

WELCOME SLIDES

LSST@LATAM

June 10-14, 2024

La Serena, Chile

ICTP SAIFR

3rd LSST@LATAM BRAZIL • 2026

THIRD LSST @LATAM MEETING



November 2 – 6, 2026

at IFT-UNESP, São Paulo, Brazil

VERA C. RUBIN OBSERVATORY

2nd LSST Latin American Meeting

LSST@LATAM The Dawn of Discovery

December, 1st to 5th, 2025

Palace of Mines, Mexico City

Local Organizing Committee:

- **Raul Abramo** (USP, Brazil)
- **Julio Camargo** (ON / LIneA, Brazil)
- **Ana Chies Santos** (UFRGS / LIneA, Brazil)
- **Eduardo Cypriano** (USP, Brazil)
- **Julia Gshwend** (LIneA, Brazil)
- **Lucimara Martins** (UNICID, Brazil)
- **Felipe Navarete** (LNA/MCTI, Brazil)
- **Mariana Penna-Lima** (UnB / LIneA, Brazil)
- **Angeles Pérez-Villegas** (UNAM, Mexico)
- **Reinaldo Rosa** (INPE / LIneA, Brazil)
- **Rogerio Rosenfeld** (IFT-UNESP / LIneA, Brazil) – **co-chair**
- **Thaisa Storchi Bergmann** (UFRGS / LIneA, Brazil)
- **Riccardo Sturani** (IFT-UNESP, Brazil) – **co-chair**

Scientific Organizing Committee:

- **Ana Chies Santos** (UFRGS / LIneA, Brazil) – **co-chair**
- **Emilio Donoso** (ICATE, Argentina) – **co-chair**
- **Daniela Grandon** (U. de Valparaiso, Chile) – **co-chair**
- **Tesla Jeltema** (U. of California, Santa Cruz, USA)
- **Martin Makler** (CBPF, Brazil / UNSAM, Argentina)
- **Anais Moller** (Swinburne University of Technology, Australia)
- **Juan Carlos Muñoz-Cuartas** (U. de Antioquia, Colombia)
- **Yasna Ordenes-Briceño** (U. Diego Portales, Chile)
- **Mariana Penna-Lima** (UnB / LIneA, Brazil) – **co-chair**
- **Angeles Pérez-Villegas** (UNAM, Mexico) – **co-chair**
- **Andres Plazas Malagon** (SLAC / KIPAC / Rubin, USA)
- **Luis Ureña-López** (U. de Guanajuato, Mexico)

Outreach:

Mariana Pereira (LineA, Brazil)
Roberto Costa (IAG, Brazil)
Ana Serio (ICTP-SAIFR, Brazil)

https://www.ictp-saifr.org/3lsstlatamm2026/

3rd LSST@LATAM Meeting

November 2 – 6, 2026

São Paulo, Brazil

ICTP-SAIFR/IFT-UNESP

Home | Speakers | Registration | Program | Participants | Posters | Outreach | Venue

Additional Information

No registration fee! Thanks to our host and sponsors.

wifi

Eduroam
WIFI IFT - check pwd around
WIFI Auditorium - pwd

LSST-DA code of conduct: 5 main elements kindness, trust, respect, diversity, inclusivity

https://lsstdiscoveryalliance.org/lsst-da-code-of-conduct/

Contact persons: Mariana Penna-Lima and Rogerio Rosenfeld

Session chairs, please check the guidelines.

For speakers, please send your presentation in advance (and at most 2 hrs before your talk) to: talks@ictp-saifr.org

Rooms

- Main Auditorium - 4th floor
- Overflow room with livestream - Room 2 - 3rd floor
- Tutorials - please check program!

slack

3rd LSST@LATAM BRAZIL • 2026

Join the Slack Workspace for LSST@LATAM using the qrcode:

LOC

Announcements

Always wear your badge to enter the institute

Avoid leaving your bags unattended

There are lockers available to leave your bags

Room #2 on the third floor is reserved for the meeting

Check schedule for rooms used for tutorials

Vouchers for meals can be used at IFT canteen (lunch, dinner), Moça Prendada (lunch), Intercity Pamplona hotel (lunch, dinner)

Monday (today) - no vouchers (holiday) - Bela Grill restaurant is recommended

Secretariat: Rebeca Doi (4th floor)

Be careful using cell phones on the streets (especially near Paulista Avenue)



ICTP SAIFR | International Centre for Theoretical Physics South American Institute for Fundamental Research

THIRD LSST @LATAM MEETING



November 2 – 6, 2026

at IFT-UNESP, São Paulo, Brazil

SCIENTIFIC ORGANIZING COMMITTEE

Ana Chies Santos (UFRGS / LIneA, Brazil)
Anais Moller (Swinburne U. of Technology, Australia)
Andres Plazas Malagon (SLAC / KIPAC / Rubin, USA)
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The LSST@LATAM 2026 is the 3rd Latin American meeting dedicated to the Vera Rubin Legacy Survey of Space and Time (LSST). The event aims at bringing together Latin American professionals already involved in LSST, with data rights, as well as researchers interested in integrating scientific collaborations through the exploration of alert streams, which are accessed via alert brokers that do not require data rights.

This is the third edition of a series of events, the previous ones having been LSST@LATAM 2024 and LSST@LATAM2025: The Dawn of Discovery.

The Legacy Survey of Space and Time (LSST), conducted by the Vera C. Rubin Observatory in Chile, constitutes one of the largest and most ambitious optical surveys ever undertaken, with a transformative scientific impact on astronomy, astrophysics and cosmology.

This meeting is expected to stimulate new collaborations among researchers and widen the education of students and young researchers.

For full consideration, apply before:
August 14, 2026

Online application and more information:
ictp-saifr.org/3lsstlatamm2026

CO-CHAIRS
Ana Chies Santos (UFRGS / LIneA, Brazil)
Angeles Pérez-Villegas (UNAM, Mexico)
Daniela Grandon (U. de Valparaíso, Chile)
Emilio Donoso (ICATE, Argentina)
Mariana Penna-Lima (UnB / LIneA, Brazil)
Riccardo Sturani (IFT-UNESP, Brazil)
Rogerio Rosenfeld (IFT-UNESP / LIneA, Brazil)

ICTP-SAIFR STEERING COMMITTEE
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Marcelo Silva (Technical Assistant)
Katherine Bezerra (Communications Coordinator)



Social events

Monday, November 2nd:
Happy hour at Divinos Paulista
Address**:** R. Bela Cintra, 911 - Consolação, São Paulo - SP, 01415-003
Starting at 19h
Voucher for 1st tap beer included in the registration package

Thursday, November 5:
Dinner at Bovinu's
Address: Alameda Santos, 2393 - Cerqueira César, São Paulo - SP, 01418-000
Starting at 19h30
Buffet style with many salads, hot dishes, meat and dessert.
Price: R$94, including a non-alcoholic drink (payment at the restaurant)

EPO

The following outreach activities related to LSST@LATAM are planned (they will be held in Portuguese):

1. Tuesday, November 3rd: Rubin in a bar

Display of Rubin´s images and playing the RUBINgo astronomical game, with a conversation with LSST scientist Bruno Quint
19:30 at the Taverna Medieval.
More details at: https://outreach.ictp-saifr.org/papos-de-fisica/

2. Wednesday, November 4: Rubin´s streaming of the Universe at the São Paulo Planetarium

With Rubin´s scientist David Sanmartim
19:00 at the Ibirapuera´s Planetarium
More details at: https://planetario.urbiapass.com.br/produto/planetario-ibirapuera-olhar-o-ceu-de-sao-paulo-outra-vez-gratuito-copia?g=1889

3. Saturday, November 7: Workshop for high school teachers

Exploring the Universe in a classroom with Rubin´s scientist Fernanda Urrutia
9h30 to 13h00 at IFT-UNESP

More details at: https://outreach.ictp-saifr.org/professores-de-ensino-medio/exp_universo/

SOC

Scientific Program

Time	Session type	Title	Speaker(s)	Affiliation	Topic
09:00 – 09:30	Opening / Closing	**Opening**	**Ana Chies Santos, Mariana Penna Lima, Riccardo Sturani, Rogério Rosenfeld**	*Co-chairs SOC/LOC*	
09:30 – 10:00	Rubin Plenary	**Director for LSST Operations**	**Bob Blum**	*Rubin Observatory / NSF NOIRLab*	
10:00 – 10:30	Rubin Plenary	**From Early Operations to Survey-Quality Images: Rubin's Image Quality at the Start of LSST**	**David San Martin**	*NOIRLab / Rubin Observatory*	
10:30 – 11:00	Break		Coffee break		
11:00 – 11:30	SC Keynote	**Solar System SC**	**Pedro Bernardinelli**	*University of São Paulo, Brazil*	Solar System
11:30 – 11:45	Contributed talk	Extracting Asteroid Physical Properties from Rubin Science Validation Data	Valerio Carruba	*São Paulo State University, Brazil*	Solar System
11:45 – 12:00	Contributed talk	Identification of 21 Superfast Rotators in Rubin LSST Data	Maria Mastropietro	*São Paulo State University, Brazil*	Solar System
12:00 – 12:30	Poster Flash Talks	Poster flash talks			
12:30 – 14:00	Break		Lunch		
Session chairs: Raul Abramo & Bolivia Cuevas Otahola					
14:00 – 14:30	Rubin Plenary	**Rubin's community science resources for learning and support**	**Melissa Graham**	*Rubin Observatory / University of Washington, USA*	
14:30 – 15:00	IDAC Keynote	**Accelerating Your LSST Research: A Complete Guide to IDAC-BR Services**	**Julia Gschwend**	*LIneA, Brazil*	IDAC-BR
15:10 – 16:30 (parallel)	Tutorial	**Tutorial I: Sagui – From Multiband Images to Resolved Galaxy Physics: Photometric Cubes, SED-aware Segmentation**	Andressa Wille & Rafael S. de Souza	*University of Hertfordshire, UK & UFRGS, Brazil*	Room: Auditório
		Tutorial II: IDAC-BR I – Registration and Access to the HPC Environment (30 min)	Nubia Garcia & Carlos Adean	*LIneA, Brazil*	Room: Sala 2
		Tutorial III: IDAC-BR V – Solar System Science (60 min)	Rodrigo Carlos Boufleur	*LIneA, Brazil*	Room: Sala 2
16:30 – 17:00	Break		Coffee break		
17:00 – 17:30	Rubin Plenary	**Education & Public Outreach**	**Fernanda Urrutia**	*Rubin Observatory*	
17:30 – 17:45	Contributed talk	Rubin Difference Detectives – Zooniverse project for the ML reliability model for Rubin	Tatiana Acero Cuellar	*University of Delaware, USA*	ISSC/EPO

Scientific Program



Plenaries & Keynotes 25min + 5min
Contributed talks 12min + 3min
Poster flash talks 1 slide, 1min
Tutorials

Tutorials

All tutorials take place from 15:10 to 16:30 (BRT), except Melissa's (Tuesday, 17:00 – 18:00):

- Mon – Sagui (Andressa & Rafael) – Auditório
- Mon – IDAC-BR I + V (Nubia & Carlos, Rodrigo) – Sala 2
- Tue – IDAC-BR II (Julia) – Auditório
- Tue – FINK Broker (Bernardo) – Sala 2
- Tue – Firecrown (Sandro) – NCC
- Tue (17:00) – Rubin Science Platform (Melissa) – Auditório
- Wed – Microlensing light curves (Karen) – Salas de Reunião
- Wed – IDAC-BR III (Rodrigo) – Auditório
- Wed – ALeRCE Broker (Alejandra) – Sala 2
- Thu – Strong Lensing (Martin) – Salas de Reunião
- Thu – ANTARES Broker (Sebastian) – Sala 2
- Thu – IDAC-BR IV (Luigi) – Auditório
- Fri – IDAC-BR VI (Nubia & Carlos) – Auditório
- Fri – Pitt-Google Broker (Chris) – Sala 2

Posters

1st half → monday - wednesday lunch

12 will present flash talks

2nd half → wednesday afternoon - friday

8 will present flash talks

Flash talks
please send your 1min slide in advance (and at most 2 hrs before your talk) to: talks@ictp-saifr.org

when your time comes, please line up to the side of the auditorium in the order listed on the website

Enjoy the meeting!



VERA C. RUBIN OBSERVATORY

U.S. National Science Foundation

U.S. DEPARTMENT of ENERGY | Office of Science

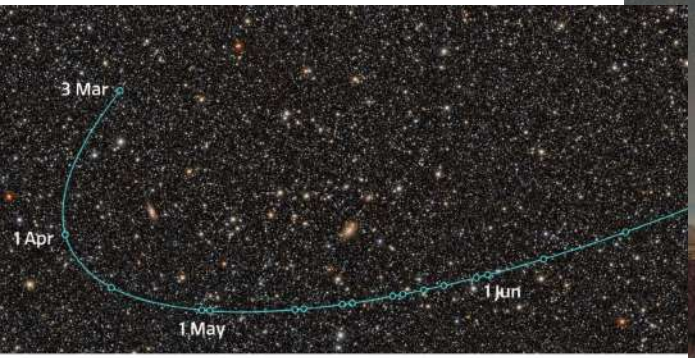
Rubin Observatory Update

LSST at LATAM 3

Bob Blum

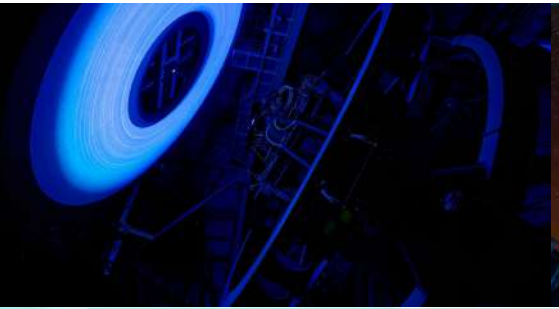


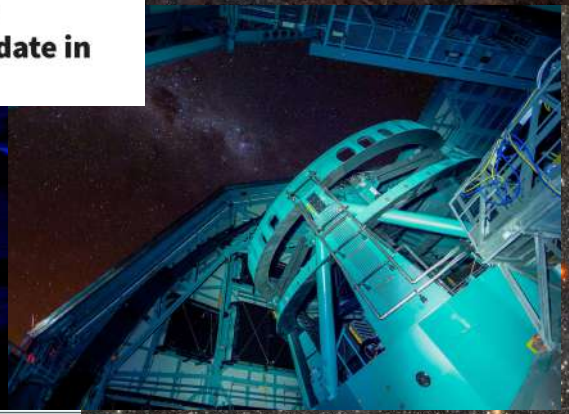
Since we last met …





NSF–DOE Vera C. Rubin Observatory Reveals Its First Dwarf Planet Candidate in Our Solar System

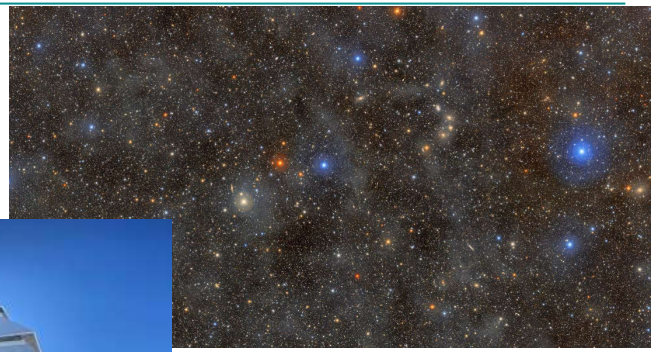


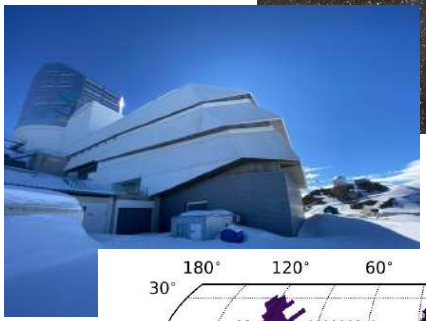


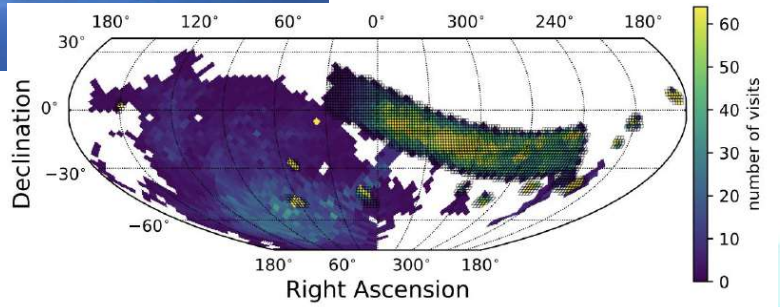
VERA C. RUBIN OBSERVATORY | NSF U.S. National Science Foundation | U.S. DEPARTMENT of ENERGY | Office of Science

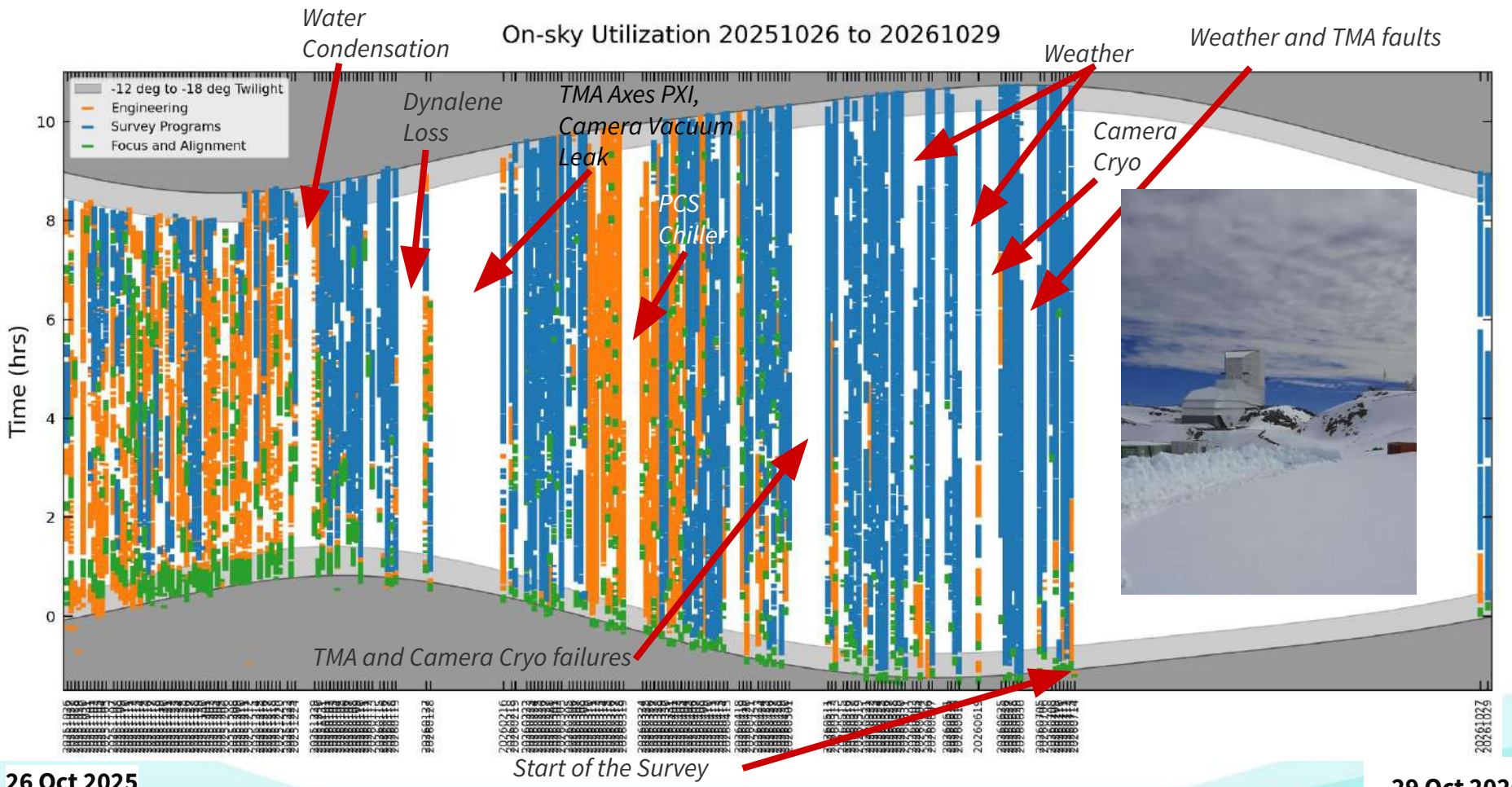
One year of Operations

- Operations began October 26, 2025
- October - June focus on **optimization** and **reliability**.
- First alerts to community in February
- Survey Began in July
- First science data to Community in July
- Major Storm, Recovery (mostly compete)
- Planned maintenance (successful)
- Getting back on sky (now)

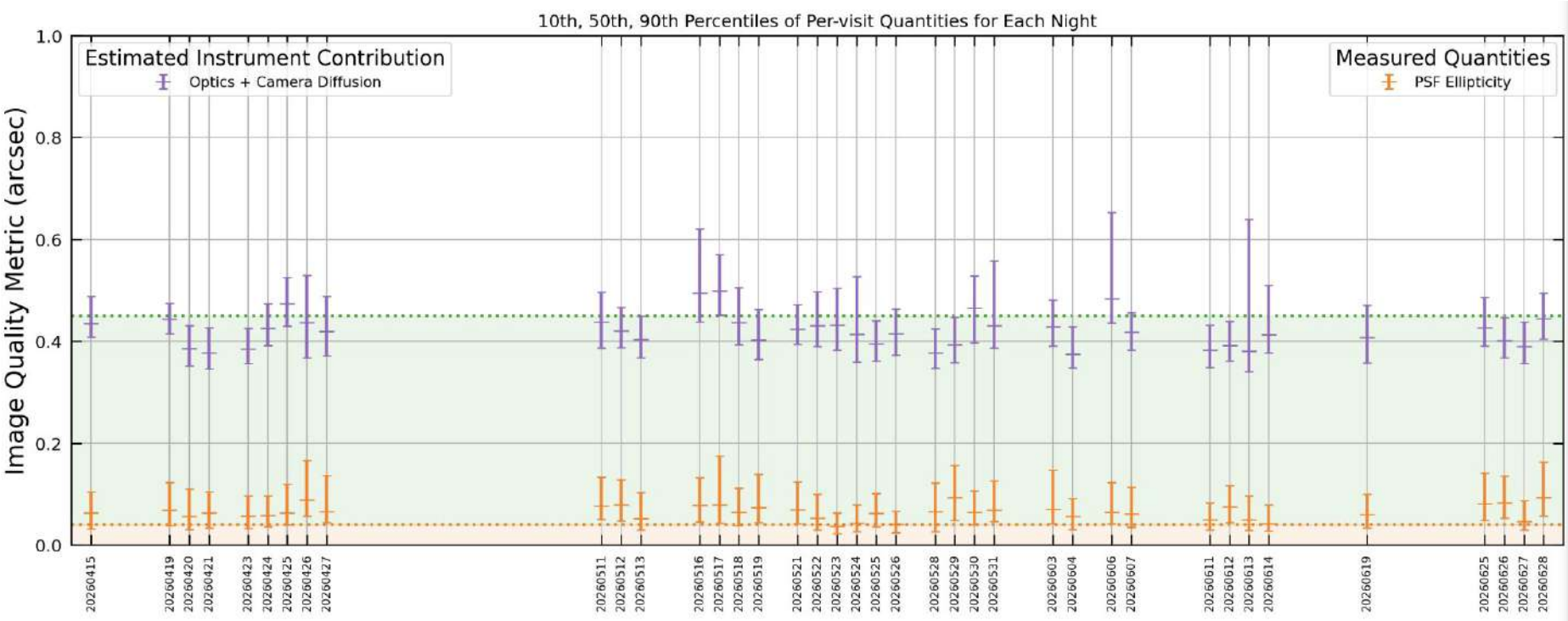







On-sky Utilization 20251026 to 20261029
-12 deg to -18 deg Twilight
Engineering
Survey Programs
Focus and Alignment
Time (hrs)
0
2
4
6
8
10
Water Condensation
Dynalene Loss
TMA Axes PXI, Camera Vacuum Leak
PCS Chiller
Weather
Weather and TMA faults
Camera Cryo
TMA and Camera Cryo failures
Start of the Survey
26 Oct 2025
29 Oct 2026

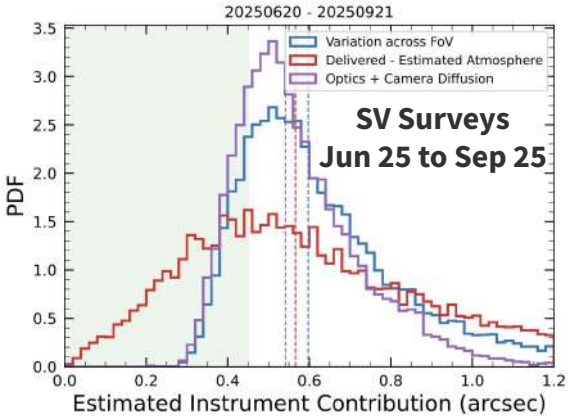
Intensive on-sky engineering in March 2026 yielded a breakthrough in the definition of the telescope's target optical state

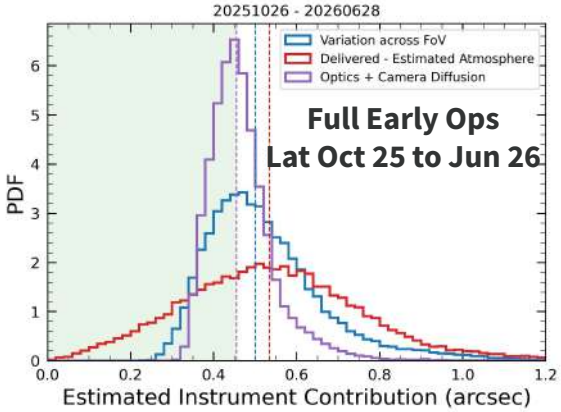


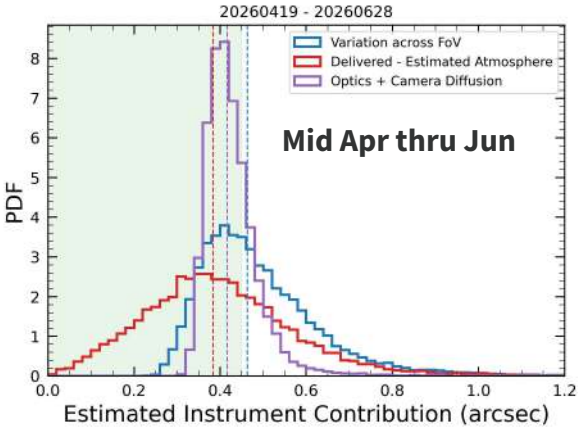
Intensive on-sky engineering in March 2026 yielded a breakthrough in the definition of the telescope's target optical state

Focus has been on Image Quality and Efficiency

- Alignment and quality was quick but,
- Controlling an F/1.2 wide-field optical system on a fast slewing, temperature changing telescope for the first time requires persistence







Improvements across summit hardware, control software, and operational procedures are improving the reliability of the delivered image quality. This continues as we start the LSST.

Intensive on-sky engineering in March 2026 yielded a breakthrough in the definition of the telescope's target optical state

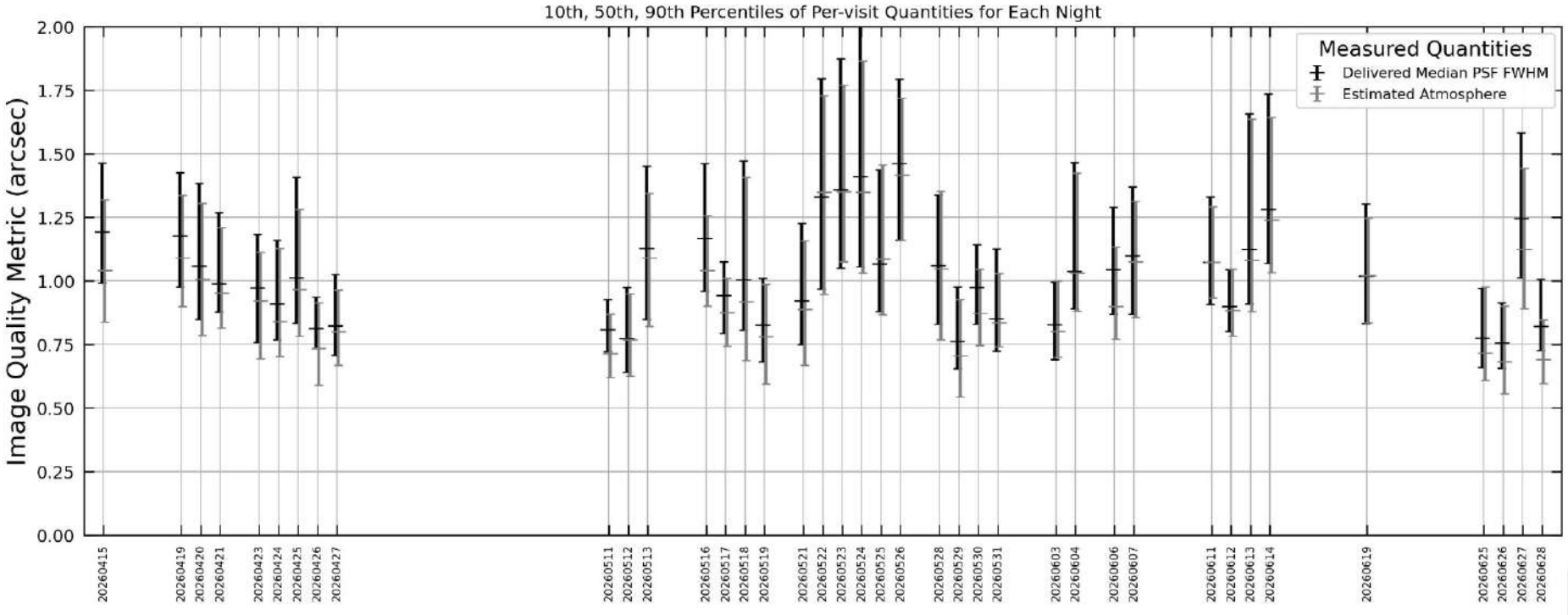
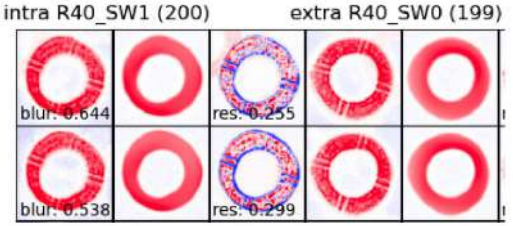
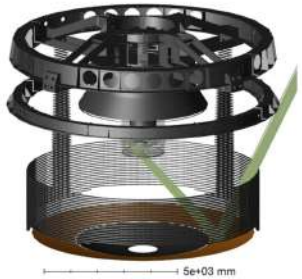
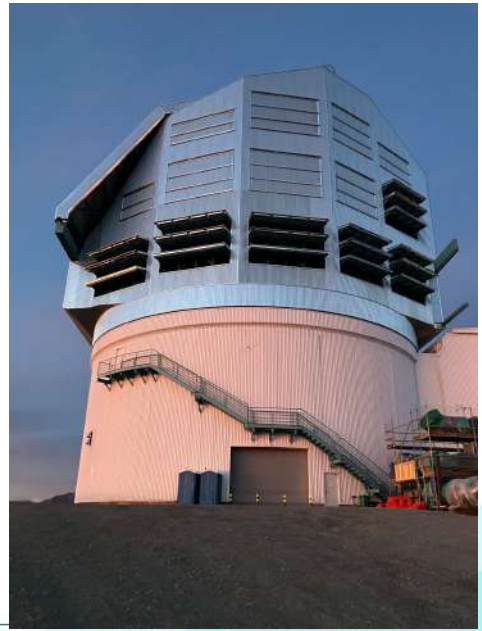


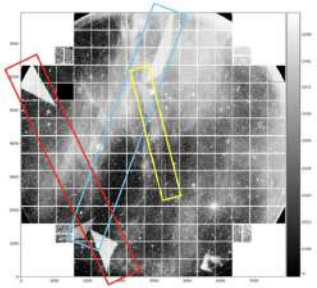
Image Quality Improvement Plan



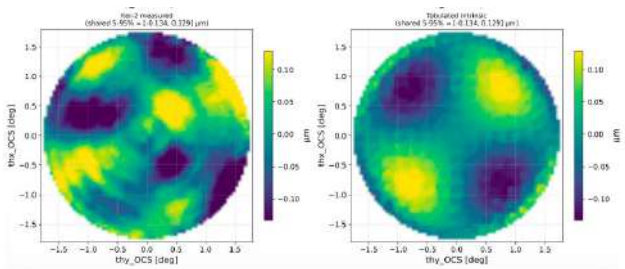
- Active Optics System:
  - Reference wavefront optimization (ST)
  - Control Algorithm optimization (MT)
  - Use of AI to improve on robustness and speed (MT)
  - Donut Selection and Quality Fit improvements (ST)
  - Open-loop model optimization (LT)
- Environmental Control
  - Thermal Control of the borosilicate mirror M1M3 (ST)
  - Louvers Opening Control (MT)
  - Weather Forecasting (MT)
- Stray-light Management (MT)







ST: Short Term
MT: Medium Term
LT: Long Term

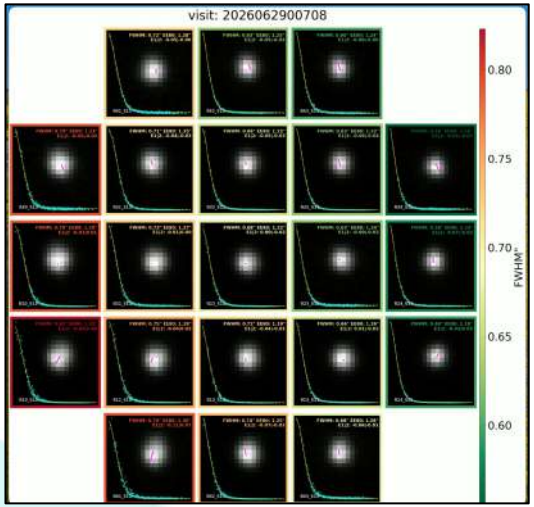


The Survey has Started, Quickly Taking High Quality Images

1st Night:

- **880 images !**
- Median DIQ=0.91", median ellipticity=0.078.

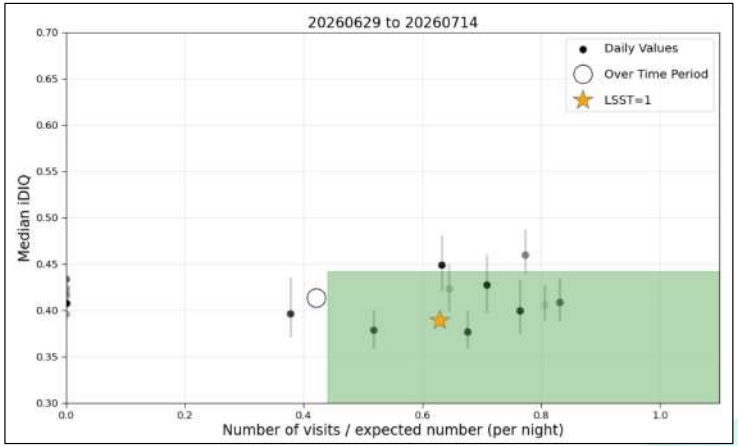
  (median seeing was 0.73” and requirement on ellipticity is 0.04)



In Survey for ~15 days (bad weather for 5 nights):

Not considering the bad weather we are in within the “green box”! RTN_093

- **7267 science visits** (out of 17273 possible)
- *Median delivered image quality of **1.1" FWHM***
  - *Total Optical System Contribution 0.45”*
  - *Dome Seeing (0.3”- 0.4”)*
  - *Tracking error (~0.1”)*




Survey Start on June 29 demonstrated that Rubin was working, and offered a glimpse of a long and stable future

CNN Science Space Life Unearthed

‘The greatest cosmic movie ever made’: Historic telescope kicks off an unprecedented survey





The New York Times

A Dazzling Census of Our Cosmos Begins

The Vera C. Rubin Observatory is beginning the widest, deepest southern sky

Astronomers just began the largest cosmic time-lapse in history

The Vera C. Rubin Observatory in Chile has started a 10-year survey of the changing night sky

BY CLARA MOSKOWITZ EDITED BY LEE BILLINGS



Astronomy

News Science Observing Space Exploration The Magazine Ask Astro

Vera C. Rubin Observatory begins its Legacy Survey of Space and Time

The 10-year census will scan the entire southern sky every few nights, generating millions of alerts each night and an unprecedented stream of astronomical data.

By Brooks Mendenhall | Published: June 30, 2026 | Last updated on July 1, 2026

Listen to this Article

The Washington Post

A giant telescope goes on a decade-long search for dark ma

An observatory in Chile is taking a timelapse of the sky over to help scientists measure the properties of a mysterious co



The Mercury News

Bay Area-built camera begins filming the universe like never before

The project is expected to enable pioneering discoveries by scientists around the world, and ultimately deliver a time-lapse view of a massive swath of the known universe.

Yesterday at 4:09 PM (270 kB)

COMMENTARY JOURNALS

Science

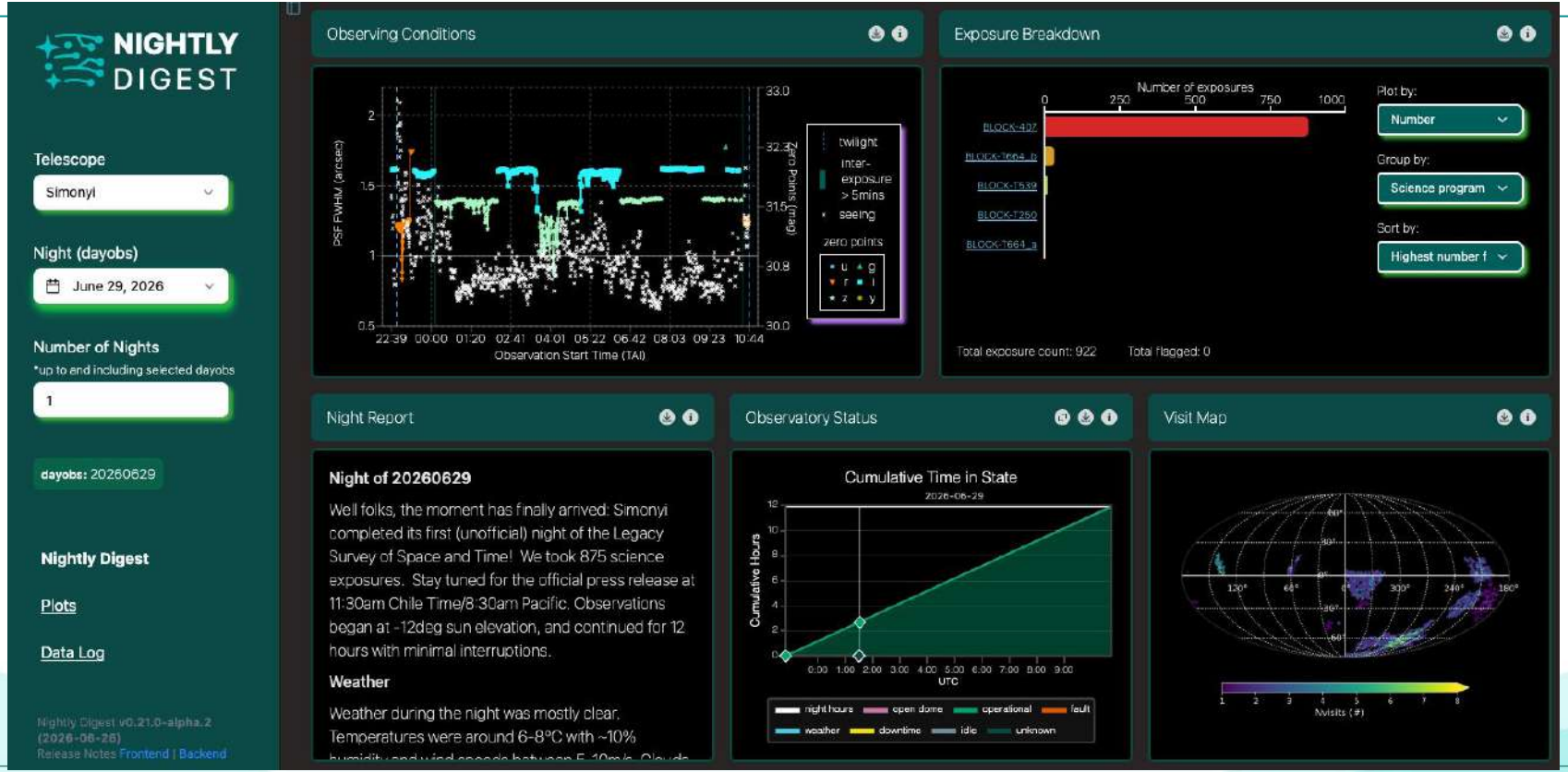
Rubin observatory begins a 10-year movie of the changing universe

World’s biggest digital camera will repeatedly scan the sky, spotting cosmic explosions while building up a deep map of billions of galaxies

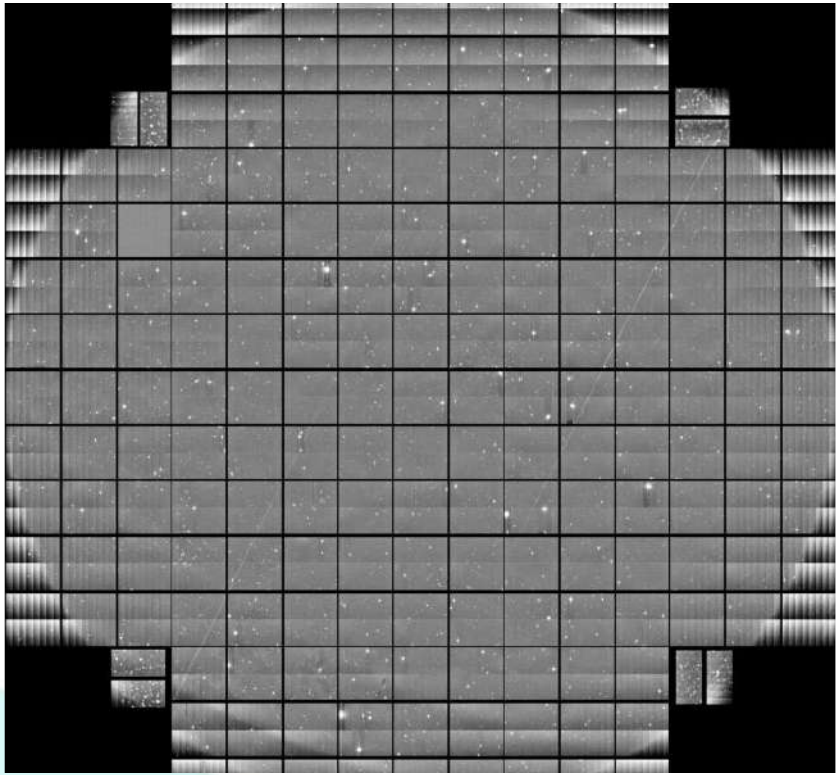
30 JUN 2026 · 11:00 AM ET · BY DANIEL CLERY



Night 1

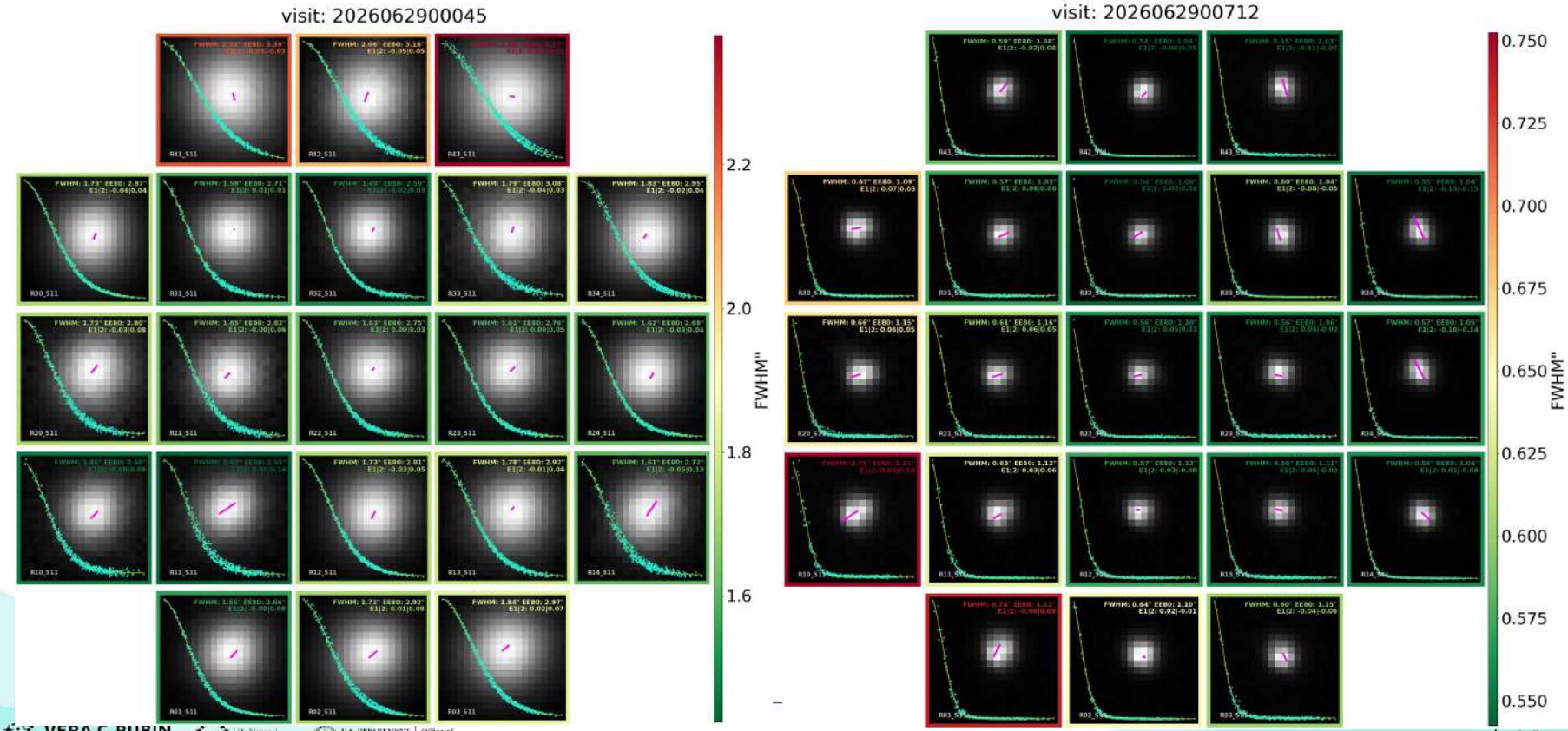

NIGHTLY DIGEST
Telescope
Simonyi
Night (dayobs)
June 29, 2026
Number of Nights
*up to and including selected dayobs
1
dayobs: 20260629
Nightly Digest
Plots
Data Log
Nightly Digest v0.21.0-alpha.2 (2026-06-28)
Release Notes Frontend | Backend
Observing Conditions
PSF FWHM (arcsec)
Zero Points (mag)
Observation Start Time (TAI)
twilight
inter-exposure > 5mins
seeing
zero points
Exposure Breakdown
Number of exposures
BLOCK-427
BLOCK-T664_b
BLOCK-T539
BLOCK-T250
BLOCK-T664_a
Plot by:
Number
Group by:
Science program
Sort by:
Highest number f
Total exposure count: 922
Total flagged: 0
Night Report
Night of 20260629
Well folks, the moment has finally arrived: Simonyi completed its first (unofficial) night of the Legacy Survey of Space and Time! We took 875 science exposures. Stay tuned for the official press release at 11:30am Chile Time/8:30am Pacific. Observations began at ~12deg sun elevation, and continued for 12 hours with minimal interruptions.
Weather
Weather during the night was mostly clear. Temperatures were around 6-8°C with ~10%
Observatory Status
Cumulative Time in State
2026-06-29
Cumulative Hours
UTC
night hours
open dome
operational
fault
weather
downtime
idle
unknown
Visit Map
Nvisits (#)

Night 1, Best Image Seq Number 712





Night 1, Image 1 and Image Best



Oh No!

On July 14th we evacuated the summit for a major winter storm.

It turned out to be the worst storm in more than 50 years:

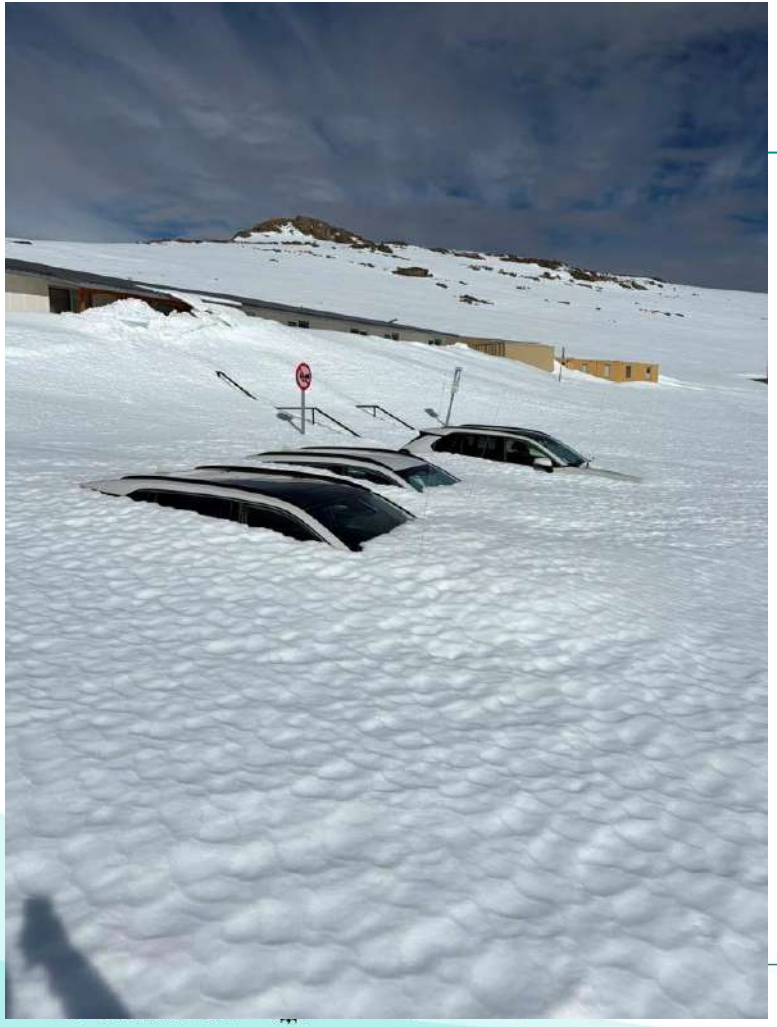
we had 5 times the average annual precipitation in 2-3 days on the summits.

A federal catastrophe was declared in the Region of Coquimbo.





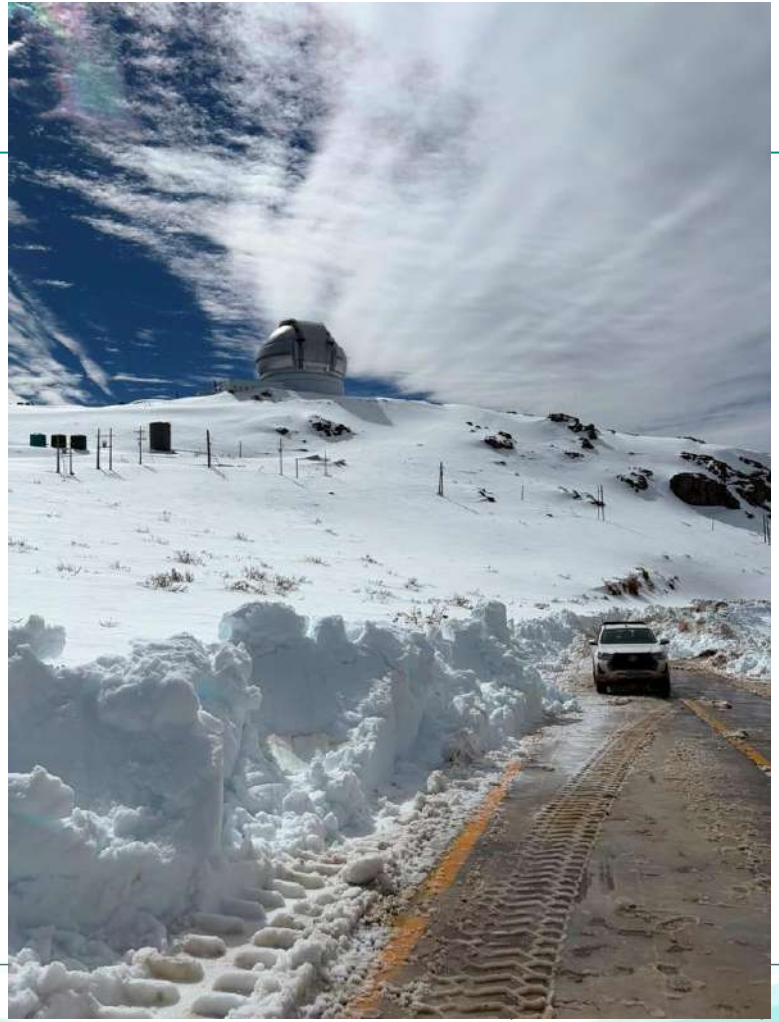














The schedule to complete planned maintenance and return to survey operations is under active development

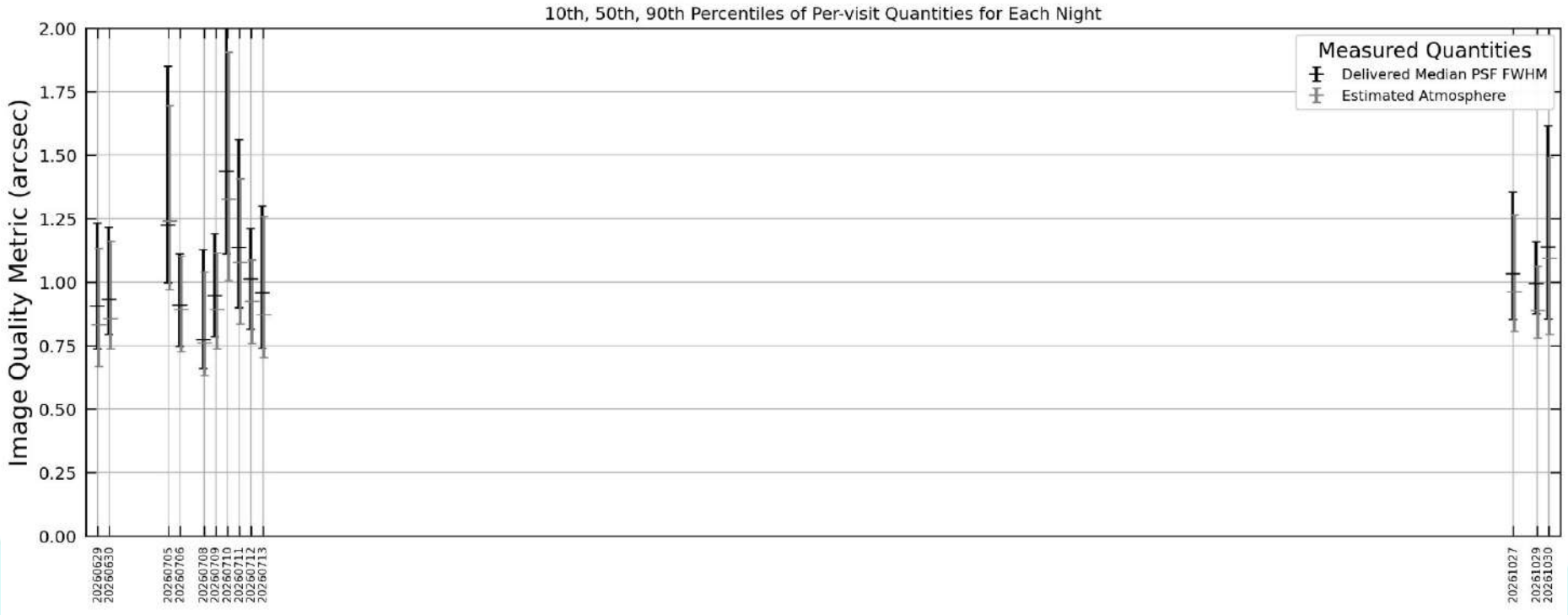
Timeline for regular work on the summit

- First arrival at Rubin for assessment, August 07
- Generator power tested (success), August 11
- Electrical systems back on (building energized), August 19
- HVAC and other services, September 02
- Computer room powered up and some systems rebooted, September 14-25
- Telescope and Dome assessed, powered, and verified, week September 28
- Annual Maintenance work completed week October 21
- On sky, October 27!

Post Storm: Performance Still Tracking as Before



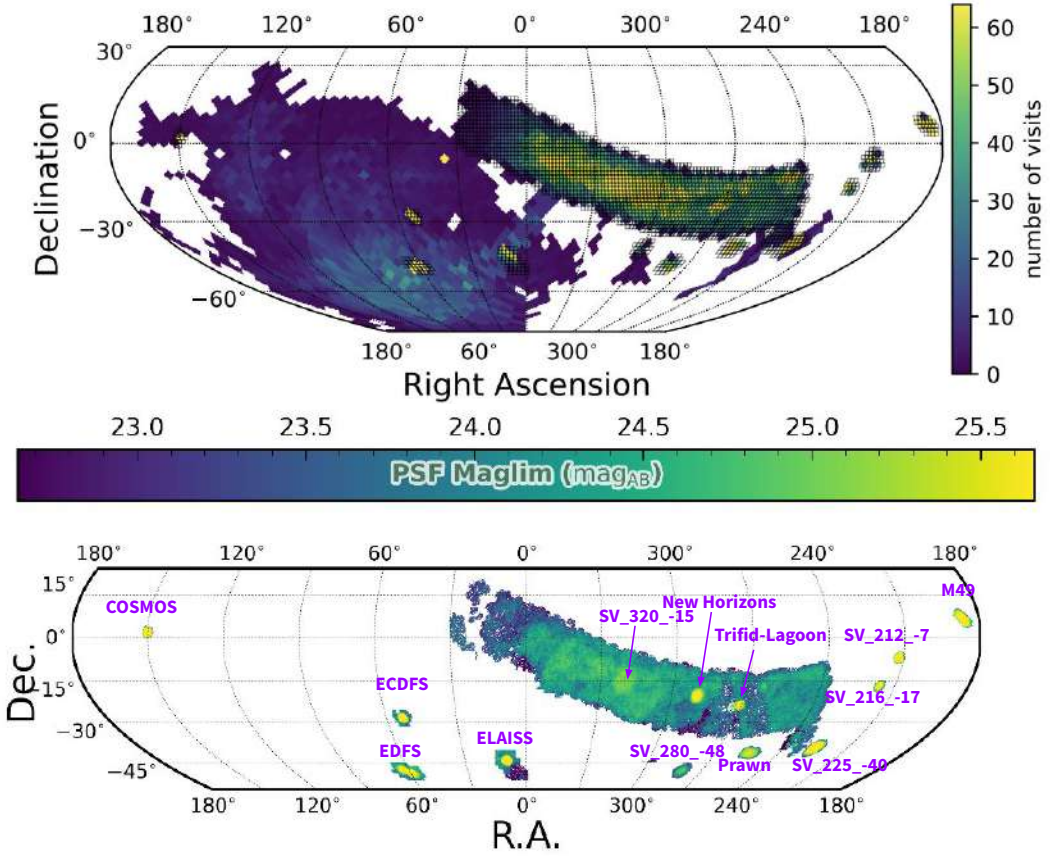
Post Storm: Performance Still Tracking as Before



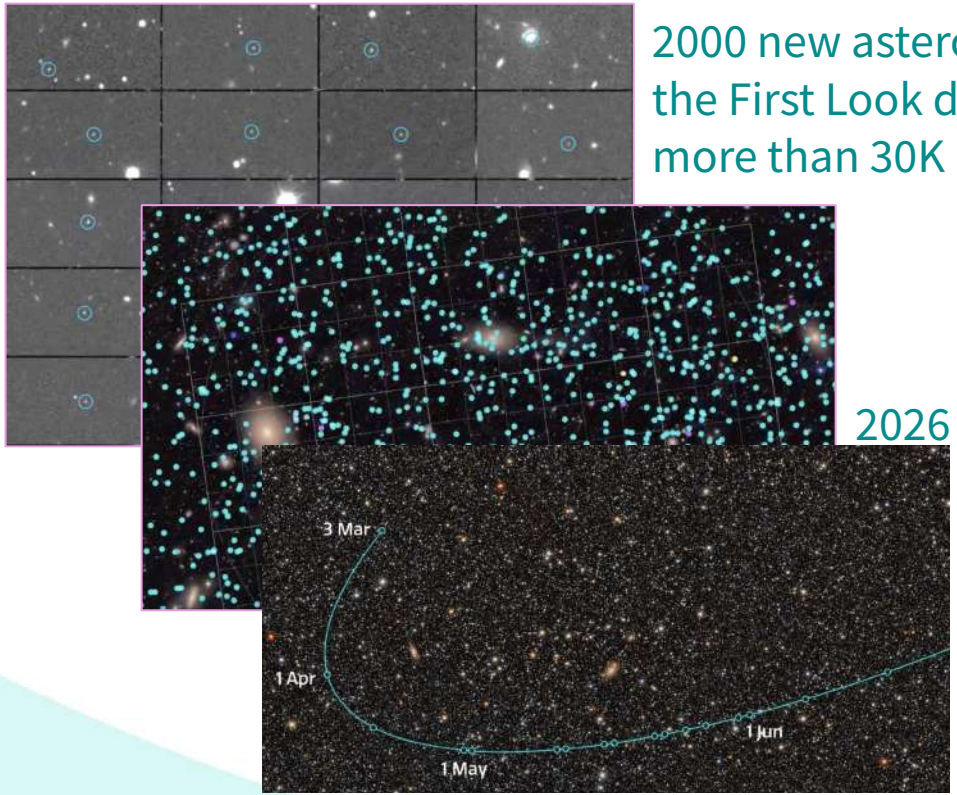
Early Data Preview 2 delivered in July

DP2

- A deep coadd, 3000 sq degrees and catalogs (EDP2)
- PPDB soon after back on sky plus 4 weeks (want to test load)
- Visit Images ~ on sky plus 8 weeks.
- Details from Yusra

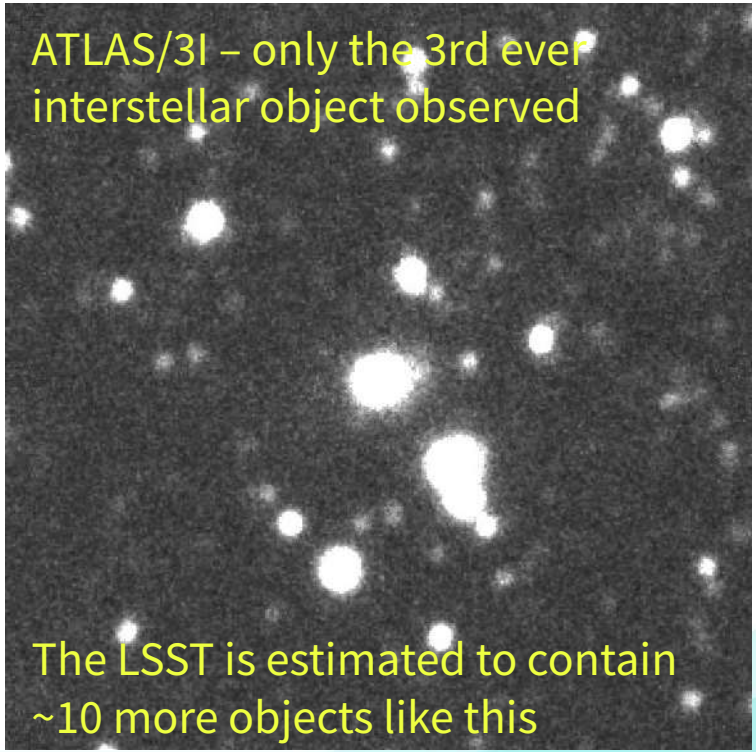


Repeated Rubin imaging is already yielding new science



2000 new asteroids in the First Look data, more than 30K now

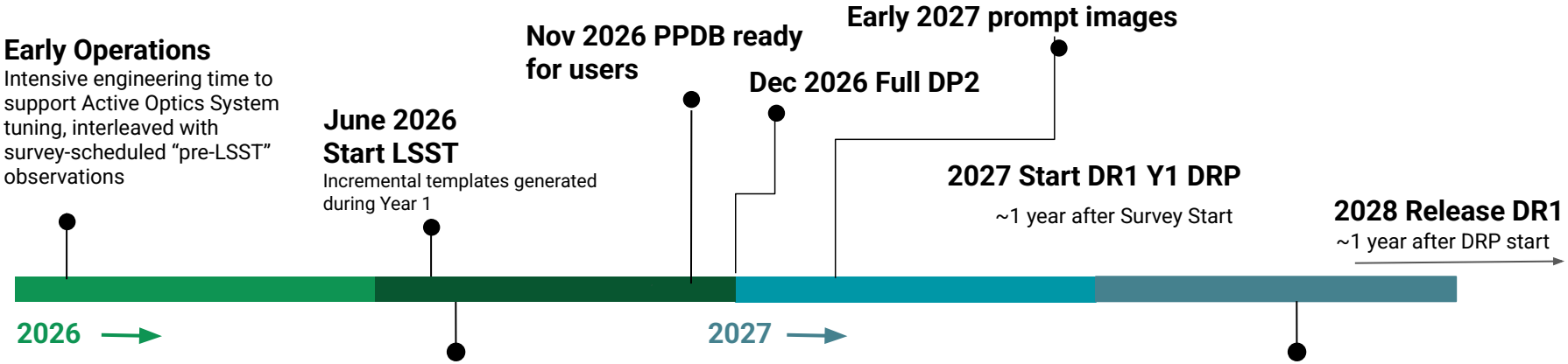
2026 ED138



ATLAS/3I – only the 3rd ever interstellar object observed

The LSST is estimated to contain ~10 more objects like this

Rubin Y1-Y2 Timeline



The DR1 clock has started, and the pattern of regular survey data releases will follow

Summary

- On sky for a year and a half, final integration of system to start of the LSST and public alerts
- Operations phase for one year and survey start
- Significant performance gains and plan for continued improvement going forward
- Science data has been delivered to the community, results are coming out
- We recovered from an historic storm, have finished a planned maintenance program, and are **back on sky**.




rubinobservatory.com

VERA C. RUBIN OBSERVATORY

U.S. National Science Foundation

U.S. DEPARTMENT of ENERGY | Office of Science

Survey Strategy

Lynne Jones

Lead Scheduler Scientist



V5.3

V5.3 simulations https://community.lsst.org/t/release-of-v5-3-simulations

Based on SCOC recommendations in PSTN-057

- Like previous recommendations – plus:
- Add a template tier, with observations in pairs separated by ~25 minutes, to add a specific push to acquiring visits suitable for templates.
- DDF sequences are scheduled following the “ocean” cadence with deep and ultradeep seasons. Each DDF has one ultradeep season, except COSMOS which receives >1. Over 50% of the visits for each DDF are acquired in the ultradeep seasons.
  - rotational and translational dithers between every visit.
  - Even days: `g:2 i:2` Odd days: `r:2 z:2` Every few days: `u:3 y:2`
  - Ultradeep seasons add `u:8 g:4 r:18 i:55 z:52 y:20` every few days.

Updated Observing Strategy Simulations (v5.3)

The time available on-sky has been brought into better alignment with expectations based on our increasing experience.

Net impact of increase in downtime is **10% decrease in total number of visits**.

	v5.3	v5.0
Planned maintenance	3 weeks/year + 8 weeks in years 4 and 8	2 weeks/year
Planned engineering time	2 half nights/week for first 6 months 1 night every 25 days	None
Unplanned downtime	Ramp over first 3 years from ~20% down to ~5% (short periods) Plus ~21 weeks downtime (multi-night periods) over 10 years.	Ramp over first year from ~25% to 3% (short periods) Plus ~19 weeks downtime (multi-night periods) over years 2-10.
Weather downtime	Based on cloud cover records. Bad weather can 'cover' downtime.	Based on (same) cloud cover records. Bad weather can 'cover' downtime.

Uncertainty in simulation performance

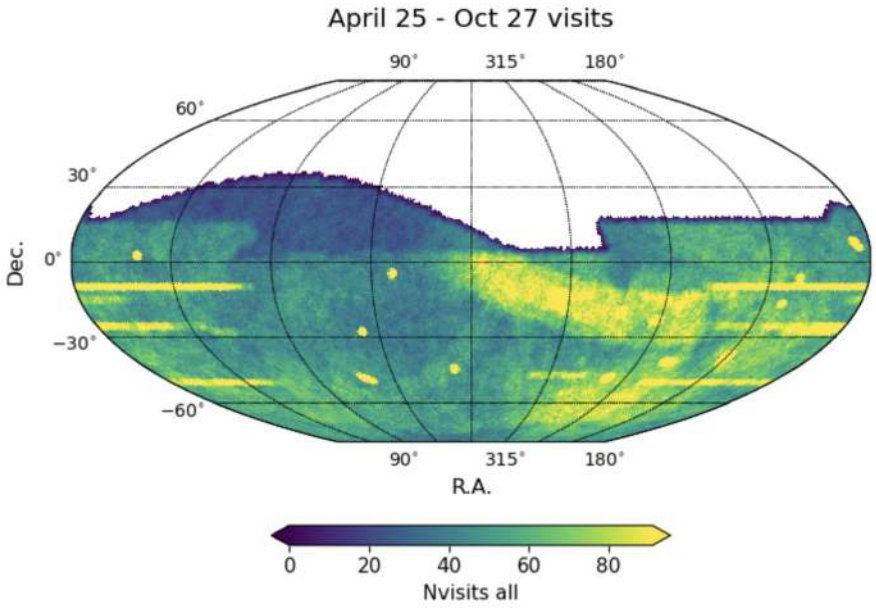
- Weather could mean the total number of visits in Y1 is uncertain by 25%. Given the strong el nino indicators for this year, it seems more likely to be at the low end.
- Observatory unplanned downtime is hard to predict; rate has been higher than in simulations, but should be much improved after downtime due to maintenance on the chiller systems. Will have to wait and see.
- Impact of engineering time is uncertain. We have added 3 half nights into the simulations, but this is subject to weather and faults in the sims; real engineering may be a bit more or less and needs to preempt weather and faults.
- We may see an improvement in the visit gap performance?
- Expectations around visits at the end of year one – wait and see.
- Another question - Timing of next data release cutoff (and does this also influence strategy details in Y1?)
- LARGER UNCERTAINTY IN ONE YEAR COMPARED TO TEN YEARS

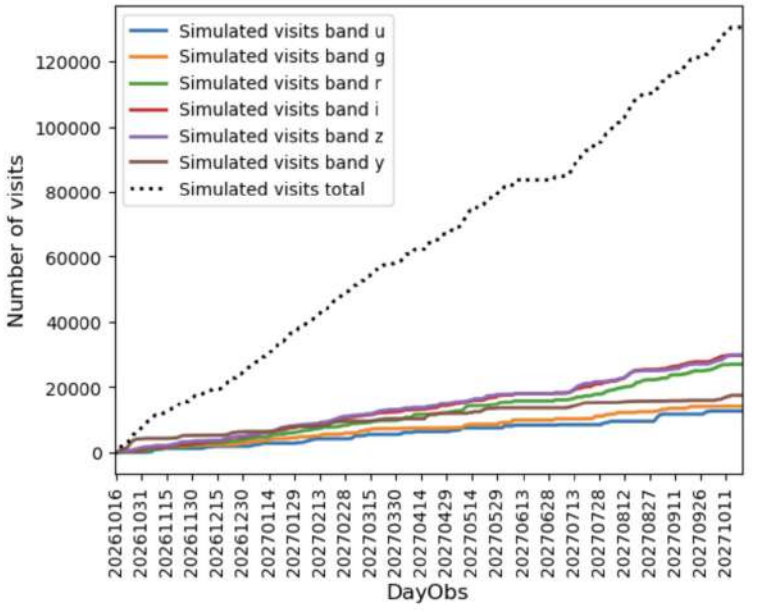
Simulation of Year 1

Starting October 15, in a (historical) el niño year for weather.

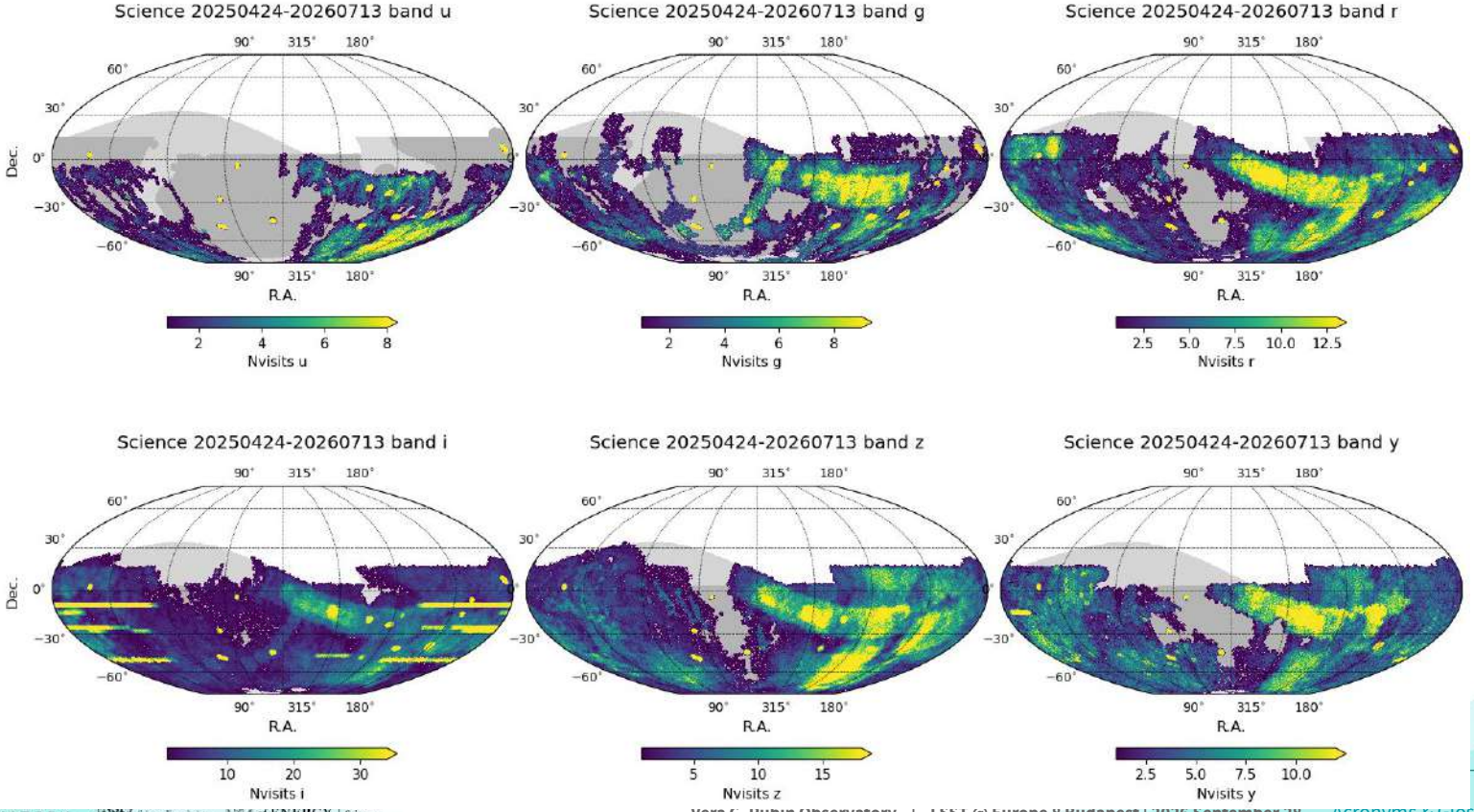
V5.3 downtime and observatory performance.

Templates after 2 years, rolling start after end of year 2.

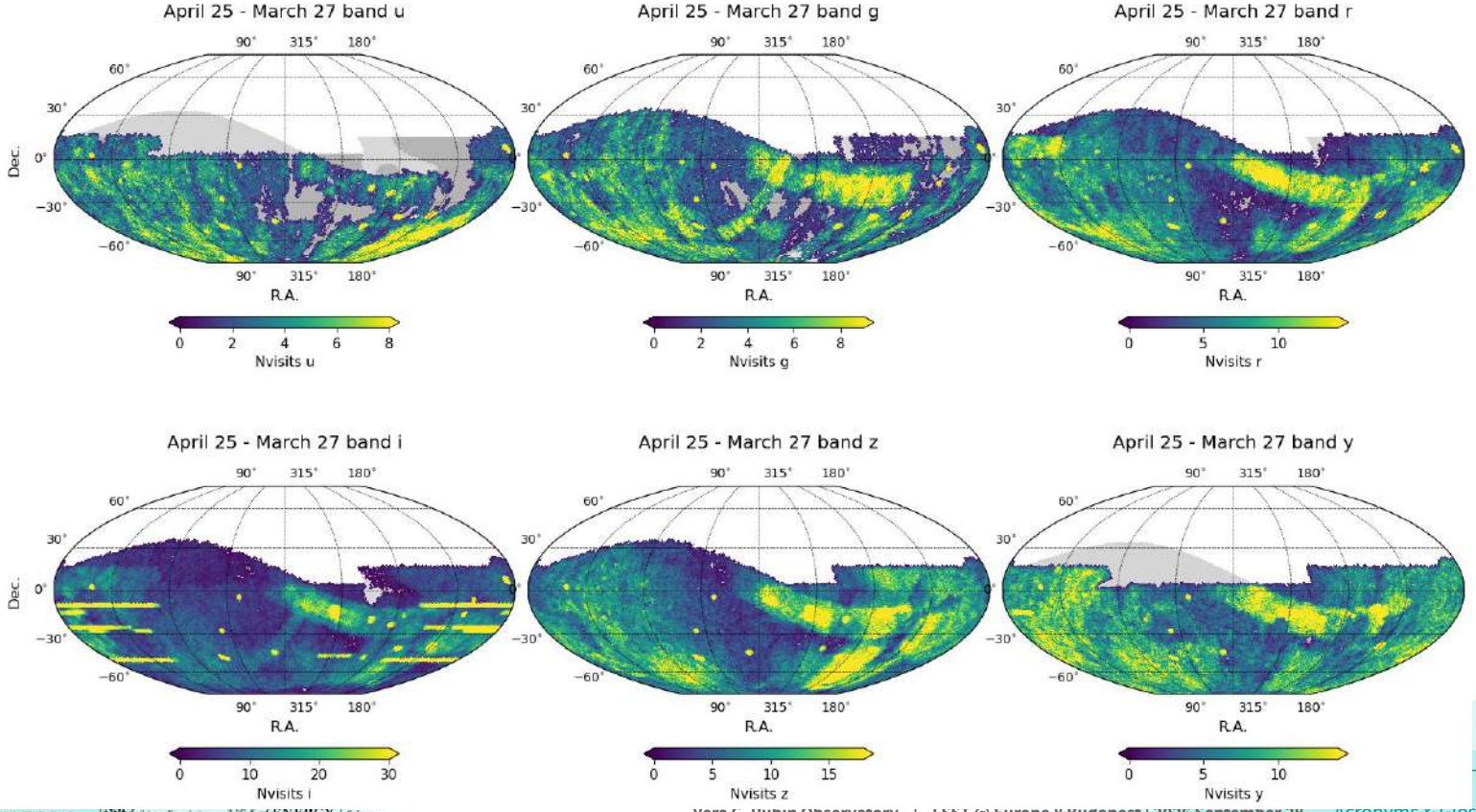




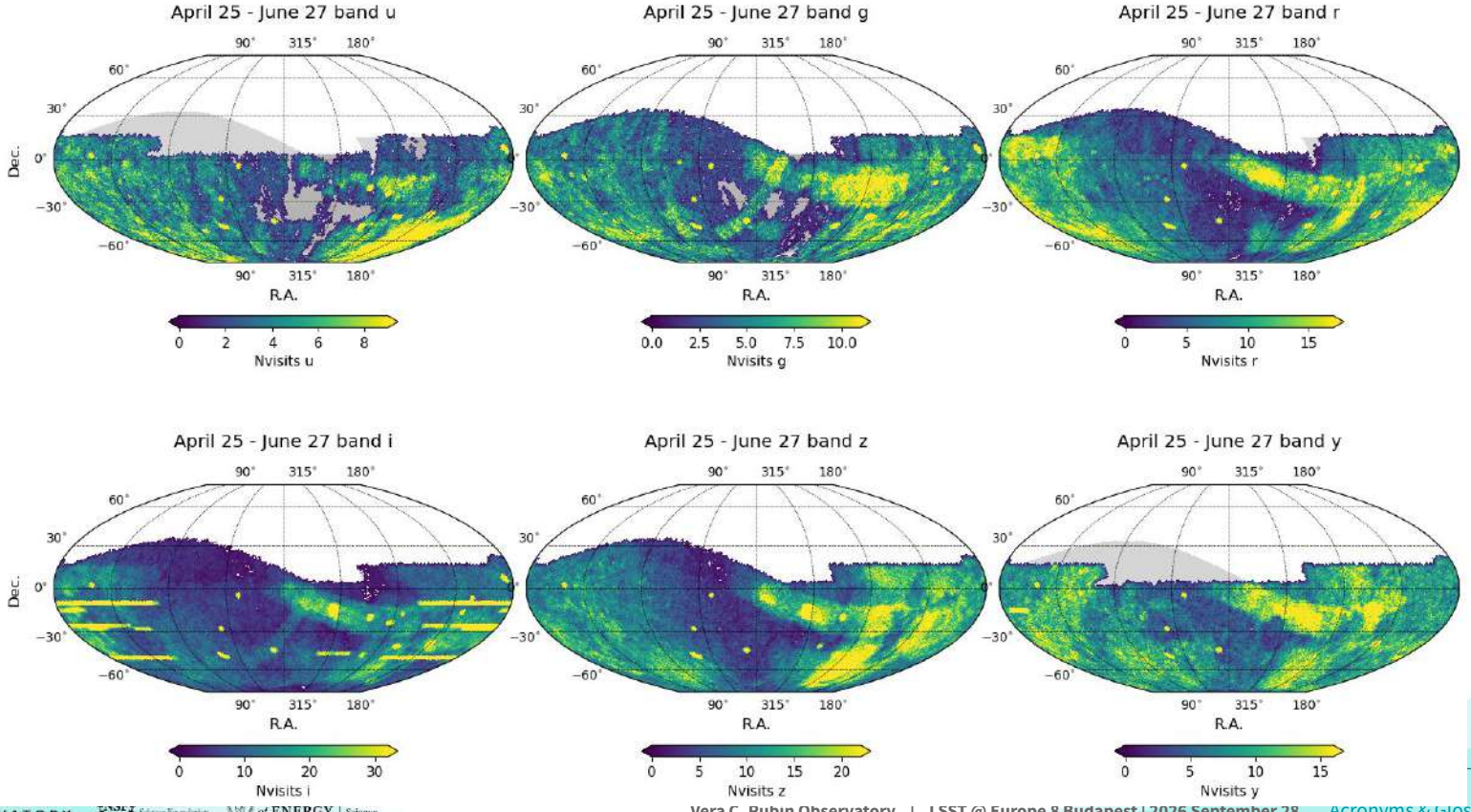
Existing visits



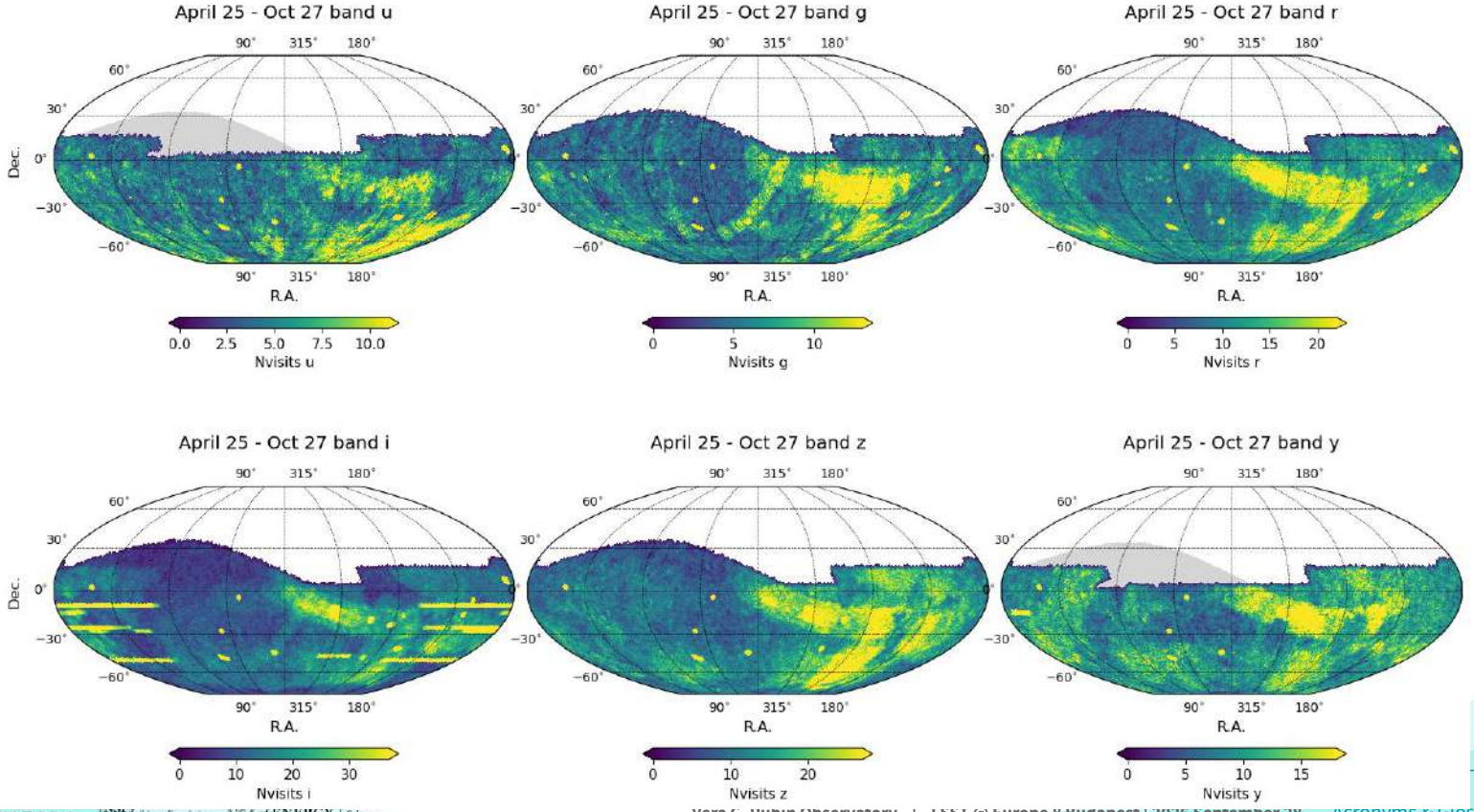
Existing visits + 5 months (March 2027)



Existing visits + 8 months (June 2027)



Existing visits + 1 year (Oct 2027)



Existing visits + 2 years (Oct 2028)

