



An extreme long-lived relativistic electron enhancement event

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An extreme long-lived intense relativistic electron enhancement event beginning in November 2004 is examined using data from Fengyun-1, POES, GOES, ACE, the Cluster Mission and geomagnetic indices. In this event, the flux of relativistic electrons ($>1.6\text{MeV}$) in the outer zone increased to a very high level in two days, this flux fashion had been running to the end of January 2005. It is an extreme long-lived event. We find that the high-speed solar wind and frequent impulses of solar wind dynamic pressure induced strong long-lasting ULF waves just before the enhancement, and the energetic electron flux enhanced simultaneously. Subsequently, the whistler mode chorus intensified obviously and the relativistic electron flux enhanced rapidly. We suggest that the drift-resonant acceleration by ULF waves enhanced the energetic electrons flux firstly, and local acceleration by chorus accelerated them to relativistic level sequentially.