Geophysical Research Abstracts
Vol. 21, EGU2019-17369, 2019
EGU General Assembly 2019

Understanding the structure of the fading magnetosphere around comet 67P/Churyumov-Gerasimenko using measurements from the last weeks of the Rosetta mission.

Aniko Timar (1), Zoltan Nemeth (1), Karoly Szego (1), and Henri Pierre (2)

(1) Wigner Research Centre for Physics, Budapest, Hungary (t.aniko@outlook.com), (2) LPC2E, CNRS, F-45071 Orleans, France

After accompanying comet 67P/Churyumov-Gerasimenko on its journey and observing the evolution of its induced magnetosphere throughout the comet's life-cycle, the Rosetta mission concluded at the end of September 2016 with a controlled impact on the cometary nucleus. At this time, the comet was located more than 3.8 AU from the Sun, but the data still show clear indications of a small induced magnetosphere. The observations of the nascent magnetosphere of the awakening low activity comet had to be performed under constantly changing conditions, because the orbit was varied to satisfy operational requirements. This made it difficult to examine the structure of the magnetosphere of the low activity comet at that time. In contrast, near the conclusion of the Rosetta mission the spacecraft observed the fading cometary magnetosphere through multiple similar elliptical orbits, which allow us to obtain a more precise picture of its structure. We examined the measured plasma properties through these consecutive orbits, from which we were able to determine the structure of the fading magnetosphere using a simple, latitude dependant model.