

# Early Science with Rubin &



Fink@World 2026

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Australian Government  
Australian Research Council



# 24th February 2026: first alerts!



*800,000 alerts in 1 night*

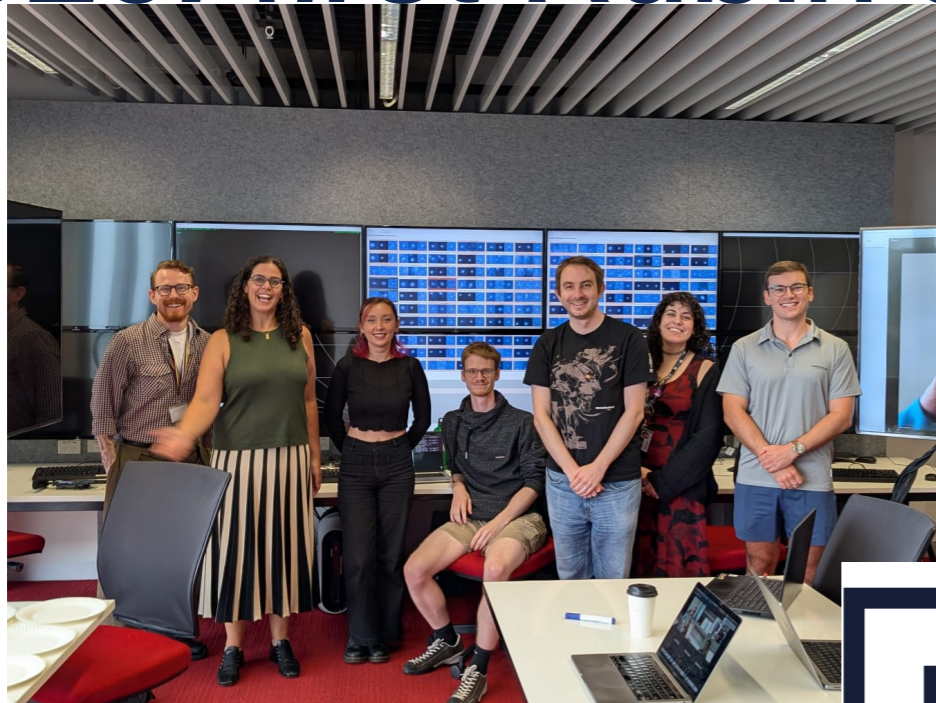
*Processing within minutes!*



# February 2026: first alerts!



# 2026: first Rubin alerts February 24th!



**Fink hub**  
**Rubin first alerts**  
**February 25 2026**



# Science Monday



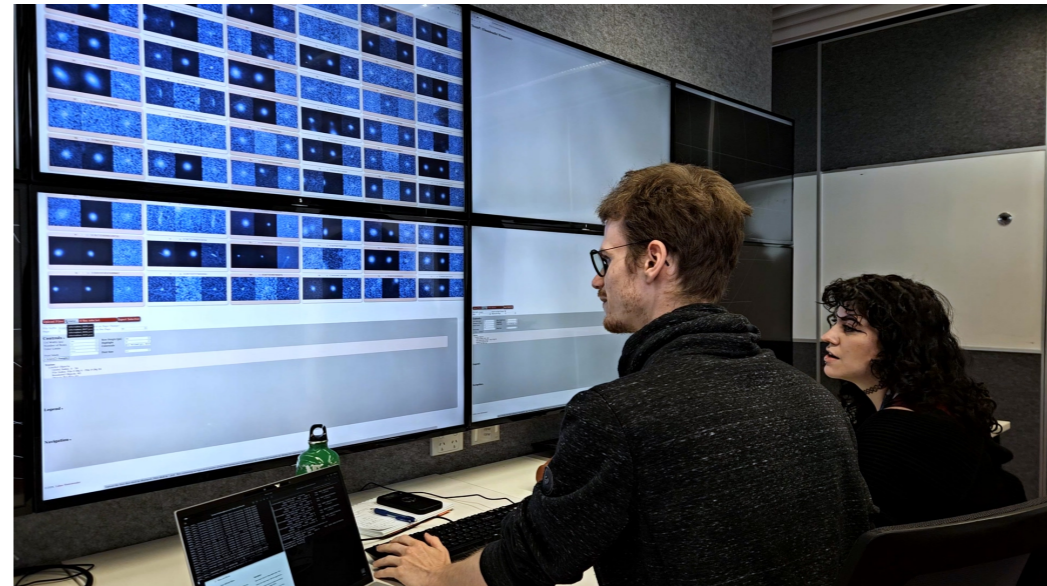
**IRAN SOCCER**

Fifth member of Iranian women's soccer team leaves Australia

**10 NEWS**  
04:43 WA  
BEN ☁️ 25°

# 2026: first Rubin alerts February 24th!

*Understanding data is the key!*

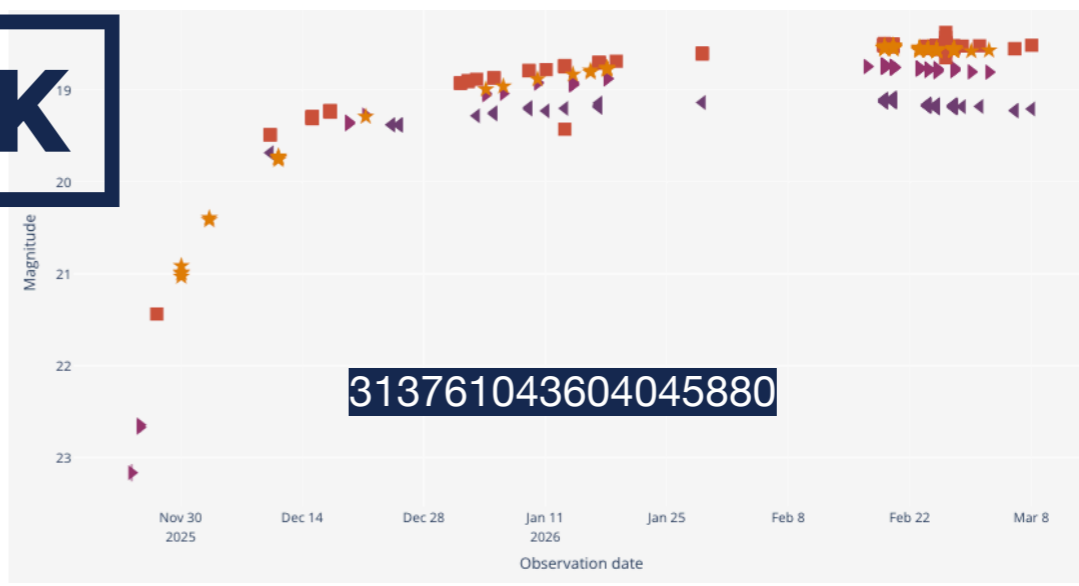
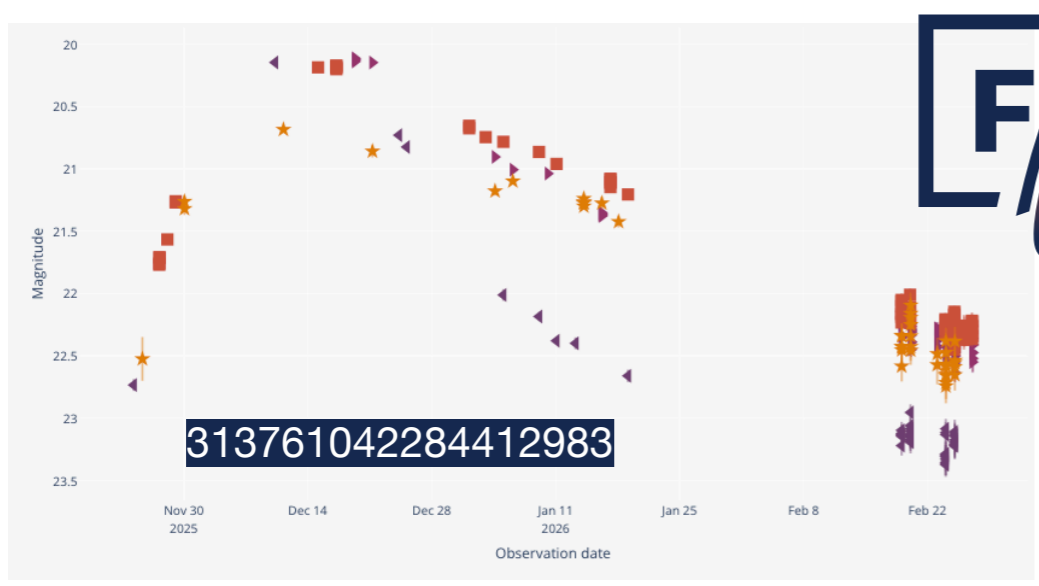


Filtering out very bad quality



Inspection of data  
by Lukas Steinwender

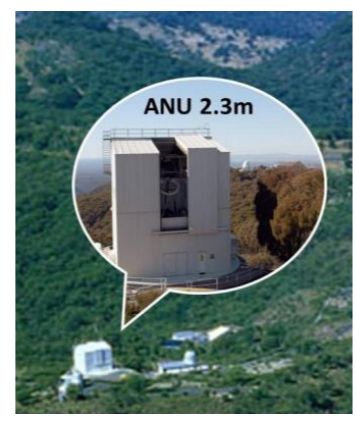
# 2026: first Rubin alerts February 24th!



**SSO Alert System**

**TOM**

TOM TOOLKIT Las Cumbres Observatory LC



## Siding Spring Observatory Robotic Network (Australia)

From filtered streams to reduced observations

# First science results

Although we are still in the learning process, some nice science results are coming out Fink!

## TNS

### Discovery certificate for object 2026eqf

TNS Astronomical Transient Report No. 293300

Date Received (UTC): 2026-02-28 08:00:38

Date made public:

Sender: Julien Peloton

Reporting Group: Fink Discovery Data Source: Rubin

Julien Peloton, Anais Moller, Emille E. O. Ishida on behalf of the Fink Collaboration report/s the discovery of a new astronomical transien



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arXiv > astro-ph > arXiv:2605.22407

Astrophysics > Instrumentation and Methods for Astrophysics

[Submitted on 21 May 2026]

### Hostless extragalactic transients in Fink: Results from the ELEPHANT pipeline

R. Durgesh, P. J. Pessi, E. E. O. Ishida, J. Peloton

The Extragalactic alErt Pipeline for Hostless AstroNomial Transients (ELEPHANT), has been developed as a framework for filtering hostless candidates, in real time alert stamps and requires minimal information, thus allowing for fast identification of extragalactic transient events. In this work we evaluate the performance of the ELEPHANT pipeline from 1 September 2023 and 31 December 2025. Our goal is to quantify its accuracy and identify dominant sources of contamination. For each flagged candidate we collected further examined their light-curve evolution and astrometric consistency (coordinate dispersion over time) to refine source classification. Results. Out of 877 flagged events we identified 51 host galaxies in either existing catalogues or archival imaging, representing a high-purity sample of intrinsically faint or absent hosts. Additional 51 events are linked to visual inspection. For the confirmed hostless subset, the inferred upper limits on host-galaxy absolute magnitudes extend well below the luminosity range of typical dwarf galaxies. The pipeline also detected Type Ia supernovae, and the second most detected class being Type I superluminous supernova. ELEPHANT has been adapted to deal with the Rubin alert stream.

## RNAAS RESEARCH NOTES OF THE AAS

### OPEN ACCESS

### Characterizing a Super-fast Rotating Asteroid in Rubin Observatory First Alerts

Jacob A. Kurlander, Dmitrii E. Vavilov, Alexander J. Fleming, Mario Jurić, Siegfried Eggl, Sarah Greenstreet, Colin Orion Chandler, and Michael Solonoi

Published May 2026 • © 2026. The Author(s). Published by the American Astronomical Society.

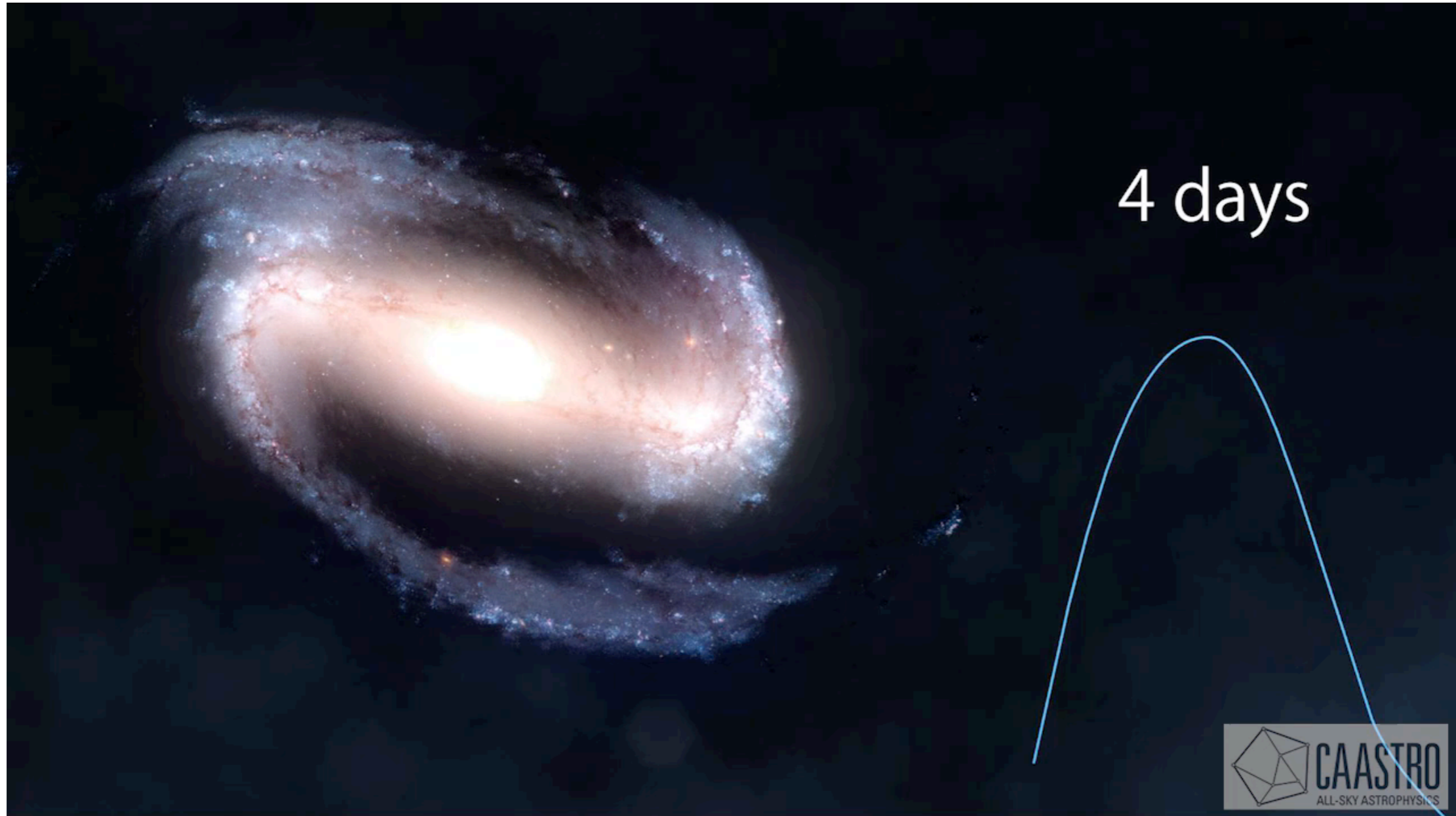
[Research Notes of the AAS, Volume 10, Number 5](#)

**Citation** Jacob A. Kurlander *et al* 2026 *Res. Notes AAS* **10** 108

**DOI** 10.3847/2515-5172/ae67fe



# Supernovae



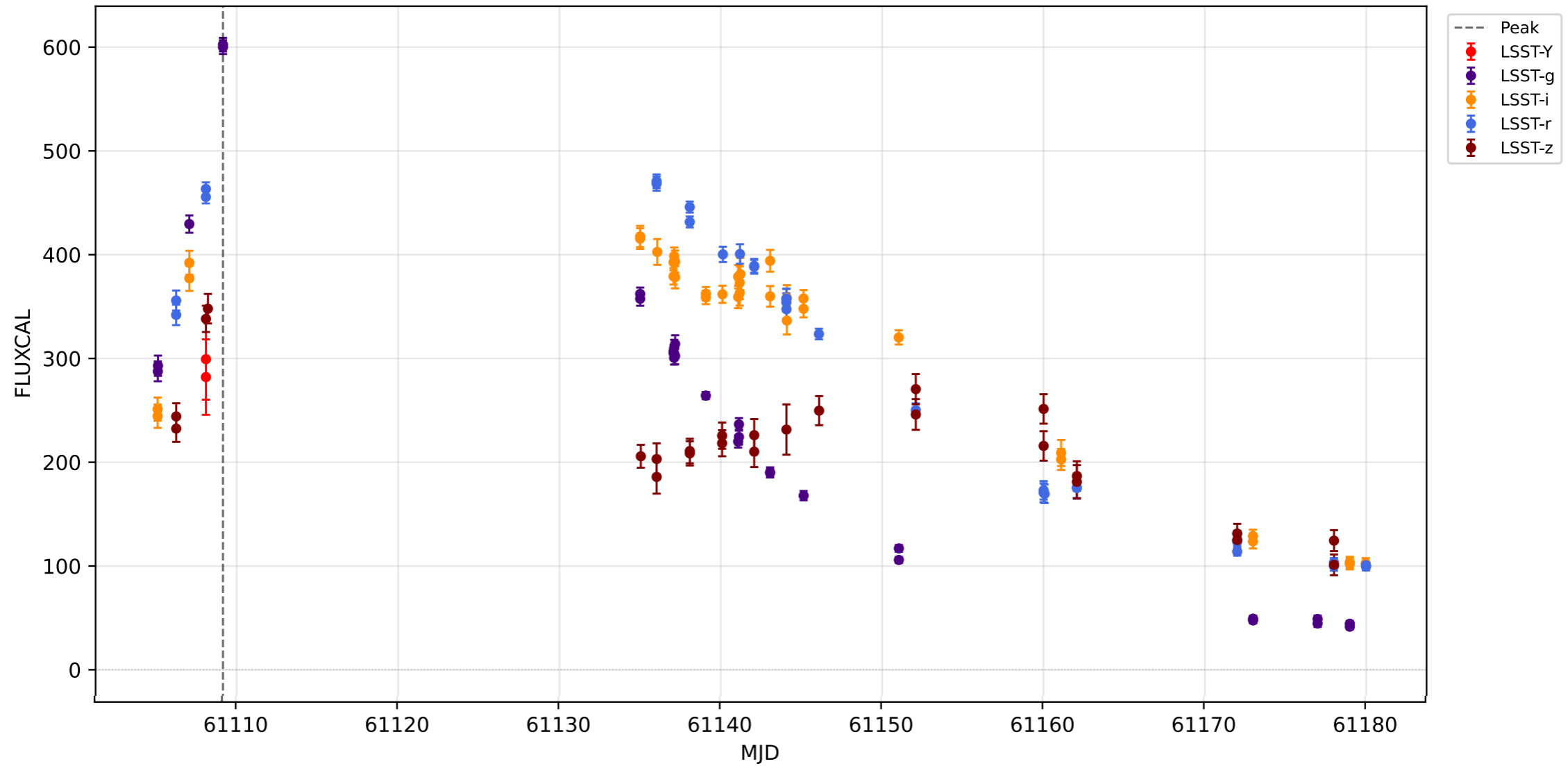
# SN2026eqf *With Charlotte Angus, Katie Auchettl, Liana Rauf, ...*

- First reported by Fink
- Follow up with ANU 2.3m, FORSC, LCO
- Unusual and Early!
  - SLSN, SNIIn?
  - Spiral galaxy?



# Type Ia Supernova candidates

170094456357257301 SN2026fbm spectroscopically classified



# Broker commissioning < February 2026 ~ 1M alerts



*Cross-match*

+

*ML classification  
Fink features*

+

*Customizable  
filtering*

# Broker commissioning < February 2026 ~ 1M alerts



**Cross-match**

+

**ML classification  
Fink features**

+

**Customizable  
filtering**

## Extragalactic “loose”

- Good quality alerts: Rubin Flags (with Bruno)
- Outside Galactic plane
- Not a known asteroid
- Not a known star (SIMBAD, VSX, GCVS, Gaia Plx SNR>5)
- Xmatched to a galaxy or not: SIMBAD, Legacy photo-z

**Goal completeness**

**3% of the stream**

**11M alerts**



11M alerts



*Cross-match*

+

*ML classification  
Fink features*

+

*Customizable  
filtering*

**3% of the stream is 330k!**

11M alerts



*Cross-match*

+

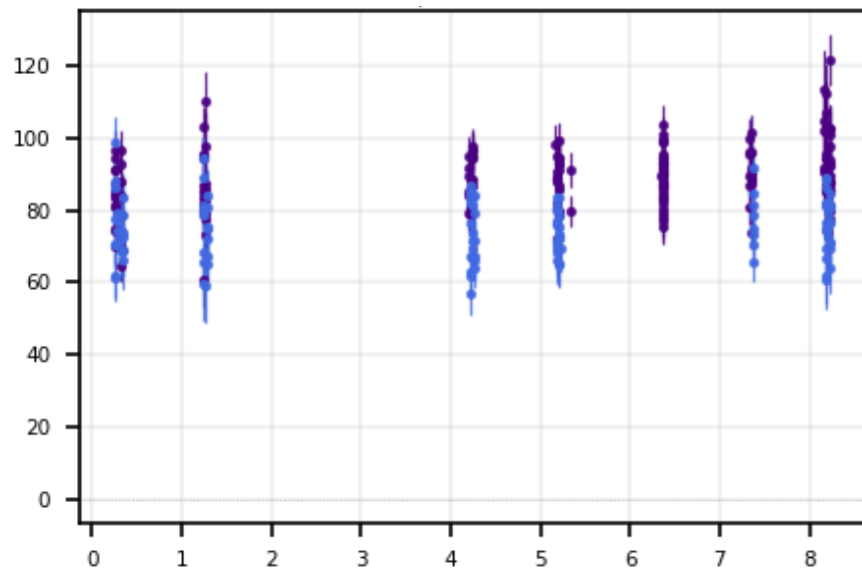
*ML classification  
Fink features*

+

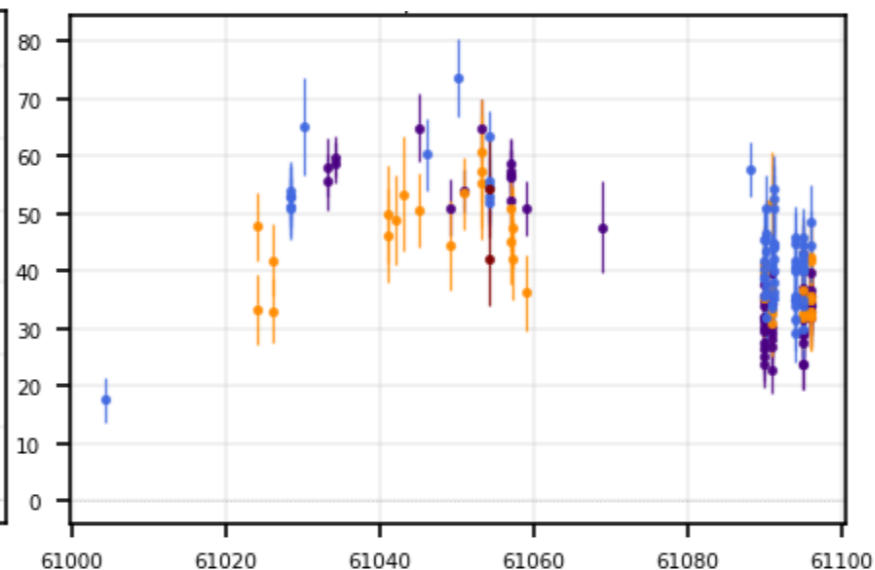
*Customizable  
filtering*

**3% of the stream is 330k!**

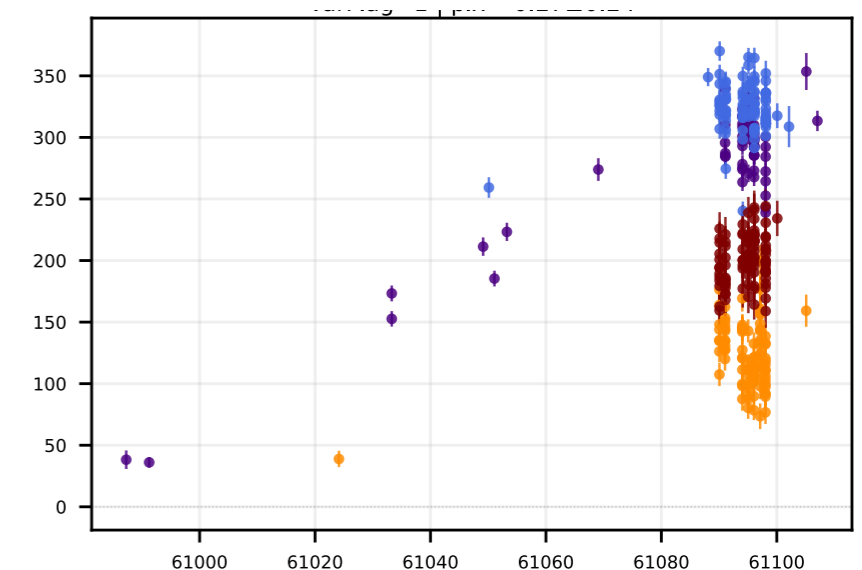
**“Flat”**



**QSO-like**



**Star-like**



*Most catalogues are shallower than Rubin*

11M alerts



*Cross-match*

+

*ML classification  
Fink features*

+

*Customizable  
filtering*

**+ New cuts**

- Quality: reliability + new flags
- Not a known star Gaia Plx SNR>4 + Variability
- Potential stars: Legacy pstar>0.9
- Quasars: zphot <2 + Milliquas + <150 days
- Reject flat light-curves
- Sampling: >10 days

11M alerts



*Cross-match*

+

*ML classification  
Fink features*

+

*Customizable  
filtering*

**+ New cuts**

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**Goal SN candidates**

**0.5% of the stream**

11M alerts



*Cross-match*

+

*ML classification  
Fink features*

+

*Customizable  
filtering*

**+ SuperNNova**

*Möller+ 2020*

Accuracies ~90% only light-curve

With v4.3, v5.1 simulations

11M alerts



Cross-match

+

ML classification  
Fink features

+

Customizable  
filtering

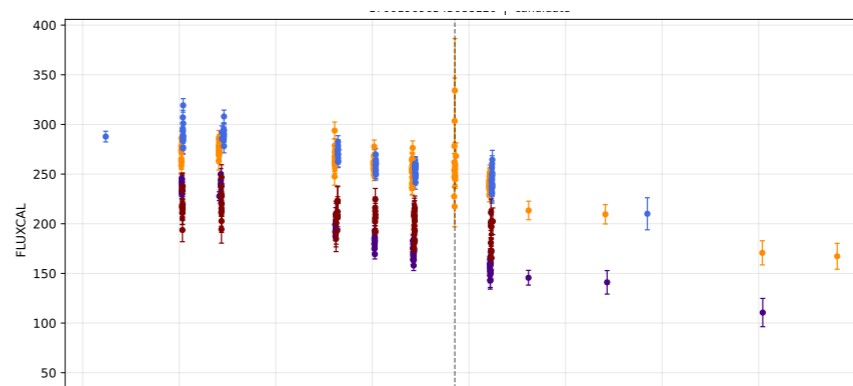
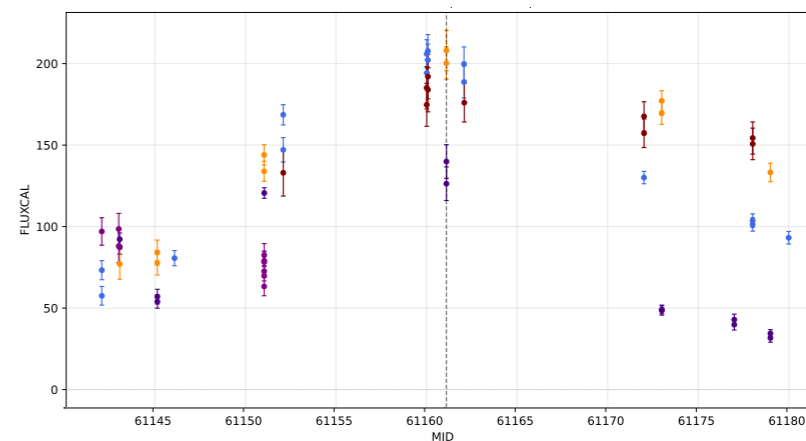
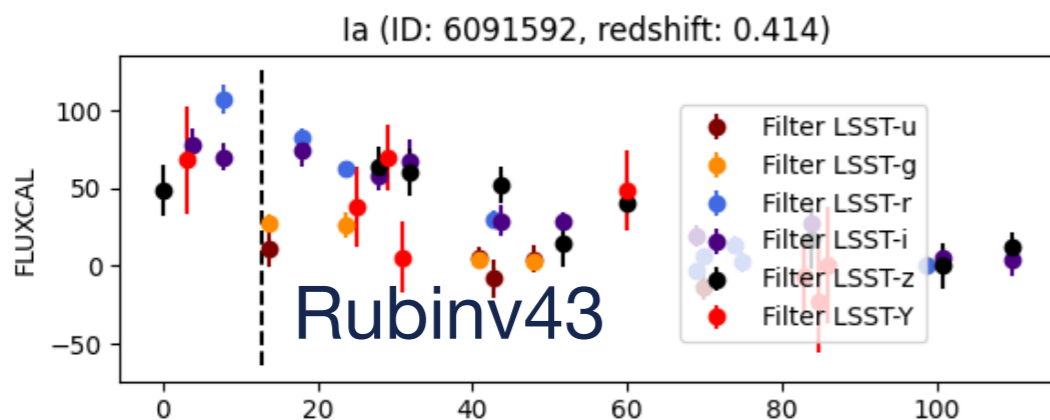
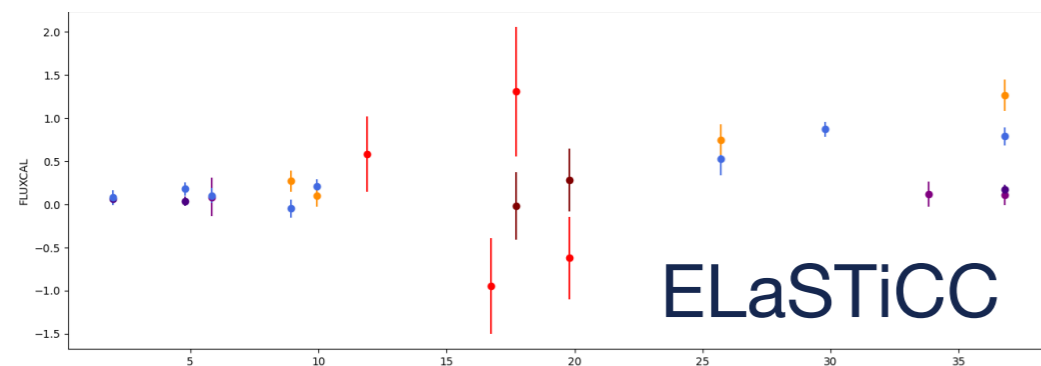
+ SuperNNova

Möller+ 2020

LSST sims

!=

Rubin first alerts



11M alerts



**Cross-match**

+

**ML classification  
Fink features**

+

**Customizable  
filtering**

**+ SuperNNova**

*Möller+ 2020*

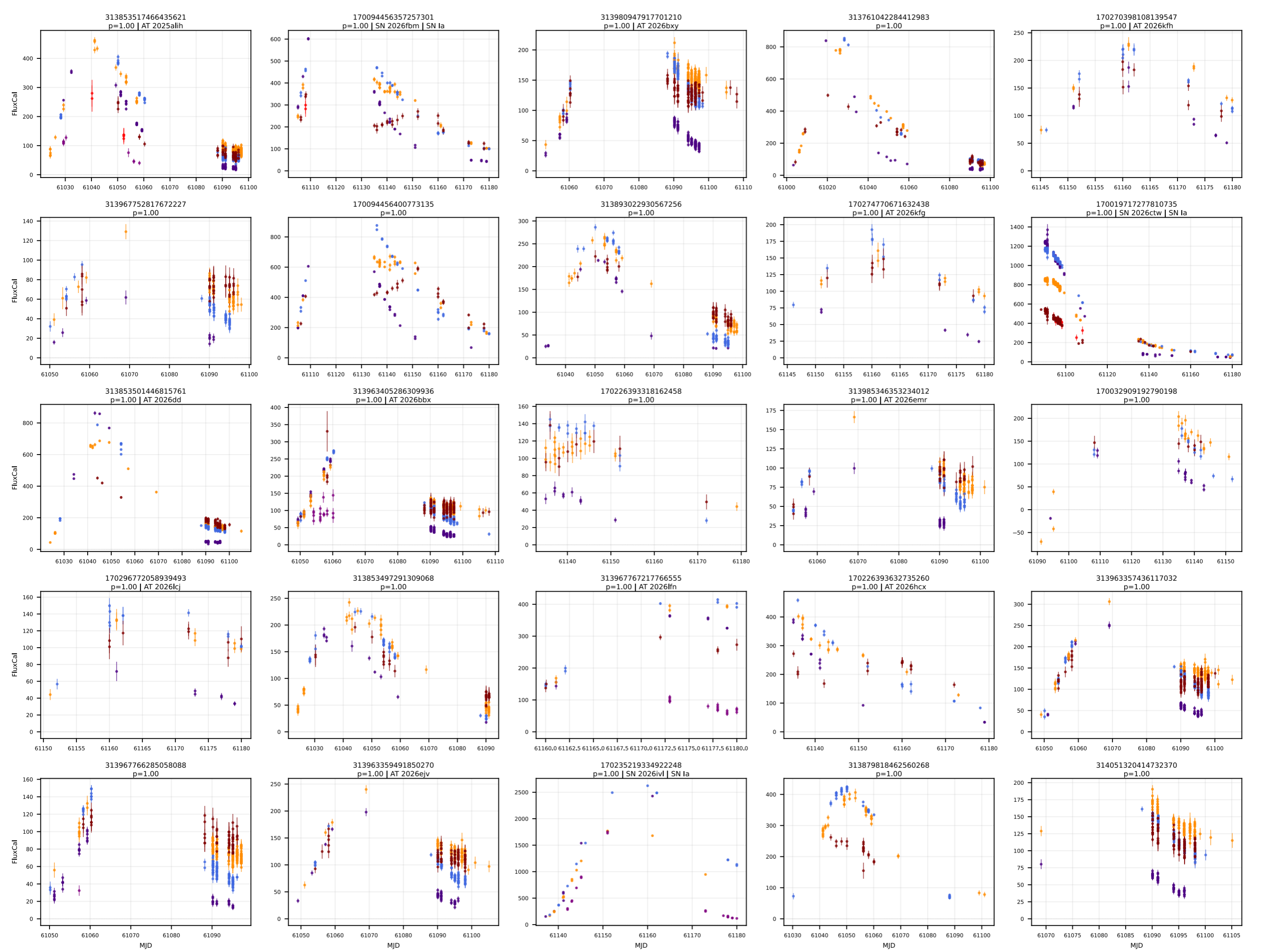
Insensitive to co-add per night or not!

+

SNN ensemble average  $>0.5$

**SN Ia candidates**

**0.01% of the stream**





Rubin is a great opportunity to do next-generation science



Fink enables early Rubin science!

## What have we learned?

- We can't do scientific analyses as we have done before...
  - Data volumes
  - Follow-up capabilities
- Rapidly evolving environment
- Technology  $\leftrightarrow$  Science!

