

Revisiting the South Atlantic Anomaly after 3 years of Swarm satellite mission

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Covering part of Southern America and the South Atlantic Ocean, the South Atlantic Anomaly (SAA) is nowadays one of the most important and largest features of the geomagnetic field at the Earth's surface. It is characterized by lower intensity values than expected for those geomagnetic latitudes. Thanks to the global geomagnetic models, the spatial and temporal geometry of the Earth's magnetic field can be defined at the core-mantle boundary, showing the origin of the SAA as a reversal polarity patch that is growing with a pronounced rate of $-2.54 \cdot 10^5$ nT per century and with western drift. Since the Swarm satellite mission of the European Space Agency was launched at the end of 2013, the three twin satellites are picking up the most accurate values of the geomagnetic field up to now. In this work, we use the satellite magnetic data from Swarm mission along with the observatory ground data of surrounding areas to evaluate the spatial and temporal evolution of the SAA during the Swarm-life.