

# KIC 006343576

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006343576-01	OBS	4438.01	6.398944	134.725728	183.1	4.260	17.9	17.9	4.86	5178	11.98	2378.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006343576-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH

**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.

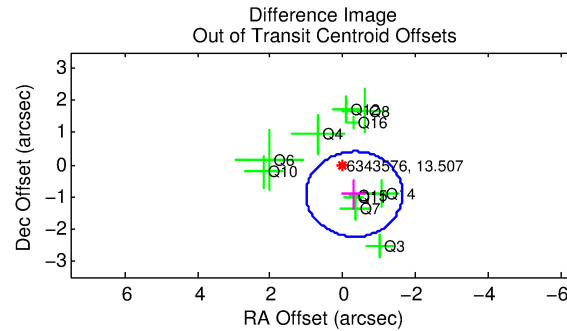
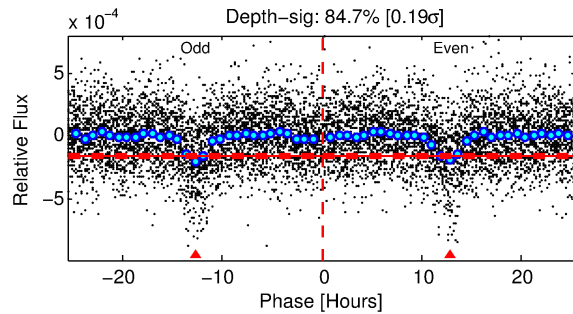
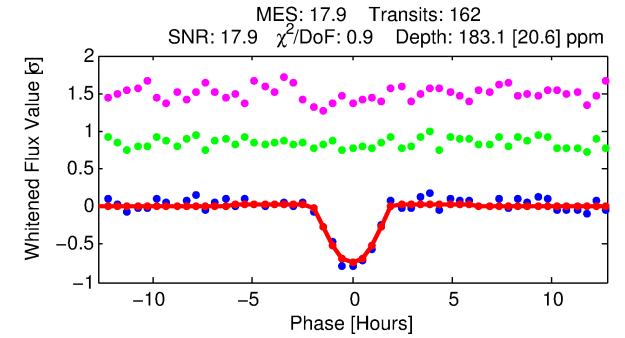
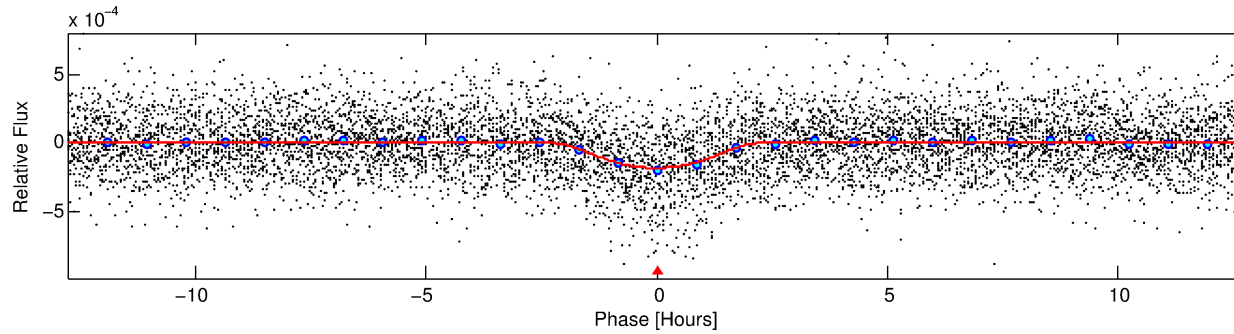
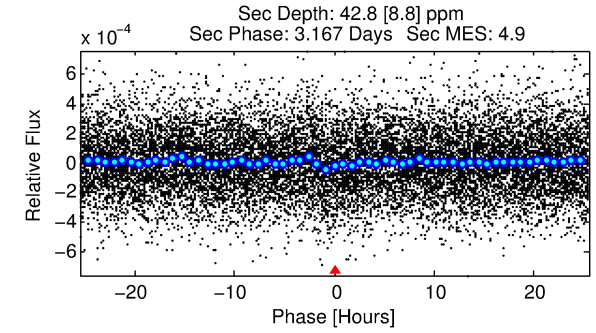
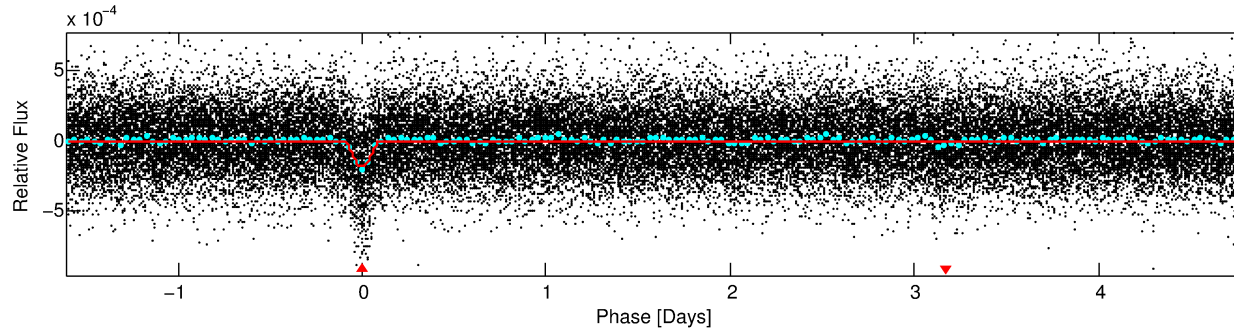
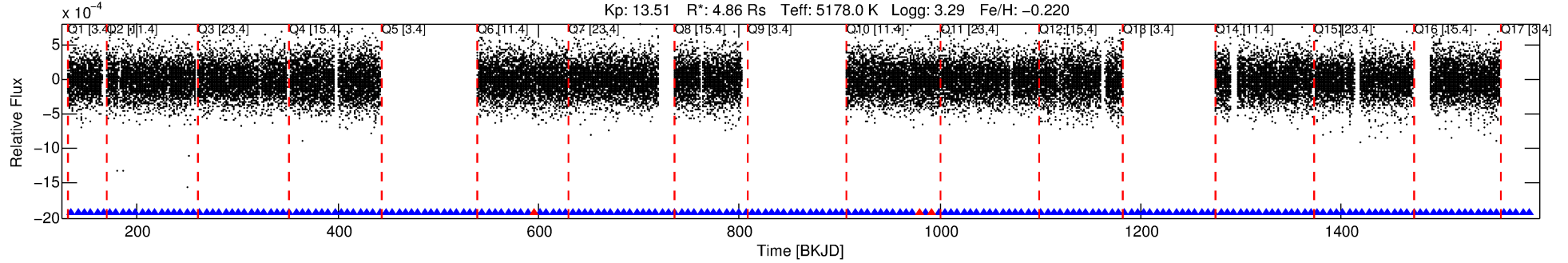
## Ephemeris Match Information For 006343576-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
006343576-01	6343576	3512.01	6182849	1:1	1371.0	345	0	13.72	13.51	2084.60	Col-Anomaly	0	1.17	0.90

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 6343576 Candidate: 1 of 1 Period: 6.399 d  
KOI: K04438.01 Corr: 0.851



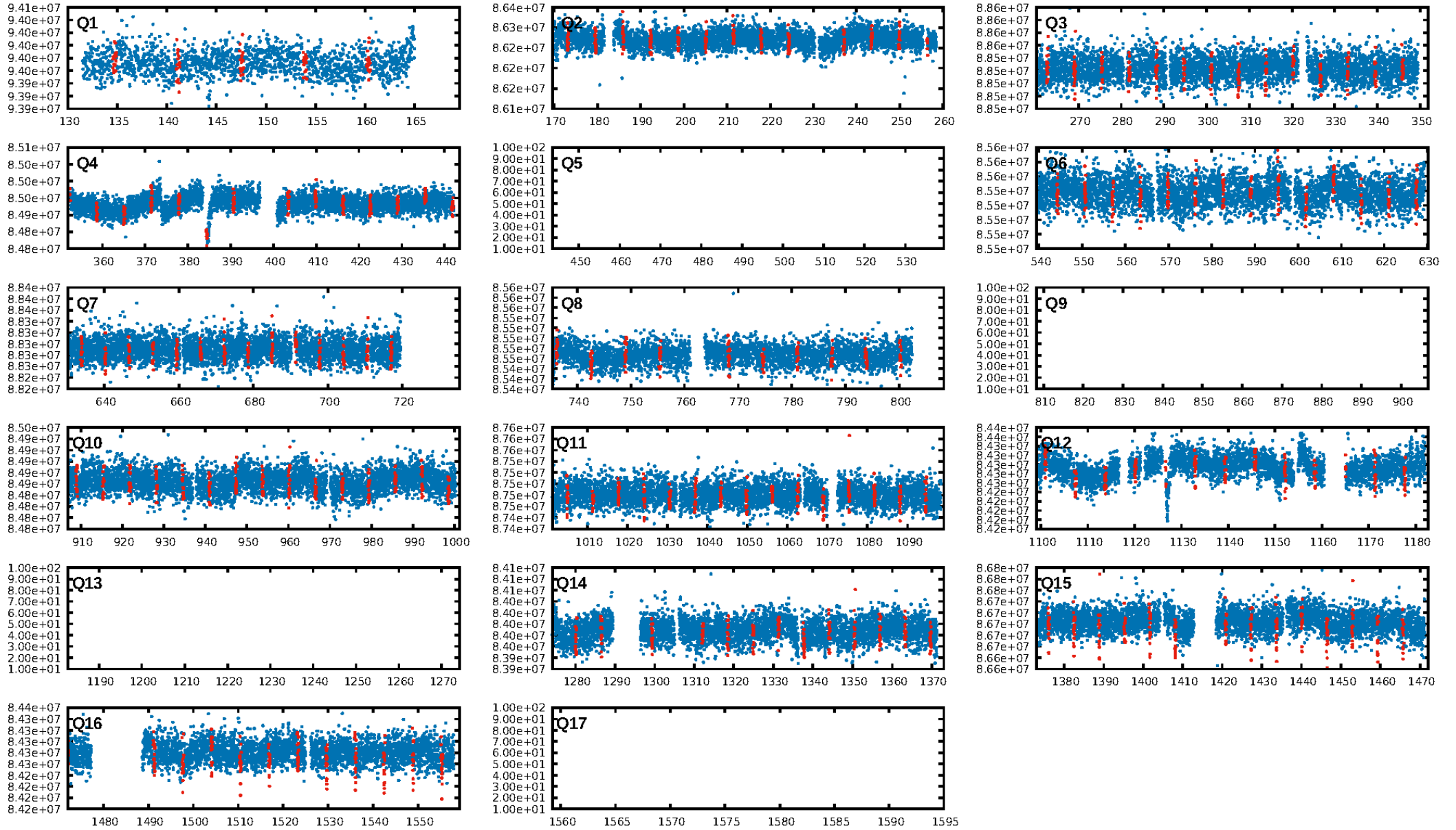
## DV Fit Results:

Period = 6.39894 [0.00004] d  
Epoch = 134.7257 [0.0051] BKJD  
Rp/R\* = 0.0226 [0.0230]  
a/R\* = 2.93 [0.88]  
b = 0.99 [0.04]  
Seff = 2378.21 [1593.66]  
Teq = 1781 [298] K  
Rp = 11.98 [13.50] Re  
a = 0.0799 [0.0346] AU  
Ag = 1.05 [2.25] [0.02σ]  
Teffp = 2786 [1426] K [0.69σ]

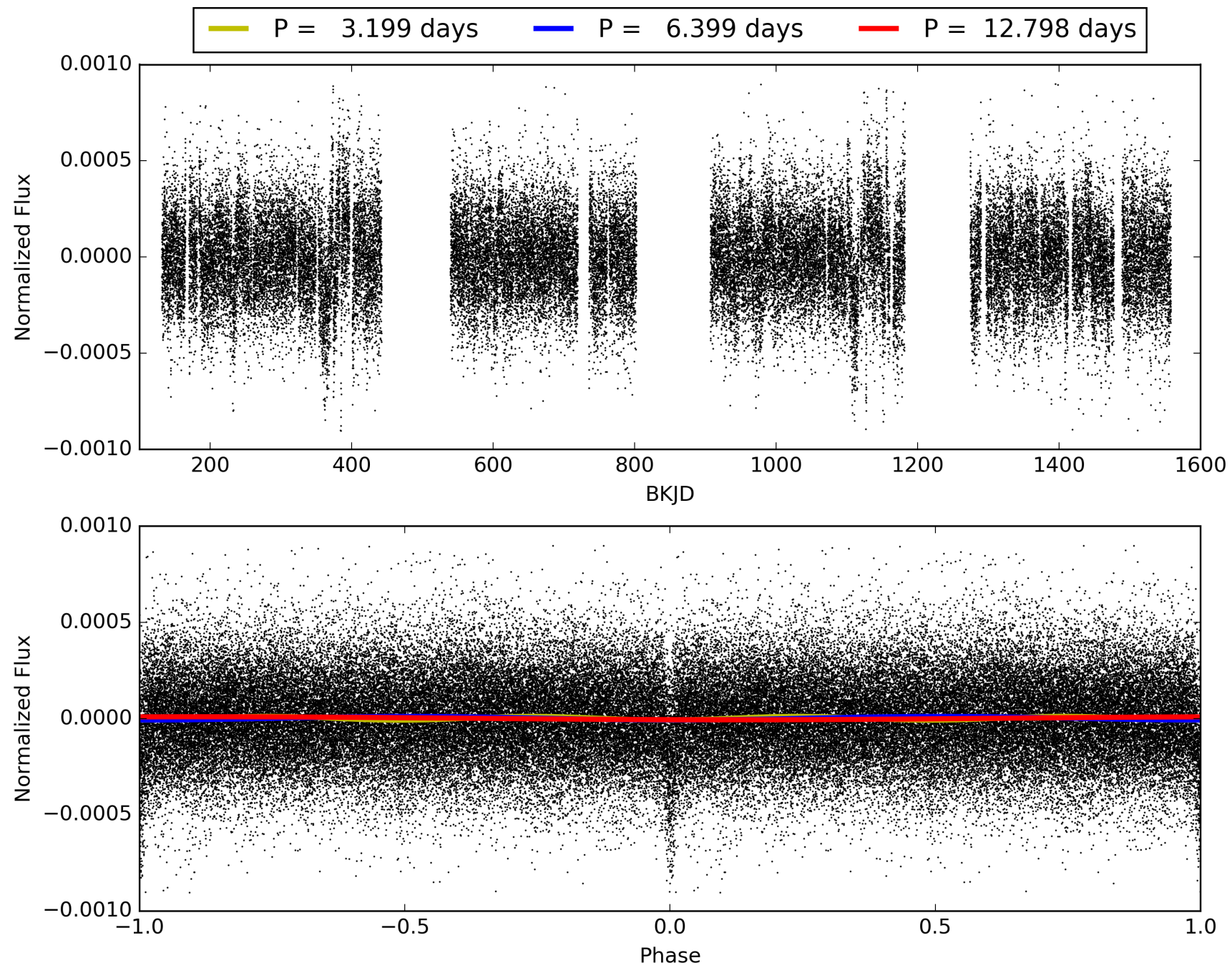
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.31e-67  
RollingBand-fgt: 0.98 [154/157]  
GhostDiagnostic-chr: 4.04  
Centroid-sig: 0.1%  
Centroid-so: 1.040 arcsec [2.07σ]  
OotOffset-rm: 0.970 arcsec [2.19σ]  
KicOffset-rm: 1.187 arcsec [2.76σ]  
OotOffset-st: 3/4/4/0 [11]  
KicOffset-st: 3/4/4/0 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 006343576-01, PDC Light Curves



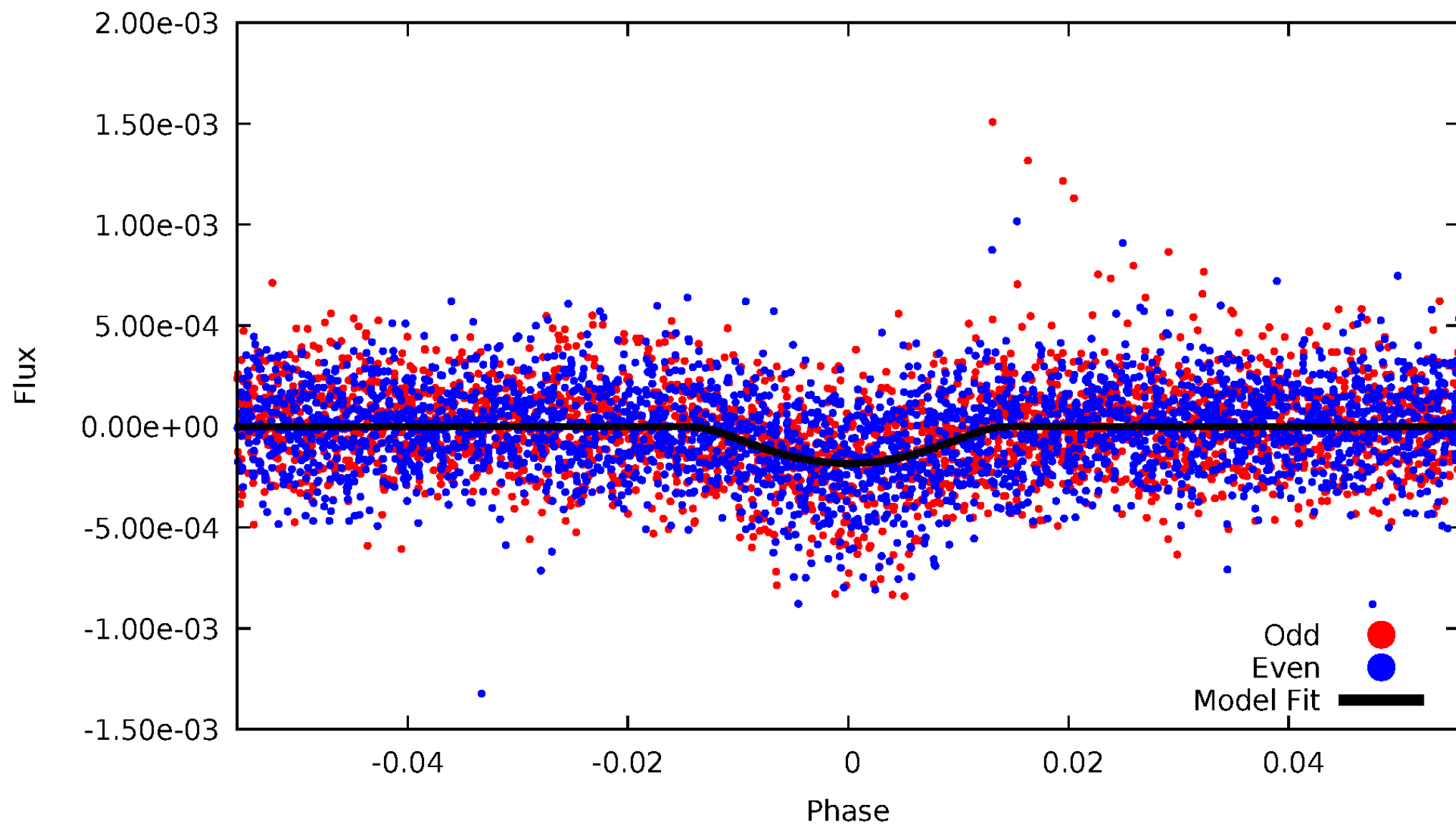
TCE 006343576-01





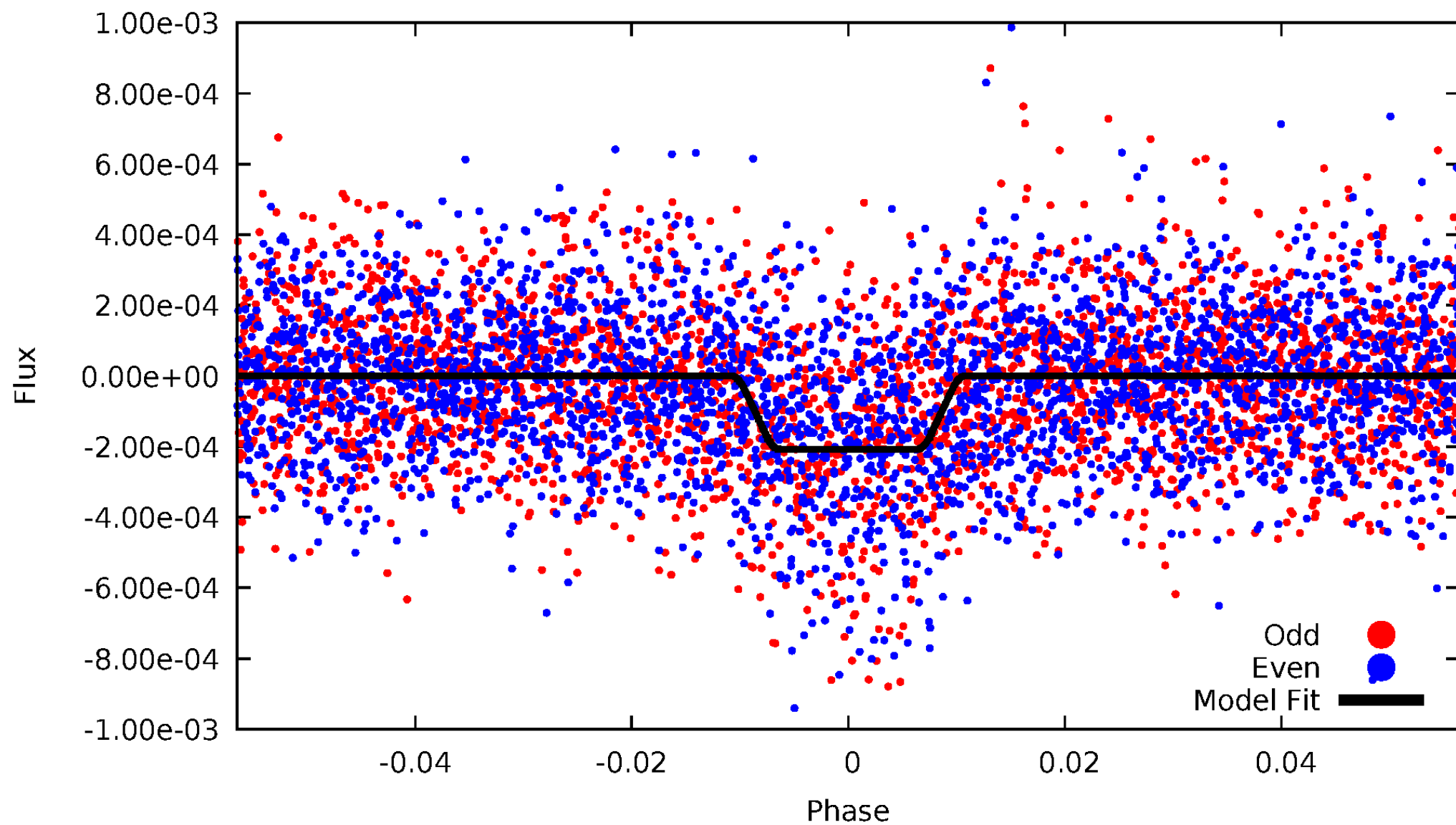
# DV Odd/Even

TCE 006343576-01

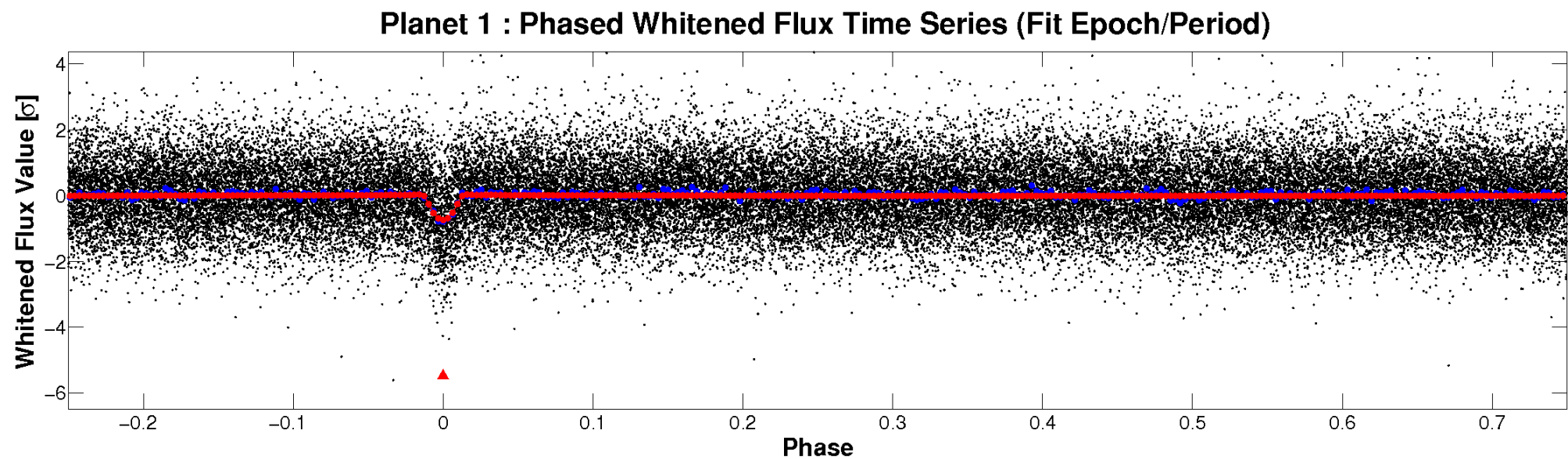
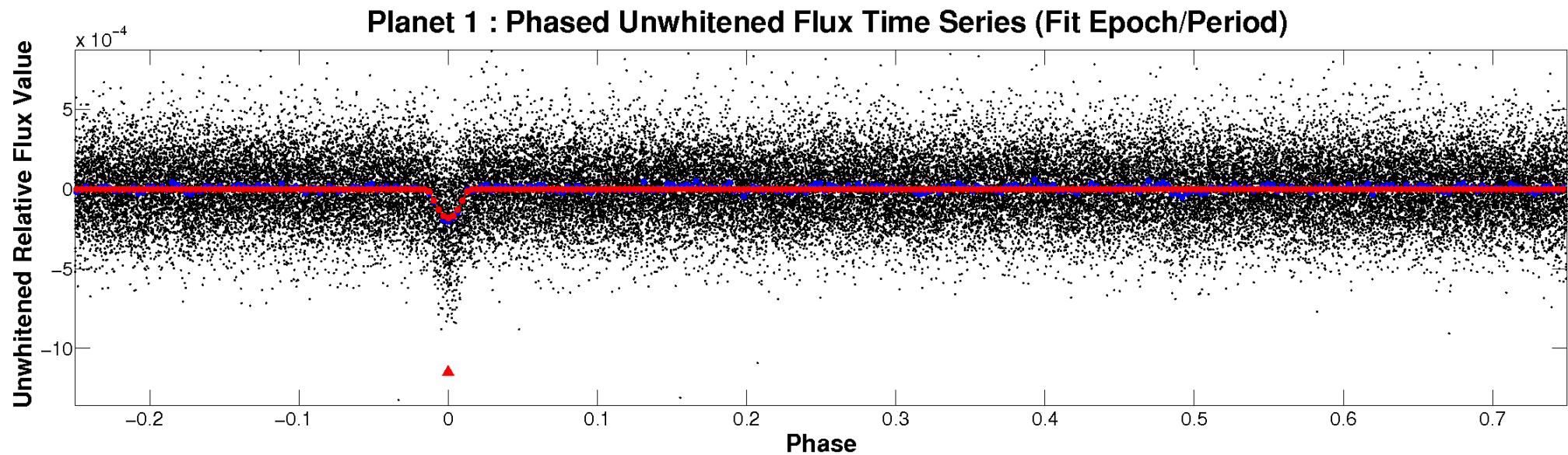


# ALT Odd/Even

TCE 006343576-01

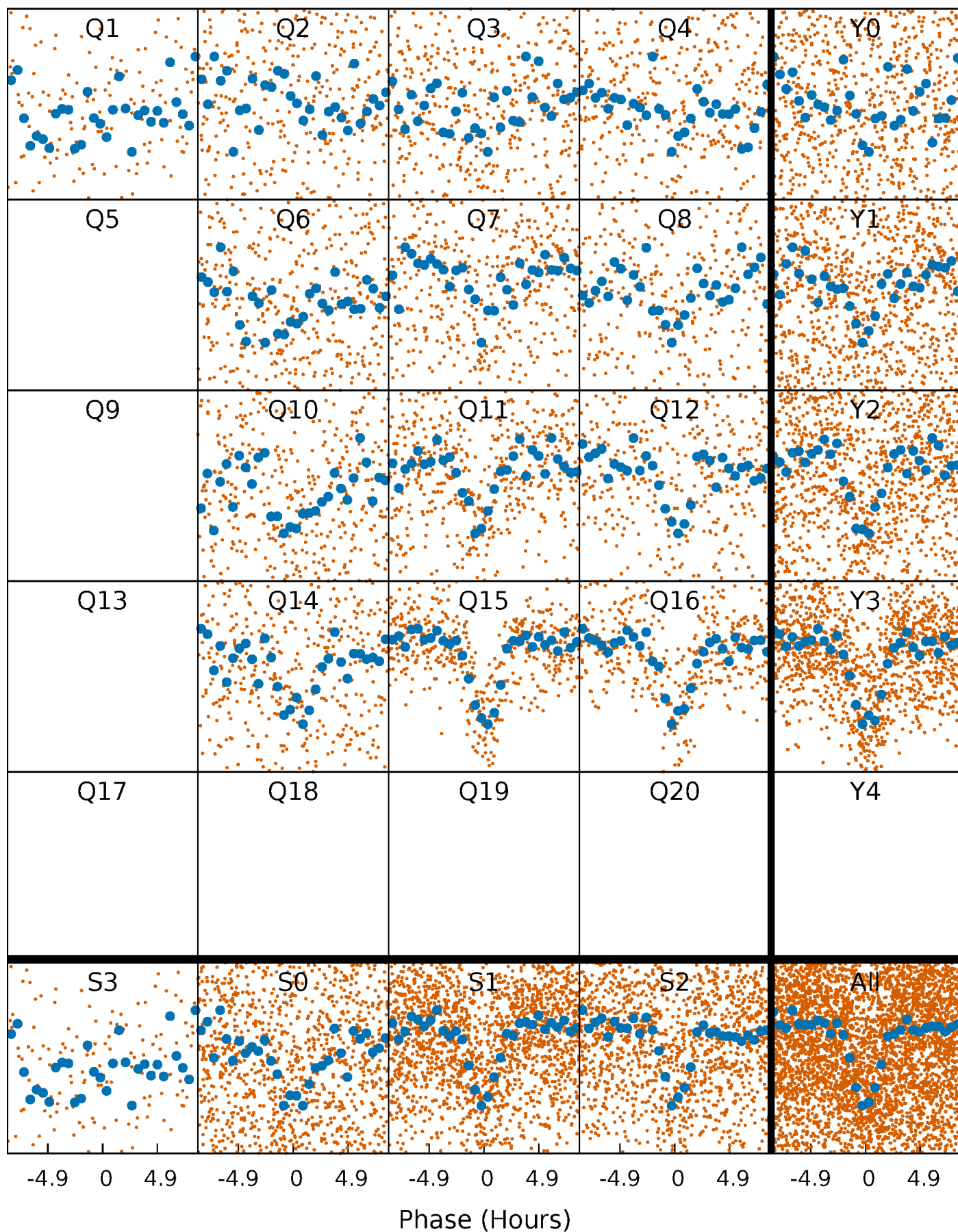


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

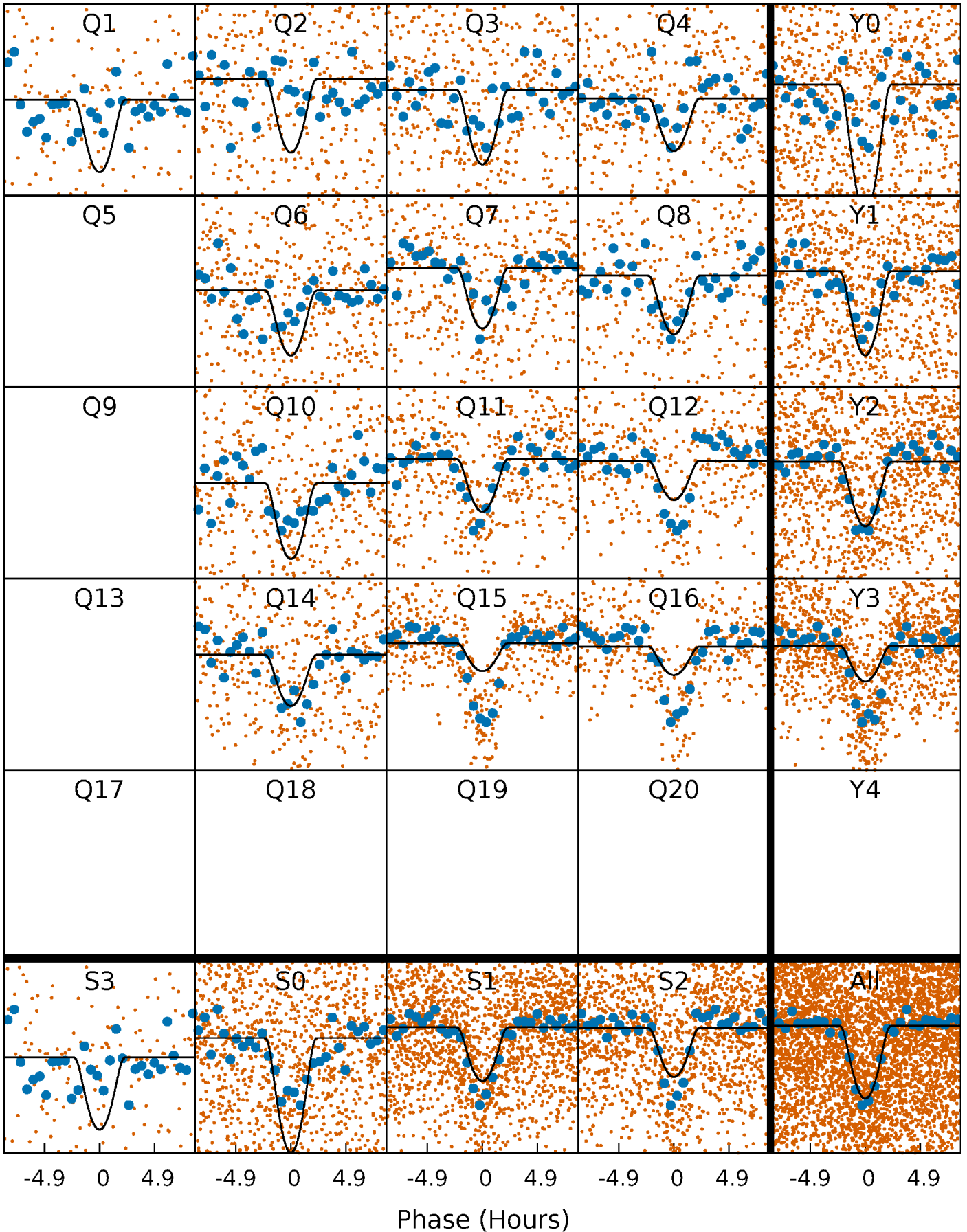
TCE 006343576-01 P= 6.398944 Days  $T_0=134.725728$  (BKJD)





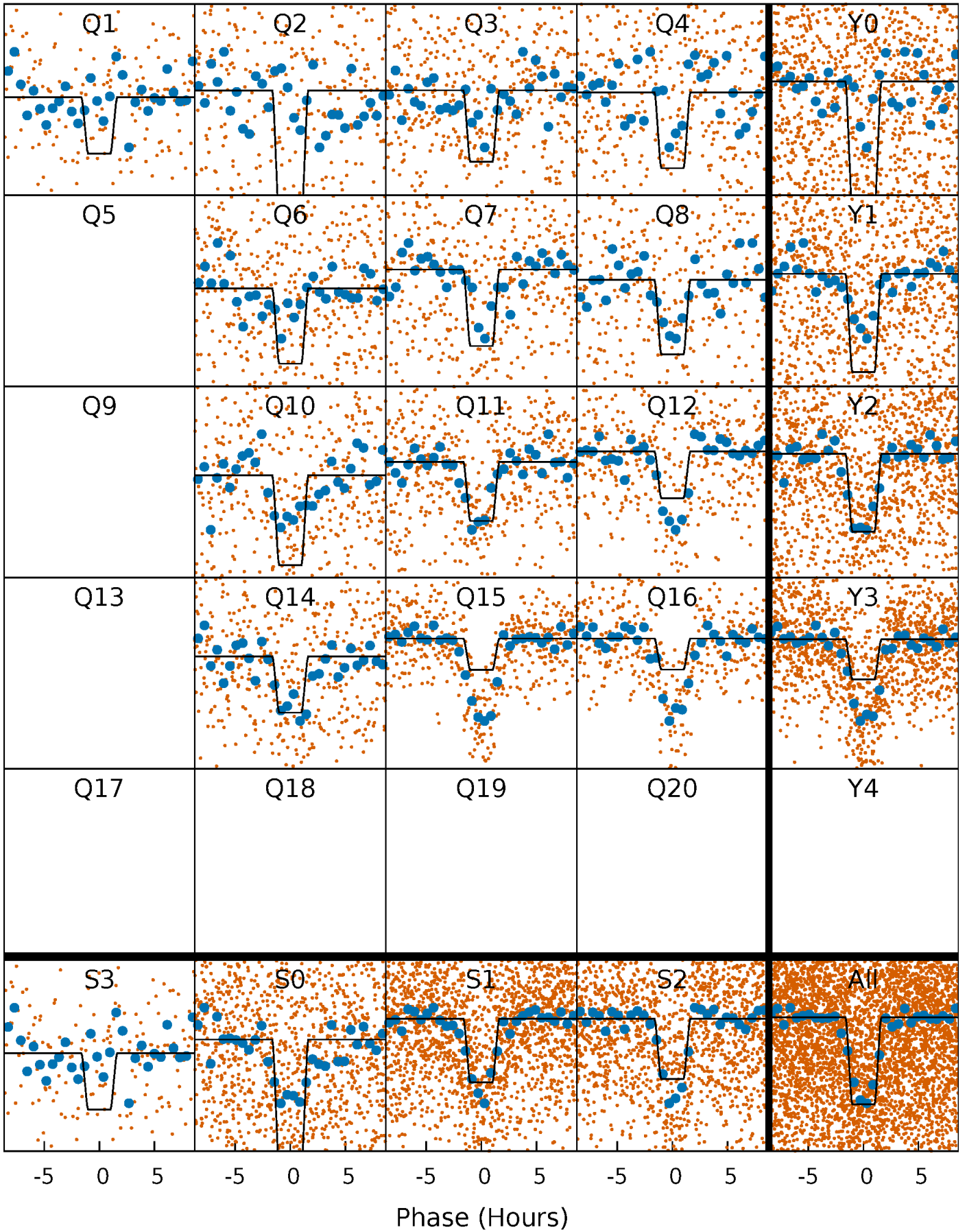
# DV Quarter-Phased Transit Curves

TCE 006343576-01 P= 6.398944 Days  $T_0=134.725728$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

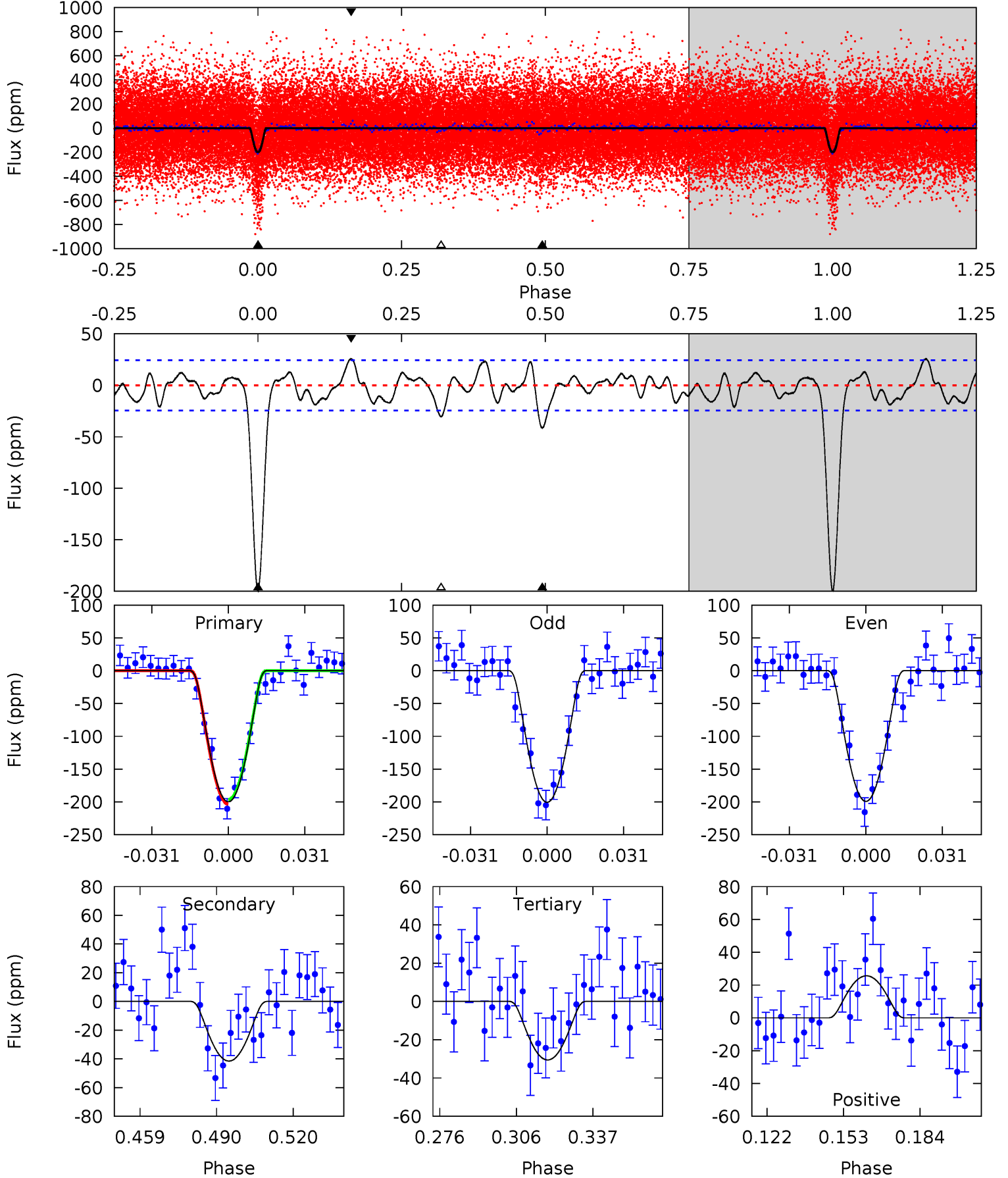
TCE 006343576-01 P= 6.398988 Days  $T_0=134.718737$  (BKJD)



# DV Model-Shift Uniqueness Test

006343576-01, P = 6.398944 Days, E = 128.326784 Days

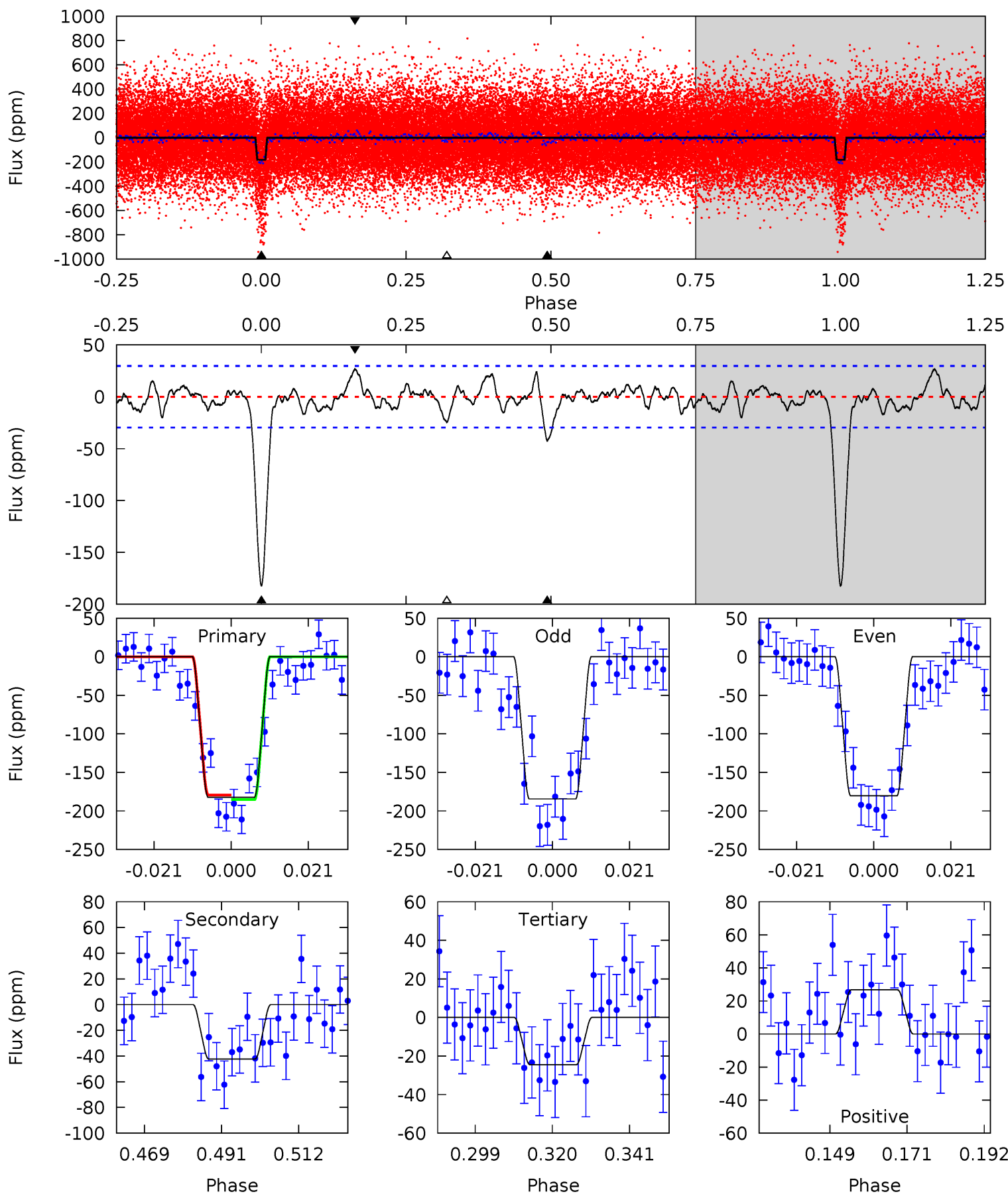
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.4	8.18	6.02	5.05	4.81	2.16	1.96	33.4	34.3	2.16	3.13	0.14	1.14	0.11	0.67



# Alt Model-Shift Uniqueness Test

006343576-01, P = 6.398988 Days, E = 128.319749 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
29.9	6.95	4.02	4.39	4.88	2.30	1.39	25.9	25.5	2.93	2.56	0.34	1.15	0.13	0.49





### Stellar Parameters For KIC 006343576

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5178^{+124}_{-171}$	$3.286^{+0.372}_{-0.217}$	$-0.220^{+0.250}_{-0.300}$	$4.856^{+1.456}_{-2.366}$	$1.660^{+0.221}_{-0.662}$	$0.020^{+0.069}_{-0.011}$
	+2%/-3%	+11%/-7%	+114%/-136%	+30%/-49%	+13%/-40%	+339%/-55%
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 006343576-01 / KOI 4438.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-42 \pm 5$	$13.55^{+12.91}_{-7.97}$	$2482^{+220}_{-287}$	$2835^{+1227}_{-5255}$	$0.758^{+3.718}_{-0.559}$
Alt.	$-42 \pm 6$	$10.96^{+11.10}_{-7.55}$	$2488^{+217}_{-301}$	$3167^{+1763}_{-4960}$	$1.164^{+10.764}_{-0.870}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

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

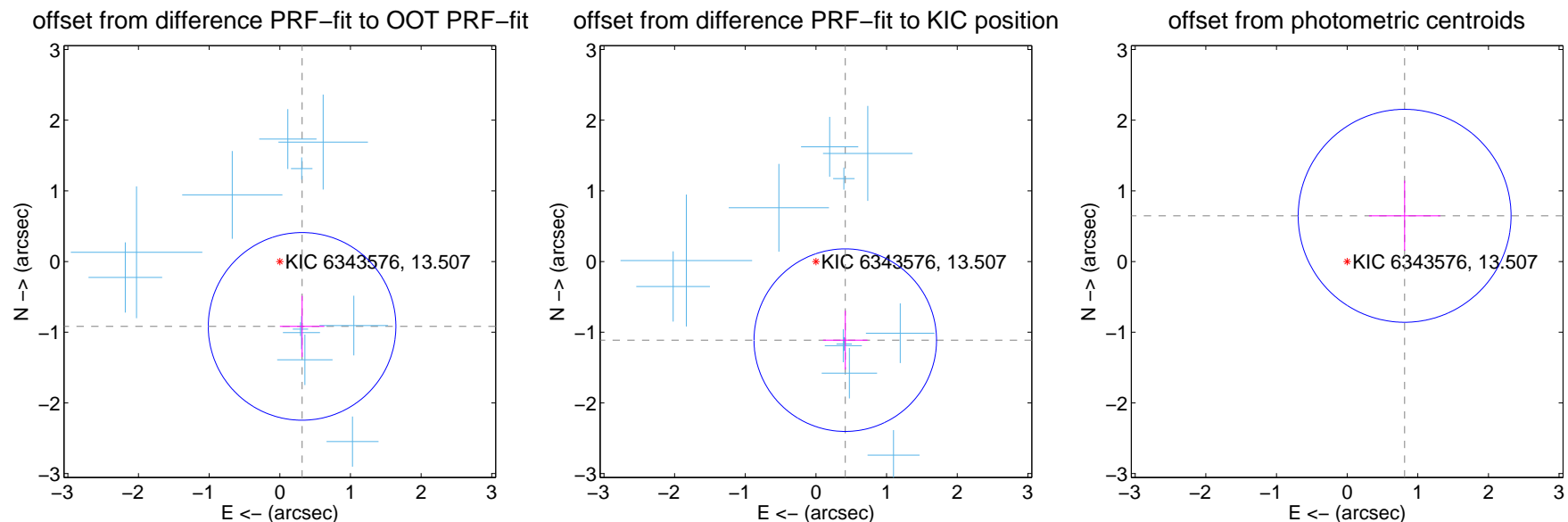
## DV Centroid Data

Supplemental centroid analysis for 006343576-01. Kepler magnitude: 13.51. Transit SNR 17.94

There are 11 quarters with good PRF difference image offsets

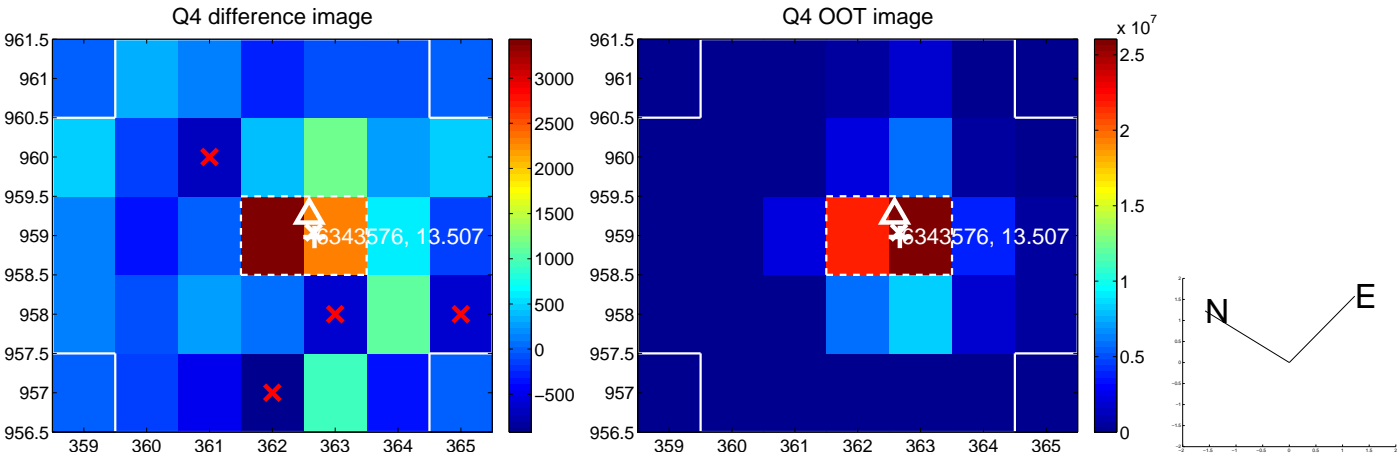
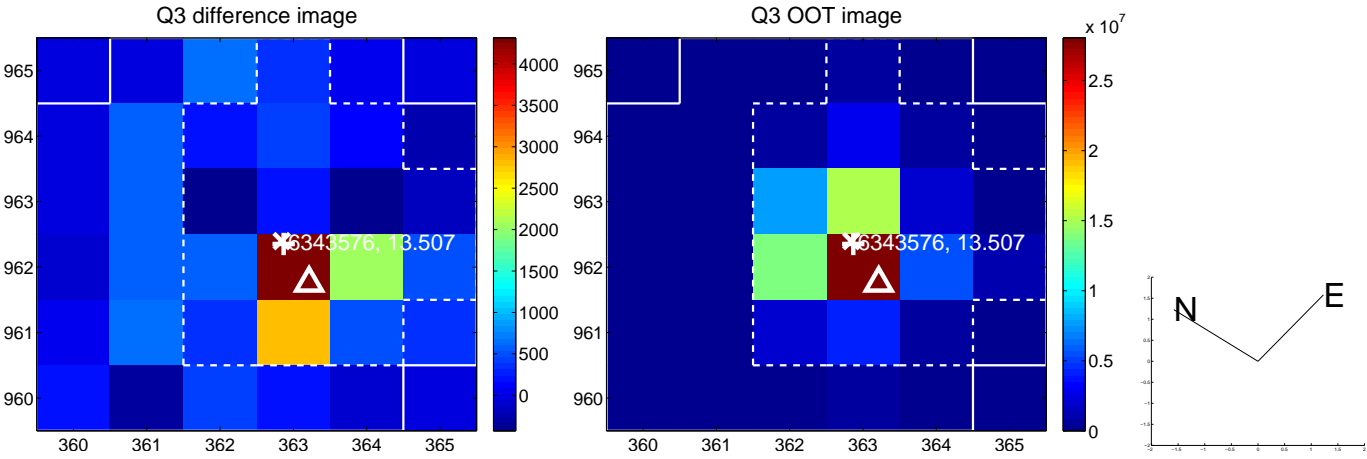
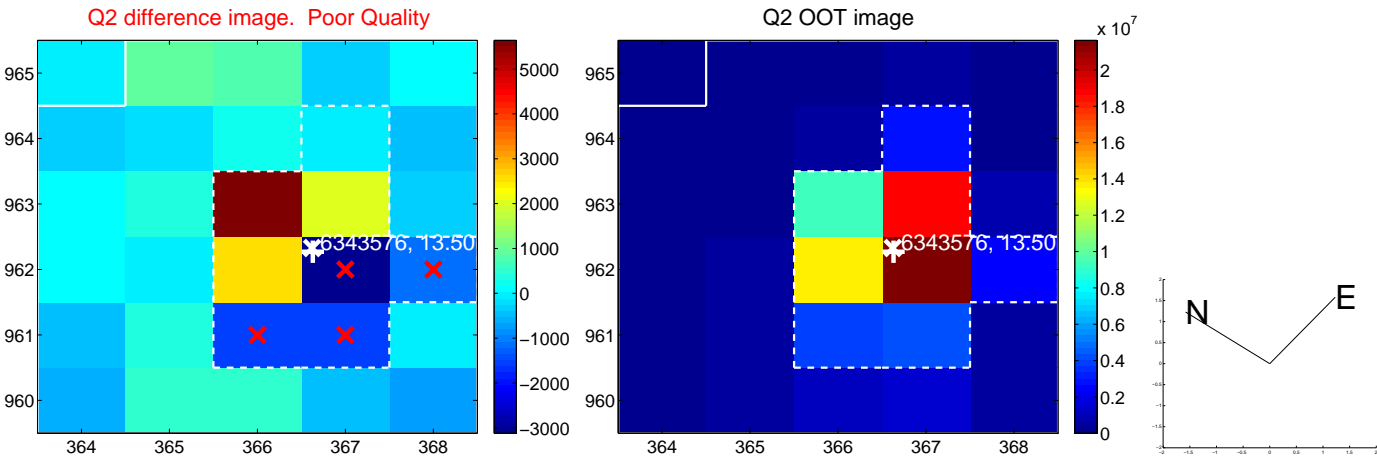
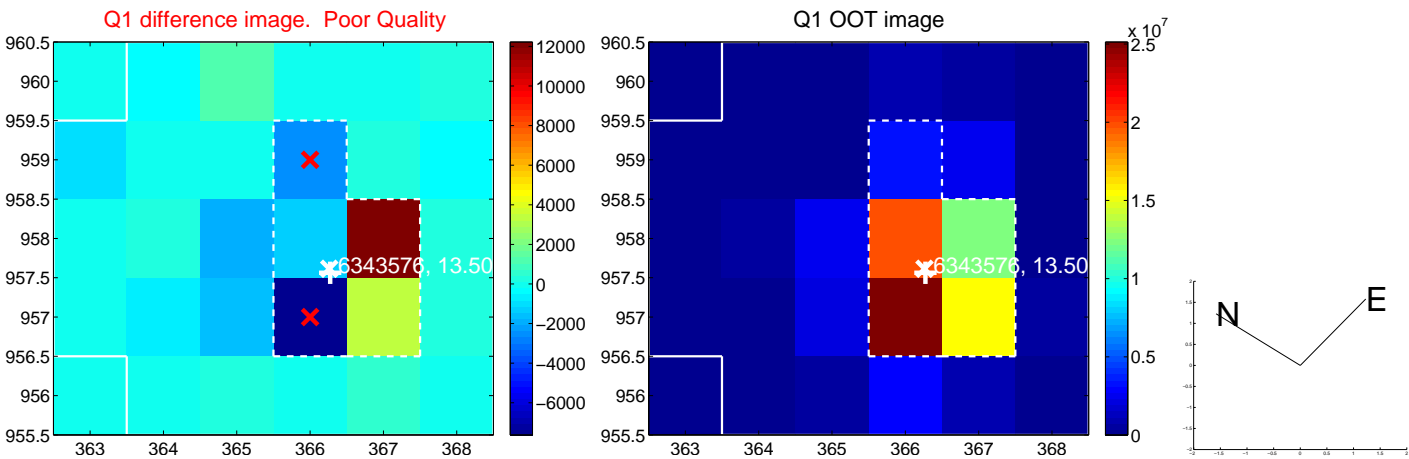
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.970 \pm 0.442$	2.19	$-0.315 \pm 0.315$	$-0.918 \pm 0.432$
PRF-fit source offset from KIC position	$1.187 \pm 0.430$	2.76	$-0.415 \pm 0.314$	$-1.112 \pm 0.415$
photometric centroid source offset	$1.04 \pm 0.50$	2.07	$-0.81 \pm 0.51$	$0.65 \pm 0.50$

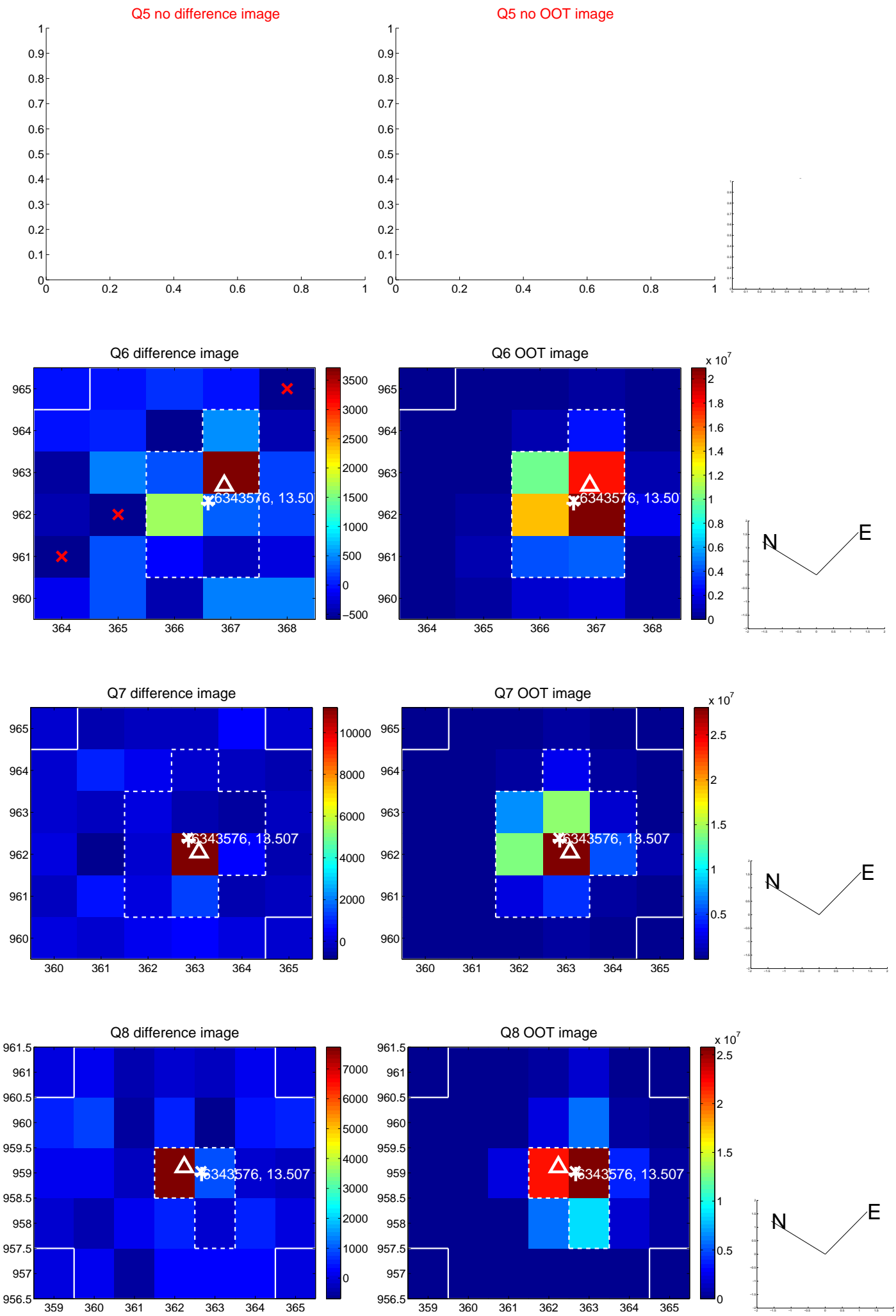


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

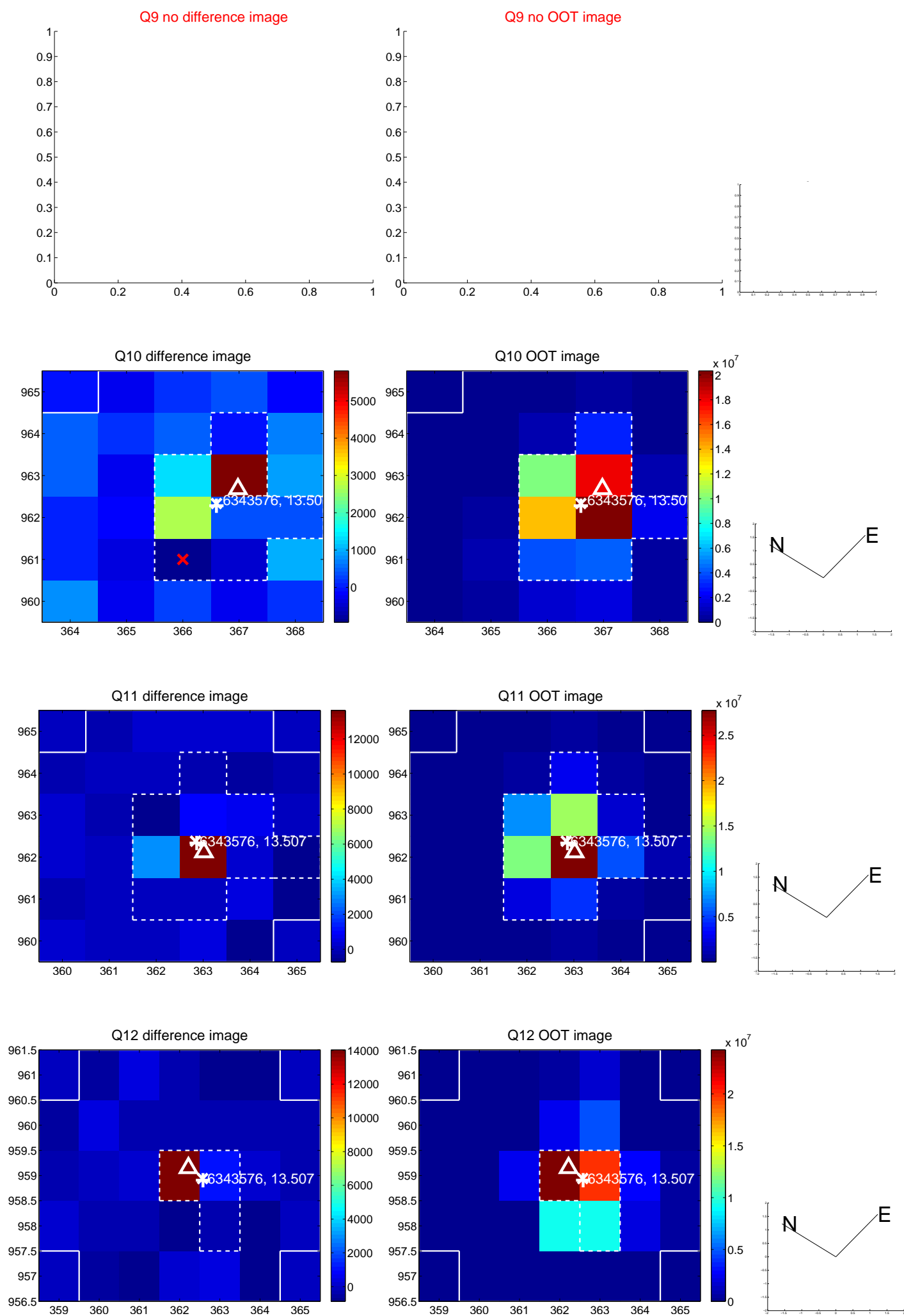


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

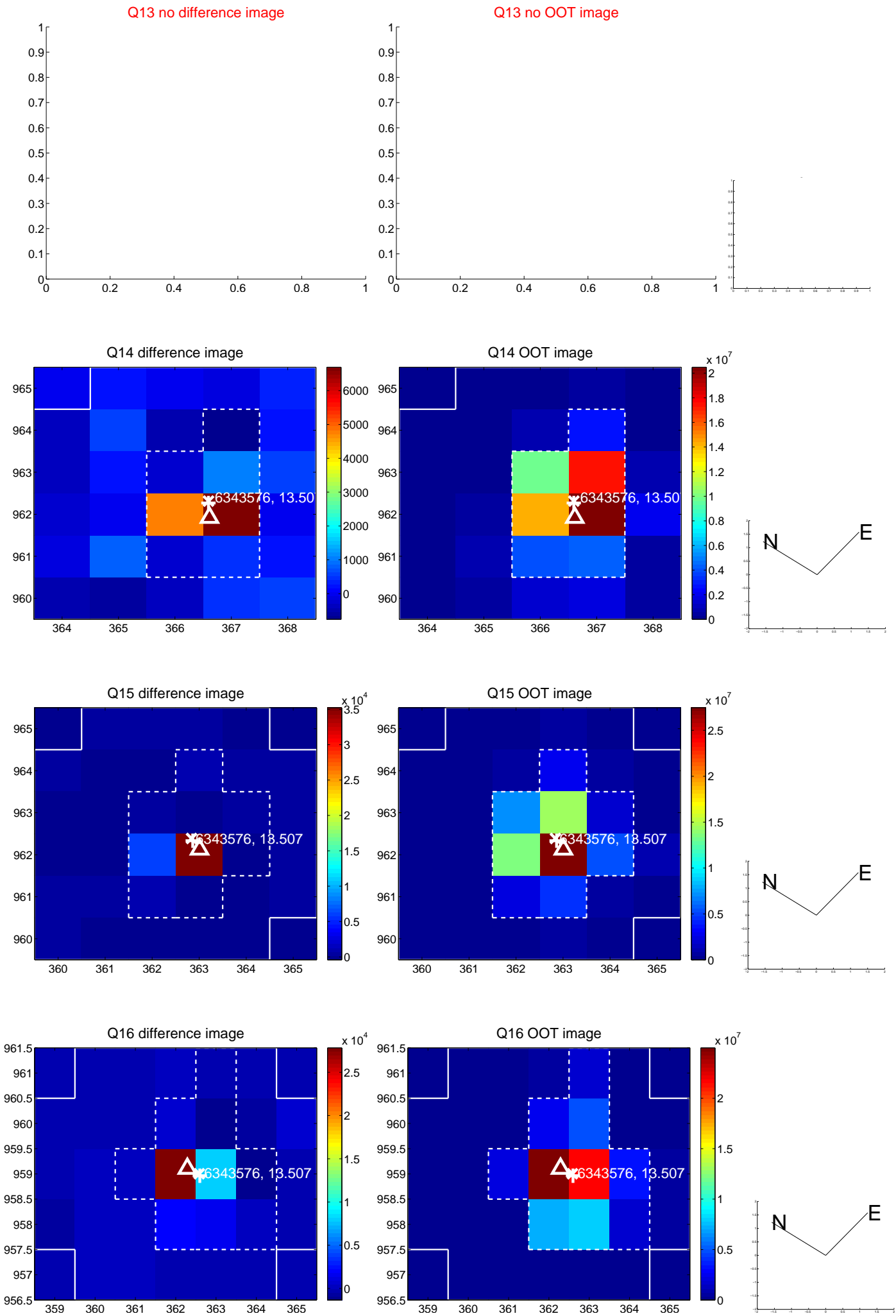




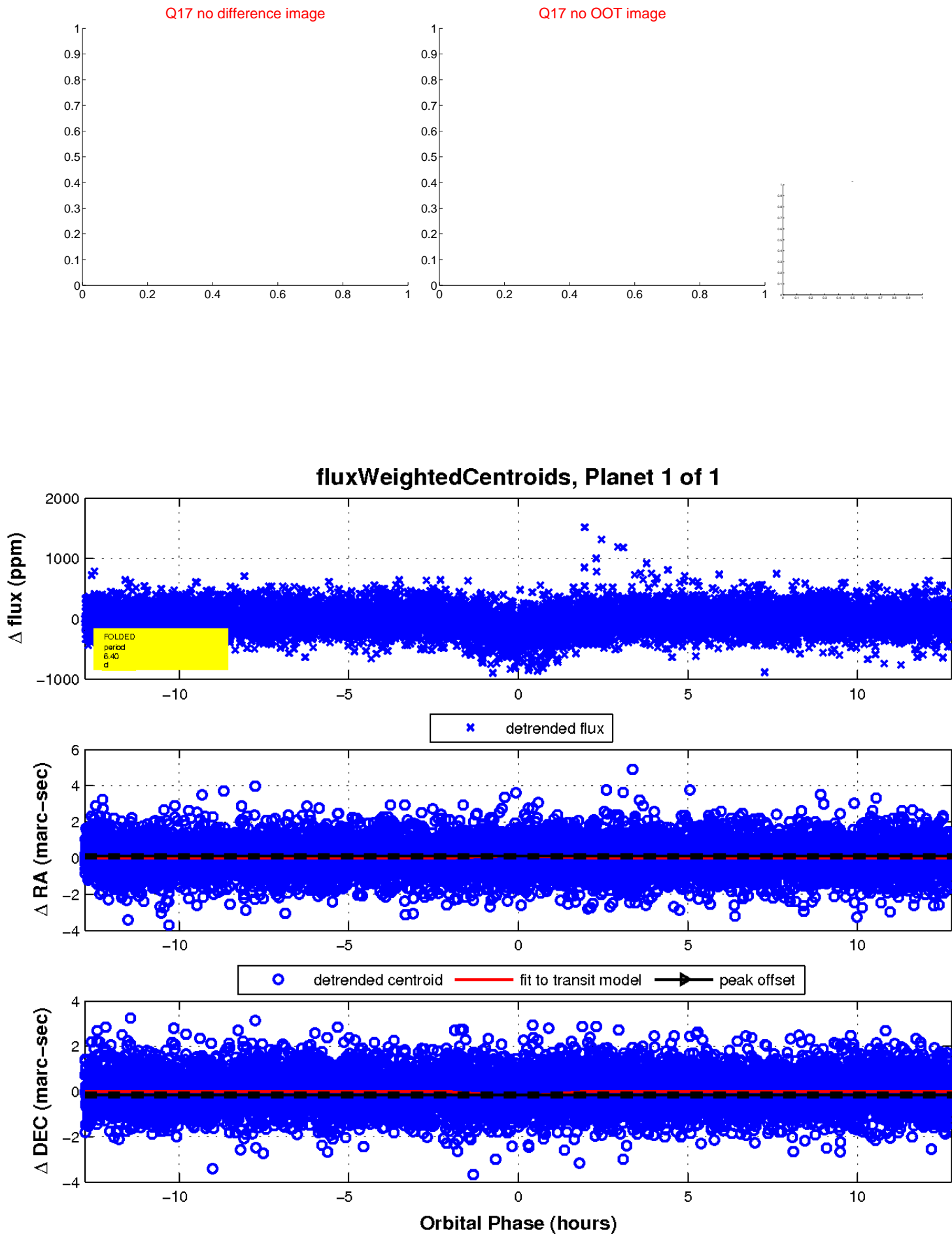
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

