



Proton and electron pitch angle distribution maps of the South Atlantic Anomaly in the period from 2002 to 2017

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The Reuven Ramaty High Energy Solar Spectroscopic Imager (RHESSI) was launched into space on February 5th, 2002 as NASA Small Explorer spacecraft. Initial mission lifetime of 2 years is extended until today offering exceptional length of continuous observations. RHESSI Ge-spectrometer provides permanent images of the Sun at X-ray energies in several energy bands. It also contains a small radiation monitor that measures energy depositions from charged particles in two energy bands given by thresholds of 65 keV and 650 keV. As the monitor is located perpendicularly to the spacecraft rotation axis it allows mapping of the directional dependence of the incoming radiation. This feature was used to determine the pitch angle distribution of protons and electrons in the South Atlantic Anomaly (SAA) making a data set with more than 15 years of unbroken measurements. We present proton and electron pitch angle distributions along SAA and compare measurements with models. Examples are given for different observation epochs such as solar minimum and maximum, as well as quiet and stormy space weather conditions allowing for comparisons and refinement of models.