



## **Identifying intervals of Pc1 wave activity in the topside ionosphere based on Swarm observations**

Georgios Balasis (1), Constantinos Papadimitriou (1), Ian R. Mann (2), Ivan Pakhotin (2), Ioannis A. Daglis (1,3), and Omiros Giannakis (1)

(1) National Observatory of Athens, Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, Athens, Greece, (2) University of Alberta, Department of Physics, Edmonton, Canada, (3) National and Kapodistrian University of Athens, Department of Physics, Section of Astrophysics, Astronomy and Mechanics, Athens, Greece

The recent magnetic field mission of Swarm has enabled us to study in situ the occurrence of ultra low frequency (ULF) waves in the topside ionosphere with great detail. In this study, we identify ULF wave events in the Pc1 frequency range (0.2–5 Hz) observed, for the first time, by the Swarm satellites. Additionally, we derive maps of the dependence of Pc1 wave power on magnetic latitude and magnetic local time (MLT) as well as geographic latitude and longitude from the three satellites at their different locations in the topside ionosphere for a period spanning two years after the constellation's final configuration. The observed wave events are disturbances in the Pc1 band in the Swarm frame - which could be Pc1 proper at low L-shell value but likely are related to magnetosphere-ionosphere coupling at higher latitudes. Our initial results emphasize the fact that the Pc1 power distribution at low-Earth orbit (LEO) as provided by the Swarm spacecraft is better organized in geographic than geomagnetic coordinates. We discuss some possible implications of this geographic ordering of the LEO disturbances in terms of the impact of dipole tilt on these signatures, and a possible relationship to magnetosphere-ionosphere coupling.