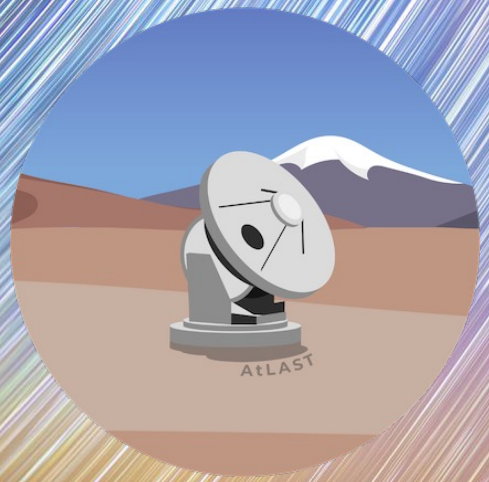
Synergies between AtLAST and LSST

I. Pérez-Fournon (IAC & ULL)



Vera Rubin Observatory, H. Stockebrand

Iberian AtLAST Days
UCM, 4-5 June 2026

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

Outline

- Introduction to Rubin and LSST
- Rubin science
- From Rubin commissioning to early science observations
- Time-domain astronomy with LSST: alerts and brokers
- The first LSST transient from the public alerts
- The ecosystem of time-domain astronomy
- Some links

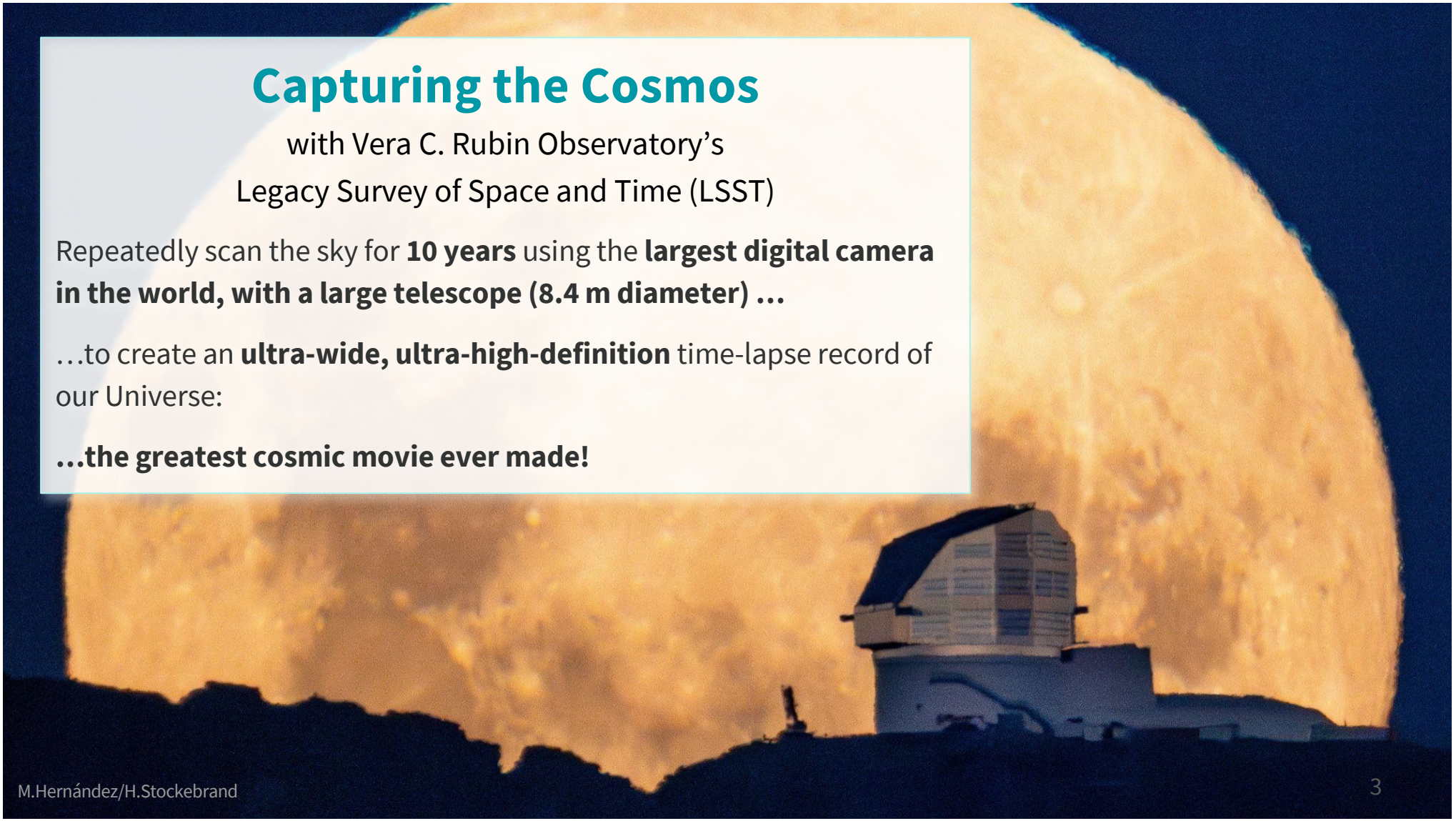
Capturing the Cosmos

with Vera C. Rubin Observatory's
Legacy Survey of Space and Time (LSST)

Repeatedly scan the sky for **10 years** using the **largest digital camera in the world, with a large telescope (8.4 m diameter) …**

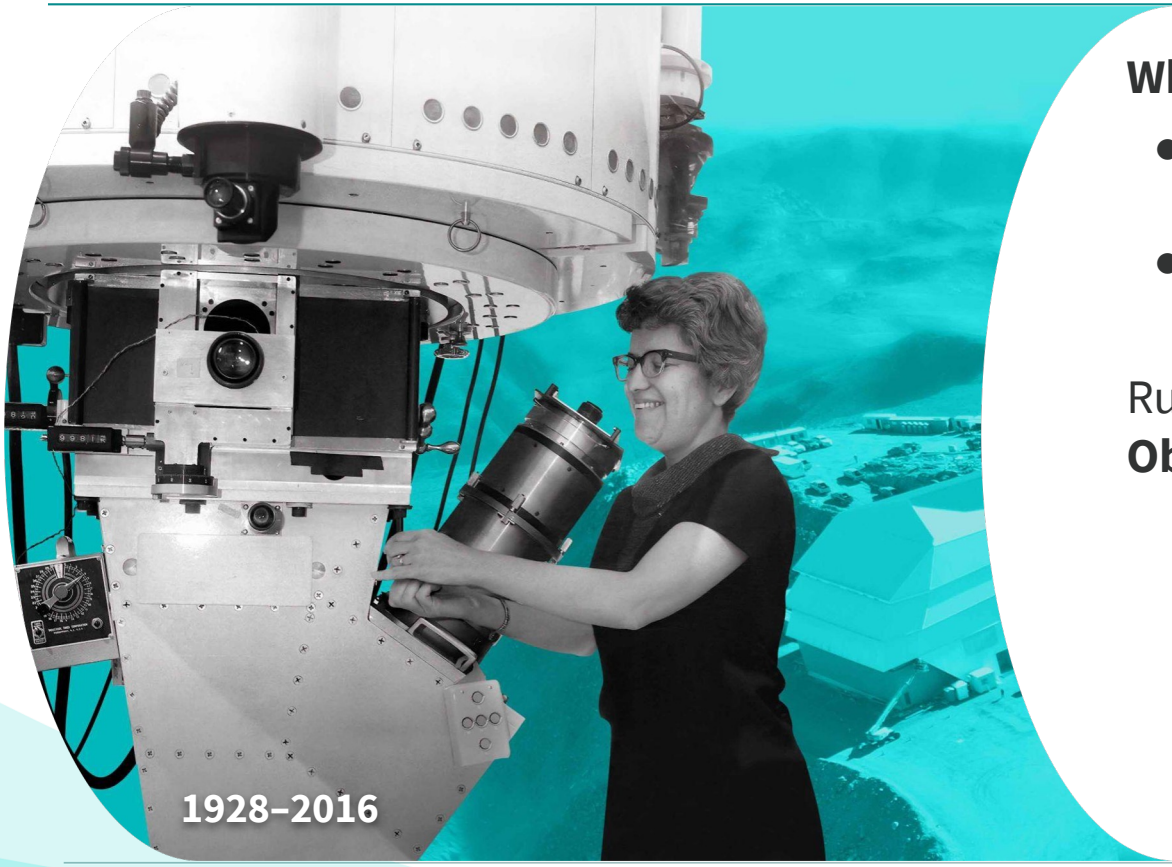
…to create an **ultra-wide, ultra-high-definition** time-lapse record of our Universe:

…the greatest cosmic movie ever made!



M.Hernández/H.Stockebrand

Honoring Vera C. Rubin

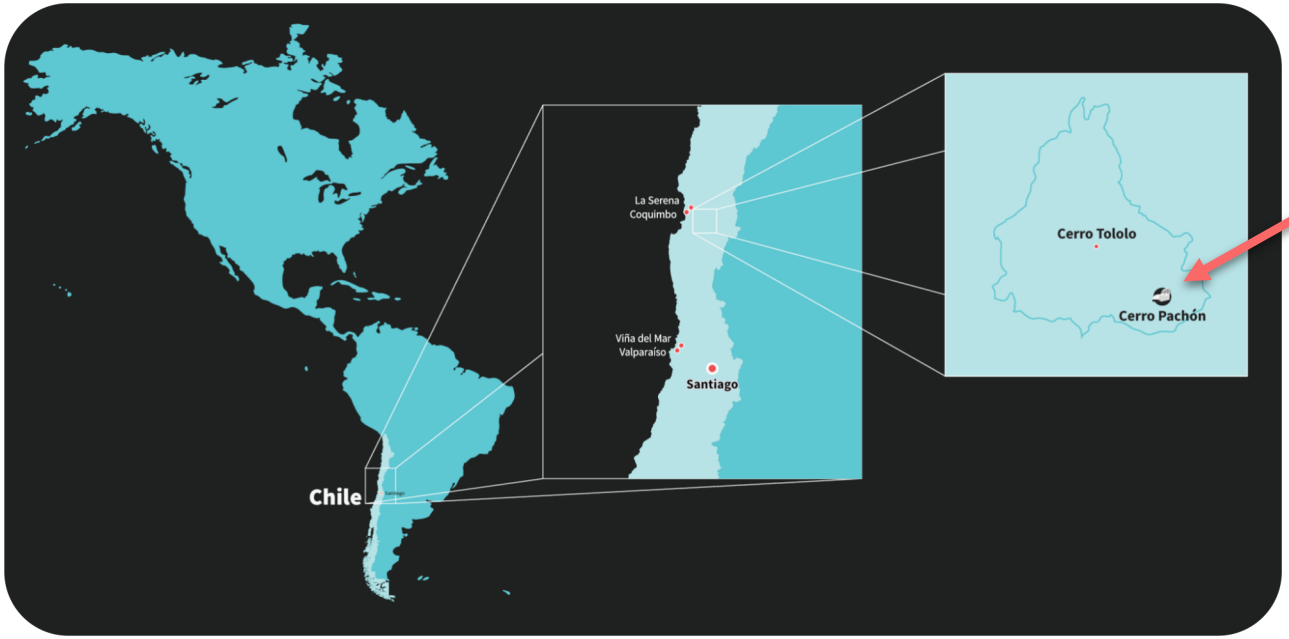


Who was she?

- Provided the first convincing evidence for dark matter
- Advocated for women in astronomy

Rubin Observatory is the **first major US Observatory named for a woman**

Meet Rubin Observatory



Located on **Cerro Pachón**, in the Coquimbo region of Chile

Jointly funded by the **U.S. National Science Foundation** and the **U.S. Department of Energy, Office of Science**

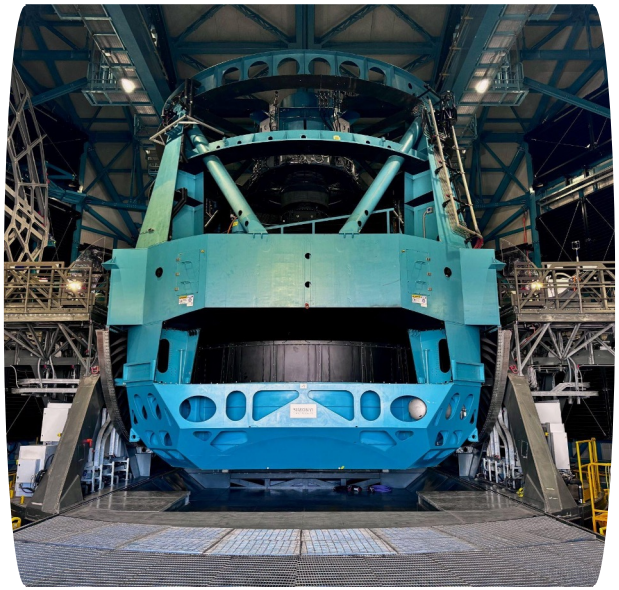
VERA C. RUBIN OBSERVATORY | U.S. National Science Foundation | U.S. DEPARTMENT of ENERGY | Office of Science

NOIRLab | AURA | SLAC NATIONAL ACCELERATOR LABORATORY


Vera Rubin Observatory
Rubin Observatory Technology
Simonyi Survey Telescope
LSST Camera
ASC INDUSTRIES
VERA C. RUBIN OBSERVATORY
SLAC

Cutting Edge Technology for a New Era

Olivier Bonin/SLAC National Accelerator Laboratory



LSST Camera

Largest digital camera ever (3200 Mpx)
6 filters, near-ultraviolet to near-infrared

Simonyi Survey Telescope

Novel three-mirror design = fast
Full-sky scan every 3-4 nights

Global Data Management System

20 TB/night transferred to US, France, UK
~10 million changes identified each night

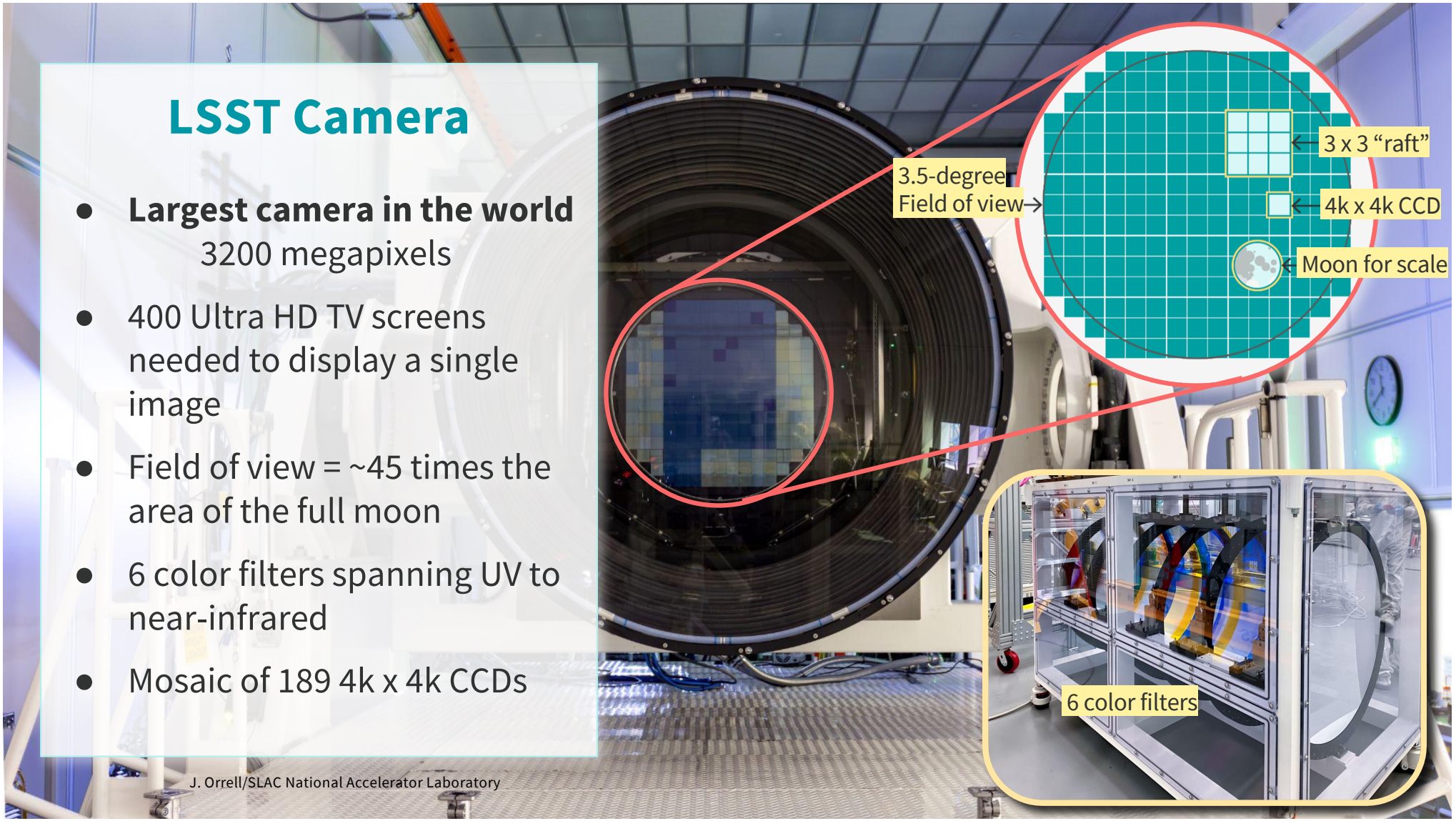
Simonyi Survey Telescope

- 2-in-1 primary/tertiary mirror — first of its kind, 8.4 m diameter
- Compact telescope quickly moves 300 tons of steel + optical equipment
- Automated (with oversight)
- Large aperture & high reflectivity to detect faint objects

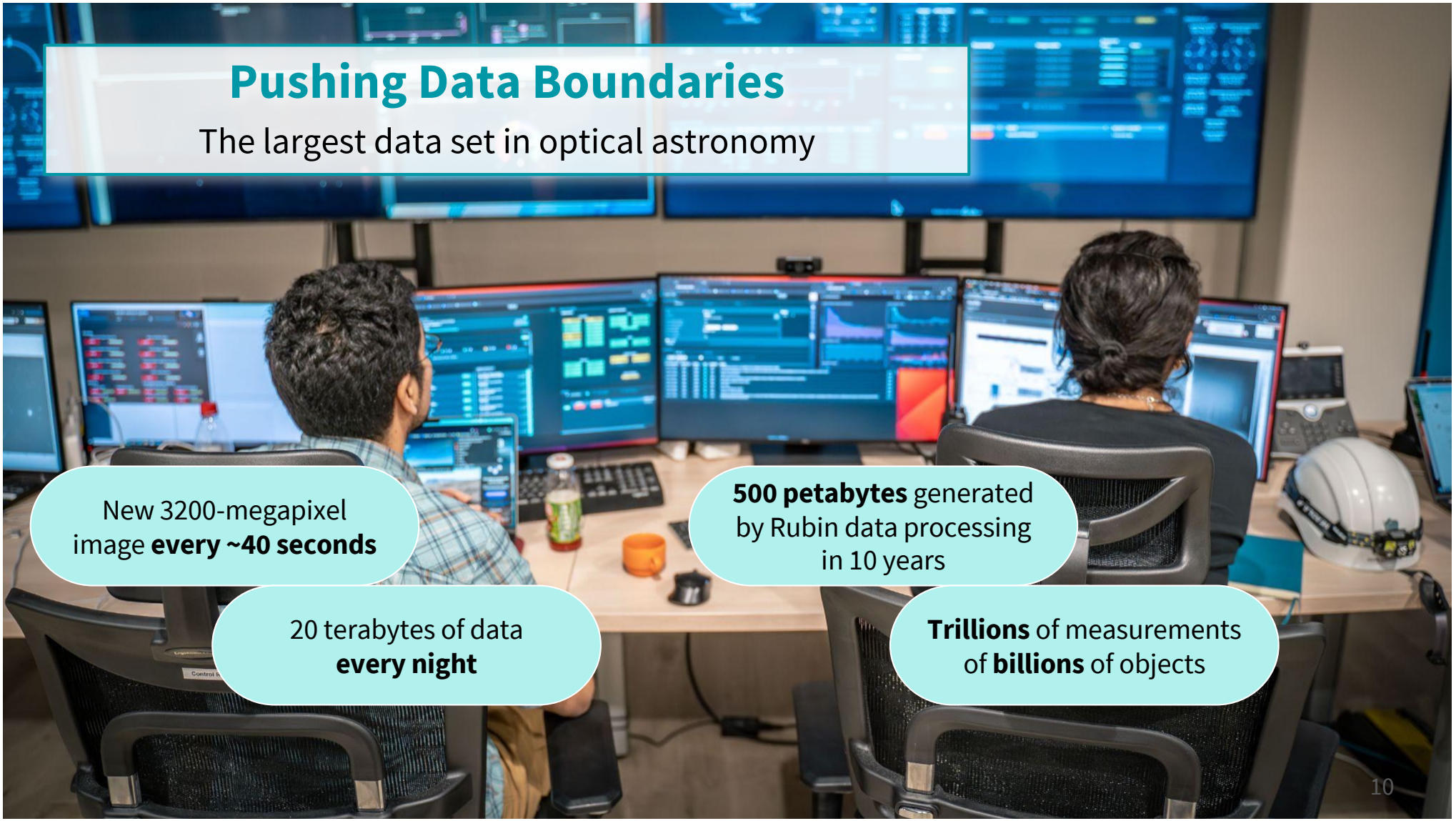
Asturfeito, Asturias

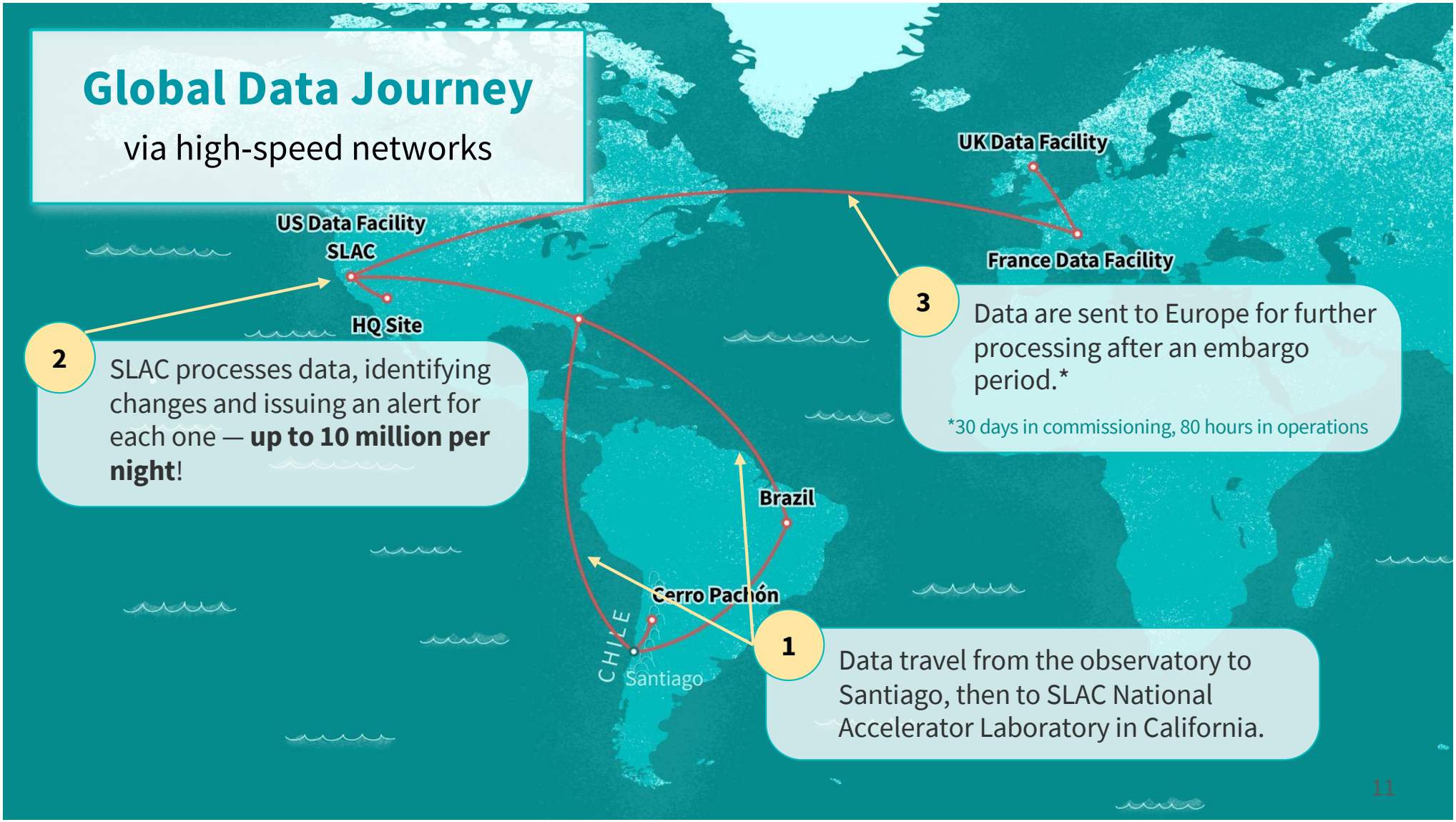
LSST Camera

- **Largest camera in the world**
  3200 megapixels
- 400 Ultra HD TV screens needed to display a single image
- Field of view = ~45 times the area of the full moon
- 6 color filters spanning UV to near-infrared
- Mosaic of 189 4k x 4k CCDs



J. Orrell/SLAC National Accelerator Laboratory


Pushing Data Boundaries
The largest data set in optical astronomy
New 3200-megapixel image **every ~40 seconds**
20 terabytes of data **every night**
500 petabytes generated by Rubin data processing in 10 years
Trillions of measurements of **billions** of objects


Global Data Journey
via high-speed networks
UK Data Facility
US Data Facility
SLAC
France Data Facility
HQ Site
3
Data are sent to Europe for further processing after an embargo period.*
*30 days in commissioning, 80 hours in operations
2
SLAC processes data, identifying changes and issuing an alert for each one — up to 10 million per night!
Brazil
Cerro Pachón
CHILE
Santiago
1
Data travel from the observatory to Santiago, then to SLAC National Accelerator Laboratory in California.

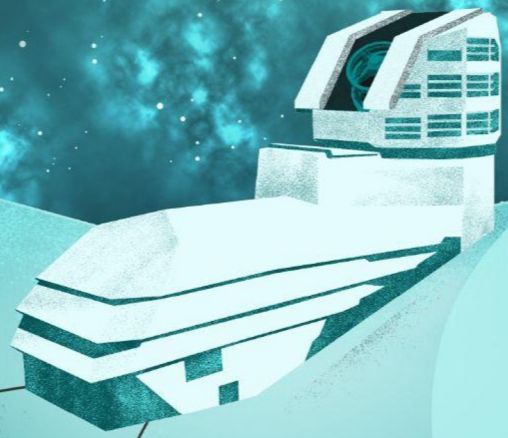
Four Science Areas

Milky Way Structure & Formation

Rubin will help us make the best map of our home galaxy yet.

Solar System Census

Rubin will show us millions of new asteroids and comets, and so much more.



Dark Matter & Dark Energy

Rubin is a brand new tool to help us learn more about their nature & behavior.

The Changing Sky

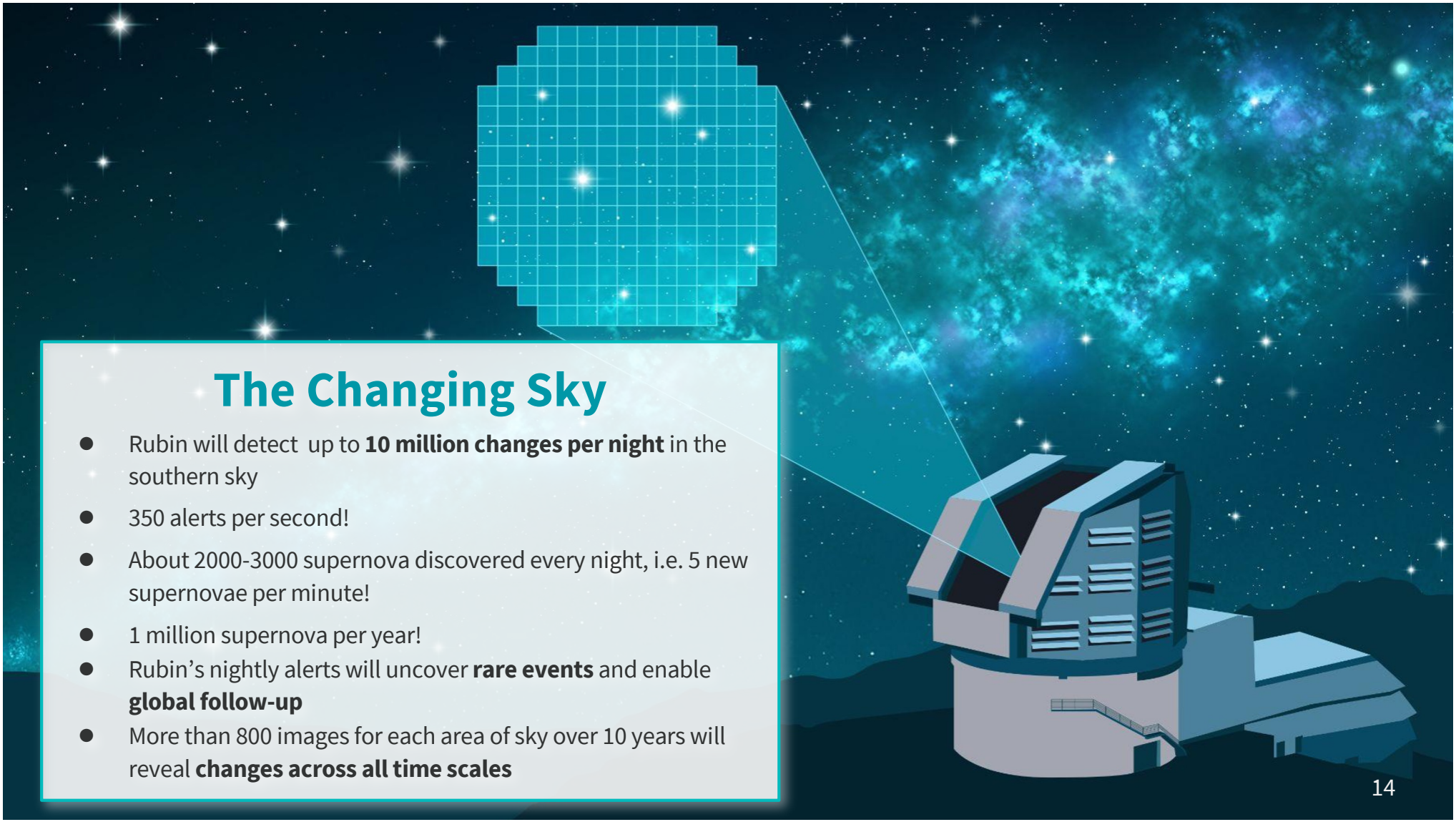
Rubin will bring the night sky to life, yielding a treasure trove of discoveries.

Bringing the Night Sky to Life

Rubin will be a **discovery machine,**
detecting a treasure trove of:

- asteroids and comets
- pulsating stars
- supernova explosions
- previously hidden stars and galaxies
- completely new things

10 years of data
to help scientists unravel
boundless mysteries



The Changing Sky

- Rubin will detect up to **10 million changes per night** in the southern sky
- 350 alerts per second!
- About 2000-3000 supernova discovered every night, i.e. 5 new supernovae per minute!
- 1 million supernova per year!
- Rubin's nightly alerts will uncover **rare events** and enable **global follow-up**
- More than 800 images for each area of sky over 10 years will reveal **changes across all time scales**

A Key Follow-up Facility

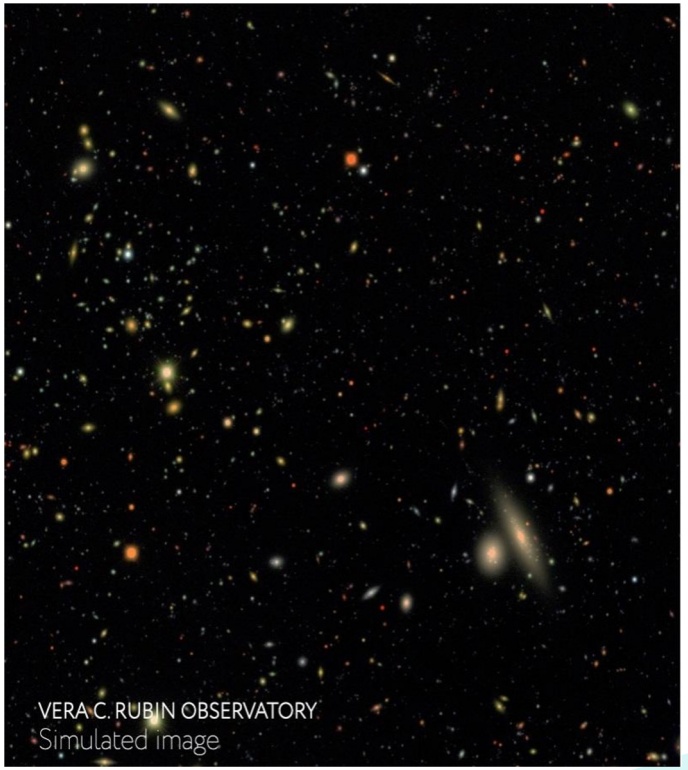
- Rubin will also operate in "**Target of Opportunity**" mode
- It will be **the** best facility in the world for follow-up of **high-energy neutrino and gravitational wave events**

Uncovering the Unexpected

Rubin will **reveal new mysteries** and lead to **questions we haven't thought to ask**

- Unknown classes of objects
- New transients
- Phenomena that challenge existing theories
- …and more!

Every time we look at the Universe in a new way, we make discoveries we never could have predicted. And **now we will see more than we ever have before**



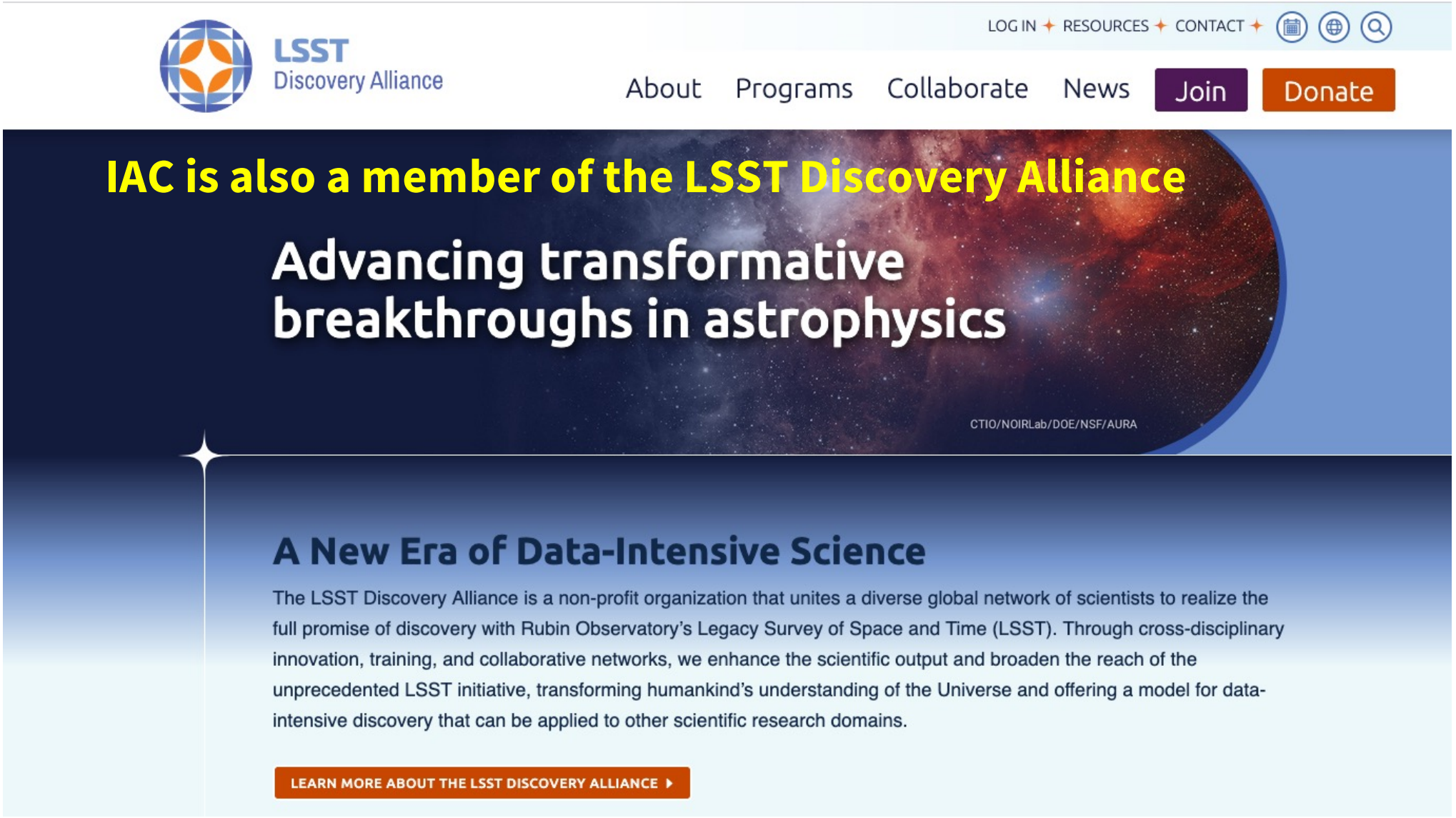
Processing: LSST DESC; Image: J. Chiang/SLAC, C. Hirata/Ohio State University and NASA's Goddard Space Flight Center

IAC’s interest in LSST

- Strategic interest: increased collaboration with US community and involvement in world-leading projects

- Wide-ranging scientific interest

  - LSB science – deep imaging of galaxy outskirts, dwarfs, and ICL (Johan Knapen, IgnacioTrujillo)
  - Milky Way and Local Group (Carme Gallart)
  - Stellar magnetic activity cycles (Savita Mathur)
  - High-energy phenomena (Josefa Becerra)
  - Galaxy clusters & cosmology (Helmut Dannerbauer)
  - Substellar science (Nicolas Lodieu)
  - Small bodies in Solar system (Javier Licandro)
  - Transients (Ismael Pérez-Fournon)


LSST
Discovery Alliance
LOG IN ✦ RESOURCES ✦ CONTACT ✦
About
Programs
Collaborate
News
Join
Donate
IAC is also a member of the LSST Discovery Alliance
Advancing transformative breakthroughs in astrophysics
CTIO/NOIRLab/DOE/NSF/AURA
A New Era of Data-Intensive Science
The LSST Discovery Alliance is a non-profit organization that unites a diverse global network of scientists to realize the full promise of discovery with Rubin Observatory's Legacy Survey of Space and Time (LSST). Through cross-disciplinary innovation, training, and collaborative networks, we enhance the scientific output and broaden the reach of the unprecedented LSST initiative, transforming humankind's understanding of the Universe and offering a model for data-intensive discovery that can be applied to other scientific research domains.
LEARN MORE ABOUT THE LSST DISCOVERY ALLIANCE ▸

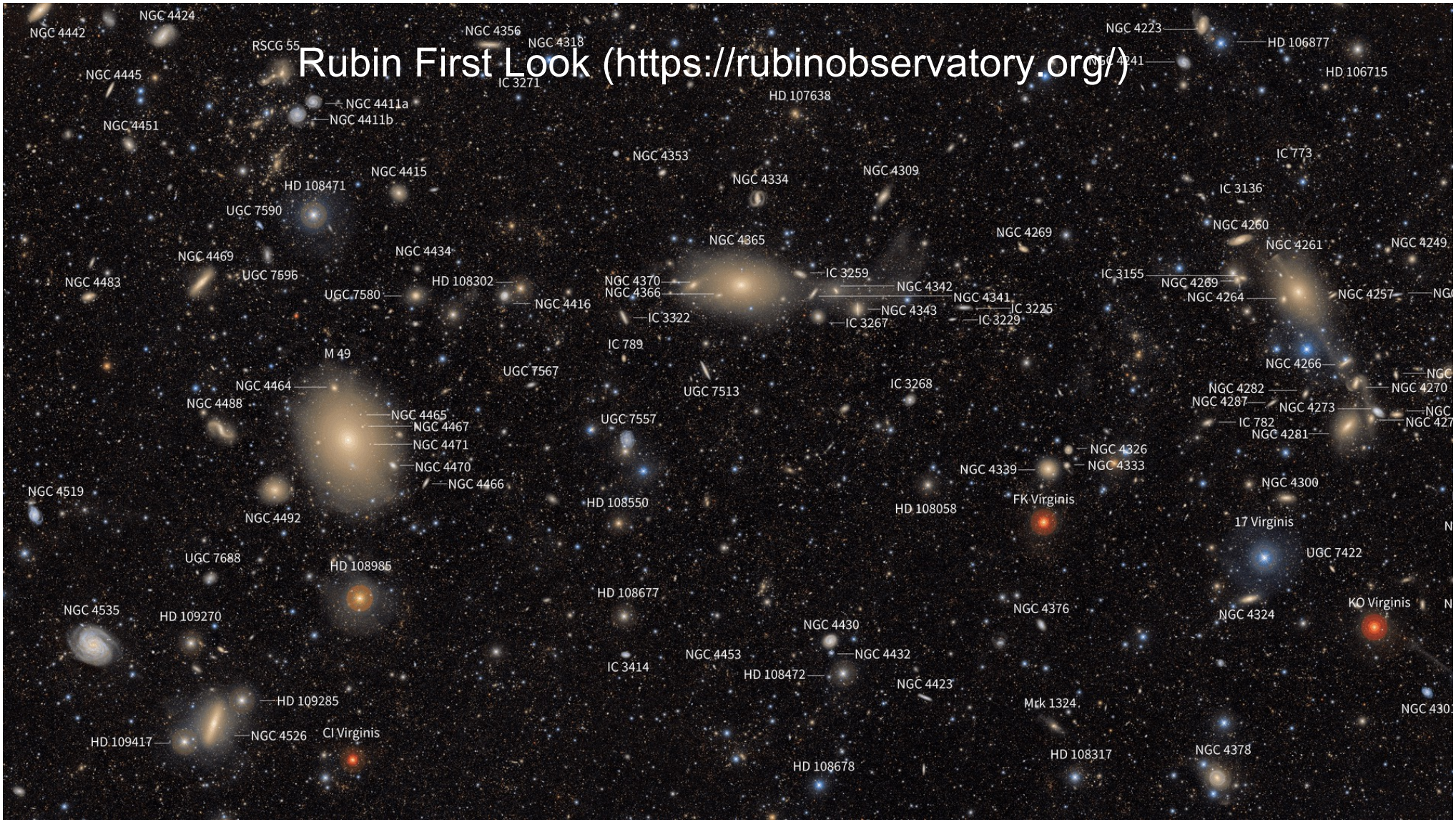
Commissioning, First Look, Science Validation and Early Observations, ….

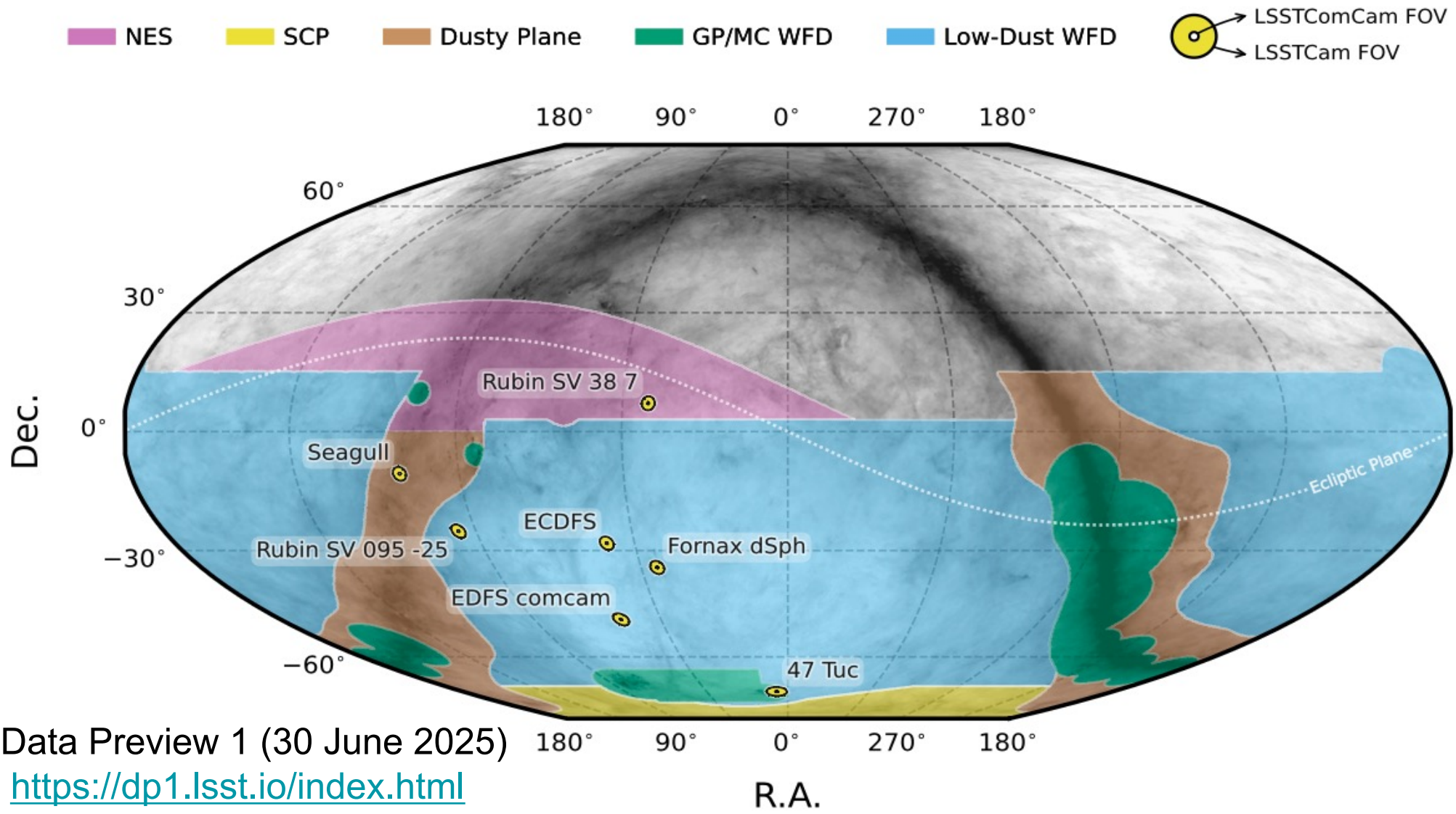
- ComCam commissioning in late 2024
- LSSTCam commissioning started in March 2025
- Rubin First Look events, 23 June 2025
- Data Preview 1, 30 June 2025
- Science Validation, Summer 2025
- Early Observations, after November 2025
- **First public alerts: 24 February 2026**
- **LSST 10-year survey will start soon**

Instalan exitosamente la cámara digital más grande del mundo en el Observatorio Rubin

12 de marzo de 2025

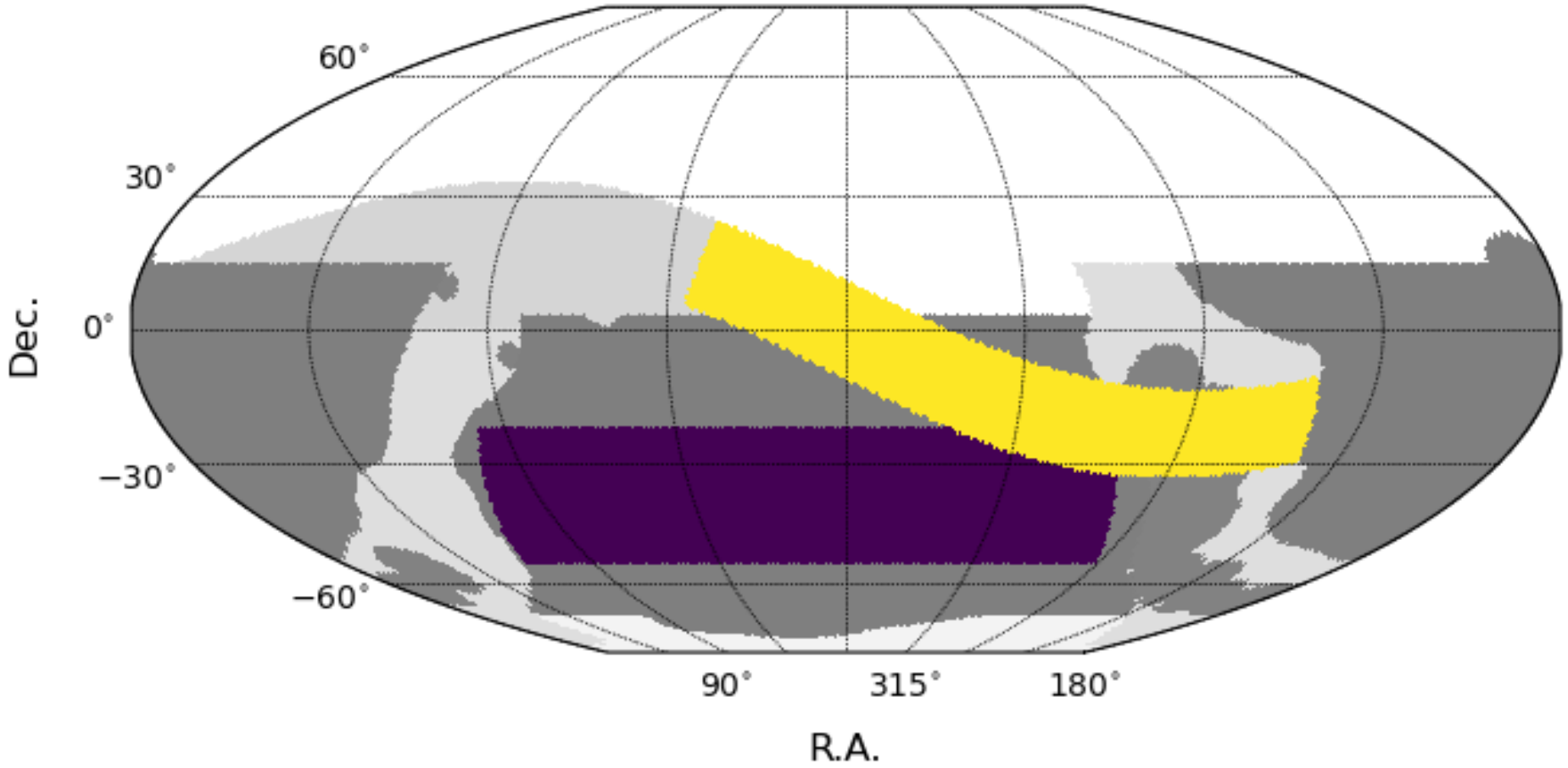
Multimedia


Rubin First Look (https://rubinobservatory.org/)
NGC 4424
NGC 4442
NGC 4356
NGC 4318
RSCG 55
NGC 4223
HD 106877
NGC 4241
HD 106715
NGC 4445
IC 3271
HD 107638
NGC 4411a
NGC 4411b
NGC 4451
NGC 4353
IC 773
NGC 4415
NGC 4309
NGC 4334
HD 108471
IC 3136
UGC 7590
NGC 4260
NGC 4269
NGC 4365
NGC 4261
NGC 4249
NGC 4469
NGC 4434
IC 3259
IC 3155
NGC 4483
UGC 7596
HD 108302
NGC 4370
NGC 4342
NGC 4269
NGC 4366
NGC 4341
NGC 4264
NGC 4257
UGC 7580
NGC 4416
NGC 4343
IC 3225
IC 3322
IC 3267
IC 3229
IC 789
M 49
NGC 4266
UGC 7567
NGC 4464
IC 3268
NGC 4282
NGC 4270
UGC 7513
NGC 4488
NGC 4287
NGC 4273
NGC 4465
UGC 7557
IC 782
NGC 4467
NGC 4281
NGC 4471
NGC 4326
NGC 4339
NGC 4333
NGC 4470
NGC 4519
NGC 4466
NGC 4300
HD 108550
HD 108058
FK Virginis
NGC 4492
17 Virginis
UGC 7688
UGC 7422
HD 108985
HD 108677
NGC 4535
NGC 4376
KO Virginis
HD 109270
NGC 4324
NGC 4430
NGC 4453
NGC 4432
IC 3414
HD 108472
NGC 4423
HD 109285
Mrk 1324
HD 109417
NGC 4526
CI Virginis
HD 108317
NGC 4378
HD 108678

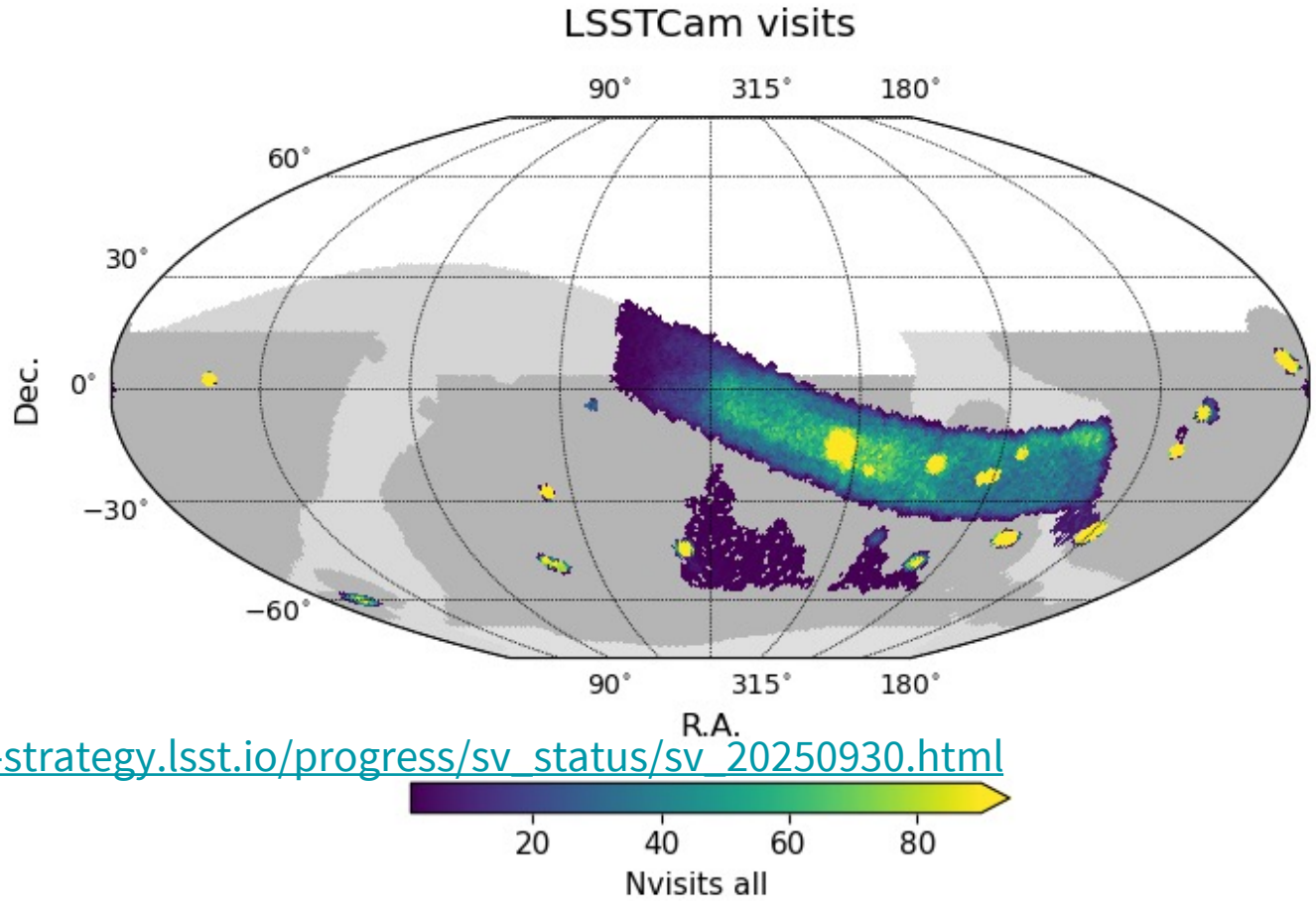


Data Preview 1 (30 June 2025)
https://dp1.lsst.io/index.html

Science Validation Survey, original plan



Science Validation Survey
(data will be released in DP2)



https://survey-strategy.lsst.io/progress/sv_status/sv_20250930.html

Rubin Early Science Observations (not yet LSST)

- After November 2025
- See the **Vera C. Rubin Observatory Scheduler Reports**

https://s3df.slac.stanford.edu/data/rubin/sim-data/schedview/reports/

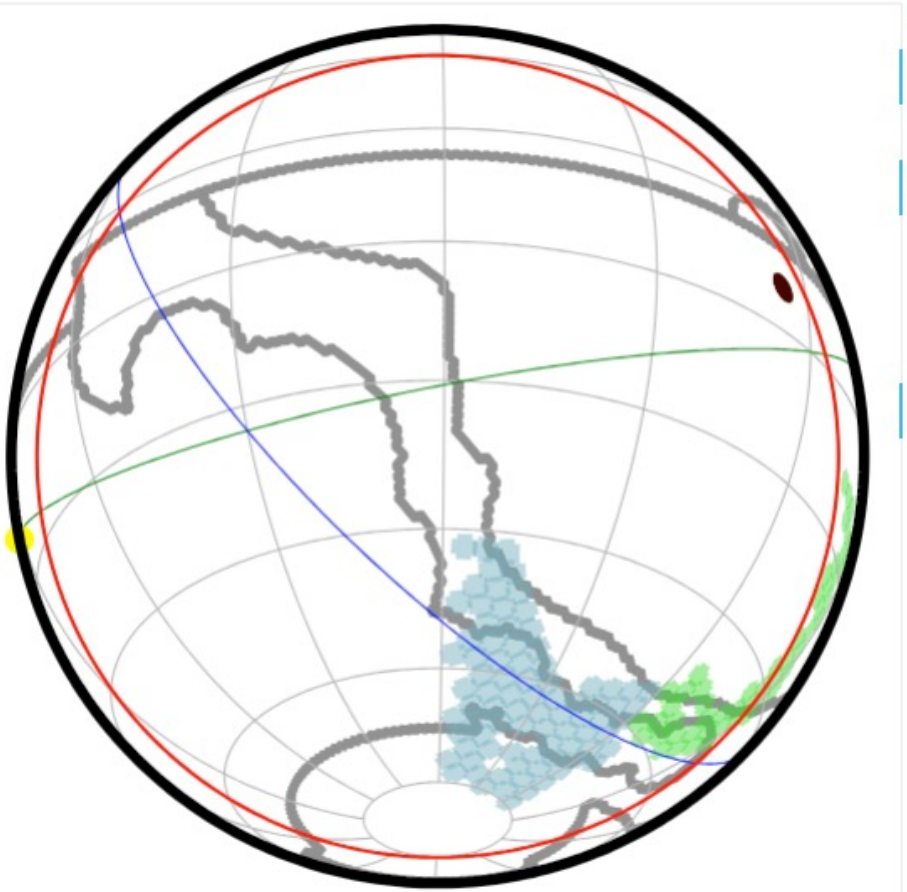
A few nights in February 2026:

night	instrument	
2026-02-22	lsstcam	nightsum
2026-02-21	lsstcam	nightsum
2026-02-20	lsstcam	nightsum

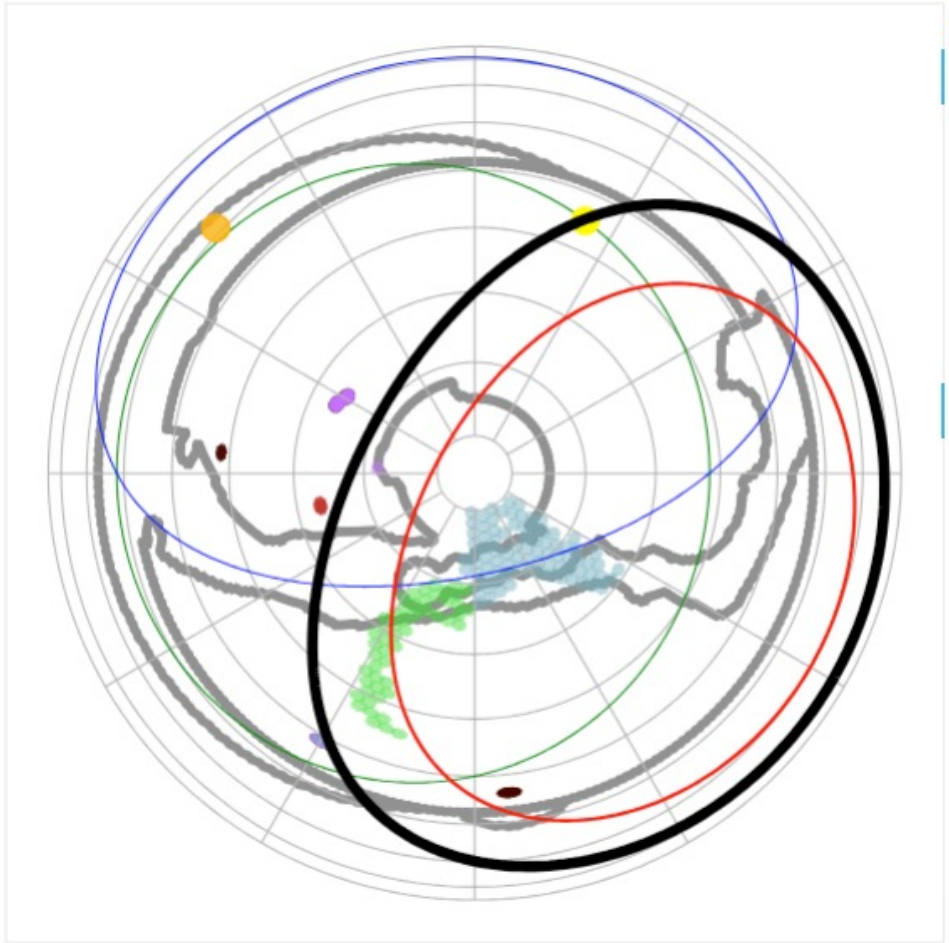
Visit map

22 February 2026

Orthographic projection



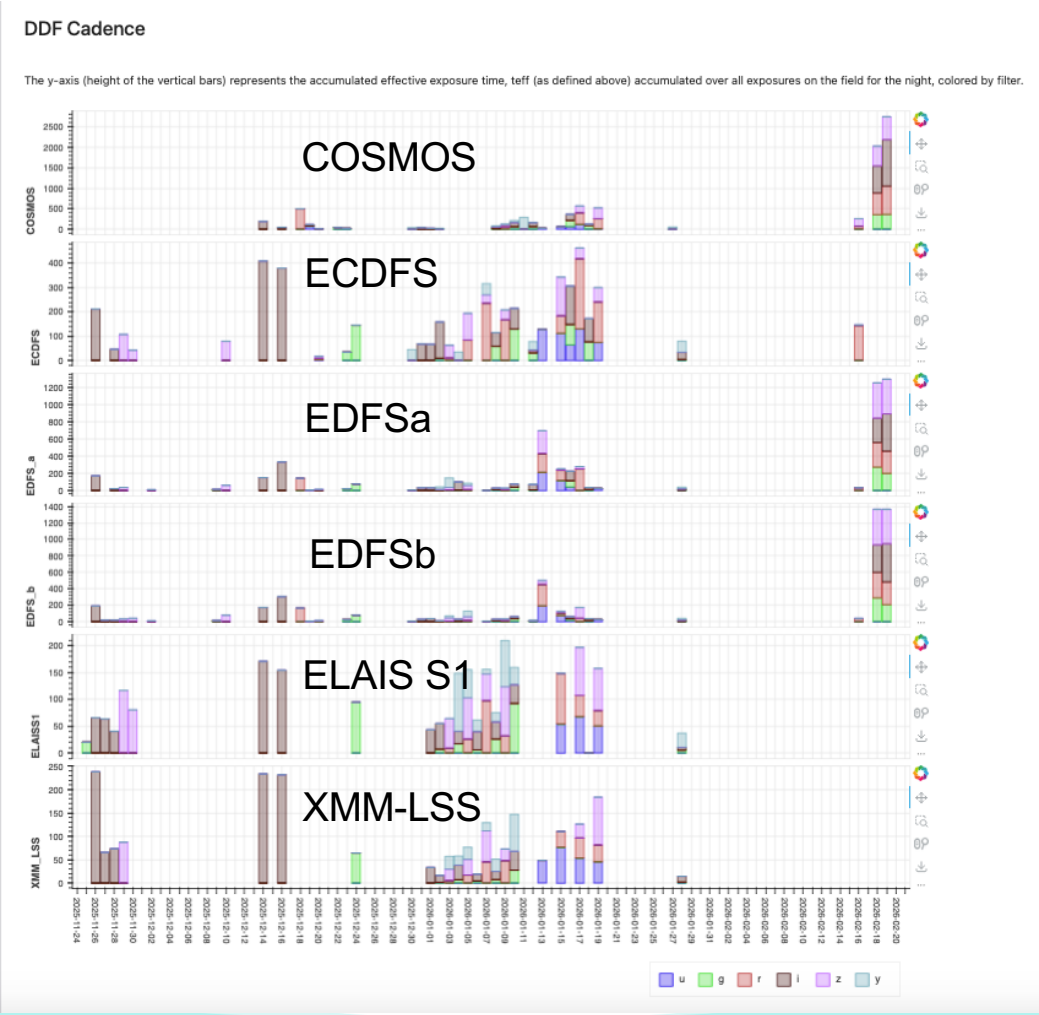
Lambert azimuthal equal-area projection



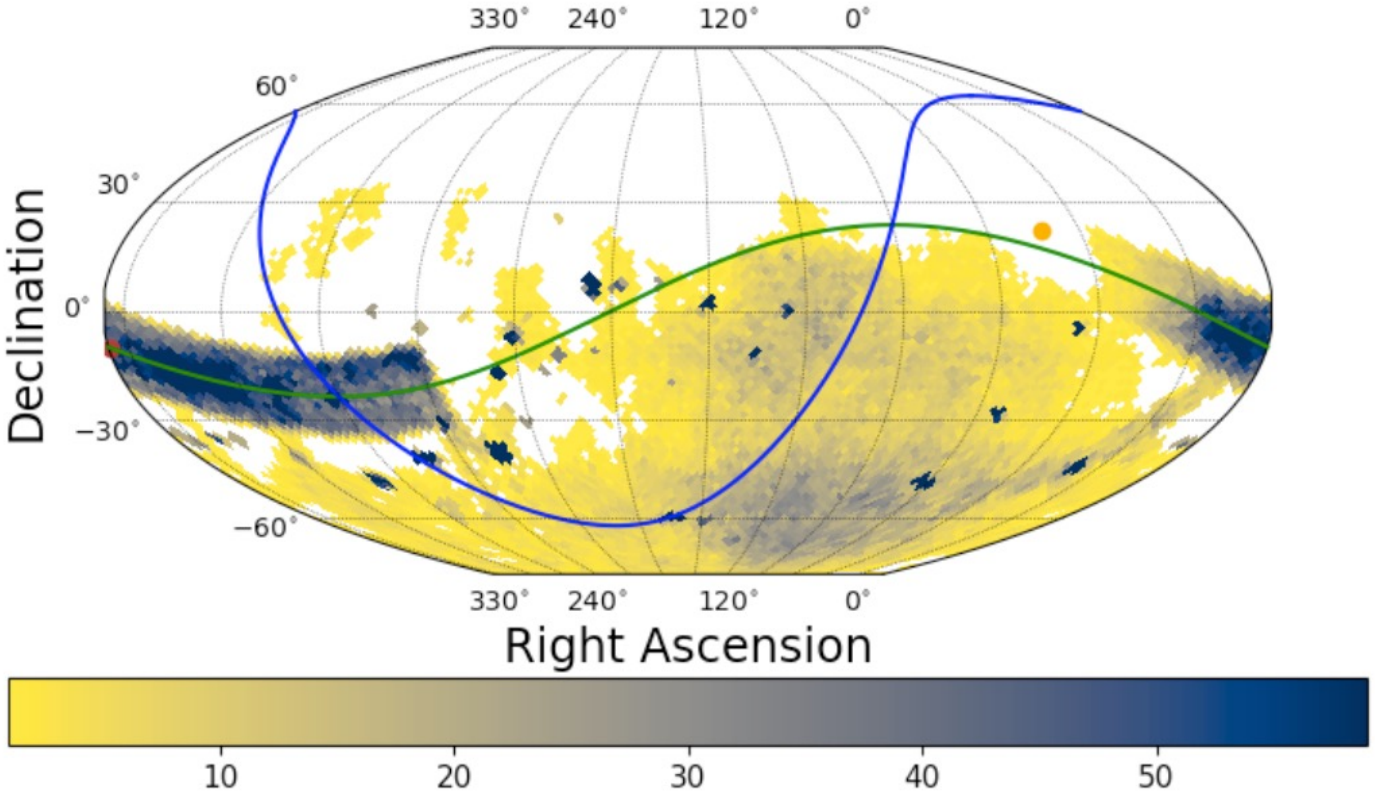
Observations of the Deep Drilling Fields (> Nov. 2025)

Observations of the Deep Drilling Fields

First alerts are located in DDF fields



Accumulated number of visits (22 February 2026)



LSST Wide Fast Deep (WFD) depth

The 5-sigma point source depths (AB mag) for single exposures and for coadded images idealized for stationary sources after 10 years (Bianco et al. 2022) are:

	single exposure	10-years coadd
u:	23.9	26.1
g:	25.0	27.4
r:	24.7	27.5
i:	24.0	26.8
z:	23.3	26.1
y:	22.1	24.9

Rubin alerts and brokers

Alert stream

- The alert packets are individual ascii files containing measurements associated with the detection of a time-variable source in a difference-image and small images, cutouts of 30 x 30 pixels = 6” x 6” (science, reference, and difference)

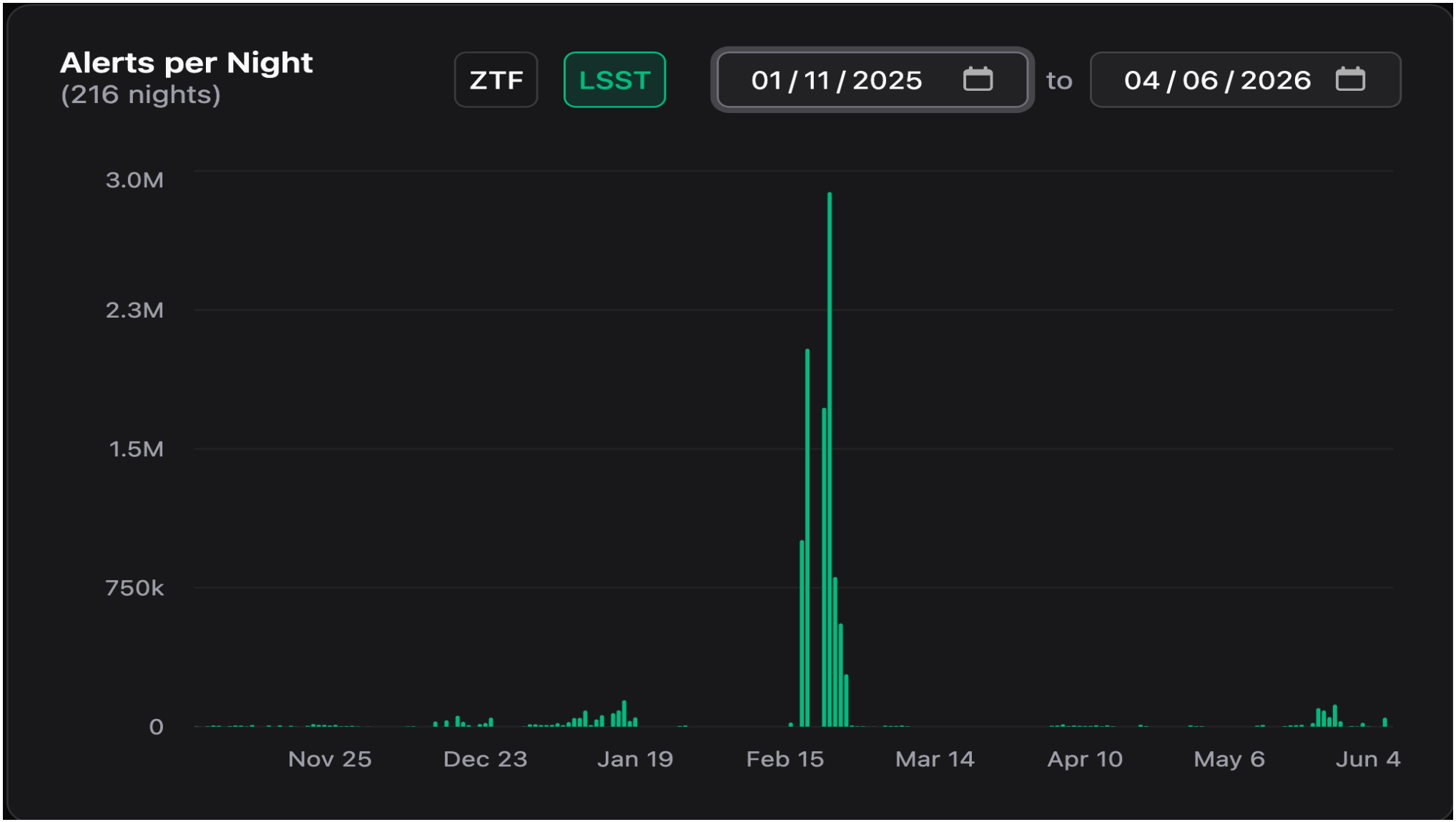
- **Alert packet contents are world public and have no proprietary period.**

Alert brokers

- Software systems that ingest and process astronomical alerts from the LSST and other surveys, and serve them to the scientific community.

LSST brokers

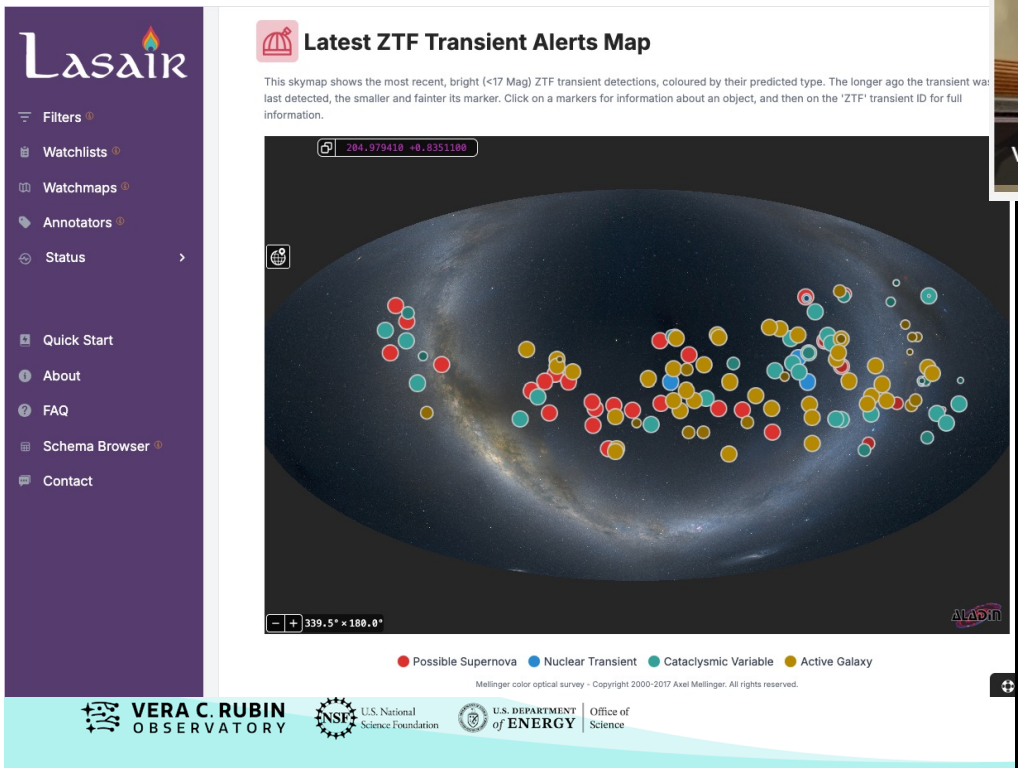
- ALeRCE: Automatic Learning for the Rapid Classification of Events
- AMPEL: Alert Management, Photometry, and Evaluation of Light Curves
- ANTARES: Arizona-NOIRLab Temporal Analysis and Response to Events System
- Babamul: an open-source, lightweight, easily deployable broker
- Fink: a personalizable community-driven broker for Rubin
- Lasair: build your own filter with SQL, crossmatch, and lightcurve features
- Pitt-Google: a scalable, cloud-based alert distribution service
- SNAPS: Solar System Notification Alert Processing System
- POI Broker: a broker for analyzing variable star alerts

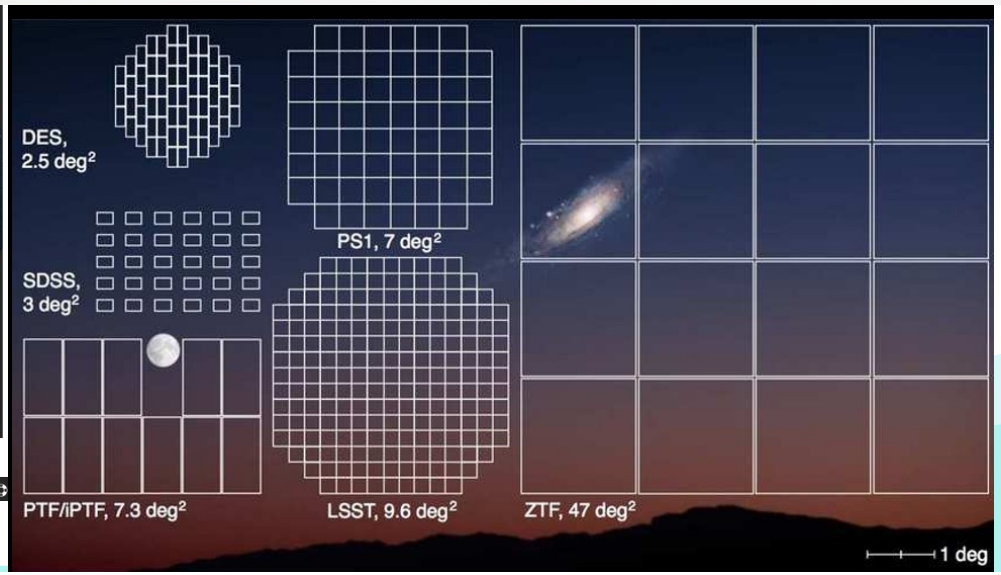

Alerts per Night
(216 nights)
ZTF
LSST
01 / 11 / 2025
to
04 / 06 / 2026
3.0M
2.3M
1.5M
750k
0
Nov 25
Dec 23
Jan 19
Feb 15
Mar 14
Apr 10
May 6
Jun 4

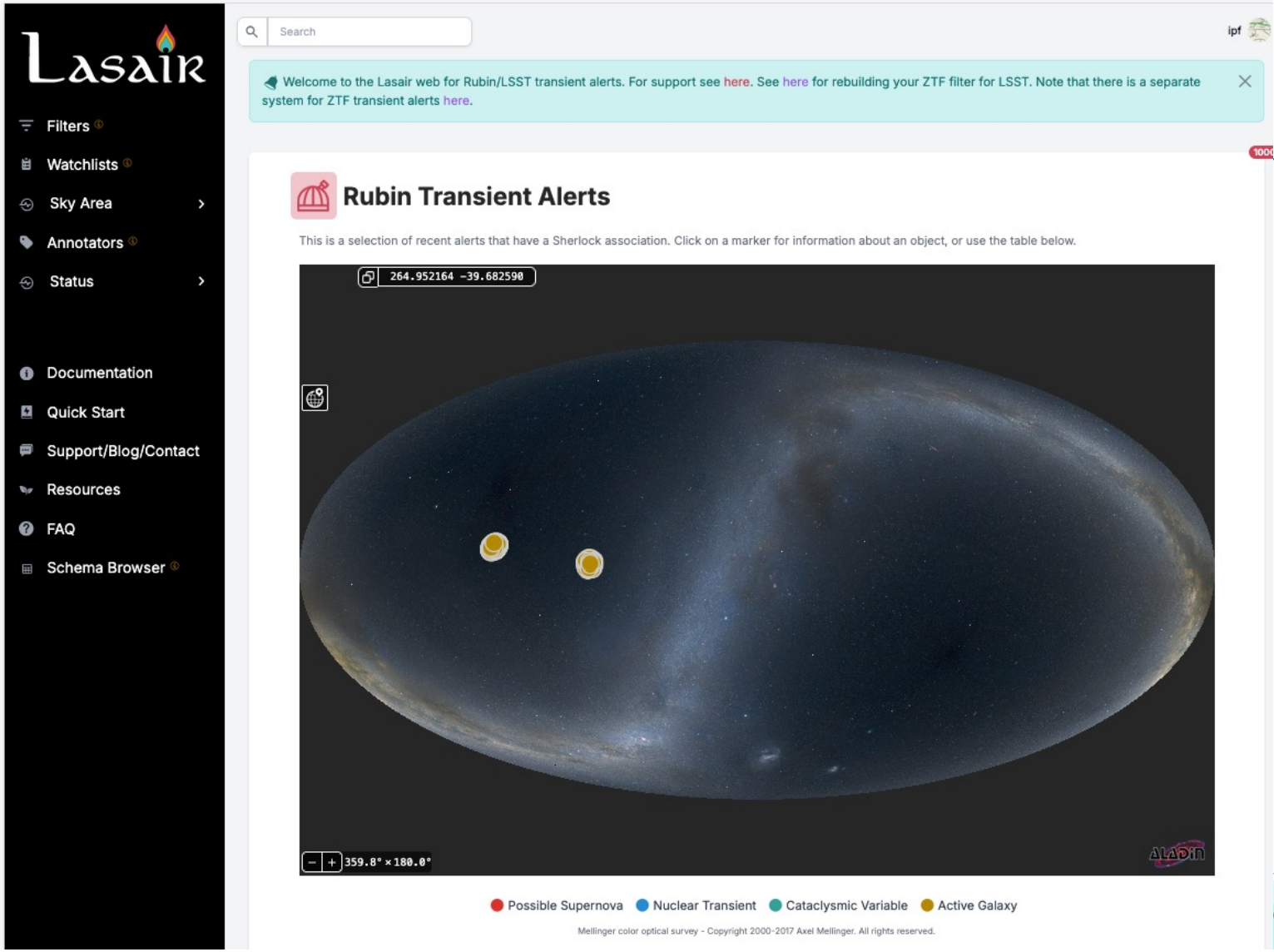
Lasair is one of the brokers
of the Zwicky Transient Facility (ZTF)

Palomar Observatory
P48 telescope and ZTF camera

https://lasair-ztf.lsst.ac.uk/







Lasair is processing also the Rubin LSST alerts

Public Rubin alerts started on 24 February 2026

https://lasair.lsst.ac.uk/

Main tools of the Lasair broker

- Register to get your own account: easy, just your name and e-mail
- Use the Web form to learn about the LSST (or ZTF) transients and variable objects
- Use public filters or define your own ones
- Use public watchlists or create your own ones
- Use public sky areas or create your own ones
- Use annotators available in Lasair
- Create your own annotator
- Get warnings (by email or kafka) on new transients
- Learn about the schema of the database
- Learn to use the APIs and notebooks and create your own ones
- Lasair uses Sherlock for transients classification (AGN, SN, variable star, etc.)
- Very good documentation: https://lasair-lsst.readthedocs.io/en/main/

Example, the first LSST transient reported to the IAU Transient Name Server (TNS) using the public LSST alerts

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

AT 2026ehw

RA/DEC (2000)	Type	Redshift
09:58:34.253 +02:22:26.59	**---**	
149.642721 +2.374053		

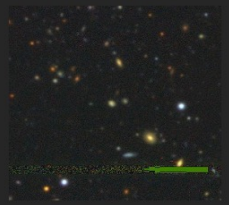
Discovery Report

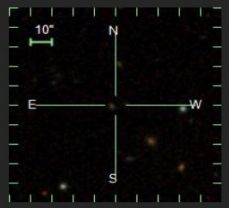
Reporting Group	Discovering Data Source	Discovery Date	TNS AT	Public
SGLF	**Rubin**	**2026-02-17 05:05:15.000**	**Y**	**Y**

Host Name	Host Redshift	Discovery Mag	Filter
SDSS J095834.35+022226.1	**0.4989**	**0.002943**	**r-LSST**

Reporter/s

I. Pérez-Fournon (IAC and ULL), D. Cano-Morales, I. Correa-Plasencia, A.E. Hernández-Díaz, E. Lekaroz-Urriza, M. Quintana-Ansaldo (ULL), F. Poidevin (IAC and ULL), C. Jiménez Ángel (GRANTECAN), R. Shirley (MPE), R. Marques-Chaves (Univ. of Geneva), and S. Geier (GRANTECAN & IAC) on behalf of SGLF

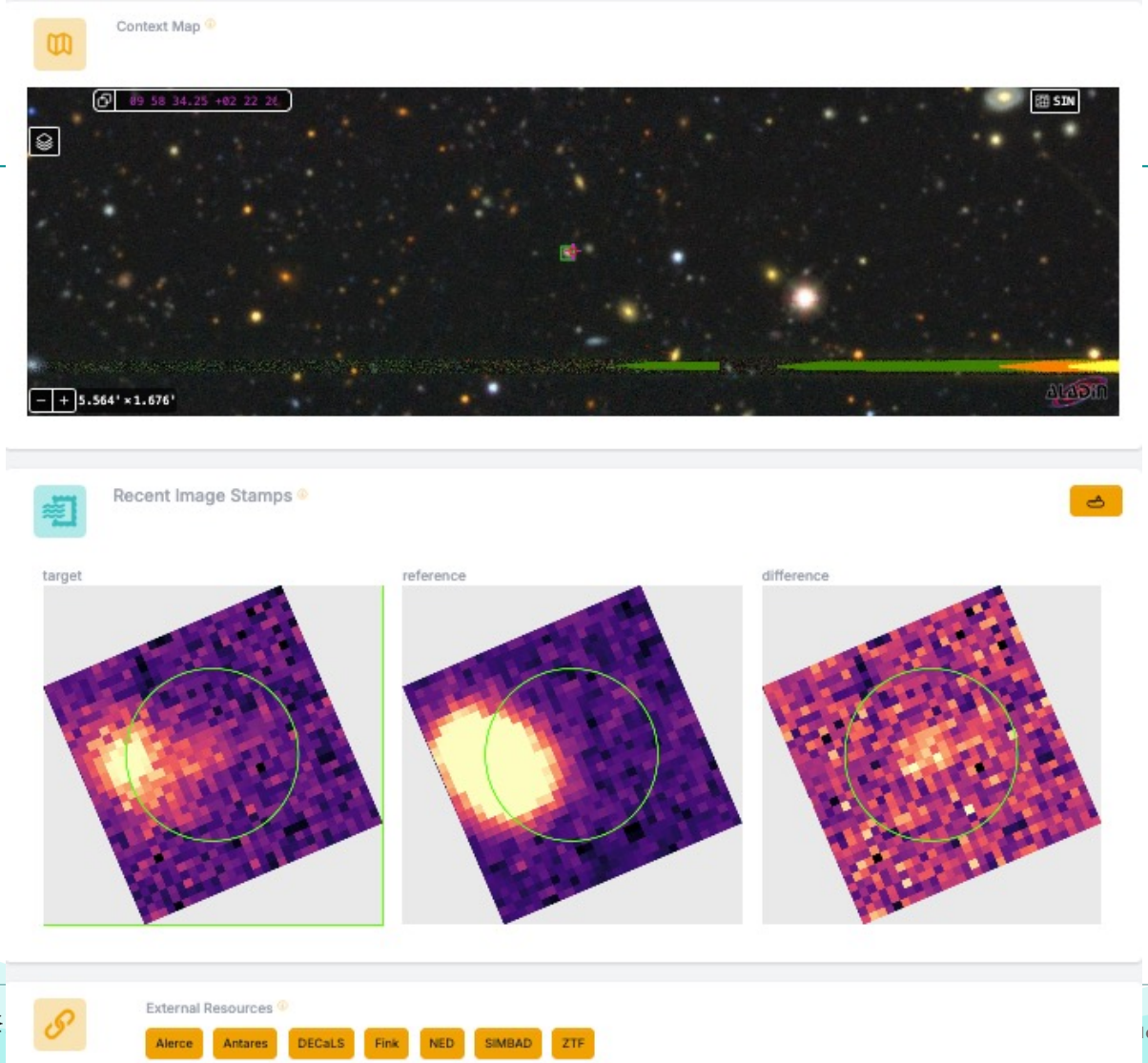




NED SIMBAD DECaLS

PanSTARRS-1 SkyMapper VizieR

WISE DSS ADS

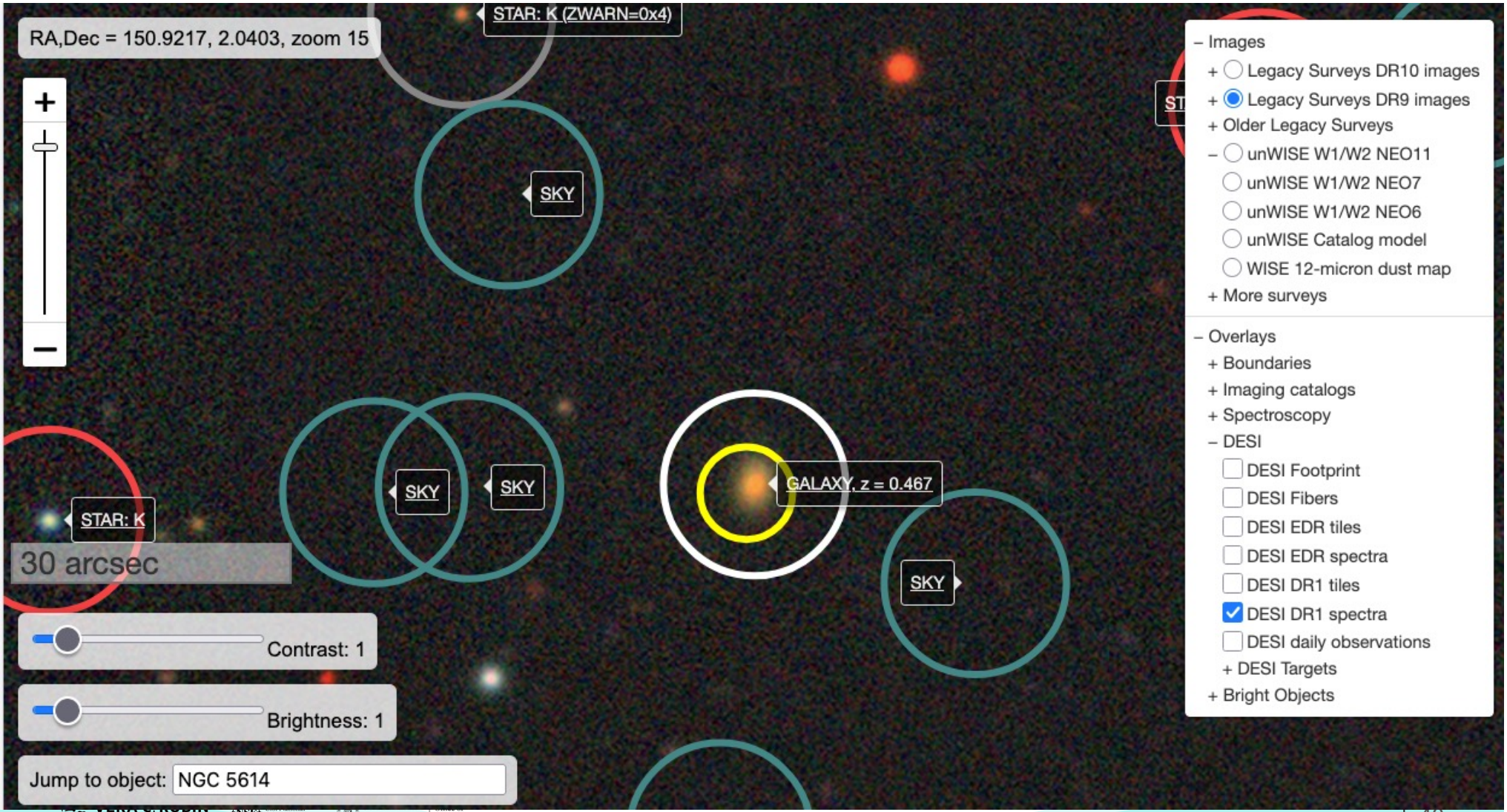

Context Map
SIN
5.564' × 1.676'
Recent Image Stamps
target
reference
difference
External Resources
Alerce
Antares
DECaLS
Fink
NED
SIMBAD
ZTF

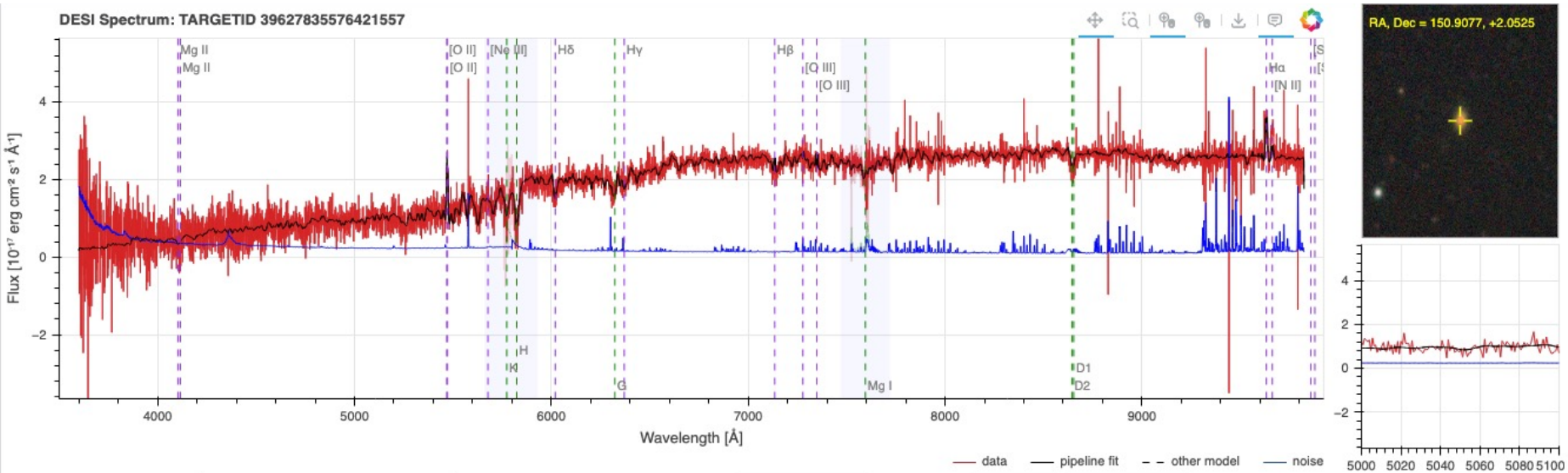
LSST Alert Packet Data

Export

Search table...

MJD	UTC	band	target diff flux	reliability	images	alert packet
61097.324396	2026-02-26 07:47:07	i	2998 ± 308	0.66	target ref diff	data
61097.320173	2026-02-26 07:41:02	i	2714 ± 308	0.52	target ref diff	data
61097.318628	2026-02-26 07:38:49	i	2594 ± 314	0.53	target ref diff	data
61097.318157	2026-02-26 07:38:08	i	2645 ± 301	0.55	target ref diff	data
61097.315723	2026-02-26 07:34:38	r	2517 ± 187	0.80	target ref diff	data
61097.315253	2026-02-26 07:33:57	r	2779 ± 181	0.92	target ref diff	data
61097.314781	2026-02-26 07:33:17	r	2448 ± 185	0.82	target ref diff	data
61097.314314	2026-02-26 07:32:36	r	2543 ± 177	0.84	target ref diff	data
61097.313844	2026-02-26 07:31:56	r	2486 ± 175	0.89	target ref diff	data
61097.313374	2026-02-26 07:31:15	r	2502 ± 175	0.88	target ref diff	data
61097.312903	2026-02-26 07:30:34	r	2266 ± 186	0.69	target ref diff	data
61097.311965	2026-02-26 07:29:13	r	2357 ± 185	0.85	target ref diff	data
61097.311497	2026-02-26 07:28:33	r	2295 ± 184	0.73	target ref diff	data
61097.310824	2026-02-26 07:27:35	r	2623 ± 169	0.87	target ref diff	data
61097.310356	2026-02-26 07:26:54	r	2393 ± 165	0.90	target ref diff	data


RA,Dec = 150.9217, 2.0403, zoom 15
STAR: K (ZWARN=0x4)
SKY
SKY
SKY
GALAXY, z = 0.467
SKY
STAR: K
30 arcsec
Contrast: 1
Brightness: 1
Jump to object: NGC 5614
– Images
+ Legacy Surveys DR10 images
+ Legacy Surveys DR9 images
+ Older Legacy Surveys
– unWISE W1/W2 NEO11
unWISE W1/W2 NEO7
unWISE W1/W2 NEO6
unWISE Catalog model
WISE 12-micron dust map
+ More surveys
– Overlays
+ Boundaries
+ Imaging catalogs
+ Spectroscopy
– DESI
DESI Footprint
DESI Fibers
DESI EDR tiles
DESI EDR spectra
DESI DR1 tiles
DESI DR1 spectra
DESI daily observations
+ DESI Targets
+ Bright Objects



TARGETID	COADD_NUMEXP	COADD_EXPTIME
39627835576421557	8	7955.62

Reset X-Y range | OII-zoom | Undo OII-zoom

< > Spectrum number (0 to 0): **0** 0

Gaussian Sigma Smooth: **0**

< Redshift rough tuning: **0.46** >

Redshift value: 0.4673

Redshift fine-tuning: **0.0073**

Reset to z_pipe

Pipeline fit:

Z	SPECTYPE	SUBTYPE	ZERR	ZWARN	Δχ2(N+1/N)
0.4673	GALAXY	0	0.0000	0	5947.2

Other model (dashed curve):

Best fit

Targeting masks

mag_G	mag_R	mag_Z	mag_W1
20.65	19.11	18.21	17.01

mag_W2	MORPHTYPE	COADD_NUMNIGHT	COADD_NUMTILE
17.16	SER	3	3

Emission lines | Absorption lines

Show only major lines

Camera-coadded | Single-arm

Obs | Rest

Lasair public filters (SQL code)

Public Gallery

Filters submitted to the public gallery by other Lasair users. You can view matches or copy individual filters into your own collection.

Search table...

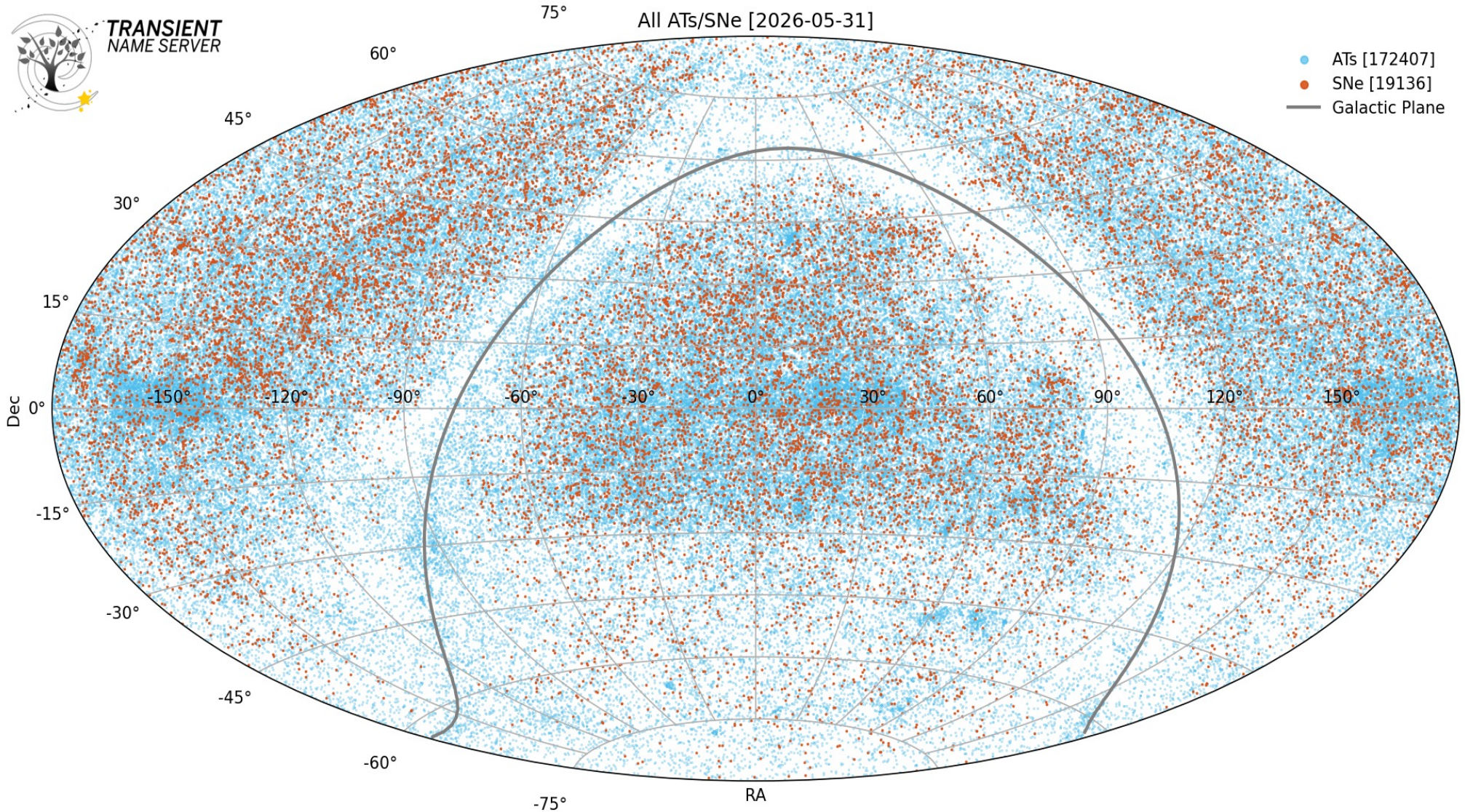
Name	Active	Owner	Description	Created
Single night transients	✓	Mike Brown	Positive transients that appear on a single night only with ... more	2026-02-26 15:24:44
Equatorial strip candidates	✓	Andrea Reguitti	Targets brighter than mag 19 and at dec>-10	2026-02-26 10:29:39
AT from TNS	✓	Andrea Reguitti	Getting AT from TNS, crossmatched with Lasair. Lasair keeps ... more	2026-02-25 15:17:18
SN Ia from TNS	✓	Andrea Reguitti	Getting SNe type Ia from TNS, crossmatched with Lasair. Lasa ... more	2026-02-25 13:10:02
Slow Nuclear transients	✓	Phil Wiseman	Based on the r0b_lvra filter, designed for slow nuclear tran ... more	2026-02-25 11:31:53
Gaia Jump Stars	✓	James Davenport	Well sampled stars from the deep drilling fields, with cross ... more	2026-02-25 03:06:22
Supernovae near (but not in core of) galaxies		Michael Wood-Vasey	Find supernova near known galaxies with a prejudice against ... more	2026-02-25 01:26:11
Gaia Alert Stars	✓	James Davenport	A detailed description of your filter.	2026-02-24 22:51:55
Gaia DDF Stars	✓	James Davenport	Variable Gaia stars observed in the Rubin Deep Drilling Fiel ... more	2026-02-24 22:25:42
GC SNe		James Davenport	Supernovae going off near globular clusters	2026-02-24 21:50:02
ExtraGalactic_NewsLetter_lvra	✓	Heloise Stevance	(IN DEV!) Extra-Galactic Transient candidates received in th ... more	2026-02-24 15:41:12
lasair_tutorial_mega_stream	✓	Heloise Stevance	This filter is used in the Lasair Github tutorials to demons ... more	2026-02-24 09:26:07

Watchlists

- Create a table of your favourite objects and combine it with a filter to check for flux changes
- You can use your own watchlists or public ones
- Just a table with RA, Dec, radius, and object name

The Time-Domain And Multi-Messenger Astrophysics (TDAMM) ecosystem, some tools

- IAU Transient Name Server (TNS) and AstroNotes
- NASA General Coordinates Network (GCN)
- The Astronomer's Telegram
- AstroCOLIBRI
- …..


TRANSIENT
NAME SERVER
All ATs/SNe [2026-05-31]
ATs [172407]
SNe [19136]
Galactic Plane
75°
60°
45°
30°
15°
0°
-15°
-30°
-45°
-60°
-75°
Dec
-150°
-120°
-90°
-60°
-30°
0°
30°
60°
90°
120°
150°
RA

The General Coordinates Network (GCN) is a public collaboration platform run by NASA for the astronomy research community to share alerts and rapid communications about high-energy, multimessenger, and transient phenomena. For more information, see What is GCN? or check out our slide deck

General Coordinates Network MENU

New! BOOM Notices and Schema v7.0.0. See news and announcements

GCN Circulars

GCN Circulars are rapid astronomical bulletins submitted by and distributed to community members worldwide. They are used to share discoveries, observations, quantitative near-term predictions, requests for follow-up observations, or future observing plans related to high-energy, multi-messenger, and variable or transient astrophysical events. See the documentation for help with subscribing to or submitting Circulars.

Search | Circulars | Events | New | Filter by date

Search for Circulars by submitter, subject, or body text (e.g. 'Fermi GRB').

To navigate to a specific circular, enter the associated Circular ID (e.g. 'gcn123', 'Circular 123', or '123').

▶ Advanced Search

44821. GRB 260515A: SVOM/VT optical detection at about 18 days post trigger
44820. GRB 260603A: NOT optical observations
44819. GRB 260603A: Simeiz Zeiss-1000 optical upper limit
44818. GRB 260604B: Fermi GBM Final Real-time Localization
44817. GRB 260601A: CALET Gamma-Ray Burst Monitor detection
44816. EP260602a: EP-FXT follow-up observation
44815. EP260603a: Global MASTER-Net observations report
44814. EP260603a: Einstein Probe detection of a fast X-ray transient

GCN Circulars

GCN Circulars are rapid astronomical bulletins submitted by and distributed to community members worldwide. They are used to share discoveries, observations, quantitative near-term predictions, requests for follow-up observations, or future observing plans related to high-energy, multi-messenger, and variable or transient astrophysical events. See the documentation for help with subscribing to or submitting Circulars.

251002A | Circulars | Events | New | Filter by date | Sort by Date

Search for Circulars by submitter, subject, or body text (e.g. 'Fermi GRB').
To navigate to a specific circular, enter the associated Circular ID (e.g. 'gcn123', 'Circular 123', or '123').
► Advanced Search

28 results found.

42173. GRB 251002A - SVOM/ECLAIRs refined analysis
42125. GRB 251002A: LAST optical observations
42110. GRB 251002A: Mondy/AZT-33IK optical observations
42109. GRB 251002A: Insight-HXMT detection
42108. GRB 251002A: Insight-HXMT detection
42105. GRB 251002A: NIR observations with WINTER
42101. GRB 251002A: Calapai Observatory, Massa S. Giorgio (Messina), optical observation.
42099. GRB 251002A: Swift/UVOT detection
42093. GRB 251002A: Fermi GBM Observation
42091. GRB 251002A: GOTO detection of optical counterpart
42087. GRB 251002A: AKO Early Optical Afterglow Detection
42084. GRB 251002A: Swift-XRT afterglow detection
42082. GRB 251002A: Kilonova-Catcher optical afterglow detection
42081. GRB 251002A: AbAO optical observations
42080. GRB 251002A: SVOM/COLIBRÍ (FM-GFT) optical observations
42078. GRB 251002A: J band observations by SYSU 80cm infrared telescope
42077. GRB 251002A: OHP/T193 MISTRAL optical afterglow detection
42076. GRB 251002A: VLT/X-shooter spectroscopic redshift z = 2.178
42075. GRB 251002A: EP-FXT counterpart detection
42067. Fermi/SVOM GRB 251002A : MASTER OT earlier detection in 2 polarization filters
42066. GRB 251002A: BOOTES-6 early optical detection
42065. GRB 251002A: SAO RAS optical observations
42064. GRB 251002A: ULL-ASTRO-MASTER early detection of the optical afterglow with the LCO 40-cm telescope at Sutherland Observatory
42063. GRB 251002A: FRAM-ORM afterglow detection
42062. GRB 251002A: LCO optical observation
42061. GRB 251002A: SVOM/VT optical observation
42060. GRB 251002A: SVOM detection of a burst
42059. Fermi GRB 251002A: Global MASTER-Net observations report

100 / page

New! BOOM Notices and Schema v7.0.0. See news and announcements

GCN Notices

GCN Notices are real-time, machine-readable alerts that are submitted by participating facilities and redistributed publicly. See the documentation for help with consuming, producing, or archiving of Notices.

Filter by tag

LIGO/Virgo/KAGRA

Gravitational-wave transients detected by the LIGO, Virgo, and KAGRA network.

GW

IceCube

High-energy astrophysical neutrino event candidates detected by IceCube, aggregated by AMON.

NU

HAWC

High-energy gamma rays detected by HAWC, aggregated by AMON.

GAMMA

IceCube–HAWC Coincidences

Coincidences between IceCube neutrino and HAWC gamma-ray events, aggregated by AMON.

GAMMA NU

IceCube Cascades

High-energy cascades detected by IceCube, aggregated by AMON.

NU

CALET

Gamma-ray transients detected by the GBM instrument on CALET.

GAMMA

MAXI

X-ray transients detected by the MAXI instrument on the ISS.

X-RAY

Fermi GRBs

GRBs detected by the GBM and LAT instruments on Fermi.

GAMMA

Fermi GBM Sub-Threshold

Sub-threshold triggers detected by the GBM instrument on Fermi.

GAMMA

ATel On

Patreon
Mastodon
X

The Astronomer's Telegram

Post | Search | Policies
Credential | Feeds | Email

4 Jun 2026; 20:23 UT

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Combine With:
(Show All) AND OR

- Radio
- Millimeter
- Sub-Millimeter
- Far-Infra-Red
- Infra-Red
- Optical

Telegram Index

Telegrams Posted Within the Last 30 Days (All)

58 Selected of 17832 Telegrams

17832 **Erratum to ATEL #17831: Determination of the rotation period of Comet 10P (Tempel)**
Federico Manzini, David Augustin, Raoul Behrend, Costantino Sigismondi, Virginio Oldani, Alessandra...
4 Jun 2026; 19:29 UT

17831 **A descriptive title**
Federico Manzini, David Augustin, Raoul Behrend, Costantino Sigismondi, Virginio Oldani, Alessandra...
4 Jun 2026; 18:10 UT

17830 **ALMA and MeerKAT detection of radio rebrightening of SN 2007it**
A. Nucara, Z. J. Smeaton, A. Simongini, M. Arias, on behalf of the RISE collaboration

Recently

17832 **Erratum to ATEL #17831: Determination of the rotation period of Comet 10P (Tempel)**
Federico Manzini ...

17831 **A descriptive title**
Federico Manzini ...

Most Viewed

17829 **Large Apparent Outburst of Comet 220P/McNaught**
Michael S. P. Kelley ...

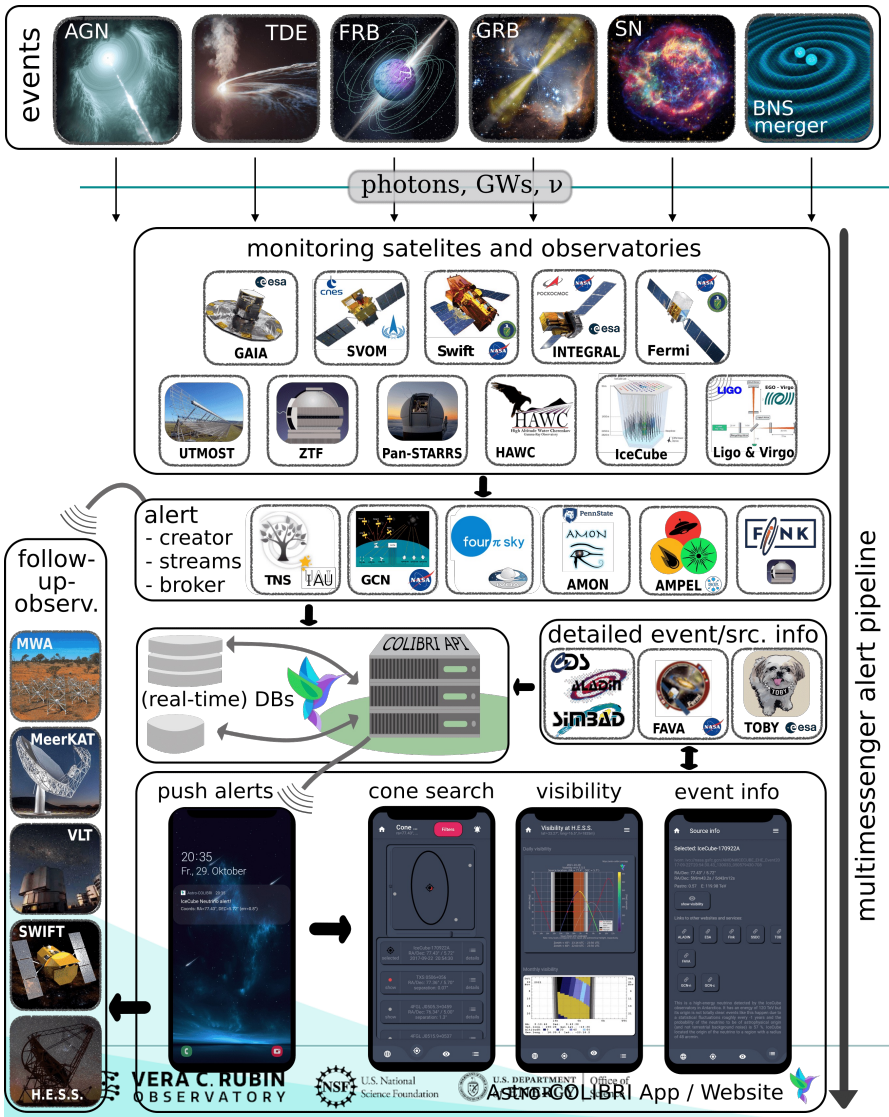
17830 **ALMA and MeerKAT detection of radio rebrightening of SN 2007it**
A. Nucara ...

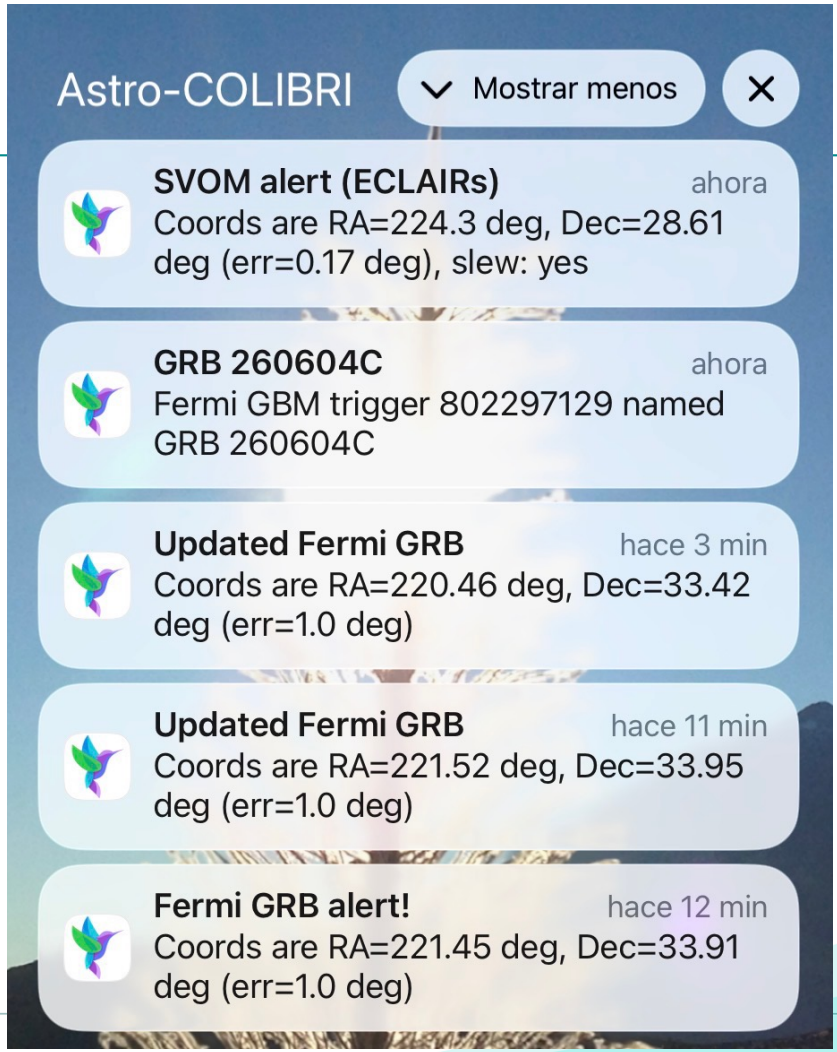
17831 **A descriptive title**
Federico Manzini ...

Fast Radio Burst

17822 **A dim host galaxy for FRB 20251229A: a FRB 20121102A host twin?**
Luciano Nicastro ...

17800 **FAST discovery of an FRB in the POP survey**


events
AGN
TDE
FRB
GRB
SN
BNS merger
photons, GWs, ν
monitoring satelites and observatories
GAIA
SVOM
Swift
INTEGRAL
Fermi
UTMOST
ZTF
Pan-STARRS
HAWC
IceCube
Ligo & Virgo
alert
- creator
- streams
- broker
TNS
IAU
GCN
four π sky
AMON
AMPEL
FINK
follow-up-observ.
MWA
MeerKAT
VLT
SWIFT
H.E.S.S.
(real-time) DBs
COLIBRI API
detailed event/src. info
SIMBAD
FAVA
TOBY
push alerts
cone search
visibility
event info
multimessenger alert pipeline
Astro-COLIBRI App / Website


Astro-COLIBRI
Mostrar menos
SVOM alert (ECLAIRs)
ahora
Coords are RA=224.3 deg, Dec=28.61 deg (err=0.17 deg), slew: yes
GRB 260604C
ahora
Fermi GBM trigger 802297129 named GRB 260604C
Updated Fermi GRB
hace 3 min
Coords are RA=220.46 deg, Dec=33.42 deg (err=1.0 deg)
Updated Fermi GRB
hace 11 min
Coords are RA=221.52 deg, Dec=33.95 deg (err=1.0 deg)
Fermi GRB alert!
hace 12 min
Coords are RA=221.45 deg, Dec=33.91 deg (err=1.0 deg)

Some links

- Rubin Community Forum
https://community.lsst.org/
- Rubin First Look
https://rubinobservatory.org/
- Early Science Program
https://rubinobservatory.org/for-scientists/resources/early-science
- Rubin alerts and brokers
https://rubinobservatory.org/for-scientists/data-products/alerts-and-brokers
- Rubin In-kind program
https://www.lsst.org/scientists/in-kind-program
- Vera C. Rubin Observatory Scheduler Reports
https://s3df.slac.stanford.edu/data/rubin/sim-data/schedview/reports/
- LSST Wide Fast Deep (WFD) Survey
https://survey-strategy.lsst.io/baseline/wfd.html
- LSST Deep Drilling Fields (DDF)
https://survey-strategy.lsst.io/baseline/ddf.html
- LSST Target of Opportunity (ToO)
https://survey-strategy.lsst.io/baseline/too.html
- Rubin key numbers
https://rubinobservatory.org/for-scientists/rubin-101/key-numbers
- Legacy Survey of Space and Time (LSST)
https://rubinobservatory.org/es/explore/how-rubin-works/lsst
- Vera C. Rubin Observatory Survey Strategy
https://survey-strategy.lsst.io/
- Lasair LSST broker
https://lasair.lsst.ac.uk/
- Lasair ZTF broker
https://lasair-ztf.lsst.ac.uk/
- NASA General Coordinates Network (GCN)
https://gcn.nasa.gov/
- IAU Transient Name Server (TNS)
https://www.wis-tns.org/
- The Astronomers's Telegram
https://www.astronomerstelegram.org/
- AstroCOLIBRI
https://astro-colibri.science/

Many thanks!

I hope you will start using LSST data soon