



On the estimation of damages due to coastal floods

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Sea level rise is going to affect the statistics of extreme sea levels. If one wants to calculate damages due to upcoming storm surges, it is necessary to estimate the damage due to individual flood events. In the case of (coastal) floods, so called stage damage functions are employed, which provide for a flood of certain maximum level a typical damage that occurs at a considered location. We investigate how changes in the extreme value statistics affect the expected damages and find surprisingly simple relations. Our results show that in addition to the knowledge about local sea level rise, it is essential to know the actual form of damage functions which usually follow power-laws. Thus, we estimate damage functions (i) from historical flood damages and (ii) from a limited case study.