

## A network of low-cost airglow imaging system for monitoring plasma bubble in wide area

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Plasma bubbles are regions in the nighttime equatorial F-region ionosphere where the plasma density is significantly depleted. Plasma bubbles affect the accuracy of GPS positioning since they have a steep gradient in the electron density in the F region and can disturb GPS signals propagating through the ionosphere. 630.0 nm airglow observations with ground-based all-sky imagers have been used for imaging the two-dimensional structures of plasma bubbles in the last two decades. However, such systems tend to be expensive and not easy to handle; thus, it has been difficult to visualize the large-scale structure of plasma bubbles by setting up multiple imagers at different stations. For this purpose, we recently developed a low-cost airglow imager which consists of a small camera (WAT-910HX), fisheye lens and optical filter. We then evaluated the feasibility of observations of plasma bubbles by using the low-cost airglow imager and confirmed its capability for imaging the spatial structure of plasma bubble. Following this result, we started deploying the system at low and equatorial latitude regions since 2017. As of August 2018, we have installed the Low-Cost Airglow imaging System (LCAS) into four stations: Ogimi and Ishigaki both in Okinawa, Tainan, and Chumphon within a framework of international collaboration and data sharing. In the presentation, we present the overview of the system and share the current status of the project.