# GEMSIS-RCモデルに基づいた内部磁気圏へのイオンインジェクションの研究

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# A study of ion injections into the inner magnetosphere based on the GEMSIS-RC model

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Electron acceleration mechanisms to cause drastic variation of the Earth's outer radiation belt is one of key issues of the geospace researches. While the radial diffusion of the electrons driven by ULF waves has been considered as one of the candidate mechanisms, efficiency of the mechanism under realistic ULF characteristics and distribution is far from understood. One of excitation mechanisms of the ULF waves is the drift-bounce resonance with ions injected into the inner magnetosphere during substorms. Drift-bounce resonance can allow energy to be transferred from energetic ions into high-m ULF waves [e.g., Southwood and Hudges, 1983]. Under GEMSIS (Geospace Environment Modeling System for Integrated Studies) project at STEL, Nagoya University, we have developed a new physics-based model for the global dynamics of the ring current (GEMSIS-RC model). The GEMSIS-RC model is a self-consistent and kinetic numerical simulation code solving the five-dimensional collisionless drift-kinetic equation for the ring-current ions in the inner-magnetosphere coupled with Maxwell equations [Amano et al., 2011]. We applied the GEMSIS-RC model for simulation of simple ion injections into the inner magnetosphere to test its capability of describing fast time scale phenomena. Two cases of background profile, i.e., cases without/with plasmapause in the simulation domain, are compared. In the presentation, preliminary results of characteristics of substorm-like injection related ULF waves will be reported.