

# KIC 007770450

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007770450-01	OBS	1467.01	1.157767	132.463691	265.3	2.338	28.7	25.5	0.89	5566	1.74	1474.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007770450-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_RESOLVED_OFFSET—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 007770450-01

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	$\sigma_P$	$\sigma_T$
007770450-01	7770450	007770471-01	7770471	1:1	17.7	3	3	14.62	15.84	2933.00	Direct-PRF	0	2.50	0.83

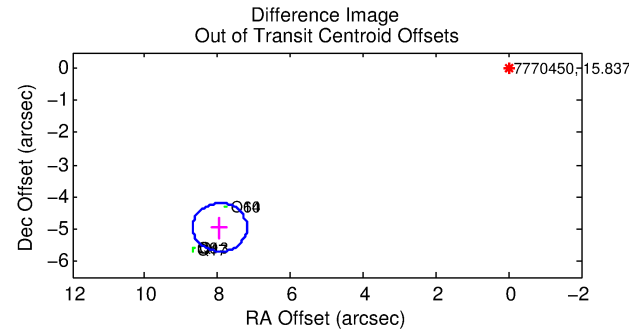
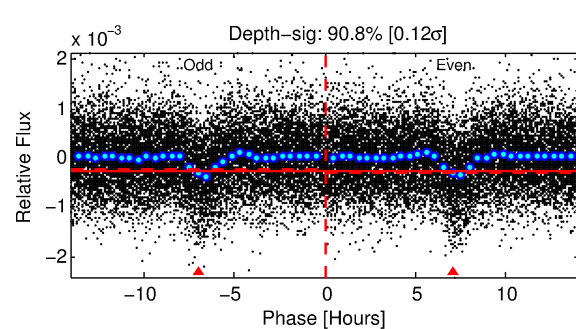
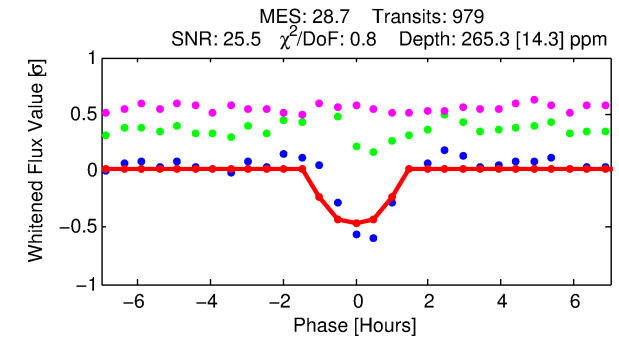
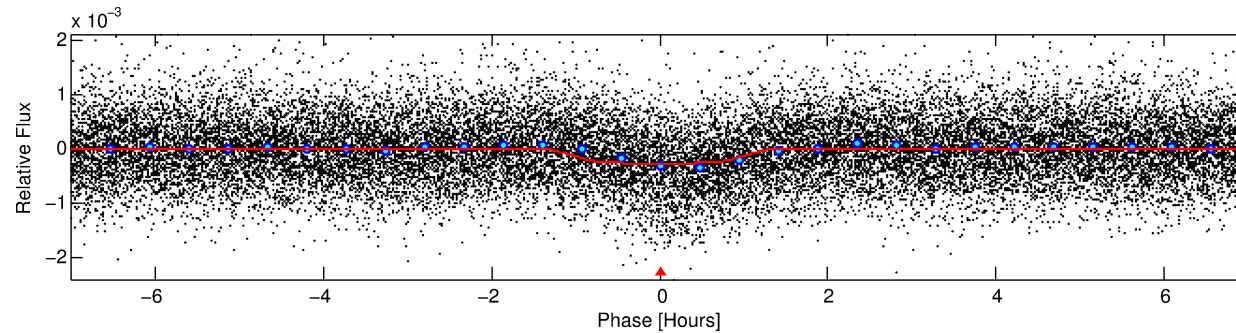
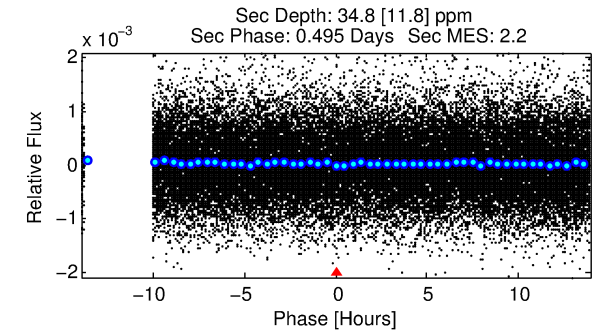
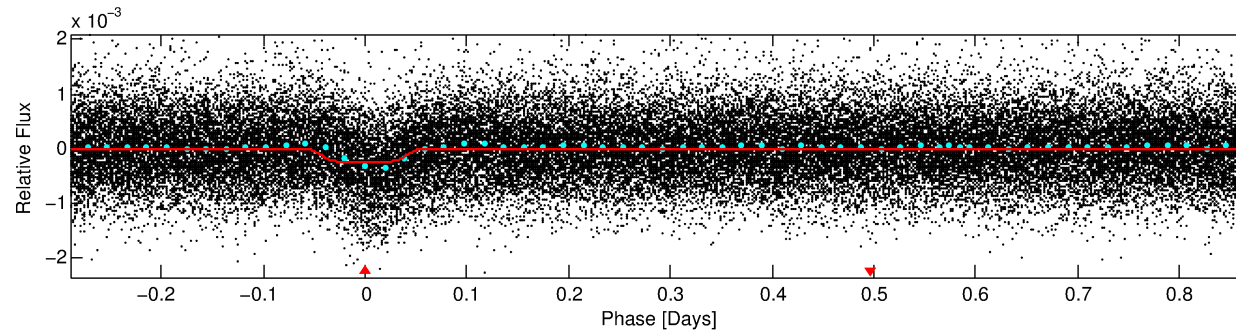
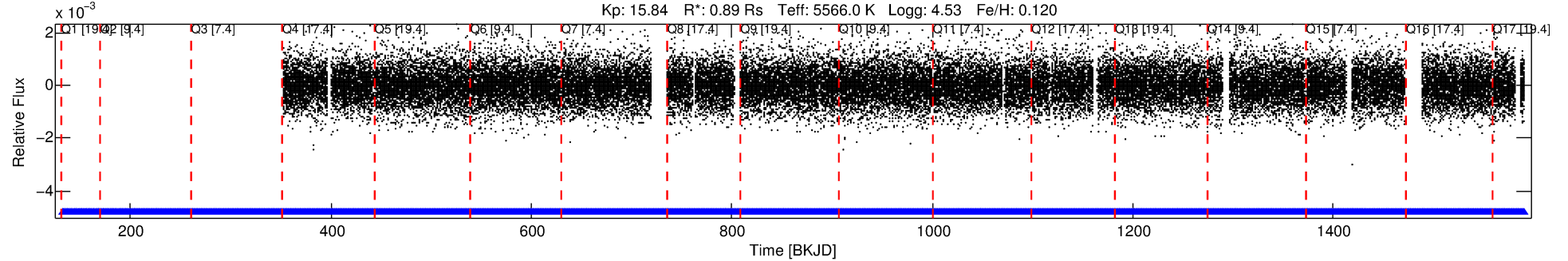
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  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: 7770450 Candidate: 1 of 1 Period: 1.158 d

KOI: K01467.01 Corr: 0.790

Kp: 15.84 R\*: 0.89 Rs Teff: 5566.0 K Logg: 4.53 Fe/H: 0.120



## DV Fit Results:

Period = 1.15777 [0.00000] d  
Epoch = 132.4637 [0.0012] BKJD  
Rp/R\* = 0.0180 [0.0042]  
a/R\* = 2.01 [1.57]  
b = 0.90 [0.22]  
Seff = 1474.10 [529.19]  
Teq = 1580 [142] K  
Rp = 1.74 [0.62] Re  
a = 0.0214 [0.0049] AU  
Ag = 2.90 [1.94] [0.98σ]  
Teffp = 3187 [473] K [3.25σ]

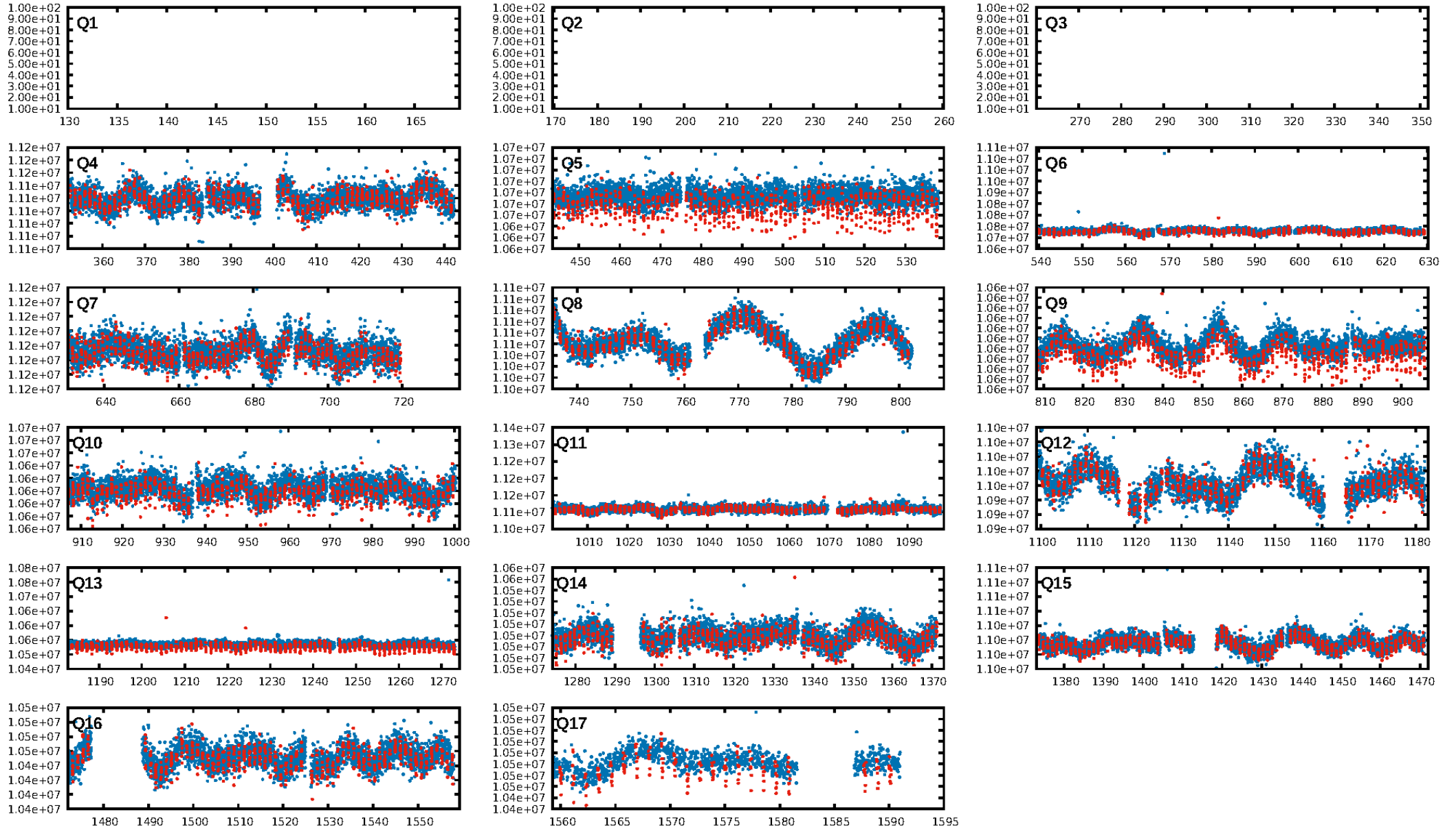
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 2.29e-169  
RollingBand-fgt: 1.00 [957/957]  
GhostDiagnostic-chr: -0.1525  
Centroid-sig: N/A  
Centroid-so: 55.976 arcsec [98.92σ]  
OotOffset-rm: 9.365 arcsec [37.36σ]  
KicOffset-rm: 9.415 arcsec [31.43σ]  
OotOffset-st: 3/0/0/3 [6]  
KicOffset-st: 3/0/0/3 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
DiffImageOverlap-fno: 1.00 [14/14]

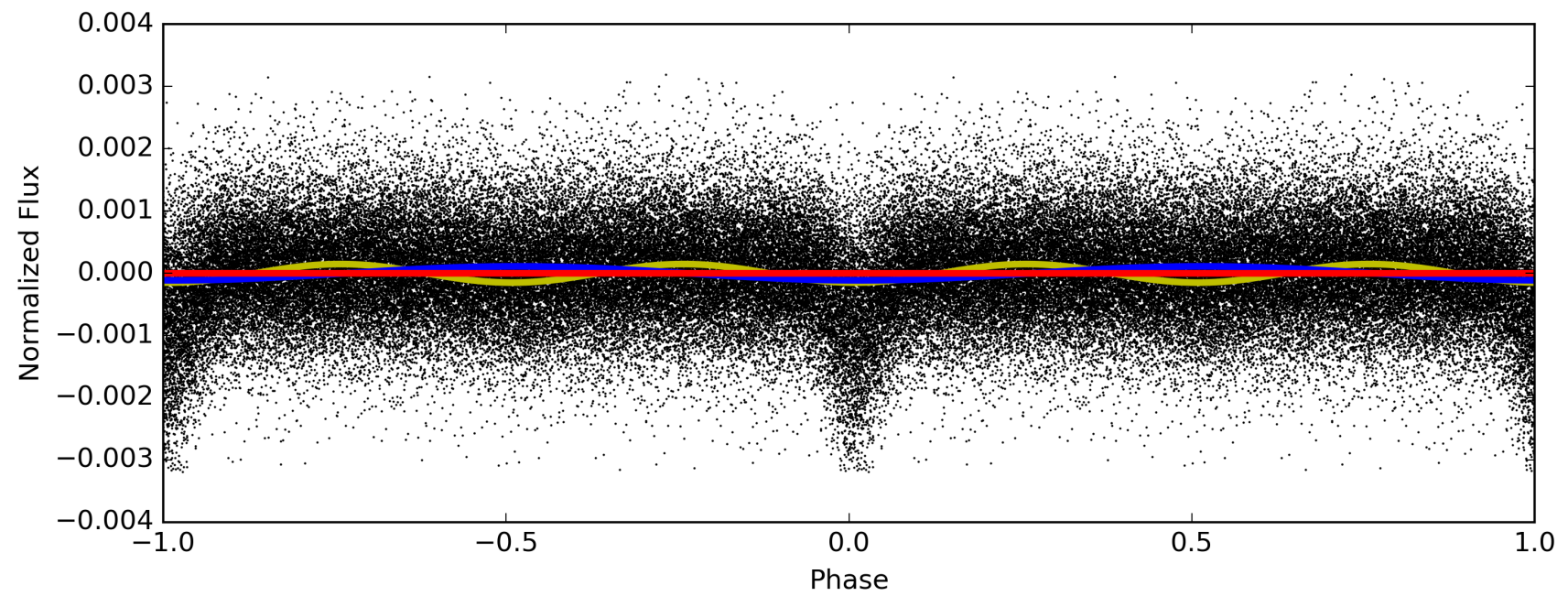
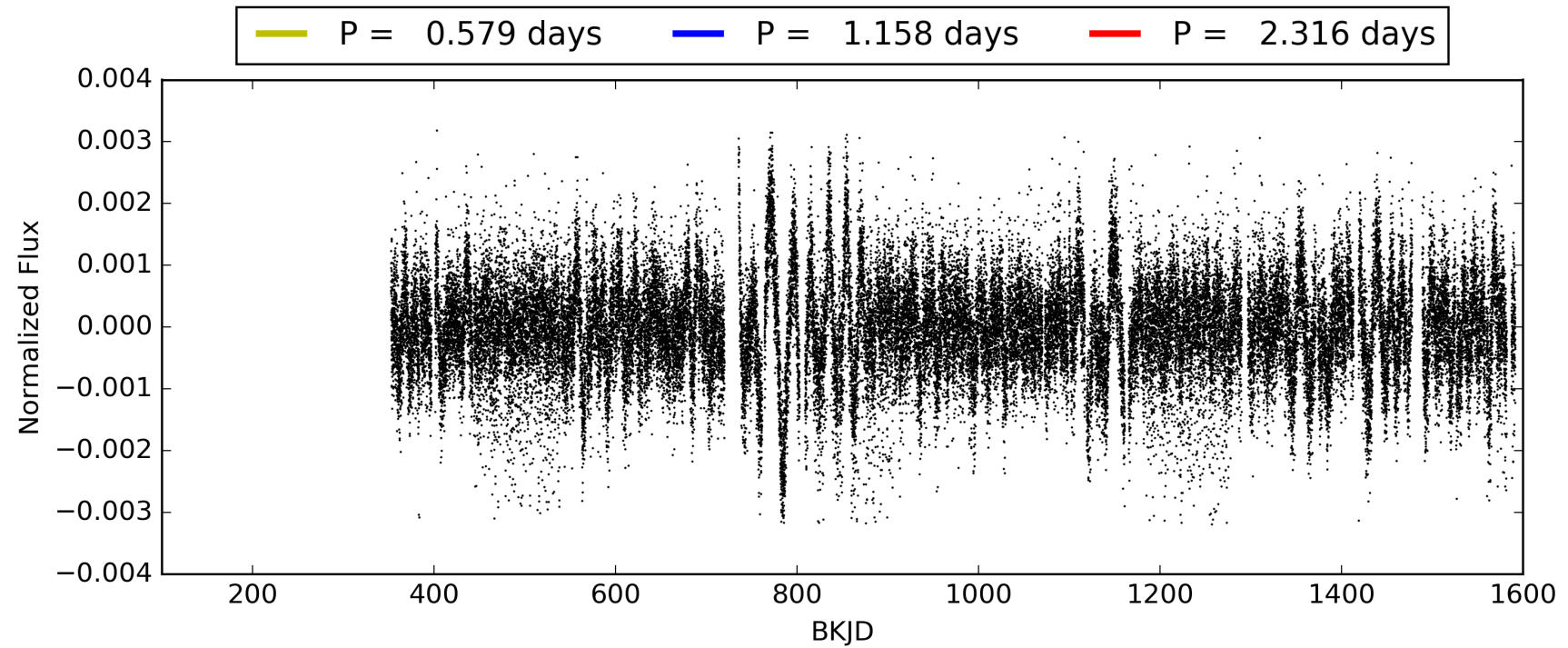
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:30:50 Z

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

# TCE 007770450-01, PDC Light Curves

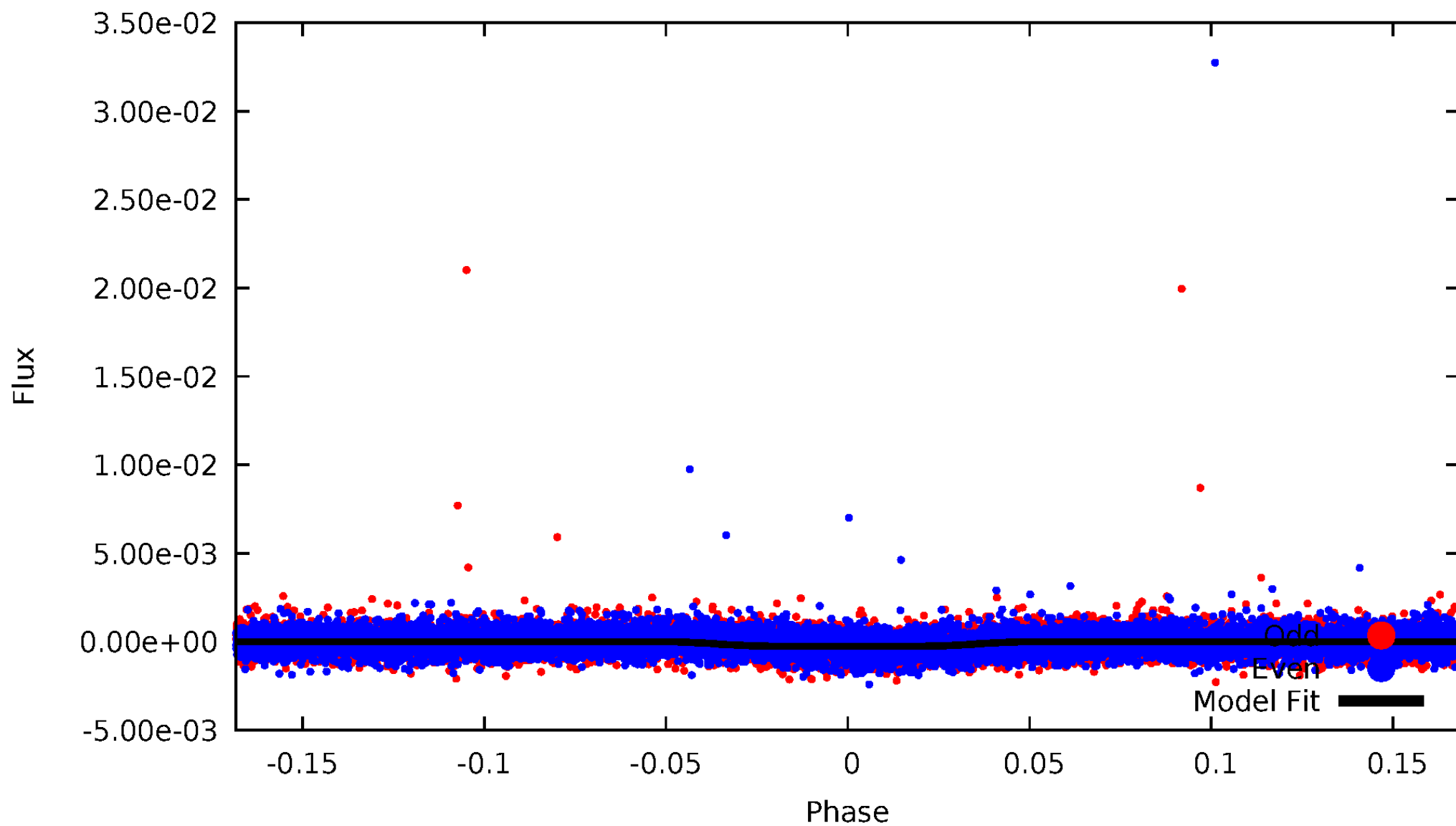


TCE 007770450-01



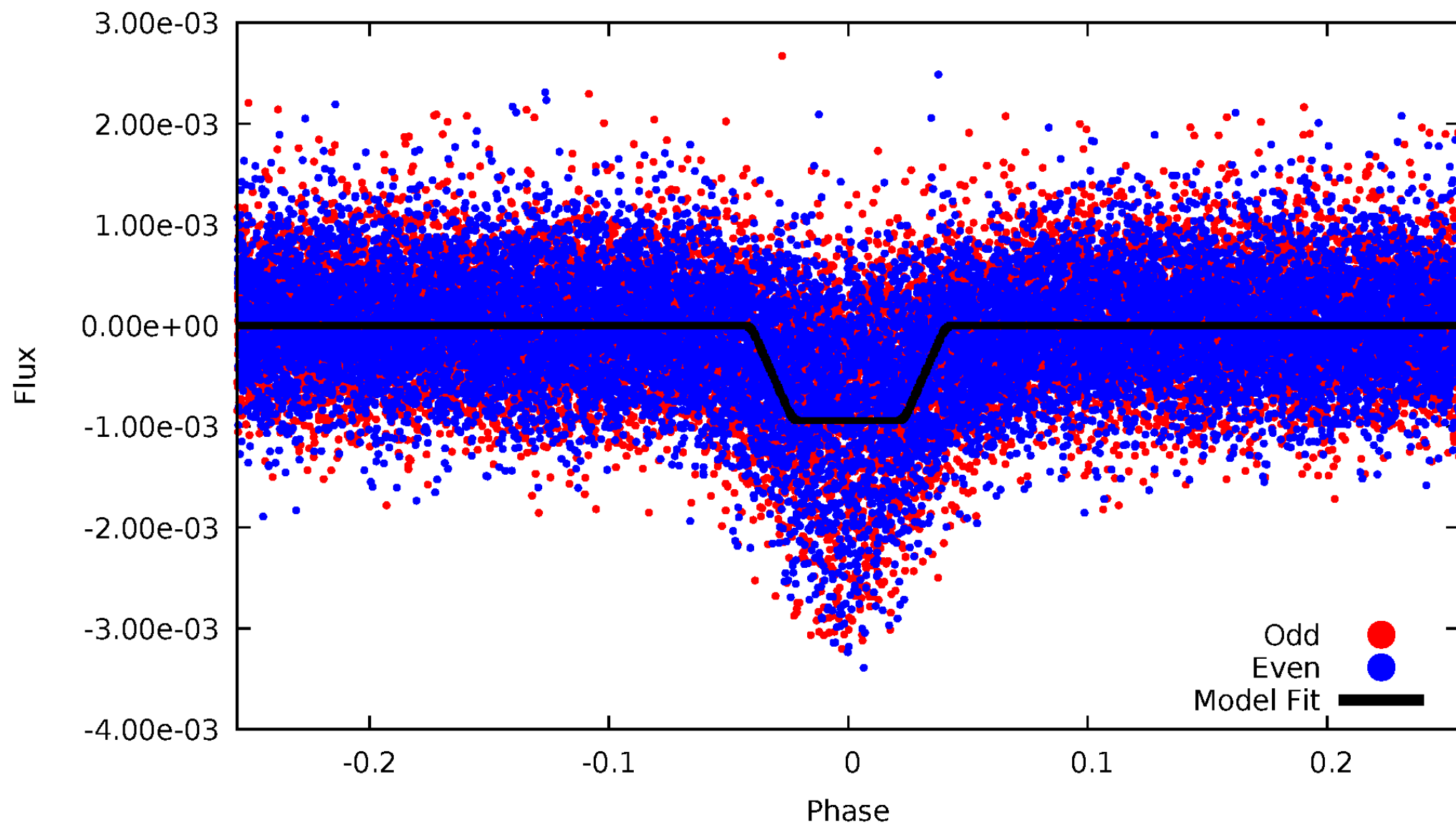
# DV Odd/Even

TCE 007770450-01

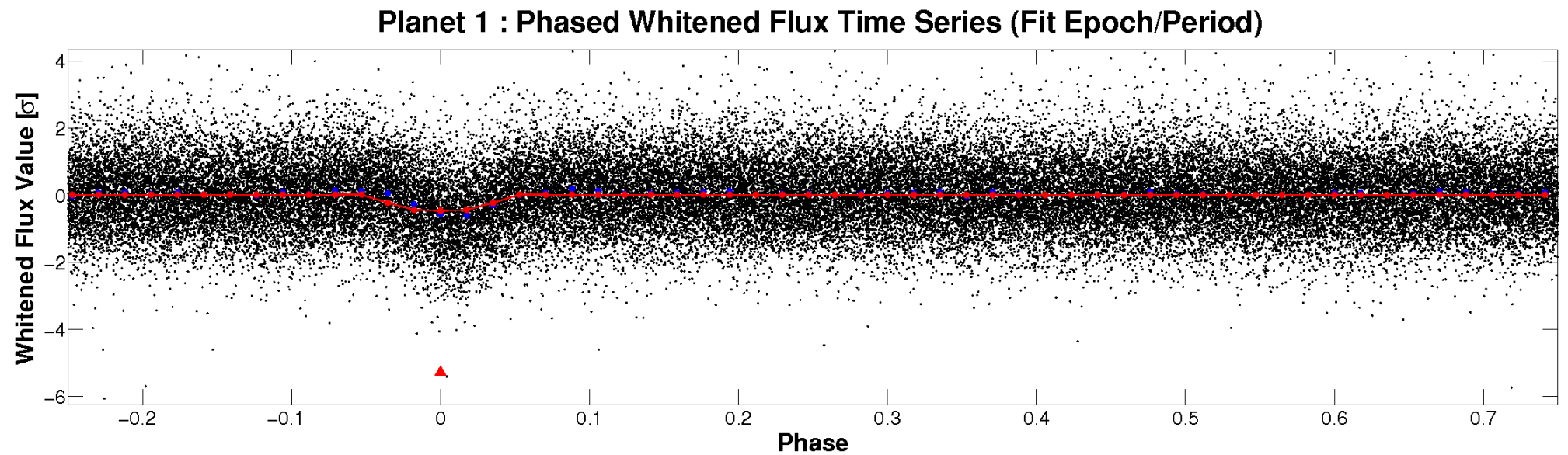
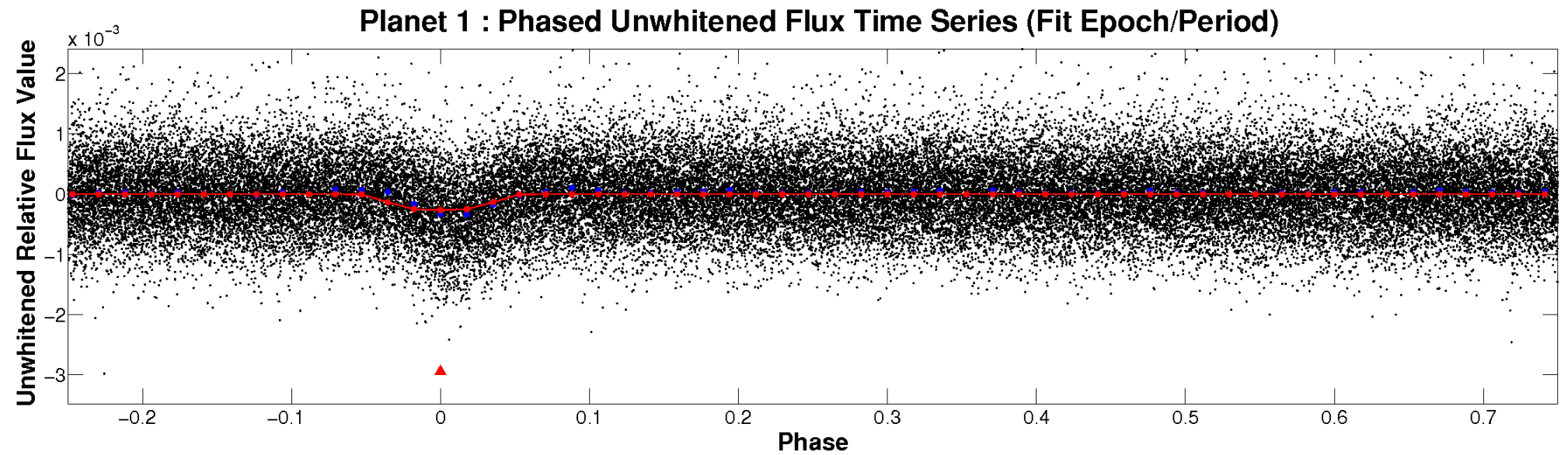


# ALT Odd/Even

TCE 007770450-01

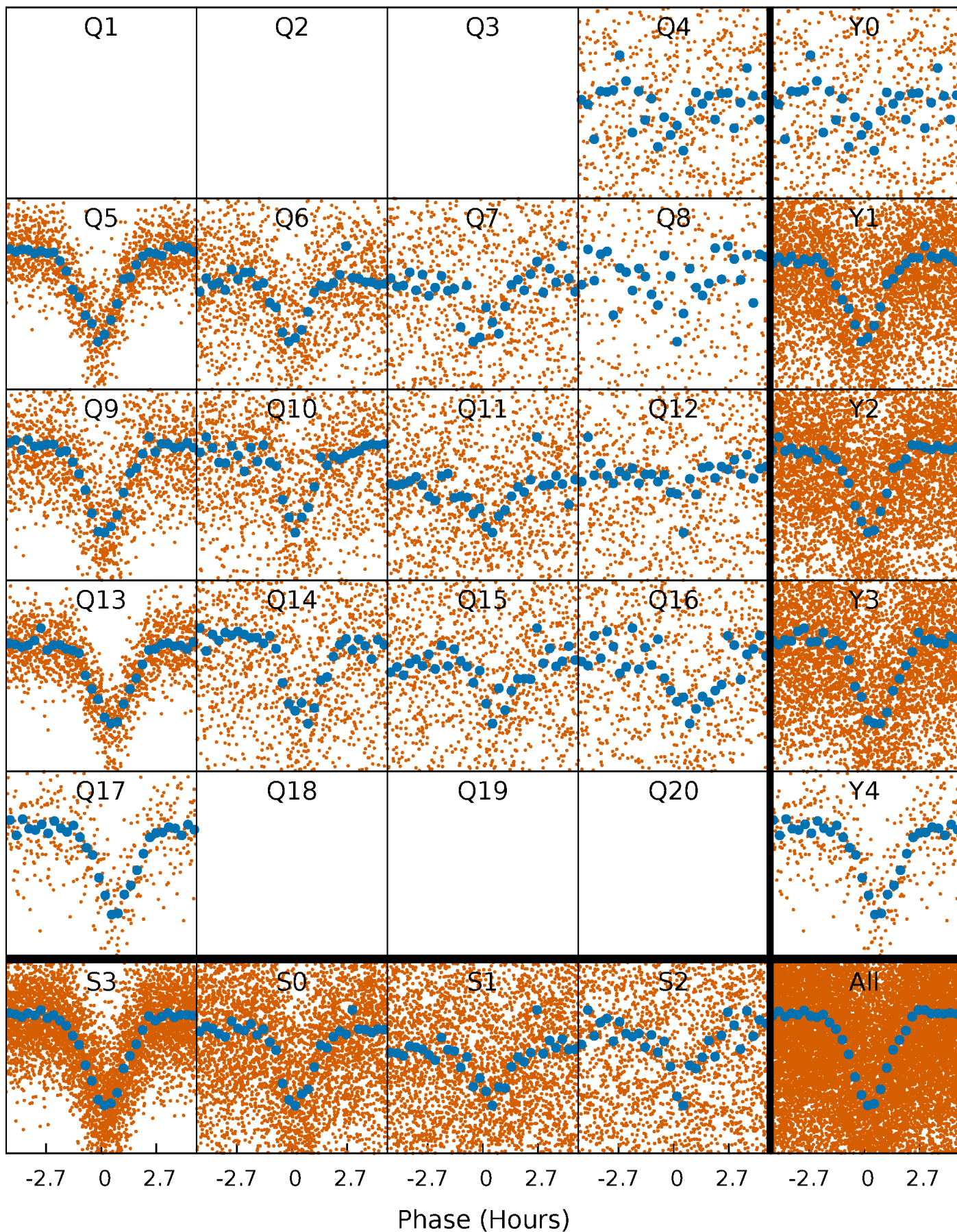


# Non-Whitened Vs. Whitened Light Curve



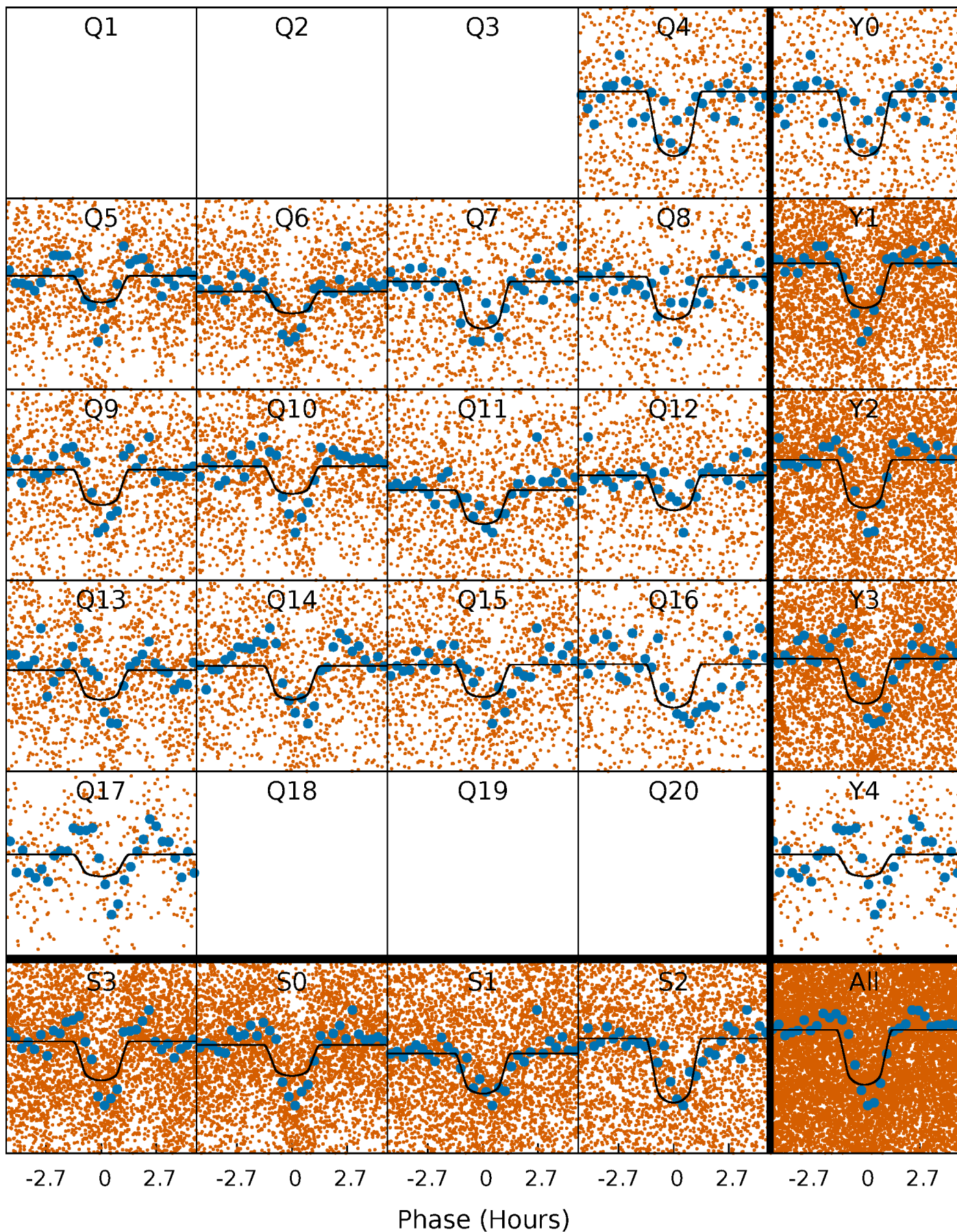
# PDC Quarter-Phased Transit Curves

TCE 007770450-01 P= 1.157767 Days  $T_0=132.463691$  (BKJD)



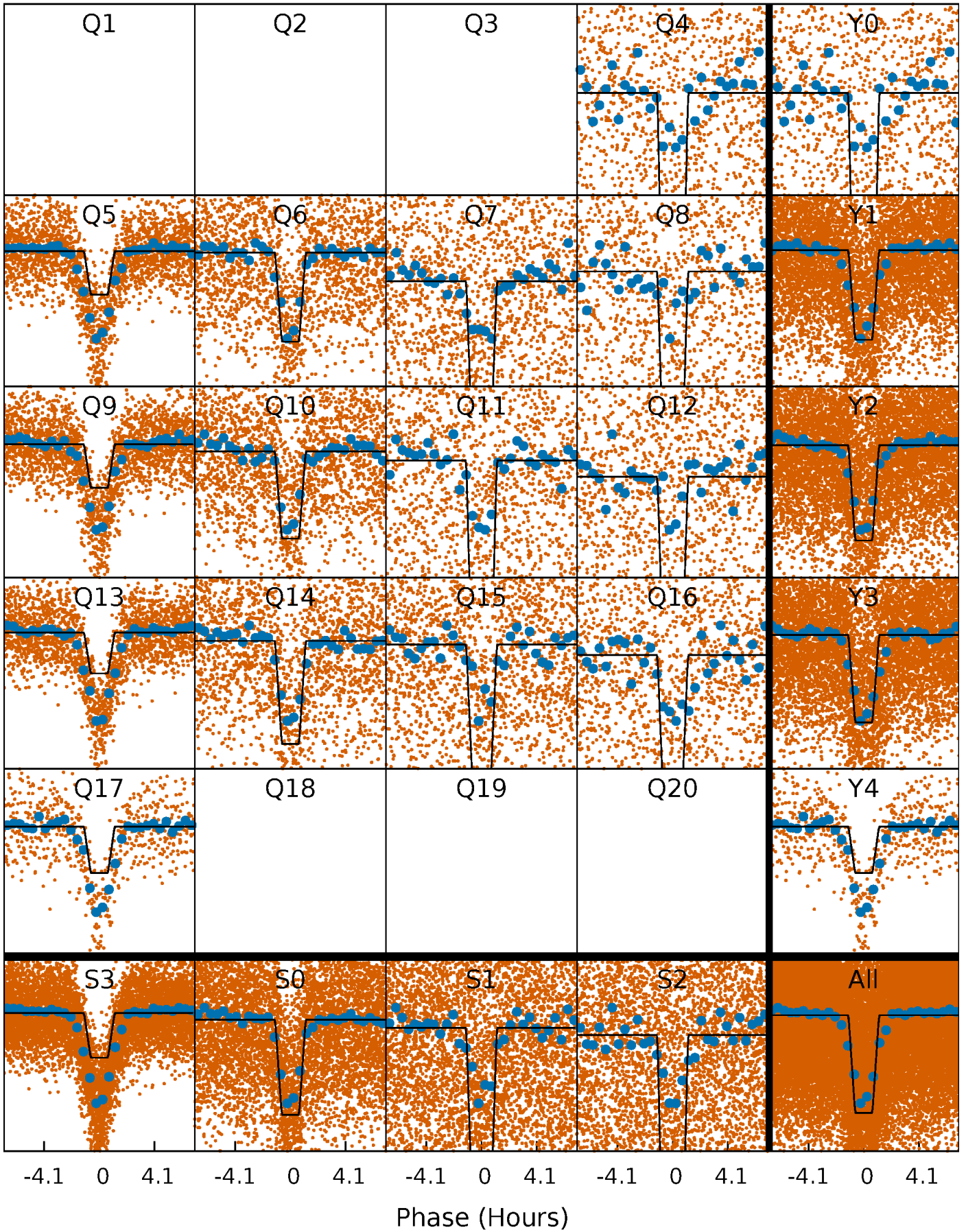
# DV Quarter-Phased Transit Curves

TCE 007770450-01 P= 1.157767 Days  $T_0=132.463691$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

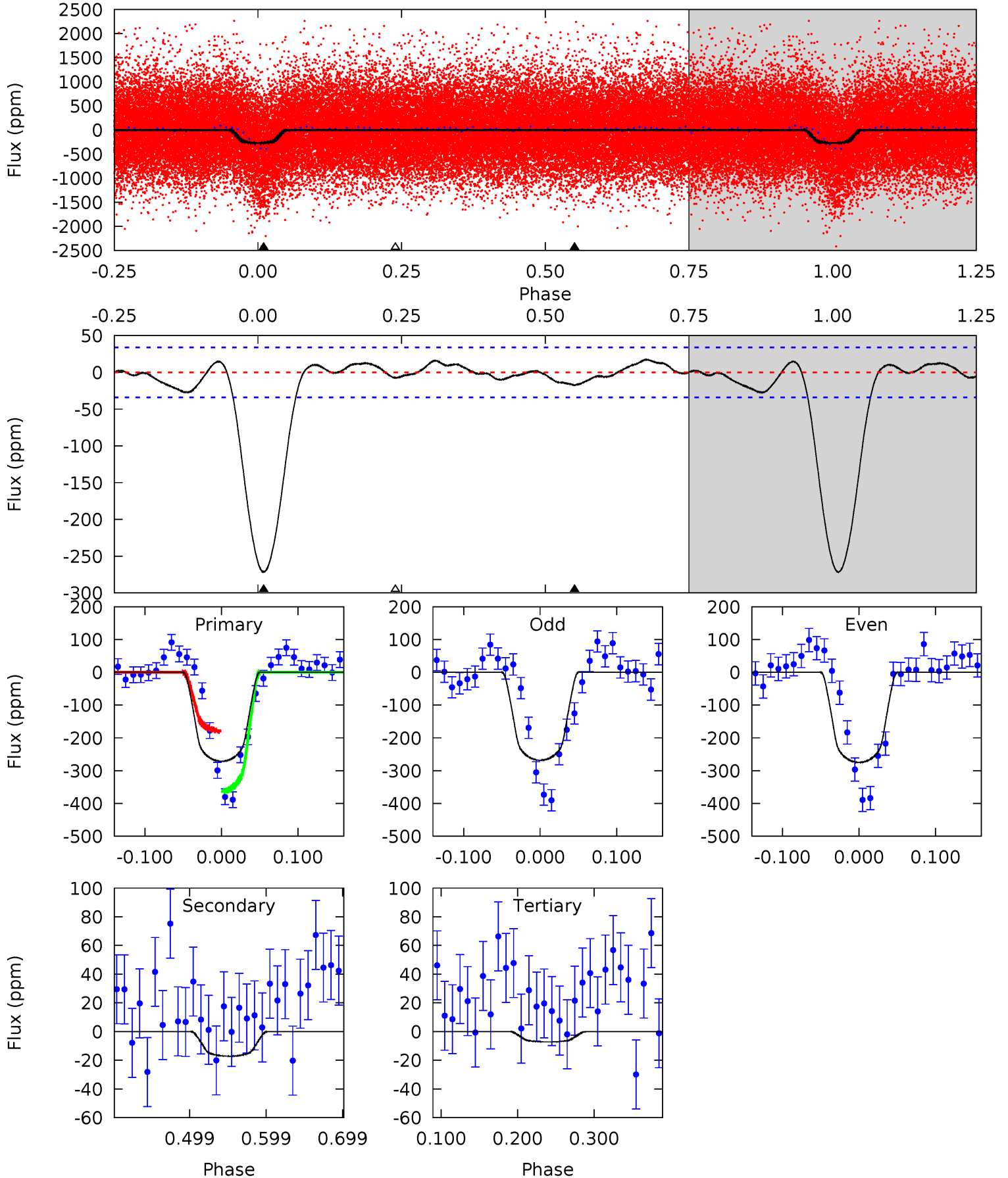
TCE 007770450-01 P= 1.157800 Days  $T_0=132.451215$  (BKJD)



# DV Model-Shift Uniqueness Test

007770450-01, P = 1.157767 Days, E = 132.463691 Days

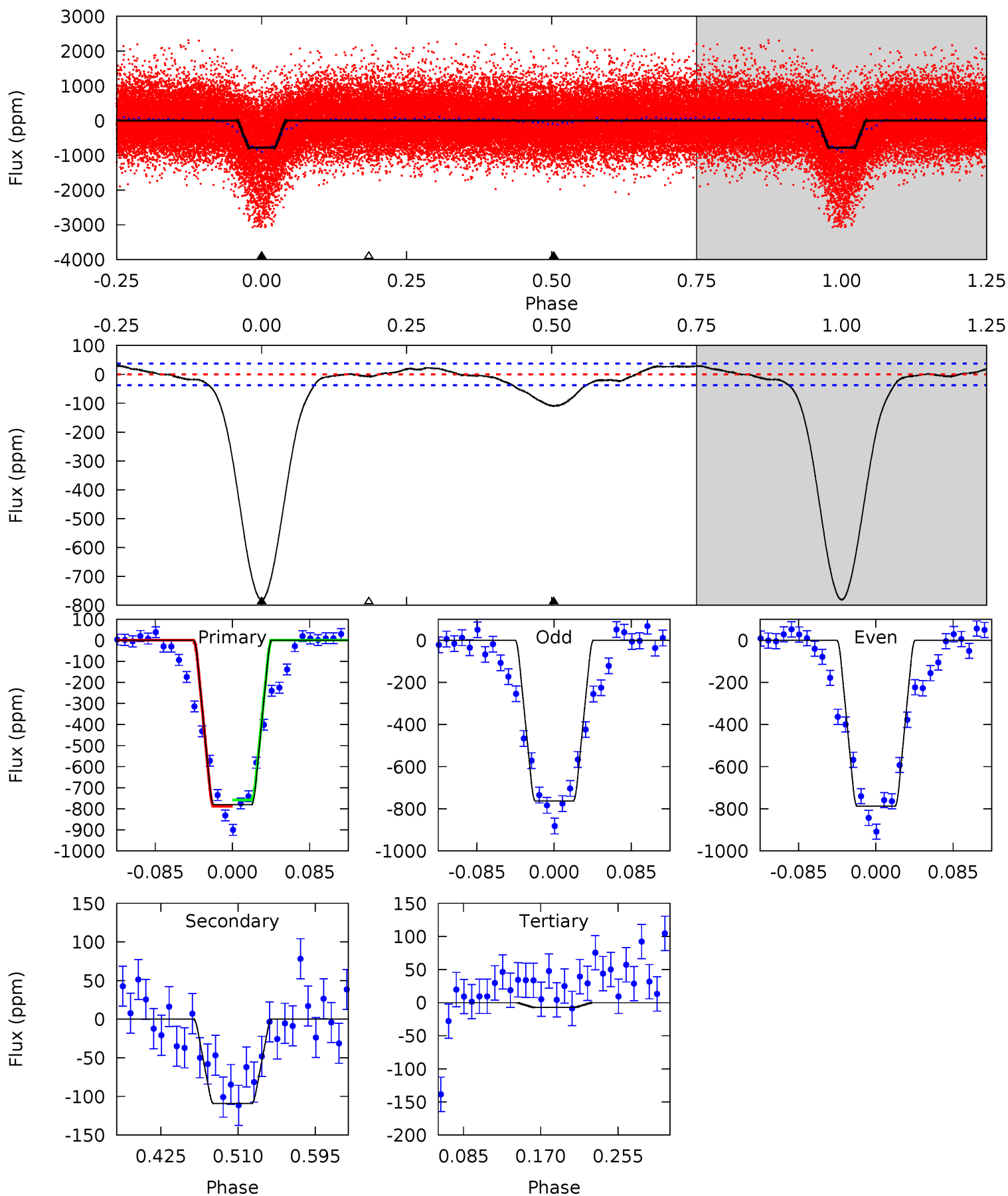
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.4	2.30	0.97	0	4.57	1.65	1.42	35.4	36.4	1.34	2.30	0.44	1.01	0.06	12.4



# Alt Model-Shift Uniqueness Test

007770450-01, P = 1.157800 Days, E = 132.451215 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
96.5	13.5	0.89	0	4.60	1.72	2.14	95.6	96.5	12.6	13.5	1.51	1.30	0.04	1.86



### Stellar Parameters For KIC 007770450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5566^{+166}_{-183}$	$4.532^{+0.046}_{-0.184}$	$0.120^{+0.250}_{-0.300}$	$0.886^{+0.237}_{-0.079}$	$0.975^{+0.094}_{-0.104}$	$1.975^{+0.372}_{-0.991}$
	+3%/-3%	+1%/-4%	+208%/-250%	+27%/-9%	+10%/-11%	+19%/-50%
Source	KIC0	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 007770450-01 / KOI 1467.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-17 \pm 7$	$1.79^{+0.54}_{-0.41}$	$2256^{+143}_{-106}$	$3092^{+418}_{-442}$	$1.250^{+1.258}_{-0.672}$
Alt.	$-109 \pm 8$	$3.11^{+0.60}_{-0.47}$	$2258^{+151}_{-102}$	$3584^{+210}_{-177}$	$2.791^{+1.066}_{-0.807}$

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

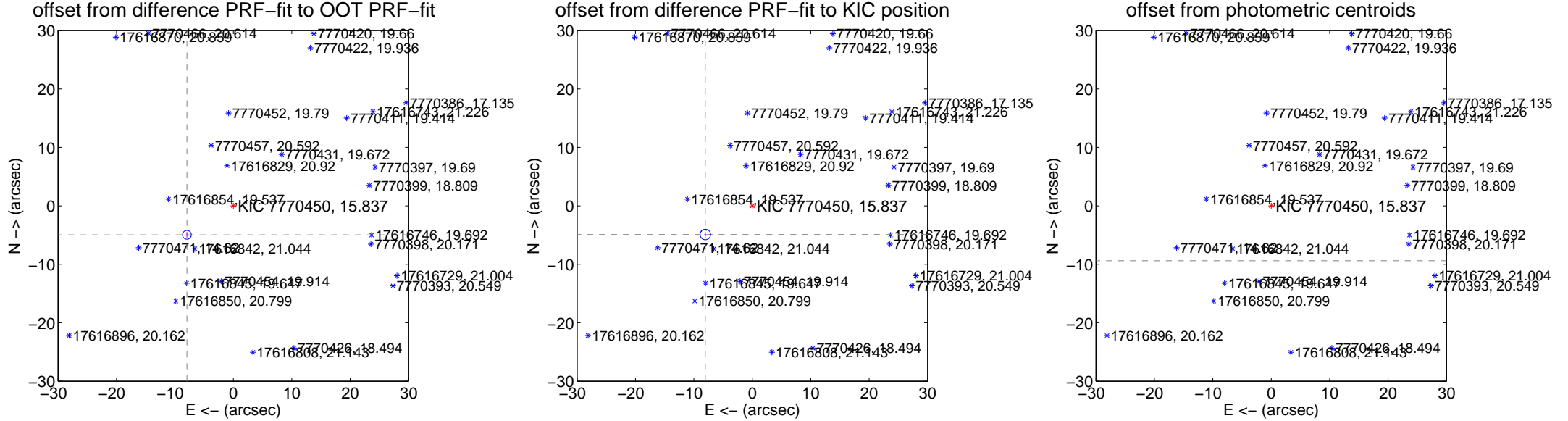
## DV Centroid Data

Supplemental centroid analysis for 007770450-01. Kepler magnitude: 15.84. Transit SNR 25.51

There are 6 quarters with good PRF difference image offsets

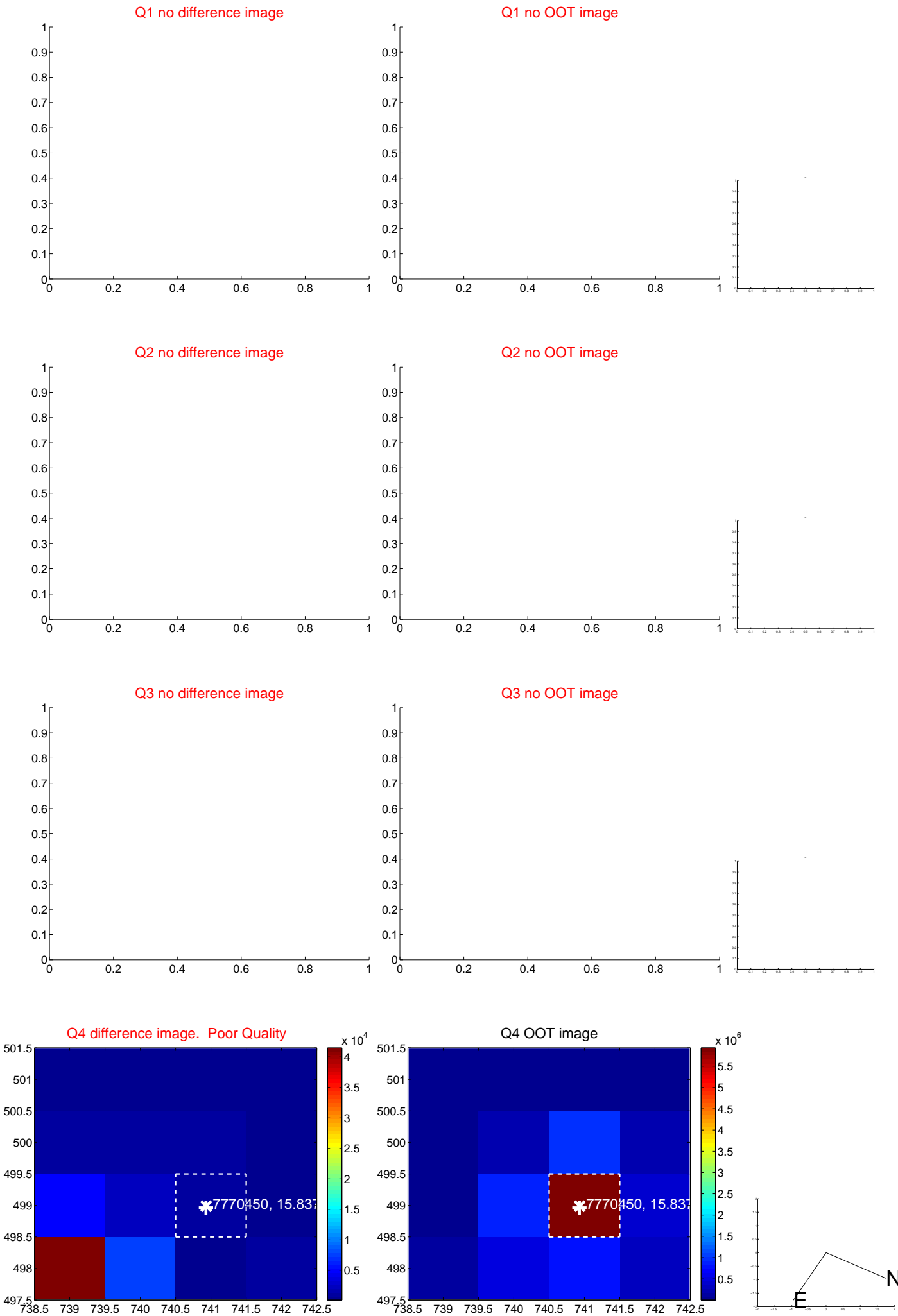
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	9.365 $\pm$ 0.251	37.36	7.946 $\pm$ 0.217	-4.956 $\pm$ 0.321
PRF-fit source offset from KIC position	9.415 $\pm$ 0.300	31.43	8.038 $\pm$ 0.194	-4.901 $\pm$ 0.270
photometric centroid source offset	55.98 $\pm$ 0.57	98.92	55.18 $\pm$ 0.57	-9.40 $\pm$ 0.51

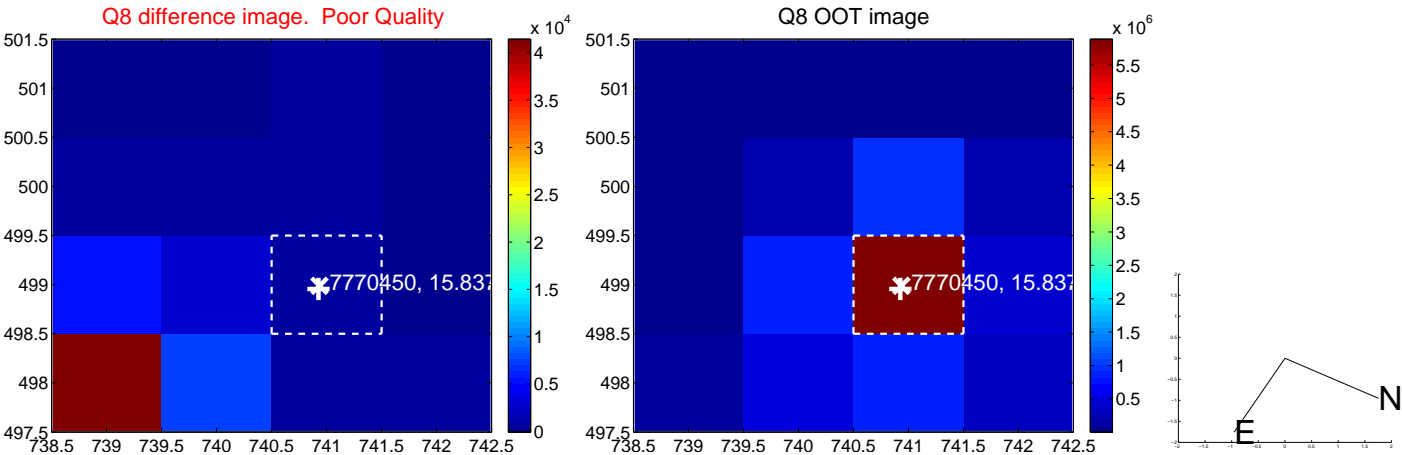
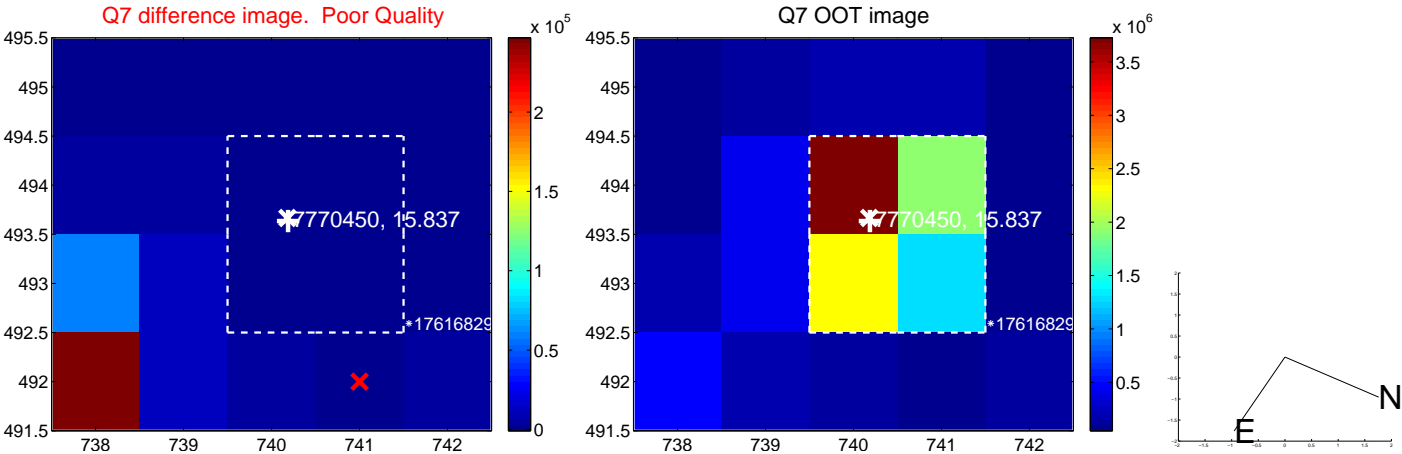
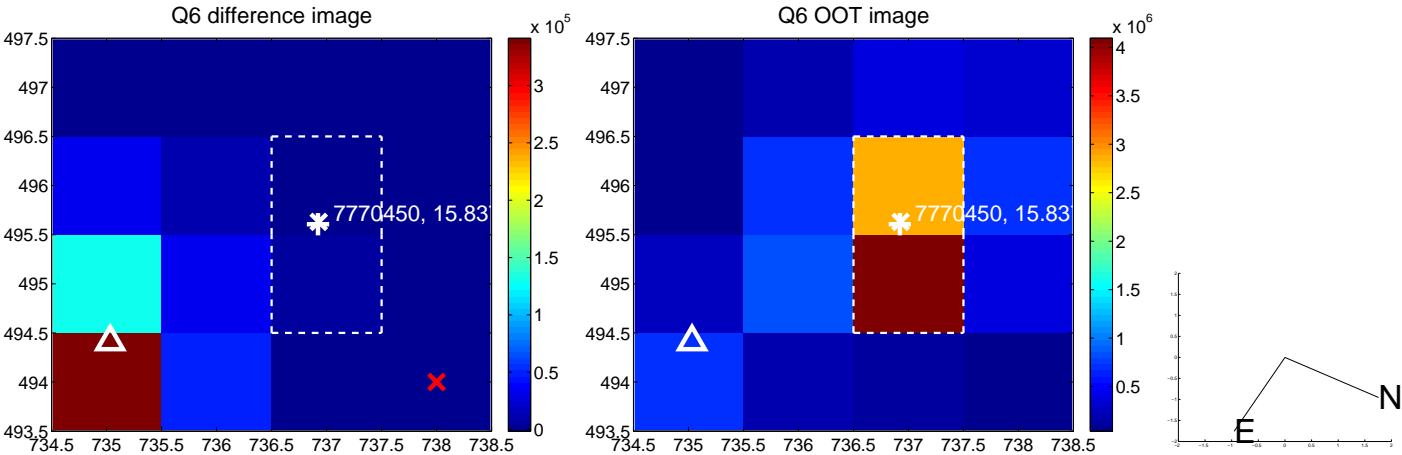
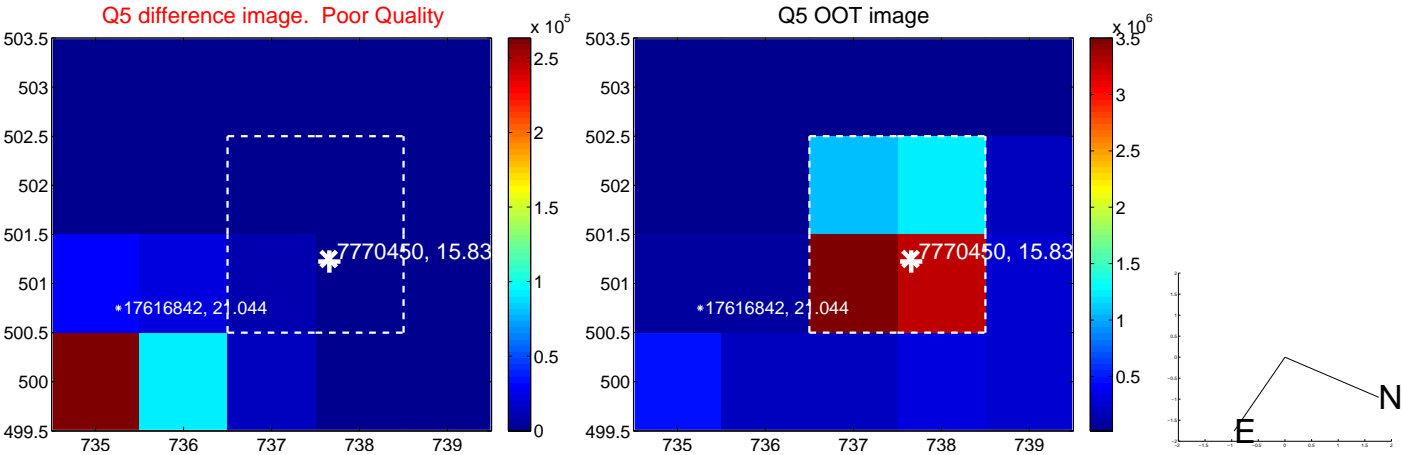


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

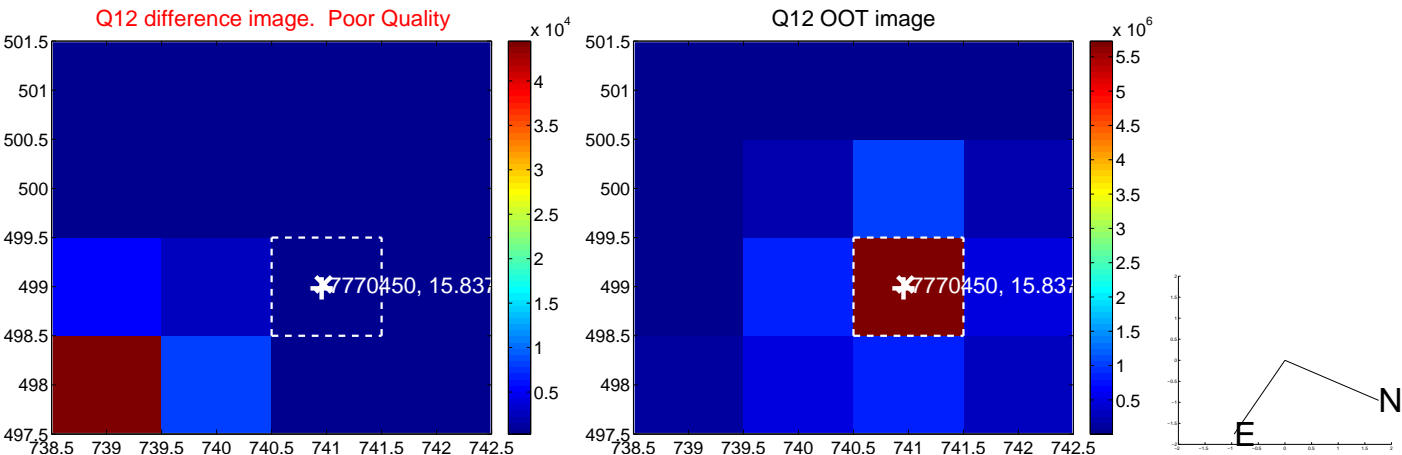
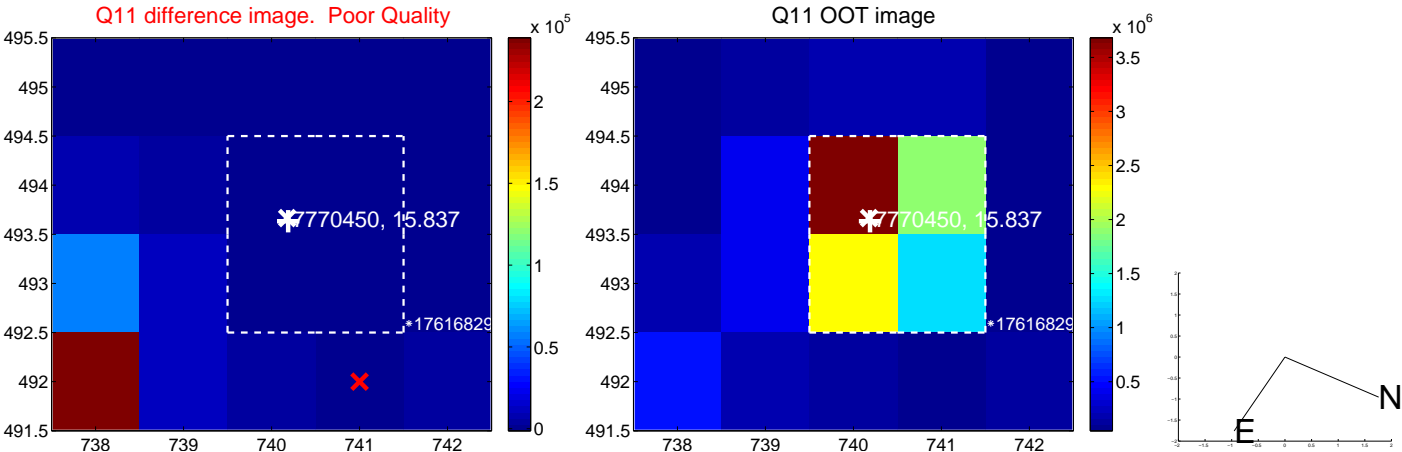
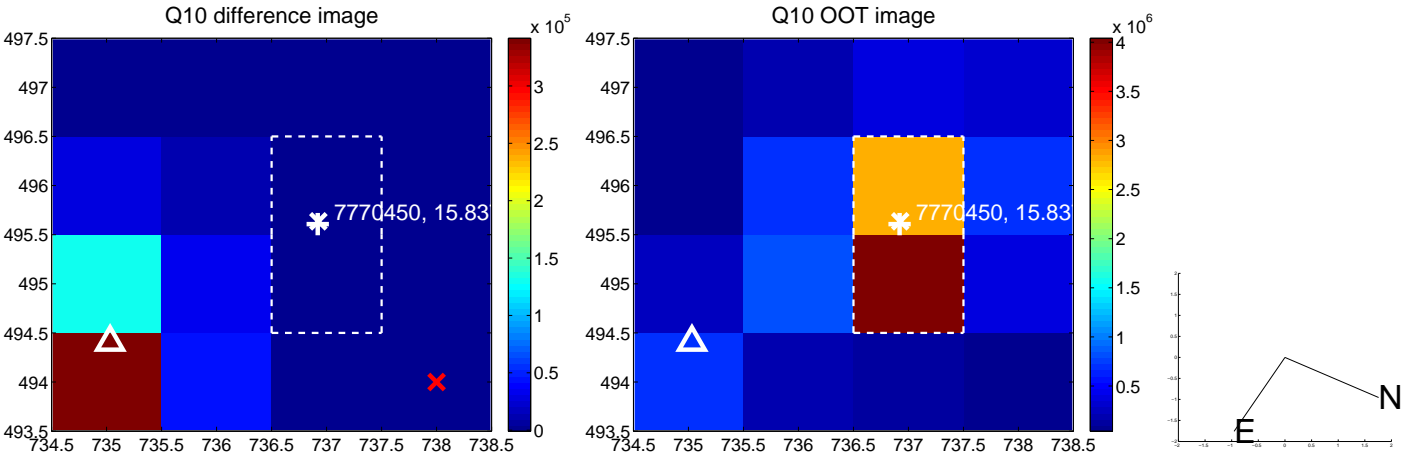
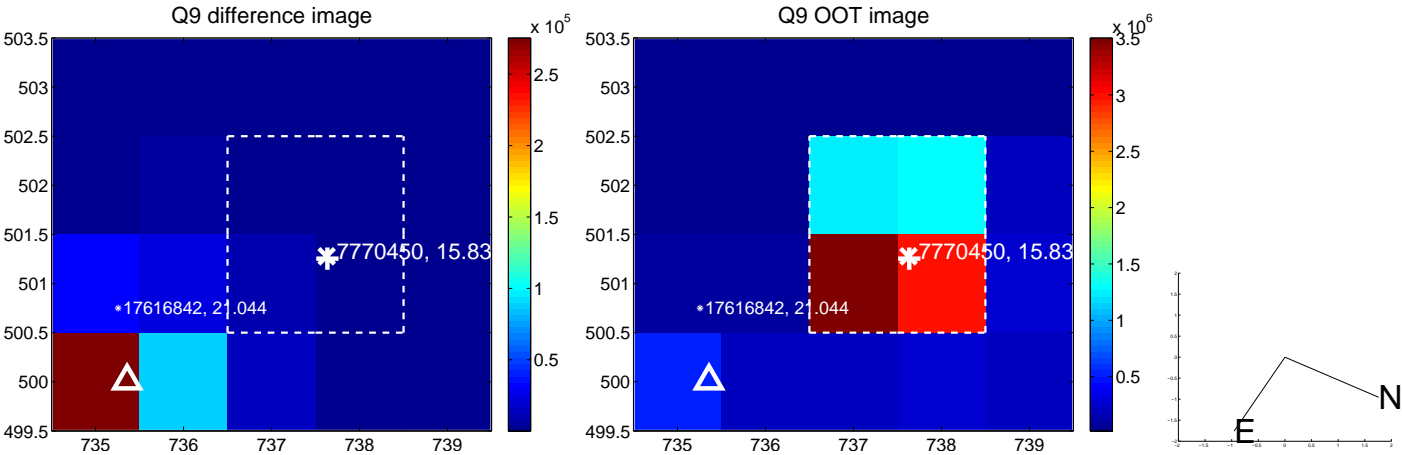
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



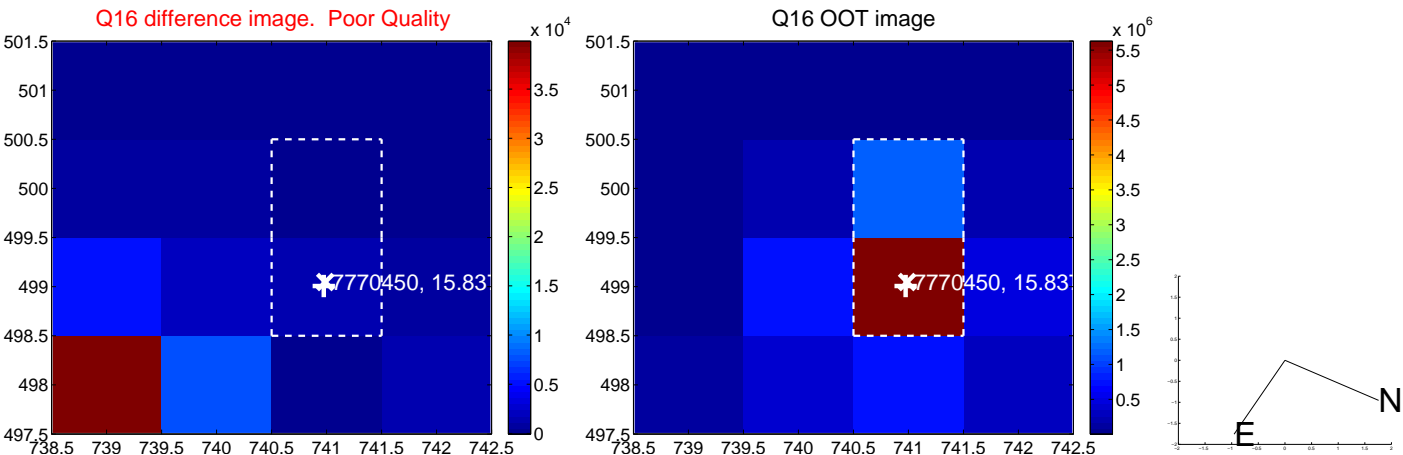
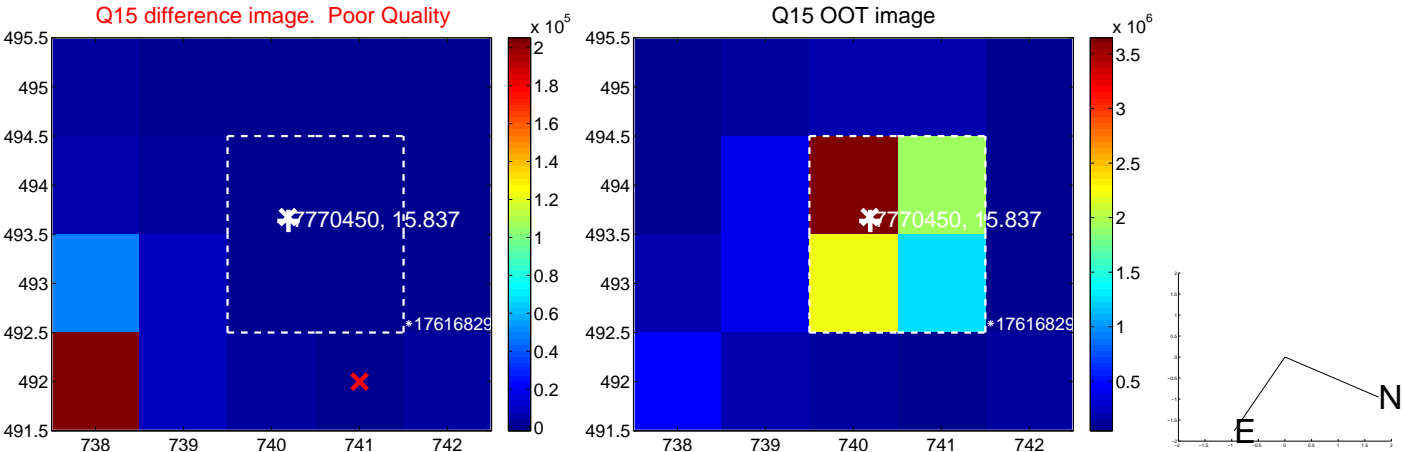
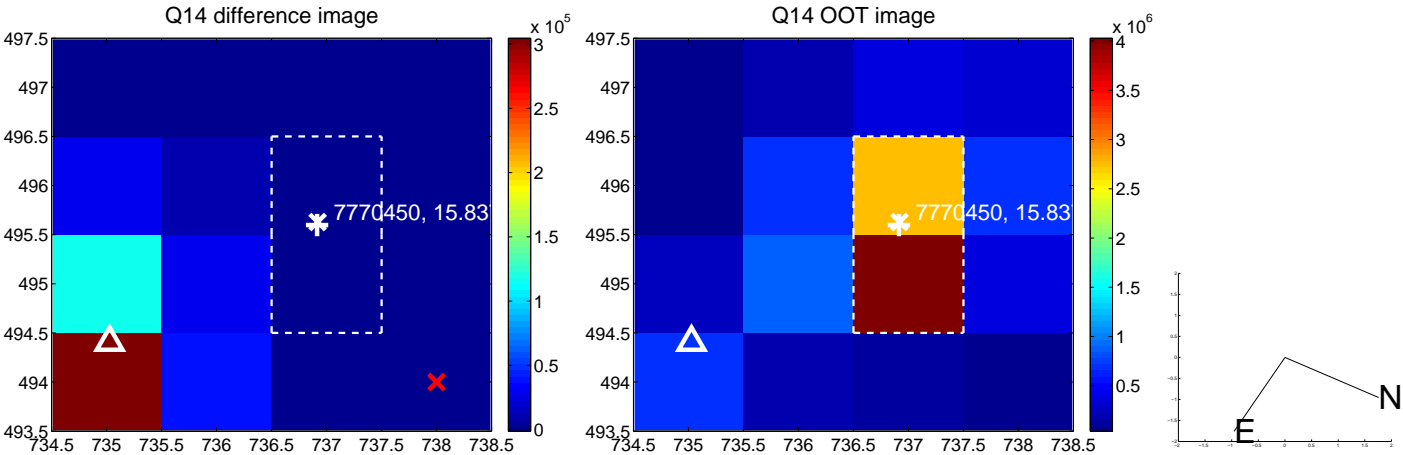
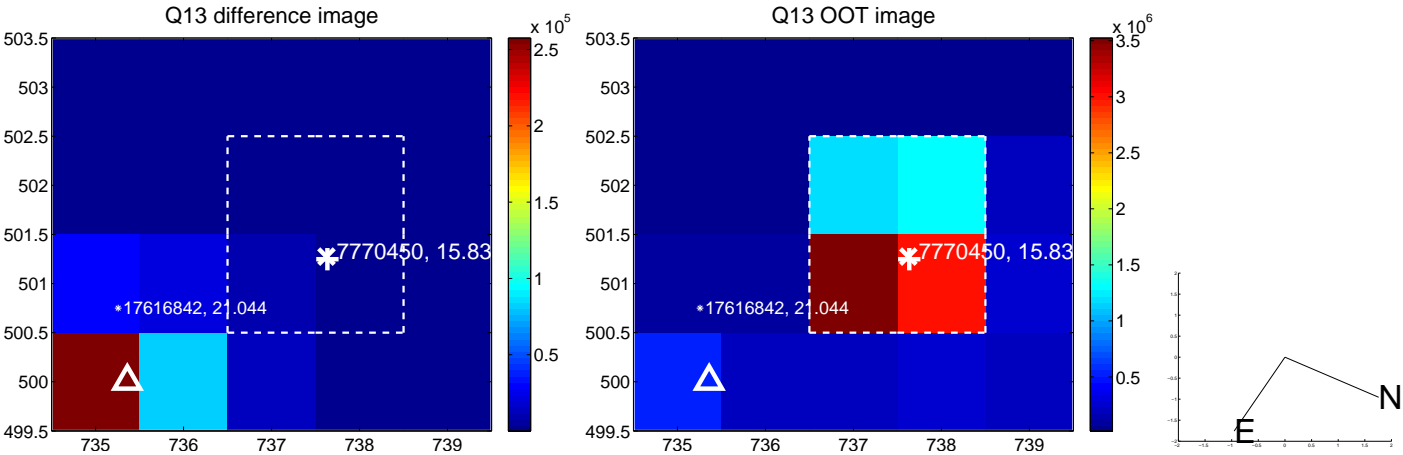
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



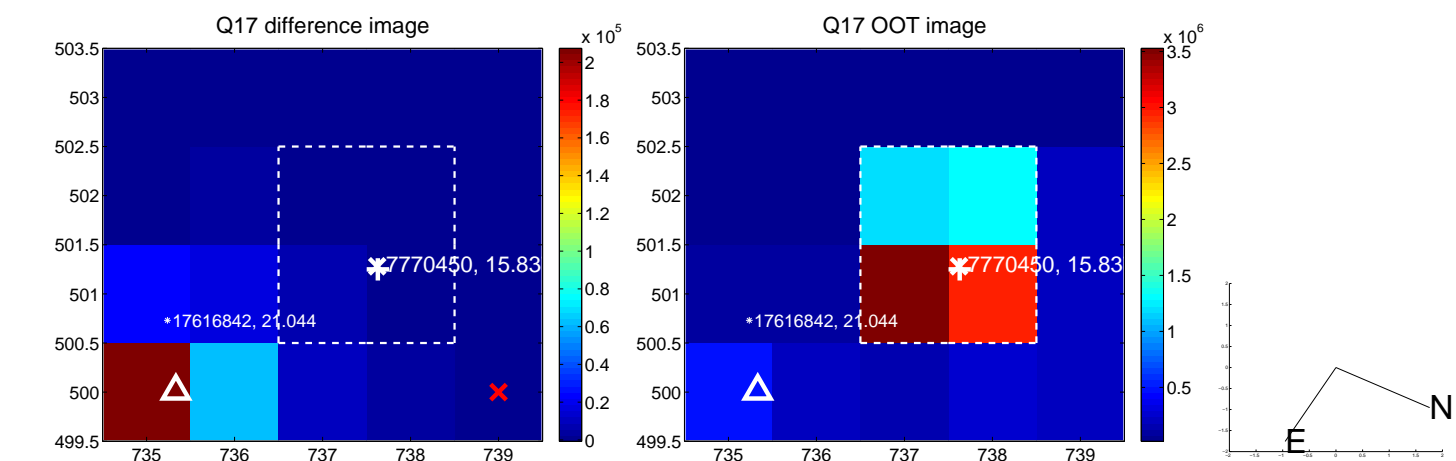
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



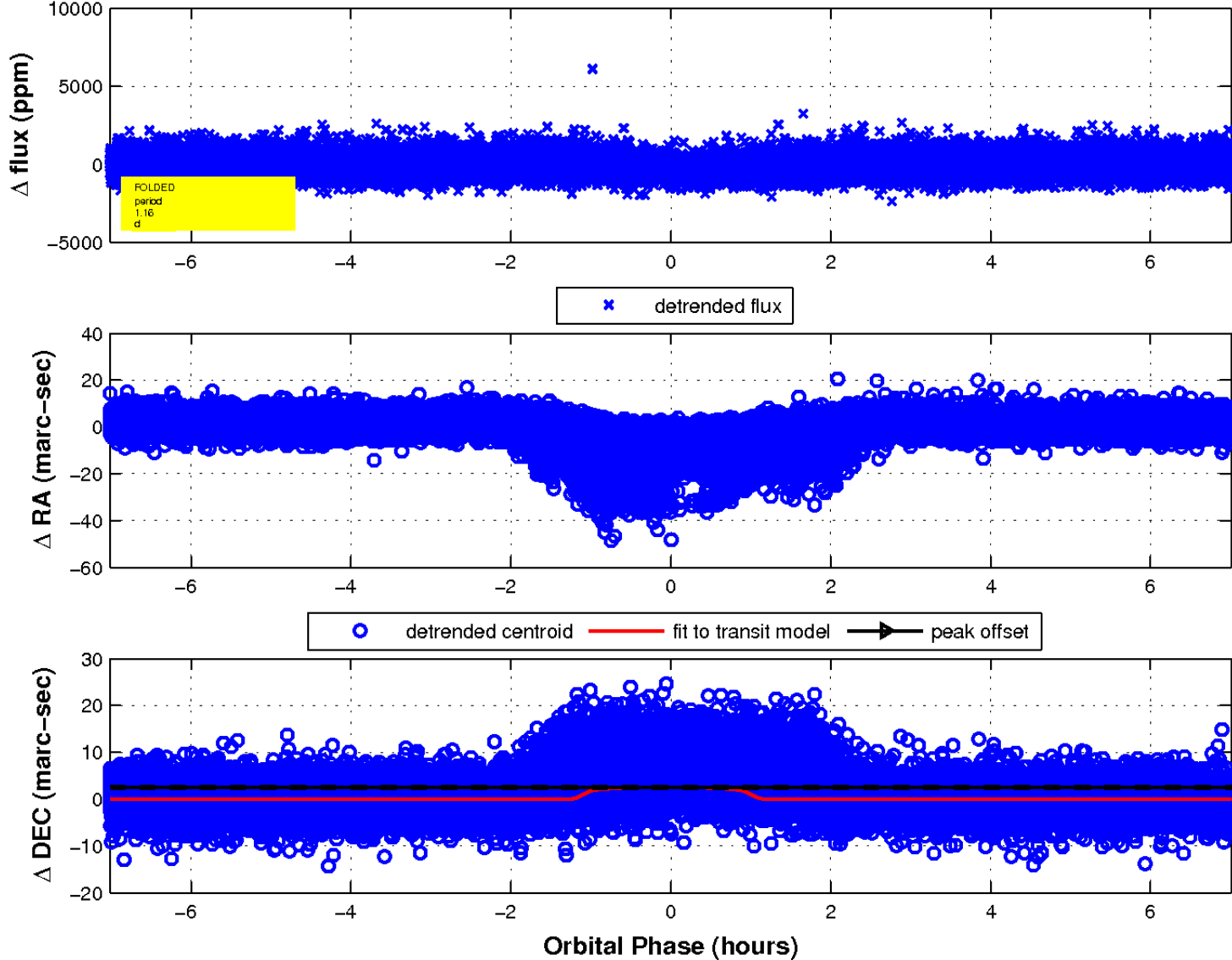
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

