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**Simulation of PDC 2019 Asteroid Land and Ocean Impacts:
Consequences on US Major Cities for Disaster Response and Management**

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ABSTRACT

A hypothetical asteroid-impact scenario (<https://cneos.jpl.nasa.gov/pd/cs/pdc19/>) will be used as the basis for discussion and analyses during the PDC 2019 table-top exercise. The asteroid is “discovered” on March 26, 2019, and is classified as a potentially hazardous asteroid with a diameter initially estimated between 100-300 meters. The large size uncertainty is due to uncertainties in both albedo and absolute-magnitude values. As the object is tracked over subsequent months, its impact-risk region is estimated to be much longer than the diameter of the Earth, but its width is only about 70 kilometers. The intersection of the uncertainty region with the Earth creates a so-called “risk corridor” across the surface of the Earth. The corridor wraps more than halfway around the globe, spanning from the Hawaii on the western end, across the U.S. and Atlantic Ocean, and all the way to central and southern Africa on the eastern end. Given the significant water-impact probability, and because most of the potentially affected coastal regions are heavily populated, we focused our simulation efforts on modeling water impacts at several locations along the asteroid risk corridor. We have simulated the problem from asteroid entry, to ocean impact, to wave generation, propagation, interaction with the shoreline and the flooding of the coastline major US cities. We have simulated three different

