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军用系统分析

基于贪婪随机自适应过程的多类型卫星联合任务规划技术

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摘要：

对地观测卫星任务规划问题需要考虑侧视、星上能量、数据容量和数据传输等多种约束，是一类复杂的组合优化问题，现有研究大多对问题进行了不同程度的简化。面向多种载荷类型卫星的联合任务规划问题，考虑上述多种约束，基于贪婪随机自适应搜索过程提出了一种新的混合算法对问题进行求解。实验结果表明，该混合算法在多星联合任务规划领域是可行有效的。

关键词： 卫星任务规划 贪婪随机自适应搜索过程 启发式搜索 迭代修复

Multiple satellites united imaging scheduling based on greedy randomized adaptive search procedure

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Abstract:

Earth observing satellite (EOS) imaging scheduling is characterized by multiple complex constraints including power, thermal, data capacity, data transmission and the limited time each satellite spends over each target, which is a complicated combinatorial optimization problem. Many previous researches have do some predigestions on them. The multiple satellites united imaging scheduling problem is dealt with, and all aforementioned constraints are considered. A new hybrid algorithm is proposed, which is based on greedy randomized adaptive search procedures (GRASP). Experimental results show that the hybrid algorithm is suitable for EOS imaging scheduling.

Keywords: satellite imaging scheduling greedy randomized adaptive search procedure (GRASP) heuristic search iterative repair

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