GAIA SCIENCE ALERTS

Follow-up server manual

gaia

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last update: 9 December 2011

INTRODUCTION

Gaia Science Alerts Follow-up Server relies on alerts released via VOEvent at Skyalert.org webpage. For details on Skyalert please refer to Williams et al. 2009, ASPC, 411, 115 and presentations of Ashish Mahabal and Roy Williams available here:
http://www.ast.cam.ac.uk/ioa/research/gsawg/index.php/Workshop2011:agenda

DISCLAIMER
The calibration server is part of the Gaia Science Alerts WG follow-up pipeline and thus should be used only for activities related to the Gaia alerts verification and follow-up. For details please go to:
http://www.ast.cam.ac.uk/ioa/research/gsawg

HOW TO SET-UP CUSTOM ALERT FEED

go to page 12 if you want to skip this step

Skyalert.org

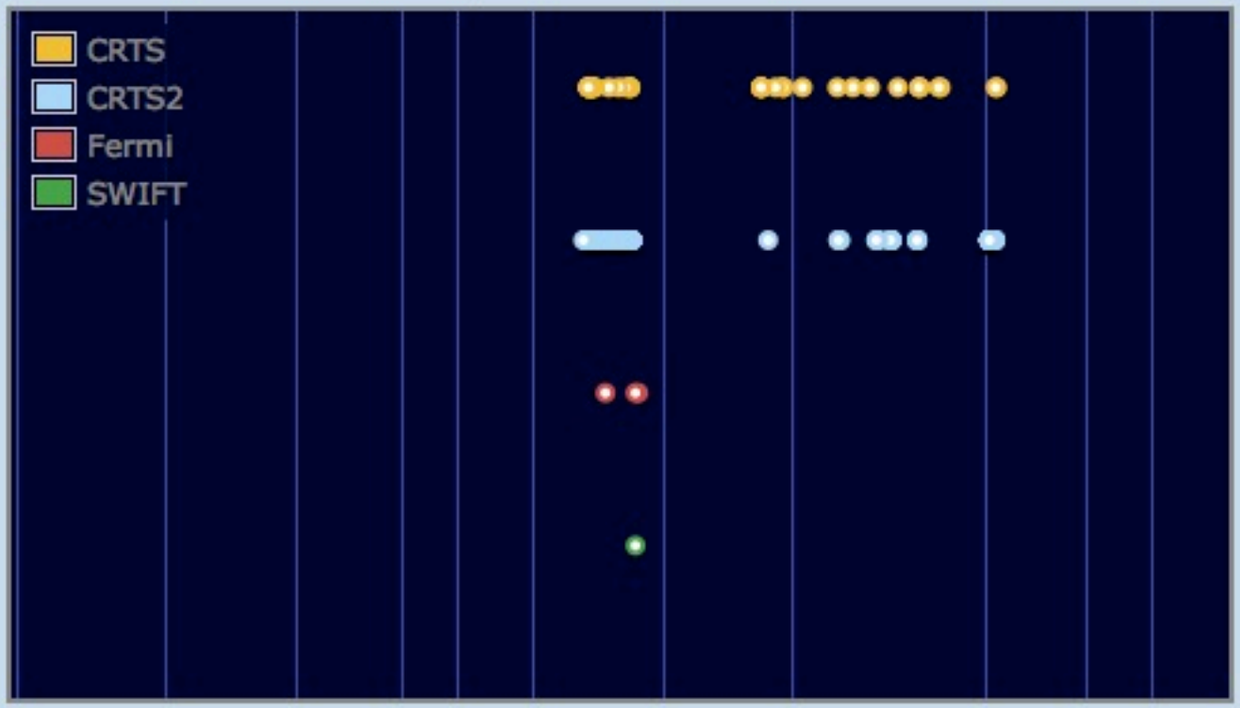
Sponsored by the National Science Foundation

Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

Log in here, or register here.

Recent Events

In the picture below, time is measured with "right now" at the right. Ages of recent events -- the last 200 received -- are shown by stream. Click on an event to bring up a new window with detailed portfolio.



<-- Time since now (2011/11/18 8:09 PST)

Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

About Skyalert

SkyAlert collects and distributes astronomical **events** in near-real time. Each event belongs to a **stream** of events that come from a common source, with a common vocabulary of parameters for each event. You can browse event streams and the events themselves, at the links below. You can set up "alerts" which decide which events you find interesting, that comes with an Atom feed of those that pass the selection. You get only the events you want -- no more, no less.

- Skyalert News
- Feeds of interesting astronomical events
- Browse event streams that skyalert is monitoring
- Recent events as a table
- Build a custom feed
- Get email when an interesting event occurs
- Authoring your own event stream
- Validate a VOEvent or author an event
- Resolve an event identifier (IVORN)
- Guide to Running Skyalert (pdf)
- Install your own Skyalert
- Contact us at help@skyalert.org

HOW TO SET-UP CUSTOM ALERT FEED

Skyalert.org

Sponsored by the National Science Foundation

Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

Sign up

Create an account

First name:

Last name:

Username:

Email address: wyrzykow

Password: ••••••••

Password again

Click when finished: Register →

Fill out the form to the left (all fields are required), and your account will be created; you'll be sent an email with instructions on how to finish your registration.

We'll only use your email to send you signup instructions. We hate spam as much as you do.

This account will let you subscribe to event streams for future notifications.

HOW TO SET-UP CUSTOM ALERT FEED

Skyalert.org

Sponsored by the National Science Foundation

Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

Log in

Log in

Username:

wyrzykow

Password:

••••••••

Log in

If you don't have an account, you can sign up for one.

HOW TO SET-UP CUSTOM ALERT FEED

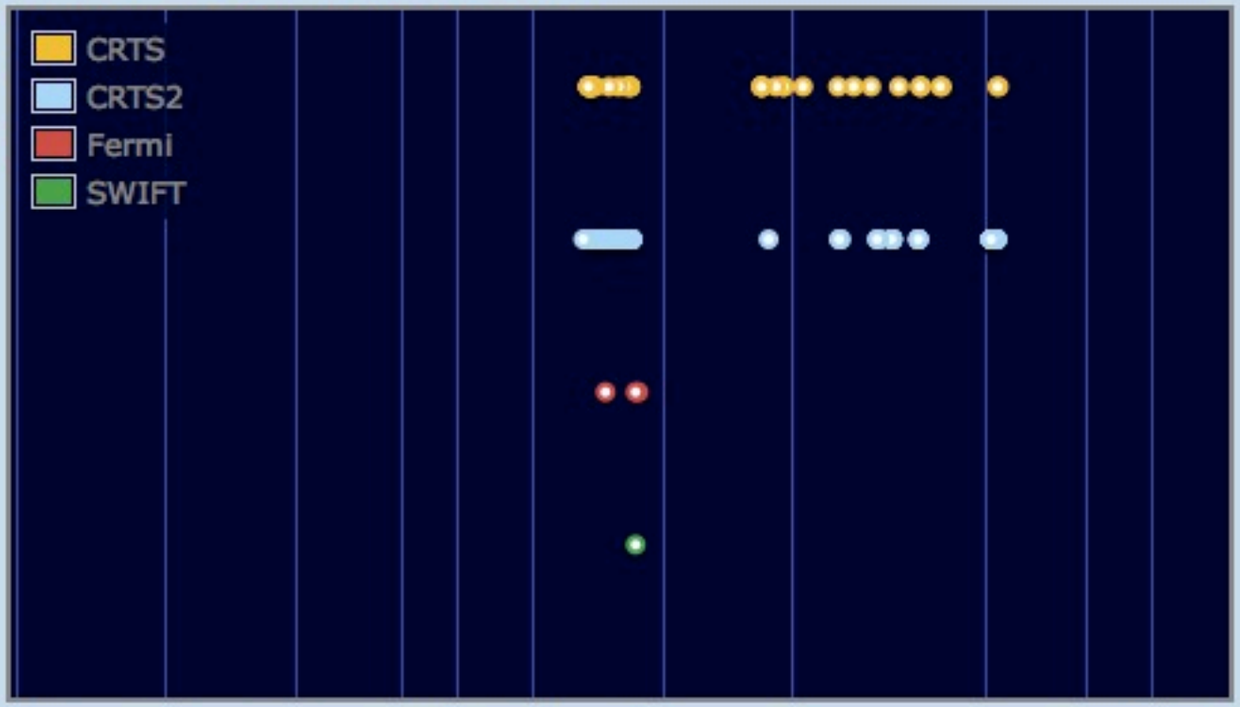
Skyalert.org

Sponsored by the National Science Foundation
Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

Logged in as: wyrzykow
(Lukasz Wyrzykowski)
(logout)

Recent Events

In the picture below, time is measured with "right now" at the right. Ages of recent events -- the last 200 received -- are shown by stream. Click on an event to bring up a new window with detailed portfolio.



<-- Time since now (2011/11/18 8:06 PST)

Browse Event Streams | Browse Skyalert Feeds | **my** Feeds and Alerts

About Skyalert

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HOW TO SET-UP CUSTOM ALERT FEED

For a New Alert

Click Here

Existing Alerts

Here are your existing alerts:
Click the "detail" to view and edit.

Bright CBAT	(detail)	(feed)	(json)	(delete)	CBAT["mag"]<17
Catalina SNe	(detail)	(feed)	(json)	(delete)	(CRTSCircular["First"]["eventClass"]=="Supernova") and (CRTS["First Detection params"]["magnitude"]<17)

Back to main page

Select the main stream of alerts:

Choose the primary stream

This is the event stream that is the basis of your alert. You can build a trigger (i.e. r
Choose the primary stream --> select stream...

- AAVSO
- CBAT
- CRTS
- CRTS2
- CRTS3
- CSS_NEO
- Fermi
- Gaia
- GALEX
- HST_MCT
- MOA
- OGLE
- PI_OF_SKY
- POSS
- SWIFT
- Test

You can also have extra condit ased on the presence of addition
advanced option. click

Continue to next step -->

CRTS: Northern Hemisphere
CRTS2: Asteroids
CRTS3: Southern Hemisphere

Gaia: in future...

Select the secondary stream of alerts:

Choose the primary stream

This is the event stream that is the basis of your alert. You can build a
Choose the primary stream --> CRTS

You can also have extra conditions for your alert, based on the presenc
This is an advanced option. click

Choose secondary streams --> select stream... / CatalogArchives / constellation / CRTSCircular

Continue to next step -->

CRTSCircular contains classification results

HOW TO SET-UP CUSTOM ALERT FEED

Alert Detail

for the alert named CRTS SNe North

Primary Stream:**CRTS (ivo://nvo.caltech/voeventnet/catot)**
Secondary Stream: CRTSCircular (ivo://nvo.caltech/voeventnet/CRTSCircular)

Name of Alert:	CRTS SNe North
Active alert?:	1
Action type:	alert_email
Action detail:	wyrzykow@ast.cam.ac
Private alert?:	1

What can I do here?

You can create a decision trigger in the box below, which is an expression that evaluates to true or false, for example `SWIFT["Dec"] > 70`, which is true only for events from the SWIFT stream whose declination is greater than 70. When an event comes in, it is run immediately against your trigger, and if it passes, then the action is executed. Currently the only action available is sending email ("alert_email"). Another decision formula might be `CATOT["First Detection params"]["magnitude"] < 18` to select by magnitude.

How to make an alert:

- **Step 1**: Give your alert a name, and make sure the email address is correct. Click the **Save** button.
- **Step 2**: Change the default trigger ("True") to the criterion you want. Clicking on the red dots by names of parameters will insert the correct code. Make sure your expression is a boolean expression.
- **Step 3**: Click "Save"
- **Step 4**: Click on "See Events" to see which historical events satisfy your trigger.

Trigger Expression

```
(CRTSCircular["First"]["eventClass"]=="Supernova") and (CRTS["First Detection
params"]["magnitude"]<18) and (CRTS["First Detection params"]["Dec"]>0)
```

Your filter here

the list of possible parameters for both streams is available at the bottom of the page

This button first checks the syntax of the expression above, then saves the whole alert.
The form of the trigger is python syntax. Each event type (stream) is given a dictionary of its parameters. The 'math' and 'string' libraries are also available in trigger construction.

Step 3: Click to save --> Save

Click once, if no error, then proceed

Private alert?: 1

What can I do here?

You can create a decision trigger in the box below, which is an expression that evaluates to true or false, for example `SWIFT["Dec"] > 70`, which is true only for events from the SWIFT stream whose declination is greater than 70. When an event comes in, it is run immediately against your trigger, and if it passes, then the action is executed. Currently the only action available is sending email ("alert_email"). Another decision formula might be `CATOT["First Detection params"]["magnitude"] < 18` to select by magnitude.

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```
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```

This button first checks the syntax of the expression above, then saves the whole alert.
The form of the trigger is python syntax. Each event type (stream) is given a dictionary of its parameters. The 'math' and 'string' libraries are also available in trigger construction.

Step 3: Click to save --> Save

This button lets you see past events that would satisfy your trigger, if executed now.
Note: you must "Save" the alert with the button above before using this function!.

Step 4: Click to see past events that satisfy this alert --> See past events

---

Primary Stream: CRTS

Click on a red dot to insert that parameter into your Decision Formula above. When you are happy with the formula, click Save.

group	*Name*	*UCD*	*dataType*	*Description*
Skyalert Standard Parameters				
	RA	pos.eq.ra	float	Right Ascension of event
	Dec	pos.eq.dec	float	Declination of event
	positionalError	stat.error;pos.eq	float	Positional error of event
	ISOtime	time.epoch		Time (UTC) of event
	MJDtime	time.epoch	float	Time (MJD) of event

HOW TO SET-UP CUSTOM ALERT FEED

Filter is ready.

Portfolios

This page lists event portfolios whose first event is from this stream.

those allowed by the trigger rule 'CRTS SNe North' from *wyrzykow* ((CRTSCircular["First"]["eventClass"]=="Supernova") and (CRTS["First Detection params"]["magnitude"]<18) and (CRTS["First Detection params"]["Dec"]>0))

Click on the column header to sort. Table rows with gray background represent "test" events that do not represent anything in the sky.

detail meta.link	IVORN meta.id	RA pos.eq.ra deg	Dec pos.eq.dec deg	ISOtime time.epoch	Magnitude phot.mag;em.opt.R
detail	1110061400064119848	21.09311	40.39894	2011-10-06T08:41:34	17.266001
detail	1110061400024114478	7.32271	40.21338	2011-10-06T07:55:51	16.399099
detail	1110061320094139400	27.71469	33.43934	2011-10-06T07:17:51	15.320900
detail	1110061260014124074	1.33747	26.82104	2011-10-06T04:13:15	17.754499
detail	1110061381024104474	356.03657	36.80955	2011-10-06T03:33:33	13.499000
detail	1110061400994118958	0.05187	40.25335	2011-10-06T03:34:21	16.243401
detail	1110041231084160493	326.91002	24.76496	2011-10-04T03:29:00	13.095100
detail	1110031010314135324	85.39584	1.61888	2011-10-03T10:31:16	15.463400
detail	1110031010314155163	86.49273	2.35178	2011-10-03T10:31:16	14.476900
detail	1110011010184115318	48.67884	1.144	2011-10-01T09:37:28	17.697901
detail	1109281260024143595	5.20995	28.19164	2011-09-28T09:57:55	13.314600
detail	1109281210064142587	17.46047	22.40955	2011-09-28T09:27:52	13.341000
detail	1109251210404110806	117.07339	20.36483	2011-09-25T12:03:04	13.236600
detail	1109241260094142575	26.53255	27.99862	2011-09-24T10:40:14	13.490900

PICKING AN EVENT

...from emailed alert:

SkyAlert event CRTS#65193 (16.477690, -12.346840) Inbox | X

from **SkyAlert** help@skyalert.org hide details 17 Nov (1 day ago) Reply

via ast.cam.ac.uk

sender time Sent at 10:08 (UTC). Current time there: 16:36.

to wyrzykow@ast.cam.ac.uk

date 17 November 2011 10:08

subject SkyAlert event CRTS#65193 (16.477690, -12.346840)

Skyalert email about event CRTS#65193
At 2011-11-17T04:51:09, RA,Dec = (16.477690,-12.346840)
The portfolio around this event is at http://skyalert.org/events/65193
The trigger observation alone is here: http://skyalert.org/event/121996
The XML for the trigger observation is here: http://skyalert.org/event/xml/121996
Your alert named 'Catalina SNe' was the cause of this message with this trigger condition:
(CRTSCircular["First"]["eventClass"]=="Supernova") and (CRTS["First Detection params"]["magnitude"] <17)

(A real-time action, such as this message, occurs when the trigger condition is true *because* of the trigger event, but is not true without it).

To cancel these alerts, go to http://skyalert.org/rules/ and change/delete your alerts. You will have to login. Or just write help@skyalert.org

Reply Forward

PICKING AN EVENT

...from Skyalert.org directly:

Streams

Here are the streams known to Skyalert. Click the Detail link to view or edit the stream. Some streams have first-class events that can have other events associated to form a 'portfolio'. Click the All Events link to see all the events from the stream, and pointers to any portfolios of which they are members.

Stream Name	Streams	Portfolios	Description
AAVSO	(Stream)	(Portfolios)	AAVSO Alerts & Special Notices
CBAT	(Stream)	(Portfolios)	Reports of possible discoveries of novae, supernovae, and new variable stars.
CRTS	(Stream)	(Portfolios)	Catalina Real-time Transient Survey
CRTS2	(Stream)	(Portfolios)	CRTS 1.5m Transients
CRTS3	(Stream)	(Portfolios)	CRTS Siding Spring Transients
CSS_NEO	(Stream)	(Portfolios)	Report of a moving object found by the Catalina Sky Survey
Fermi	(Stream)	(Portfolios)	Fermi events

Portfolios

This page lists event portfolios whose first event is from this stream.

Events from stream CRTS

Click on the column header to sort. Table rows with gray background represent "test" events that do not represent anything in the sky.

detail meta.link	IVORN meta.id	RA pos.eq.ra deg	Dec pos.eq.dec deg	ISOtime time.epoch	Magnitude phot.mag;em.opt.R
detail	1111181120424127237	118.19689	12.37233	2011-11-18T12:23:46	16.657801
detail	1111181070424172387	118.28164	8.09614	2011-11-18T12:22:08	18.364100
detail	1111181230384140281	115.13648	24.15011	2011-11-18T10:52:35	18.574400
detail	1111181120414105186	115.5717	11.46381	2011-11-18T10:49:18	13.391700
detail	1111181120274120028	74.74802	12.05281	2011-11-18T10:09:56	16.465099
detail	1111181120284107174	77.83725	11.5787	2011-11-18T10:12:22	17.332100

PICKING AN EVENT

Portfolio ivo://nvo.caltech/voeventnet/catot#1111181120424127237

From the CRTS stream.
Catalina Real-time Transient Survey
Position is 118.19689,12.37233 ± 0.0012
This portfolio initiated 2011-11-18 05:32:05
Also available is the JSON representation of this portfolio.

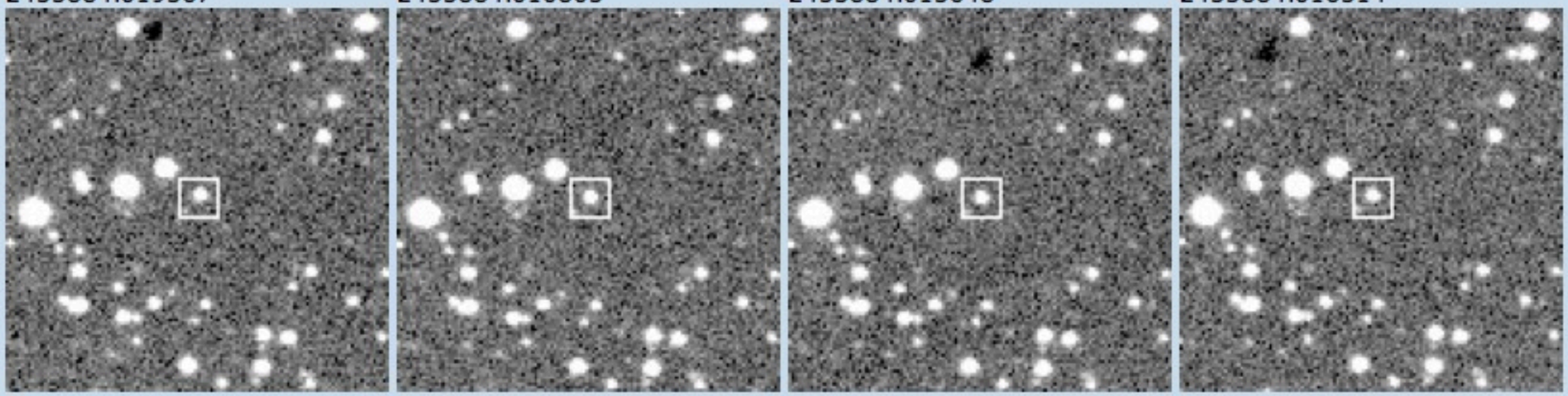
Each event of the portfolio can be shown as Overview, Params, or XML. Click at the left to select the view.

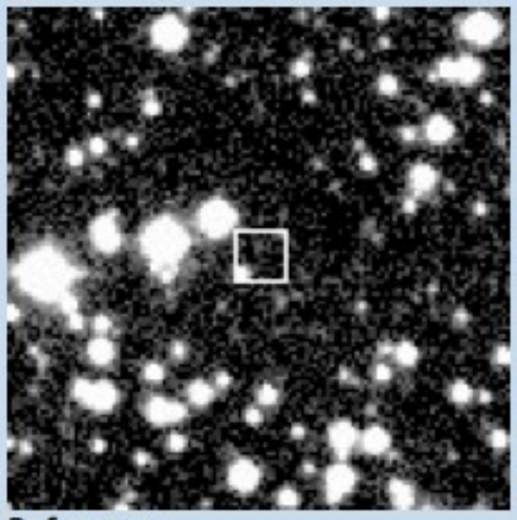
Overview
Params
XML
None

CRTS (Catalina/Mt Bigelow)

Event identifier is 1111181120424127237 or CSS111118:075247+122220

2455884.019367 | 2455884.010803 | 2455884.013648 | 2455884.016514



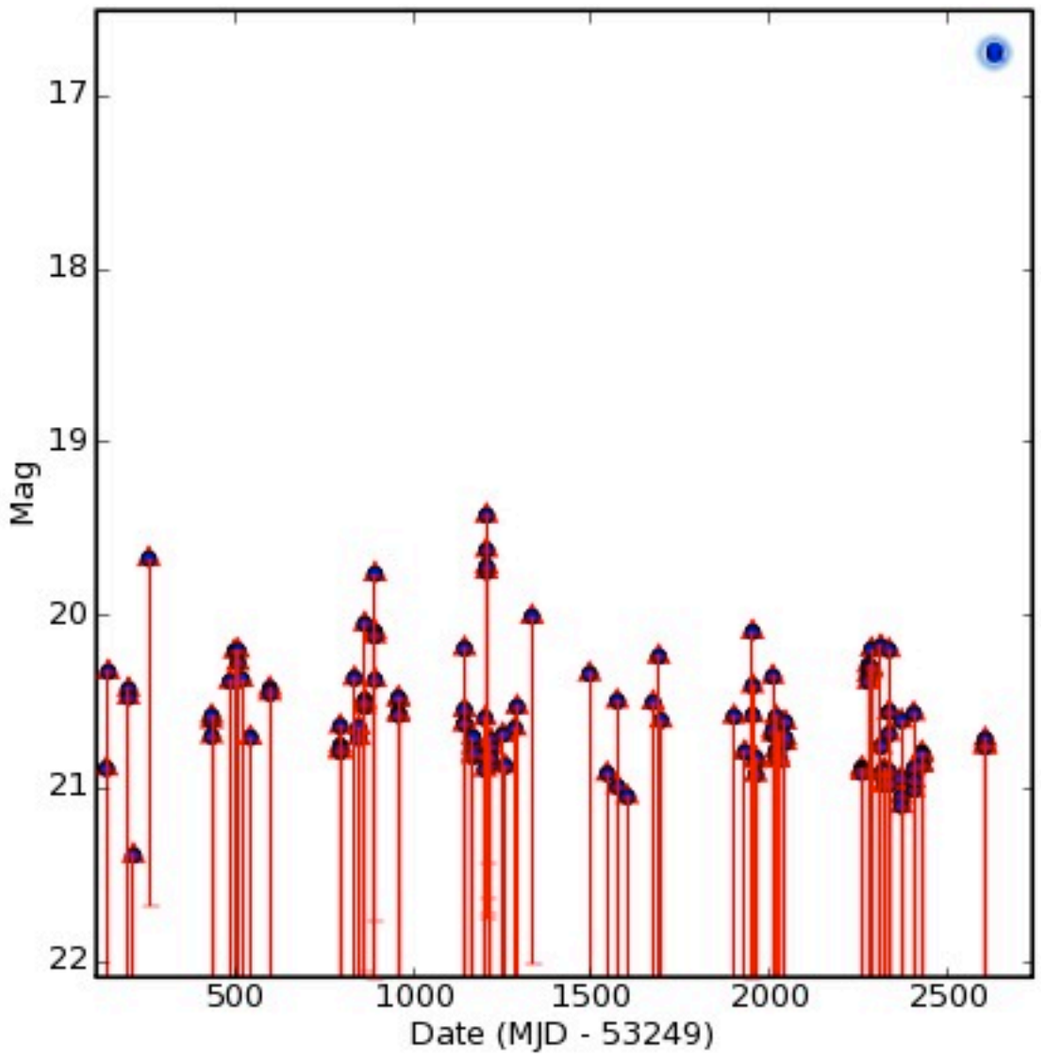


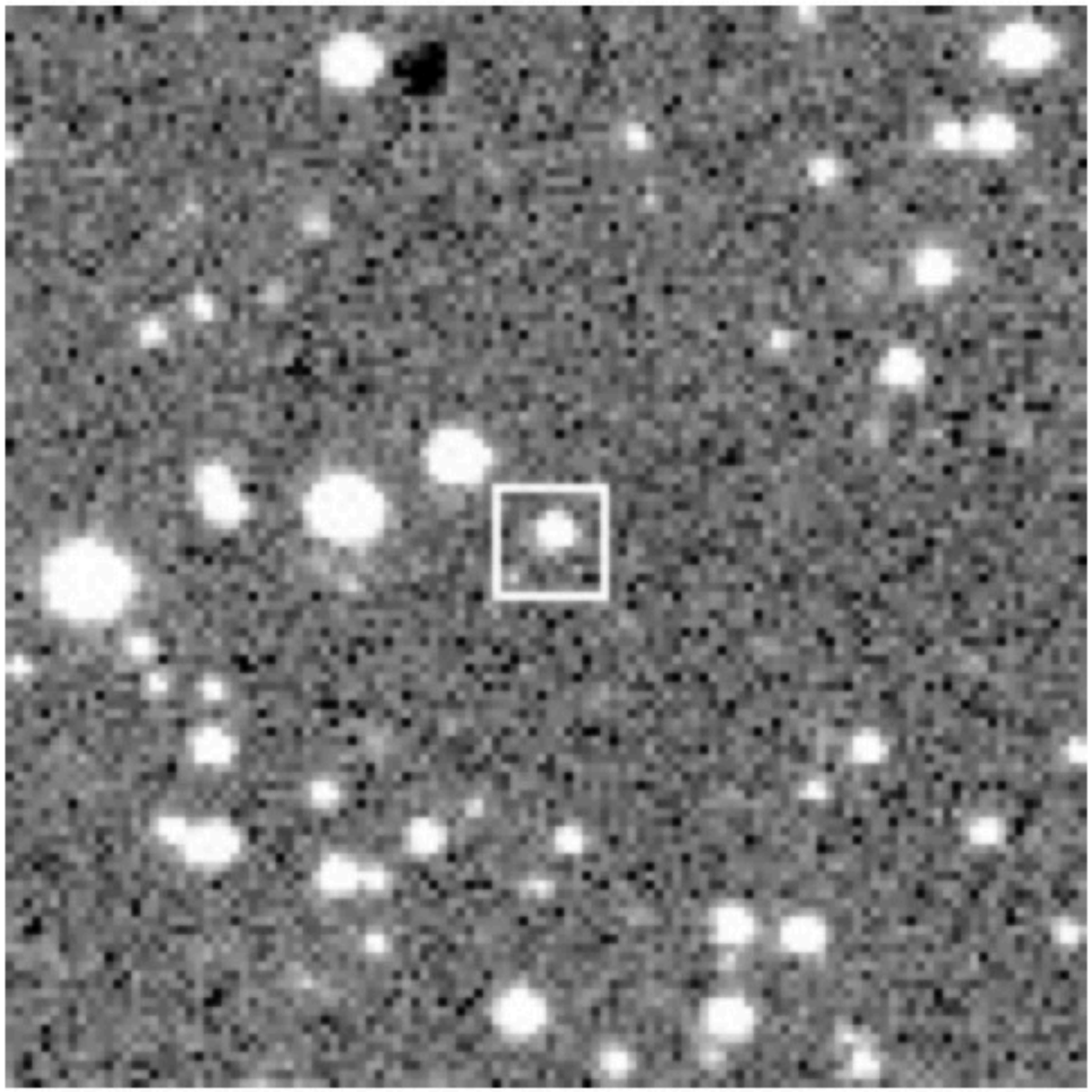
Reference

Finding Chart	Click here
Past CRTS images	Click here
Other images	Click here
Lightcurve	Click here
SDSS cutout	Click here
Position	(118.19689,12.37233)
Time	2011-11-18T12:23:46 (MJD 55883.5165046)
Magnitude	16.647400
Magnitude	16.641899
Magnitude	16.676500
Magnitude	16.657801

PICKING AN EVENT

Click on the points for associated images
Values for object: 1111181120424127237
Date: 2634.439941 (2011-11-18)
Mag: 16.75375
Error: 0.033628
Red points upper limits
Blue points measurements





OBSERVING AN EVENT

Here we rely on the experience of the observers on:

- exposure time

- what filters to use

- photometry/spectroscopy

REQUIREMENTS ON DATA REDUCTIONS (photometry):

- Bias, Dark, Flat-field
- WCS
- SExtractor

Loiano Observatory, Italy

UPLOADING THE FOLLOW-UP DATA

Gaia Science Alerts Follow-u

camd04.ast.cam.ac.uk:5000/uploader/

Follow-up Data Uploading Form

Event ID: ivo://nvo.caltech/voev

Hash tag: 536(**********

MJD OBS: 55772.332731

Exposure time: 300

Filter: V

Sextractor catalog: Choose File 110621_V4.cat

Submit

Skyalert.org

Sponsored by the National Science Foundation

Browse Event Streams | Browse Skyalert Feeds | my Feeds and Alerts

Portfolio ivo://nvo.caltech/voeventnet/catot#1111181120424127237

From the CRTS stream.
Catalina Real-time Transient Survey
Position is 118.19689,12.37233 ± 0.0012
This portfolio initiated 2011-11-18 05:32:05
Also available is the JSON representation of this portfolio.

Your unique access name/pass
(provided by Cambridge)

Gaia Science Alerts Calibration Server

List of alerts currently in the database:

id	IVORN	Ra	Dec	N_follow-up
1	ivo://nvo.caltech/voeventnet/catot#1111221010224122680	59.71914	1.55959	-
2	ivo://nvo.caltech/voeventnet/catot#1111221210174135477	49.69022	21.57691	-

REQUIRED SEXTRACTOR FIELDS:

ALPHA_J2000 Right ascension of barycenter (J2000) [deg]
DELTA_J2000 Declination of barycenter (J2000) [deg]

then, either:

MAG_APER Fixed aperture magnitude vector [mag]
MAGERR_APER RMS error vector for fixed aperture mag. [mag]

or:

MAG_AUTO Automatic aperture magnitude [mag]
MAGERR_AUTO RMS error for automatic aperture mag. [mag]

RESULT OF CALIBRATIONS

Hi 536c(********

Upload done from IP 131.111.70.231 from hashtag 536 **********
EventId : ivo://nvo.caltech/voeventnet/catot#1106101350644123477
Ra : 214.61884
Dec : 35.71373
Filter: SDSS / r
Magnitude: 18.1738541917 +/- 0.0142 mag
ZP: -28.6588541917
Scatter: 0.248369741493 mag
Plots:

best matching filter (data will be stored as in this filter)

calibrated magnitude

zero point

best matching filter

plots show calibration results for each filter / survey

RESULT OF CALIBRATIONS

Your observation is successfully stored in the GaiaFollowUpDB.
All data and list of all alerts can be accessed from the link on the main page

Follow-up Data Uploading Form

Event ID:

Gaia Science Alerts Calibration Server

List of alerts currently in the database:

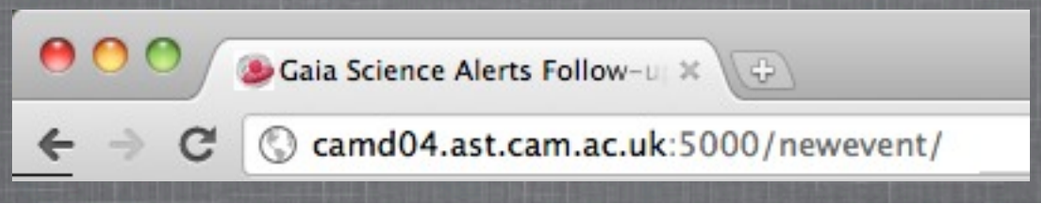
id	IVORN	Ra	Dec	N_follow-up
1	ivo://nvo.caltech/voeventnet/catot#1111221010224122680	59.71914	1.55959	-
2	ivo://nvo.caltech/voeventnet/catot#1111221210174135477	49.69022	21.57691	-
13	ivo://nvo.caltech/voeventnet/catot#1111181230384140281	115.13648	24.15011	-
14	ivo://nvo.caltech/voeventnet/catot#1111181120414105186	115.5717	11.46381	-
15	ivo://nvo.caltech/voeventnet/catot#1111181120274120028	74.74802	12.05281	3

```
#MJD obs_id calib_error catalog_id filter_id  mag  mag_err
55891.956574                1 0.0540921         1        2 17.4923  0.0039
55891.967014                1  0.153242         1        3 17.1323  0.0056
55891.967014                2  0.153242         1        3 17.1323  0.0056
```

work in progress...

ADDING NEW EVENT TO THE LIST

The list of events is regularly updated from Skyalert.org,
but if you still want to add a new event go to:



Creating New Event Form:

Hash password: ••••••••••••••••••

Event ID: ivo://nvo.caltech/voeventnet/catot#1106101350644123477

RA: 214.618840

Dec: 35.713730

URL: http://nesssi.cacr.caltech.edu/catalina/20110610/1106101350644123477.ht

Submit

TO DO LIST

- Automatically submit the follow-up data back to Skyalert.org as an annotation
- Plotting light curves of already observed events on the web
- Expand the web interface, e.g. add scrollable list of events