

**R005-22**

**Zoom meeting C : 11/1 PM2 (15:45-18:15)**

**16:45~17:00**

## **Equinoctial Asymmetry of Plasma Bubble Occurrence and Electro-Dynamics in South-East Asia**

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At the Asian longitudinal sector, plasma bubble and GPS scintillation frequently occur in equinox, when the solar terminator is parallel to the geomagnetic field line. Otsuka et al. (2016), who have analyzed GPS scintillation data observed at Kototabang (0.20°S, 100.32°E; geomagnetic latitude 10.6°S), Indonesia in 2003-2004, have shown equinoctial asymmetry of plasma bubble occurrence. Scintillation occurs more frequently in Mar. equinox than Sep. equinox. Eastward scintillation drift velocity also shows equinoctial asymmetry. The eastward velocity is larger in Mar. equinox than Sep. equinox. They have suggested that the eastward drift corresponding to the downward electric field at post-sunset may be related to the prereversal enhancement of eastward electric field, which could play an important role in generating plasma bubble. To measure zonal drift velocities of a few hundred meter-scale irregularities associated with equatorial plasma bubbles, we have operated three single-frequency GPS receivers with their mutual distance of 116, 127, and 152 m at Kototabang, Indonesia since January 2003. Drift velocities of irregularities were measured using cross-correlation analysis with the time series of the GPS signal intensity obtained from the three receivers. In this study, the drift velocity data obtained during a period from 2003 to 2021 have been analyzed, and found that the eastward drift velocity is larger in Mar. equinox than Sep. equinox. This result is consistent with the previous study. We also investigated the solar activity dependence of the eastward drift velocity, and found that the eastward drift velocity depends on the solar activity largely in Mar. equinox than Sep. equinox, indicating the equinoctial asymmetry of the eastward drift velocity is intensified with increasing solar activity. To compare the vertical drift velocity at sunset, virtual height obtained with an ionosonde at Chumphon (10.73°N, 99.37°E; geomagnetic latitude 1.3°N), Thailand, which is located near magnetic equator is analyzed. The result shows that vertical drift depends on the solar activity largely in Mar. equinox than Sep. equinox. These result indicates close relationship between the eastward drift and vertical drift (eastward electric field) at sunset terminator, and suggests that the zonal drift velocity (vertical electric field) may affect generation of plasma bubbles.