



Anais Möller (Swinburne), Julien Peloton (IJCLab), Emille Ishida (LPCA)
on behalf of the Fink collaboration

RAPID Response: Hotwiring TDA | 25 March 2026



Australian Government
Australian Research Council



Community driven and broad science collaboration

PIs: Möller, Peloton, Ishida

Deployed in

>130 members in 28 countries

Open data, open to everyone!

ZTF

Rubin



ZTF since 2019 / Rubin 2026



ZTF since 2019 / Rubin 2026



Cross-match



ZTF since 2019 / Rubin 2026



Cross-match

+

ML classification
Fink features

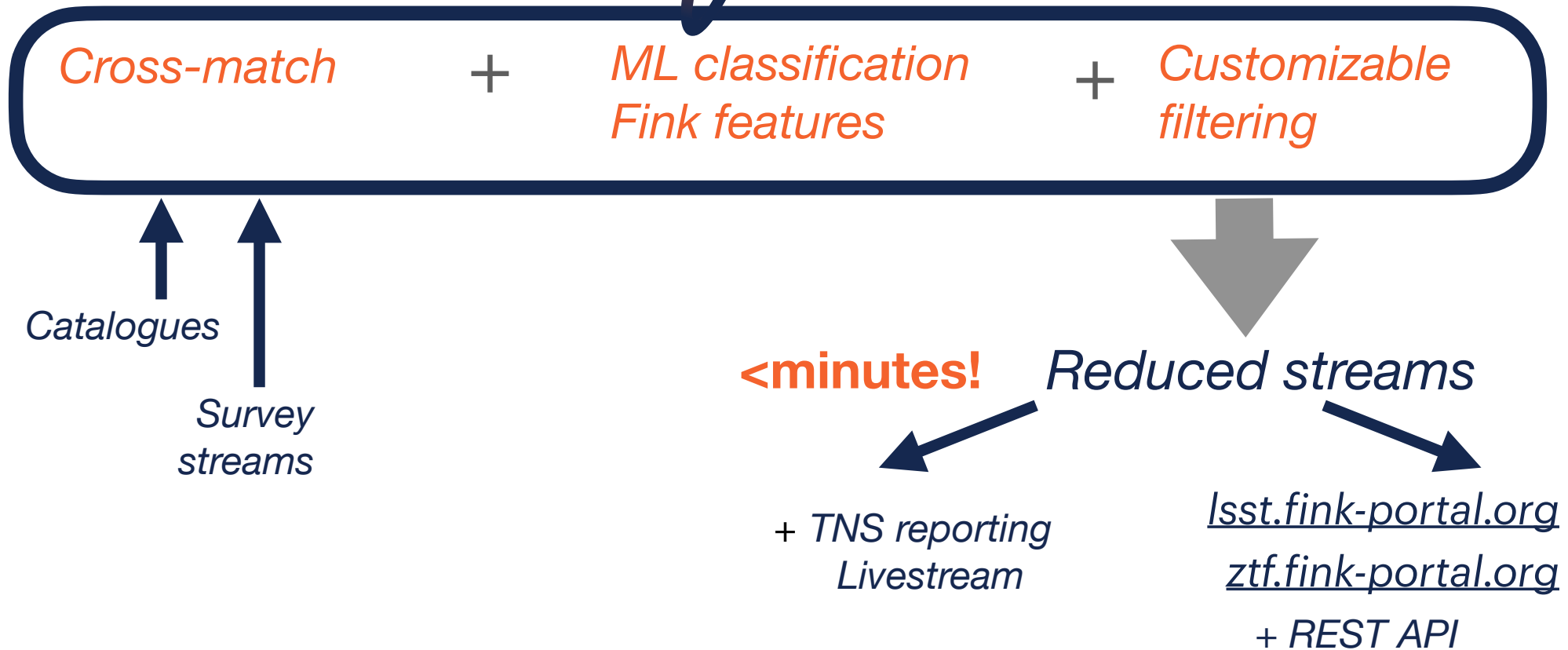
Catalogues

*Survey
streams*

Early SNIa
SNIa
SN
Microlensing
KN
Multiclass
Anomaly

(+Active Learning)

ZTF since 2019 / Rubin 2026



Supernovae

Allam+2023, Leoni+2022,
Möller+ 2025 2022b
CNRS MITI grant

Nuclear transients

 Russeil+2022
Llamas-Lanza+ 2025
Quintin+ 2025
Hamo+ in prep.
Swinburne-CNRS IEA grant

Solar System

 Le Montagner+ 2023
Carry+2024
CNRS MITI grant

Magnetic CVs

Lima, Rodrigues+ in prep.

YSO

Kuhn+ in prep.



We want
your science
case here!

Kilonovae



Grandma+Fink 2022,2023
Biswas+2022,2023
Stevenson+ 2025

Gamma Ray Bursts



Hostless

Pessi+ 2024

Space Awareness

Karpov+2023,2022

Anomalies

Pruzhinskaya+ in prep.

LSST simulations

Fraga+ 2024

Exoplanets

Ban+ 2025

<https://fink-broker.org/papers>

Supernovae

Allam+2023, **Leoni+2022**,
Möller+ 2025 2022b
CNRS MITI grant

Nuclear transients

VAST **Russeil+2022**
Llamas-Lanza+ 2025
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Kilonovae



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Stevenson+ 2025

Gamma Ray Bursts



Hostless

Tomorrows talk! **Pessi+ 2024**

Space Awareness

Karpov+2023,2022

Anomalies

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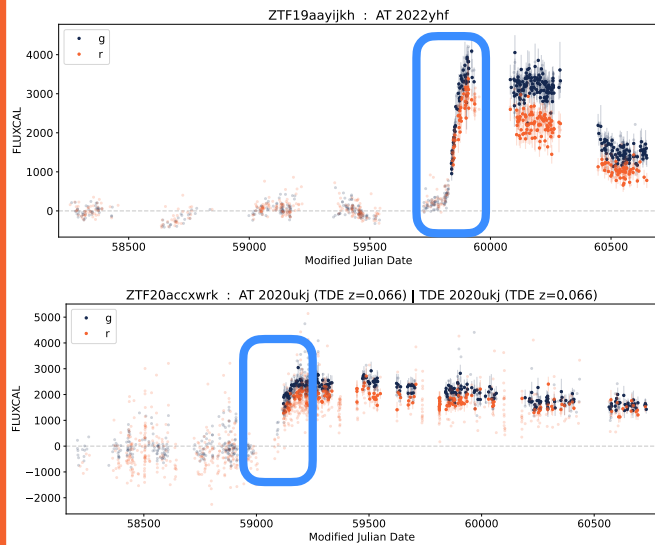
<https://fink-broker.org/papers>

TDEs ZTF

Llamas-Lanza+ 2025

Quintin+ 2025

Early TDE identification

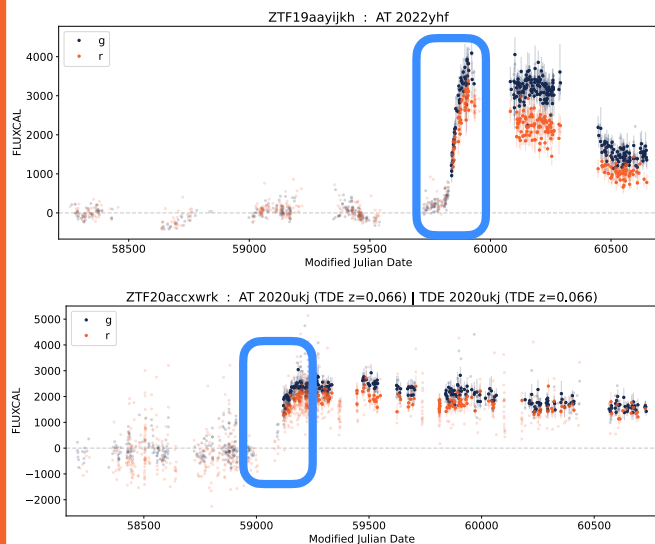


TDEs ZTF

Llamas-Lanza+ 2025

Quintin+ 2025

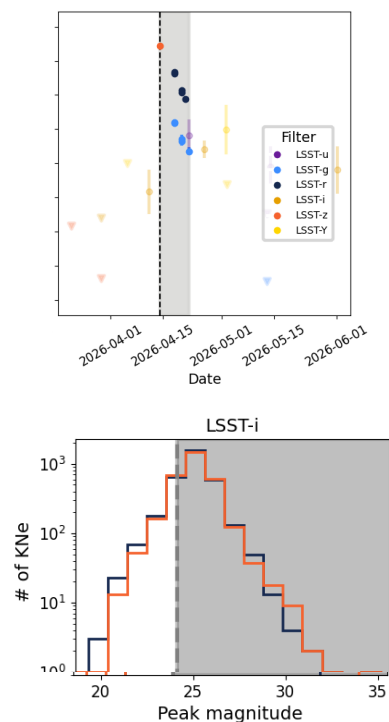
Early TDE identification



KNe LSST

Stevenson, AM+ 2025

~40 KNe/year; filtering

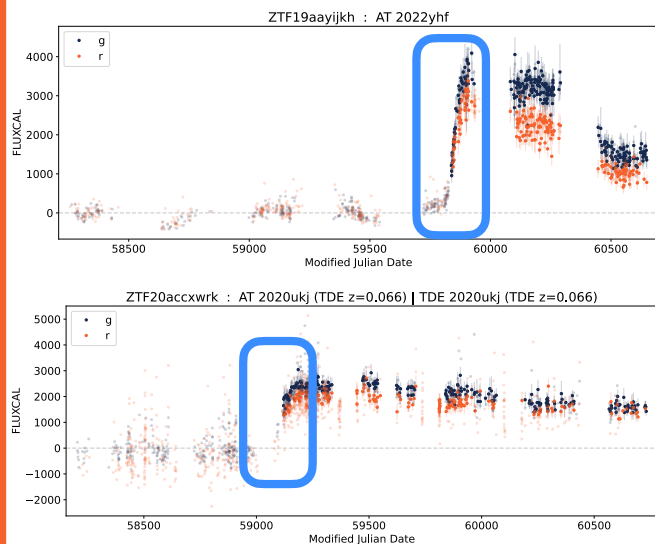


TDEs ZTF

Llamas-Lanza+ 2025

Quintin+ 2025

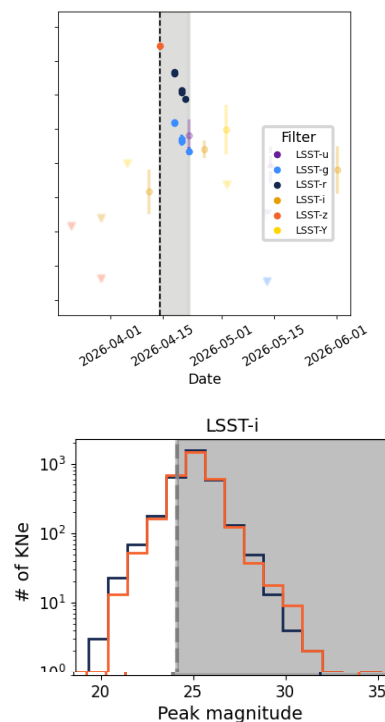
Early TDE identification



KNe LSST

Stevenson, AM+ 2025

~40 KN/year; filtering



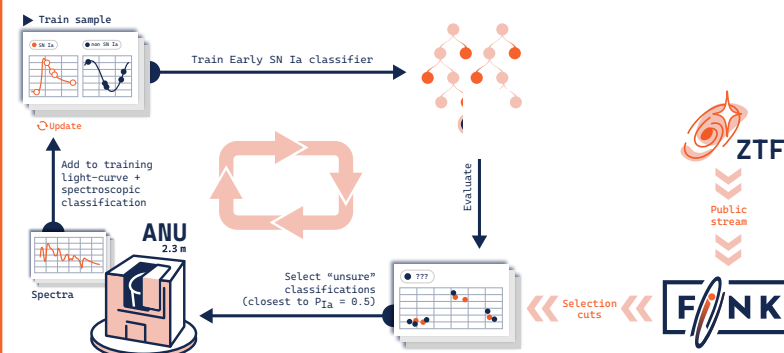
SN ZTF

AM+ 2025, Leoni+2022

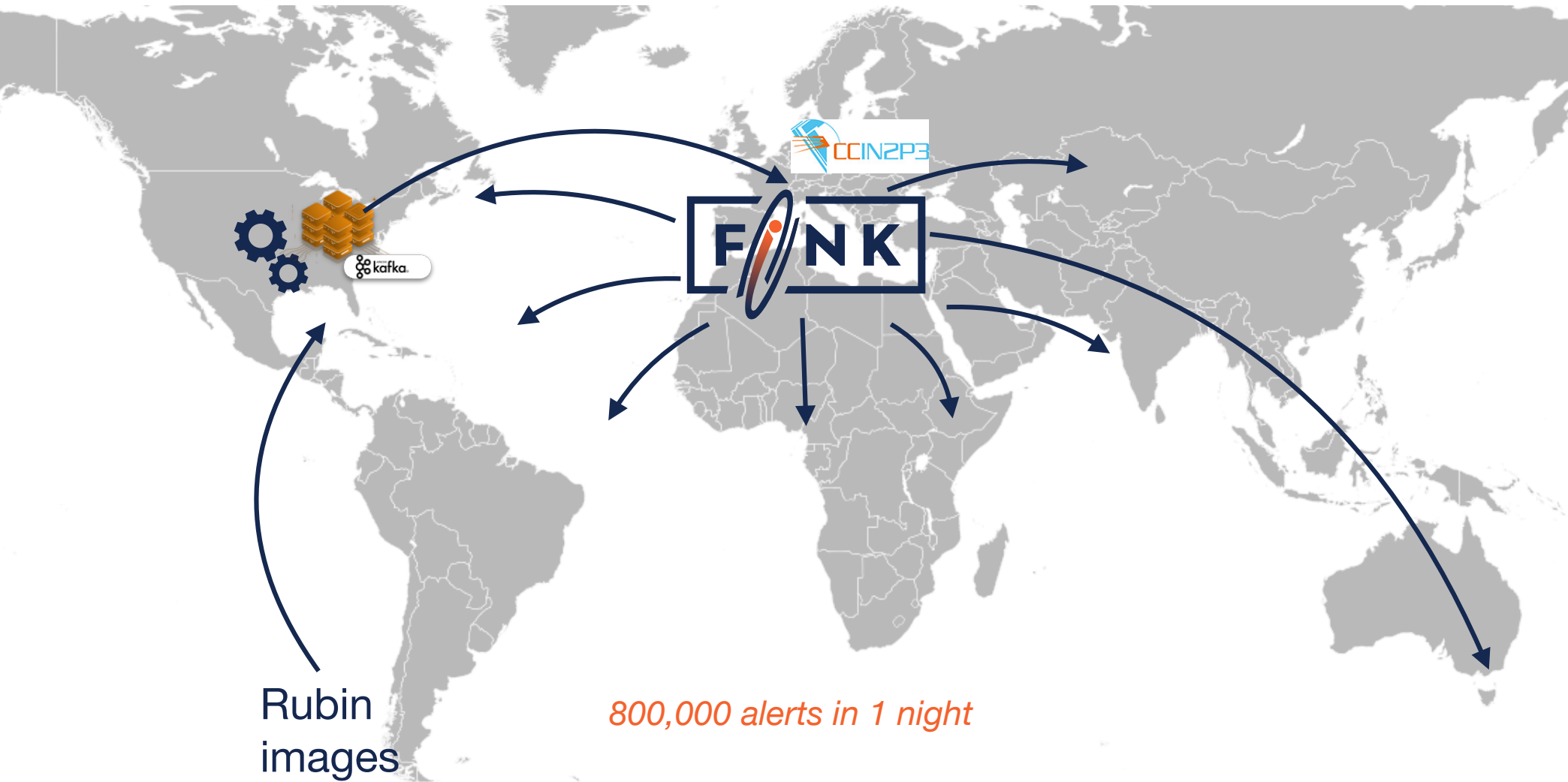
Reporting SN candidates to TNS

- xmatch + ML (RF/RNN)

Improving ML training with AL



First Rubin alerts February 24th 2026





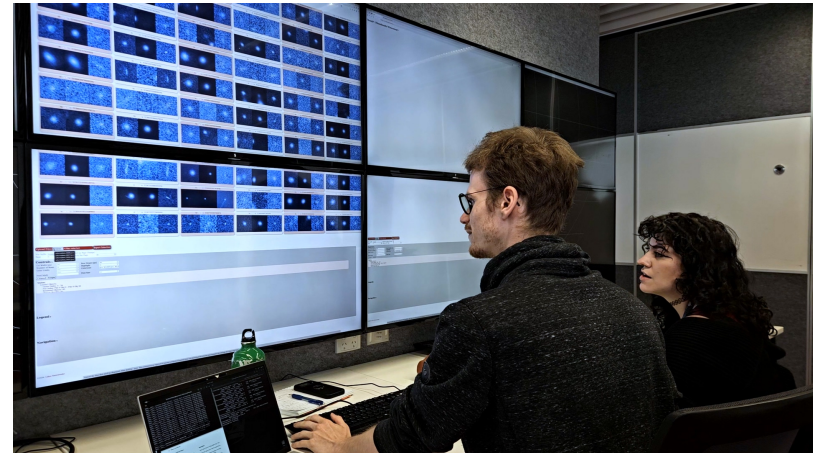
FINK

Fink hub
Rubin first alerts
February 25 2026



First Rubin alerts February 24th 2026

Understanding data is the key!

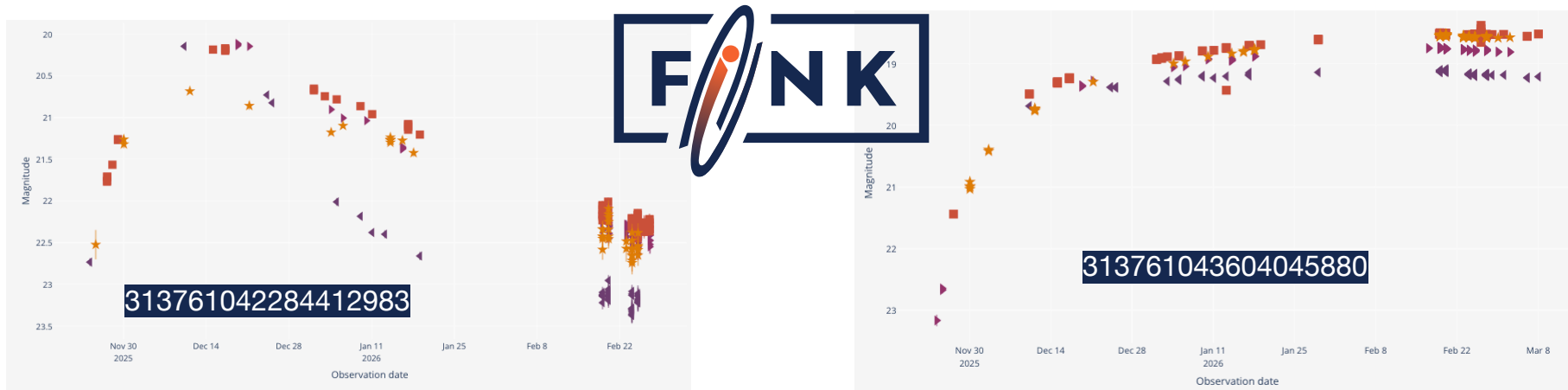


Filtering good quality alerts



Inspection of data
by Lukas Steinwender

First Rubin alerts February 24th 2026



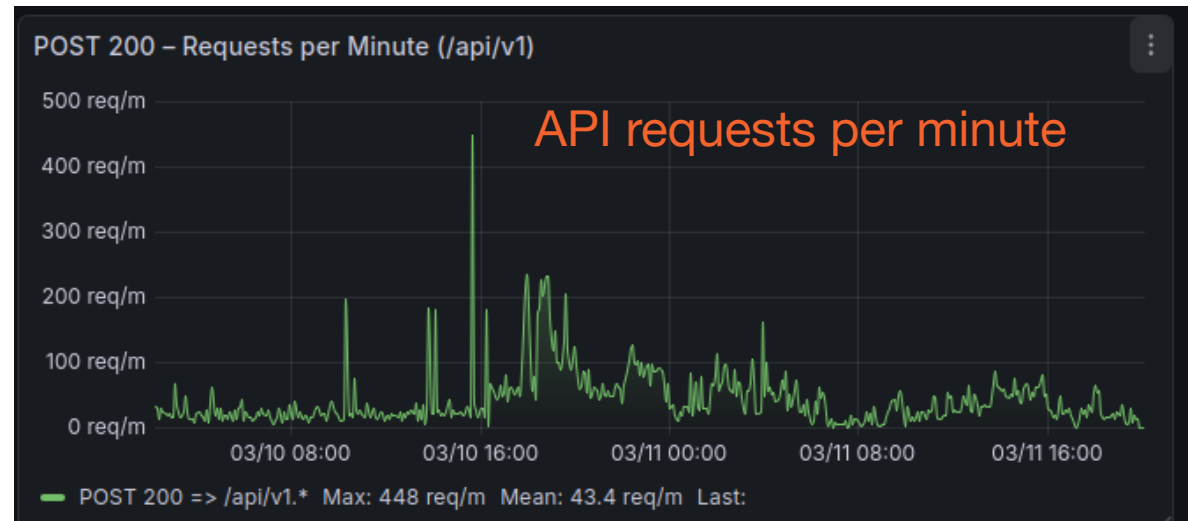
Siding Spring Observatory Robotic Network (Australia)

From filtered streams to reduced observations

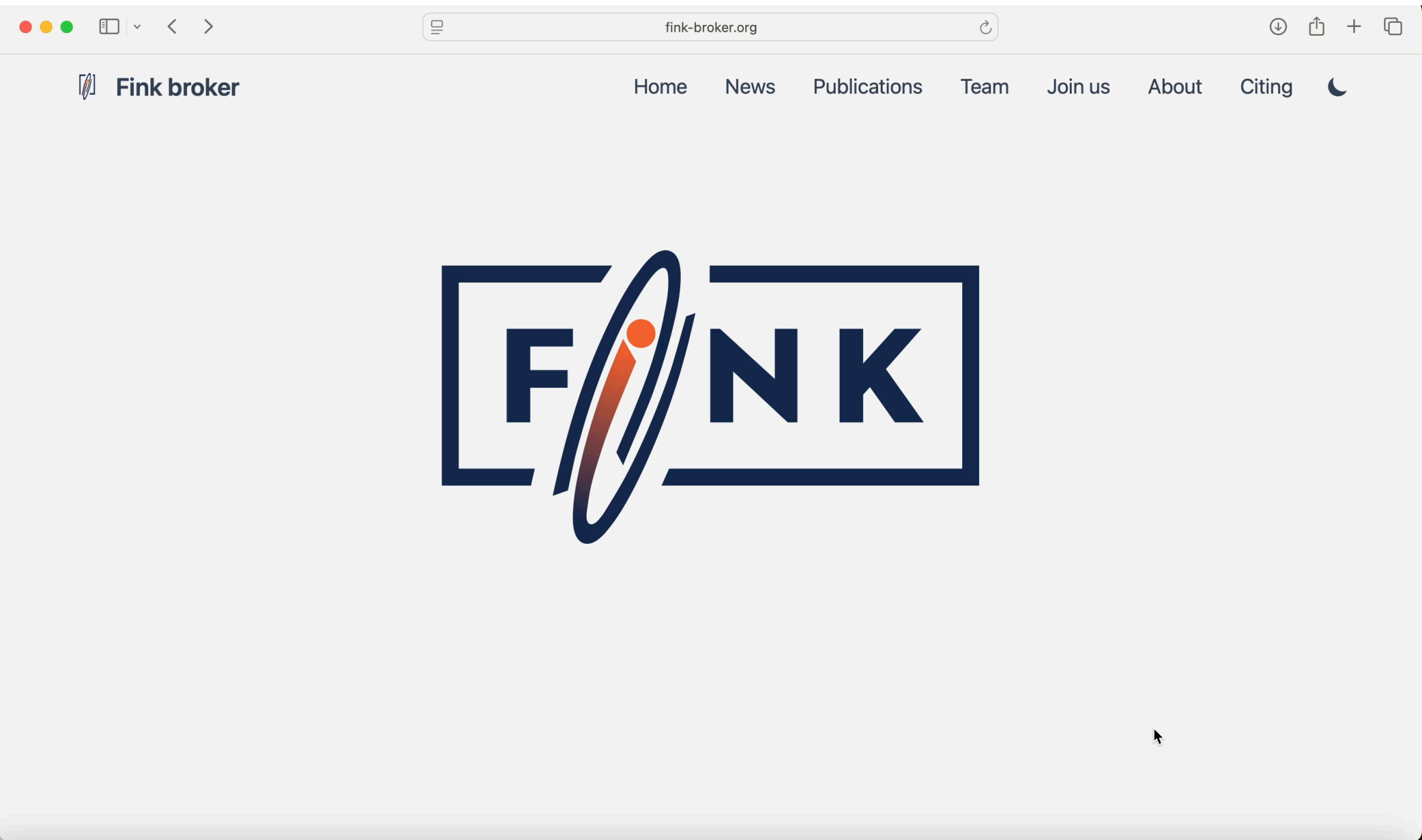
Where are we now?

Total API requests
(non-robot) | 2 weeks
789,413

*And soooo much to
come in this first
year of alerts*



Science portal

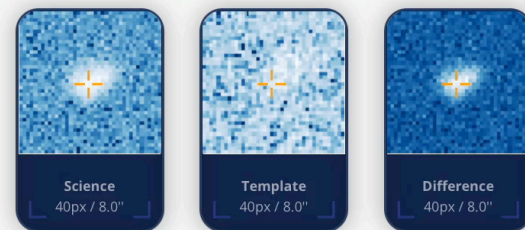




▼ Help

diaObject Observability

✧ Last alert cutouts



- | | | |
|---|---------------|---|
|  | Alert content | ▼ |
|  | Coordinates | ▼ |
|  | Download data | ▼ |
|  | Neighbourhood | ▼ |
|  | Other brokers | ▼ |

REST API

```
import io
import requests
import pandas as pd
```

ZTF

```
# get lightcurve data for ZTF21aaxtctv
r = requests.post(
    "https://api.ztf.fink-porta.l.org/api/v1/objects",
    json={
        "objectId": "ZTF21aaxtctv",
        "output-format": "json"
    }
)

# Format output in a DataFrame
pdf = pd.read_json(io.BytesIO(r.content))
```

```
import io
import requests
import pandas as pd
```

Rubin

```
# get lightcurve data for 313761043604045880
r = requests.post(
    "https://api.lsst.fink-porta.l.org/api/v1/sources",
    json={
        "diaObjectId": "313761043604045880",
        "output-format": "json"
    }
)

# Format output in a DataFrame
pdf = pd.read_json(io.BytesIO(r.content))
```

fink-tutorials

The screenshot shows a Jupyter Notebook interface with a code cell. The code is for querying Fink data. It includes comments about the data source (LIGO/Virgo probability sky maps) and the query parameters (credible level, time range, and output format). The code uses the requests library to post a query to the Fink API and then uses pandas to read the JSON response into a DataFrame.

```
In [7]: # LIGO/Virgo probability sky maps, as gzipped FITS (bayestar.fits.gz)
# S200219ac on 2020-02-19T09:44:15.197173
fn = 'bayestar.fits.gz'

# GW credible region threshold to look for. Note that the values in the resulting
# credible level map vary inversely with probability density: the most probable pixel is
# assigned to the credible level 0.0, and the least likely pixel is assigned the credible level 1.0.
# Area of the 40% Credible Region:
credible_level = 0.4

# Query Fink
data = open(fn, 'rb').read()
r = requests.post(
    'https://api.fink-porta.l.org/api/v1/skymap',
    json={
        'bayestar': str(data),
        'credible_level': credible_level,
        'n_day_before': 1,
        'n_day_after': 6,
        'output-format': 'json'
    }
)

pdf = pd.read_json(io.BytesIO(r.content))
```

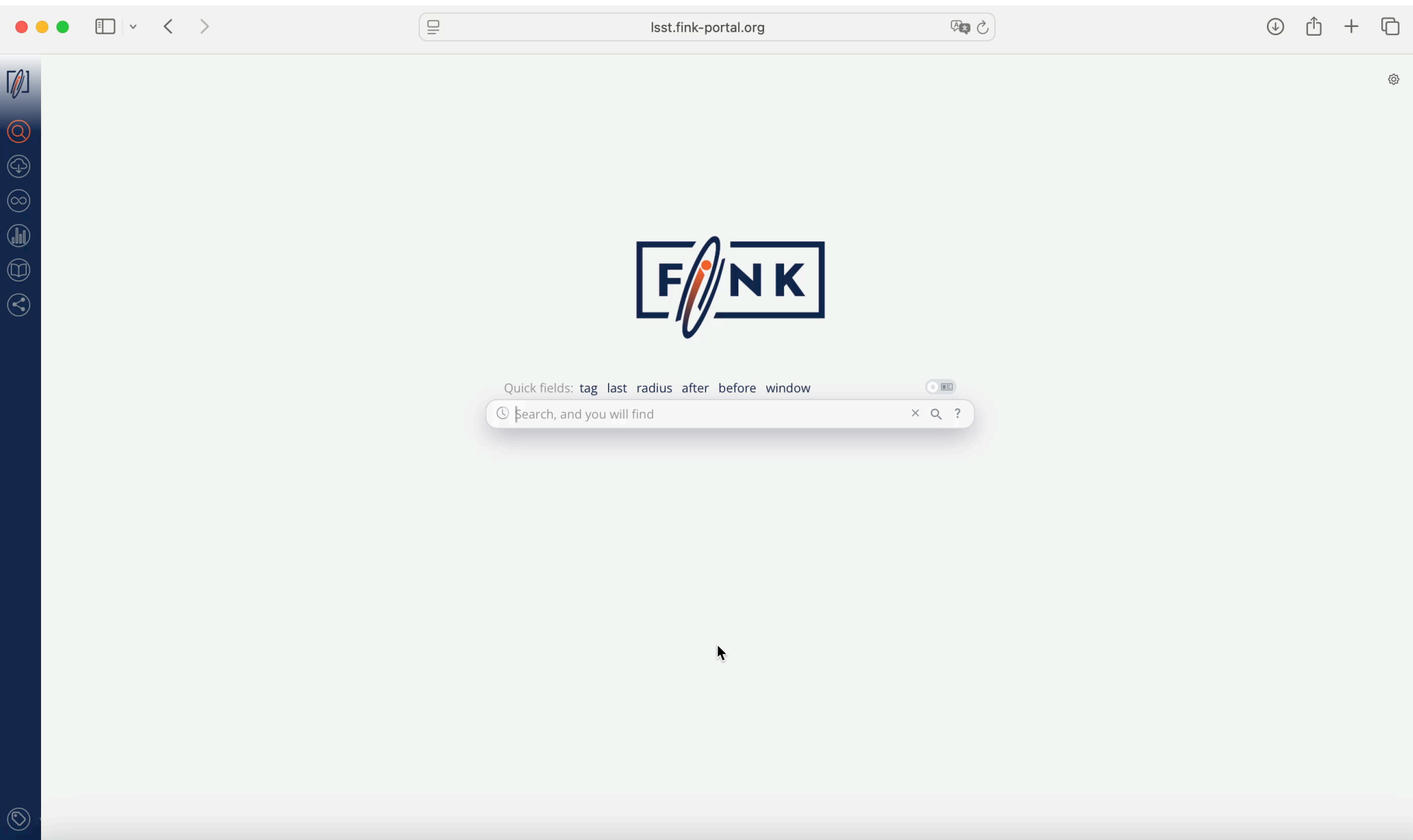
schemas page

The screenshot shows the 'Fink schemas' page on the lsst.fink-porta.l.org website. It features a 'Select a date' dropdown menu with '20260310' selected. Below the date selector is a table with three columns: 'f.fink_broker_version', 'f.fink_science_version', and 'f.fink_schema'. The table shows versions 4.1, 8.39.0, and lsst.v10_0 respectively. A sidebar on the left lists various API endpoints under the heading 'API & Science Portal'.

f.fink_broker_version	f.fink_science_version	f.fink_schema
4.1	8.39.0	lsst.v10_0

- API & Science Portal
 - /api/v1/sources
 - /api/v1/fp
 - /api/v1/objects
 - /api/v1/sso
 - /api/v1/conesearch
 - /api/v1/tags
 - /api/v1/cutouts
 - /api/v1/statistics

Data Transfer





Many services to access and filter Rubin/ZTF data

Community driven, you can shape Fink!

fink-broker.org

contact@fink-broker.org

What have we learned?

- “Technology is here (easy) but a million scientific pieces puzzle (hard)”
- We can’t do scientific analyses as we have done before...
- Not a single person or team knows everything on the time-domain sky
- One human's trash is another human's treasure