

STUDY OF THE ABRUPT AMPLITUDE INCREASE OF TOTAL NEUTRAL DENSITY FLUCTUATIONS WITH HEIGHT IN THE THERMOSPHERE



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1. Introduction

Total neutral density measurements of good time resolution of the midlatitude region are based on the theory of population transfer in the ionosphere. Density fluctuations of population transfer depend on the height, and population fluctuations in the ionosphere. In the upper 300 km, varying of the ionospheric density is due to the varying of the neutral density of the thermosphere. The neutral density is given by the following equation (see [1]):



Fig. 1

3. Possible explanation of the abrupt increase of density fluctuations of population transfer during aurora with height

3.1. Consideration of the ionization of ionospheric layers

Ionization of the ionosphere is due to the action of solar radiation. The ionization rate of the ionosphere is given by the following equation (see [2]):



Fig. 2

3.2. Other possible explanation

The ionospheric density fluctuations are caused by the variation of the ionization rate of the ionosphere. The ionization rate of the ionosphere is given by the following equation (see [2]):



Fig. 3

The ionization rate of the ionosphere is given by the following equation (see [2]):

$$N = \frac{1}{\alpha} \left(\frac{dN}{dt} + \beta N \right) \quad (1)$$

$$\frac{dN}{dt} = \frac{1}{\alpha} \left(\frac{dN}{dt} + \beta N \right) \quad (2)$$

where α is the ionization rate of the ionosphere and β is the loss rate of the ionosphere.

where α is the ionization rate of the ionosphere and β is the loss rate of the ionosphere. The ionization rate of the ionosphere is given by the following equation (see [2]):



Fig. 4



Fig. 5