

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Astronauts: Those Who Make It Happen (5)

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INFLUENCE OF SYSTEM DELAY ON OPERATOR PERFORMANCE IN MANUAL-CONTROLLED
RENDEZVOUS AND DOCKING

Abstract

This study is focused on the influence of system delay on the operator performance in manual-controlled Rendezvous and Docking (RVD). Twenty-one male volunteers aged 22-40 participated in the experiment which was designed on a simulated RVD system. The factor of delay time had three levels corresponding to 0s,1s,2s. The results show that delay time had obvious effects on the operator performance ($p < 0.05$). With delay time increased, success rate decreased, translational deviation and velocity at docking stage (0m), and control time increased. According to the results, system delay has a significant influence on the operator performance in RVD process. Based on the experiment results, critical threshold of delay time in manual-controlled spacecraft RVD will be determined for guiding engineering design.