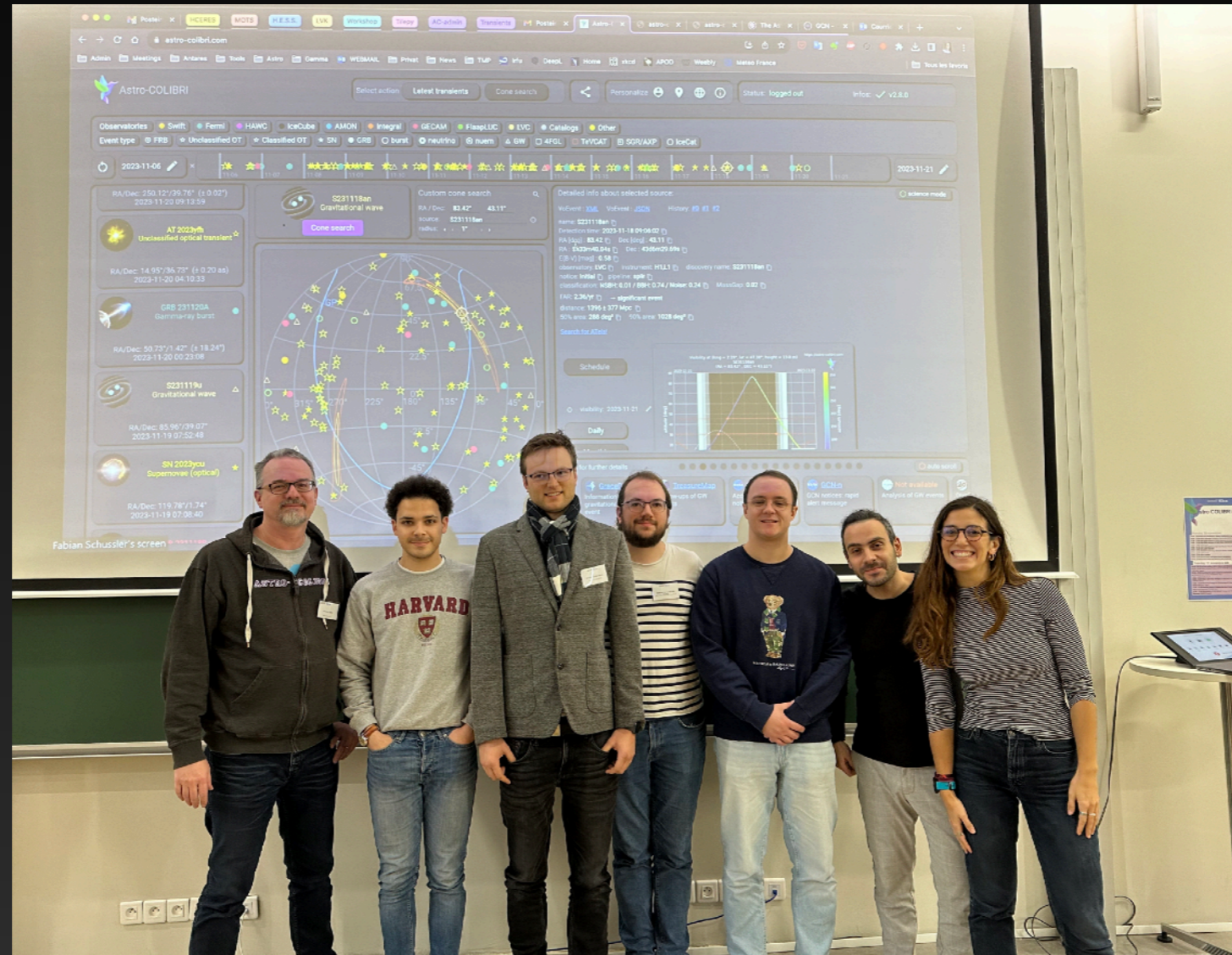




Astro-COLIBRI



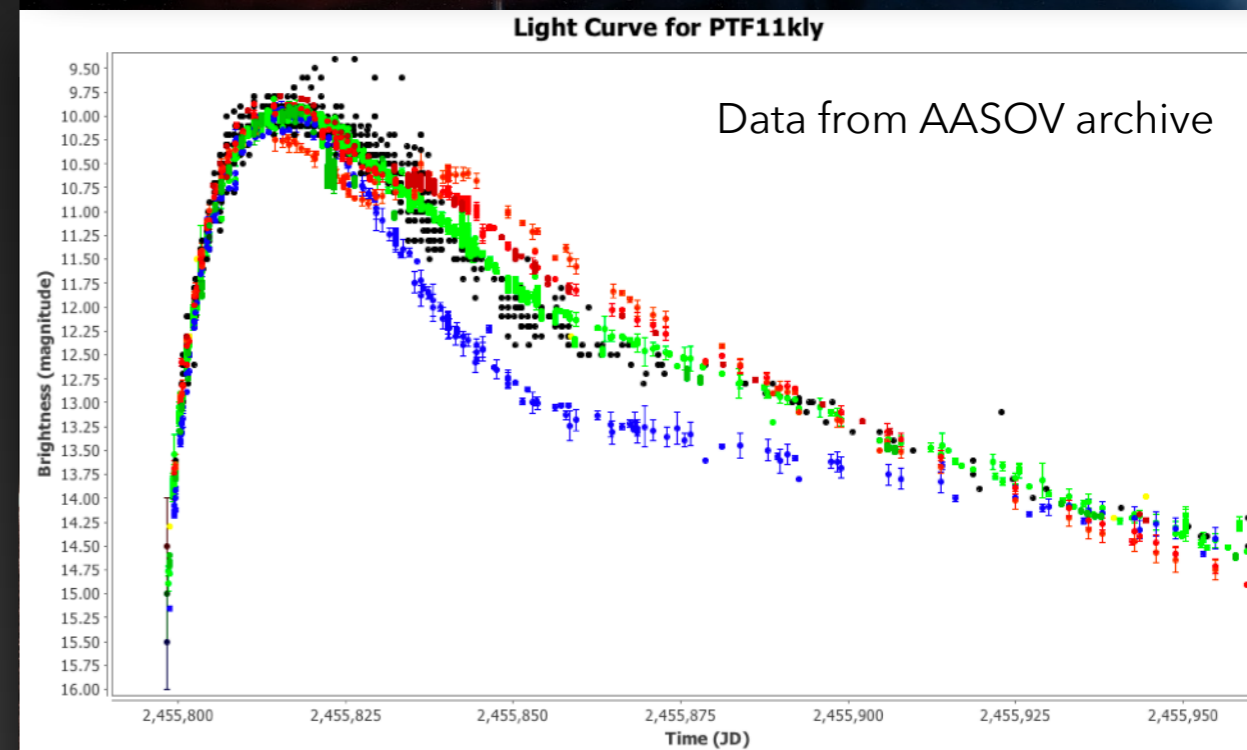
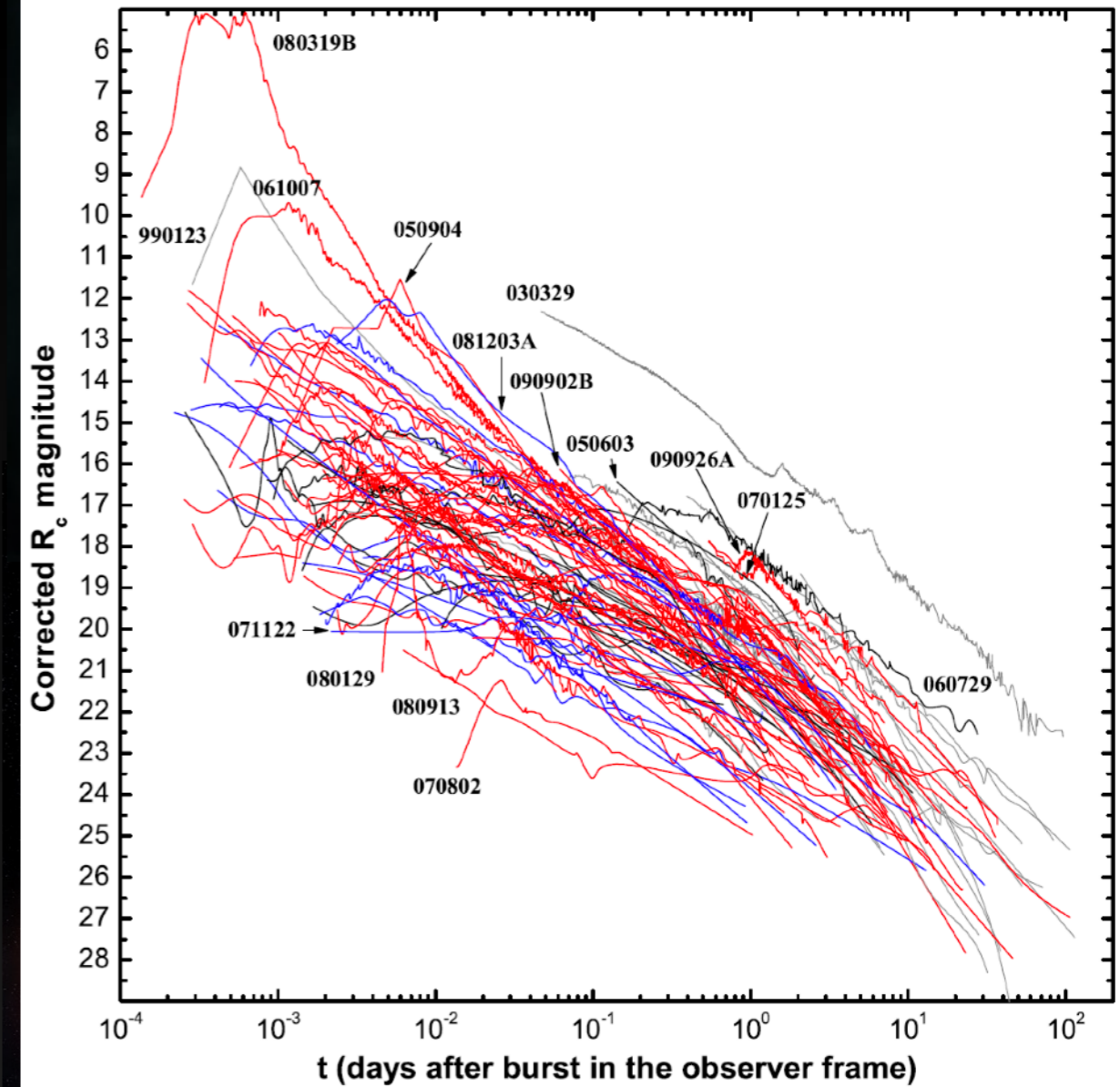
Fabian Schüssler (IRFU, CEA Paris-Saclay)



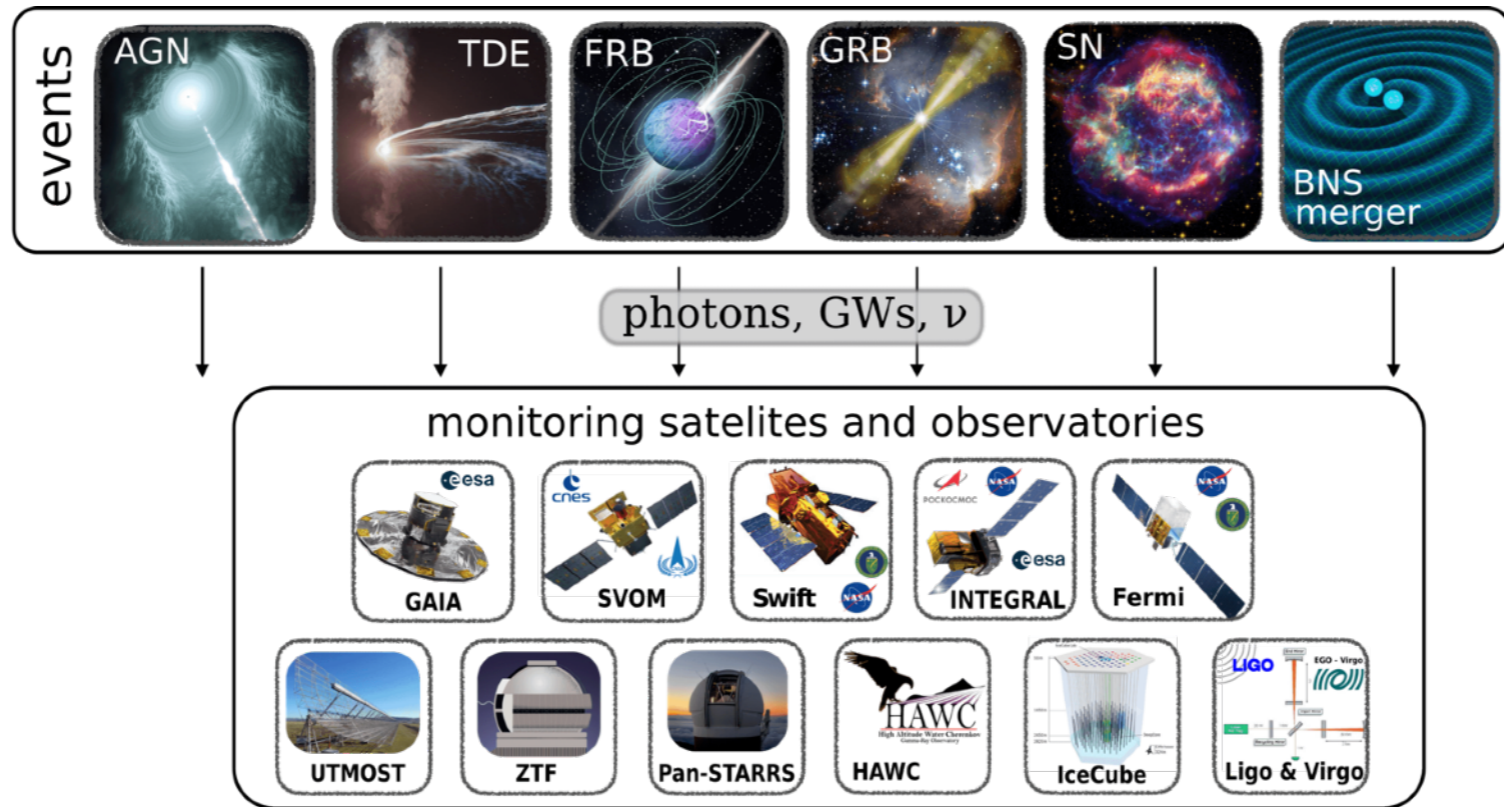
Astronomie des phénomènes transitoires

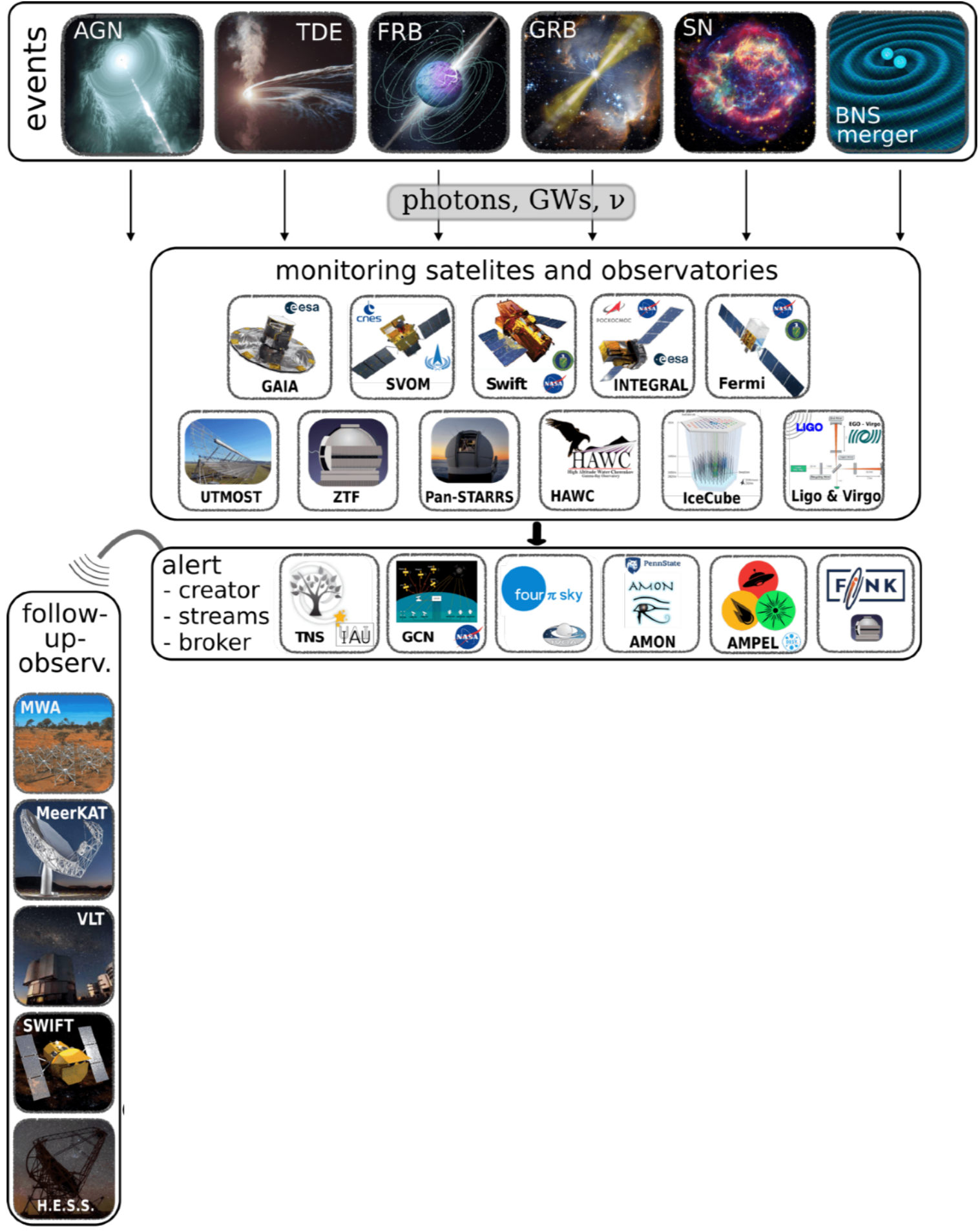
Les phénomènes les plus violents de l'univers

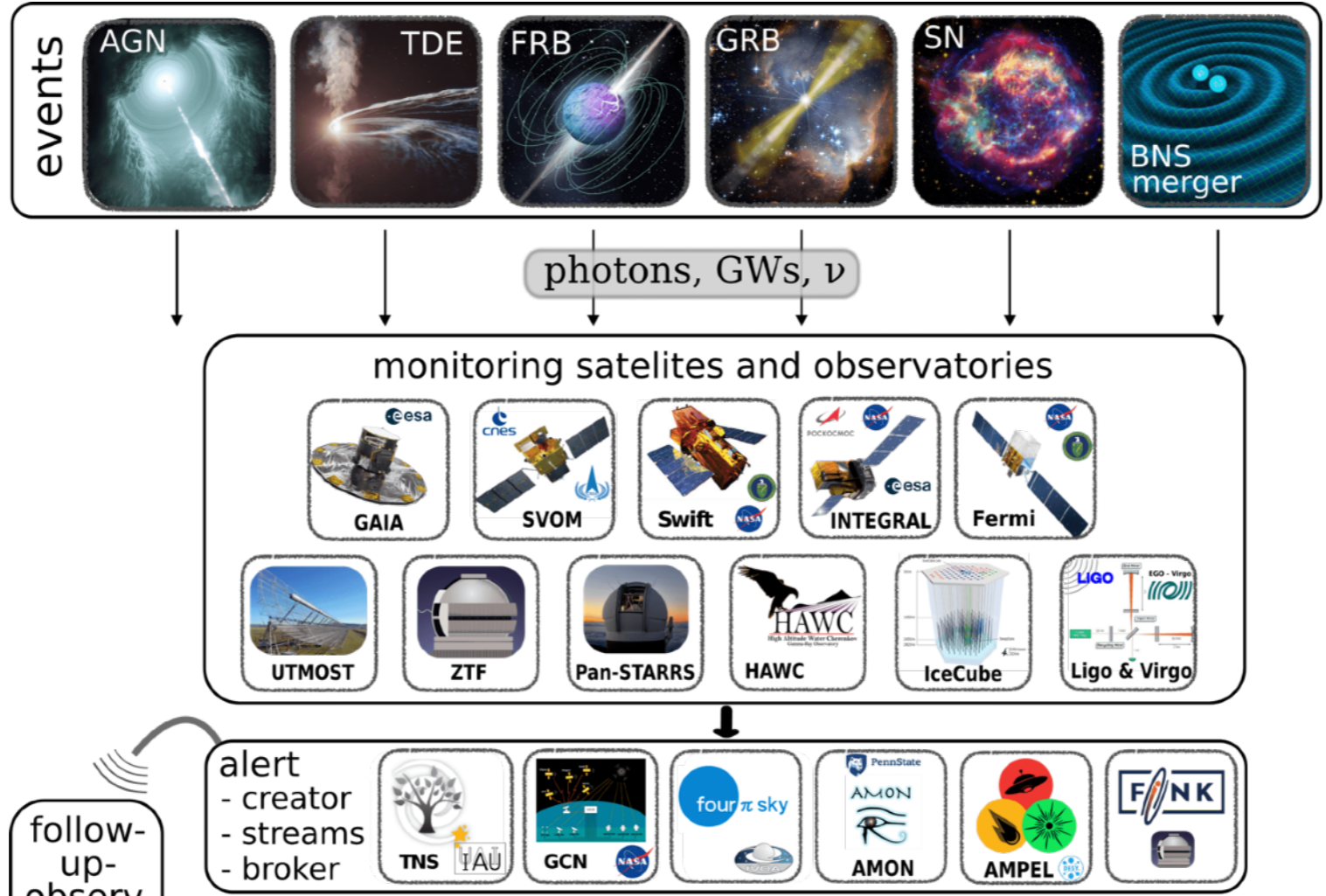
- Supernovae + sursauts gamma
- Novae + CV + TDE + ...
- Sursauts radio rapides
- Étoiles à neutrons, magnetars, ...
- **Phénomènes multi-messagers**



• Visual • Unknown • Johnson V • Johnson B • Cousins R • Cousins I • Tri-Color Blue • Tri-Color Green • Tri-Color Red • Unfiltered with V Zero point







follow-up-observ.



The following new classification/s were reported on:

```

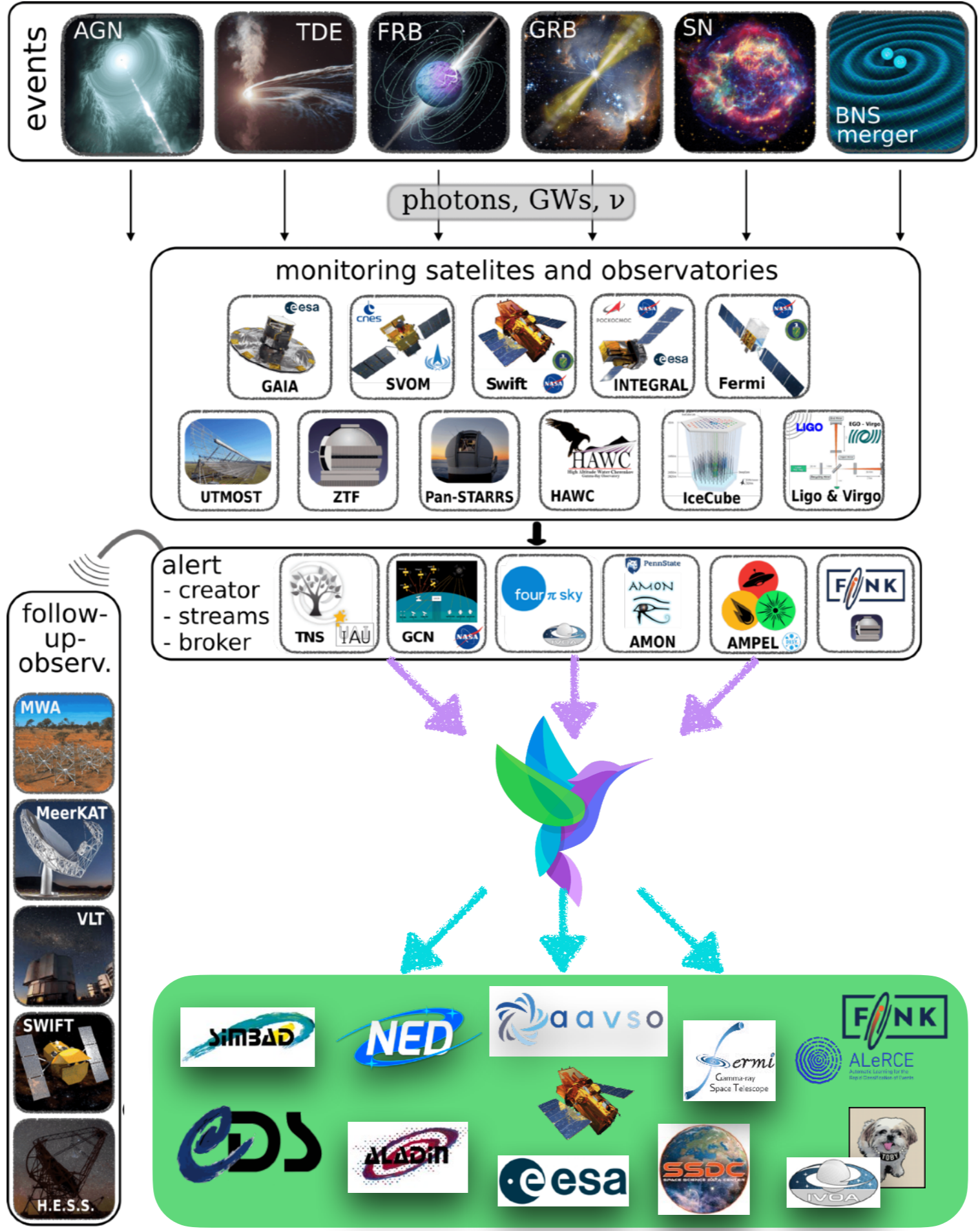
2021agrk RA=16:31:36.210, DEC=+13:38:14.93, Classification=SN II, Redshift=0.026, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
2022dkw RA=14:35:50.295, DEC=+24:40:58.20, Classification=SN IIln, Redshift=0.036, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
2022dlf RA=13:24:06.914, DEC=-00:41:34.50, Classification=SN Ia-91T-like, Redshift=0.092, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
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2022efq RA=16:40:08.257, DEC=+29:32:21.32, Classification=SN Ia, Redshift=0.072, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
2022ehu RA=20:17:04.032, DEC=-47:46:21.15, Classification=SN Ia, Redshift=0.072, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
2022eml RA=10:28:26.131, DEC=-34:28:22.63, Classification=SN Ia, Redshift=0.072, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+
2022enc RA=14:43:15.783, DEC=-38:23:54.71, Classification=SN Ia, Redshift=0.072, Time received: 2022-03-23 18:56:17, Classifier: T. Moore, S. Srivastav, K. W. Smith, M. Fulton, O. Yaron on behalf of ePESSTO+, Source group: ePESSTO+

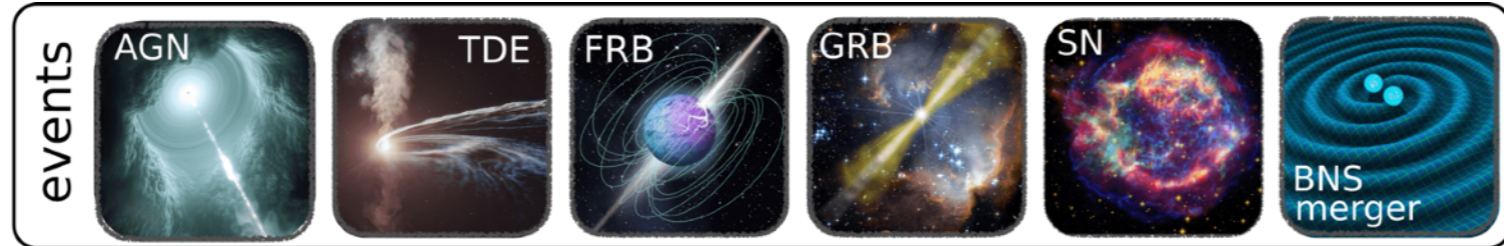
```

```

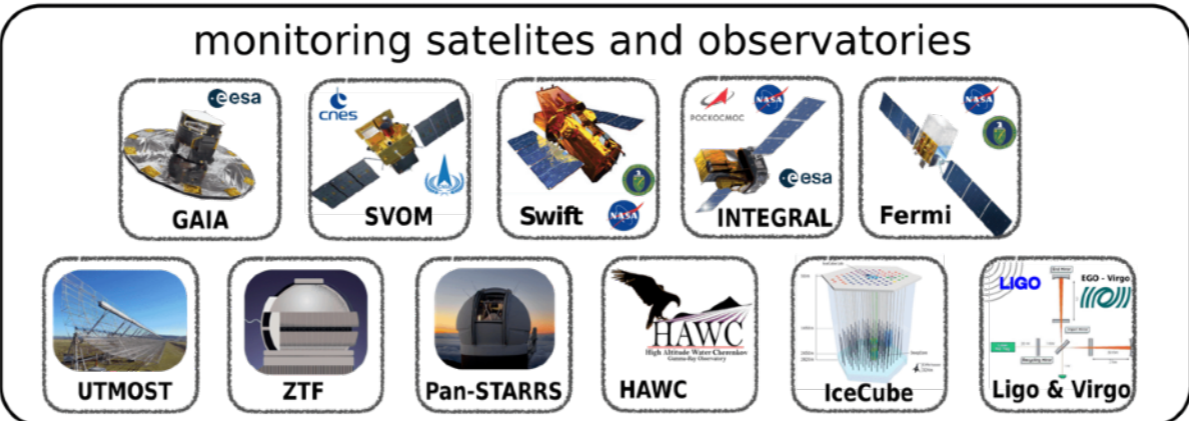
<voe:VOEvent xmlns:voe="http://www.ivoa.net/xml/VOEvent/v2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" schemaLocation="http://www.ivoa.net/xml/VOEvent/v2.0 http://www.ivoa.net/xml/VOEvent/VOEvent-v2.0">
  <Who>
    <AuthorIVORN>ivo://nasa.gsfc.tan/gcn/</AuthorIVORN>
    <Author>
      <shortName>VO-GCN/</shortName>
      <contactName>Scott Barthelmy/</contactName>
      <contactPhone>+1-301-286-3106/</contactPhone>
      <contactEmail>scott.barthelmy@nasa.gov/</contactEmail>
    </Author>
    <Date>2022-05-01T19:52:11/</Date>
    <Description>This VOEvent message was created with GCN VOE version: 15.08 30dec21/</Description>
  </Who>
  <What>
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    <Param name="Pkt_Ser_Num" value="16"/>
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    <Param name="Burst_SOD" value="71511.22" unit="sec" ucd="time"/>
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    <Param name="Burst_Peak" value="197" unit="cts" ucd="phot.count;em.gamma.soft"/>
    <Param name="Integ_Time" value="1.024" unit="sec" ucd="time.interval"/>
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    <Param name="Theta" value="12.61" unit="deg" ucd="pos.az.zd"/>
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```

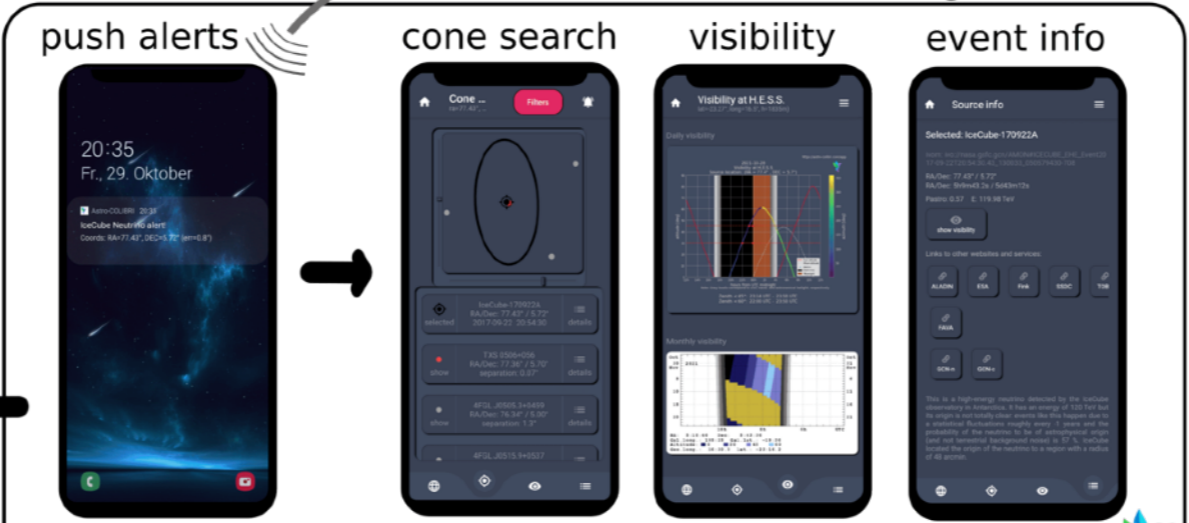
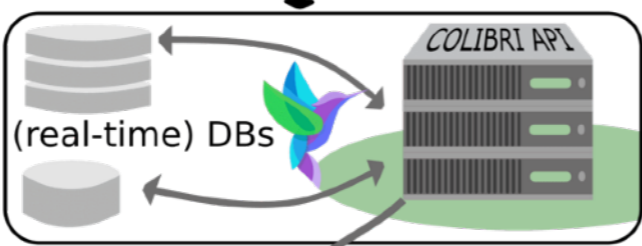




photons, GWs, ν



follow-up-observ.



Astro-COLIBRI App / Website



Interface web

Astro-COLIBRI | Select action: Latest transients | Cone search | Personalize | Status: logged out | Infos: v2.8.0

Observatories: Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other

Event type: FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat

Timeline: 2023-11-08 to 2023-11-23

S231123cg Gravitational wave

RA/Dec: 243.63°/44.20°
2023-11-23 13:54:30

[Cone search](#)

GRB 231123A Gamma-ray burst

RA/Dec: 83.78°/-19.57° (± 9.16°)
2023-11-23 02:44:04

Gamma-ray burst

RA/Dec: 106.16°/-21.30° (± 1.59°)
2023-11-22 15:12:41

GRB 231122A Gamma-ray burst

RA/Dec: 108.45°/-5.54° (± 3.82°)
2023-11-22 12:44:22

RXJ131058.8+323335 GeV flare

Custom cone search

RA / Dec: 243.63° 44.2°
source: S231123cg
radius: 1°

Detailed info about selected source:

name: S231123cg
Detection time: 2023-11-23 13:54:30
RA [deg]: 243.63 Dec [deg]: 44.20
RA : 16h14m30.49s Dec : 44d12m5.51s
observatory: LVC instrument: H1,L1 discovery name: S231123cg
classification: BBH: 1.00

Gravitational waves are distortions of space-time! They are generated by all accelerated masses but their amplitude is so tiny that only the most massive objects in the universe create waves that are sufficiently powerful to be detected by the current generation of instruments. This event has been recorded by both Advanced LIGO laser interferometers. It is most likely due to the merger of two black holes.

Learn more about GWs: [link](#)

Discuss this event on Twitter: [@AstroColibri](#)

Links for further details

- [GraceDB](#): Information on the gravitational wave event
- [TreasureMap](#): Follow-ups of GW events
- [ALADIN](#): Displays event in an interactive sky atlas
- [ESASky](#): Displays event in an interactive sky atlas
- [TNS](#): Transient Name Server



Interfaces smartphones



<https://astro-colibri.com>



Les derniers transitoires

Astro-COLIBRI interface showing a list of transients and a detailed view of S231123cg.

Observatories: Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other

Event type: FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat

Timeline: 2023-11-08 to 2023-11-23

Selected Source: S231123cg Gravitational wave

Custom cone search: RA / Dec: 243.63° 44.2°, source: S231123cg, radius: 1°

Detailed info about selected source:

- name: S231123cg
- Detection time: 2023-11-23 13:54:30
- RA [deg]: 243.63, Dec [deg]: 44.20
- RA: 16h14m30.49s, Dec: 44d12m5.51s
- observatory: LVC, instrument: H1,L1, discovery name: S231123cg
- classification: BBH: 1.00

Gravitational waves are distortions of space-time! They are generated by all accelerated masses but their amplitude is so tiny that only the most massive objects in the universe create waves that are sufficiently powerful to be detected by the current generation of instruments. This event has been recorded by both Advanced LIGO laser interferometers. It is most likely due to the merger of two black holes.

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Links for further details:

- GraceDB: Information on the gravitational wave event
- TreasureMap: Follow-ups of GW events
- ALADIN: Displays event in an interactive sky atlas
- ESASky: Displays event in an interactive sky atlas
- TNS: Transient Name Server



Timeline + Filtres

The screenshot displays the Astro-COLIBRI web interface. At the top, there is a navigation bar with the Astro-COLIBRI logo, a search bar, and buttons for 'Select action', 'Latest transients', and 'Cone search'. The status bar shows 'Status: logged out' and 'Infos: v2.8.0'. Below this is a filter bar with buttons for 'Observatories' (Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other) and 'Event type' (FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat). A timeline at the top shows dates from 2023-11-08 to 2023-11-23, with a yellow highlight around the 2023-11-23 date. The main content area is divided into several sections: a list of events on the left, a central sky map, and a detailed information panel on the right. The list of events includes:

- S231123cg** Gravitational wave (2023-11-23 13:54:30)
- GRB 231123A** Gamma-ray burst (2023-11-23 02:44:04)
- Gamma-ray burst** (2023-11-22 15:12:41)
- GRB 231122A** Gamma-ray burst (2023-11-22 12:44:22)
- RXJ131058.8+323335** GeV flare

The central sky map shows a circular view of the sky with a grid of RA and Dec coordinates. A yellow highlight is around the 2023-11-23 date in the timeline. The detailed information panel for S231123cg provides the following data:

- name: S231123cg
- Detection time: 2023-11-23 13:54:30
- RA [deg]: 243.63, Dec [deg]: 44.20
- RA: 16h14m30.49s, Dec: 44d12m5.51s
- observatory: LVC, instrument: H1,L1, discovery name: S231123cg
- classification: BBH: 1.00

The detailed info panel also includes a description: 'Gravitational waves are distortions of space-time! They are generated by all accelerated masses but their amplitude is so tiny that only the most massive objects in the universe create waves that are sufficiently powerful to be detected by the current generation of instruments. This event has been recorded by both Advanced LIGO laser interferometers. It is most likely due to the merger of two black holes.' and a link to 'Learn more about GWs: link'. At the bottom, there are links for further details from external sources: GraceDB, TreasureMap, ALADIN, ESASky, and TNS.



Filtrer les phénomènes

Astro-COLIBRI interface showing a search filter overlay. The overlay is titled "Other" and contains the following options:

- Everything else
- observatory == Gaia
- observatory == ZTF
- observatory == ATLAS
- observatory == Pan-STARRS
- observatory == MASTER

The background interface displays a sky map with various astronomical events and a list of event details on the left. The event details include:

- S231123cg** Gravitational wave (RA/Dec: 243.63°/44.20°, 2023-11-23 13:54:30)
- GRB 231123A** Gamma-ray burst (RA/Dec: 83.78°/-19.57° (± 9.16°), 2023-11-23 02:44:04)
- Gamma-ray burst** (RA/Dec: 106.16°/-21.30° (± 1.59°), 2023-11-22 15:12:41)
- GRB 231122A** Gamma-ray burst (RA/Dec: 108.45°/-5.54° (± 3.82°), 2023-11-22 12:44:22)
- RXJ131058.8+323335** GeV flare

At the bottom, there are links for further details from external sources:

- GraceDB**: Information on the gravitational wave event
- TreasureMap**: Follow-ups of GW events
- ALADIN**: Displays event in an interactive sky atlas
- ESASky**: Displays event in an interactive sky atlas
- TNS**: Transient Name Server



Filtrer les phénomènes

Astro-COLIBRI interface showing a search for gravitational waves. The main panel displays a sky map with a search cone and a list of detected events. A detailed view of the event S231123cg is shown on the right.

Observatories: Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other

Event type: FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat

Filters: AND, OR, Everything else, Unistellar, Magnitude <= 18.0

Selected event: S231123cg Gravitational wave

RA / Dec: 243.63° 44.2°
source: S231123cg
radius: 1°

Detailed info about selected source:

name: S231123cg
Detection time: 2023-11-23 13:54:30
RA [deg]: 243.63 Dec [deg]: 44.20
RA: 16h14m30.49s Dec: 44d12m5.51s
observatory: LVC instrument: H1,L1 discovery name: S231123cg
classification: BBH: 1.00

Gravitational waves are distortions of space-time! They are generated by all accelerated masses but their amplitude is so tiny that only the most massive objects in the universe create waves that are sufficiently powerful to be detected by the current generation of instruments. This event has been recorded by both Advanced LIGO laser interferometers. It is most likely due to the merger of two black holes.

Learn more about GWs: [link](#)

Discuss this event on Twitter: [@AstroColibri](#)

Links for further details: GraceDB, TreasureMap, ALADIN, ESASky, TNS



Filtrer les phénomènes

Astro-COLIBRI interface showing a search for gravitational waves. The main view is a star map with a search cone centered on S231123cg. A filter menu is open, showing 'Unclassified OT' with 'Everything else', 'Unistellar', and 'Magnitude > 0' selected. The detailed info panel for S231123cg shows detection time 2023-11-23 13:54:30, RA 243.63°, Dec 44.2°, and a classification of BBH: 1.00. A visibility plot for 2023-11-25 is also shown.

Select action Latest transients Cone search Personalize Status: logged out Infos: v2.8.0

Observatories: Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other

Event type: FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat

2023-11-24

Unclassified OT

- Everything else
- Unistellar
- Magnitude > 0

AND OR

S231123cg Gravitational wave

Custom cone search

RA / Dec: 243.63° 44.2°

source: S231123cg

radius: 1°

Detailed info about selected source:

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

name: S231123cg

Detection time: 2023-11-23 13:54:30

RA [deg]: 243.63 Dec [deg]: 44.20

RA: 16h14m30.49s Dec: 44d12m5.51s

E(B-V) [mag]: 0.01

observatory: LVC instrument: H1,L1 discovery name: S231123cg

notice: Initial pipeline: pycbc

classification: BBH: 1.00

FAR: 1.00e-2/yr → significant event

distance: 1148 ± 338 Mpc

50% area: 880 deg² 90% area: 2678 deg²

Search for ATels!

Schedule

visibility: 2023-11-25

Daily

Links for further details

- GraceDB: Information on the gravitational wave event
- TreasureMap: Follow-ups of GW events
- GCN Viewer: Access to GCN notices and circulars
- GCN-n: GCN notices: rapid alert message
- GW_Fermi-LAT: Analysis of GW events



Filtrer les phénomènes

Astro-COLIBRI interface showing a search for gravitational waves. The main panel displays a sky map with a search cone and various event cards. A filter menu is open, showing options for 'Unclassified OT', 'Everything else', 'Unistellar', and 'Magnitude <= 15'. The search results for S231123cg are detailed on the right, including RA/Dec, detection time, and classification.

Filter Menu:

- Unclassified OT
- Everything else
- Unistellar
- Magnitude <= 15

Search Results for S231123cg:

- name: S231123cg
- Detection time: 2023-11-23 13:54:30
- RA [deg]: 243.63 Dec [deg]: 44.20
- RA: 16h14m30.49s Dec: 44d12m5.51s
- E(B-V) [mag]: 0.01
- observatory: LVC instrument: H1,L1 discovery name: S231123cg
- notice: Initial pipeline: pycbc
- classification: BBH: 1.00
- FAR: 1.00e-2/yr → significant event
- distance: 1148 ± 338 Mpc
- 50% area: 880 deg² 90% area: 2678 deg²

Event Cards:

- AT 2023yjr: Unclassified optical transient (RA/Dec: 98.92°/-30.52°, 2023-11-23 03:50:24)
- GRB 231123A: Gamma-ray burst (RA/Dec: 83.78°/-19.57°, 2023-11-23 02:44:04)
- TXS2013+370: GeV flare (RA/Dec: 303.89°/37.18°, 2023-11-22 21:24:31)
- SN 2023yjn: Supernovae (optical)

Visibility Graph:

2023-11-25
Visibility at LHAASO
S231123cg
(RA = 243.63°, DEC = 44.2°)

Links for further details:

- GraceDB: Information on the gravitational wave event
- TreasureMap: Follow-ups of GW events
- GCN Viewer: Access to GCN notices and circulars
- GCN-n: GCN notices: rapid alert message
- Not available: Analysis of GW events
- Dis inte: [partially visible]



Informations détaillées

Astro-COLIBRI interface showing detailed information for the event S231123cg.

Event Summary:
S231123cg
Gravitational wave
RA/Dec: 243.63°/44.20°
2023-11-23 13:54:30

Custom cone search:
RA / Dec: 243.63° 44.2°
source: S231123cg
radius: 1°

Detailed info about selected source:
name: S231123cg
Detection time: 2023-11-23 13:54:30
RA [deg]: 243.63 Dec [deg]: 44.20
RA : 16h14m30.49s Dec : 44d12m5.51s
observatory: LVC instrument: H1,L1 discovery name: S231123cg
classification: BBH: 1.00

Gravitational waves are distortions of space-time! They are generated by all accelerated masses but their amplitude is so tiny that only the most massive objects in the universe create waves that are sufficiently powerful to be detected by the current generation of instruments. This event has been recorded by both Advanced LIGO laser interferometers. It is most likely due to the merger of two black holes.

Learn more about GWs: [link](#)
Discuss this event on Twitter: [@AstroColibri](#)

Links for further details:
GraceDB: Information on the gravitational wave event
TreasureMap: Follow-ups of GW events
ALADIN: Displays event in an interactive sky atlas
ESASky: Displays event in an interactive sky atlas
TNS: Transient Name Server



Mode "Science"

Nouveau: E(V-B) + lien vers NED

The screenshot shows the Astro-COLIBRI web interface. At the top, there's a navigation bar with 'Select action', 'Latest transients', and 'Cone search'. Below that are filters for 'Observatories' (Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other) and 'Event type' (FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat). A timeline at the top shows dates from 2023-11-08 to 2023-11-23. The main content area is divided into several panels:

- Left Panel:** A list of recent events, including S231123cg (Gravitational wave), GRB 231123A (Gamma-ray burst), Gamma-ray burst, GRB 231122A (Gamma-ray burst), and RXJ131058.8+323335 (GeV flare).
- Center Panel:** A sky map showing a custom cone search for S231123cg. The map displays a grid of stars and a search region defined by a blue circle and a red arc.
- Right Panel:** Detailed information about the selected source S231123cg. It includes detection time (2023-11-23 13:54:30), RA/Dec coordinates, E(B-V) magnitude (0.01), observatory (LVC), instrument (H1,L1), discovery name, notice (Preliminary), pipeline (pycbc), classification (BBH: 1.00), FAR (1.00e-2/yr), distance (1148 ± 338 Mpc), and area (50% area: 880 deg², 90% area: 2678 deg²). A 'science mode' button is highlighted in green. Below the text is a 'Schedule' button and a 'visibility' graph showing altitude and azimuth over time.

At the bottom, there are links for further details: GraceDB, TreasureMap, GCN Viewer, GCN-n, and GW_Fermi-LAT.



Plateformes externes

The image shows a screenshot of the astro-colibri.com website interface. The background is a dark-themed dashboard with a central star map and various data panels. Overlaid on this are several external platform logos, each enclosed in a purple rounded square with a white border. Green arrows point from a central multi-colored flower logo to these external platforms. At the bottom right, a yellow dashed circle highlights a row of links for further details.

External platforms shown:

- Simbad (CNRS)
- NED (NASA)
- TNS (IAU)
- GCN (NASA)
- Swift (NASA)
- GraceDB (LIGO Scientific Collaboration, VIRGO)
- AAVSO
- ALADIN (CNRS)
- ESA sky (ESA)
- GAIA (ESA)
- SSDC (ASI)
- TOBY (ESA)

Links for further details (circled in yellow):

- SSDC: Spectral energy distribution (SED) of the selected sky location
- ASAS-SN: Photometric lightcurves from ASAS-SN
- AAVSO: Lightcurve collected by amateur astronomers
- LSXPS: Living Swift-XRT point source catalogue
- FAVA: Photometric lightcurve of GeV photons recorded by Fermi-LAT



Configurations

Astro-COLIBRI interface showing a search for gravitational waves. The main panel displays a sky map with a search cone and various event details.

Top Navigation: Select action | Latest transients | Cone search | Personalize | Status: logged out | Infos: v2.8.0

Filters: Observatories (Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FlaapLUC, LVC, Catalogs, Other) | Event type (FRB, Unclassified OT, Classified OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat)

Timeline: 2023-11-08 to 2023-11-23

Event List:

- S231123cg** Gravitational wave
RA/Dec: 243.63°/44.20°
2023-11-23 13:54:30
- GRB 231123A** Gamma-ray burst
RA/Dec: 83.78°/-19.57° (± 9.16°)
2023-11-23 02:44:04
- Gamma-ray burst**
RA/Dec: 106.16°/-21.30° (± 1.59°)
2023-11-22 15:12:41
- GRB 231122A** Gamma-ray burst
RA/Dec: 108.45°/-5.54° (± 3.82°)
2023-11-22 12:44:22
- RXJ131058.8+323335** GeV flare

Search Details (S231123cg):

- Custom cone search: RA / Dec: 243.63° 44.2°
- source: S231123cg
- radius: 1°
- Detailed info: name: S231123cg, Detection time: 2023-11-23 13:54:30, RA [deg]: 243.63, Dec [deg]: 44.20, RA: 16h14m30.49s, Dec: 44d12m5.51s, E(B-V) [mag]: 0.01, observatory: LVC, instrument: H1,L1, discovery name: S231123cg, notice: Preliminary, pipeline: pycbc, classification: BBH: 1.00, FAR: 1.00e-2/yr, distance: 1148 ± 338 Mpc, 50% area: 880 deg², 90% area: 2678 deg²

Visibility Graph: Shows altitude (deg) vs azimuth (deg) for the event at H.E.S.S. on 2023-11-23 and 2023-11-24.

Links for further details: GraceDB, TreasureMap, GCN Viewer, GCN-n, GW_Fermi-LAT



Définition des observatoires

Astro-COLIBRI interface showing the process of defining an observatory location.

Location of observer

The observability is calculated for an observer at custom position: long = 2.15°, lat = 48.72°, height = 0m.

You can change the observer location by choosing one of the following observatories

Radio

ALMA ASKAP ATCA MWA Nançay Murriyang/Parkes

Optical

Jilin Keck Mount Wilson OHP Palomar SALT San Pedro Mártir VLT Paranal Victor M

High energy

HAWC H.E.S.S. LHAASO LST MAGIC VERITAS

My observatories :

saclay

Observatory details:

2.23	48.61	103	0.1	60	1.0	Meudon
longitude	latitude	altitude [m]	FoV [deg]	Zenith limit [deg]	max. moon fracti...	name custom position

[Select coordinates](#) [Save observatory](#)

Source details:

name: S231123cg
Detection time: 2023-11-23 13:54:30
RA [deg]: 243.63 Dec [deg]: 44.20
RA: 16h14m30.49s Dec: 44d12m5.51s
E(B-V) [mag]: 0.01
observatory: LVC instrument: H1,L1 discovery name: S231123cg
notice: Preliminary pipeline: pycbc
classification: BBH: 1.00
FAR: 1.00e-2/yr → significant event
distance: 1148 ± 338 Mpc
50% area: 880 deg² 90% area: 2678

Visibility at H.E.S.S. (RA = 243.63°, DEC = 44.21°)



Observabilité

Astro-COLIBRI interface showing observatory filters (Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FLAapLUC, LVC, other) and event types (FRB, OT, SN, GRB, burst, neutrino, GW, nuem, 4FGL, TeVCAT, SGR/AXP).

Navigation: Select action, Latest transients, Cone search, Personalize, Location, Globe, Info. Status: logged out, Infos: v2.3.0

Timeline: 2023-03-01 to 2023-04-06. Date selected: 2023-04-07. Science mode.

Source location: RA = 120.8°, DEC = 9.8°

Visibility at H.E.S.S. graph showing altitude [deg] vs hours from UTC midnight (2023-04-12 to 2023-04-13). Legend: Sun altitude, Moon altitude, source, Dark time, Moonlight.

Note: Grey levels correspond to civil, naval, and astronomical twilight, respectively.
Zenith < 45°: 17:50 UTC - 19:40 UTC
Zenith < 60°: 17:50 UTC - 20:59 UTC

ASAS-SN: Photometric lightcurves from ASAS-SN
AAVSO: Lightcurve collected by amateur astronomers
LSXPS: Living Swift-XRT point source catalogue
FAVA: Photometric lightcurve of GeV photons recorded by Fermi-LAT



Android + iOS

The image displays four smartphone screens showcasing the Astro-COLIBRI application interface. The first screen shows a search results page for a 'Cone ...' search, listing several objects with their RA/Dec coordinates and separations. The second screen shows the main 'Astro-COLIBRI' interface, featuring a star map and a list of objects including MS230110g, SN 2022bf, GRB 220103A, and HAWC-220103A. The third screen shows the 'Visibility at H.E.S.S.' page, displaying a graph of daily visibility and a monthly visibility heatmap. The fourth screen shows the 'Notifications' settings page, where users can subscribe to various alert types.

Notifications

Subscribe to alert notifications

- GRB alerts
- Neutrino alerts
- GW alerts
- Significant GW alerts
- NS/NSBH GW alerts
- Burst alerts
- Optical transients: SNe
- Optical transients: other
- Bright optical transients (mag < 18)
- FlaapLUC (Fermi-LAT alerts)
- Astro-COLIBRI announcements

Notifications en temps réel



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](#))



Astro-COLIBRI

- Les nouveaux filtres permettent un affichage plus personnalisé
- Propositions d'améliorations ?
 - Filtres
 - Notifications
 - ...
- Intérêt d'un forum de discussion ?
 - Annonces des développeurs + discussions d'améliorations
 - Mise en avant de quelques événements intéressantes
 - Forum de discussion RAPAS ?
 - ...



Astro-COLIBRI

Contact: astro.colibri@gmail.com

- Central webpage: [**https://astro-colibri.science**](https://astro-colibri.science)

Android Play Store



Apple iOS App Store

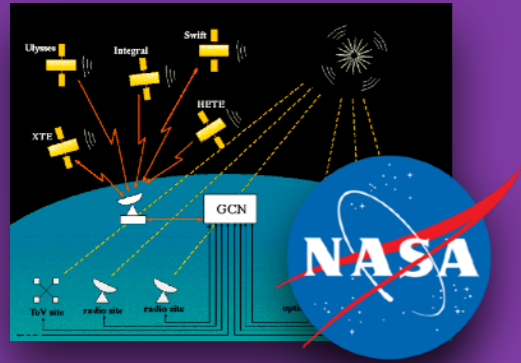


Introductions/tutorials on YouTube

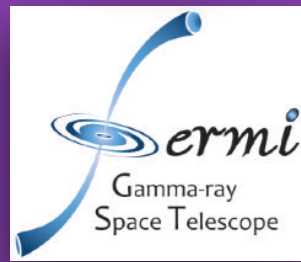


Twitter: @AstroColibri
astrodon.social/@astro_colibri

Main idea



TRANSIENT NAME SERVER



...



...



Recherches d'événements

Astro-COLIBRI

Select action **Latest transients** Cone search Personalize Status: logged out Infos: v2.4.2

Observatories: Swift, Fermi, HAWC, IceCube, AMON, Integral, GECAM, FLAapLUC, LVC, other

Event type: FRB, OT, SN, GRB, burst, neutrino, nuem, GW, 4FGL, TeVCAT, SGR/AXP, IceCat

2023-03-01 2023-04-07

IceCube-230405A
Neutrino

RA/Dec: 120.85°/9.75°
2023-04-05 13:20:20

IceCube-230405A
Neutrino

Latest transients

Custom cone search

RA / Dec: 120.85° 9.75°
source: IceCube-230405A
radius: 2.97°

Detailed info about selected source:

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

name: IceCube-230405A
Detection time: 2023-04-05 13:20:20

Localisation:
RA [deg]: 120.85 Dec [deg]: 9.75
RA : 8h3m23.98s Dec : 9d45m0s
error [deg]: 2.9700

observatory: IceCube
notice: Bronze
FAR: 2.84/yr P_astro: 0.30 E: 110.43 TeV

Event display:

Search for ATels!

visibility: 2023-06-15

Daily

Links for further details

[GCN_Viewer](#)
Access to GCN notices and circulars

[GCN-n](#)
GCN notices: rapid alert message

[GCN-c](#)
GCN circulars: announcements of new transient events

[ALADIN](#)
Displays event in an interactive sky atlas

[ESASky](#)
Displays event in an interactive sky atlas

Brok time class



Ondes gravitationnelles

Astro-COLIBRI Select action Latest transients Cone search Personalize Status: logged out Infos: v2.4.2

Observatories: Swift Fermi HAWC IceCube AMON Integral GECAM FLaapLUC LVC other

Event type: FRB OT SN GRB burst neutrino nuem GW 4FGL TeV CAT SGR/AXP IceCat

2023-05-31 05-31 06-01 06-02 06-03 06-04 06-05 06-06 06-07 06-08 06-09 06-10 06-11 06-12 06-13 06-14 06-15 2023-06-15

- S230615an**
Gravitational wave
RA/Dec: 170.02°/-46.96°
2023-06-15 13:35:22
- S230615ak**
Gravitational wave
RA/Dec: 272.29°/3.28°
2023-06-15 13:25:23
- S230615af**
Gravitational wave
RA/Dec: 317.71°/52.99°
2023-06-15 12:54:10
- S230615t**
Gravitational wave
RA/Dec: 156.97°/-20.42°
2023-06-15 10:21:29
- S230615k**
Gravitational wave



Detailed info about selected source: science mode

VoEvent: [XML](#) [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: spsir
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
visibility: 2023-06-15
Daily
Monthly

Links for further details auto scroll

- [GraceDB](#)
Information on the gravitational wave event
- [TreasureMap](#)
Follow-ups of GW events
- [GCN Viewer](#)
Access to GCN notices and circulars
- [GCN-n](#)
GCN notices: rapid alert message
- [ALADIN](#)
Displays event in an interactive sky atlas

<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: spiiir

classification: BBH: 1.00

FAR: $5.41e-8/\text{yr}$ → significant event

distance: 3565 ± 1260 Mpc

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

[Search for ATels!](#)

Schedule

S230615k Gravitational wave

Information on the gravitational wave event

Follow-ups events

2023-06-15

science mode

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

altitude (deg) azimuth (deg)

2023-06-15 2023-06-16

Sun altitude

GraceDB Information on the gravitational wave event

TreasureMap Follow-ups of GW events

<https://astro-colibri.com>



Plan d'observation

Astro-COLIBRI Select action Latest transients Cone search Personalize Status: logged out Infos: v2.4.2

Observatories: Swift Fermi HAWC IceCube AMON Integral GECAM FLaapLUC LVC other

Event type: FRB OT SN GRB burst neutrino nuem GW 4FGL TeV CAT SGR/AXP IceCat

2023-05-31 05-31 06-01 06-02 06-03 06-04 06-05 06-06 06-07 06-08 06-09 06-10 06-11 06-12 06-13 06-14 06-15 2023-06-15

S230601bf_tile_015 tilepy △
RA/Dec: 22.37°/-58.35° (± 2.00°)
2023-06-16 03:36:11

S230601bf_tile_014 tilepy △
RA/Dec: 337.13°/-56.06° (± 2.00°)
2023-06-16 03:06:11

S230601bf_tile_013 tilepy △
RA/Dec: 300.59°/-33.33° (± 2.00°)
2023-06-16 02:36:11

S230601bf_tile_012 tilepy △
RA/Dec: 14.91°/-59.30° (± 2.00°)
2023-06-16 02:06:11

S230601bf_tile_011 tilepy △

S230601bf
Gravitational wave

Cone search

Custom cone search
RA / Dec: 307.97° -40.82°
source: S230601bf
radius: 1°

Detailed info about selected source: science mode

VoEvent: [XML](#) [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: spsir
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!](#)

The following observation schedule is proposed by tilepy. It covers 11.8% of the GW localisation uncertainty region.

Schedule Full details: [JSON](#)

visibility	ID	coverage [%]	RA [deg ²]	Dec [deg]
2023-06-15	S230601bf_tile_000	0.14	285.82	-17.74
	S230601bf_tile_001	0.64	288.81	-8.69

Daily Monthly

Links for further details auto scroll

- [GraceDB](#): Information on the gravitational wave event
- [TreasureMap](#): Follow-ups of GW events
- [GCN Viewer](#): Access to GCN notices and circulars
- [GCN-n](#): GCN notices: rapid alert message
- [ALADIN](#): Displays event in an interactive sky atlas



Architecture

