

# KIC 006044999

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006044999-01	OBS	No	0.566772	131.955086	37.8	2.167	10.0	9.4	0.92	5387	0.56	4101.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006044999-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—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.

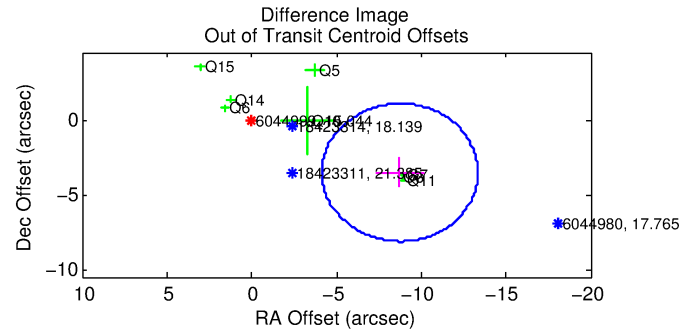
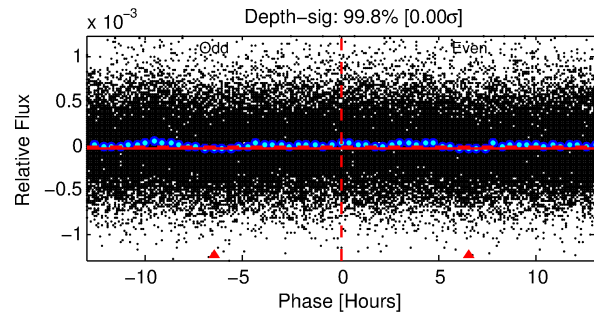
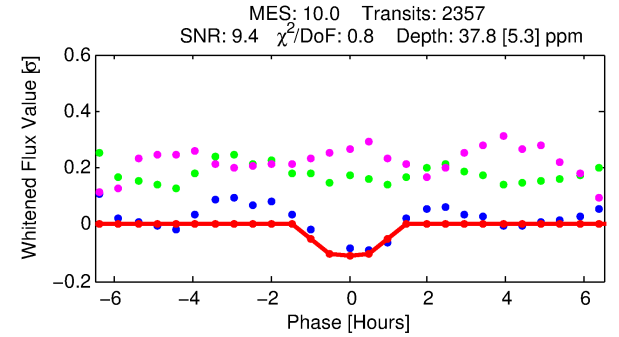
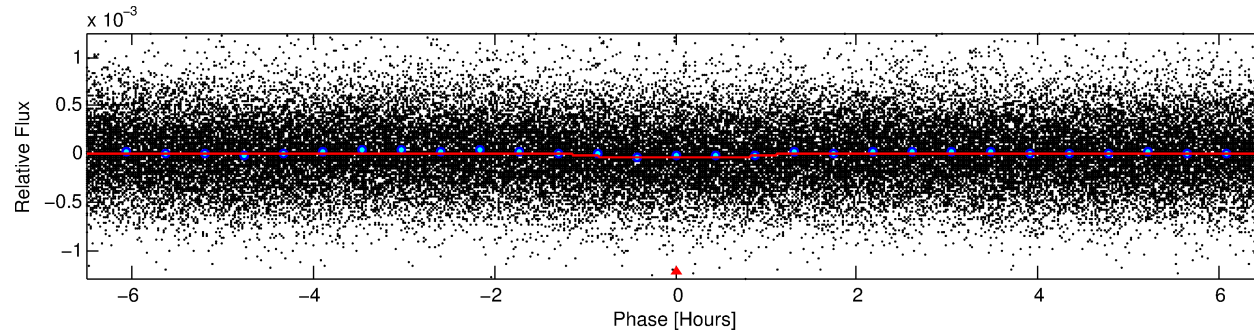
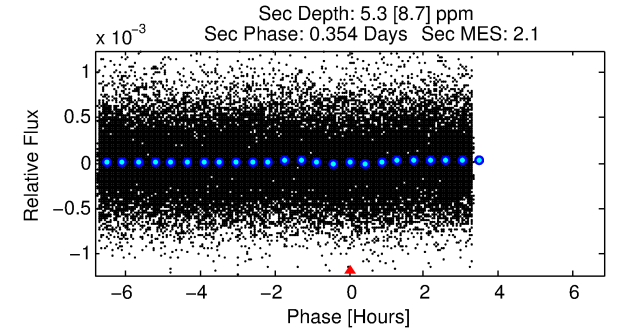
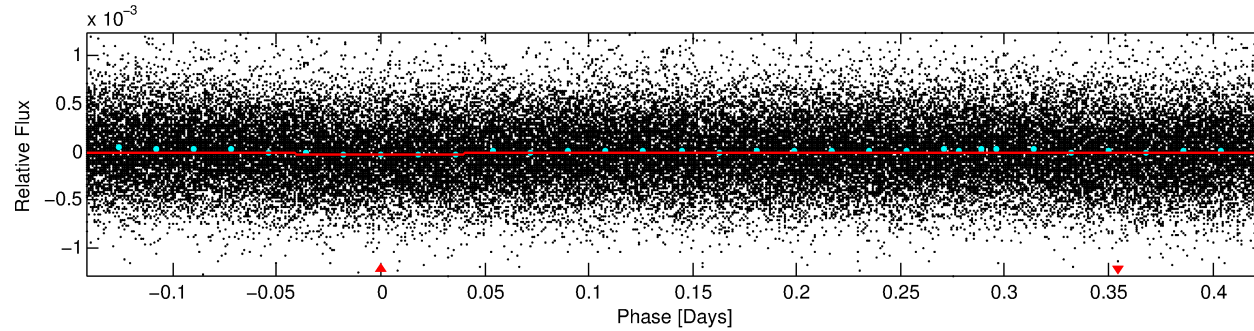
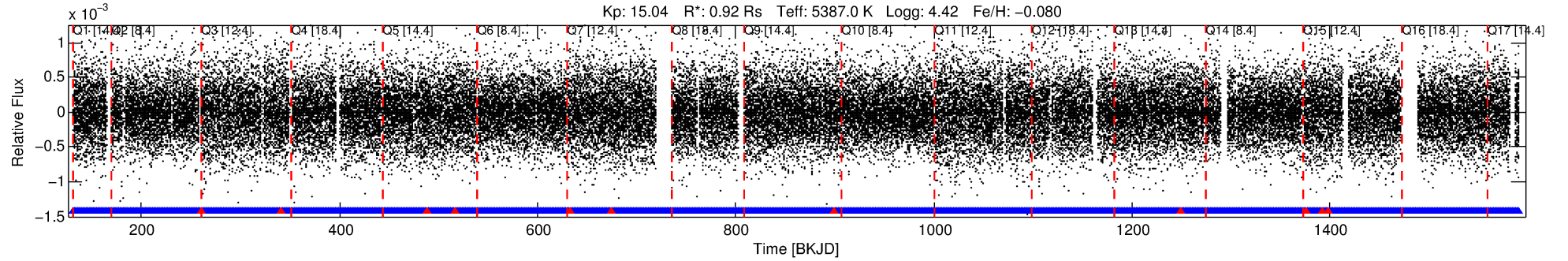
## Ephemeris Match Information For 006044999-01

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	$\sigma_P$	$\sigma_T$
006044999-01	6044999	RR-Lyr-pri	7198959	1:1	6285.3	485	2	7.86	15.04	16403.00	Col-Anomaly	0	4.97	13.86

**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: 6044999 Candidate: 1 of 1 Period: 0.567 d



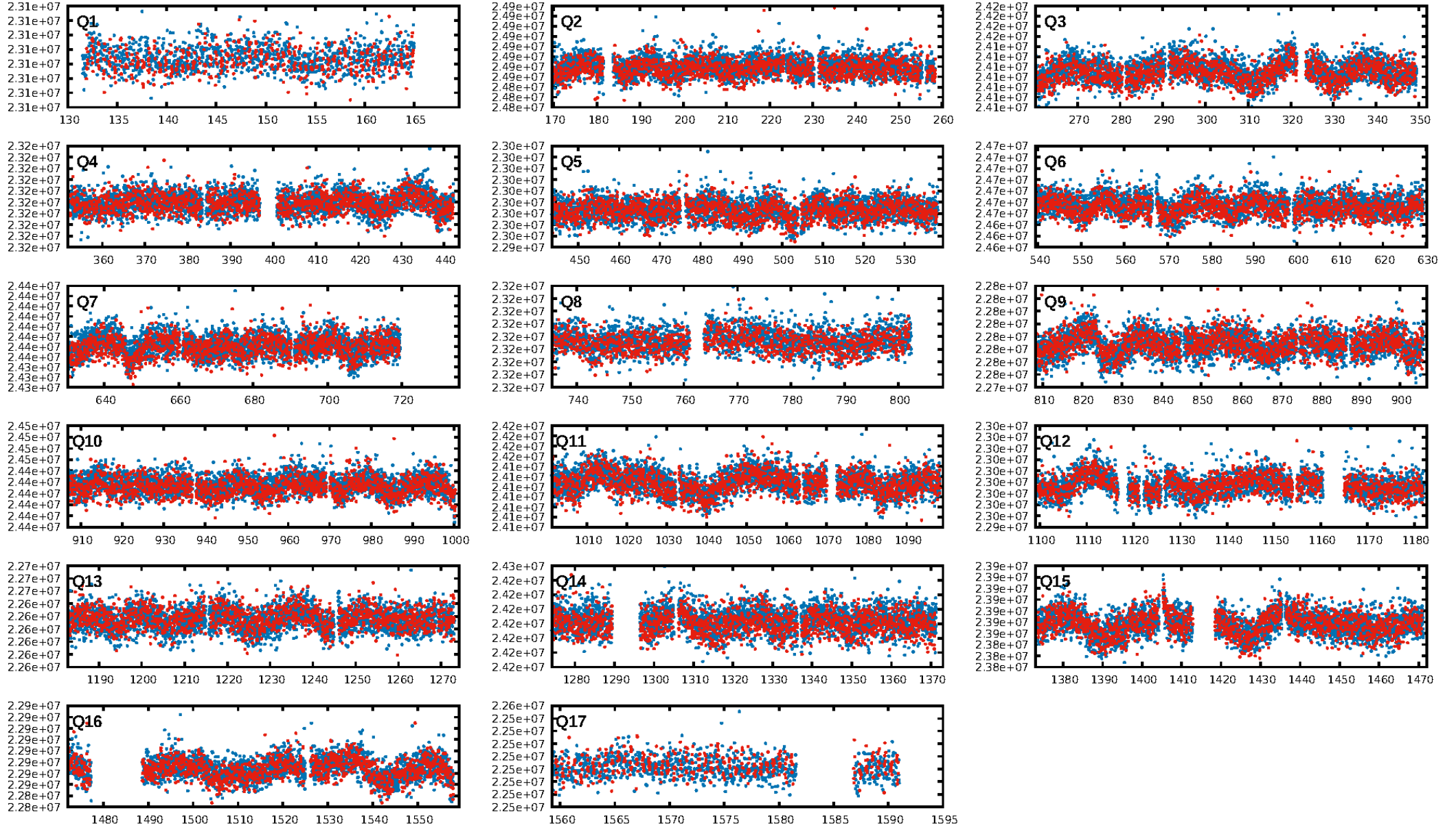
## DV Fit Results:

Period = 0.56677 [0.00001] d  
Epoch = 131.9551 [0.0032] BKJD  
Rp/R\* = 0.0056 [0.0062]  
a/R\* = 2.00 [6.52]  
b = 0.34 [11.41]  
Seff = 4101.01 [1868.29]  
Teff = 2041 [232] K  
Rp = 0.57 [0.65] Re  
a = 0.0125 [0.0035] AU  
Ag = 1.44 [4.00] [0.11σ]  
Teffp = 3456 [2376] K [0.59σ]

## DV Diagnostic Results:

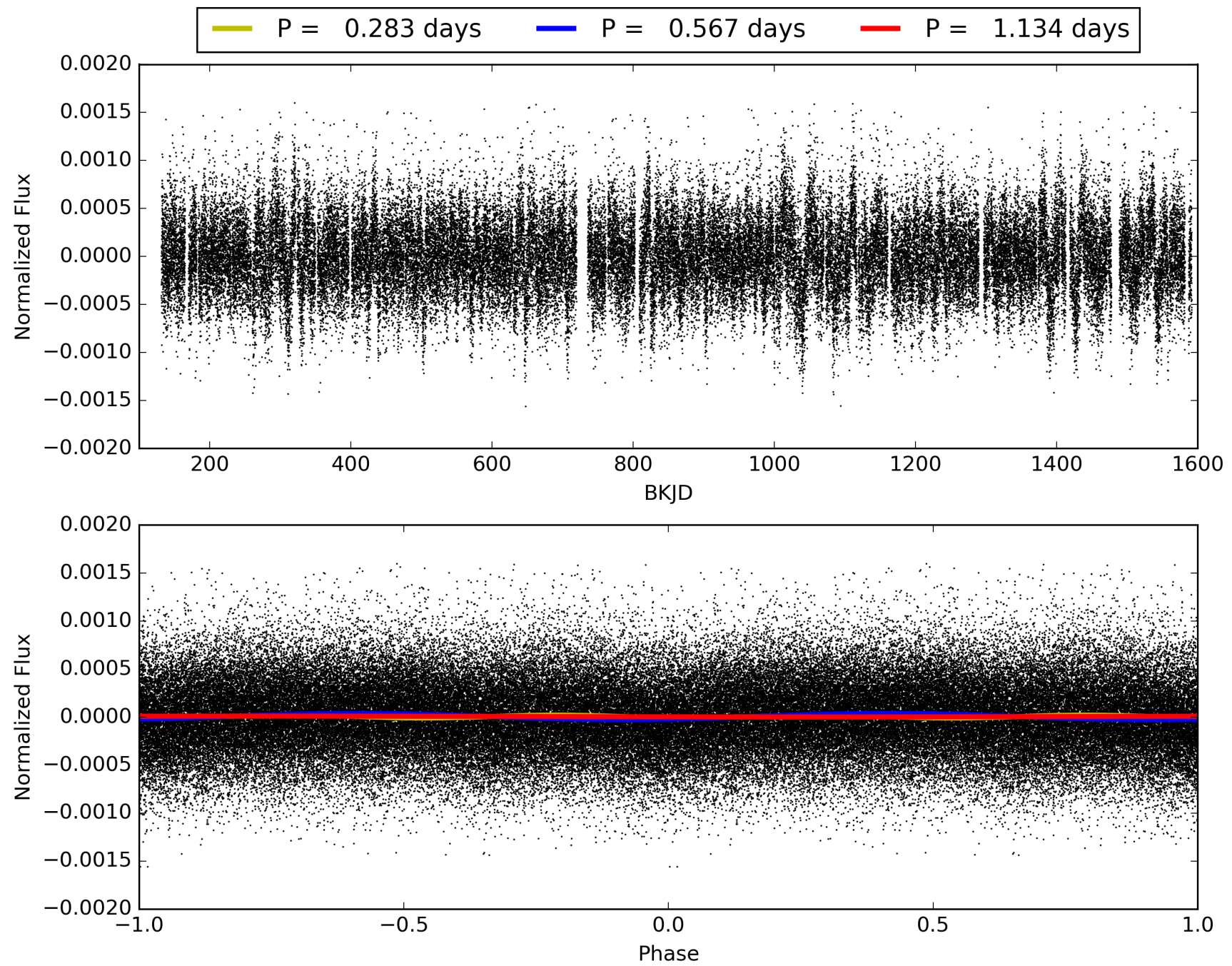
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.61e-24  
RollingBand-fgt: 1.00 [2240/2251]  
GhostDiagnostic-chr: 9.324  
Centroid-sig: 0.1%  
Centroid-so: 3.351 arcsec [2.14σ]  
OotOffset-rm: 9.423 arcsec [6.14σ]  
KicOffset-rm: 9.431 arcsec [5.18σ]  
OotOffset-st: 3/4/0/1 [8]  
KicOffset-st: 3/4/0/1 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 006044999-01, PDC Light Curves



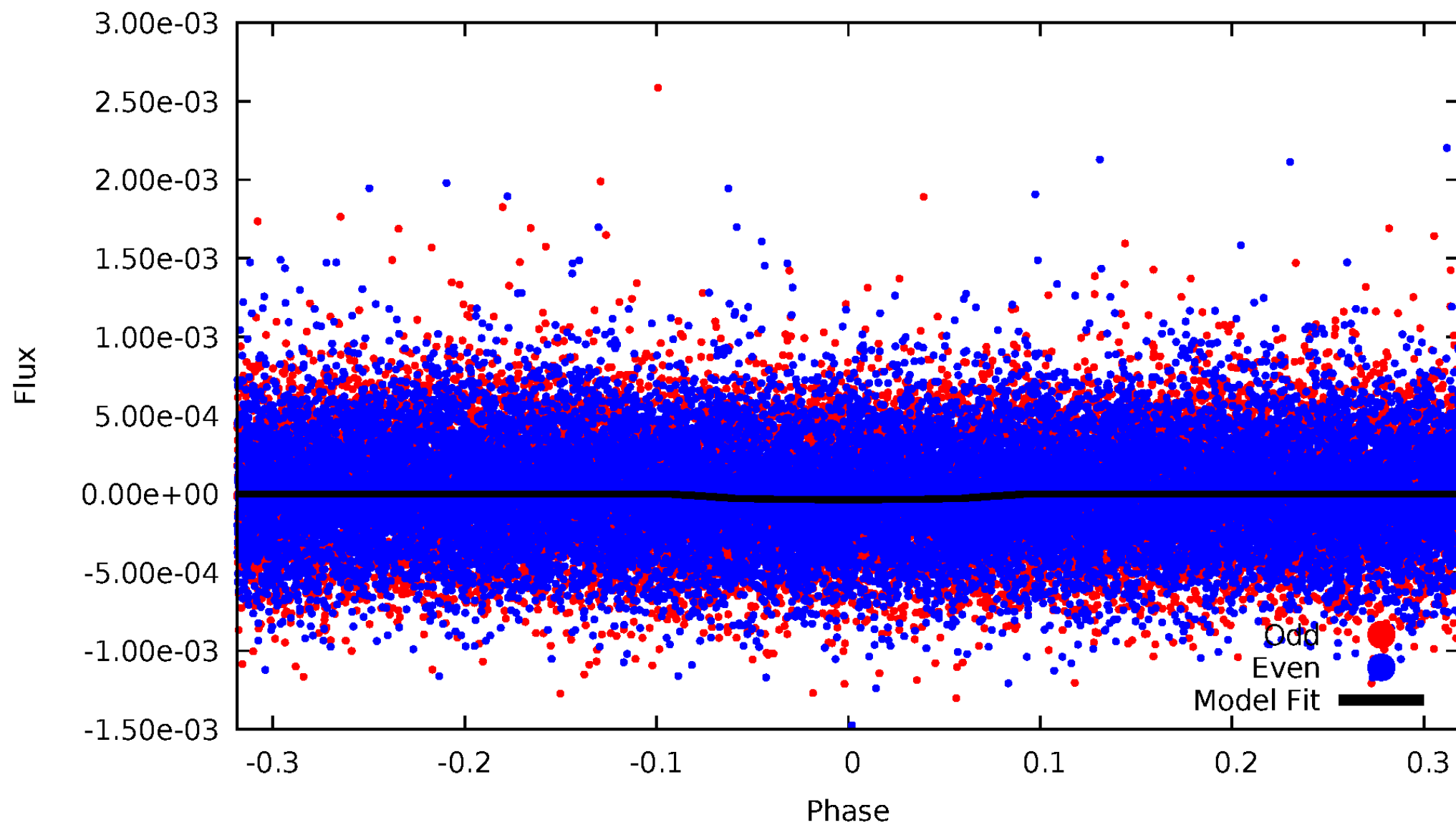


TCE 006044999-01



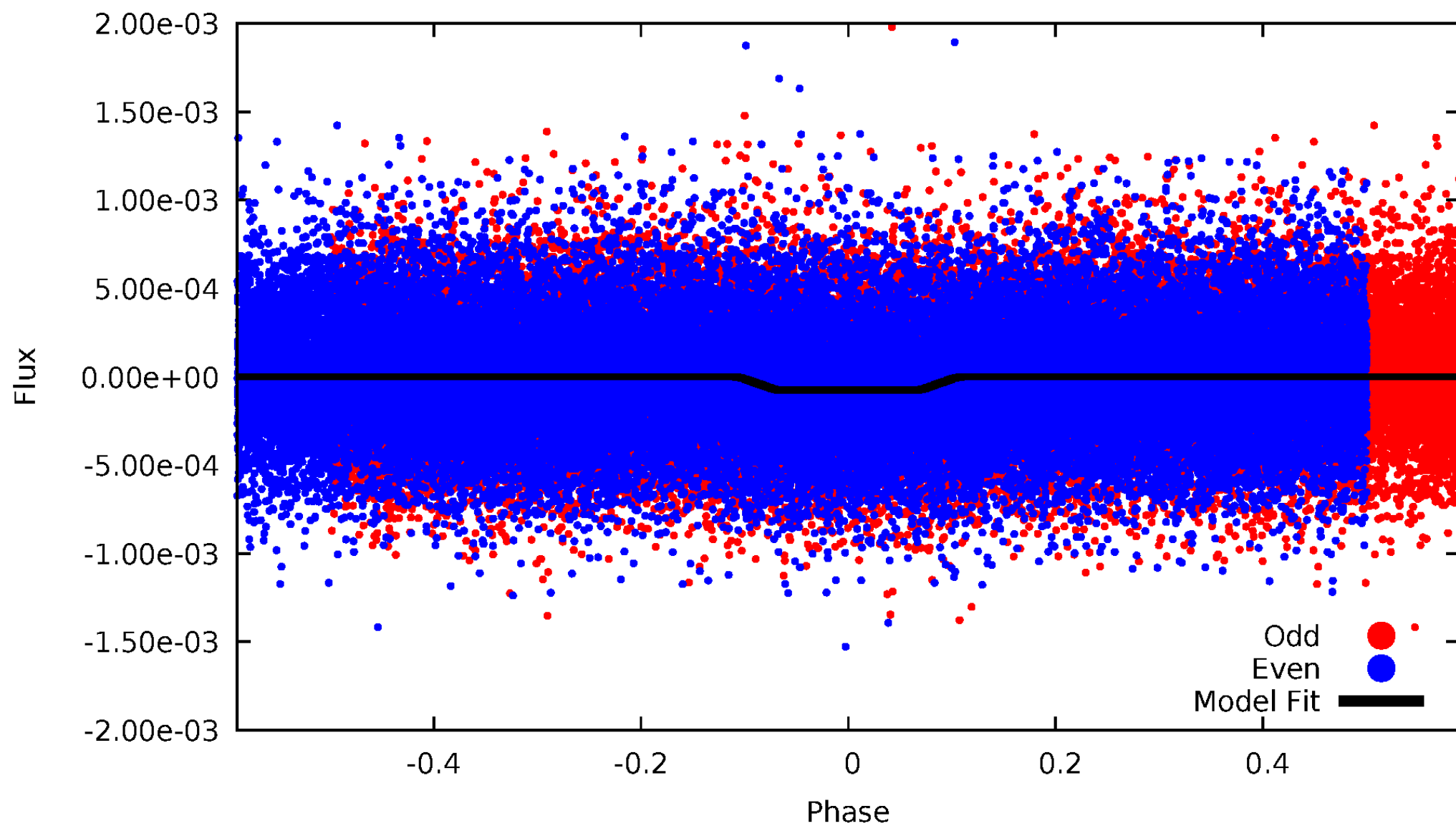
# DV Odd/Even

TCE 006044999-01

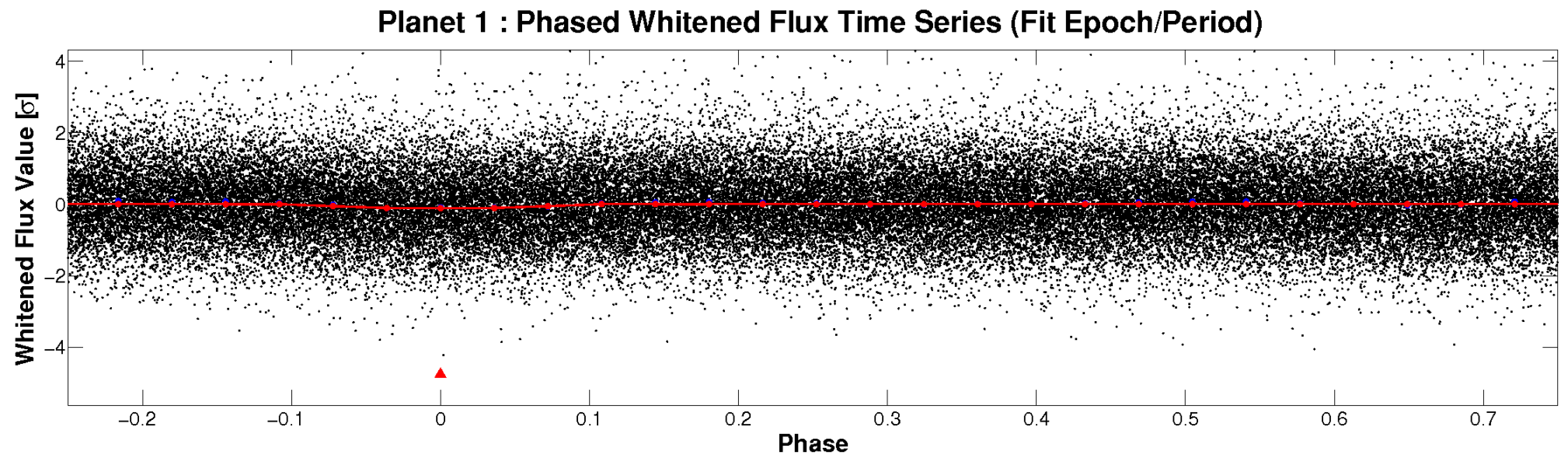
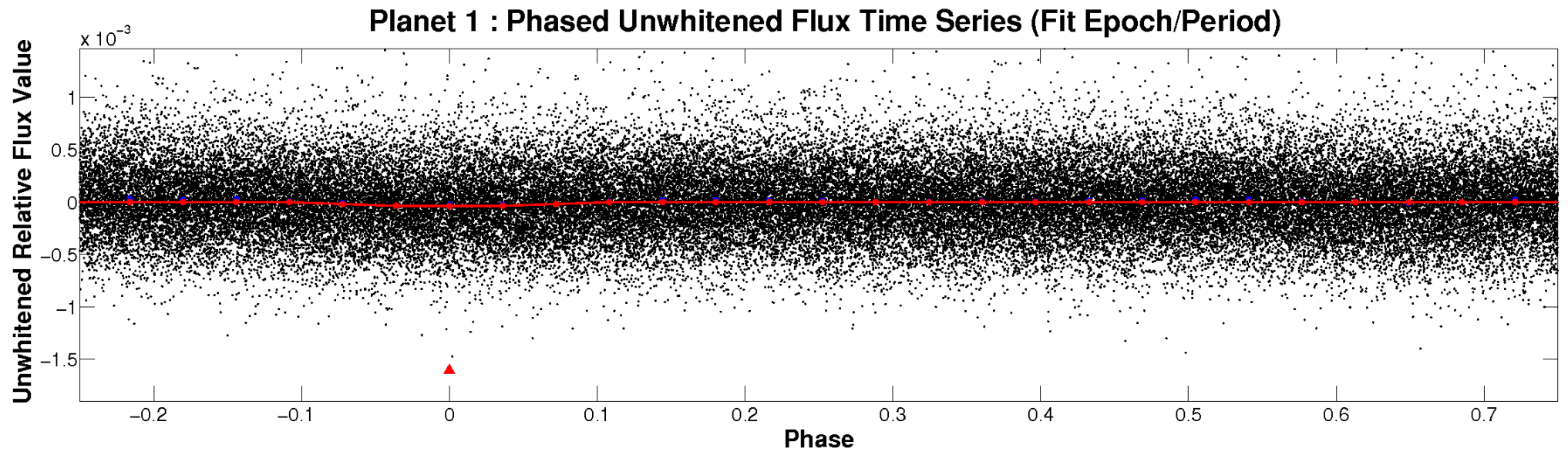


# ALT Odd/Even

TCE 006044999-01



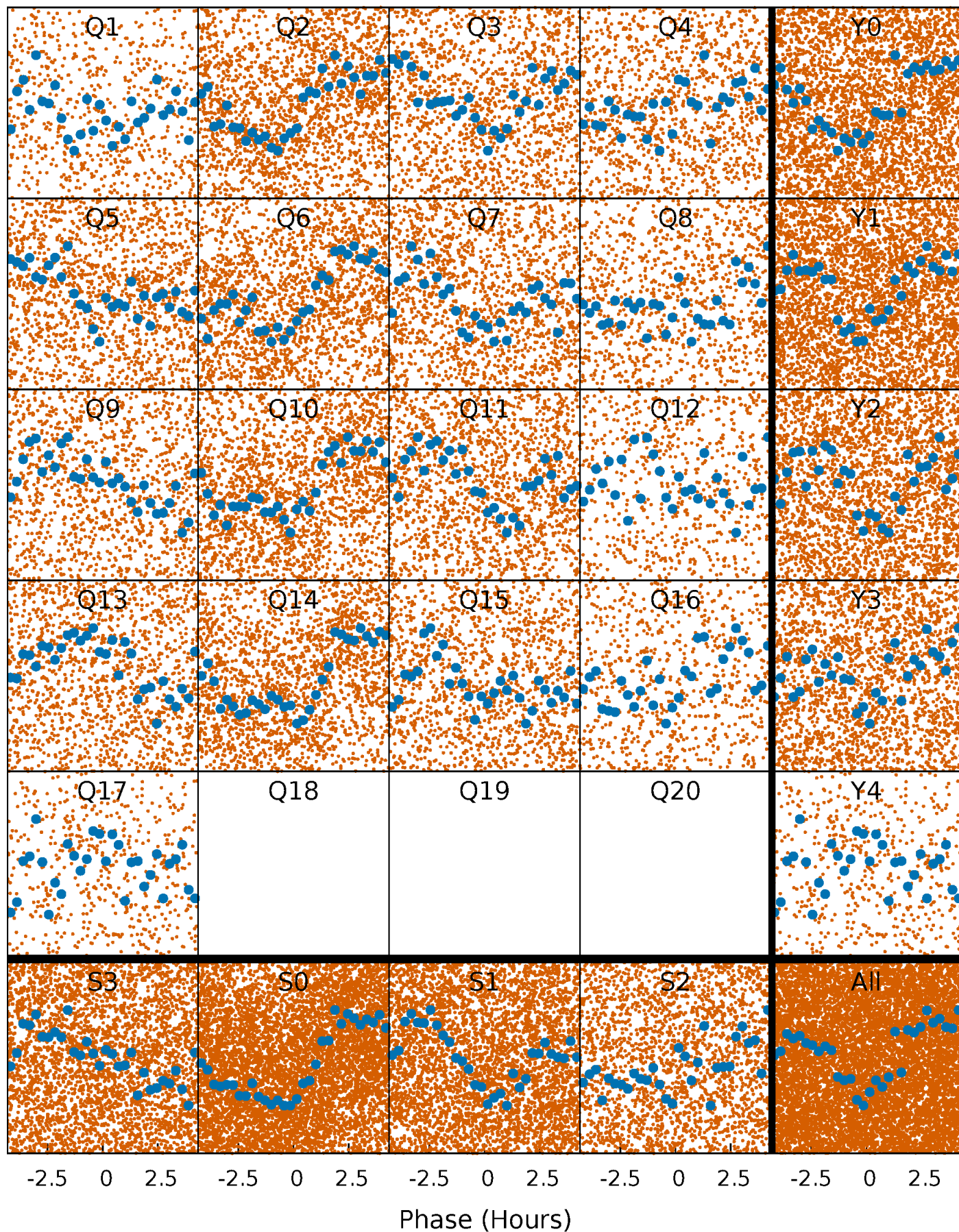
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

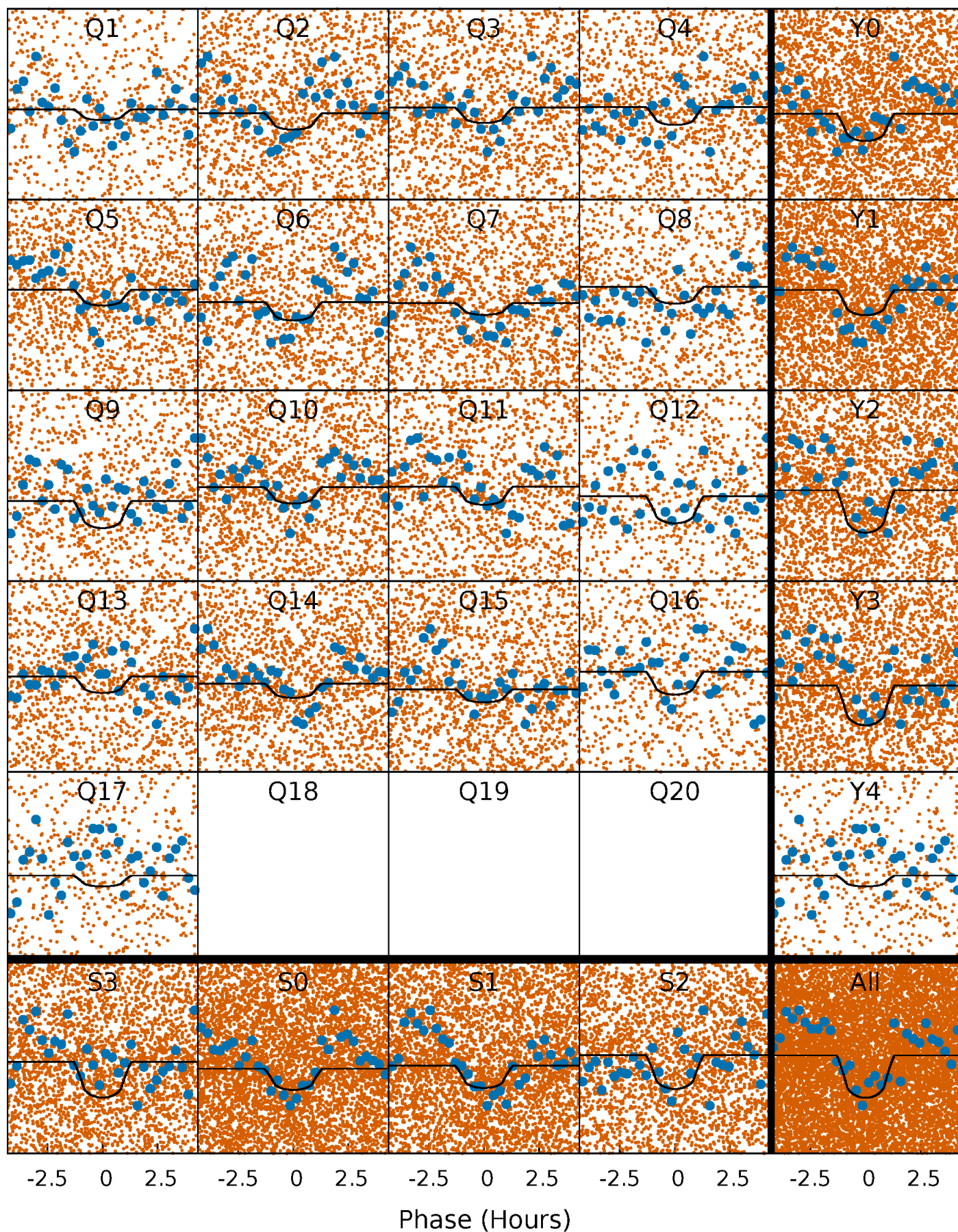
TCE 006044999-01 P= 0.566772 Days  $T_0=131.955086$  (BKJD)





# DV Quarter-Phased Transit Curves

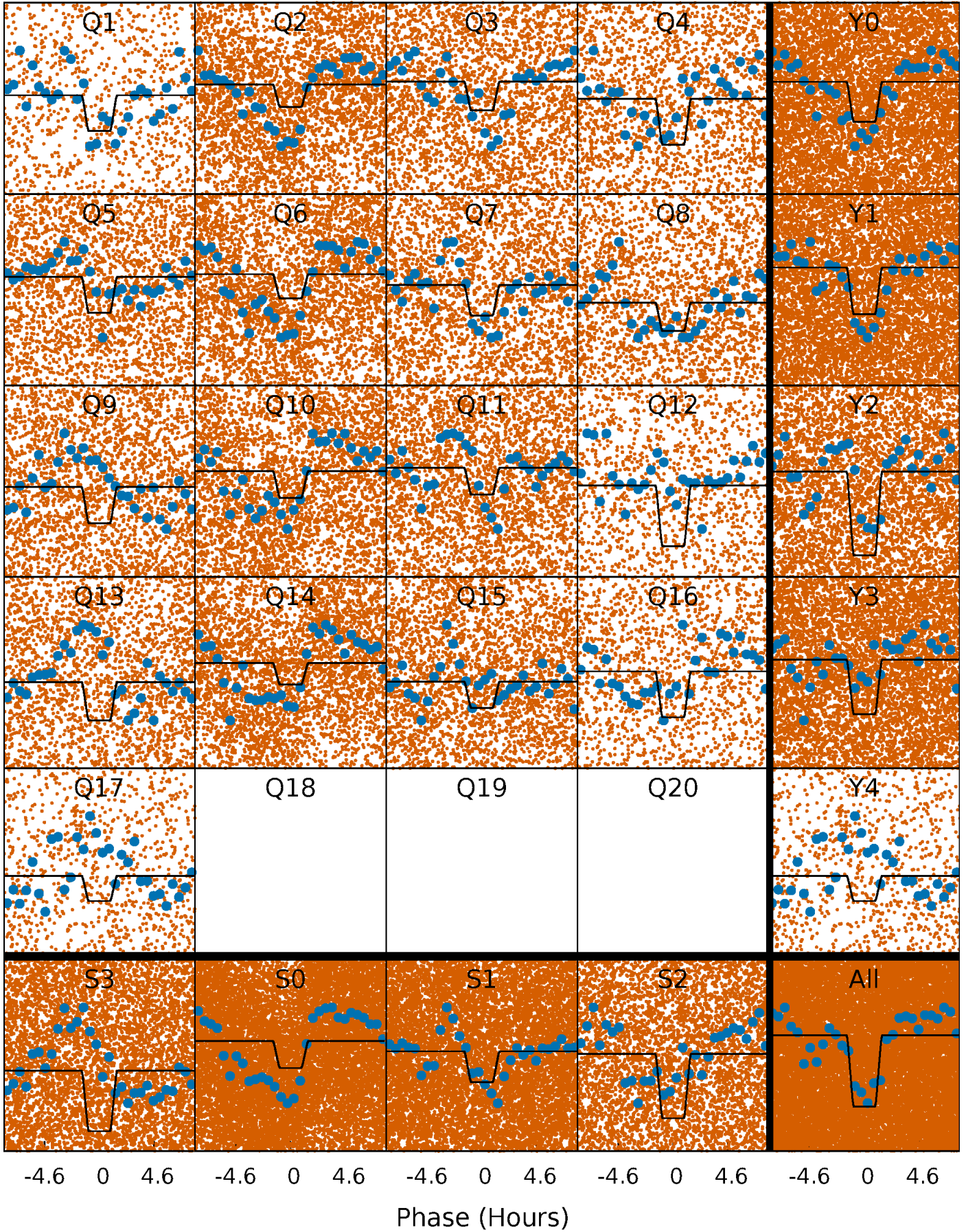
TCE 006044999-01   P= 0.566772 Days    $T_0=131.955086$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

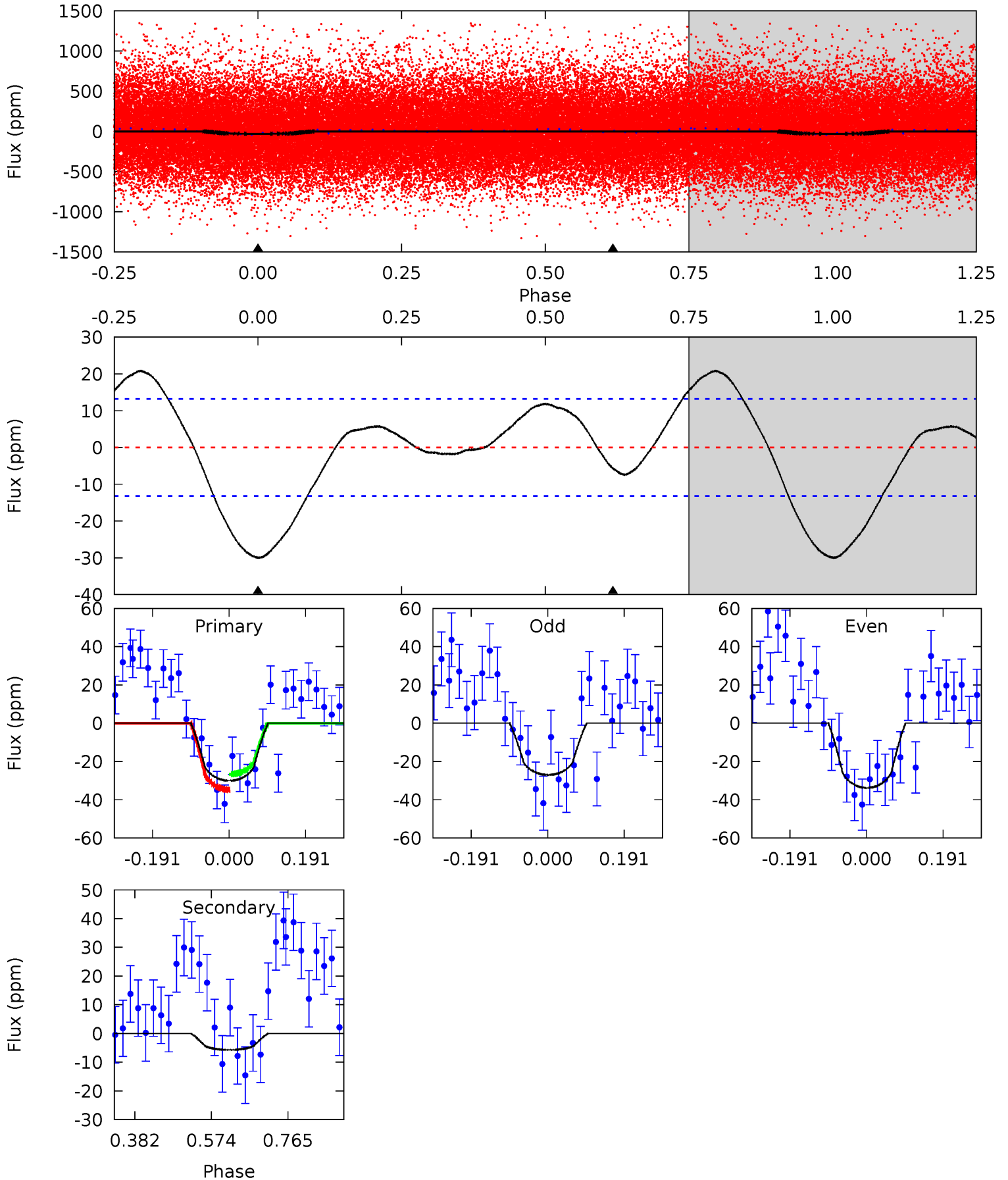
TCE 006044999-01 P= 0.566795 Days  $T_0=131.919720$  (BKJD)



# DV Model-Shift Uniqueness Test

006044999-01, P = 0.566772 Days, E = 131.388314 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
10.1	1.92	0	0	4.43	1.31	0.86	10.1	10.1	1.92	1.92	1.12	0.85	0.41	1.36

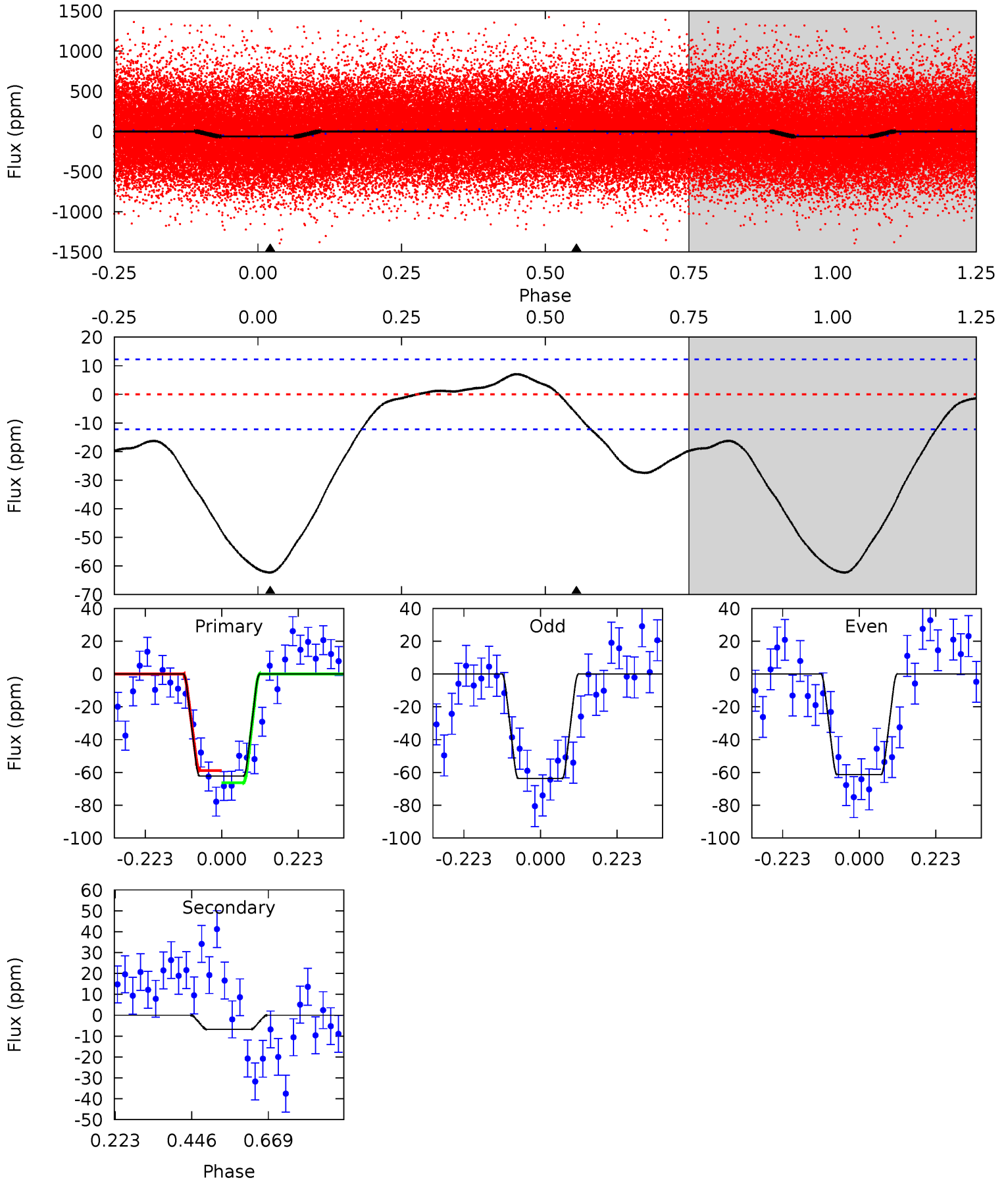




# Alt Model-Shift Uniqueness Test

006044999-01, P = 0.566795 Days, E = 131.352925 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
22.4	2.44	0	0	4.39	1.22	2.67	22.4	22.4	2.44	2.44	0.43	0.99	0.10	1.29



### Stellar Parameters For KIC 006044999

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5387^{+175}_{-159}$	$4.418^{+0.156}_{-0.253}$	$-0.080^{+0.300}_{-0.250}$	$0.922^{+0.276}_{-0.148}$	$0.813^{+0.124}_{-0.067}$	$1.460^{+0.880}_{-0.814}$
	+3%/-3%	+4%/-6%	+375%/-312%	+30%/-16%	+15%/-8%	+60%/-56%
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 006044999-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-6 \pm 3$	$0.75^{+0.63}_{-0.47}$	$2886^{+256}_{-192}$	$3186^{+1842}_{-5870}$	$0.761^{+5.626}_{-0.589}$
Alt.	$-7 \pm 3$	$1.00^{+0.69}_{-0.58}$	$2884^{+220}_{-186}$	$2938^{+1355}_{-5662}$	$0.569^{+2.663}_{-0.398}$

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

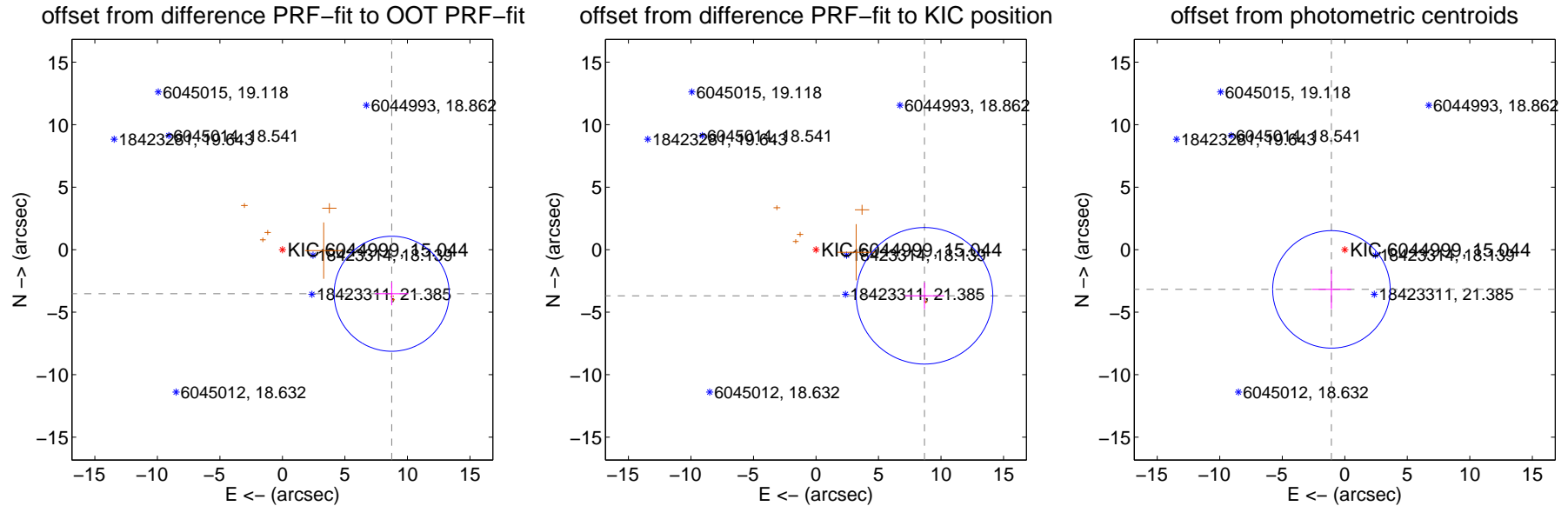
## DV Centroid Data

Supplemental centroid analysis for 006044999-01. Kepler magnitude: 15.04. Transit SNR 9.37

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

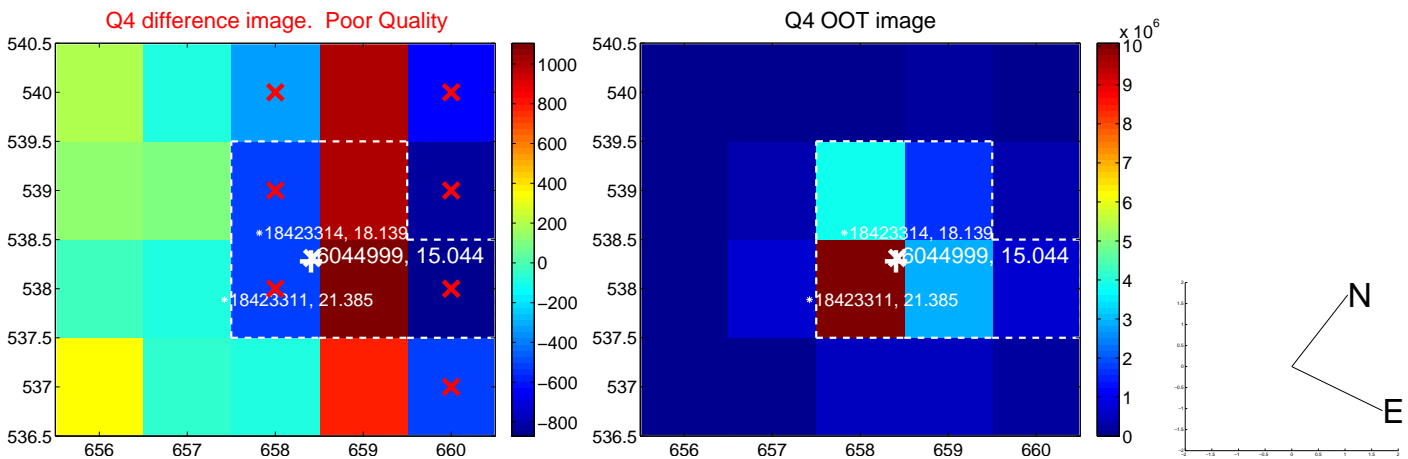
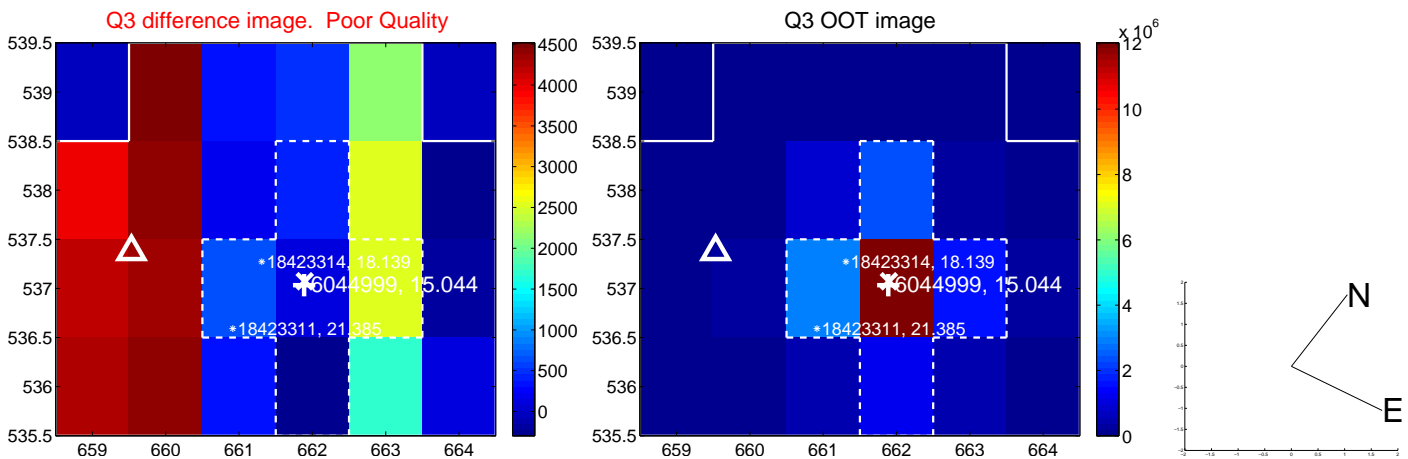
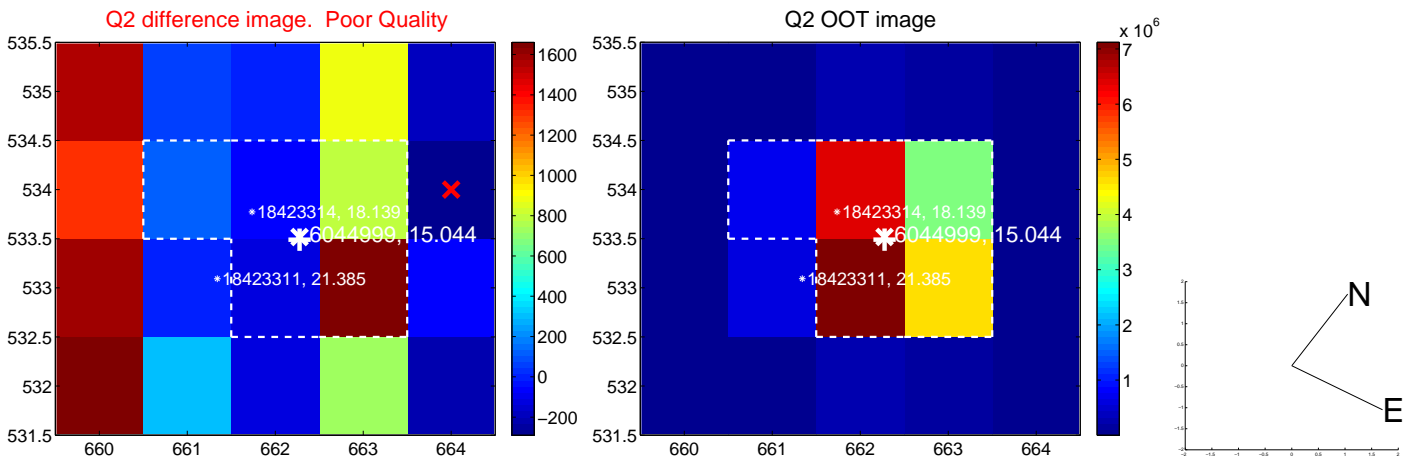
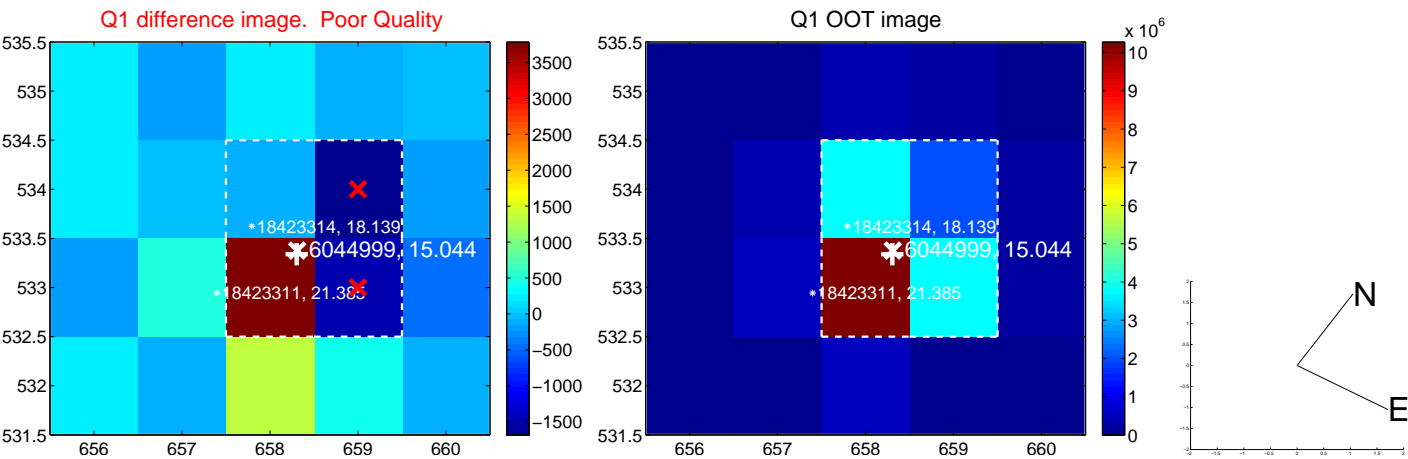
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$9.423 \pm 1.534$	6.14	$-8.738 \pm 1.342$	$-3.527 \pm 0.922$
PRF-fit source offset from KIC position	$9.431 \pm 1.820$	5.18	$-8.679 \pm 1.574$	$-3.691 \pm 1.067$
photometric centroid source offset	$3.35 \pm 1.57$	2.14	$1.07 \pm 1.57$	$-3.18 \pm 1.57$



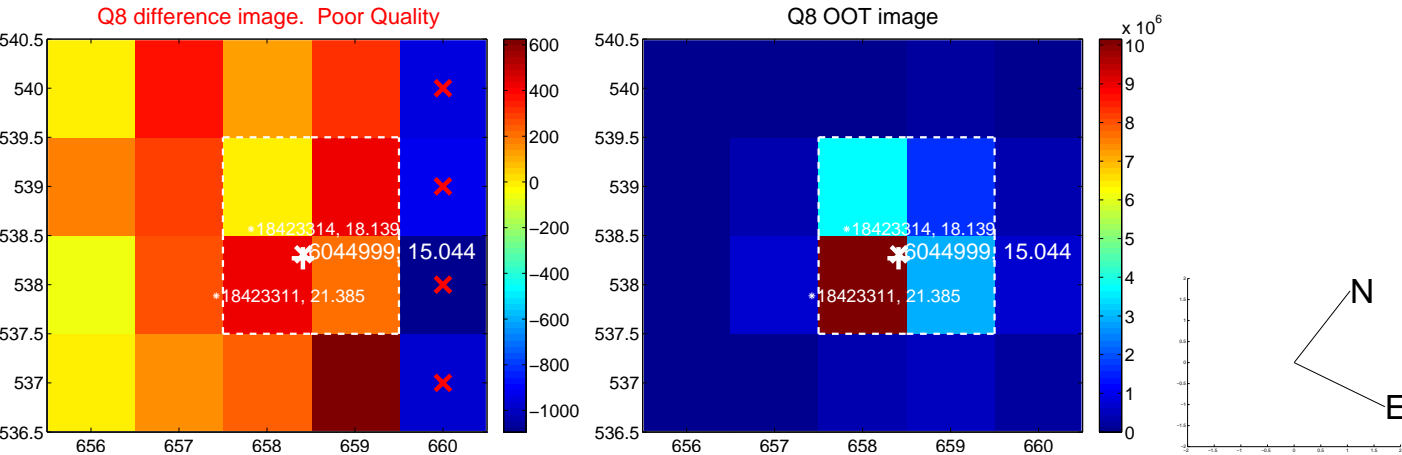
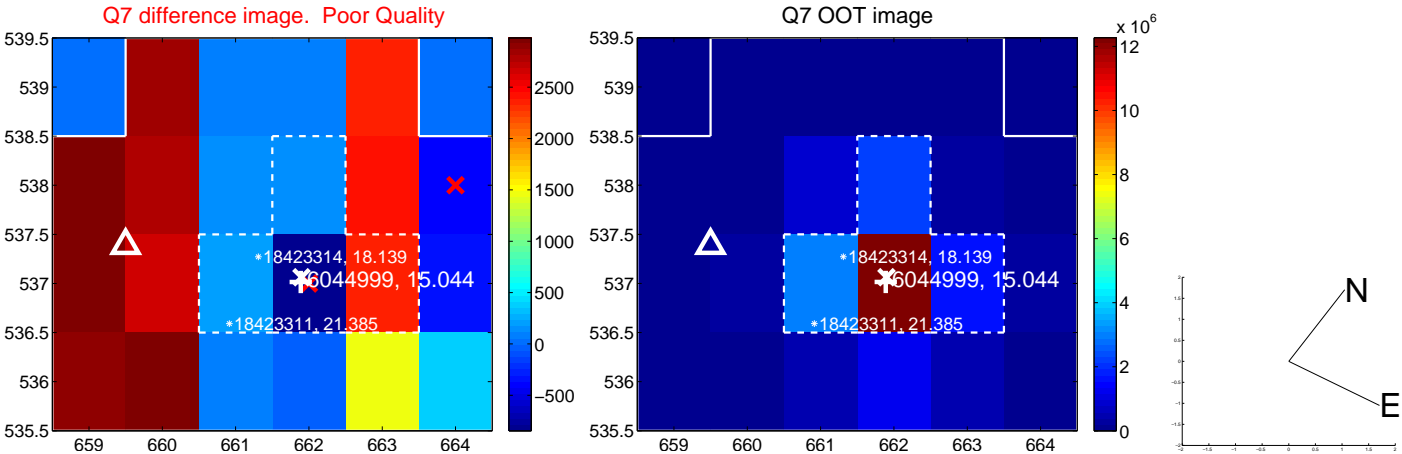
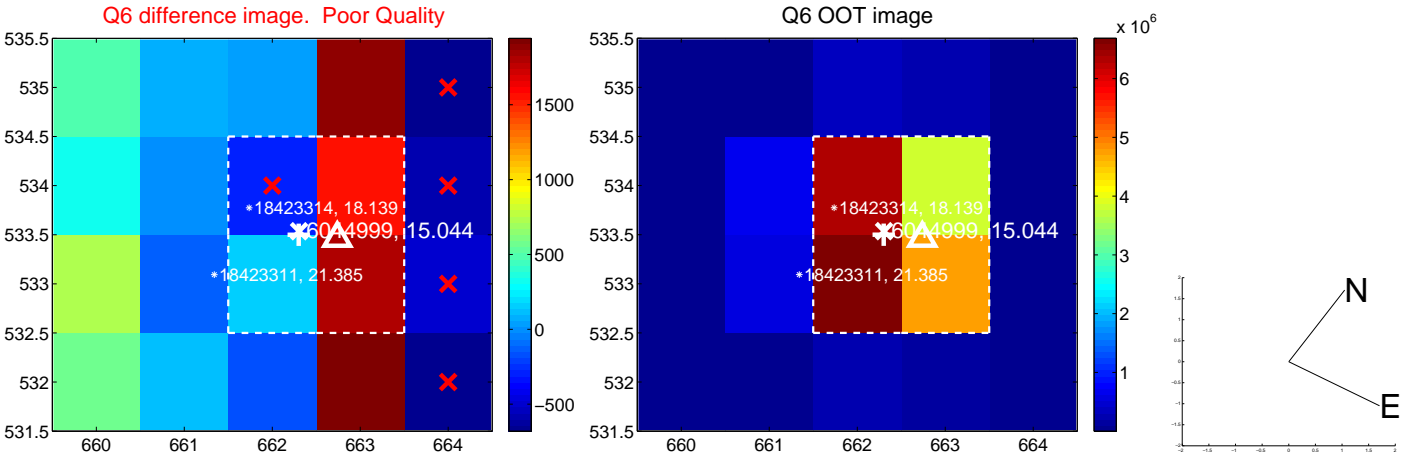
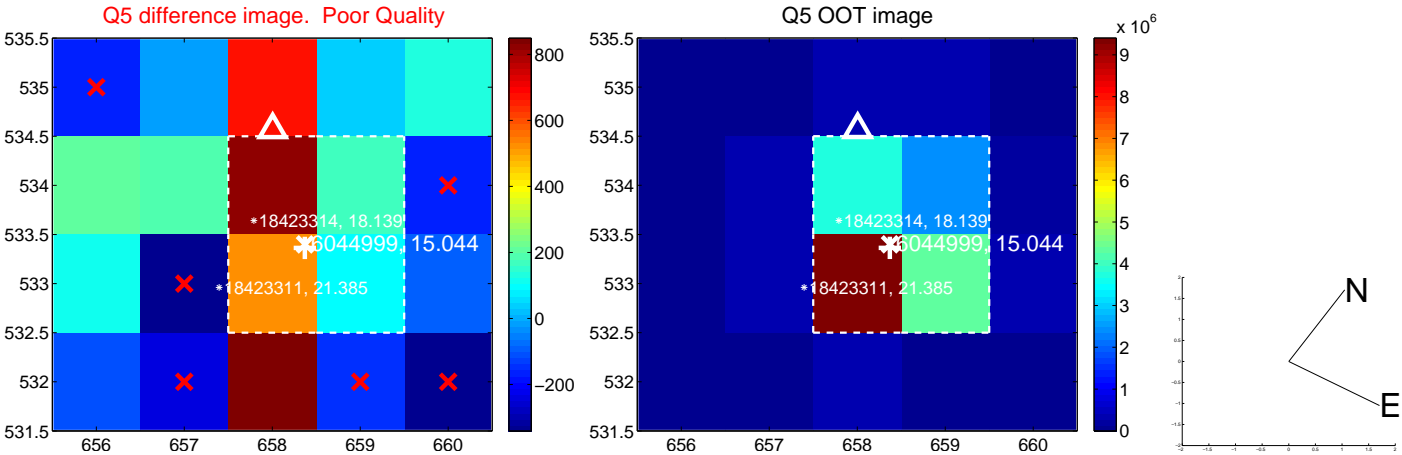
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



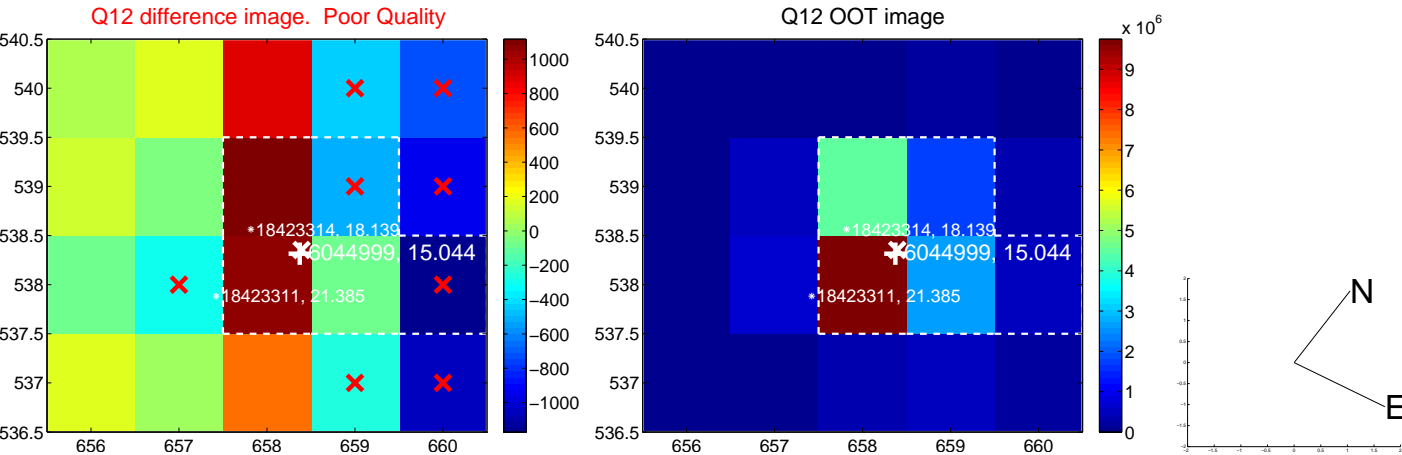
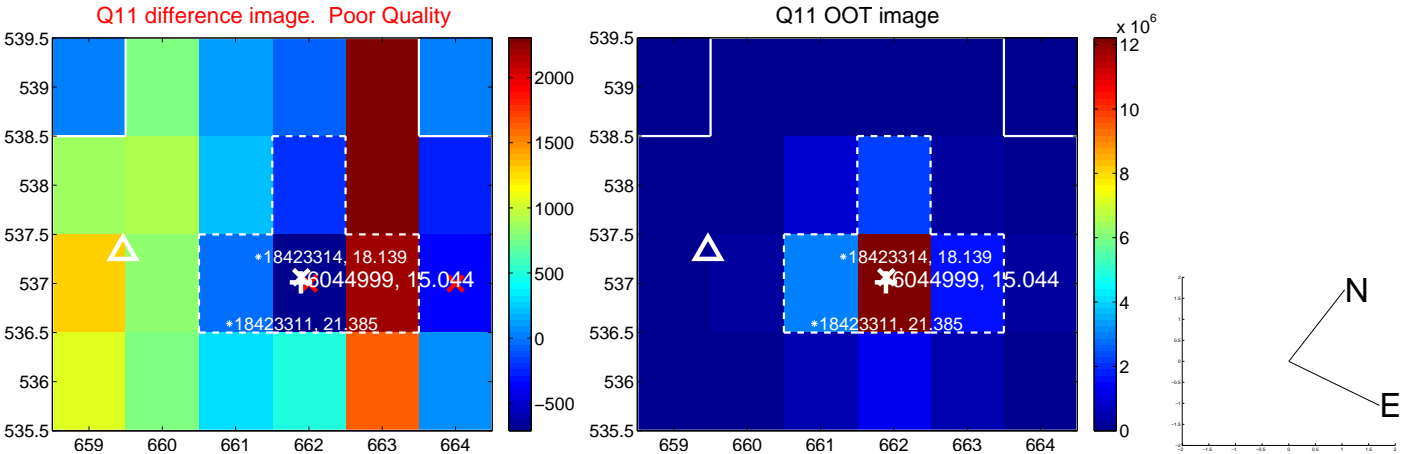
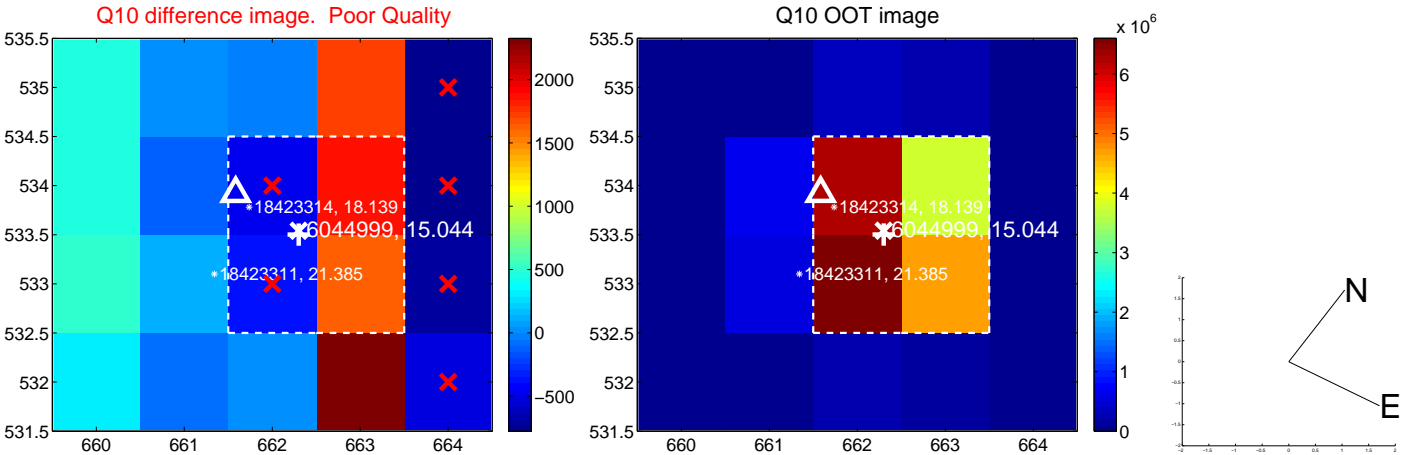
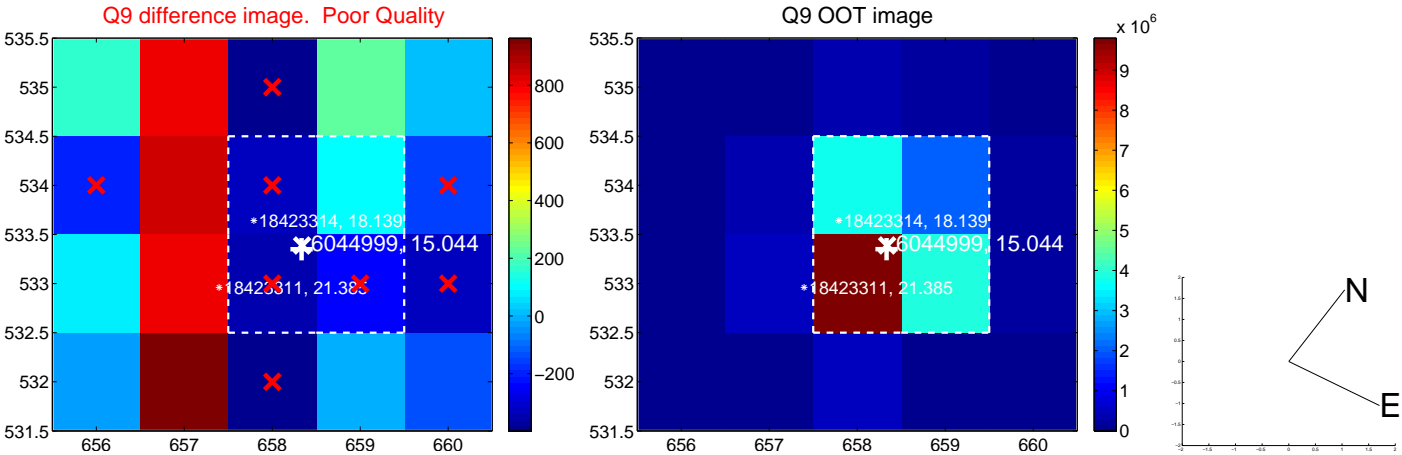
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

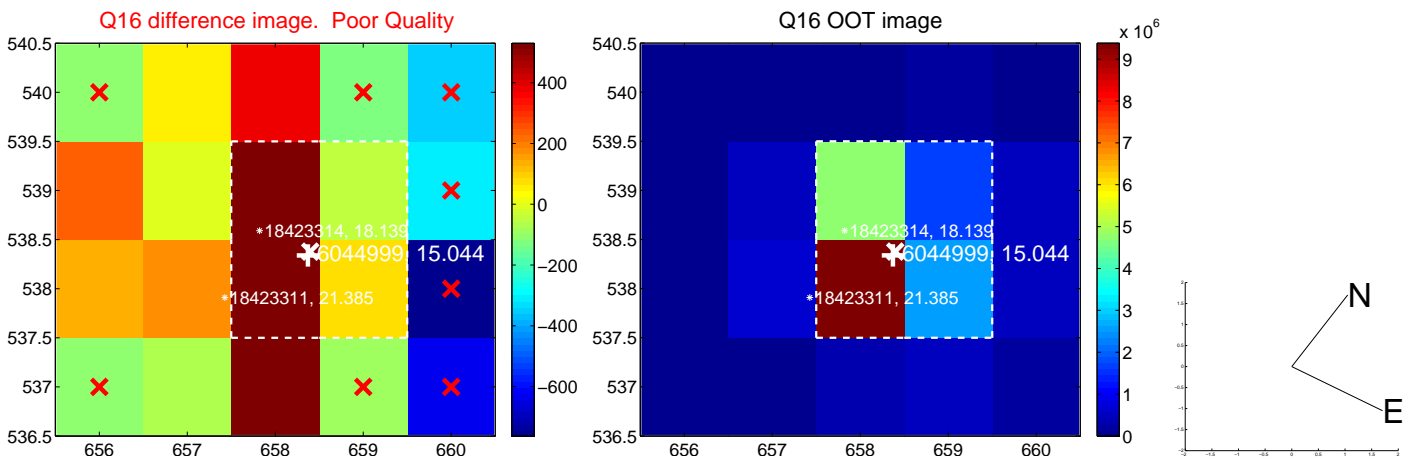
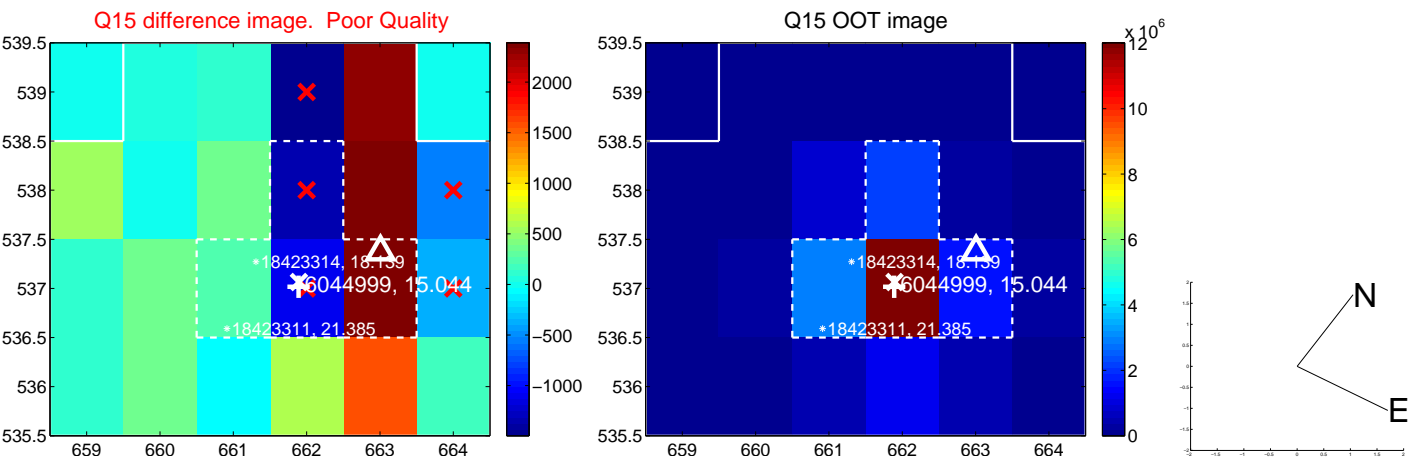
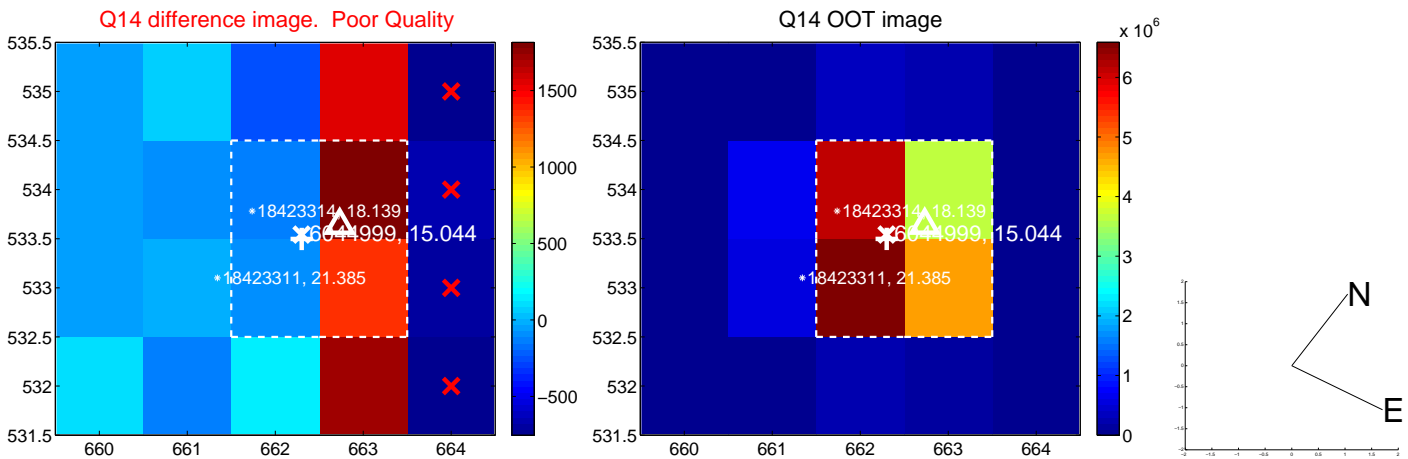
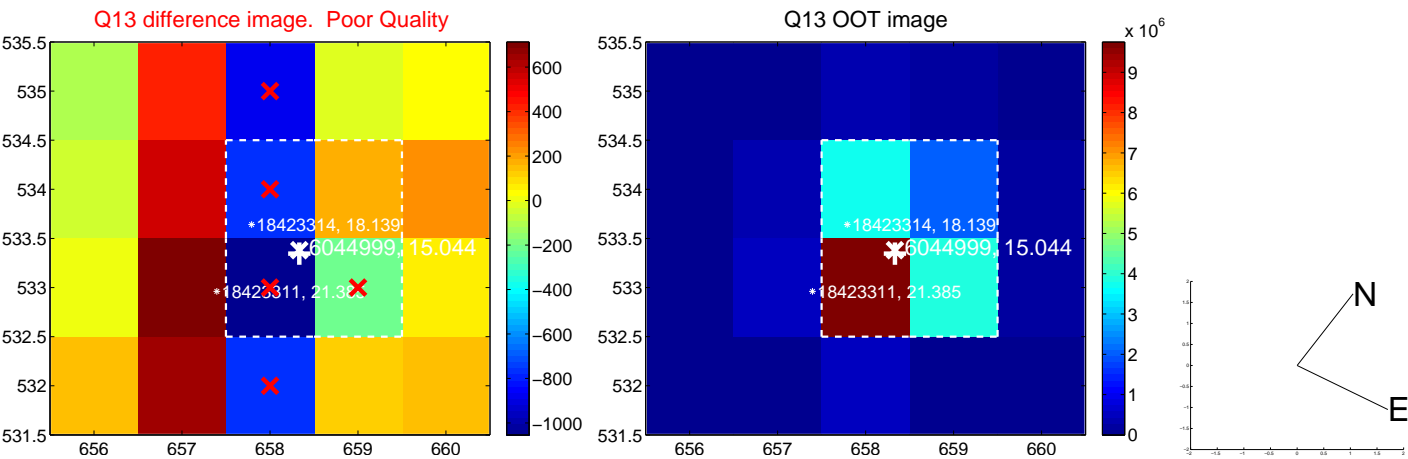


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

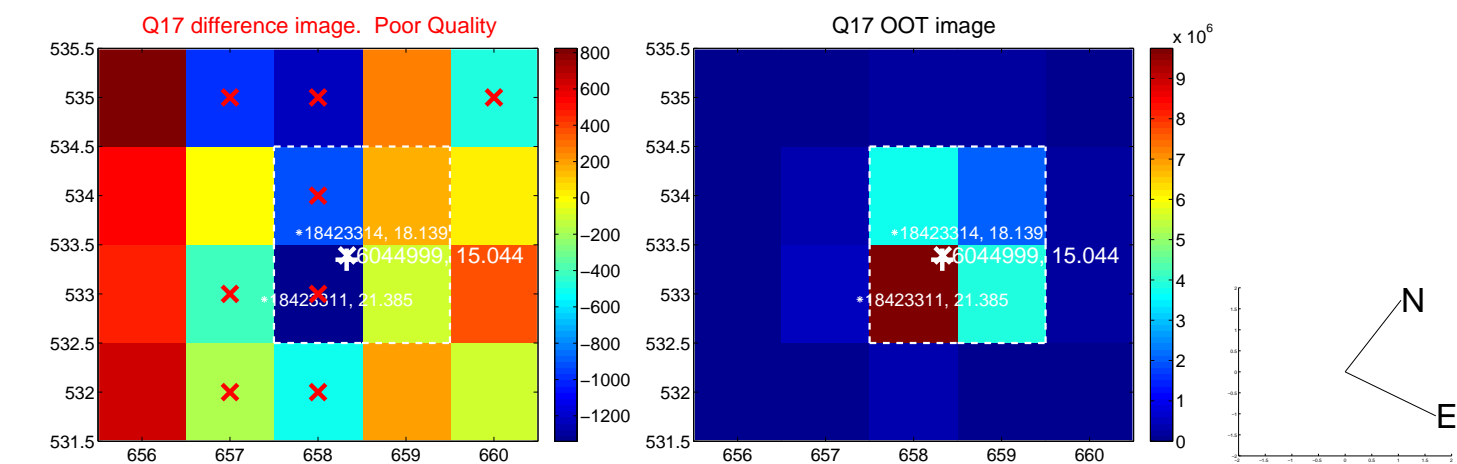




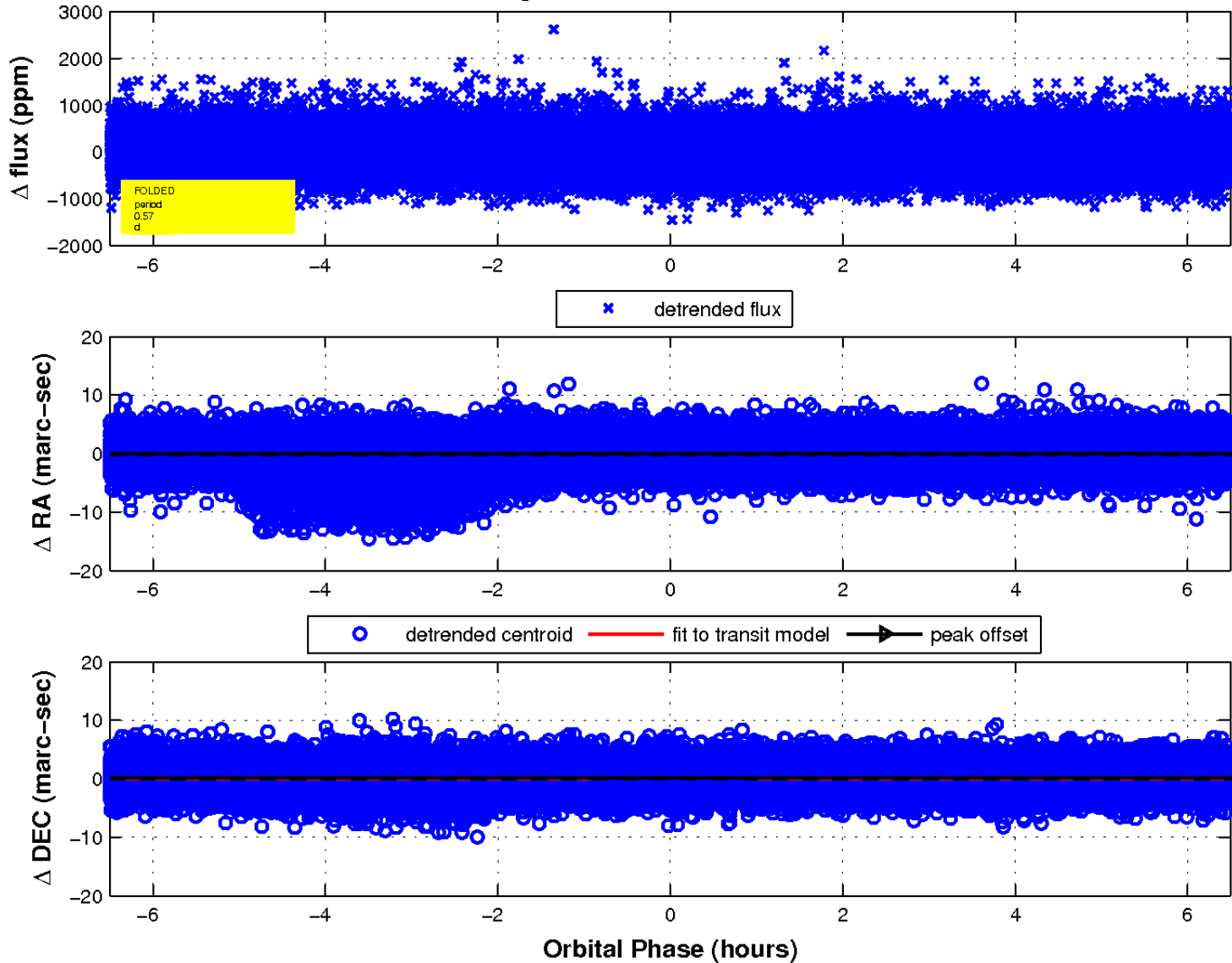
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

