

47th SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Ensuring quality and safety in a cost constrained environment: which trade-off? (1)

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RESEARCH OF A QUANTITATIVE SPACE MISSIONS SECURITY EVALUATION MEATHOD

Abstract

This paper proposes a quantitative space missions security evaluation method, referring to the information system security evaluation method. Firstly, the value of space mission assets can be quantified based on three factors: availability, integrity and confidentiality. Secondly, the probability of threat is quantified by the frangibility of assets and the frequency of threat, and the loss is quantified by the frangibility of assets and the value of assets. Meathods analysis hierarchy process and expert-consulting are used in the quantitative evaluation. Lastly, the risk grading is based on the probability of threat and the loss. The quantitative space missions security evaluation has been finished based on the count of the level of risks. The navigation system security evaluation is taken for example to show how to use the quantitative meathod.