



## **Quantitative estimates of the sea tides impact on the off-coast aftershock rate changes**

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We apply the differential probability gain approach [Shebalin et al., 2012; 2014] to estimate quantitatively the change of the aftershock rate at various levels of sea tides, relative to an average rate model. We studied about 50 sequences of the off-coast aftershocks near Kamchatka and New Zealand. For each sequence the average model is the Omori-Utsu law with parameters estimated using all events during one month after the main shock, and spatial distribution is taken constant in time and proportional to the spatial distribution of all those events. The heights of the sea tides at various locations were modeled using FES2004. The general observation is an increase of the aftershock rate by a factor up to 1.8 at low water. Considering aftershocks of different magnitudes, we observed a tendency of higher factor for larger aftershocks. Comparing an impact of the sea tides on the rates of the aftershocks and of the background events, we found generally larger increase factors at low water for aftershocks. The work is supported by Russian Science Foundation, project #16-17-00093