Automatic Crew Scheduling Algorithm After a Large-scale Natural Disaster

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When sections of railway lines are partially disrupted due to damage from large-scale natural disasters, it is necessary to prepare crew schedule plans for temporary timetables. In such cases, crew schedule plans ensure that the duties once assigned to crews are not altered. As this task is time-consuming for schedule planners, there is a desire for an automatic crew scheduling method. This paper focuses on crew scheduling in the aftermath of a large-scale natural disaster and proposes an automated generation algorithm based on mathematical optimization. In addition, we show the results of computational experiments based on a real disaster case, demonstrating that the proposed algorithm can generate an efficient schedule plan in a short time.