

# KIC 008625732

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008625732-01	OBS	4701.01	31.973748	133.864919	122.5	10.879	8.9	9.0	0.85	5632	1.06	17.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008625732-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—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 008625732-01

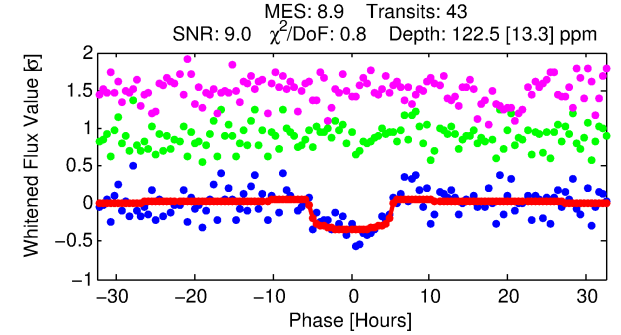
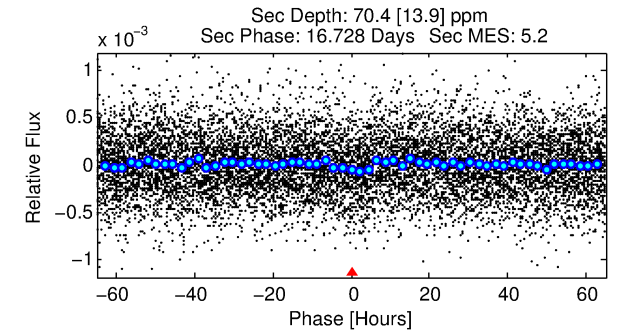
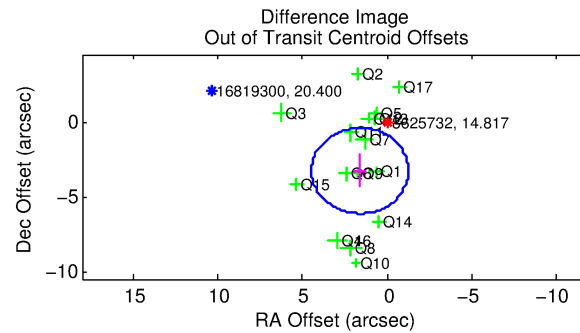
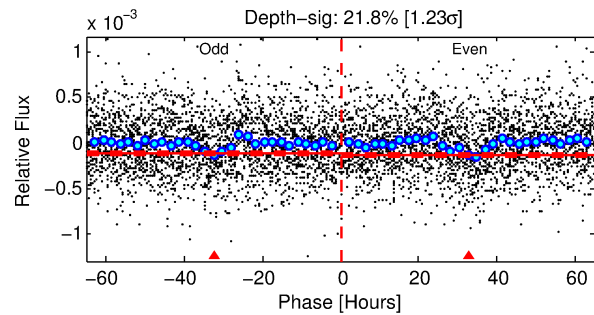
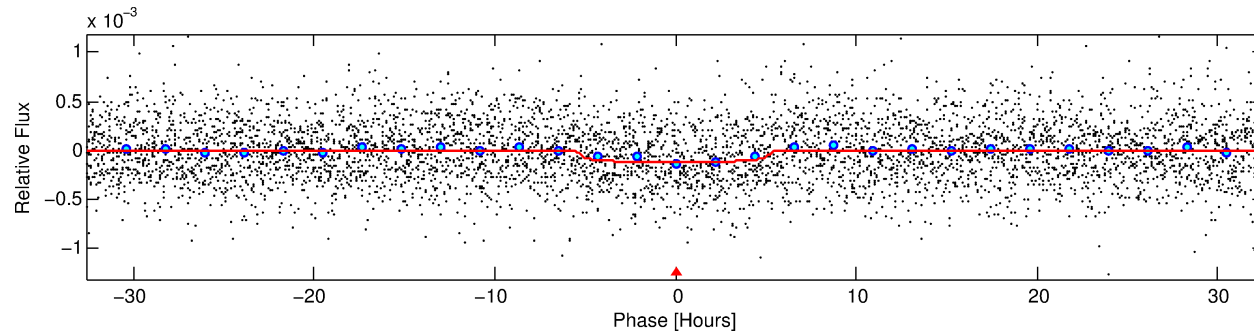
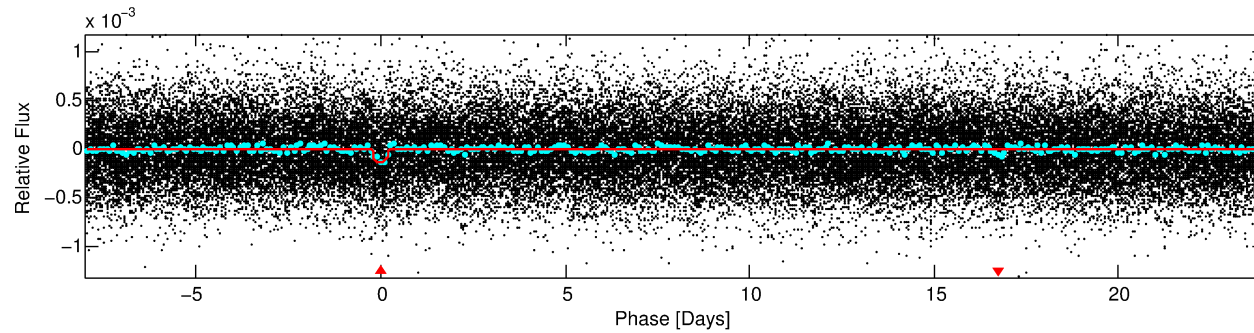
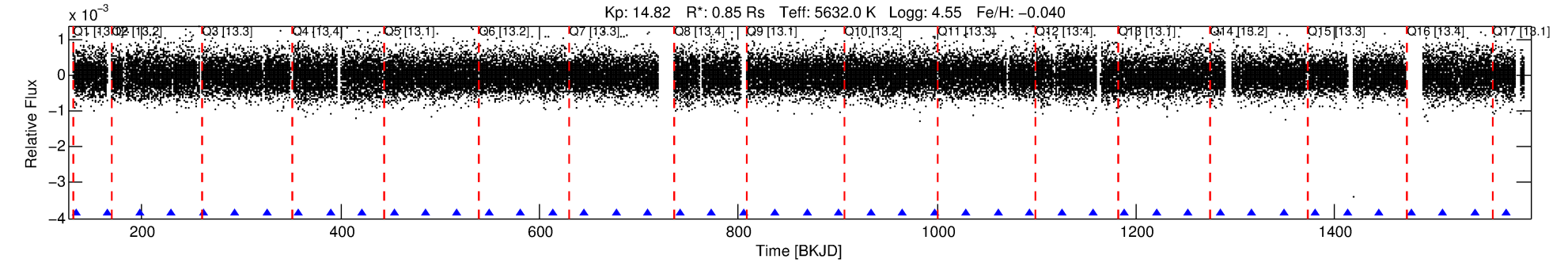
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008625732-01	8625732	008560861-01	8560861	1:1	115.2	-20	21	8.50	14.82	619.32	Direct-PRF	0	0.36	0.06

**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: 8625732 Candidate: 1 of 1 Period: 31.974 d

KOI: K04701.01 Corr: 0.884



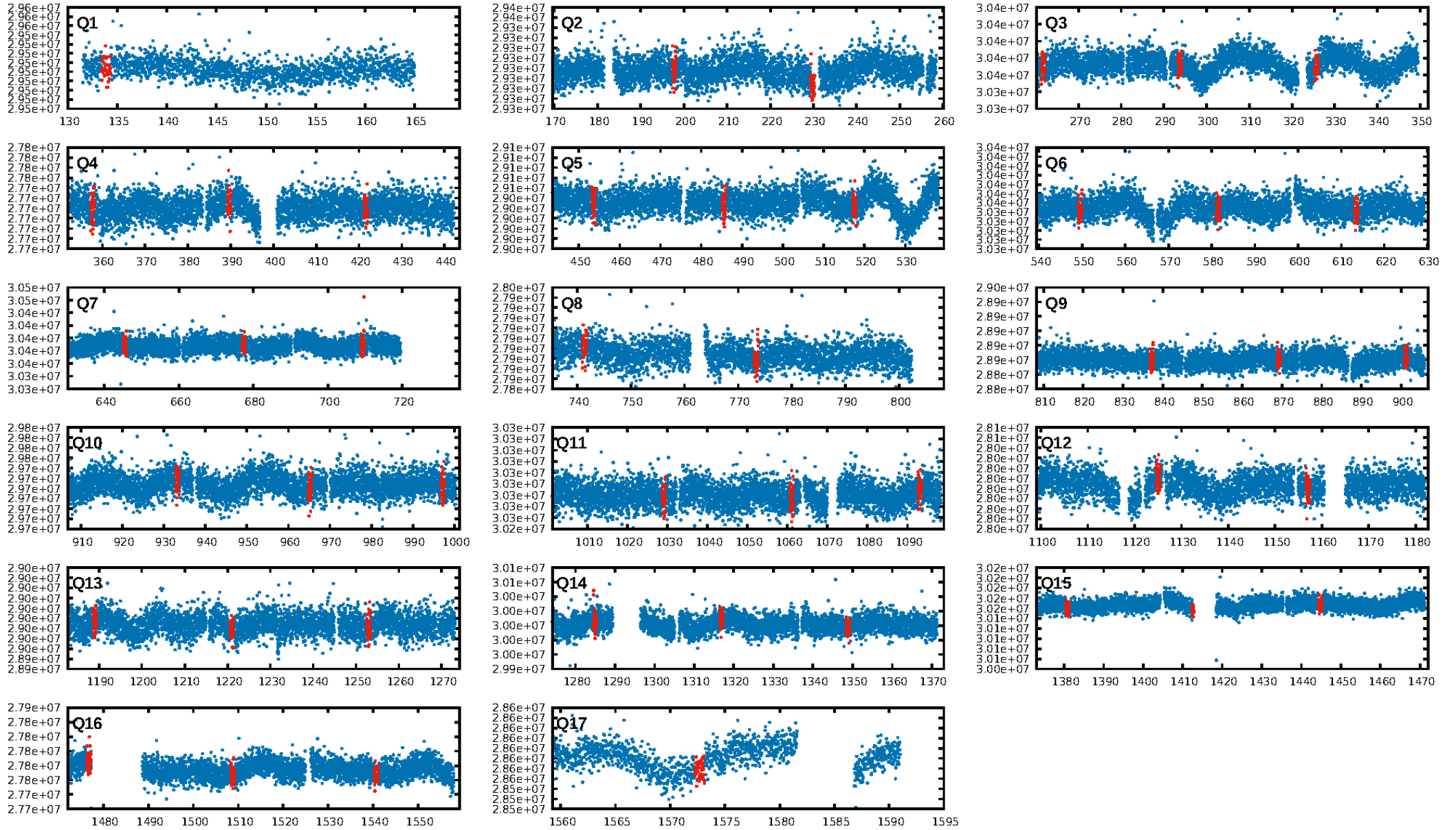
## DV Fit Results:

Period = 31.97375 [0.00072] d  
Epoch = 133.8649 [0.0187] BKJD  
Rp/R\* = 0.0114 [0.0052]  
a/R\* = 13.27 [26.60]  
b = 0.82 [0.81]  
Seff = 17.45 [6.24]  
Teq = 521 [47] K  
Rp = 1.06 [0.57] Re  
a = 0.1939 [0.0452] AU  
Ag = 1291.67 [1286.18] [1.00 $\sigma$ ]  
Teffp = 4831 [1137] K [3.79 $\sigma$ ]

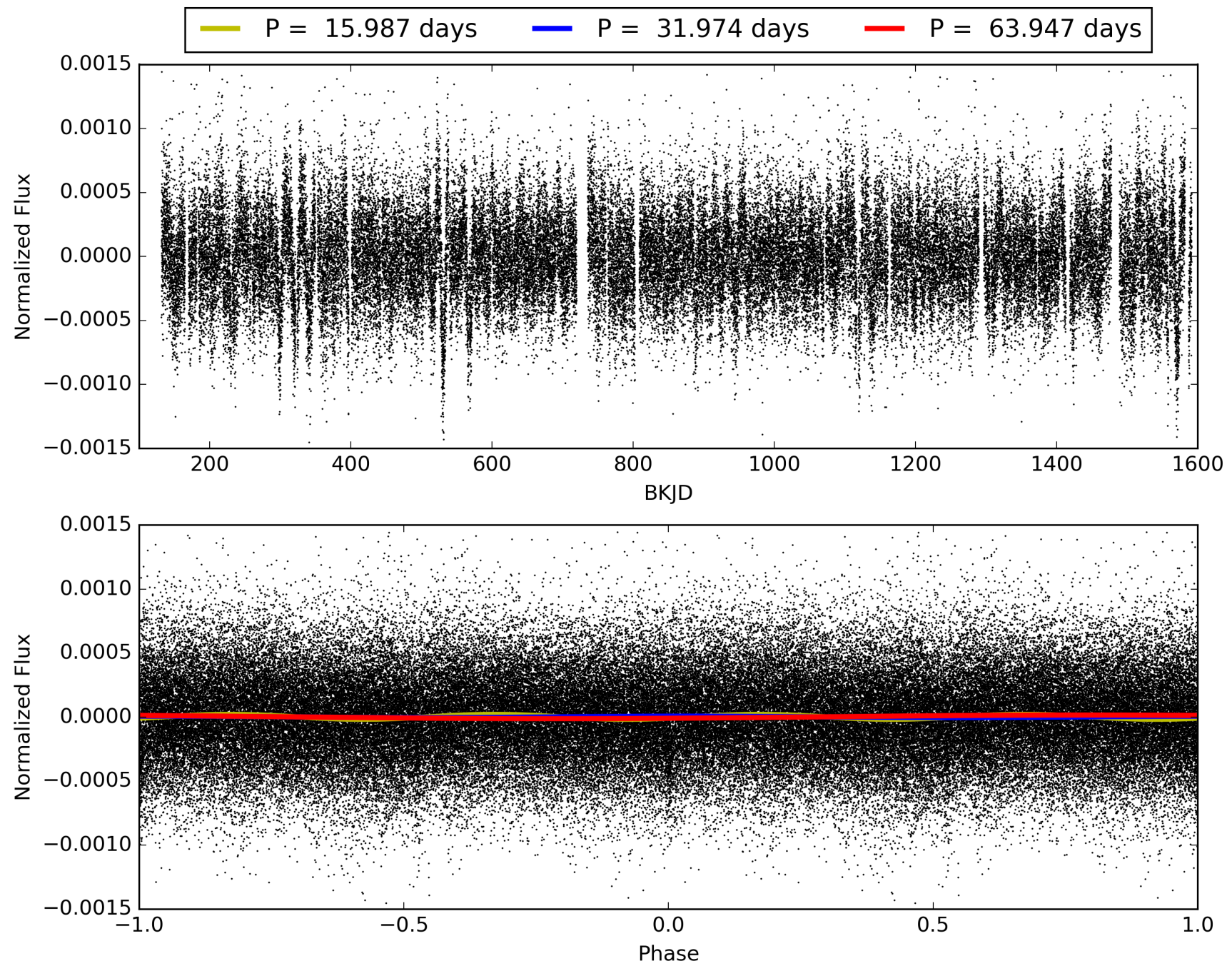
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.69e-18  
RollingBand-fgt: 1.00 [41/41]  
GhostDiagnostic-chr: 0.04237  
Centroid-sig: 0.0%  
Centroid-so: 4.526 arcsec [3.22 $\sigma$ ]  
OotOffset-rm: 3.655 arcsec [3.84 $\sigma$ ]  
KicOffset-rm: 3.714 arcsec [3.88 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.24 [4/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008625732-01, PDC Light Curves



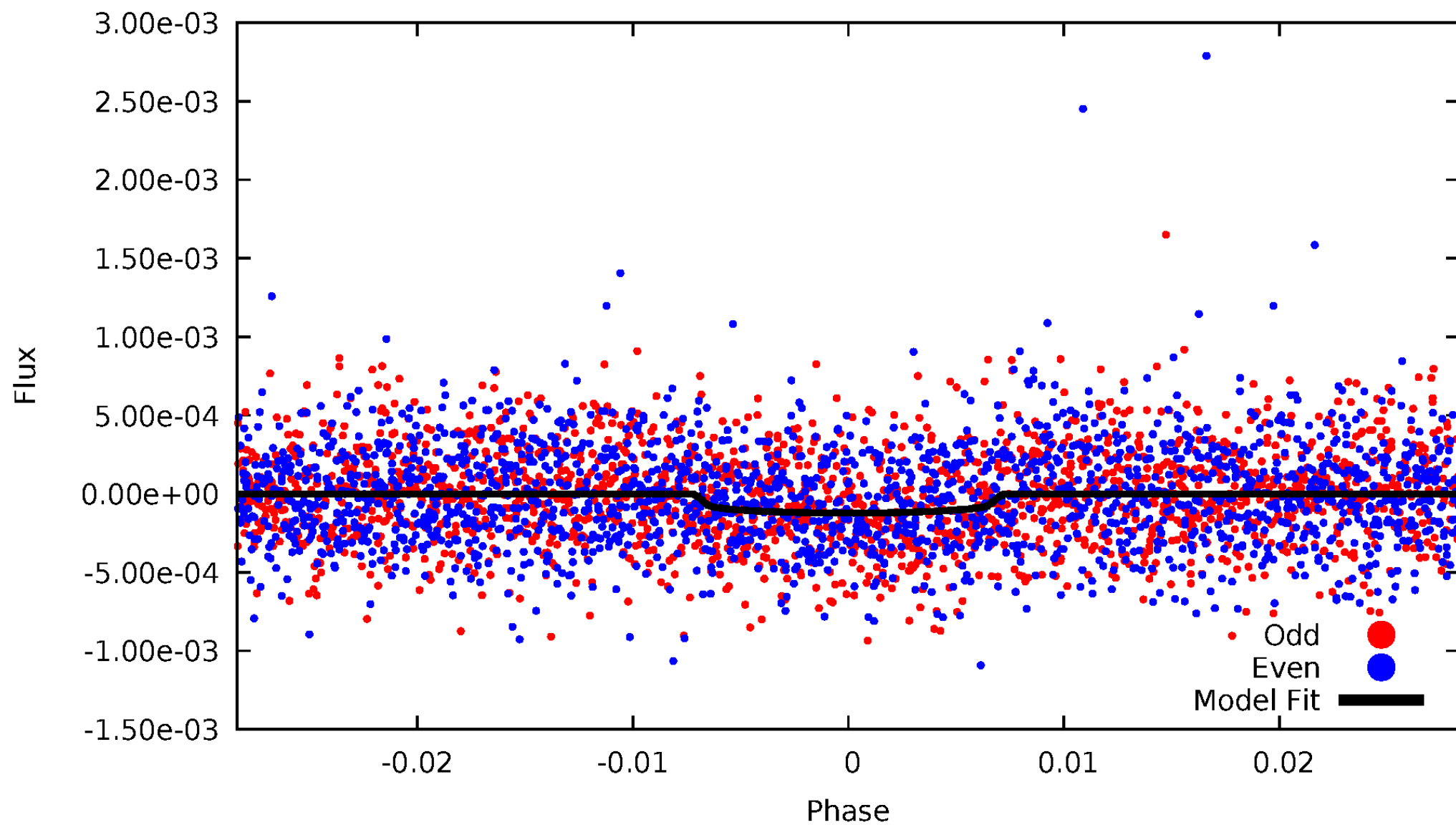
TCE 008625732-01





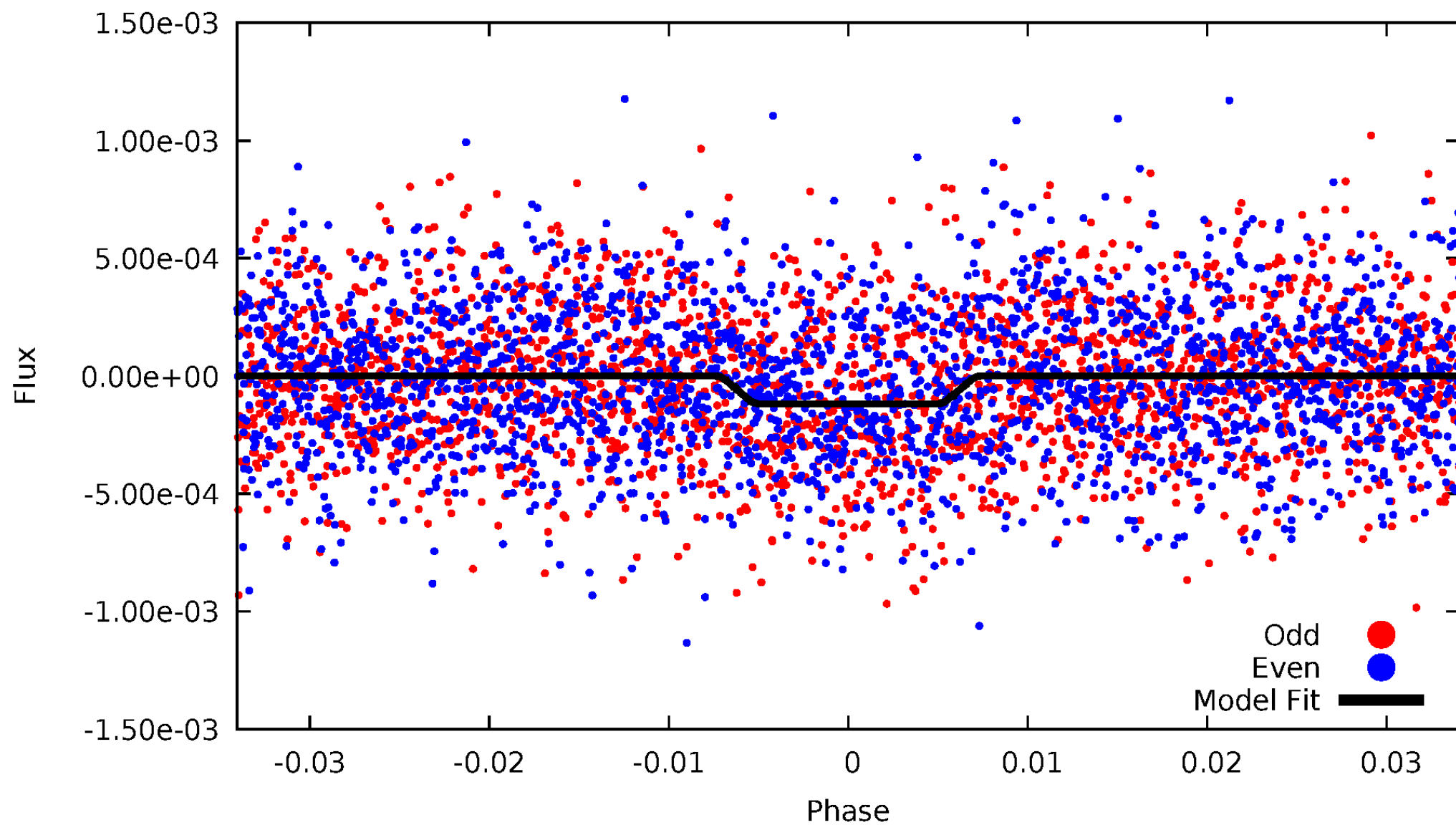
# DV Odd/Even

TCE 008625732-01

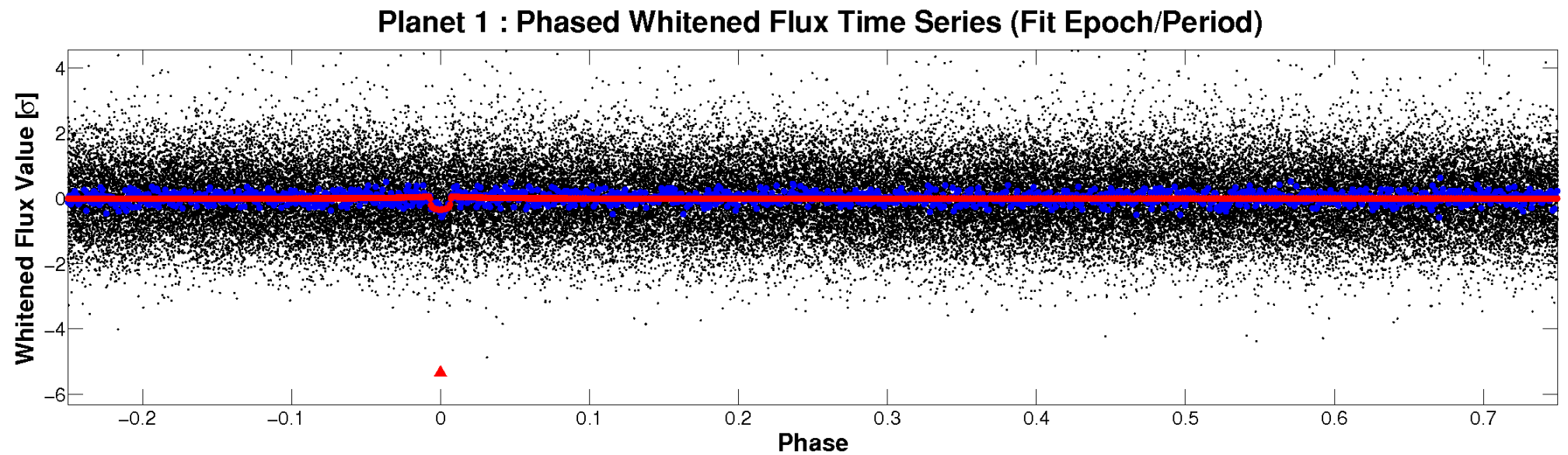
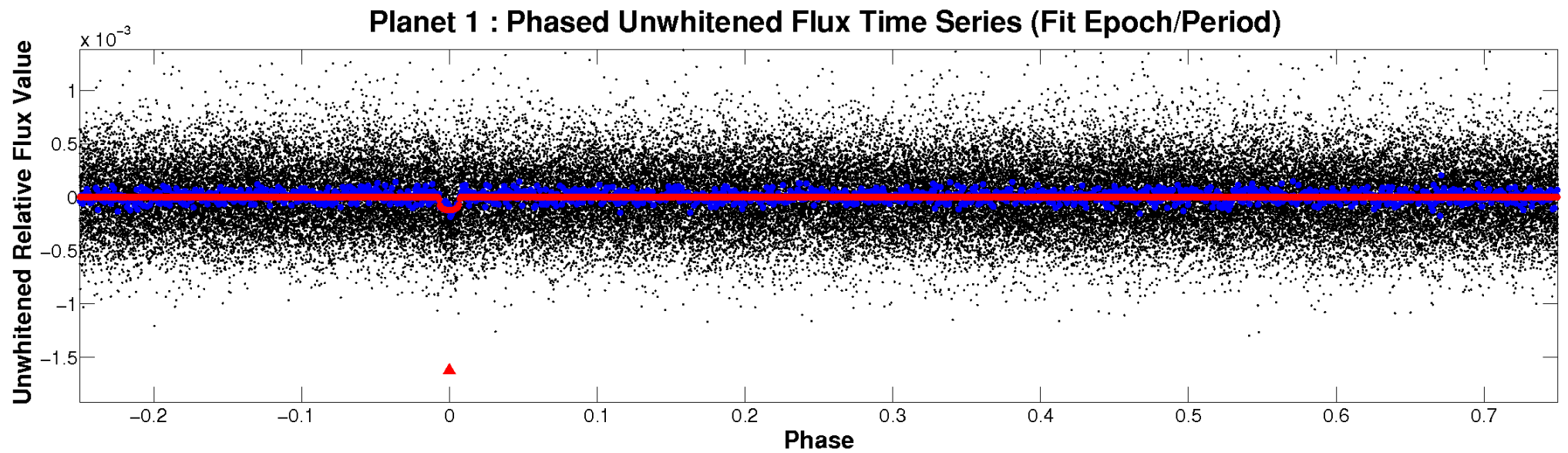


# ALT Odd/Even

TCE 008625732-01

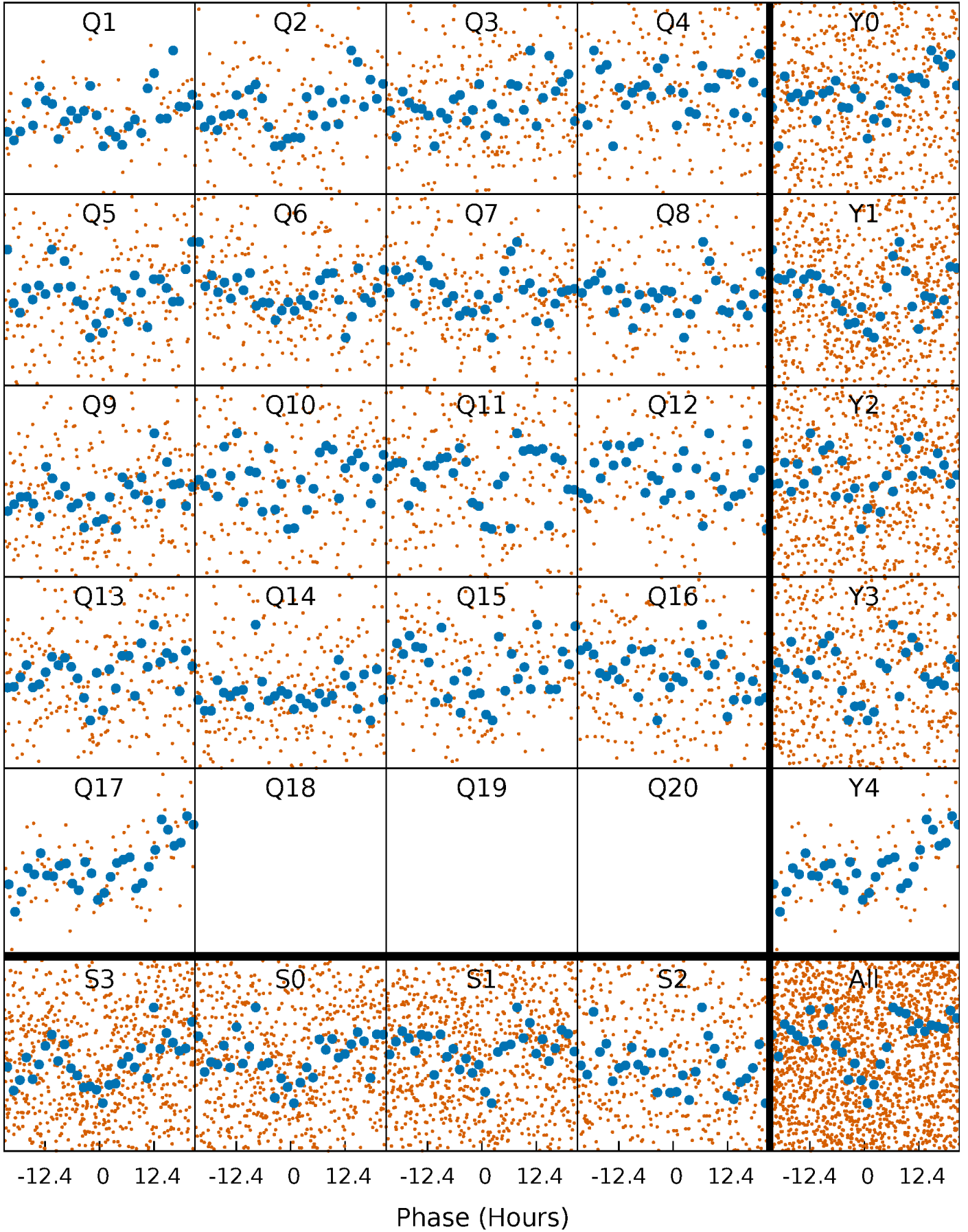


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

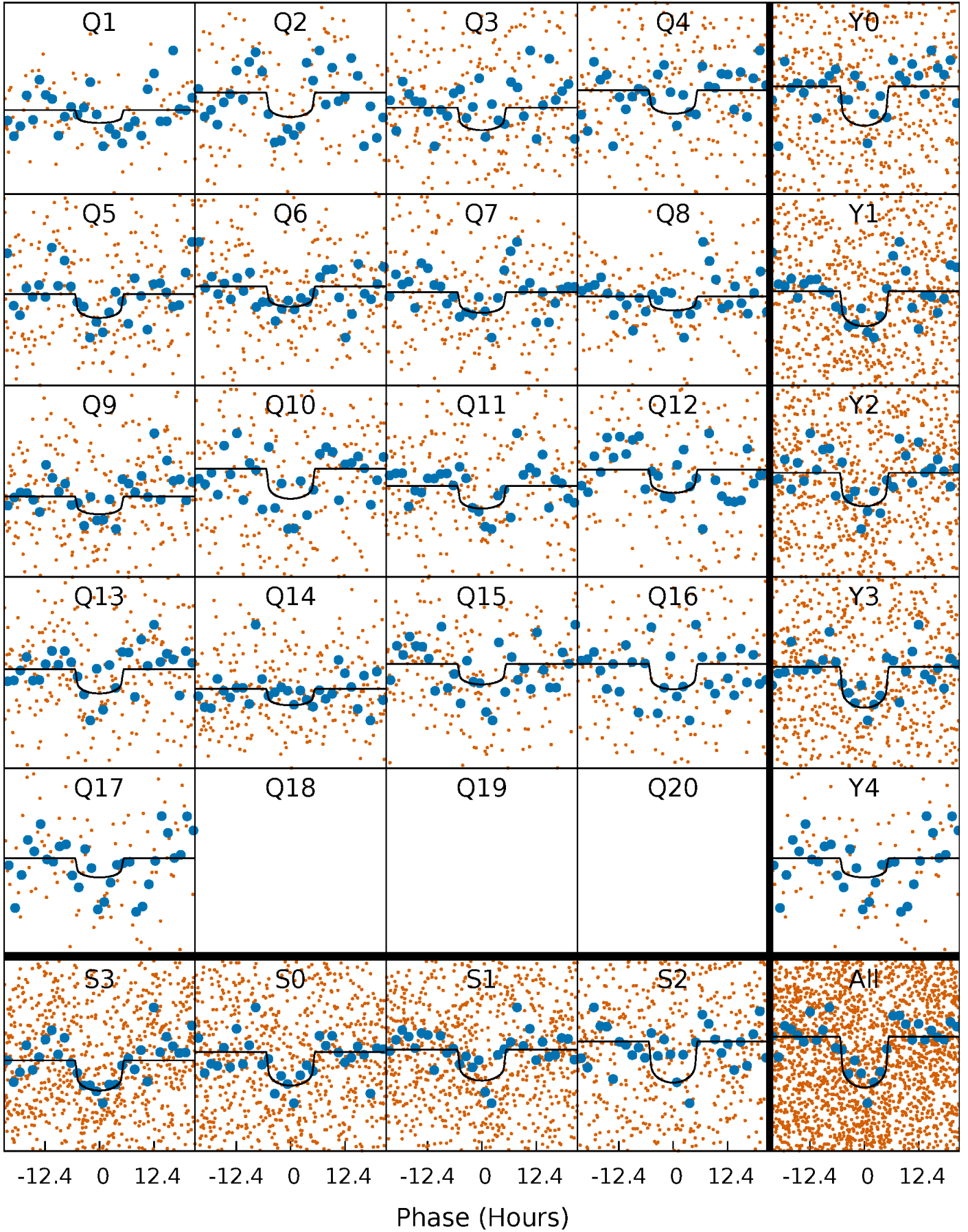
TCE 008625732-01 P= 31.973748 Days  $T_0=133.864919$  (BKJD)





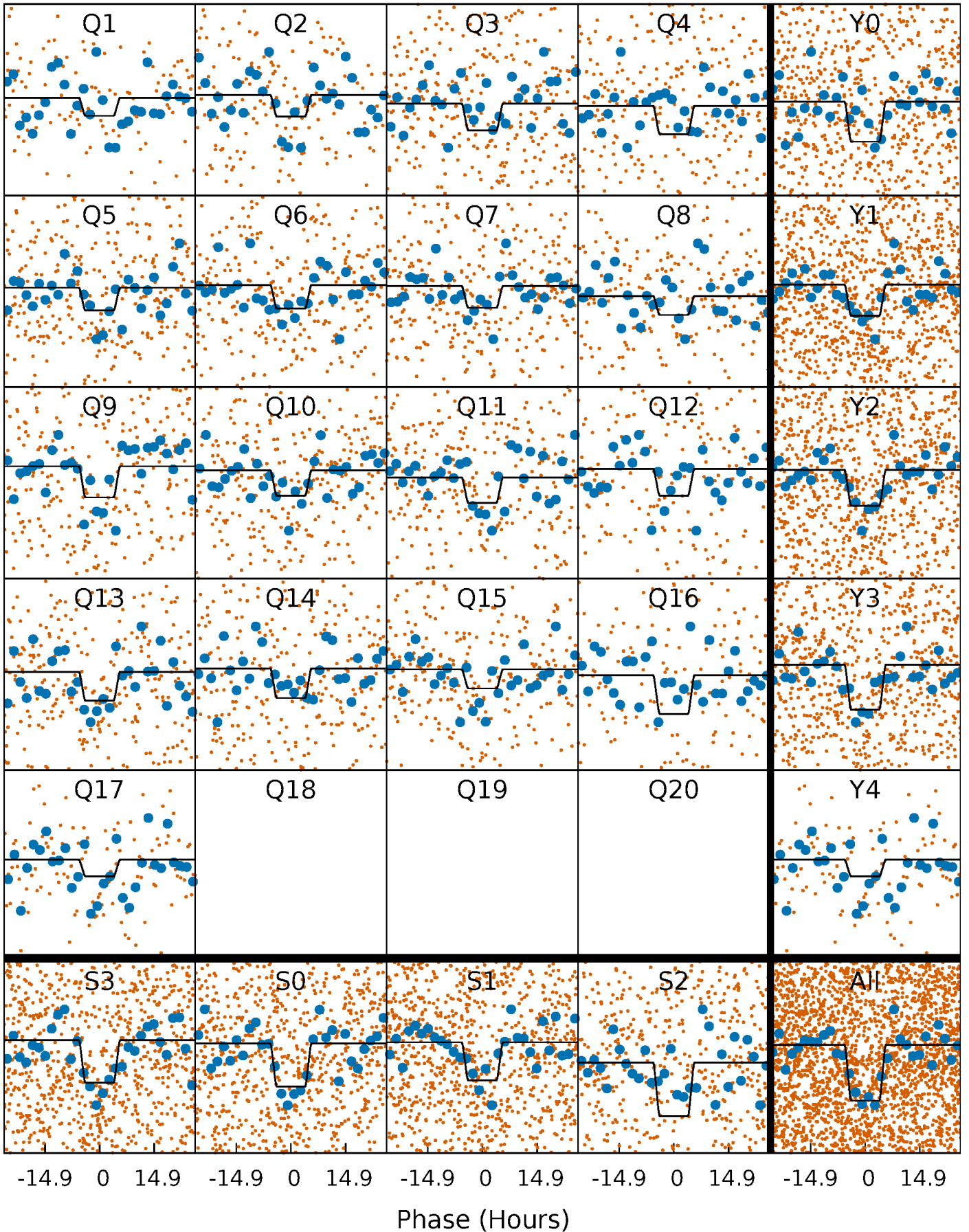
# DV Quarter-Phased Transit Curves

TCE 008625732-01 P= 31.973748 Days  $T_0=133.864919$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

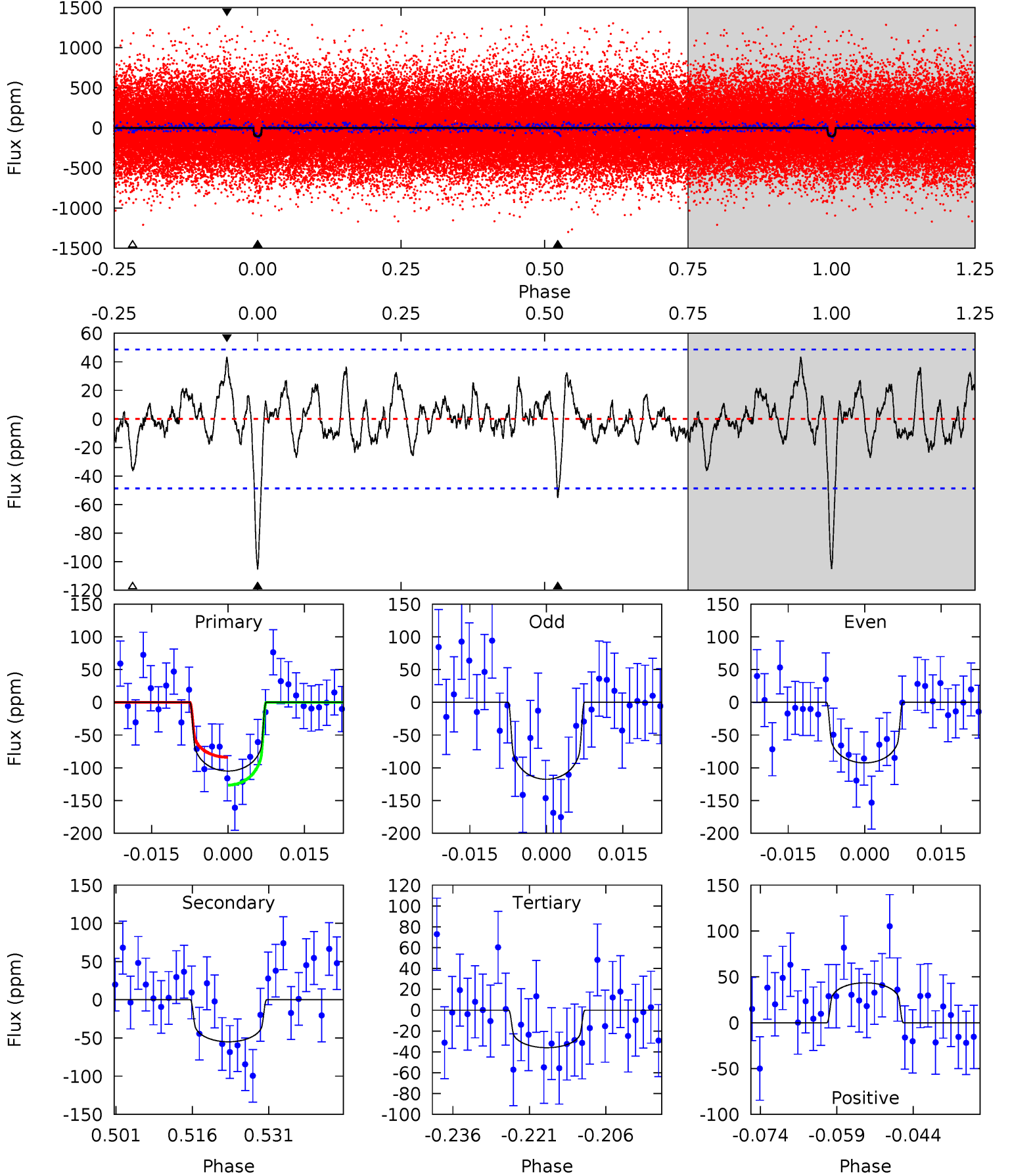
TCE 008625732-01 P= 31.976483 Days  $T_0=133.806034$  (BKJD)



# DV Model-Shift Uniqueness Test

008625732-01,  $P = 31.973748$  Days,  $E = 101.891171$  Days

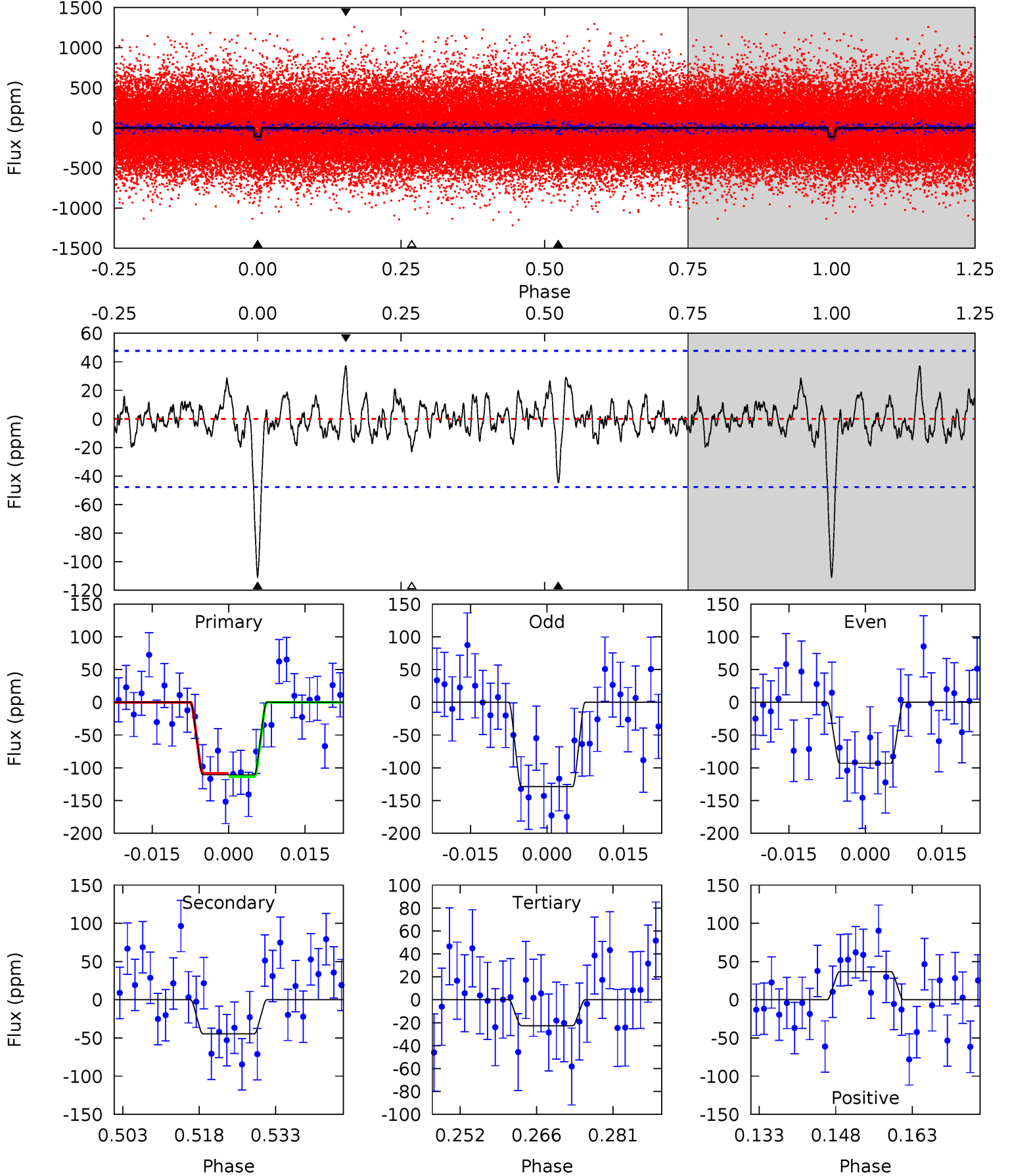
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	5.60	3.67	4.43	4.95	2.44	1.26	7.03	6.26	1.94	1.17	1.28	0.98	0.29	2.17



# Alt Model-Shift Uniqueness Test

008625732-01,  $P = 31.976483$  Days,  $E = 101.829551$  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
11.5	4.63	2.35	3.82	4.95	2.44	0.97	9.14	7.66	2.28	0.81	1.85	1.04	0.25	0.25





### Stellar Parameters For KIC 008625732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5632^{+152}_{-152}$	$4.554^{+0.033}_{-0.187}$	$-0.040^{+0.300}_{-0.300}$	$0.853^{+0.235}_{-0.073}$	$0.952^{+0.094}_{-0.115}$	$2.163^{+0.407}_{-1.083}$
	+3%/-3%	+1%/-4%	+750%/-750%	+28%/-9%	+10%/-12%	+19%/-50%
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 008625732-01 / KOI 4701.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-55 \pm 10$	$1.13^{+0.53}_{-0.50}$	$746^{+46}_{-32}$	$4591^{+1458}_{-587}$	$818^{+1960}_{-434}$
Alt.	$-45 \pm 10$	$1.08^{+0.53}_{-0.48}$	$746^{+45}_{-30}$	$4548^{+1314}_{-637}$	$764^{+1747}_{-435}$

$T_{max}$  = 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

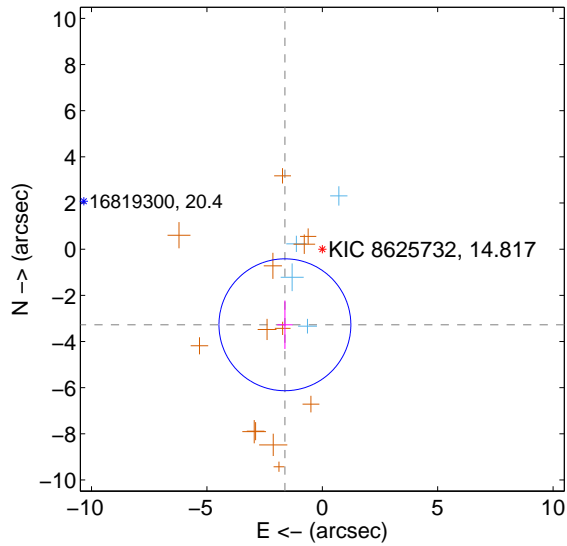
Supplemental centroid analysis for 008625732-01. Kepler magnitude: 14.82. Transit SNR 9.03

There are 4 quarters with good PRF difference image offsets

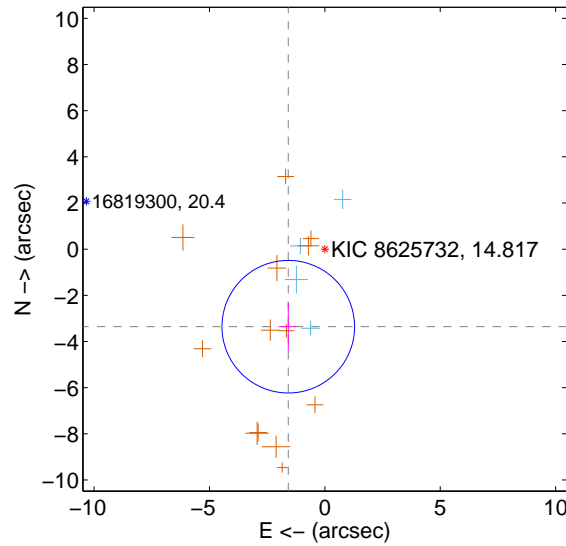
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.655 \pm 0.952$	3.84	$1.621 \pm 0.334$	$-3.276 \pm 1.050$
PRF-fit source offset from KIC position	$3.714 \pm 0.958$	3.88	$1.585 \pm 0.338$	$-3.359 \pm 1.047$
photometric centroid source offset	$4.53 \pm 1.40$	3.22	$3.48 \pm 1.36$	$-2.89 \pm 1.47$

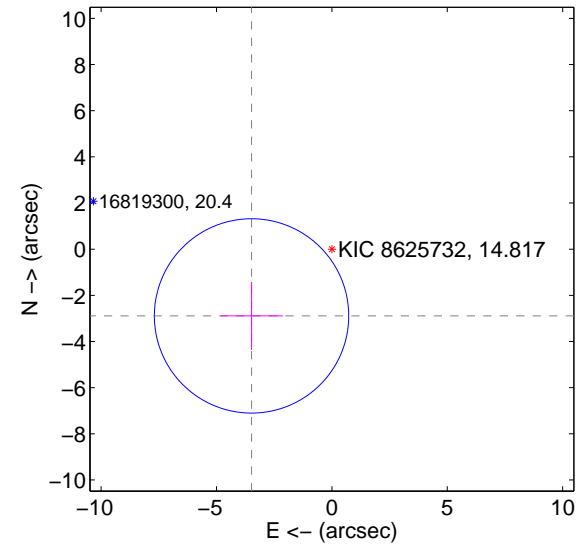
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

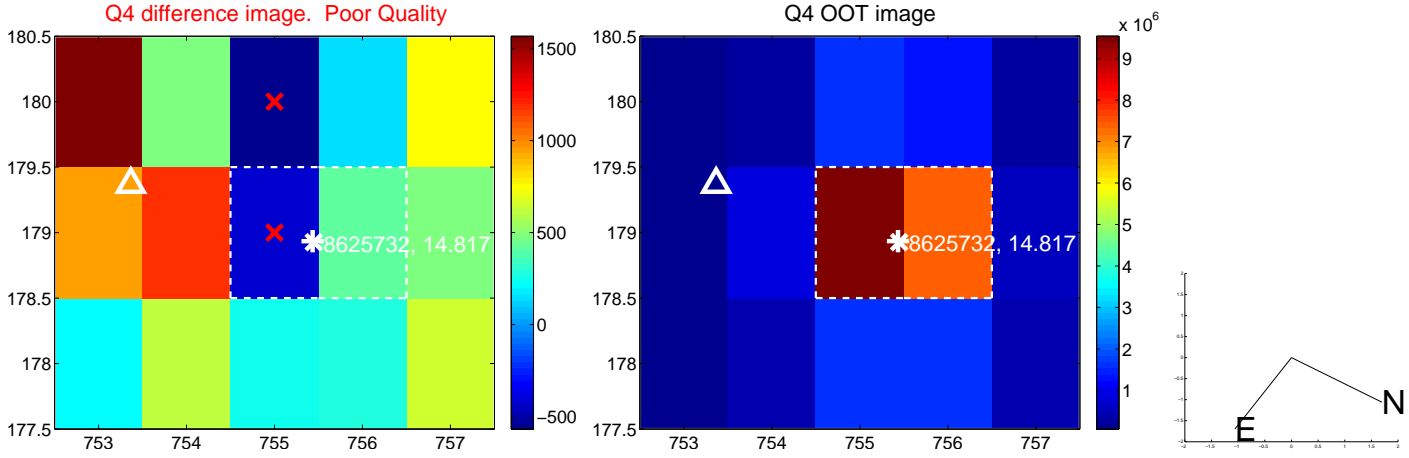
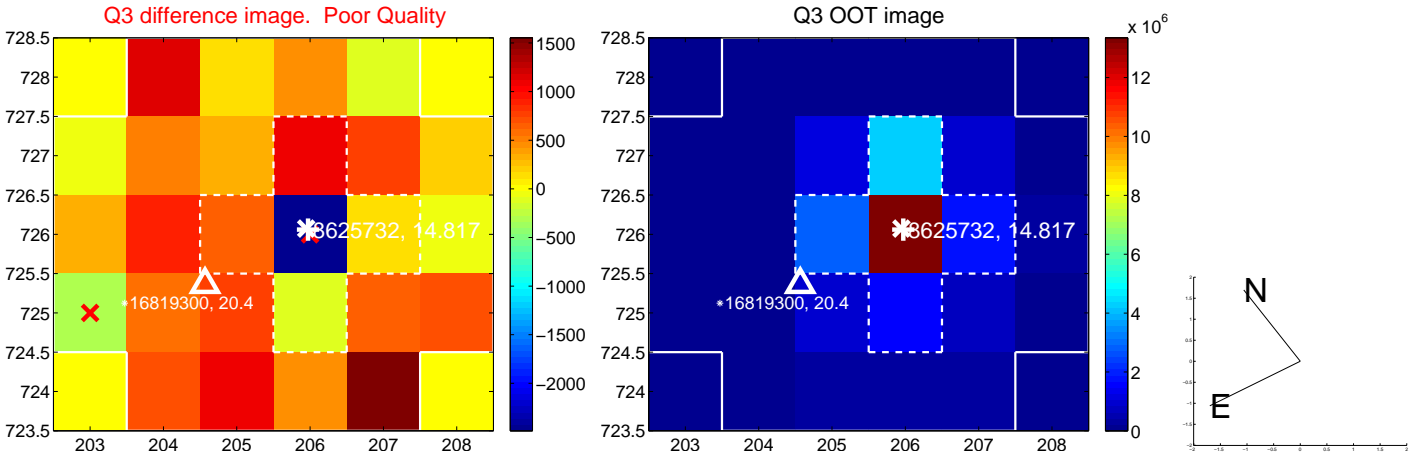
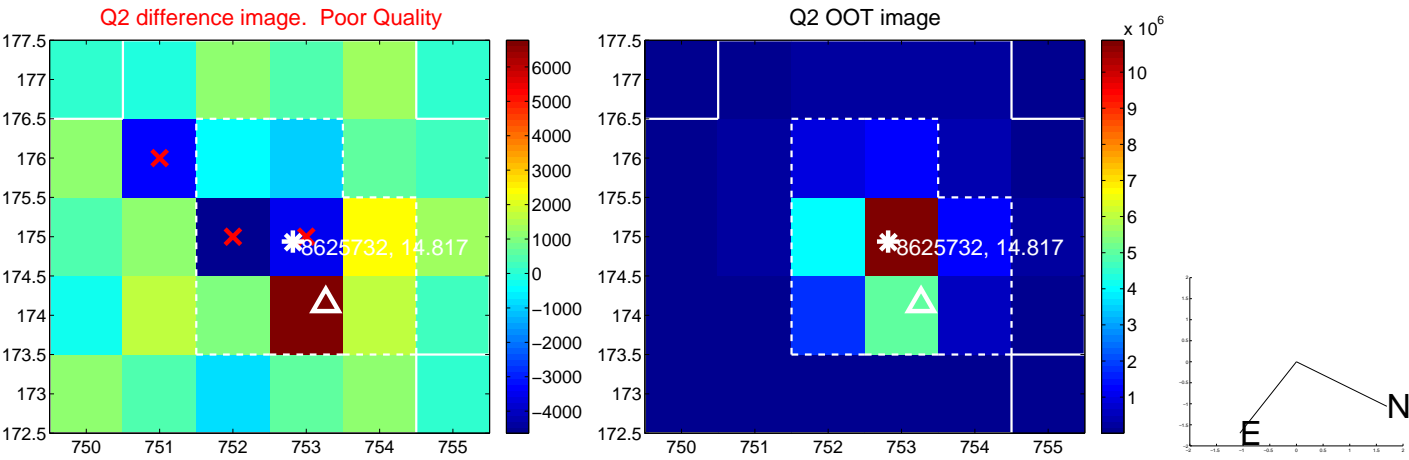
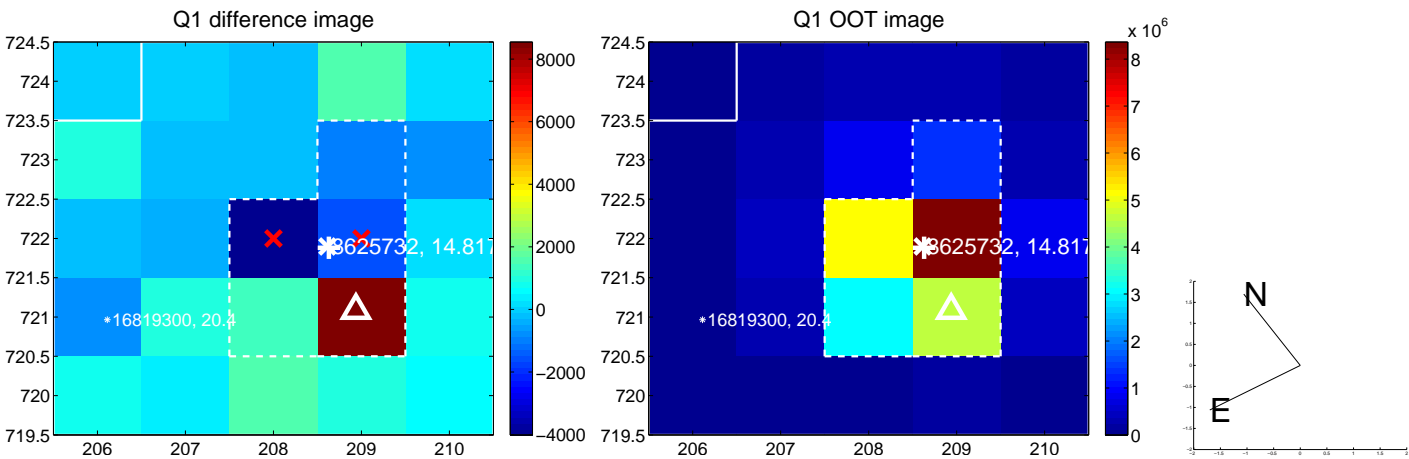


offset from photometric centroids

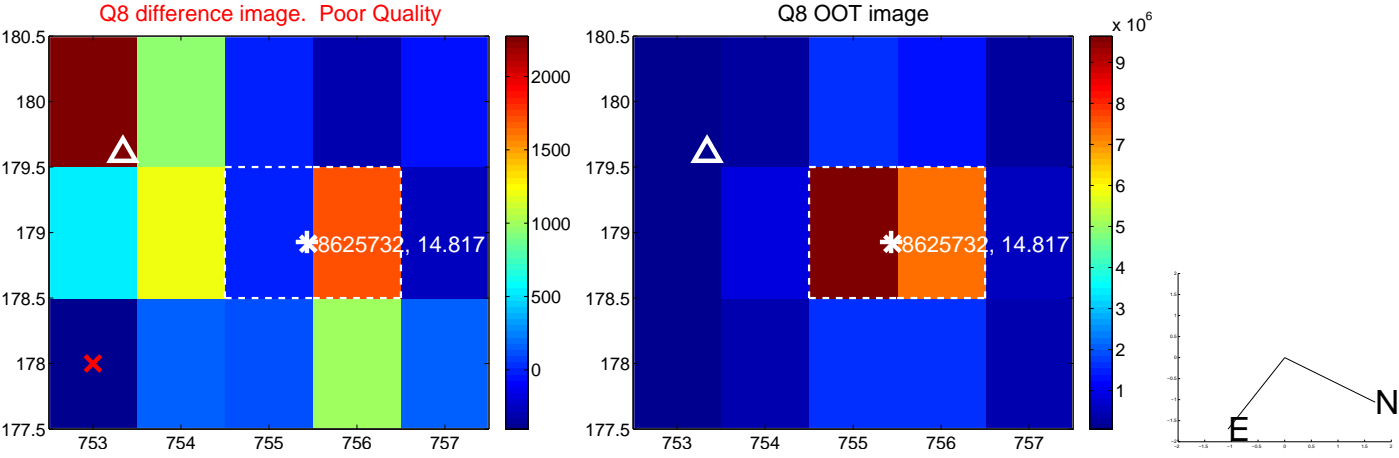
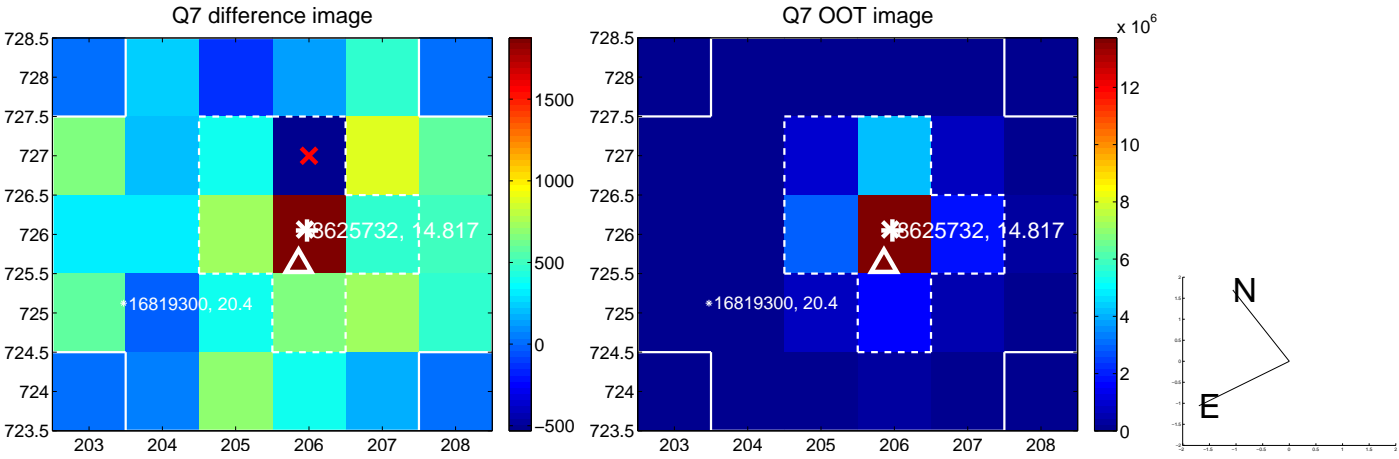
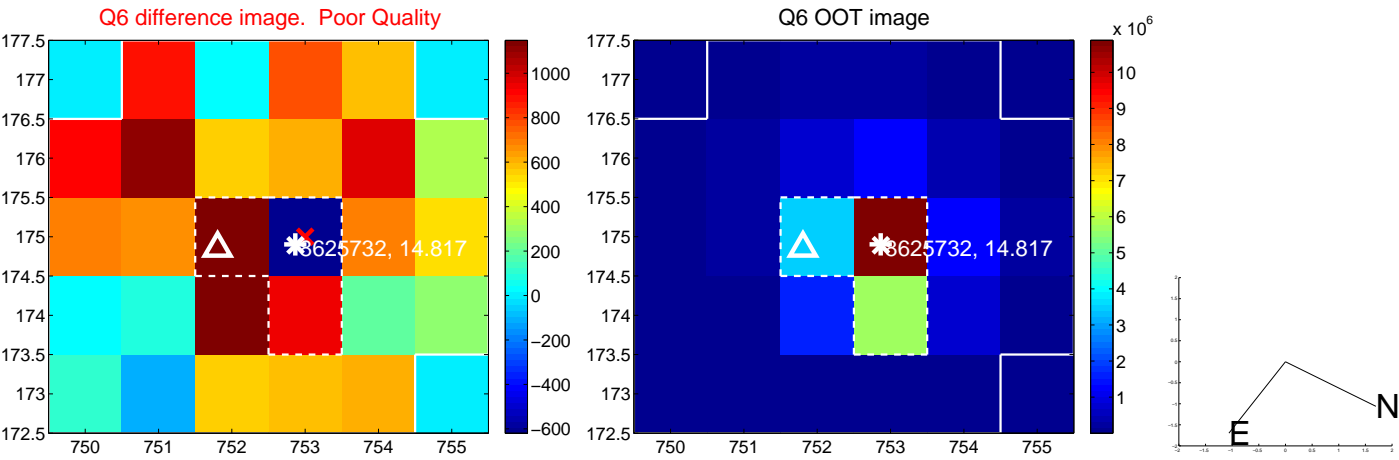
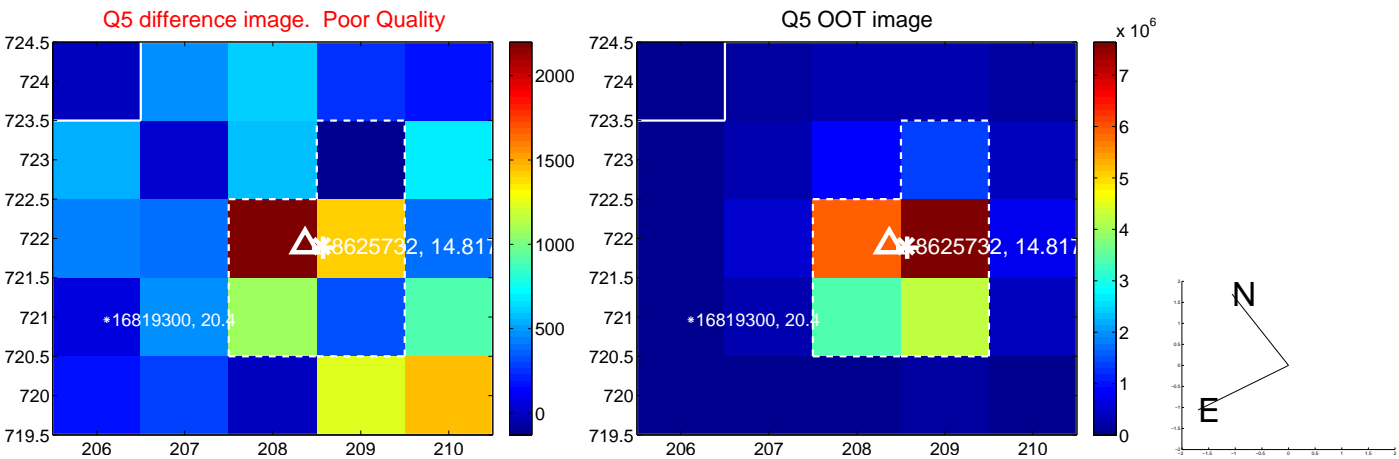


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

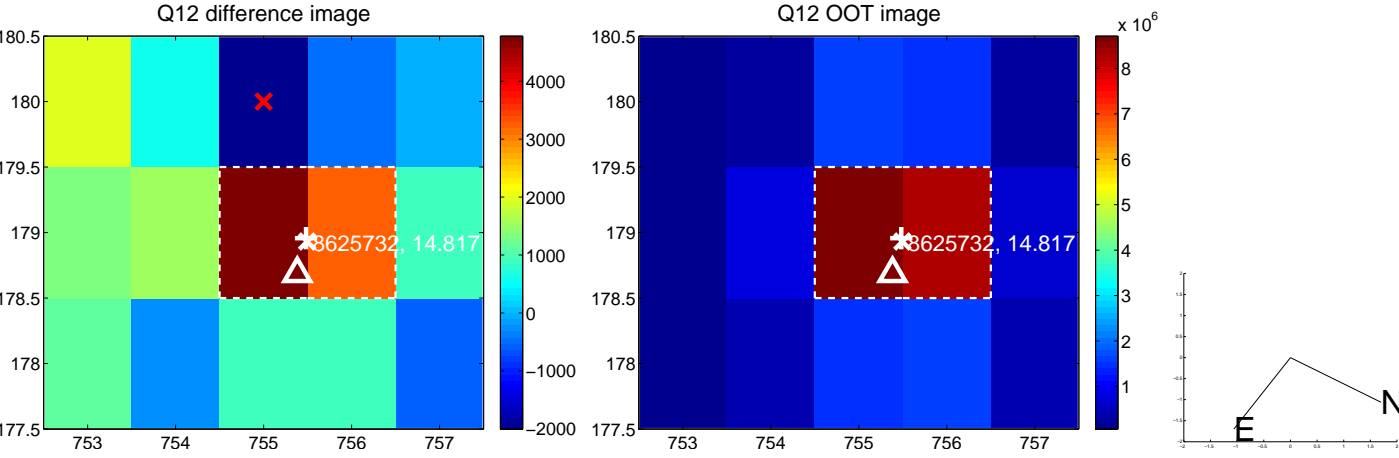
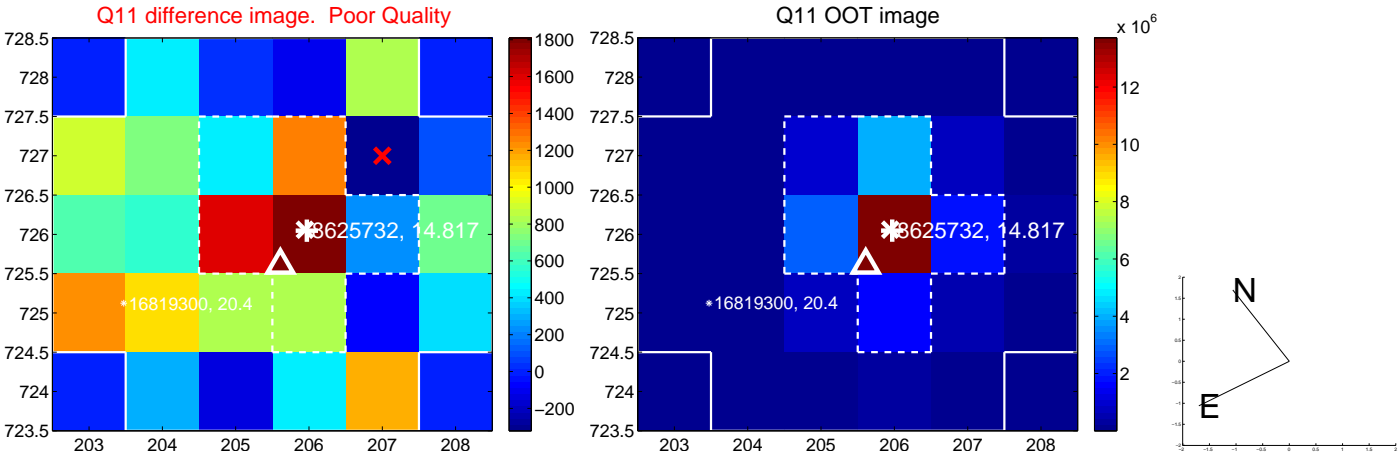
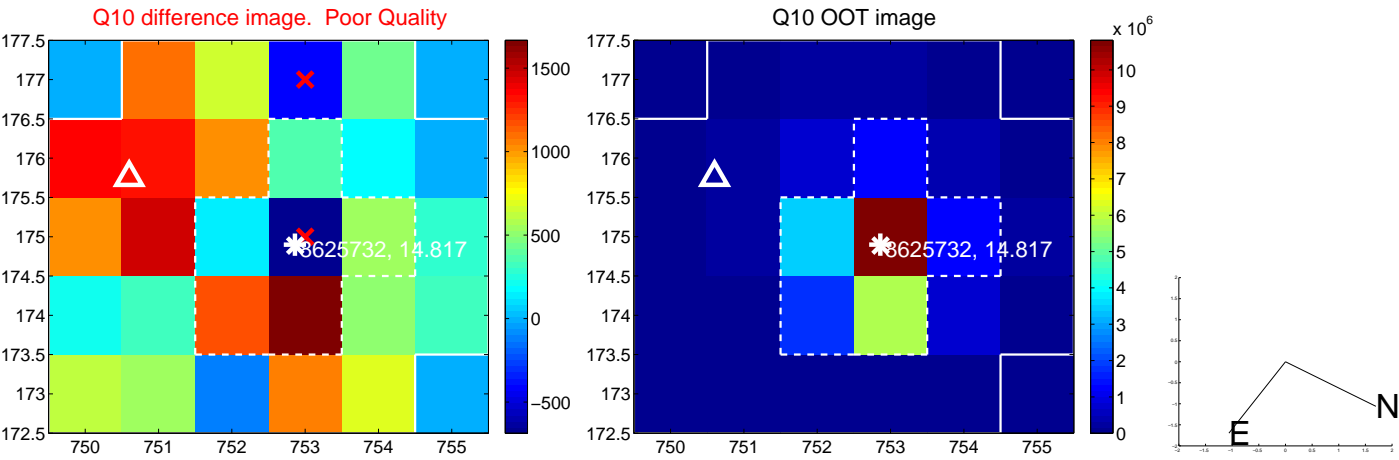
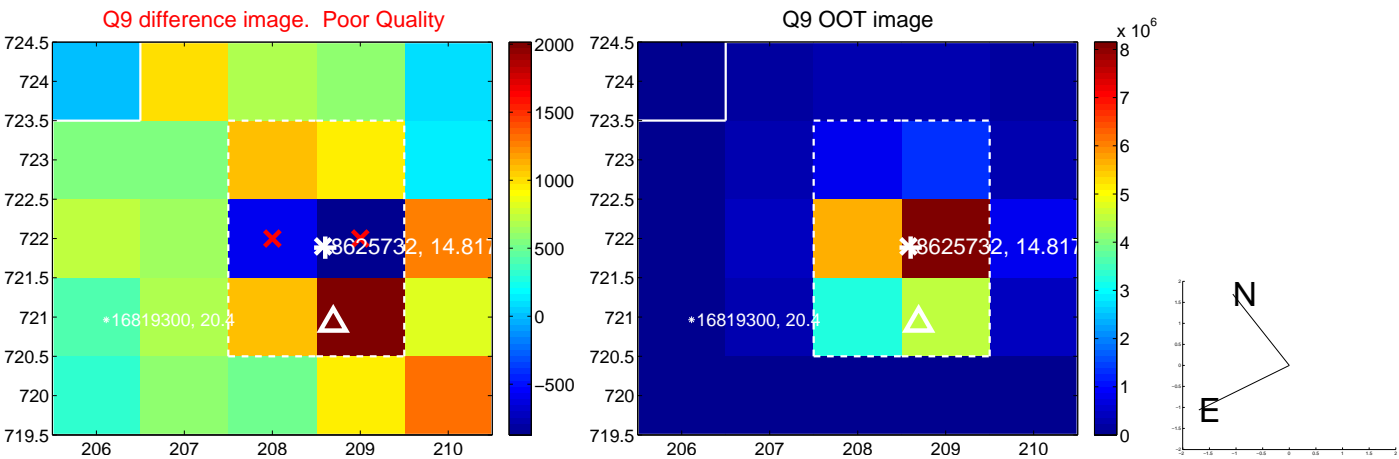


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

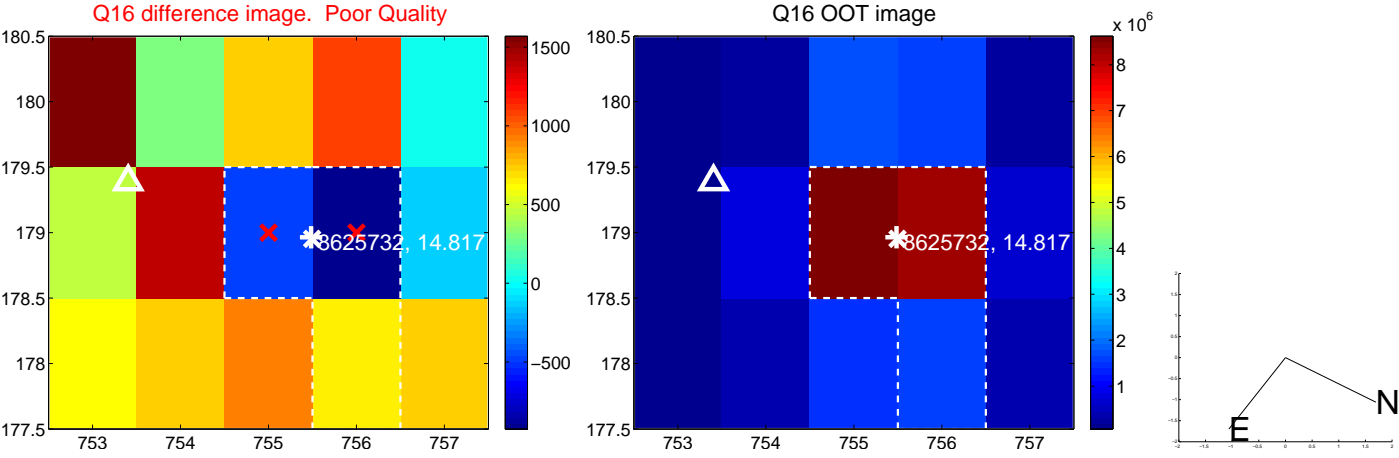
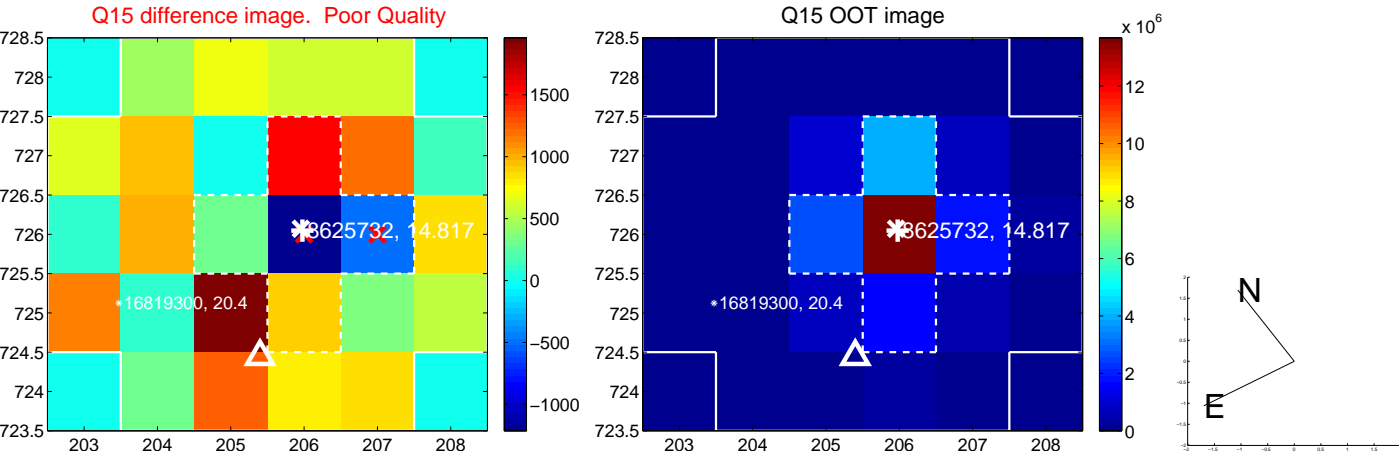
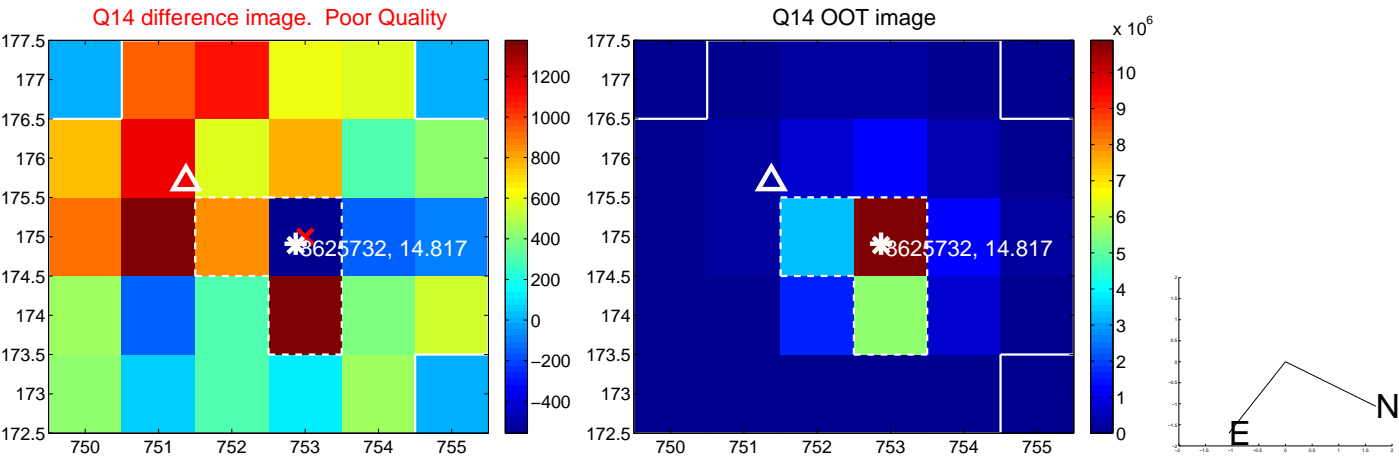
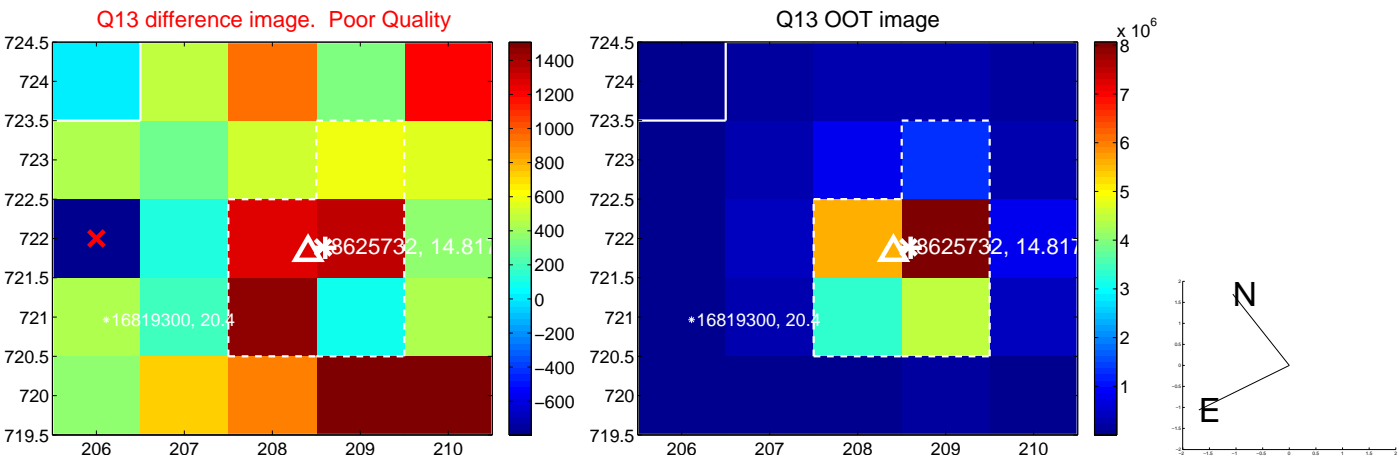




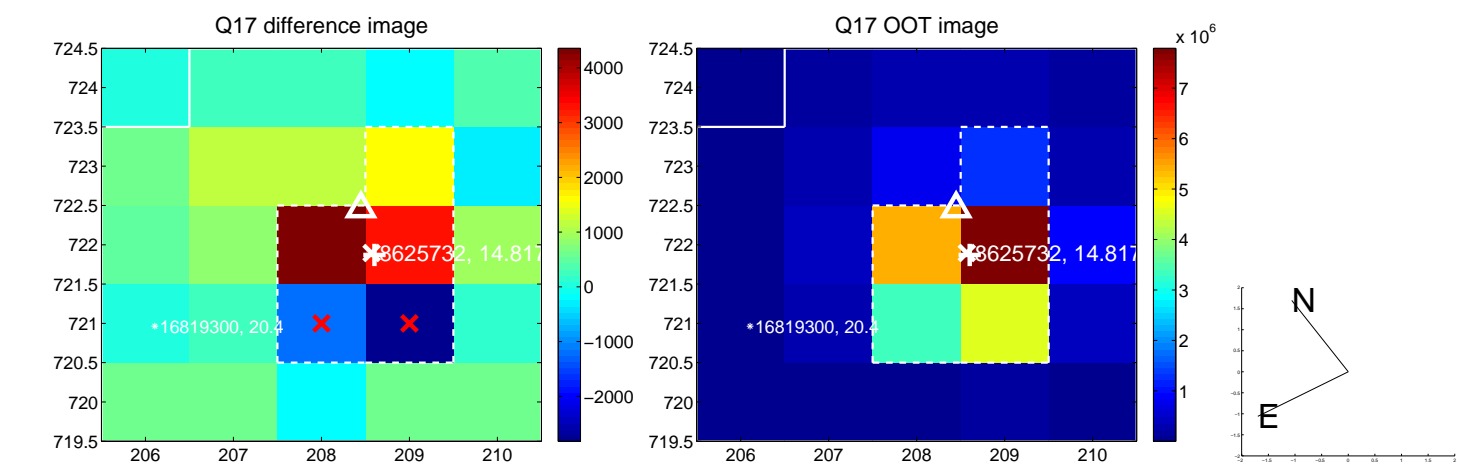
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



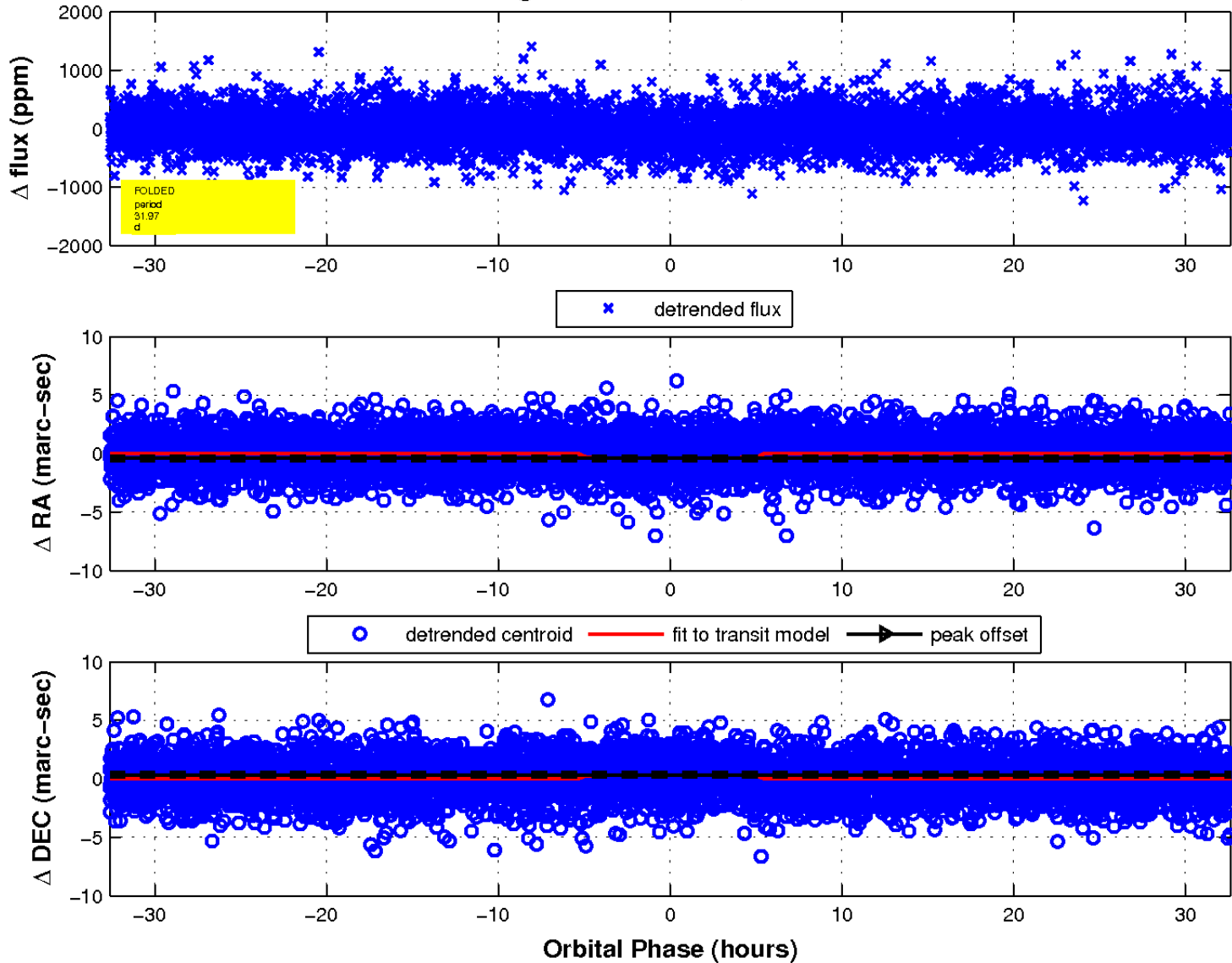
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

