



The distributions of the ring current: Cluster observations

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Extending previous studies, a full ringed distribution of the ring current has been obtained from the four Cluster spacecraft observation around their perigee crossings in the solar magnetic equatorial plane (SM coordinates), at times when the Cluster array has small separations and nearly regular tetrahedral configurations. The directions of the ring current are clockwise, when viewed from the north, where the magnitudes range from $1-3 \times 10^{-8} \text{Am}^{-2}$. The magnitude is enhanced between about 05 and 11 magnetic local time (MLT) and reduced between about 12 and 14 MLT. This suggests the region 2 field aligned-currents (FACs) are downward at about 10 MLT and upward at about 14 MLT and that the partial ring current contributes between about 05 and 11 MLT.