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### **TOPEX/Poseidon** Power System Performance

The TOPEX/Poseidon (TOPEX) oceanography satellite was launched successfully on August 10, 1992. The 3.7 year successful operation of the TOPEX power subsystem has enabled the science community to better understand global ocean circulation. TOPEX is powered by the Modular Power Subsystem' (MPS) containing 3 NASA Standard 50 Ah capacity batteries manufactured by McDonnell Douglas and a deployable, sun tracking, rigid, single wing, rectangular silicon solar array with overall dimensions of approximately 26 by 11 feet. Novel battery management techniques have been used to maintain the battery health throughout the primary mission. In addition, these techniques should extend the life of the batteries well beyond the primary mission,

This paper' will discuss solar array performance including voltage, current and power. The battery performance will be addressed through the following parameters: end-of-discharge voltage, peak charge current, charge to discharge ratio, differential voltage, differential current and differential temperature. There will also be a discussion of the power regulator efficiency and the satellite load power history.

Using previously untested battery management techniques, the TOPEX batteries have been the model of success using batteries that have exhibited anomalous behavior on other satellites. TOPEX battery management techniques are changing the way that Ni-Cd batteries are operated in low Earth orbit satellites. The solar array continues to perform beyond design specifications in the extended mission.