Leicheng Guo

Born on 27 July 1985
in Ganzhou, Jiangxi, P.R. China
Add: Dongchuang R. 500
East China Normal University, SKLEC
Shanghai 200241, China
Tel: +86-21-54836462;
E-mail: lcguo@sklec.ecnu.edu.cn

Education and Work

2017.03- Associate Researcher, State Key Lab of Estuarine and Coastal Research, East China Normal University, Shanghai, China

2017.04-2018.03 Post-doc researcher, University of California, Irvine, CA

2015.01-2017.02 Post-doc researcher, State Key Lab of Estuarine and Coastal Research, East China Normal University

2010.04-2014.12 PhD of Delft University of Technology/ UNESCO-IHE, Delft, the Netherlands

2007.09-2010.03 (joint) MSc. and PhD. programme in SKLEC of East China Normal University

2003.09-2007.06 Bachelor degree of Wuhan University, Wuhan, China

Research interest

(1) Tidal wave dynamics
(2) Fine sediment transport dynamics
(3) Estuarine and deltaic morphodynamics

Peer-reviewed publications

(22) Zhou Zeng, Chen Luying, Tao Jianfeng *, Gong Zheng, **Guo Leicheng**, Mick van der Wegen, Ian Townend, Zhang Chuangkuan, 2020. The role of salinity in fluvio-deltaic morphodynamics: A long-term modelling study. Accepted in ***Earth Surface and Landform Processes***.

(21) Lin Jianliang, He Qing*, **Guo Leicheng**, Bram van Prooijen, Wang Zheng Bing, 2020. An integrated optic and acoustic (IOA) approach for measuring suspended sediment concentration in highly turbid environments. ***Marine Geology***. https://linkinghub.elsevier.com/retrieve/pii/S0025322718305127.

(20) Guo Chao, Jin Zhongwu, **Guo Leicheng ***, Lu Jinyou, Ren Yue, Zhou Yinjun, 2020. On the cumulative dam impact in the upper Changjiang River: Streamflow and sediment load changes. ***CATENA*** 184, 104250, doi.org/10.1016/j.catena.2019.104250.

(19) **Guo Leicheng,** Su Ni*, Ian Townend, Wang Zheng Bing, Zhu Chunyan, Zhang Yuning, Wang Xianye, He Qing, 2019. From the headwater to the delta: A synthesis of the basin-scale sediment load regime in the Changjiang River. *Earth-Science Review*,

https://doi.org/10.1016/j.earscirev.2019.102900.

(18) Cai Huayang, H.H.G., Savenije, Erwan Garel, Zhang Xinyi, **Guo Leicheng**, Zhang Min, Liu Feng*****, Yang Qingshu, 2019. Seasonal behavior of tidal damping and residual water level slope in the Yangtze River estuary: identifying the critical position and river discharge for maximum tidal damping. *Hydrology and Earth System Sciences* 23, 2779-2794.

(17) Cai Huayang, Zhang Xianyi, Zhang Min *, **Guo Leicheng**, Liu Feng, Yang Qingshu, 2019. Impacts of Three Gorges Dam's operation on spatial-temporal patterns of tide-river dynamics in the Yangtze River estuary, China. *Ocean Sciences* 15, 583-599.

(16) Zhu Chunyan, **Guo Leicheng ***, D.S. van Maren, Tian Bo, Wang Xianye, He Qing, Wang Zheng Bing, 2019. Decadal morphological evolution of the mouth zone of the Yangtze Estuary in response to human interventions. *Earth Surface and Landform Processes*, doi.org/10.1002/esp.4647.

(15) **Guo Leicheng ***, Wang Zheng Bing, Ian Townend, He Qing, 2019. Quantification of tidal asymmetry in varying tidal environments. *Journal of Geophysical Research: Oceans* 124, 773-787.

(14) Xie Weiming, He Qing*****, Wang Xianye, **Guo Leicheng**, Zhang Keqi, 2019. Role of mudflat-creek sediment exchanges in intertidal sedimentary processes. *Journal of Hydrology* 567, 351-360.

(13) **Guo Leicheng ***, Mathew Brand, Brett F. Sanders, Efi Foufoula-Georgia, Eric Stein, 2018. Tidal asymmetry and its variability in a short basin and implications on residual sediment transport and basin management. *Advances in Water Resources* 121, 1-8.

(12) **Guo Leicheng ***, Su Ni, Zhu Chunyan, He Qing. 2018. How have the river discharges and sediment loads changed in the Changjiang River basin downstream of the Three Gorges Dam? *Journal of Hydrology* 560, 259-274.

(11) Zhao Jie, **Guo Leicheng ***, He Qing, Wang Zheng Bing, D.S. van Maren, Wang Xianye, 2018. An analysis on half century morphological changes in the Changjiang Estuary: spatial variability under natural processes and human intervention. *Journal of Marine Systems* 181, 25-36.

(10) Xie Weiming, He Qing*****, Zhang Keqi, **Guo Leicheng**, Wang Xianye, Shen Jian, 2017. Impacts of human modification and natural variations on short-term morphological changes in estuarine tidal flats. *Estuaries and Coasts*, 1-15, doi.org/10.1007/s12237-017-0352-9.

(9). Chao Guo, Qing He, Bram C. van Prooijen, **Leicheng Guo**, Andrew J. Manning, Sarah Bass, 2017. Investigation of flocculation dynamics under changing hydrodynamic forcing on an intertidal mudflat. *Marine Geology* 395, 120-132.

(8). Weiming Xie, Qing He, Keqi Zhang, **Leicheng Guo**, Xianye Wang, Jian Shen, Zheng Cui, 2017. Application of terrestrial laser scanner on tidal flat morphology at a typhoon event time scale. *Geomorphology* 292, 47-58.

(7). Chao Guo, Qing He, **Leicheng Guo,** Johan C. Winterwerp, 2017. A study of in-situ sediment flocculation in the turbidity maxima of the Yangtze Estuary. *Estuarine, Coastal and Shelf Science* 191, 1-9.

(6). **Leicheng Guo**, Mick van der Wegen, Zheng Bing Wang, Dano Roelvink, He Qing, 2016. Exploring the impacts of multiple tidal constituents and varying river flow on long-term, large scale estuarine morphodynamics by means of a 1D model. *Journal of Geophysical Research: Earth Surface* 120, doi:10.1002/2016JF003821.

(5). **Leicheng Guo**, Mick van der Wegen, Zheng Bing Wang, Dano Roelvink, Qing He, 2015. Long-term, process-based morphodynamic modeling of a fluvio-deltaic system, Part I: the role of river discharge. *Continental Shelf Research 109, 95-111*.

(4). **Leicheng Guo**, Mick van der Wegen, David A. Jay, Pascal Matte, Zheng Bing Wang, Dano Roelvink, Qing He, 2015. River-tide dynamics: exploration of nonstationary and nonlinear tidal behavior in the Yangtze River estuary. *Journal of Geophysical Research: Ocean* 120, doi:10.1002/2014JC010491.

(3). **Leicheng Guo**, Mick van der Wegen, Dano Roelvink, Qing He, 2015. Exploration of impact of seasonal river discharge variations on estuarine morphodynamic behavior. *Coastal Engineering* 95, 105-116.

(2). **Leicheng Guo**, Mick van der Wegen, Dano Roelvink, Qing He, 2014. The role of river flow and tidal asymmetry on 1D estuarine morphodynamics. *Journal of Geophysical Research: Earth Surface* 119, doi: 10.1002/2014JF003110.

(1). **Leicheng Guo**, Qing He, 2011. Freshwater flocculation of suspended sediments in the Yangtze River, China. *Ocean Dynamics* 61(2-3), 371-386.

Book and chapters

Guo Leicheng, 2014. Modeling estuarine morphodynamics under combined river and tidal forcing. PhD. Dissertation of Delft University of Technology and UNESCO-IHE published by CRC Press. (open on http://repository.tudelft.nl/view/ihe/uuid:ff876599-ce99-4c82-8df3-803990dab17a/)

He Qing, **Guo Leicheng**, Liu Hong, Wang Ya, 2015. Changjiang estuary sediment transport dynamics. In: Jing Zhang (ed.), Ecological continuum from the Changjiang (Yangtze River) watersheds to the East China Sea continental margin, Springer, pp.47-69.

Conferences

(16) Guo Leicheng, He Qing, Su Ni, Sediment flux regime changes in the Changjiang River-East China Sea continuum. The 2nd **All Material Flux in River Eco-systems**, 11-13 Oct. 2019, Beijing (oral)

(15). Guo Leicheng, He Qing, Zhu Lei, Chen Yu. Sediment regulation in estuaries: revisiting the idea of 'restricting currents to attack silt'. The 14th **International Symposium on River Sedimentation**, 17-19 Sep. 2019 9, Chengdu, China (oral)

(14). Guo Leicheng, Su Ni, Zhu Chunyan, He Qing etc., Declined sediment source and connectivity: a basin-wide synthesis in the Changjiang River system. The 9th **International Conference on Asian Marine Geology**, Oct. 2018, Shanghai, China (Oral)

(13). Guo Leicheng, He Qing, Zhu Chunyan, Bed slope effects on large scale fluvio-deltaic morphodynamics, the 6th **International Conference on Estuaries and Coasts**, Aug. 2018, Caen, France (oral)

(12). Guo Leicheng, Matthew Brand, Brett F. Sanders, Jochen Schubert. The fate of Morphological change in Newport Bay: the influence of tidal dynamics and basin geometry under sea level rise. Word Wetlands Day Symposium, Feb 10, 2018, Newport, California (poster)

(11). Guo Leicheng, He Qing, Mick van der wegen. A numerical exploration of controls on tidal estuary length, **Physics of Estuaries and Coastal Seas** Conference, 9-14 Oct 2016, the Hague,

the Netherlands (poster)

(10). Cai Huayang, Guo Leicheng, Zhang Min, Yang Qingshu. The role of nonlinear overtides on the backwater hydrodynamics in the Yangtze estuary. EGU General Assembly 2016, 177-22 April 2016, Vienna.

(9). Guo Leicheng, He Qing, Mick van der Wegen, Development of large scale fluvio-deltaic morphodynamics by long-term modeling, **JpGU meeting** 2016, 22-27 May 2016, Chiba, Japan (oral, invited)

(8). Guo Leicheng, He Qing, Mick van der Wegen, Zheng Bing Wang, Dano Roelvink. River controls on large scale fluvio-deltaic morphodynamics: a numerical study. the 8th **International conference on Asian Marine Geology**, 5-10 Oct. 2015, Jeju, South Korea (oral, Young Scientist Award)

(7). Guo Leicheng, Mick van der Wegen, Dano Roelvink, Qing He, Analysis of river tides with a case in the Yangtze River estuary, China. **NCK-days** 2014, Delft, the Netherlands, Mar 2014. (Oral)

(6). Guo Leicheng, Mick van der Wegen, Dano Roelvink, Qing He, Effects of river discharge and tidal asymmetry on residual sediment transport and long-term morphodynamics in the river estuary. **AGU fall meeting** 2013, San Francisco, USA, Dec 2013. (Oral)

(5). Guo Leicheng, Mick van der Wegen, Dano Roelvink, Qing He, The tidal channel morphodynamics in the Yangtze Estuary: a case of the South Branch. The 7th international conference on **coastal dynamics**. Bordeaux, France, June 2013. (Oral)

(4). Guo Leicheng, Mick van der Wegen, Dano Roelvink, Qing He, Process-based long-term morphodynamic modeling of fluvial estuary. Oct 2012, International Symposium on Climate Change and Human Activities: Coastal Consequences and Response, Shanghai, China. (Oral)

(3). Guo Leicheng, He Qing, Dano Roelvink, Mick van der Wegen, Tidal flat morphodynamics in the Yangtze Estuary, China, 2011, the 11th **INTERCOH**, Shanghai, China. (Oral)

(2). Guo Leicheng, Dano Roelvink, Mick van der Wegen, He Qing, Modeling the long-tem morphodynamic behavior of the Yangtze Estuary, China, 2011, the 7th **RCEM** (River, Coastal and Estuarine Morphodynamics), Beijing, China. (Oral)

(1). Guo Leicheng, He Qing, Liu Hong, Characteristics of in-situ floc from river to estuary, Changjiang River (Yangtze), China. 2009, the 10th **INTERCOH** (International Conference on Estuarine and Coastal Fine Sediments Dynamics), Rio de Janeiro, Brazil. (Oral)

Projects

(6). Shanghai Rising Star Programme, Morphodynamic modeling and prediction of the estuarine morphodynamics in the Changjiang, 2019-2022, No.19QA1402900, PI.

(5). National Natural Science Foundation (China), Tidal river morphodynamic equilibrium restoration and implications on sediment flux to the sea, 2019-2022, No.41876091, PI.

(4). National Natural Science Foundation (China), River-tide interaction and the governing mechanisms, 2016-2018, No. 41506105, PI.

(3). National Natural Science Foundation (China), “Estuarine sediment transport and source-sink transformation in response to natural processes and human activities” (No.41276080), Participant with work focusing on modeling of sediment transport and morphodynamics in the Yangtze River estuary, involved in field work and extensive data analysis

(2). National Natural Science Foundation (China), “Navigational channel siltation and channel-flat response in a highly turbid estuary” (No.51320105005), Participant with work focusing on sediment dynamics and morphodynamic evolution of the Yangtze River estuary based on field data and involves in field work

(1). Sino-Dutch Cooperation Projects, “Sediment and sediment transport from upstream to estuary: Research on Sediment from Upstream to Estuary” (ReSeDUE) (No. 60038881), Participant with work focusing on long-term estuarine morphodynamic processes and governing processes by numerical modeling

Teaching and Supervision

2018.06- , Morphodynamic modeling in estuaries and coasts, Graduate lectures in SKLEC (18 hrs)

2014.09.27, Sediment transport modeling: an introduction, Graduate lectures in SKLEC of ECNU (2 hours)

2014.09.22, Sediment and beyond: interdisciplinary perspectives on sediments, MSc lectures in SKLEC of ECNU (1 hour)

2013.12.25, Coastal Geomorphology: an introduction, MSc. lectures in SKLEC of ECNU (2 hrs)

2012.11.20-23, Medium- to long-term morphodynamic modeling by using Delft3D (open source), lecture in SKLEC of ECNU (3 hours)

2012.09.17-21, Morphological modeling using Delft3D, MSc. lectures in UNESCO-IHE, Delft, the Netherlands (2 hours)

2012.10-2013.4, co-supervisor of MSc. thesis of Hao Jie in UNESCO-IHE

Rewards

2012 National Outstanding PhD Student, China

2012 President Scholarship, East China Normal University

2011 Wisdom Scholarship, East China Normal University

2010 PhD Fund (four years), China Scholarship Council

2009 Outstanding Student Union Work, East China Normal University

2004 Excellent Undergraduate Student Scholarship, Wuhan University

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