https://lsst-tvssc.github.io/metricshackathon2020/

# Organizers

Rachel Street rstreet@lco.global

Federica Bianco fbianco@udel.edu

*with help from*

Will Clarkson wiclarks@umich.edu

Fabio Ragosta fabio.ragosta@inaf.it

Xiaolong Li lixl@udel.edu

Peter Yoachim yoachim@uw.edu

Sugata Kaviraj s.kaviraj@herts.ac.uk

Peregrine McGehee peregrine.mcgehee@gmail.com

John Gizis gizis@udel.edu

Aprajita Verma aprajita.verma@physics.ox.ac.uk

Timo Anguita tanguita@gmail.com

Gordon Richards gtr@physics.drexel.edu

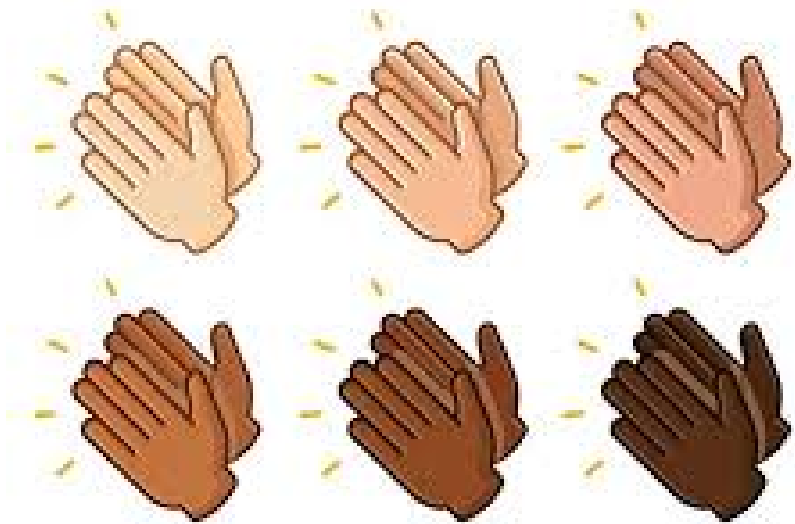
David Trilling David.Trilling@nau.edu

Chad Schafer cschafer@cmu.edu

Rachel Mandelbaum rmandelb@andrew.cmu.edu

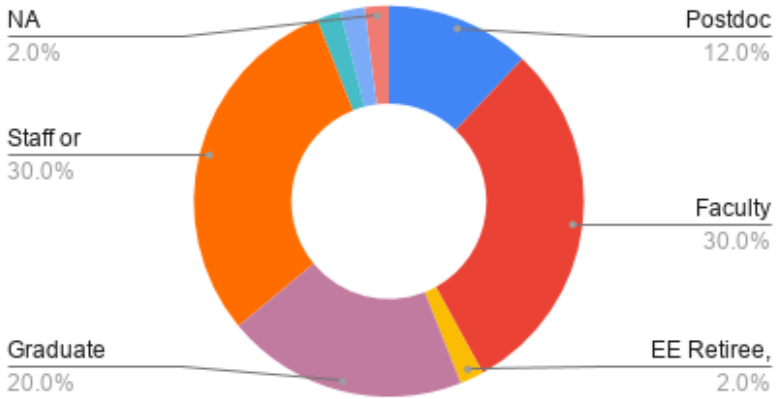
Melissa Graham melissalynngraham@gmail.com

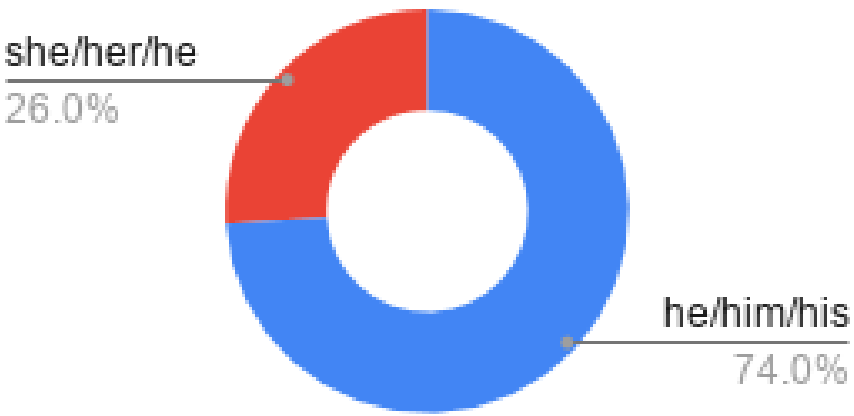
# thank you!!



# Participants

50 signed up (all spots available!)

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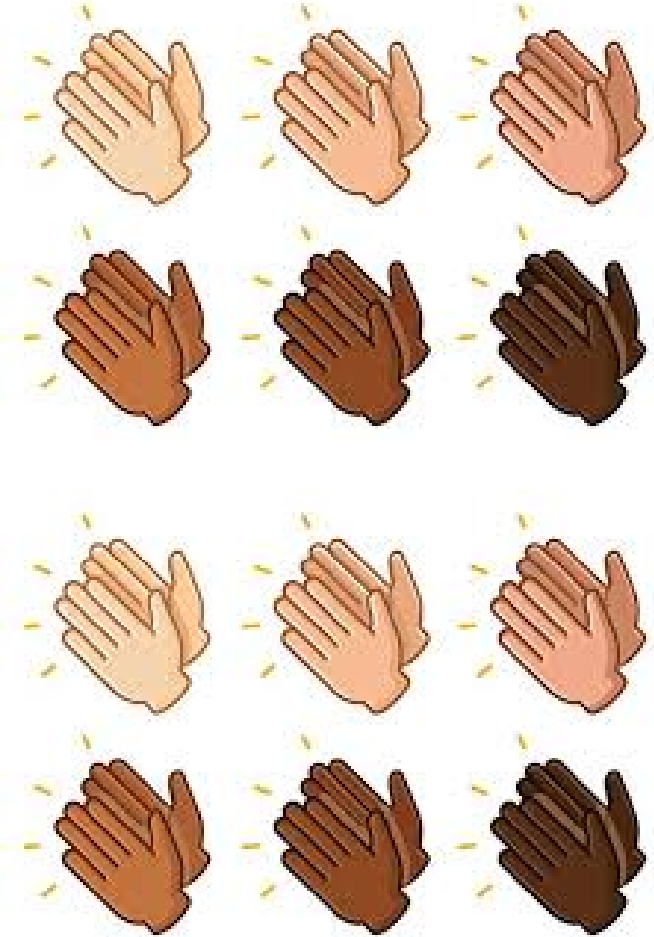


# Participants thank you!!

## Code of Conduct

Rubin Observatory enforces the AURA Harassment and Code of Conduct Policy. Harassment and unprofessional conduct (including the use of offensive language) of any kind is not permitted at any time and should be reported per the instructions in the Reporting section of this page.

### Our Values

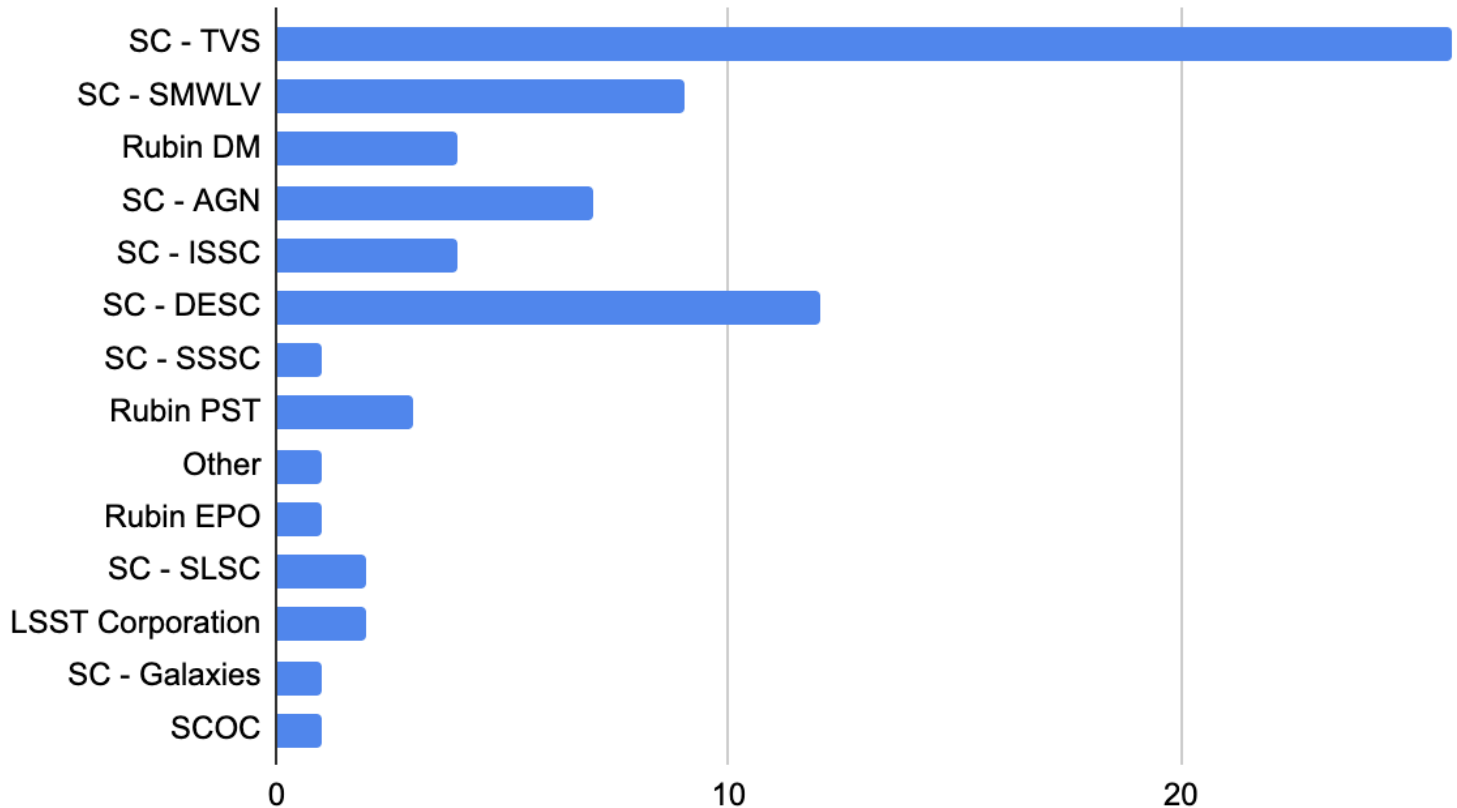
Rubin Observatory adheres to the following principles in order to provide a learning environment that produces rigor and excellence:

- **Be Kind**
  Acting with and encouraging kindness strengthens individuals, relationships, and communities.
- **Trust**
  An inclusive, collaborative environment is best achieved when there is mutual trust, based upon honest behavior, throughout the community.
- **Respect**
  Inclusive environments foster excellence by challenging us to consider a variety of viewpoints and approaches. We honor alternate viewpoints as opportunities for discussion and learning, and therefore treat others with respect, even if we disagree.
- **Diversity**
  In a diverse community, differences between people are recognized and acknowledged as assets. Our community is stronger, more creative, and more innovative because it is fueled by a broad range of ideas and perspectives.
- **Inclusiveness**
  Rubin recognizes the importance of actively including and encouraging involvement from all corners; diversity is only a benefit if all members feel empowered to participate. Quoting from the AAS guidelines: "Scientists should work to provide an environment that encourages the free expression and exchange of scientific ideas. They should promote equality of opportunity and fair treatment for all their colleagues, regardless of gender, race, ethnic and national origin, religion, age, marital status, sexual orientation, gender identity and expression, disability, veteran status, etc. Scientific ability must be respected wherever it is found."

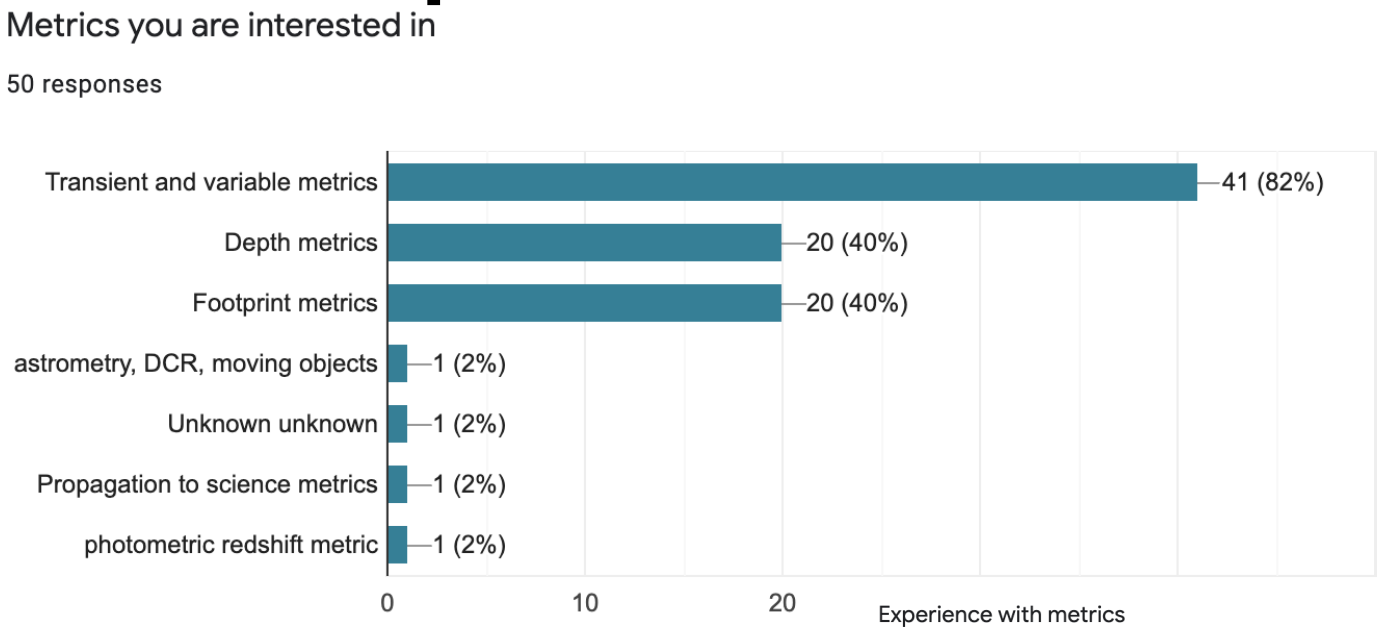
you agreed to our Code of Conduct

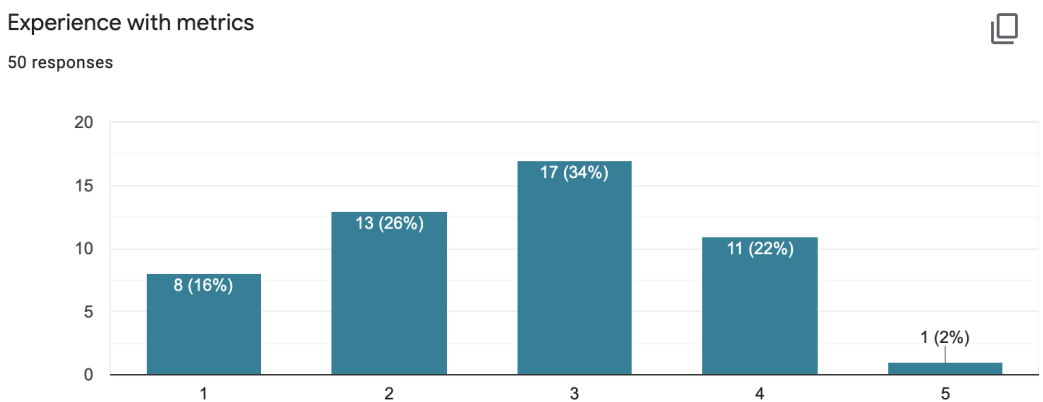
https://project.lsst.org/meetings/rubin2020/resources/coc

# Participants thank you!!



# Participants thank you!!



# how will the hackathon work? schedule

| PST | EST | UTC | CST | August 6 | August 7 | |
|---|---|---|---|---|---|---|
| 8:00 | 11:00 | 15:00 | 23:00 | Opening remarks and rules of engagement - | Reports from each session about what metrics they will write | |
| 8:15 | 11:15 | 15:15 | 23:15 | Rubin LSST, observing strategy and the SCO | | |
| 8:30 | 11:30 | 15:30 | 23:30 | DEMO: Sciserv - Gordon Richards, Weixiong Yu | | |
| 9:15 | 12:15 | 16:15 | 0:15 | DEMO: MAF API - Peter Yoachim | | |
| 9:45 | 12:45 | 16:45 | 0:45 | coffee and tea break | | Discussion on boundary conditions |
| 10:00 | 13:00 | 17:00 | 1:00 | DEMO: Aggregating MAF results - Will Clarkson | | |
| 10:30 | 13:30 | 17:30 | 1:30 | Review of available metrics | | |
| 11:00 | 14:00 | 18:00 | 2:00 | Organization of breakout sessions and working plan definition | Breakout MAF rooms | Breakout MAF rooms |
| 12:00 | 15:00 | 19:00 | 3:00 | Open sessions: the connections will remain open for collaborative work and mentors will be | Organizers collect material from the Breakout rooms | |

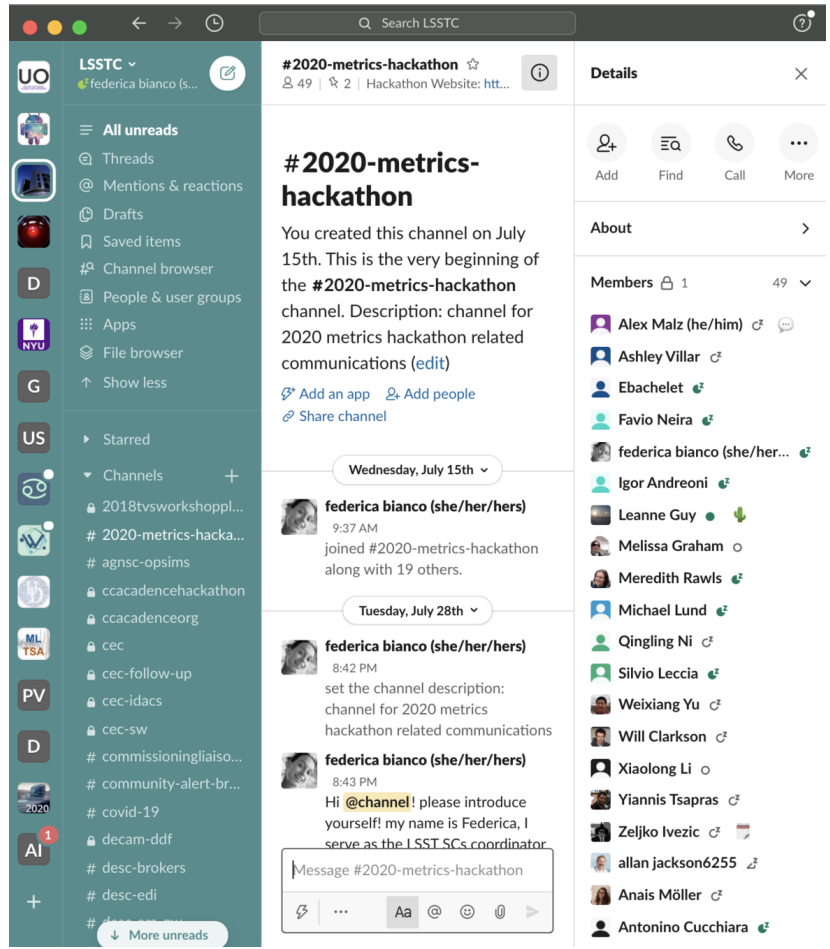
*items in color are "plenary" sessions*

https://docs.google.com/spreadsheets/d/16PDkx_CUJqaToTrEmEXIN4U882WKsNCpCfL672tVPco/edit?usp=sharing

# how will the hackathon work? communication

no emails: use slack for written communication

**#2020-metrics-hackathon**



# how will the hackathon work?
# communication (links are pinned on slack)

Plenaries: zoom 81096488021

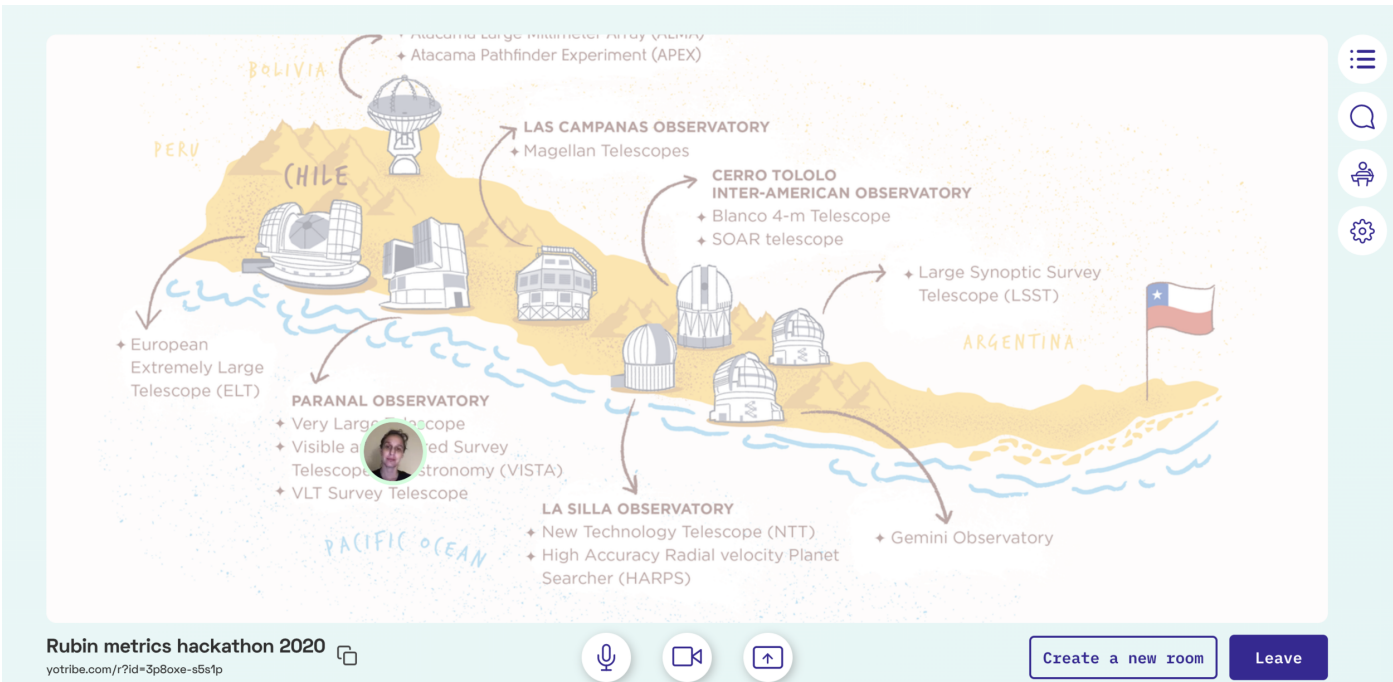
password: 81096488021

Breakouts

yotribe

password:

rubin



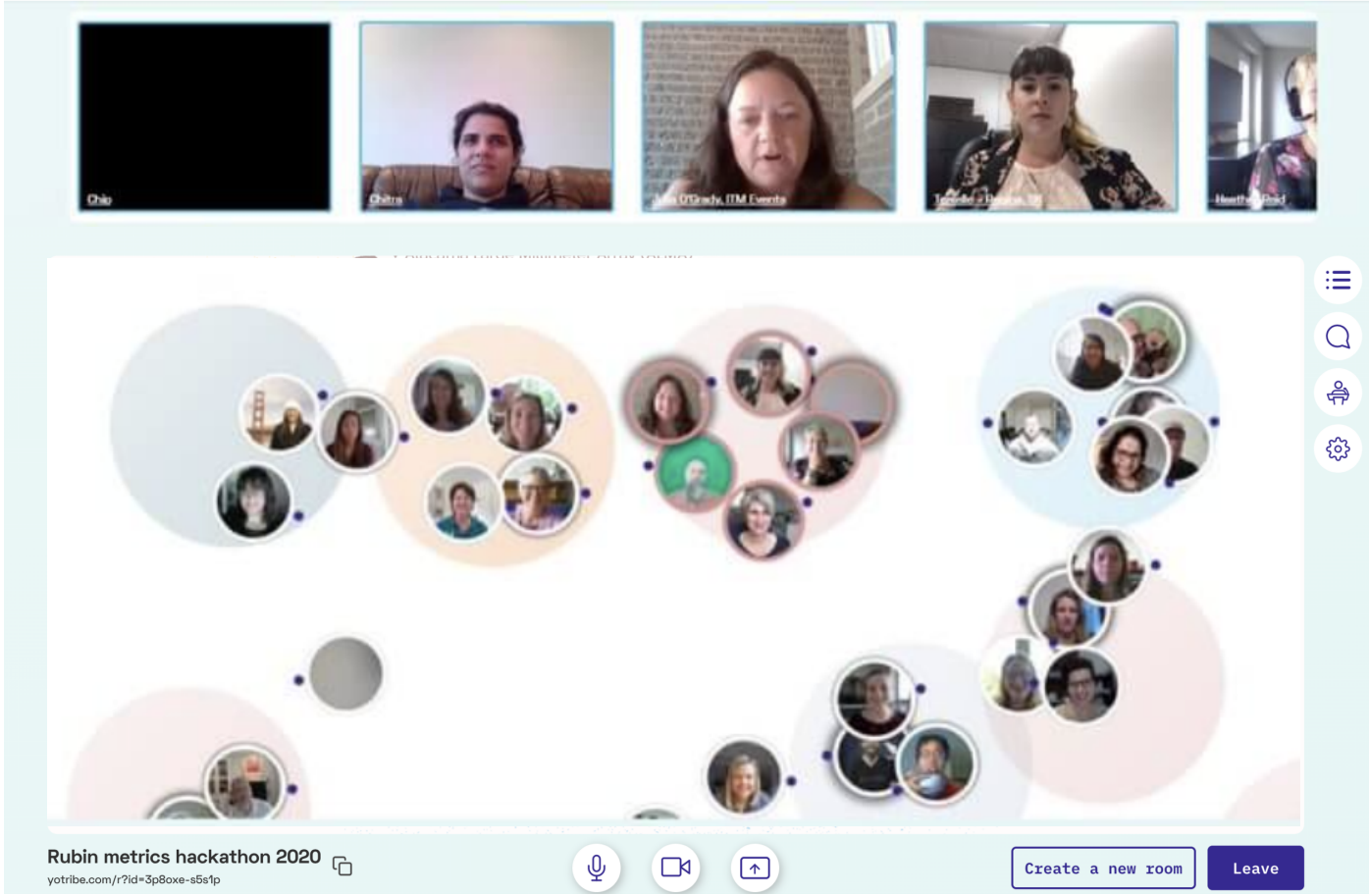
# how will the hackathon work?
# communication (links are pinned on slack)

Breakouts

yotribe

password:

rubin



# how will the hackathon work?
# communication

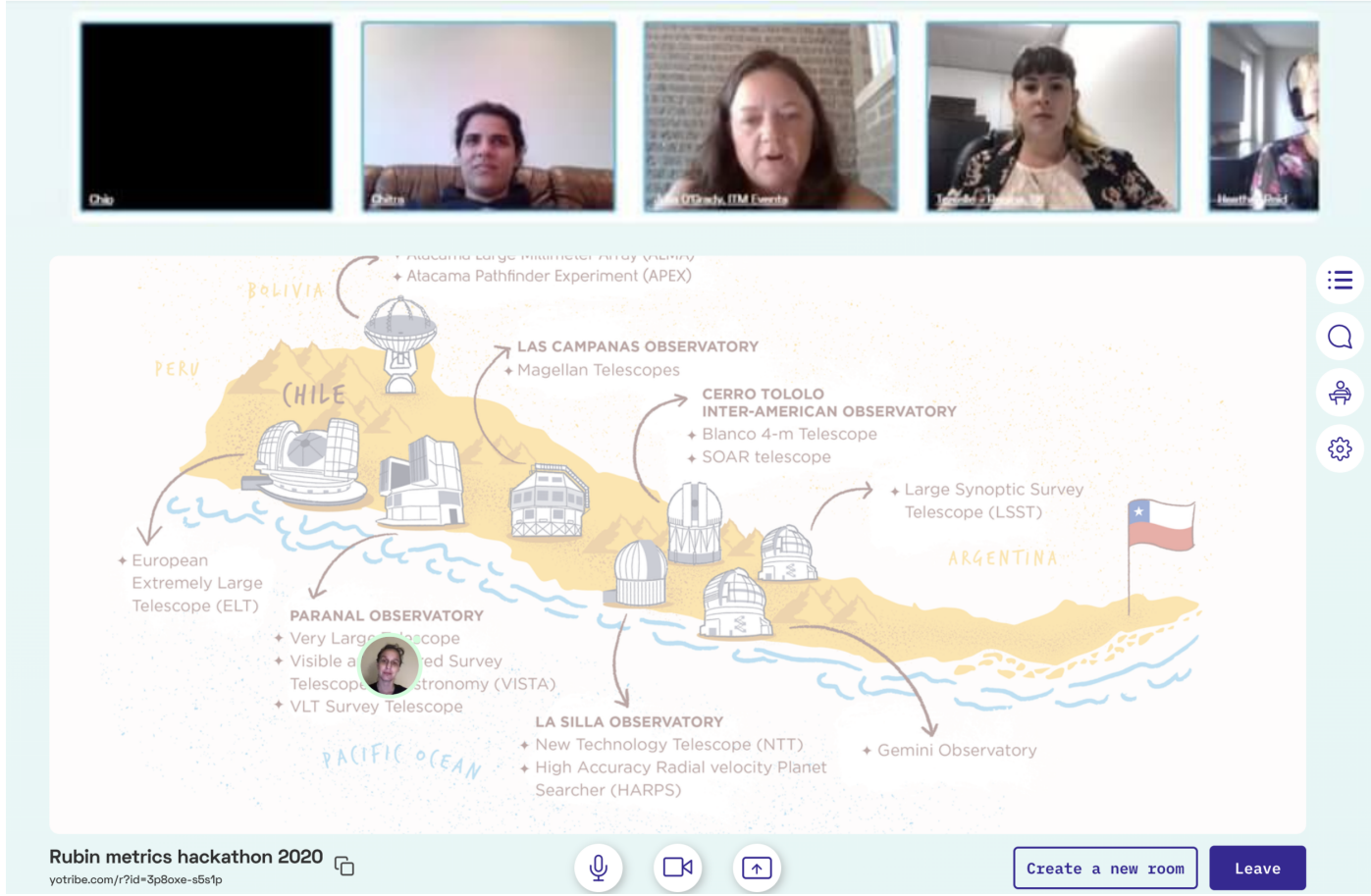
(links are pinned on slack)

we will organize breakout groups based on similar metrics

(after the plenary)

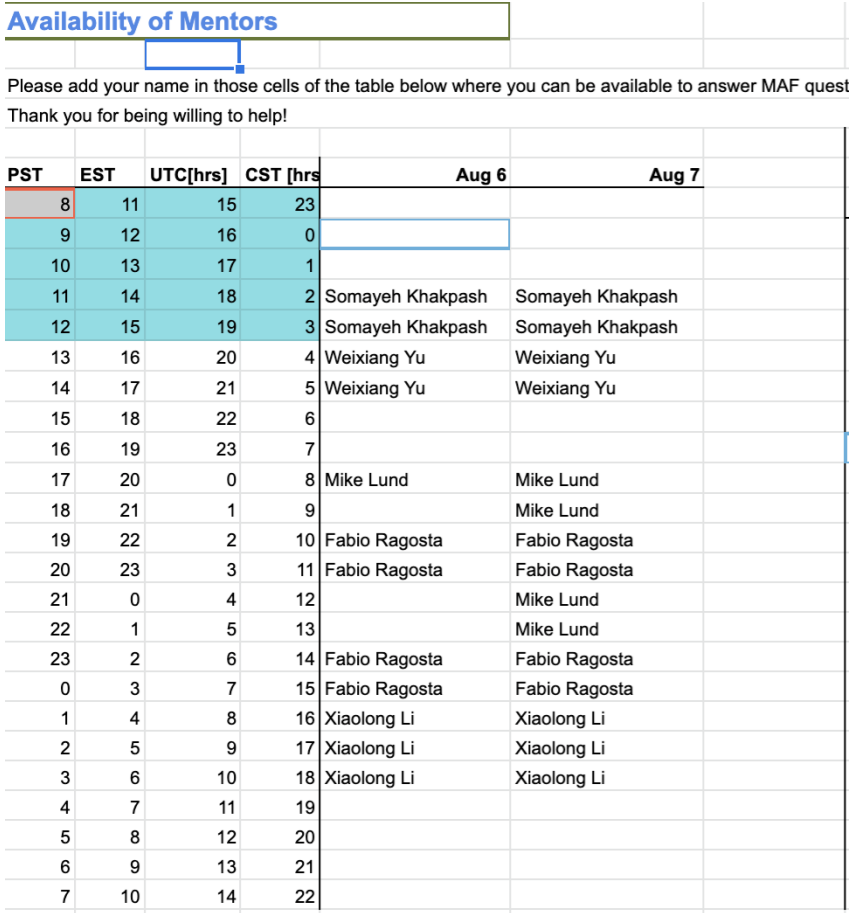
we will name areas by observatory

e.g. I am in paranal =>



# how will the hackathon work?

# communication (links are pinned on slack)



**Availability of Mentors**

Please add your name in those cells of the table below where you can be available to answer MAF quest

Thank you for being willing to help!

| PST | EST | UTC[hrs] | CST [hrs | Aug 6 | Aug 7 |
|---|---|---|---|---|---|
| 8 | 11 | 15 | 23 | | |
| 9 | 12 | 16 | 0 | | |
| 10 | 13 | 17 | 1 | | |
| 11 | 14 | 18 | 2 | Somayeh Khakpash | Somayeh Khakpash |
| 12 | 15 | 19 | 3 | Somayeh Khakpash | Somayeh Khakpash |
| 13 | 16 | 20 | 4 | Weixiang Yu | Weixiang Yu |
| 14 | 17 | 21 | 5 | Weixiang Yu | Weixiang Yu |
| 15 | 18 | 22 | 6 | | |
| 16 | 19 | 23 | 7 | | |
| 17 | 20 | 0 | 8 | Mike Lund | Mike Lund |
| 18 | 21 | 1 | 9 | | Mike Lund |
| 19 | 22 | 2 | 10 | Fabio Ragosta | Fabio Ragosta |
| 20 | 23 | 3 | 11 | Fabio Ragosta | Fabio Ragosta |
| 21 | 0 | 4 | 12 | | Mike Lund |
| 22 | 1 | 5 | 13 | | Mike Lund |
| 23 | 2 | 6 | 14 | Fabio Ragosta | Fabio Ragosta |
| 0 | 3 | 7 | 15 | Fabio Ragosta | Fabio Ragosta |
| 1 | 4 | 8 | 16 | Xiaolong Li | Xiaolong Li |
| 2 | 5 | 9 | 17 | Xiaolong Li | Xiaolong Li |
| 3 | 6 | 10 | 18 | Xiaolong Li | Xiaolong Li |
| 4 | 7 | 11 | 19 | | |
| 5 | 8 | 12 | 20 | | |
| 6 | 9 | 13 | 21 | | |
| 7 | 10 | 14 | 22 | | |

if your group is stuck on a coding or similarly technical question, reach out to a mentor

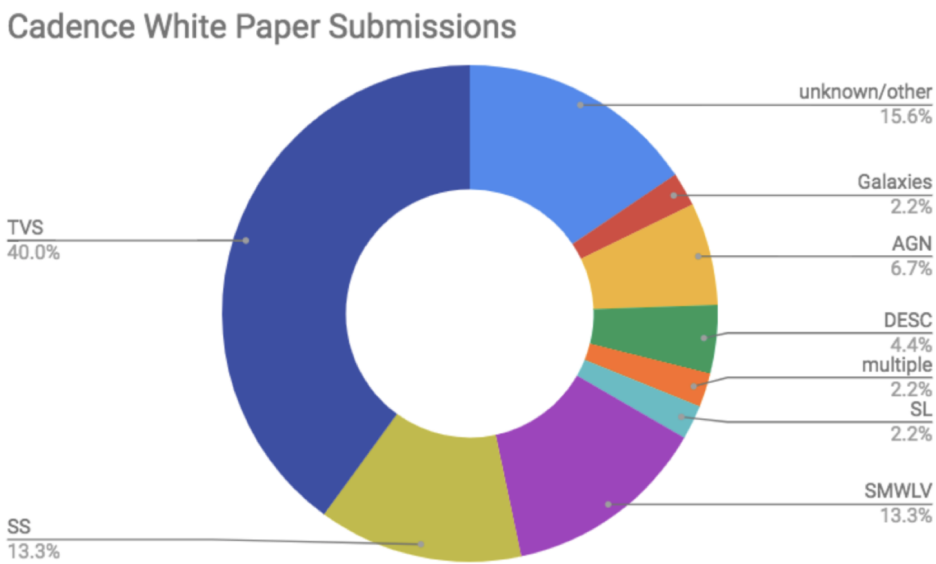
if you have MAF experience sign up as a mentor please!

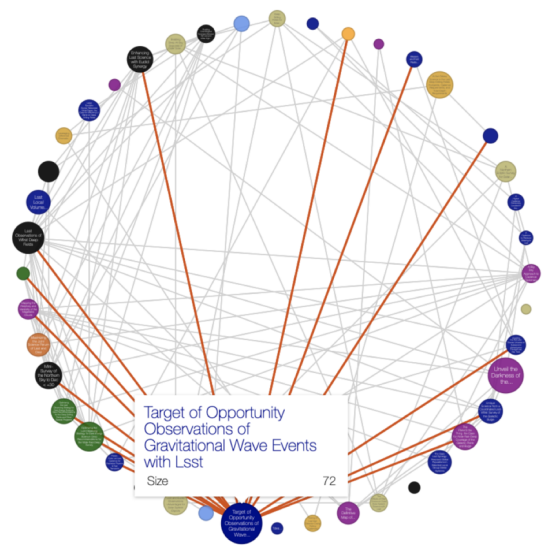
https://docs.google.com/spreadsheets/d/16PDkx_CUJqaToTrEmEXIN4U882WKsNCpCfL672tVPco/edit?usp=sharing

# Rubin OpSim and the SCOC

# Rubin LSST survey design

November 2018, call for white papers




https://www.lsst.org/submitted-whitepaper-2018

# Rubin LSST survey design

April 2019, SAC recommandations

A Report from the LSST Science Advisory Committee:
Recommendations for Operations Simulator
Experiments Based on Submitted Cadence
Optimization White Papers

The LSST Science Advisory Committee

April 2019

https://project.lsst.org/groups/sac/sites/lsst.org.groups.sac/files/OpSim_experiments.pdf

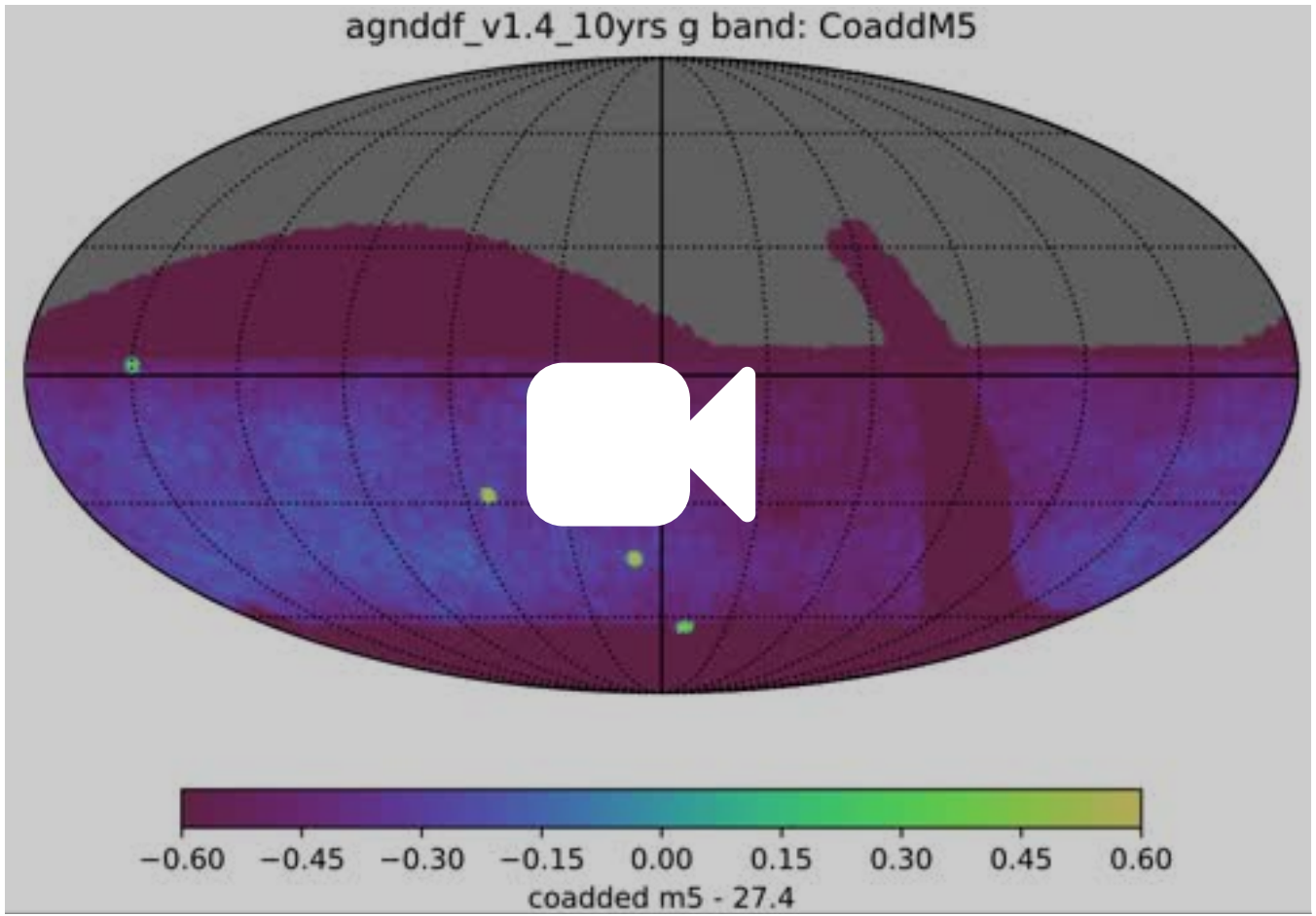
# Rubin LSST survey design

Lynne Jones and Peter Yoachim prepared the simulations

Rothchild+ 2019

https://arxiv.org/abs/1903.00531

# Rubin LSST survey design



# Rubin OpSim and the SCOC

## FBS 1.4 release (January 2020 update - FBS 1.4 Runs)

Science Survey Strategy run-release

**ljones** Lynne Jones LSST 10 Jun 12

**FBS 1.4 runs** - released in January 2020.

There are 75 simulations in this release (although we have recently added extra runs as part of a "1.4.1" set, upon requests from the community - so as of April 2020, closer to 120 runs). Most previous sets of simulations have been recreated with a consistent set of software (updates/bugfixes), however some runs have been dropped. Please be sure to note which *version* of runs you are comparing (and generally try to compare runs in the same release). If a run that was useful to you was dropped, please let us know so that we can add it back in. The version information is generally included in the simulation name, it is also contained inside the simulation database file (in the `info` table).

https://community.lsst.org/c/sci/survey-strategy/37

## FBS 1.5 release (May Update - Bonus FBS 1.5 release)

Science Survey Strategy

**ljones** Lynne Jones LSST 3 May 7

Dear survey enthusiasts,

**we now also have FBS 1.6 available -**

thank you Lynne and Peter!

# Rubin OpSim and the SCOC

OpSim discussion at the PCW

## Community Evaluation of Rubin Survey Strategies

Pre-View Materials

The Project survey simulations team will provide an update on Operations Simulations (OpSim) and their Metric Analysis Framework (MAF), and host a Q&A on topics related to the community's evaluation of these survey strategies. Anyone with questions, suggestions for discussion topics, or who would like to contribute content to this session is encouraged to contact the SOC Chair.

**A List of Previewable Materials** {to be added}

**Organizer:** Peter Yoachim and Lynne Jones
**Day:** Wednesday, Aug 12
**Time:** 07:30 HST - 10:30 PT - 13:30 EDT - 19:30 CEST - 03:30 AET +1
**Chat and Q&A area:** Slack Channel

# Survey Cadence Optimization Committee

## SCOC

**SCOC Charge**

The SCOC will be a standing committee through the life of the Rubin Observatory operations. The SCOC tasks include:

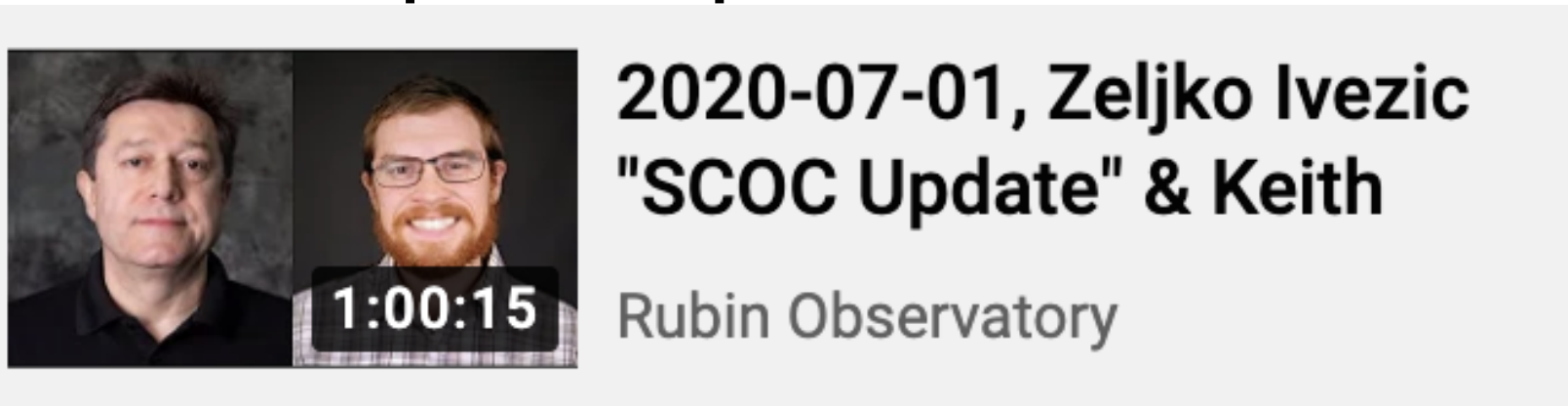
1) make **specific** recommendations for the cadence choices for the full 10-year survey (LSST)

2) help communicate these recommendations to the science community

3) make specific recommendations for “Early Science” observations

4) during operations, track survey progress and make recommendations for changes in survey strategy

**SCOC: expert, transparent, diverse, inclusive**




https://www.youtube.com/watch?v=SpkGF3GYAz0&list=PLPINAcUH0dXacwsNrhNnQSq0rOTRf0IfU&index=2&t=0s

# Survey Cadence Optimization Committee

## SCOC

| | |
|---|---|
| Report from Project to SCOC..... | at PCW 2020 |
| *workshop to engage w the community.....* | early 2021 |
| SCOC report on initial strategy..... | late 2021 |
| Simulation of initial strategy..... | Feb 2022 |
| *workshop to fine-tune initial strategy.....* | Summer 2022 |
| simulation of the final strategy..... | Late 2022 |
| Start of LSST Operations..... | 2023 |

# Survey Cadence Optimization Committee

## SCOC

### Committee Members:

Franz Bauer, Universidad Católica, Chile

Sarah Brough, University of New South Wales

Renee Hlozek, University of Toronto

Mansi Kasliwal, Caltech

Knut Olsen, NSF's NOIRLab

Hiranya Peiris, University College London

Meg Schwamb, Queen's University Belfast

Dan Scolnic, Duke University

Colin Slater, University of Washington

Jay Strader, Michigan State University

Lucianne Walkowicz, Adler Planetarium

### Non-voting Committee Members:

Lynne Jones, Rubin Observatory, ex officio

Željko Ivezić, Rubin Observatory, Chair

- 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

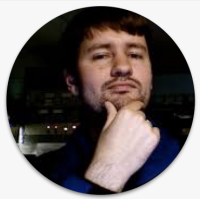
https://www.lsst.org/content/charge-survey-cadence-optimization-committee-scoc

# today's plan

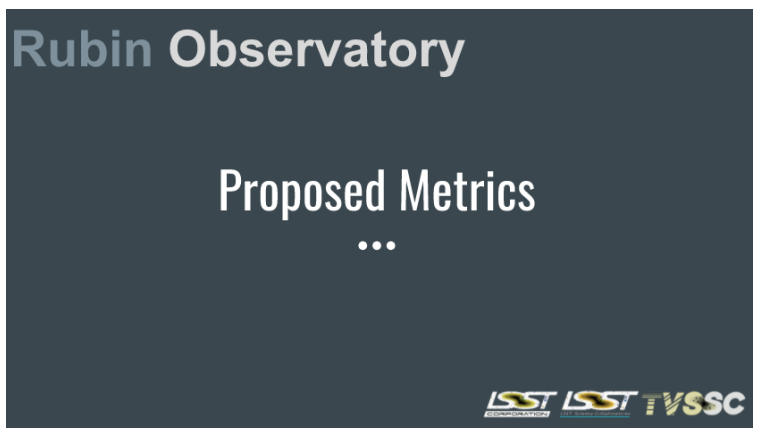
Gordon Richards+Weixiang Yu . sciserv.org demo


Peter Yoachim.....MAF demo

```
# import our python modules
import lsst.sims.maf.db as db
import lsst.sims.maf.metrics as metrics
import lsst.sims.maf.slicers as slicers
import lsst.sims.maf.stackers as stackers
import lsst.sims.maf.plots as plots
import lsst.sims.maf.metricBundles as metricBundles
```



Rachel Street.....available and proposed MAFs




Breakout organization

*Hacking - Hacking - Hacking - Hacking - Hacking - Hacking .....*

## tomorrow's plan

Quick status report from each group/hacker

Hacking | Discussion of "boundary conditions"

*Hacking - Hacking - Hacking - Hacking - Hacking - Hacking .....*

Organizers check with each group and collect material

## Wednesday

Organizers report at the PCW OpSim session