



Information Session: Participation in Data Preview 0

Winter 2021 AAS, Rubin Observatory booth (NSF Pavilion)
Jan 13 2pm, Jan 14 3pm (US Eastern time)

Virtual Sessions

Jan 19 7am, Jan 27 12pm, Feb 4 4pm (US Pacific time)

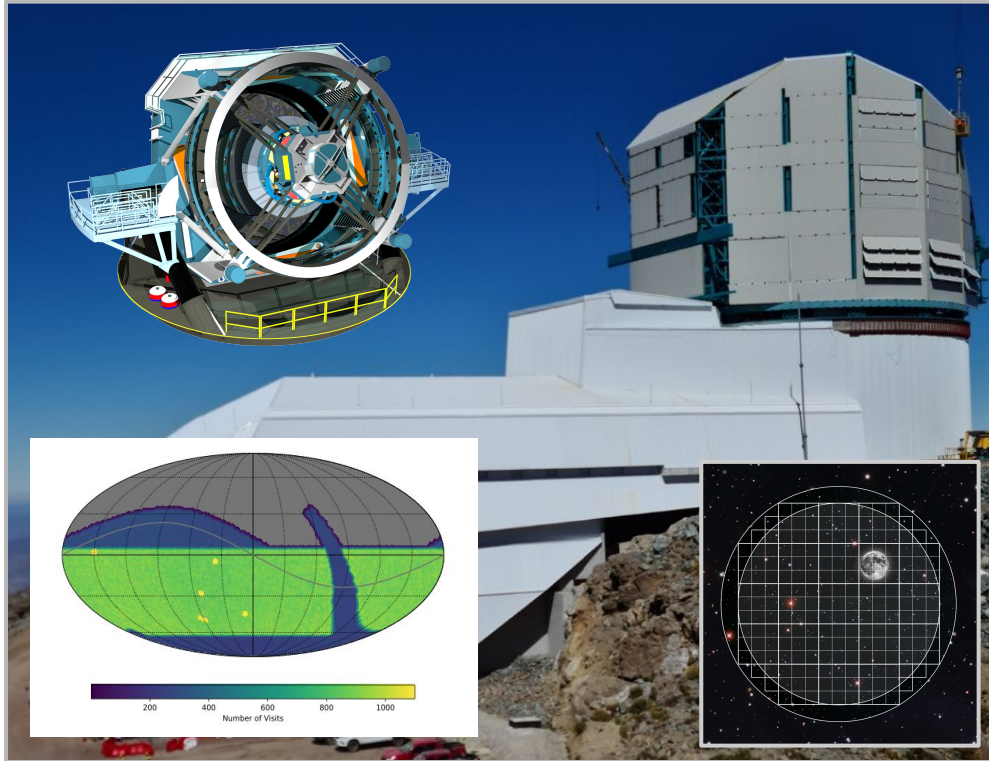
Presented by

the Rubin Observatory Community Engagement Team



U.S. DEPARTMENT OF
ENERGY

The Vera C. Rubin Observatory



The Rubin Observatory, located in Chile, has an 8.4 meter diameter primary mirror and a 9.6 deg² field-of-view camera with six filters, *ugrizy*.

Once complete, Rubin Observatory will execute the **Legacy Survey of Space and Time (LSST)**.

The 10-year southern sky survey will make major advances in four core science areas:

1. Probing dark energy and dark matter
2. Taking an inventory of the solar system
3. Exploring the transient optical sky
4. Mapping the Milky Way

The LSST will cover $\sim\frac{1}{3}$ of the sky each night, detect billions of stars and galaxies, and millions of transients, variables, and moving objects -- a data set of unprecedented volume and complexity.

Rubin Science Platform

It will not be possible to download the entire LSST data set, and scientists will need a venue for “**next-to-the-data analysis**”.

The **Rubin Science Platform (RSP)** is a set of integrated web-based applications and services running at the Rubin Observatory Data Access Centers (DACs).



Portal Aspect

exploratory analysis and visualization of the Rubin archive



Notebook Aspect

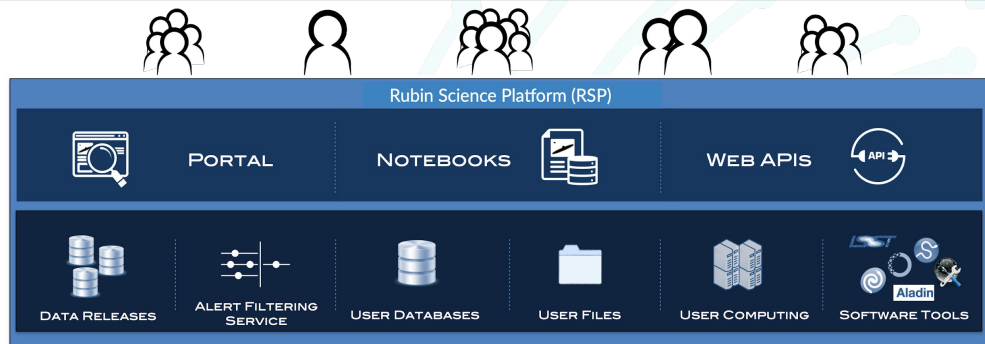
in-depth ‘next-to-data’ analysis and creation of added-value data products



API Aspect

remote access to the Rubin archive via industry-standard APIs

The RSP will include tools to query, visualize, subset, and analyze the full LSST data archives in a stable software environment located “next-to-the-data”, along with storage space, compute resources, and remote access options.



The path to science with Rubin Observatory

Data Preview 0 (DP0): The first of three planned data previews between now and operations.

DP0 Goals: To enable the community to begin to prepare for early science with the LSST, and to serve as an early integration test of the LSST science pipelines and the Rubin Science Platform.

Who: Up to 300 scientists and students.

What: *Simulated* LSST-like data products.

Where: In the Rubin Science Platform (RSP).

When: Apply by Apr 30 for RSP access by June 30.

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An order of magnitude increase over the current number of scientists using the RSP.

The Rubin pre-operations team has a limited ability to provide support for services that are still in development, and needs to scale-up in a safe and sustainable way.

These “DP0 delegates” will represent the science community and provide feedback.

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Simulated images and catalogs generated by the Dark Energy Science Collaboration (DESC) for their Data Challenge 2 (DC2).

Primarily contains extragalactic and Galactic objects, and some transients and variables, but not Solar System objects.

Full DC2 description in the DESC's paper, [arXiv:2010.05926](https://arxiv.org/abs/2010.05926). Catalogs have been released by the DESC ([arXiv:2101.04855](https://arxiv.org/abs/2101.04855)).

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The simulated images and catalogs will be released in a format that is similar to the future LSST data products.

To have a Rubin Science Platform account requires Rubin Observatory data rights*.

All astronomers (and students) working in the US and Chile have Rubin data rights, as do individual members of the International Contributor (“in-kind”) teams.

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When: **Apply by Apr 30** for RSP access by June 30.

If DP0 applications are oversubscribed, we'll use a diversity-based selection process.

There will be a second round of applications in early 2022.

Make an account at Community.lsst.org and/or subscribe to our science mailing list at lsst.org/scientists to receive notifications when these application forms open.

Potential benefits of participating in DP0.

The term “**DP0 Delegate**” has been adopted to reflect how participants will represent the science community as learners, testers, and providers of feedback, and how they will be able to share what they’ve learned with their communities as teachers and colleagues.

Some benefits of participation would include the following.

- Have an accelerated learning experience in the Rubin Science Platform.
- Design and test your plans for early science with LSST-like data products.
- Be able to share what you learn about the RSP with students and colleagues.
- Publish or publicize your DP0-related work (e.g., analysis tools that you develop).
- Advocate for RSP developments that would benefit your scientific field.
- Provide feedback about the RSP and enhance its scientific potential for all.

How participants will be selected for DP0.

The selection process will prioritize diversity in representation from across the broad astronomical community. Applicants will be asked to self-identify with groups such as:

- scientific interest (e.g., cosmology, transients)
- institution type (e.g., small colleges, underserved communities)
- career stage (e.g., graduate students, early-career)
- global location (e.g., Chilean astronomers)
- minoritized groups (e.g., race, gender)
- novice perspective (e.g., students, people new to science platforms)
- relevant expertise (e.g., experience with science platforms or DC2)

Applications to participate in DP0 will open in early March and close in late April. The *only* prerequisite to participating is to hold data rights (ls.st/rdo-013).

Find more information about DP0.

Visit our Community Forum ([Community.lsst.org](https://community.lsst.org)) and read more about:

- community participation in DP0: [ls.st/clo4618](https://lsst.org/clo4618)
- the DP0 data sets: [ls.st/clo4619](https://lsst.org/clo4619)

Make a user account and enable email notifications to receive news.

Subscribe to the science mailing list described at lsst.org/scientists.

References:

The LSST DESC DC2 Simulated Sky Survey, [arXiv:2010.05926](https://arxiv.org/abs/2010.05926)

DESC DC2 Data Release Note, [arXiv:2101.04855](https://arxiv.org/abs/2101.04855)

The Rubin Science Platform Vision Document, <https://lsc-319.lsst.io>

Guidelines for Community Participation in Data Preview 0, [ls.st/rtn-004](https://lsst.org/rtn-004)

The Rubin Observatory Data Policy, [ls.st/rdo-013](https://lsst.org/rdo-013)

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