

Interactive comment on “Meteotsunami occurrence in the Gulf of Finland over the past century” by Havu Pellikka et al.

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We thank the referee for the constructive comments that have helped us to clarify and improve some points in our manuscript. To reply to the specific and technical comments we would like to note the following:

SPECIFIC COMMENTS

1. Oscillations with a period shorter than 30 min appear as longer-period oscillations in the 15-min signal because of aliasing. We have added discussion on wave periods, the effect of data resolution and aliasing in the manuscript. Please also see our responses #3 and #7 to referee 1.

The eyewitnesses of the events in 2010 and 2011 reported wave periods of 5-10

C1

min. Eyewitnesses easily notice the shortest variations, which are easiest to see by eye. These individual cases also do not necessarily represent the whole population of events.

2. We agree that checking the air pressure data from other nearby stations would be useful. This is not straightforward, however, as the air pressure data used is mostly non-digitized and stored in physical archives. To make the required amount of work feasible, the analysis was restricted to the nearest station.

3. We have added discussion on Baltic Sea level variations in the Introduction.

The tide gauge of Hanko is located on a relatively open coast, while the tide gauge of Hamina is inside a rather narrow bay, ca. 5 km long and 1 km wide. Assuming a mean depth of 6 m (an approximative estimate), the period of a uninodal seiche oscillation in the semi-enclosed basin would be around 35 minutes. Please also see our response #5 to referee 1 and the attached figures there.

4. We have included some information on meteotsunamis in the Baltic Sea in the Introduction. To our knowledge, there are no scientific studies on meteotsunami occurrence in the Gulf of Bothnia except the event on 8 Aug 2010 reported in Pellikka et al., 2014: Recent observations of meteotsunamis on the Finnish coast. *Natural Hazards* 74:197–215.

TECHNICAL CORRECTIONS

We have added the location of Pellinki in Fig. 1.

P2, line 18: Corrected.

P3, line 5: We have reworded the text for clarity.