Role of non-diagonal pressure tensor components in balance of magnetopause current sheet

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We study the current sheet model separating a strong magnetic field area from the intense solar wind. We use the ideal MHD equations for ideas proposed by D. Nickeler and T. Wiegelmann to describe the transition region with plasma flows inclined to the boundary field. We show that balance in this case can be supported by nondiagonal components of modified pressure tensor. We discuss the possible application of the results to a description of the Earth's night-side magnetopause boundary and study influence of solar wind characteristics on magnetopause current structure. We show problems that follow from ideal mhd-approach and from our assumptions about stationarity of two-dimensional CS on examples of magnetopause crossings by MMS mission. We speculate about further model development to day-side and magnetopause flanks application. This work is supported by the RFBR grant N 18-02-00218.