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Numerical model of 1771 Meiwa tsunami and influence of sea level rise on the inundation

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Climate change impact on the Ryukyu Islands is often related to coral bleaching induced by warming waters. Beyond this aspect, a sea level rise is also expected as suggested by the IPCC AR5. This rise will impact the coasts and the inundation areas, and has already been studied in other parts of the world as in the port of Barcelona (*Sierra et al., 2017*) or in the Bay of Bangladesh (*Karim & Mimura, 2008*). The aim of the present study is to measure the influence of projected estimates of mean sea level rise for extreme events such as the 1771 Meiwa tsunami that hit the Ryukyu Islands. During this event, run-ups of about $30m$ were witnessed, and the local population suffered a sever loss (around 30%), translating the violence of this phenomenon. First, a numerical simulation is built using the numerical model CROCO (*Debreu et al., 2012*) for the real event. The inundation that occurred in the Ishigaki Island is studied with a system of nested grids. Then, a second simulation of this event is created taking into account scenarios of the sea level rise. A comparison of the inundation areas will allow us to measure the influence of the sea level rise if this kind of extreme events happens again.