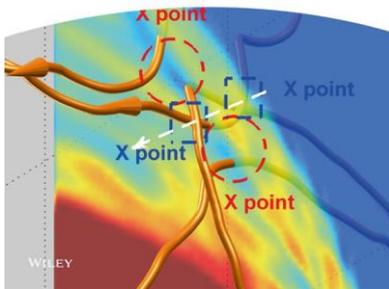


Recognition for Paper Co-authored by LSGI Scholar

AGU100

JGR
Space Physics

November 2018 • Volume 123 • Issue 11



The paper entitled as “A new method for deriving equatorial plasma bubble velocity by tracing OI 630 nm all-sky images”, which was published in 2018 at the Journal of Geophysical Research: Space Physics (pages 9619–9633. <https://doi.org/10.1029/2018JA025332>), was selected as one of the “Ten Major Scientific and Application Achievements of China's Meridian Project in 2018”. Dr. George Zhizhao Liu at the Department of Land Surveying & Geo-Informatics (LSGI), The Hong Kong Polytechnic University, is one of the coauthors in addition to others from the China University of Geosciences (Wuhan) and the Chinese Academy of Sciences (CAS).

This paper proposes a new method for estimating the equatorial plasma bubbles (EPBs) motions from airglow emission all-sky images. The EPBs have long been a research topic in the ionosphere and space weather community. The observation and measurement of EPBs are of crucial important scientific and practical values, as EPBs have significant impacts on navigation and communication systems.

One of the typical effects caused by EPBs is the GNSS satellite signal scintillation, which can degrade the signal quality and even cause signal blackout in severe conditions. As a consequence, the performance of Positioning, Navigation, and Timing (PNT) results obtained from the analysis of GNSS satellite signals is degraded or even becomes unacceptably poor. GNSS now has become an indispensable tool in our daily life such as vehicle and pedestrian navigation, velocity measurement in running exercise, not to mention its numerous applications in scientific research and engineering applications such as land surveying, aircraft navigation and landing, remote sensing of atmospheric water vapor, and many others.

The China's Meridian Project, officially named as Meridian Space Weather Monitoring Project of China, is a mega-project of science research on space weather monitoring. Started in January 2008, this RMB 170-million project aims to investigate the space weather cause-consequence chain in the solar-terrestrial space, understand the processes of the catastrophic space weather events, and the regional characteristics of the environment above China's territory so as to help ensuring the safety of space activities such as satellite operation.