



Guidelines for the Selection of Near-Earth Thermal Environment Parameters for Spacecraft Design

By B J Anderson

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.Thermal analysis and design of Earth orbiting systems requires specification of three environmental thermal parameters: the direct solar irradiance, Earth's local albedo, and outgoing longwave radiance (OLR). In the early 1990s data sets from the Earth Radiation Budget Experiment were analyzed on behalf of the Space Station Program to provide an accurate description of these parameters as a function of averaging time along the orbital path. This information, documented in SSP 30425 and, in more generic form in NASA/TM-4527, enabled the specification of the proper thermal parameters for systems of various thermal response time constants. However, working with the engineering community and SSP-30425 and TM-4527 products over a number of years revealed difficulties in interpretation and application of this material. For this reason it was decided to develop this guidelines document to help resolve these issues of practical application. In the process, the data were extensively reprocessed and a new computer code, the Simple Thermal Environment Model (STEM) was developed to simplify the process of selecting the parameters for input into extreme hot and cold thermal analyses...



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