

# KIC 007870250

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
007870250-01	OBS	6926.01	0.580700	131.728687	23.2	3.696	12.5	8.6	0.93	5989	0.47	5457.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007870250-01	OBS	FP	0.00	1	0	1	1	LPP_DV—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 007870250-01

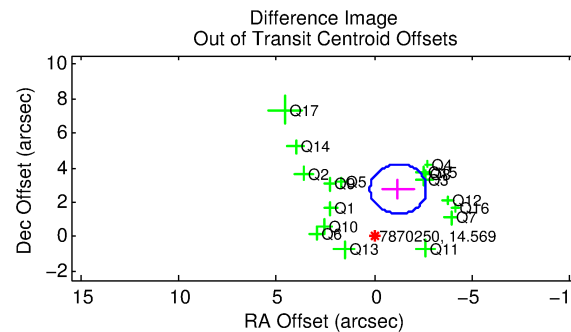
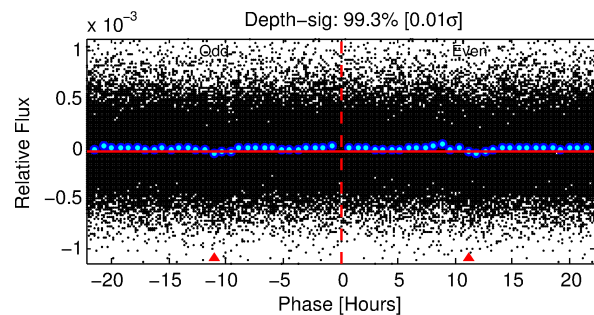
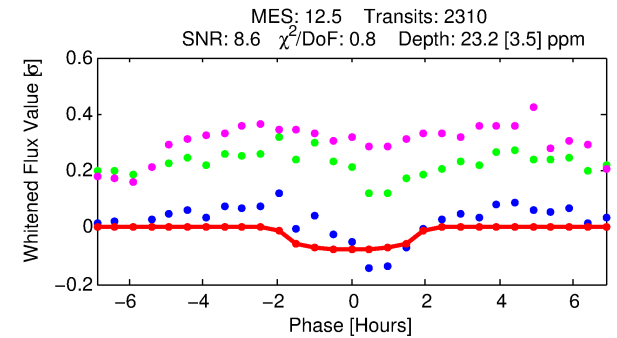
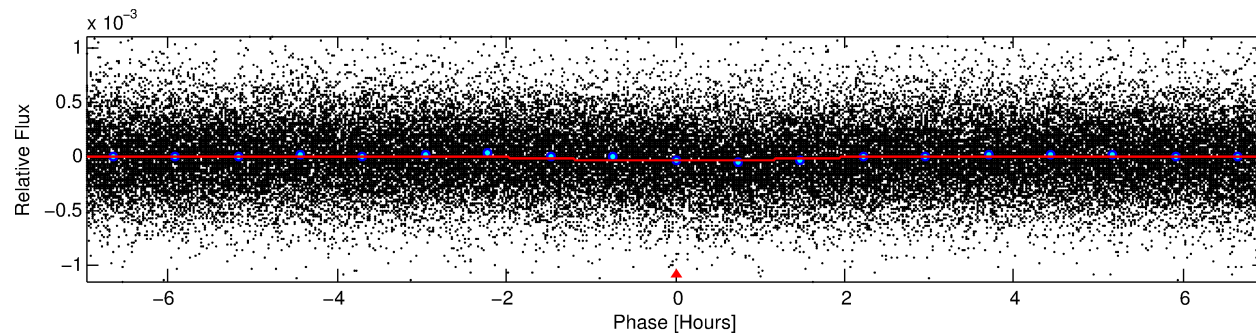
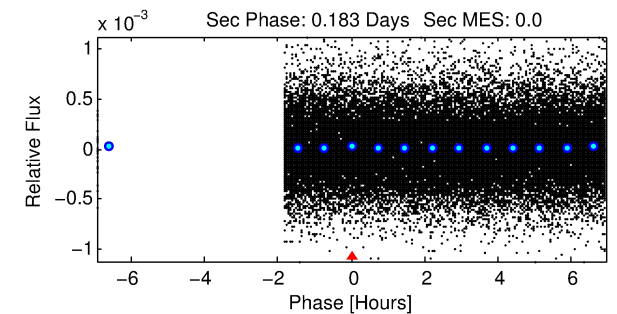
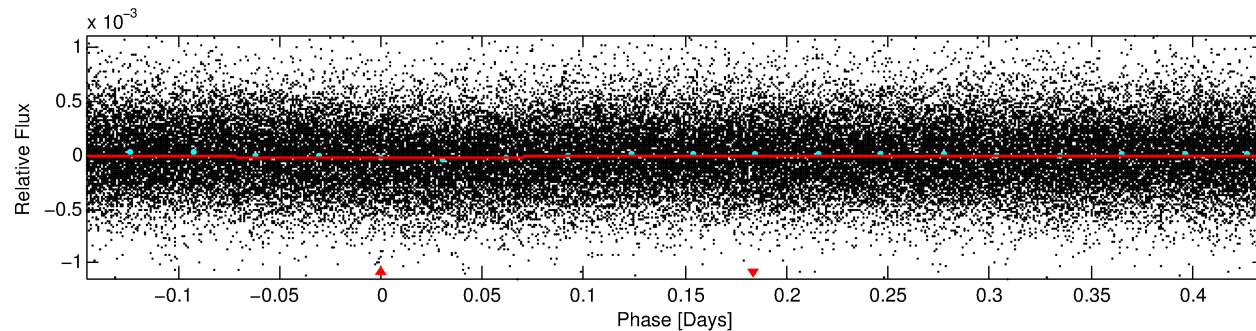
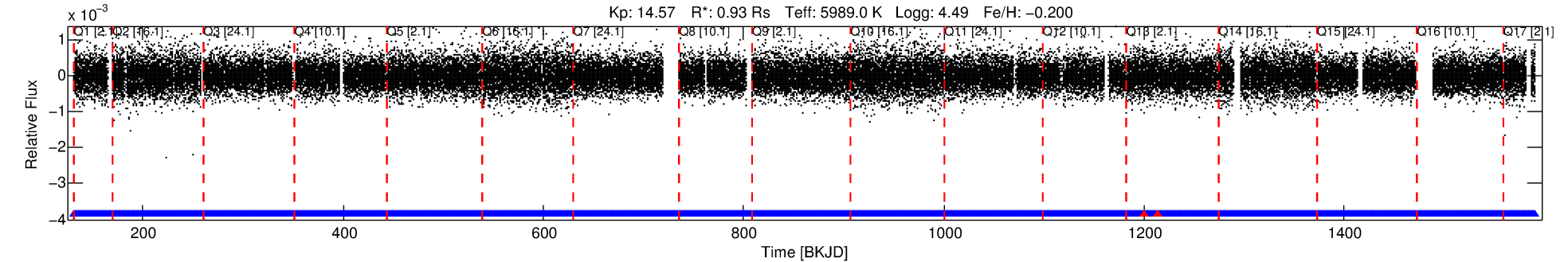
TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
007870250-01	7870250	007870306-01	7870306	1:1	77.2	15	-11	15.11	14.57	1.65	Direct-PRF	1	1.79	1.33

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7870250 Candidate: 1 of 1 Period: 0.581 d  
KOI: K06926 Corr: No Ephemeris Match

Kp: 14.57 R\*: 0.93 Rs Teff: 5989.0 K Logg: 4.49 Fe/H: -0.200



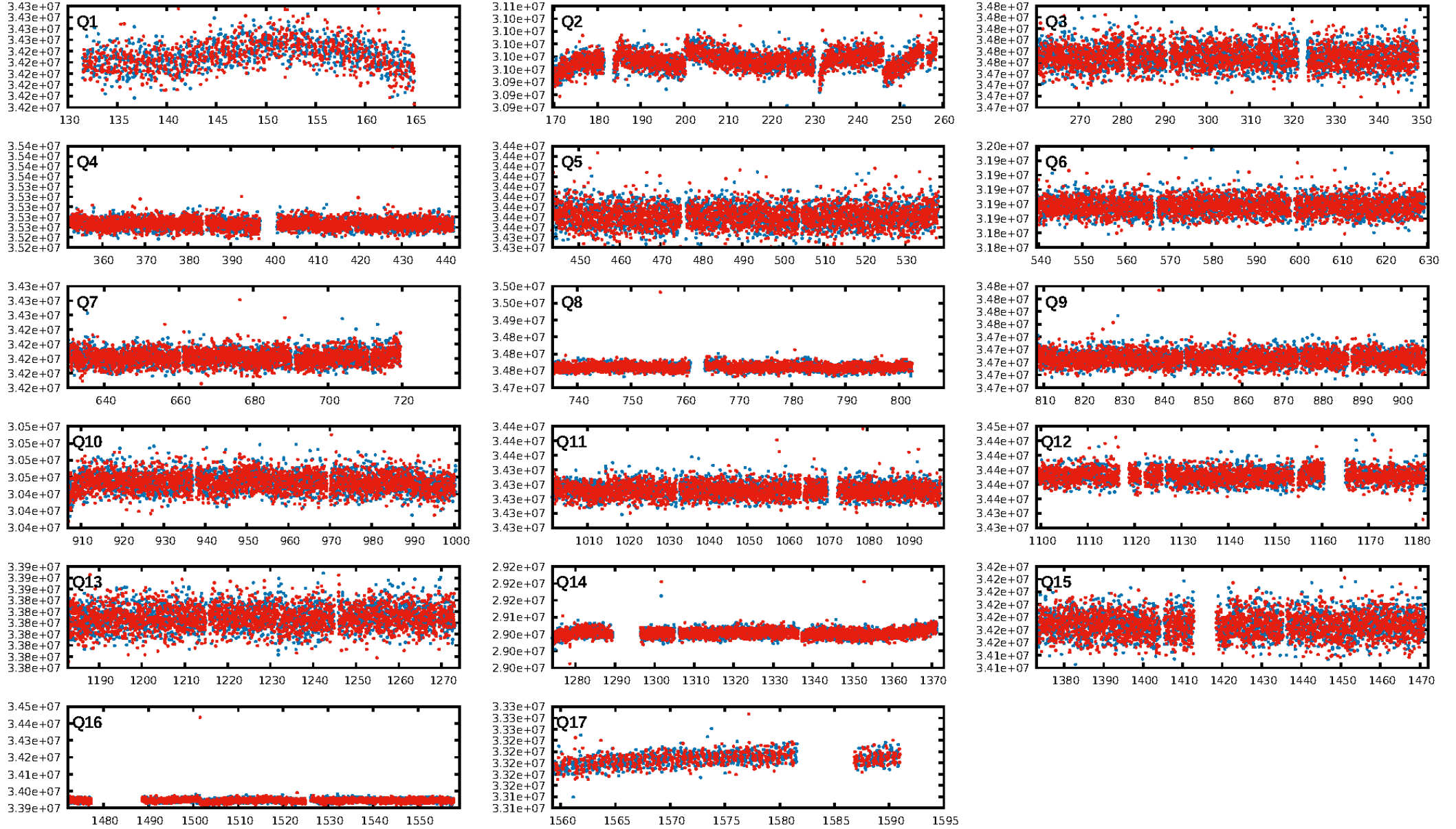
## DV Fit Results:

Period = 0.58070 [0.00001] d  
Epoch = 131.7287 [0.0051] BKJD  
Rp/R\* = 0.0046 [0.0038]  
a/R\* = 1.26 [1.86]  
b = 0.56 [4.96]  
Seff = 5457.12 [2143.44]  
Teff = 2192 [215] K  
Rp = 0.47 [0.42] Re  
a = 0.0136 [0.0035] AU  
Ag = N/A  
Teffp = N/A

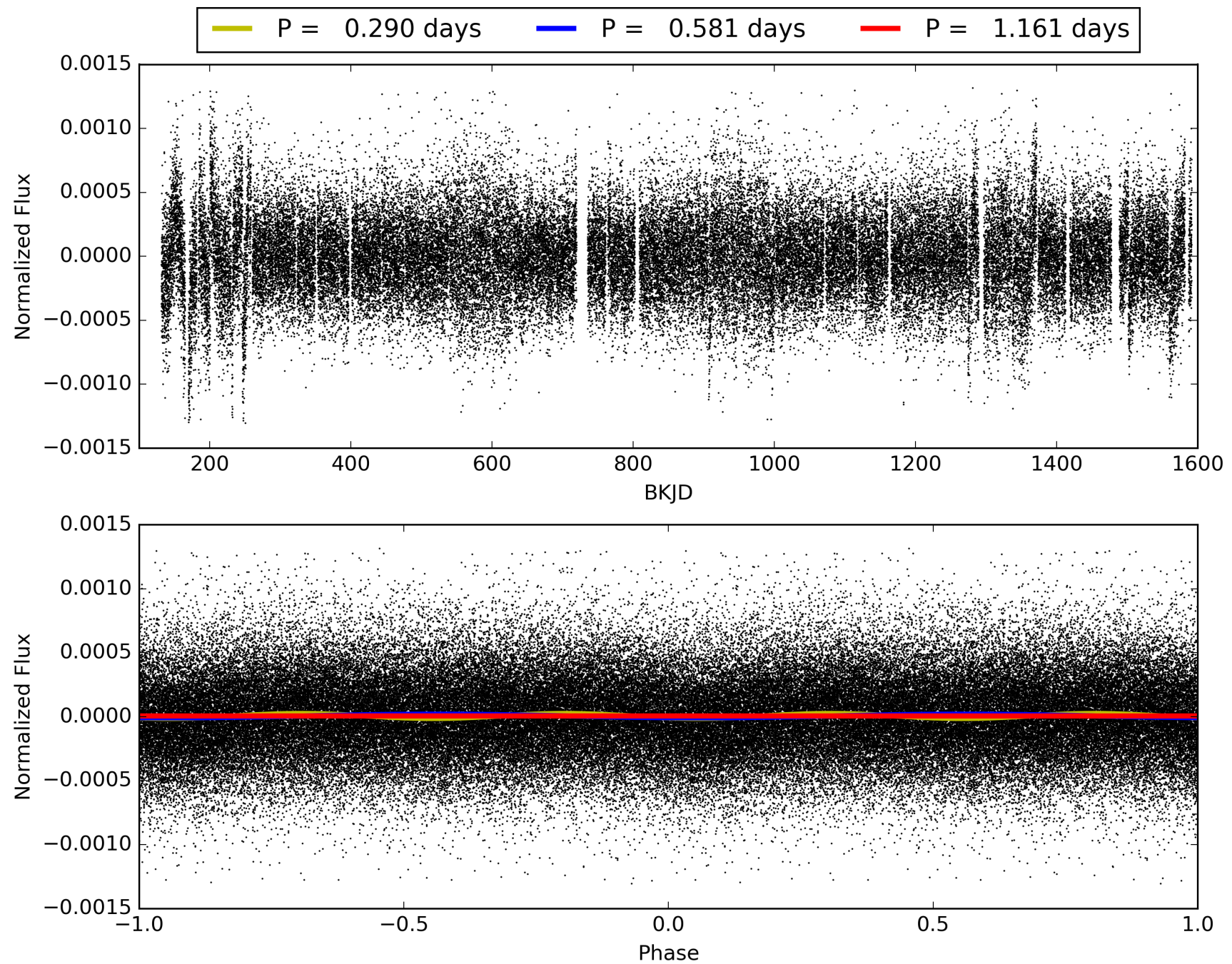
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.79e-24  
RollingBand-fgt: 1.00 [2204/2206]  
GhostDiagnostic-chr: -0.06946  
Centroid-sig: 0.0%  
Centroid-so: 7.938 arcsec [4.73σ]  
OotOffset-rm: 3.021 arcsec [6.30σ]  
KicOffset-rm: 3.045 arcsec [6.37σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.29 [5/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007870250-01, PDC Light Curves



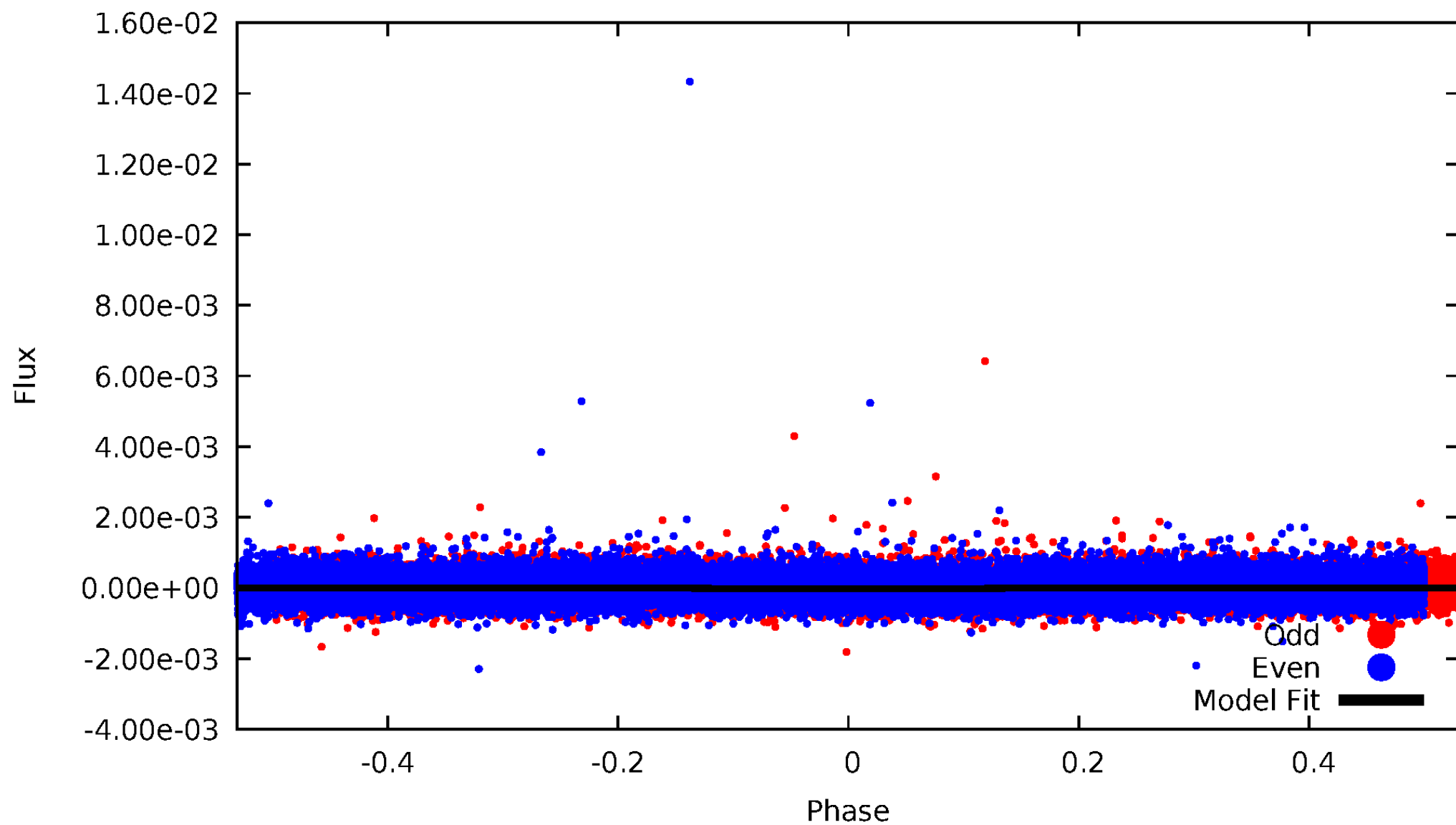
TCE 007870250-01





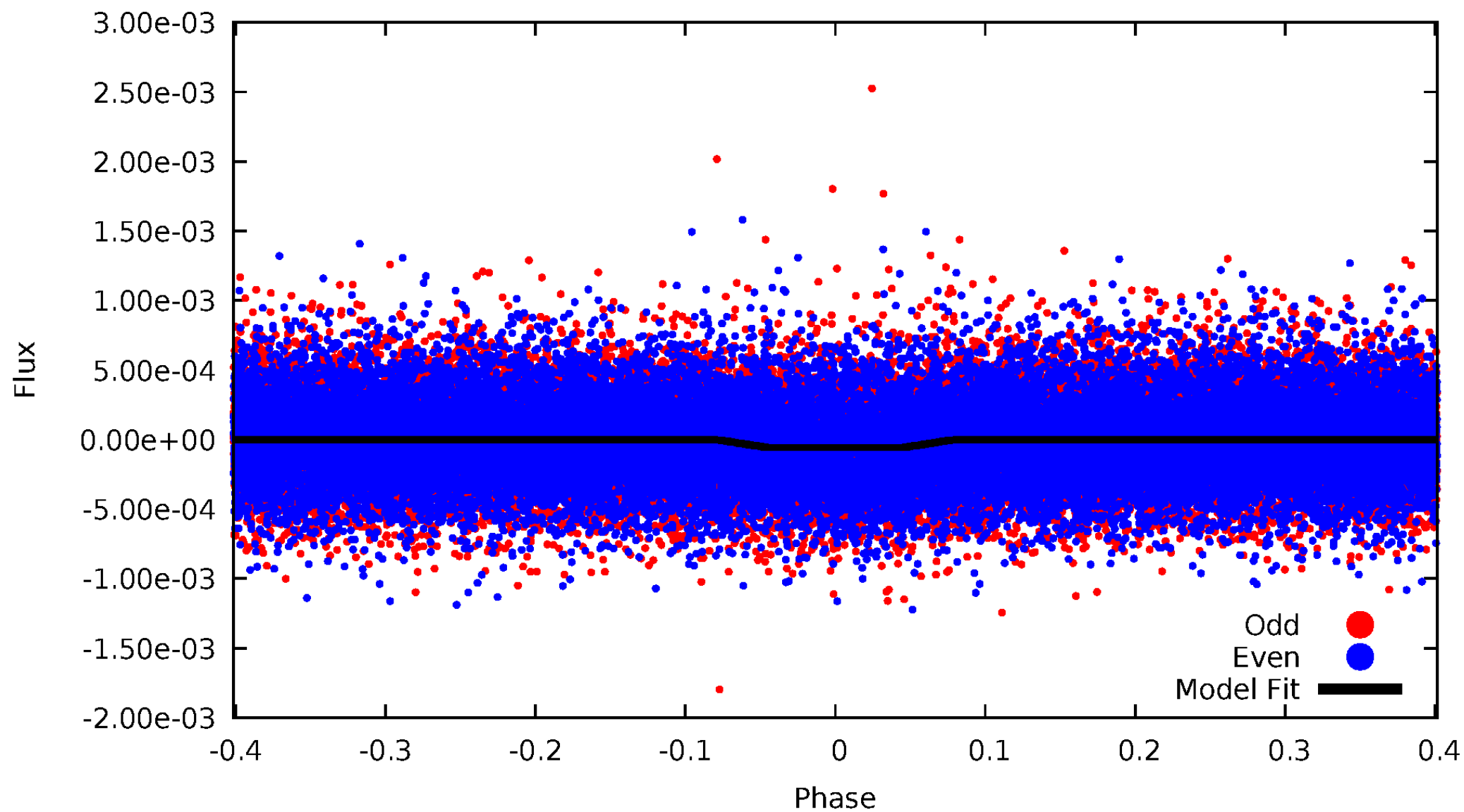
# DV Odd/Even

TCE 007870250-01

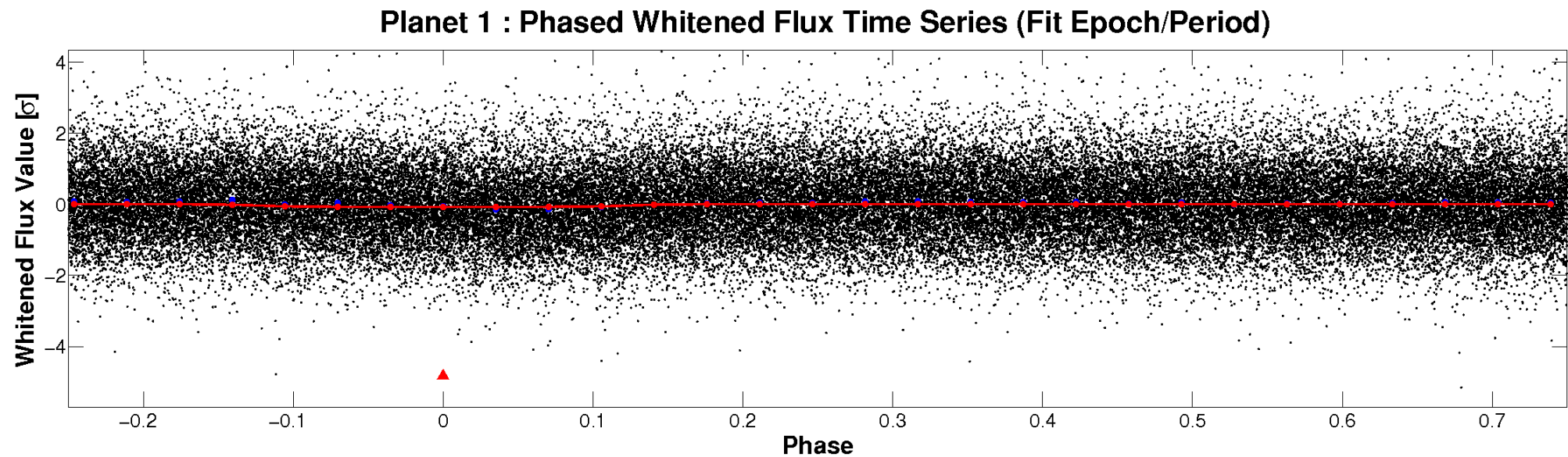
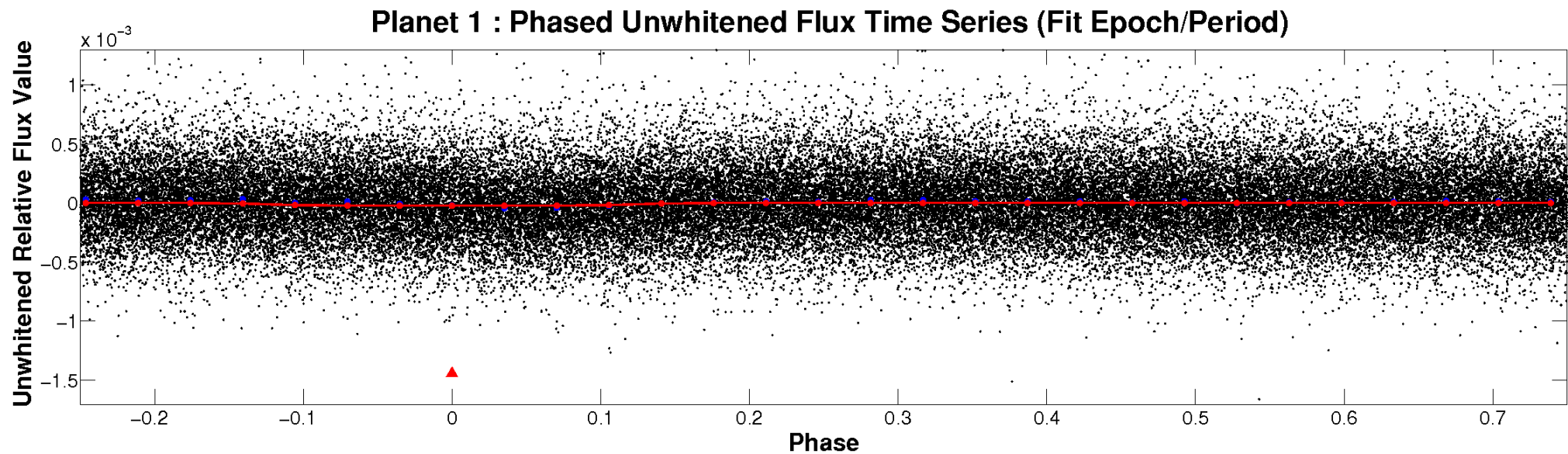


# ALT Odd/Even

TCE 007870250-01

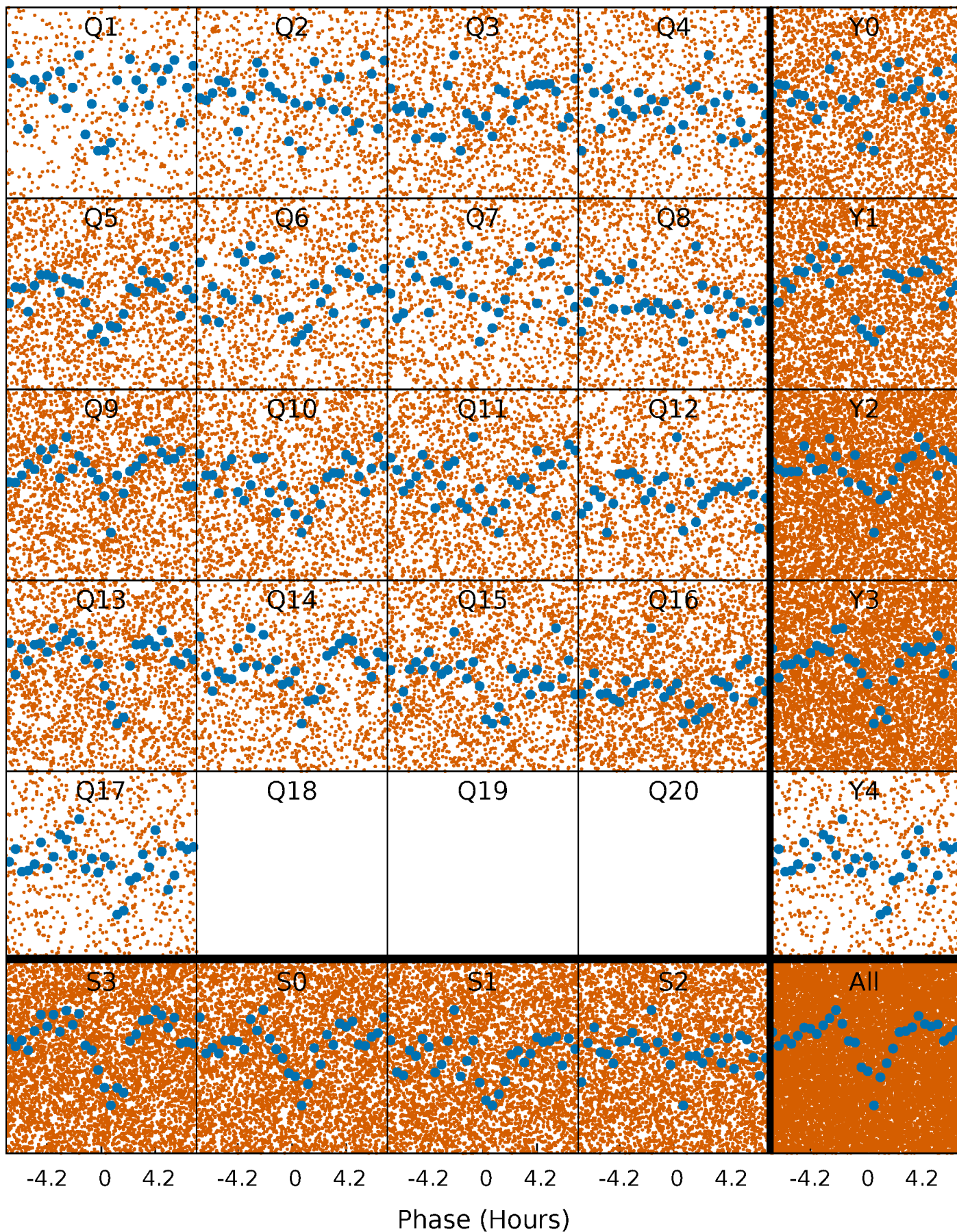


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

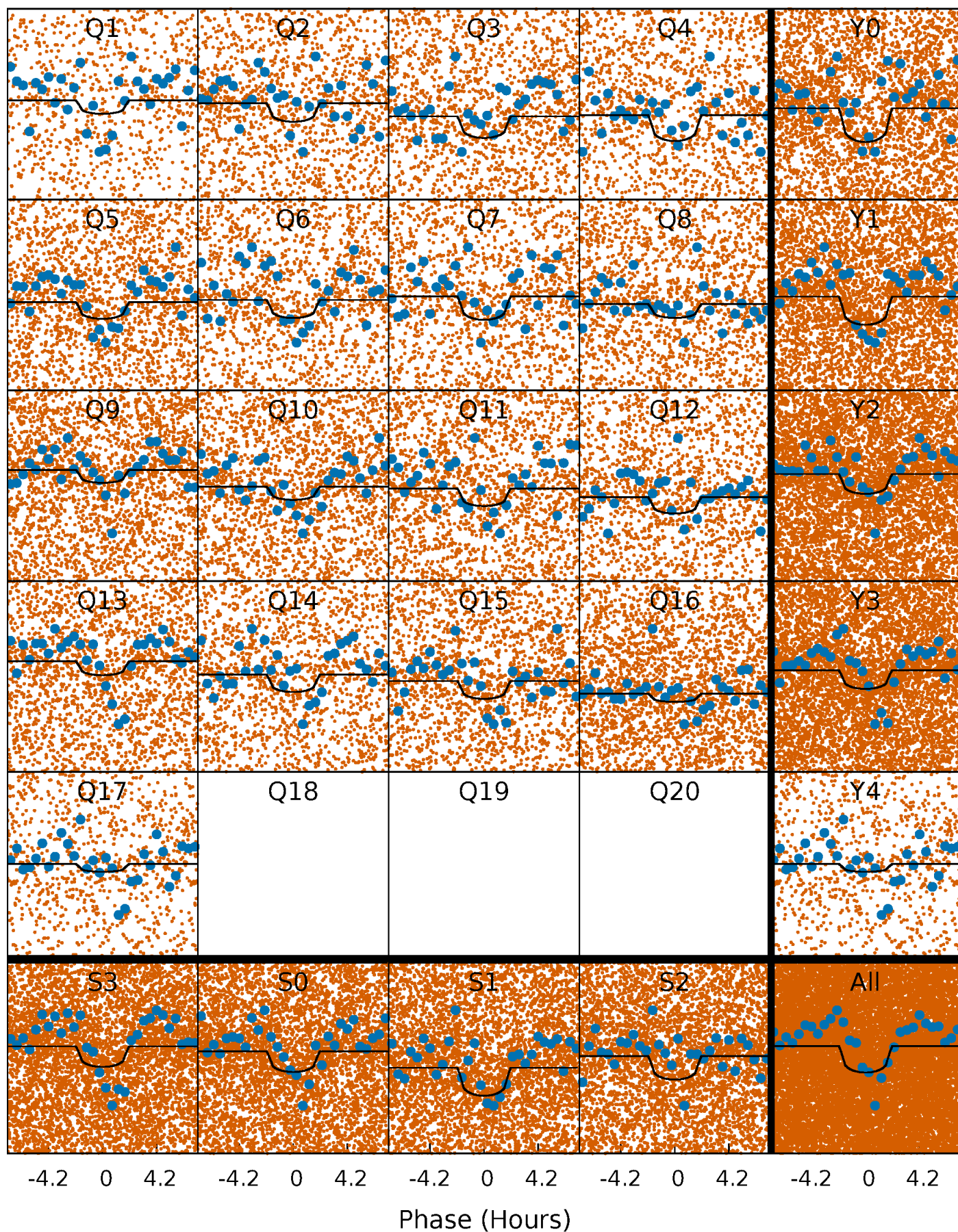
TCE 007870250-01 P= 0.580700 Days  $T_0=131.728687$  (BKJD)





# DV Quarter-Phased Transit Curves

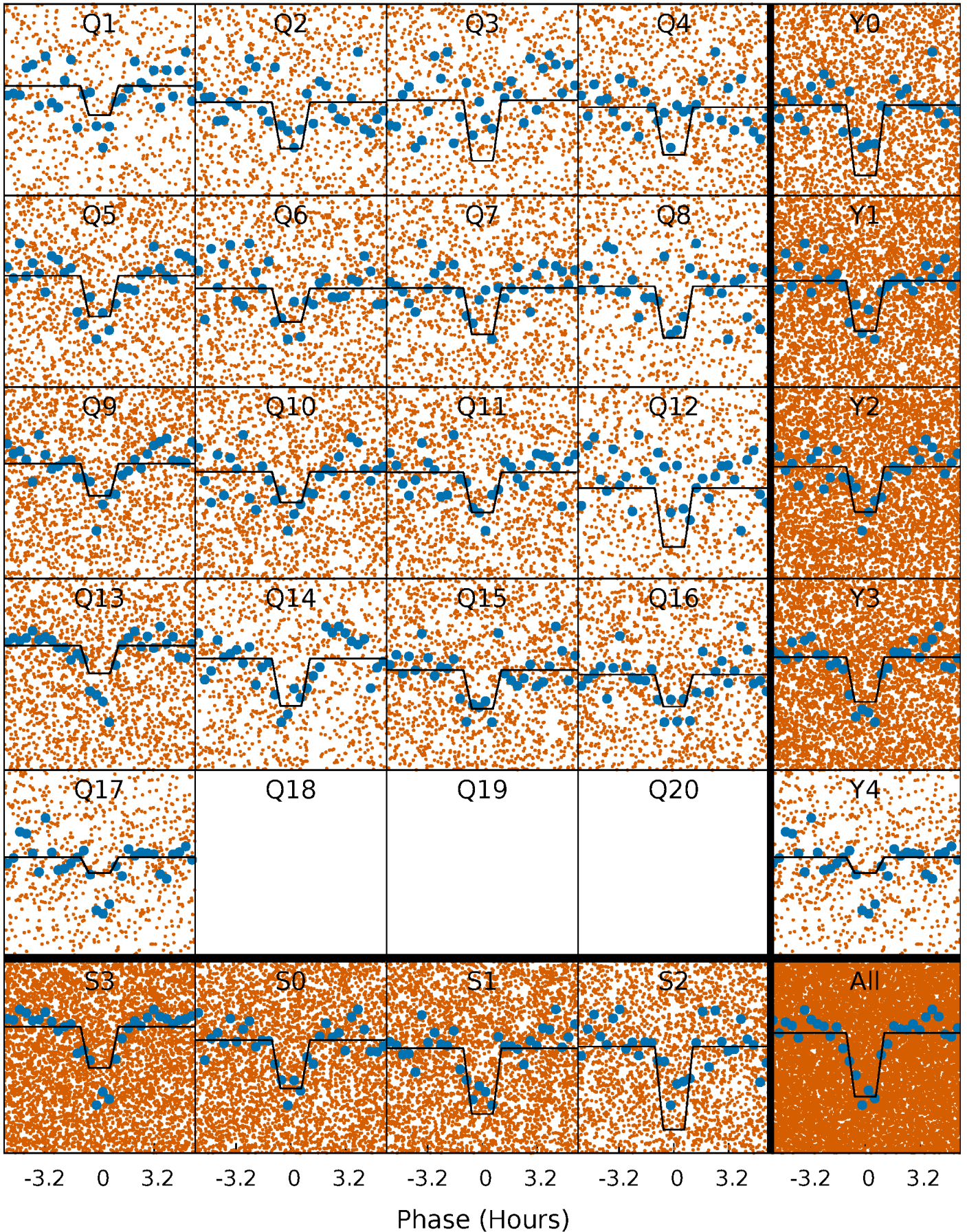
TCE 007870250-01 P= 0.580700 Days  $T_0=131.728687$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

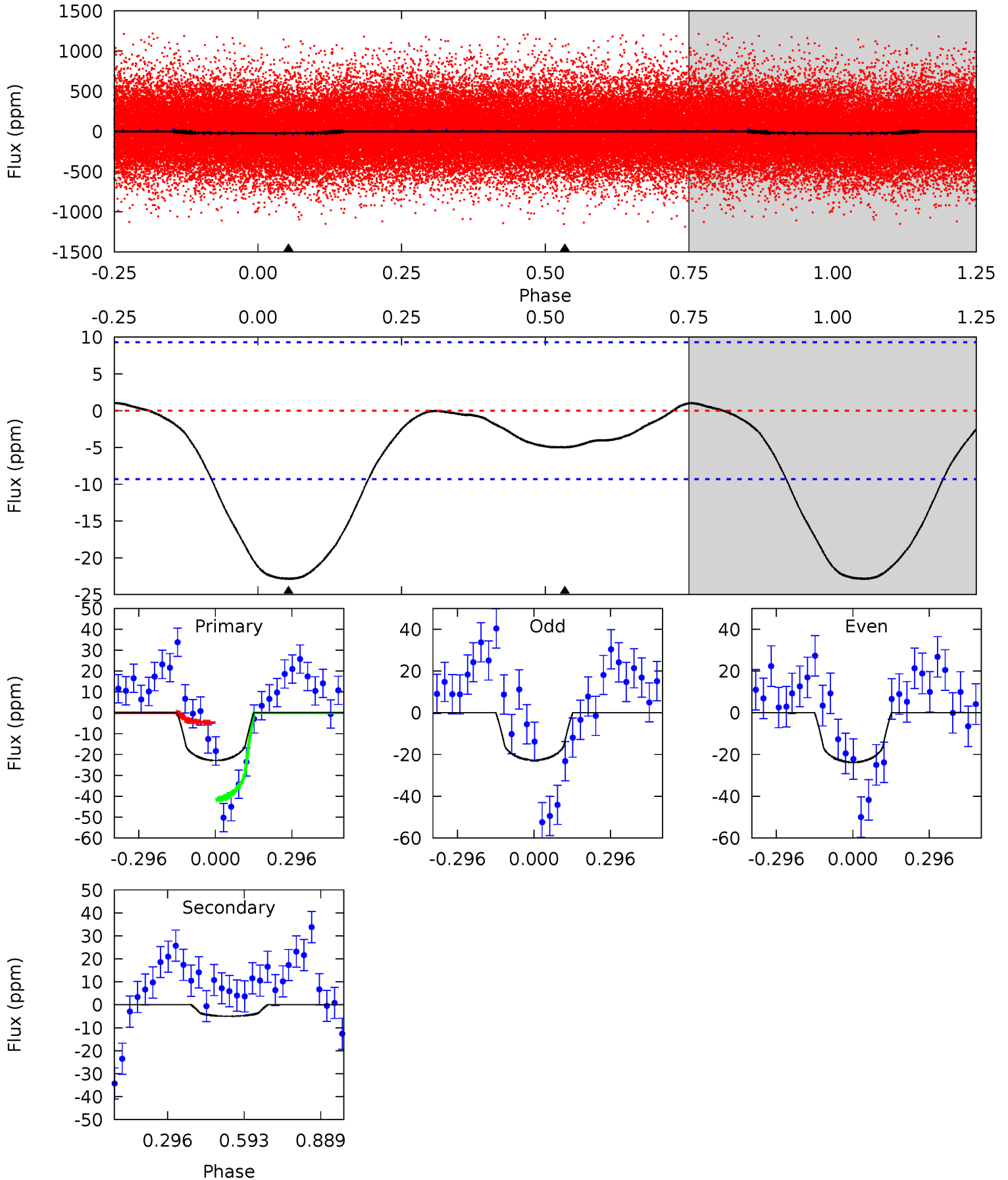
TCE 007870250-01 P= 0.580727 Days  $T_0=131.723771$  (BKJD)



# DV Model-Shift Uniqueness Test

007870250-01, P = 0.580700 Days, E = 131.147987 Days

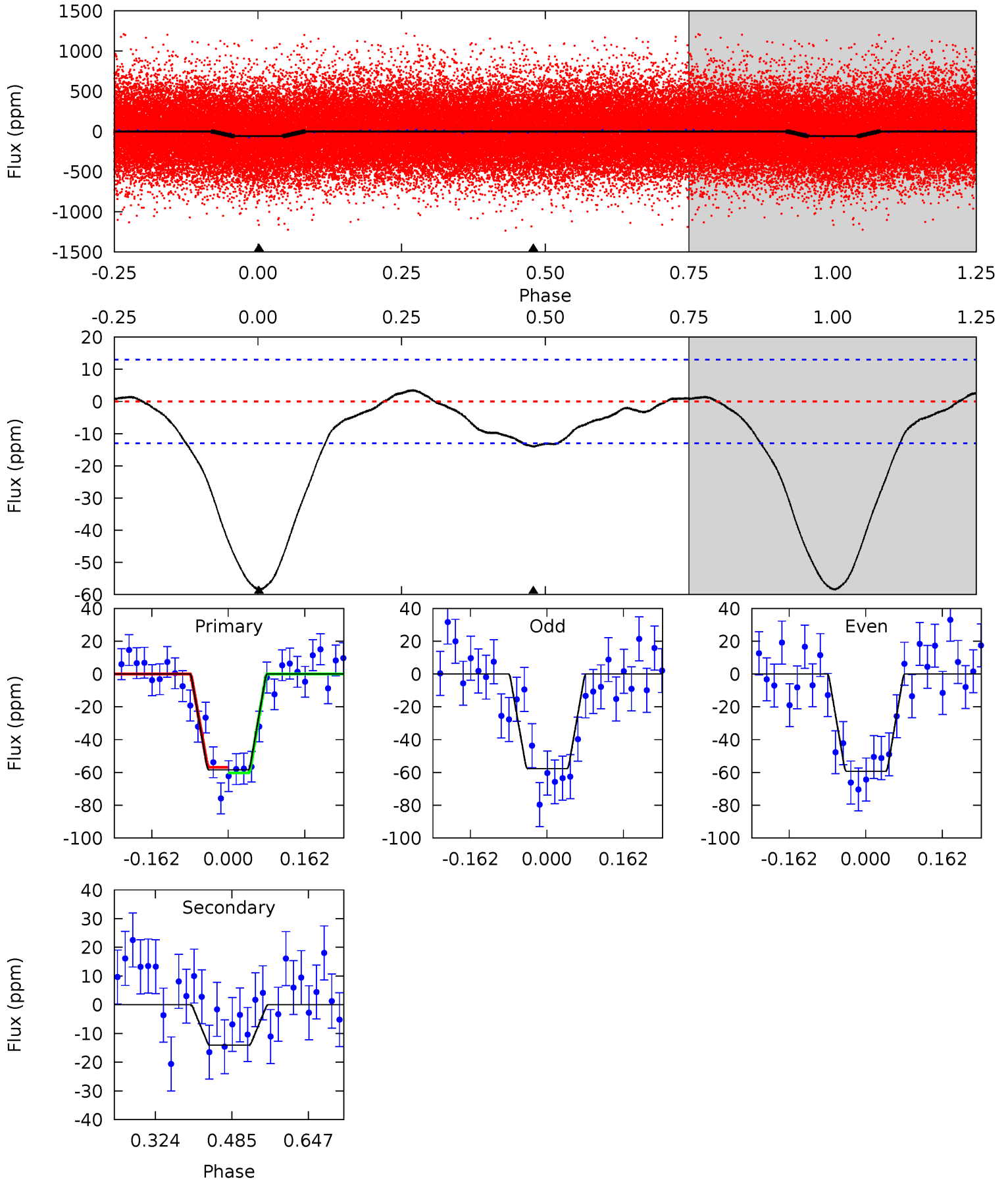
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	2.33	0	0	4.33	1.04	0.23	10.6	10.6	2.33	2.33	0.25	0.93	0.04	8.59



# Alt Model-Shift Uniqueness Test

007870250-01, P = 0.580727 Days, E = 131.143044 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
20.1	4.81	0	0	4.46	1.40	0.76	20.1	20.1	4.81	4.81	0.27	1.04	0.06	0.61





### Stellar Parameters For KIC 007870250

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5989^{+161}_{-179}$	$4.492^{+0.054}_{-0.202}$	$-0.200^{+0.300}_{-0.300}$	$0.933^{+0.293}_{-0.098}$	$0.986^{+0.121}_{-0.133}$	$1.708^{+0.478}_{-0.942}$
	+3%/-3%	+1%/-4%	+150%/-150%	+31%/-11%	+12%/-13%	+28%/-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 007870250-01 / KOI 6926.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 2$	$0.56^{+0.38}_{-0.34}$	$3116^{+216}_{-142}$	$3976^{+2125}_{-1046}$	$1.486^{+8.093}_{-1.020}$
Alt.	$-14 \pm 3$	$0.81^{+0.47}_{-0.38}$	$3120^{+237}_{-139}$	$4236^{+1452}_{-752}$	$2.076^{+5.498}_{-1.262}$

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

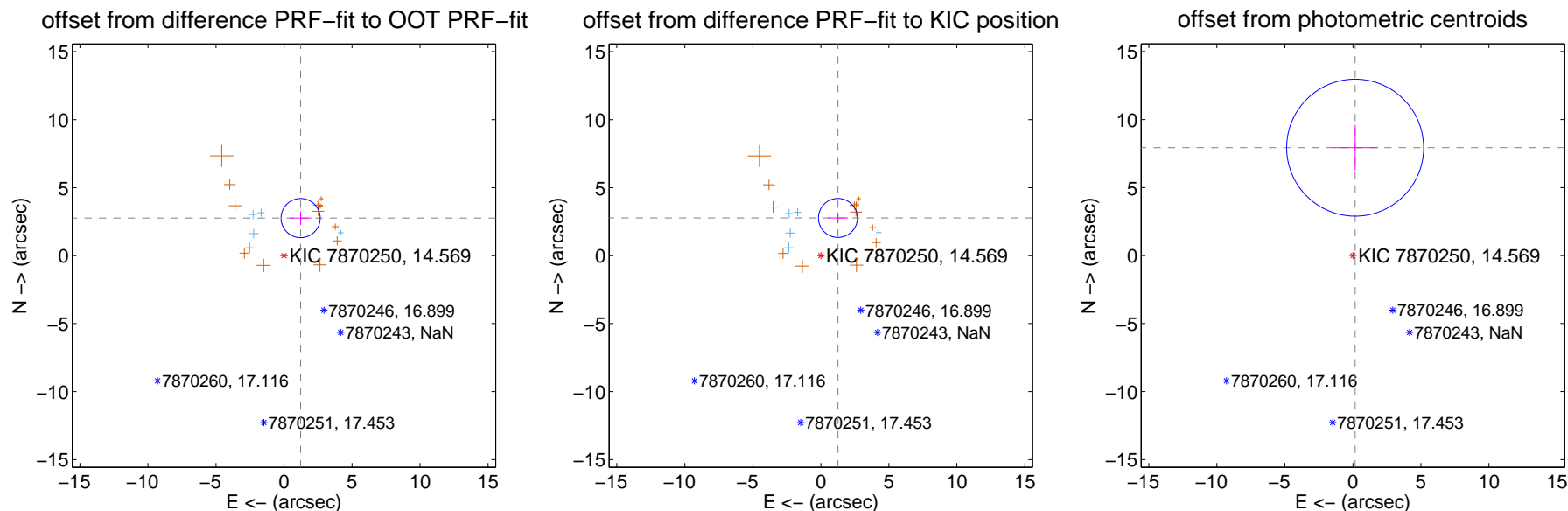
## DV Centroid Data

Supplemental centroid analysis for 007870250-01. Kepler magnitude: 14.57. Transit SNR 8.57

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

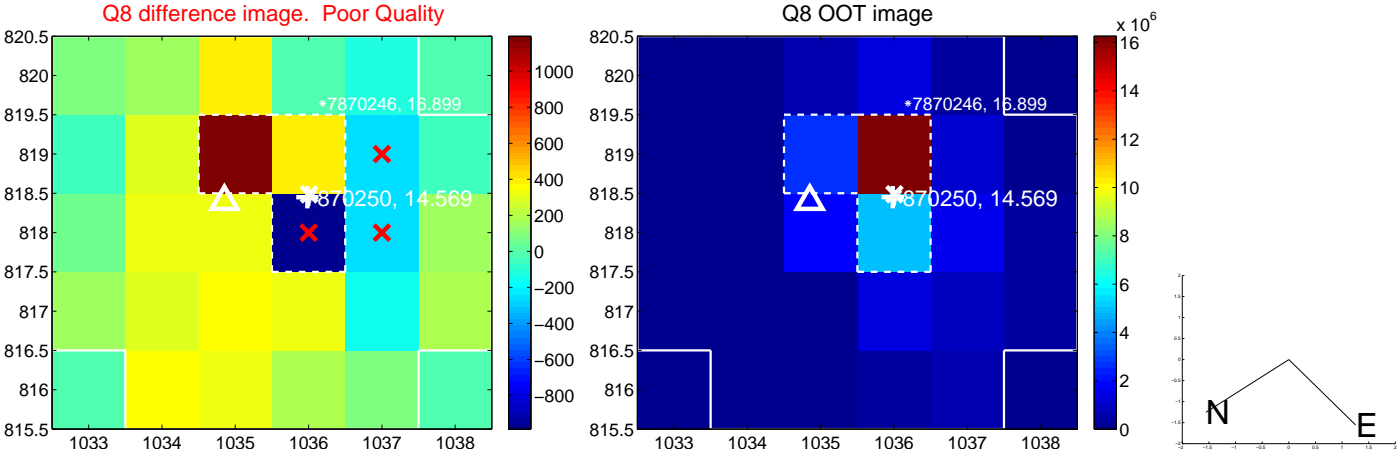
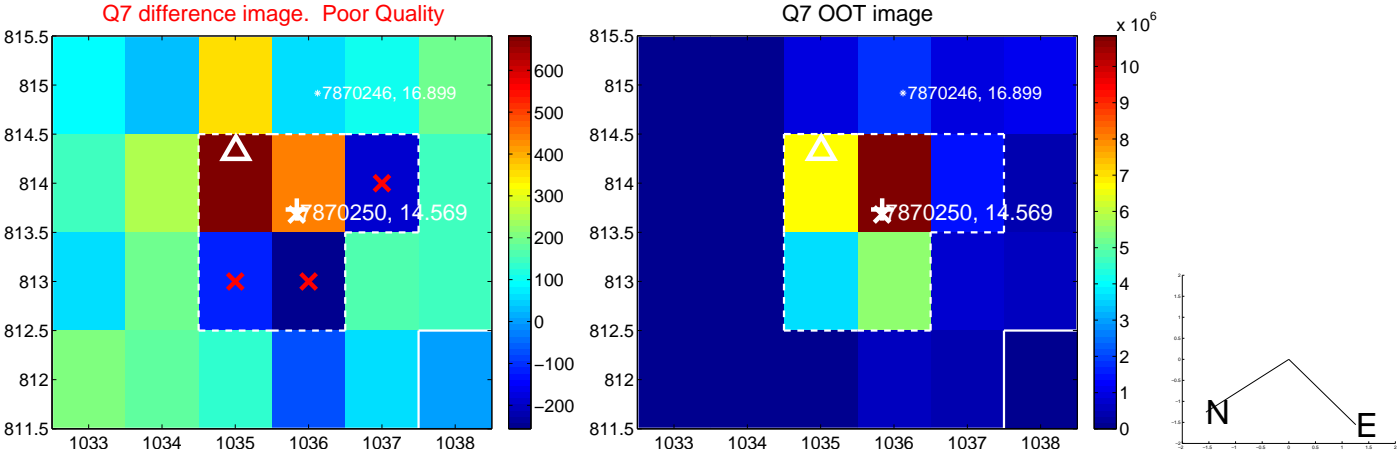
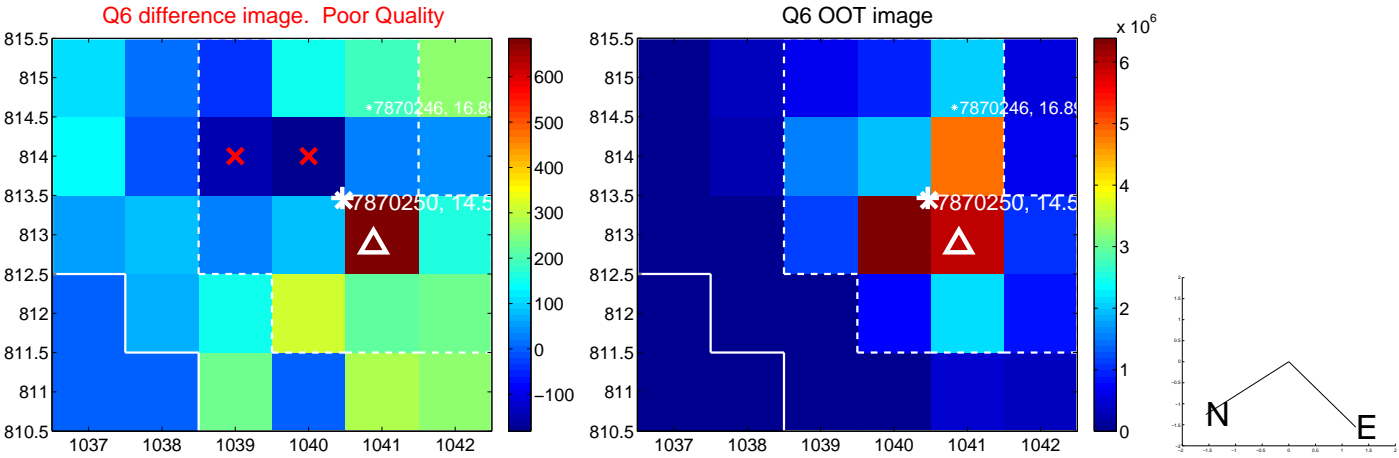
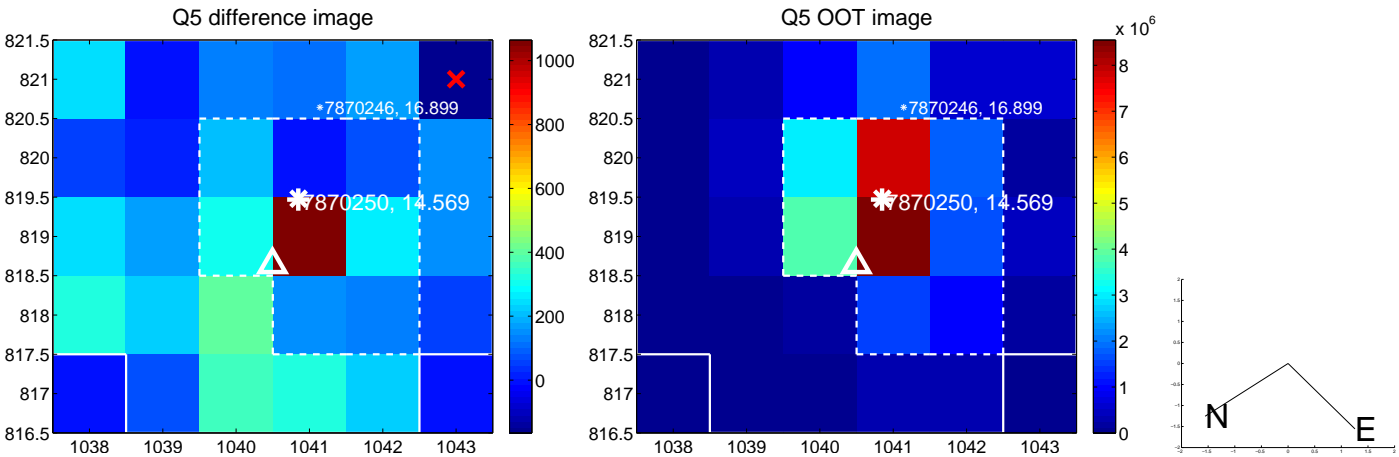
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.021 \pm 0.480$	<b>6.30</b>	$-1.219 \pm 0.783$	$2.764 \pm 0.512$
PRF-fit source offset from KIC position	$3.045 \pm 0.478$	<b>6.37</b>	$-1.254 \pm 0.746$	$2.775 \pm 0.401$
photometric centroid source offset	$7.94 \pm 1.68$	<b>4.73</b>	$-0.16 \pm 1.69$	$7.94 \pm 1.68$



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.

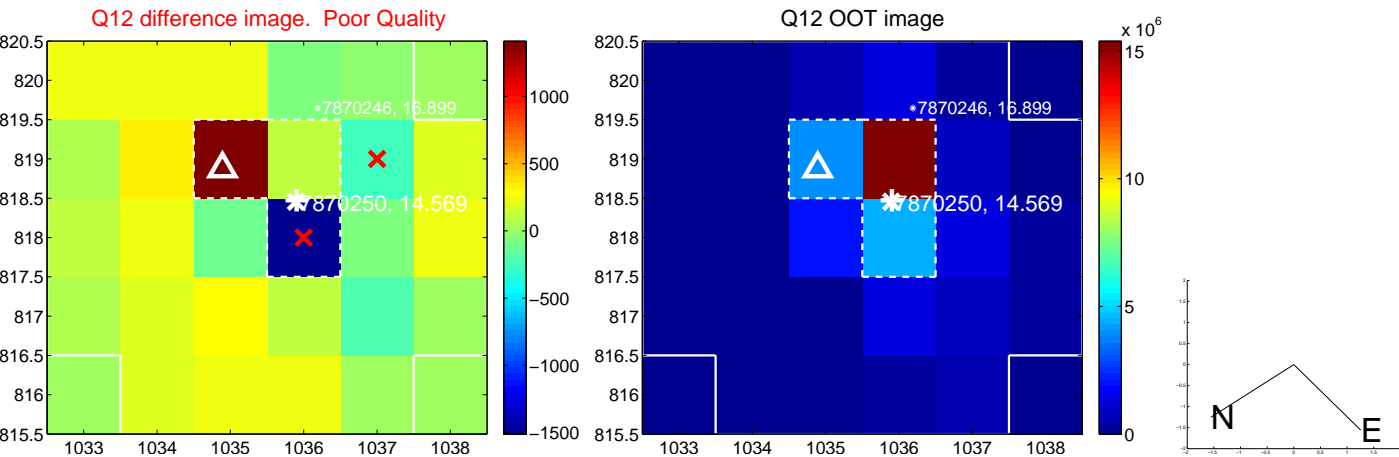
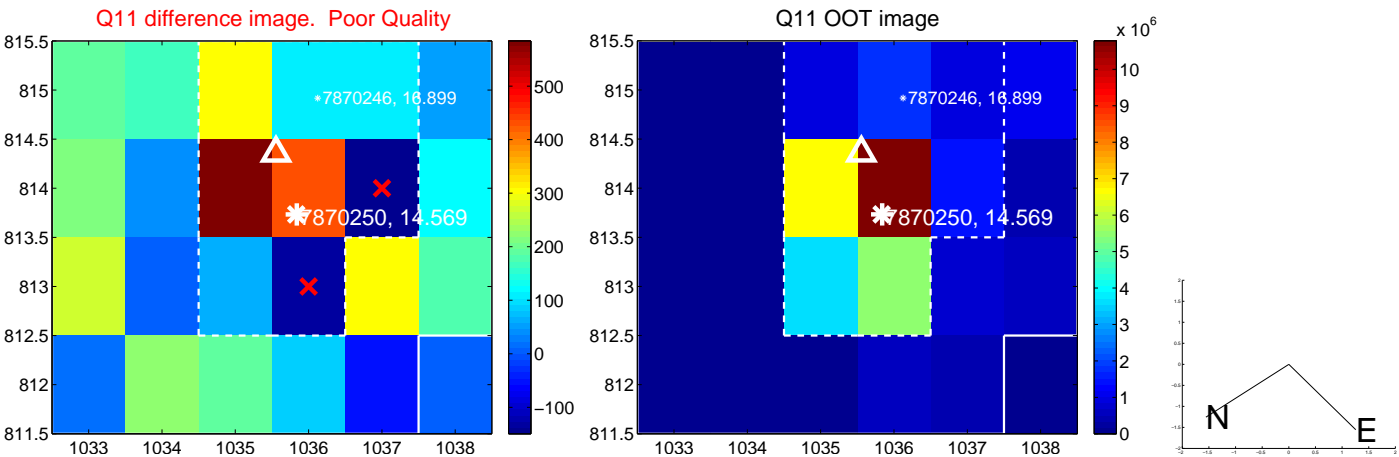
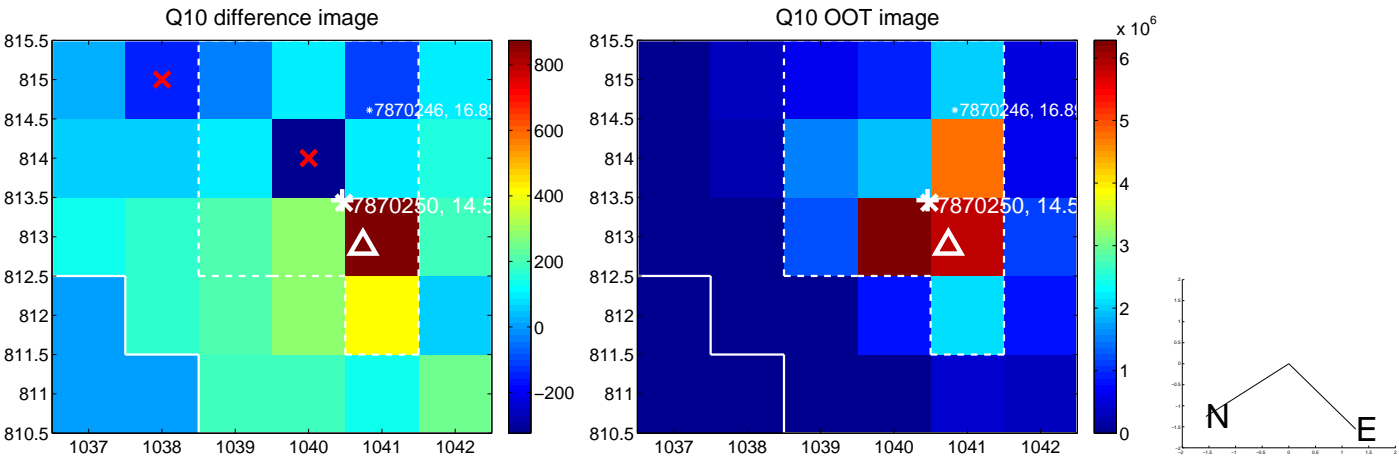
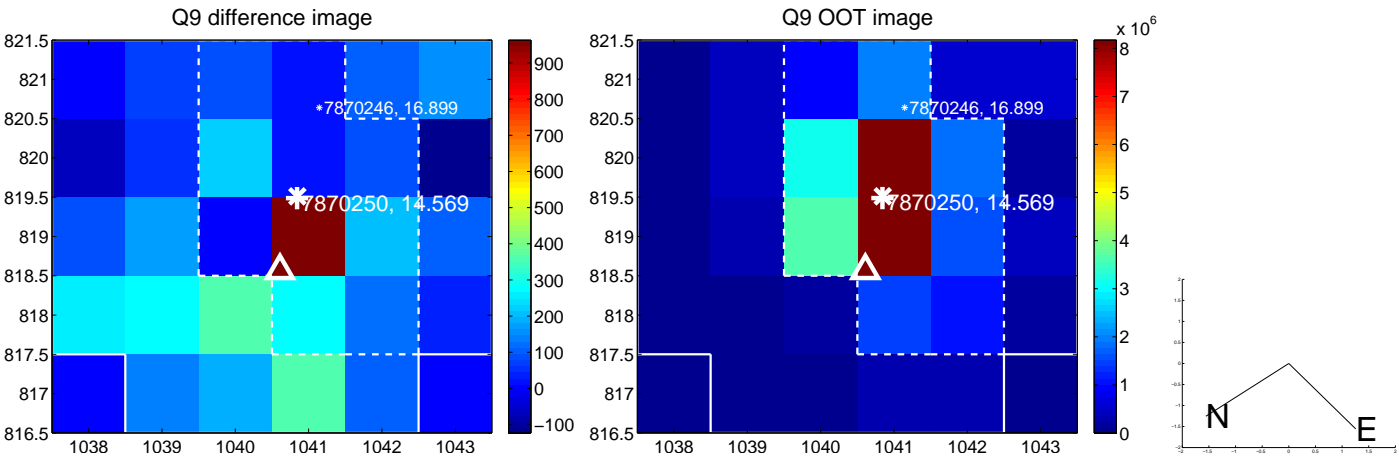


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

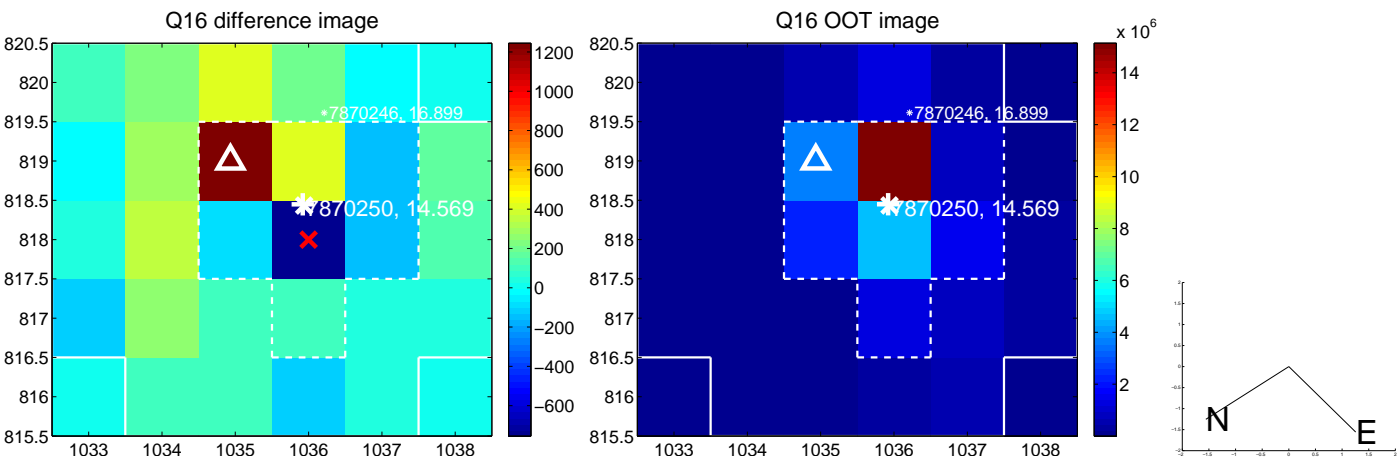
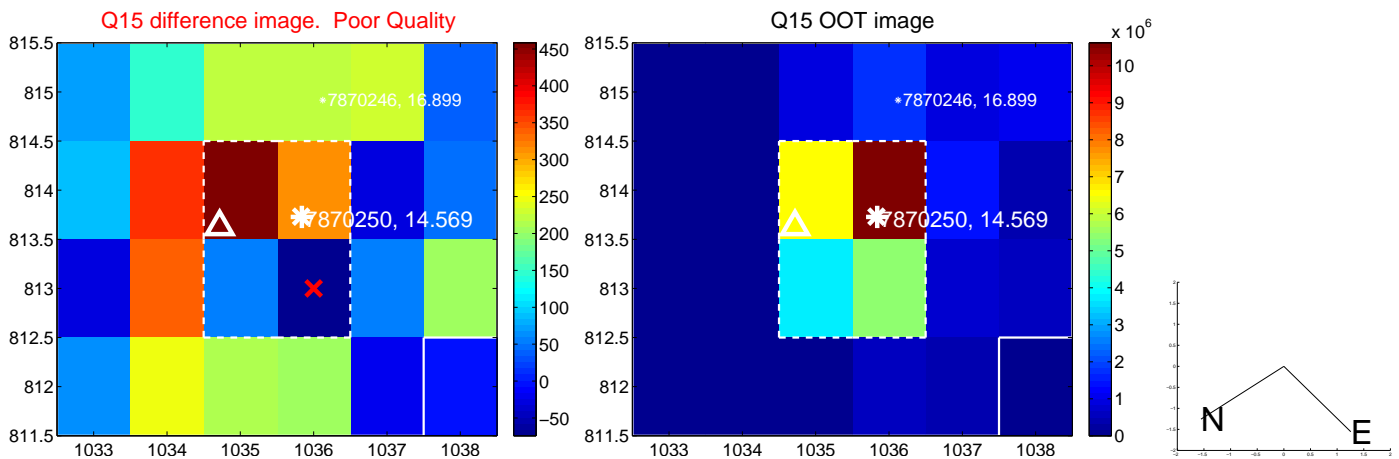
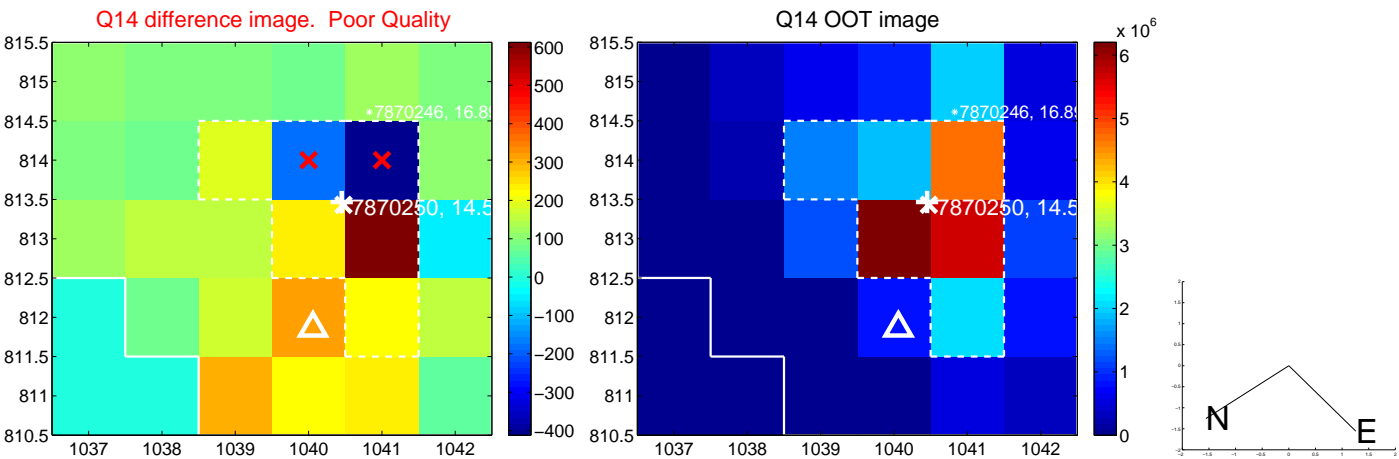
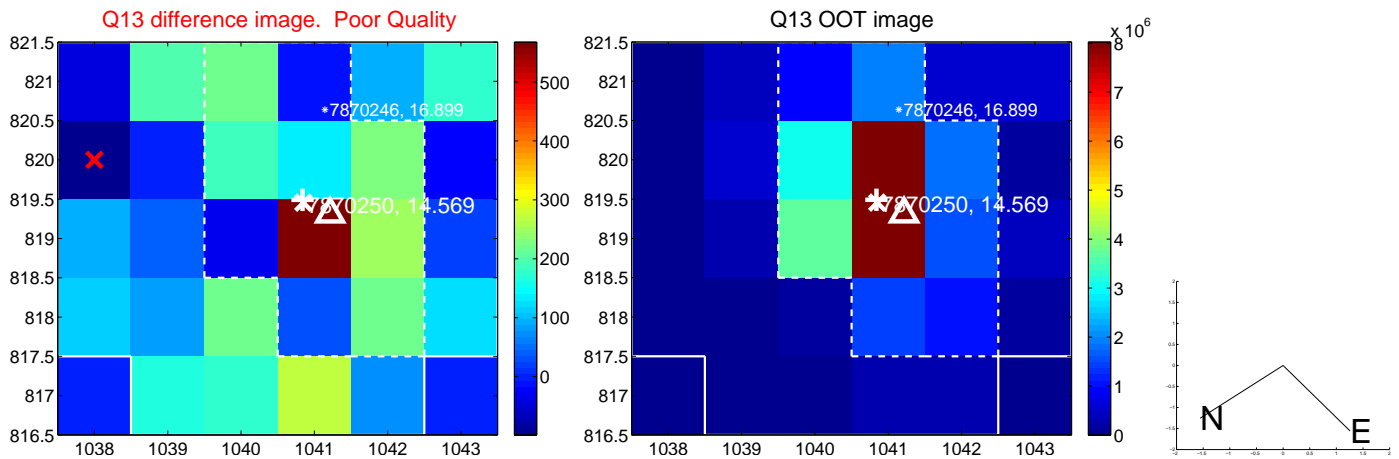




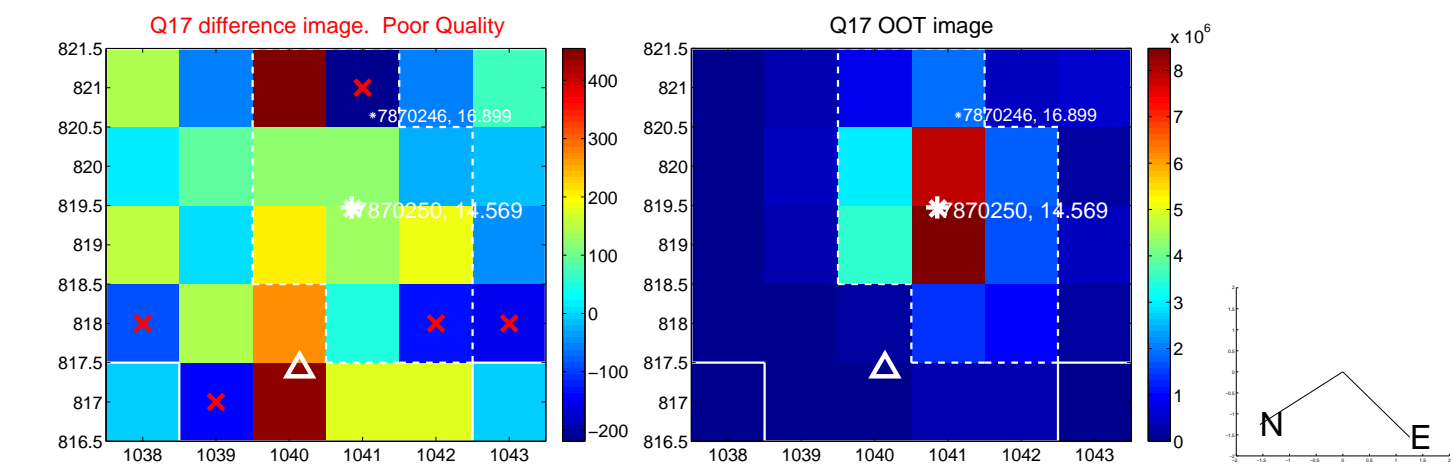
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



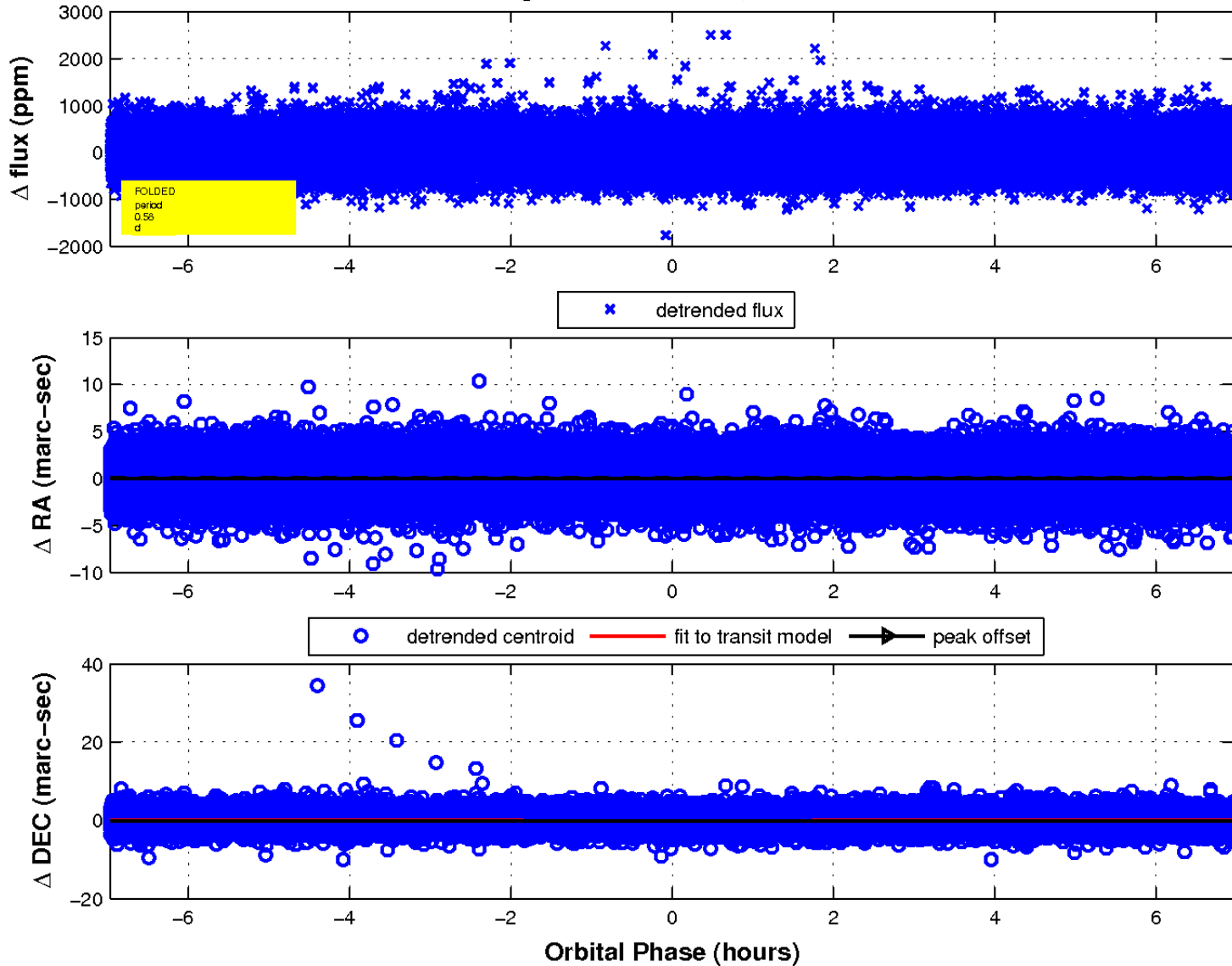
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

