



EPSC Abstracts

Vol. 14, EPSC2020-251, 2020

<https://doi.org/10.5194/epsc2020-251>

Europlanet Science Congress 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



Observations of Short Large Amplitude Magnetic Structures at the Kronian bow shock

Zsafia Bebesi, Geza Erdos, Melinda Dosa, Antal Juhasz, and Karoly Szego

Wigner Research Centre for Physics, Hungarian Academy of Sciences, Space physics and space technology, Budapest, Hungary
(bebesi.zsafia@wigner.mta.hu)

We observed Short Large Amplitude Magnetic Structures (SLAMS) at Saturn upstream of the quasi-parallel bow shock. Cassini surveyed the quasi-parallel regime mainly during 2004 and 2005, and we present a few detailed case studies from this time interval. For our analysis we used the measurements of the Cassini Plasma Spectrometer and the Magnetometer.

Locally the SLAMS act as fast mode shock waves, and we observed ion beam reflection, multiple beams, deceleration and plasma heating of the solar wind protons. These features are in agreement with the near Earth observations of SLAMS. We also detected whistler precursor waves multiple times, which was also documented in studies of the Earth's foreshock region. Since the frequency of the upstream ULF waves observed at Saturn is lower than it is at Earth, it also has an effect on the spatial extension of the SLAM structures, which arise from these waves. With only one spacecraft's measurements it is not possible to study the SLAMS with the same efficiency as with the four-point measurements of the CLUSTER probes, but the basic observational features and the description of their evolutionary characteristics are summarized.