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面向任务的网络化天基信息系统连续性效能评估

陈晨(1), 周东华(2), 陈杰(3)

(1)清华大学, 100084;北京理工大学, 100081;(2)清华大学, 100084;(3)北京理工大学, 100081

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摘要 网络化天基信息系统以其快速的信息获取和处理能力在保卫国家安全、及时发现灾害等方面起到了至关重要的作用.本文以抗震救灾为应用背景,分析了系统的工作流程和主要任务,构建了多任务层次的系统连续性效能指标体系,度量了系统返回信息的密集程度.根据连续性指标特点,针对不同任务选择参考指标,建立了基于灰色评估法的效能评估模型,满足了系统面向任务的信息需求.利用仿真统计数据给出了算例,综合得到连续性效能评估结果,同时提供了连续性效能在每个任务层次的具体评估细节,为系统的设计和使用提供了指导和技术参考.

关键词 面向任务, 天基信息系统, 连续性效能, 灰色评估法.

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Evaluation of Continuity Effectiveness for Task-Oriented Networked Space-Based Information System

CHEN Chen(1), ZHOU Donghua(2), CHEN Jie(3)

(1)Tsinghua University, 100084; Beijing Institute of Technology, 100081;(2) Tsinghua University, 100084;(3) Beijing Institute of Technology, 100081

Abstract The networked space-based information system plays a vital role in national defense and disaster detection with its ability of efficient information acquisition and processing. In the background of earthquake relief for applications, working flow and main tasks of the system are analyzed, and continuity effectiveness evaluation index system is constructed in multi-task level. The continuity effectiveness is a measurement of intensive degree of information returned. According to the characteristics of continuity indexes, evaluation model based on grey evaluation method is constructed. In order to meet the information demands of task-oriented system, different reference indexes are used for different tasks. Examples are given by using statistical data in simulation, and the integrative evaluation results are obtained. Detailed evaluation results in every specific task level are offered, which provide guidance and technical reference in system design and application.

Key words Task-oriented space-based information system continuity effectiveness grey evaluation method.

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