

Acoustic resonance between ground and ionosphere at the total eclipses

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The effects of acoustic resonance between ground and ionosphere (thermosphere) have been observed at the Mt. Pinatubo eruption in 1991 (Kanamori and Mori, 1992) or at the great Sumatra earthquake (Iyemori et al., 2005). However, these phenomena directly transfer the energy not only to the lower atmosphere but also to the solid Earth and could cause very low frequency oscillation of the ground, and the oscillation could cause atmospheric oscillation and make the causality complicated. In the case of typhoon when the resonance effects are also detected, the ocean waves make the situation complicated. On the other hand, the pressure variation at a total eclipse caused by a rapid decrease of temperature may be able to generate the acoustic resonance. On July 22, 2009, a total eclipse is observed along a band from China to Ioh Island through Tokara Islands, and we plan to make micro-barometric, geomagnetic and HF Doppler observations(*). In this paper, we show a result of analysis of the data obtained at the total eclipses in the past to prepare for the observation of July 22 total eclipse.

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