American Geophysical Union.
59) Jafarinik, S., & Viparelli, E. (2015). Stable patterns of downstream fining and coarsening in mixed bedrock-alluvial rivers. EP51A-0893, Fall Meeting, American Geophysical Union.
60) Hernandez Moreira, R. R., Huffman, B., Vautin, D., & Viparelli, E. (2015). Changes in Bedform Shape at the Transition Between Upper Plane-Bed and Sheet-Flow Bedload Transport Regimes. EP21B-0892, Fall Meeting, American Geophysical Union.
61) Viparelli, E., Hernandez Moreira, R. R., & Blom, A. (2015). Modeling the transition between upper plane bed regime and sheet flow without an active layer formulation. Preliminary results. EP54A-05, Fall Meeting, American Geophysical Union. **Invited**.
62) Blom, A., Viparelli, E., Chavarrias, V. (2015). Gravel wedge progradation in sand-gravel laboratory experiments: New insights on the gravel-sand transition. EP13C-03, Fall Meeting, American Geophysical Union.
63) Viparelli, E., & Blum, M. (2015). Can we predict the response of large sand bed rivers to changes in flow and sediment supply? The case of the Missouri River. EP53D-02, Fall Meeting, American Geophysical.
64) Goodwin, K., Johnson, J., & Viparelli, E. (2015). A numerical model of armor development in flash flood-dominated channels: sensitivity to sediment supply, hydrograph shape and base flow. H51E-1412, Fall Meeting, American Geophysical Union.
65) Zhang, L., Parker, G., Stark, C., Inoue, T., Viparelli, E., Fu, X., & Izumi, N. (2015). The formation of incisional boundary layers in bedrock-alluvial rivers subjected to spatiotemporally varying alluvial transport. EP53B-1020, Fall Meeting, American Geophysical Union.
66) Blom, A., Viparelli, E., & Chavarrias, V. (2015). The role of size-selective transport and abrasion in river profile concavity and downstream fining under alluvial and equilibrium conditions. 8th International Gravel Bed River Workshop.
67) Borhani, S., Abdo, K., Kendall, C.G., Imran, J. and Viparelli, E. (2015). Modeling the equilibrium of a carbonate tidal channel. Preliminary results. Submitted to the Annual Convention of the American Association of Petroleum Geology, Control ID 2100158.
68) Jafarinik, S., & Viparelli, E. (2015). Stable patters of downstream fining and downstream coarsening in mixed bedrock-alluvial rivers. *From abrading particles to river concavity*, workshop on modeling mixed-sediment river morphodynamics, 27-29 May, UT Delft, Netherlands.
69) Hernandez Moreira, R. R., Huffman, B. J., Vautin, D. & Viparelli, E. (2015). Unexpected "sorting" of uniform material under conditions of upper plane-bed bedload transport regime. *From abrading particles to river concavity*, workshop on modeling mixed-sediment river morphodynamics, 27-29 May, TU Delft, Netherlands.
70) Viparelli, E., Hill, K. M., & Borhani, S. (2015). Numerical modeling of downstream lightening: preliminary comparison between numerical predictions and laboratory data. *From abrading particles to river concavity*, workshop on modeling mixed-sediment river morphodynamics, 27-29 May, UT Delft, Netherlands.
71) Blom, A., Viparelli, E., & Chavarrias, V. (2015). The role of size-selective transport and abrasion in river profile concavity and downstream fining. *From abrading particles to river concavity*, workshop on modeling mixed-sediment river morphodynamics, 27-29 May, UT Delft, Netherlands.
72) Chavarrias, V., Viparelli, E., & Blom, A. (2014). Size Stratification in a Laboratory Gilbert Delta Due to a Varying Base Level: Measurement, and Numerical Modelling. EP53C-3669, Fall Meeting, American Geophysical Union.
73) Viparelli, E., Solari, L., & Hill, K. (2014). Downstream lightening and upward heavying, sorting of sediments of uniform grain size but differing in density. EP52A-01, Fall Meeting, American Geophysical Union. **Invited**.

74) Viparelli, E., Lauer, J. W., & Belmont, P. (2014). MAST-1D, a Model to Route Sediment and Tracers in Channel-Floodplain Complexes. EP44A-01, Fall Meeting, American Geophysical Union. **Invited**.
75) Hernandez Moreira, R. R., Vautin, D., Mathews, S.L., Kuprenas, R. & Viparelli, E. (2014). Preliminary results on sediment sorting under intense bedload transport. EP53C-3671, Fall Meeting, American Geophysical Union.
76) Goodwin, K., Johnson, J., & Viparelli, E. (2014). Modeling the importance of base flow in an unarmored and ephemerally flowing river channel, Applied to the Negev Desert Channels. EP53C-3674, Fall Meeting, American Geophysical Union.
77) Chavarrias, V., Stecca, G., Viparelli, E., & Blom, A. (2014). Ellipticity in modelling mixed sediment river morphodynamics. Netherlands Centre for River studies (NCR) Days 2014, Twente, Netherlands.
78) Chavarrias, V., Blom, A., Orru', C., Viparelli, E., & Martin-Vide, J.P. (2014). *Streamwise variation in stratigraphy in a Gilbert Delta due to varying base level: flume experiments and modeling*. River Flow 2014, International Conference on Fluvial Hydraulics, September 3-5, Lousanne, Switzerland.
79) Tabrizi, A., Viparelli, E., LaRocque, L.A., Chaudhry, M.H., & Imran, J., (2014). *Experimental Investigation on the Erodibility of Cohesive Levees*, Accepted, River Flow 2014, International Conference on Fluvial Hydraulics, September 3-5, Lousanne, Switzerland.
80) Ezz, H., & Viparelli, E. (2014). *Modeling delta growth with plunging turbidity currents in Lake Nasser, Egypt and Sudan*, Accepted, River Flow 2014, International Conference on Fluvial Hydraulics, September 3-5, Lousanne, Switzerland.
81) Lauer, J. W., Viparelli, E., & Piegay, H. (2014). A 1-D, Size Specific Numerical Model for Gravel Transport That Includes Sediment Exchange with a Floodplain. Control ID 10126 European Geosciences Union, General Assembly, Vienna, April 27 - May 2.
82) Chavarrias, V., Orru', C., Viparelli, E., Martin-Vide, J.P., & Blom, A. (2014). Size stratification in a Gilbert delta due to a varying base level: flume experiments. Control ID 15595 European Geosciences Union, General Assembly, Vienna, April 27 - May 2.
83) Parker, G., Zhang, L., Stark, C.P., Viparelli, E., & Fu, X. (2013) Modelling incision in mixed bedrock-alluvial rivers: the role of sediment waves. EP24B-08, Fall Meeting, American Geophysical Union. **Invited**.
84) Ismail, H., Viparelli, E., Ezz, H. & Imran, J. (2013). Hydraulic and Morphodynamic Characteristics of Submarine Channel Confluences. OS53B-1695, Fall Meeting, American Geophysical Union.
85) Nittrouer, J. A., & Viparelli, E. (2013). Sand transport in the lower Mississippi River does not yield to dams: Applications for building deltaic land in Louisiana. EP33D-07, Fall Meeting, American Geophysical Union.
86) Czapiga, M., Li, C., Viparelli, E., Eke, E., & Parker, G. (2013). Modeling of 1-D Deltaic Progradation with a Self-Formed Channel and Floodplain: Implications of a New Slope-Dependent Formative Shields Number. EP31A-0828, Fall Meeting, American Geophysical Union.
87) Viparelli, E., Czapiga, M., Li, C., Shaw, J., & Parker, G. (2013). Modeling delta growth and channel geometry on Wax Lake Delta, Louisiana. Preliminary results. EP33D-03, Fall Meeting, American Geophysical Union.
88) Johnson, J.P.L., Aronovitz, A., Kim, W., Funderburg, J., & Viparelli E. (2013). Can short-term gravel augmentation lead to long-term bed coarsening? 10th international Conference on Fluvial Sedimentology, Leeds, UK, 14-19 July.
89) Viparelli, E., Blom, A., & Ferrer-Boix, C. (2013). Comparison between experimental and numerical stratigraphy emplaced by prograding bedforms with a downstream slip face. 8th Symposium on River, Coastal and Estuarine Morphodynamics, RCEM 2013, Santander, Spain, June 9-13.

90) Nittrouer, J.A., Viparelli, E., Best, J.L., & Parker, G. (2013). Grain size variations and bed rock exposure in the lower Mississippi River. 8th Symposium on River, Coastal and Estuarine Morphodynamics, RCEM 2013, Santander, Spain, June 9-13.
91) Eke, E., Parker, G., Viparelli, E., Czapiga, M., Asahi, K., & Shimitzu, Y. (2013). Coevolution of width and sinuosity in migrating meandering rivers. 8th Symposium on River, Coastal and Estuarine Morphodynamics, RCEM 2013, Santander, Spain, June 9-13.
92) Chavarrias, V., Blom, A., Orru', C., & Viparelli, E. (2013). Laboratory experiment of a mixed-sediment Gilbert delta under varying base level. 8th Symposium on River, Coastal and Estuarine Morphodynamics, RCEM 2013, Santander, Spain, June 9-13.
93) Ezz, H., & Viparelli, E. (2013). 1D Numerical modeling of sand-mud delta, application to Lake Nasser, Egypt and Sudan. SEDHYD 2014 Joint Conference, 10th Federal Interagency Sedimentation Conference, and 5th Federal Interagency Hydrologic Modeling Conference, Reno, Nevada, March 23-27.
94) Viparelli, E., Nittrouer, J.A., Mohrig, D.C., & Parker, G. (2012) Numerical model of the lowermost Mississippi River as an alluvial-bedrock reach: preliminary results. EP34A-07, Fall Meeting, American Geophysical Union.
95) Ezz, H., Viparelli, E., Moussa, A., & Parker, G. (2012). Modeling delta growth concurrently with self-formed channels. Preliminary results on Lake Nasser Delta, Sudan and Egypt. EP31A-0805, Fall Meeting, American Geophysical Union.
96) Hager, C., Viparelli, E., & Nittrouer, J.A. (2012). Preliminary characterization of the lowermost Mississippi River floodplain sediment and implications for the restoration of the Mississippi Delta. GSA Annual Meeting, Charlotte, North Carolina, 4-7 November.
97) Ezz, H., Cantelli, A., Viparelli, E., & Imran, J. (2012). The effect of flow stripping on submarine levee construction and stratigraphy. GSA Annual Meeting, Charlotte, North Carolina, 4-7 November.
98) Ismail H., Viparelli, E., & Imran, J. (2012). Hydraulic and morphodynamic behavior of turbidity current confluence. GSA Annual Meeting, Charlotte, North Carolina, 4-7 November.
99) Viparelli E., Yeh, T., Cantelli, A., Leslie, E., & Parker, G. (2011) Transport and deposition in linked submarine minibasins: preliminary experimental results. GSA Annual Meeting and Exposition, 9-12 October, Minneapolis, Minnesota.
100) Lauer J. W., Viparelli, E., Belmont, P., & Parker, G. (2011). A numerical model for sediment tracer movement through and actively evolving river-floodplain system. World Environmental & Water Resources Congress, May 22- 26 - Palm Springs, CA.
101) Belmont P., Viparelli, E., Lauer, W.J., & Parker, G. (2009). A Morphodynamic Routing Model of the Maple River, Minnesota. EP32A-02, Fall Meeting, American Geophysical Union. **Invited**.
102) Viparelli, E., Montero, J., Leman, A. & Parker, G. (2009). First experimental results on downstream "lightening", the selective deposition of heavier particles in a sediment mixture of uniform size. EP33A-0602, Fall Meeting, American Geophysical Union.
103) Jennings, C. E., Belmont, P., Blumentritt, D., Day, S.S., Engstrom, D.R., Gran, K.B., Johnson, A.L., Lauer, W.J., Parker, G., Schottler, S., Viparelli, E., & Wilcock, P.R. (2009). Mapping to inform modeling of turbidity in agricultural watersheds of the Minnesota basin. Geological Society of America, Annual Meeting, Portland, October.
104) Belmont, P., Viparelli, E., Lauer, W.J., & Day, S.S. (2009). Channel-floodplain sediment exchange in a meandering and actively incising river. Geological Society of America, Annual Meeting, Portland, October.
105) Belmont, P., Wilcock, P.R., Parker, G., Gran, K., Jennings, C., Perg, L., Lauer, W.J., Viparelli, E., Day, S.S., and Johnson, A., 2008, *Watershed Context for a Sediment Routing Model in the Le Sueur River, Southern Minnesota*, paper 283-8, Geological Society of America, Annual Meeting, Houston, October.

106) Belmont, P., Viparelli, E., Parker, G., Lauer, W.J., Jennings, C., Gran, K., Wilcock, P.R., and Melesse, A., 2008, *Parameterization of a complex landscape for a sediment routing model of the Le Sueur River, southern Minnesota*, abstract H33K-02 American Geophysical Union, Fall Meeting.

107) Parker, G., Belmont, P., Gran, K., Jennings, C., Lauer, J.W., Perg, L., Viparelli, E., Wilcock, P.R., 2008, *Effect on rivers of massive changes in hydrologic regime due to human intervention*. European Geosciences Union General Assembly, Vienna, Austria.

108) Viparelli E., Sequeiros, O.E., Cantelli, A., and Parker, G., 2007, *A numerical model to store and access the stratigraphy of non-cohesive sediment as an alluvial bed aggrades and degrades in a flume*, Proceedings, 5th IAHR Symposium on River, Coastal and Estuarine Morphodynamics, 17 – 21 September.

109) Del Giudice G., Rasulo, G. & Viparelli, E. (2005). *Influenza dei bacini naturali sulle reti di drenaggio urbano: primi risultati sul sistema fognario della città di Napoli*, 1° Congresso di Idraulica Urbana, Acqua e città, Sorrento, Settembre.

TECHNICAL REPORT

Gran, K., Belmont, P., Day, S.S., Jennings, C., Lauer, J.W., Viparelli, E., Wilcock, P.R., Parker, G., *An Integrated Sediment Budget for the Le Sueur River Basin*, Final Report, June 2011, Minnesota Pollution Control Agency (MPCA).