In this work the authors investigate the stratification phenomenon in the ionospheric F2 layer using the nighttime data observed by Demeter satellite in the period from January 1 to 25, 2006. The data were recorded by the Demeter satellite before and after its altitude adjustment that provide to the authors an opportunity to study the vertical gradients of electron density in a small height range (between ~677.8 and ~669.3 km) of the topside ionosphere using in situ electron density data recorded by the same instrument. It is very important that the period of quiet days (Dst = ±20 nT; F10.7 = 70 ± 5) was chosen by the authors. An original statistical method proposed by authors is used to study the stratification phenomenon. The data observed at different altitudes by the Demeter satellite are compared, and the significance of the differences is checked. As a result, it was found that the electron density data recorded at higher altitude are higher than those of lower altitude, a feature of the stratification phenomenon. Finally, it was found that the stratification occurs in the vicinity of the geomagnetic equator on a global scale that was interpreted by authors as the stratification of the F2 layer.

The paper presents interesting original results and valuable observations which should be published in the “Annales Geophysicae”.

A minor correction.

Page 5, line 167: Change “2016” to “2006”.