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非常规突发事件应对任务的机会约束规划

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Chance constraint programming for the unconventional emergency response

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- 摘要
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摘要 非常规突发事件破坏力巨大, 极少出现或者不会出现预兆, 是历史罕见事件, 具有极度不确定性. 因此非常规突发事件应对任务是一个不确定决策问题. 非常规突发事件的应对任务可以分解为紧急补救任务和控制恢复任务. 在分析紧急补救任务和控制恢复任务的不确定属性的基础上, 建立了非常规突发事件应对任务的极大值不确定机会约束规划模型. 该模型是在应对任务成本的机会约束下, 极大应对任务净收益的乐观值. 最后, 通过大规模停电应对的算例, 演示了机会约束规划模型在应对任务规划中的应用途径.

关键词: 非常规突发事件 应对任务 不确定规划 机会约束规划模型

Abstract: Unconventional emergency, with litter or no omen, always makes a heavy impact on our country; it is rarely seen in history, and is an uncertain event. The response mission for unconventional emergency could be divided into instant remedy mission and disaster controlling mission, which should be modeling by uncertain function. A chance constraint model for unconventional emergency response mission is developed, after emergency resources and its allotment ways are analyzed. This chance constraint model is to maximize the optimal value of return function, under the chance constraint of response cost. Finally, in order to give a presentation of methodology for emergency response decision under chance constraint programming, an example about emergency response for large-scale blackouts is designed.

Key words: unconventional emergency emergency response mission uncertain programming chance constraint programming model

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