



## **Effect of greenhouse gas on structure of steady-state atmospheric convective layer**

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A theoretical model of heat distribution in steady-state planet atmosphere is formulated. The planet surface is considered to be heated by an external source sufficiently for establishment of convective layer in its lower part. The model parameters such as convective layer thickness and temperature of the surface layer are determined. It is obtained that the greenhouse effect efficiency is determined by the ratio between characteristic thickness of layer containing the majority of the greenhouse gas and convective layer thickness. Large values of this ratio correspond to conditions when the convective layer is entirely enclosed in the radiation layer, and one should expect pronounced greenhouse effect. On the other hand, for small values of this ratio the heat transfer occurs mostly due to convection and the greenhouse effect in the planet atmosphere is small. The presented model has been applied to the Earth atmosphere gave realistic results. The work was supported by the RFBR grant No.09-05-00374-a.