The External Chapman-Ferraro Current

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The Chapman-Ferraro current flows along the magnetopause and seperates the geomagnetic field from the interplanetary magnetic field (IMF) in the magnetosheath. In this presentation we discuss the fact that except in the case of purely northward or zero IMF, a portion of the Chapman-Ferraro current must flow in the magnetosheath. We will present THEMIS observations of the external Chapman-Ferraro current and discuss how the distrubition of the current affects force balance and the dissipation of solar wind energy for different solar wind conditions. We will also examine the issue of current closure for the external Chapman-Ferraro current, and compare the observed current densities at the magnetopause to observations of the current density on the bow shock.

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