

# KIC 012365624

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012365624-01	OBS	No	598.684039	199.606991	135.9	12.067	7.4	4.0	1.59	6602	2.07	2.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012365624-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

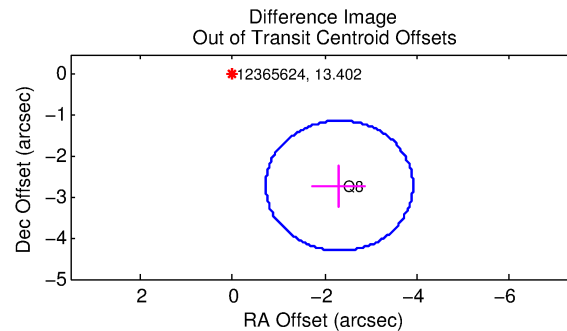
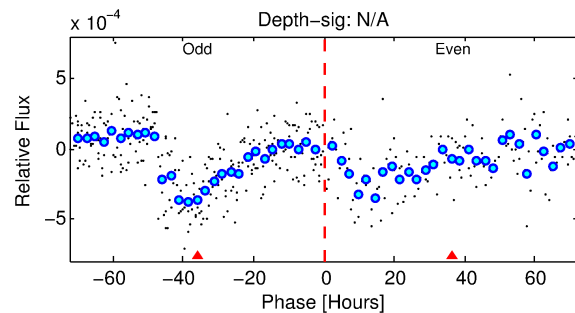
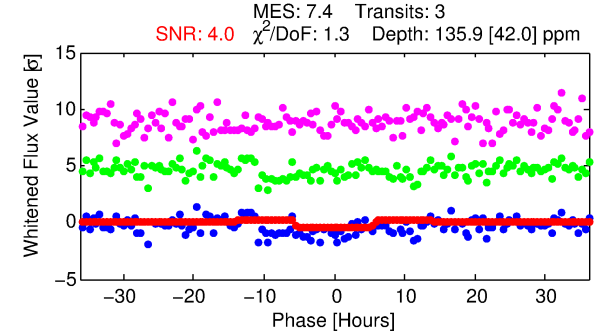
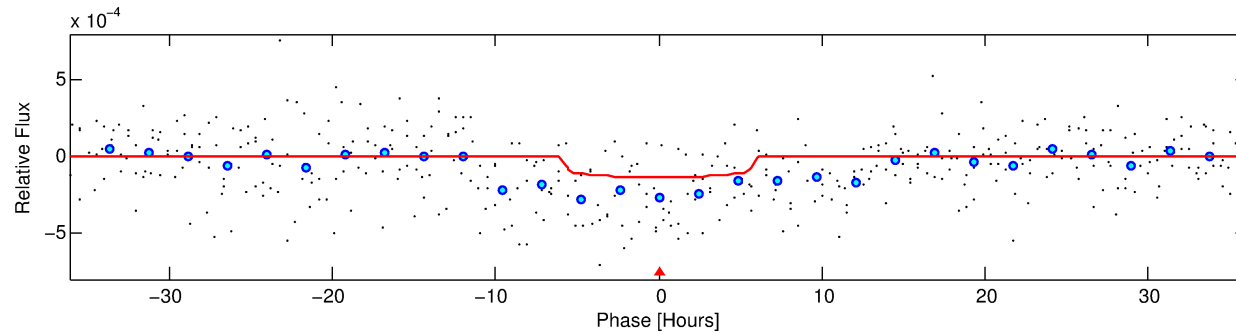
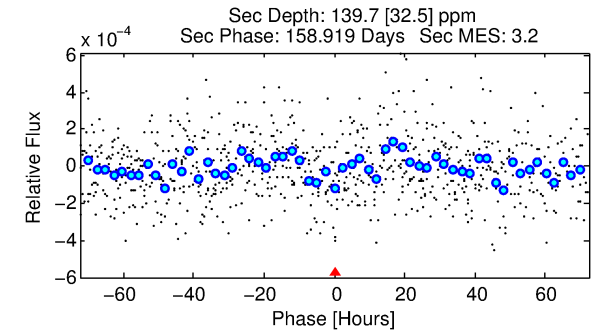
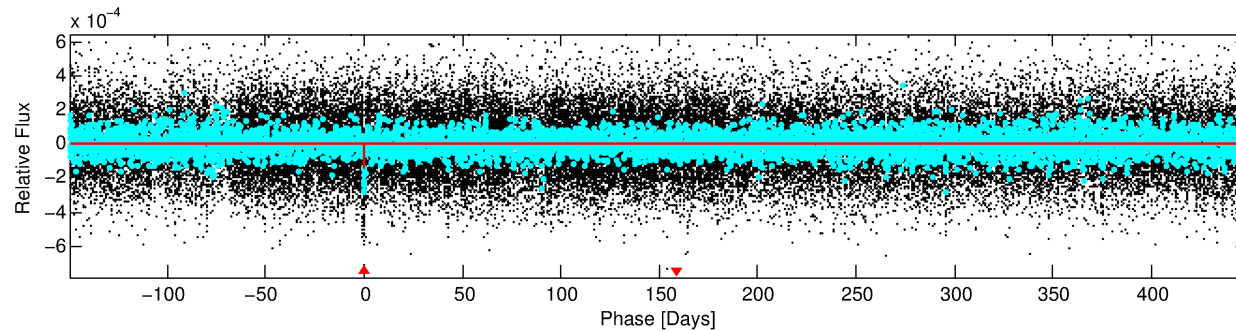
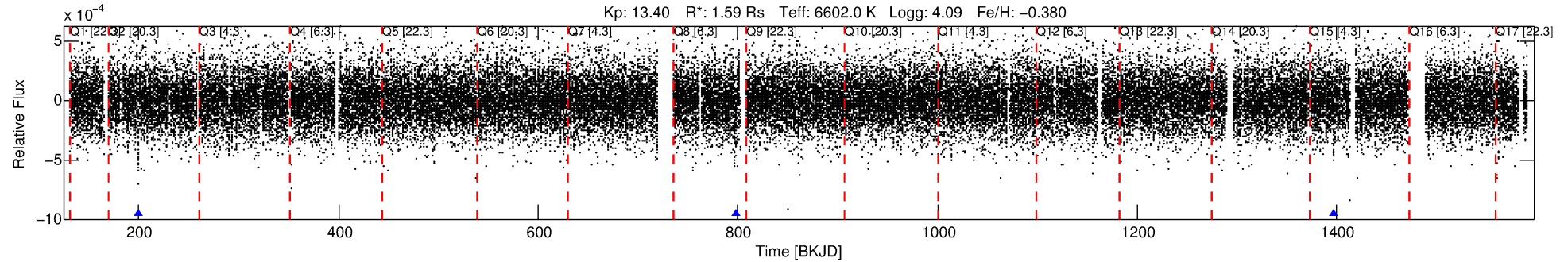
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012365624-01

No Significant Match Found

# DV One-Page Summary

KIC: 12365624 Candidate: 1 of 1 Period: 598.684 d



## DV Fit Results:

Period = 598.68404 [0.02664] d  
Epoch = 199.6070 [0.0355] BKJD  
Rp/R\* = 0.0119 [0.0064]  
a/R\* = 222.26 [651.73]  
b = 0.82 [1.13]  
Seff = 2.05 [0.98]  
Teq = 305 [36] K  
Rp = 2.07 [1.27] Re  
a = 1.4508 [0.4135] AU  
Ag = 37810.75 [45248.39] [0.84σ]  
Teffp = 6576 [1826] K [3.43σ]

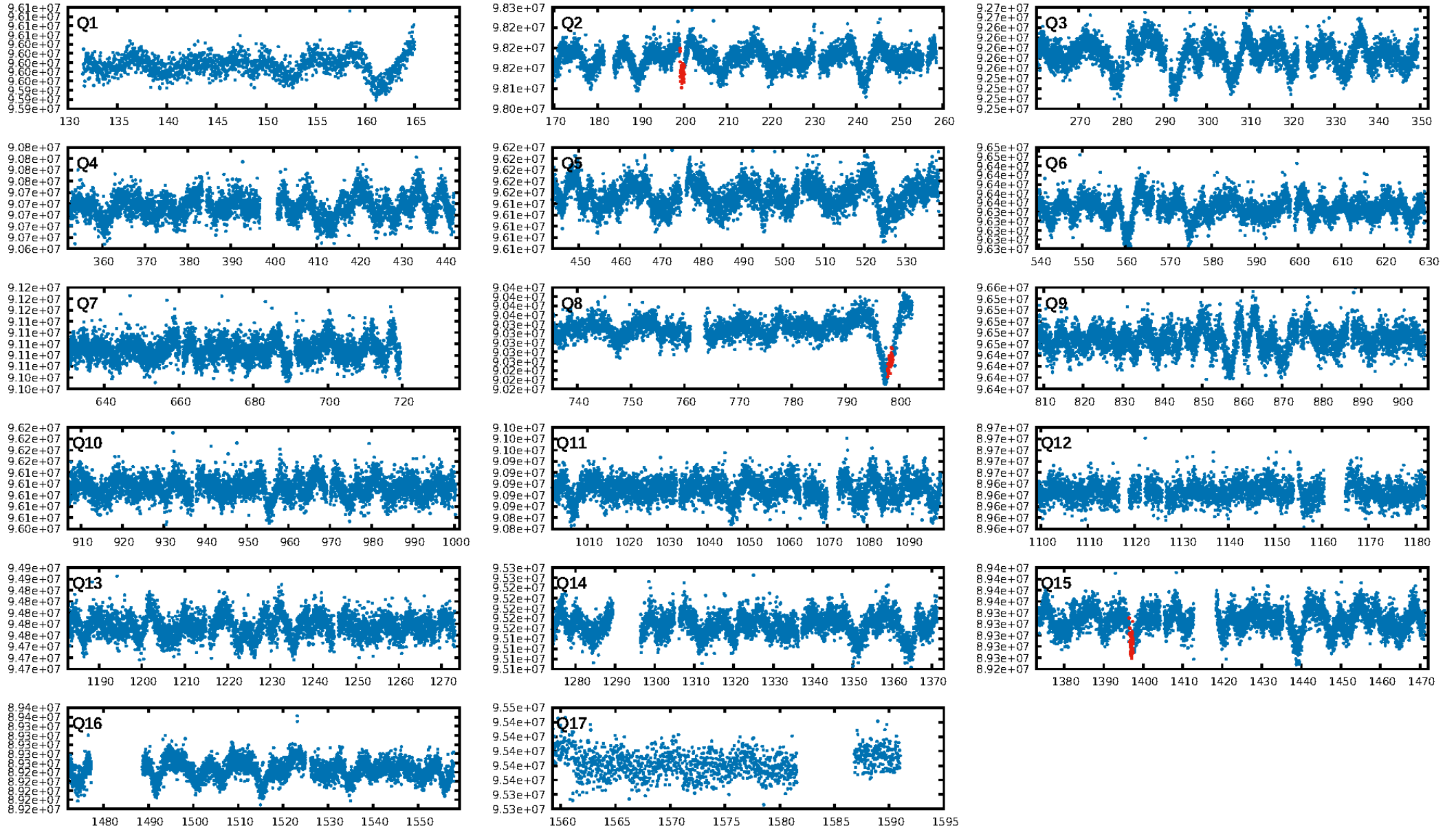
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 46.4%  
ModelChiSquareGoF-sig: 99.5%  
Bootstrap-pfa: 2.45e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.728  
Centroid-sig: 5.8%  
Centroid-so: 4.821 arcsec [1.83σ]  
OotOffset-rm: 3.572 arcsec [6.73σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-rm: 3.427 arcsec [6.44σ]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

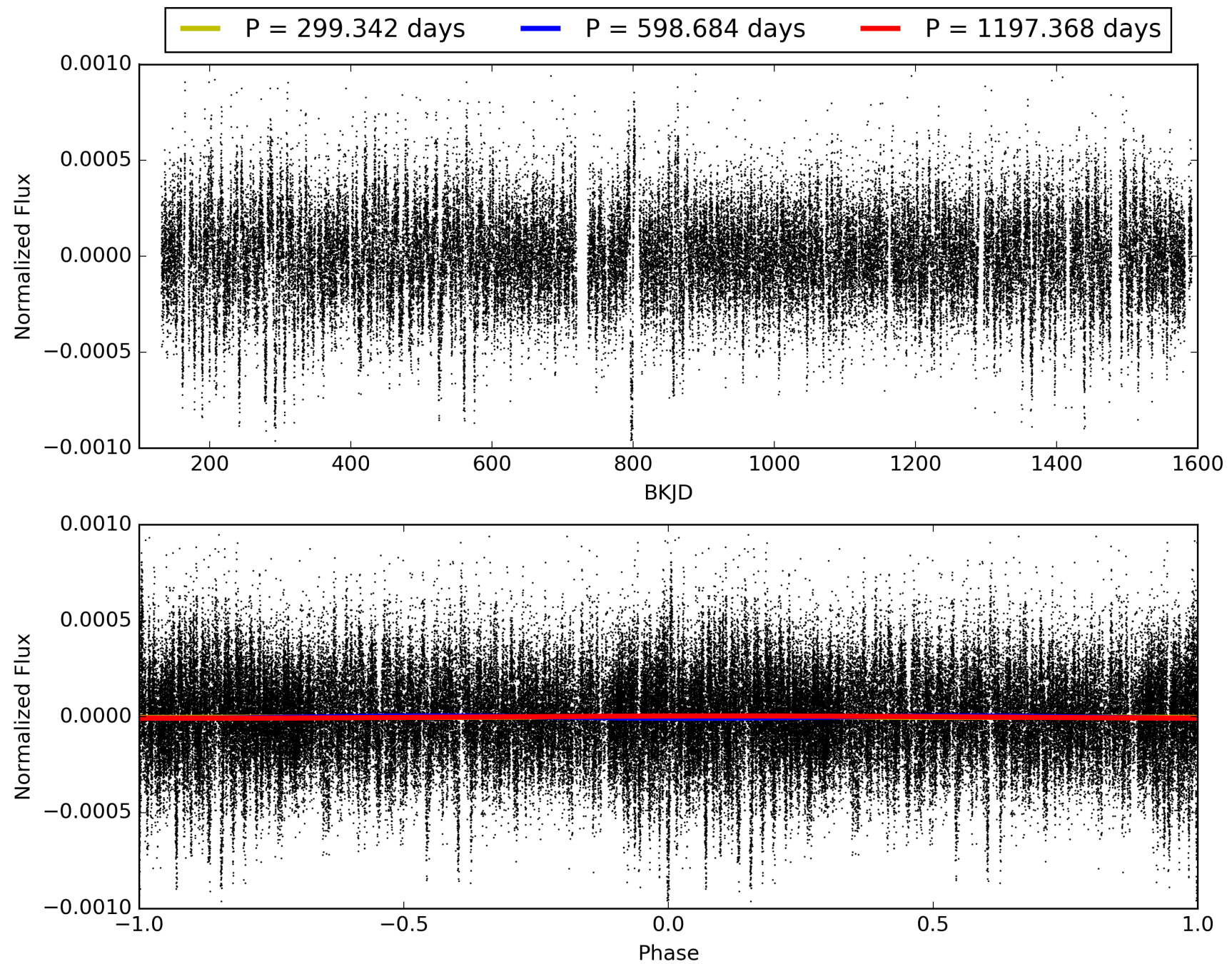
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:24:34 Z

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

# TCE 012365624-01, PDC Light Curves

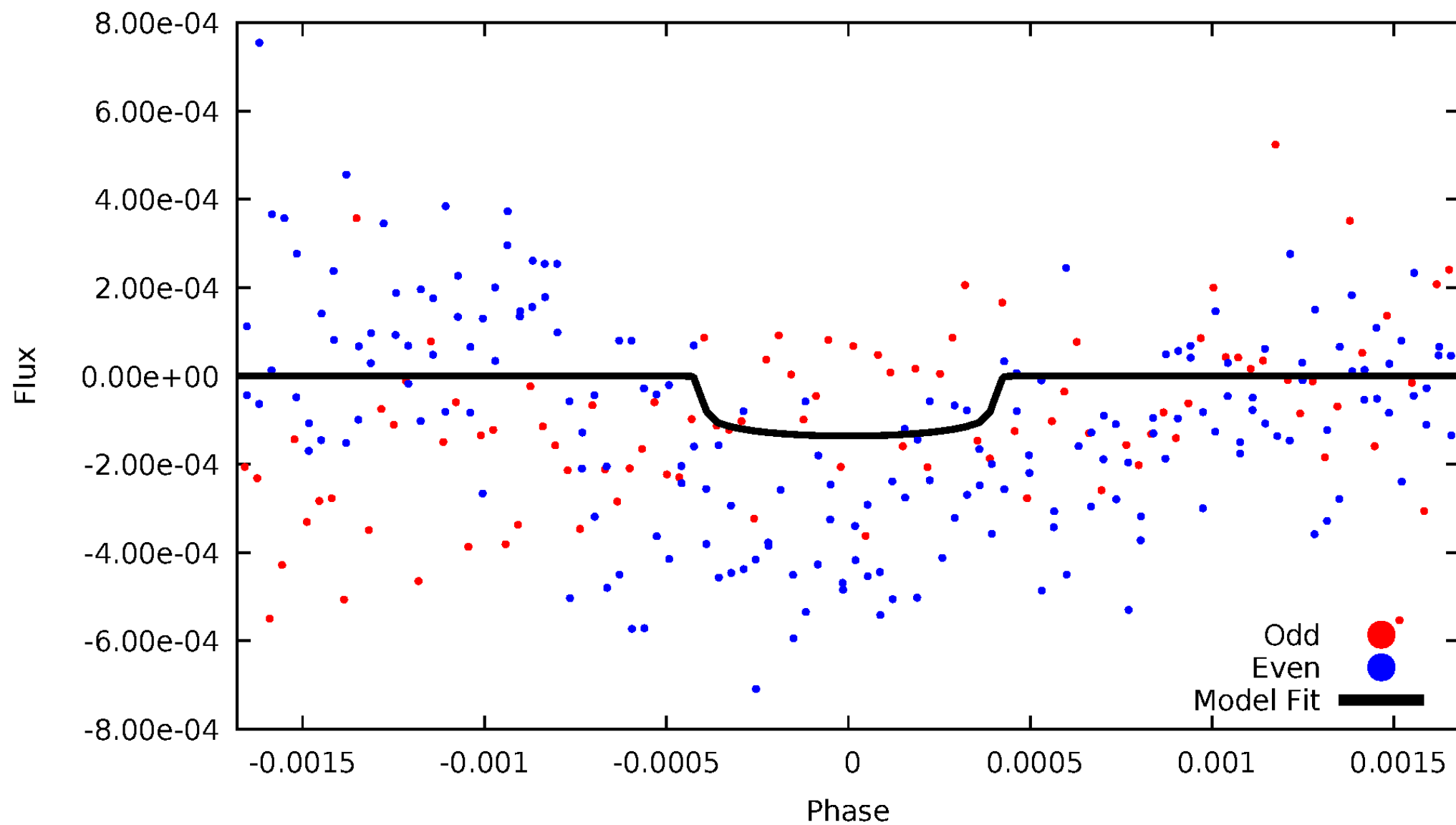


# TCE 012365624-01



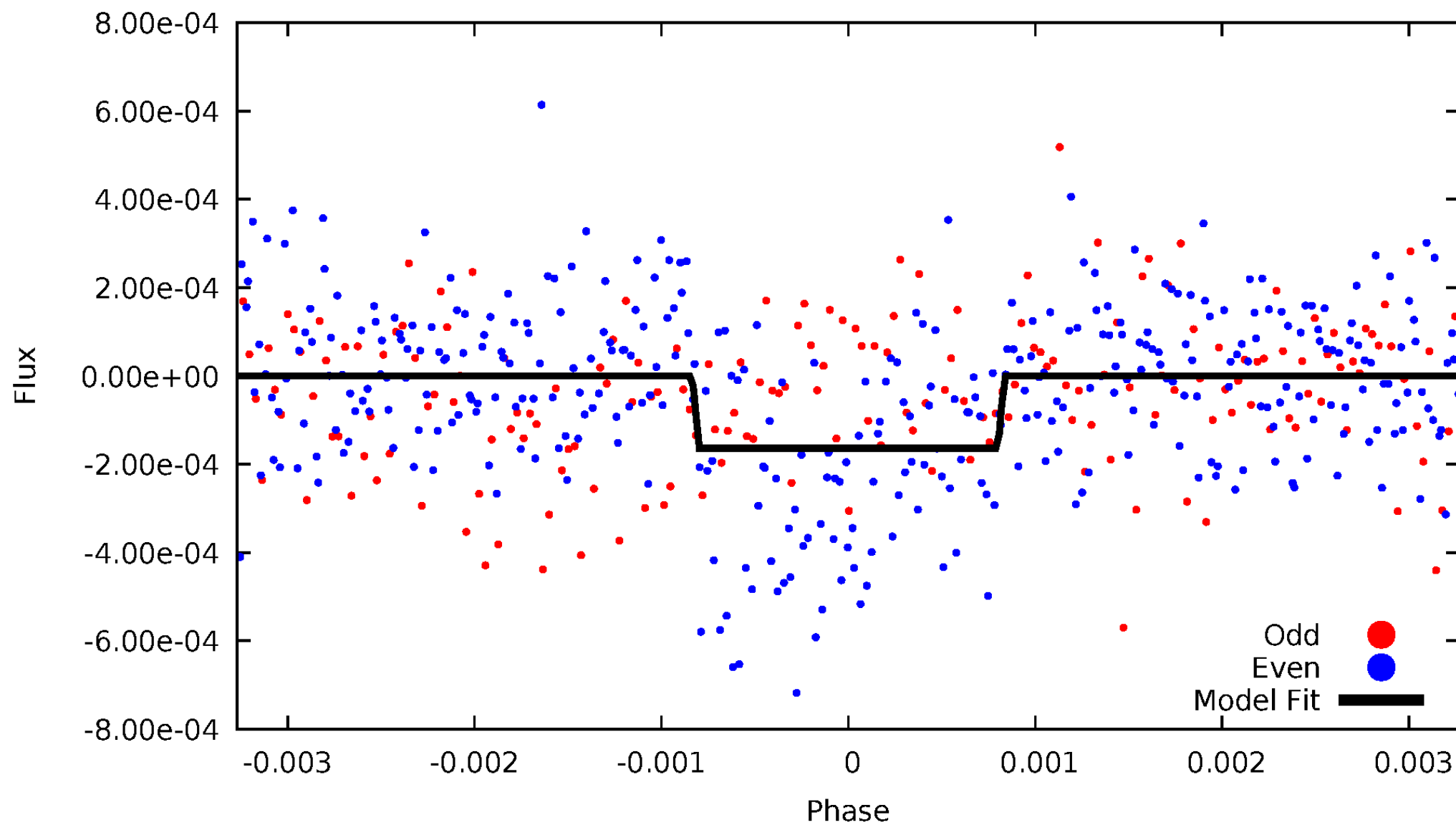
# DV Odd/Even

TCE 012365624-01



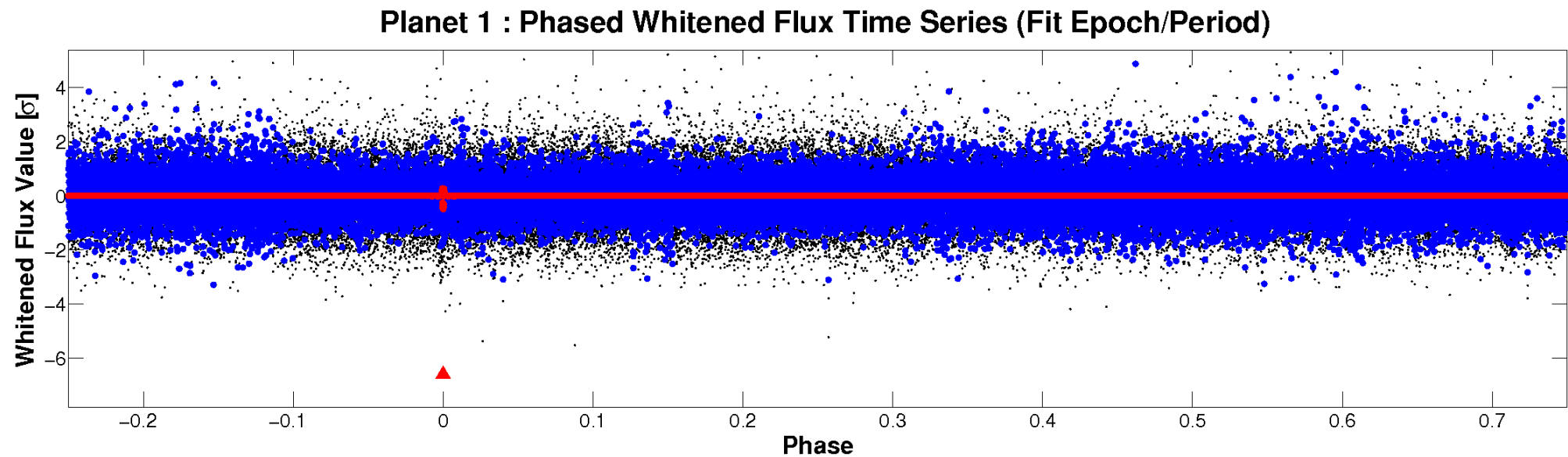
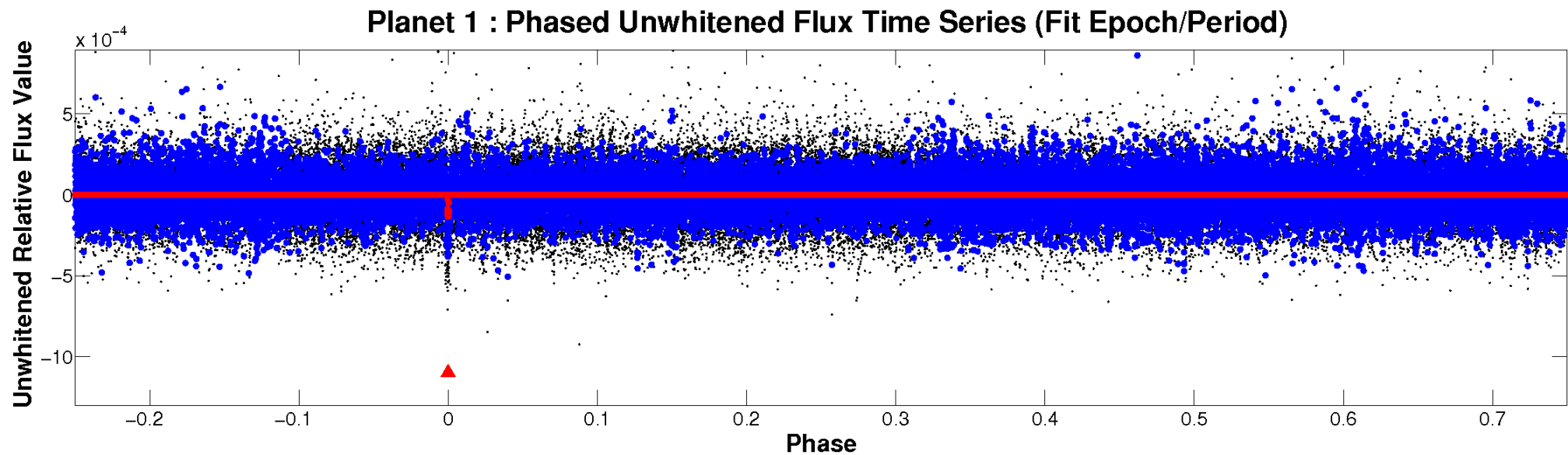
# ALT Odd/Even

TCE 012365624-01



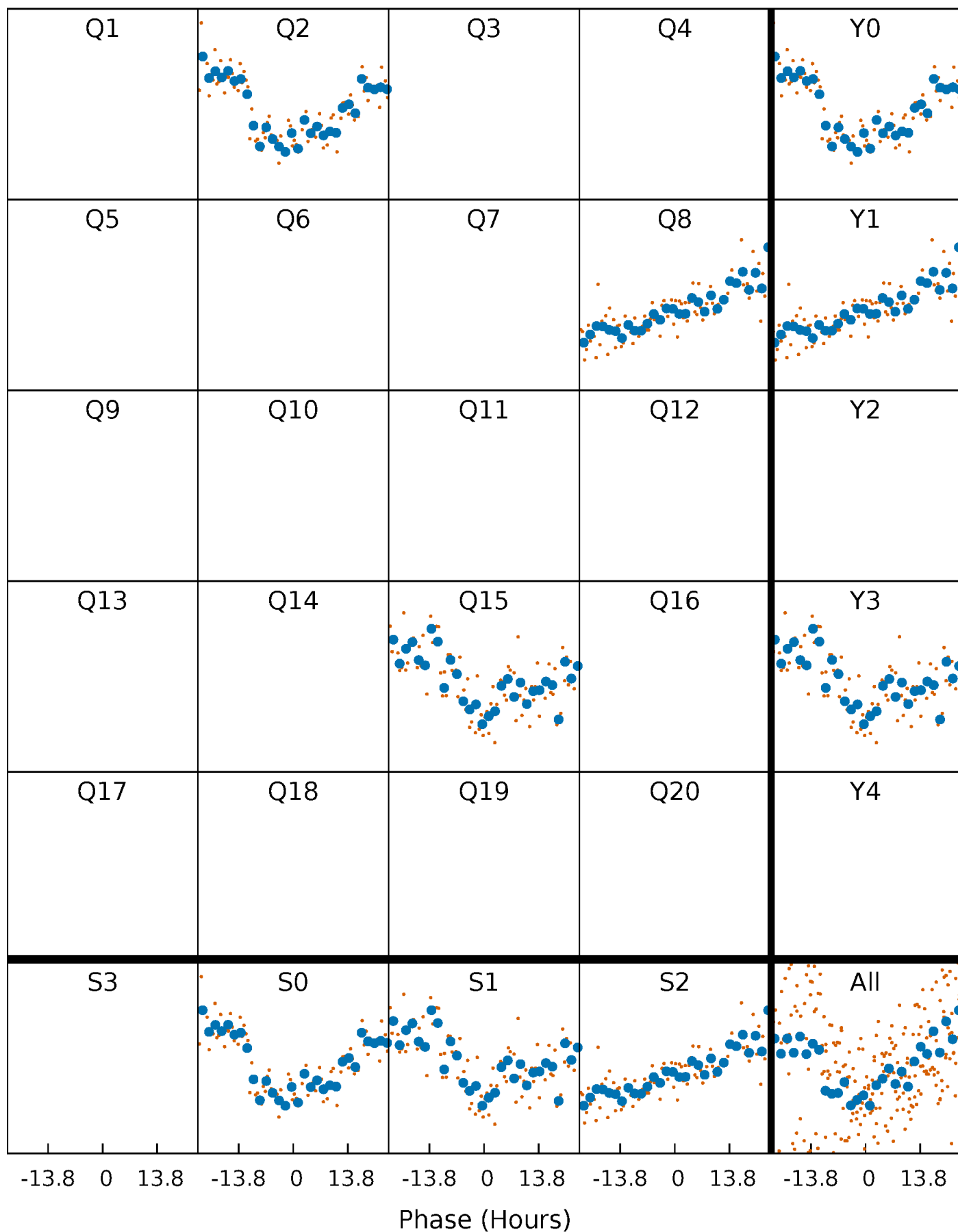


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

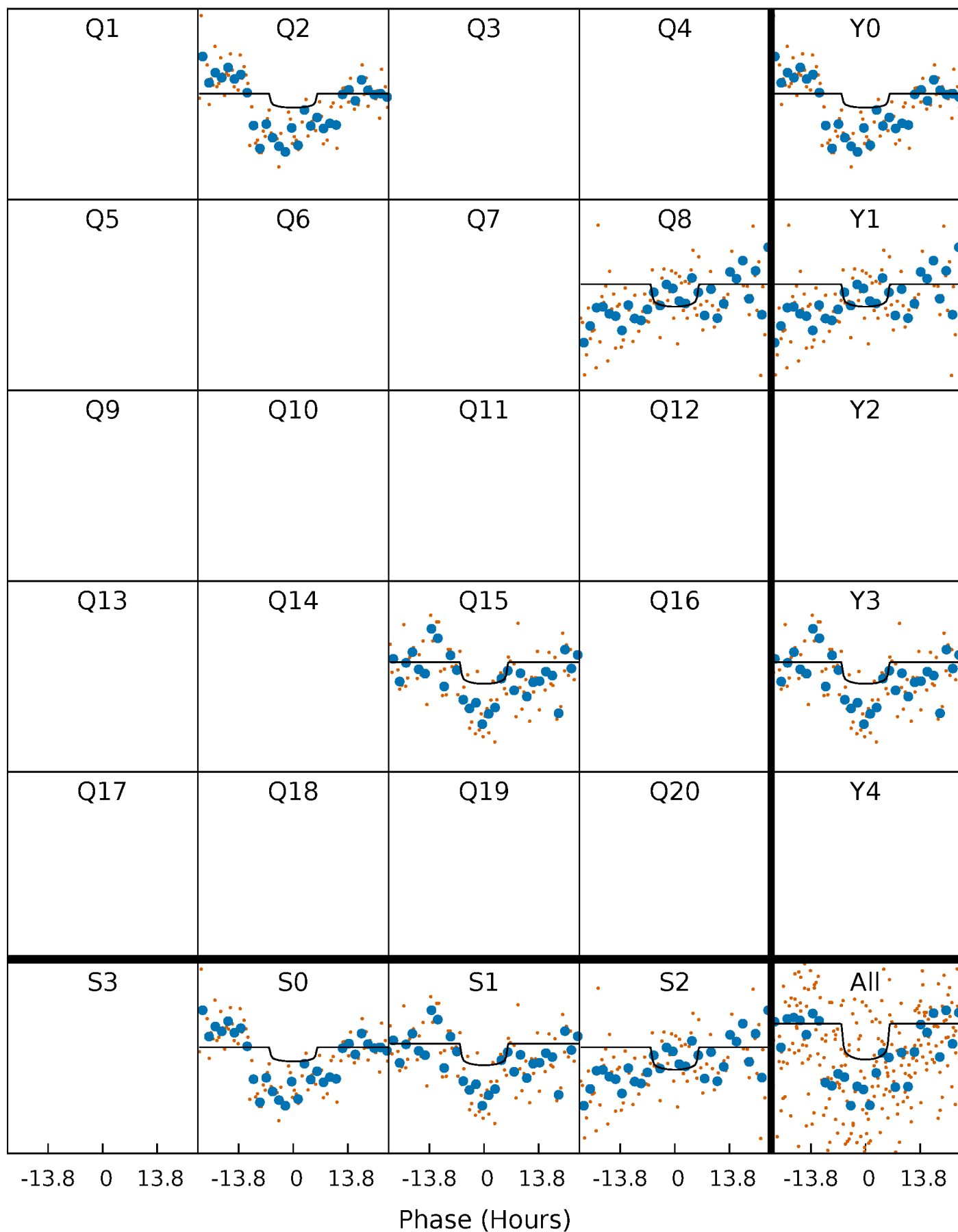
TCE 012365624-01 P=598.684039 Days  $T_0=199.606991$  (BKJD)





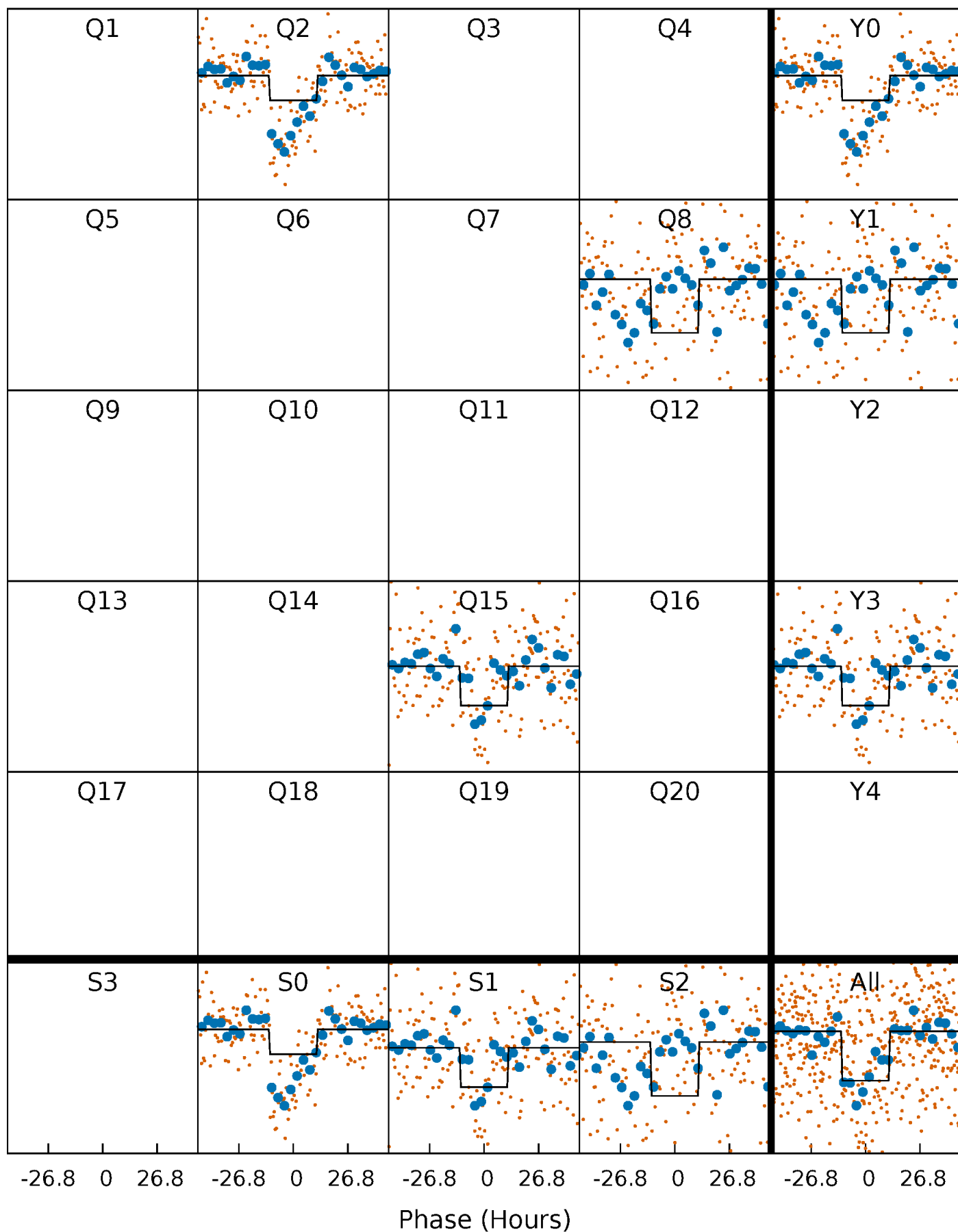
# DV Quarter-Phased Transit Curves

TCE 012365624-01 P=598.684039 Days  $T_0=199.606991$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

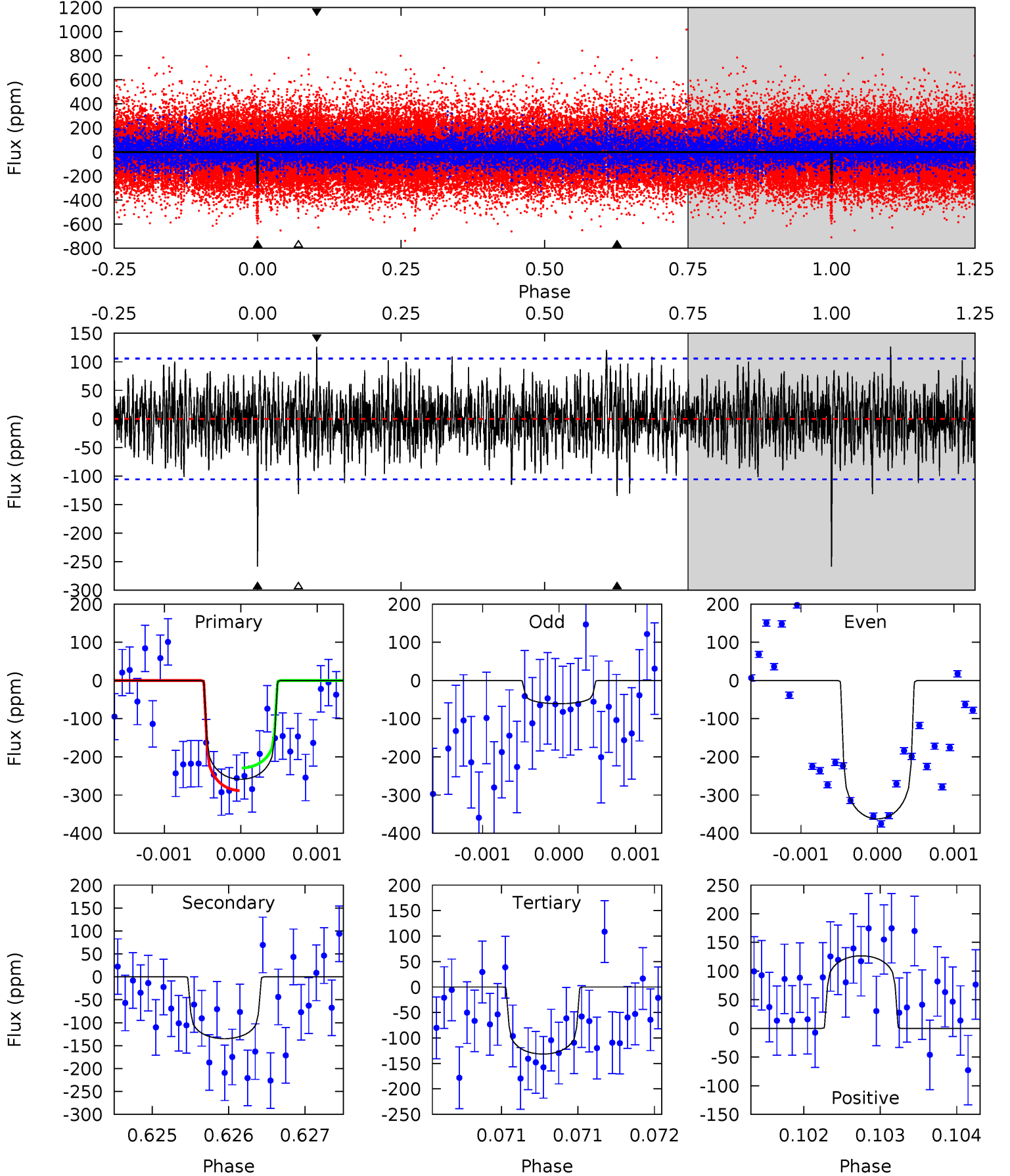
TCE 012365624-01 P=598.696497 Days  $T_0=199.620634$  (BKJD)



# DV Model-Shift Uniqueness Test

012365624-01, P = 598.684039 Days, E = 199.606991 Days

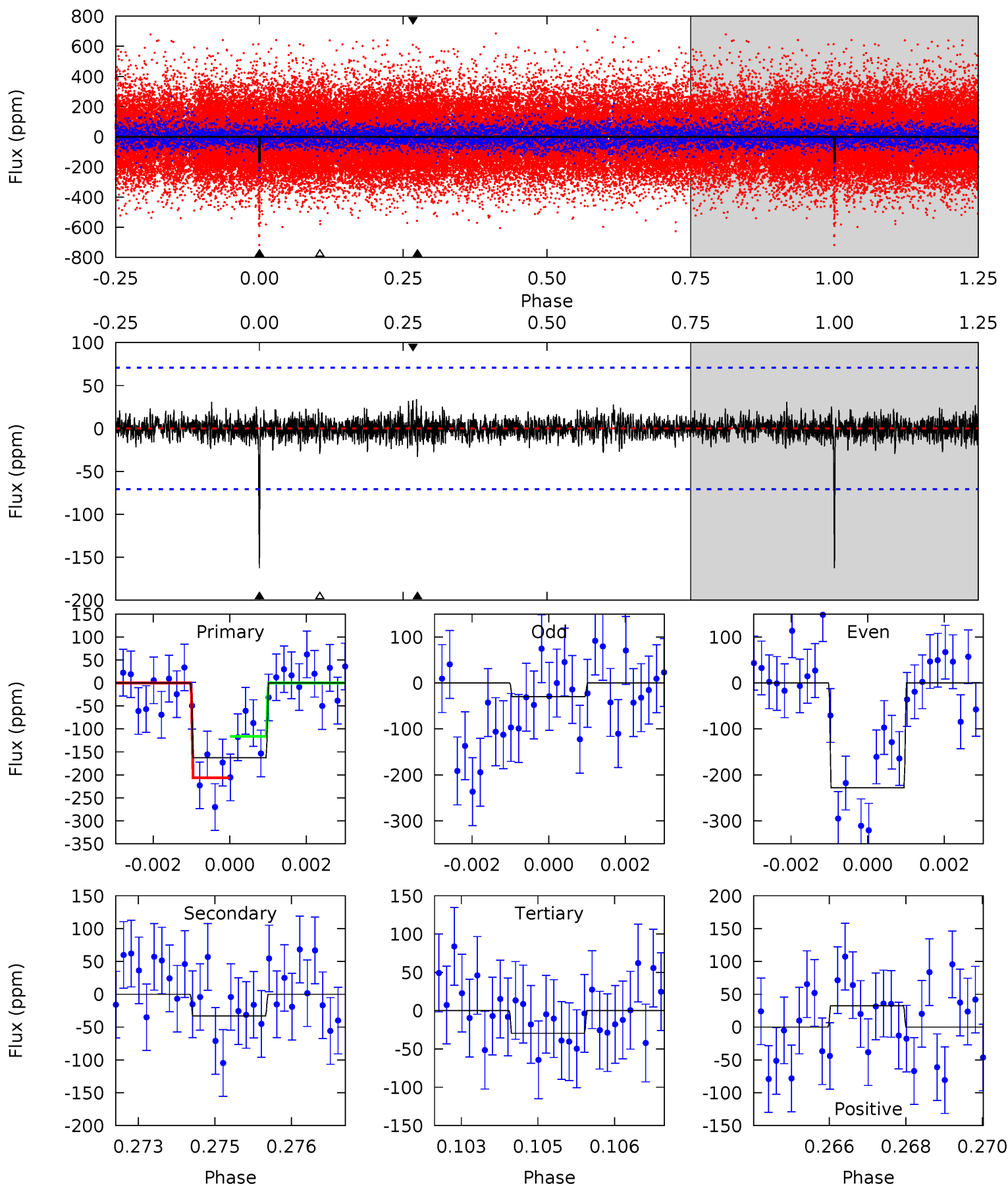
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	6.98	6.81	6.55	5.47	3.33	1.87	6.58	6.83	0.17	0.42	7.39	0.87	0.33	1.53



# Alt Model-Shift Uniqueness Test

012365624-01, P = 598.696497 Days, E = 199.620634 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
12.3	2.49	2.24	2.47	5.36	3.14	0.61	10.1	9.84	0.25	0.02	7.13	1.59	0.17	3.41



### Stellar Parameters For KIC 012365624

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6602^{+161}_{-201}$	$4.090^{+0.273}_{-0.168}$	$-0.380^{+0.300}_{-0.300}$	$1.591^{+0.461}_{-0.461}$	$1.137^{+0.197}_{-0.148}$	$0.397^{+0.616}_{-0.184}$
	+2%/-3%	+7%/-4%	+79%/-79%	+29%/-29%	+17%/-13%	+155%/-46%
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 012365624-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-135 \pm 19$	$2.04^{+1.18}_{-0.92}$	$419^{+34}_{-33}$	$6362^{+2678}_{-1148}$	$37651^{+85404}_{-22629}$
Alt.	$-33 \pm 13$	$2.22^{+1.20}_{-1.11}$	$422^{+33}_{-35}$	$4532^{+1626}_{-745}$	$7659^{+25729}_{-4998}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

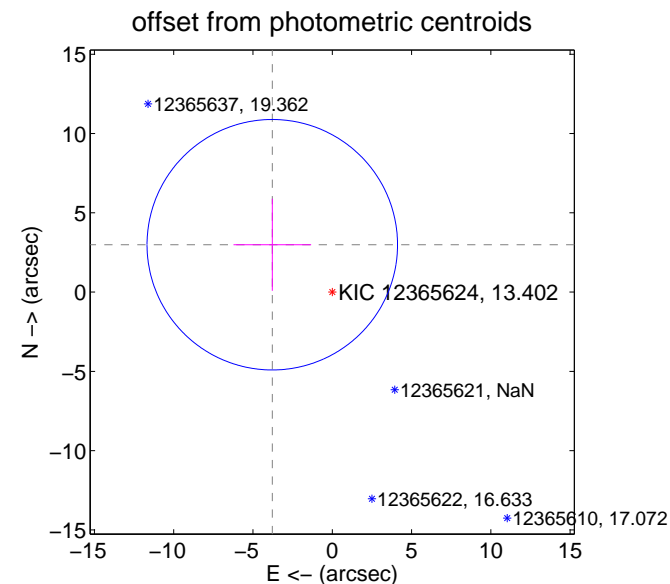
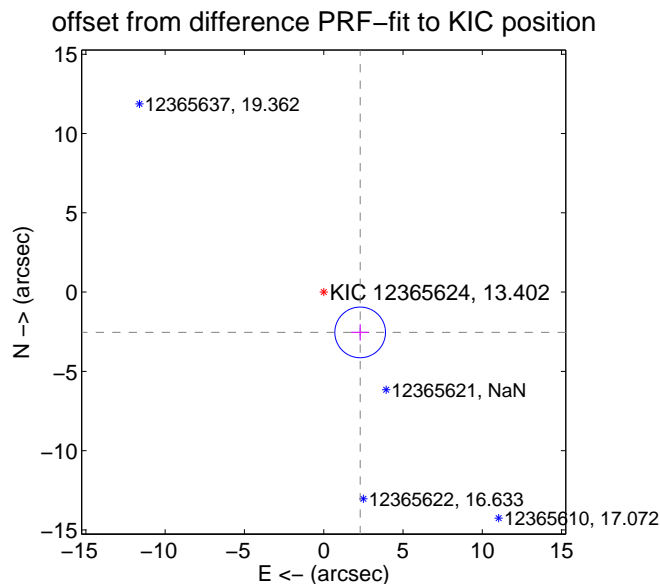
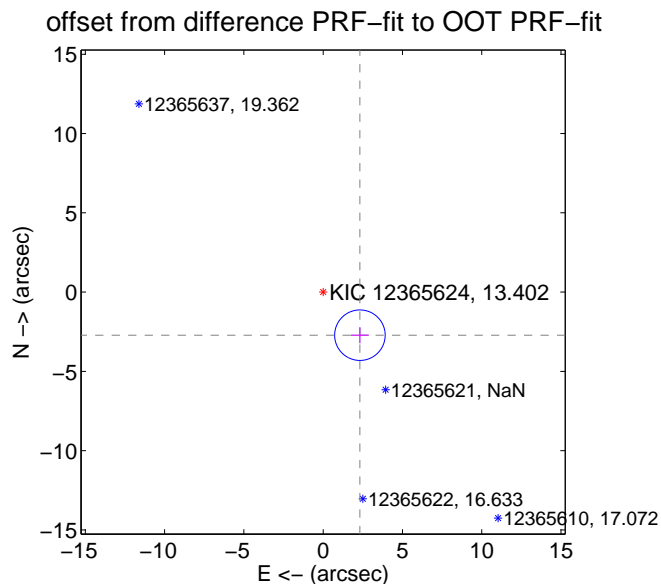
## DV Centroid Data

Supplemental centroid analysis for 012365624-01. Kepler magnitude: 13.40. Transit SNR 4.03

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.572 \pm 0.531$	6.73	$-2.318 \pm 0.563$	$-2.718 \pm 0.506$
PRF-fit source offset from KIC position	$3.427 \pm 0.532$	6.44	$-2.298 \pm 0.563$	$-2.543 \pm 0.506$
photometric centroid source offset	$4.82 \pm 2.63$	1.83	$3.78 \pm 2.45$	$2.99 \pm 2.91$



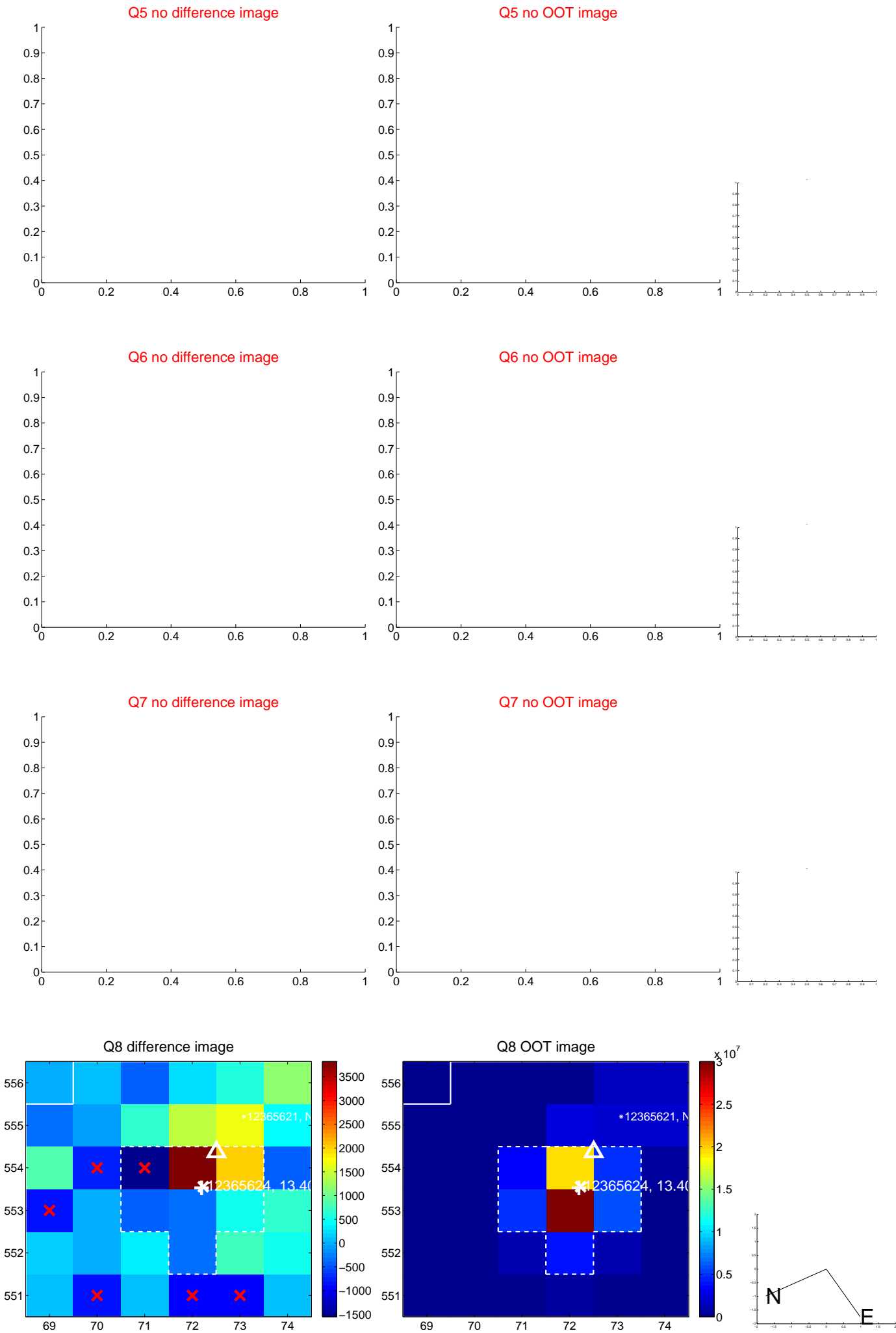
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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  $\times$ : 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.



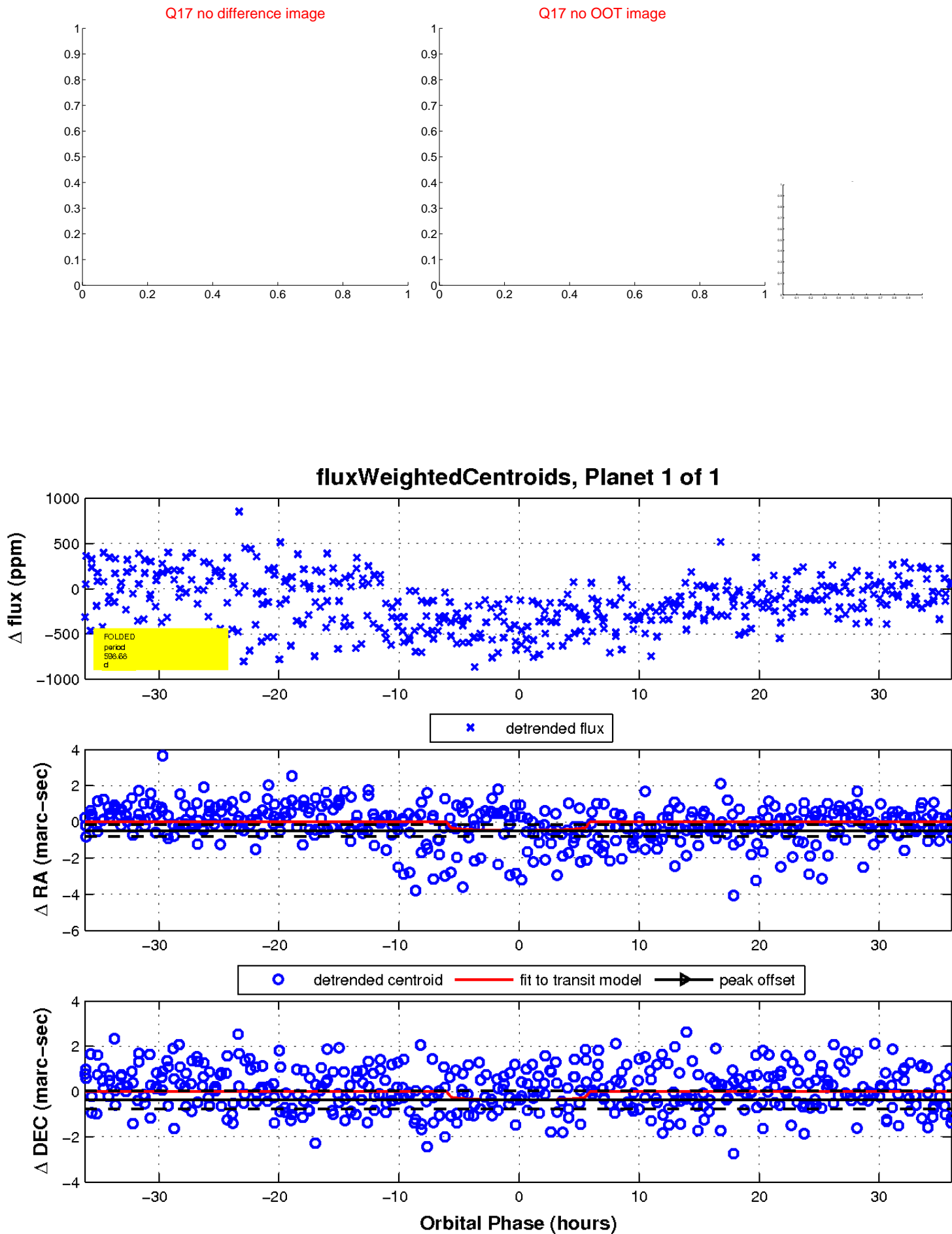
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

