Slow mode wave propagation in a magnetic field

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In this study we focus on the spatial and temporal evolution of a pressure dis-turbance subject to the slow mode propagation type in a simplified magnetic field geometry. For this, we basically apply the ideal system of MHD equations, which are solved for adequate initial conditions, i.e., a Gaussian pressure disturbance. We investigate the effects of different initial plasma parameters in terms of the plasma beta, with special emphasis on the deviation between the direction of wave propa-gation and the background magnetic field. The main results is that for a low plasma beta, the slow mode wave can be considered to propagate parallel to the magnetic field, similar to the Alfv´en wave. Thus, effects connected to this kind of propagation perpendicular to the magnetic field direction are negligible. However, for increasing plasma beta, the propagation characteristics across the magnetic field become more important.