A test for quick triggering of magnetic reconnection via lower hybrid drift instability with realistic parameters

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Recently, we have shown that the effects of lower-hybrid waves at the edges of the current sheet provide a quick triggering of magnetic reconnection even in ion-scale current sheets. However, there is an upper-limit to the current sheet thickness for this type of quick triggering via the lower-hybrid-drift instability alone because the lower-hybrid-drift wave activity becomes weaker in the thicker current sheet. To evaluate whether the quick triggering mechanism mediated by the lower-hybrid-drift instability is truly realistic, we carried out a parametric study of magnetic reconnection. Since it is hard to directly peform a 3D simulation with realistic parameters, a 2D setup with non-Harris equilibrium is used. We will demonstrate a quick trigger is still possible under the realistic parameters.