

Observational Campaign for Plasma Bubble Seeding Mechanism

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We propose an observational campaign for studying ionospheric plasma bubble seeding mechanism along the geomagnetic equator and low latitude region in Brazil. It is well known that plasma bubbles occur soon after the sunset with a condition of $E \times B$ F-layer uplifting, an increase of the Rayleigh Taylor instability and some atmospheric perturbation to trigger the seeding process. There have been reported possible triggering processes, such as, gravity wave passages, wind driven turbulent process, electro-dynamic forces, and solar terminator origin atmospheric disturbances, etc. The present campaign is therefore aimed to investigate what is the process responsible for plasma bubble seeding. In order to achieve the objectives, we propose coordinated observation of GPSTEC, ionograms, airglow images and magnetograms. Observation sites should cover the ionosphere with an extension of at least 2000 km along the geomagnetic equatorial region with latitudinal extension of 1000 km. The campaign will start on September when the plasma bubble activity starts and continues upto April next year. It is strongly recommended that several institutions participate in the campaign in order to carry on the ground based observations and to share the data each other. Workshop for kick-off meeting will be proposed in 2017.