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Evaluation of the generalized Ohm's law at the subsolar magnetopause diffusion region with MMS data.

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Magnetic reconnection is a fundamental process occurring in thin current sheets where a change in the magnetic field topology leads to fast magnetic energy conversion into energy of charged particles. A key yet poorly understood aspect is how the reconnection electric field is sustained in the diffusion region by the different terms in the generalized Ohm's law. In particular, the role of the pressure and inertia terms is not yet fully understood as well as the importance of the anomalous resistivity term and its source. Simulations have provided some estimations of the different terms; however direct observations have been scarce so far. The four-spacecraft Magnetospheric Multiscale Mission (NASA/MMS) allows, for the first time, the full evaluation of the generalized Ohm's law in the diffusion region. Here we present MMS observations at a few subsolar diffusion region crossings on October,3 rd 2015 where MMS spacecraft were separated by $\sim$ 25 km. We compare the measured electric field with the electric field due to both kinetic effects (electron pressure tensor, electron inertia terms) and to anomalous resistivity associated to different wave modes. The electric field is balanced by the Hall term at ion scales as expected. At smaller scales, preliminary results indicate that the electric field is mainly balanced by the divergence of the electron pressure tensor, although the contribution of anomalous resistivity is not negligible.