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Prediction, Testing, Measurement and Effects of space environment on space missions (3)

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DETECTION OF COSMIC RADIATION INTENSITY USING THE GEIGER COUNTER AND PHOTOSENSITIVE RADIATION SENSORS

Abstract

Cosmic Radiation is the radiation emitted by the Sun and other stars in space constantly bombarding the earth surface. The radiation is predominantly composed of electrons, protons and helium nuclei. An average person at sea level in the USA is exposed to 5 percent of cosmic radiation annually. Astronauts and Flight crew fall into higher risk categories due to this radiation due to their constant exposure. The Experimental Sounding Rockets provide a research platform for conducting experiments and obtaining results quickly and efficiently whilst the satellite deployed in the LEO could provide continuous insight on the radiation intensity exposure and countermeasures that could be implemented. Hence, the proposal is to introduce an affordable, replaceable and sustainable method to determine and monitor radiation levels constantly or periodically using satellite and sounding rockets equipped with a Geiger counter and Photosensitive radiation detector. The obtained data could be analyzed to reduce the health risks and problems associated with the cosmic radiation. The idea includes the performance and comparative characteristics of respective sensors. This paper proposes the implementation of the objective, insight on the orientation, usefulness and the real-time working mechanism of the objective using satellite communications. The methodology provides the efficiency, reliability and the result obtained from the study. Further research and development could be carried out in the future to improvise the proposal in the aforementioned field.