



Improved numerical simulations of the great Adriatic meteotsunami of 21 June 1978

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The great Adriatic meteotsunami of 21 June 1978 was most pronounced in Vela Luka Bay on Korčula Island where sea level oscillations alternately flooded the town and dried out the harbour. Previous data analysis and numerical modelling have shown that the cause of the flood was a travelling air pressure disturbance that caused Proudman resonance in the open sea, with the waves being further amplified by the basin's funnel shape, reflection at the bay head and constructive superposition with the waves coming in from the open sea. The goal of our research was to model the sea level oscillations using a finite element model with a wetting and drying option included for the grid nodes inside the bay, with the entire Adriatic as the model domain, and with a synthetic air pressure disturbance propagating from the Italian coast and over the island at varying speeds and directions. This kind of setup has not been used before and we have successfully reproduced harbour drying as well as the wave height of approximately 6 m that had been observed inside the bay.