

# KIC 006358722

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006358722-01	OBS	No	546.645581	406.130359	242.0	6.351	7.3	7.4	0.97	6241	1.68	0.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006358722-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

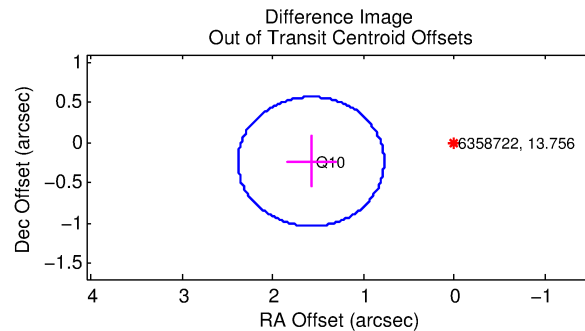
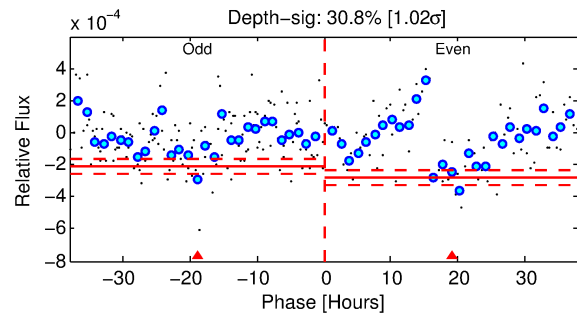
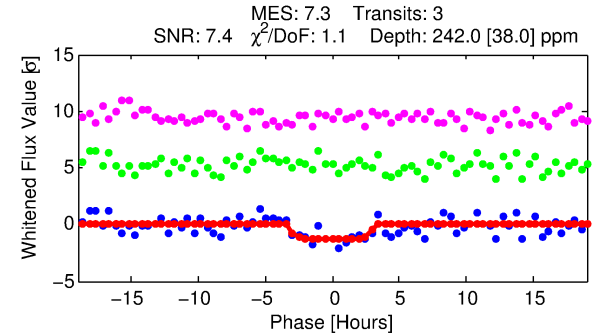
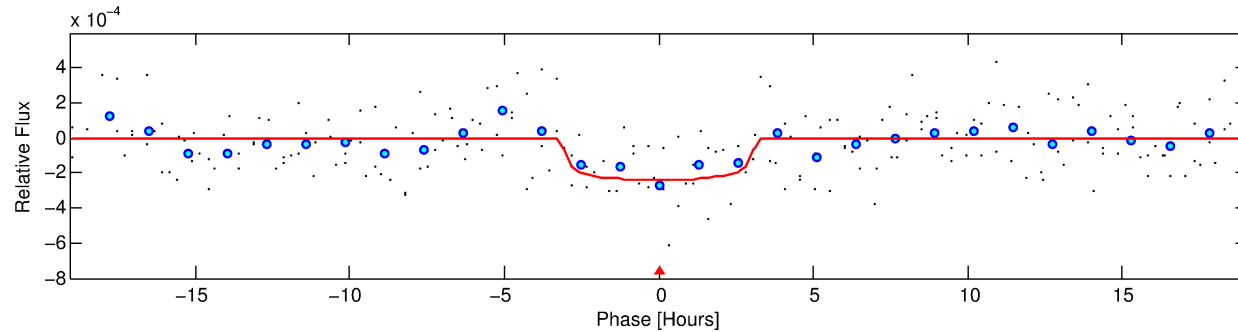
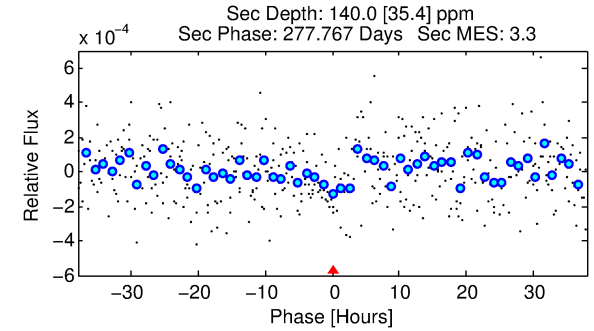
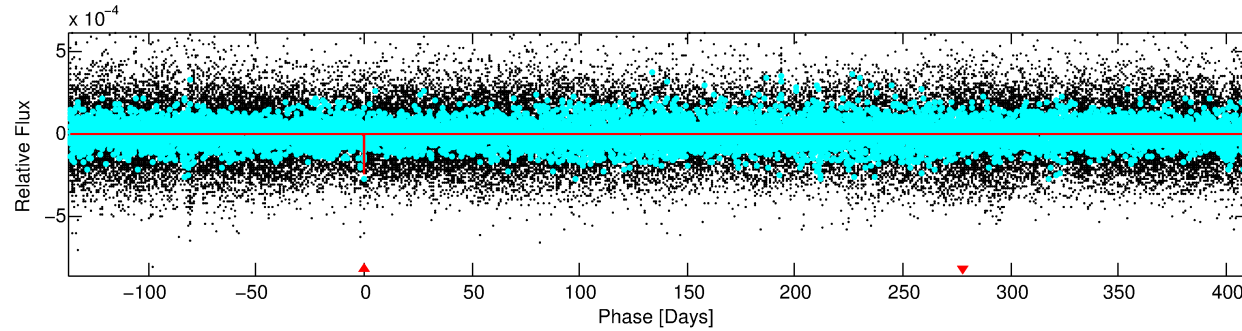
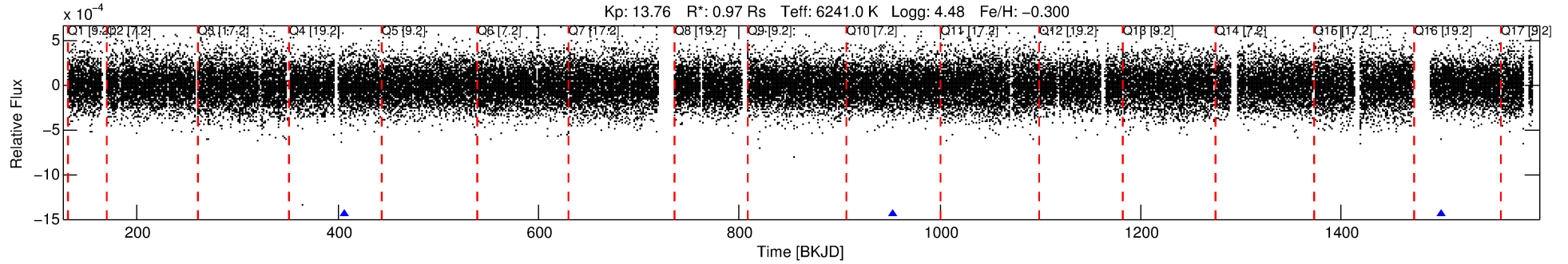
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006358722-01

No Significant Match Found

# DV One-Page Summary

KIC: 6358722 Candidate: 1 of 1 Period: 546.646 d



## DV Fit Results:

Period = 546.64558 [0.01197] d  
Epoch = 406.1304 [0.0154] BKJD  
Rp/R\* = 0.0158 [0.0101]  
a/R\* = 408.19 [1391.63]  
b = 0.80 [1.51]  
Seff = 0.74 [0.30]  
Teq = 236 [24] K  
Rp = 1.68 [1.19] Re  
a = 1.3231 [0.3529] AU  
Ag = 47999.99 [65326.55] [0.73σ]  
Teffp = 5403 [1768] K [2.92σ]

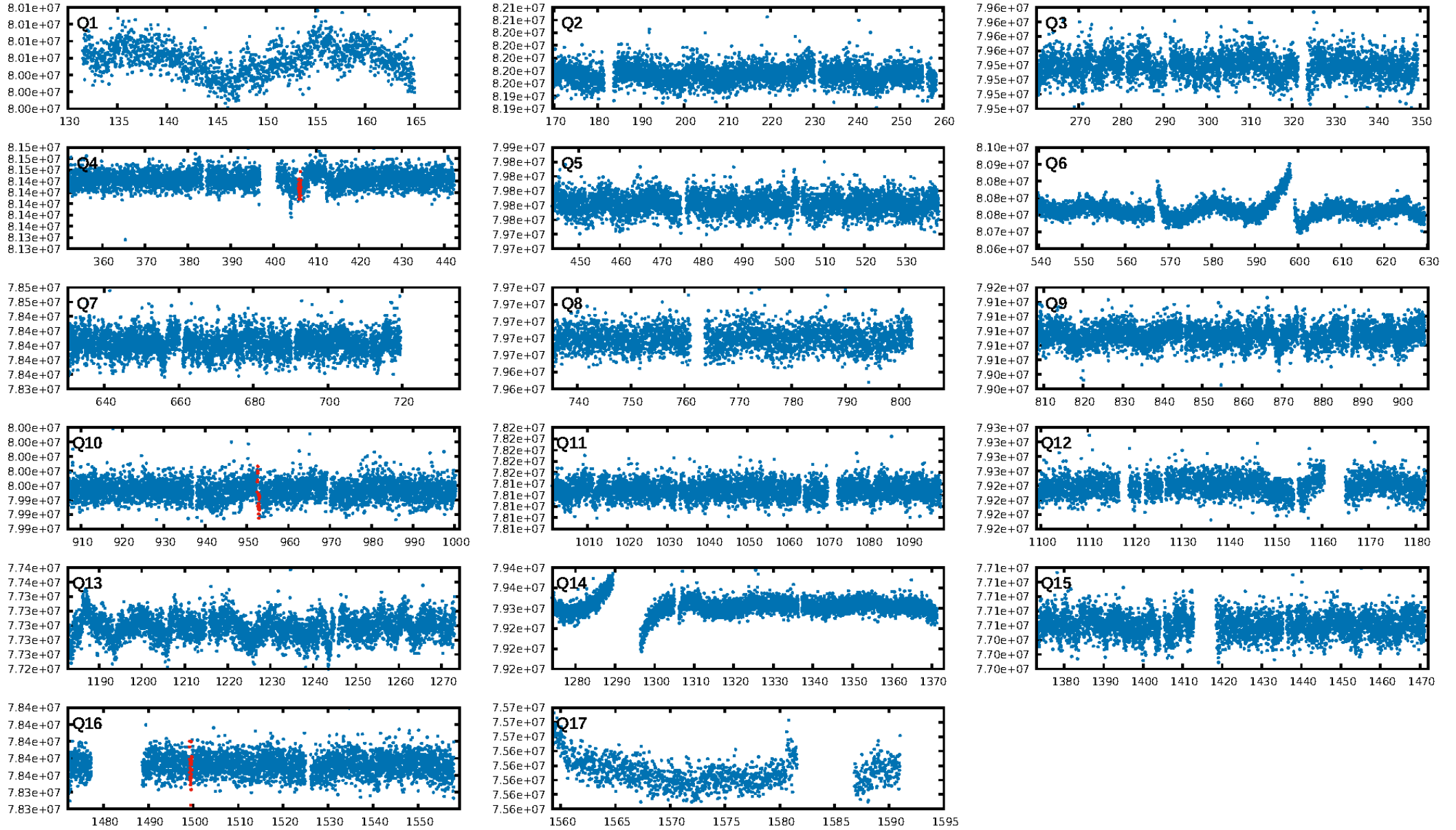
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 59.0%  
ModelChiSquareGof-sig: 99.0%  
**Bootstrap-pfa: 1.23e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.984  
Centroid-sig: 48.6%  
Centroid-so: 1.385 arcsec [0.83σ]  
**OotOffset-rm: 1.594 arcsec [5.94σ]**  
**KicOffset-rm: 1.547 arcsec [5.79σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

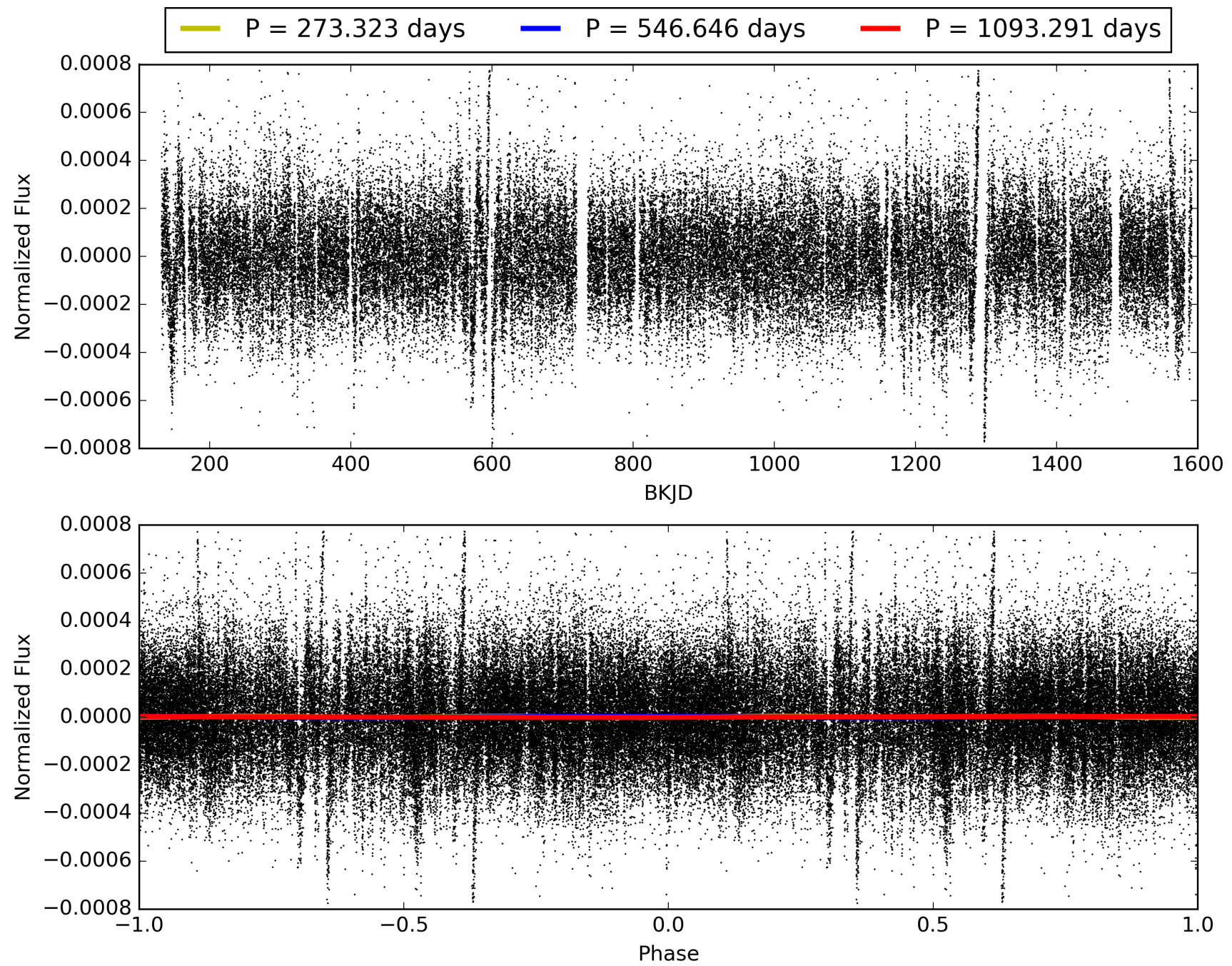
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:37:36 Z

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

# TCE 006358722-01, PDC Light Curves

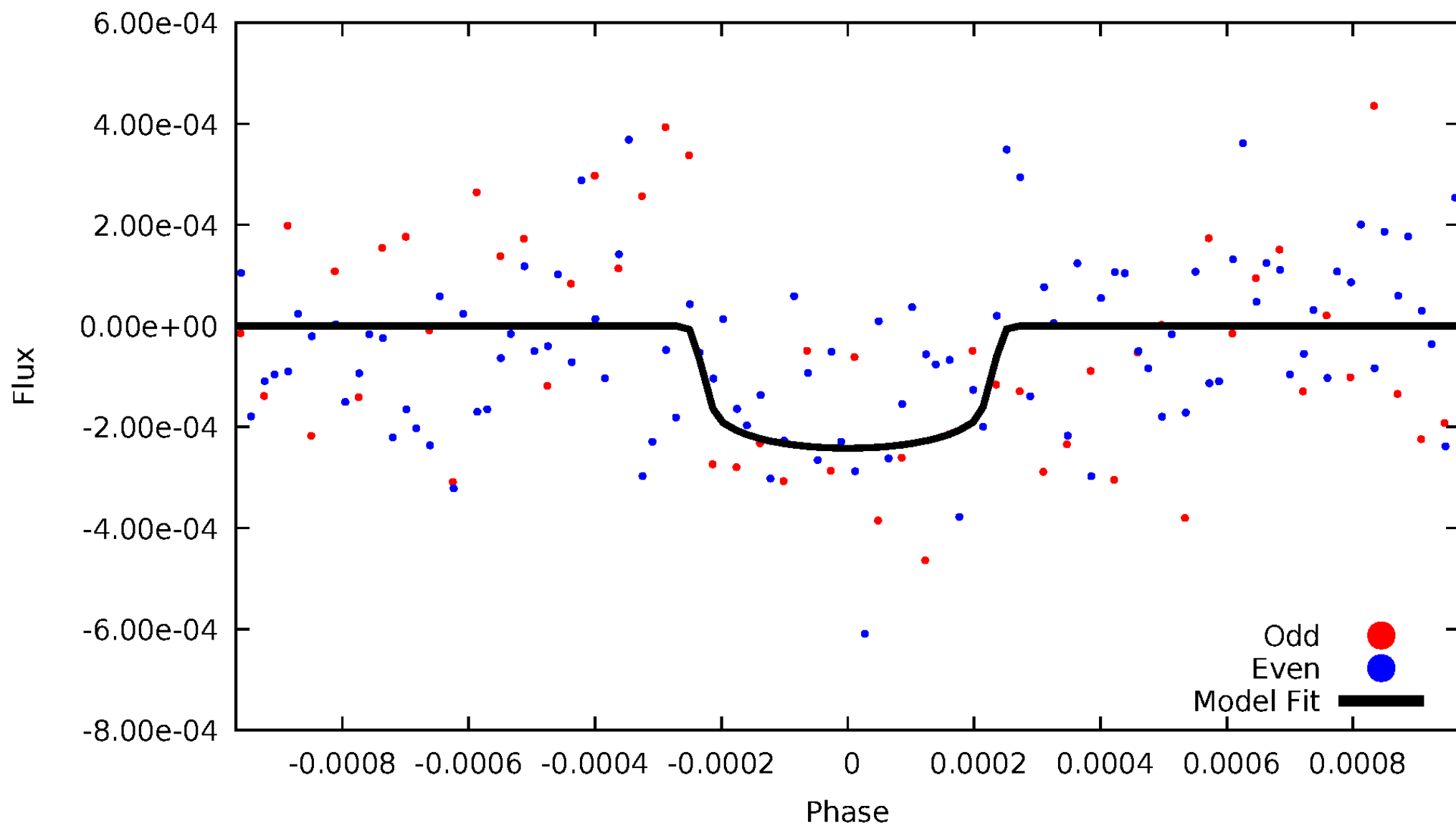


TCE 006358722-01



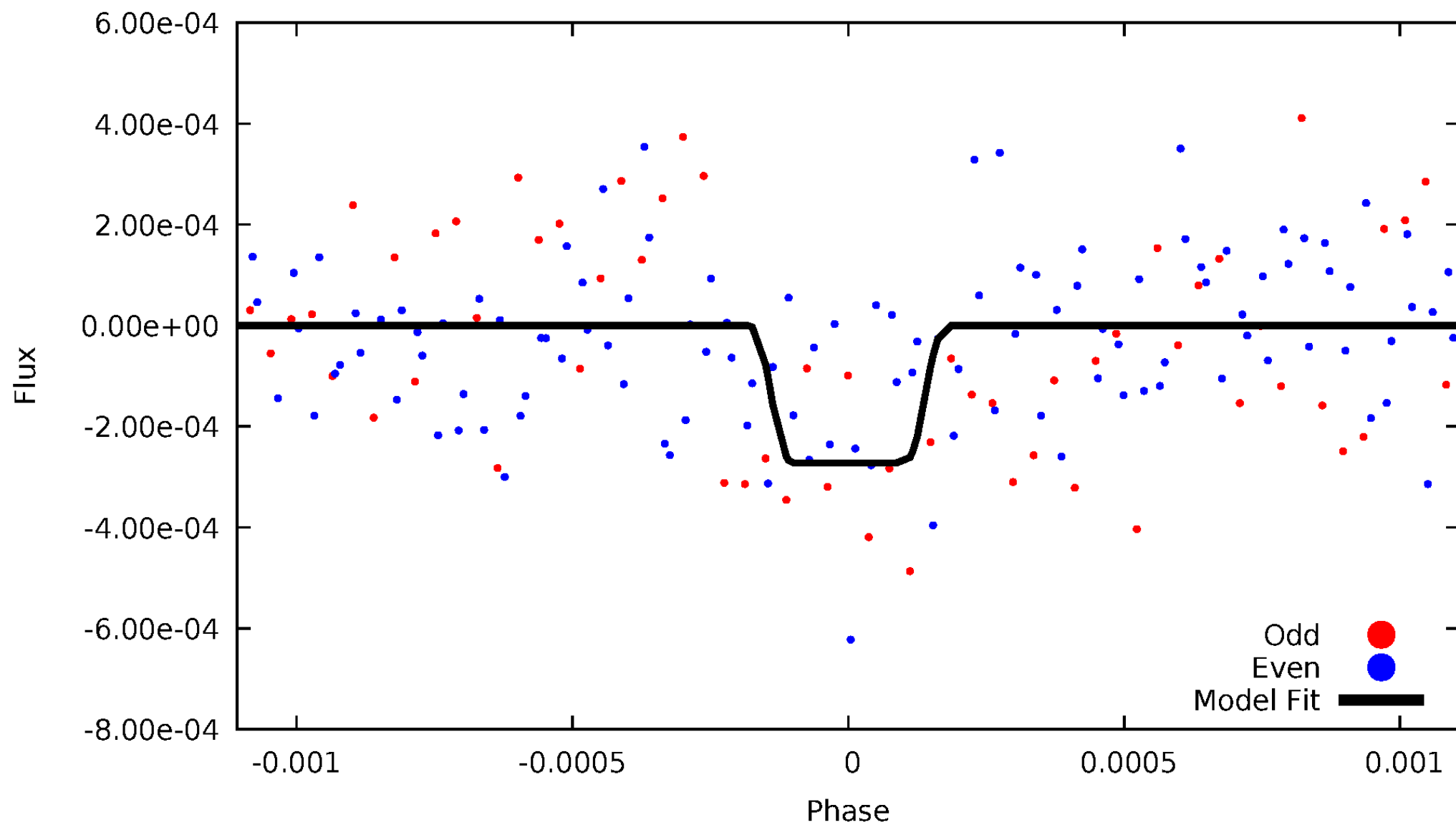
# DV Odd/Even

TCE 006358722-01

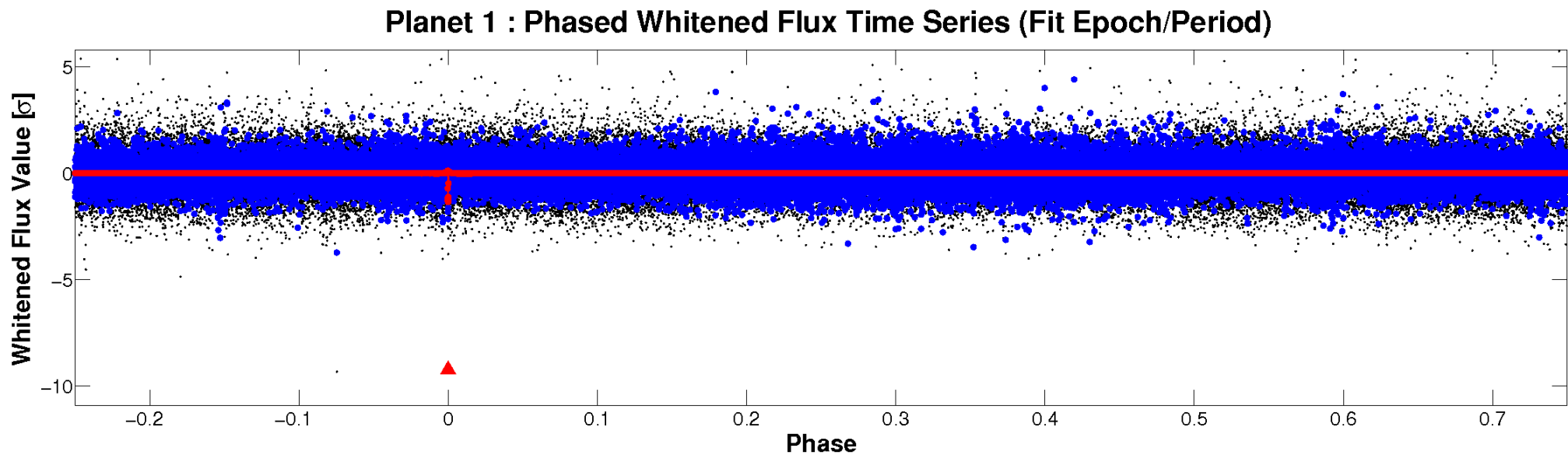
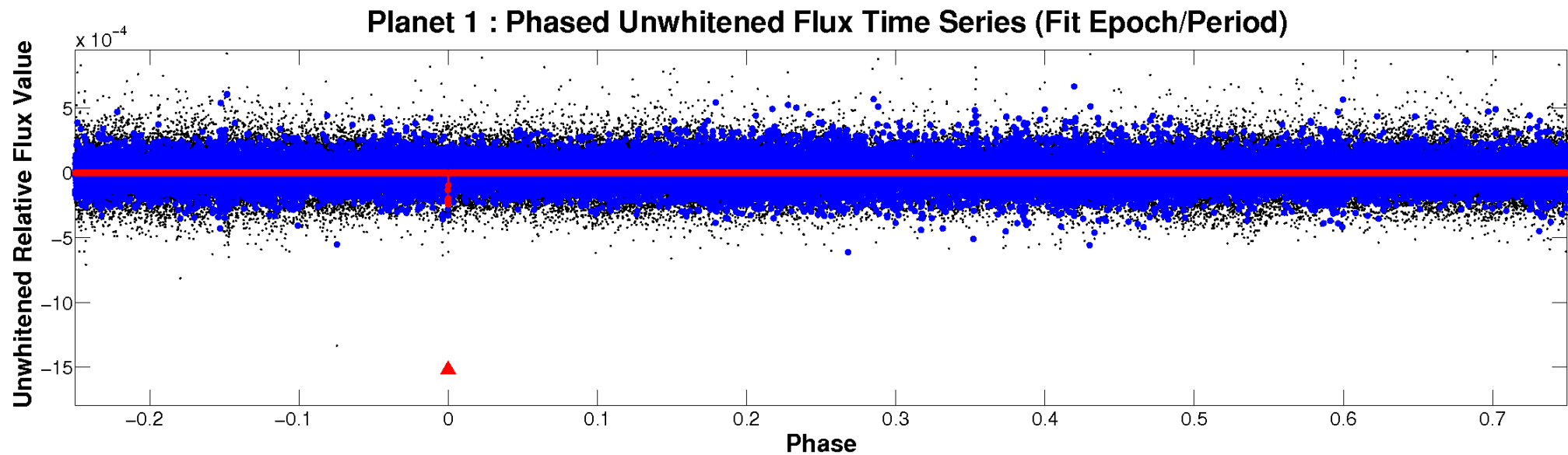


# ALT Odd/Even

TCE 006358722-01

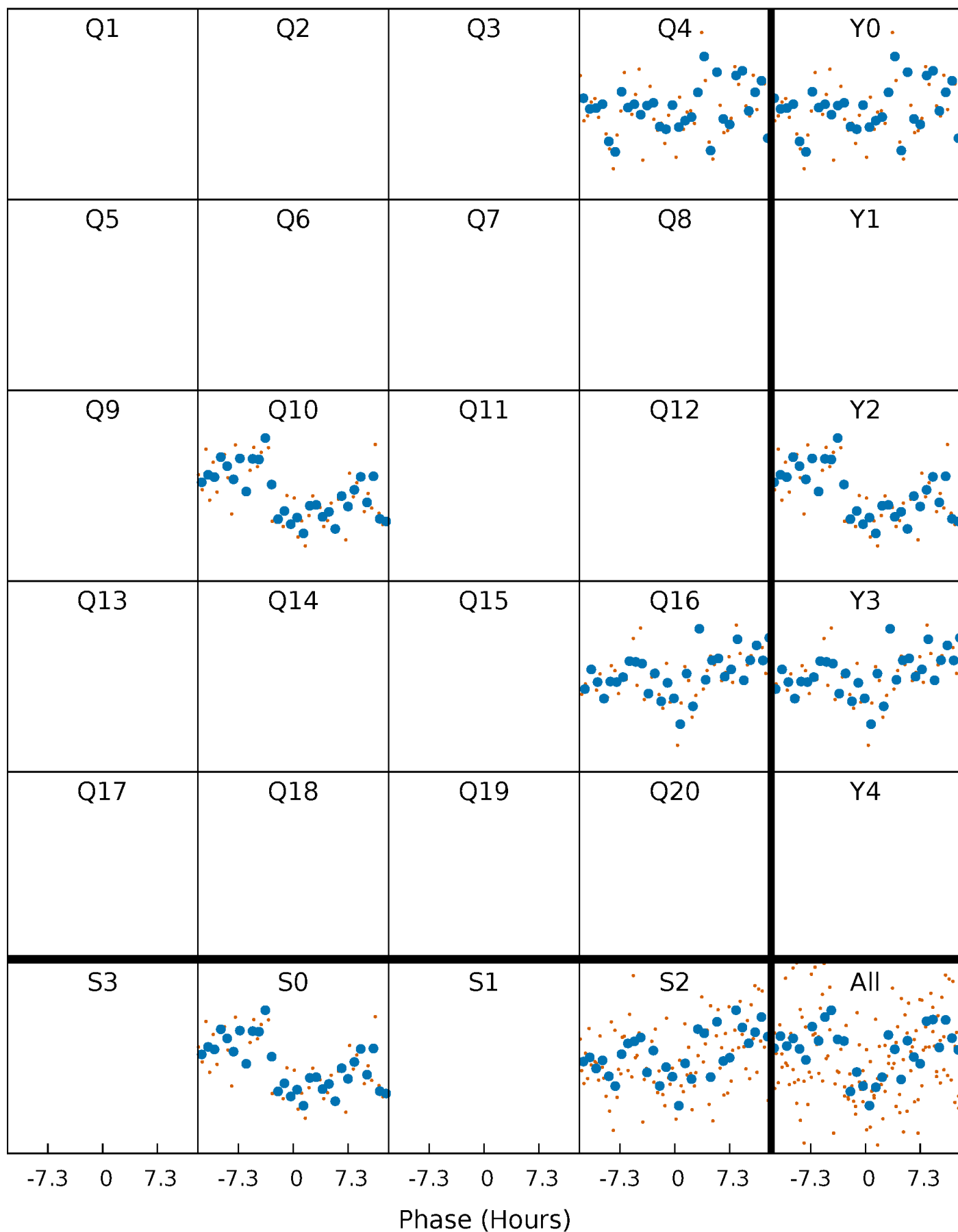


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 006358722-01 P=546.645581 Days  $T_0=406.130359$  (BKJD)



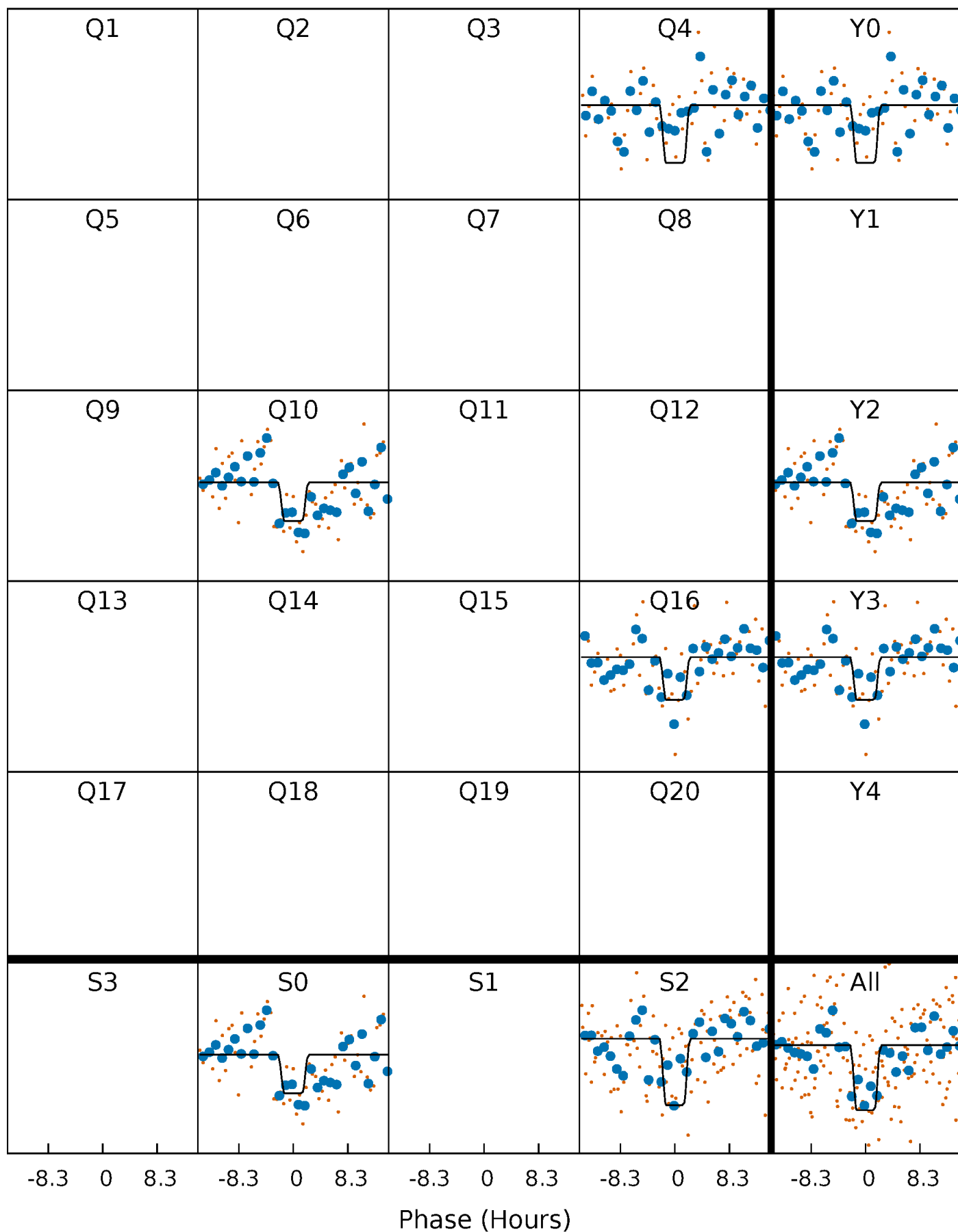
# DV Quarter-Phased Transit Curves

TCE 006358722-01 P=546.645581 Days  $T_0=406.130359$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

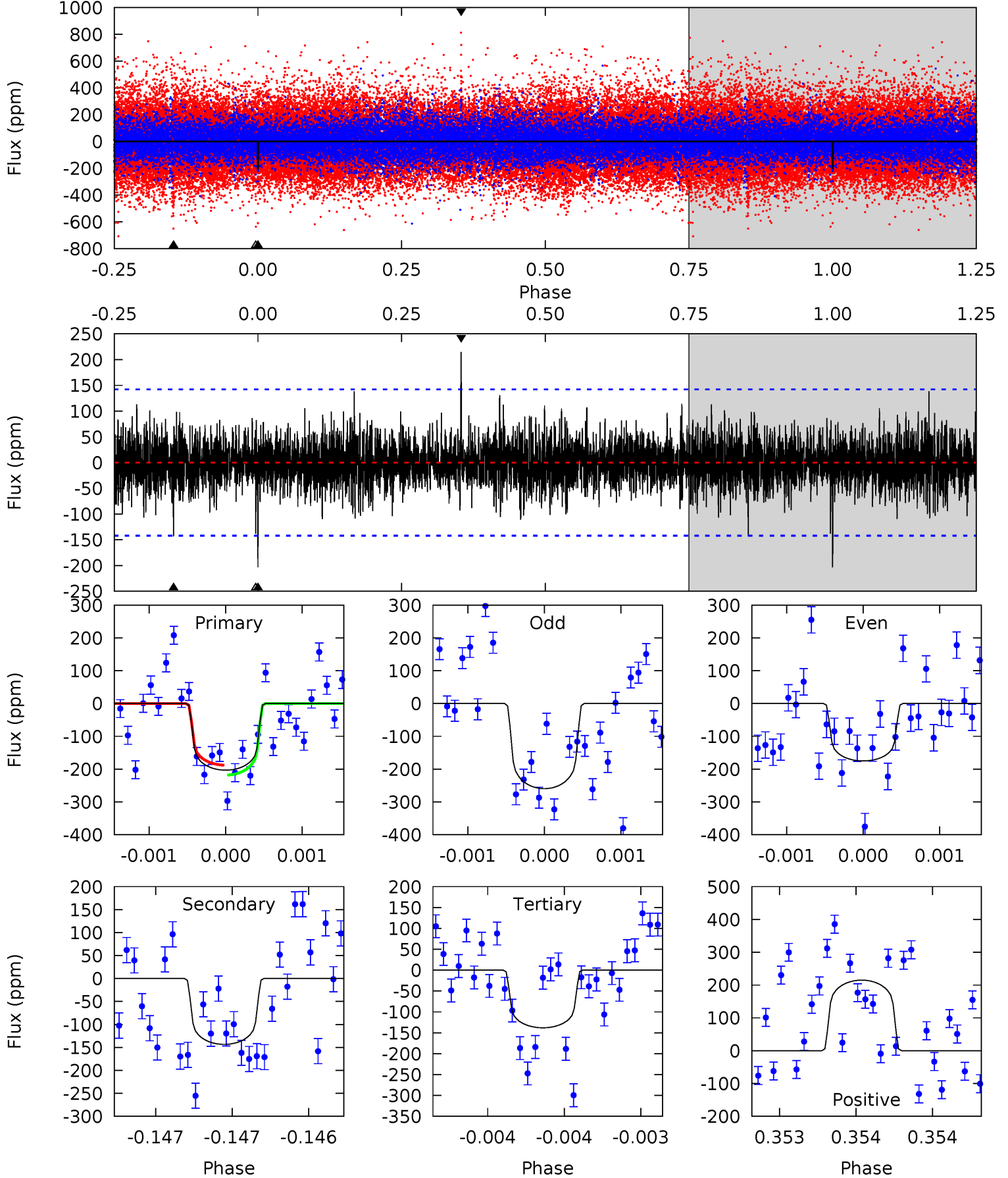
TCE 006358722-01 P=546.652220 Days  $T_0=406.129750$  (BKJD)



# DV Model-Shift Uniqueness Test

006358722-01, P = 546.645581 Days, E = 406.130359 Days

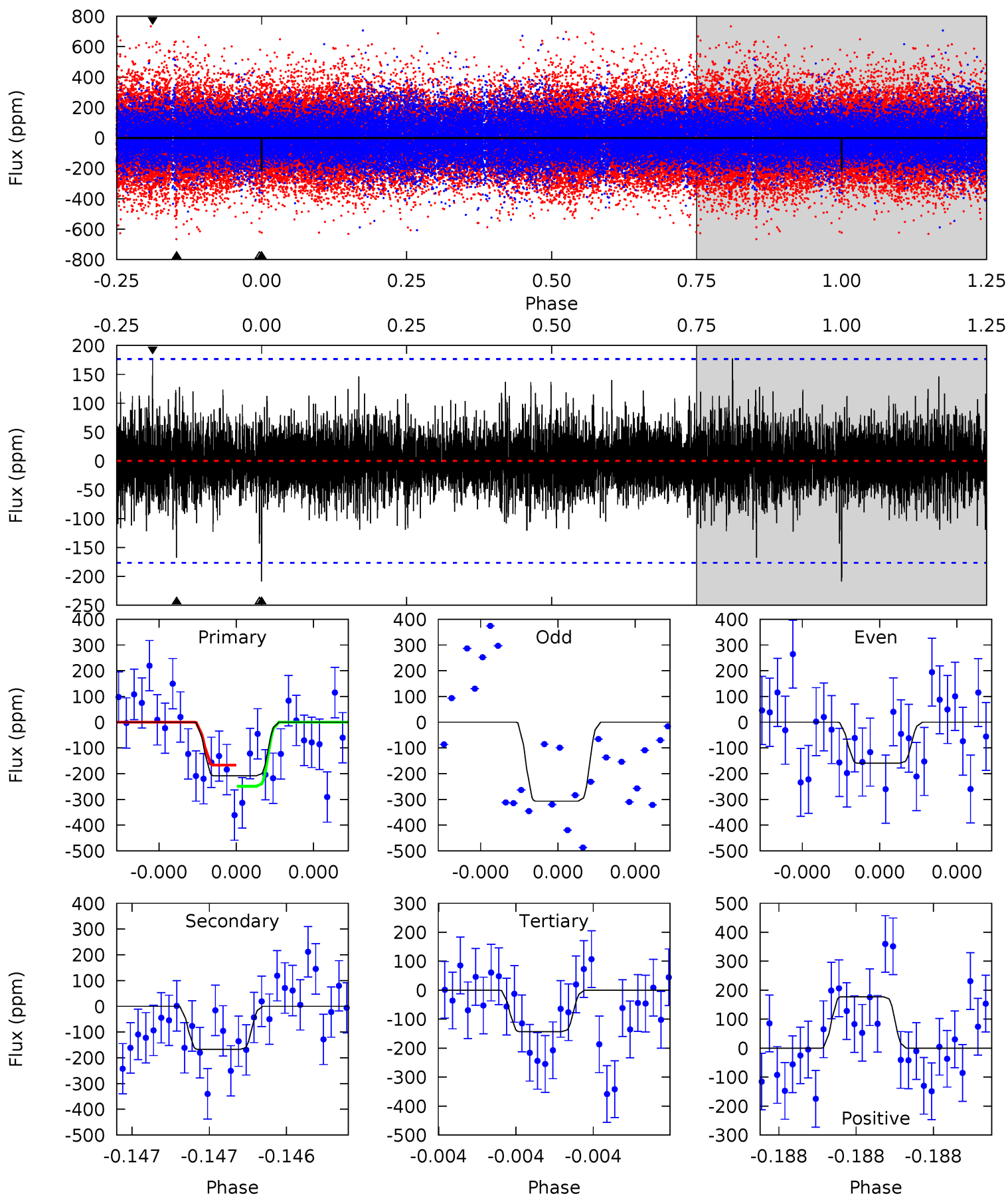
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.96	5.61	5.40	8.41	5.57	3.47	1.29	2.55	-0.46	0.21	-2.80	1.56	0.92	0.51	0.59



# Alt Model-Shift Uniqueness Test

006358722-01, P = 546.652220 Days, E = 406.129750 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
6.66	5.35	4.57	5.67	5.64	3.59	1.14	2.09	0.98	0.78	-0.32	2.20	0.90	0.46	1.31



### Stellar Parameters For KIC 006358722

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6241^{+169}_{-188}$	$4.476^{+0.054}_{-0.216}$	$-0.300^{+0.250}_{-0.350}$	$0.973^{+0.305}_{-0.102}$	$1.032^{+0.144}_{-0.129}$	$1.579^{+0.359}_{-0.850}$
	+3%/-3%	+1%/-5%	+83%/-117%	+31%/-10%	+14%/-12%	+23%/-54%
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 006358722-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-143 \pm 26$	$1.80^{+1.07}_{-0.98}$	$336^{+25}_{-16}$	$5389^{+2663}_{-933}$	$41117^{+156096}_{-25335}$
Alt.	$-167 \pm 31$	$1.93^{+1.13}_{-1.08}$	$336^{+24}_{-15}$	$5405^{+2690}_{-919}$	$40989^{+170440}_{-24357}$

$T_{max}$  = 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

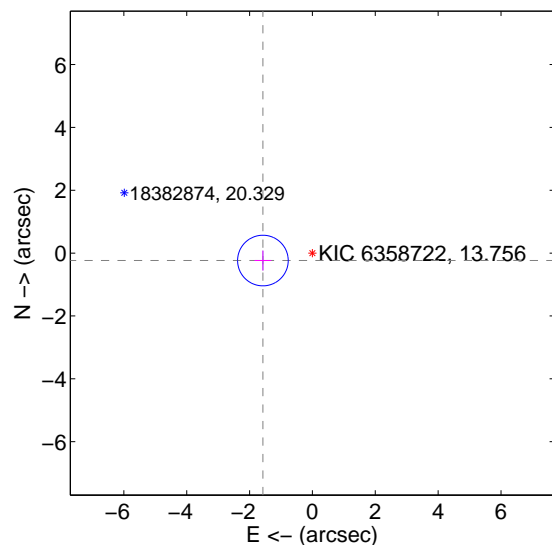
Supplemental centroid analysis for 006358722-01. Kepler magnitude: 13.76. Transit SNR 7.41

There are 1 quarters with good PRF difference image offsets

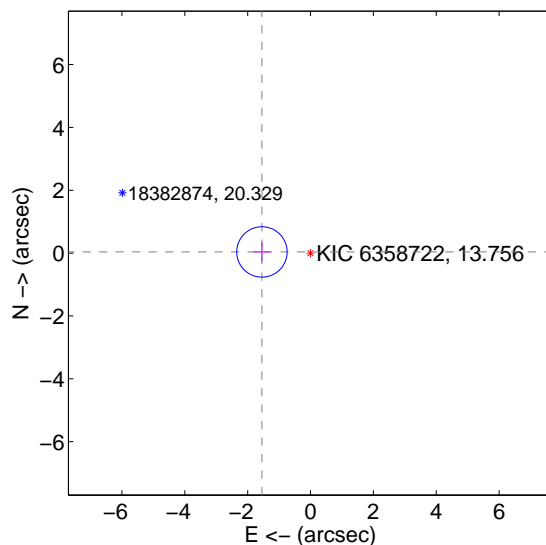
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.594 \pm 0.269$	5.94	$1.576 \pm 0.267$	$-0.237 \pm 0.318$
PRF-fit source offset from KIC position	$1.547 \pm 0.267$	5.79	$1.547 \pm 0.267$	$0.037 \pm 0.318$
photometric centroid source offset	$1.39 \pm 1.68$	0.83	$-1.38 \pm 1.68$	$0.11 \pm 1.50$

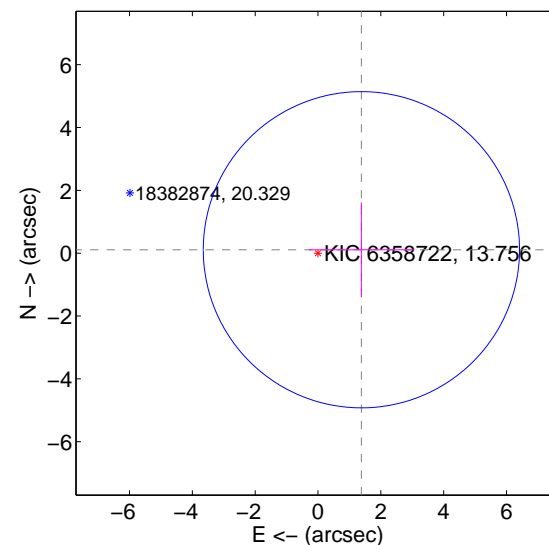
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

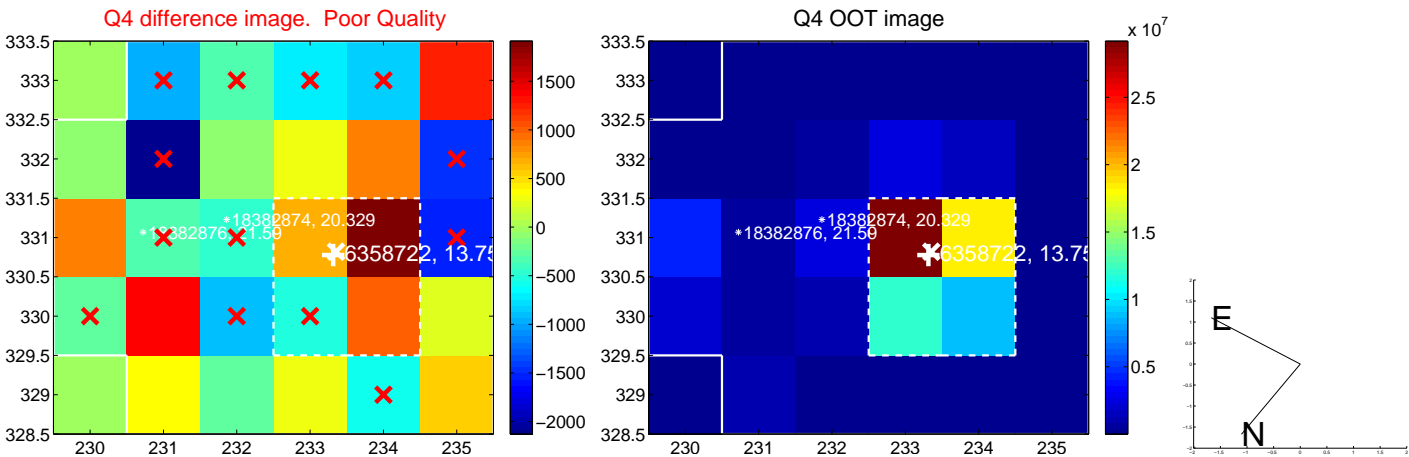


offset from photometric centroids

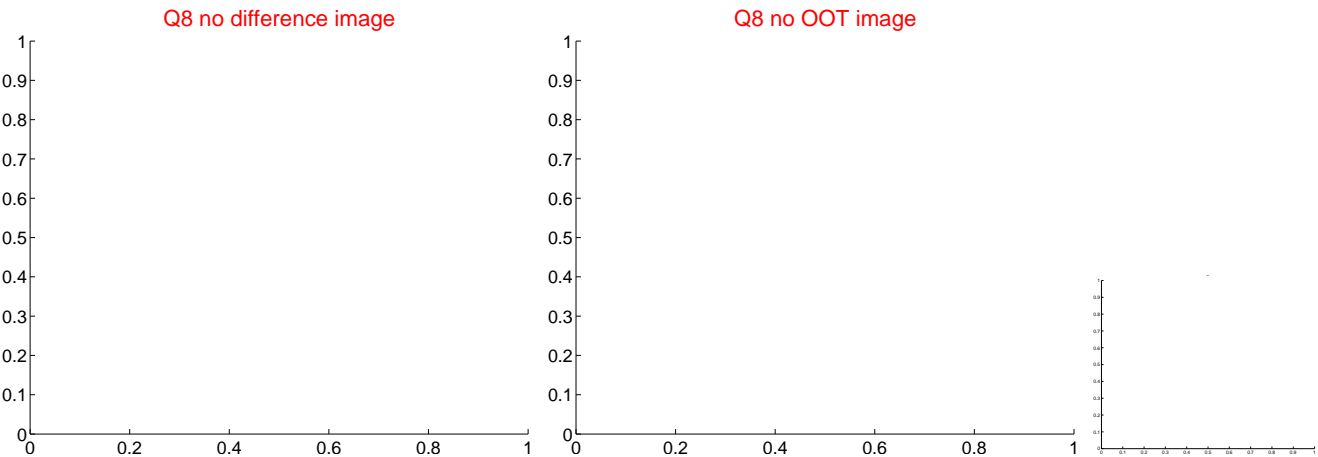
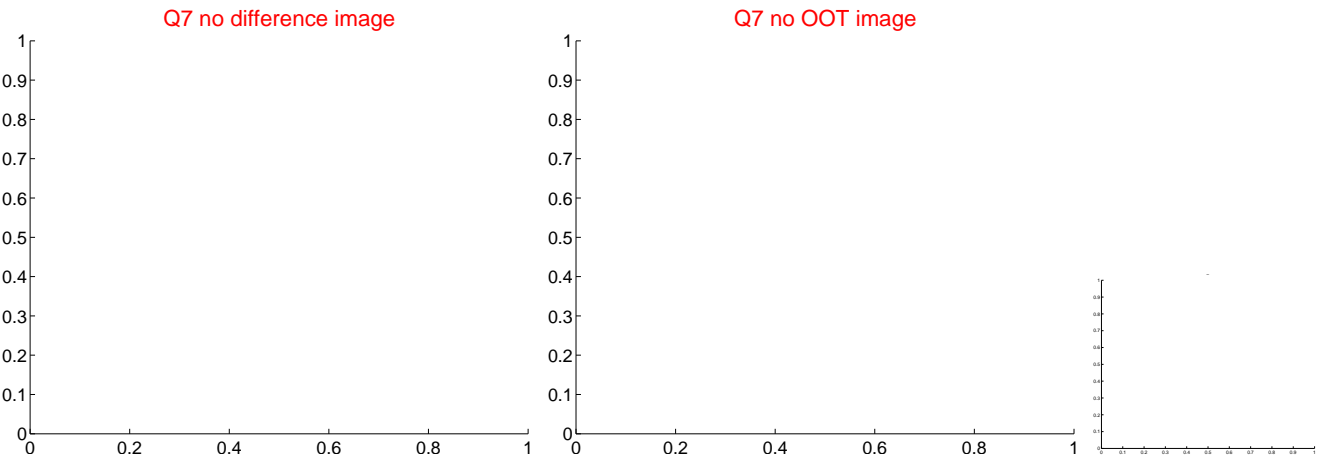
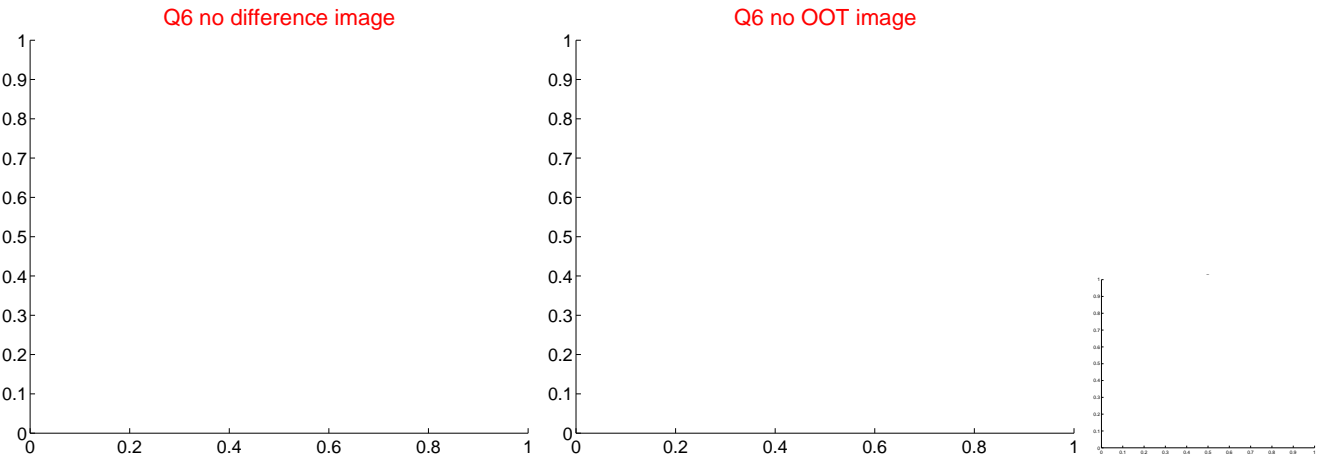
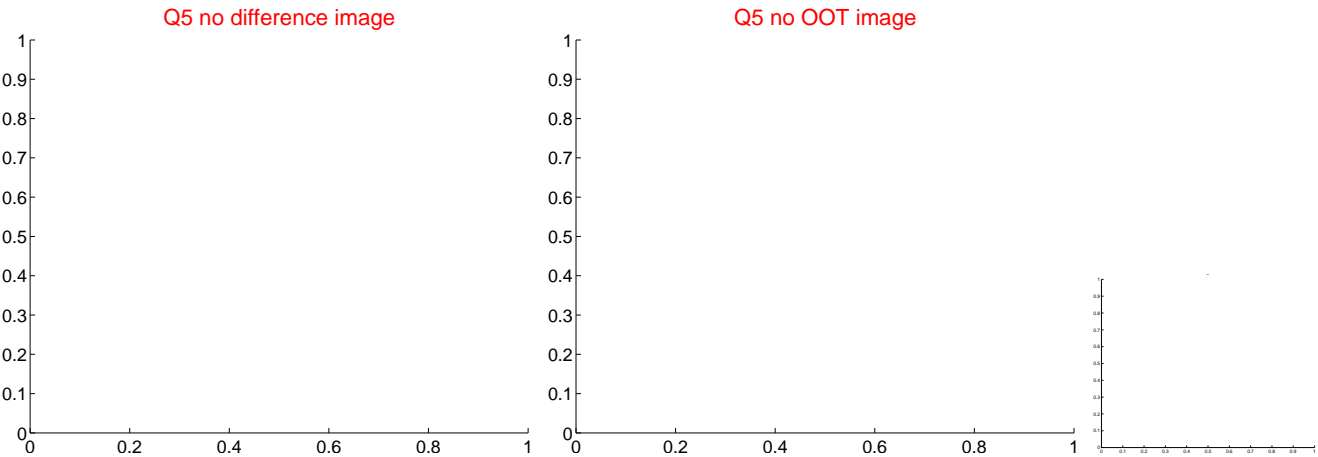


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

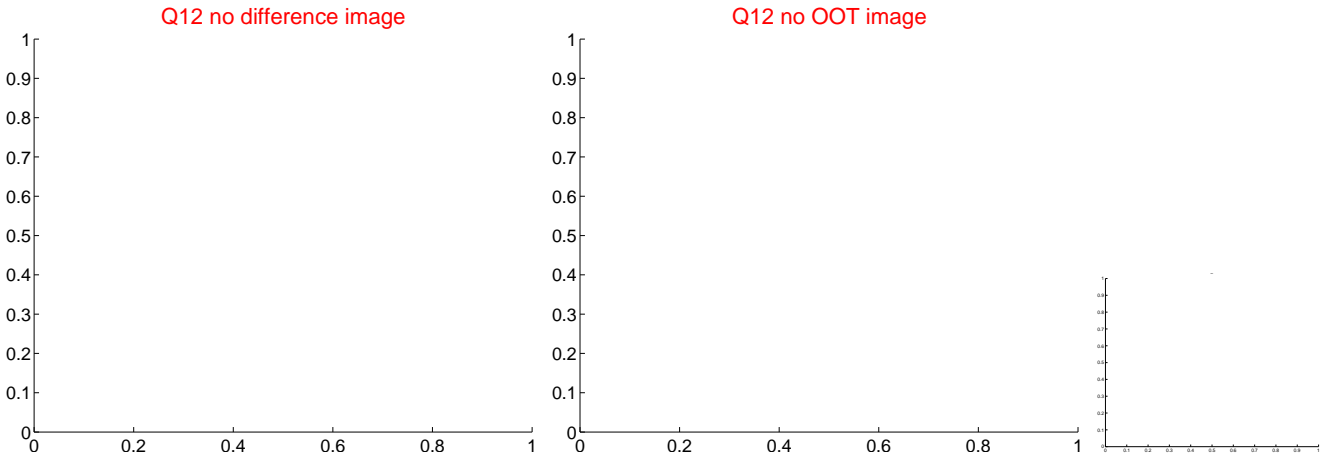
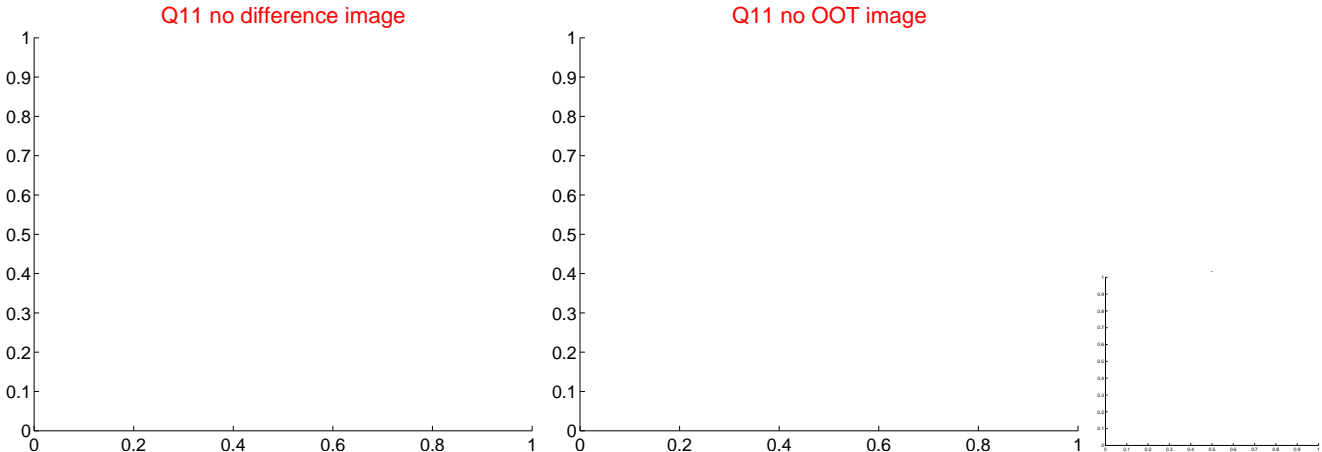
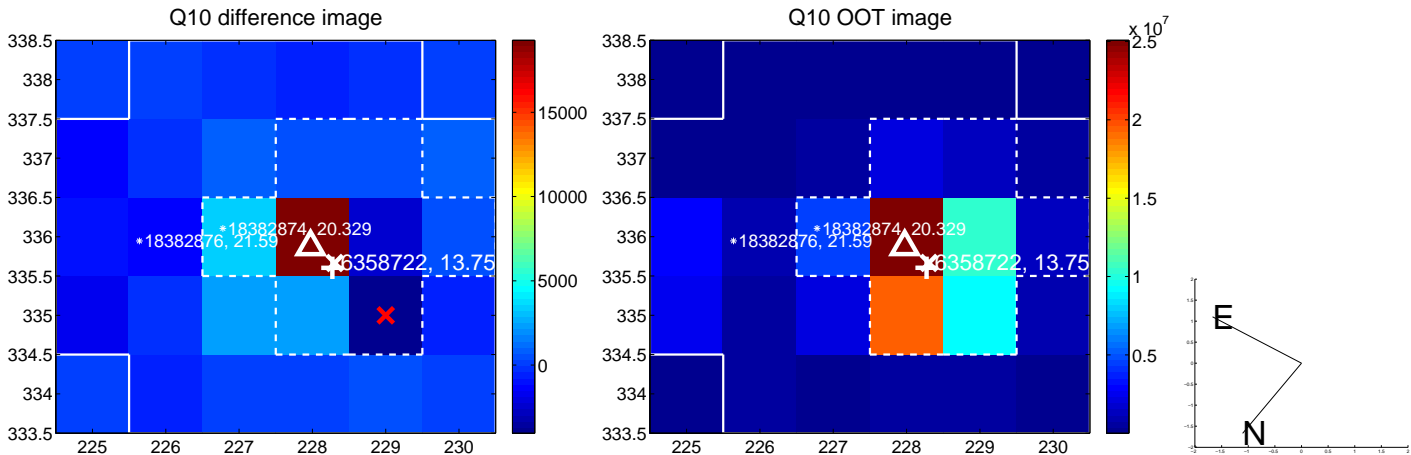
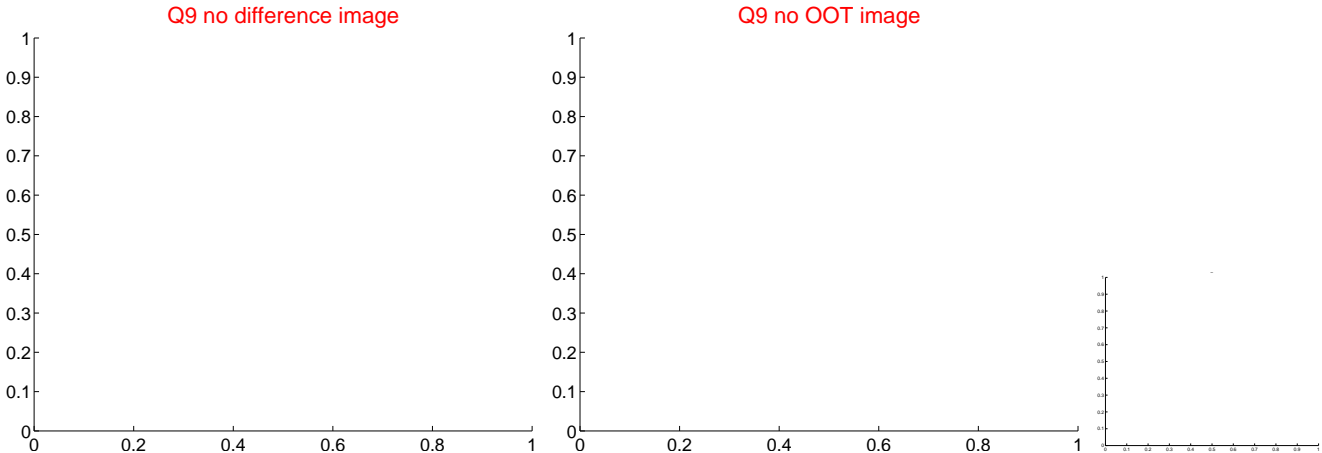
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



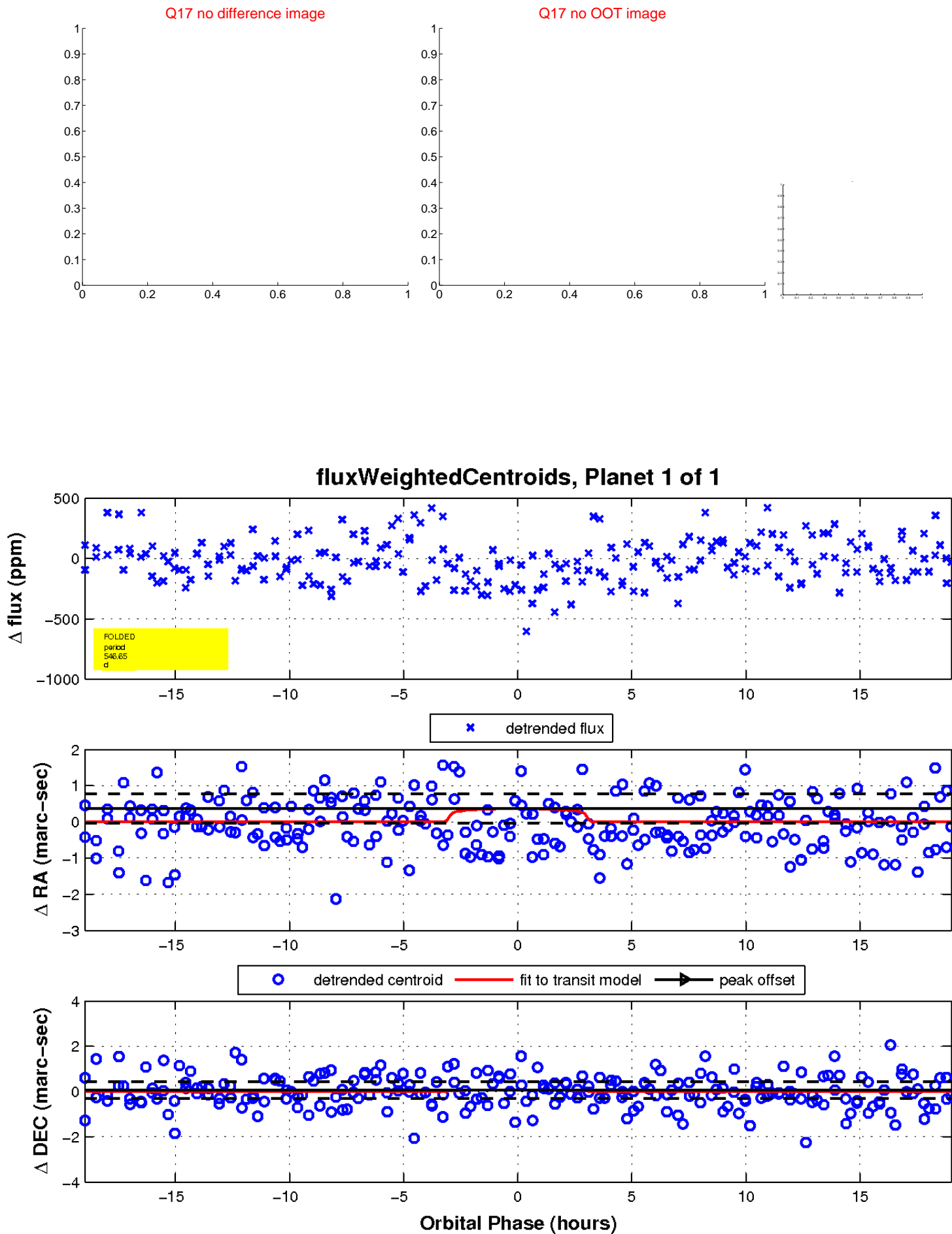
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

