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Double-reconnected magnetic structures driven by Kelvin-Helmholtz vortices at the Earth's magnetosphere MATTEO FAGANELLO, Aix-Marseille University, France, DARIO BORGOGNO, Université Côte d'Azur, Nice, France, FRANCESCO CALIFANO, FRANCESCO PEGORARO, Pisa University — In an almost collisionless MagnetoHydrodynamic plasma in a relatively strong magnetic field, stresses can be conveyed far from the region where they are exerted e.g., through the propagation of Alfvèn waves. The forced dynamics of line-tied magnetic structures in solar and stellar coronae is a paradigmatic case. We investigate how this action at a distance develops from the equatorial region of the Kelvin-Helmholtz unstable flanks of the Earth's magnetosphere leading to the onset, at mid latitude in both hemispheres, of correlated double magnetic field line reconnection events that can allow the solar wind plasma to enter the Earth's magnetosphere. This *mid-latitude double reconnection process*, first investigated in [1], has been confirmed here by following a large set of individual field lines using a method similar to a Poincarè map.

[1] M. Faganello, et al., *Europhys. Letters*, **100**, 69001 (2012)
[2] D. Borgogno, et al., *Phys. Plasmas*, **22**, 032301 (2015)

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