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“Modeling and Simulation of Meteorological Tsunamis”

Tsunamis are often associated to geographical locations far away from the North Sea or Baltic coast of Germany, and therefore considered irrelevant here. However, modern high frequency tide gauge data reveal that there are a number of tsunami-like events each year at our German shores, mostly unnoticed, because of small amplitudes. In this presentation, I will give a short historical outline of meteorological Tsunamis (called "Seebären"), give a physical explanation of their occurrence, show approaches to model them and simulate a particular event, that happened on May 29, 2017. Our tool to simulate meteorological tsunamis employs an adaptive well-balanced discontinuous Galerkin method, and is validated against simplified test cases.