

SPACE WEATHER RESEARCH AND FORECAST SERVICES USING CUBESATS

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ABSTRACT

The research on space weather and its effects will be more and more important in the near future, as a continuous increase in human presence is in progress in the Near-Earth region and the technology dependency of the human civilization has become higher than ever mainly in the fields of energy and telecommunication systems. To study space weather and to protect our technology, as a first step, it is necessary to develop and establish an advanced monitoring system to provide scientific data about the cosmic ray intensity and the status of the magnetosphere in order to gain the possibility for a reliable forecast database. Thus development of a new cosmic ray instrument package got under way at the Centre for Energy Research, Hungarian Academy of Sciences based on silicon detector technology, called RadMag. By having a compact design realized following CubeSat standards, the monitoring of the cosmic radiation and magnetic field environment will be possible with sufficient statistics in the Near-Earth region on-board a fleet of CubeSats. Additionally the RadMag instrument to be developed can provide a low-cost alternative for supporting radiation damage estimations commercially for future satellite missions as well.