Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

PEM10-11 会場:A01 時間:5 月 28 日 10:30-10:45

Climatology of Equatorial plasma bubbles observed from Equatorial Atmosphere Radar (EAR) - New Aspects

Climatology of Equatorial plasma bubbles observed from Equatorial Atmosphere Radar (EAR) - New Aspects

SUDARSANAM, Tulasiram[1*] ; AJITH, K k[1] ; YAMAMOTO, Mamoru[2] ; OTSUKA, Yuichi[3] ; YOKOYAMA, Tatsuhiro[4] ; TSUGAWA, Takuya[4]
SUDARSANAM, Tulasiram[1*] ; AJITH, K k[1] ; YAMAMOTO, Mamoru[2] ; OTSUKA, Yuichi[3] ; YOKOYAMA, Tatsuhiro[4] ; TSUGAWA, Takuya[4]

[1]Indian Institute of Geomagnetism, [2]RISH, Kyoto University, Japan, [3]STEL, Nagoya University, Japan, [4]NICT, Tokyo, Japan
[1]Indian Institute of Geomagnetism, [2]RISH, Kyoto University, Japan, [3]STEL, Nagoya University, Japan, [4]NICT, Tokyo, Japan

Using the fan sector backscatter maps of 47 MHz Equatorial Atmosphere Radar (EAR) at Kototabang, Indonesia, the spatial and temporal evolution of equatorial plasma bubbles (EPBs) were examined to classify the evolutionary-type EPBs from those which formed elsewhere and drifted into the field of view of radar. A total of 535 EPBs were observed during the low to moderate solar activity years 2010?2012, out of which about 210 (˜39%) are of evolving type and the remaining 325 (˜61%) are drifting-in EPBs. In general, both the evolving-type and drifting-in EPBs exhibit predominance during the post-sunset hours of equinoxes and December solstice. Interestingly, a large number of EPBs were found to develop even a few minutes prior to the apex sunset during equinoxes. Further, the occurrence of evolving?type EPBs exhibits a clear secondary peak around midnight (2300?0100 LT), primarily, due to higher rate of occurrence during the post-midnight hours of June solstices. A significant number (˜33%) of post-midnight EPBs generated during June solstices did not exhibit any clear zonal drift, while about 14% of EPBs drifted westward. Also, the westward drifting EPBs are confined only to June solstices. Further, to understand the rise velocity and growth rate of EPBs, the generation and subsequent development of plasma bubbles were consistently observed and its seasonal and diurnal variation will be presented.

キーワード: Equatorial Plasma Bubbles, Equatorial Atmosphere Radar, Electric Fields, Thermospheric Neutral Winds
Keywords: Equatorial Plasma Bubbles, Equatorial Atmosphere Radar, Electric Fields, Thermospheric Neutral Winds