

Importance of water vapor in vertical coupling of atmosphere

NAKAMURA, Takuji^{1*}

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Water and water vapor in the earth's atmosphere is mostly confined in the troposphere. Furthermore, the scale height of water vapor density in the troposphere is much smaller than the scale height of the atmosphere and the major part is existent around the ground level. However, the water vapor is raised to near the tropopause easily by convections and releases latent heat there. This acts as a very important heat source to derive large scale atmospheric waves and induces strong vertical coupling in the earth's atmosphere from the ground to the upper atmosphere and the ionosphere. This paper will describe the importance of such latent heat transfer by the water in the atmospheric dynamics.

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