



## **Magnetic reconnection vs. Kelvin-Helmholtz instability: is the debate really over?**

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Magnetic reconnection is widely considered as the main mechanism for plasma entry into the Earth's magnetosphere. Another plasma entry mechanism called Kelvin-Helmholtz instability (KHI) is also known for decades to occur, when the Interplanetary Magnetic Field is oriented Northward. Over the past 10 years, the Cluster mission has brought a wealth of new results and shed a total new light on the KHI mechanism. Very recent statistics based on the Themis mission tend to confirm the importance of the KHI. Hence: is there a need to quantify plasma entry in the magnetosphere for these two mechanisms at the same time? Which observations would be then needed? A summary of these new results will be presented and an attempt of the new observations needed will be proposed.