Fink broker

Updates: Jan-Jun/2024

LSST France, CPPM - 10 June 2024

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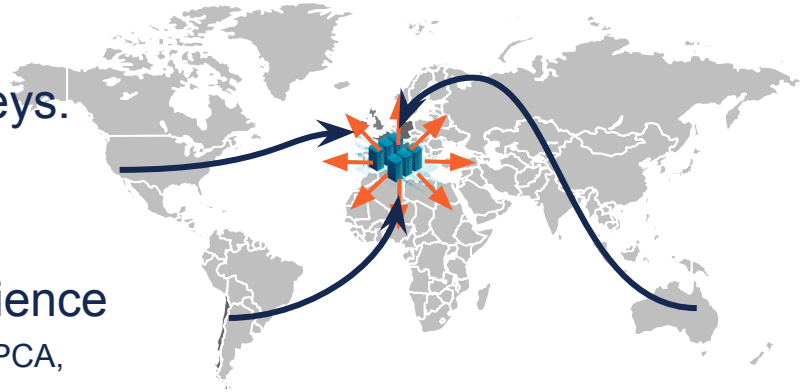
on behalf of the Fink Team

Fink in a nutshell

Brokers are software serving the scientific community by **ingesting**, classifying, filtering, and **redistributing** alerts from telescopes and surveys.

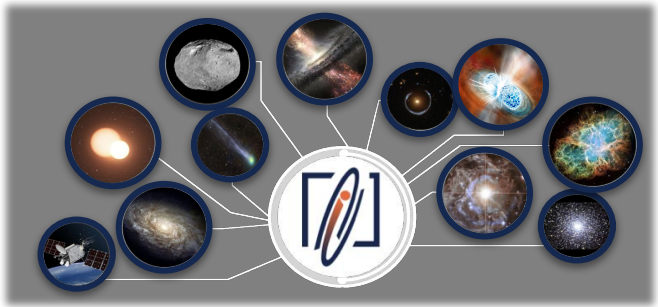


60+ members, 15+ scientific topics covered

- Solar system, galactic and extragalactic science
  - France: 1 postdoc (LPCA), 5 PhD (APC, IJCLab, IRAP, LPCA, LPSC)

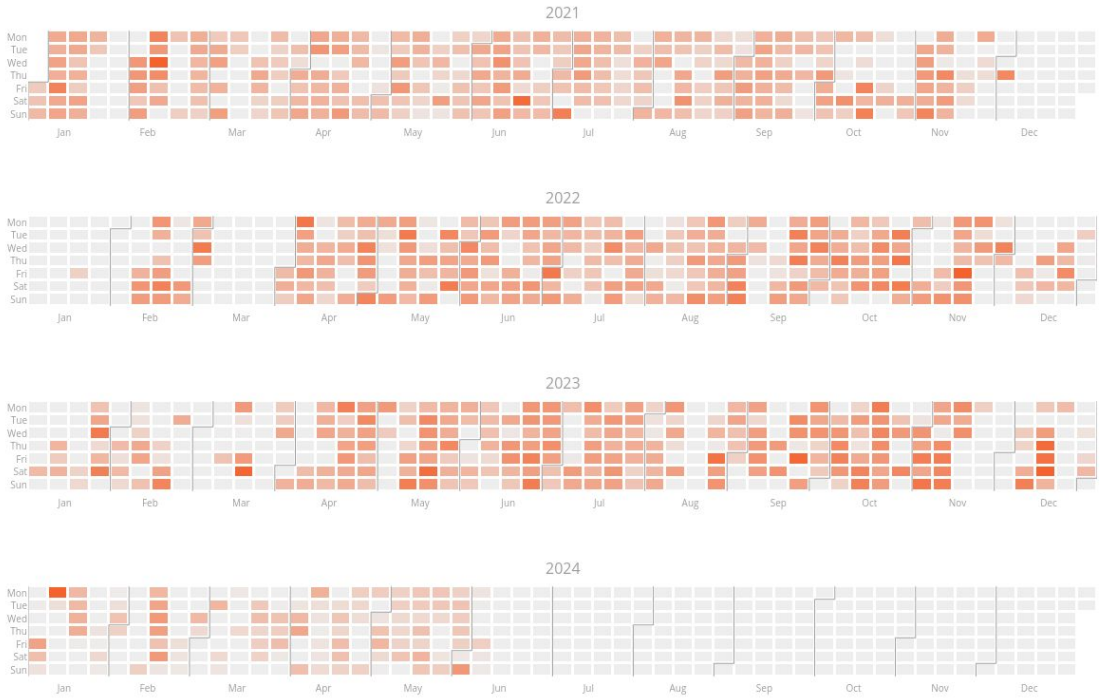
Services deployed on large OpenStack clouds (UPSaclay & CC-IN2P3)

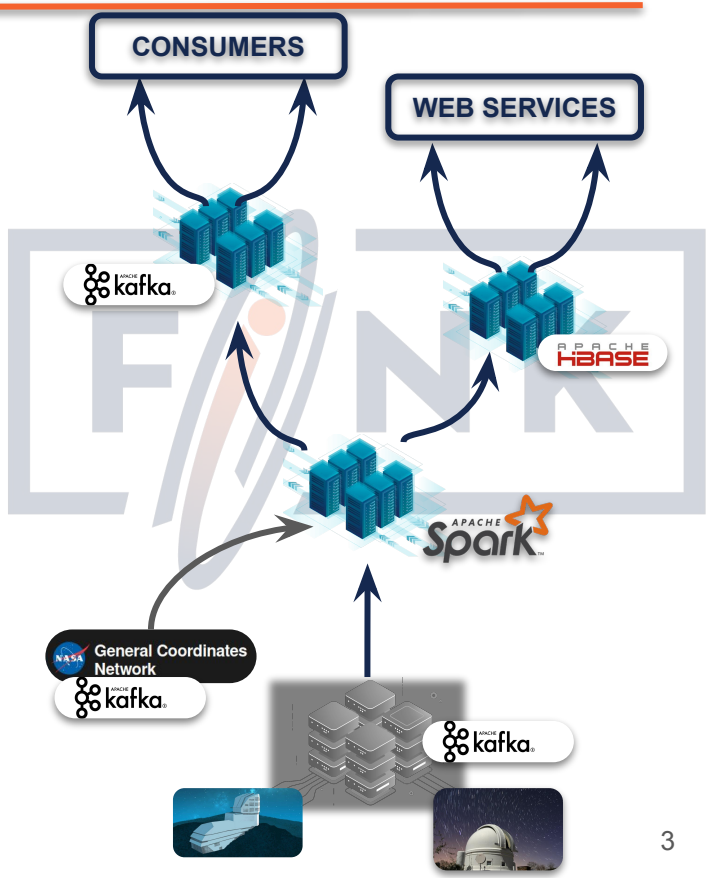
Operating 24/7 since 2019, serving 100+ unique users per day (scientists, follow-up facilities & amateurs*)



*e.g. In GRANDMA

1,096 observing nights!



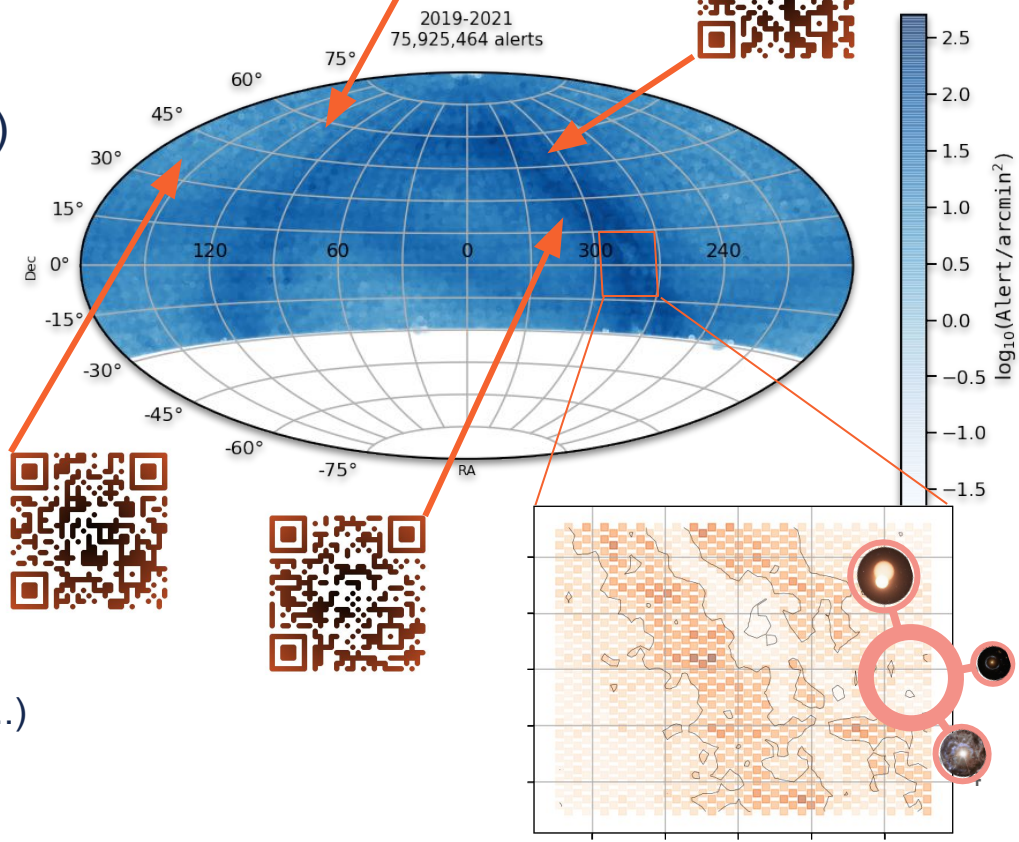


ZTF/Fink statistics

230 million alerts received, 156 million processed (https://fink-portal.org/stats)

Typical nightly rates (200,000 alerts):

- ~75,000 known variable stars
- ~25,000 known SSO
- ~100 new SSO candidates
- ~100 new supernovae & core-collapse candidates
- ~50 (known+new) AGN
- ~10 (un)identified satellite glints
- ~5 new SN Ia candidates
- ~1 fast transient candidate (KN, GRB, CV ...)
- ~1 new microlensing candidate
- ~1 anomaly



Fink Collaboration meeting - 8-10/Jan

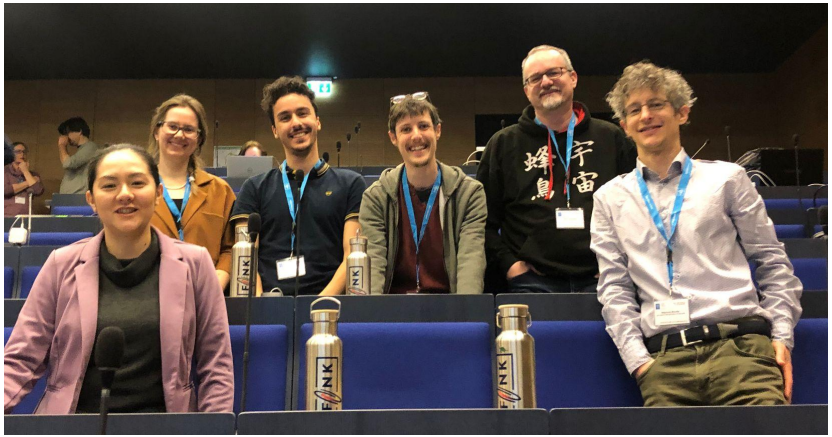
- **24 registered participants**

- **Agenda**:
  - Tutorials: services, API, Bots,
  - Hands-on anomaly detection screening
  - Contributed talks
  - Discussions sessions: SN, Solar System, MMA, Outreach

https://indico.in2p3.fr/event/30789/overview

What was that? ESO 22-26/Jan

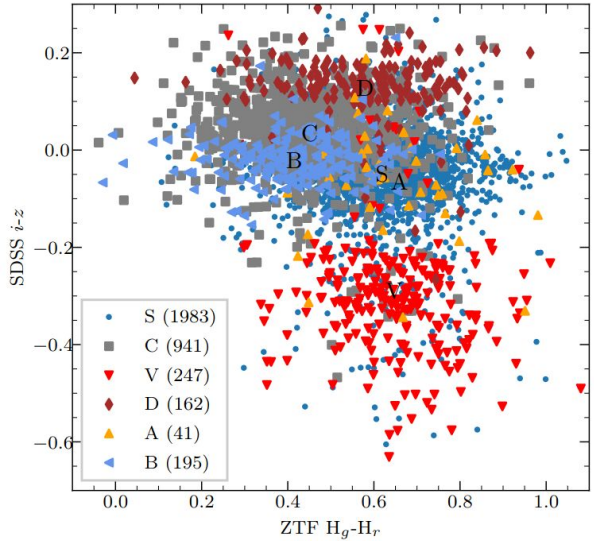
- All brokers coordination in Europe for the first time
- Connections with LSST-project
- Discussions about an ESO public-survey to ensure follow-up for broker targets



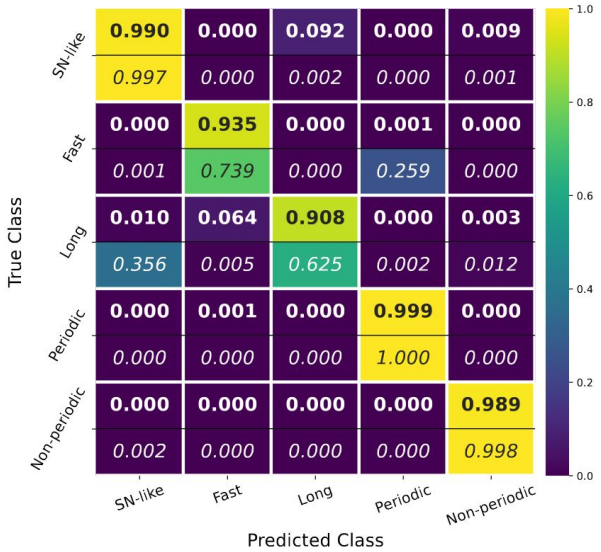
https://www.eso.org/sci/meetings/2024/lsst.html

2024: paper highlights

Combined spin orientation and phase function of asteroids



Transient Classifiers for Fink: Benchmarks for LSST



All papers at: https://fink-broker.org/papers

Fink-Brazil Workshop 6-10/May

- 55 registered participants
  - Argentina, Brazil, Chile, France, Italy, South Africa, USA, UK
  - CNRS South America representatives: Liviu Nicu et Pascal Singer
- 19 contributed talks
- 5 invited speakers
- 3 tutorials: tools, API, bots, science modules
- 3 round tables: facilities, machine learning, future of Fink@Brazil
- 8 office hours appointments: technical,

https://indico.in2p3.fr/event/31068/

Australia HQ

Spectra ANU 2.3m: *real-time active learning loop for the 1st time!*

- **Approved** “Follow-up of transients identified by Fink” (Möller, Soon, Ishida, Peloton, Dobie, Pruzhinskaya, Zubareva)

Siding Spring Observatory

- Robotic network project advancing (Ray, Shibli, Alice)

Extra Fink nodes at OzSTAR cloud (Swinburne, Melbourne), and load balancing for services (with high availability)

Alert commissioning

Engineering runs started in May 2024

- Testing connection and throughput with USDF

Operations Rehearsal 4 will include broker access to the simulated alerts

- Rehearsal will be over 3 days, starting Jun 25th
- All brokers will operate at the same time

ComCam commissioning will include only simulated alert data.
LSSTCam might have (world public) real data (subject to validation).

Useful documents: DMTN-102, RTN-061, RTN-011

https://fink-broker.org
https://fink-portal.org