



# PHOTOMETRY APASS





## PHOTOMETRY - APASS

### Overview

The AAVSO Photometric All-Sky Survey (APASS) performed an all-sky photometric survey in five filters: Johnson B and V, plus Sloan  $g'$ ,  $r'$ ,  $i'$ . The magnitudes range from 7th magnitude to about 17th magnitude.

This catalog helps various research programs establish transformation between different filter systems and achieve conversion of photometry to more fundamental physical properties as it bridges the gap between Tycho2 and SDSS.

The screenshot shows the AAVSO website header with the logo and navigation links: Home, Contact Us, FAQ, AAVSO Store, CCD School Videos, CHOICE Courses, and Donate. The main content area features a blue header with the text "Home » Data" and a sub-header "APASS: The AAVSO Photometric All-Sky Survey". Below this, a section titled "Data Release 9 is now available." contains the following text:

Through a grant from the Robert Martin Ayers Sciences Fund, the AAVSO is performing an **all-sky photometric survey**. This survey is conducted in five filters: **Johnson B** and **V**, plus **Sloan  $g'$** ,  **$r'$** ,  **$i'$** . It is valid from about 7th magnitude to about 17th magnitude. Precise, reliable standardized photometry in this magnitude range is in high demand, both from our observers and from the professional community. Such a catalog will allow many research programs to quickly establish transformation between systems and efficiently achieve conversion of photometry to more fundamental physical properties. It will bridge the gap between *Tycho2* and *SDSS*, plus cover the entire sky at the same depth as *UCAC*. The survey will take approximately one more year to complete.

Data release 1 of APASS occurred on 2010 September 10, and contained photometry for approximately four million stars distributed among several hundred discrete fields between  $-10.15 < \text{Dec} < +87.35$ . There have been 8 additional data releases in the intervening years, with the latest, **Data Release 9**, occurring on July 29, 2015. DR9 is primarily a southern release, incorporating 170 photometric nights through September 30, 2013. We expect the next data release in late-2015, covering the ~300 additional north/south nights acquired through the end of 2014. The catalog now contains photometry for 60 million objects in about 99% of the sky. About 400,000 images have been taken so far!



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### Accessing The Catalog

To use the APASS catalog, you have to be an AAVSO member.

From the AAVSO home page, select DATA – THE AAVSO PHOTOMETRIC ALL-SKY SURVEY (APASS)

Halfway down the APASS page you will see this:

#### Access APASS

- [Access form](#)
- [Description of APASS and APASS DR1](#) (in preparation for publication)

Select ACCESS FORM

The screenshot shows the AAVSO website interface. The top navigation bar includes links for 'About Us', 'Community', 'Variable Stars', 'Observing', 'Data', and 'Getting Started'. A dropdown menu is open under 'Data', listing options such as 'AAVSO International Database (AID)', 'Portal for Researchers', 'Historic Light Curves', 'Eggen Card Project', 'WebObs (Submit/Search Data)', 'Data Access', and 'Data Analysis'. The 'Data Analysis' sub-menu is also open, and the link 'The AAVSO Photometric All-Sky Survey (APASS)' is highlighted with a red box. A red arrow points from this link to the text in the slide. Below the navigation, there are sections for 'Support the AAVSO' with buttons for 'Become a Member', 'Donate Today', 'Adopt a Variable Star', and 'Donate with Amazon Smile'. There is also a 'Pick a Star' section with a search box and options like 'Plot a light curve', 'Check recent observations', 'Create a finder chart', and 'Search VSX'. At the bottom, there is a 'Recent Activity' section with news about variable star observations.

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### Accessing APASS Data

From the “Download APASS Data” page, insert the desired RA and DEC as well as a search radius around the target for your desired object.

Select the results to be either HTML or CSV.

Hit SEARCH APASS DATA when ready.

AAVSO  
American Association of Variable Star Observers

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### Download APASS Data

Search APASS Data Release 9:

R.A.	Dec.	Radius (degrees)
<input type="text" value="05 59 57.08"/>	<input type="text" value="+53 09 46.2"/>	<input type="text" value="1"/>

HTML output  
 CSV output



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### APASS Results

The results will be displayed, HTML in this case, on a web page. The positions will be listed as well as magnitudes in varying filters.

These stars can be selected for Transform Coefficients as well as standardized Comp Stars.

### APASS Data Release 9 Query Results

Notes are available at the bottom of the table.

RA	RAerr*	Dec.	Dec. err*	# of Obs.	Johnson V	Verr	Johnson B	Berr	Sloan g'	g'err	Sloan r'	r'err	Sloan i'	i'err
88.359585	0.679	53.182636	0.544	2	15.516	0.006	16.259	0.022	15.847	0.047	15.261	0.021	15.124	-0
88.361243	0.603	53.044467	0.536	4	13.266	0.152	14.223	0.54	13.594	0.202	13.014	0.131	12.781	0.076
88.361576	0.552	53.253016	0.363	2	15.734	-0	16.385	-0	16.018	0.062	15.45	0.086	15.029	0.18
88.361791	0.559	53.143467	0.584	5	14.276	0.081	15.082	0.203	14.56	0.05	13.953	0.024	13.739	0.036
88.362149	0.82	53.231286	0.445	2	15.426	-0	16.568	-0	15.953	0.006	14.966	0.06	14.426	0.006
88.363178	0.679	53.088914	0.573	3	14.744	0.133	15.641	0.286	15.077	0.019	14.435	0.008	14.199	-0



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### **Summary**

The AAVSO Photometric All-Sky Survey (APASS) provides a means to measure your photometric system and provide standardized, known comparison stars for differential photometry.

This catalog can be used for all aspects of photometry and calibration.



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***Questions?***