

## Curriculum vitae Jaap Nienhuis

Name	Jacob Harm (Jaap) Nienhuis	Email	jnienhuis@fsu.edu
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Phone	+1 774-521-8097	Date of birth	May 12, 1988

### RESEARCH INTERESTS

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Coastal hydrology, geomorphology, waves, sediment transport, coastal hazards, deltas, modelling, remote sensing

### EDUCATION

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PhD	<b>MIT / WHOI</b> , Marine Geology & Geophysics, 2016 Concentrations: Tidal Inlets, River Deltas, Bedforms Thesis: <i>Plan-view evolution of wave-dominated deltas</i> Advisors: A. Ashton (WHOI), L. Giosan (WHOI), T. Perron (MIT)
MSc	<b>University of Twente</b> , Civil Engineering ( <i>cum laude</i> ), 2011 Concentrations: Hydro/Morphodynamics, Hydraulic engineering, Flow networks Thesis: <i>Modeling deltaic response to changes in fluvial sediment delivery</i> Advisors: A. Ashton (WHOI), P. Roos (U Twente), S. Hulscher (U Twente)
BSc	<b>University of Twente</b> , Civil Engineering, 2009 Minor/pre-master: Mathematics, Stochastic operations research Thesis: <i>The usage of Cooperative/Adaptive Cruise Control</i> Advisors: S. Shladover (UC Berkeley), B. van Arem (U Twente)

### EMPLOYMENT

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2017/08-	<b>Florida State University</b> <i>Earth, Ocean, and Atmospheric Science</i>	Assistant Professor
2017/07-	<b>Wageningen UR</b> <i>Hydrology and Quantitative Water Management</i>	Lecturer/Researcher
2016/01-2017/06	<b>Tulane University</b> <i>Earth and Environmental Sciences</i>	Postdoctoral Fellow
2012/09-2015/12	<b>MIT / WHOI</b> <i>Marine Geology &amp; Geophysics</i>	Grad. Res. Assistant
2012/03-2012/09	<b>Woods Hole Oceanographic Institution</b> <i>Geology &amp; Geophysics</i>	Guest Investigator
2011/11-2012/03	<b>Royal Haskoning</b> <i>Distributed Temperature Sensing (DTS)</i>	Software Developer
2011/02-2011/07	<b>Woods Hole Oceanographic Institution</b> <i>Geology &amp; Geophysics</i>	Guest Student
2009/05-2009/08	<b>University of California, Berkeley</b> <i>Institute for Transportation Studies</i>	Research Scholar

### TEACHING

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2018 Fall	<b>FSU</b> Coastal Geomorphology
2018 Spring	<b>FSU</b> Graduate Seminar on Gulf of Mexico coastlines
2018 Spring	<b>FSU</b> Physical Geology
2017 Fall	<b>Wageningen UR</b> Hydrology and Geology of Deltas (co-instructor)
2016 Fall	<b>Tulane University</b> Marine Environmental Geology (6 lectures)
2015 – 2014	<b>MIT</b> MATLAB Bootcamp (co-instructor)
2011	<b>University of Twente</b> Cost Management & Engineering (teaching assistant)
2011	<b>University of Twente</b> Modeling B (teaching assistant)
2011 – 2008	<b>University of Twente</b> Finance & Accounting (teaching assistant)

## Curriculum vitae Jaap Nienhuis

### GRANTS

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2018	American Chemical Society Petroleum Research Fund, Filling of incised valleys: how long does a sea-level highstand need to last? (PI, \$110k, <i>in review</i> )
2018	NSF-EAR-GLD, Predicting Coastal Deltaic Change on a Global Scale (PI, \$214k, 2018-2020)
2017	Florida State University FYAP summer award, Can sea-level rise explain ongoing coastal change? (PI, \$20k)
2014	WHOI Deep Ocean Exploration Graduate Student Fellowship
2014	WHOI Ocean Ventures Fund Grant
2014	GSA Graduate Student Research Grant
2011	Royal Dutch Society of Engineers Travel Grant

### HONORS/AWARDS

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2018	AGU Editor's Citation for Excellence in Refereeing for <i>JGR-Earth Surface</i>
2017	Wageningen University Postdoc Talent Programme in Computational Hydrology
2015	AGU Fall Meeting Outstanding Student Paper Award
2015	Los Alamos National Laboratory Directors Postdoctoral Fellowship
2014	CSDMS Annual Meeting Best Poster Award
2013	CSDMS Annual Meeting student keynote talk
2011	Graduated <i>cum laude</i> from the University of Twente
2010	Dutch Nomination at the International Meuse Symposium in Liege, BE
2010	Nominated for the University of Twente thesis prize

### ADDITIONAL EXPERIENCE

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2017	Convener AGU Fall Meeting Session Tides and Rivers, Deltas and Estuaries
2017	Convener Fifth International Planetary Dunes Workshop, St. George, Utah
2017	Deltares Risc-KIT summer school on coastal hazards, Faro, Portugal
2016	Convener AGU Fall Meeting Session Coastal Geomorphology and Morphodynamics
2016	Mississippi delta fieldwork: sediment coring in oxbow lakes for paleoflood reconstruction
2016	Mississippi delta fieldwork: drilling wells for the installation of fiber-optic compaction meters
2015	National Center for Earth-surface Dynamics summer school, New Orleans
2015 – 2013	Board member/organizer for the MIT EAPS students association
2014	Danube delta fieldwork (PI): collecting electrical resistivity data and OSL samples
2014	WHOI Coastal field methods field school, Woods Hole
2014	BanglaPIRE delta and tectonics field school, Bangladesh
2012	Mississippi delta fieldwork: sediment coring in oxbow lakes for paleoflood reconstruction
2012	National Center for Earth-surface Dynamics summer school, Minneapolis
2012 – 2006	Cub Scout leader at Tecumseh, Haren, NL

## Curriculum vitae Jaap Nienhuis

### ADVISING

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Postdoctoral Scholars	Christopher Daly (2018-present), <i>coral reef morphodynamics</i> Juan Felipe Paniagua Arroyave (2018-present), <i>tropical deltas</i>
Graduate students	Daan van Keulen (2017-present, MSc at WUR), <i>scours in estuaries</i> Hamzah Suharyanto (2017-present, MSc at WUR), <i>long-term estuarine change</i> Mingyang Chen (2018-present, PhD at FSU), <i>remote sensing of global coastal change</i> Megan Behnke (2017-present, PhD at FSU, Committee member), <i>arctic organic carbon</i> Mustuque Munim (2018-present, PhD at FSU, Committee member), <i>sediment provenance</i>
Undergraduate students	Kevenia Faton (2017-present), <i>remote sensing detection of sea-level rise induced erosion</i>

### MISCELLANEOUS

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Reviewer	~25 manuscripts/proposals submitted to: National Science Foundation, Nature Geoscience, Geophysical Research Letters, Journal of Geophysical Research, Marine Geology, GSA Bulletin, American Chemical Society PRF, Water, Elementa, ESPL, Geology, Geomorphology, Catena, Water Resources Research
Invited Talks	AGU Fall Meeting (2018), University of Alabama (2018), UT Austin (2017), Fifth International Planetary Dunes Workshop (2017), Tulane University (2017), Naval Research Laboratory (2017), Florida State University (2017), New Orleans Geological Society (2017), Water Institute of the Gulf (2016), AGU Ocean Sciences Press Conference (2016), University of Minnesota Twin Cities (2016), Los Alamos National Laboratory (2015), WHOI Coastal Ocean Fluid Dynamics Laboratory Seminar (2015)
Languages	Dutch (native speaker), English (fluent), German (basic)
Programming	C, Javascript, Matlab

### PEER REVIEWED PUBLICATIONS

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- Nienhuis, J.H., Törnqvist, T.E., Esposito, C.R. (2018) Crevasse splays versus avulsions: A recipe for land building with levee breaches, *Geophysical Research Letters*, doi:10.1029/2018GL077933
- Nienhuis, J.H., Törnqvist, T.E., Houtink, A.J.F. (2018) Future changes to tide-dominated deltas, *Geophysical Research Letters*, doi:10.1029/2018GL077638
- Nienhuis, J.H., A.D. Ashton, A.J. Kettner, L. Giosan (2017) Large-scale coastal and fluvial models constrain the late Holocene evolution of the Ebro delta, Spain, *Earth Surf. Dynam.*, doi:10.5194/esurf-2017-9 (*featured in NASA Earth Observatory*)
- Nienhuis, J.H., T.E. Törnqvist, K.L. Jankowski, A.J. Fernandes, M. Keogh (2017) A new subsidence map of coastal Louisiana, *GSA Today*, v. 27, doi:10.1130/GSATG337GW.1 (*featured in the Washington Post, Boston Globe, TIME, and others*)
- Nienhuis, J.H., Ashton, A.D. (2016) Mechanics and rates of tidal inlet migration: modeling and application to natural examples, *J Geophys. Res. Earth Surf.* 121, doi:10.1002/2016JF004035
- Nienhuis, J.H., A. D. Ashton, L. Giosan (2016) Littoral steering of deltaic channels, *Earth Planet. Sci. Lett.*, 453, 204–214, doi:10.1016/j.epsl.2016.08.018.
- Nienhuis, J.H., Ashton, A.D., Nardin, W., Fagherazzi, S., Giosan, L. (2016) Alongshore sediment bypassing as a control on river mouth morphodynamics, *J Geophys. Res. Earth Surf.* 121, 664–683, doi:10.1002/2015JF003780
- Ashton, A.D., Nienhuis, J.H., Ells, K. (2016) On a neck, on a spit: controls on the shape of free spits. *Earth Surf. Dynam.*, 4, 193–210, doi:10.5194/esurf-4-193-2016
- Nienhuis, J.H., A. D. Ashton, L. Giosan (2015) What makes a delta wave-dominated?, *Geology*, 43(6), 511–514, doi:10.1130/G36518.1. (*featured in MIT news, phys.org, and others*)

## Curriculum vitae Jaap Nienhuis

- Nienhuis, J.H., Perron, J.T., Kao, J.C.T., Myrow, P.M. (2014) Wavelength selection and symmetry breaking in orbital wave ripples. *J. Geophys. Res. Earth Surf.* 119, 2239–2257, doi: 10.1002/2014JF003158. (*AGU EOS Research Highlight*)
- Vosse, M., Schilperoort, R., Haan, C. de, Nienhuis, J.H., Tirion, M., Langeveld, J.G. (2013) Processing of DTS monitoring results: automated detection of illicit connections, *Water Practice & Technology*, 8(3-4), 375-381, doi:10.2166/wpt.2013.037
- Nienhuis, J.H., A. D. Ashton, P.C. Roos, S.J.M.H. Hulscher, L. Giosan (2013) Wave reworking of abandoned deltas, *Geophys. Res. Lett.*, 40, 5899–5903, doi:10.1002/2013GL058231
- Nienhuis, J.H., C. de Haan, J. Langeveld, M. Klootwijk, F. Clemens (2013) Assessment of detection limits of fiber-optic distributed temperature sensing for detection of illicit connections, *Water science and technology*, 67(12), 2712-2718.
- Ashton, A.D., E.W.H. Hutton, A.J. Kettner, F. Xing, J. Kallumadikal, J.H. Nienhuis, L. Giosan (2013) Progress in coupling models of coastline and fluvial dynamics, *Computers & Geosciences*, 53, 21-29

### IN REVIEW / PREPARATION

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- Lera, S., W. Nardin, J.H. Nienhuis (in revision) The impact of offshore waves and vegetation on the sediment budget in the Virginia Coast Reserve (VA), *Earth Surface Processes and Landforms*
- Nienhuis, J.H., Ashton, A.D., Kettner, A.J., Edmonds, D.A., Rowland, J.C., Törnqvist, T.E., Hoitink, A.J.F. (in preparation) Predicting coastal deltaic change on a global scale
- Nienhuis, J.H., J. Lorenzo-Trueba. (in preparation) Can barrier islands survive sea level rise? Tidal inlets versus storm overwash
- Nienhuis, J.H., J. Lorenzo-Trueba. (in preparation) Barrier island and inlet environment (BRIE) model v1.0

### OTHER PUBLICATIONS

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- Nienhuis, J.H. (2018) Barrier Inlet Environment (BRIE) Model, long-term coastal barrier response to sea-level rise, doi:10.5281/zenodo.1218142
- Makaske, B., J.H. Nienhuis, S. Naqshband, J. Wallinga, A.J.F. Hoitink (2017) Hydrology and Geology of Deltas, course reader, Wageningen University, Wageningen, Netherlands
- Nienhuis, J.H. (2016) Plan-view evolution of wave-dominated deltas (doctoral dissertation), MIT-WHOI Joint Program in Oceanography, Marine Geology & Geophysics, doi: 10.1575/1912/7742
- Nienhuis, J.H., A. D. Ashton, W. Nardin, S. Fagherazzi, L. Giosan (2015), Breaking-Wave-Driven Sediment Bypassing of River Mouths: Mechanisms and Effects on Delta Evolution, in *The Proceedings of the Coastal Sediments 2015*, edited by P. Wang, J. Rosati, and J. Cheng, World Scientific Pub Co Inc, San Diego, USA, doi: 10.1142/9789814689977\_0158
- Vosse, M., Schilperoort, R., Haan, C. de, Nienhuis, J.H., Tirion, M., Langeveld, J.G. (2012) Processing of DTS monitoring results: automated detection of illicit connections. IWC Conference, Amsterdam, NL
- Nienhuis, J.H., Haan, C. de, Langeveld, J.G., Klootwijk, M., Clemens, F.H.L.R. (2012) Assessment of detection limits of fiber-optic distributed temperature sensing for detection of illicit connections, *Urban Drainage Modelling*, Belgrade, Serbia
- Nienhuis, J.H., A.D. Ashton, P.C. Roos, S.J.M.H. Hulscher, Giosan, L. (2012) Modeling deltaic response to changes in fluvial sediment delivery, NCK days, Netherlands center for coastal research, Enschede, Netherlands.
- Nienhuis, J.H. (2011) Deltaic response to fluvial sediment elimination, *Conceptuel* 20 (4), 15-18
- Shladover, S.E., X.Y. Lu, D. Cody, C. Nowakowski, T.Z. Qiu, A. Chow, J. O'Connell, J.H. Nienhuis, D. Su (2011) Development and Evaluation of Selected Mobility Applications for VII, in *UCB-ITS-PRR-2010-25*, PATH, UC Berkeley, Berkeley.
- Nienhuis, J.H. (2011) Modeling deltaic response to changes in fluvial sediment delivery (MSc thesis), University of Twente, Twente Water Centre, url: [essay.utwente.nl/61060/](http://essay.utwente.nl/61060/)
- Nienhuis, J.H. (2009) Automating the drivers' behaviour: the use of Cooperative/Adaptive Cruise Control (BSc thesis), University of Twente, Centre for Transport Studies, url: [essay.utwente.nl/68776/](http://essay.utwente.nl/68776/)

## Curriculum vitae Jaap Nienhuis

### ABSTRACTS

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- Nienhuis, J.H., T.E. Törnqvist, K.L. Jankowski, A.M. Fernandes, M. Keogh (2018) A new subsidence map for coastal Louisiana, State of the Coast Meeting, New Orleans, LA
- Nienhuis, J.H., J. Lorenzo-Trueba. (2018) Can barrier islands survive sea level rise? Tidal inlets versus storm overwash, CSDMS Annual Meeting, Boulder, CO
- Goodwin, G., J.H. Nienhuis, S. Mudd (2018) The geometries of salt marsh erosion, EGU2018-14339, EGU general assembly, Vienna, Austria
- Nardin, W., J.H. Nienhuis (2018) The impact of offshore waves and vegetation on the sediment budget in the Virginia Coast Reserve (VA), Ocean Sciences Meeting, Portland, OR
- Törnqvist, T.E., K.L. Jankowski, A.M. Fernandes, M. Keogh, J.H. Nienhuis (2017) Monitoring Rates of Subsidence and Relative Sea-Level Rise in Low-Elevation Coastal Zones: A New Approach, AGU Fall Meeting, New Orleans, LA
- Roy, S., D.A. Edmonds, S.M. Robeson, A.C. Ortiz, J.H. Nienhuis (2017) Spatial and Temporal Patterns of Land Loss in Mississippi River Delta, AGU Fall Meeting, New Orleans, LA
- Caldwell, R.L., D.A. Edmonds, S.E. Baumgardner, C. Paola, S. Roy, J.H. Nienhuis (2017) Controls on delta formation, area, and topset slope: New predictive relationships developed using a global delta dataset, AGU Fall Meeting, New Orleans, LA
- Nienhuis, J.H., J. Lorenzo-Trueba. (2017) Can barrier islands survive sea level rise? Tidal inlets versus storm overwash, AGU Fall Meeting, New Orleans, LA
- Nienhuis, J.H., Törnqvist, T.E., Hoitink, A.J.F. (2017) What makes a delta tide-dominated? River, Estuarine, Coastal Morphodynamics, Padova, Italy
- Nienhuis, J.H., Perron, J.T., Traykovski, P.A. (2017) Mechanics of marine ripples and implications for planetary analogs. Fifth International Planetary Dunes Conference, St. George, Utah
- Edmonds, D.A., Caldwell, R., Baumgardner, S., Paola, C., Roy, S., Nelson, A., Nienhuis, J.H. (2017) A Global Analysis of human habitation on river deltas, EGU2017-10832, EGU general assembly, Vienna, Austria
- Nienhuis, J.H., Ashton, A.D., Kettner, A.J., Edmonds, D.A., Rowland, J.C., Törnqvist, T.E., Hoitink, A.J.F. (2017) Predicting coastal deltaic change on a global scale, EGU2017-465, EGU general assembly, Vienna, Austria
- Nienhuis, J.H. (2017) How to find every river delta on Earth? EGU2017-14119, EGU general assembly, Vienna, Austria
- Nienhuis, J.H., Törnqvist, T.E., Esposito, C.R. (2016) How much land for your sand: effects of vegetation and compaction on crevasse splay formation. AGU Fall Meeting, San Francisco, CA
- Nienhuis, J.H., Ashton, A.D., Kettner, A.J., Edmonds, D.A., Rowland, J.C., Törnqvist, T.E. (2016) Predicting coastal deltaic change on a global scale. CSDMS Annual Meeting, Boulder, CO
- Nienhuis, J.H., Ashton, A.D. (2016) Quantifying tidal inlets as a sink of littoral sediment. GSA South Central Meeting, Baton Rouge, LA
- Nienhuis, J.H., Ashton, A.D., Kettner, A.J., Edmonds, D.A., Rowland, J.C. (2016) Predicting coastal deltaic change on a global scale. Ocean Sciences Meeting, New Orleans, LA
- Nienhuis, J.H., Ashton, A.D. (2015) Wave-driven tidal inlet migration: mechanics and effects on barrier morphology. AGU Fall Meeting, San Francisco, CA (*outstanding student paper award*)
- Ashton, A.D., Biolchi, L.G., Nienhuis, J.H. (2015) The First Guess: Testing predictions of coastal change from shoreline orientation and wave climate along Cape Cod and the U.S. Eastern Coast. AGU Fall Meeting, San Francisco, CA
- Nienhuis, J.H., Traykovski, P.A., Samuelson, K., Perron, J.T. (2015) Wavelength selection of tidally reversing mega-ripples, field observations and comparison with numerical flow modeling. CSDMS Annual Meeting, Boulder, CO
- Nienhuis, J.H., Ashton, A.D., Giosan, L., Nardin, W., Fagherazzi, S. (2014) Sediment bypassing of river mouths: mechanisms and effects on delta evolution. AGU Fall Meeting, San Francisco, CA
- Nienhuis, J.H., Ashton, A.D., Giosan, L. (2014) Wave angle control on deltaic channel orientation. CSDMS Annual Meeting, Boulder, CO (*best poster award*)
- Nienhuis, J.H., Perron, J.T., Kao, J.C., Myrow, P. (2013) Fluid dynamical control of spacing and symmetry breaking in orbital wave ripples. AGU Fall Meeting, San Francisco, CA

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- Ashton, A.D., Nienhuis, J.H., Ortiz, A.C., Lorenzo Trueba, J., Giosan, L. (2013) Left behind: effects of marine reworking and sea-level rise on deltas of the 21st century. AGU Fall Meeting, San Francisco, CA
- Nienhuis, J.H., Ashton, A.D., Giosan, L. (2013) Terrestrial climate impacts on river deltas. GCC Conference, Woods Hole, MA.
- Nienhuis, J.H., Ashton, A.D., Giosan, L. (2013) Using numerical models to constrain the evolution of the Ebro Delta. RCEM, Santander, ES
- Nienhuis, J.H., Ashton, A.D., Giosan, L. (2013) Growth and Abandonment: Quantifying First-order Controls on Wave Influenced Deltas. CSDMS Annual Meeting, Boulder, CO (*invited*)
- Ashton, A.D., Nienhuis, J.H. (2012) On the hook of a Spit. AGU Fall Meeting, San Francisco, CA
- Nienhuis, J.H., Ashton, A.D., Giosan, L. (2012) Quantifying the transition from fluvial- to wave-dominance for river deltas with multiple active channels. AGU Fall Meeting, San Francisco, CA
- Ashton, A.D., Giosan, L., Nienhuis, J., Kettner, A., and Ibanez, C. (2011) Modeling the evolution of wave-dominated deltas: influence of wave angle distribution and sediment supply variation on plan-view morphologies, with application to the Ebro Delta, Spain. DeltaNet International Conference, Ebro Delta, ES.
- Hogeboom, H. J., T. Doldersum, J.H. Nienhuis, M. Siemerink, F. v. d. Werf, A. Zeekant (2010) 'Ritsen met water' How to manage the Meuse, International Meuse Conference, Liege, BE (*invited*)