

Rolling Cadence

Next Steps

1. Complete the bug fixes that block using existing features of the Simulator to be configured into a Rolling Cadence In Progress
2. Design and implement new code that enables Rolling Cadence

Here is a document that gives an overview of the Rolling Cadence

<https://docushare.lsstcorp.org/docushare/dsweb/Get/Document-16370>

Here is the email that describes the current plan of action:

From: lsst-opsim-bounces@lsstcorp.org [mailto:lsst-opsim-bounces@lsstcorp.org] **On Behalf Of** Stephen Ridgway
Sent: Wednesday, April 9, 2014 1:39 PM
To: Project Controlled Operations Simulator
Subject: Re: [Lsst-opsim] rolling cadence product for 2014

Kem's email plus discussion today led to some changes in the proposal - which is still merely a straw man for discussion, but is getting a little more mature. The enhancement duration is increased to 3 months. Also - very important - the enhancement visits are specified as single visits instead of visit pairs, which gives a lot more bang for the buck! And the description now takes into account that the enhancement regions should be distributed in RA in order to not mess up the standard cadence visits. (There may still be some gotchas in the concept - please watch for any.) As soon as the internal discussion converges, I propose to pass this to the DESC SN group to find out if it is responsive in light of current modeling.

Rolling Cadence Experiments Planned for Early 2014

The following is a proposal, subject to review and updates as additional experience and input becomes available.

The rolling cadence can be applied to any part of the survey, but for initial experiments it should be applied to the WFD main survey only. During the enhanced cadence intervals, the standard survey cadence will continue, with visits in pairs for detection of moving objects. The additional visits provided with the rolling cadence will not be in pairs.

The intention is to distribute the new visits provided by the rolling cadence uniformly through the enhancement intervals.

The initial objective is to produce two sample rolling cadence simulations, one using a 10-year closure cycle, and one using a 3-year closure cycle.

- 10-year closure. For the first experiment, the goal will be to quadruple the cadence over standard. It should be possible to achieve this for approximately 3 consecutive months on each field. The sky will be divided into 40 regions, which are sorted into 10 groups. Each group will consist of 4 regions distributed uniformly in RA, so that the impact of the rolling cadence on the regular cadence is uniform through the year. Each group will be subject to enhanced cadence once during the 10-year survey. This should be done at the rate of one group per year, in order to limit the impact on the regular survey visits underway in parallel. This will require taking 0.075 of the visits from the regular cadence and redeploying them in the rolling cadence, thus leaving the regular cadence active at 0.925 of the standard level.
- 3-year closure. For the first experiment, the goal will be to double the cadence over standard. It should be possible to achieve this for approximately 3 consecutive months on each field 3 times during the 10-year survey. The sky will be divided into 12 regions, which are sorted into 3 groups. Each group will consist of 4 regions distributed uniformly in RA, so that the impact of the rolling cadence on the regular cadence is uniform through the year. Each of the groups will be subject to enhanced cadence once during years 1-3 of the survey, again during years 4-6, and again during years 7-9. This should be done at the rate of one group per year, in order to limit the impact on the regular survey visits underway in parallel. This will require taking 0.075 of the visits from the regular cadence and redeploying them in the rolling cadence, thus leaving the regular cadence active at 0.925 of the standard level.