Measurements of multiple-band emission by FORMOSAT-2/ISUAL in the South Atlantic Anomaly region

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South Atlantic Anomaly (SAA) corresponds to a region where the geomagnetic field is relatively weak; such a magnetic field enables energetic particles of magnetospheric source to penetrate closer to the Earth's surface more easily, thus resulting in relatively high level of radiation in the environment. In this study, we analyze the nighttime emissions during 2006-2008 in the SAA region by using the data from the ISUAL (Imager of Sprites and Upper Atmospheric Lightning) experiment aboard the FORMOSAT-2 satellite. Emissions of $2PN_2$ (0,0) band at 337 nm, the $1NN_2^+$ (0,0) band at 391.4 nm and the OI(^{5}P) band at 777.4 nm are showed the yearly cyclical variation. Through comparing these multiple-band emissions, we can identify energy variation of incident particles and atmospheric compositions of SAA region.

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