

Virtual Observatory Interfaces for PRISM and SharpCap

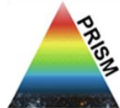
WIVONA: a Citizen Science Project
Supported by
Observatoire de Paris-PSL



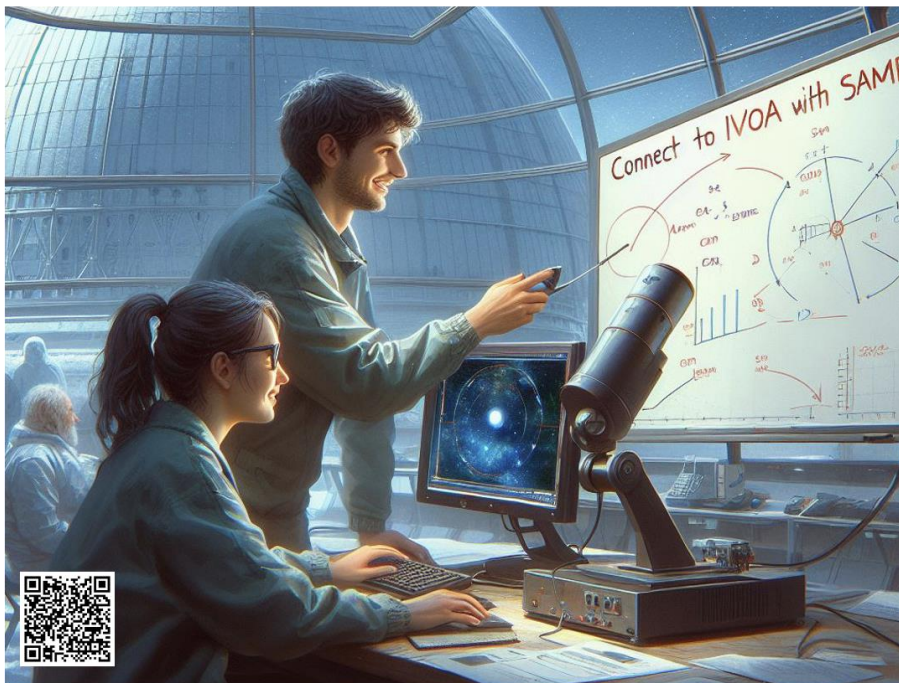


WIVONA

We Implement
Virtual Observatory
Needs of Astrams



A *Pro/Am* collaboration for the Observers Community



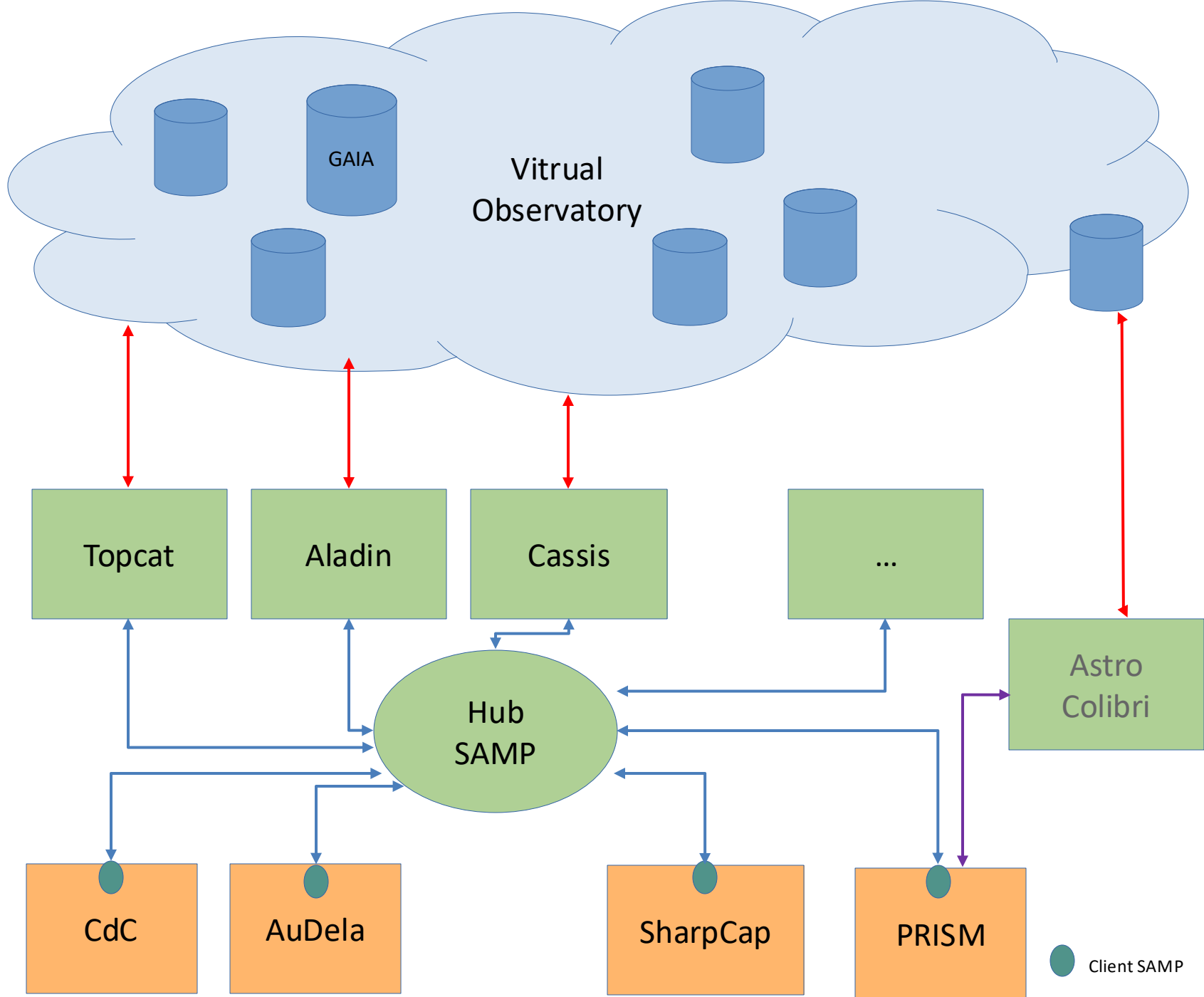
- **PI: Jean-Paul GODARD**,
Astronome amateur
(Dev PRISM: SAMP, Astro-Colibri)
- **Renaud SAVALLE**, PADC/
Observatoire de Paris, Ingénieur de
recherche CNRS, (Dev SharpCap:
SAMP, Scripts Python)
- **Cyril CAVADORE**, ALCOR
SYSTEM, PhD (Dev PRISM)
- **David VALLS-GABAUD**, LERMA/
Observatoire de Paris, Directeur de
Recherche CNRS

WIVONA Goals

1. The Virtual Observatory (VO)
2. **The SAMP protocol** – gateway to the VO
3. Alert Monitoring
4. Development Status

The Virtual Observatory

- Astronomical Data in the Cloud published by Observatories in countries associated with the IVOA consortium:
 - Catalogs with characteristics of objects (position, physics) and related bibliography
 - Images
 - Spectrums,
 - Spectral Cubes
 - Time Series of variable stars
 - Alerts (Transients)
- Services: Name resolution, Standardized data access protocols, Registry..
- For the users, client applications exchanging with each other via the standard **SAMP** protocol: **Simple Application Messaging Protocol**



Transients

- Elusive phenomena
- Detected by automatic observatories
- **Multi-messenger Astronomy**
 - The entire electromagnetic spectrum
 - Gravitational Waves (GW)
 - Neutrinos
- Observatories generate “alerts”, for observers (incl. Amateur and Citizen Science participants) to search for **optical counterparts**

An Alert Monitor

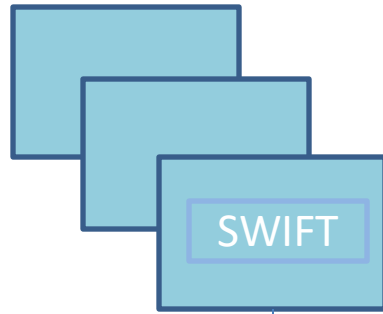
- **Outside of PRISM,**
- Listen to brokers (24/7) and store alerts
- Provides filters (type, mag) for the user
- Returns complete “VOEvents”
- Successful candidate: **Astro-Colibri**
- Communication with SAMP via HTTP/JSON API



Observatoires



Brokers

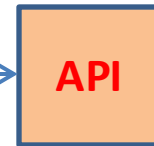
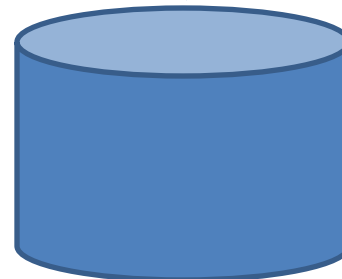


Alertes

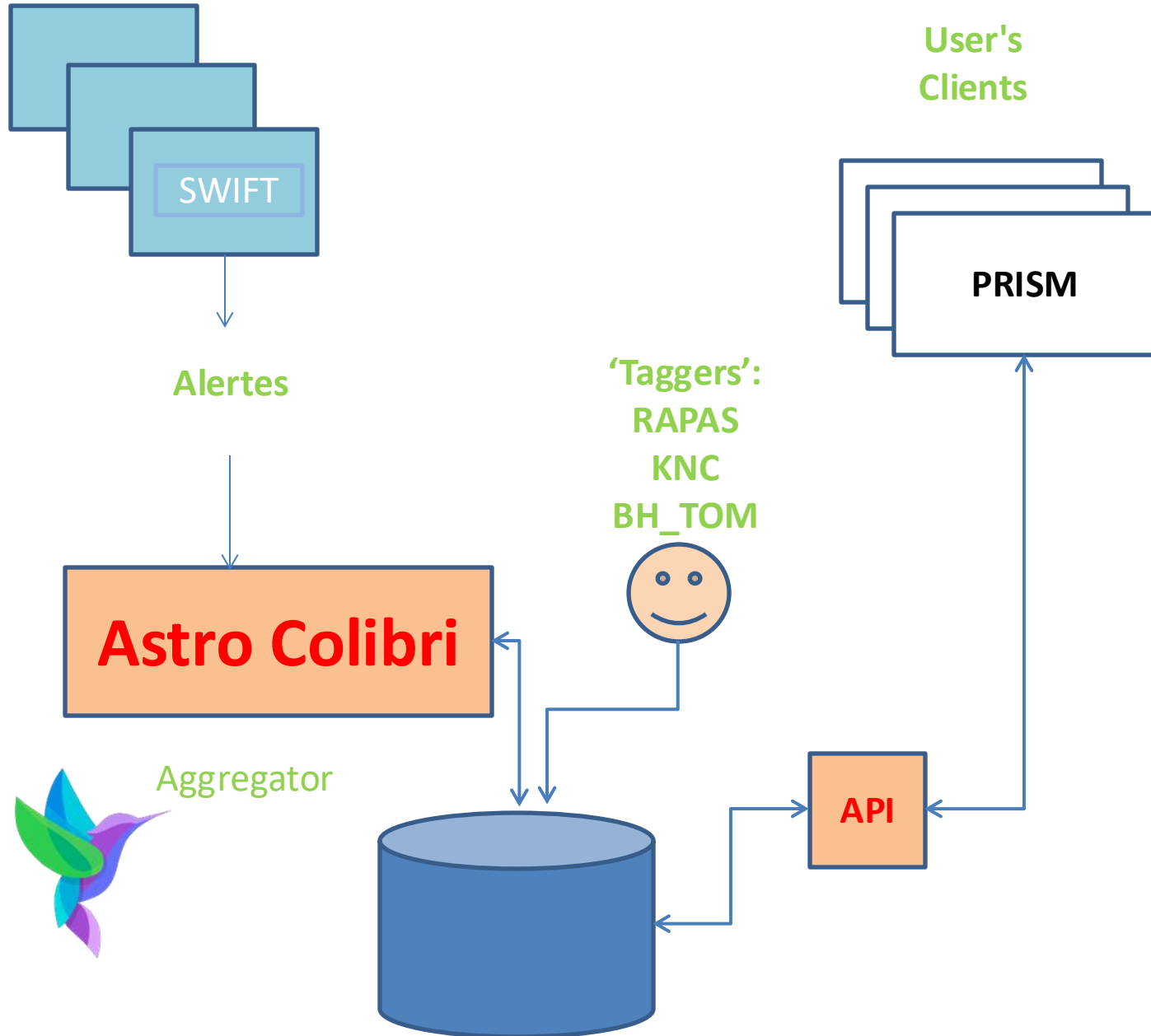
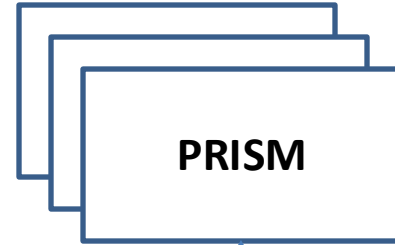


Aggregator

'Taggers':
RAPAS
KNC
BH_TOM



User's Clients

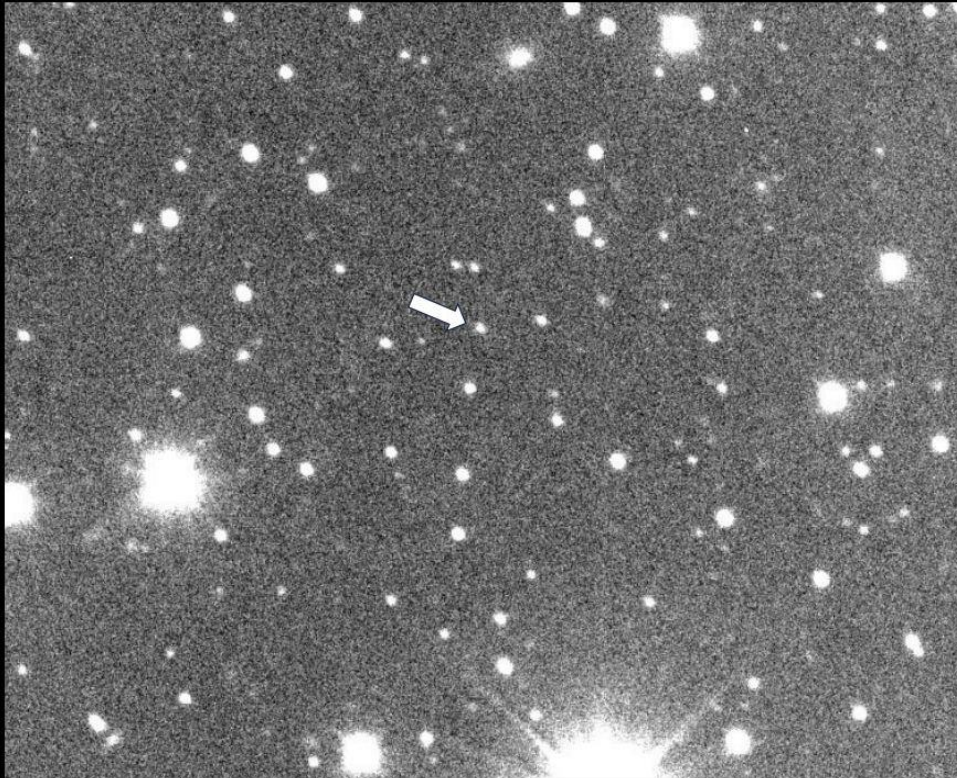


Astro-Colibri/PRISM interface choices

- Compliance with existing documented API
- Filters are tuned on Astro-Colibri server side
- Minimal GUI on PRISM side
- Full integration in PRISM GUI
 - (2 clicks pointing)
- Ready for VO Support
- Support of community request (Tags RAPAS)

GRB 240809A : First light

Announced by SAF Fb page
(Société Astronomique de France/RAPAS/Adagio/)



Adagio Astronomie
12 août à 22:26 · 🌐

Patrick Martinez et Cédric Latgé avons répondu à l'appel d'observation du GRB 240809A lancé par le réseau RAPAS sur la plateforme Astro-Colibri.

Le 09/08/2024, nous avons recherché le GRB 240809A avec le télescope T820 de l'observatoire de Bélesta.

Il y a un objet qui ne figure pas sur la carte issue du catalogue GAIA, aux coordonnées :
alpha : 15h 50m 10,55s ; delta : -02° 19' 03,3"

Filtre G : mag = 20,58 +/-0,19 ; S/N = 11,2 ;
9/8/2024 - 21h28min - pose : 1860 s
Filtre Gpb : mag = 20,10 +/-0,32 ; S/N = 7,4 ;
9/8/2024 - 21h04min - pose : 270 s
Filtre Gpr : mag = 20,48 +/-0,60 ; S/N = 4,8 ;
9/8/2024 - 20h58min - pose : 270 s

L'objet est bien visible en filtre G, mais proche du bruit de fond sur les images Gpb et Gpr (donc photométrie moins bonne) en raison du temps de pose beaucoup plus court avec ces filtres (le champ descend vers l'horizon de façon sensible après le crépuscule, ce qui limite le temps que l'on peut consacrer aux acquisitions) .

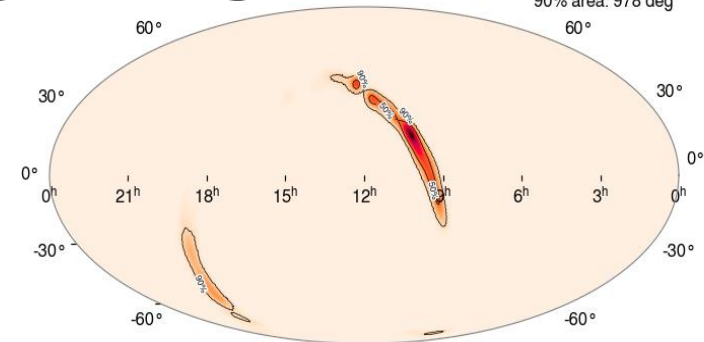
Ci-joint un extrait de l'image avec le filtre G, l'objet suspect est repéré par la flèche, le champ est environ 5'x5'.

Ces mesures photométriques ont été envoyées dans la première circulaires RAPAS#1 à la NASA GCN (General Coordonnées Network).
<https://gcn.nasa.gov/circulars/37159>

#Rapas #gaiadr3 #astrocolibri #GRB #240809a
#adagioastronomie Voir moins
— à Bélesta-En-Lauragais, Midi-Pyrenees,

Observation of large regions

event ID: G483702
50% area: 236 deg²
90% area: 978 deg²



- Observation Tiles (for GW)
 - Astro-Colibri provides assistance in searching for optical counterparts over large portions of the sky.
- Via API `"/tiling"` EndPoint
 - The service provides an observation program covering the predicted region with observation planning and pointing parameters. This facility is currently limited to events detected by gravitational waves (GW).
- A PRISM interface is being considered.

Project Status

- SAMP, Python, Astro-Colibri will be integrated into PRISM in the **base version**
- **SAMP Delphi Sources for PRISM Coming Soon via GitHub**
- Python sources (SharpCap) already available:
 - <https://github.com/rsav/samp4sharpcap>
- Demos at the SF2A Days and Marseille Photometry and Data Analysis School (June 2024)
- Beta testing in progress
- Presentation planned for RCE2024

Beta Testers

- Cyril Cavadore (PRISM Integration).
- Renaud Savalle (WIVONA).
- Historically Agreed Beta testers.
- Volunteers under confidentiality agreements.
- ...