V Range of Selected Photometric Surveys

This should be and remain a living document to be added to, modified and commented by sequence team members as circumstances necessitate.

Sequencers/observers should be aware that the ranges indicated are only approximate and may be fuzzy on either end; that differing FOV's for a specific survey may have greater or lesser V limitations due to a number of factors, including the number of nights of photometry data and the quality of the seeing for those nights as well as color variations; typically, Johnson-Cousins BVRI data resulting from Sloan Filter (gri) conversions are color dependent, as an example, the Pan-STARRS conversions used are limited to Rc-Ic < 1.15.

As always simply be aware of the data you are using and **pay attention to the uncertainties**; on the bright end of any survey there is always the potential for saturation and on the faint end unacceptable uncertainties; sometimes you can compare either the maximum or the minimum end of a sequence with another sequence to determine it's veracity at either of those points.

The order presented is alphabetical and not preferential.

A Note Regarding the use of multiple surveys within a single sequence; determine whether or not your data choices play well together (you can usually find a few overlaps on the brighter or fainter end); differing surveys should be separated (either faint or bright end) and not intermixed with one another in a sequence, IMO.

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Seqplot Surveys

APASS [Johnson BV with Sloan gri (converted to RcIc)]

~ 10V - 16.5V

Notes: Typically, a range of ~ 10.2V – 15.9V appears to be most useable. With DR9 Arne started to include some brighter data, down to ~ 7.5V for some limited fov's. If selective you can sometimes find useful V data as faint as ~17.2, especially with the DR10 release; while

other FOV's may have a faint end closer to ~ 15.5. This survey is the most frequently used for building sequences and has great coverage in both hemispheres.

BSM [BVRcIc]

~ 6.3V – 13V

Notes: Typically, a range of ~6.5V – 12.4V appears to be most useable; however some fov's are good down to 13.7. Excellent uncertainty data for range.

GCPD [UBV]

~ .01– 6.5V *for use within Seqplot*

Notes: For Brighter Stars this is considered to be a superior photometry catalog source, due to the number of individual surveys included, being preferred to Tycho-2 conversions; in some cases it might be a better option than BSM, when overlapping data, provided color information is present (minimum of B). **IMPORTANT**-when using this source replace the inaccurate coordinates, in Seqplot, with Tycho-2 coordinates.

NOFS [UBVRcIc]

~ 13V – 18.7V

Notes: There are some fov's where Henden data can be used as bright as ~ 10.2V, i.e. M67. Golden data and my first choice if appropriate range.

SRO, both [UBVRI]

~10.3V – 17V

Notes: Some fov's can go as faint as 17.9 while some can go no fainter than about 16.5. I always check this option ahead of APASS, just in case there is some available data.

Tycho-2 [BtVt (converted to BV)]

~6.5V – 10.2V

Notes: Reasonable source for brighter choices if no GCPD or BSM data.

W30

~10V – 16V

Notes: some fov's may be able to go as faint as ~ 17V; few fov's with available data.

Surveys Outside of Seqplot – Frequent Use

CMC15 [r'JK (converted to BVRc)]

~10V - 14.4V

Notes: the resultant B filter conversions may have a larger uncertainty when compared with Henden (NOFS) data; less used now since APASS has pretty good sky coverage but a decent option if needed.

SDSS [griz (converted to UBVRcIc)]

~14.8V – 18.7V.

Notes: Best faint option if range appropriate and no Henden data (NOFS)

Pan-STARRS [gri (converted to BVRcIc)]

~14.5V – 19.5V

Notes: Some data in some fov's can go as faint as 20.9; the resultant B filter conversion data may have larger uncertainty than typically shown in their own processed data when compared with Henden (NOFS) data.

Surveys Outside of Seqplot – Infrequent Use

ASAS-3 [V]

~8V – 12.5V

Notes: in previous years this was used for Visual sequences (V only), in the absence of other data. The uncertainties tended to be questionable. In more recent years both APASS & BSM have negated the need to use this data.

GaiaDR2 [G/BP/RP(converted to VRcIc

~10V – 18.8 V

Notes: BP <19 plus need to check for flux excess (Team SS does this); No known B conversions which reduces the frequency of use for this source.

SPM 4.0 [BV]

~13V – 17.5V

Notes: Only use if CCD values present (ib=3 and/or iv=3) which requires a check for all columns when using VizeR; anticipate uncertainties ~ .1-USE WITH GREAT CAUTION.. Some FOV's OK… others have poor data.

Survey of the Magellanic Clouds [UBVRc], by Massey

~ 12V – 16V

Notes: Decent SH survey with good uncertainty values, within range, and worth consideration, especially if no APASS data.

UCAC4 [BVri (ri converted to RcIc)

~10V – 16.5 V

Notes: This is simply APASS data, however, some of this data is from a single night and some was not included in Seqplot through DR9