



An astronomical data platform



Theophile du Laz - 23/11/21



What is it?

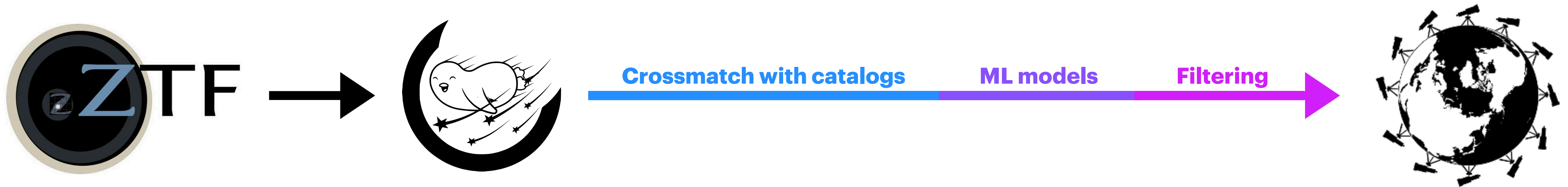
All-in-one astronomical tool

- Discover interesting transients.
- Manage follow-up.
- Perform characterization.
- Visualize the results.
- Work as a team, collaborate.
- Stay up to date.
- Integrate all of the above with multi-messenger events.

Discover interesting transients

With the help of alert brokers

- Receive candidates/alerts from alert brokers (e.g. Kowalski, Fink).
- Filter which candidates you get and their annotations using filters.
- Candidate scanning/vetting.
- Save interesting candidates as sources / Reject irrelevant candidates





- Dashboard
- Sources
- Candidates**
- Favorites
- Alerts
- Persistent Sources
- Groups
- Observing Runs
- GCN Events
- Followup Requests
- Shifts
- Summary Search
- About
- Other
- Admin

Scan candidates for sources

Start (Local Time)

End (Local Time)

Show only candidates which passed a filter from the selected groups...

regardless of saved status

Classifications

Redshift

Minimum Maximum

Show/hide rejected candidates

Show rejected candidates

Annotation Sorting

GCN Filtering

GCN Event	<input type="text" value="2023-04-30T07:47:19"/>	<input type="text" value="crossmatch-9457-9455.fits"/>	Cumulative Probability	<input type="text" value="0.95"/>	
First Detection After (UTC)	<input type="text" value="2023-04-30 07:47:19"/>	Last Detection Before (UTC)	<input type="text" value="2023-05-07 07:47:19"/>	Minimum Number of Detections	<input type="text" value="1"/>

Program Selection

Selected scanning profile: None
Click "Manage Scanning Profiles" to select a new profile.

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Source

Images Info Photometry Autoannotations

NEW **REF** **SUB**

SDSS **LEGACY SURVEY DR9** **PANSTARRS DR2**

ZTF23aaitpey

Previously Saved

MANAGE GROUPS

ADD CLASSIFICATIONS

Saved groups: grb emgw

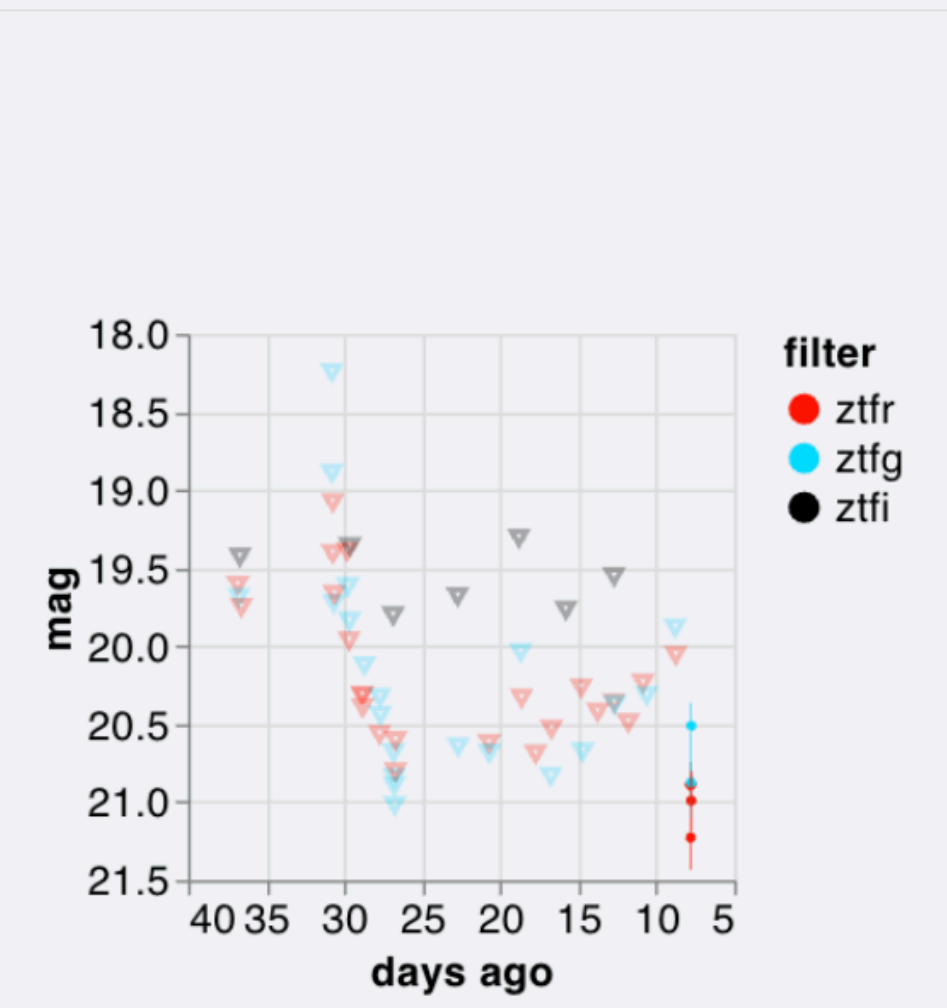
Last detected: 06:42:34 2023-05-01

Coordinates:
12h38m11.07s +36d30m02.28s
 ($\alpha, \delta = 189.546, 36.501$)

Gal. Coords (l,b): 138.798 80.216

TNS: No matches found

Photometry Statistics:



- GRB:GRB
- WIS_TEST:WEIZMANN_TEST
- DLAB:ORPHAN
- EMGW:LOOSE EMGW
- INFANT:INFANT
- ORPH:ORPHAN

NEW **REF** **SUB**

SDSS **LEGACY SURVEY DR9** **PANSTARRS DR2**

ZTF23aaitrmv

Previously Saved

MANAGE GROUPS

ADD CLASSIFICATIONS

Saved groups: grb emgw

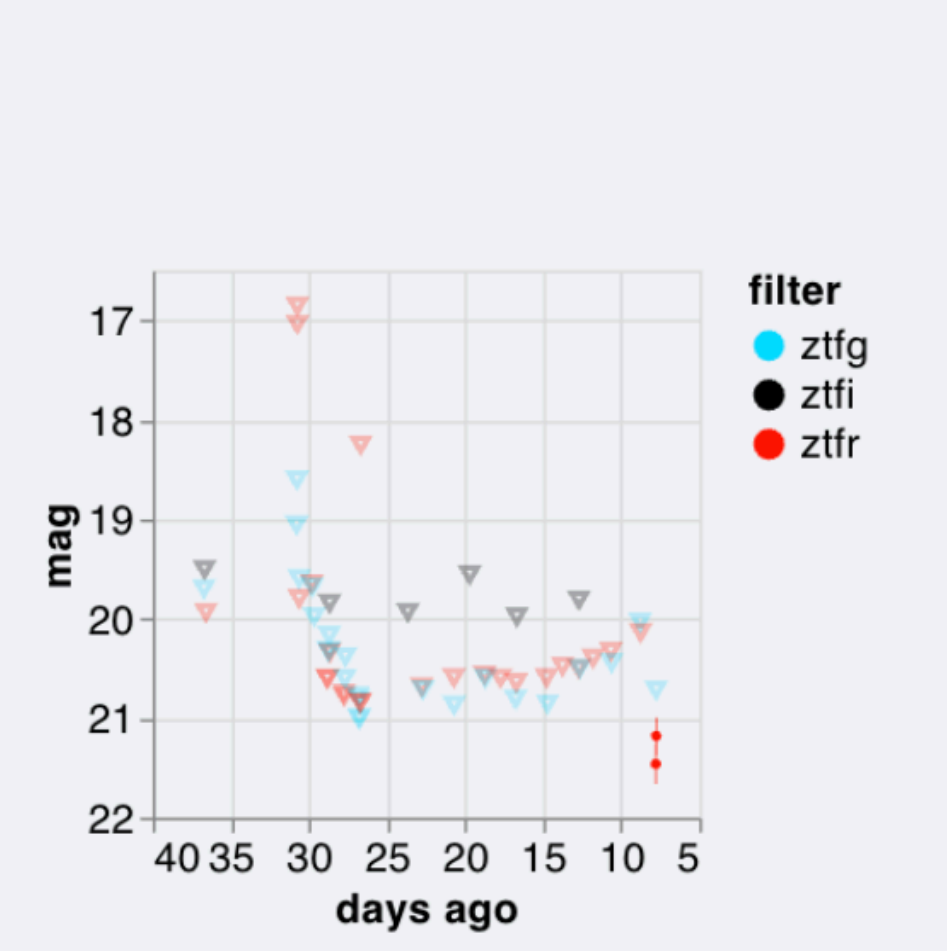
Last detected: 06:42:34 2023-05-01

Coordinates:
12h45m45.19s +38d04m36.98s
 ($\alpha, \delta = 191.438, 38.077$)

Gal. Coords (l,b): 128.798 78.986

TNS: No matches found

Photometry Statistics:



- VII/290-SDSS J124545.18+380436.6
- z: 1.0000
- GRB:GRB
- rb: 0.5440
- age: 0.0200
- drb: 0.9990
- fwhm: 1.4800

Manage follow-up

Schedule observations from telescopes

- Trigger follow-up of many telescope (with an API).
- Re-assign priority and other parameters as we get more datapoints.
- Retrieve results once completed, done automatically for ZTF, ATLAS, and SEDM.
- Assign targets to observing run(s).
- Upload new photometry and spectra either via the web app or API calls.

Visualize the results

1. Photometry plot

- Magnitude, flux, period plots, and periodogram analysis
- Show/hide data points by instrument and filter
- See data in tabular format and export it as csv

2. Spectra plot

- See spectra of a source and its host
- Show/hide by instrument and date
- Display elements, galaxy lines, sky lines and tellurics
- Shift the lines by redshift and $V_{\text{expansion}}$

ZTF23aadqhae ☆

Redshift: 0.0647 Classifications: - la Comments (given in reverse chronological order): - LRIS spectra of the SN and the host galaxy uploaded - strong host lines suggest $z = 0.0647$ - Potential host: WISEA J195200.26+590610.9, $ra = 298.00088$, $dec = 59.10289$, type = G. Host page: <http://gayatri.caltech.edu:88/query/host/ZTF23aadqhae> - The LRIS spectrum appears to be 3 or 4 weeks after peak light, which is consistent with the explosion time. The light curve is unusual. - Submit classification to TNS: <http://gayatri.caltech.edu:88/query/tns/ZTF23aadqhae> - P3 rea, rebrightening - @joeljo and I have been considering the possibility that there could be two SNe exploding a couple of weeks apart. There are a few detections >30 days before what seems to be the peak. This rise-time is too long, not to mention the earlier "peak." - Gah, was just about to write "do not upload to tns"... - Again, matches to SNIa @ $z=0.065$ for new (



Classification:

la

Position (J2000): **19:51:59.65 +59:06:10.09** ↗ ($\alpha, \delta = 297.9985283, 59.1028014$; $l, b = 91.928652, 15.778654$) $E(B-V) = 0.10$

Similar Sources: [ZTF21acekmmm](#) [ZTF23aaekwbn](#) [ZTF20ackgfep](#)

[SEARCH ZTF ALERT ARCHIVE](#) [SEARCH ZTF LIGHT CURVE ARCHIVE](#)

TNS: SN 2023egs

Redshift: 0.0647 ± 0.0001 ↗ Ⓞ DM: 37.390 mag D_L : 300.56 Mpc

Photometry Statistics:

Finding Chart: [PDF](#) | [INTERACTIVE](#)

[SHOW STARLIST](#) [OBSERVABILITY](#) [OBSERVABILITY CHART](#)

[sln2](#) [RCF Deep](#) [rcf](#) [fritz-tns](#) [au-caltech](#)



HIDE RIGHT PANE

Latest Summary

Auto-annotations

Origin	Spectrum Obs. at	Key	Value	Author	Created
BTS-bot-test:bts-bot-test		bts	0.5562	kowalski-bot	8 days ago
RCF Deep:RCF Deep		jd	2460065.9474	kowalski-bot	a month ago
RCF				kowalski-	a month

Rows per page: 10 ▾ 1-10 of 460 < >

[GAIA](#) [WISE COLORS](#) [MILLION QUASAR](#) [GALEX](#) [PHOTOZ](#) [SCOPE FEATURES](#)

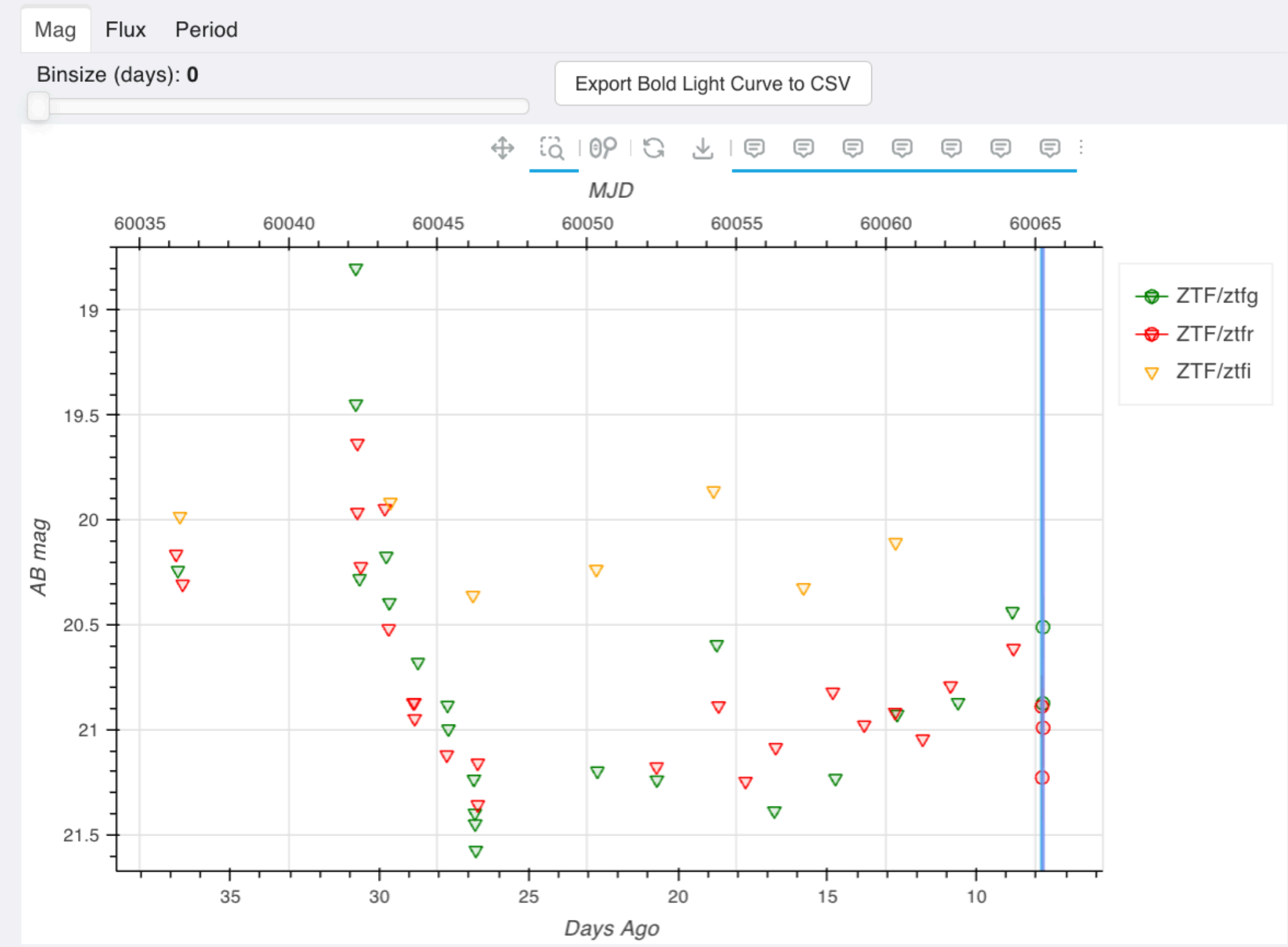
Comments

steve-schulze 4 days ago

@tahumada , @ptgcliu, could you carefully check your reductions? Specifically, 1) you see two traces, 2)

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Photometry ?



Data point size: 8.5

- UPLOAD ADDITIONAL PHOTOMETRY
- MANAGE DATA
- SHOW PHOTOMETRY TABLE
- PERIODOGRAM ANALYSIS

Taxonomy *

SUBMIT

External Analysis

Analysis Requests

Analysis Page	Status	Last Activity	Analysis Service	Message
1046	completed	a few seconds ago (duration 2.48 sec)	2	Good res chi^2/dot

Rows per page: 10 | 1-1 of 1

Start New Analysis

SN Ia Fitter (sncosmo)

Share Data With

source *



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Follow-up

Allocation

Palomar 1.5m / SEDM - Gamma Ray Bursts (PI Ahumada)

Share Data With
grb

Mode*
IFU

Priority*
1.2

Start Date (UT)*
05/01/2023

End Date (UT)*
05/08/2023

Show Advanced Options

SUBMIT

SEDM Requests

ATLAS Requests

Offsets from nearest sources in reference catalogs:

- TNS: 1.10"
- PS1_DR1: 4.00"
- Gaia_EDR3: 4.03"
- GALEX: 4.57"
- AllWISE: 4.16"

Source Notification

Share Data With

Level

- Soft Alert (email)
- Hard Alert (email + SMS)
















Additional Notes

SEND NOTIFICATION





Reminders






Text	Next Reminder (UTC)	Number of Reminders	Reminder Delay
------	---------------------	---------------------	----------------





Sorry, no matching records found




-  Dashboard
-  Sources
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SEDM Requests ^

Allocation	Start Date	End Date	Mode	Priority	Status	Modify	Watch?
Redshift Completeness Factor	2023-03-29	2023-04-05	IFU	2	Complete 20230404T10:42:27	<div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">DELETE</div> <div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">EDIT</div>	
Redshift Completeness Factor	2023-04-08	2023-04-15	IFU	2	Expired	<div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">DELETE</div> <div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">EDIT</div>	
Redshift Completeness Factor	2023-04-23	2023-04-30	IFU	3	Complete 20230423T09:08:55	<div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">DELETE</div> <div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">EDIT</div>	
Redshift Completeness Factor	2023-04-29	2023-05-03	3-shot+IFU	2	Complete 20230429T08:49:02	<div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">DELETE</div> <div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">EDIT</div>	
Sollerman Research Group	2023-05-01	2023-05-08	IFU	1.2	Expired	<div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">DELETE</div> <div style="border: 1px solid #3498db; padding: 2px 5px; display: inline-block;">EDIT</div>	

Jump to Page: 1  Rows per page: 10  1-7 of 7  

Text	(UTC)	Reminders	Delay
Sorry, no matching records found			
Jump to Page: 1  Rows per page: 5  0-0 of 0 			

ATLAS Requests x

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- 📡 GCN Events
- 📁 Followup Requests
- 🚆 Shifts
- 📊 Summary Search
- ℹ About
- Other ▾
- Admin ▾

Assign Target to Observing Run

Choose Run
 2023-06-20 DBSP/P200 (PI: Kulkarni / Group: Redshift Completeness Factor) ▾

Priority
 1 ▾

Assignments ^



Run Id	Requester	Instrument	Run Date	PI	Priority	Status	Comment	Delet
1425	qinyj	DBSP	2023-04-15	Matthew Graham	1	pending	BTS classification	
1423	jlwise98	KAST	2023-04-17	Michael Rich	3	not observed	Strange lightcurve, possible la/lc. r = 18.345, g = 18.58	
1428	khinds	KAST	2023-04-23	Michael Rich	4	not observed	Strange lightcurve, possible la/lc, rebrightening r = 18.2 g = 18.58	
1427	iesner	DBSP	2023-	Mansi	1	pending	see Joel	

Visualize the results

3. Many more

- Thumbnails
- Annotations from broker, or generated from catalogs
- Finding chart, observability charts
- Surveys
- Centroid plot
- HR Diagram
- Access to archive data
- Photometry statistics

Perform **characterization**, and **report** to the public

Analyse the data, run inference, report to TNS

- Run analysis service(s) using the photometry, spectra, images, redshift..., and upload external analysis products ran offline.
- Compare/crossmatch with archive data and TNS data.
- Once characterized/classified => submit to TNS directly from SkyPortal.
- Candidates saved as sources to specific groups can be submitted to TNS automatically as well.

- Followup Requests
- Shifts
- Summary Search
- About
- Other ^
- Telescopes
- Instruments
- MMA Detectors
- Allocations
- Observations
- Galaxies
- Spatial Catalogs
- Analysis Services
- Recurring API
- Taxonomies

List of Analysis Services

- SN Ia Fitter (sncosmo)**
Description: `source` is the model kw name defined in Sncosmo
(<https://sncosmo.readthedocs.io/en/stable/source-list.html>) / URL: http://localhost:6801/analysis/demo_analysis
(Default Share Groups: Sitewide Group)
- Core Collapse Fitter (sncosmo)**
Description: `source` is the model kw name defined in Sncosmo
(<https://sncosmo.readthedocs.io/en/stable/source-list.html>) / URL: http://localhost:6801/analysis/demo_analysis
(Default Share Groups: Sitewide Group)
- NMMA Analysis**
Description: Use NMMA to fit fast transient light curves / URL: https://nmma-standalone-api.herokuapp.com/analysis/nmma_analysis
(Default Share Groups: Sitewide Group)
- NMMA AWS**
Description: NMMA AWS / URL: https://nmma-container-service.4tlrdec1td1tk.us-west-2.cs.amazonlightsail.com/analysis/nmma_analysis
(Default Share Groups: Sitewide Group)
- NMMA AZURE**
Description: Use NMMA to fit fast transient light curves / URL: https://nmma-standalone-api.ambitiouscoast-a751984b.eastus.azurecontainerapps.io/analysis/nmma_analysis
(Default Share Groups: Sitewide Group)
- Next Generation SuperFit (NGSF) analysis**
Description: Use NGSF to fit spectra / URL: http://localhost:7001/analysis/ngsf_analysis
(Default Share Groups: Sitewide Group)

Add a New Analysis Service

Analysis Name *

Analysis Display Name *

Analysis Description

Analysis Version
1.0

Contact Name

Contact Email

Analysis URL *

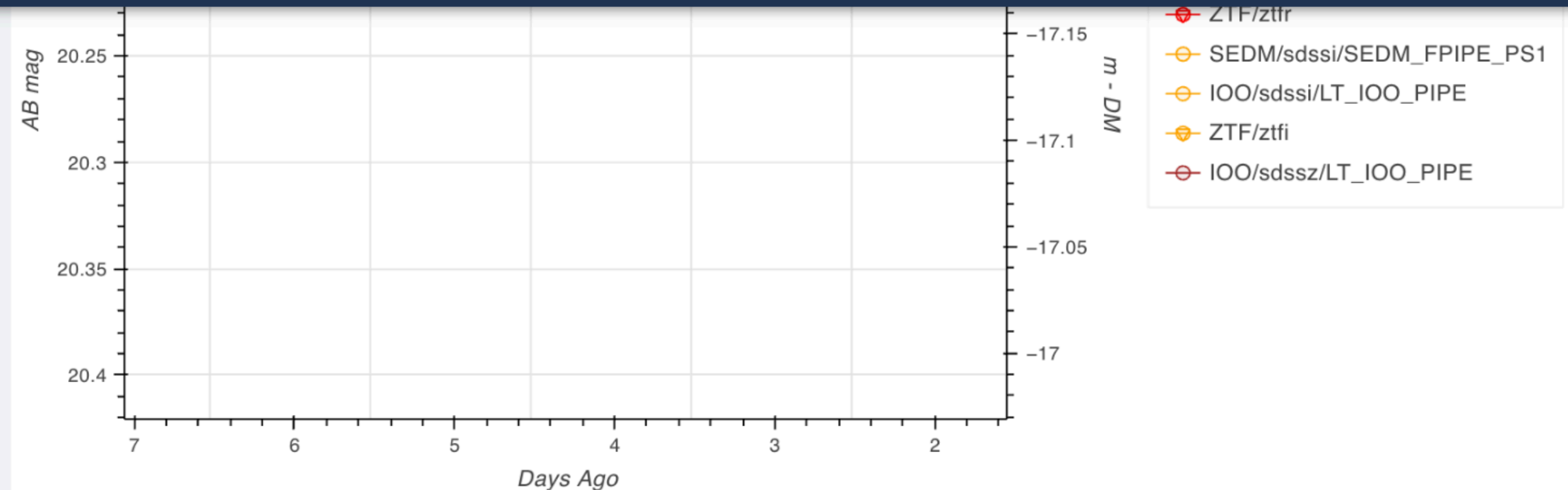
Optional analysis parameters (i.e. {"test_parameters": ["test_value_1", "test_value_2"]})

Input data types

Analysis Type *
lightcurve_fitting

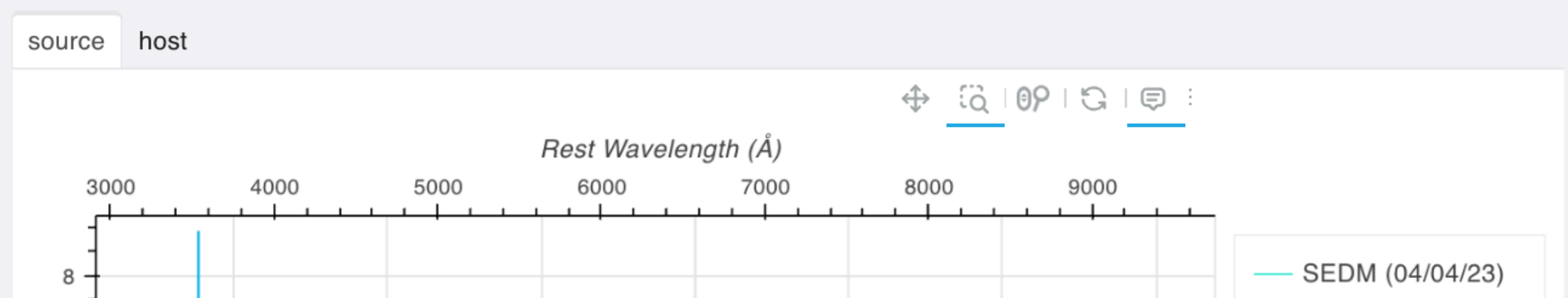
Authentication Type *
none

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- ☁ Persistent Sources
- 👤 Groups
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- ℹ About
- Other ▾
- Admin ▾



Data point size
8.5

Spectroscopy



External Analysis

Analysis Requests ▾

Start New Analysis

SN Ia Fitter (sncosmo) ▾

Share Data With ▾

source * ▾

fix_z

Whether to render the parameters of this analysis

Show Parameters

Whether to render the plots of this analysis

Show Plots

Whether to render the corner of this analysis

Show Corner

Analysis Page for ZTF23abnyvka (#1158)

completed Last activity a few seconds ago (duration 2.86 sec) Service: SN Ia Fitter (sncosmo)

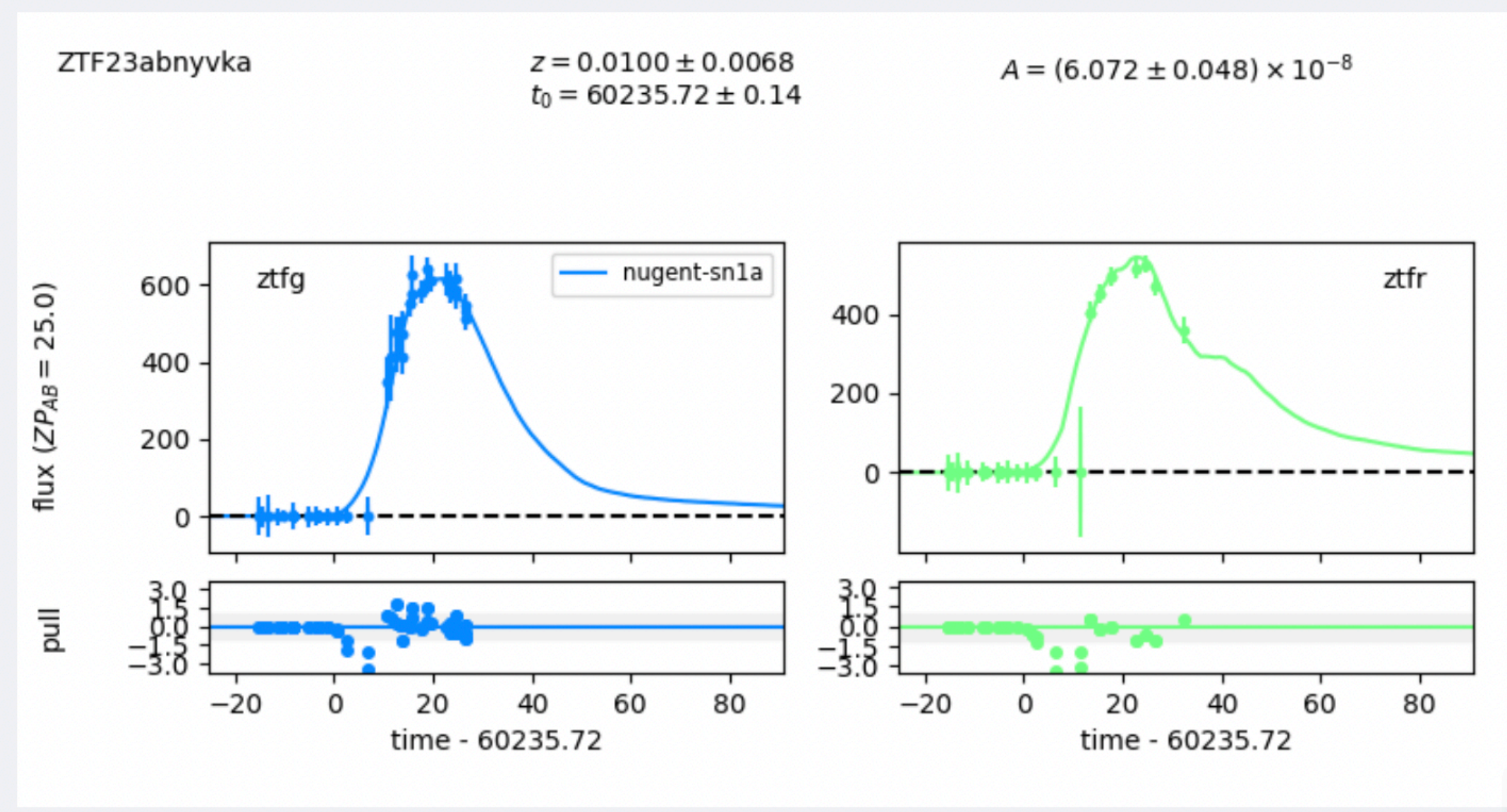
Message: Good results with $\chi^2/\text{dof}=86.57207919647746/170$

Analysis Parameters: source: 0

Analysis Results

Posterior Corner Plot

Plots



Stay up to date

Be notified on selected events

- Fine-grain notification on: sources, favorite sources (new classification, spectra, comments), GCN events, mentions, facility transactions.
- Receive notifications on different channels: email, SMS, phone call, WhatsApp message, slack channel.
- Constraint Phone calls and SMS to a specific time period only.
- Program “reminders”, which are recurring notifications at fixed times.



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Notifications Preferences

Sources
Classifications
AGN
UPDATE

GCN Events
test
CREATE NEW PROFILE

Facility Transactions / Follow-up Requests

Analysis Services

Favorite Sources
 New Comments
 New Spectra
 New Classifications

@ Mentions

Observation Plans

Slack Integration

Inactive

OpenAI Summarization Service

Inactive

- Dashboard
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Notification

Source

GCN

Facility

Analy

Favor

@ Me

Obse

Slack Inte

Inact

OpenAI Summarization Service

Inactive

Notification Settings ✕

By Email ?

Message on Slack ?

By SMS ?

On Shift ?

Time Slot (UTC) ?

Fritz

0

24

?

By Phone Call ?

On Shift ?

Time Slot (UTC) ?

Message on WhatsApp ?

- Dashboard
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+16263169712 TEST

UPDATE PROFILE

Notifications Preferences

Sources Classifications

GCN Events O4_Default

Facility Transactions / Follow-up Requests

Analysis Services

Favorite Sources

@ Mentions

Observation Plans

Slack Integration

Active

Integration URL: https://hooks.slack.com/services/T9SF...

New GCN Notification Profile

Name: Demo

Event Filtering

Gcn Notice Types: LVC_INITIAL, LVC_UPDATE, LVC_PRELIMINARY

Gcn Tags: [Dropdown]

Property	Comparator	Value
HasNS	>=	0.1

ADD RESET

Gcn Properties: FAR: 3.1688087814028953e-9: It

Localization Filtering

Localization Tags: < 1000 sq. deg.

Property	Comparator	Value
		0.0














ADD RESET

Localization Properties: [Dropdown]

Work as a team, collaborate

Planning, and data sharing

- Groups
- Shifts
- Allocations
- Fine-grain data accessibility

-  Dashboard
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Group: EM+GW (emgw)






Candidates counterparts to GW events

Sources ^

GROUP SOURCES

Members ^

🔍 ☁️ 🖨️ ☰ ☰

Name	Username	Admin ?	Actions ?
Tomas Ahumada	tahumada	Admin	REVOKE ADMIN STATUS REVOKE SAVE ACCESS 
Mansi Kasliwal	mansi	Admin	REVOKE ADMIN STATUS REVOKE SAVE ACCESS 
Shreya Anand	sganand	Admin	REVOKE ADMIN STATUS REVOKE SAVE ACCESS 
Robert Stein	robertstein	Admin	REVOKE ADMIN STATUS REVOKE SAVE ACCESS 
			REVOKE ADMIN STATUS REVOKE SAVE ACCESS 

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Invite a new user to the site and add them to this group

Site-wide user role



Can save to this group Group Admin **INVITE NEW USER**

Add all users from other group(s)

ADD USERS

Admission requests			Search	Menu	Filter
Requesting User	Status	Actions			
dlakaplan (David Kaplan)	accepted				

Jump to Page: 1 Rows per page: 10 1-1 of 1

Alert streams and filters

ZTF Public+Partnership

loose emgw

**ADD STREAM** **ADD FILTER****DELETE GROUP**



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Today Back Next **May 07 - 13** Month Week Work Week Day Agenda

	07 Sun	08 Mon	09 Tue	10 Wed	11 Thu	12 Fri	13 Sat
12:00 AM	All Day O4 Engineering Rota 2/5	- 2:16 AM O4 Engineering Rota 2/5	All Day O4 Engineering Rota 3/5	All Day O4 Engineering Rota 3/5	All Day O4 Engineering Rota 3/5	All Day O4 Engineering Rota 3/5	All Day O4 Engineering Rota 3/5
2:00 AM	EM+GW	2:16 AM - O4 Engineering Rota 3/5	EM+GW	EM+GW	EM+GW	EM+GW	EM+GW
4:00 AM		EM+GW					
6:00 AM							
8:00 AM							
10:00 AM							
12:00 PM							
2:00 PM							
4:00 PM							
6:00 PM							
8:00 PM							
10:00 PM							

Show All Shifts Sort By Group(s) EM+GW

ADD NEW SHIFT

O4 Engineering Rota 3/5: Rota for Decision, Trigger, Scanning and Vetting

Group: EM+GW
 Admins : Mansi Kasliwal (mansi)
 Members : Tomas Ahumada (tahumada), theophile du laz (theophile-dulaz)
 Number of Members : 3/6
 Weekly repeated shift
 Each shift from 12:16:00 AM to 12:16:00 AM (UTC)

LEAVE DELETE

Select Users

ASK FOR REPLACEMENT

Add comment

Comment text

Attachment No file chosen

Customize Group Access

ADD COMMENT

Allocations



Instrument Name	Telescope Name	Start Date	End Date	PI	Group	Default Share Groups	Admins
IOO	LT	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
SPRAT	LT	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
IOI	LT	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
SPECTRAL	LCO 2m Network	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
Sinistro	LCO 1m Network	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
FLOYDS	LCO 2m Network	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
MUSCAT	LCO 2m Network	2/12/3020, 01:00:00	7/12/3020, 02:00:00	Michael Coughlin	Program A		
ZTE	P48	2/12/3020,	7/12/3020,	Michael	Program		

Add a New Allocation

Select Group ▼

Select Allocation Admins ▼

PI *

Start Date (Local Time) *
05 / 09 / 2023 , 09 : 46 : 25 AM 📅

End Date (Local Time) *
05 / 08 / 2024 , 09 : 46 : 25 AM 📅

Hours allocated * ⬆️⬆️

Instrument *
Nordic Optical Telescope / ALFOSC ▼

Alternative json data (i.e. {'slack_token': 'testtoken'})














SUBMIT

Share Data With ▼


A well-defined multi-messenger workflow

The search for transients in large localizations

- Ingest multi-messenger events in real-time. Users are notified if an event passes pre-defined cuts.
- Assess observability, observation planning using gwemopt (Coughlin et al. 2019), send the plans to instrument(s) directly, or use external observation planning services
- Scan for candidates within an event's skymap, saved them as sources.
- Users on shift loop through the sources, and highlight/reject them with the help of forced photometry, adding notes for each.
- Report sources of interest and coverage with automated GCN circulars-like reports.
- Submit observations to Treasure Map.

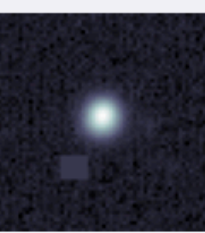
-  Dashboard
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Recently Saved Sources ⚙️ =

- 

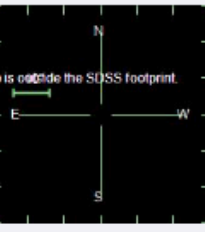
ZTF23abbrcgd (Ia)

α: 01h05m22.77s
δ: -08d57m04.13s

an hour ago
- 


ZTF23abarlnv

α: 00h57m48.30s
δ: +05d28m56.07s

an hour ago
- 

2023yfk

α: 02h29m03.13s
δ: -18d40m42.50s

4 hours ago
- 

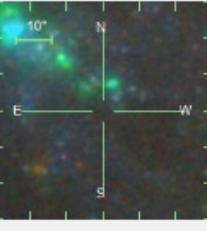
2023yfy

α: 01h54m17.43s

4 hours ago

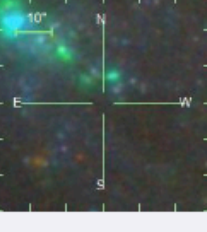
Top Sources ⚙️ =

DAY | WEEK | MONTH | 6 MONTHS | YEAR

- 

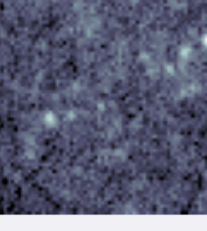
SN2023ixf

α: 14h03m38.56s
δ: +54d18m42.02s

184 view(s)
- 


2023ixf

α: 14h03m38.58s
δ: +54d18m42.10s

179 view(s)
- 

ZTF23abnpynv (microlensing)

α: 00h43m56.46s
δ: +41d13m56.04s

153 view(s)
- 

ZTF23abnprwj (Ia)

126 view(s)

News Feed ⚙️ =

- S

New source saved
Source: 2023yfh | 10 hours ago
- S

New source saved
Source: ZTF19abqziwz | 11 hours ago
- S

New source saved
Source: ZTF23abprgop | 11 hours ago
- S

New source saved
Source: ZTF23abfoig (Type II) | 11 hours ago
- S

New source saved
Source: ZTF23abiflhi | 11 hours ago

2183 ⚙️ =

New Sources
Last 7 days

My Groups =

- BTS-bot-test
- BTSbot-beta
- BTSbot-triggers
- EM+GW
- Gamma Ray

Palomar 1.2m Oschin ⋮ =



It is 4.3°C with 33% humidity & clear sky. Sunrise in 4 hours, sunset in 15 hours.

FORECAST

Recent GCN Events ⚙️ =

- 231118 18:51:10**
(3 DAYS AGO)

Subthreshold
GW
LVC
H1
Multinstrument
< 1 per 100 years
CWB

AllSky
L1

+
- 231118 18:36:38**
(3 DAYS AGO)

Subthreshold
GW
LVC
Multinstrument
spiir
Terrestrial
H1
L1

AllSky

+
- 231118 17:16:33**
(3 DAYS AGO)

SWIFT
GRB
< 200 sq. deg.
< 500 sq. deg.
< 1000 sq. deg.

> 0.9 in 500 sq. deg.

+
- 231118 17:16:30**
(3 DAYS AGO)

Fermi
long
GRB
< 200 sq. deg.
< 500 sq. deg.
< 1000 sq. deg.

> 0.9 in 500 sq. deg.

+
- 231118 09:06:02**
(3 DAYS AGO)

GW
Significant
LVC
< 1 per 100 years
Multinstrument
spiir
AllSky

BBH
H1
L1

+

Add a Source =

Share Data With ▾

SUBMIT

GCN Events



Date Observed	Aliases	Event Tags	Allocation Triggers	Localization Tags	Localizations	GCN Notices
<p>2023-11-21T03:36:49</p>	<p>LVC#S231121s</p>	<p> L1 Subthreshold GW Terrestrial H1 AllSky pycbc Multinstrument LVC </p>			<ul style="list-style-type: none"> localization_name: bayestar.multiorder.fits,1 dateobs: 2023-11-21T03:36:49 localization_name: bayestar.multiorder.fits,0 dateobs: 2023-11-21T03:36:49 	<ul style="list-style-type: none"> date: 2023-11-21T03:37:18 ivorn: ivo://gwnet/LVC#S231121s-1-Preliminary dateobs: 2023-11-21T03:36:49 stream: LVC date: 2023-11-21T03:41:53 ivorn: ivo://gwnet/LVC#S231121s-2-Preliminary dateobs: 2023-11-21T03:36:49 stream: LVC
<p>2023-11-21T03:14:00</p>	<p>LVC#S231121p</p>	<p> L1 Subthreshold GW H1 BBH CWB Multinstrument LVC </p>			<ul style="list-style-type: none"> localization_name: cwb.multiorder.fits,1 dateobs: 2023-11-21T03:14:00 localization_name: cwb.multiorder.fits,0 dateobs: 2023-11-21T03:14:00 	<ul style="list-style-type: none"> date: 2023-11-21T03:15:32 ivorn: ivo://gwnet/LVC#S231121p-1-Preliminary dateobs: 2023-11-21T03:14:00 stream: LVC date: 2023-11-21T03:20:20 ivorn: ivo://gwnet/LVC#S231121p-2-Preliminary dateobs: 2023-11-21T03:14:00 stream: LVC
						<ul style="list-style-type: none"> date: 2023-11-21T01:07:18 ivorn: ivo://gwnet/LVC#S231121h-1-



230430 07:47:19 (9 days ago)

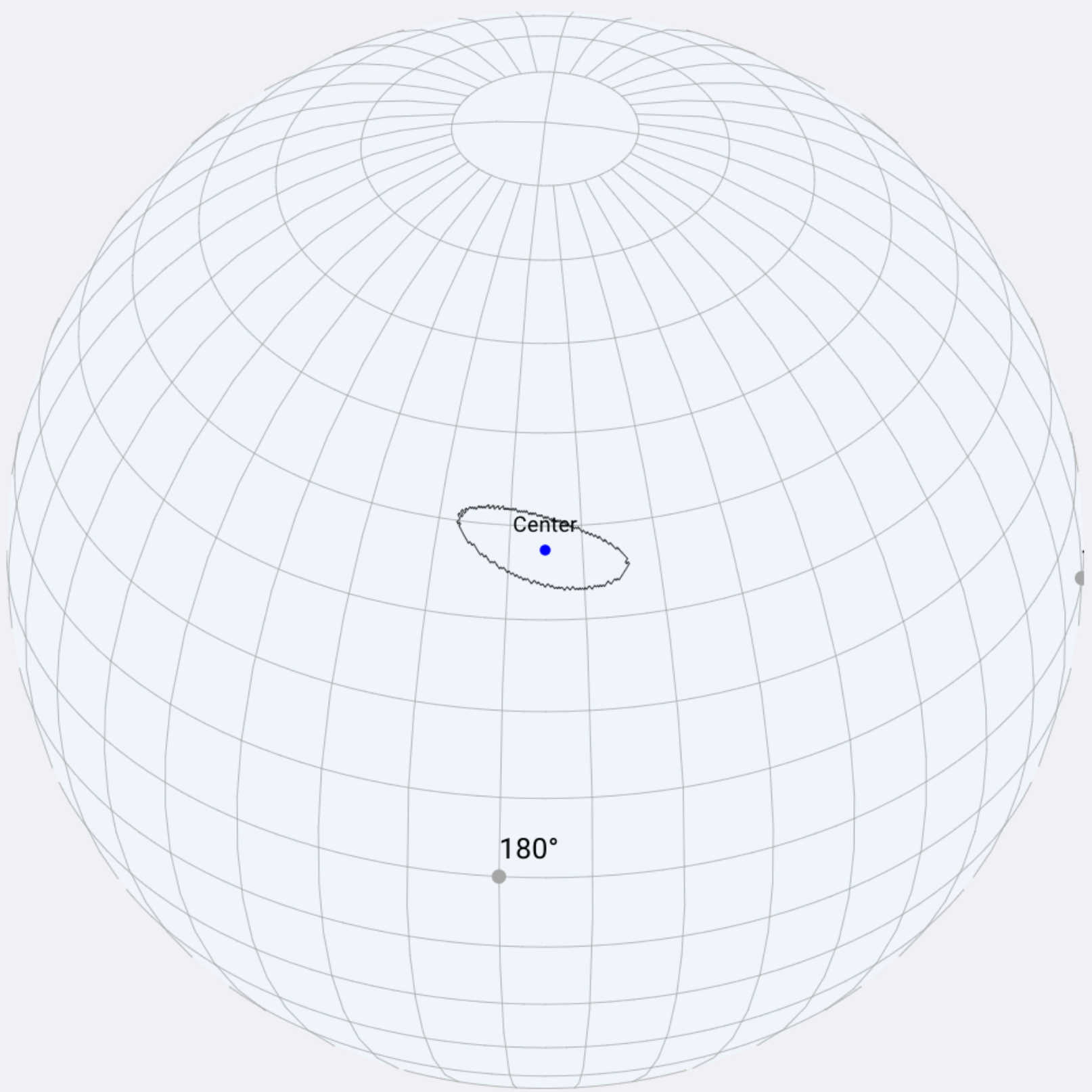
GRB short Fermi < 500 sq. deg. < 1000 sq. deg. > 0.9 in 500 sq. deg. +

SOCIAL

PROPERTIES

Instruments triggered: SEDMv2 UVOT WINTER ZTF AuxTel

Analysis



Projection
orthographic

Show/Hide on Plot
 localization sources galaxies instrument
 observations

QUERY FORM SOURCES GALAXIES OBSERVATIONS

Localization
Skymap: crossmatch-9457-9455.fits / Created: 2023-05-01T03:37:52.300469

Instrument
Palomar 1.2m Oschin / ZTF

Start Date *
2023-04-30 07:47:19

End Date *
2023-05-07 07:47:19

Minimum Number of Detections
2

Cumulative Probability *
0.95

Maximum Distance [Mpc]
150

Do not display rejected sources

Query list *
sources, galaxies, observations

Groups
Gamma Ray Bursts

SUBMIT

SUMMARY

SIMSURVEY ANALYSIS

CATALOG QUERY

SEND TO TREASURE MAP

RETRACT FROM TREASURE MAP

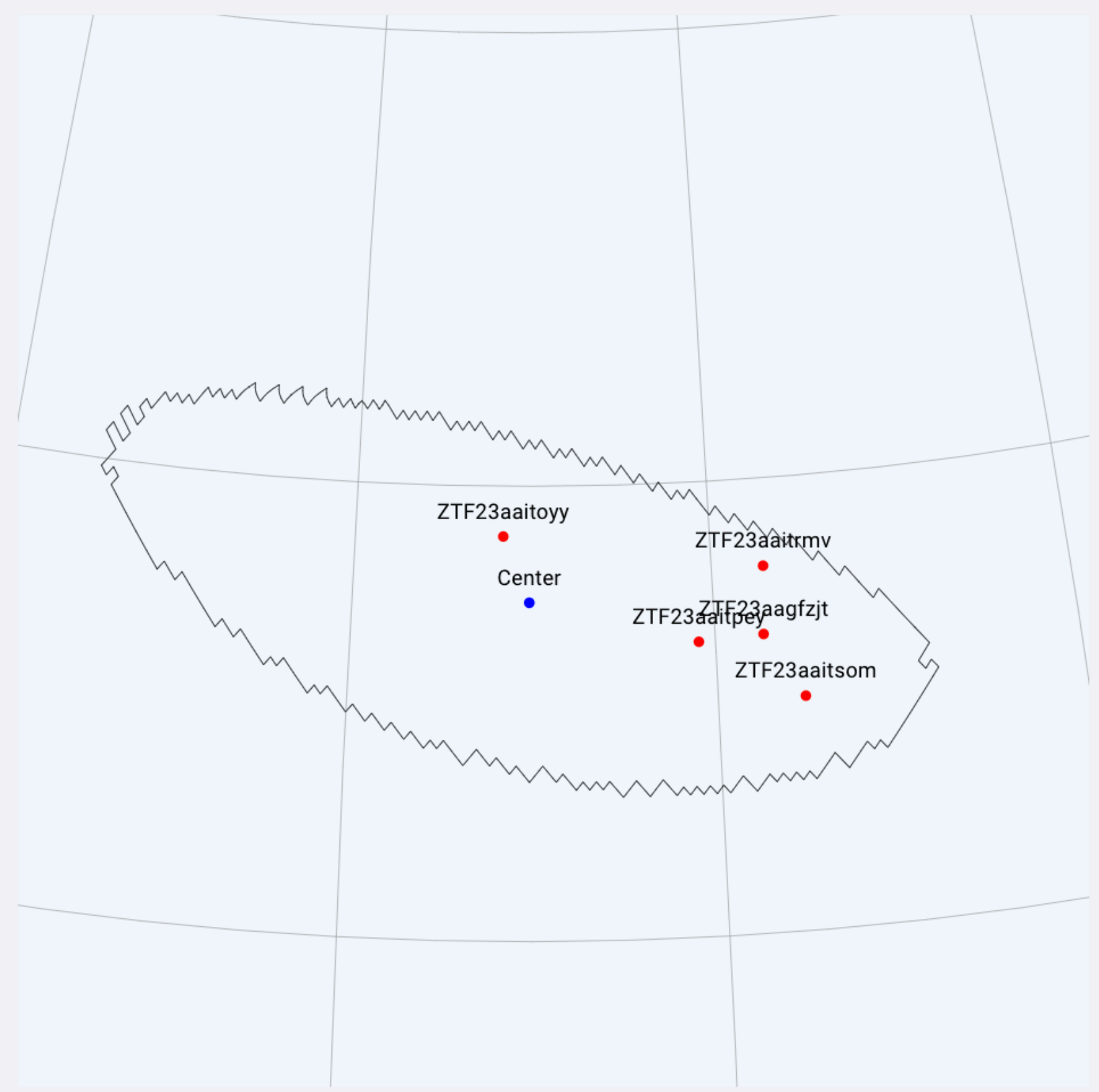
230430 07:47:19 (9 days ago)

GRB short Fermi < 500 sq. deg. < 1000 sq. deg. > 0.9 in 500 sq. deg. +

SOCIAL PROPERTIES

Instruments triggered: SEDMv2 UVOT WINTER ZTF AuxTel

Analysis



Projection

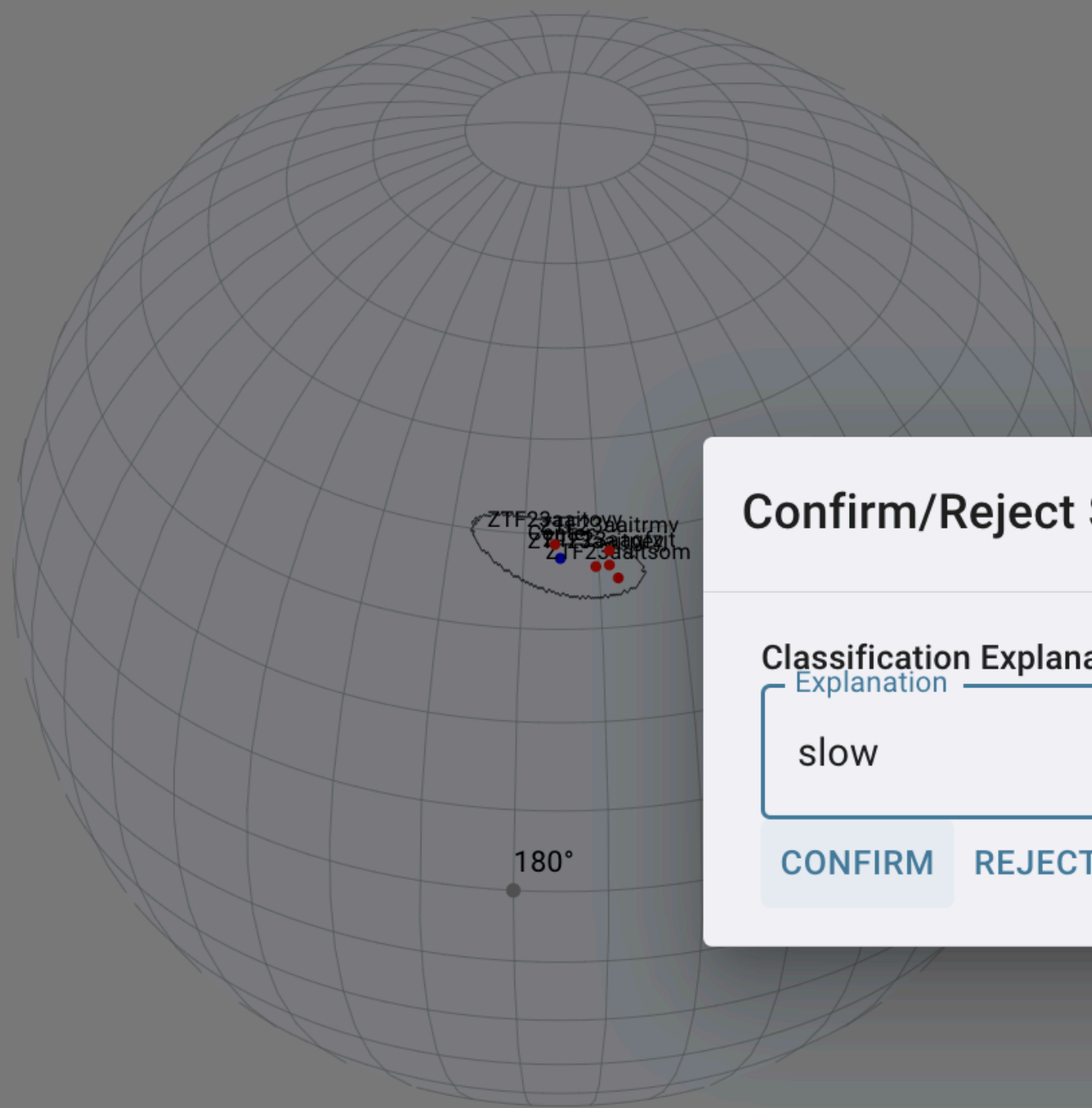
orthographic

- Show/Hide on Plot
- localization
 - sources
 - galaxies
 - instrument
 - observations

[QUERY FORM](#) [SOURCES](#) [GALAXIES](#) [OBSERVATIONS](#)

Source ID	GCN Status	GCN Status Explanation	RA (deg)	Dec (deg)	Redshift	Classification	Photometry Statistics	Groups	Date Saved
> ZTF23aaitsom	?		192.347874	35.166743				Anomalies Gamma Ray Burst	2023-05-05T18:32:21
> ZTF23aaitoyy	✗	AGN	184.190544	38.898700				Gamma Ray Burst EM+GW	2023-05-02T16:50:48
> ZTF23aagfzjt	✗	AGN	191.322972	36.584938				Gamma Ray Burst EM+GW	2023-05-02T16:50:46
> ZTF23aaitrmv	?		191.438274	38.076940				Gamma Ray Burst EM+GW	2023-05-02T16:50:44
> ZTF23aaitpey	?		189.546135	36.500634				Gamma Ray Burst EM+GW	2023-05-02T16:43:19

Analysis



Projection

orthographic

Show/Hide on Plot

- localization
- sources
- galaxies
- instrument
- observations

QUERY FORM SOURCES GALAXIES OBSERVATIONS

Source ID	GCN Status	GCN Status Explanation	RA (deg)	Dec (deg)	Redshift	Classification	Photometry Statistics
> ZTF23aaitrmv	?		191.438274	38.076940			
> ZTF23aaitson	?		189.546135	36.500634			
> ZTF23aagfzjt	×	AGN	191.322972	36.584938			
> ZTF23aaitrmv	?		191.438274	38.076940			
> ZTF23aaitpey	?		189.546135	36.500634			

Confirm/Reject Source ZTF23aaitson in GCN 2023-04-30T07:47:19

Classification Explanation

slow

CONFIRM REJECT UNDEFINED



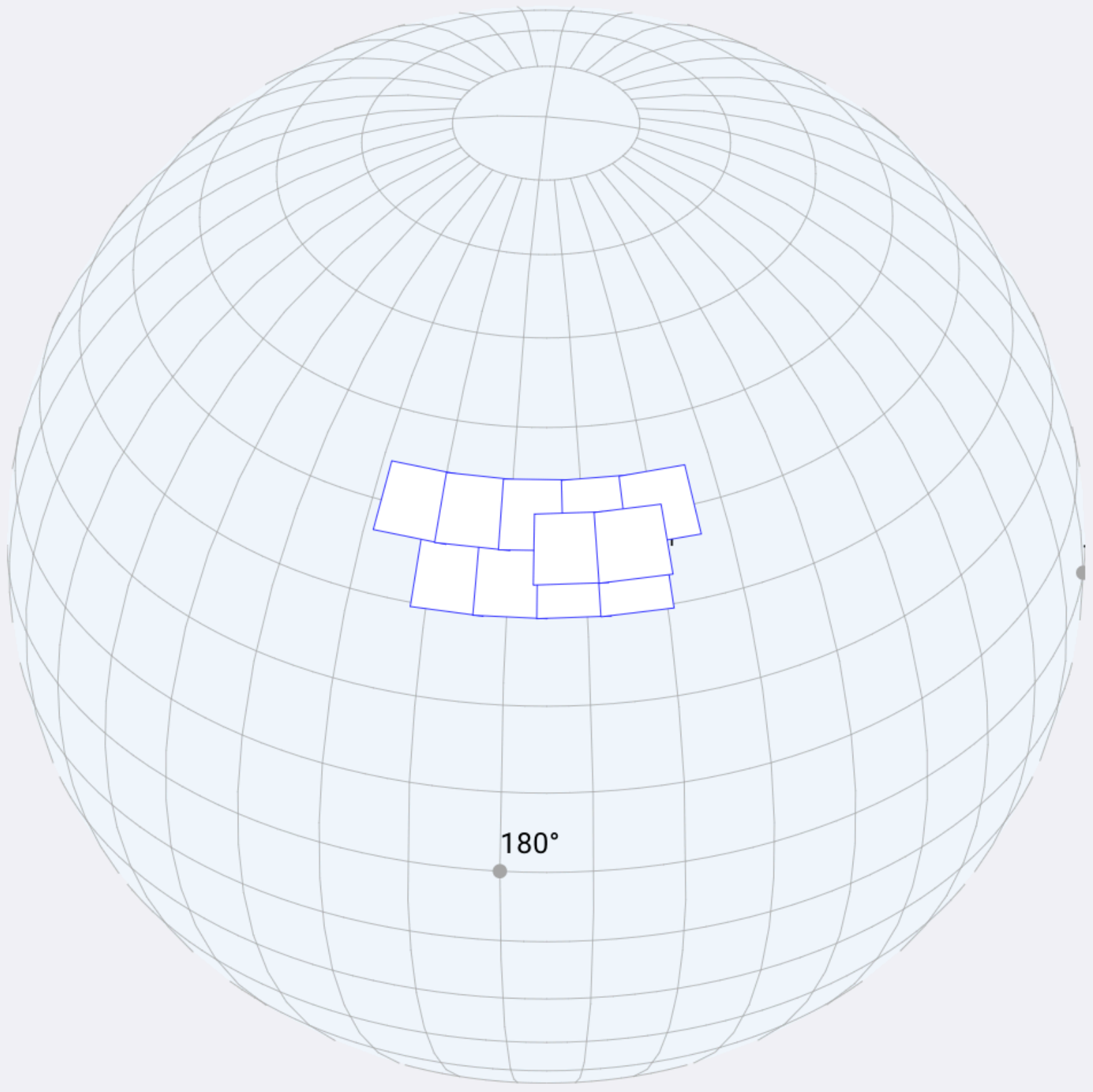
230430 07:47:19 (9 days ago)

GRB short Fermi < 500 sq. deg. < 1000 sq. deg. > 0.9 in 500 sq. deg. +

SOCIAL PROPERTIES

Instruments triggered: SEDMv2 UVOT WINTER ZTF AuxTel

Analysis



Projection: orthographic

- Show/Hide on Plot
- localization
 - sources
 - galaxies
 - instrument
 - observations

QUERY FORM SOURCES GALAXIES OBSERVATIONS

Executed Observations

Telescope	Instrument	Observation ID	Field ID	Right Ascension	Declination	Target Name	Observation time	Filter	Exposure time [s]	Airmass
Palomar 1.2m Oschin	ZTF	231328251	670	172.61679	33.35000		2023-05-03T06:46:49.002225	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231121064	671	180.47007	33.35000		2023-05-01T05:03:19.995831	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231121170	671	180.47007	33.35000		2023-05-01T05:04:51.000970	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231125505	671	180.47007	33.35000		2023-05-01T06:07:17.002578	ztfgr	299	
Palomar 1.2m Oschin	ZTF	231130349	671	180.47007	33.35000		2023-05-01T07:17:02.002570	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231131634	671	180.47007	33.35000		2023-05-01T07:35:32.000653	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231139035	671	180.47007	33.35000		2023-05-01T09:22:07.000326	ztfgr	30	
Palomar 1.2m Oschin	ZTF	231140783	671	180.47007	33.35000		2023-05-01T09:47:16.995837	ztfgr	30	

Title

Gcn Summary

Subject

Follow-up on GCN Event 2023-04-30T07:47:19

Number (Optional)

1

Group

Gamma Ray Bursts

Users (Optional)

Instruments (Optional)

Start Date

2023-04-30 07:47:19

End Date

2023-05-07 07:47:19

Localization Name

crossmatch-9457-9455.fits

Localization Cumulative Probability

0.95

Minimum Number of Detections

2

GCN SUMMARIES LIST

SAVE

SUMMARY TEXT

```

TEXT
TITLE: GCN SUMMARY TEST SOURCES AND OBSERVATIONS

SUBJECT: Follow-up on GCN Event 2023-04-30T07:47:19

DATE: 2023-05-07 21:33:17.447363

FROM: Theophile du Laz at ... <tdulaz@caltech.edu>

on behalf of the Gamma Ray Bursts group, report:

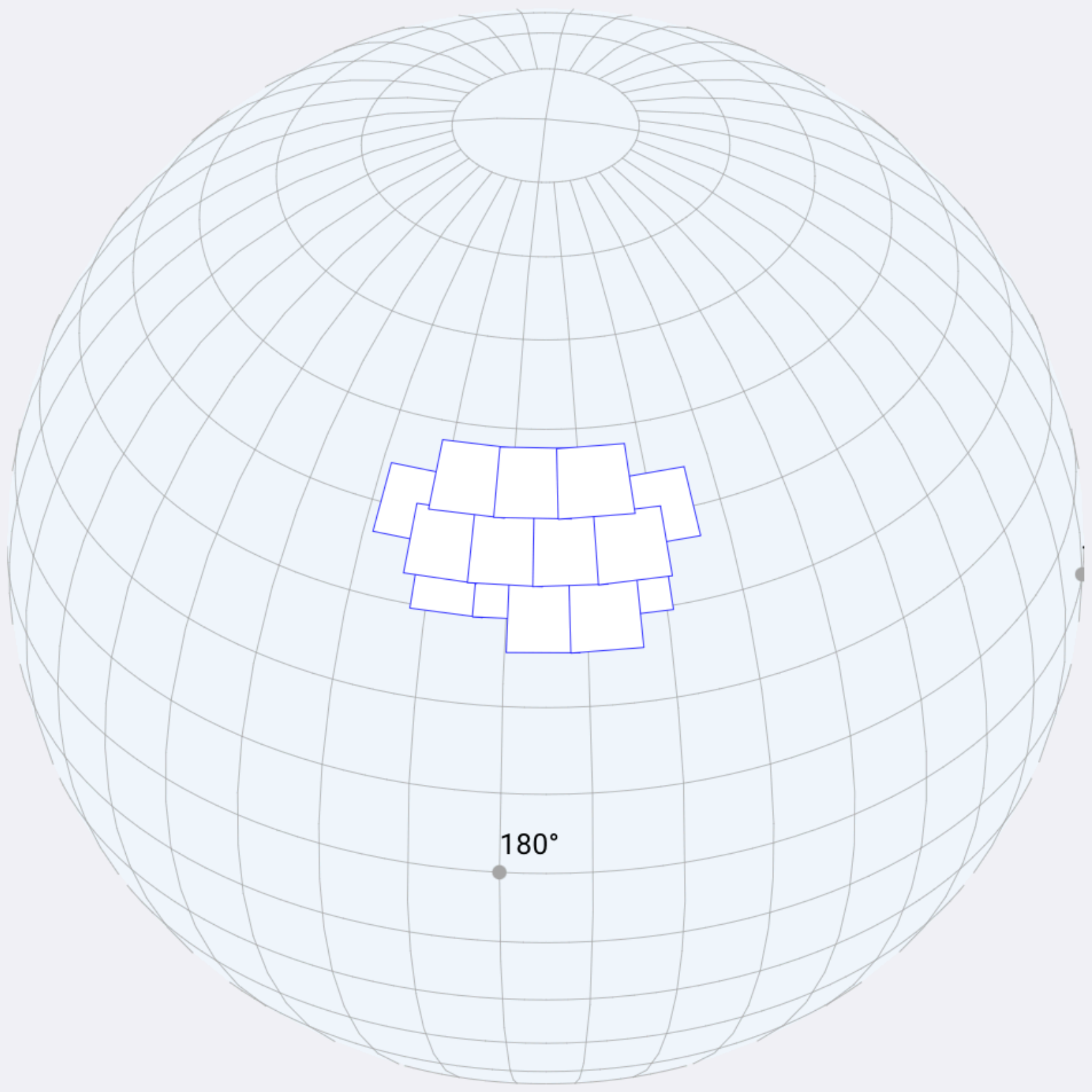
Found 5 sources in the event's localization, given the specified date range:

+-----+-----+-----+-----+-----+
| id          | alias  | ra      | dec    | redshift |
+-----+-----+-----+-----+-----+
| ZTF23aaitso | --     | 192.347 | 35.166 | --       |
| ZTF23aaitoy | --     | 184.190 | 38.898 | --       |
| ZTF23aagfzj | --     | 191.323 | 36.584 | --       |
| ZTF23aaitrm | --     | 191.438 | 38.076 | --       |
| ZTF23aaitpe | --     | 189.546 | 36.500 | --       |
+-----+-----+-----+-----+-----+

Photometry for source ZTF23aaitso:

+-----+-----+-----+-----+-----+
|          | mjd    | magterr (ab) | filter | origin  | instrument |
+-----+-----+-----+-----+-----+
| 60046.24484 | < 20.8 |              | ztfg   | None    | ZTF        |
| 60046.24484 | < 20.8 |              | ztfg   | None    | ZTF        |
| 60055.31181 | < 20.6 |              | ztfr   | None    | ZTF        |
| 60055.31181 | < 20.6 |              | ztfr   | None    | ZTF        |
| 60055.31274 | < 20.6 |              | ztfr   | None    | ZTF        |
| 60055.31274 | < 20.6 |              | ztfr   | None    | ZTF        |
| 60059.25012 | < 20.5 |              | ztfr   | None    | ZTF        |
| 60059.25012 | < 20.5 |              | ztfr   | None    | ZTF        |
| 60059.28681 | < 20.4 |              | ztfr   | None    | ZTF        |
| 60059.28681 | < 20.4 |              | ztfr   | None    | ZTF        |
| 60061.23804 | < 20.2 |              | ztfr   | None    | ZTF        |
    
```



Observation Plans



Projection

orthographic

Airmass Time
Time to compute airmass (UTC)

04/30/2023 07:47 am  [UPDATE AIRMASS CALCULATION](#)

OBSERVABILITY CHART **AIRMASS CHART** **WORLD MAP CHART**

Fields to use

CLEAR ALL SELECT ALL

Allocation

Palomar 1.2m Oschin / ZTF - EM+GW (PI Michael Coughlin)

Localization

Skymap: crossmatch-9457-9455.fits / Created: 2023-05-01T03:37:52.300469

Share Data With

emgw

Start Date (UT) *	End Date (UT) *	filter_strategy *
2023-05-08 23:53:48.170350	2023-05-09 12:56:15.297	block
schedule_type *	schedule_strategy *	galaxy_catalog
greedy_slew	tiling	CLU
galaxy_sorting	Exposure Time [s] *	filters *
equal	300	ztf,ztfr,ztfg
Maximum Airmass (1-3) *	Integrated Probability (0-100) *	Minimum time difference [min] (0-180) *
2	90	30
<input type="checkbox"/> Avoid the Galactic Plane?	Galactic latitude to exclude	<input type="checkbox"/> Threshold on number of fields?
	10	
Maximum number of fields	<input type="checkbox"/> Balance exposures across fields	<input type="checkbox"/> RA Slicing
100		
Minimum RA	Maximum RA	queue_name *
0	360	ToO_2023-05-08T23:53:48.170378
program_id *	subprogram_name *	
Partnership	GW	

- Followup Requests
- Shifts
- Summary Search
- About
- Other
- Telescopes
- Instruments
- MMA Detectors
- Allocations
- Observations
- Galaxies
- Spatial Catalogs
- Analysis Services
- Recurring API
- Taxonomies

List of Default Observation Plans

Default Observation Plan	GCN Event Filters	Filters	Program	Queue	Exposure Time
ZTF/P48 - ToO_300_grg_default	{"gcn_tags": [], "notice_types": ["LVC_INITIAL", "LVC_PRELIMINARY", "LVC_UPDATE"], "localization_tags": []}	ztfgr, ztfr, ztfgr	Partnership	ToO_2023-04-25T23:16:59.438201	300
ZTF/P48 - ToO_240_gr_default	{"gcn_tags": [], "notice_types": ["LVC_INITIAL", "LVC_PRELIMINARY", "LVC_UPDATE"], "localization_tags": []}	ztfgr, ztfr	Partnership	ToO_2023-04-25T23:20:45.800362	240
AuxTel/AuxTel-1p2m - DEFAULT-PLAN-AuxTel	{"gcn_tags": [], "notice_types": [], "localization_tags": []}	lsstr, lssti		ToO_2023-05-05T23:09:54.735356	300

List of Default Survey Efficiencies

Default Plan	Model Name	Number of Injections	Maximum Phase (days)	Minimum Phase (days)	Number of Detections	Detection Threshold (sigma)	Cumulative Probability	Optional Injection Parameters
Sorry, no matching records found								

30

Avoid the Galactic Plane?

Galactic latitude to exclude: 10

Threshold on number of fields?

Maximum number of fields: 100

Balance exposures across fields

RA Slicing

Minimum RA: 0

Maximum RA: 360

default_plan_name: DEFAULT-PLAN-NAME

SUBMIT

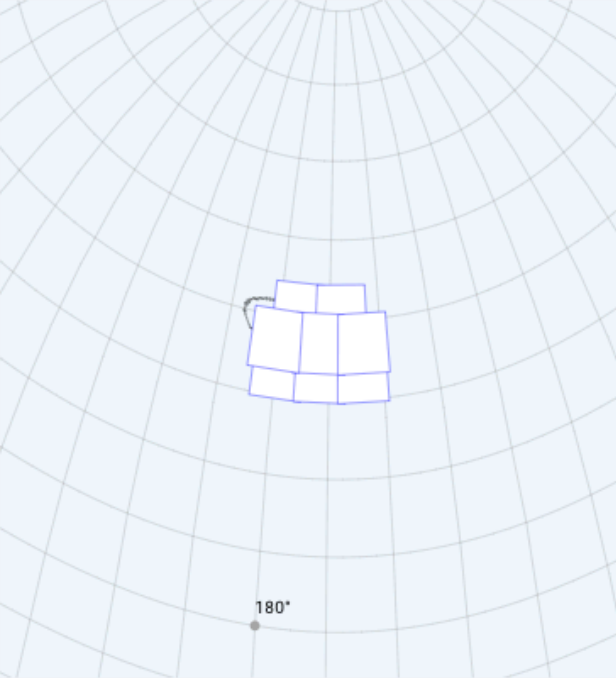
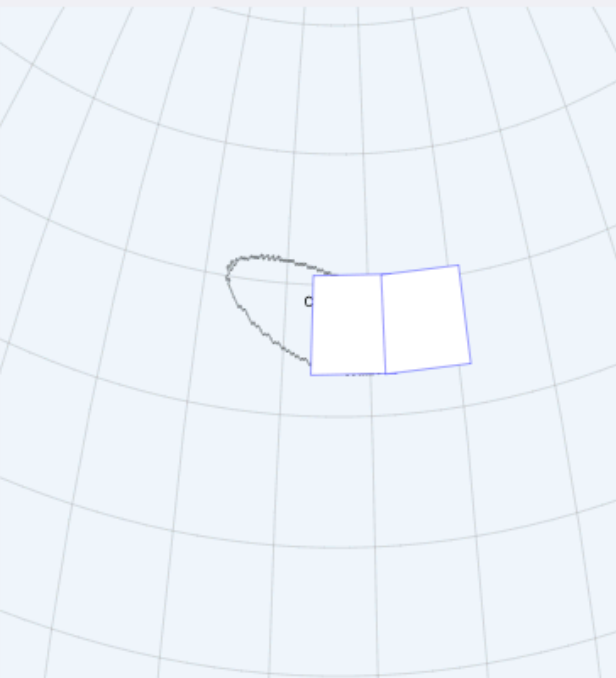
Add a New Default Survey Efficiency

Default Plan



ZTF Requests



queue_name	ra_slice_max	ra_slice_min	schedule_strategy	schedule_type	subprogram_name	Status	Summary Statistics	Delete	Interact	Telescope Queue	Treasure Map	Skymap
ToO_ipn_GBM_1	360	0	tiling	greedy_slew	GW	complete	<ul style="list-style-type: none"> • Number of Observations: 27 • Delay from Trigger: a moment • Start of Observations: 2023-04-30T07:47:19.000 • Unique filters: ztfr, ztfg • Total time [s]: 8100 • Probability: 0.988 • Area [sq. deg.]: 295.1 	DELETE	GCN DOWNLOAD GIF CREATE OBSERVING RUN SIMSURVEY ANALYSIS	SEND TO QUEUE REMOVE FROM QUEUE	SEND TO TREASURE MAP RETRACT FROM TREASURE MAP	 DELETE SELECTED FIELDS
ToO_ipn_gbm_2	360	0	tiling	greedy_slew	GW	submitted to telescope queue	<ul style="list-style-type: none"> • Number of Observations: 4 • Delay from Trigger: a moment • Start of Observations: 2023-04-30T07:47:19.000 • Unique filters: ztfr, ztfg • Total time [s]: 1200 • Probability: 0.538 • Area [sq. deg.]: 	DELETE	GCN DOWNLOAD GIF CREATE OBSERVING RUN SIMSURVEY ANALYSIS	SEND TO QUEUE REMOVE FROM QUEUE	SEND TO TREASURE MAP RETRACT FROM TREASURE MAP	 DELETE SELECTED FIELDS

Event Properties



Created at	Data_Integ	Burst_Inten	Burst_Signif	Data_Signif	Data_Timescale	Hardness_Ratio	Trig_Timescale
2023-04-30T07:56:27.829107	0	0	0				
2023-04-30T07:48:18.417009	0.5120	0	29.6000				
2023-04-30T07:48:06.054859	0.5120	0	29.6000				
2023-04-30T07:47:48.500936		820.0000		29.7000	0.5120	0.4500	0.5120

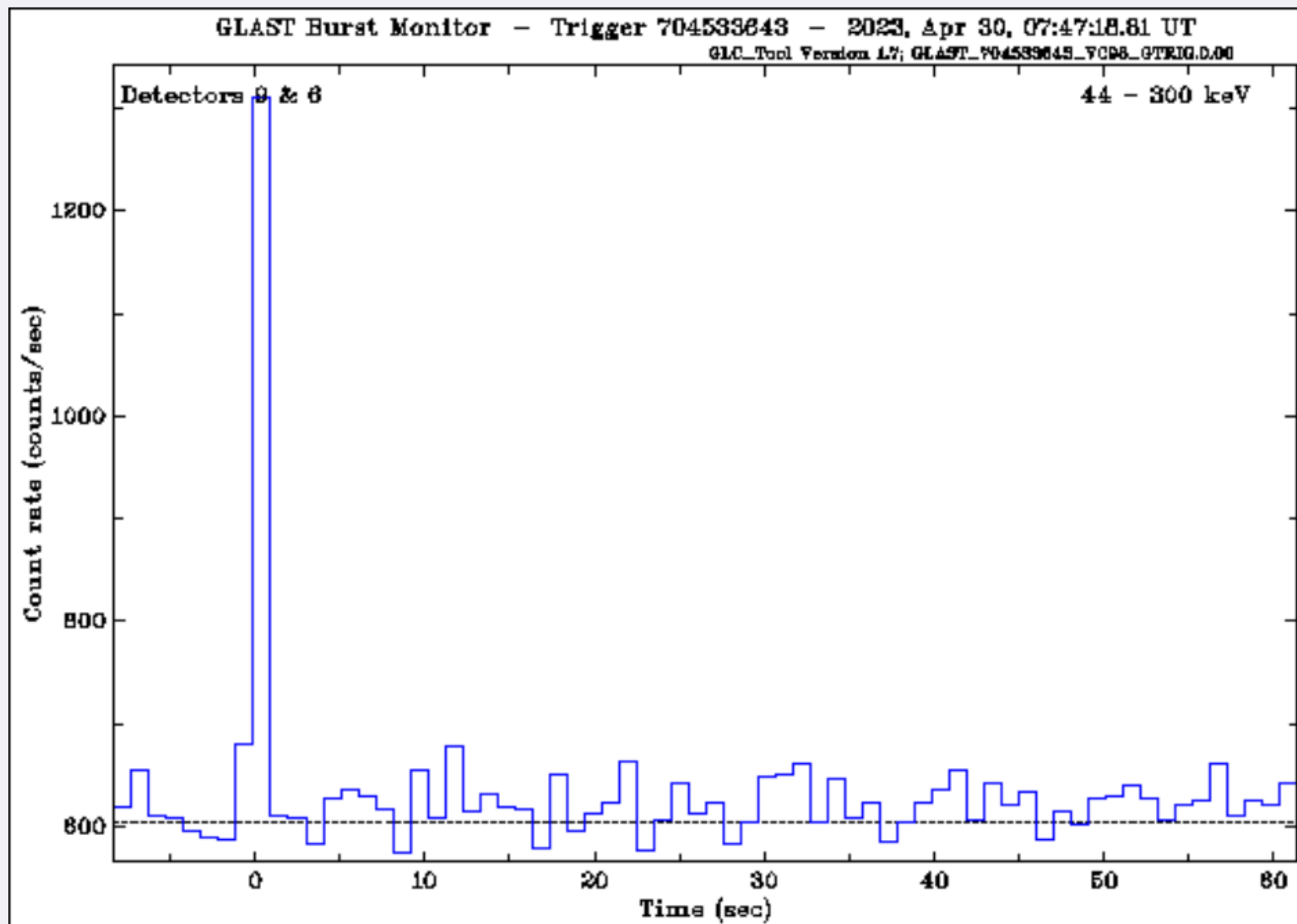
Rows per page: 10 ▾ 1-4 of 4 < >

Localization Properties



Created at	Name	Center	Tags	area_90	probability_500
2023-05-02T16:45:49.153088	IPN_2	Position (J2000): 12:45:21.09 +33:52:07.34 ($\alpha, \delta = 191.33789062499997, 33.8687046016565$; $l, b = 133.558940, 83.133523$) $E(B-V) = 0.01$	< 500 sq. deg. > 0.9 in 500 sq. deg. < 1000 sq. deg.	0.0148	1.0000
2023-05-01T03:38:29.602933	IPN_ANNULI.FITS	Position (J2000): 01:18:03.19 +79:39:39.91 ($\alpha, \delta = 19.513274336283185, 79.66108736675162$; $l, b = 124.176973, 16.853737$) $E(B-V) = 0.30$		1096.8968	0.5464
2023-05-01T03:37:52.300469	CROSSMATCH-9457-9455.FITS	Position (J2000): 12:19:41.25 +37:27:01.05 ($\alpha, \delta = 184.921875, 37.45029235016902$; $l, b = 153.905212, 77.700333$) $E(B-V) = 0.02$	> 0.9 in 500 sq. deg. < 1000 sq. deg. < 500 sq. deg.	101.4072	1.0000
2023-05-01T02:58:51.108124	IPN.FITS	Position (J2000): 12:19:41.25 +40:54:56.52 ($\alpha, \delta = 184.921875, 40.9157008389484$; $l, b = 146.291025, 74.740332$) $E(B-V) = 0.02$	< 1000 sq. deg. < 500 sq. deg. > 0.9 in 500 sq. deg.	271.3714	0.9801
2023-04-	GLG_HEALPIX_ALL_BN230430325_FIT	Position (J2000): 12:19:41.25 +40:54:56.52	< 500 sq. deg. > 0.9 in 500 sq. deg.	271.3714	0.9801

Light curve



GCN Notices

- ivo://nasa.gsfc.gcn/Fermi#GBM_Flt_Pos_2023-04-30T07:47:18.81_704533643_47-849
- ivo://nasa.gsfc.gcn/Fermi#GBM_Gnd_Pos_2023-04-30T07:47:18.81_704533643_58-850
- ivo://nasa.gsfc.gcn/Fermi#GBM_Gnd_Pos_2023-04-30T07:47:18.81_704533643_58-851
- INGEST LOCALIZATION**
- ivo://nasa.gsfc.gcn/Fermi#GBM_Fin_Pos_2023-04-30T07:47:18.81_704533643_0-878

GCN Aliases

- FERMI#bn230430325
 - GRB230430A
 - GRB230430
- UPDATE

GCN Circulars

- [GRB 230430A: Fermi GBM Final Real-time Localization](#)
- [GRB 230430A: AstroSat CZTI detection](#)
- [GRB 230430A: Fermi GBM observation](#)
- [IPN triangulation of GRB 230430A \(short\)](#)
- [Konus-Wind detection of GRB 230430A](#)
- [GRB 230430A: A short GRB from a neutron star merger](#)

UPDATE



Comments



td

theophile-dulaz a minute ago

test comment on GCN

Add comment

Attachment No file chosen

[Customize Group Access](#)

Reminders



Reminders



Text

Next Reminder (UTC)

Number of Reminders

Reminder Delay

Look at executed observations

2023-05-10T08:00:41

7

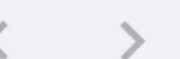
1



Jump to Page: 1 ▾

Rows per page: 5 ▾

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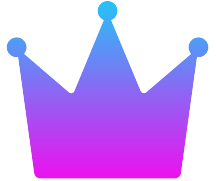
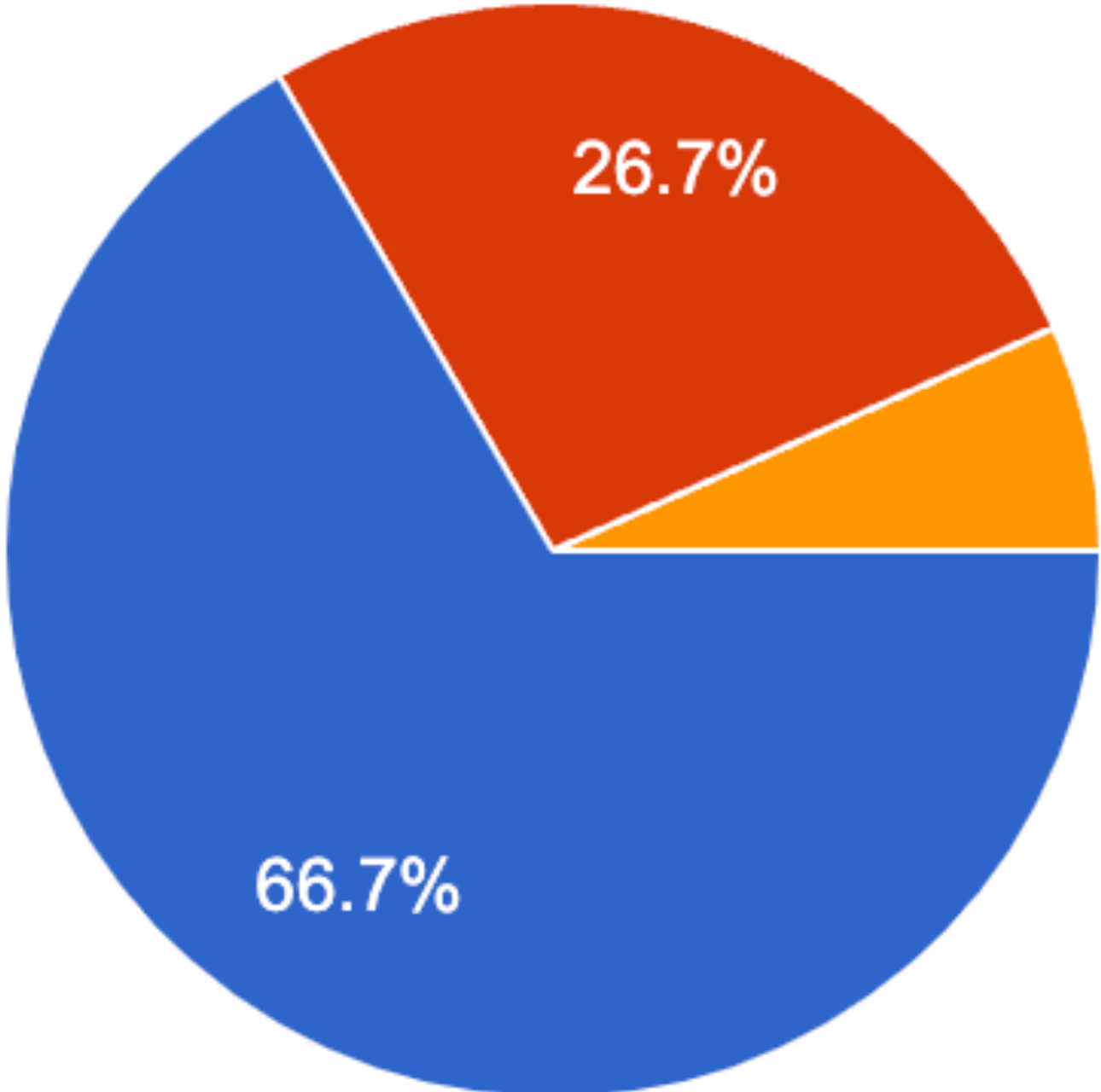
Some numbers

	May 2023	Oct 2023	Increase %
Groups	180	198	10%
Users	320	364	14%
Comments	170,000	196,000	15%
Filters	80	94	18%
Spectra	11,000	13,000	18%
Annotations	3.2 million	3.8 million	19%
Thumbnails	12.2 million	14.7 million	20%
Photometry	400 million	489 million	22%
Sources	420,000	517,000	23%
Candidates	7.3 million	9.3 million	27%
GCN events	3,100	5,100	65%

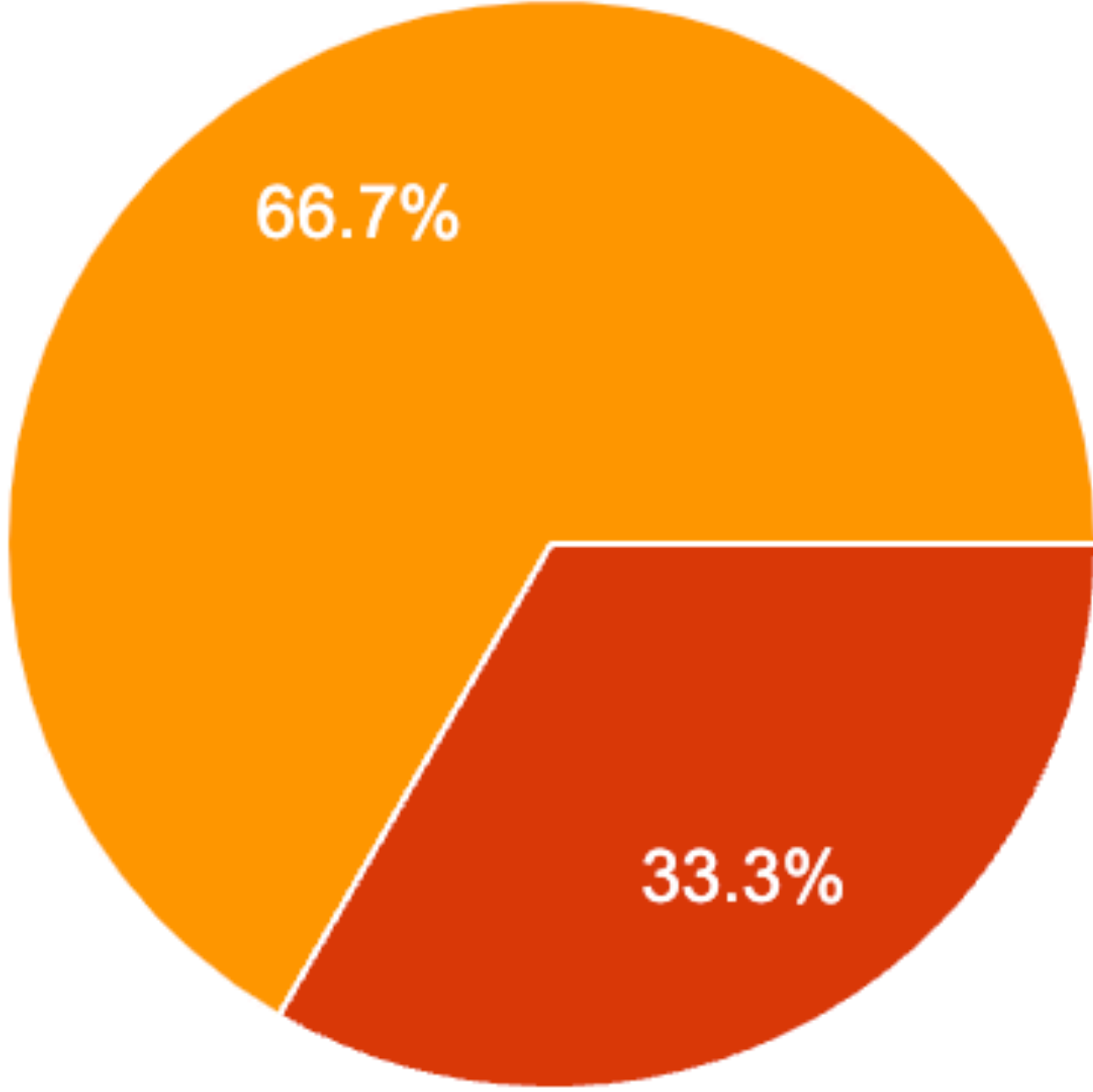
SkyPortal survey

Usage

API



Frontend



- Rarely (~10% of usage)
- Regularly (~50% of usage)
- Often (~90% of usage)

So... what do the users think of it?

I have more comments and thoughts than I have time to write right now,

Why did I even ask...

I have more comments and thoughts than I have time to write right now, but I'll give a few of my main complaints/suggestions on each component above:

Photometry plot: Too hard to distinguish different telescopes particularly P48 from the others. (P48 is always subtracted vs. its own reference so it's in a very different category from all follow-up photometry.) Error bars are easily hidden and the mouseovers have occasional bugs (mouseover text repeats). The list of telescopes/filters sometimes overflows the page. Lacks ability to indicate some key things like is it image-subtracted or what the exposure time was.

Spectra plot: Would be nice to smooth to a specific resolution in Angstroms rather than smooth in pixel increments (it's also a big buggy). Often the scale gets ruined by observers uploading data with noise spikes and one has to painstakingly zoom in (somewhat of a user error, but a better zoom default would make our lives easier).

Centroid plot: This one REALLY needs work! All the points are the same shape (I struggle to identify what is what, and it must be completely impossible for anyone who is color-blind). The zoom/center is chosen based on unrelated sources in the field and there are no buttons to recenter or go to a standard scale. The mouseover text for each source doesn't say what it is, either (catalog, observation time, magnitude - all absent!). Basically: everything about this plot needs major improvement.

Follow-up requests: Chooses a very weird default date range - usually the default start date is in the past (for which there is no reason to ever do!) and even the end date is often in the past as well, so inevitably there is a lot of time spent clicking the calendar necessarily. Ideally: It should always default to starting today with an expiry date in a week! Also, the list of request seems to be in random order, or at least not in a rational date-based order.

(Auto-)annotations: This is a data table that is displayed very inefficiently: it's virtually all whitespace, so one has to scroll/page all over to find a number. (Though the search tool is very efficient and the catalog look-ups are remarkably fast.)

Comments: I often have difficulty accessing the attachments: sometimes they don't load, sometimes they load but require me to download the image to view outside the browser, sometimes they load but in a tiny window that's unreadably small, etc. (and other times they work fine). I haven't identified any pattern to this!

Classifications: Setting the classification is a huge pain - the "Sitewide Taxonomy" list is massive and not organized in an obvious way, so there is little alternative to go scrolling around for 10-20 seconds hunting for the "right" classification. It would be nice if one either had sub-menus (novae, SNe, variables...) or one could type in a classification as text and have it suggest auto-completes among the official list. Adding new classes is very difficult - it requires technical knowledqe of the API and then requires definina an entirely new taxonomy that may then not be recognized by any pre-existing scripts.

Analysis services: Possibly I'm not using this effectively but I've had lots of occasions when my request disappears into the ether. It might be good if this sent notifications by default so that everyone knows when these requests return (or time out). Usually I have forgotten I ever submitted a forced phot (etc.) request by the time it finishes and only see the output if I happen to look at the page again.

TNS: It would be really nice if it would report the TNS classification, redshift, and/or offset at the top of the page alongside simply the TNS name. (Ideally prominently!)

Sources list: I don't use this too often. I find it is a bit "information overload" and it might be nice to be able to configure it in a custom way to only show the information on the sources that you want. This is probably not a high priority compared to the other things.

This is very specific, but the crossmatching feature between multiple skymaps could be improved to be a bit more user-friendly. Also, querying for sources within a skymap each time the page is loaded is a bit annoying, but not sure whether that is unavoidable. Sometimes I have encountered issues with loading sources.

allow users to save a source to a group in just one click; put spectra in a scroll-able list if there are too many (rather than letting the plot grow vertically)

Reordering and resizing of panels on right side

Modify the text color compared to the background in dark mode

the classification (source type) list seems to have a lot of types which people never use. Could this be shortened?

Would like it to automatically go to a new window when looking at a specific source as it gets lost and loses categories defined when going back

For "modify": see my feedback elsewhere in the form! Also: the image cutouts could be scaled better for fields with bright stars, and not smoothed/interpolated (show me the real pixels!).

For "delete": I would say that the top part of the page is getting rather crowded and some of this information could be removed, hidden, or displayed more efficiently..

For "add": maybe a feature that looks up mentions in the AstroNotes and arXiv and identifies mentions of the source, to help us recognize sources that others (or ourselves!) are writing circulars/papers on. (For fun one could even scrape news and social media...) You could also consider a SIMBAD plugin like they have on the TNS site that lets you zoom out on a field to see if there are nearby galaxies around, etc. (maybe easy? maybe not worth the hassle/load overhead?)

an ability to mark sources on the scanning page that have already been considered

Its good

It would be nice if autoannotations for the specific program one has selected to scan were always at the top of the last, so you don't have to scroll through a bunch of unrelated programs to see the values you're interested in for scanning a specific program.

(I also really wish it were easier to modify filters!)

Sort by annotations

It would be nice for the observability plot/airmass plot to be displayed on the Fritz page for a GCN event at the press of a button, rather than just downloaded (it could be similar to the way finding charts work currently).

meridian time of each target -- this is actually pretty useful for planning purposes

make it easier to "mark as observed"

We really need a way to edit priorities! The priority of a target changes all the time because it becomes more or less interesting as new data flow in. The only way to change a priority now is to delete the request entirely and reset it. This should be high, er, priority to fix! A more minor suggestion would be to add an extra status "scheduled" to "observed"/"not observed" so that observers could choose to indicate what they're currently planning to get during the night, as well as have the "observed"/"not observed" targets become greyed out or conspicuously different to indicate that they are done.

The x-axis on the target airmass charts on the observing run page is very coarsely sampled in UT time (i.e. 03, 06, 09 UT, etc). When a user mouses over the observability chart, the time displayed is neither UT nor local time, but some string of numbers. It would be great if the observability charts can be expanded to show finer time sampling and/or the time displayed when mousing over corresponds to the specific UTC time at which it is at a given airmass, so that this feature can be very useful for observing runs. Another cool feature to add would be a composite airmass chart for all of the candidates assigned to a given run.

sorting and filtering in the favorites page, i.e. user-level tags

Periods determined are often not correct

Some sort of in-built filter testing service would be nice, although maybe not practical.

Information about the pointing history would be really nice. For example I'd like to be able to input a coordinate and immediately know the last time ZTF pointed at a field that nominally includes that coordinate, even if no alerts were generated at that location (ideally, I'd like the whole history of such pointings along with limiting mags.)

sometimes its hard to get in, doesn't seem to recognize me immediately

wasn't working on safari for a while, but it works now (just checked).

Mostly just slow-loading pages and the occasional crash. A recent specific issue I have run into is when scanning through a list of sources I will load 10-20 of them in tabs for later review, but some of these tabs will load very slowly or not at all.

Another long-standing issue is that when I've loaded a page, I'll go to enter the redshift or the classification and suddenly the pop-up menu that I'm typing into or scrolling through will randomly disappear. This only happens in the first 10-15 seconds of the page, and is probably related other stuff loading. It's only a minor annoyance but it's definitely an annoyance!

General comment: often the individual candidate photometry plots do not load (i.e. remain blank) when trying to include all candidates on the same scanning page (rather than going through multiple scanning pages).

The palomar targetlist never loads correctly to the telescope

Lessons we learned

Scaling is very hard

- There is always a bottleneck. If it's not the database, it's the app.
- Good code is not good forever.
- A lot of things in the DB don't change very often, no need to query them all the time.
- Deploy often, fix more often.
- Never enough tests.
- Monitor performance regularly, match user complaints with what can be observed on the google-cloud console.
- New exciting features are great, but simple, robust, and useful features are even better.

Things we have been working on

- Smarter frontend: More tabs doesn't affect the server as much.
- Automatic triggering with Kowalski and BTSbot (Nabeel Rehemtulla et al. first paper on the arXiv, second paper in prep)
- Make "heavier" analysis products like NMMA (Peter T.H.Pang et al. 2022) available through Fritz.
- Brand new photometry and spectra plots: less waiting, less bandwidth.
- Speed, overall: runs computations in parallel, deduplicate logics, cache everything that can be... both front-end and back-end.
- Faster sources queries: filter through sources ~20 times quicker.

Things **we will be working on**

- Frontend v2: refresh the overall design where needed, rethink how some features are used from the frontend to make things easier and faster to use.
- Customizable frontend. People use different features, and don't use some of them. We want the frontend to be more customizable to everyone's liking.
- Integrate with Astro-COLIBRI (next slide)
- Increase performance for scanners: get the candidates quicker, load source page data quicker, re-assign targets quicker, ... Not vital now, but trying to anticipate and improve scaling.
- Extend the capabilities of the analysis framework, to make as many external offline analysis services accessible directly from SkyPortal

Integration with Astro-COLIBRI

- In Astro-colibri:
 - Connect with your SkyPortal account(s).
 - Visualize/Import your SkyPortal sources, referencing back to the platform. A way to populate astro-colibri from SkyPortal
 - Receive in-app notifications.
 - Query SkyPortal group catalogs through Astro-COLIBRI
 - Import facilities data from SkyPortal to Astro-COLIBRI to plan through tilepy.
- In SkyPortal:
 - Add the API endpoints necessary to implement all of the above
 - Link to your Astro-COLIBRI account
 - Use the wide-range of cone-searches in Astro-COLIBRI through SkyPortal. A way to populate SkyPortal from Astro-COLIBRI.
 - Upload transients from public data-streams to Astro-COLIBRI.

The team

Core



Sarah Antier



Joshua Bloom



Michael Coughlin



Matthew Graham



Theophile Jegou du Laz



Mansi Kasliwal



Don Neill



Guy Nir



Leo Singer



Stéfan van der Walt

Alumni



Arien Crellin-Quick



Thomas Culino



Dmitry Duev



Daniel Goldstein



Jada Lilleboe



Kyung Min Shin

New team members?

- Berkeley students (from Codify)
- Computer Science background
- A team of ~6 developers + ~6 designers
- Specialized in front-end development
- and web design
- Which is exactly what we need!

A data science platform to enable time-domain astronomy

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New paper!

Lessons **we learned**

Nothing's ever finished or perfect, **stability** is very hard to reach

- Build diverse teams, at least one person for each aspect of the app
- The 6 lines of code might look good, but still try them before merging.
- Deploy often, fix more often
- Tests, tests, and even more TESTS
- Have a robust deployment pipeline
- Monitor performance in real-time
- Question each others code
- New features are great, good features are better

SkyPortal is open-source

Please open issues when you find a bug, or just want need features

The screenshot shows the GitHub repository page for skyportal/skyportal. The repository is public and has 74 stars, 78 forks, and 7 watchers. The main navigation bar includes links for Pull requests, Issues, Codespaces, Marketplace, and Explore. The repository's main navigation bar includes links for Code, Commits, Issues (102), Pull requests (16), Discussions, Actions, Projects, Wiki, Security, Insights, and Settings. The repository's main content area shows a list of files and folders, including .github, alembic, baselayer @ 01c712b, data, doc, jobs, services, skyportal, static, tools, .dockerignore, .eslintignore, and .eslintrc.vaml. The right sidebar contains the About section, which includes the repository's description, skyportal.io link, tags (machine-learning, astronomy, lsst, collaborative-research, variable-stars, transient-astronomy), and a list of links (Readme, View license, 74 stars, 7 watching, 78 forks, Report repository). The Releases section shows 1 tag and a link to create a new release.

Search or jump to... Pull requests Issues Codespaces Marketplace Explore

skyportal / skyportal Public Edit Pins Watch 7 Fork 78 Starred 74

Code Commits Issues 102 Pull requests 16 Discussions Actions Projects Wiki Security Insights Settings

main 22 branches 1 tag Go to file Add file Code

mcoughlin Bulk photometry test (#4194) 92e87c5 4 days ago 3,311 commits

File/Folder	Description	Last Commit
.github	pinned commit hash with fixed dataloader (#4113)	last month
alembic	ExecutedObservation table indices (#4178)	last week
baselayer @ 01c712b	Missing SQLAlchemy2 syntax (#4024)	2 months ago
data	Add AuxTel info (#4191)	4 days ago
doc	WIP - GcnEvent: SkyMap manual reingestion + avoid repetitive API c...	2 months ago
jobs	Add hourly cron job that counts old, unsaved candidates/objs (#1732)	2 years ago
services	Analysis notification queue (#4190)	4 days ago
skyportal	Bulk photometry test (#4194)	4 days ago
static	Show Similar sources (#4187)	5 days ago
tools	simplejson 3.19.1 (#4109)	last month
.dockerignore	mount new persistent data directory for analysis results & fixup Dock...	8 months ago
.eslintignore	Reformat root of repo with pre-commit checkers (#694)	3 years ago
.eslintrc.vaml	WIP: update react-hook-form (#3661)	6 months ago

About Collaborative platform for time-domain astronomy

skyportal.io

machine-learning astronomy lsst collaborative-research variable-stars transient-astronomy

Readme View license 74 stars 7 watching 78 forks Report repository

Releases 1 tags Create a new release

Learn how to use it

SkyPortal is well documented, but never enough!

- Read the documentation at skyportal.io
- Watch the tutorials at www.youtube.com/@skyportalastronomy
- Open issues on GitHub at github.com/skyportal
- Email me at tdulaz@caltech.edu
- Most importantly, asks me anything **today!**

Thanks for listening!

Find us: skyportal.io