

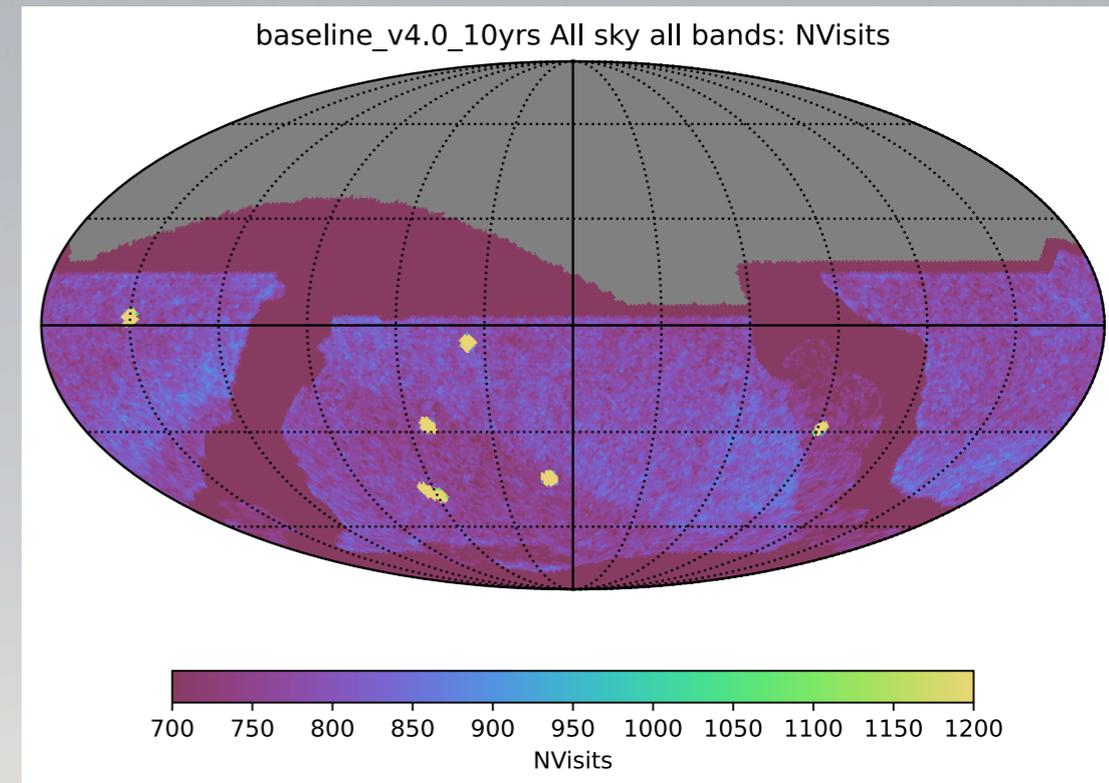
# LSST



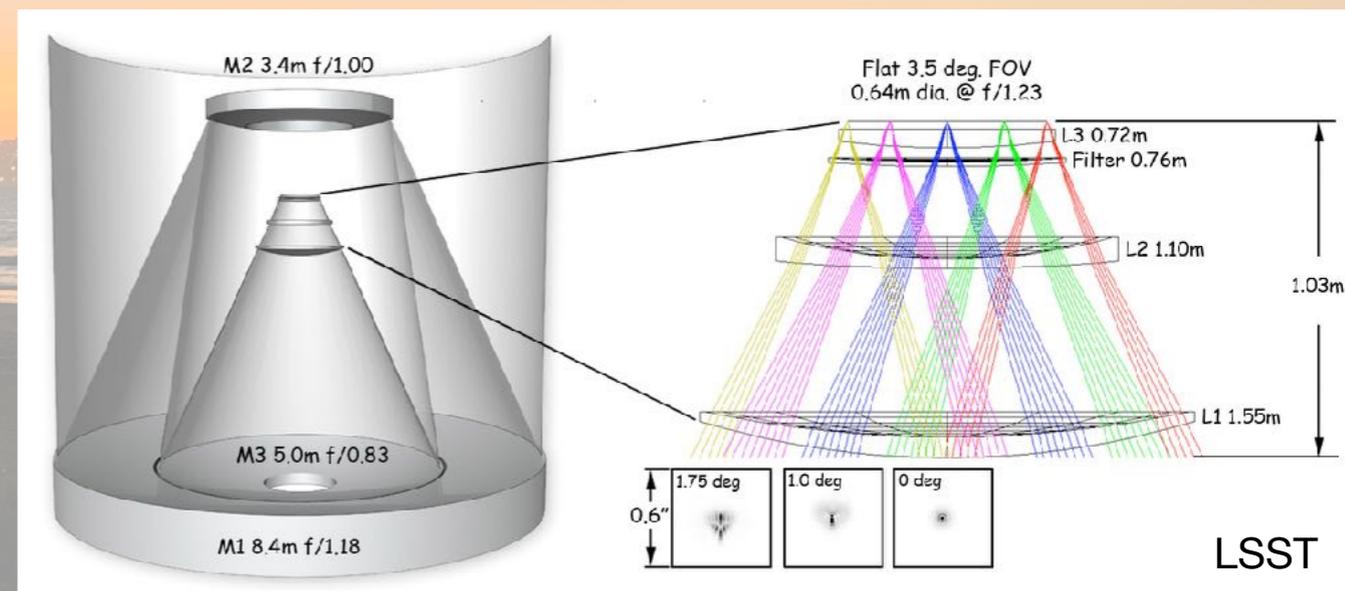
**Yousuke Utsumi (NAOJ ATC based at Chile / Vera C. Rubin Observatory)**

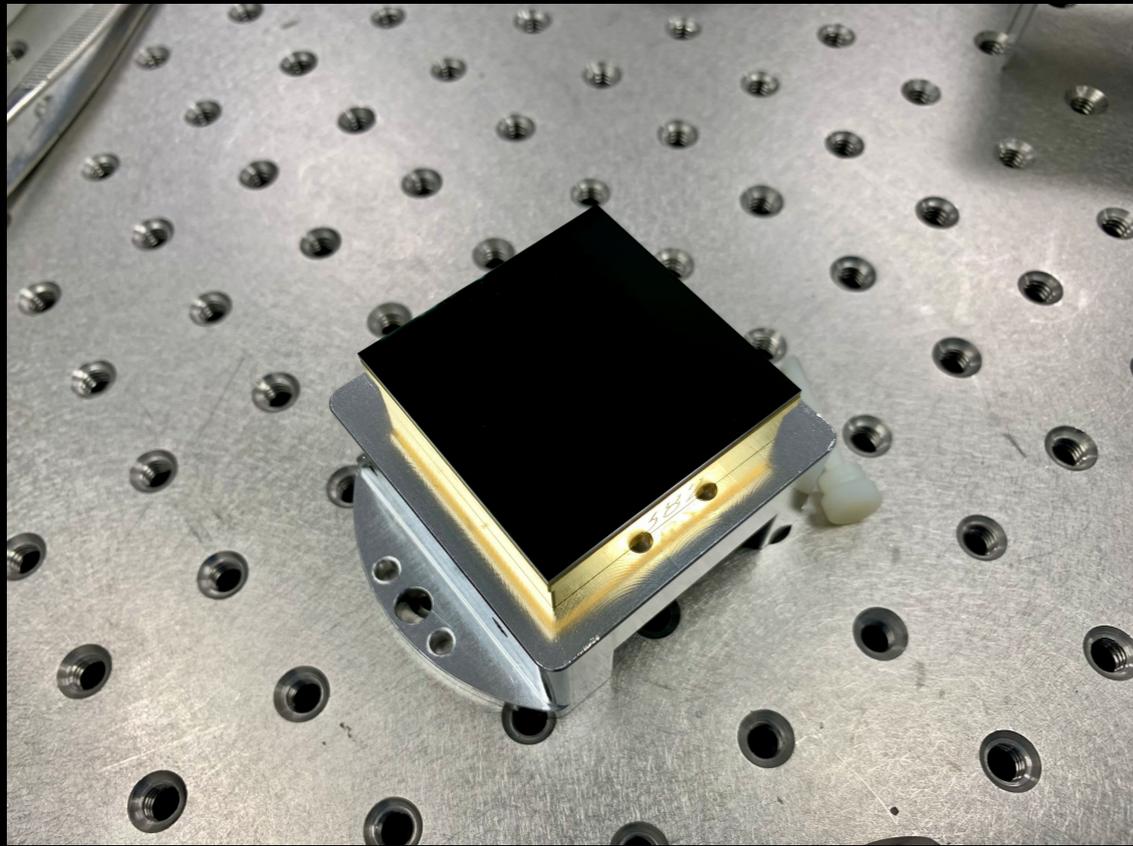
# Vera C. Rubin Observatory's LSST survey

- “Legacy Survey of Space and Time”
  - 10 years southern sky survey
    - Deep ~ 26.8 mag
    - Wide ~ 20000deg<sup>2</sup>
    - Fast ~ 800 visits per field
  - “Well-understood source catalog of stars and galaxies”
- 8.4m dedicated telescope in Chile
  - Charles Simonyi Telescope
  - 3 Mirror systems (F/0.83)
  - 3.5deg in diameter
- LSST Camera
  - 201 CCDs; 3.2G pixel in total
  - ~2 sec readout
  - 3 lenses
  - ugrizy “curved” filters

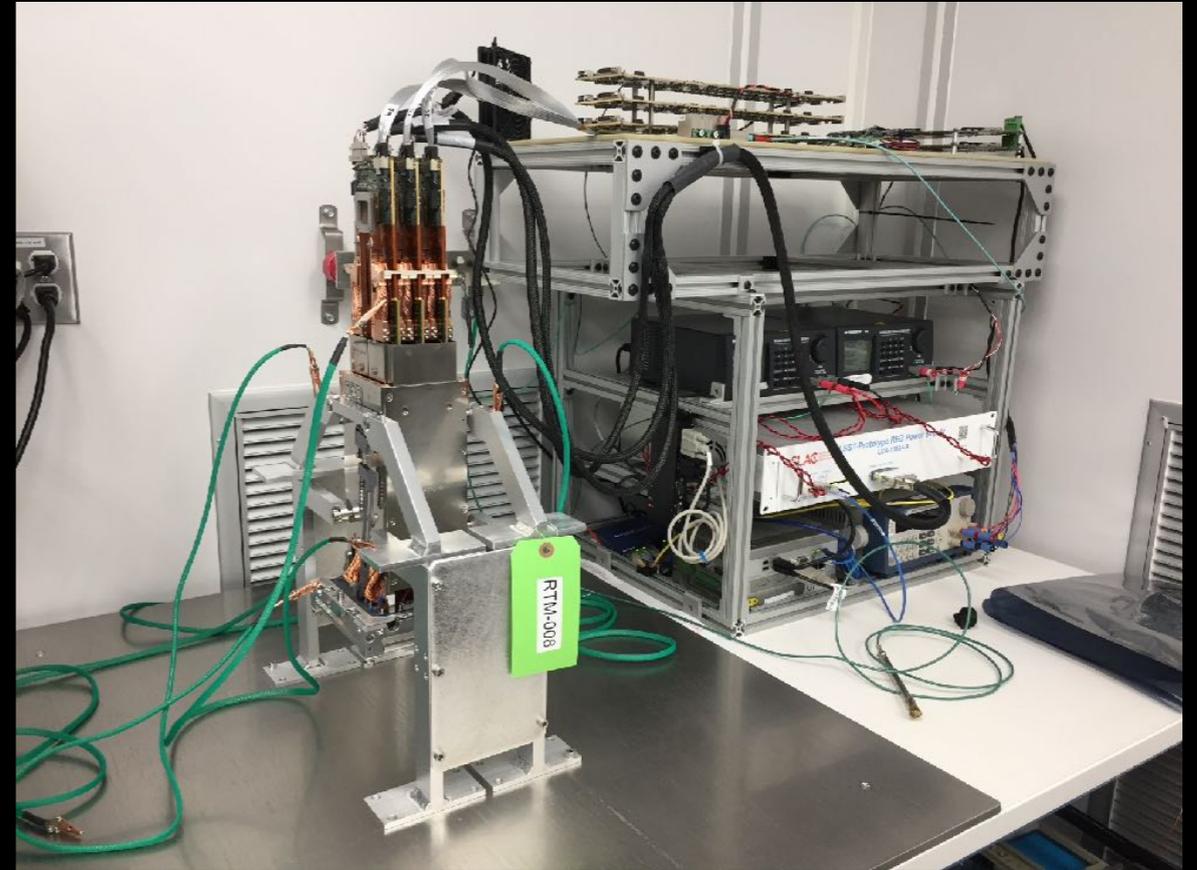


[pstn-055.lsst.io](http://pstn-055.lsst.io)

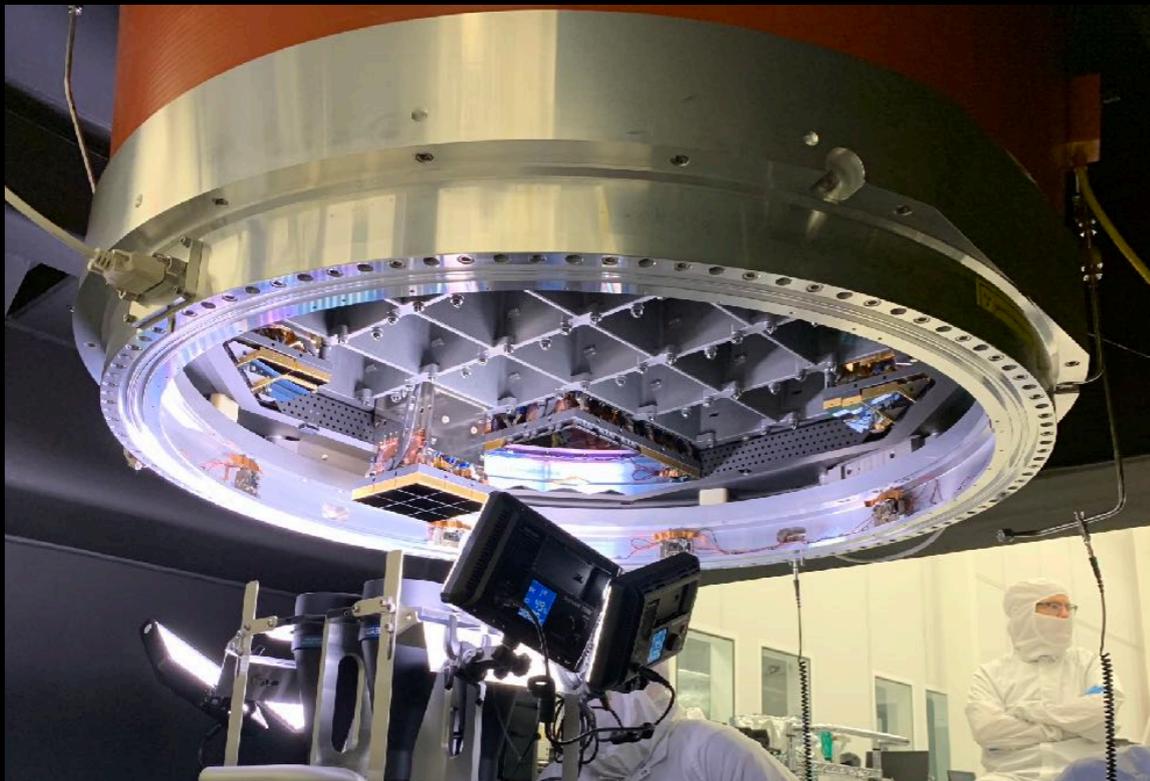




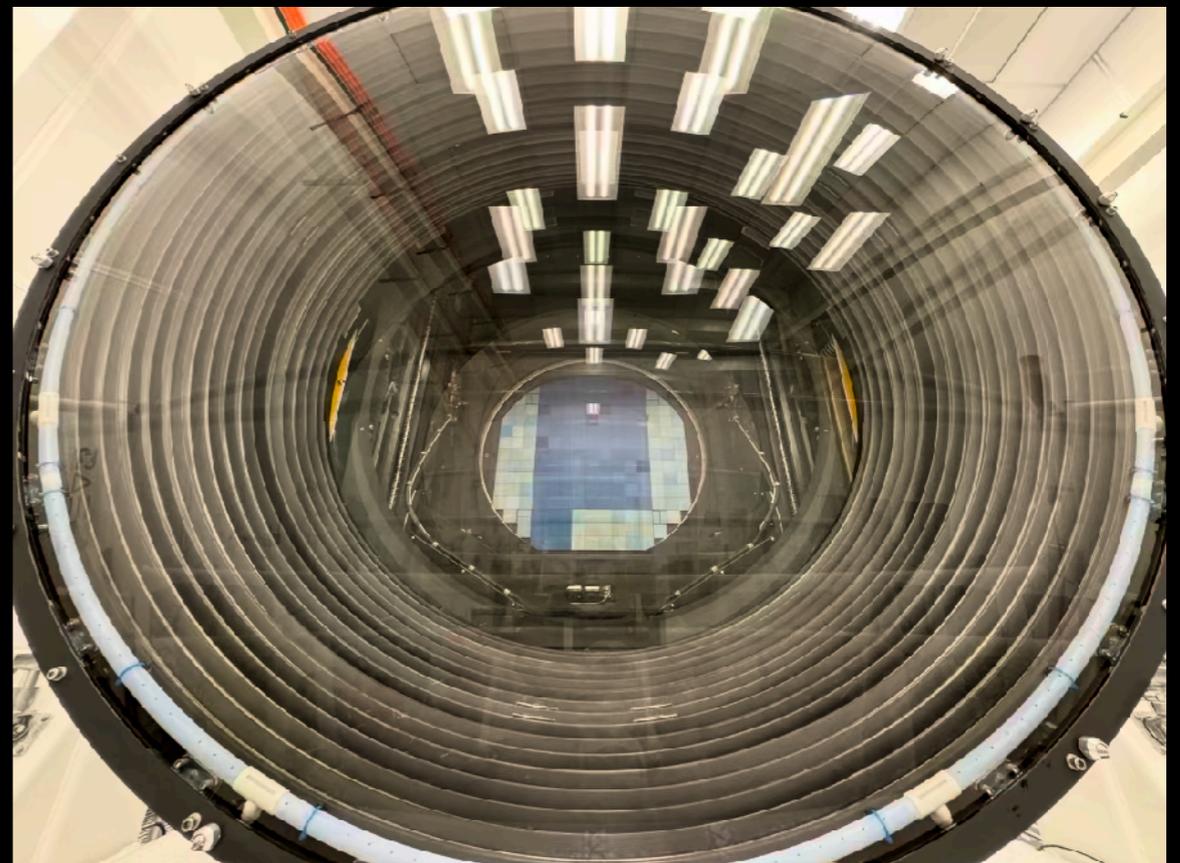
4k x 4k CCDs segmented in 16 (ITL)



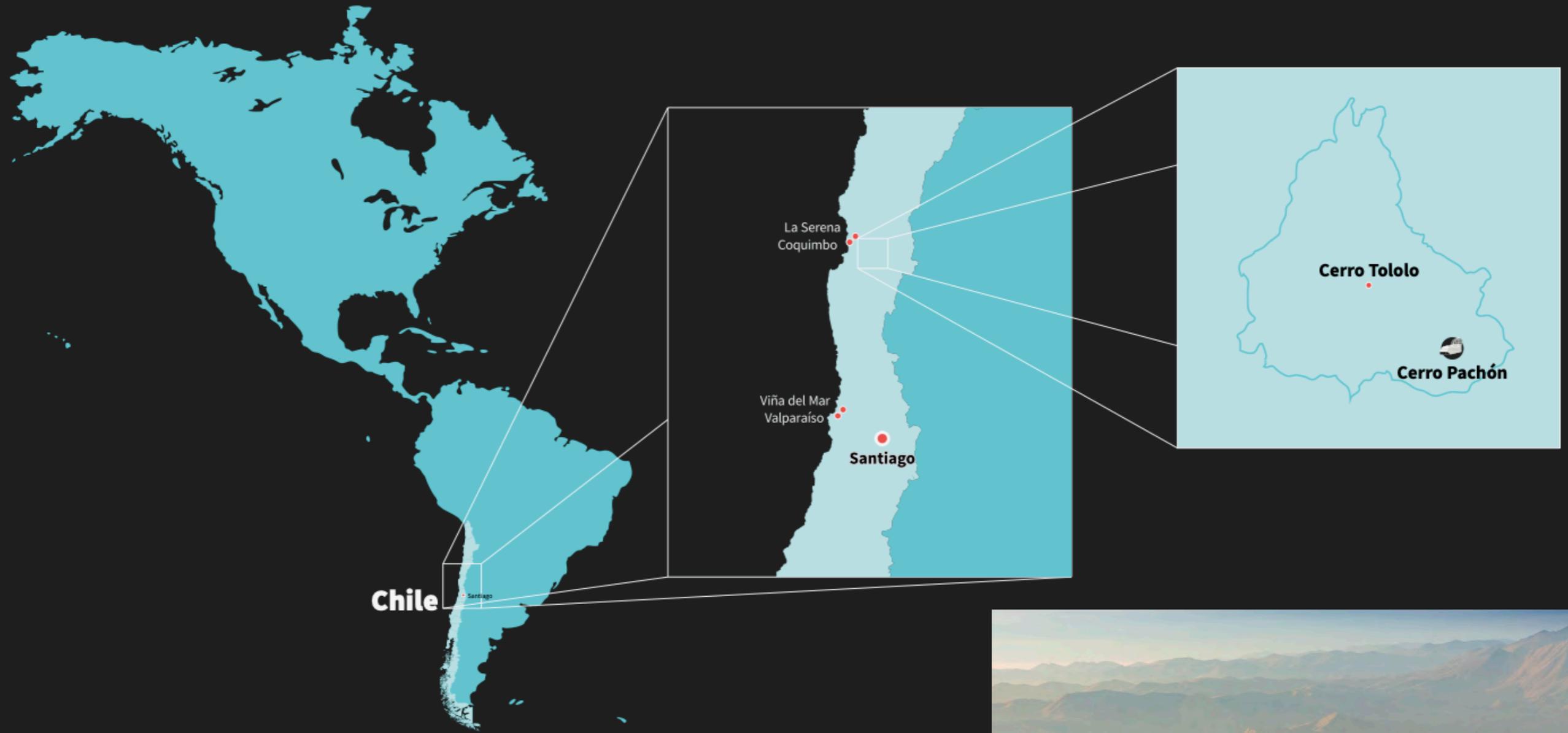
Single Raft (a unit of 3x3 CCDs plus electronics) testing



Installation of Rafts



Front view of the Camera



View of Rubin Observatory at sunset in May 2024, on Cerro Pachón in Chile. Credit: Olivier Bonin/SLAC National Accelerator Laboratory

Rubin Observatory's location. Credit: RUBINOBS/NOIRLab/SLAC/NSF/DOE/AURA



Olivier Bonin/SLAC National Accelerator Laboratory



Olivier Bonin/SLAC National Accelerator Laboratory



Travis Lange/SLAC



Vera C. Rubin Observatory  
Systems Engineering

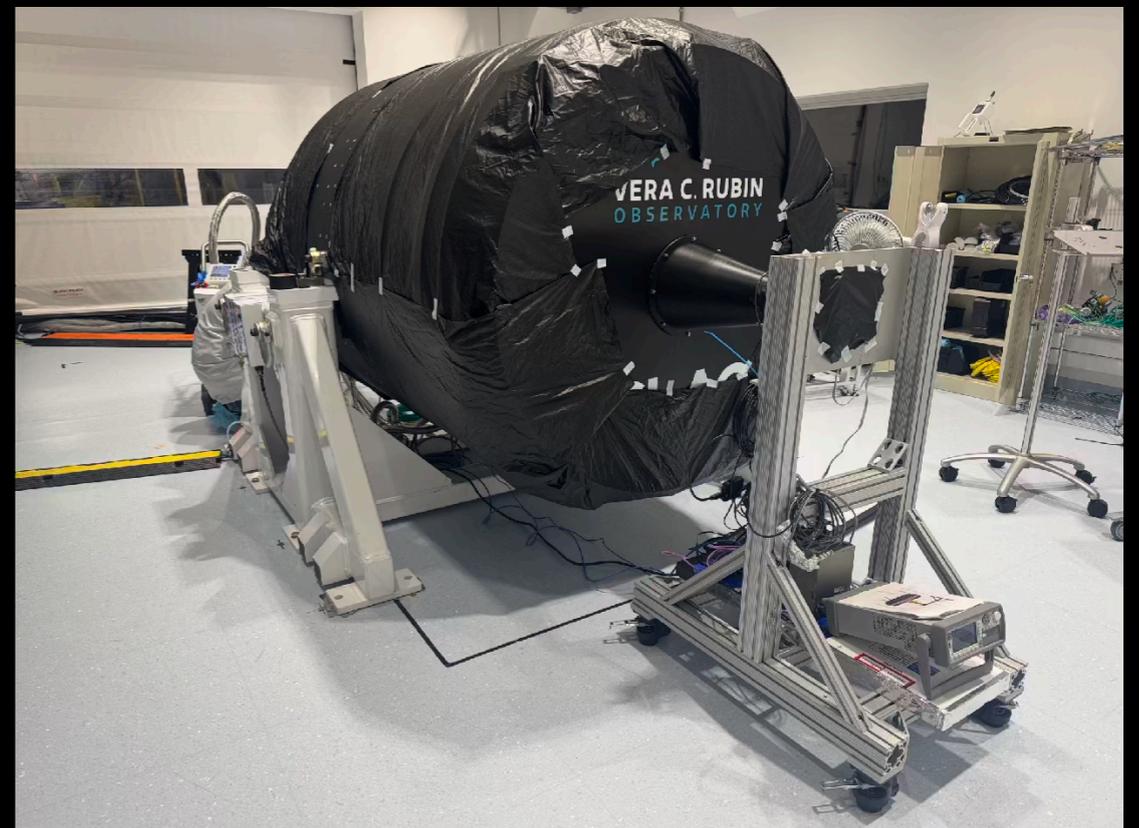
## LSST Camera Electro-Optical Test (Run 7) Results

The LSST Camera group: Pierre Antilogus, Pierre Astier, John Banovetz, Johan Bregeon, James Chiang, Seth Digel, Kevin Fanning, Yassine Faris, Thibault Guillemain, Tony Johnson, Claire Juramy, Craig Lage, Shuang Liang, Sean MacBride, Stuart Marshall, Homer Neal, Daniel Polin, Andrew Rasmussen, Aaron Roodman, Eli Rykoff, Brian Stalder, Gregg Thayer, Tony Tyson, HyeYun Park, Yousuke Utsumi, Zhuoqi Zhang

SITCOMTN-148

Latest Revision: 2025-05-10

**DRAFT**



# Camera installation in Mar 2025

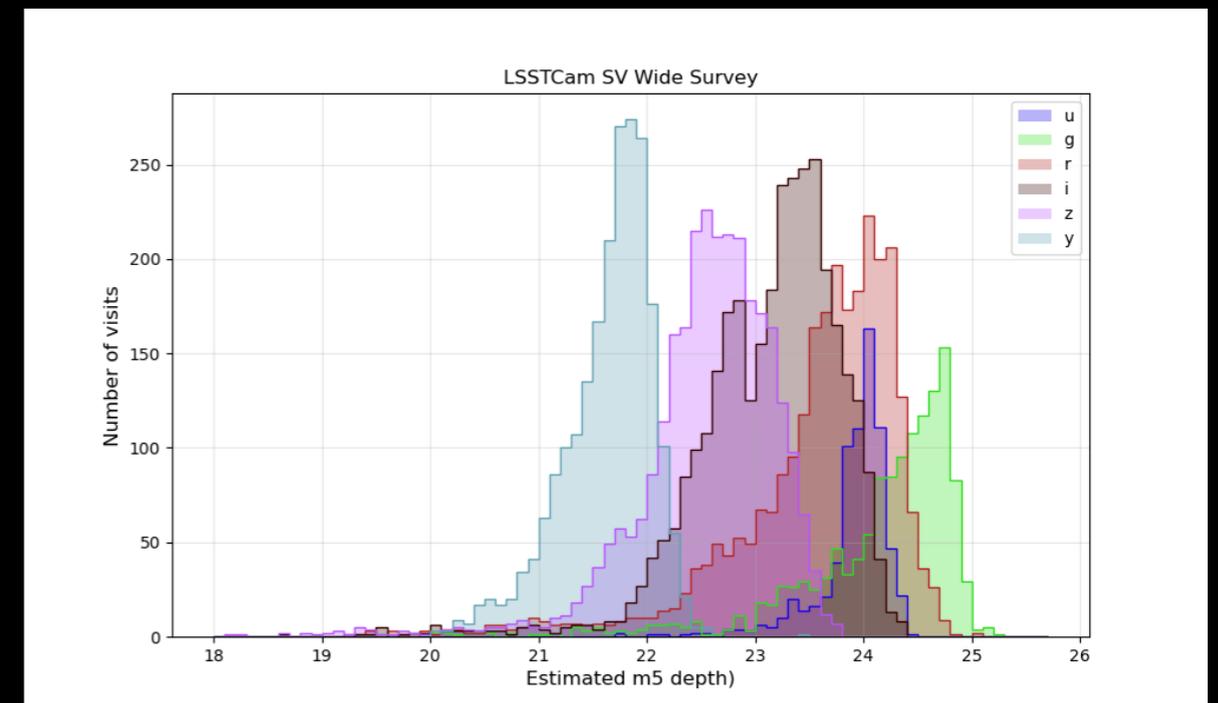
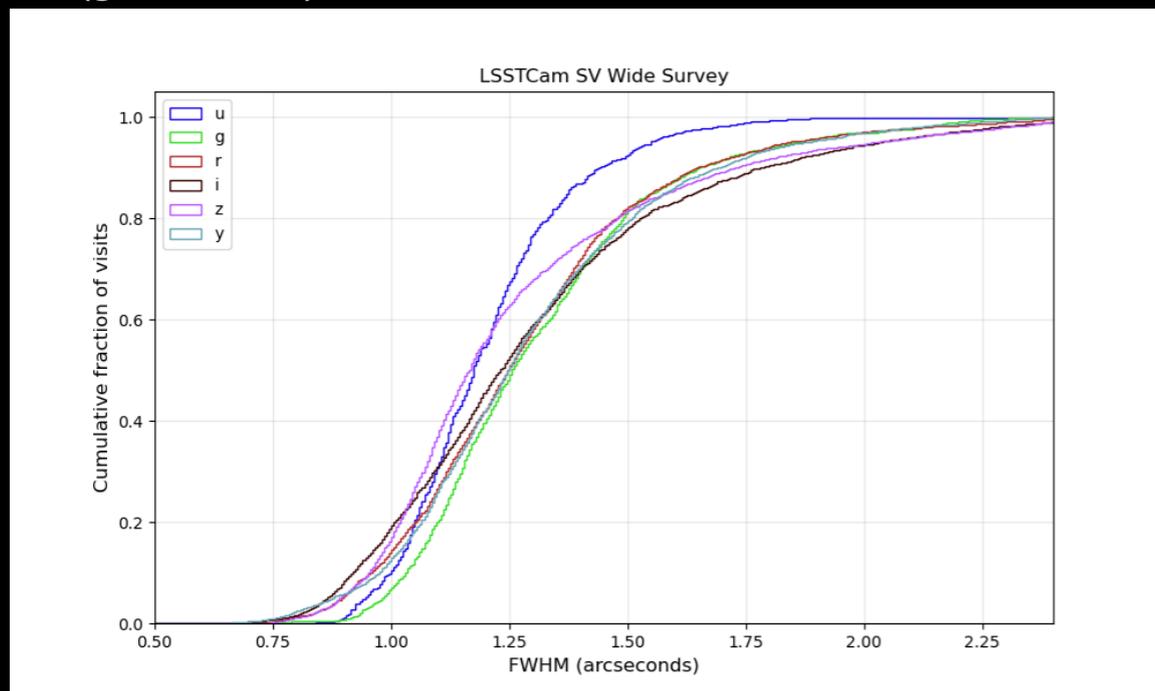
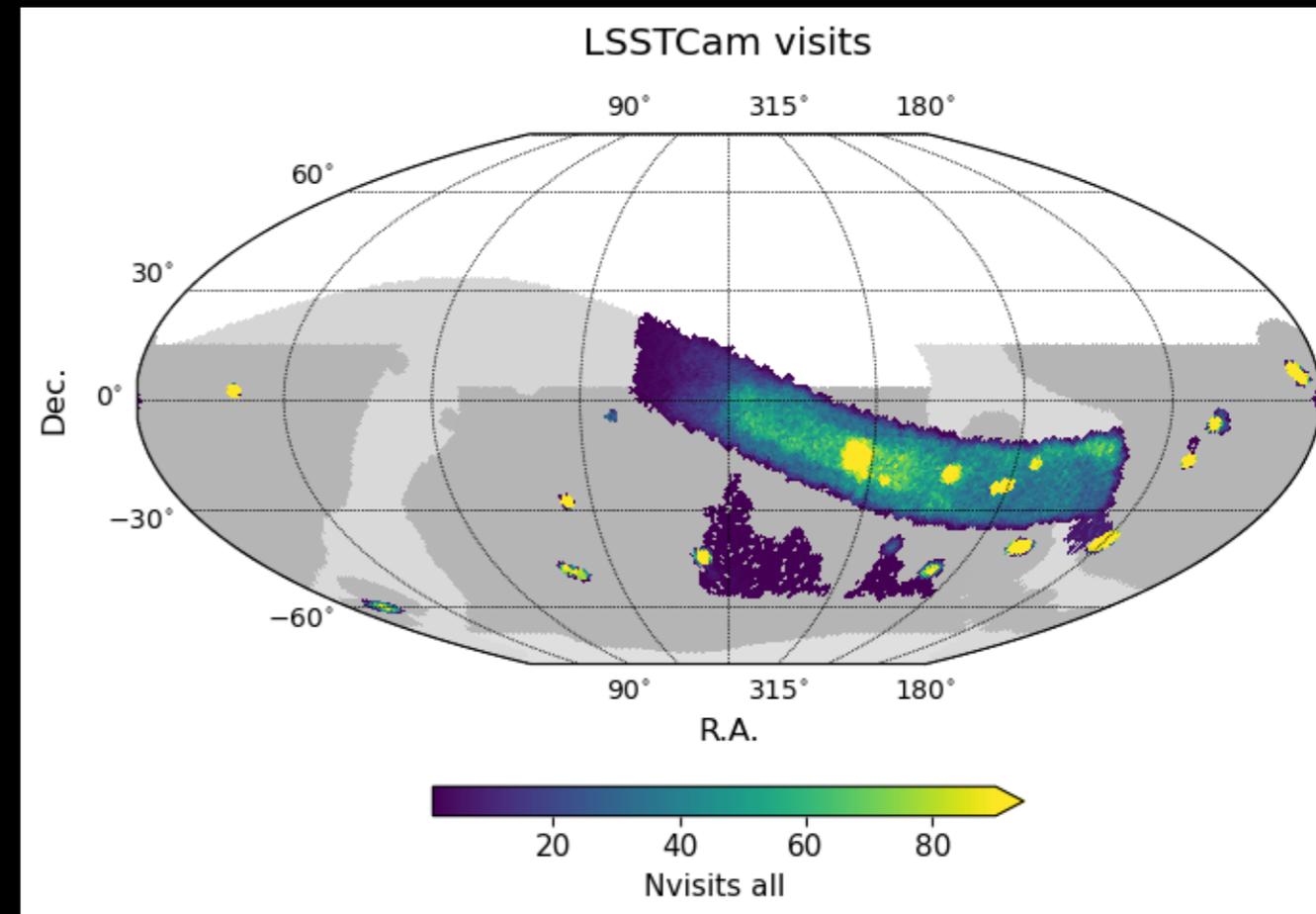






# Commissioning

- Improving Camera operation in real (severe) conditions
- Improving delivered image quality reliability
  - AOS (Active Optics System)
  - M1M3 thermal control
  - Dome seeing
- Telescope Mount Assembly
- Calibration system
- Scheduler
- Science Validation Survey
- ToO (gcn:41595)

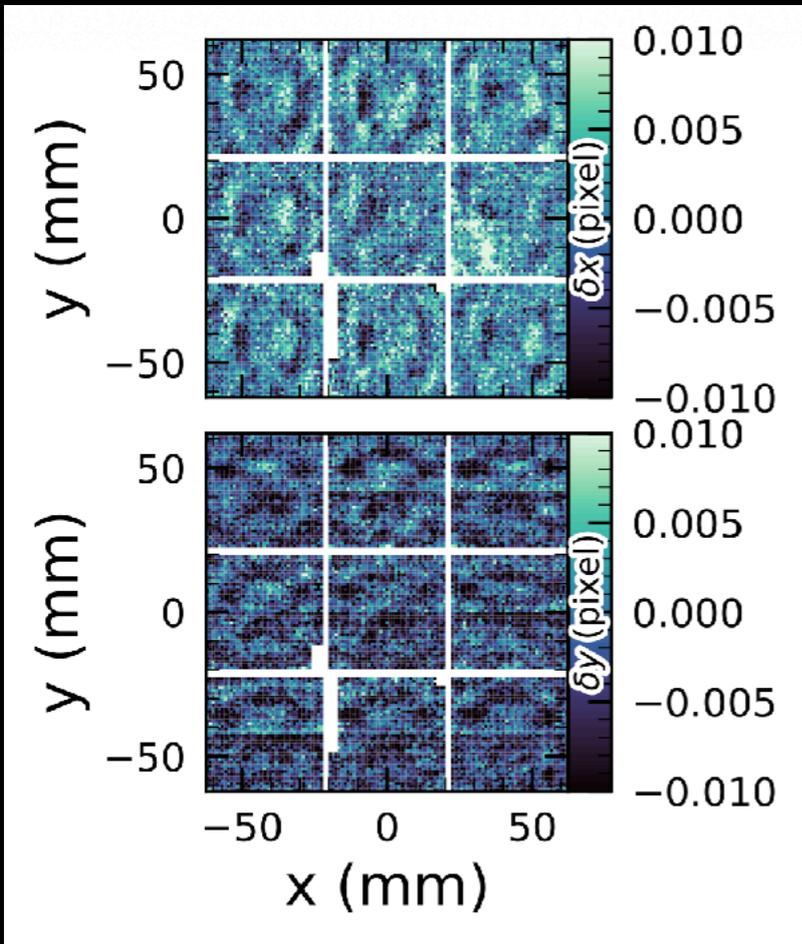
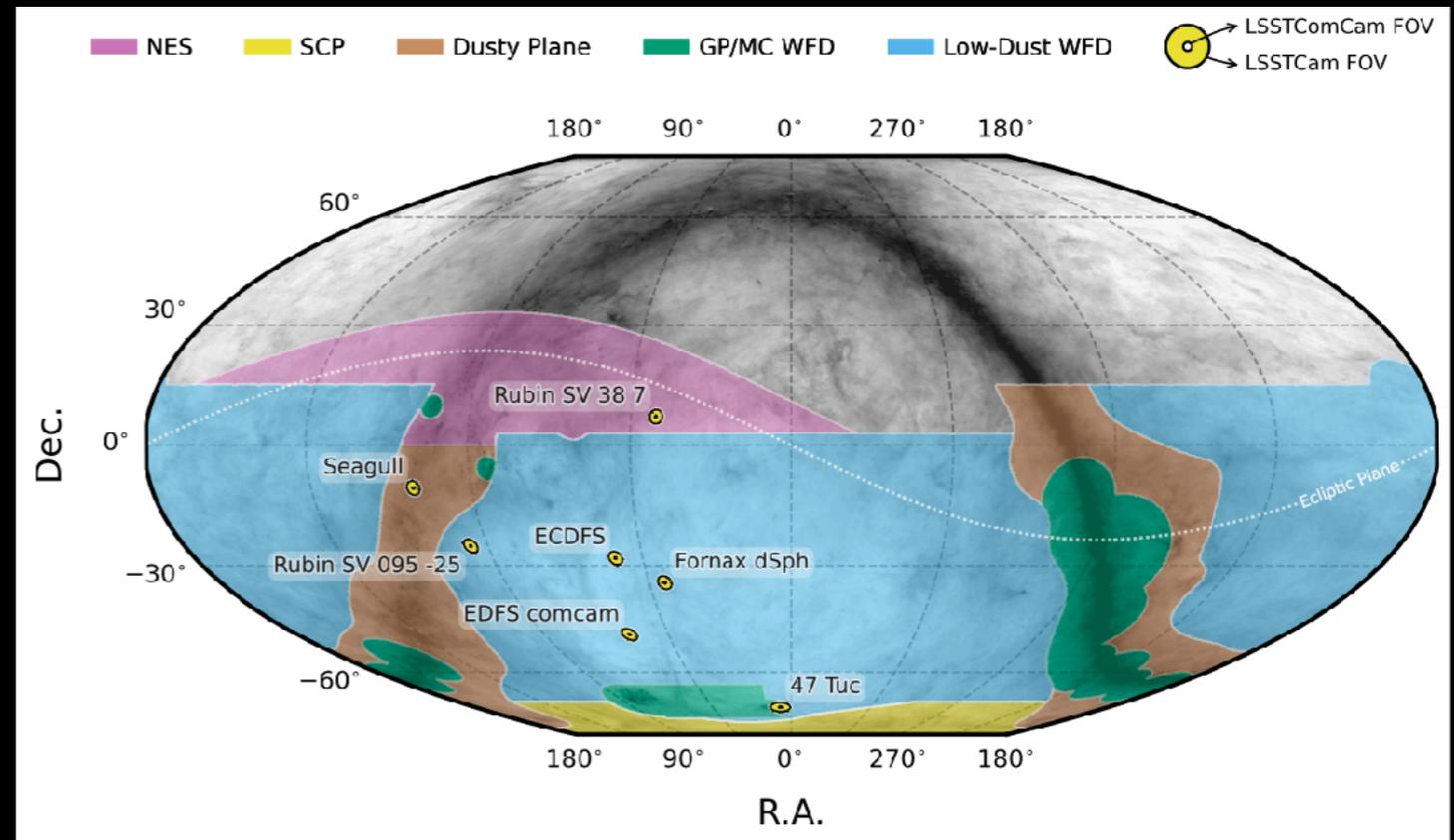


# Data Release

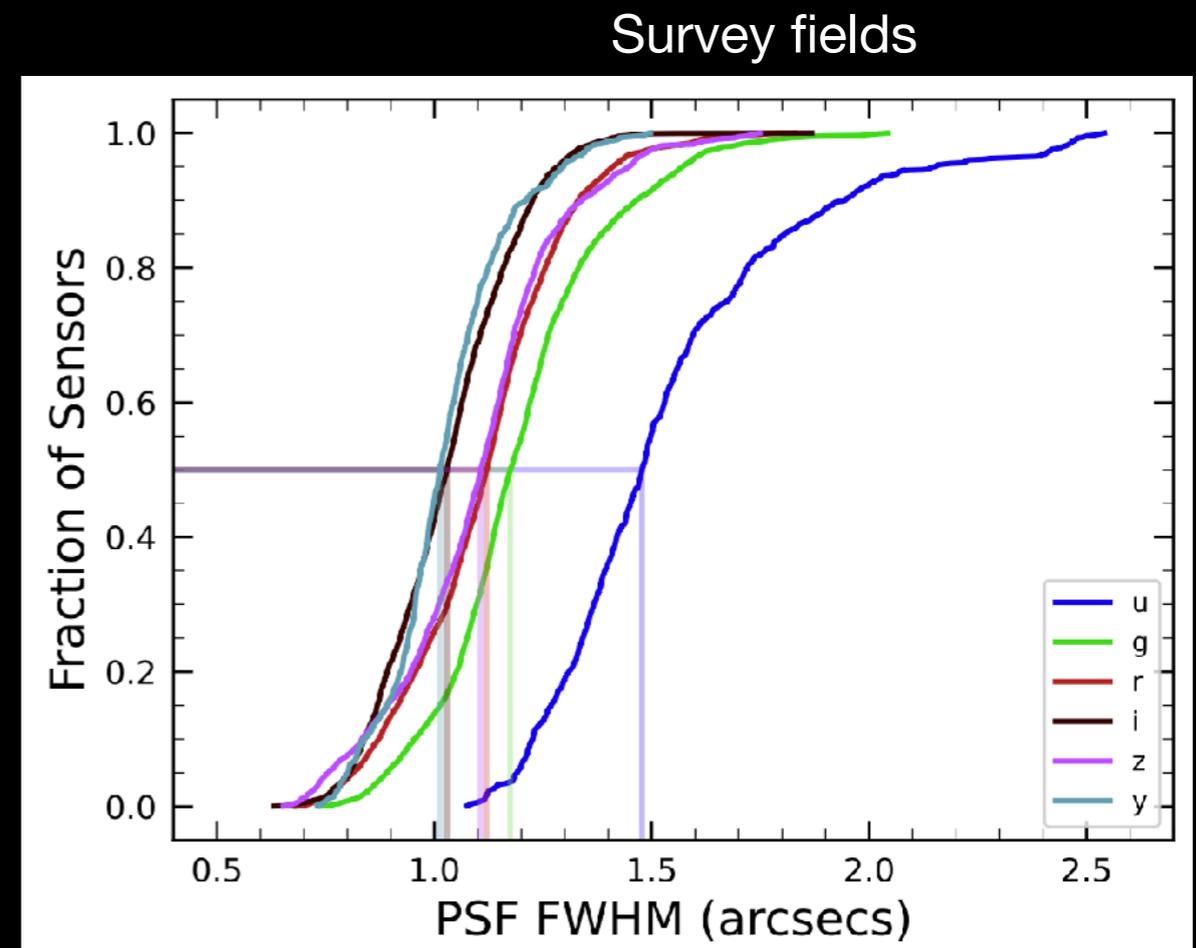
- Data Preview 1 (Released June 30, 2025): Images taken by Commissioning Camera; 7 fields between Oct 24 and Dec 11 2024)
- Data Preview 2 (Expected by May 2026): science-grade commissioning data from the full LSST Science Camera
- Data Release 1 (Expected by January 2027?): the first DR of 10 years survey

# DP1

- ComCam (1 Raft Camera)
- 15deg2 in ugrizy
- 2.3M sources
- <https://rtn-095.lsst.io/>



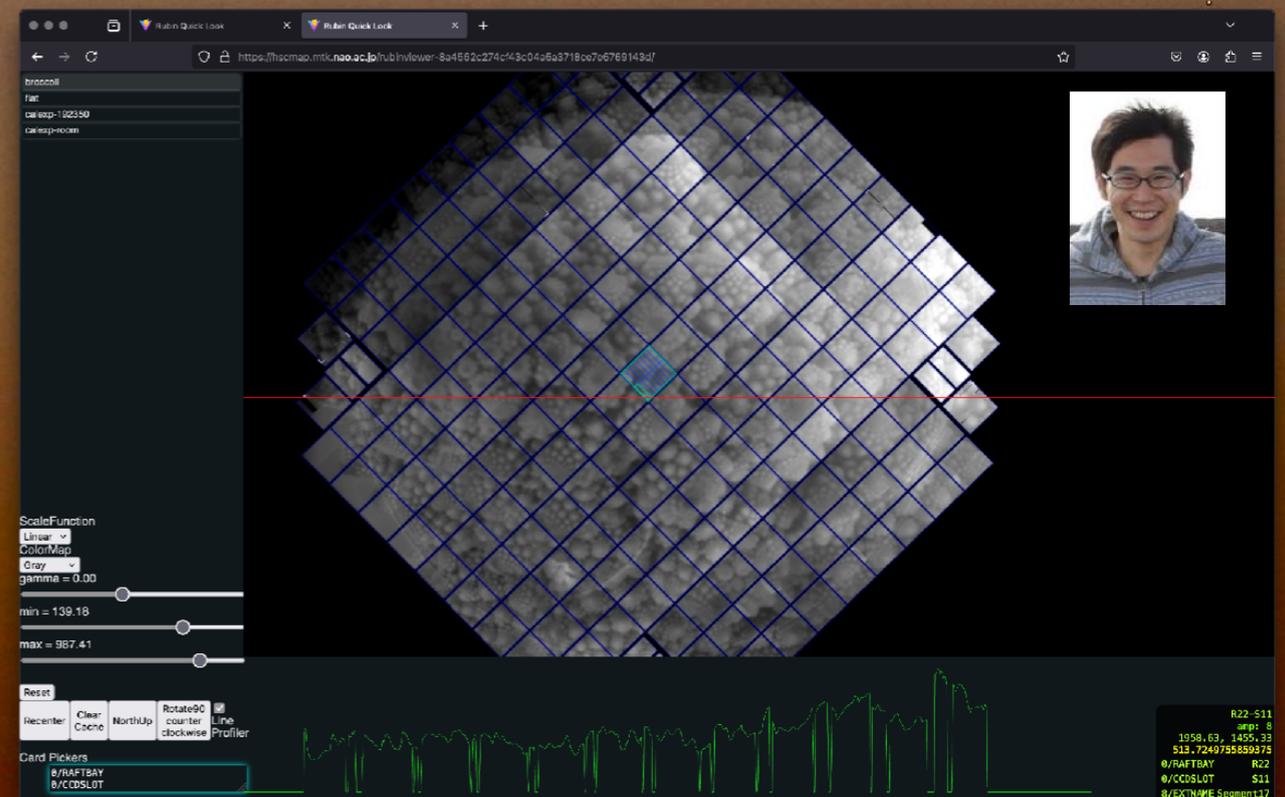
Astrometric residual



Seeing distribution

# JP In-kind contribution programs

- 50 Subaru nights over 10 years: “guarantee HSC/PFS time in exchange for premium weight factor (10 PI → 20 PI)” UM 2022 SAC chair report
- Workforce (commissioning, software development, community scientist, science collaboration)
- Computing resources
- PFS data products (transient follow-up, photo-z training set from a filler and SSP)
- Majority of DRHs based on NAOJ’s resources will be provided to the community through an open call (Oguri-san’s talk).



# Rubin / LSST data right holder (PI) selection - FY2025 Supplemental Call

October 24th, 2025 (Subaru SAC)

## Background

- [Rubin Observatory / LSST](#) is a wide field optical imaging survey led by the USA with the dedicated telescope located at Chile, science pipeline software and science platform as a data analysis environment. LSST is scheduled to start its survey operation from 2025. A few months of science commissioning observations are also planned just before that.
- NAOJ has offered in-kind contributions to LSST operation, including 50 Subaru nights over 13 years, software development and computing resources. In return, a certain number of Japanese PIs can be assigned. For each PI, 4 junior associates (JA; students, postdocs, and technical staff) can be assigned. Some of PIs available to Japan will be assigned to the persons who will directly work for the in-kind contribution but the rest will be selected by an open call within the Japanese community. In 2023 November, we issued a call for proposals to select PIs and JAs, and selected 16 PIs and 4 JAs. There are open slots of more than 10 PIs and 20 JAs, which will be filled by this supplemental call.
- This document describes the procedure on how to select open-call Japanese PIs and JAs.

## Who can apply?

- All persons who are primarily affiliated with Japanese institutions [Note#1] and have direct access to Subaru. Applicants are required to execute their own scientific research using LSST data and also contribute to the Japanese community, for example, as a mentor of Rubin/LSST data through workshops or promote Japanese activity by providing derived data products (see below). Annual report will be required.
  - Note#1: For faculty and postdocs, "Primary affiliated" means their employers are paying at least 50% of their salary for employment.
- In this call, proposals for both PIs and JAs are solicited. Faculty members (assistant prof., associate prof., professor, etc.) are supposed to apply for PIs. Postdocs and students are supposed to apply for JAs, and can propose independent research projects that are not necessarily associated with research projects of any PIs or PI applicants. Individual applicants can judge whether they apply for PI or JA. Submitting or participating in multiple proposals is not allowed as individuals will be selected as data right holders. JAs to be selected by accepted PIs need not submit proposals, nor need they participate in the PI's proposals.

## What need to be submitted:

- Cover page (web form)
  - Title of the proposal, name / institution / contact address of applicant, PI/JA, scientific category, abstract
- Research plan using LSST data
- Plan for contribution to the Japanese community including delivery of derived data products and target lists (see <http://ls.st/RDO-013>)
- Format: Free format, the maximum 2 pages (PDF file) including both the research plan and the plan for contribution to the Japanese community. For a group proposal submission, the maximum 3 pages.
- Language: Either Japanese or English is accepted.
- Submission method: [NINS Open Use System \(NOUS\)](#)
- **Deadline: 2025 December 2 (Tue) 12:00 (noon) [JST]**
- Group proposal submission
  - A group of persons with a similar scientific interest may want to submit a single proposal as one group (for PIs only). This kind of proposal will also be reviewed. The justification of the requested number of PIs and roles of individual PIs should be included. The approved number of PIs can be smaller than the requested number of PIs. In that case, each group will determine the individuals who become PIs.

<https://www.naoj.org/Science/Rubin/20251024/index.html>

# Summary

- Rubin Observatory and LSST Camera have a long history of development
- Efforts to understand the instrumentation have been made
- First Photon has been captured on April 15, 2025
- **Legacy Survey of Space and Time** is about to start
- Japanese community has many seats for accessing Rubin Data in the proprietary period