

# KIC 007368137

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007368137-01	OBS	4265.01	2.182478	132.361951	69.4	4.885	13.8	14.5	0.79	5808	0.68	640.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007368137-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—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.

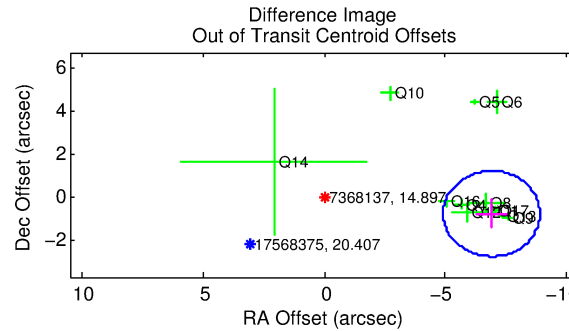
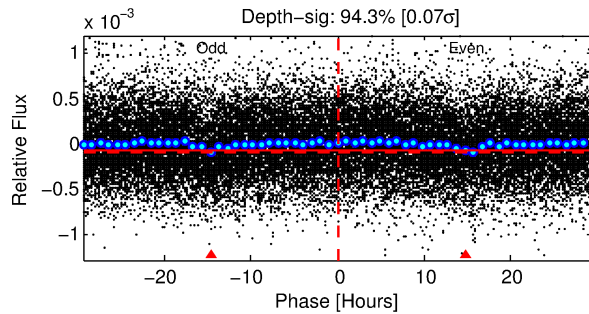
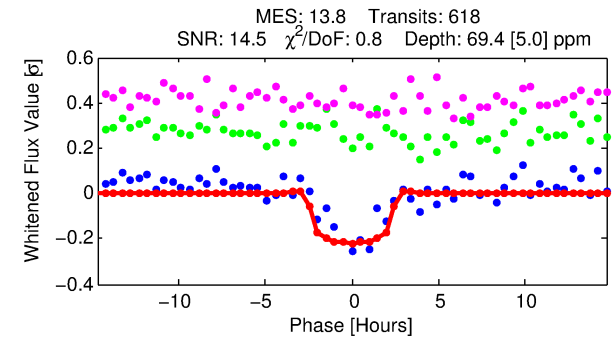
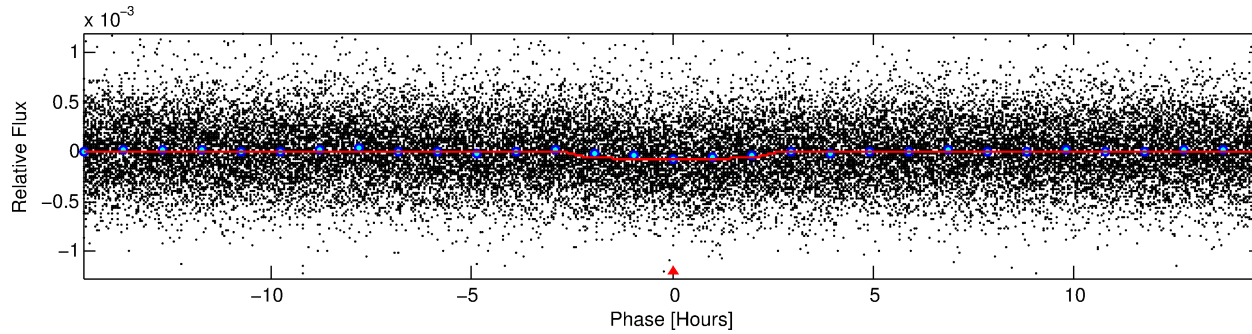
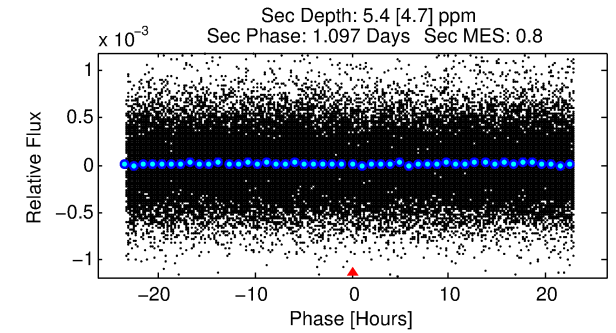
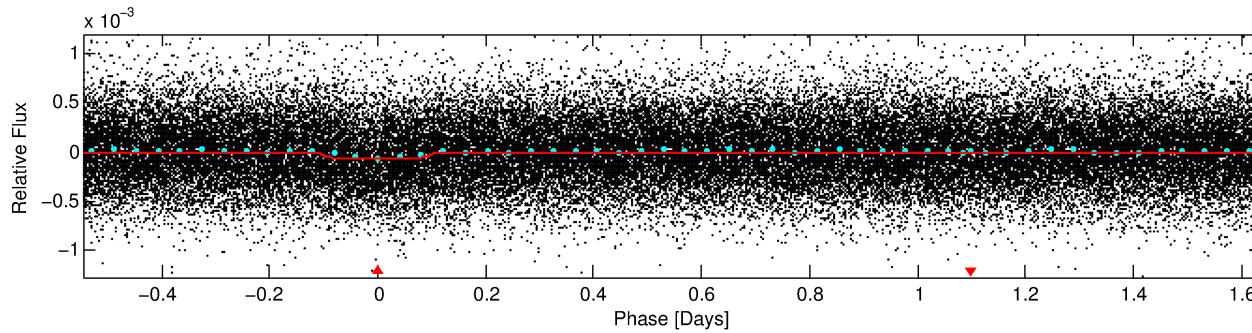
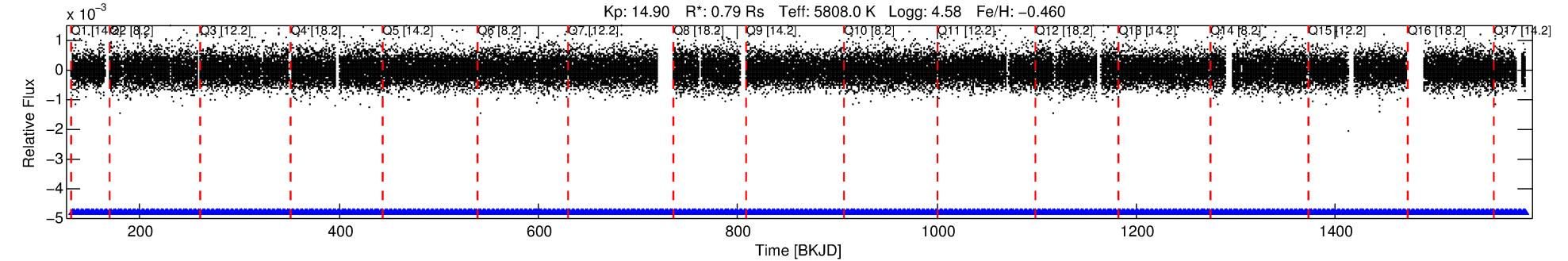
## Ephemeris Match Information For 007368137-01

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	$\sigma_P$	$\sigma_T$
007368137-01	7368137	007368103-pri	7368103	1:1	21.7	3	-5	13.42	14.90	1775.40	Direct-PRF	0	1.16	0.44

**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: 7368137 Candidate: 1 of 1 Period: 2.182 d  
KOI: K04265.01 Corr: 0.827



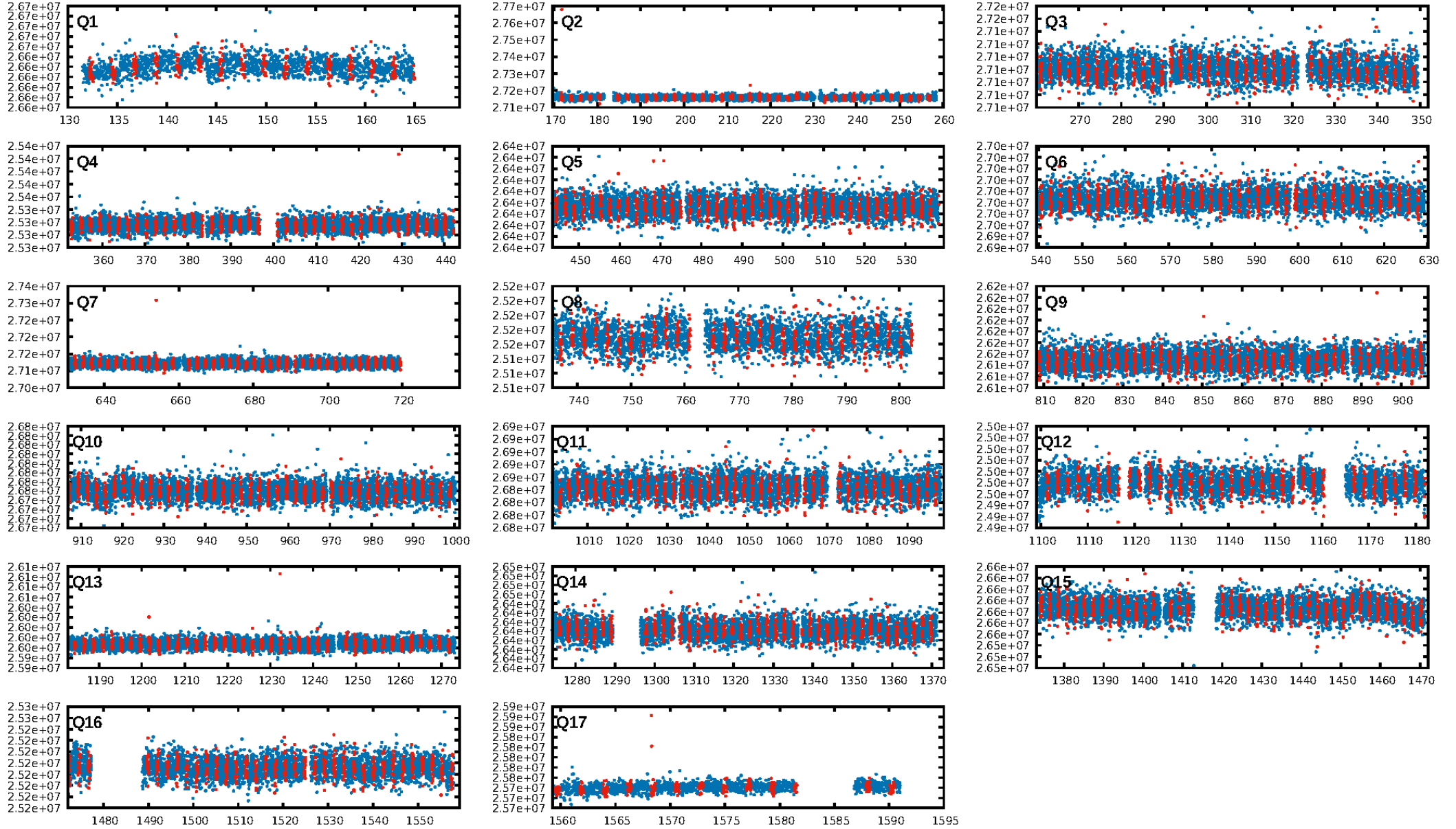
## DV Fit Results:

Period = 2.18248 [0.00002] d  
Epoch = 132.3620 [0.0044] BKJD  
Rp/R\* = 0.0079 [0.0043]  
a/R\* = 2.94 [6.79]  
b = 0.57 [3.14]  
Seff = 640.74 [219.04]  
Teq = 1283 [110] K  
Rp = 0.68 [0.41] Re  
a = 0.0314 [0.0070] AU  
Ag = 6.31 [9.05] [0.59σ]  
Teffp = 3144 [1101] K [1.68σ]

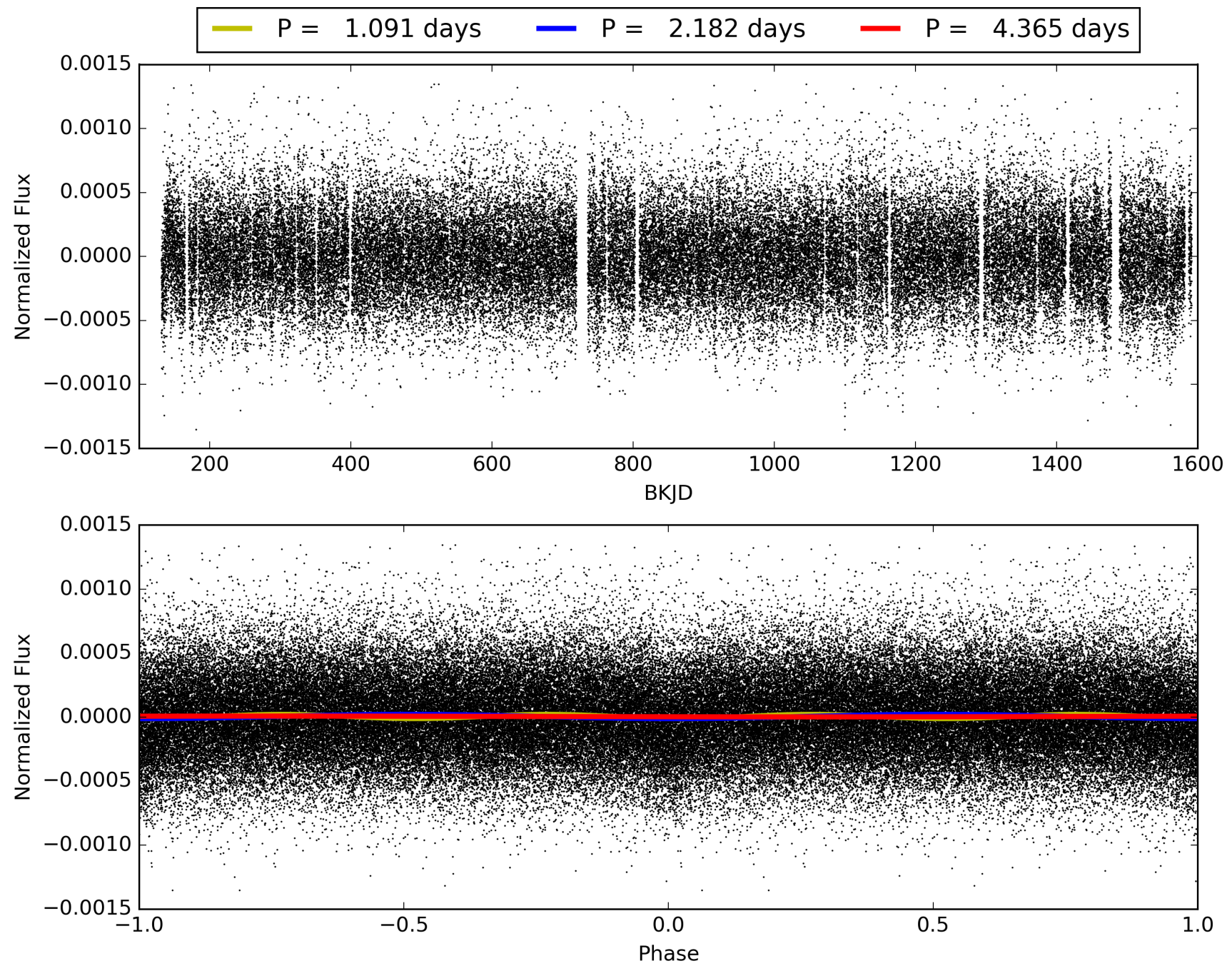
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.82e-40  
RollingBand-fgt: 1.00 [590/590]  
GhostDiagnostic-chr: -0.423  
Centroid-sig: 0.0%  
Centroid-so: 12.027 arcsec [11.08σ]  
OotOffset-rm: 6.948 arcsec [10.45σ]  
KicOffset-rm: 7.082 arcsec [9.51σ]  
OotOffset-st: 3/0/4/5 [12]  
KicOffset-st: 3/0/4/5 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007368137-01, PDC Light Curves



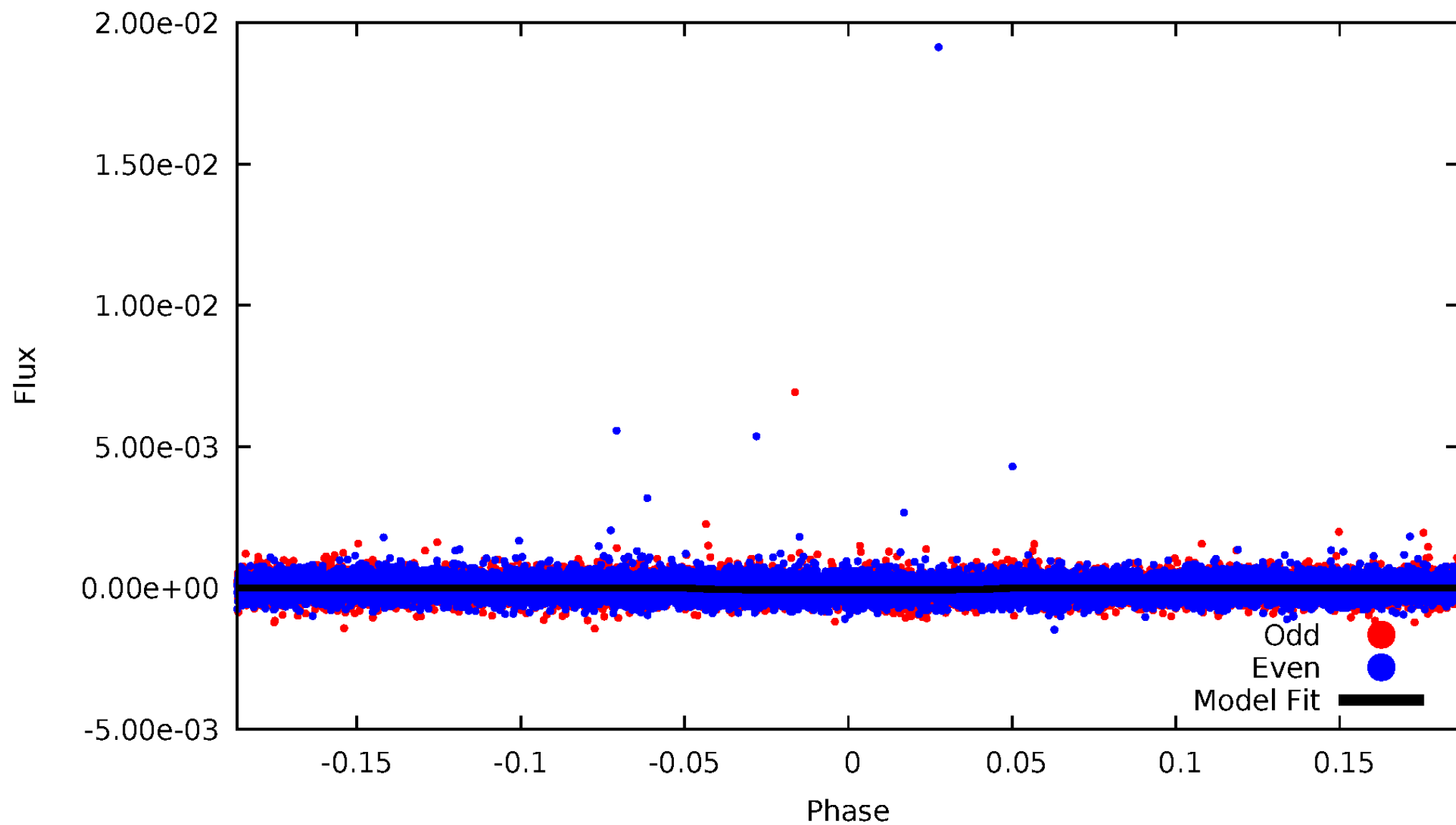
TCE 007368137-01





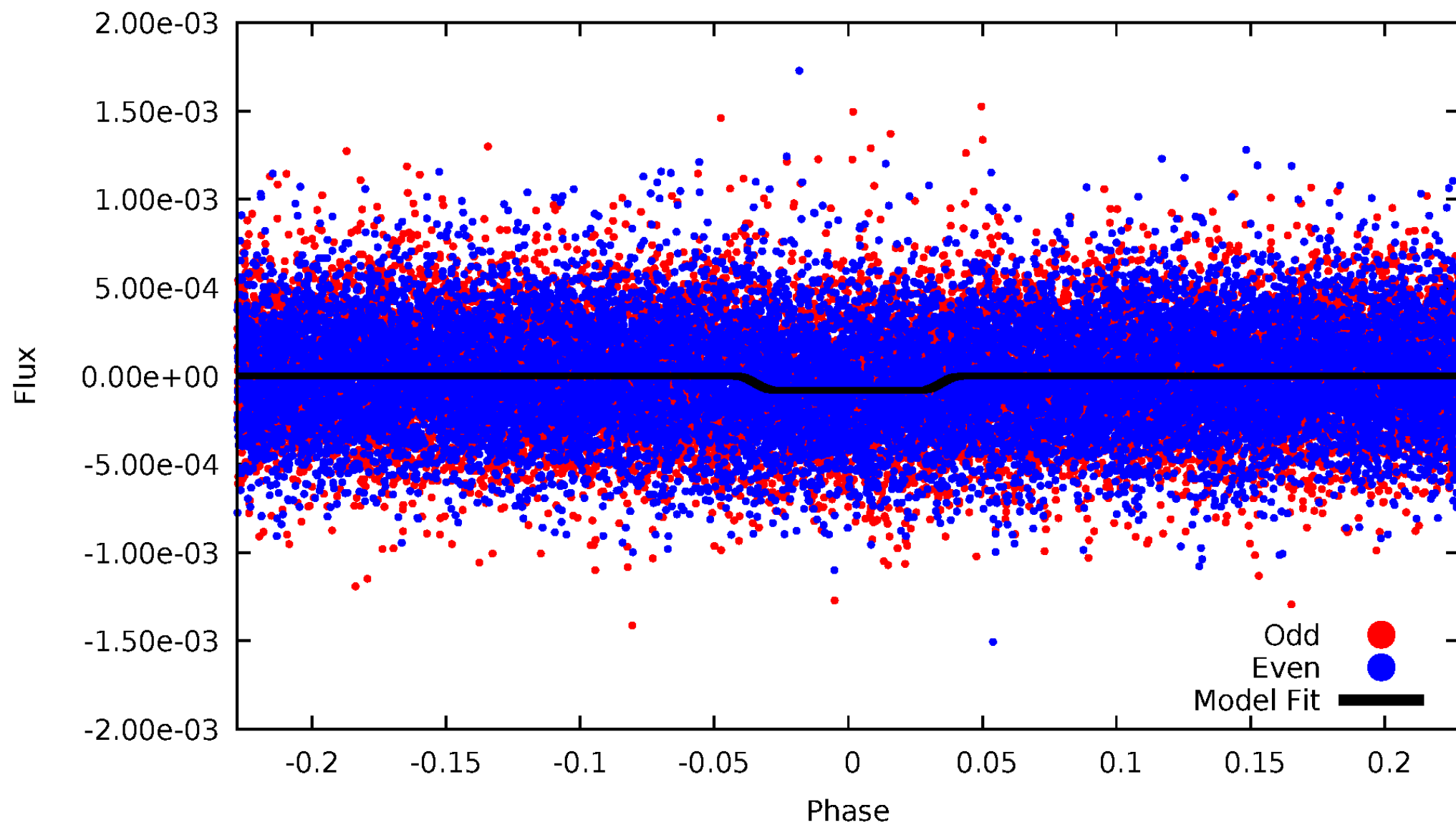
# DV Odd/Even

TCE 007368137-01

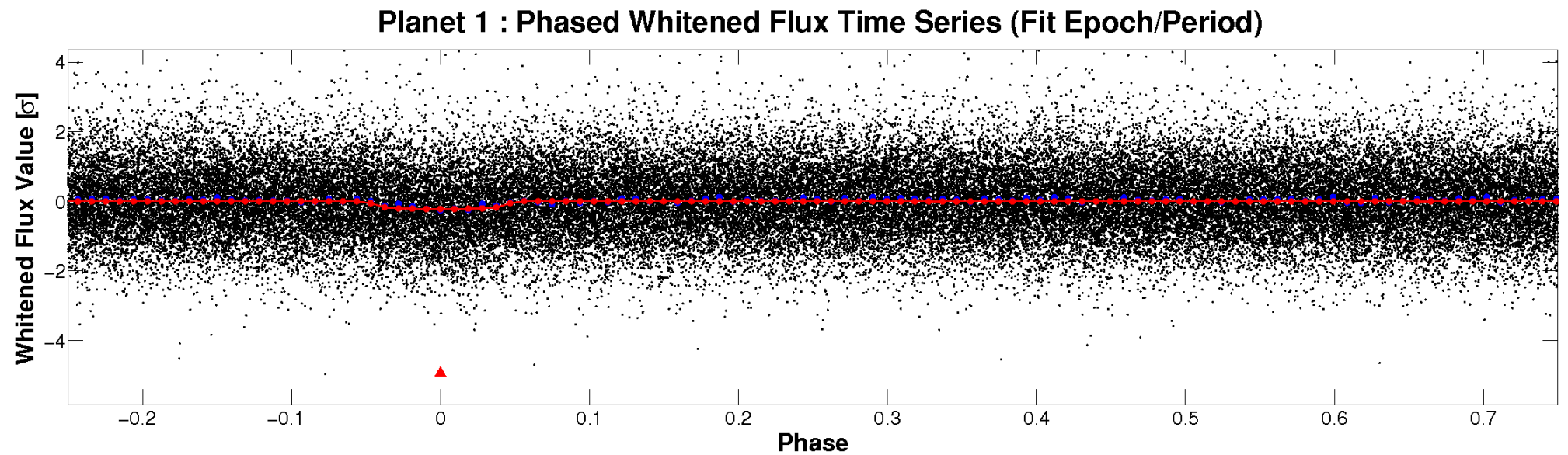
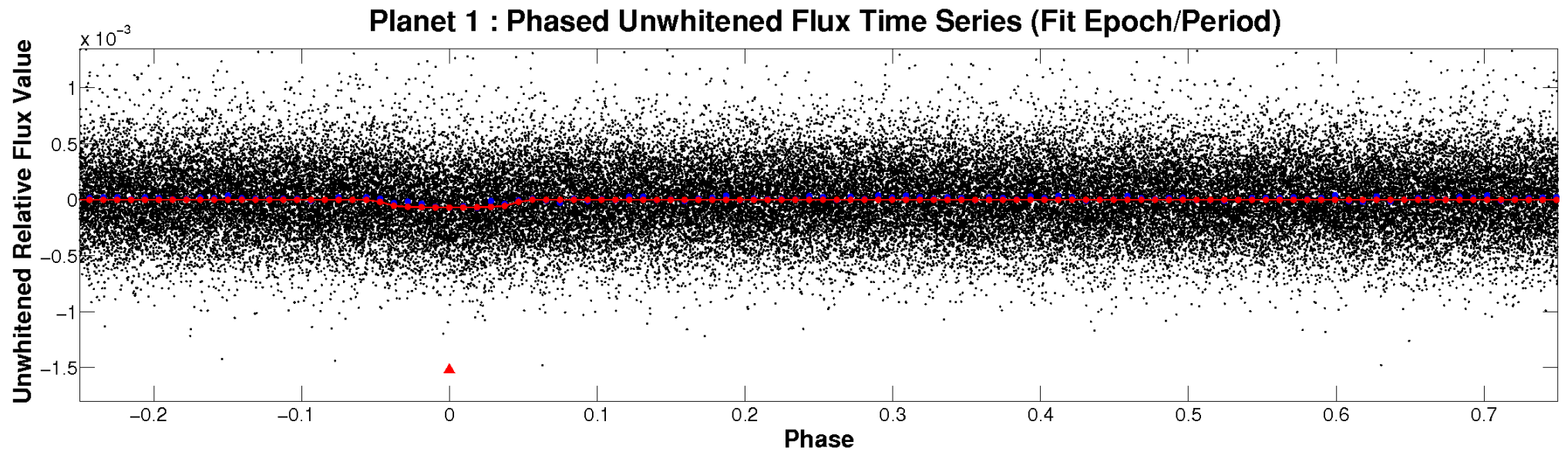


# ALT Odd/Even

TCE 007368137-01

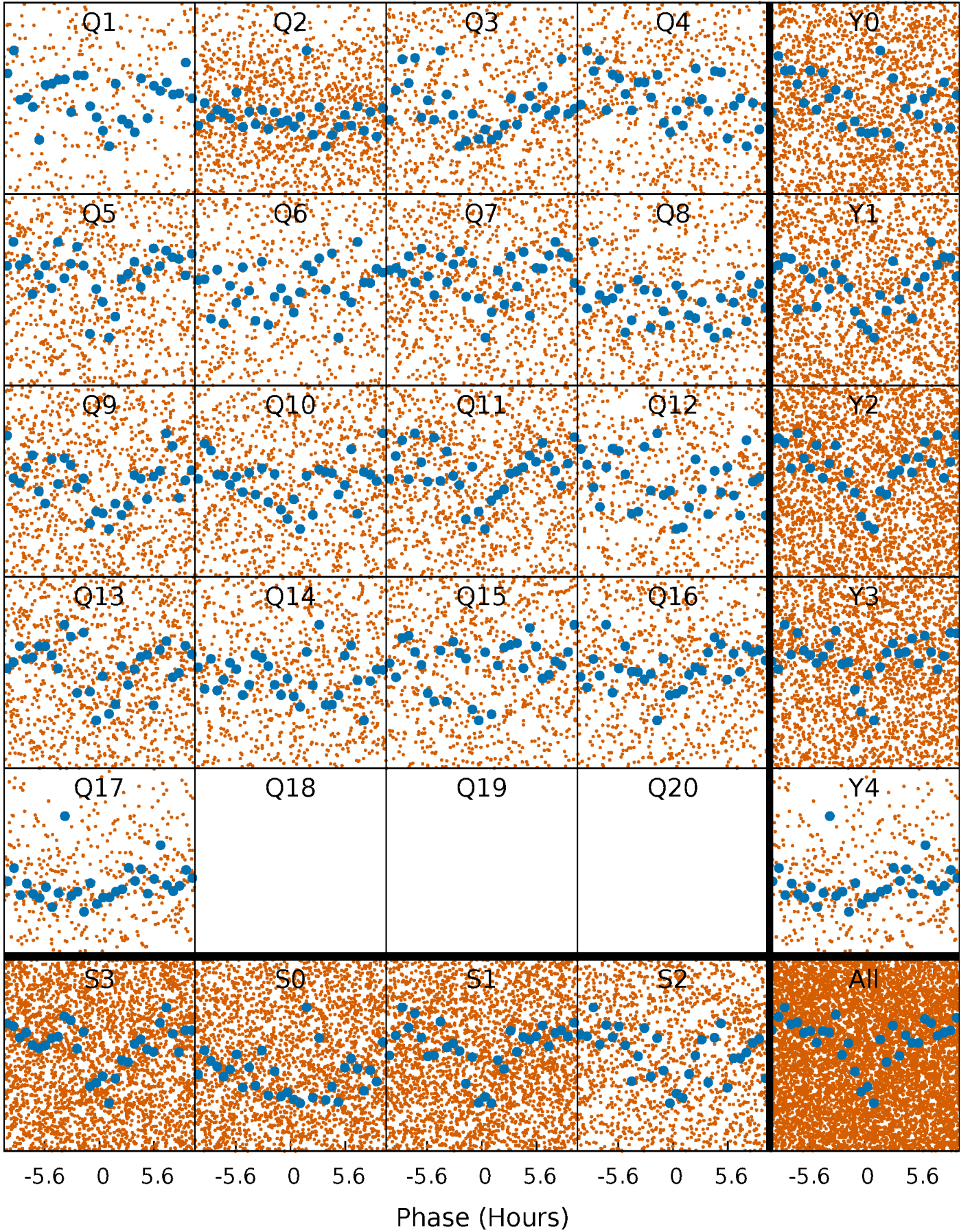


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

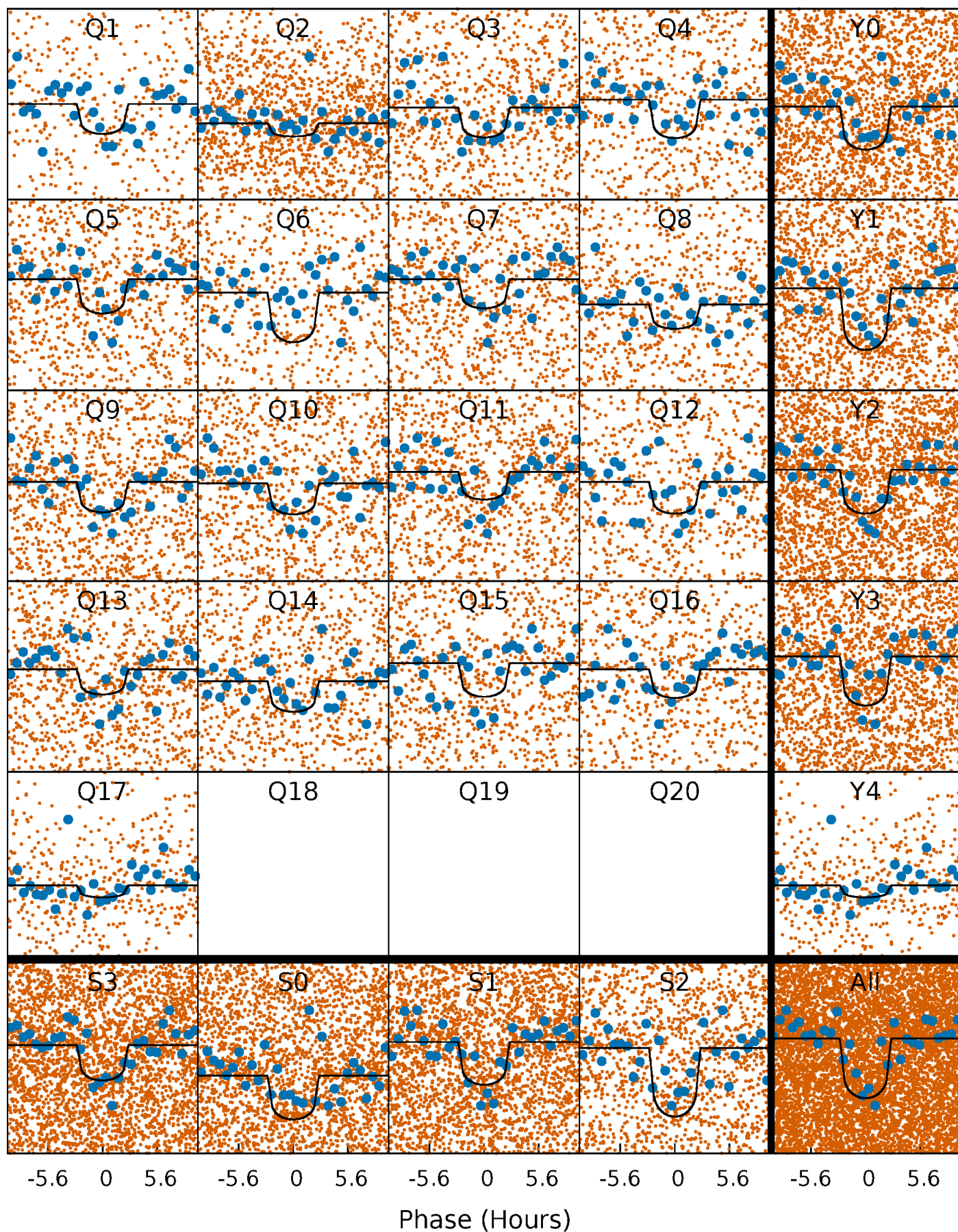
TCE 007368137-01 P= 2.182478 Days  $T_0=132.361951$  (BKJD)





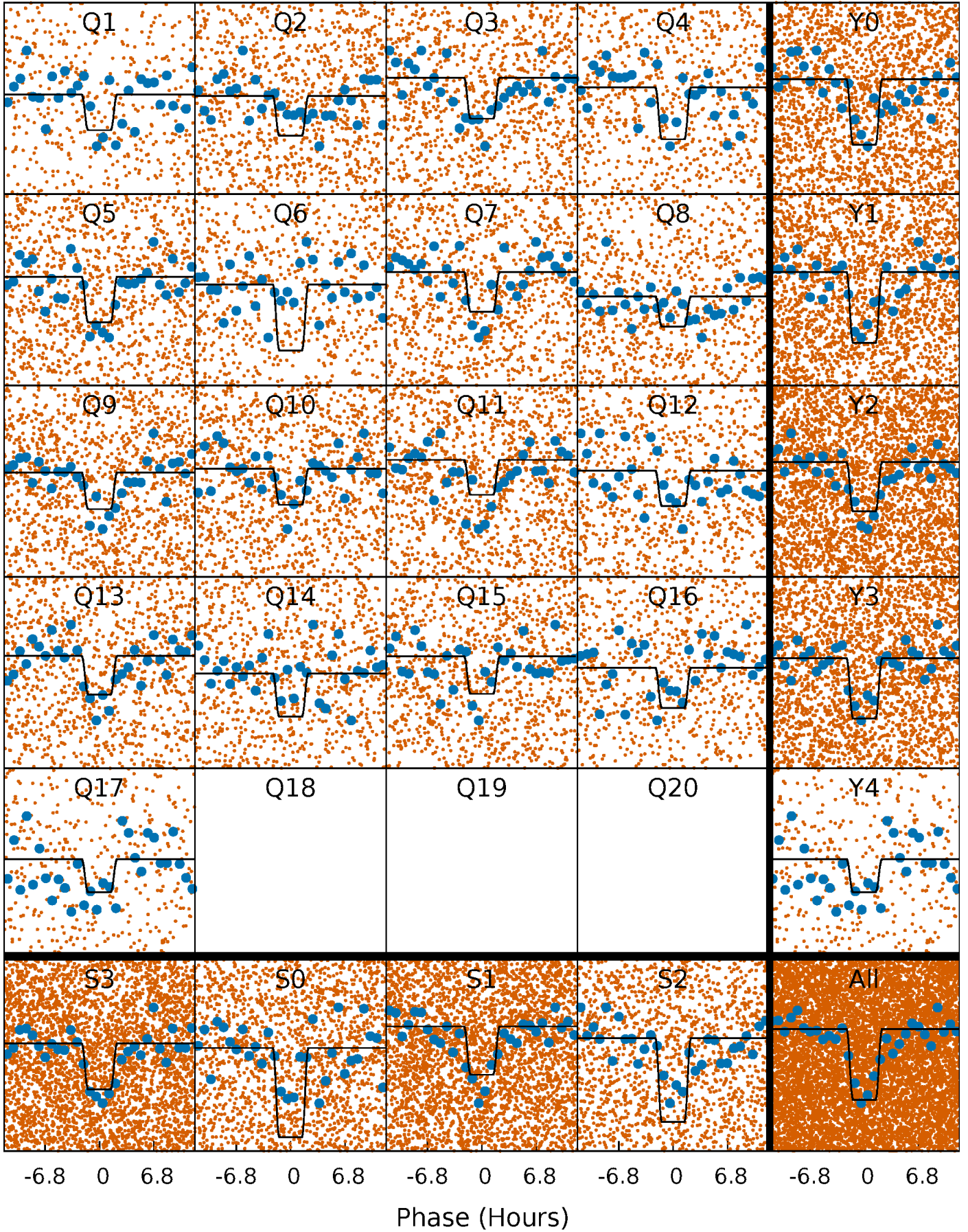
# DV Quarter-Phased Transit Curves

TCE 007368137-01 P= 2.182478 Days  $T_0=132.361951$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007368137-01 P= 2.182448 Days  $T_0=132.382187$  (BKJD)

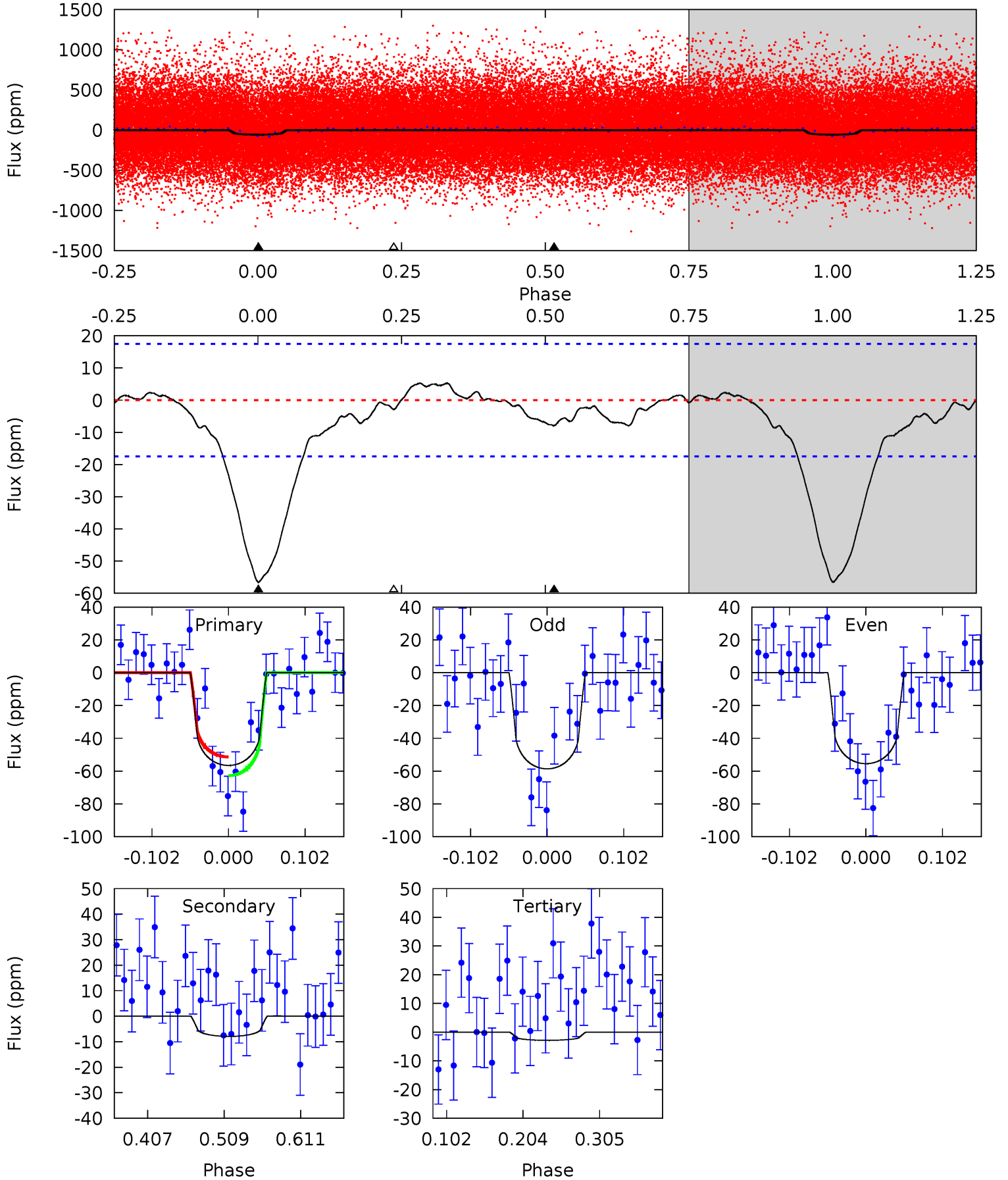




# DV Model-Shift Uniqueness Test

007368137-01, P = 2.182478 Days, E = 130.179473 Days

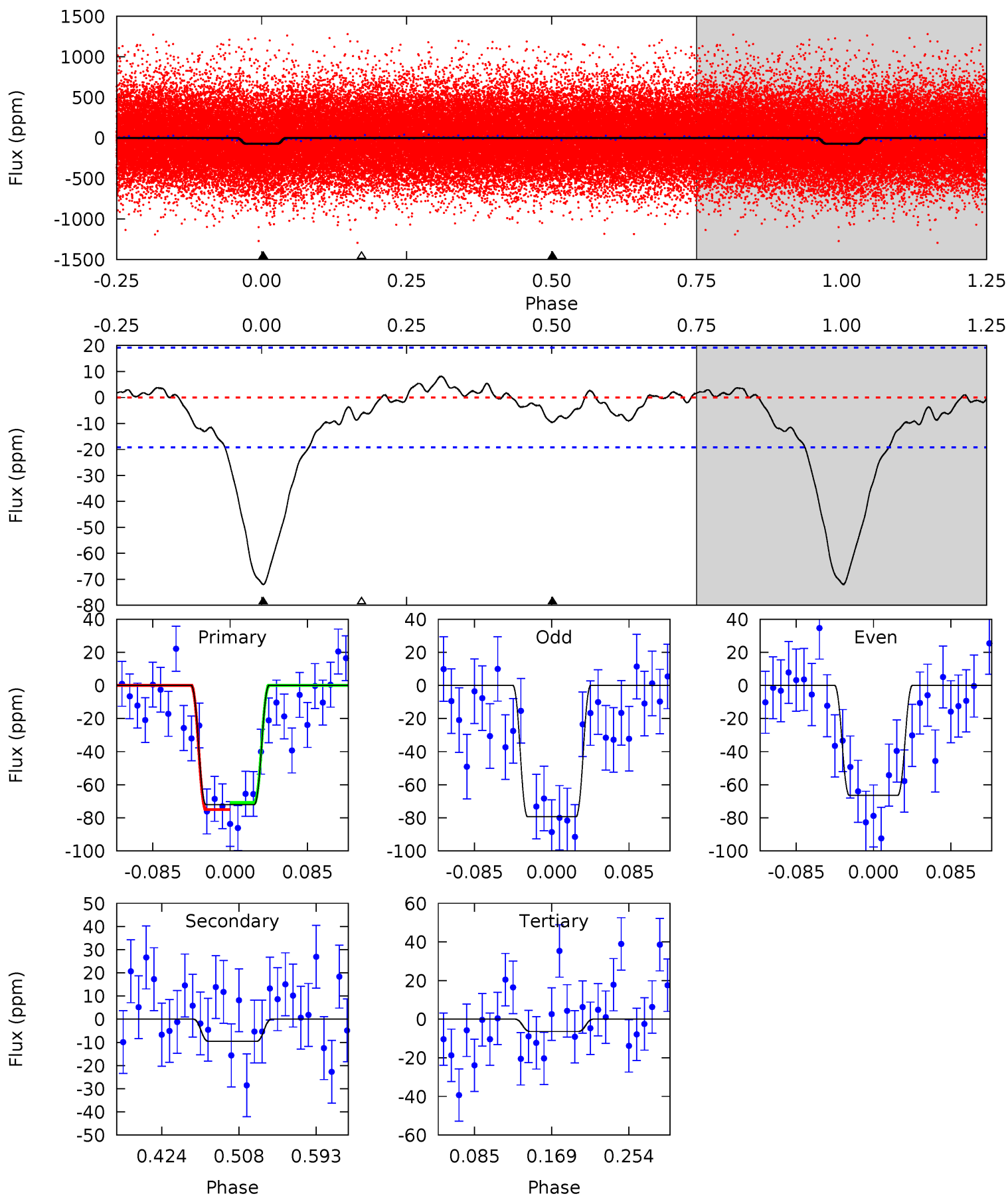
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	2.06	0.74	0	4.56	1.64	1.05	14.0	14.8	1.33	2.06	0.41	0.90	0.08	1.49



# Alt Model-Shift Uniqueness Test

007368137-01, P = 2.182448 Days, E = 130.199739 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
17.2	2.28	1.53	0	4.60	1.72	1.26	15.7	17.2	0.75	2.28	1.55	0.90	0.10	0.51





### Stellar Parameters For KIC 007368137

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5808^{+158}_{-158}$	$4.583^{+0.033}_{-0.176}$	$-0.460^{+0.300}_{-0.300}$	$0.786^{+0.211}_{-0.056}$	$0.871^{+0.089}_{-0.099}$	$2.528^{+0.450}_{-1.223}$
	+3%/-3%	+1%/-4%	+65%/-65%	+27%/-7%	+10%/-11%	+18%/-48%
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 007368137-01 / KOI 4265.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-8 \pm 4$	$0.70^{+0.41}_{-0.36}$	$1832^{+116}_{-73}$	$3818^{+1228}_{-635}$	$8.421^{+29.652}_{-5.617}$
Alt.	$-10 \pm 4$	$0.86^{+0.36}_{-0.41}$	$1833^{+112}_{-71}$	$3674^{+1097}_{-571}$	$6.709^{+20.471}_{-4.269}$

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

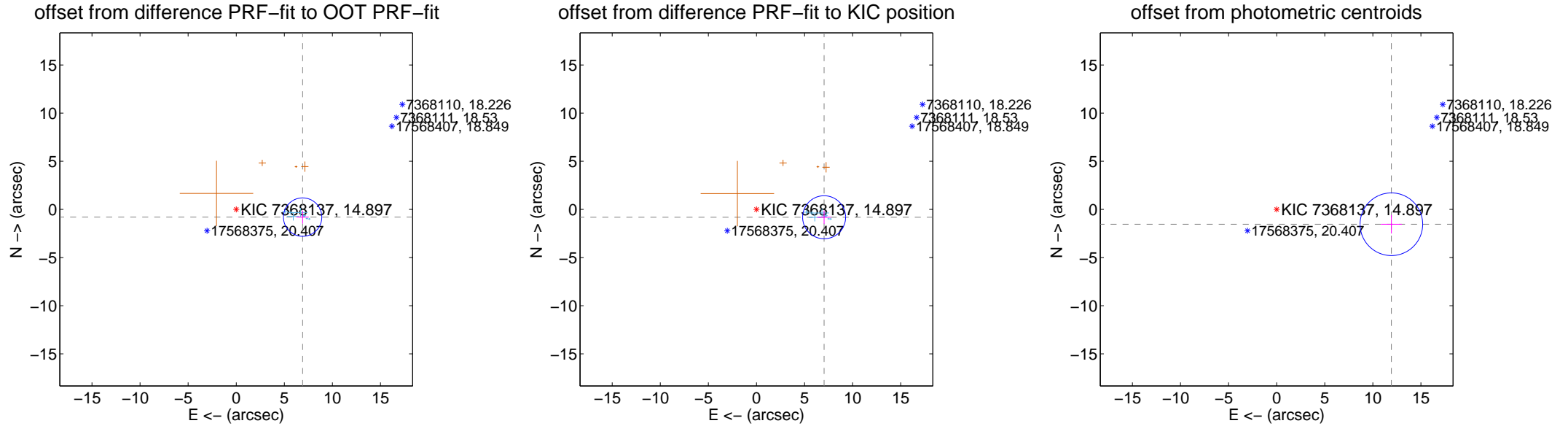
## DV Centroid Data

Supplemental centroid analysis for 007368137-01. Kepler magnitude: 14.90. Transit SNR 14.55

There are 8 quarters with good PRF difference image offsets

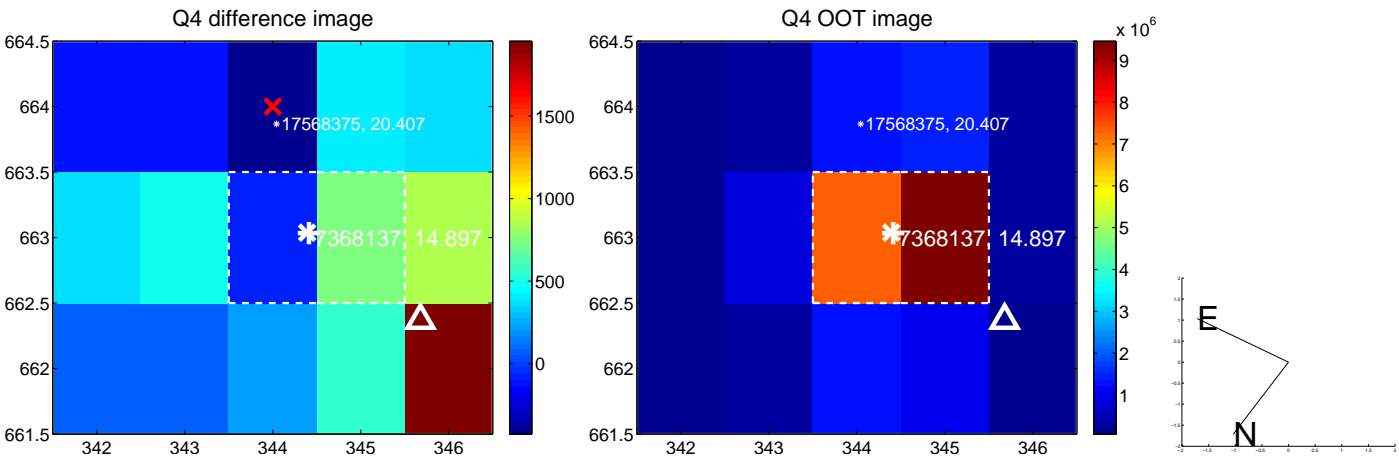
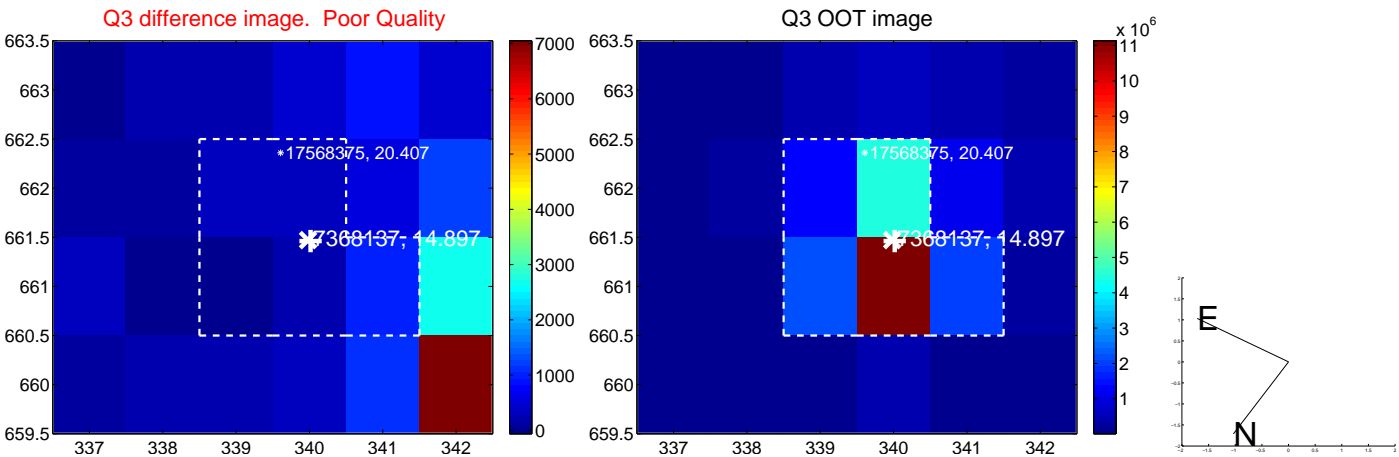
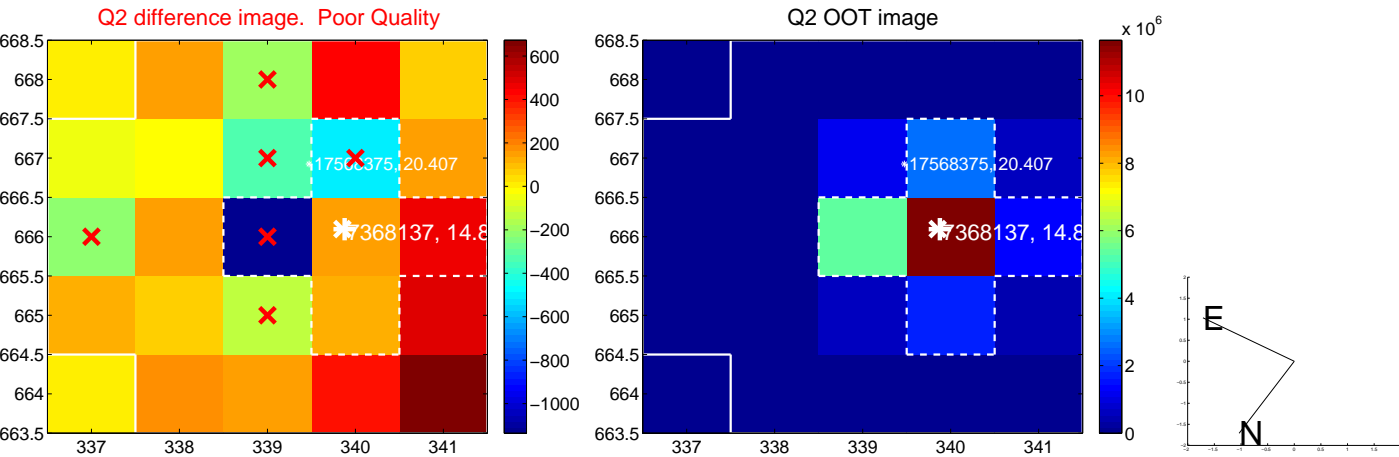
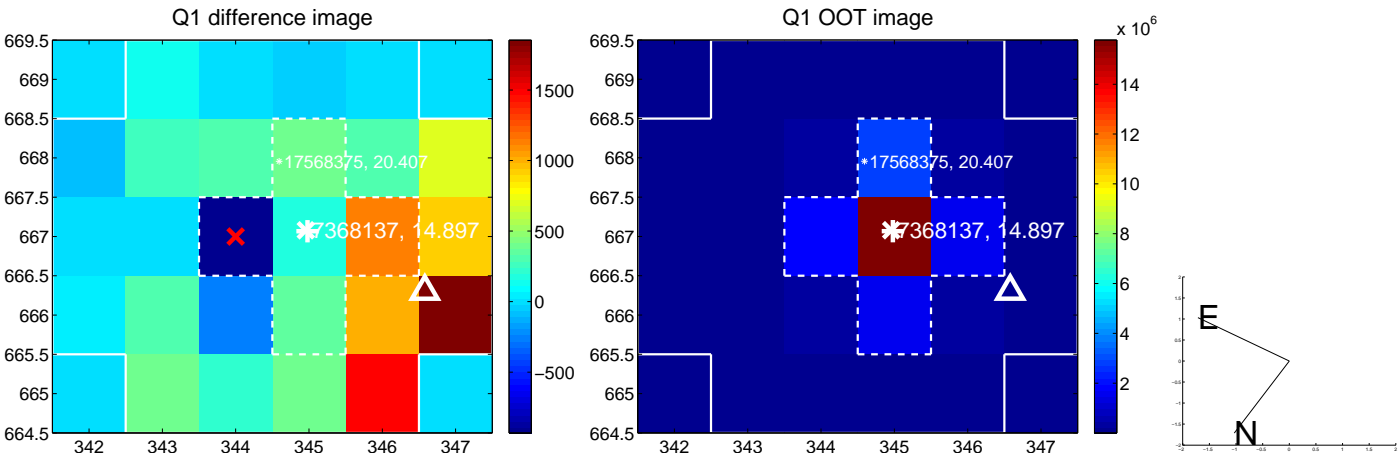
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.948 \pm 0.665$	10.45	$-6.902 \pm 0.641$	$-0.797 \pm 0.676$
PRF-fit source offset from KIC position	$7.082 \pm 0.745$	9.51	$-7.036 \pm 0.725$	$-0.813 \pm 0.702$
photometric centroid source offset	$12.03 \pm 1.09$	11.08	$-11.93 \pm 1.09$	$-1.54 \pm 0.95$

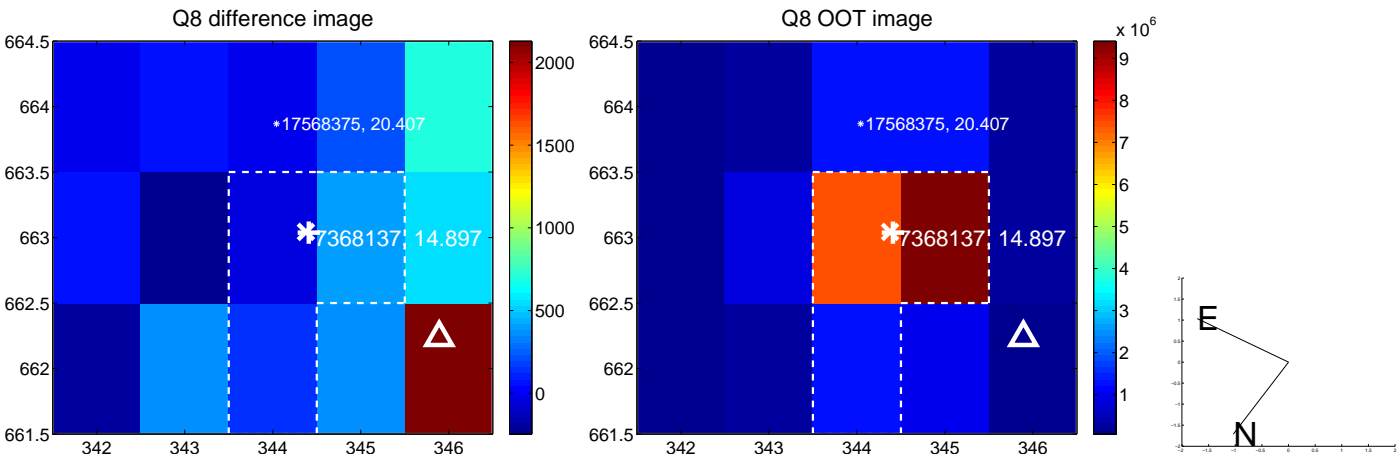
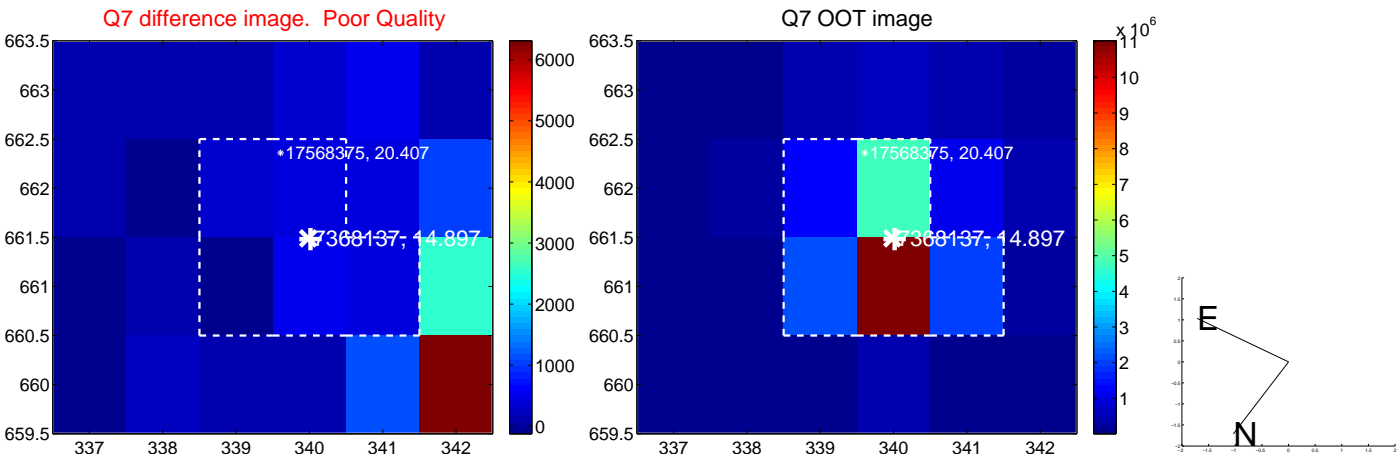
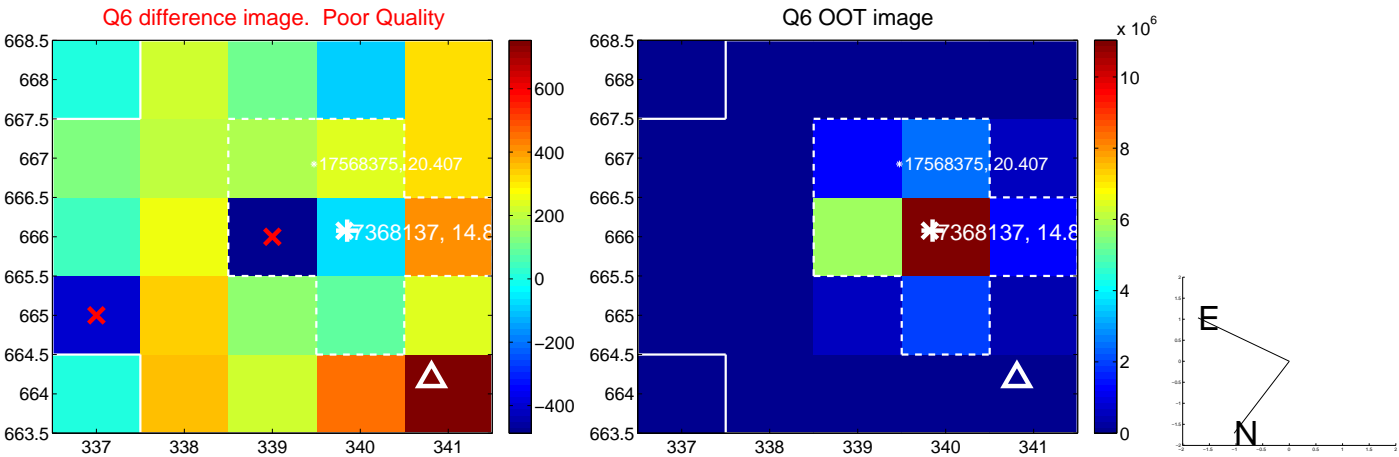
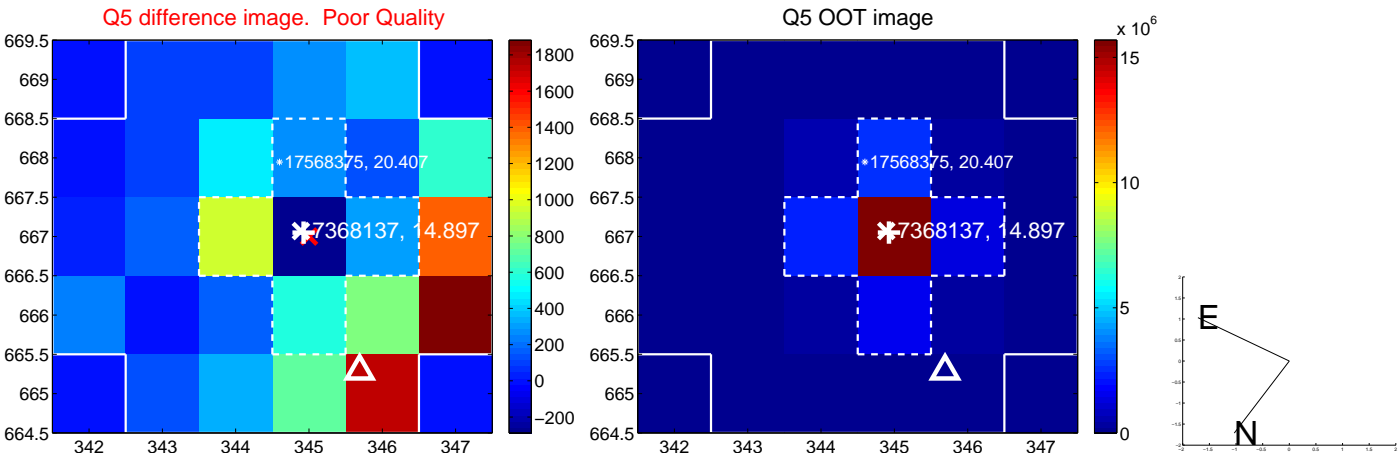


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

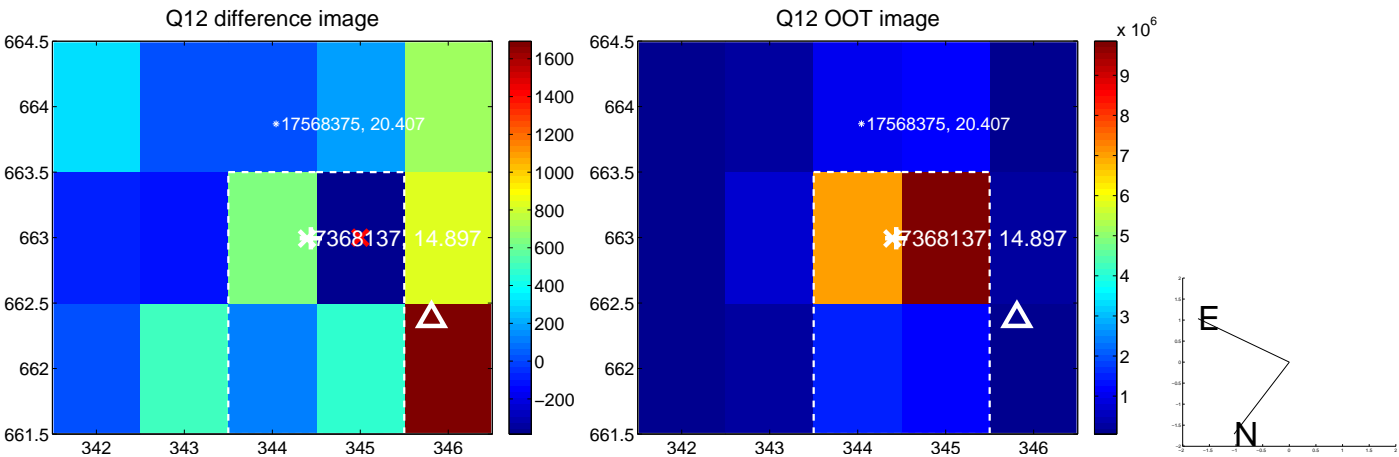
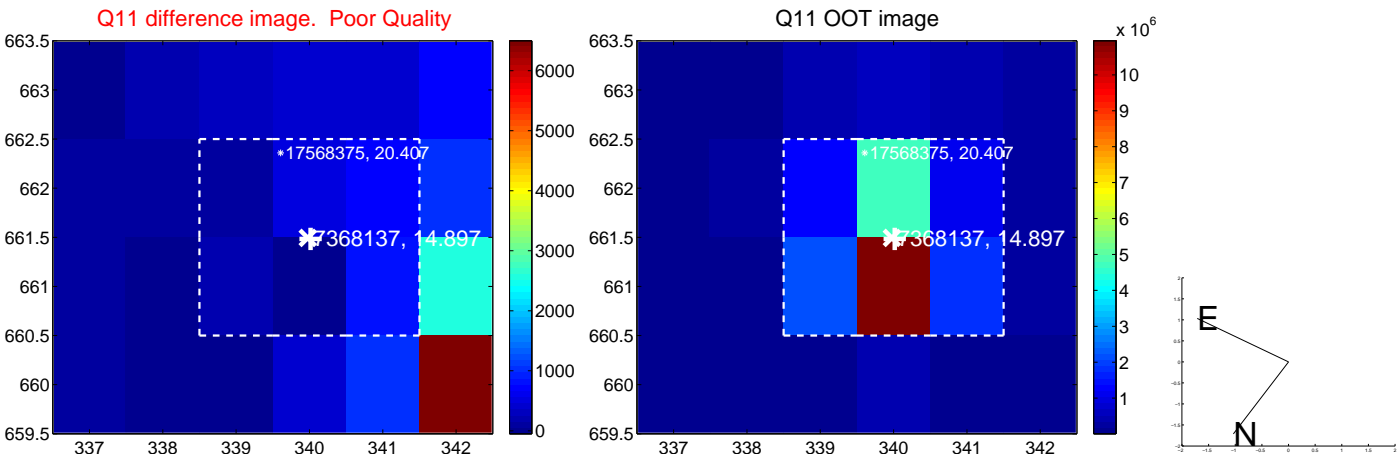
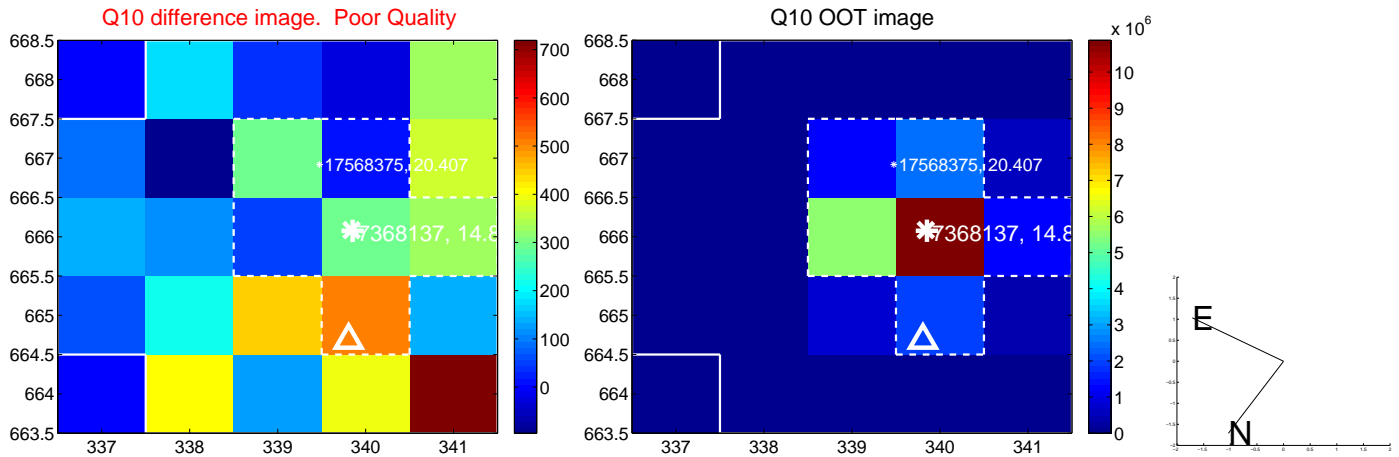
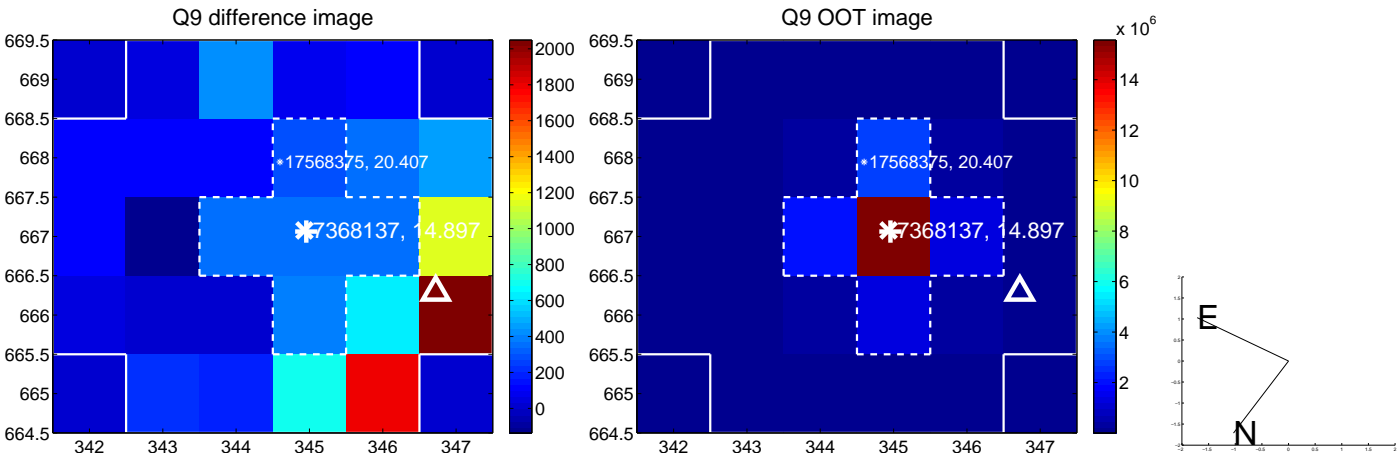


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

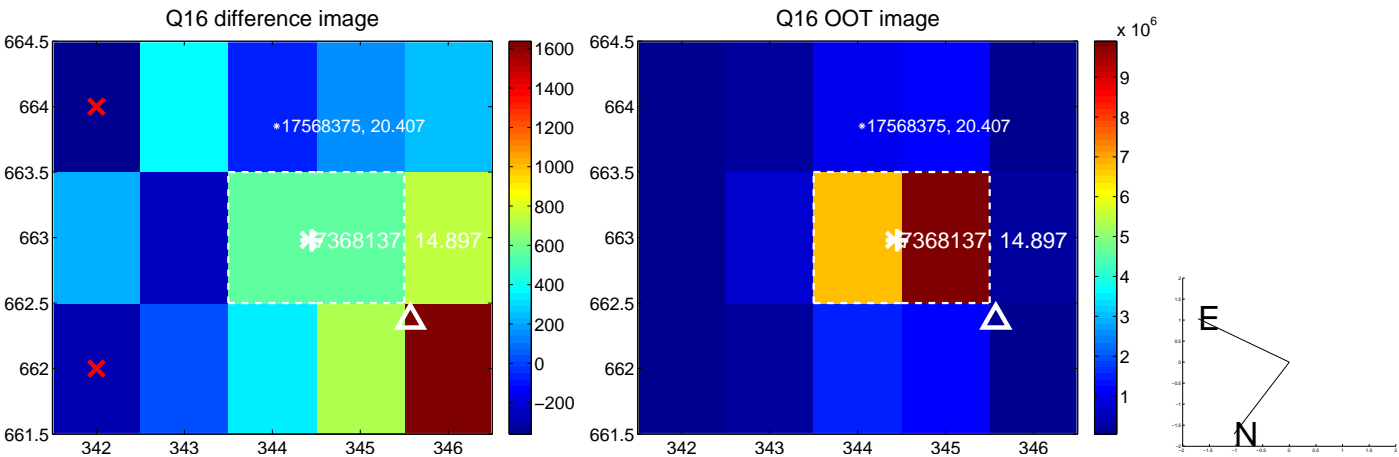
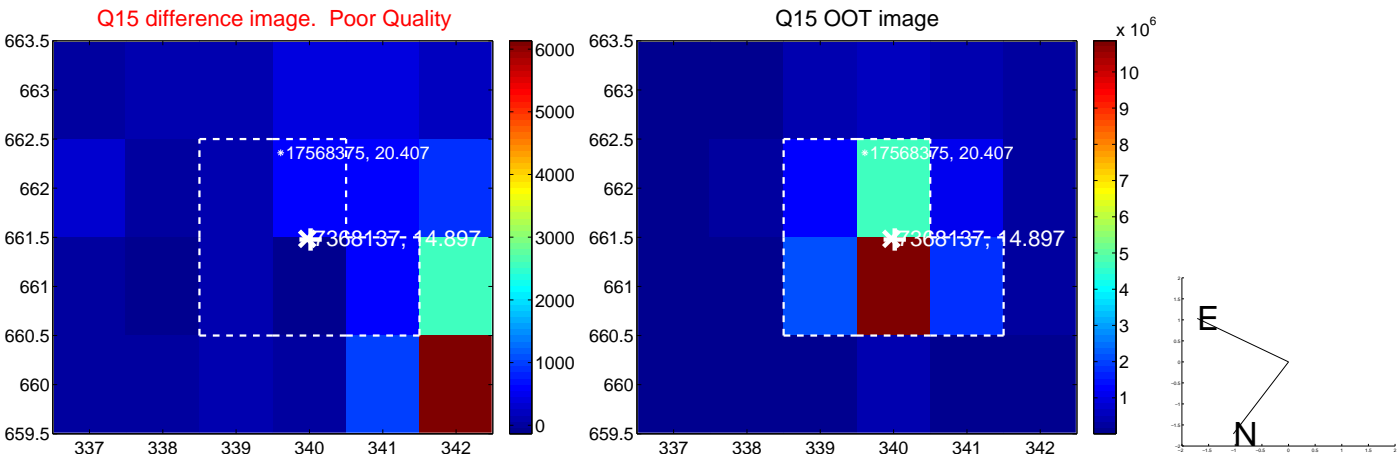
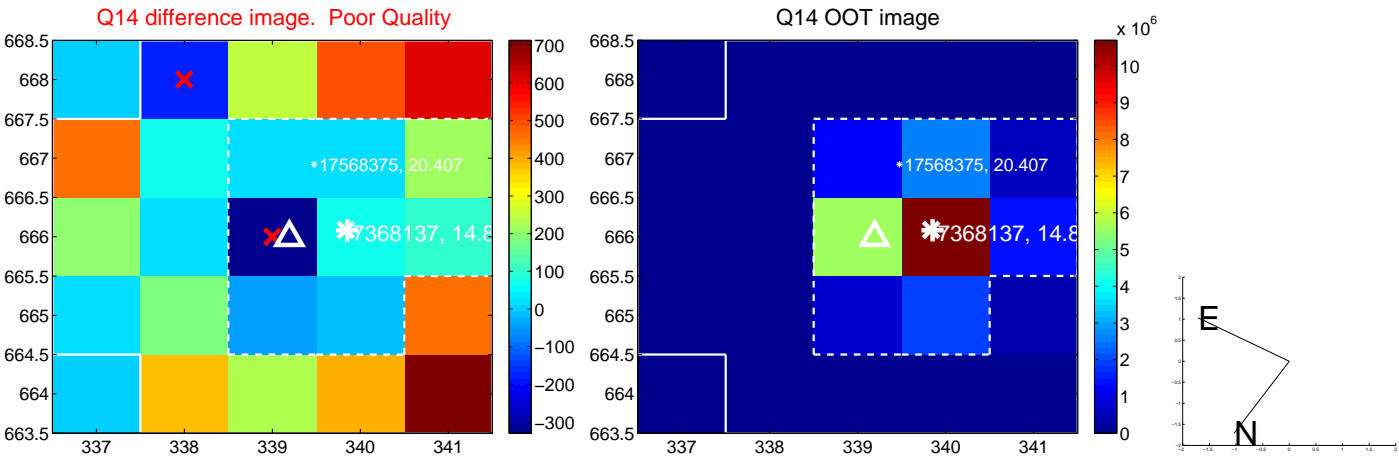
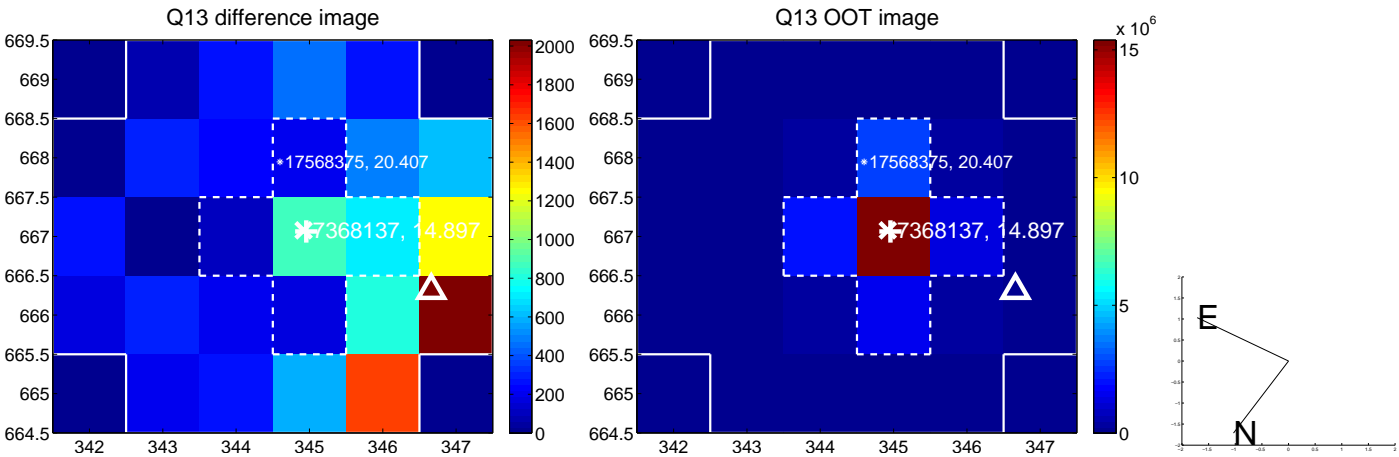




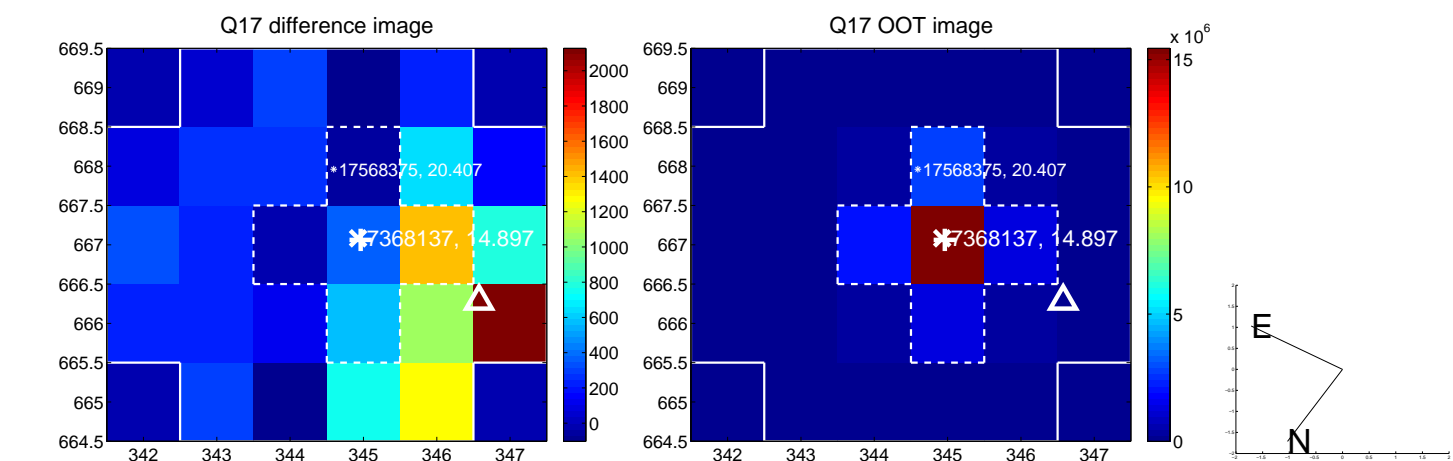
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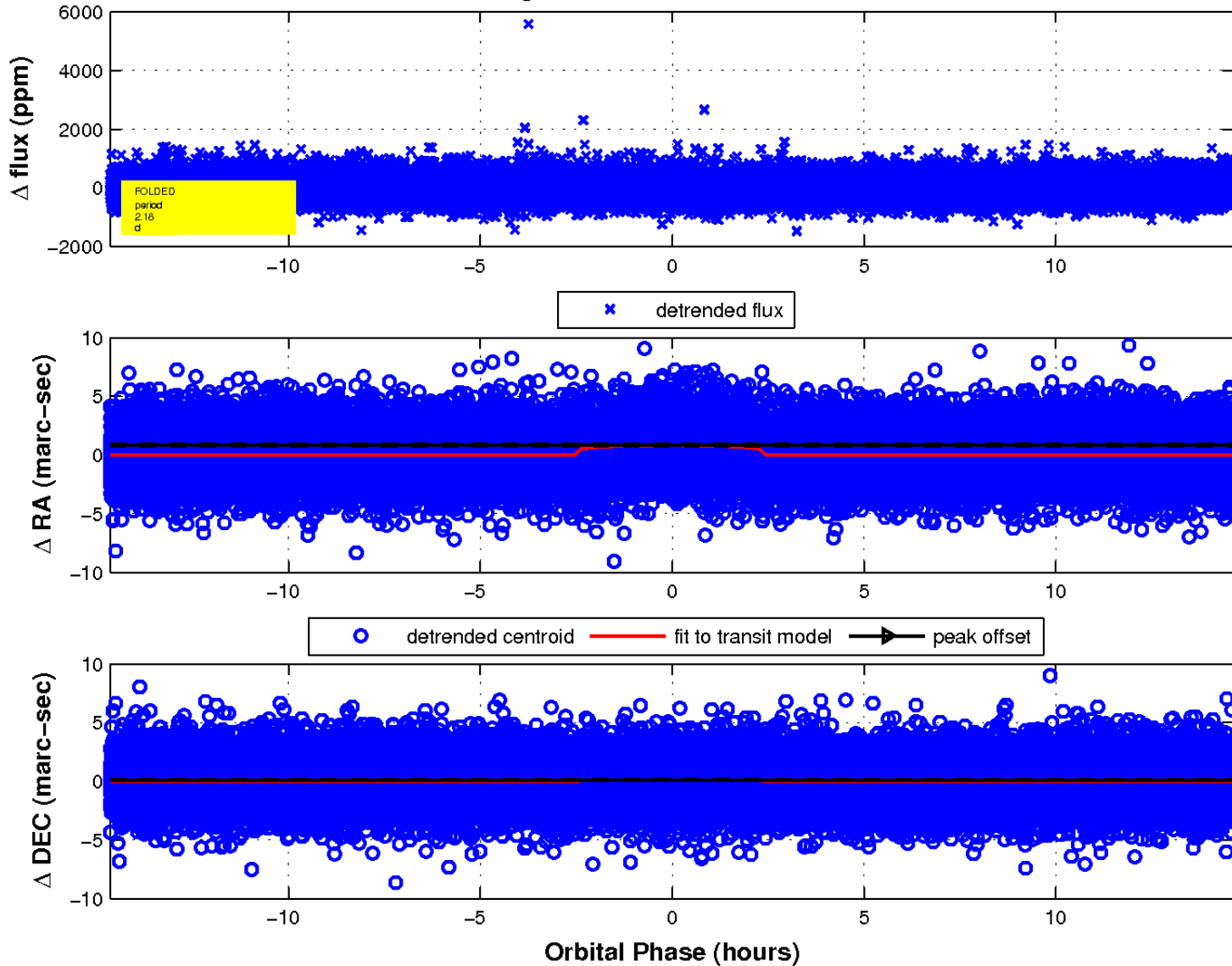
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

