

Excitation of the Earth's free oscillation by cumulus clouds in the atmosphere: the effect of diurnal variation of the atmosphere

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Recently reported incessant excitation of the earth's free oscillation may be caused by the cumulus clouds in the atmosphere. In order to examine this hypothesis, we calculated the linear response of two dimensional atmosphere to various forcings. The response includes several quasi resonant peaks whose frequencies are located near the frequencies of modes which are observed to be strongly excited. The frequencies of the quasi resonant peaks varies appreciably following the diurnal variation of atmospheric structure. This last property can explain observed seasonal change of the incessant excitation if the seasonal change of the diurnal variation of the cumulus convection is taken into account.