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The Meio 1498 earthquake and tsunami : driving force of abrupt environmental change in the Hamana floodplain, Shizuoka prefecture, Japan.

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The objective of this research is to study the role of a tsunami, generated by the 1498 Meio earthquake (M8.2 - 8.4) along the eastern Nankai on the geomorphological evolution of the Hamana river floodplain, located along the Pacific coastline of Central Japan (Shizuoka prefecture).
Historical sources document a sudden decline at the end of the 15th century of the harbour town Hashimoto, located along the river Hamana. Before the 15th century, this river connected the Pacific Ocean with an enclosed coastal embayment separated by a sand barrier (i.e. the present-day Hamana lake) from the Pacific.
The reconstruction of the palaeocourse of the Hamana river was carried out on the basis of detailed facies and diatom analyses of undisturbed sediment cores (geoslicer and drilling). The palaeochannel was detected along the western side of the present-day coastal embayment. It seems that the river's mouth was abruptly sealed off due to the migration of huge volumes of sand that initiated the development of a marsh environment upstream along the channel.
The identification and radiocarbon dating of these sandy high-energy flow deposits in several cores (thick sand bed of marine origin intercalated at the estuarine - marsh environmental change boundary) suggests that the river mouth closure was initated by mass sediment transport by a storm surge or tsunami (1498 Meio tsunami and/or 1498 and 1499 large storm surges along the Hamana coastline). The same process, of sudden river mouth sealing by tsunami-transported sediments, was recently observed in the northeast of Japan during the great 2011 Sendai tsunami (Uda, T., 2011).
Historical sources document that after the 1498 Meio tsunami, the Hamana back-barrier sheltered environment was reconnected to the Pacific Ocean due to breaching of its sand barrier. Both environmental changes (river mouth closure and barrier breaching)are synchronous with the sudden decline of the harbour town Hashimoto. These data suggest that disruption of the waterway between the harbour town Hashimoto and the Pacific Ocean possibly led to the decline of the harbour at the end of the 15th century.