



## Conjugate Observations of EMIC Waves and Precipitation of Relativistic Electrons

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Utilizing data from NOAA Geostationary Operational Environmental Satellite (GOES)-12 and low-altitude Polar Orbiting Environmental Satellites (POES)-15, a well-conjugate observation of Electromagnetic Ion Cyclotron (EMIC) waves and precipitation of ring current ions and relativistic electrons is reported. This event took place in periods without geomagnetic storms at near 21:30 on June 19, 2008. During this interval, GOES-12 observed EMIC waves at geosynchronous orbit in dusk Magnetic Local Time (MLT) sector. Conjugately, low-altitude NOAA POES-15 observed precipitation of ring current ions and relativistic electrons. To our knowledge, this is the best conjugated observation from satellites to illustrate EMIC wave-driven Relativistic Electron Precipitation (REP) in the MLT dusk sector during non-storm periods. The REP was observed by POES-15 at the same L (the radial distance in the equatorial plane under dipolar geomagnetic model) and MLT as where EMIC waves were observed by GOES-12, and the projections along the geomagnetic field line of NOAA GOES-12 and POES-15 at the altitude of 100 km above the Earth are nearly at the same geomagnetic latitude and longitude ( $[U+25B3]MLAT \sim 0.7^\circ$ ,  $[U+25B3]MLong \sim 0.6^\circ$ ). The diffusion coefficients of relativistic electrons by the EMIC waves are also calculated. This event suggests that, during the periods without geomagnetic storms, EMIC waves can also cause the loss of ring current ions and relativistic electrons through pitch-angle scattering in the dusk sector.