

EGU22-11999

<https://doi.org/10.5194/egusphere-egu22-11999>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Magnetosheath jets during an CME passage: A case study

Luis Preisser¹, Ferdinand Plaschke^{1,2}, Florian Koller³, Manuela Temmer³, and Owen Roberts¹

¹Space Research Institute / Austrian Academy of Sciences, Space Plasma Physics group, Graz, Austria

(preisser@igeofisica.unam.mx)

²Institut für Geophysik und extraterrestrische Physik, TU Braunschweig, Germany

³University of Graz

Localized enhancements in dynamic pressure observed in the Earth's magnetosheath (EMS) have been studied since 20 years ago. These structures known as jets can propagate through the EMS transporting mass, momentum and energy being able to reach and perturb the Earth's magnetopause.

Large scale solar wind (SW) structures called Coronal Mass Ejections (CMEs) travel through the interplanetary medium and depending on their direction they may impact the Earth. How the different SW conditions triggered by the CMEs (upstream side – shock/sheath – magnetic ejecta) change the production of jets in the EMS is a topic that is just beginning to be explored.

In this case study we characterize jets observed by THEMIS A, E and D during a CME passage. We find clear differences in number and size between the jets associated with the different CME regions arriving at the EMS. Comparing WIND and THEMIS data we discuss how these differences are associated with the SW conditions and with different jet generation mechanisms.