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Drivers of storm surge change in Hamburg

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The history of storm surges in Hamburg since about 1750 is reviewed.

Drivers as well as perspectives for the future are identified. For the time prior to 1850, coastal defense failure was a regular phenomenon; from about 1850-1960 coastal defense was hardly challenged, and after 1962 storm surge heights rose to levels never recorded before. The most likely causes for this change are modifications of the Elbe estuary, related to coastal defense and improving the shipping channel. Anthropogenic climate change may lead in the future to even higher storm surges (mainly because of increased sea level in the German Bight). However, this increase possibly may be mitigated by the "tidal Elbe project", designed to reduce upstream river sediment transport.