



Variation of the ion composition in the ring current during magnetic storms: Van Allen Probes observations

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It has been reported that the energy density of the oxygen ions in the ring current region will show more enhancements than protons during magnetic storms. Knowing how the ion composition changes during a magnetic storm is important for understanding the dynamic processes in the inner magnetosphere. By using ion flux data from HOPE and RBSPICE instruments on board the Van Allen probes, we study the energy density variation of both protons and oxygen ions during fifteen strong magnetic storms (minimum Dst < -80 nT) happened during year 2013 to 2014. Results provide important details about the ion composition at different storm stages and different magnetic local times. Results also give important indications about the ion acceleration in the inner magnetosphere and the source of the ring current ions during the magnetic storms.