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ECLAT Cluster Magnetotail Plasma Region Identification

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As part of the European Seventh Framework Programme project "European Cluster Assimilation Technology (ECLAT)" we will produce a continuous dataset of plasma region encountered in the magnetotail by each Cluster spacecraft during tail seasons 2001-2009 of the Cluster mission, along with characteristic parameters describing each region. The dataset will be ingested into the Cluster Active Archive to facilitate effective usage of Cluster data by the wider scientific community including modeling and ground-based/ionospheric research communities, as well as for supporting instrument calibration activities. Regions to be identified include those where major energy conversion/transport processes take place, and important regions for the system level sciences. We present a statistical study of Cluster magnetic field, ion and electron moments, and outline how these are to be used in identifying the plasma regions. The regions to be identified span the lobe, plasma sheet boundary region, plasma sheet, and neutral sheet crossing. We will also discuss how the four spacecraft configuration of the Cluster mission and curlometer technique allows us to uniquely identify the edge of the current sheet as a region boundary.