Columns in the FITS catalog of LAMOST DR2 data: ‘dr2_stellar_distances_jcarlin.fits

Email Jeff Carlin at jeffreylcarlin@gmail.com with questions.

‘obsid’	observation ID assigned by LAMOST for this spectrum
'designation'	ID for this particular star
'obsdate ‘	Date spectrum was observed
'planid ‘	Name of LAMOST “plan” (or “plate”) the spectrum was on
'ra ‘	Right Ascension (in degrees, J2000)
'dec ‘	Declination (in degrees, J2000)
'snrg ‘	Signal-to-noise ratio in SDSS g-band
'snrr ‘	Signal-to-noise ratio in SDSS r-band
'class ‘	Classification (STAR, GALAXY, QSO, or UNKNOWN)
'subclass'	For stars, this is spectral type (e.g., F5 or F5V, G8 or G8III)
'teff ‘	Stellar effective temperature from spectrum (K)
'teff_err'	Uncertainty in T_eff (K)
'logg ‘	Stellar surface gravity (log g; in dex, where g is in cm/s^2)
'logg_err'	Uncertainty in log g
'feh ‘	Stellar metallicity ([Fe/H]; dex)
'feh_err ‘	Uncertainty in [Fe/H]
'rv ‘	Radial velocity (heliocentric; in km/s)
'rv_err ‘	Uncertainty in radial velocity
'g0'	g-band magnitude (extinction-corrected)
'r0‘	r-band magnitude (extinction-corrected)
'ebv ‘	E(B-V) extinction value (from Schlegel et al.1998 maps)
'J0 ‘	extinction-corrected 2MASS J-magnitude
'K0 ‘	extinction-corrected 2MASS K-magnitude
'M_K50 ‘	50th percentile of K-band absolute magnitude PDF
'M_K85 ‘	85th percentile of K-band absolute magnitude PDF
'M_K15 ‘	15th percentile of K-band absolute magnitude PDF
'M_r50 ‘	50th percentile of r-band absolute magnitude PDF
'M_r85 ‘	85th percentile of r-band absolute magnitude PDF
'M_r15 ‘	15th percentile of r-band absolute magnitude PDF
‘distk50’	distance (in kpc) estimated from K magnitude
‘distk15’	15th percentile of K-band distance estimate
‘distk85’	85th percentile of K-band distance estimate
‘distr50’	distance (in kpc) estimated from r magnitude
‘distr15’	15th percentile of r-band distance estimate
‘distr85’	85th percentile of r-band distance estimate
‘distkerr’	average of upper/lower distance uncertainties, K-band (kpc)
‘distrerr’	average of upper/lower distance uncertainties, r-band (kpc)

Because m - M = 5 log d – 5, the best estimate of distance is d (pc) = 10.0^[(K0-M_K50+5)/5], with the similar application of M_K15 an M_K85 giving the “error bars”. Note that some stars do not have K magnitudes; these have been set to

Kmag=99.9. Also, note that the distances are derived separately using K mags and r mags. In cases where one of these magnitudes is missing, the other may provide a result.

SO: the best estimate of the distance from the K magnitude is distk50+/-distkerr, and for the r magnitude, it's distr50+/-distrerr.