A Demonstration of Timeline-based Scheduling for the Earth Observing One Mission

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Abstract

We demonstrate a timeline-based heuristic greedy scheduling system in use to schedule observations for the Earth Observing One Satellite. We describe the range of constraints modeled within the system directly and as part of the candidate generation process. We show a visualization of the scheduling search process with direct comparison to both the prior scheduling system and simplified optimal upper bound schedulers. We present results documenting that our heuristic scheduler produces results within 15% of the optimal upper bound and a significant (50%) increase in scenes over the prior scheduler with an estimated value of missions of dollars US.