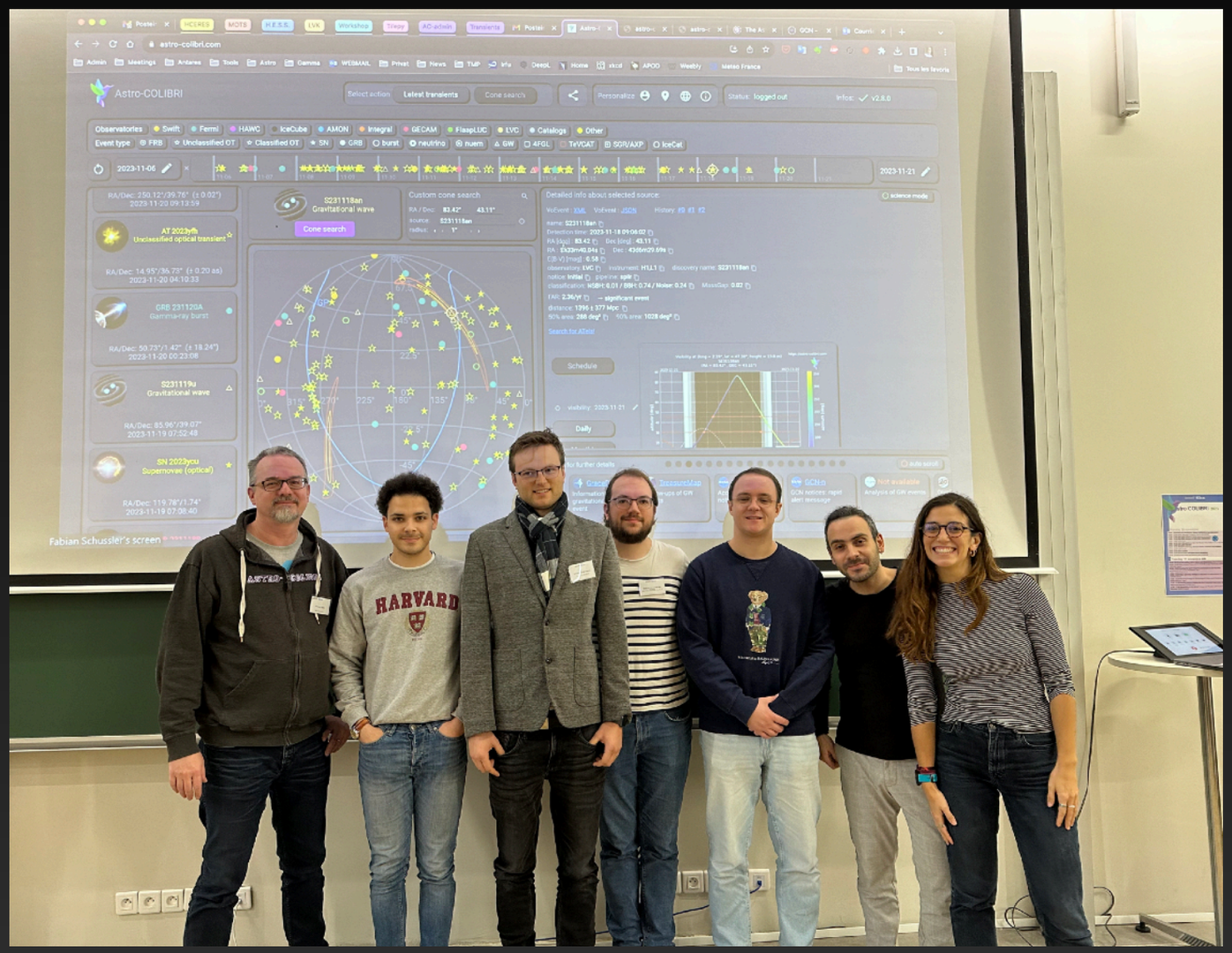
Astro-COLIBRI



Fabian Schüssler (IRFU, CEA Paris-Saclay)

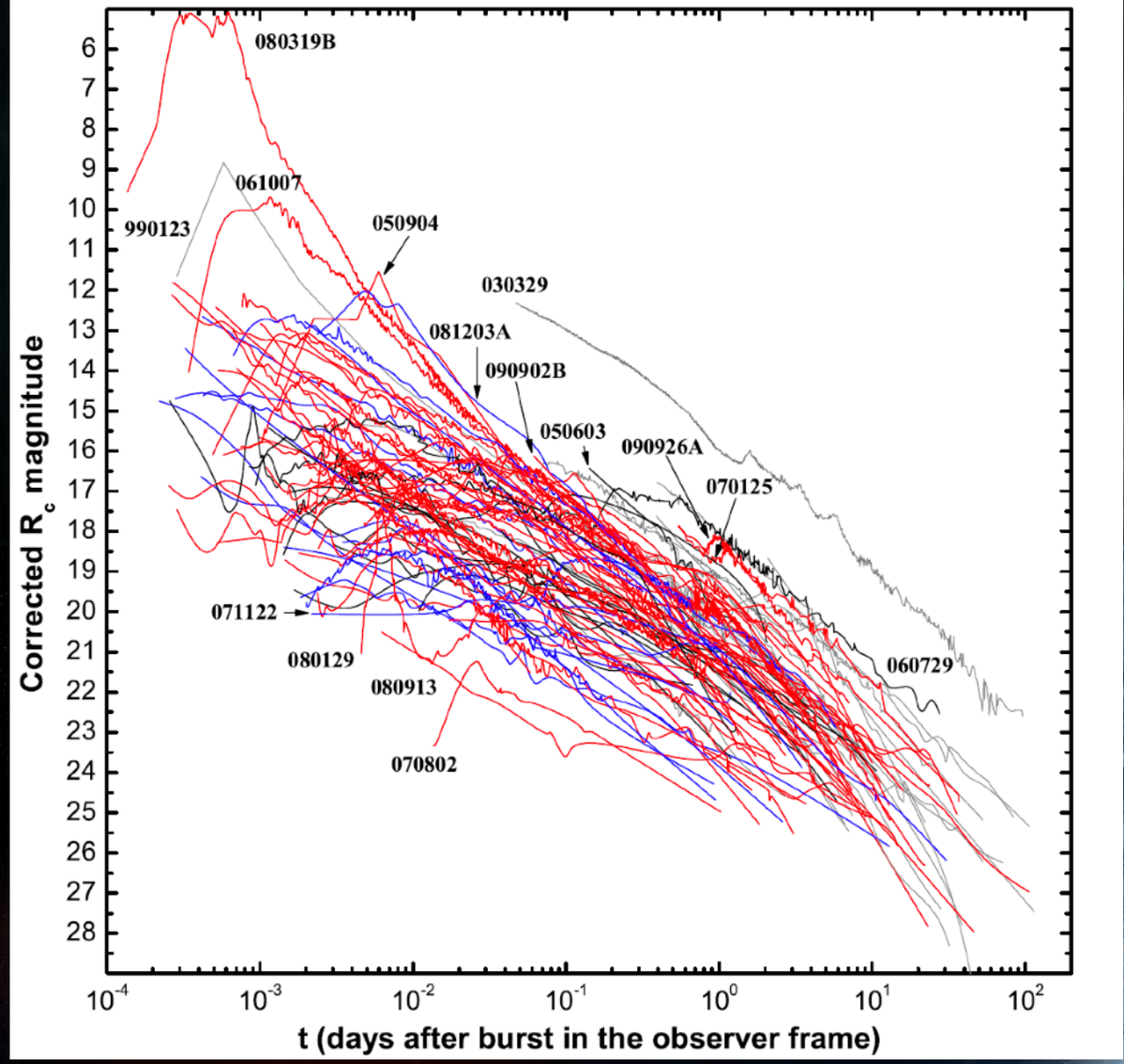
Funded by the Horizon 2020 Framework Programme of the European Union Grant Agreement No. 871158

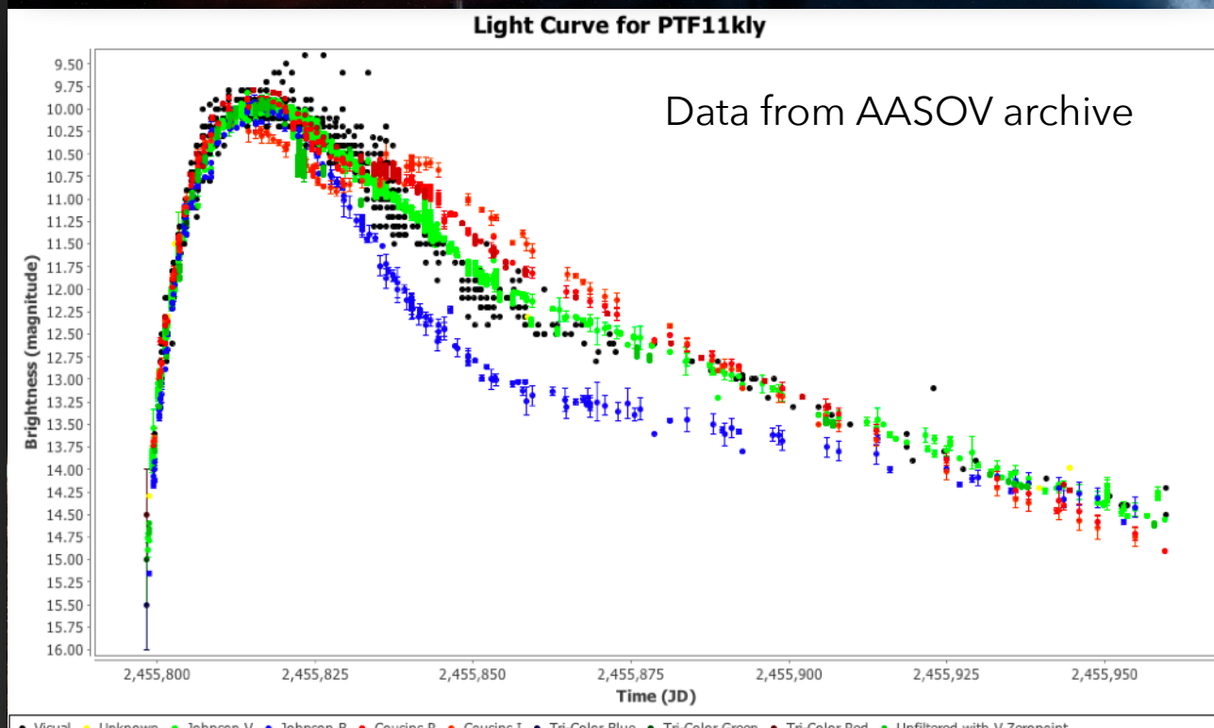
Astronomie des phénomènes transitoires

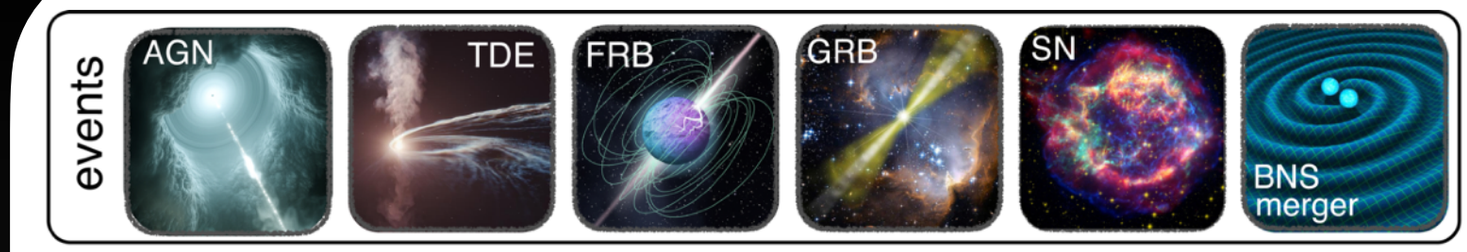
Les phénomènes les plus violents de l'univers

- Supernovae + sursauts gamma
- Novae + CV + TDE + …
- Sursauts radio rapides
- Étoiles à neutrons, magnetars, …

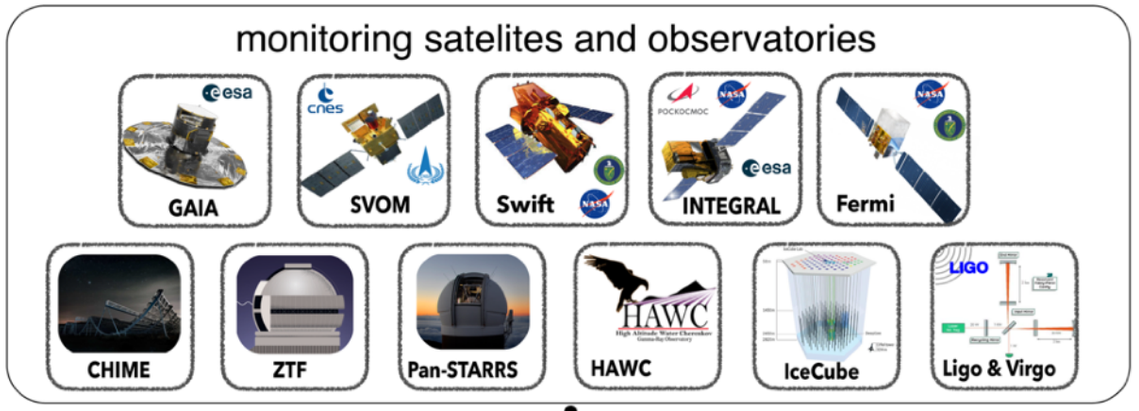
- **Phénomènes multi-messagers**

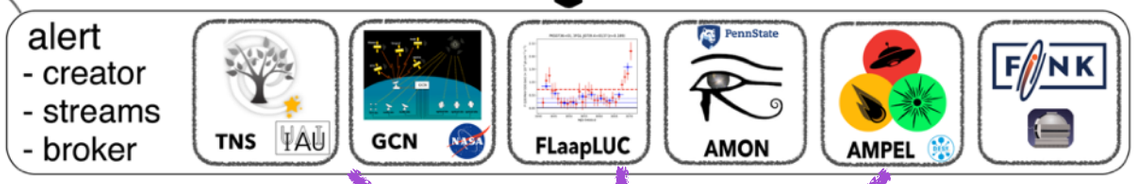






photons, GWs, ν, (CRs)



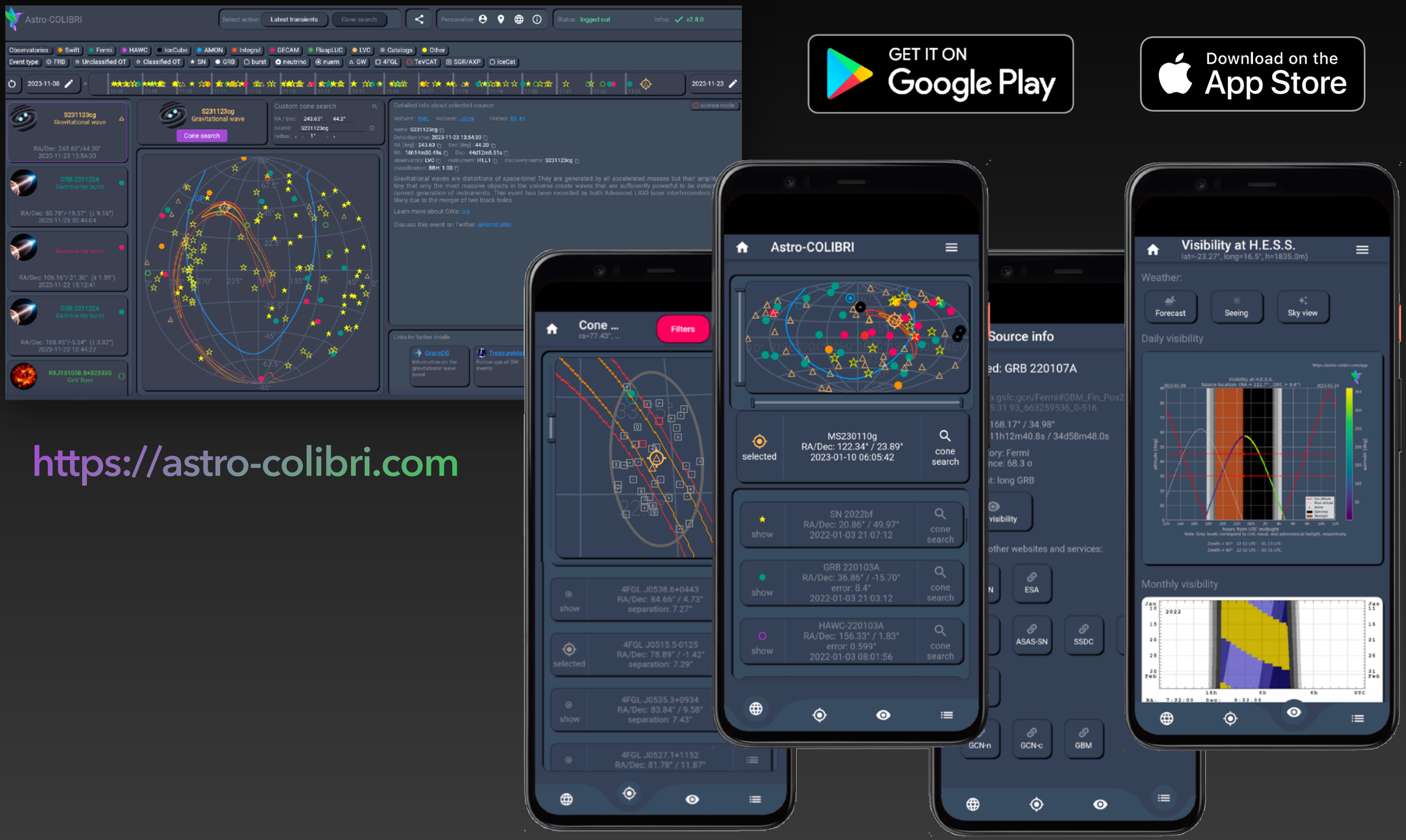


follow-up-observ.

BHTOM

RAPAS

Interfaces graphiques



https://astro-colibri.com

GET IT ON Google Play

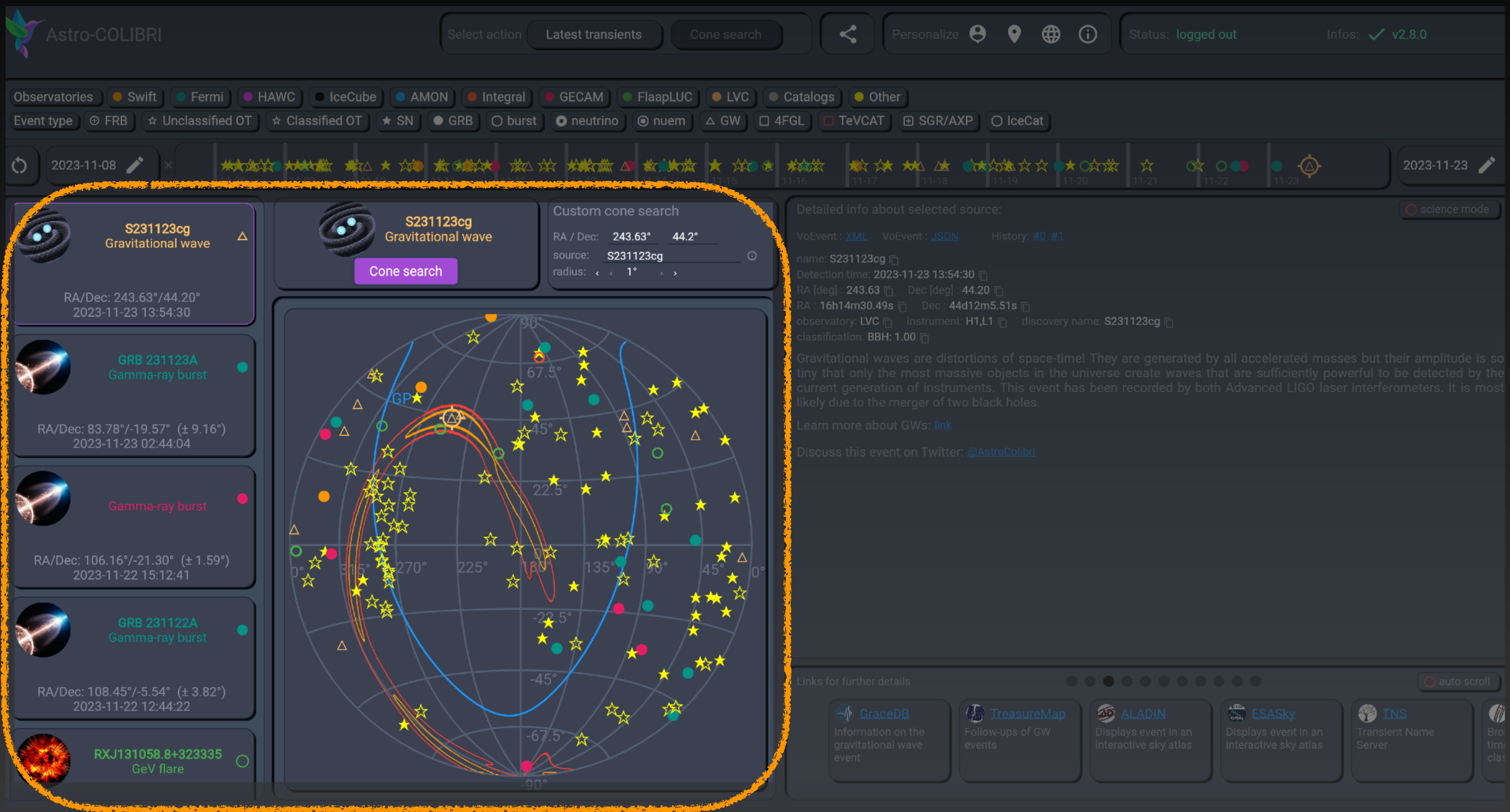
Download on the App Store

Android + iOS

Real-time notifications

Bright optical transients
(mag < 18)
Unistellar: bright and early optical transients
Special targets (e.g. TCrB)
Astro-COLIBRI announcements

Les derniers transitoires



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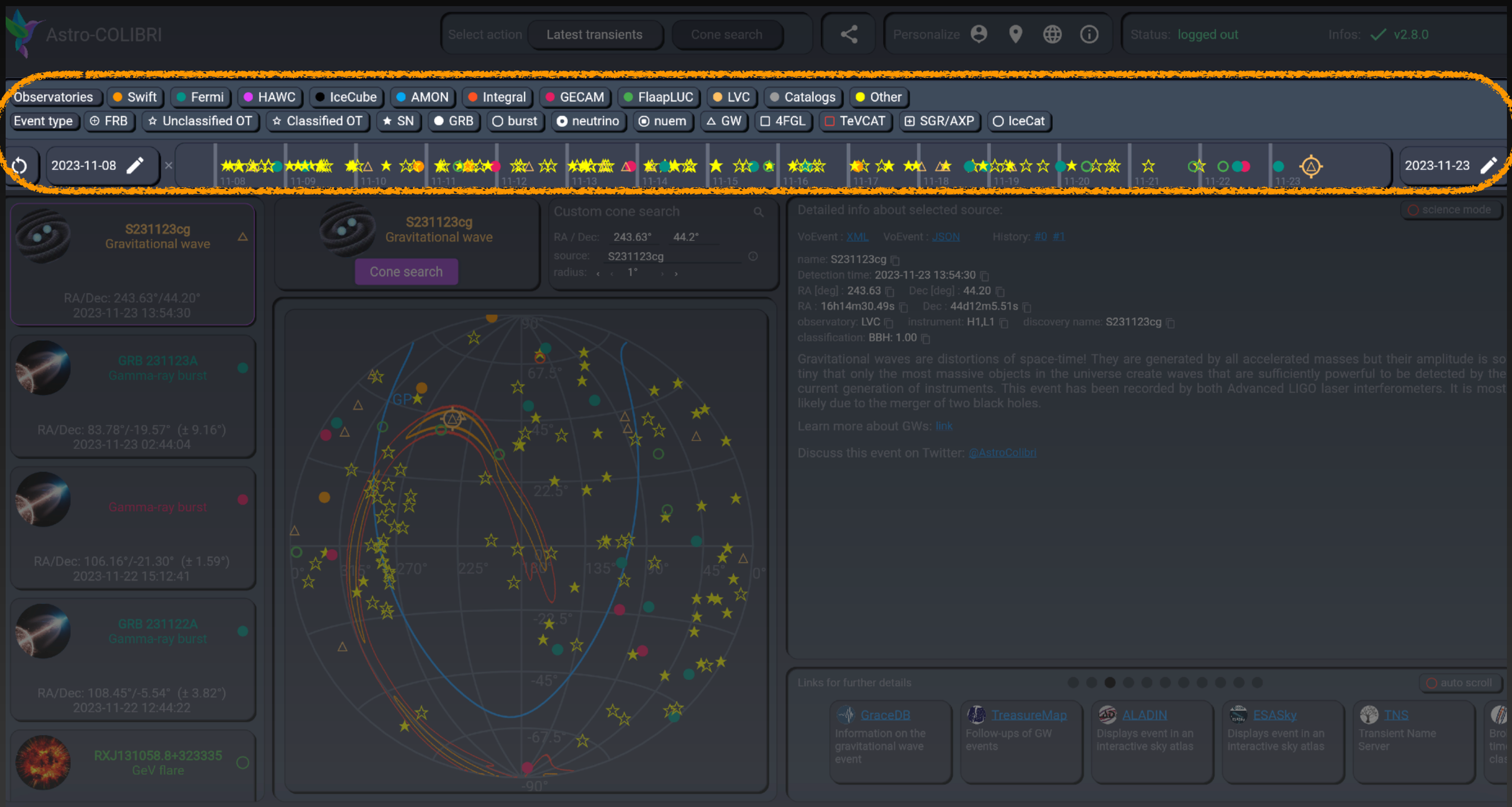
Timeline + Filtres



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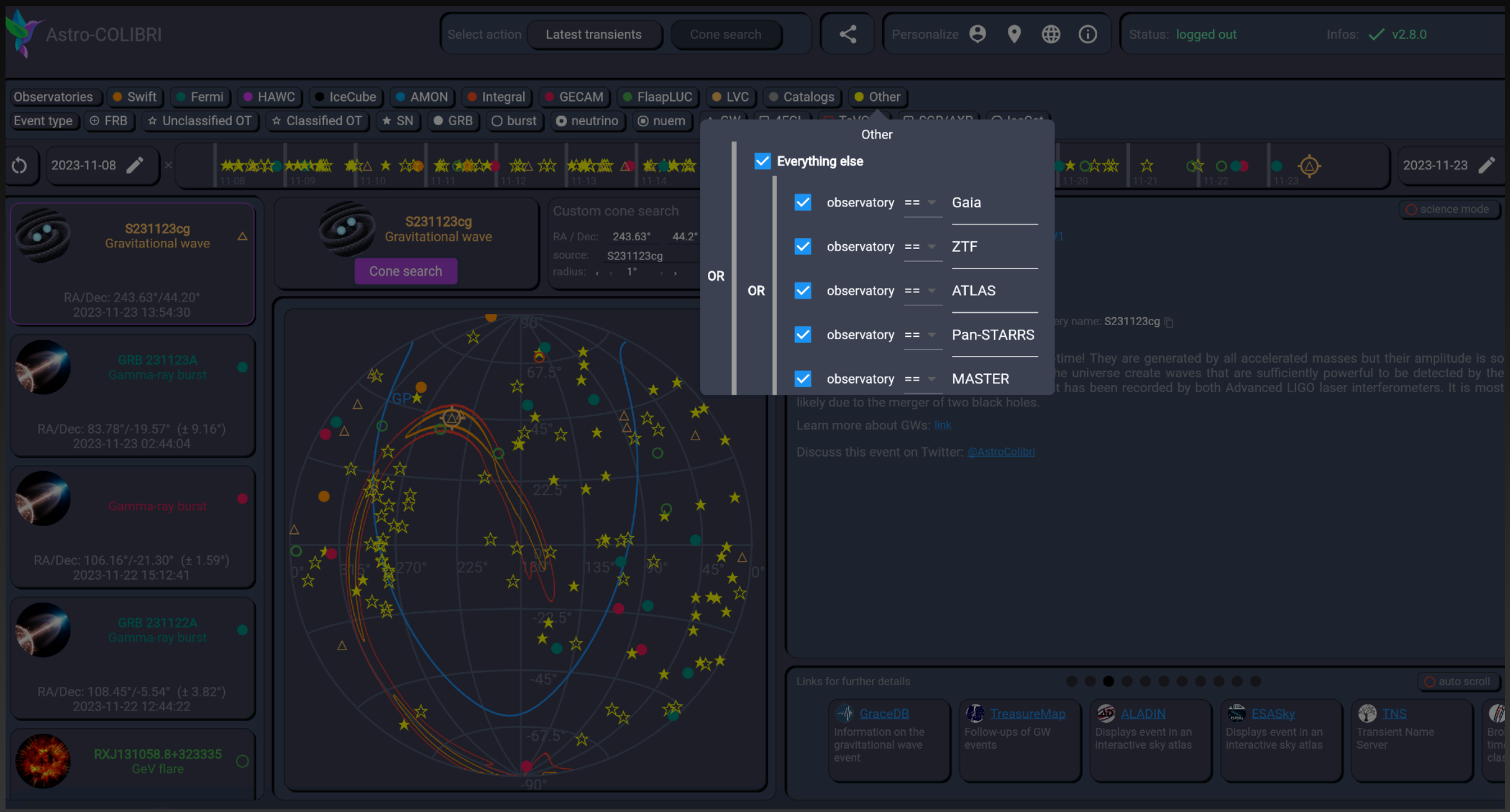
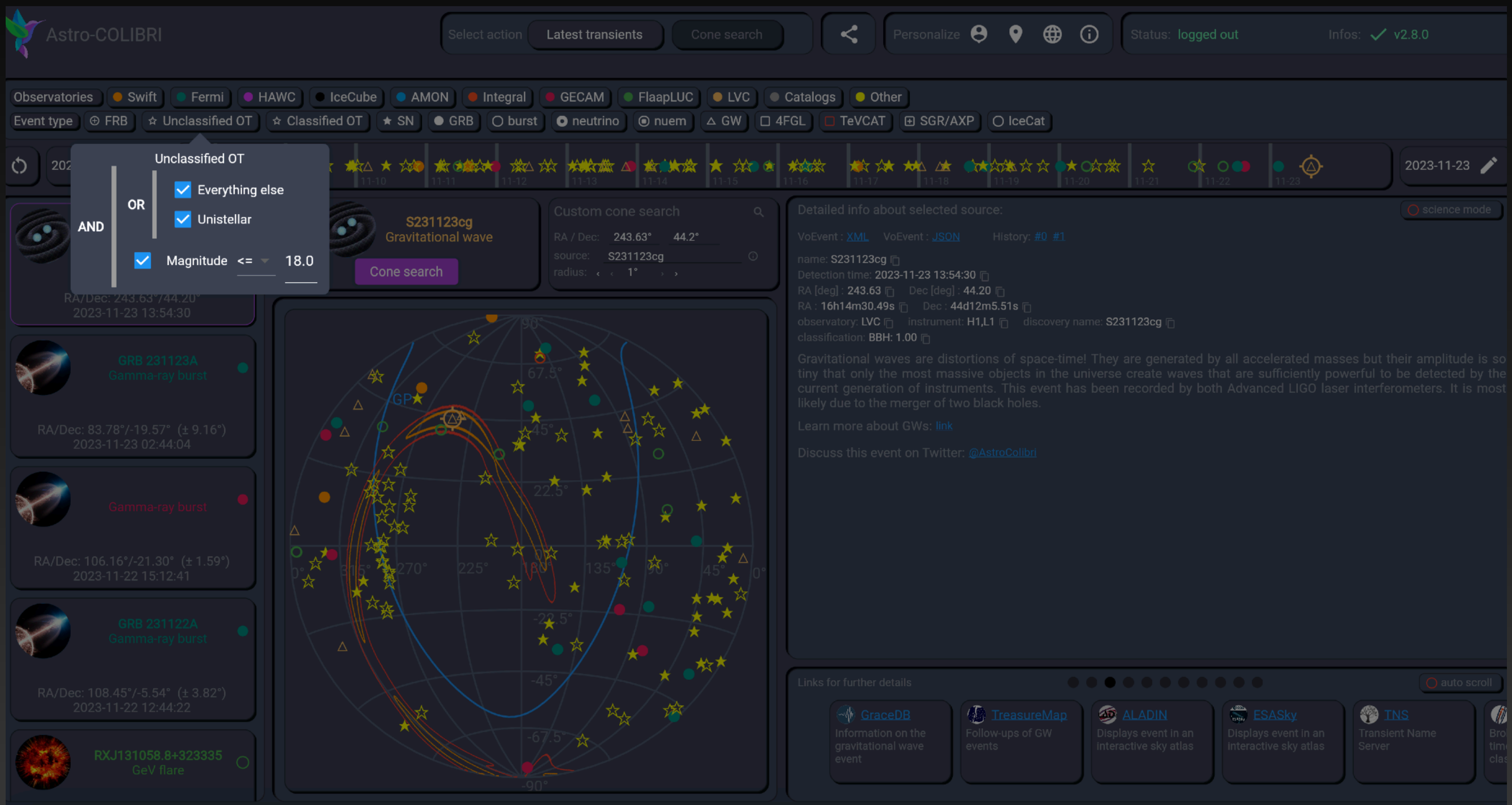
Filtrer les phénomènes



https://astro-colibri.com

Filtrer les phénomènes



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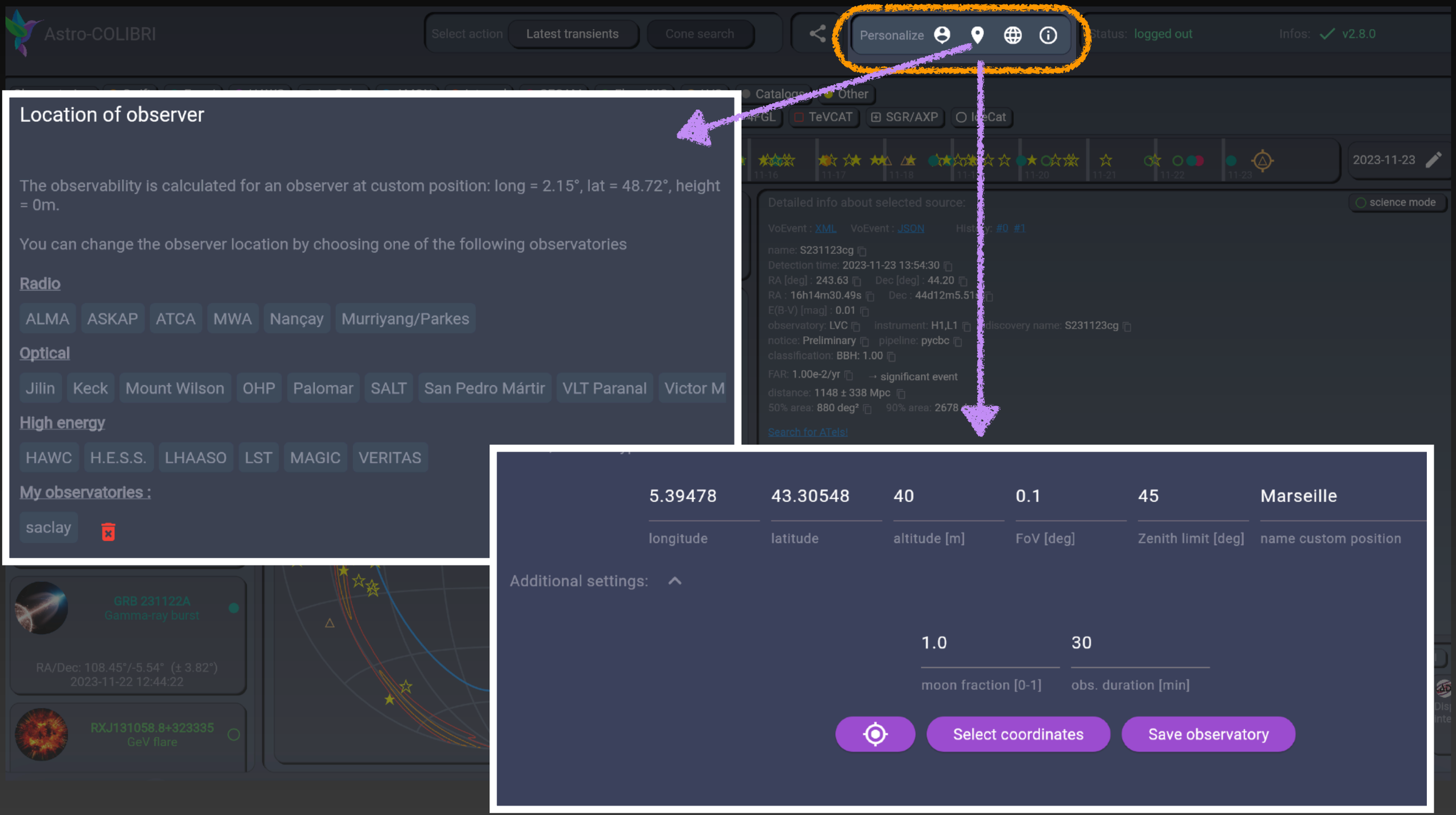
Définition des observatoires

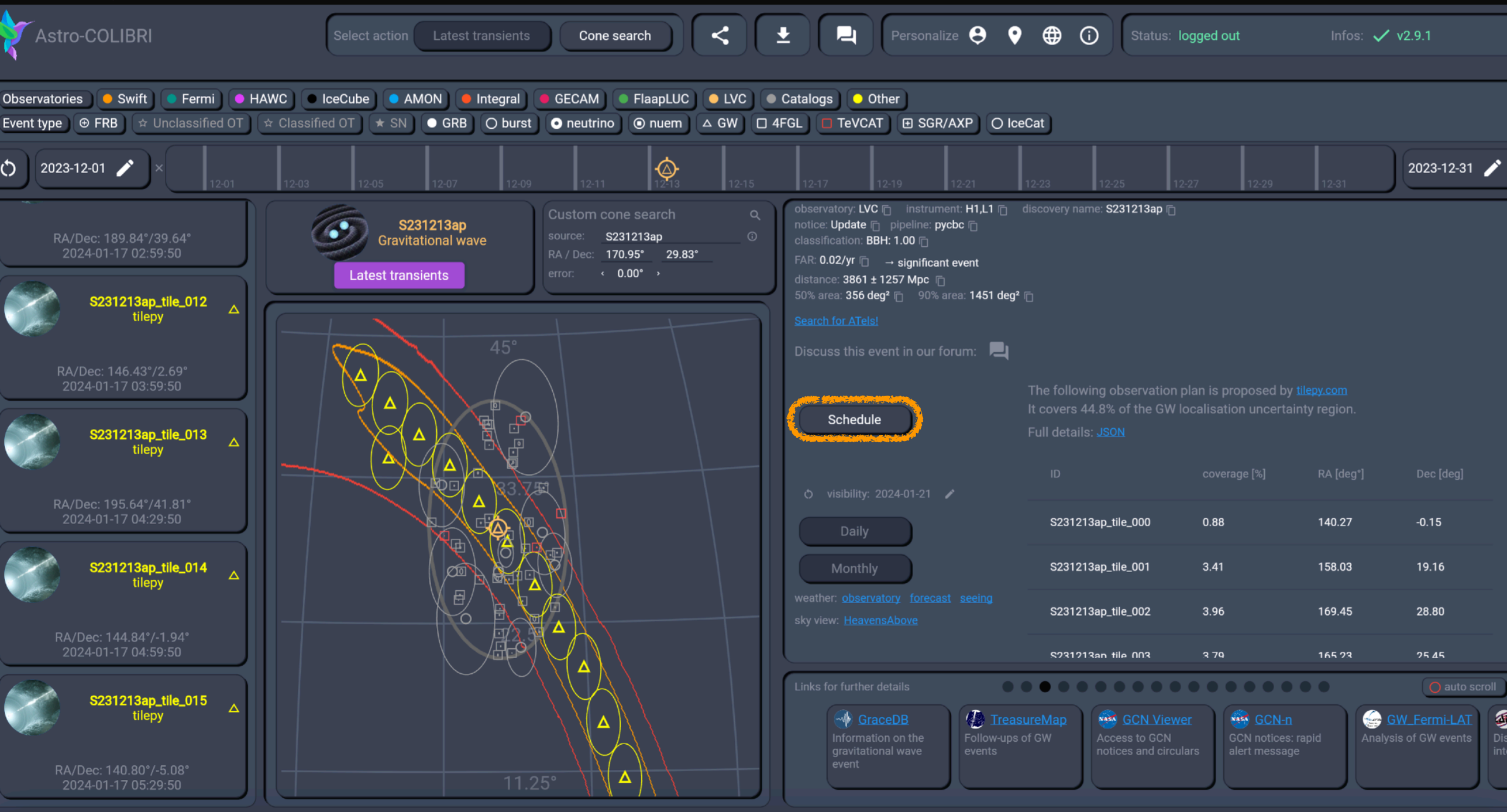


https://astro-colibri.com

Filtrer les phénomènes

https://astro-colibri.com

Plans d'observations



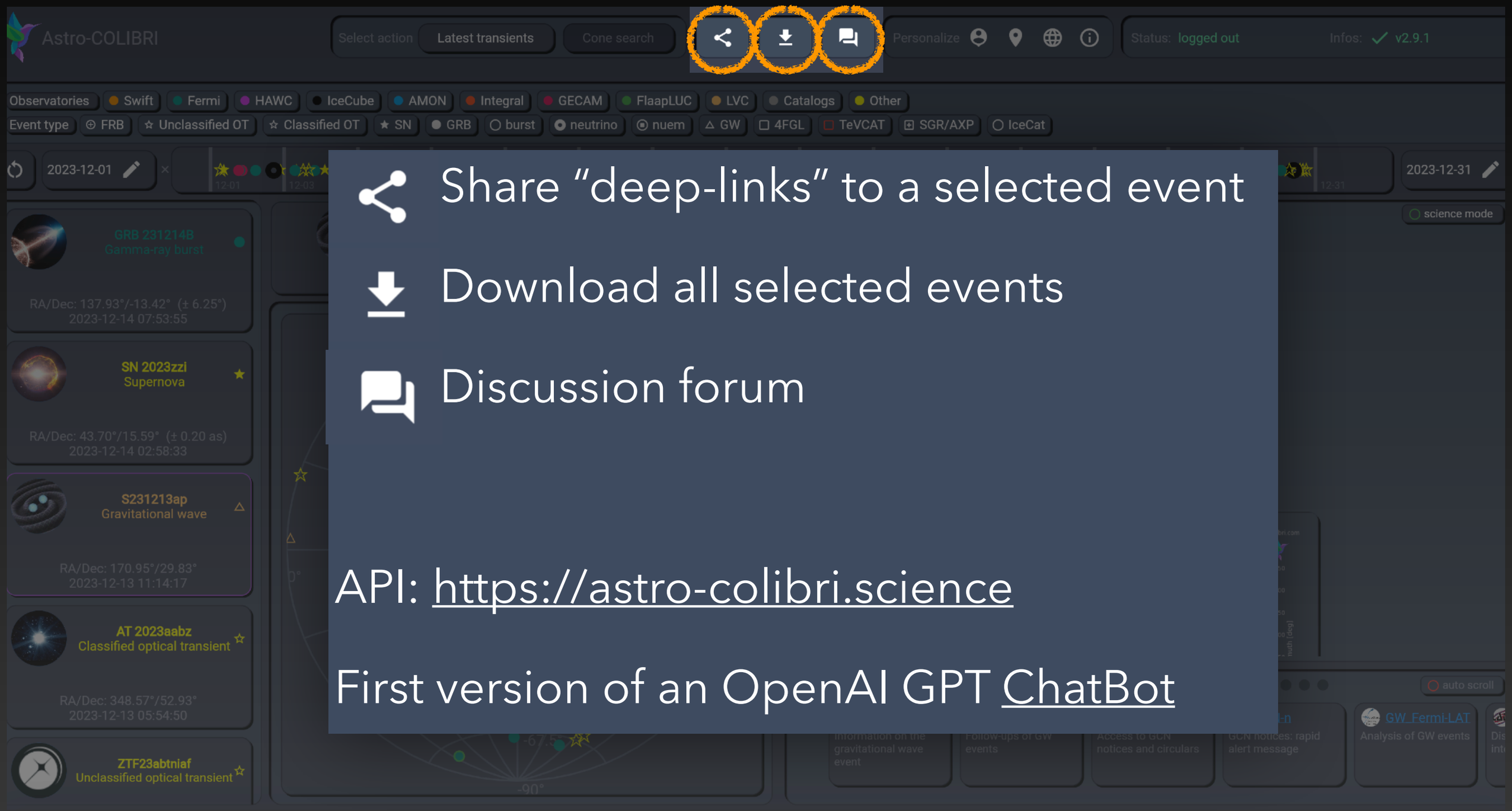
https://astro-colibri.com

https://tilepy.com

Le ciel (trop) transitoire

~300 nouveau détections par semaine
comment choisir quelques évènements interessants et accessibles?

Communauté



Share “deep-links” to a selected event

Download all selected events

Discussion forum

API: https://astro-colibri.science

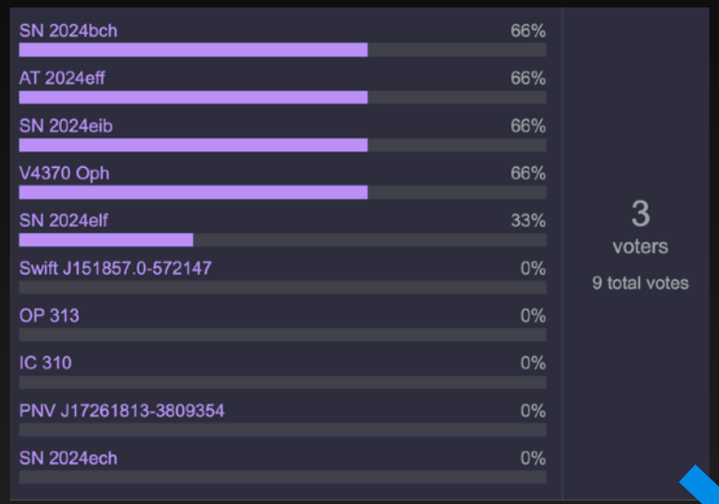
First version of an OpenAI GPT ChatBot

https://astro-colibri.com

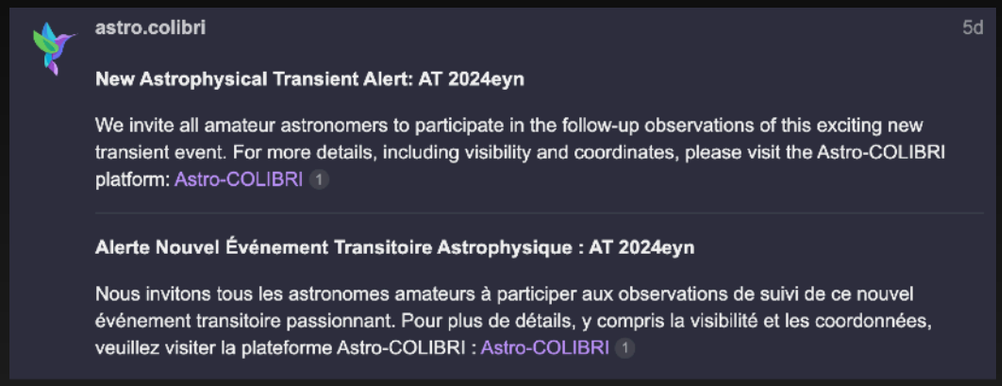
Liste d'évènements "phares"

https://forum.astro-colibri.science/c/rapas

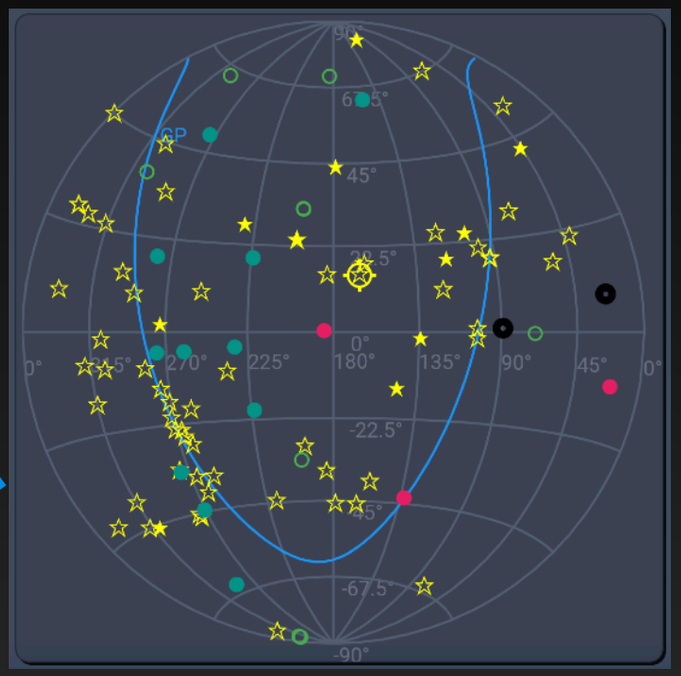
Semaine N-1



Semaine N-1



Semaine N-1



Une nouvelle liste
est crée le vendredi après-midi

Semaine N

- ☐ SN 2024bch
- ☐ AT 2024eff
- ☐ V4370 Oph
- ☐ SN 2024eib
- ☐ SN 2024elf
- ☐ AT 2024eyn
- ☐ IceCube-240327B
- ☐ IceCube-240327A
- ☐ AT 2024exw

+

Envoi à RAPAS@groups.io

Astro-COLIBRI

- Les nouveaux filtres permettent un affichage plus personnalisé
- Propositions d’améliorations ?
    - Filtres
    - Notifications
    - …
- Forum de discussion: https://forum.astro-colibri.science
    - Annonces des développeurs + discussions d’améliorations
    - Mise en avant de quelques événements interessantes
    - Forum de discussion RAPAS
    - …

Astro-COLIBRI

Contact: astro.colibri@gmail.com

- Central webpage: **https://astro-colibri.science**

Android Play Store

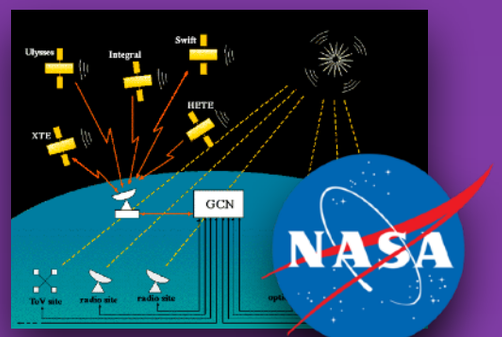
Apple iOS App Store

Introductions/tutorials on YouTube

Twitter: @AstroColibri

astrodon.social/@astro_colibri

Main idea



TRANSIENT NAME SERVER

four π sky

Fermi Gamma-ray Space Telescope

AMON Astrophysical Multimessenger Observatory Network

LSC LIGO Scientific Collaboration VIRGO

SVOM

FINK

ALeRCE Automatic Learning for the Rapid Classification of Events

...

SIMBAD

ALADIN

Fermi Gamma-ray Space Telescope

SSDC SPACE SCIENCE DATA CENTER

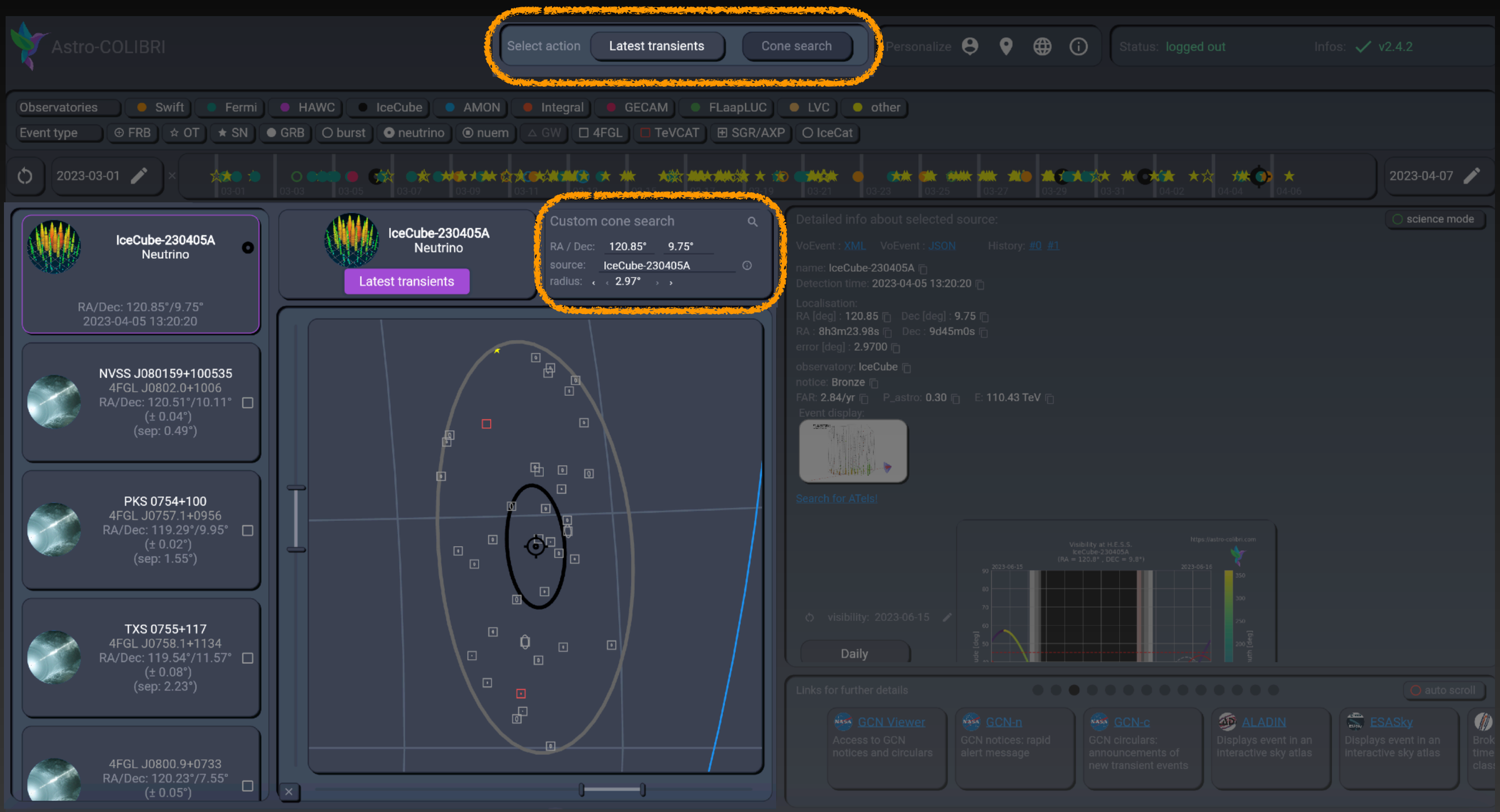
esa

IVOA

NED

...

Recherches d'événements



https://astro-colibri.com

Ondes gravitationnelles

https://astro-colibri.com

Informations détaillées

Astro-COLIBRI

Select action | Latest transients | Cone search

Personalize

Status: logged out Infos: v2.4.2

Detailed info about selected source:

VoEvent : XML VoEvent : JSON History: #0 #1 #2 #3

name: S230601bf

Detection time: 2023-06-01 22:41:34

RA [deg] : 307.97 Dec [deg] : -40.82

RA : 20h31m52.5s Dec : -40d49m1.38s

observatory: LVC instrument: H1,L1 discovery name: S230601bf

notice: Update pipeline: spiir

classification: BBH: 1.00

FAR: 5.41e-8/yr → significant event

distance: 3565 ± 1260 Mpc

50% area: 907 deg² 90% area: 2497 deg²

Search for ATels!

Schedule

2023-06-15

science mode

Visibility at H.E.S.S.
S230601bf
(RA = 308.0°, DEC = -40.8°)

https://astro-colibri.com

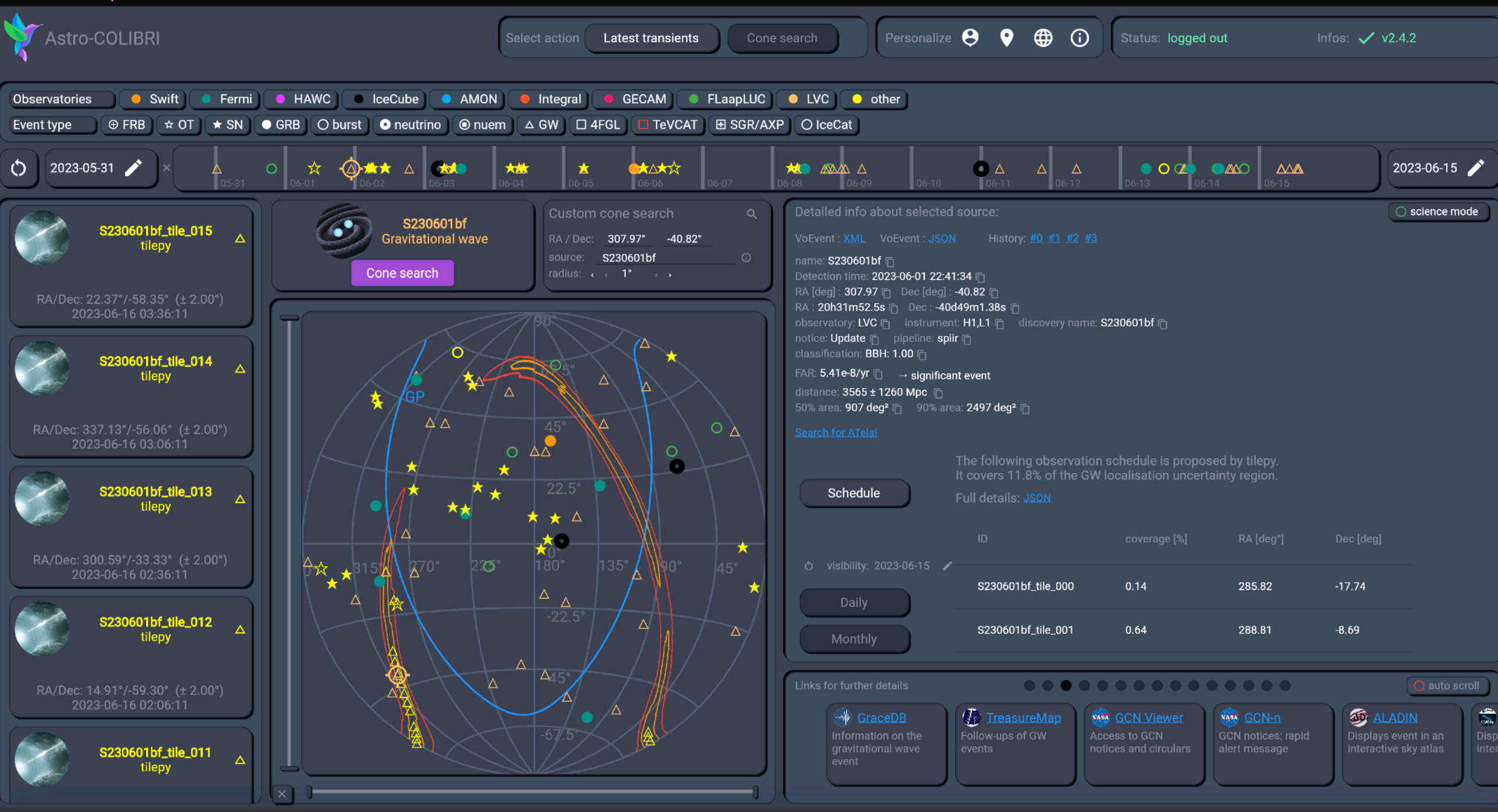
GraceDB
Information on the gravitational wave event

TreasureMap
Follow-ups of GW events

S230615k
Gravitational wave

https://astro-colibri.com

Plan d'observation



https://astro-colibri.com https://tilepy.com

Astro-COLIBRI

- Astro-COLIBRI: plateforme automatique et gratuite pour accéder aux détections de phénomènes transitoires
    - supernovae, sursauts gamma, sursauts radio, neutrinos de haute énergie, **ondes gravitationnelles**, …
    - interfaces: https://astro-colibri.com + Android + iOS
    - une API centrale et publique: https://astro-colibri.science
- References
    - P. Reichherzer et al., ApJS 256 5, 2021 (link) + Galaxies 11(1), 2022 (link)

Architecture