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Driven magnetic reconnection evolution in an X-point magnetospheric plasma JULIO J. MARTINELL, ALBERTO HERNANDEZ-GARCIA[1], ICN - UNAM — The nonlinear evolution of a plasma typical of the earth magnetosphere is studied, in the configuration of a neutral X-point with a guide field, which would be relevant for the day-side magnetosphere. For magnetospheric parameters, the electron inertial skin depth is smaller than the ion-sound gyroradius ($d_e < \rho_s$) while $\beta < 1$ and the resisitivity is negligible. The ensuing magnetic reconnection driven by a plasma flow due to the incoming interplanetary plasma is studied using a reduced model derived for the relevant collisionless regime (Kuvshinov et al., J. Plasma Phys. (1998) **59**, 727). This model is first analyzed in an asymptotic regime for long times, following Ramos et al. (Phys. Rev. Lett. (2002) **89**, 055002) who made a study based on a linear analysis, valid when the forcing is small. Then a numerical solution is performed in order to verify the validity of the linear results and analyze the spatial structure of the magnetic configuration as it evolves to long times. The numerical solution gives also results valid for strong forcing, as in class-X solar flares, which turn out not to be very different from the small forcing. In particular, the reconnected magnetic flux approaches a constant value as $t \to \infty$, and the spatial variation scale length is of the order of d_e.

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