

# **Survey Cadence Optimization Committee (SCOC) and Science Collaborations Chairs Telecon**

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## **A few important links:**

Survey Cadence Optimization Information Webpage:

<https://www.lsst.org/content/charge-survey-cadence-optimization-committee-scoc>

The 2020 Cadence Optimization Report (Survey Strategy and Cadence Choices...)

<https://pstn-051.lsst.io/PSTN-051.pdf>

Community Observing Strategy Evaluation Paper (COSEP):

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

The SCOC timeline:

<https://www.lsst.org/sites/default/files/SCOC%20Handout.pdf>

**The four science themes that led us to a funded mission are still the primary LSST goals.**

Our simulated baseline cadence implies that **we will reach the promised goals** if the system performs as designed (based on existing information, hardware measurements, historic data, and simulations, the Construction team believe this assumption to still be true).

We want to **further optimize at the system level**, but without jeopardizing any of the four main science themes (for example, we will not implement changes that would decrease asteroid completeness by 50% just so that the number of SNe increases by 50%): **"Cadence Diplomacy"**

In other words (thanks Andy C. and Phil M.):

**We are not "maximizing happiness" - we are trying to "minimize unhappiness!"**

## The SCOC guidelines:

- the SCOC members **do not represent** the specific scientific interests of the science collaborations they happen to be members of; the SCOC will work to **optimize the global scientific productivity of LSST**
- the SCOC members **will actively seek input and advice** from members of the scientific community and the science collaborations (inclusiveness)
- the SCOC members **will be free to share information** presented in the SCOC discussions with the experts with whom they consult (transparency)

Ideally, a different set of people, given the same information, would arrive to the same conclusions and recommendations.

## The SCOC strategy:

**Phase 1:** settle first on a cadence strategy, or a family of simulations

-> a qualitative decision, by [Dec 31, 2021](#)

**Phase 2:** optimize further the chosen cadence strategy

-> a quantitative decision, by [Oct 1, 2022](#)

Possibly three workshops to improve the feedback from the SCs to the SCOC:

[Nov 2020 \(?\)](#), Fall 2021, Summer 2022.

### The main drivers for the three workshops:

- **first workshop:** enable the SCOC to receive input from SCs
- **second workshop:** discuss the final detailed optimization of the observing strategy recommended by the SCOC
- **third workshop:** if needed, fine-tune the recommended strategy, including “early science optimization” (modifications of the baseline strategy during the first few months of operations)

## **Current top questions for Science Collaborations:**

- are there any simulations that "kill" your science?
- are there any simulations that are particularly good for your science?
- are you developing MAF (Metrics Analysis Framework) metrics, and do you need help with it?
- do you have suggestions for improving the strawman plan for the Nov 2020 workshop?

## Nov 2020 workshop draft agenda:

- two days, 4 hours each (?)
- during the week of Nov 16-20 (9am-1pm Pacific)
  - Or perhaps the second week of Dec (7-11), or the second half of January? **Need to decide “now”!**

### **Agenda** (2 hours per block; minus 10 min breaks):

- **intro to the Scheduler and MAF** (with pre-recorded talks)
  - > what can and cannot be simulated?
  - > how-to-use MAF, with practical examples
  - > how to interpret MAF outputs? Hands-on tour
- **how to interpret the Project report and open cadence questions**
  - > summary/cheat sheets?
  - > all 4 science themes must be optimized simultaneously
- **the principal open cadence questions**
- **how will SCOC reach its decisions?** call for white papers. deadline?

## Nov 2020 call for white papers:

- > to give a chance to the SCOC to receive feedback from Collaborations about the new generation of 100+ simulated surveys, so that the SCOC can make cognizant recommendation for the "initial final" strategy in their late 2021 report
- > short (1-2) pages white papers with specific feedback
- > [deadline: March 1, 2021 \(?\)](#)

## White papers:

brief but [specific and quantitative feedback](#) to the SCOC about how available families of simulations work or don't work for specific science goals (as opposed to proposing new cadence ideas).

# Backup slides

## THE SCOC TIMELINE IS SUBJECT TO CHANGE, THIS VERSION IS FROM AUGUST 2020:

- PCW2020: cadence report by the Project delivered to stakeholders
- Nov 2020: the **1st workshop** (virtual)
- Mar 1, 2021: the white paper deadline, followed by SCOC deliberations
- Mar-summer, 2021: a series of Science Collaboration-SCOC liaison telecons
- May 1, 2021: publish details about the 2nd workshop
- Fall 2021: draft SCOC recommendation ready and the **2nd workshop**
- Dec 31, 2021: finalized SCOC recommendation
- Mar 1, 2022: simulations of the recommended strategy available (detailed variations to enable a discussion of fine tuning all the knobs)
- Summer 2022: possibly the **3rd workshop** to fine-tune the recommended strategy, including "early science optimization"
- Dec 31, 2022: the simulation of the adopted observing strategy (the new baseline) produced and made publicly available
- Apr 1, 2023: the observing strategy fixed and implemented in the Scheduler and the Observatory Control Software