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Infrasound signals excited by uplift and subsidence of ocean surface during the tsunami genesis in 11 March event

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Observed infrasound records at IMS (International Monitoring System for CTBT verification regime) stations in East Asia relating to the disastrous tsunamigenic earthquake occurred at Mar. 11, 2011 in Japan have been analyzed. Long period acoustic signals which might be excited by the uplifting and subsiding ocean surface during the tsunami genesis were detected in the records observed at IS30 (Japan), IS34 (Mongolia) and IS45 (Russia). The on-set time of these signals coincided with the time predicted based on the distance between the tsunami source region and each station, and the shape of these signals also coincided with the water level changes of the tsunami source estimated by the fault model of the event. IS34 and IS45 are located in the direction along the fault width, and IS30 is located in the direction along the fault length. Infrasound signals observed at both IS34 and IS45 have relatively shorter wave-lengths than the signal at IS30. It also coincided with the geographical relation between the tsunami source and stations.

Keywords: Infrasound, Tsunami source, International Monitoring System