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A "gas dynamic" magnetopause transition observed by THEMIS

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We present THEMIS magnetic field and plasma particle observations obtained on a passage from the solar wind through the magnetosheath and magnetopause transition layers. During the event the shear of the solar wind magnetic field was extremely low. This case differs from the usual ones as there was neither a change in the "gas dynamic" pressure across the magnetopause nor in the magnetic pressure. A drastic change in the plasma density was compensated only by a change in the ion and electron temperatures, such that the pressure equilibrium was maintained. The magnetic field, however, remained almost constant over the magnetopause boundary. This constitutes, hence, an unusual "gas dynamic" magnetopause transition without currents, which we discuss in further detail.