[P-EM07_30PM2] Lightning and TLEs and their effects on the lower and middle atmosphere

Convener: *Mitsuteru Sato (Department of Cosmoscience, Hokkaido University), Toru Adachi (Waseda Institute for Advanced Study, Waseda University), Tomoo Ushio (Information and communication engineering department, Osaka University), Yukihiro Takahashi (Department of Cosmosciences, Graduate School of Science, Hokkaido University), Chair: Mitsuteru Sato (Department of Cosmosciences, Graduate School of Science, Hokkaido University), Kozo Yamashita (Dept. Electrical Engineering, Salesian Polytechnic.)

Wed. Apr 30, 2014 4:15 PM - 5:30 PM  213 (2F)

Lightning is the energetic phenomena of electrical breakdown, occurring after charge separation processes operating on micro and macro-scales, leading to strong electric fields within thunderstorms. Lightning has severe impact on the lower and middle atmospheres and can excite transient luminous events (TLEs) occurring at the stratosphere and mesosphere. In addition to this, lightning is always associated with severe weather and tropical storms like typhoons and hurricanes, often accompanied by torrential rains and flash floods. It has significant chemical and physical effects on the troposphere and mesosphere and drives the fair-weather electric field. In this session, new results derived from the recent satellite observations of lightning and TLEs (JEM-GLIMS mission) will be presented. This session also seeks contributions on the meteorology of thunderstorms, the detection of thunderstorms from space and ground networks, using lightning data as proxy for severe weather, the climatic effects of thunderstorms and their impact on the global circuit.

5:15 PM - 5:30 PM

[P-EM07-P03_PG] Preliminary results of global lightning study by the DEMETER satellite

3-min talk in an oral session

*Yushi SUTO¹, Maho NAKAMURA¹, Masashi KAMOGAWA¹ (1.Dpt. of Phys., Tokyo Gakugei Univ.)

Keywords: Ionosphere, Lightning, Whistler waves

We investigate statistical property of global lightning activity by means of the DEMETER satellite. The DEMETER satellite which was launch by CNES, France, was operated from 2004 to 2010. In the study, we use electric field data to measure Whistler waves generated by lightning. In this presentation, we show preliminary results of this study.