

IAF SPACE POWER SYMPOSIUM (C3)  
Advanced Space Power Technologies (3)

Author: Dr. nassima khorchef  
Agence Spatiale Algérienne (ASAL), Algeria, khorchefnm@gmail.com

## LOSS ASSESSMENT FOR SOLAR PANEL PERFORMANCE IN LEO

**Abstract**

The space environment is known to be very harsh, this means that it is important to be able to identify any degradation and measure its effects on a space mission; such data provide a huge valuable experimental heritage and are of a big interest for future space missions. Among the components that face the space environment are the solar cells. Although they are adequately protected and sized to operate in this environment, they are also subject to often permanent damage caused by these environment elements. These damages are expressed by degradations of the electrical performance of the solar cells leading to the degradation of the space mission itself. Even for a heritage-based space buses, scientists face a new challenge to divert the problems already raised trying to contribute in turn to find more sustainable solutions to overcome the issues. In this work, a statistical modeling analysis based on in-orbit trend data survey is used. The method is used for performance assessment of solar panel of a microsatellite. It is proved that the method can effectively be used for future missions for a best compromised engineering value application to enhance the mission life time regarding the power budget sizing.