Generating a Long Range Plan for a New Class of Astronomical Observatories

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Abstract. We present a long range planning (LRP) system, the Spike Plan Window Scheduler, which has been in use for observations on the Hubble Space Telescope (HST) for the past four years and which is being adapted for the Space Infrared Telescope Facility (SIRTF) and Next Generation Space Telescope (NGST) orbiting astronomical observatories. Due to the relatively underconstrained nature of this domain, generating a long range plan is not handled in the traditional AI planning sense of generating operators to achieve goals. Rather, producing an LRP is treated as a type of scheduling problem where what is being scheduled are not the scientific observations themselves, but "plan windows" for the scientific observations. This paper investigates planning subproblems which arise in this type of domain. In particular, we discuss the SIRTF Long Range Plan which requires planning of "instrument campaigns" in conjunction with observation plan window scheduling.