

List of publications

Model development and tides

- Wang, X., Verlaan, M., Veenstra, J., and Lin, H. X. (2022). Data-assimilation-based parameter estimation of bathymetry and bottom friction coefficient to improve coastal accuracy in a global tide model. *Ocean Sci.*, 18, 881–904, 2022. <https://doi.org/10.5194/os-18-881-2022>
- Wang, X., Verlaan, M., Apecechea, M. I., & Lin, H. X. (2021). ComputationEfficient Parameter Estimation for a HighResolution Global Tide and Surge Model. *Journal of Geophysical Research: Oceans*, 126(3), e2020JC016917. <https://doi.org/10.1029/2020JC016917>
- Apecechea, M. I., Verlaan, M., Zijl, F., Le Coz, C., & Kernkamp, H. (2017). Effects of self-attraction and loading at a regional scale: a test case for the Northwest European Shelf. *Ocean Dynamics*, 67(6), 729–749. <https://doi.org/10.1007/s10236-017-1102-z>
- Williams, J., Irazoqui Apecechea, M., Saulter, A., & Horsburgh, K. J. (2018). Radiational tides: their double-counting in storm surge forecasts and contribution to the Highest Astronomical Tide. *Ocean Science*, 14(5), 1057–1068. <https://doi.org/10.5194/os-14-1057-2018>

Operational forecasting

- De Kleermaeker, S., Verlaan, M., Mortlock, T., Rego, J. L., Apecechea, M. I., Yan, K., & Twigt, D. (2017). Global-to-local scale storm surge modelling on tropical cyclone affected coasts. *Australasian Coasts & Ports 2017: Working with Nature*, 358.
- Verlaan, M., De Kleermaeker, S., & Buckman, L. (2015, January). GLOSSIS: Global storm surge forecasting and information system. In *Australasian coasts & ports conference (Vol. 2015, p. 22nd)*.

Reanalysis of historical extremes

- Muis, S., Verlaan, M., Winsemius, H. C., Aerts, J. C. J. H., & Ward, P. J. (2016). A global reanalysis of storm surge and extreme sea levels. *Nature Communications*, 7(7:11969), 1–11, doi:10.1038/ncomms11969.
- Dullaart, J., Muis, S., Bloemendaal, N., Chertova, M., Couasnon, A. & Aert, J. (2021). Accounting for tropical cyclones more than doubles the global population exposed to low-probability coastal flooding, *Earth Environment Communications*.
- Muis, S., Ning Lin, Verlaan, M., Winsemius, H. C., Ward, P. J., & Aerts, J. C. J. H. (2018). Spatiotemporal patterns of extreme sea levels along the western North-Atlantic coasts. *Scientific Reports*, 9, 3391
- Muis, S., Haigh, I. D., Guimarães Nobre, G., Aerts, J. C. J. H., & Ward, P. J. (2018) Influence of El Niño–Southern Oscillation on global coastal flooding. *Earth's Future*, 6, doi:10.1029/2018EF000909
- Muis, S., Verlaan, M., Nicholls, R. J., Brown, S., Hinkel, J., Lincke, D., Vafeidis, A.T., Scussolini, P., Winsemius, H.C., Ward, P. J. (2017). A comparison of two global datasets of extreme sea levels and resulting flood exposure. *Earth's Future*, 5(4), 379–392, doi:10.1002/2016EF000430
- Dullaart, J. C., Muis, S., Bloemendaal, N., & Aerts, J. C. (2020). Advancing global storm surge modelling using the new ERA5 climate reanalysis. *Climate Dynamics*, 54(1-2), 1007–1021.
- Bloemendaal, N., Muis, S., Reindert J. Haarsma, R. J., Verlaan, V., Irazoqui Apecechea, M., de Moel H., Ward, P. J. & Aerts, J. C. J. H. (2018). Global modelling of tropical cyclone storm surges using high-resolution forecasts. *Climate Dynamics*, doi:10.1007/s00382-018-4430-x
- Li, H., Haer, T., Couasnon, A., Enríquez, A. R., Muis, S., & Ward, P. J. (2023). A spatially-dependent synthetic global dataset of extreme sea level events. *Weather and Climate Extremes*, 100596.
- Parker, K., Erikson, L., Thomas, J., Nederhoff, K., Barnard, P., & Muis, S. (2023). Relative contributions of water-level components to extreme water levels along the US Southeast Atlantic Coast from a regional-scale water-level hindcast. *Natural Hazards*, 1–30.

Climate change projections

- Muis, S., Aerts, J. C. J. H., Á. Antolínez, J. A., Dullaart, J. C., Duong, T. M., Erikson, L., et al. (2023). Global projections of storm surges using high-resolution CMIP6 climate models. *Earth's Future*, 11, e2023EF003479. <https://doi.org/10.1029/2023EF003479>
- Scussolini, P., Dullaart, J., Muis, S., Rovere, A., Bakker, P., Coumou, D., Renssen, H., Ward, P. J., and Aerts, J. C. J. H. (2023). Modeled storm surge changes in a warmer world: the Last Interglacial, Climate of the Past, <https://doi.org/10.5194/cp-19-141-2023>
- Muis, S., Apecechea, M. I., Dullaart, J., de Lima Rego, J., Madsen, K. S., Su, J., ... & Verlaan, M. (2020). A High-resolution global dataset of extreme sea levels, tides, and storm surges, including future projections. *Frontiers in Marine Science*, 7, 263, <https://doi.org/10.3389/fmars.2020.00263>
- Kirezci, E., Young, I. R., Ranasinghe, R., Muis, S., Nicholls, R. J., Lincke, D., & Hinkel, J. (2020). Projections of global-scale extreme sea levels and resulting episodic coastal flooding over the 21st Century. *Scientific Reports*, 10(1), 1–12.
- Wolff, C., Vafeidis, A. T., Muis, S., Lincke, D., Satta, A., Lionello, P., Jimenez, J. A., Conte, D. & Hinkel, J. (2018). A Mediterranean coastal database for assessing the impacts of sea-level rise and associated hazards. *Scientific Data*, 5, 180044, <https://doi.org/10.1038/sdata.2018.44>
- Vousdoukas, M. I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L. P., & Feyen, L. (2018). Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. *Nature communications*, 9(1), 1–12.
- Vousdoukas, M. I., Mentaschi, L., Voukouvalas, E., Verlaan, M., & Feyen, L. (2017). Extreme sea levels on the rise along Europe's coasts. *Earth's Future*, 5(3), 304–323

Satellite altimetry

- Bij de Vaate, I., Vasulkar, A. N., Slobbe, D. C., & Verlaan, M. (2021). The influence of Arctic landfast ice on seasonal modulation of the M2 tide. *Journal of Geophysical Research: Oceans*, e2020JC016630

Compound flooding

- Ikeuchi, H., Hirabayashi, Y., Yamazaki, D., Muis, S., Ward, P. J., Winsemius, H. C., Verlaan, M., Kanae, S. (2017). Compound simulation of fluvial floods and storm surges in a global coupled river-coast flood model: Model development and its application to 2007 Cyclone Sidr in Bangladesh. *Journal of Advances in Modelling Earth Systems*, 9(4), doi:10.1002/2017MS000943
- Couasnon, A., Eilander, D., Muis, S., Veldkamp, T. I., Haigh, I. D., Wahl, T., ... & Ward, P. J. (2020). Measuring compound flood potential from river discharge and storm surge extremes at the global scale. *Natural Hazards and Earth System Sciences*, 20(2), 489–504.
- Eilander, D., Couasnon, A., Ikeuchi, H., Muis, S., Yamazaki, D., Winsemius, H. C., & Ward, P. J. (2020). The effect of surge on riverine flood hazard and impact in deltas globally. *Environmental Research Letters*, 15(10), 104007.
- Eilander, D., Couasnon, A., Leijnse, T., Ikeuchi, H., Yamazaki, D., Muis, S., Dullaart, J., Haag, A., Winsemius, H. C., and Ward, P. J. (2023). A globally applicable framework for compound flood hazard modeling, *Nat. Hazards Earth Syst. Sci.*, 23, 823–846, <https://doi.org/10.5194/nhess-23-823-2023>

Storm surge hydrographs

- Dullaart, J. C. M., Muis, S., de Moel, H., Ward, P. J., Eilander, D., and Aerts, J. C. J. H. (2023). Enabling dynamic modelling of coastal flooding by defining storm tide hydrographs, *Nat. Hazards Earth Syst. Sci.*, 23, 1847–1862, <https://doi.org/10.5194/nhess-23-1847-2023>