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Prediction and measurement of space weather conditions and impacts on space missions (3)

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THE SPACE ENVIRONMENT INFORMATION SYSTEM BASED ON DIGITAL GLOBE

Abstract

The space environment is one of the main bring cause to the aerospace abnormity and trouble, and has important influence of the aerospace and the space activity. The digital globe is the digital description and understanding on the real earth and its correlation phenomenal. The research of the space environment is currently not only limiting to the scientific computing, the mathematic processing of the observation data and finding the space vibrationalrule from them, but also researching the space environment information system by integrating the space environment with the spacecraft design, the space environment affection and the aerospace mission program. And the above space environment information system had effect on the aerospace engineering application, but it had ignored one of the important characters of the space environment, namely the space-time character of the space environment. Consulting the theory of the digital globe, taking into the account about the space-time character of the space environment, the possibility and the feasibility of applying digital globe to study the space environment information system was been analyzed. And the core and the key technology of the space environment information system was been studied and the system designed scheme has been supplied. Finally, the prototype of the space environment information system has been designed using on the digital globe and the scientific visualization technology. This thesis includes the following four parts: (1) The development status and the current problems of the space environment information system. The ESA's SPENVIS ,the USA's EWB and the Space Radiation, CISM$_D X, the UNINOVA's SEIS and the Japan's GEDAS we re system summarized.(2)The possibility and the feasibility of$
$dimension dynamic space environment model has been designed, and the definition and the frame of the space environment inf$