

# KIC 009773162

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009773162-01	OBS	No	583.304429	154.562114	340.2	14.894	8.4	7.9	0.91	5778	1.80	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009773162-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

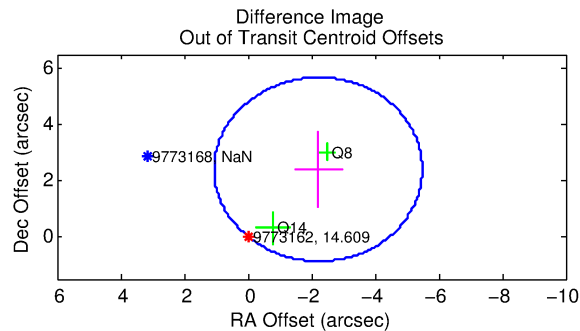
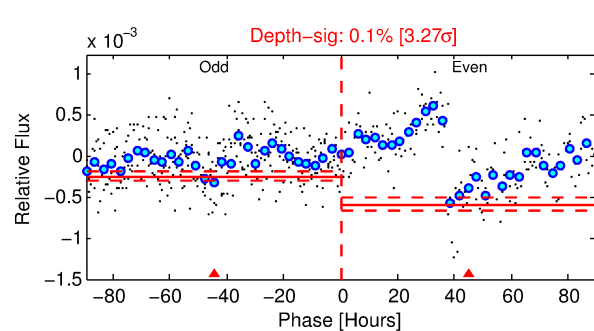
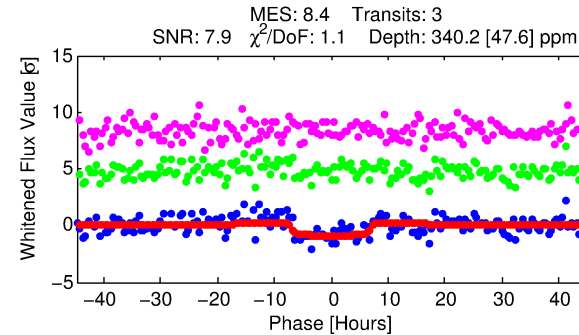
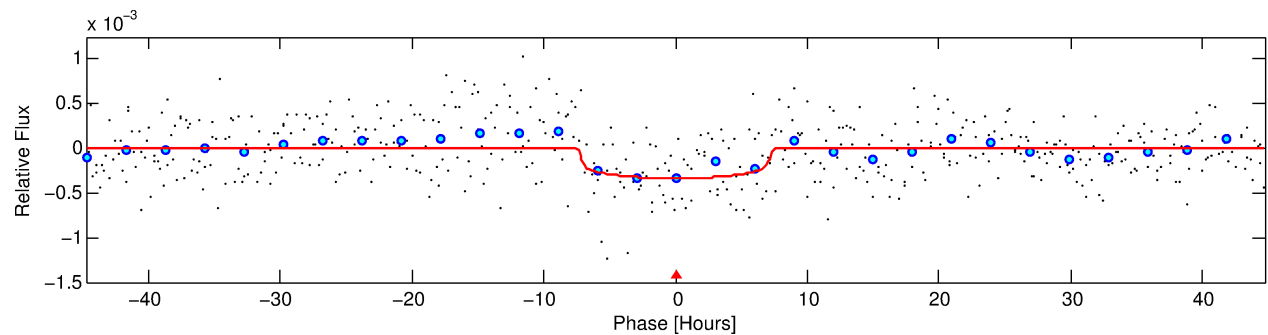
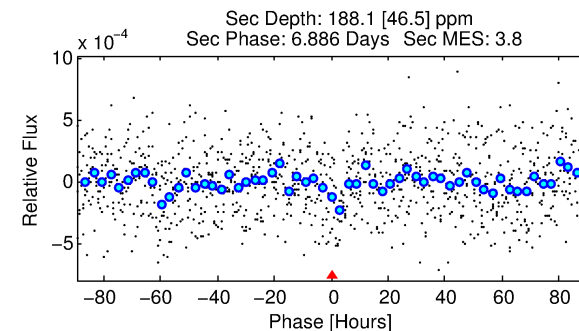
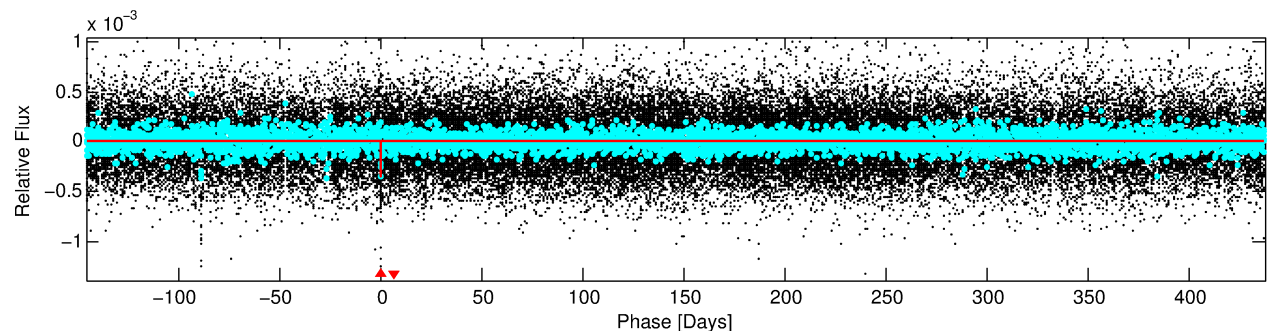
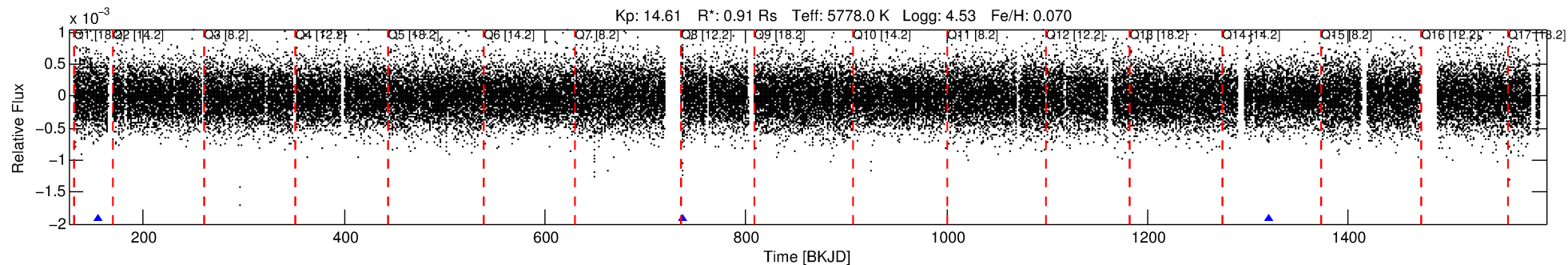
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009773162-01

No Significant Match Found

# DV One-Page Summary

KIC: 9773162 Candidate: 1 of 1 Period: 583.304 d



## DV Fit Results:

Period = 583.30443 [0.01777] d  
Epoch = 154.5621 [0.0255] BKJD  
Rp/R\* = 0.0181 [0.0110]  
a/R\* = 218.34 [579.73]  
b = 0.71 [1.87]  
Seff = 0.44 [0.15]  
Teff = 207 [18] K  
Rp = 1.80 [1.19] Re  
a = 1.3792 [0.3168] AU  
Ag = 60809.53 [77964.99] [0.78σ]  
Teffp = 5030 [1561] K [3.09σ]

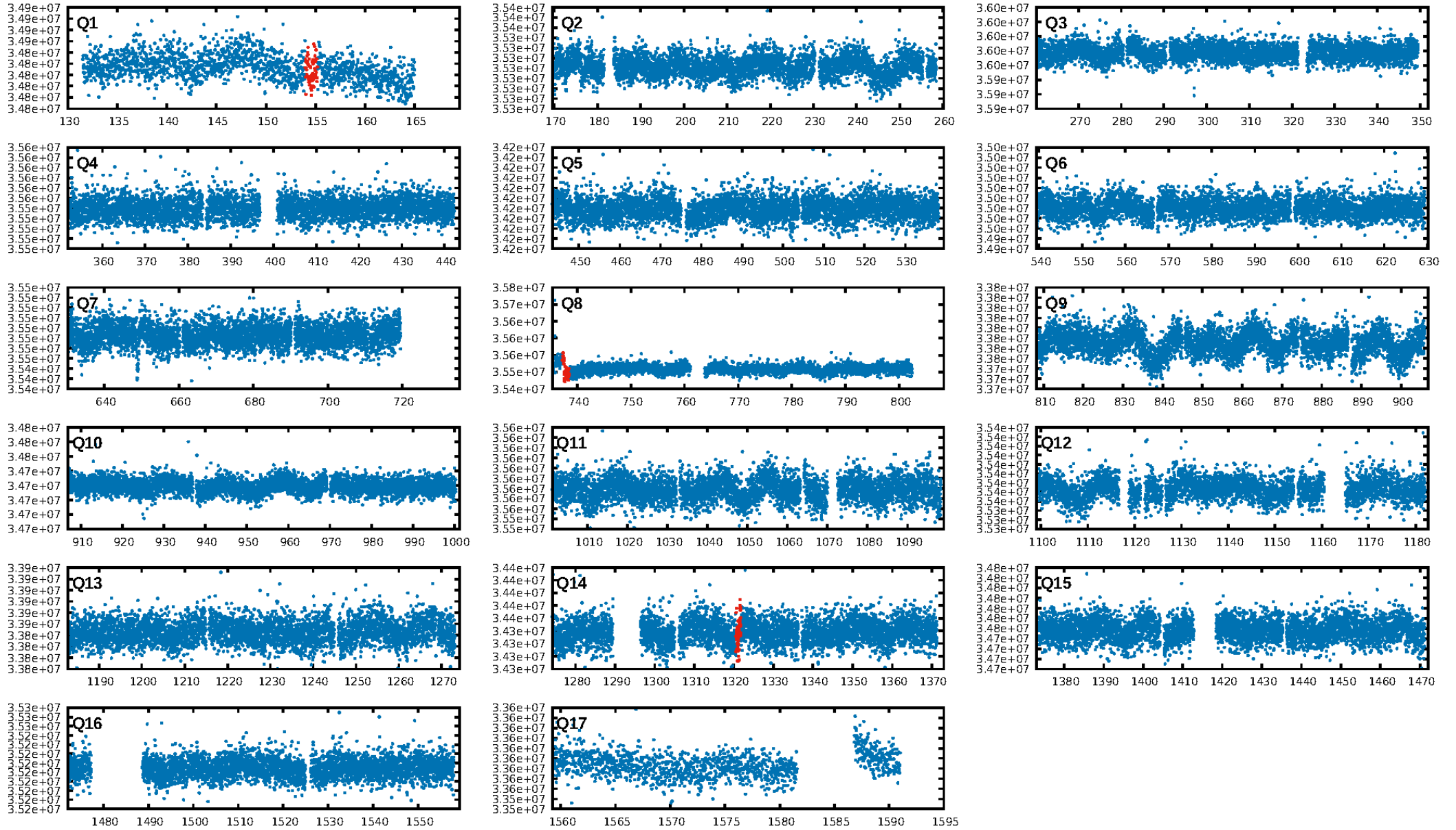
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.1%  
ModelChiSquareGof-sig: 94.6%  
Bootstrap-pfa: 8.22e-14  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 1.693  
Centroid-sig: 8.8%  
Centroid-so: 2.446 arcsec [1.56σ]  
OotOffset-rm: 3.268 arcsec [3.00σ]  
KicOffset-rm: 3.229 arcsec [2.02σ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

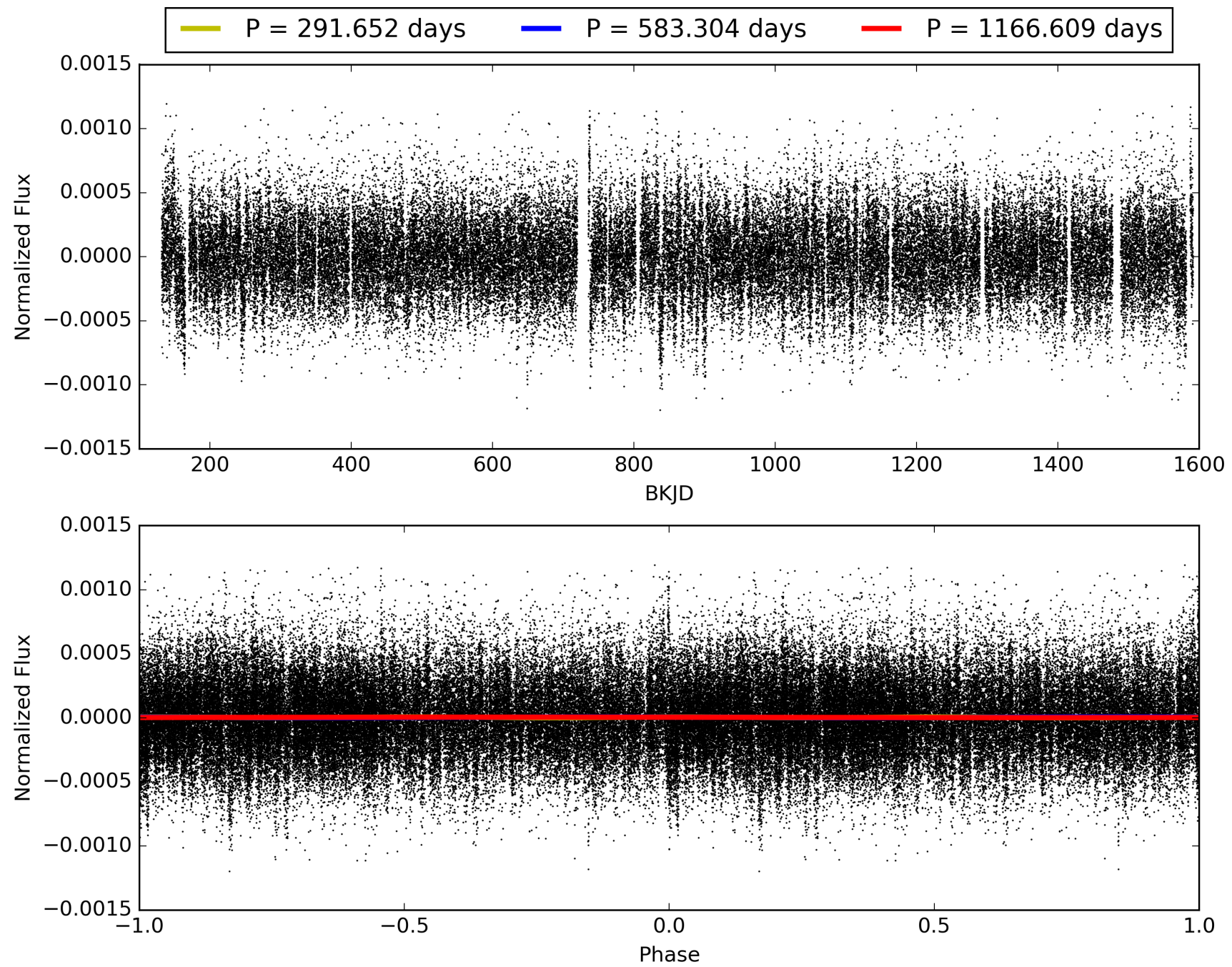
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:33:58 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009773162-01, PDC Light Curves

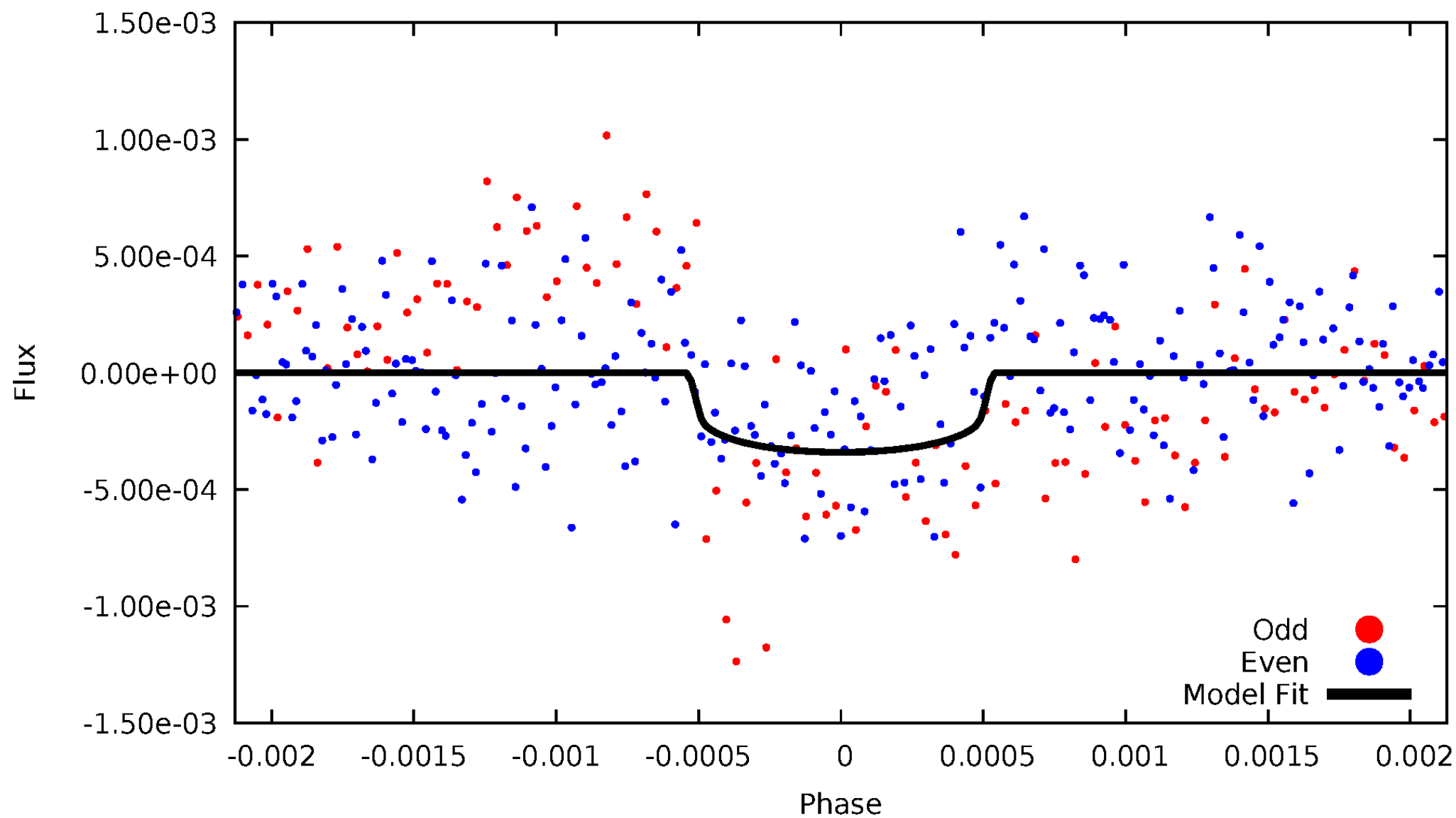


TCE 009773162-01



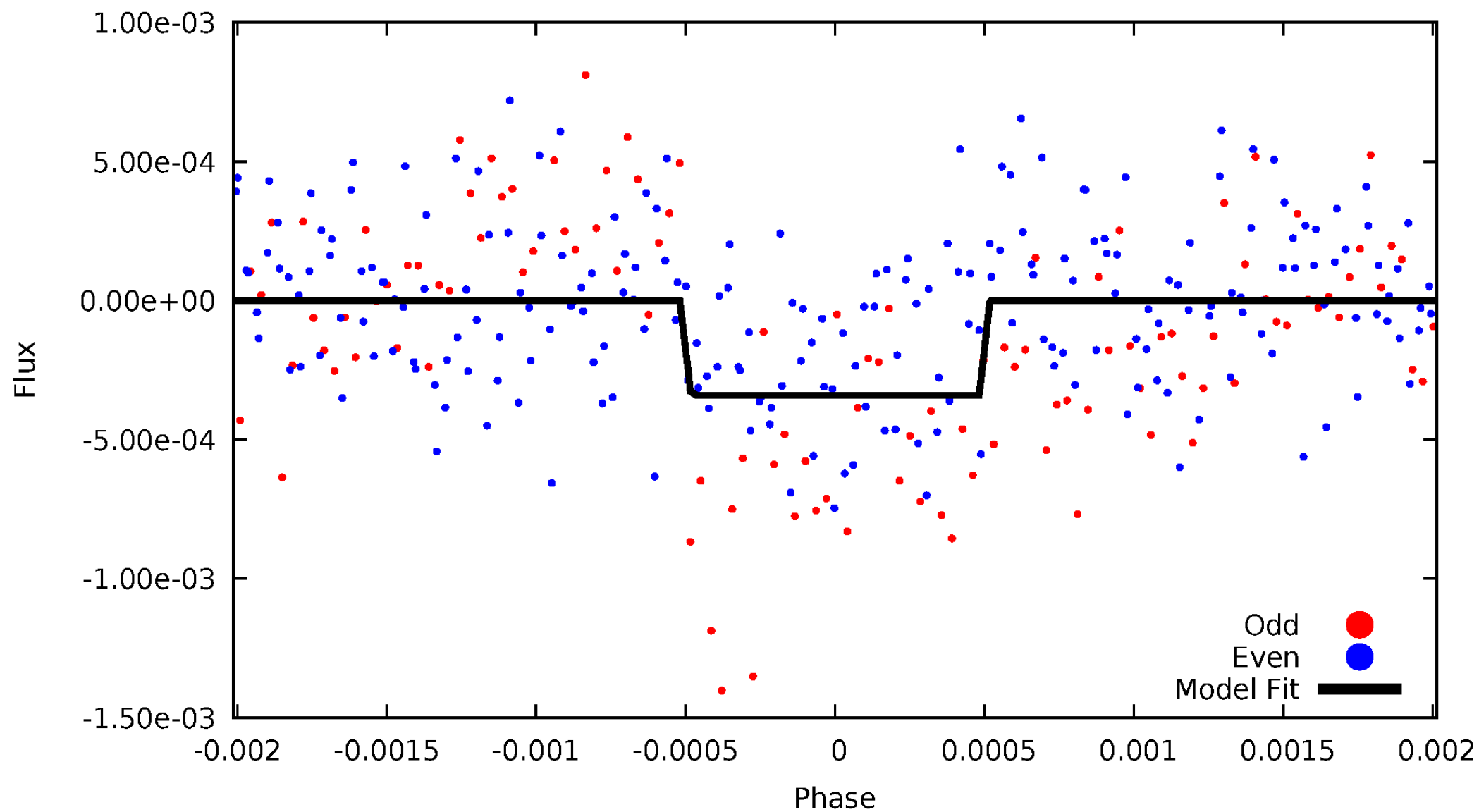
# DV Odd/Even

TCE 009773162-01



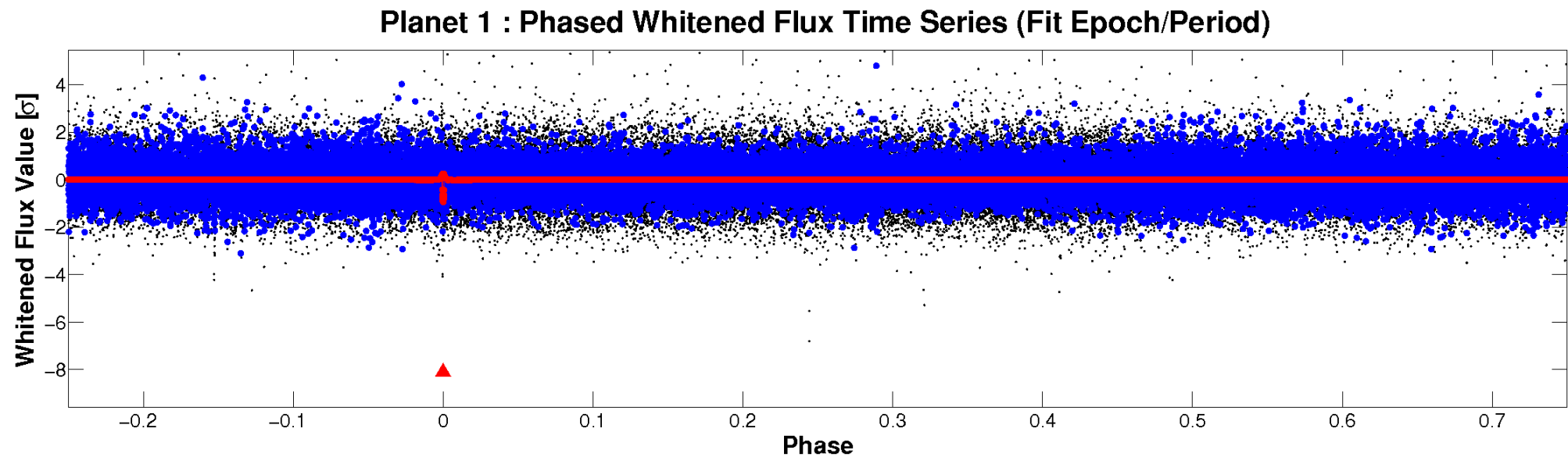
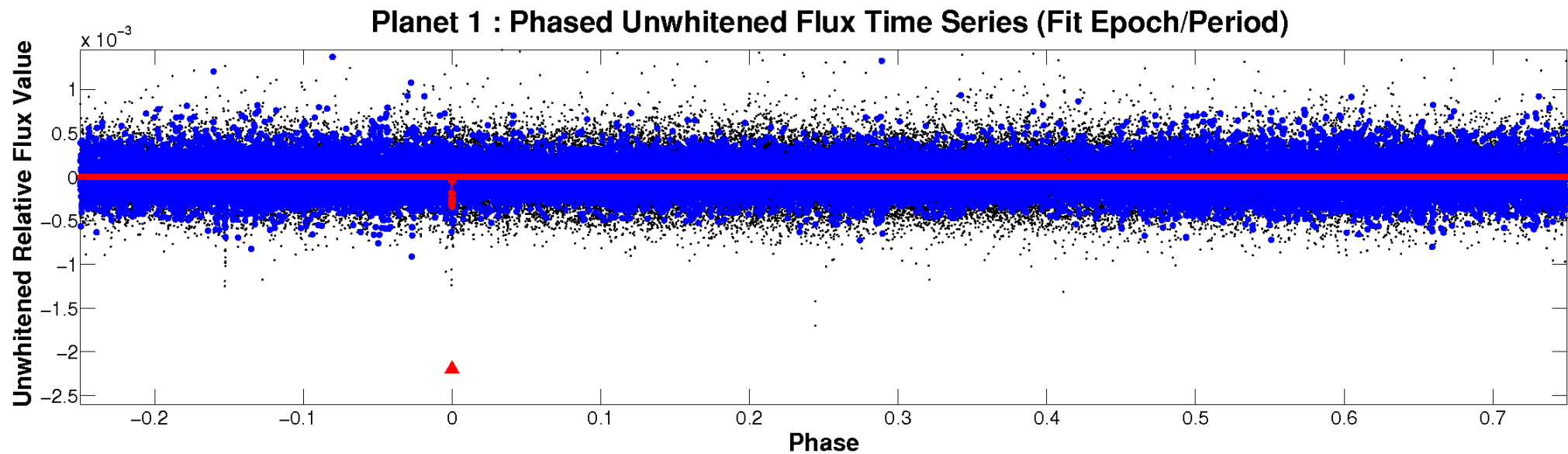
# ALT Odd/Even

TCE 009773162-01



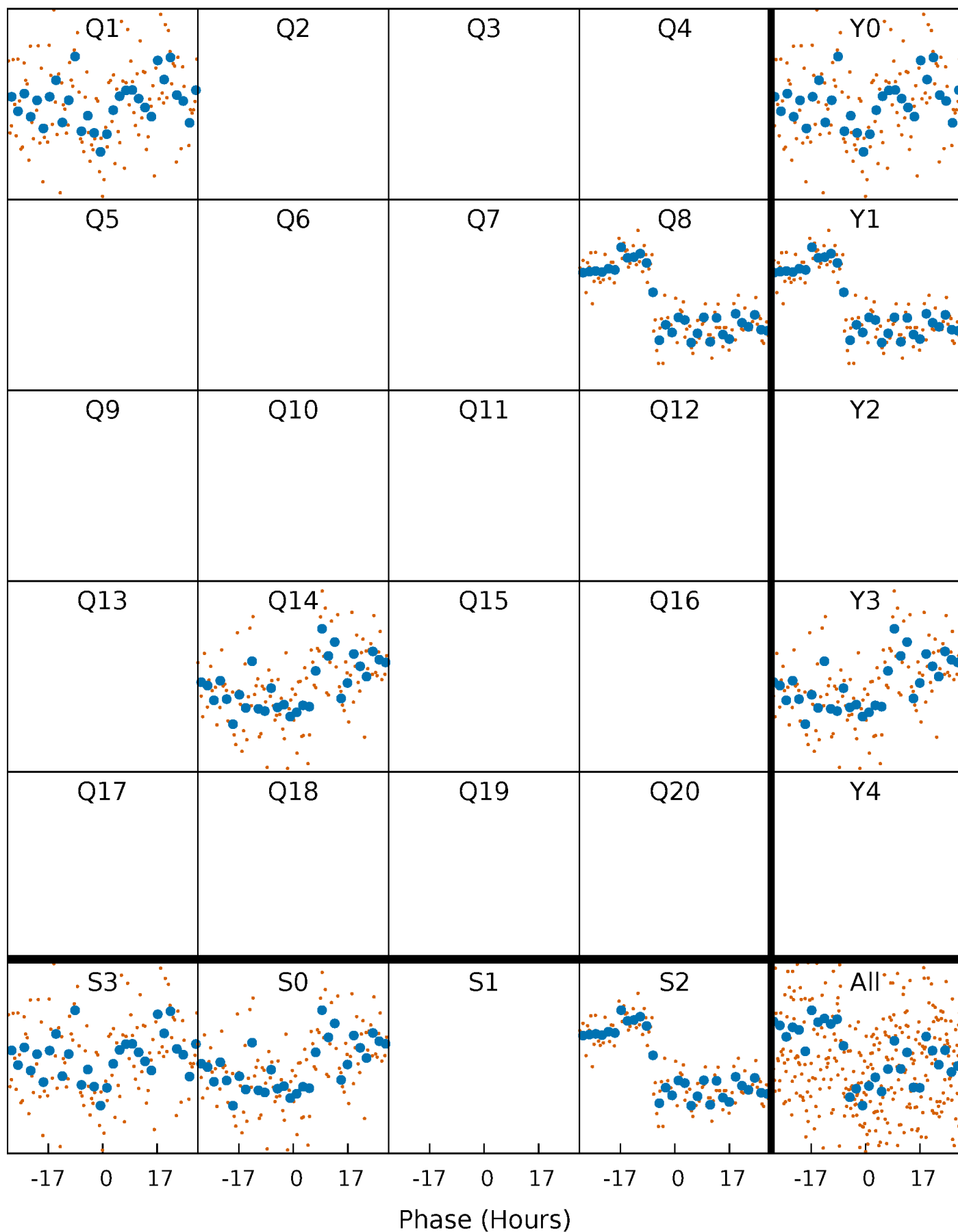


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

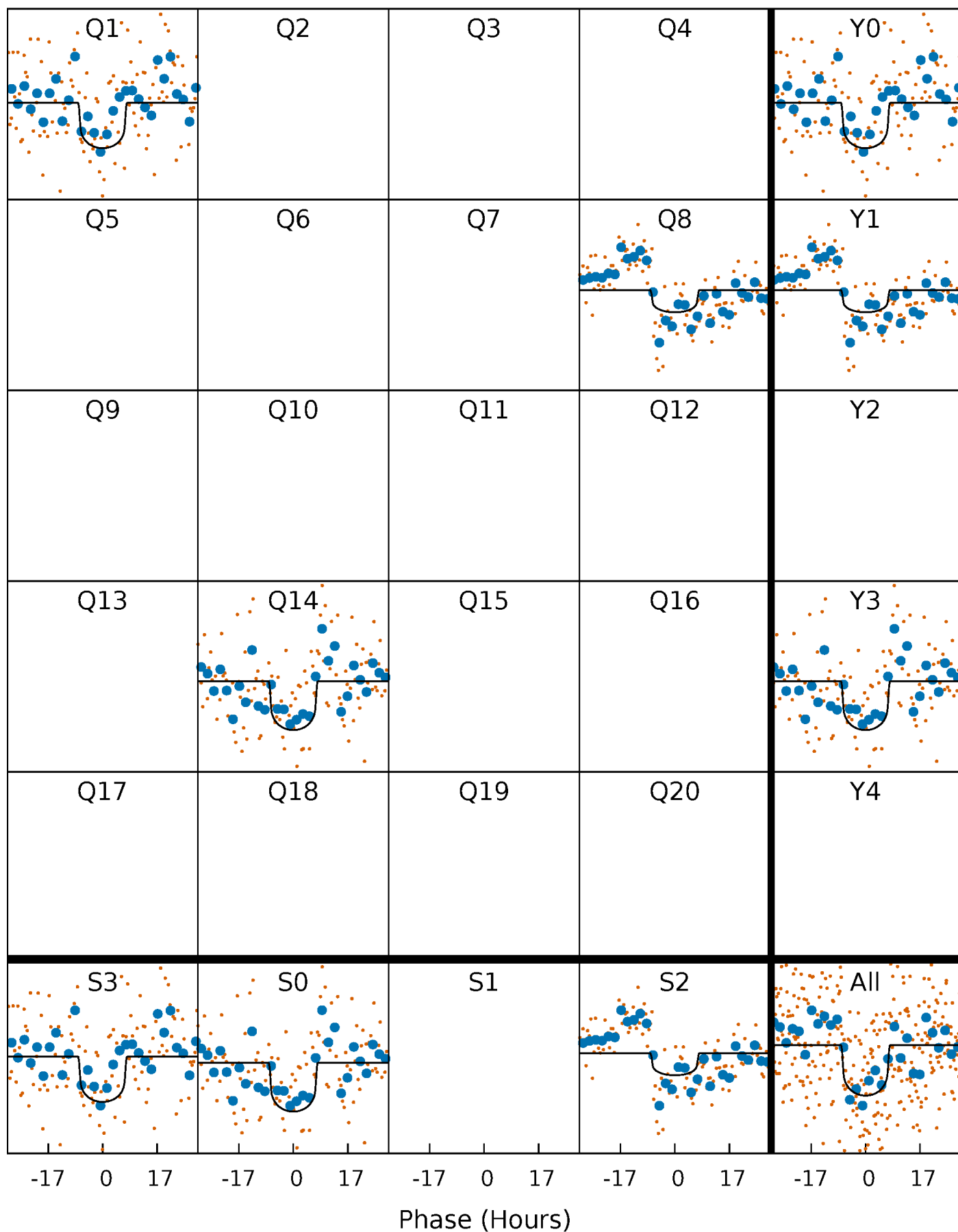
TCE 009773162-01 P=583.304429 Days  $T_0=154.562114$  (BKJD)





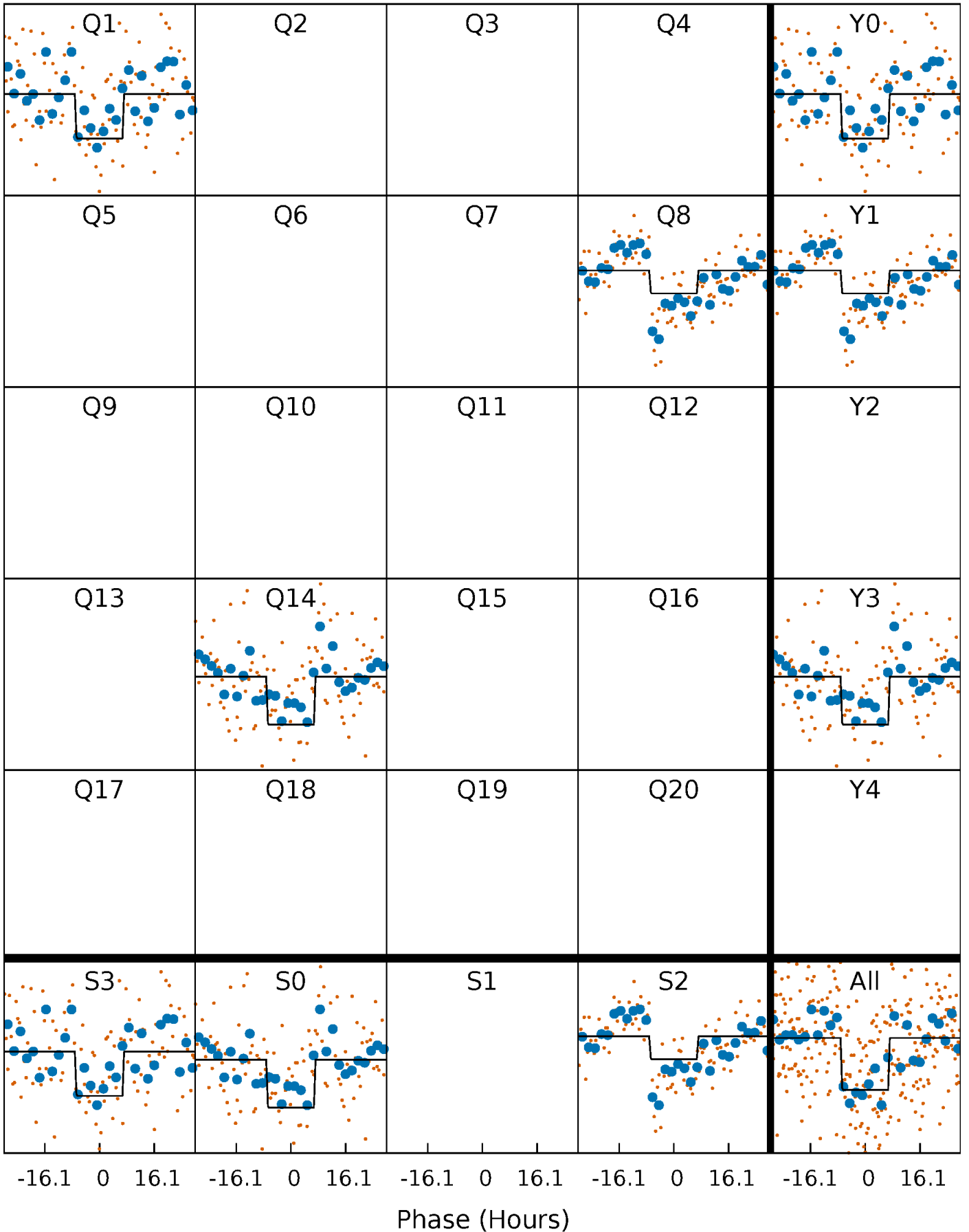
# DV Quarter-Phased Transit Curves

TCE 009773162-01 P=583.304429 Days  $T_0=154.562114$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

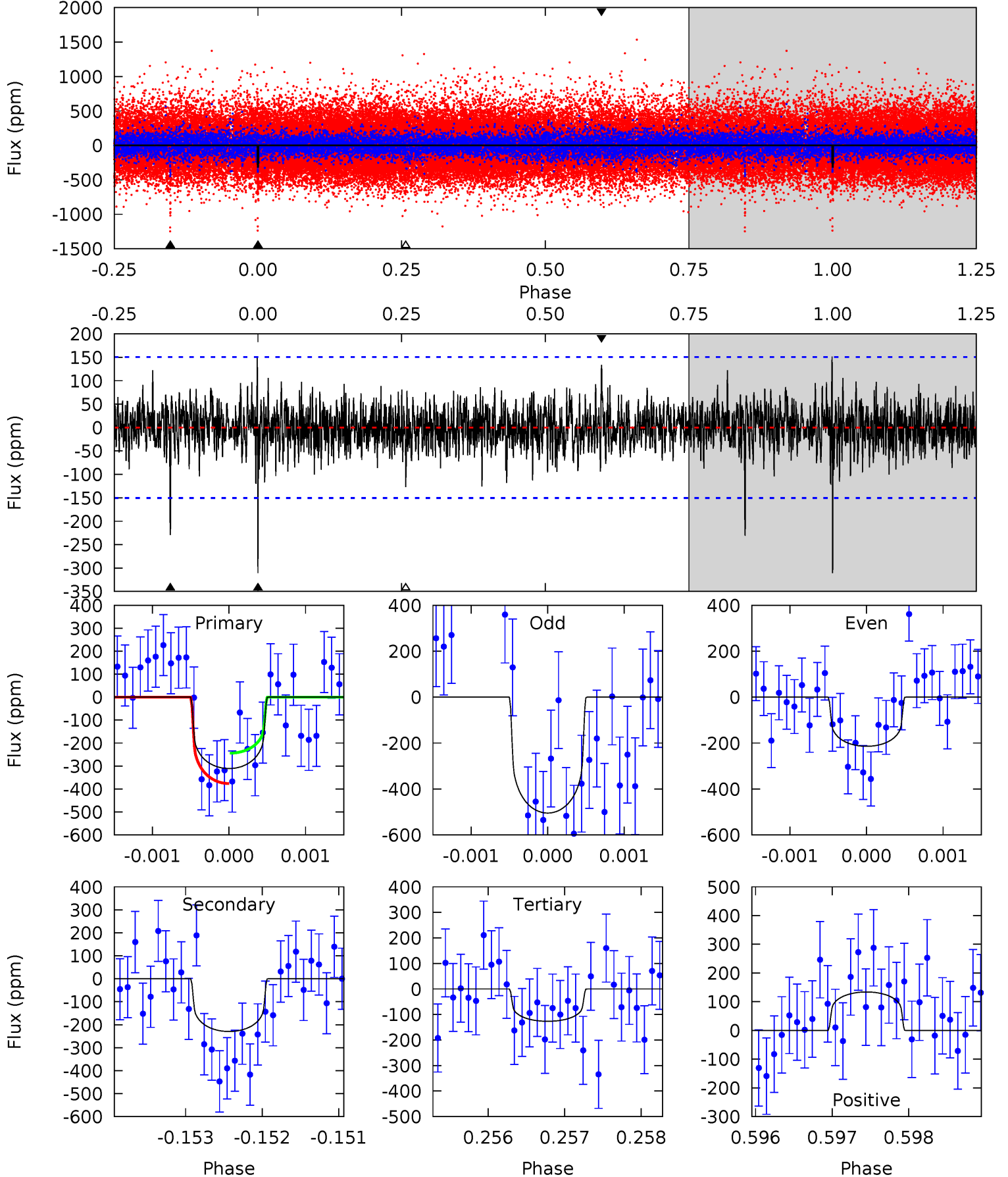
TCE 009773162-01 P=583.310026 Days  $T_0=154.563337$  (BKJD)



# DV Model-Shift Uniqueness Test

009773162-01, P = 583.304429 Days, E = 154.562114 Days

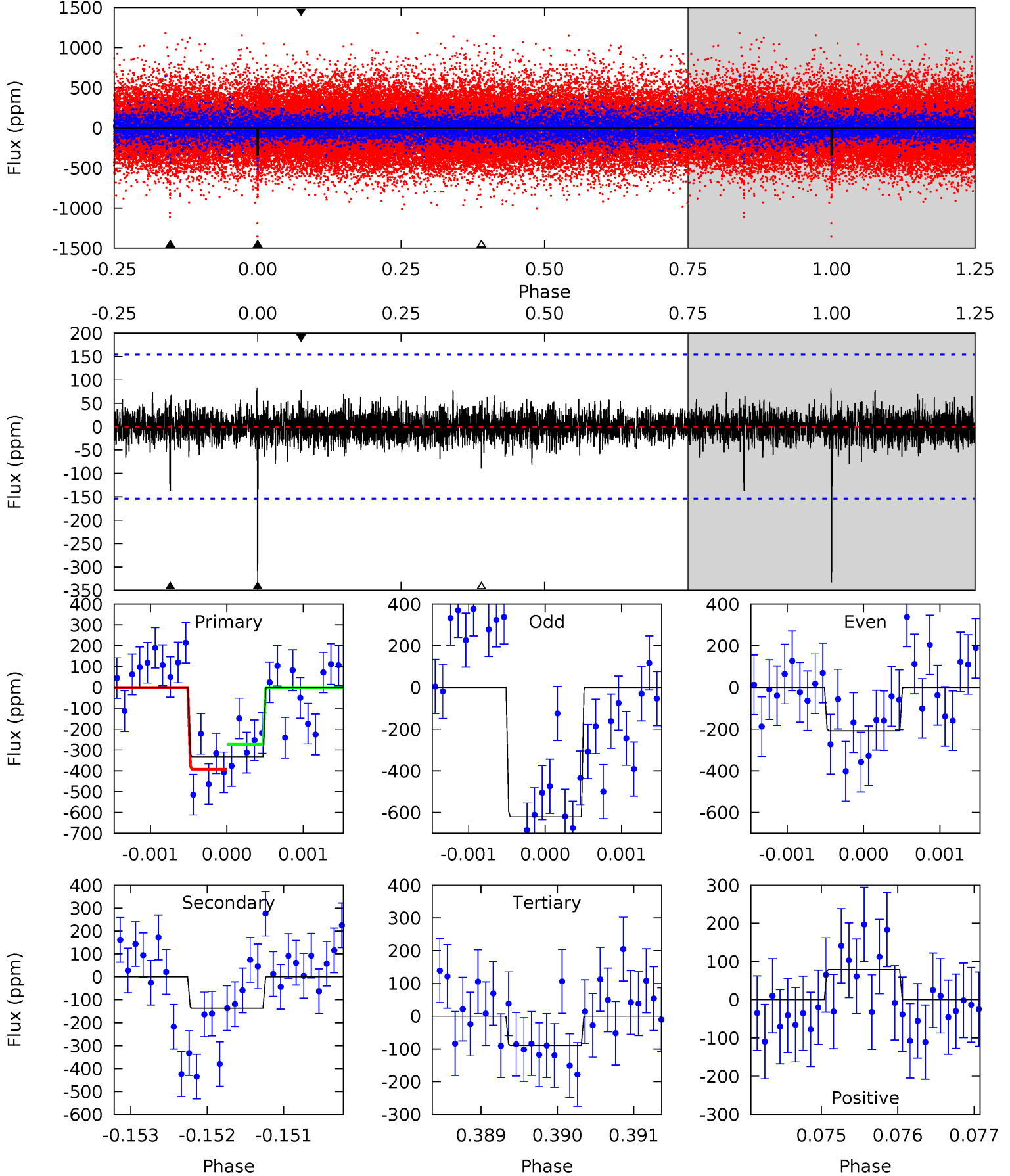
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	8.29	4.58	4.84	5.44	3.27	1.24	6.66	6.40	3.71	3.45	4.94	1.32	0.33	2.38



# Alt Model-Shift Uniqueness Test

009773162-01, P = 583.310026 Days, E = 154.563337 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	4.85	3.15	2.77	5.45	3.29	0.72	8.60	8.98	1.70	2.07	6.99	1.60	0.20	2.10



### Stellar Parameters For KIC 009773162

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5778^{+138}_{-156}$	$4.531^{+0.033}_{-0.187}$	$0.070^{+0.250}_{-0.300}$	$0.911^{+0.245}_{-0.077}$	$1.028^{+0.091}_{-0.125}$	$1.914^{+0.342}_{-0.920}$
	+2%/-3%	+1%/-4%	+357%/-429%	+27%/-8%	+9%/-12%	+18%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009773162-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-230 \pm 28$	$1.92^{+1.22}_{-0.98}$	$297^{+18}_{-13}$	$5265^{+2221}_{-915}$	$63961^{+194529}_{-40563}$
Alt.	$-137 \pm 28$	$1.96^{+1.22}_{-0.97}$	$295^{+18}_{-11}$	$4597^{+1751}_{-701}$	$34966^{+105960}_{-21868}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

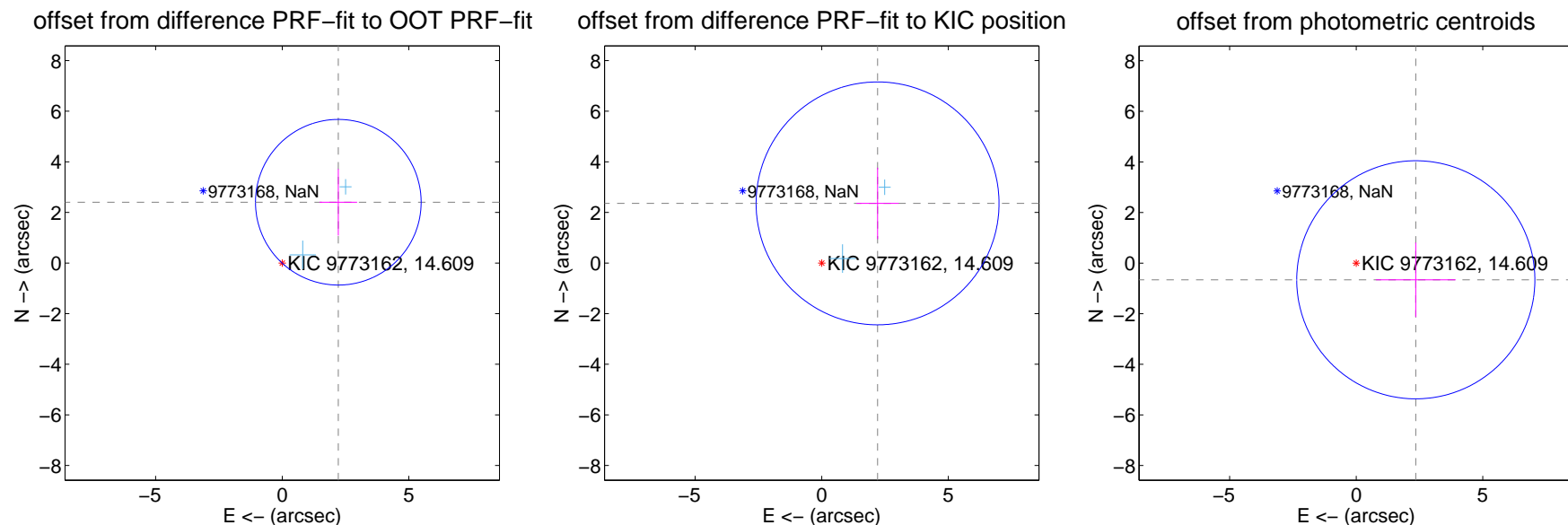
## DV Centroid Data

Supplemental centroid analysis for 009773162-01. Kepler magnitude: 14.61. Transit SNR 7.87

There are 2 quarters with good PRF difference image offsets

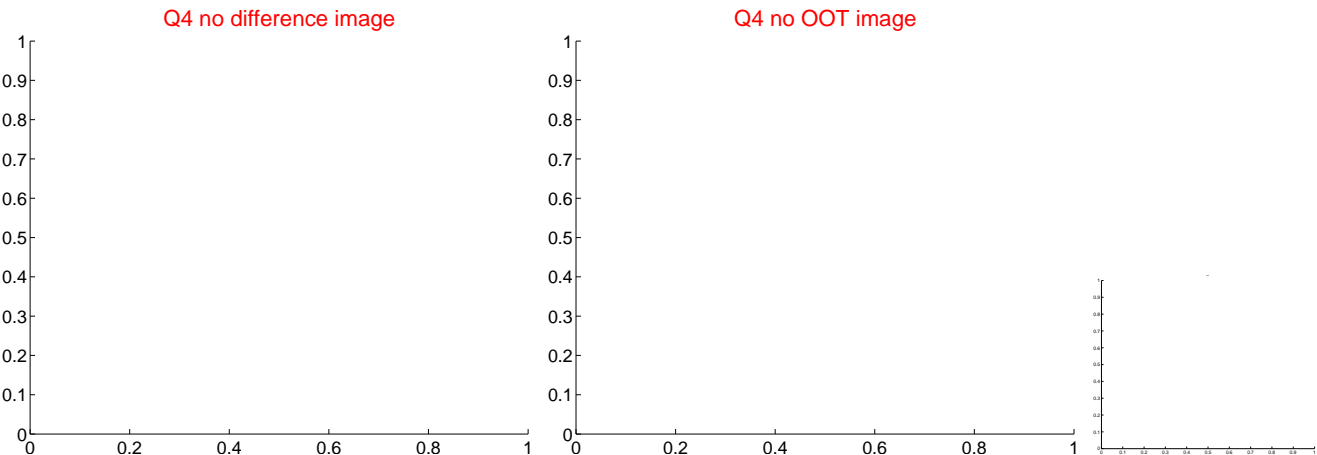
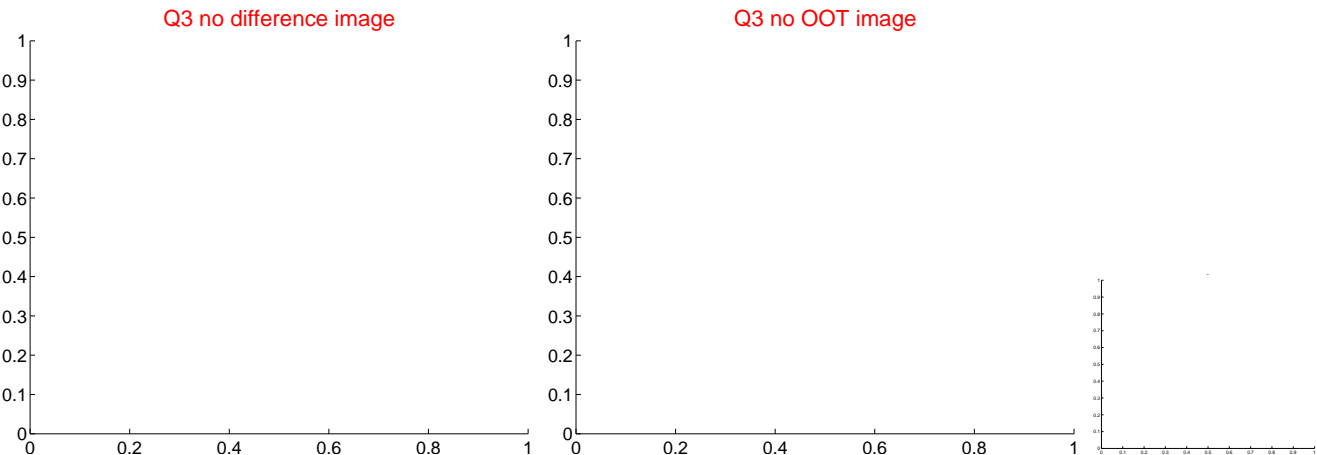
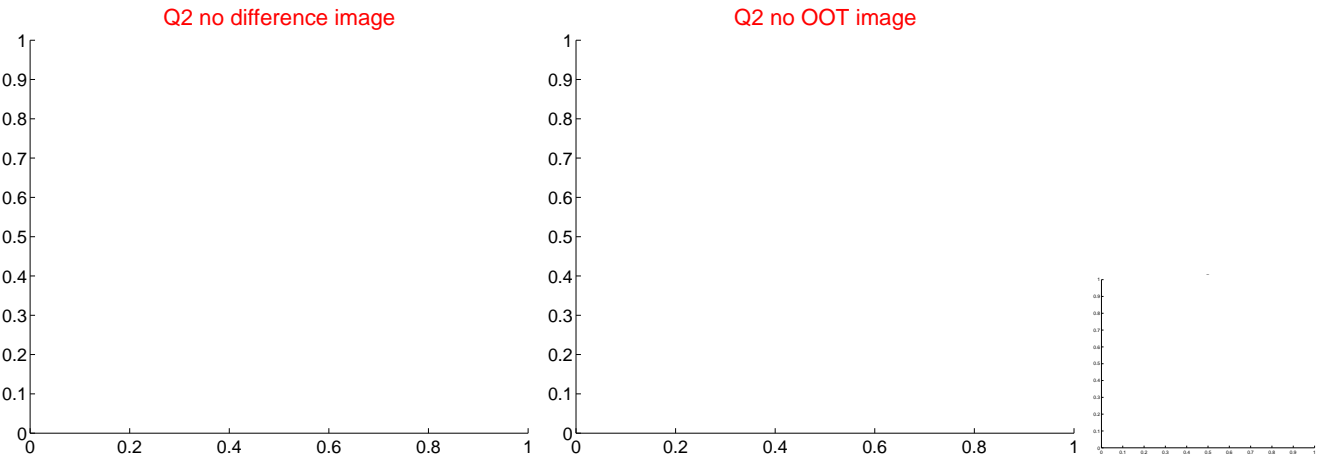
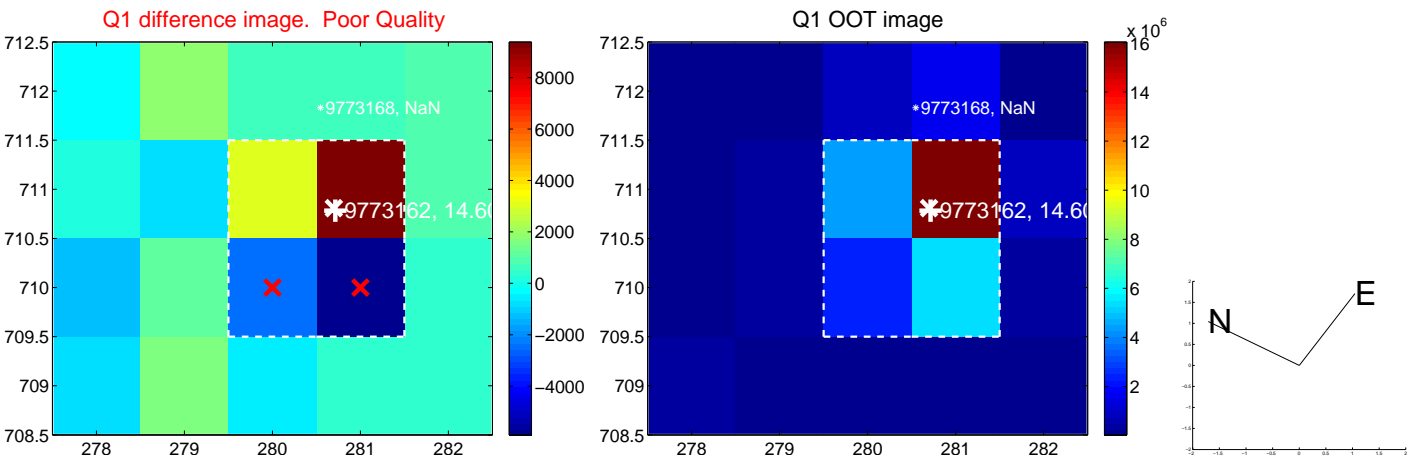
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.268 \pm 1.091$	3.00	$-2.216 \pm 0.745$	$2.402 \pm 1.315$
PRF-fit source offset from KIC position	$3.229 \pm 1.599$	2.02	$-2.206 \pm 0.835$	$2.357 \pm 1.411$
photometric centroid source offset	$2.45 \pm 1.57$	1.56	$-2.36 \pm 1.58$	$-0.66 \pm 1.47$



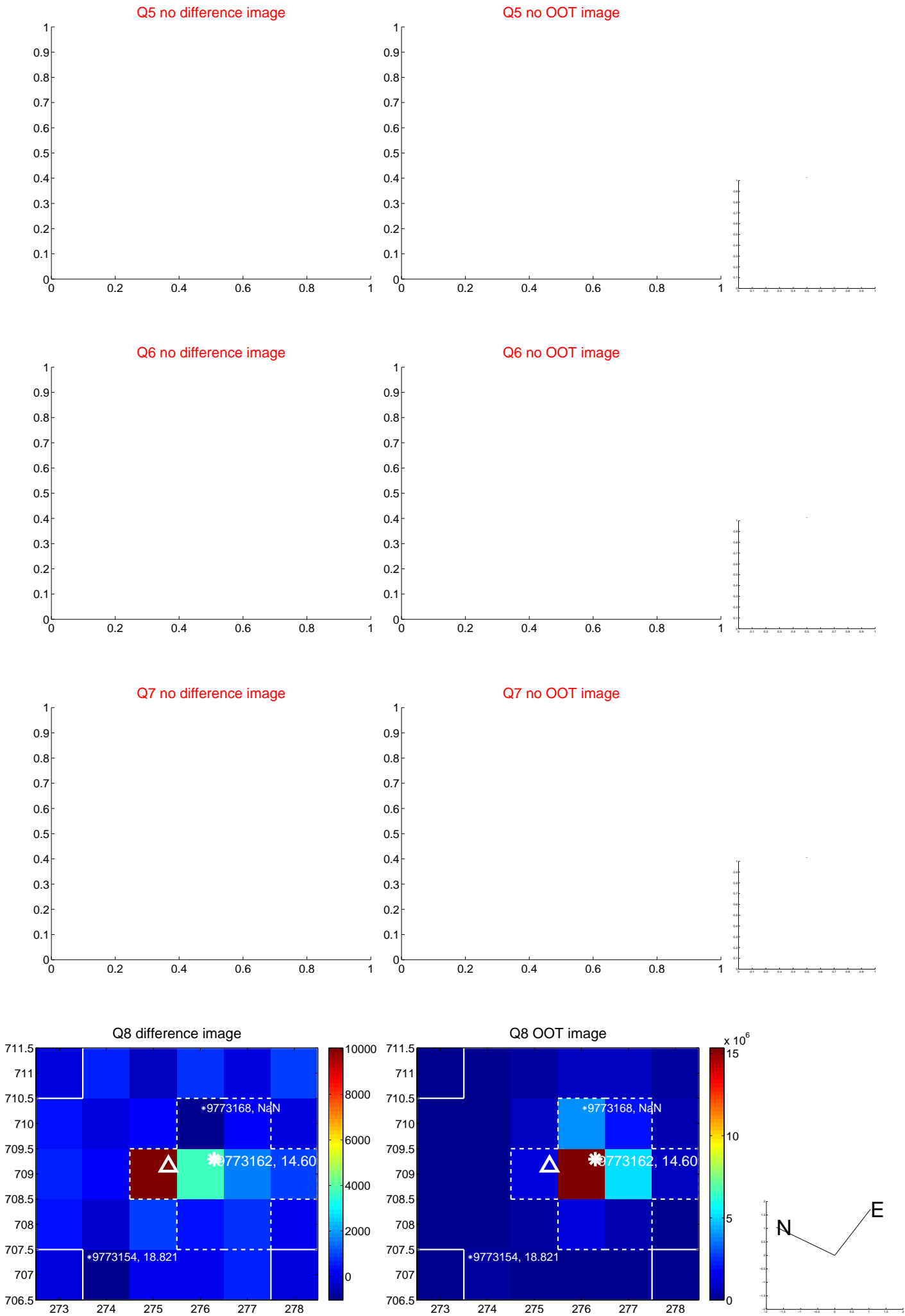
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





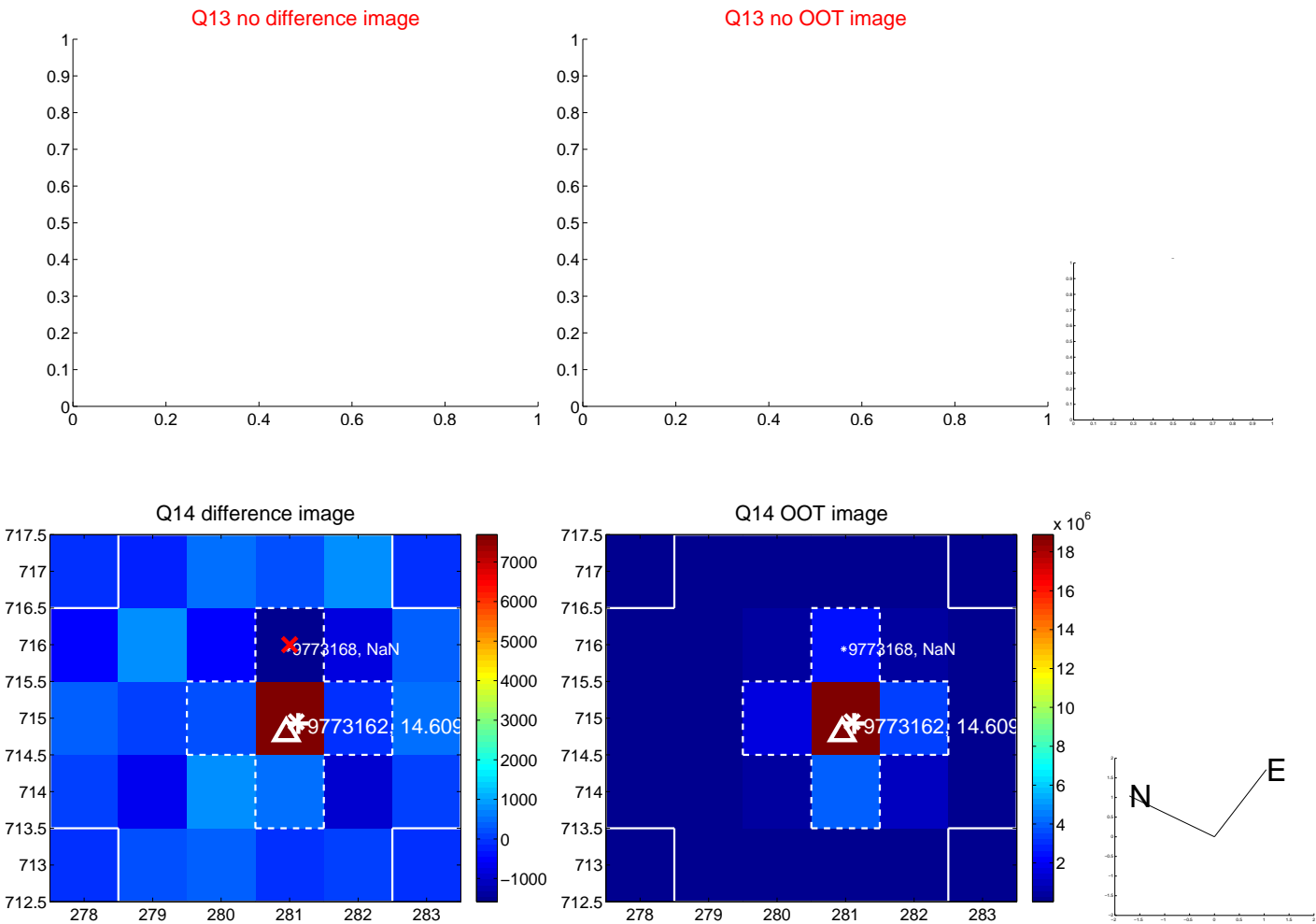
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



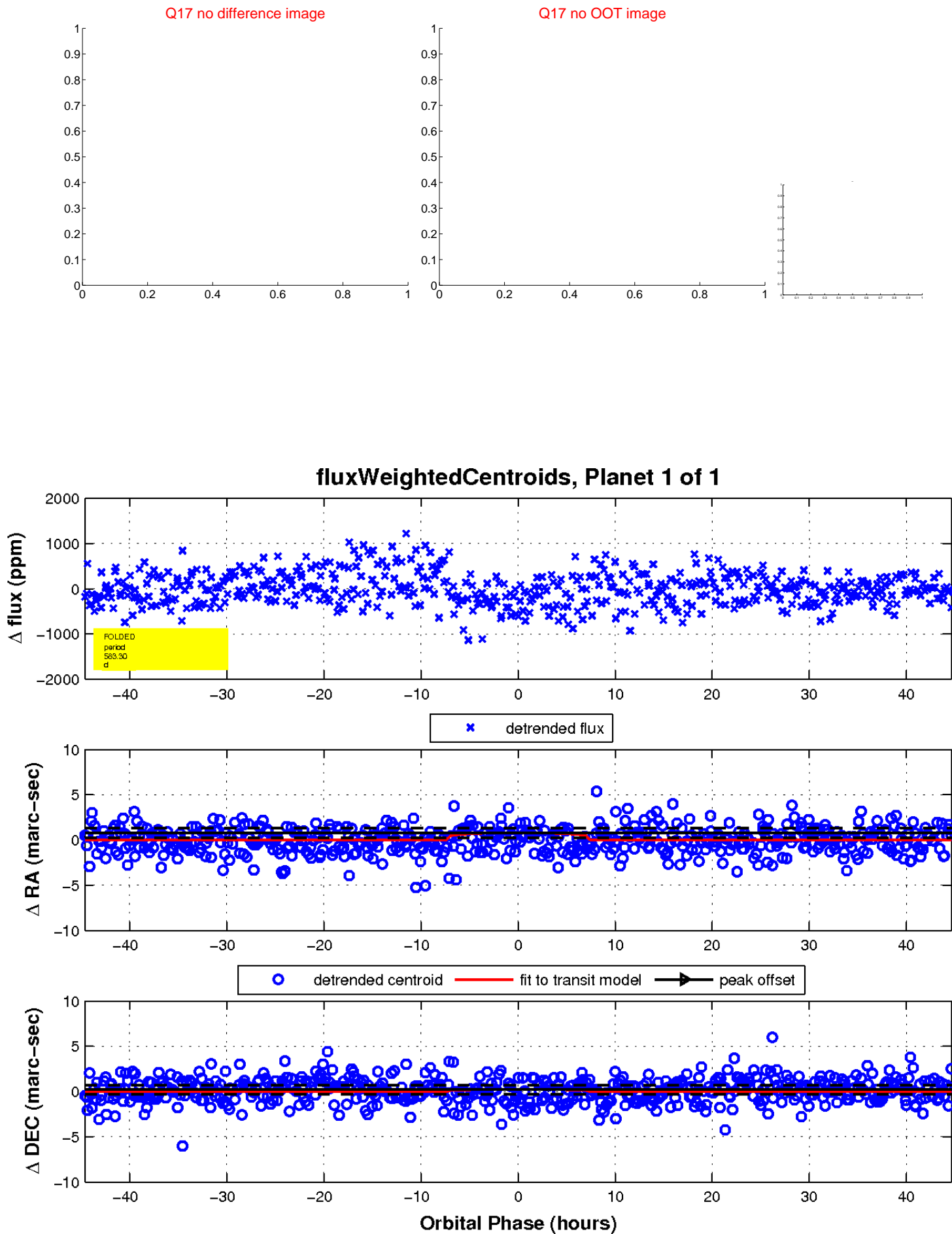
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

