

Survey Strategy and Cadence Choices For the Vera C. Rubin Observatory Legacy
Survey of Space and Time (LSST)

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ABSTRACT

A summary of survey strategy and cadence choices, simulated and evaluated by the Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST) Scheduler Team, prepared for the Survey Cadence and Optimization Committee (SCOC).

The initial idea of a large telescope survey, covering the entire visible sky repeatedly every few days in multiple bandpasses over the course of ten years, is the core idea of the LSST. A large area (about 20,000 square degrees) observed under a wide range of conditions to deep coadded limiting magnitudes in bandpasses *ugrizy* enables cosmological studies with unprecedented precision; the same survey, when cadenced well, can serve to open new windows into our understanding of transient and variable stars, and extend our knowledge of small bodies throughout the Solar System by orders of magnitude. The outlines of these goals and some basic necessary requirements for those goals are outlined in the LSST Science Requirements Document (SRD)^{a)}. Finding options for the survey strategy to meet more detailed needs of an even wider range of science goals, as well as building the LSST Scheduler and Metrics Analysis Framework, has been the work of the LSST Scheduler Team with support and input from the astronomical community, including the COSEP^{b)}, the Call for White Papers^{c)}, and innumerable metrics, and guidance from the LSST Science Advisory Committee in their Recommendations for Operations Simulator Experiments^{d)}.

1. INTRODUCTION

This draft is still an early work in progress. Check back summer 2020.

a) [ls.st/srd](https://github.com/lsst/srd)

b) <https://github.com/LSSTScienceCollaborations/ObservingStrategy>

c) [Document-28382](#)

d) [Document-32816](#)