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Title: New tide gauge and flood threshold datasets to facilitate flood hazard assessments

Abstract:

Coastal flooding in Australia has historically been associated with inclement weather including low pressure and strong winds. However international studies indicate that in many locations, floods can occur during high tides under sunny skies and relatively light winds, simply because global mean sea levels are increasing the levels about which tides rise and fall. Consideration of these high-tide flood events is noticeably absent from Australian coastal flood hazard studies and assessment frameworks. Here we discuss the development of two new datasets that were developed so this knowledge gap could be addressed. ANCHORS, the Australian National Collection of Homogenised Observations of Relative Sea Level (Hague et al. 2021, DOI: 10.1002/gdj3.136), is a new national tide gauge-based sea level dataset for monitoring sea level changes around Australia and the changes in coastal flood frequencies these elicit. Secondly, we collate flood impact information from diverse sources including social and traditional media, published reports, and harnessing existing institutional knowledge to define impact-based coastal flood thresholds for minor flooding.

We briefly discuss the results of the first national assessment of high-tide floods hazards (Hague et al. 2022, DOI: 10.1029/2021EF002483) that follows from the development of these two datasets