

# ASAS-SN Plug-in for VStar

*Description:* This plugin allows you to open text files in the formats of the [All-Sky Automated Survey for Supernovae \(ASAS-SN\)](#).

Currently (on 18 Apr 2023), ASAS-SN data comes in three formats. The first and oldest one is provided by the [ASAS-SN Sky Patrol](#). The second format comes from the [ASAS-SN Photometry Database](#) and [ASAS-SN Variable Stars Database](#). Those databases contain pre-computed light curves. The newest ASAS-SN service, [ASAS-SN Sky Patrol V2.0](#), provides the data in the third form.

## Table of content

ASAS-SN Sky Patrol V1.0.....	2
ASAS-SN Sky Patrol V2.0.....	6
Pre-computed ASAS-SN Light Curves.....	9

# ASAS-SN Sky Patrol V1.0

ASAS-SN Sky Patrol data are computed in real-time using aperture photometry for a point on the celestial sphere for which ASAS-SN images exist. Go to the Sky Patrol website [ <https://asas-sn.osu.edu/> ], enter the coordinates of a target and the number of days to go back, then press [Compute]

ASAS-SN

Sky Patrol

Variable Stars Database

Variable Stars Atlas


Photometry Database


Citizen ASAS-SN


Binary Stars Database

Sky Patrol


All-Sky Automated Survey for Supernovae








Making ASAS-SN light curves public is primarily funded by grants GBMF5490 and GBMF10501



ASAS-SN is funded in part by the Alfred P. Sloan Foundation under grant G202114192



Find Right Ascension and Declination by Star Name

Resolve Name


Compute Coordinate Lightcurve


\* J2000.0 Right Ascension

\* J2000.0 Declination

\* Number of days to go back

\* Photometry Method: (see update below for details)

 I'm not a robot

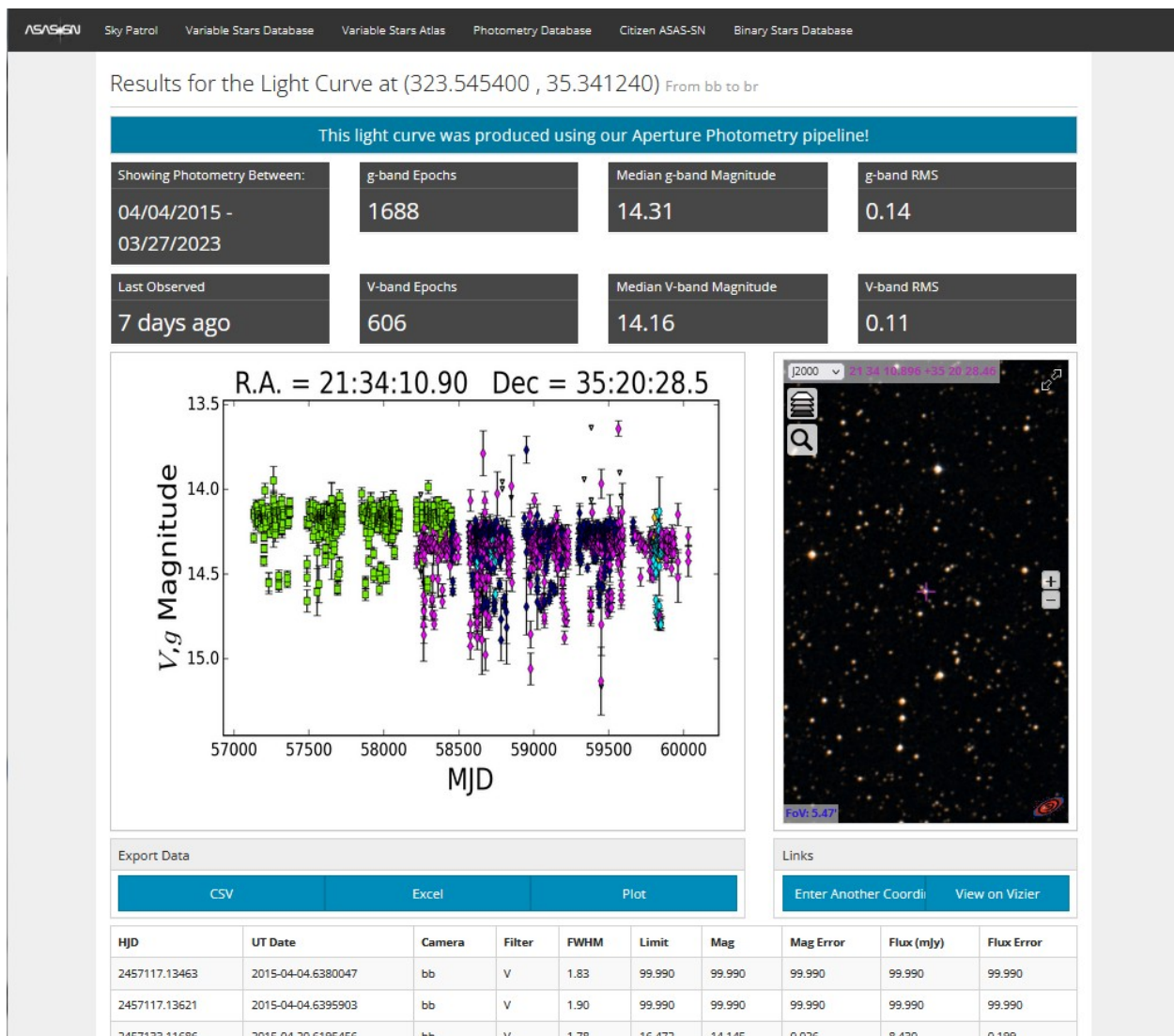
  
reCAPTCHA  
Privacy • Terms

The reCaptcha app may report a time-out during your query, but this will not affect its completion.

Interested in bulk queries? Take a look at the ASAS-SN Variable Stars Database or Lookup by Name

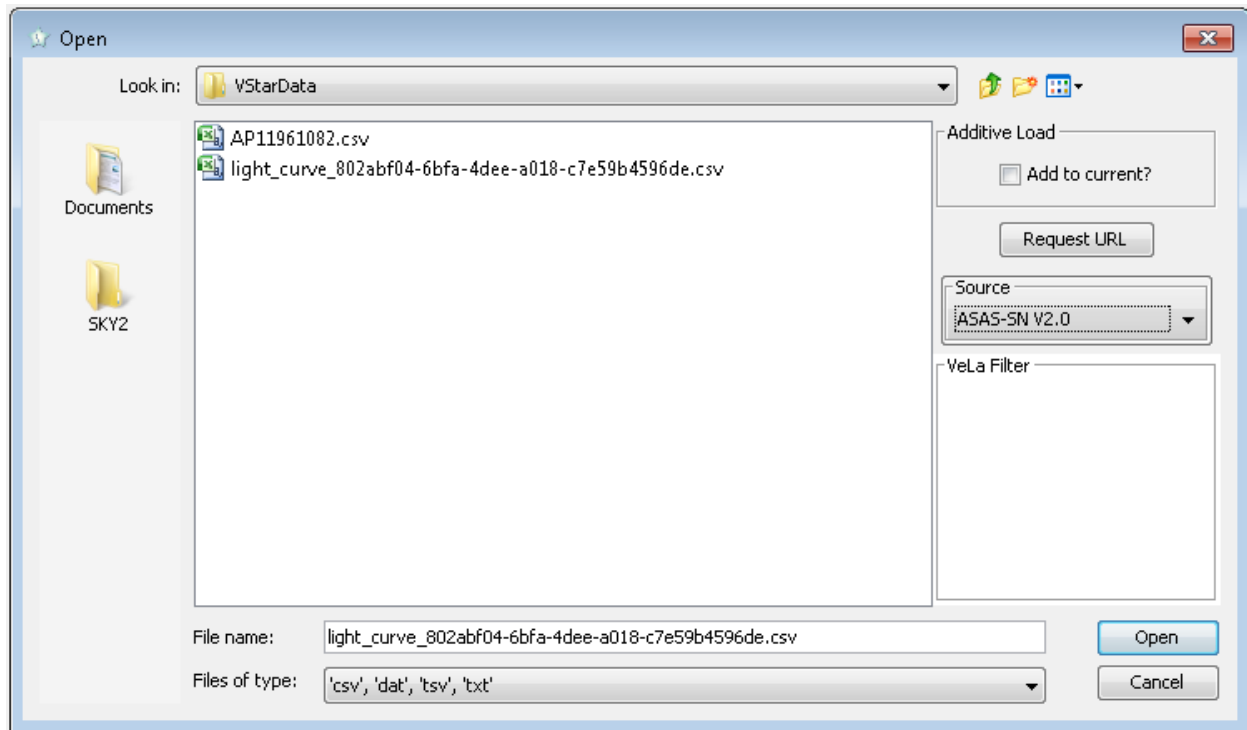
Compute

The calculations may take a while. When calculations succeed, you will be redirected to the result page.

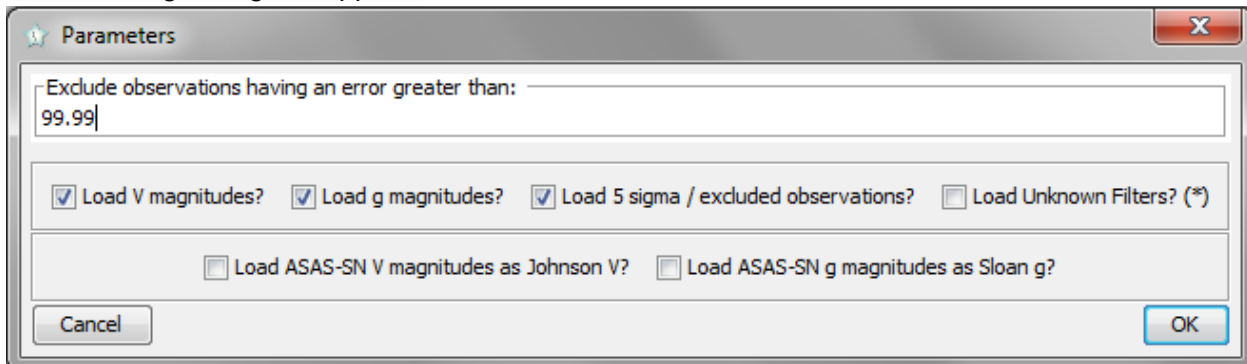


Press the [CSV] button under “Export Data” and save the CSV file to disk. The file contains V and g bands data, as seen from the preview plot.

From VStar, select [New Star from File...] from the [File] menu and then select “ASAS-SN” in the “Source” dropdown list. Go to the location of the saved file and open it.

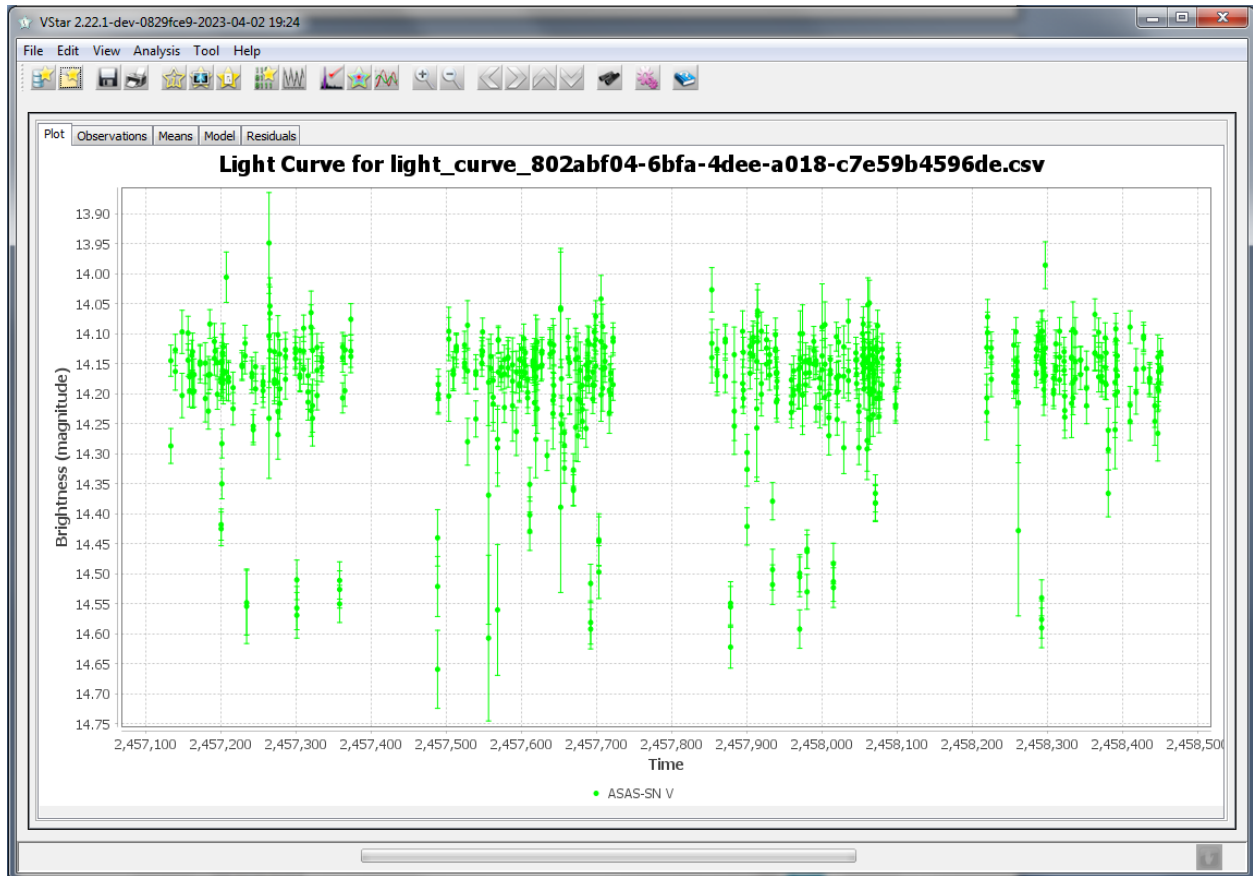


The following dialog will appear:

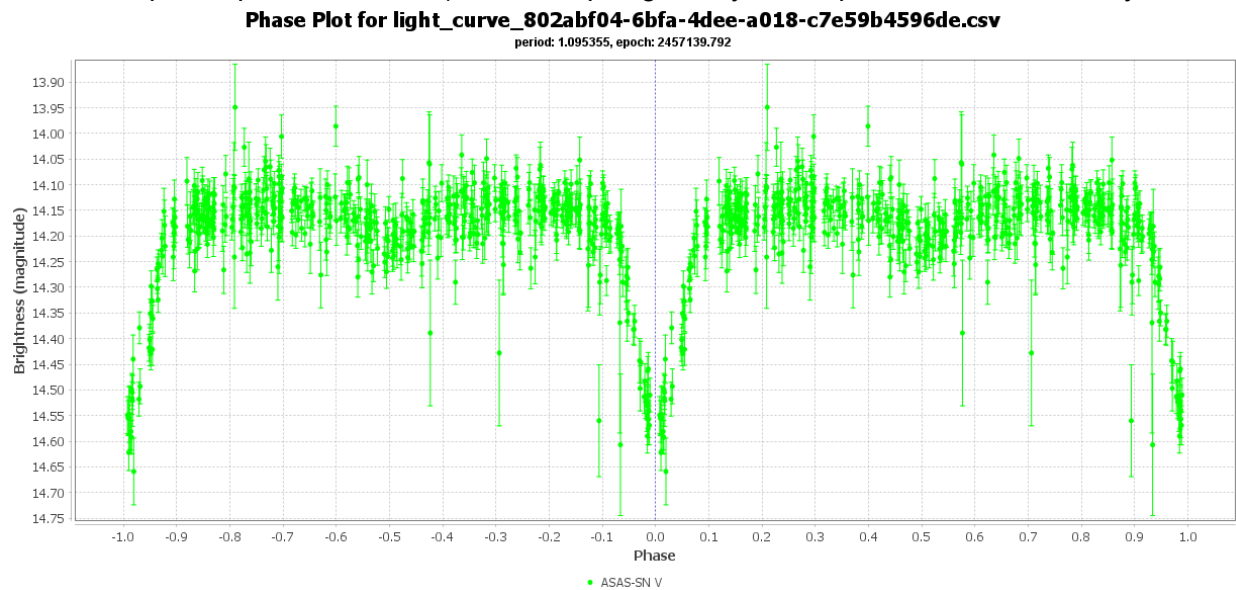


Currently, ASAS-SN light curves can contain data for V and g bands. Some observations in a file can be marked as unreliable (“5 sigma/excluded observations”); they can be excluded by unchecking the corresponding checkbox. A user can limit the maximum allowed uncertainty (“Exclude observations having an error greater than” field).

Select the data you need (let’s assume you have selected data for the V band only) and press OK. VStar will show you a light curve:



Here is the phase plot for the star (it is an eclipsing binary with a period of 1.095355 days:







# ASAS-SN Sky Patrol V2.0

The new [ASAS-SN Sky Patrol V2.0](https://arxiv.org/abs/2304.03791), as it is claimed in [ <https://arxiv.org/abs/2304.03791> ], “not only serves pre-computed lightcurves for a select list of ~111 million targets, but it also continuously updates the lightcurves in real time.”

To find the light curve, go to <http://asas-sn.ifa.hawaii.edu/skypatrol/>. On the page, enter RA, Dec, and the search radius in the appropriate fields, then click [Search]:

ASAS-SN Documentation

ASAS-SN Sky Patrol Photometry Database



Using in Publications

Publication in progress.

Database Updated: 4/17/2023

Total Light Curves Available: 103,874,668

Search Sources

Cone Search

Random Light Curves

ADQL

Cross Match Search

Right Ascension

323.54540

Declination

35.34124

Radius

0.003

Radius Unit

degrees

Catalogue

master\_list

Light Curves Retrieved: 0

Reset

Search

If the search is successful, you will see one or more links to the light curves:

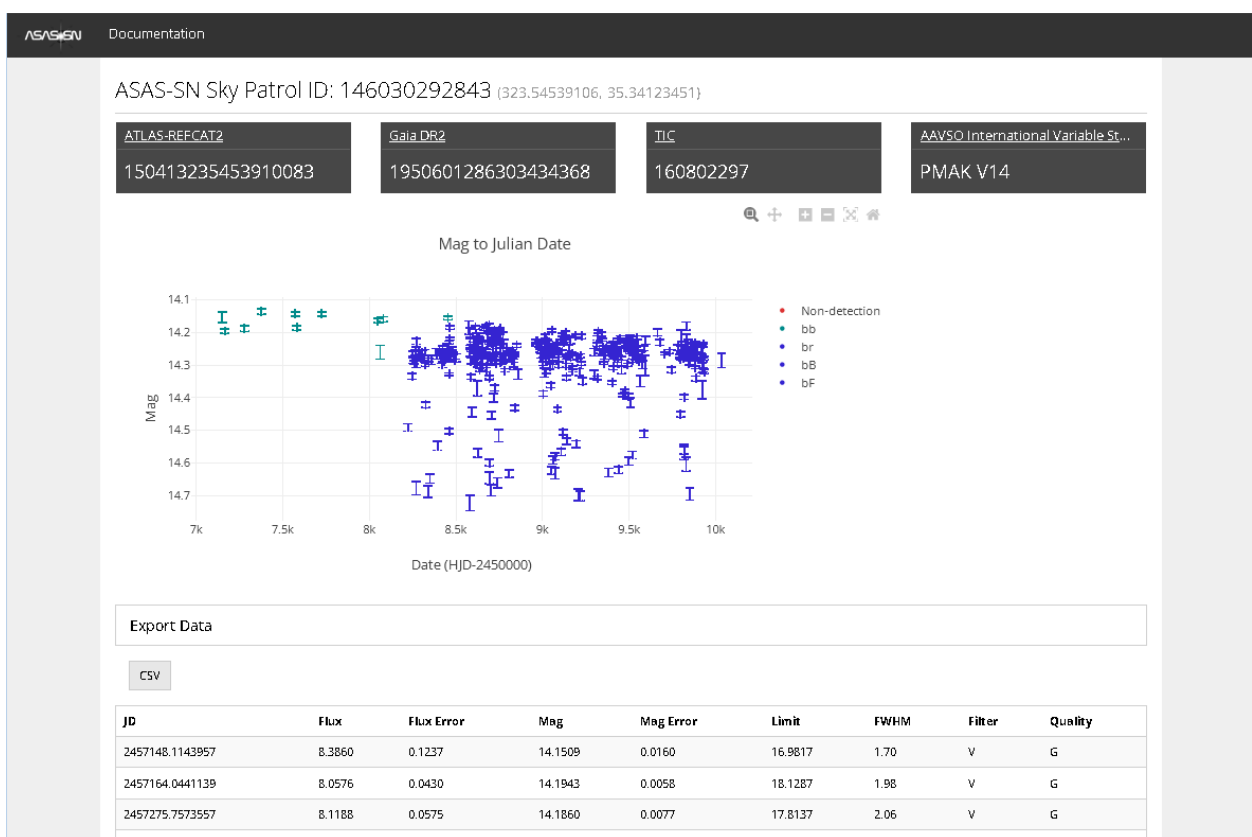
Light Curves Retrieved: 1

Reset

Search

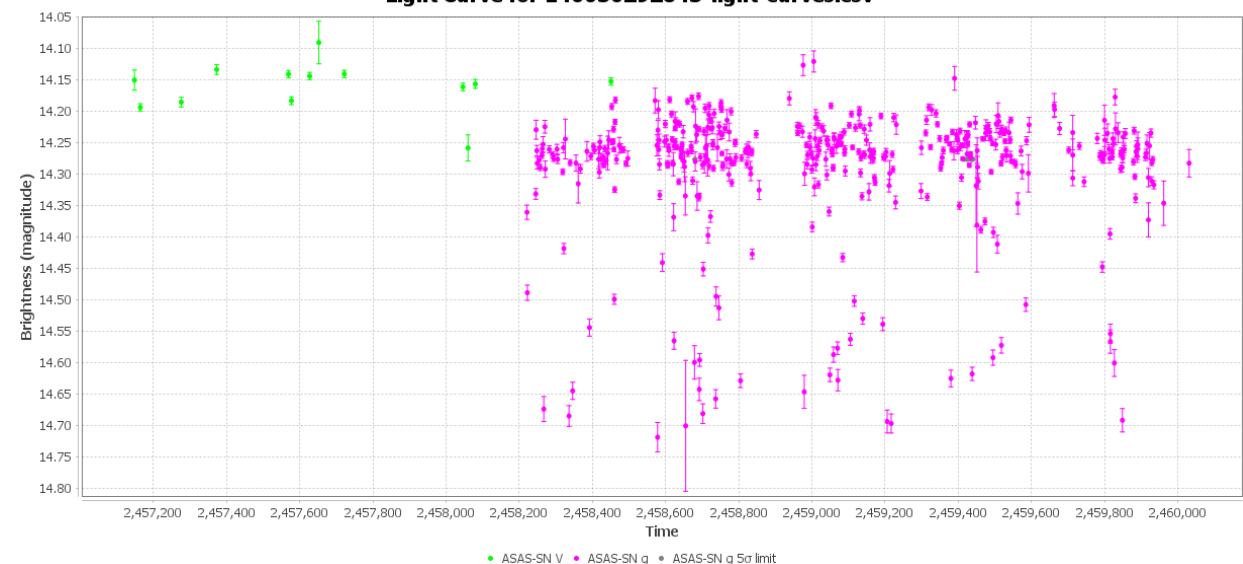
asas_sn_id	catalog_sources	dec_deg	ra_deg
<a href="#">146030292843</a>	stellar_main, tic, aavsovsx	35.34123451	323.54539106

Click on a link, and you will be redirected to the light curve page. Click the [CSV] button to download the data:

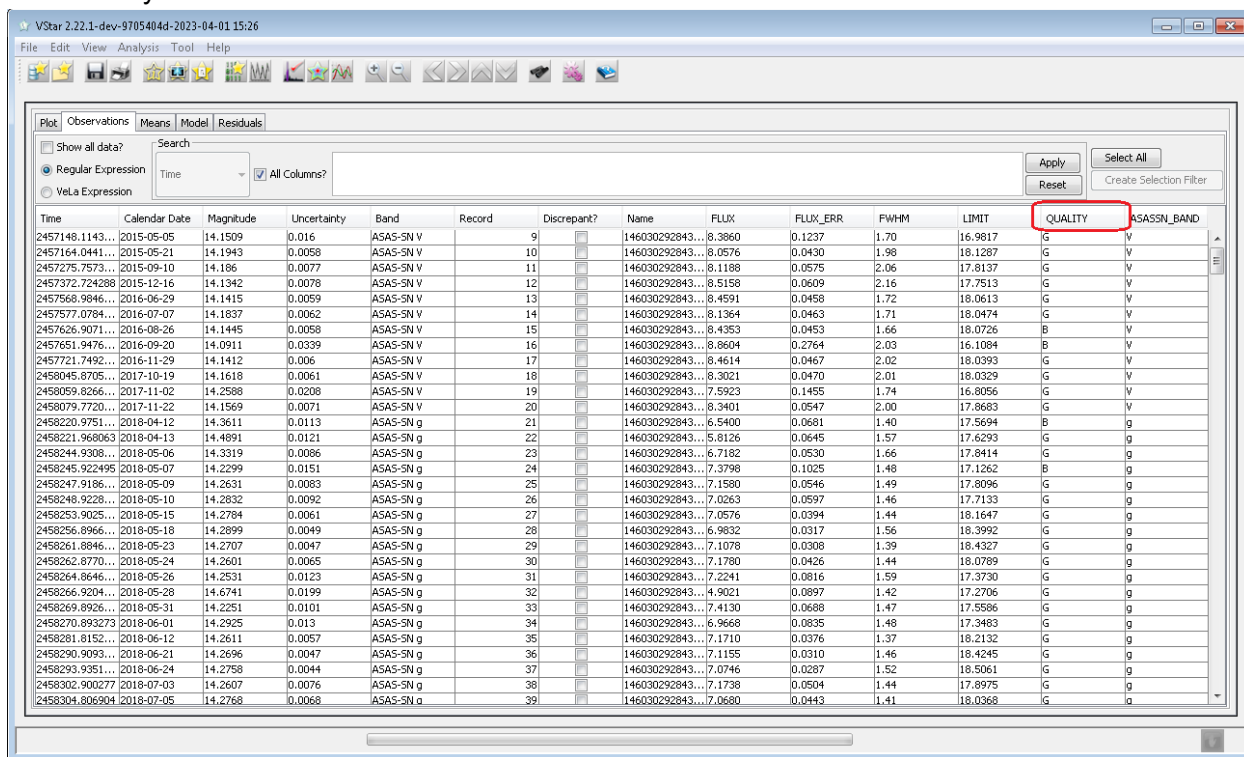


Open the CSV file in the same way as described in the previous chapter (in this example, all three V, g, and 5-sigma checkboxes were checked):

**Light Curve for 146030292843-light-curves.csv**



The new format contains the “Quality” column. ASAS-SN advises caution when using data that has not been flagged as “good” [ <https://arxiv.org/abs/2304.03791> ] (i.e., contains the “G” flag in the “Quality” column):



Time	Calendar Date	Magnitude	Uncertainty	Band	Record	Discrepant?	Name	FLUX	FLUX_ERR	FWHM	LIMIT	QUALITY	ASASSN_BAND
2457148.1143...	2015-05-05	14.1509	0.016	ASAS-SN V	9		146030292843...	8.3860	0.1237	1.70	16.9817	G	V
2457164.0441...	2015-05-21	14.1943	0.0058	ASAS-SN V	10		146030292843...	8.0576	0.0430	1.98	18.1287	G	V
2457275.7573...	2015-09-10	14.186	0.0077	ASAS-SN V	11		146030292843...	8.1188	0.0575	2.06	17.8137	G	V
2457372.724288	2015-12-16	14.1342	0.0078	ASAS-SN V	12		146030292843...	8.5158	0.0609	2.16	17.7513	G	V
2457568.9846...	2016-06-29	14.1415	0.0059	ASAS-SN V	13		146030292843...	8.4591	0.0458	1.72	18.0613	G	V
2457577.0784...	2016-07-07	14.1837	0.0062	ASAS-SN V	14		146030292843...	8.1364	0.0463	1.71	18.0474	G	V
2457626.9071...	2016-08-26	14.1445	0.0058	ASAS-SN V	15		146030292843...	8.4353	0.0453	1.66	18.0726	B	V
2457651.9476...	2016-09-20	14.0911	0.0339	ASAS-SN V	16		146030292843...	8.8604	0.2764	2.03	16.1084	B	V
2457721.7492...	2016-11-29	14.1412	0.006	ASAS-SN V	17		146030292843...	8.4614	0.0467	2.02	18.0393	G	V
2458045.8705...	2017-10-19	14.1618	0.0061	ASAS-SN V	18		146030292843...	8.3021	0.0470	2.01	18.0329	G	V
2458059.8266...	2017-11-02	14.2588	0.0208	ASAS-SN V	19		146030292843...	7.5923	0.1455	1.74	16.8056	G	V
2458079.7720...	2017-11-22	14.1569	0.0071	ASAS-SN V	20		146030292843...	8.3401	0.0547	2.00	17.8683	G	V
2458220.9751...	2018-04-12	14.3611	0.0113	ASAS-SN g	21		146030292843...	6.5400	0.0681	1.40	17.5694	B	g
2458221.968063	2018-04-13	14.4891	0.0121	ASAS-SN g	22		146030292843...	5.8126	0.0645	1.57	17.6293	G	g
2458244.9308...	2018-05-06	14.3319	0.0086	ASAS-SN g	23		146030292843...	6.7182	0.0530	1.66	17.8414	G	g
2458245.922495	2018-05-07	14.2299	0.0151	ASAS-SN g	24		146030292843...	7.3798	0.1025	1.48	17.1262	B	g
2458247.9186...	2018-05-09	14.2631	0.0083	ASAS-SN g	25		146030292843...	7.1580	0.0546	1.49	17.8096	G	g
2458248.9228...	2018-05-10	14.2832	0.0092	ASAS-SN g	26		146030292843...	7.0263	0.0597	1.46	17.7133	G	g
2458253.9025...	2018-05-15	14.2784	0.0061	ASAS-SN g	27		146030292843...	7.0576	0.0394	1.44	18.1647	G	g
2458256.8966...	2018-05-18	14.2899	0.0049	ASAS-SN g	28		146030292843...	6.9632	0.0317	1.56	18.3992	G	g
2458261.8846...	2018-05-23	14.2707	0.0047	ASAS-SN g	29		146030292843...	7.1078	0.0308	1.39	18.4327	G	g
2458262.8770...	2018-05-24	14.2601	0.0065	ASAS-SN g	30		146030292843...	7.1780	0.0426	1.44	18.0789	G	g
2458264.8646...	2018-05-26	14.2531	0.0123	ASAS-SN g	31		146030292843...	7.2241	0.0816	1.59	17.3730	G	g
2458266.9204...	2018-05-28	14.6741	0.0199	ASAS-SN g	32		146030292843...	4.9021	0.0897	1.42	17.2706	G	g
2458269.8926...	2018-05-31	14.2251	0.0101	ASAS-SN g	33		146030292843...	7.4130	0.0688	1.47	17.5586	G	g
2458270.893273	2018-06-01	14.2925	0.013	ASAS-SN g	34		146030292843...	6.9668	0.0835	1.48	17.3483	G	g
2458281.8152...	2018-06-12	14.2611	0.0057	ASAS-SN g	35		146030292843...	7.1710	0.0376	1.37	18.2132	G	g
2458290.9093...	2018-06-21	14.2696	0.0047	ASAS-SN g	36		146030292843...	7.1155	0.0310	1.46	18.4245	G	g
2458293.9351...	2018-06-24	14.2758	0.0044	ASAS-SN g	37		146030292843...	7.0746	0.0287	1.52	18.5061	G	g
2458302.900277	2018-07-03	14.2607	0.0076	ASAS-SN g	38		146030292843...	7.1738	0.0504	1.44	17.8975	G	g
2458304.806904	2018-07-05	14.2768	0.0068	ASAS-SN g	39		146030292843...	7.0680	0.0443	1.41	18.0368	G	g



# Pre-computed ASAS-SN Light Curves

Other sources for ASAS-SN light curves are ASAS-SN Photometry Database [ <https://asas-sn.osu.edu/photometry> ] and ASAS-SN Variable Stars Database [ <https://asas-sn.osu.edu/variables> ]. Those databases contain ready-to-use light curves in a format that differs from one produced by Sky Patrol. The plugin loads files of both formats.

To download a light curve, go to one of the databases and enter the coordinates and the search radius (for both databases) or ASAS-SN variable name (for the Variable Star Database). If precomputed curves exist, they will be listed. Do *not* load the data via [Download CSV Dataset] button (the format is currently not supported by the plugin). Instead, click on one of the curves' IDs.

ASAS-SN

Sky Patrol

Variable Stars Database


Variable Stars Atlas


Photometry Database


Citizen ASAS-SN


Binary Stars Database


ASAS-SN Photometry Database











Using in Publications

When using ASAS-SN light curves in publications cite: [Shappee et al. \(2014\)](#) and [The ASAS-SN Catalog of Variable Stars III: Jayasinghe et al. \(2019b\)](#)

Database Updated: 07/02/2021

Find Right Ascension and Declination by Star Name

Resolve Name

Search Sources

Right Ascension

323.545400

Declination

35.341240

Radius (arcmin)

0.5

Mean VMag

Min

Max

Epochs

Min

Max

RMS

Min

Max

Sort By

Right Ascension

☐ Descending ☐ Ascending

Sources Found: 2

Reset

Search

Export Data

View JSON

ID	Right Ascension	Declination	Distance (arcsec)	Epochs	Mean VMag	RMS	Blend?	Source
<a href="#">AP11961082</a>	323.5455	35.3412	0.33	89	14.13	0.042	false	DR9
<a href="#">AP11961048</a>	323.54821	35.33299	30.83	89	14.74	0.031	false	DR9

You will see a new window with a preview plot. Click on the [CSV] button under “Export Data” to download a file. This file can be opened by the plugin in the same way as described above.

ASAS-SN

Sky Patrol

Variable Stars Database

Variable Stars Atlas

Photometry Database

Citizen ASAS-SN

Binary Stars Database

AP11961082 (323.5455, 35.3412)

⚠

The HJD values reported here are calculated for the field centers. If you need accurate timings (better than ~200 seconds), please recalculate the light curve using the Aperture Photometry pipeline on our Sky Patrol page.

⚠

Right Ascension

323.5455

Declination

35.3412

Epochs

89

Mean VMag

14.13

RMS

0.042

Blend?

False

Source

DR9

Mag

Flux

J2000

21 34 16.920 +35 26 28.32

Export Data

CSV

Excel

JSON

Recompute Light Variability

HJD	Camera	Filter	Mag	Mag Error	Flux	Flux Error
2457007.70092	bb	V	14.132	0.025	8.53	0.197
2457009.69538	bb	V	14.098	0.025	8.808	0.2
2457010.69282	bb	V	14.143	0.025	8.449	0.196
2457133.11671	bb	V	14.158	0.025	8.328	0.194
2457139.12052	bb	V	14.118	0.025	8.644	0.198
2457148.11242	bb	V	14.101	0.025	8.777	0.2

Maksym Pyatnytskyy (PMAK)

Rev D

2023-04-18

**Revision History**

Rev	Date	Description
D	2023-04-18	SkyPatrol V2.0
C	2023-04-02	Updated according to the last plugin's revision
B	2020-04-26	Open Dialog image added
A	2020-04-17	Initial Release