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The characteristics of global lightning activities observed by ISUAL experiment

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Lightnings serve as an important charge transporter between cloud and ground, and emit sferics that propagate in the ground-ionosphere cavity. During the six-year observation of ISUAL/FORMOSAT-2, besides surveying upper atmospheric transient luminous events, more than 110,000 lightnings which exceeded the ISUAL trigger threshold were recorded. In this presentation, the distribution, the occurrence rate, distribution and seasonal variation of these lightnings at local time between 22:30 and 23:00 are reported and compared with those of the LIS experiment (Christian et al., 2003). The ocean-to-land ratio and geographic distributions suggests that the lighting recorded by ISUAL is averagely more energetic than the ones registered by LIS mission and intense lightning is more frequent over oceans. The anomaly of occurrence between warm and cold phases of ENSO will also be discussed in this presentation.

Keywords: Lightning, ENSO, ISUAL