



## **Longitudinal distribution and statistics of the He<sup>+</sup> density depletions (bubbles): Northern and Southern hemispheres**

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He<sup>+</sup> density depletion (bubble) occurrence probability with respect to longitude is considered for the post-sunset hours under winter, summer and equinoctial conditions in the Northern and Southern hemispheres. Study based on the ISS-b satellite observations, obtained during a high solar activity period 1978-79 ( $F_{10.7} \sim 200$ ) in the topside ionosphere ( $\sim 1100$  km). It was found that the He<sup>+</sup> density depletion statistics is more significant in winter than in summer for the both hemispheres. The statistics, obtained in the different hemispheres, differs in the amplitude behavior. The map of the He<sup>+</sup> density depletion (bubble) distribution as function of latitude-longitude for the post-sunset hours was also derived. This map was compared with the similar map for ESF and plasma bubble distribution, obtained by Maruyama and Matuura (1984) on the basis of the ISS-b observations. It was revealed that there is a good conformity in spatial distributions of these phenomena. The obtained results, indicated the strong asymmetry between the Northern and Southern hemisphere and seasonal dependence, are discussed.