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Power and attitude system degradation of Akebono satellite over 20 years

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Akebono satellite has been operated to study auroral phenomena since its launch in 1989. In this study, we analyze some degradation characteristics of power and attitude systems over 20 years and utilize the results for extended operation in near future. The solar cell panels have decreased power generation to 70 % of its initial value. Its degradation, however, has recently slowed down and we expect an almost equivalent power generation for a few years. The attitude is stably controlled to direct toward the sun within 5 degree by using spin-type sun sensor. The temperature of main sub-systems has been also in stable condition over 20 years. We have found no problems for extended operation during a few years.

Keywords: Akebono satellite