

# KIC 012554260

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012554260-01	OBS	No	616.332023	328.587869	680.6	4.292	9.0	7.6	1.01	6057	2.73	0.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012554260-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

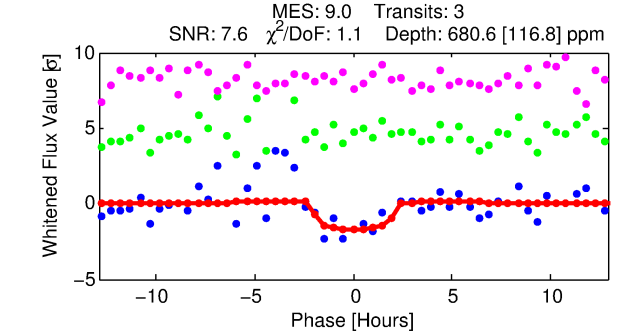
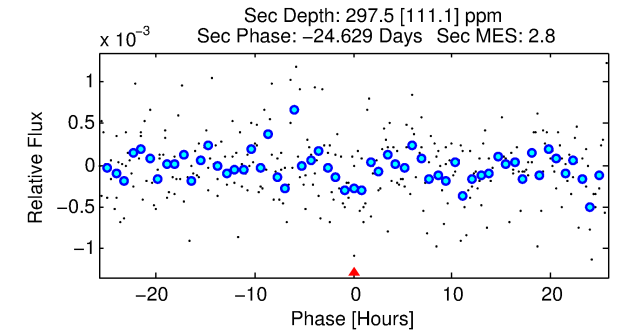
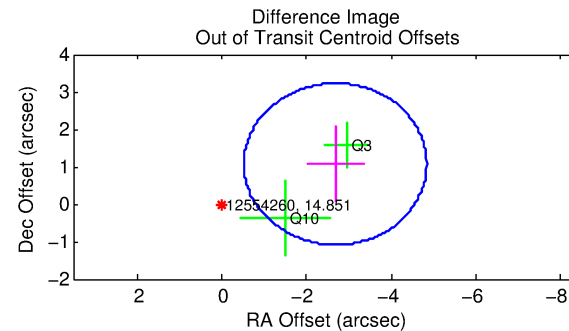
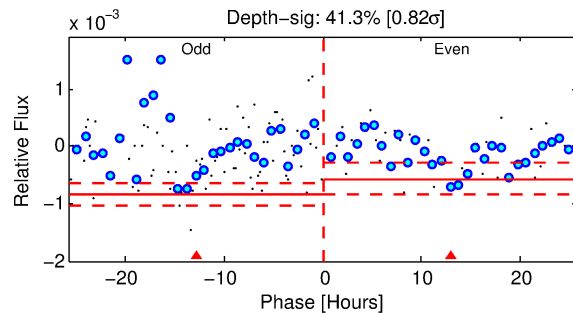
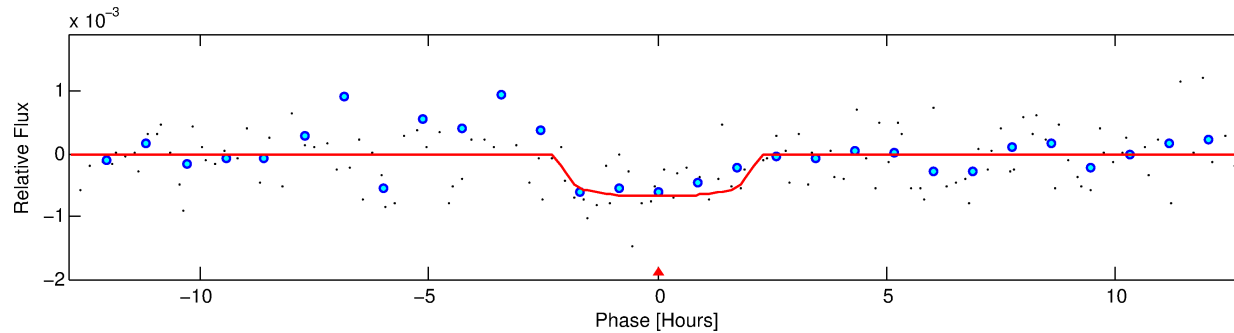
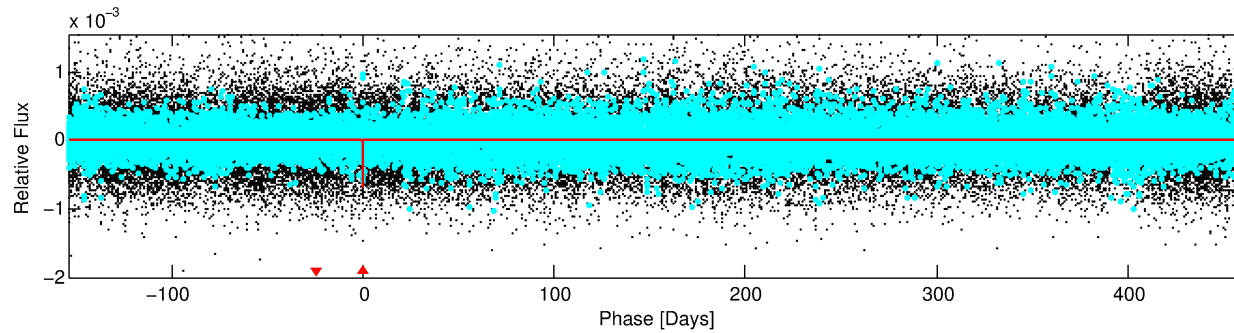
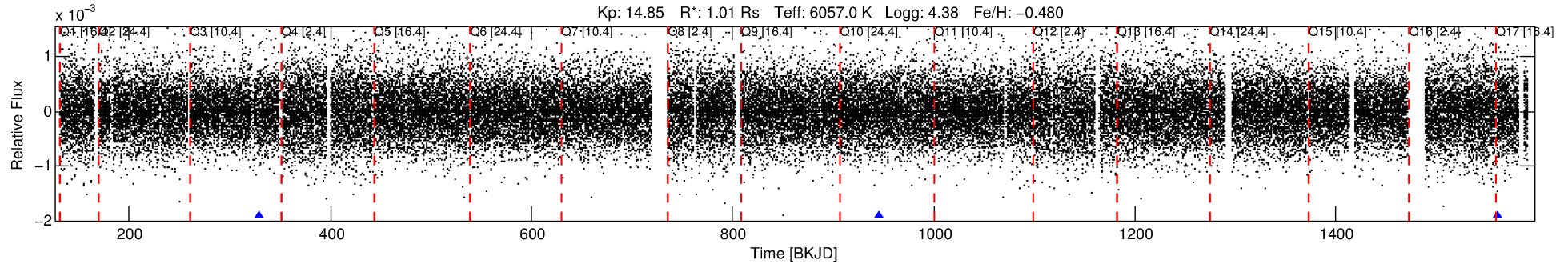
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012554260-01

No Significant Match Found

# DV One-Page Summary

KIC: 12554260 Candidate: 1 of 1 Period: 616.332 d



## DV Fit Results:

Period = 616.33202 [0.00987] d  
Epoch = 328.5879 [0.0125] BKJD  
Rp/R\* = 0.0249 [0.0237]  
a/R\* = 933.61 [4494.01]  
b = 0.57 [5.70]  
Seff = 0.66 [0.24]  
Teq = 230 [20] K  
Rp = 2.73 [2.71] Re  
a = 1.3623 [0.3176] AU  
Ag = 40608.34 [79908.80] [0.51 $\sigma$ ]  
Teffp = 5042 [2449] K [1.97 $\sigma$ ]

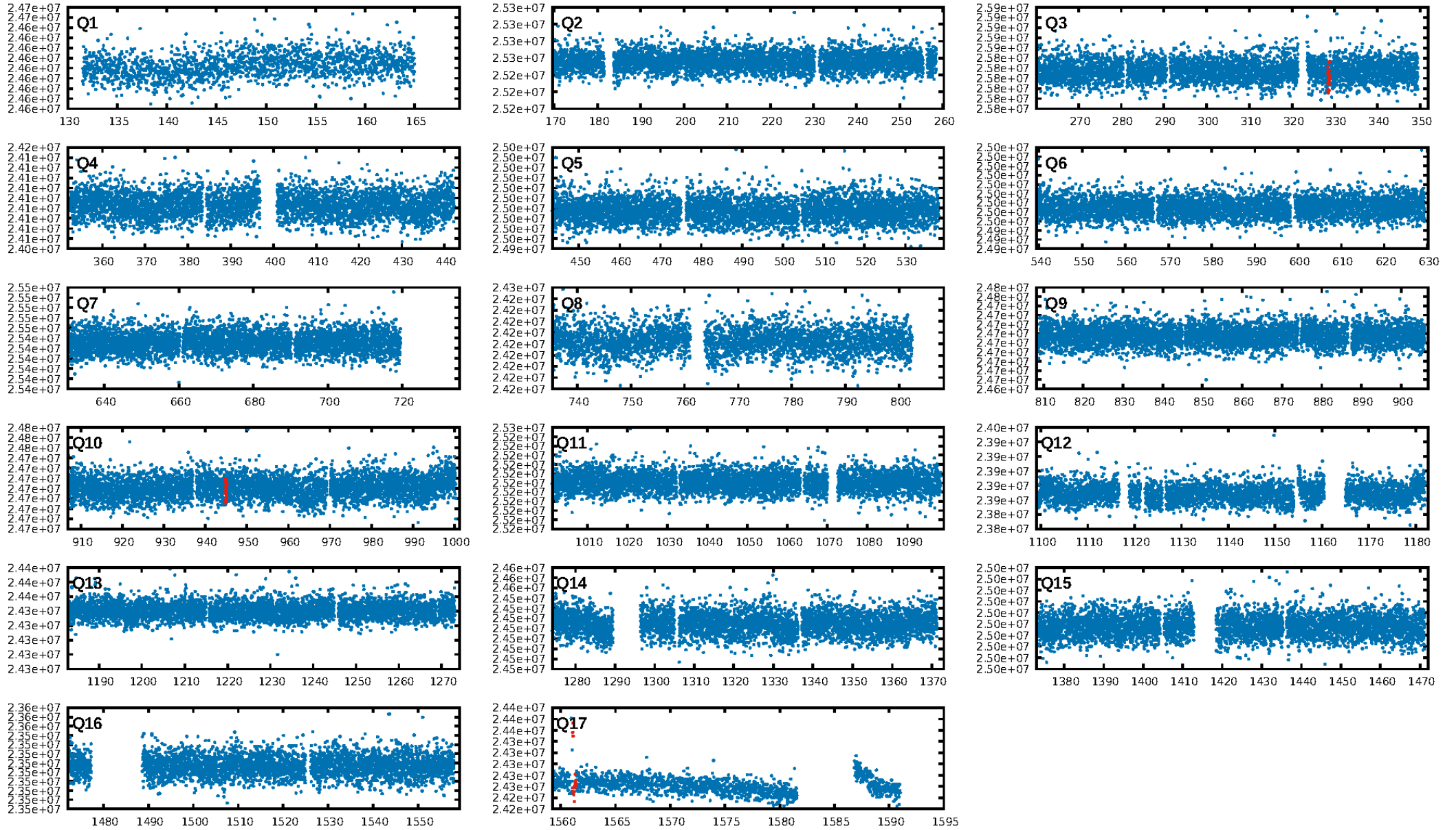
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 13.6%  
ModelChiSquareGof-sig: 94.0%  
Bootstrap-pfa: 3.72e-19  
RollingBand-fgt: 1.00 [2/2]  
**GhostDiagnostic-chr: 0.6879**  
Centroid-sig: 53.8%  
Centroid-so: 2.064 arcsec [0.94 $\sigma$ ]  
**OotOffset-rm: 2.888 arcsec [4.02 $\sigma$ ]**  
**KicOffset-rm: 2.912 arcsec [4.12 $\sigma$ ]**  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

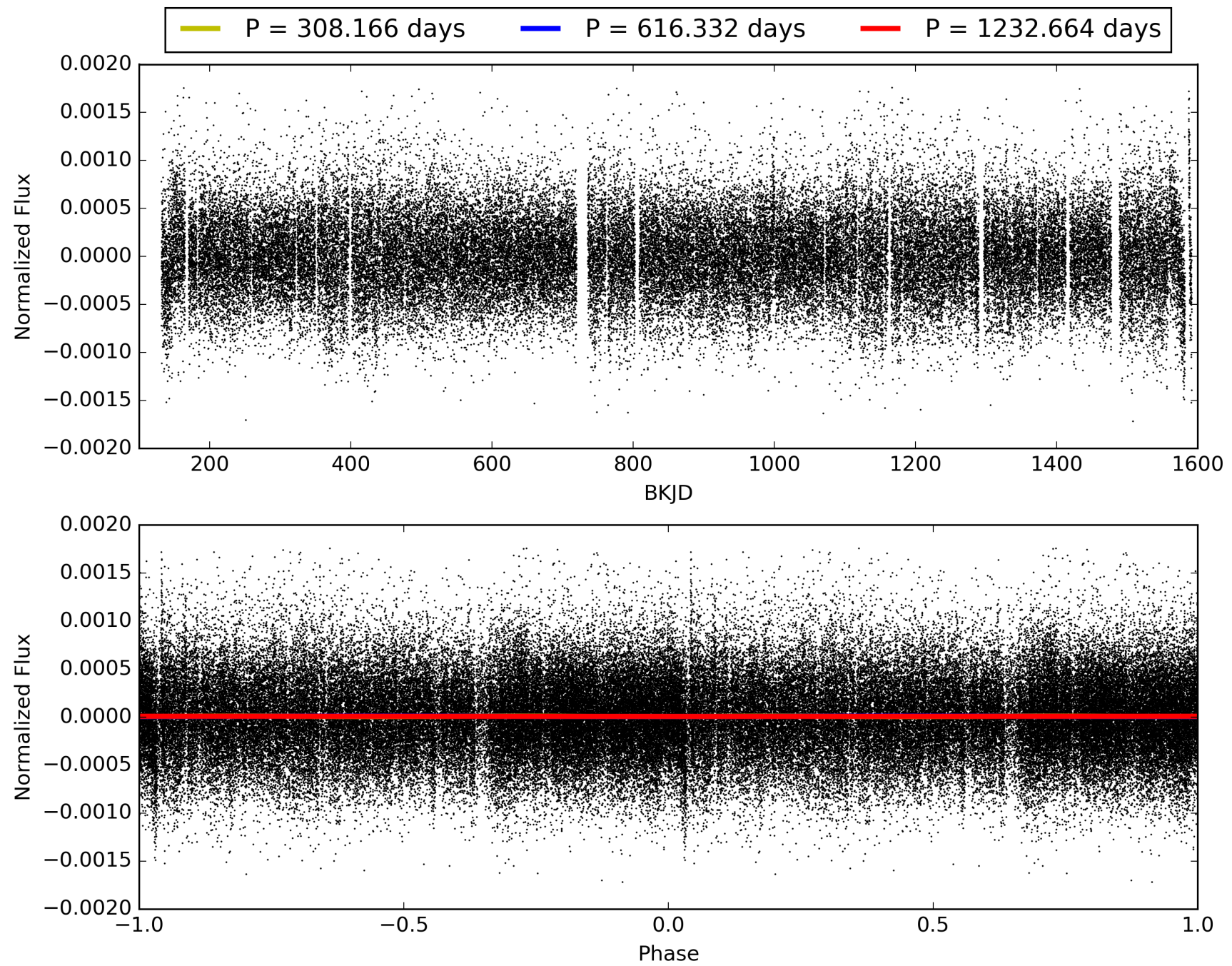
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:00:44 Z

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

# TCE 012554260-01, PDC Light Curves

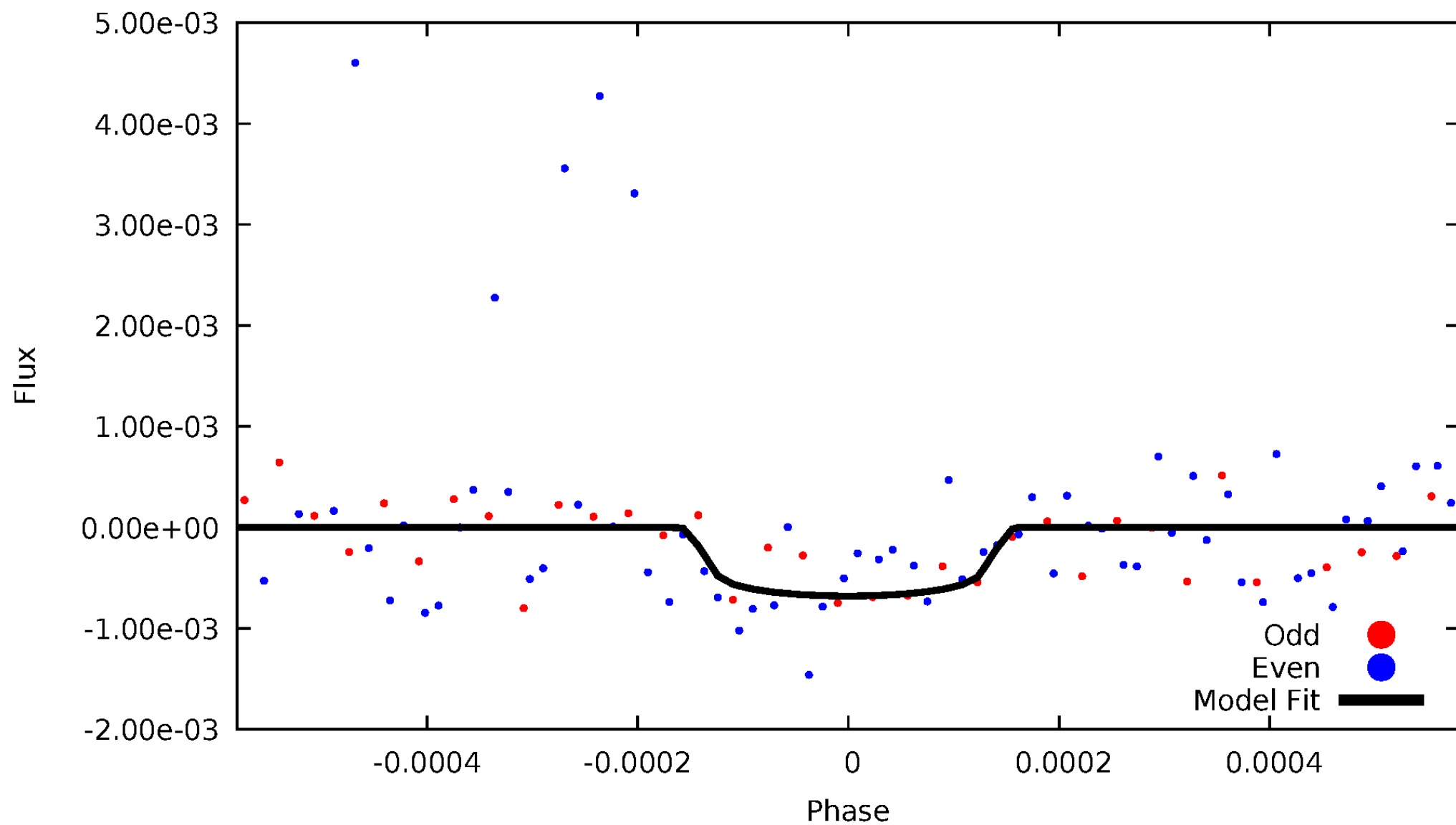


TCE 012554260-01



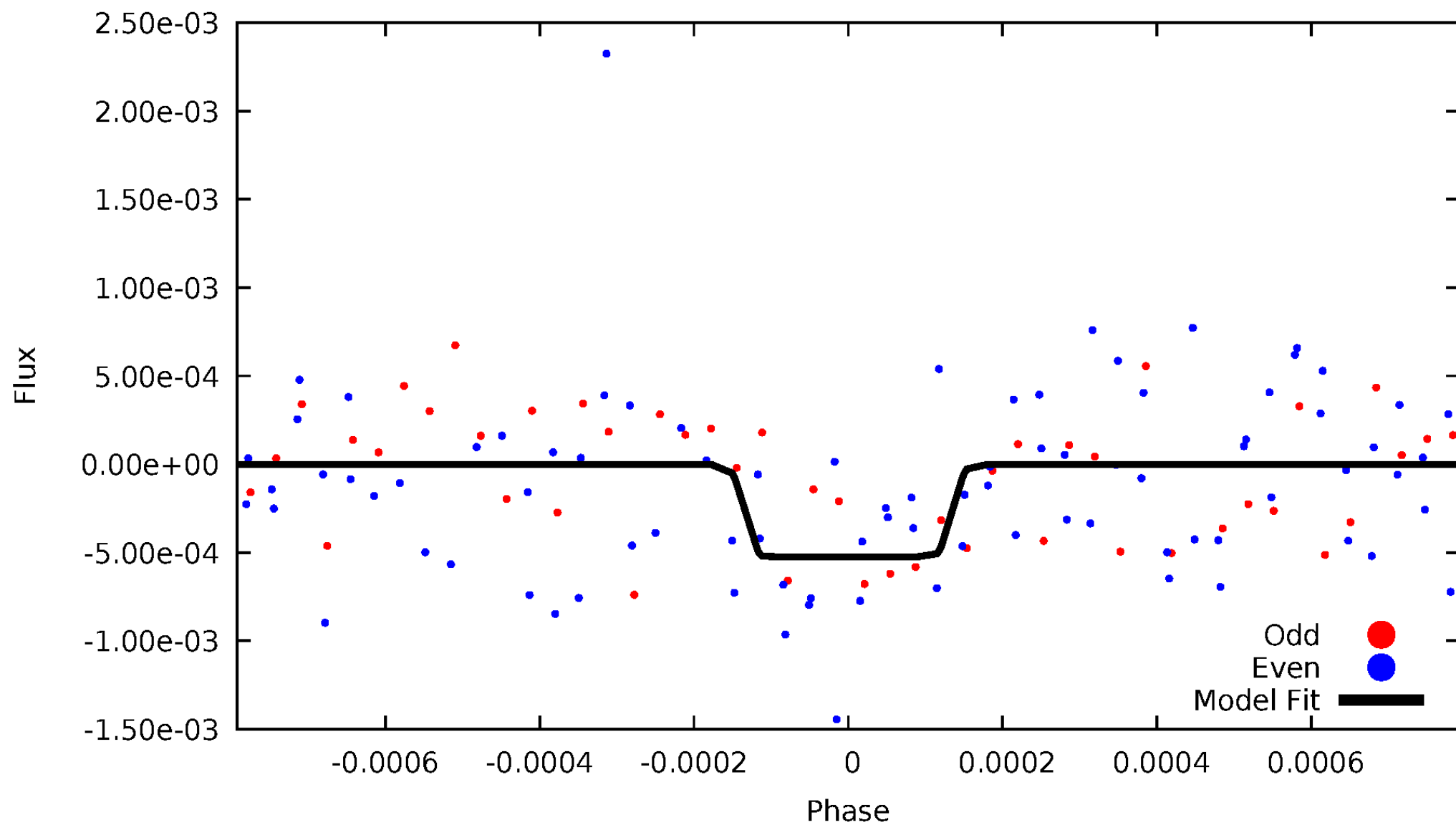
# DV Odd/Even

TCE 012554260-01



# ALT Odd/Even

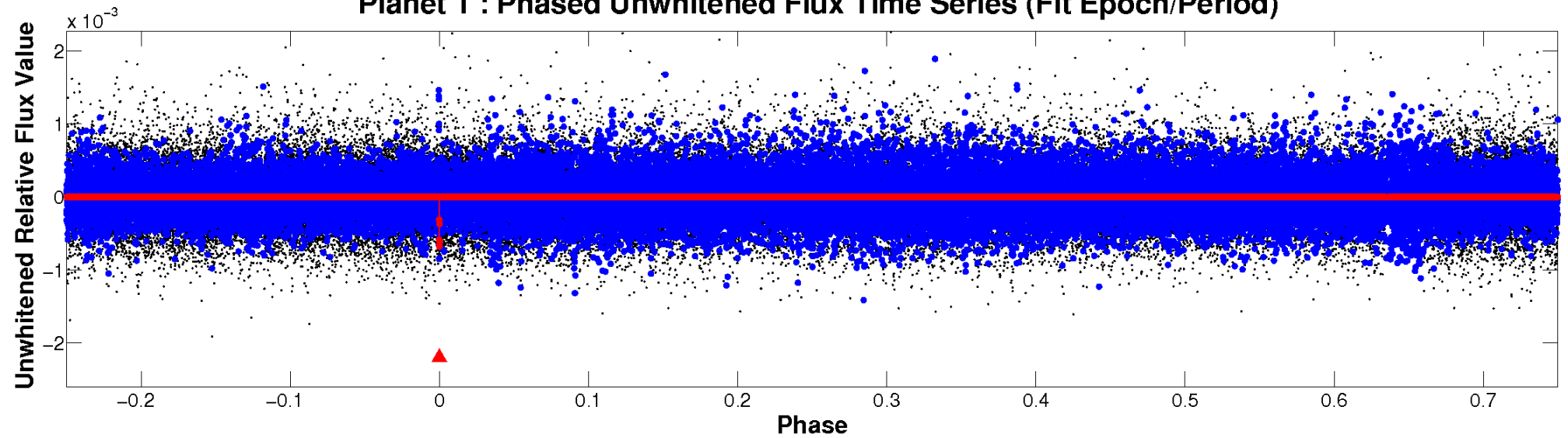
TCE 012554260-01



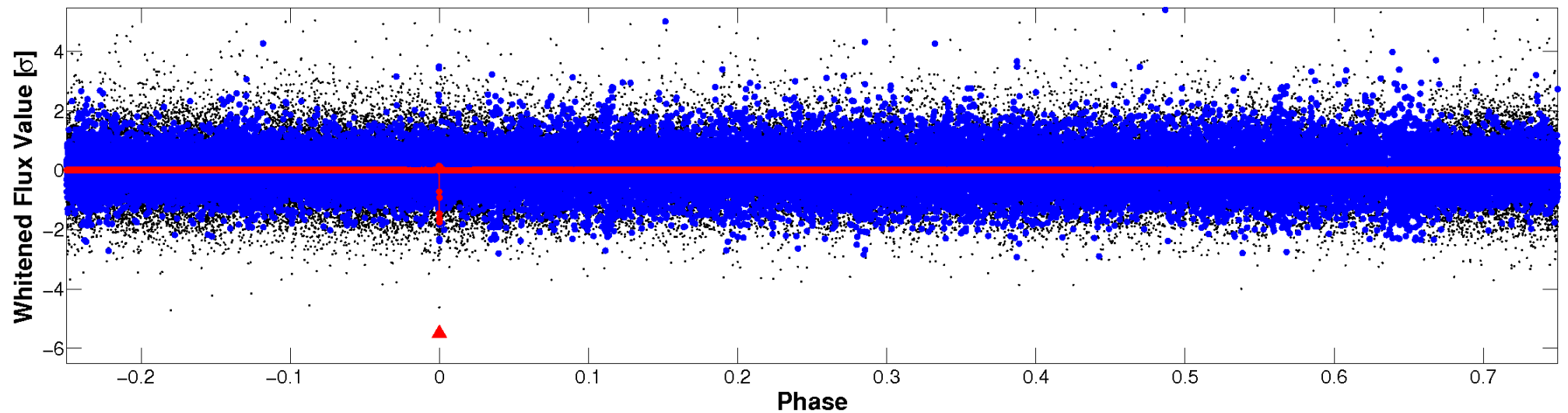


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

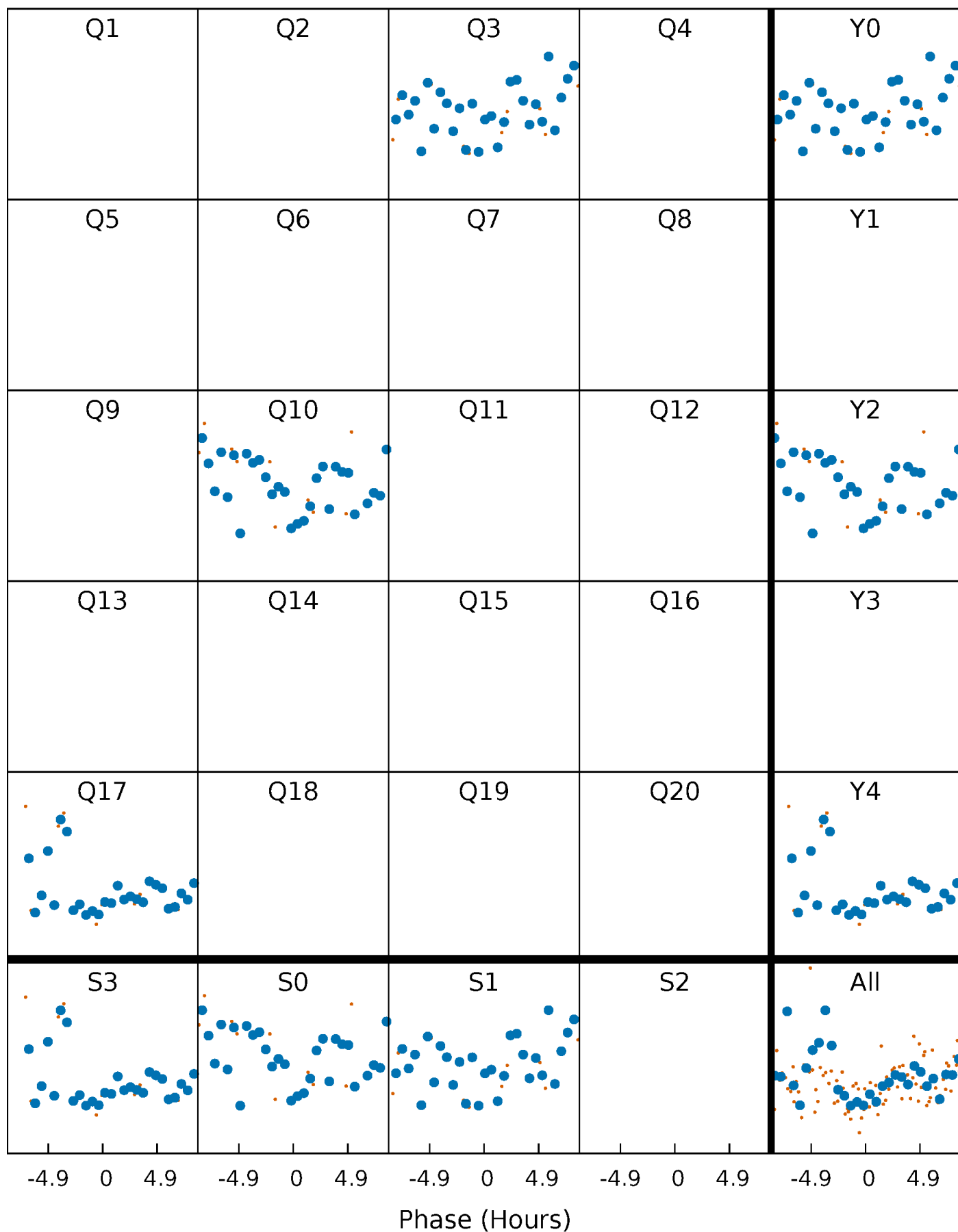


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

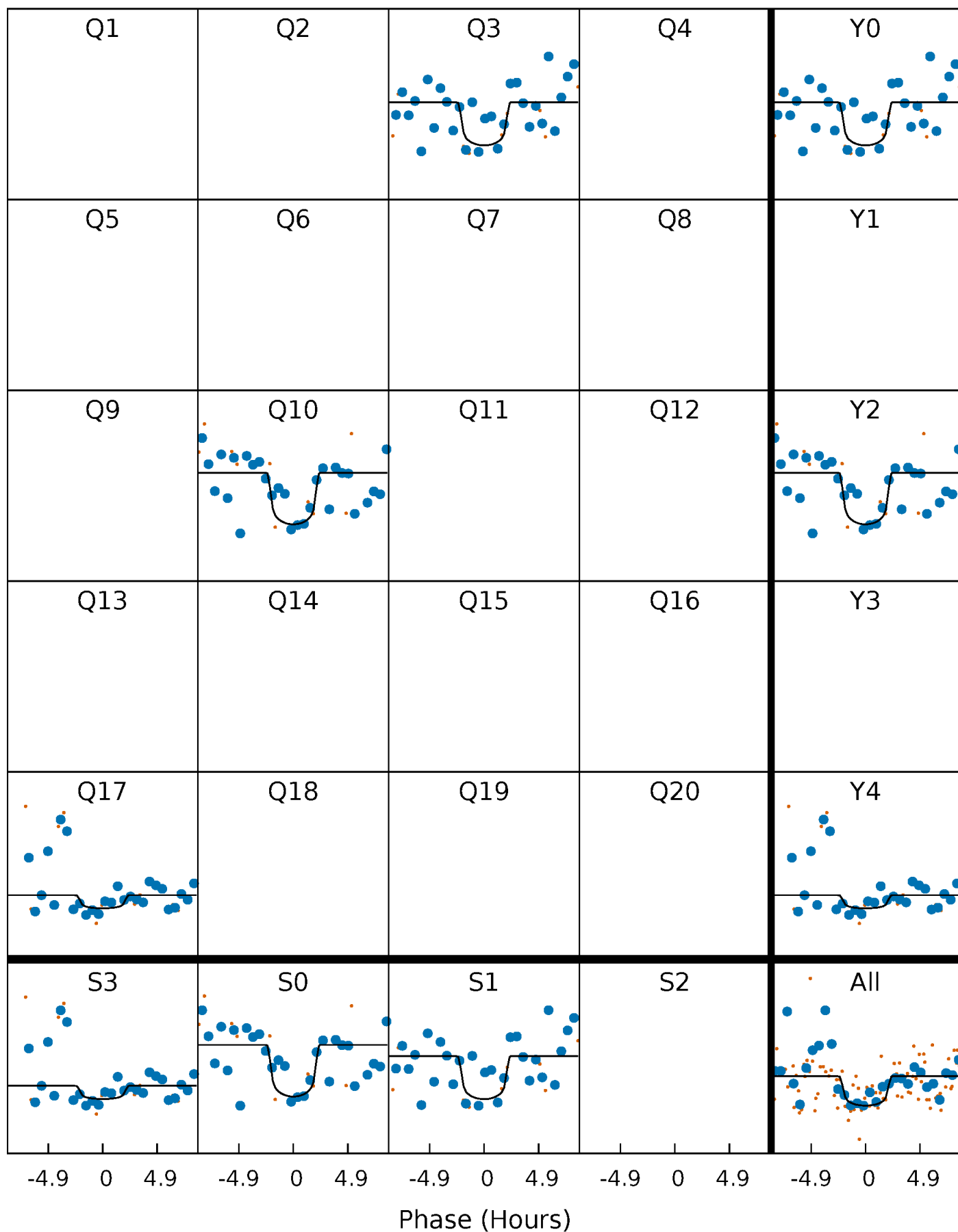
TCE 012554260-01 P=616.332023 Days  $T_0=328.587869$  (BKJD)





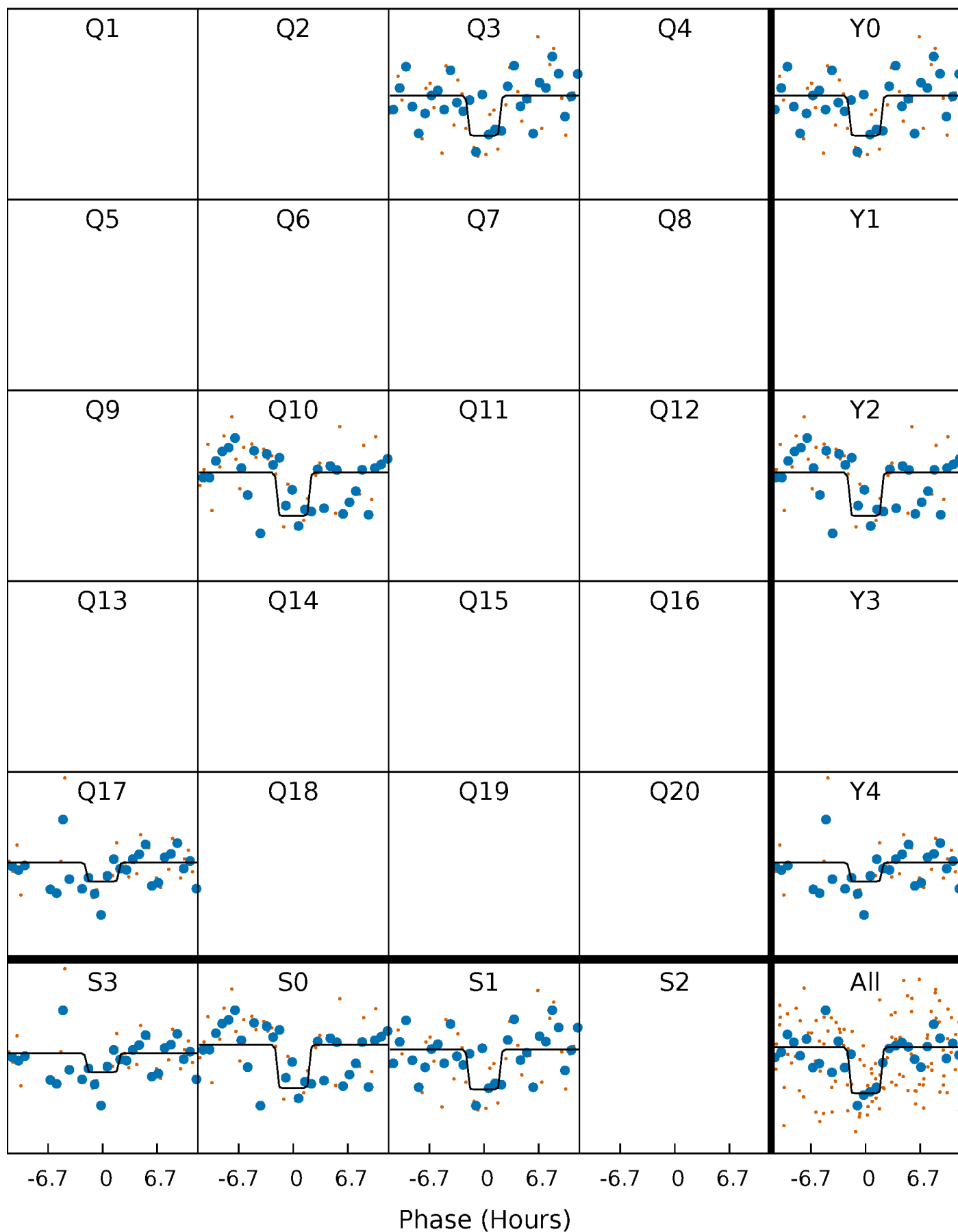
# DV Quarter-Phased Transit Curves

TCE 012554260-01 P=616.332023 Days  $T_0=328.587869$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

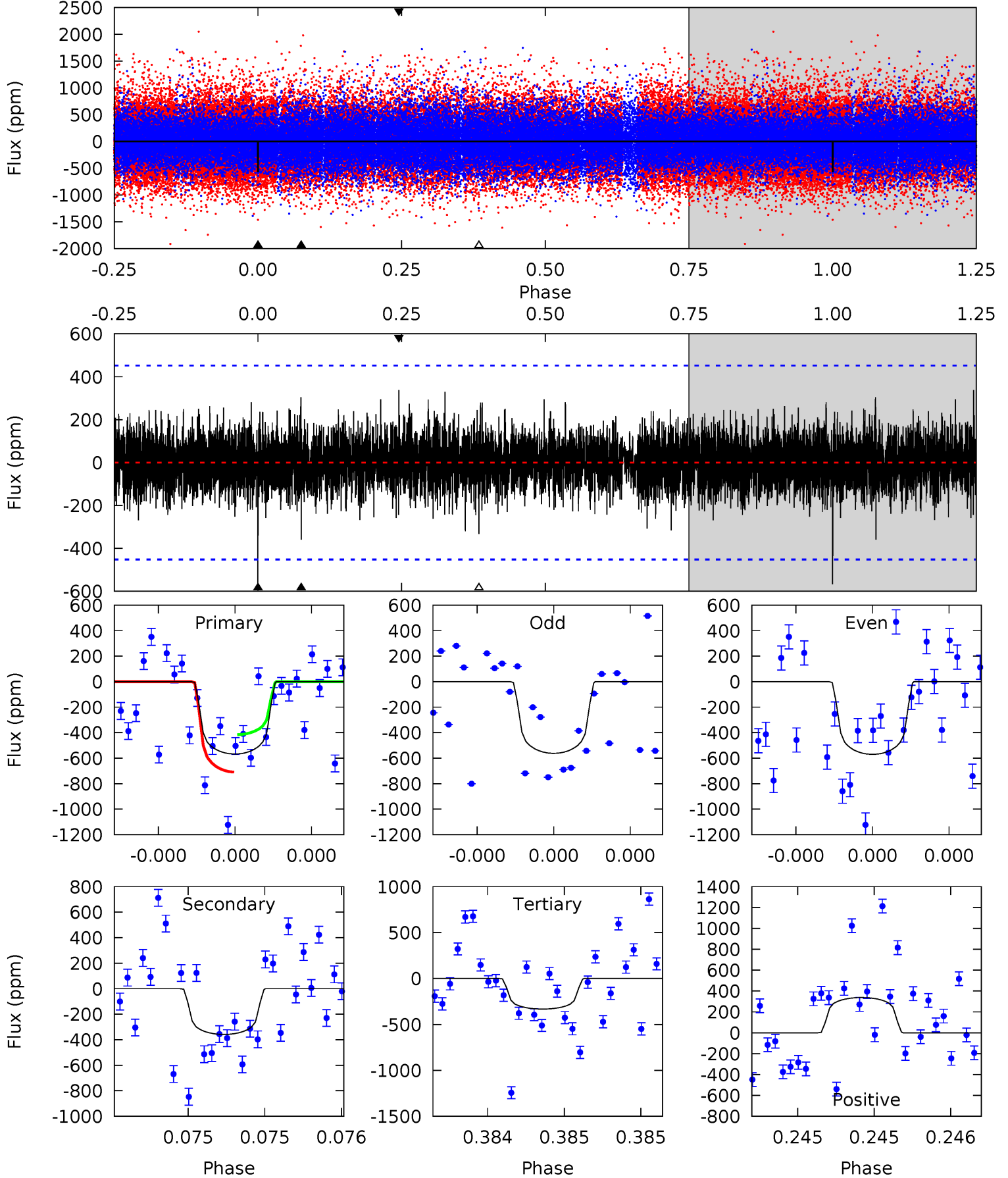
TCE 012554260-01 P=616.337470 Days  $T_0=328.563357$  (BKJD)



# DV Model-Shift Uniqueness Test

012554260-01, P = 616.332023 Days, E = 328.587869 Days

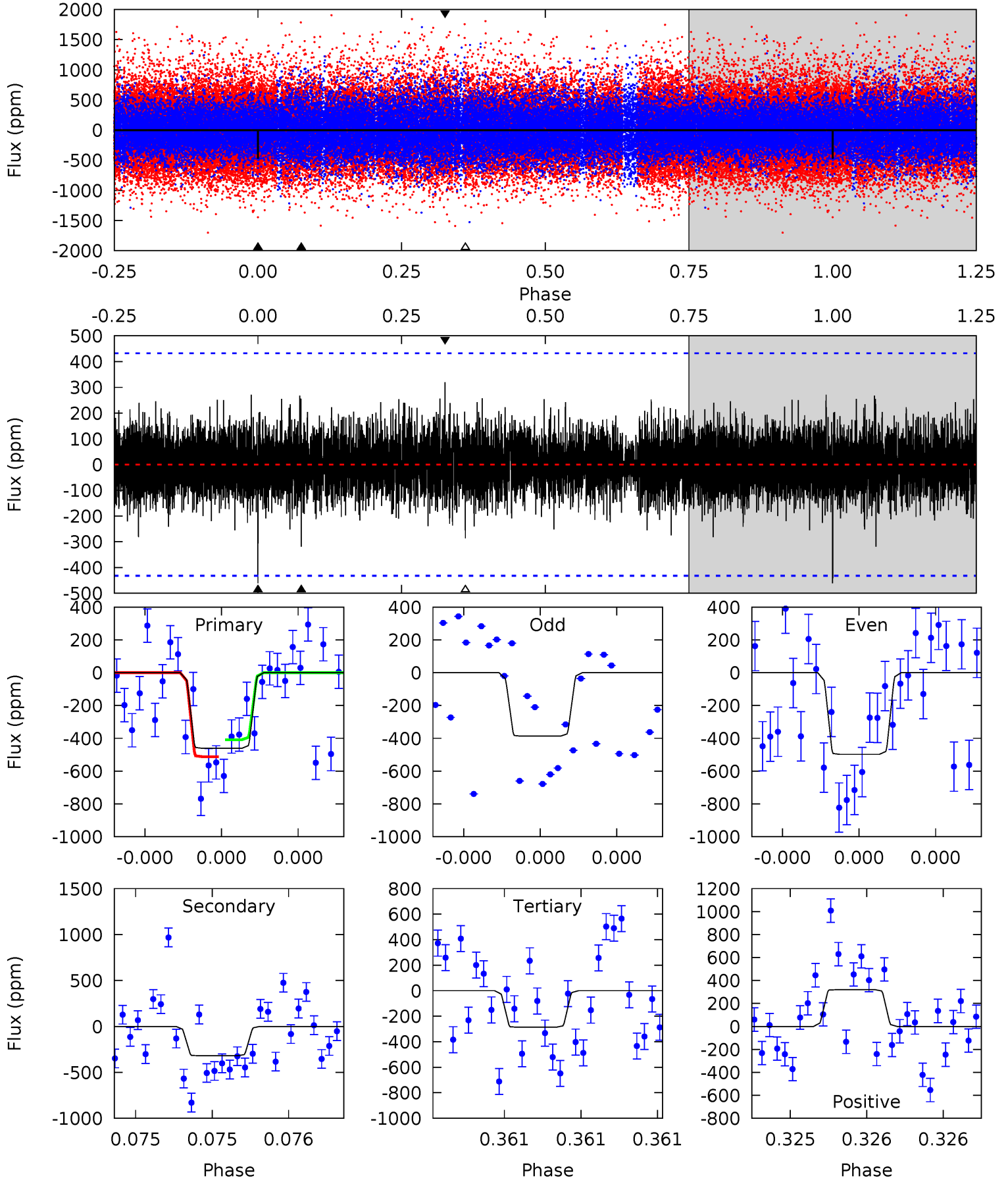
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.11	4.49	4.17	4.23	5.66	3.62	1.04	2.94	2.88	0.32	0.26	0.05	1.01	0.37	1.83



# Alt Model-Shift Uniqueness Test

012554260-01, P = 616.337470 Days, E = 328.563357 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
6.02	4.16	3.73	4.18	5.65	3.59	0.97	2.29	1.84	0.43	-0.02	0.70	1.03	0.41	0.68



### Stellar Parameters For KIC 012554260

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6057^{+163}_{-181}$	$4.380^{+0.132}_{-0.182}$	$-0.480^{+0.300}_{-0.300}$	$1.007^{+0.282}_{-0.174}$	$0.888^{+0.109}_{-0.079}$	$1.224^{+0.837}_{-0.572}$
	+3%/-3%	+3%/-4%	+62%/-62%	+28%/-17%	+12%/-9%	+68%/-47%
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 012554260-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-359 \pm 80$	$3.37^{+2.53}_{-2.07}$	$323^{+23}_{-19}$	$4944^{+3119}_{-998}$	$32760^{+202129}_{-22696}$
Alt.	$-318 \pm 77$	$3.15^{+2.61}_{-1.82}$	$323^{+25}_{-18}$	$4884^{+2669}_{-990}$	$30937^{+146374}_{-21428}$

$T_{max}$  = 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

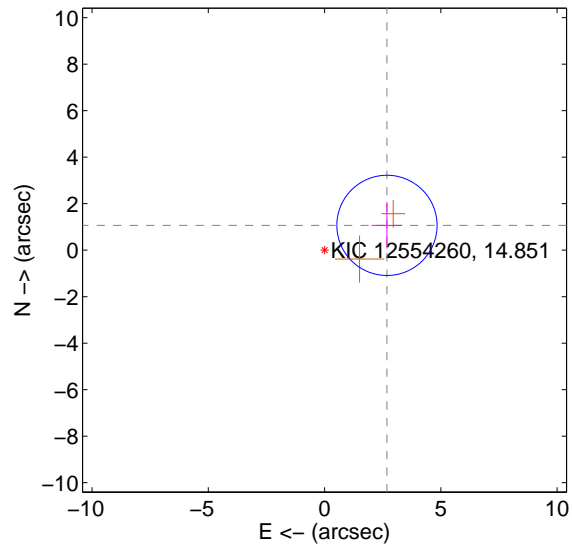
Supplemental centroid analysis for 012554260-01. Kepler magnitude: 14.85. Transit SNR 7.60

There are 0 quarters with good PRF difference image offsets

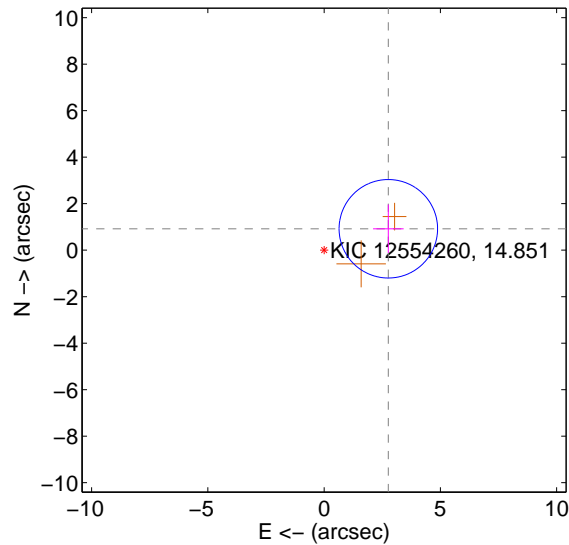
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.888 \pm 0.719$	4.02	$-2.684 \pm 0.663$	$1.067 \pm 0.999$
PRF-fit source offset from KIC position	$2.912 \pm 0.706$	4.12	$-2.762 \pm 0.659$	$0.921 \pm 1.040$
photometric centroid source offset	$2.06 \pm 2.20$	0.94	$1.02 \pm 2.66$	$1.79 \pm 2.03$

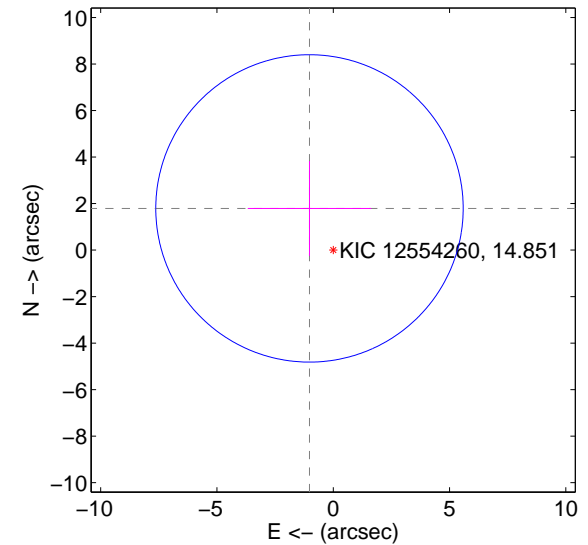
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

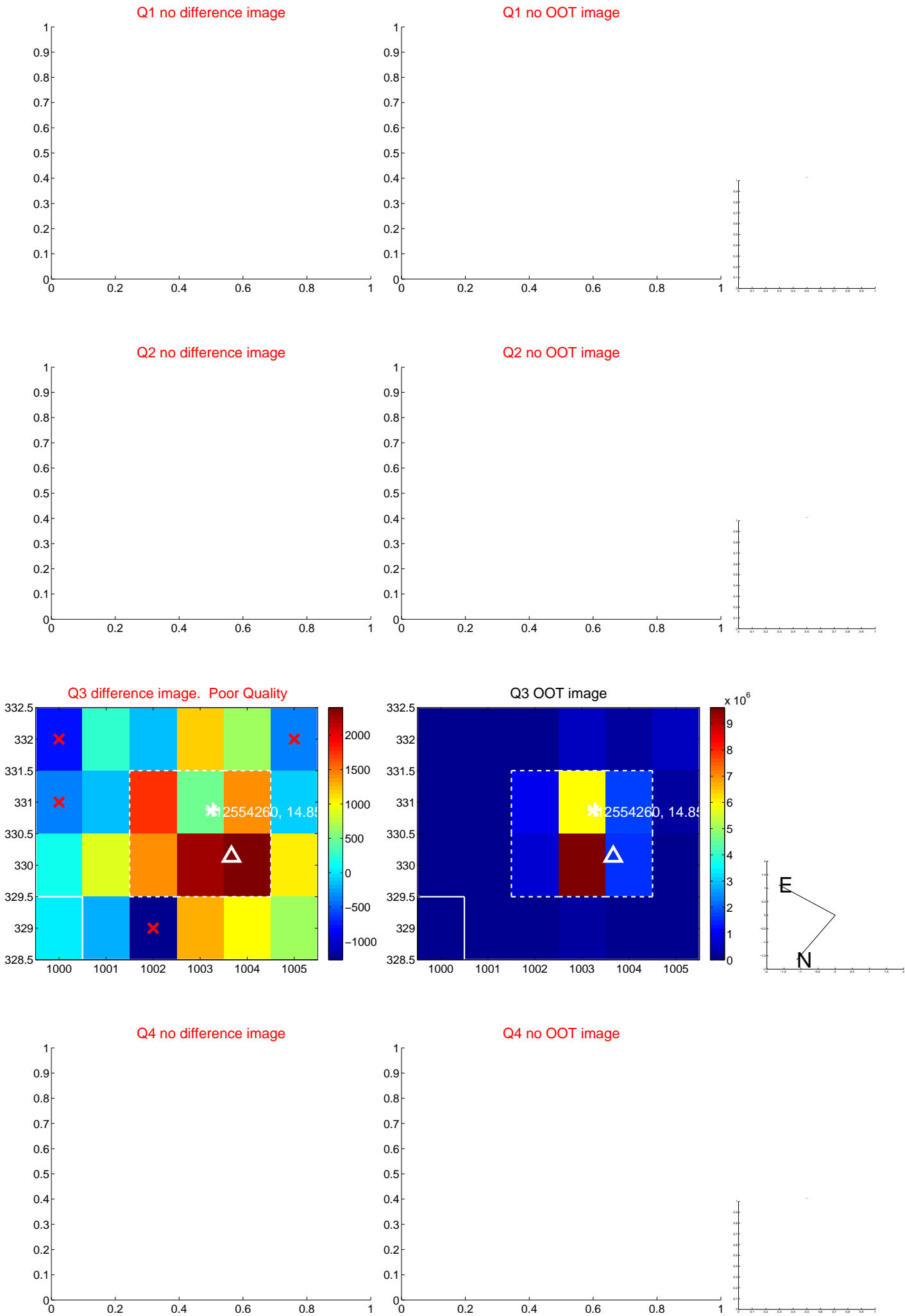


offset from photometric centroids



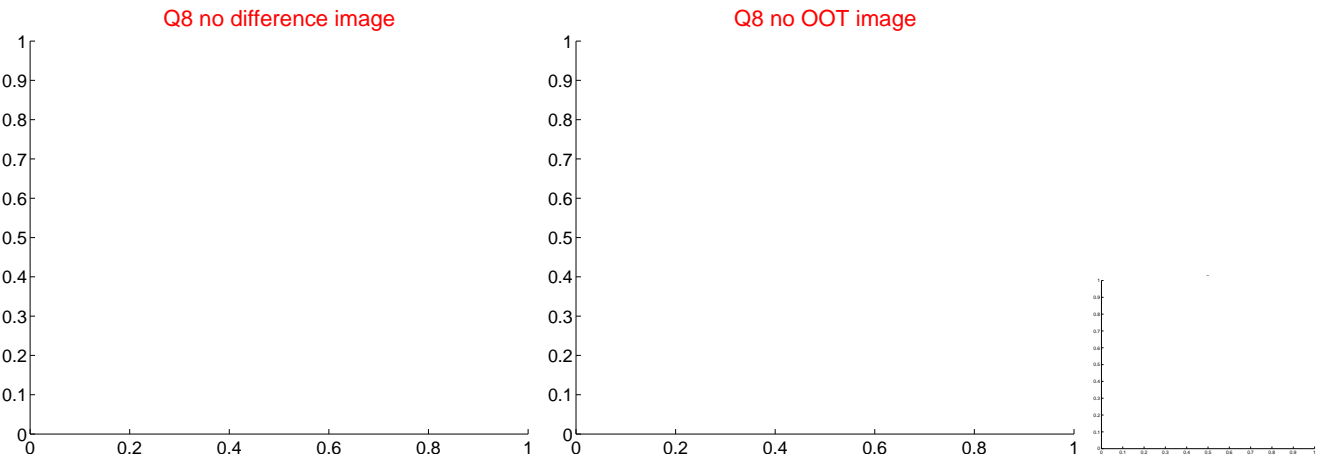
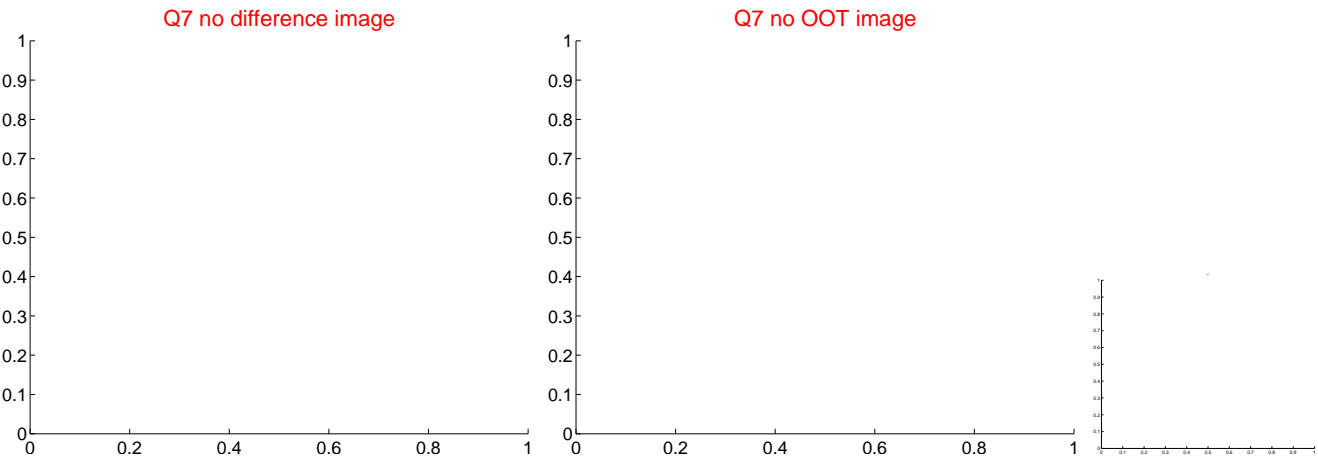
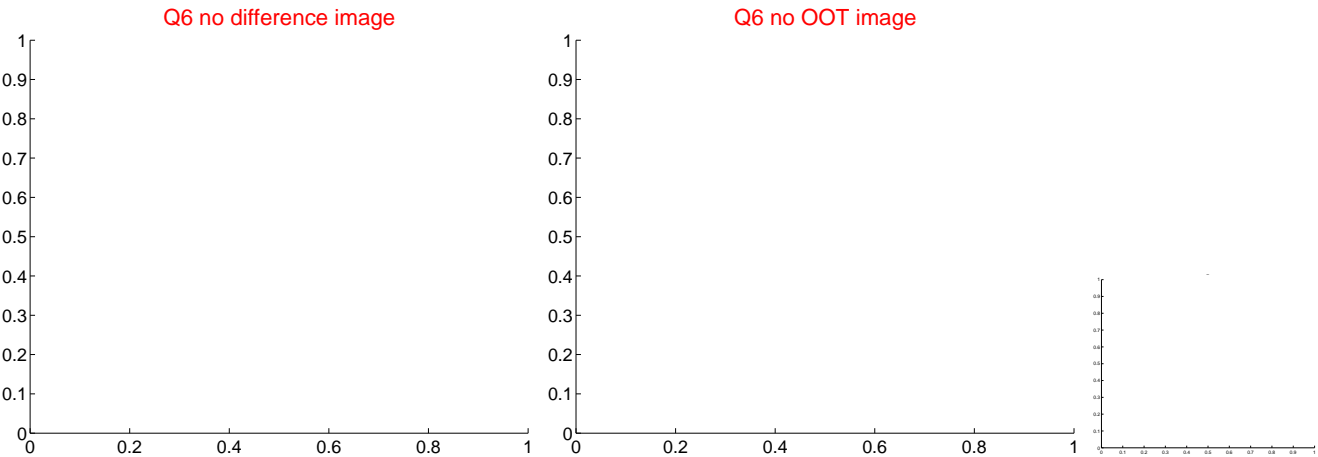
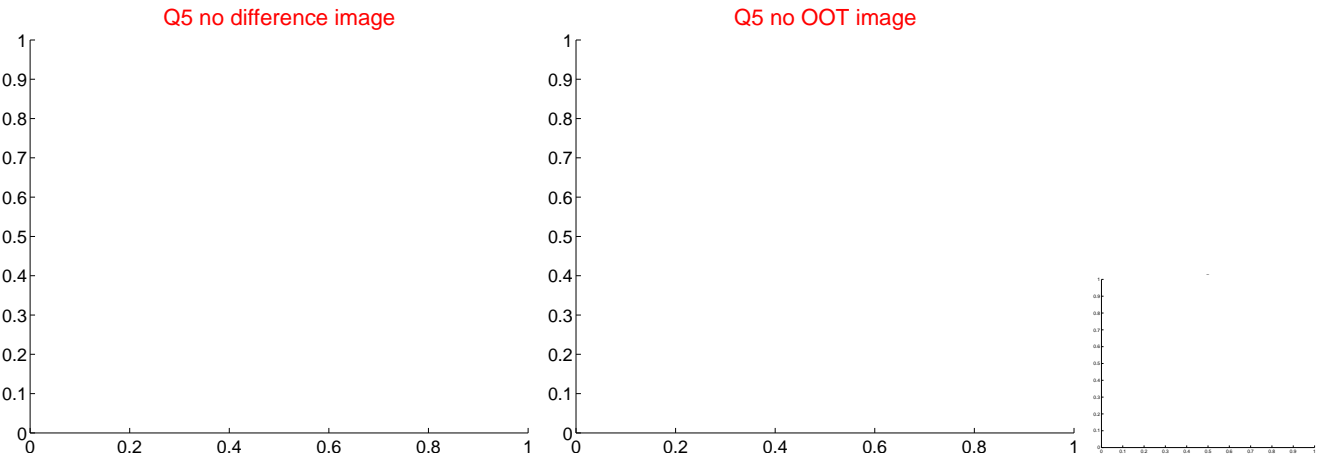
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

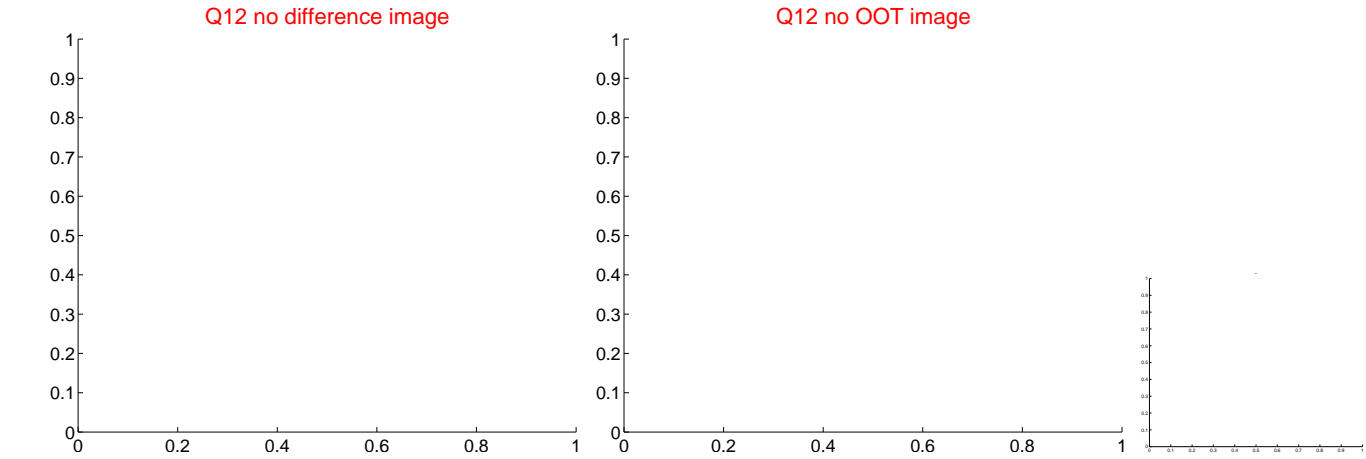
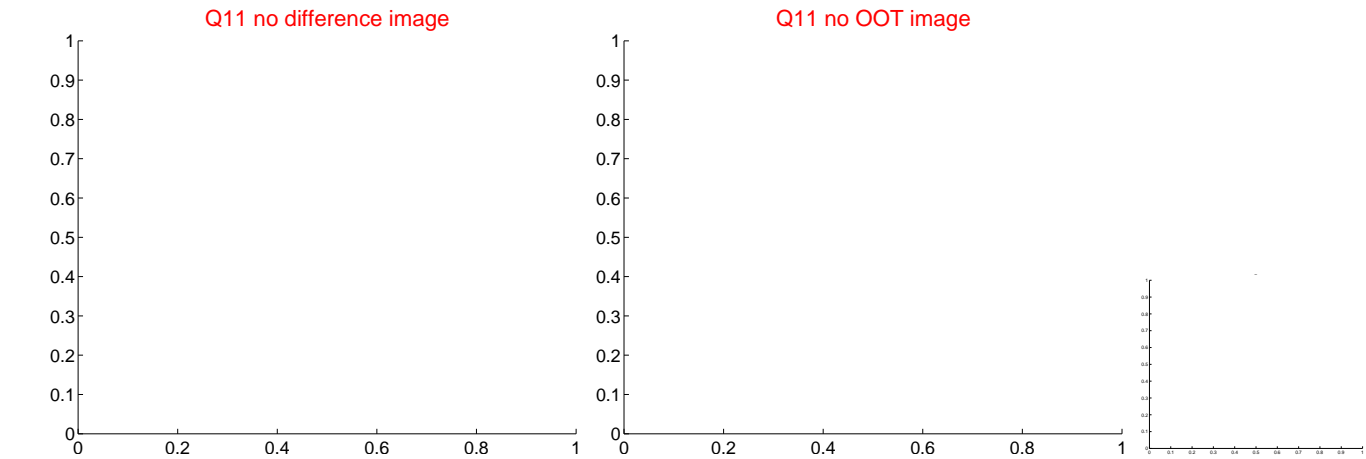
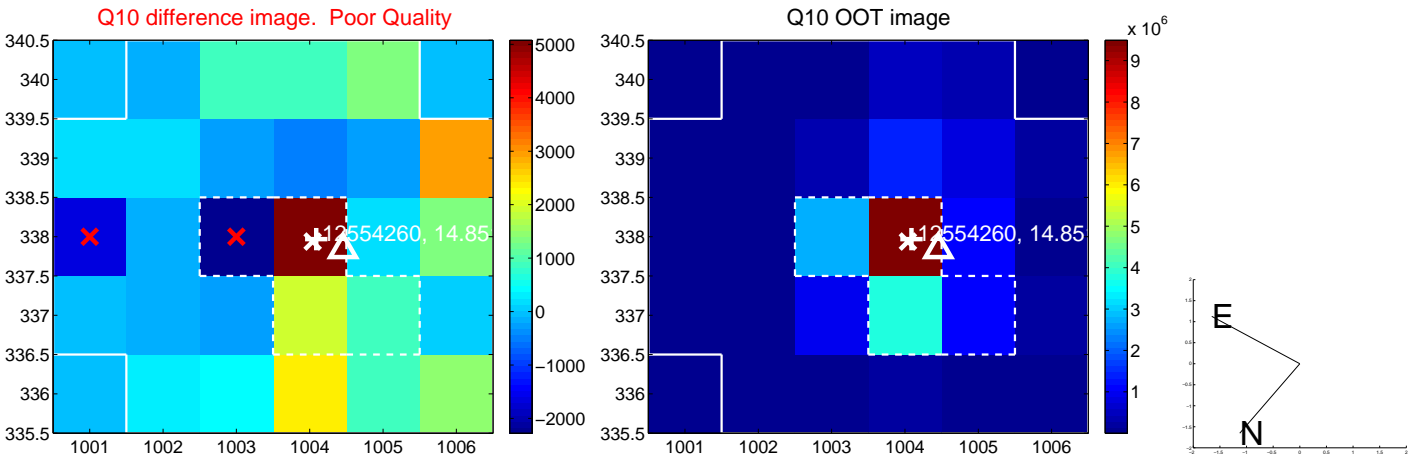
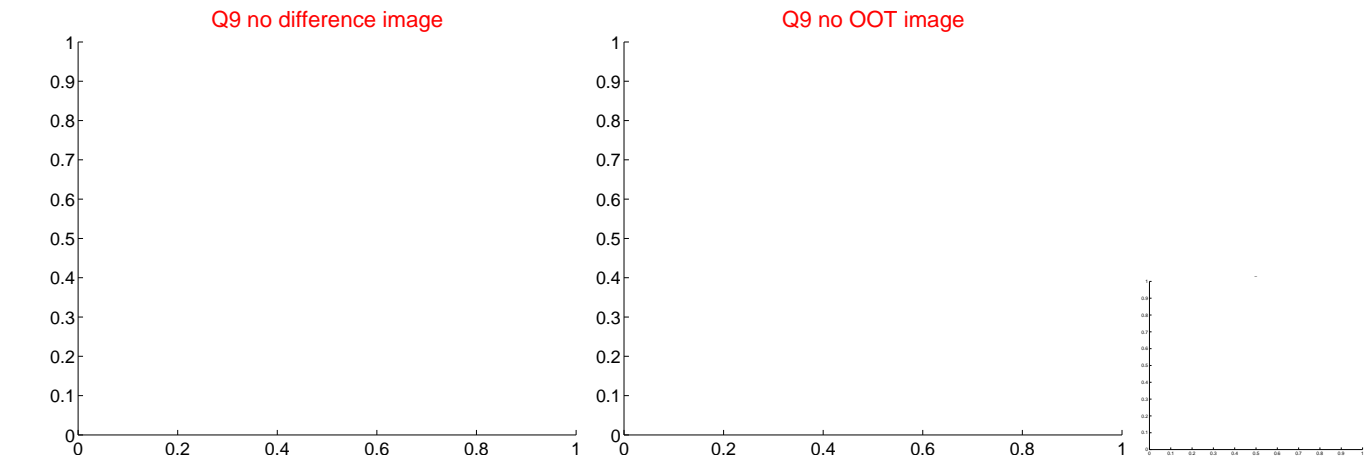




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



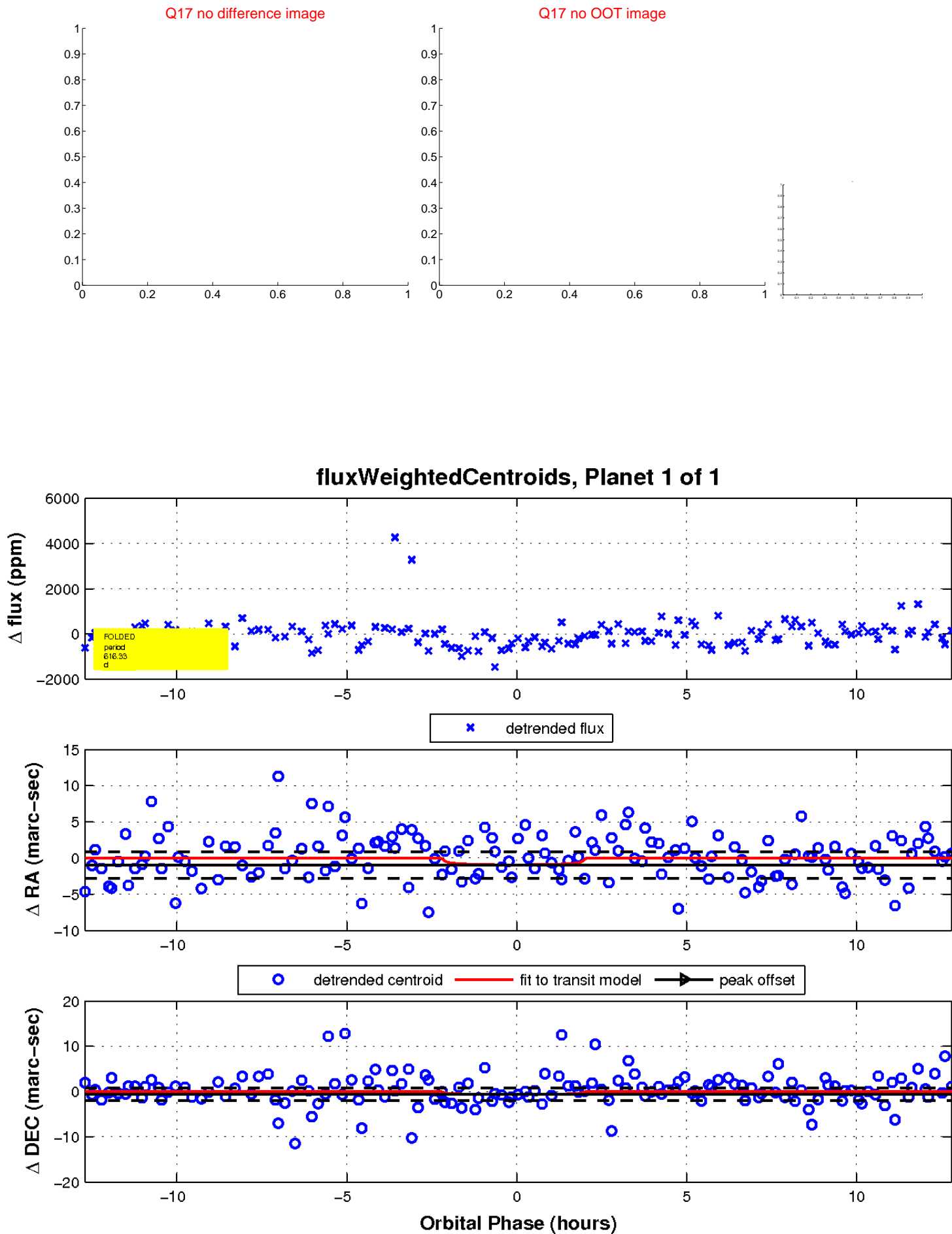
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



# UKIRT Image

Declination

