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Storm surges at the Northern Adriatic Coast, trends and spatial

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Two long time series of hourly sea level data are available at the Northern shore of the Adriatic Sea in Venice and Trieste, which are about 100km apart and located almost at the opposite sides of the closed northern part of the basin, in different geomorphologic condition. The analysis is based on the computation of the net storm surge level after subtraction of astronomical tide and the mean sea level intermonthly variability. The data are processed with an automatic software procedure for the identification of independent events, computing storm surge duration and peak level. The comparison between the records allow to identify local effects, such as the soil subsidence which took place in the period 1930-1970 in Venice, and to analyze the spatial variability of the storm surge (in fact the relative ranking of surge events is not identical in the two locations). The intensity of the cross-basin wind component plays a crucial role in the differences of hourly values. In general the factors responsible for the differences in the records are discussed. However, the records in Venice and Trieste show also dominant common trends and parallel interdecadal variability in the frequency of the events, that can be used for linking the sea surface oscillations at such sub-regional scale with large scale patterns (such as NAO and other teleconnection patterns).