

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Small Launchers: concepts and operations (7)

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RESEARCH ON IMPROVING THE RESPONSIVENESS FOR SOLID-FUEL LAUNCH VEHICLE

Abstract

Due to various emergencies, such as floods and earthquakes, the satellite reconnaissance and communication networks are required to be constructed within the shortest possible time. Therefore, the research on improving the response time of launch vehicle is of great importance. To address such issue for a newly developed solid-fuel launch vehicle, four main techniques are proposed in this paper. Firstly, onboard electrical devices are all equipped with automatic self-test function to significantly reduce the preparation time for overall-test thereafter. Secondly, mobile launching platform is designed to remove the site constraints. Thus the waiting time for launching site's availability can be saved accordingly. Furthermore, high-speed data bus is utilized to replace traditional serial bus to improve data transfer rate and reliability. Last but not least, data interpretation software is developed for enhanced efficiency. Primary analysis results show that the response time can be reduced to hours with the proposed techniques.