

地球磁気圏内波動粒子相互作用による TLE 起源粒子降下の数値モデリング Numerical modeling of the TLE-related particle precipitations due to wave-particle interactions in the magnetosphere

向井 理人^{1*}, 芳原 容英¹, 早川 正士¹, 山岸 久雄², 岡田 雅樹²

MUKAI, Norihito^{1*}, HOBARA, Yasuhide¹, HAYAKAWA, Masashi¹, YAMAGISHI, Hisao², OKADA, Masaki²

¹ 電気通信大学 情報理工学研究科 情報・通信工学専攻, ² 国立極地研究所

¹Graduate School of Informatics and Engineering, UEC Tokyo, Japan, ²National Institute of Polar Research, Tokyo, Japan

It's well known that high energy particles precipitate into the ionosphere caused by interactions between lightning generated whistler waves in the atmosphere and the energetic particles in the magnetosphere. Perturbation of the lower ionosphere due to the precipitating particles are monitored by the ground-based VLF measurement as a space trimp event. In this study, the spatio-temporal dependence of precipitating particle energy flux were calculated by numerical simulations. In particular, we focus on the source spectrum of lightning discharges as one of the simulation inputs. The results from different types of source spectra such as TLE-producing and conventional discharges will be presented.