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Paraboloid model of Saturn's magnetosphere, and a comparison with Cassini data.

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A paraboloid model of Saturn's magnetosphere incorporating ring current, magnetopause, and tail current systems is used as a starting-point for modeling Saturn's magnetospheric field. The model is compared with field observations obtained by the Cassini spacecraft during its Saturn orbit insertion fly-through of Saturn's magnetosphere, and is shown to give a good description. Comparison of ring current parameters obtained on the inbound and early outbound passes, when the magnetosphere was considerably expanded due to low solar wind pressure, with those obtained by Voyager-1 under more usual conditions, and by Pioneer-11 when the magnetosphere was strongly compressed, suggests that the magnetic moment of the ring current dependent on the magnetospheric size, or, the other words, on solar wind pressure.