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講題：**Heliospheric Plasma Sheet (HPS) Impingement onto the Magnetosphere as a Cause of Relativistic Electron Dropouts (REDs) via Coherent EMIC Wave Scattering with Possible Consequences for Climate Change Mechanisms**

ABSTRACT

A new scenario is presented for the cause of magnetospheric relativistic electron decreases (REDs) and potential effects in the atmosphere and on climate. High-density solar wind heliospheric plasmasheet (HPS) events impinge onto the magnetosphere, compressing it along with remnant noon-sector outer-zone magnetospheric ~10-100 keV protons. The betatron accelerated protons generate coherent electromagnetic ion cyclotron (EMIC) waves through a temperature anisotropy ($T_\perp/T_\parallel>1$) instability. The waves in turn interact with relativistic electrons and cause the rapid loss of these particles to a small region of the atmosphere. A peak total energy deposition of ~3 × 1020 ergs is derived for the precipitating electrons. Maximum energy deposition and creation of electron-ion pairs at 30-50 km and at<30 km altitude are quantified. We focus the readers' attention on the relevance of this present work to two climate change mechanisms. Wilcox et al. (1973) noted a correlation between solar wind heliospheric current sheet (HCS) crossings and high atmospheric vorticity centers at 300 mb altitude. Tinsley et al. (1994) has constructed a global circuit model which depends on particle precipitation into the atmosphere. Other possible scenarios potentially affecting weather/climate change are also discussed.