

The limb observation of ionospheric 630 nm airglow by using FORMOSAT-2/ISUAL

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Abstract

The newest limb observation of high altitude emission from FORMOSAT-2/ISUAL is reported in this study. The FORMOSAT-2/ISUAL is located in 891 km altitudes to observe 630 nm emissions along 125°E longitudes during December 18-21, 2006. The four day observations show that the two layers existence around 90 and 250 km altitudes. The characteristics of the layers and simulation results suggest that the lower one is OH emission, and the higher one is caused by OI emission. Moreover, the simulation recommends that luminous sources are mostly around the tangent height plane. The OI emission shows 2-days variations during observations, and it possible relates to quasi-2-day (QTD) oscillations. Moreover, the unusual emission altitudinal extension is founded. The simulation suggests that it is partially caused by overlap with high altitude emission in other longitude.