

Arrival times of reflected waves and the maximum phases of tsunami?the 1993 Hokkaido Nansei-oki Tsunami

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Tsunami maximum phases are frequently attained by reflected waves. Arrivals of reflected waves were studied in relation with arrivals of maximum phases. Arrival times of reflected waves are calculated from combination of refraction diagrams of direct wave and arbitral reflected wave. The arrivals are recognized in coincidence between the prediction and the observation. Under this circumstance travel times of first and maximum waves were obtained for the 1993 Hokkaido Nansei-oki Tsunami and predicted travel times of reflected wave from Russia, Korea and double reflected waves from Honshu and Korea are plotted in figure 1. As the result arrivals of maximum phases are classified into three groups. First one, the direct wave from the source, is earlier arrivals before the reflected wave from Russia. Second one is a group found between arrival times from Russia and Korea. This is recognized as reflected wave from arbitral coast of Eurasia continent. Third group is one found at arrival times shorter than those of the double reflection. This group is interpreted from double reflections from coast near the source and Korea.

Keywords: Tsunami, maximum phase, late arrival, reflected wave, 1993 Tsunami

