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Acceleration Process of Energetic Electrons in the Inner Magnetosphere during Magnetic Storms

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We have investigated the acceleration process of energetic electrons during geomagnetic storms, using the data sets of energetic electrons (30, 100, 300keV) from the NOAA, plasma waves from PWS on board EXOS-D, and ULF waves from GOES and 210MM ground stations. In the region of L=3-4 where the spectrum of energetic electrons changes from soft to hard, the activity of Pc5 is not so large during the magnetic storm. On the other hand, the activity of whistler mode outside the plasmapause is large and continues for the period during storm recovery phase. These results suggest that the whistler mode waves accelerate the ring current electrons up to relativistic energy outside the plasmapause during magnetic storm.