Geophysical Research Abstracts
Vol. 18, EGU2016-6852, 2016
EGU General Assembly 2016

Standing Toroidal Alfvén Wave Evolution: First Results from MMS

Ferdinand Plaschke (1), Rumi Nakamura (1), Wolfgang Baumjohann (1), Werner Magnes (1), David Fischer (1), Roy B. Torbert (2), Christopher T. Russell (3), Robert J. Strangeway (3), Hannes K. Leinweber (3), Kenneth R. Bromund (4), Brian J. Anderson (5), Guan Le (4), Mark Chutter (2), James A. Slavin (6), and Emil L. Kepko (4)

(1) Space Research Institute, Austrian Academy of Sciences, Graz, Austria (ferdinand.plaschke@oeaw.ac.at), (2) University of New Hampshire, Durham, NH, USA, (3) University of California Los Angeles, CA, USA, (4) NASA Goddard Space Flight Center, Greenbelt, MD, USA, (5) The Johns Hopkins University Applied Physics Laboratory, Laurel, MD, USA, (6) University of Michigan, Ann Arbor, MI, USA

Within the first few weeks after launch (on March 13, 2015), the Magnetospheric MultiScale (MMS) spacecraft observed persistent toroidal Alfvén wave activity in the dawn flank inner magnetosphere, close to the dawn terminator. During that time, the spacecraft were flying in a so-called string-of-pearls configuration, with inter-spacecraft distances in the range of 100 to 1000km. In that configuration, the spacecraft traversed phase shift regions that are characteristic of localized standing Alfvén waves. These waves may originate from field-line resonances. The particular configuration of the MMS spacecraft allows us to study, for the first time, the evolution of that phase shift from in-situ measurements.