

# KIC 008235924

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008235924-01	OBS	2347.01	0.587999	132.060599	227.1	1.181	31.7	38.3	0.57	3814	1.05	471.16

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008235924-01	OBS	FP	0.15	0	1	0	0	MOD_SEC_DV

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

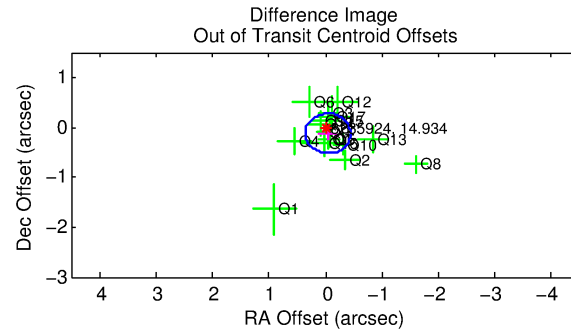
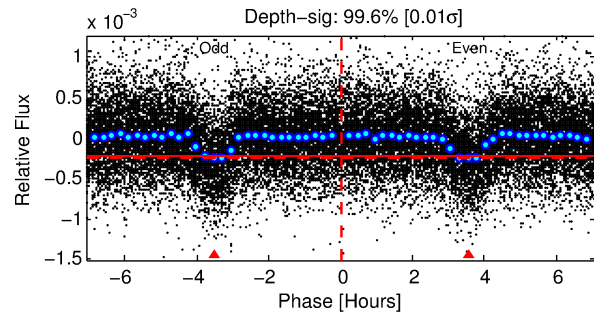
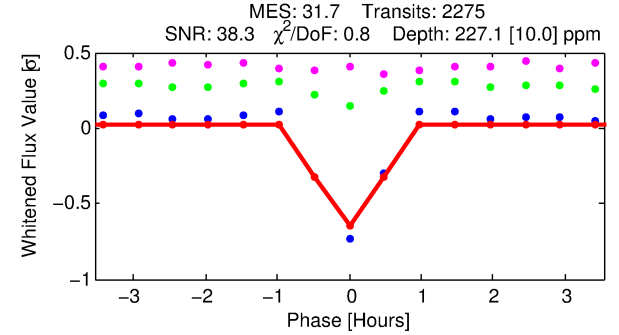
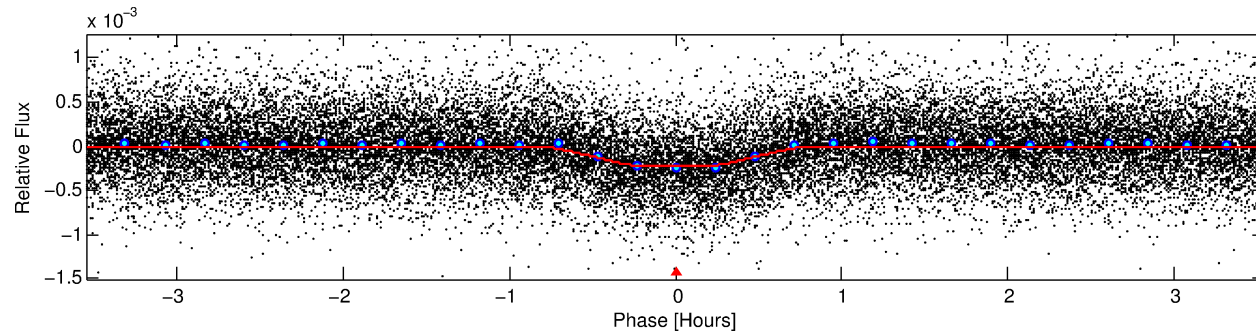
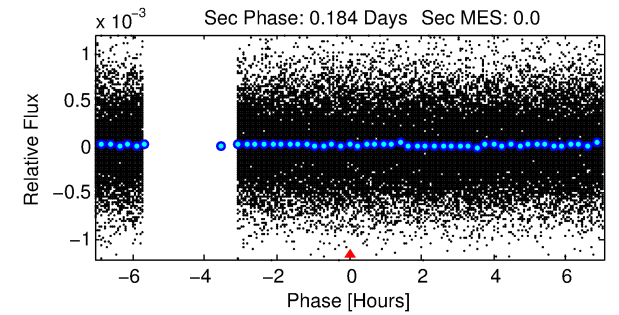
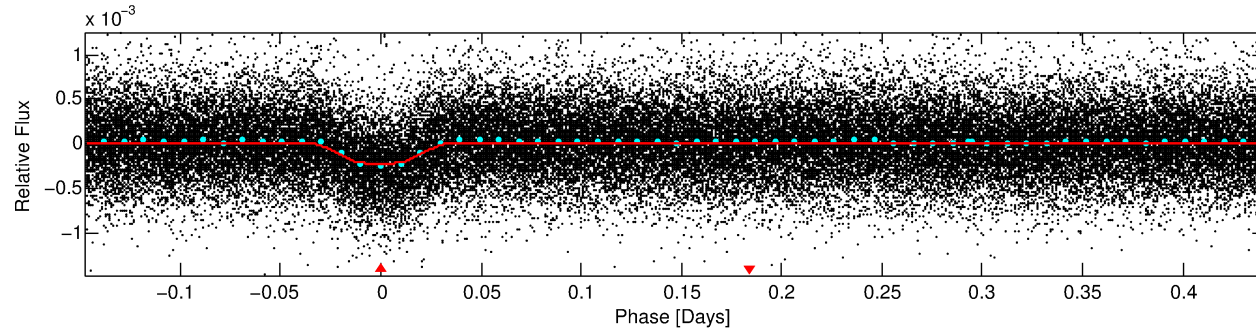
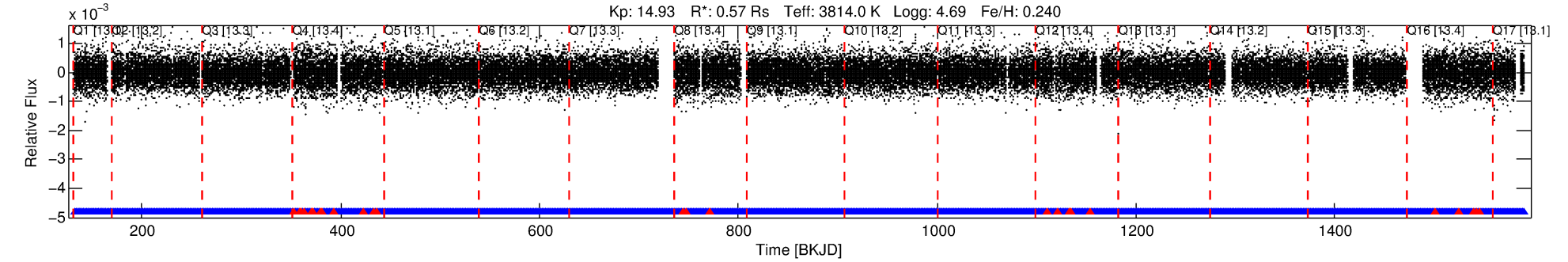
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008235924-01

No Significant Match Found

# DV One-Page Summary

KIC: 8235924 Candidate: 1 of 1 Period: 0.588 d  
KOI: K02347.01 Corr: 0.976



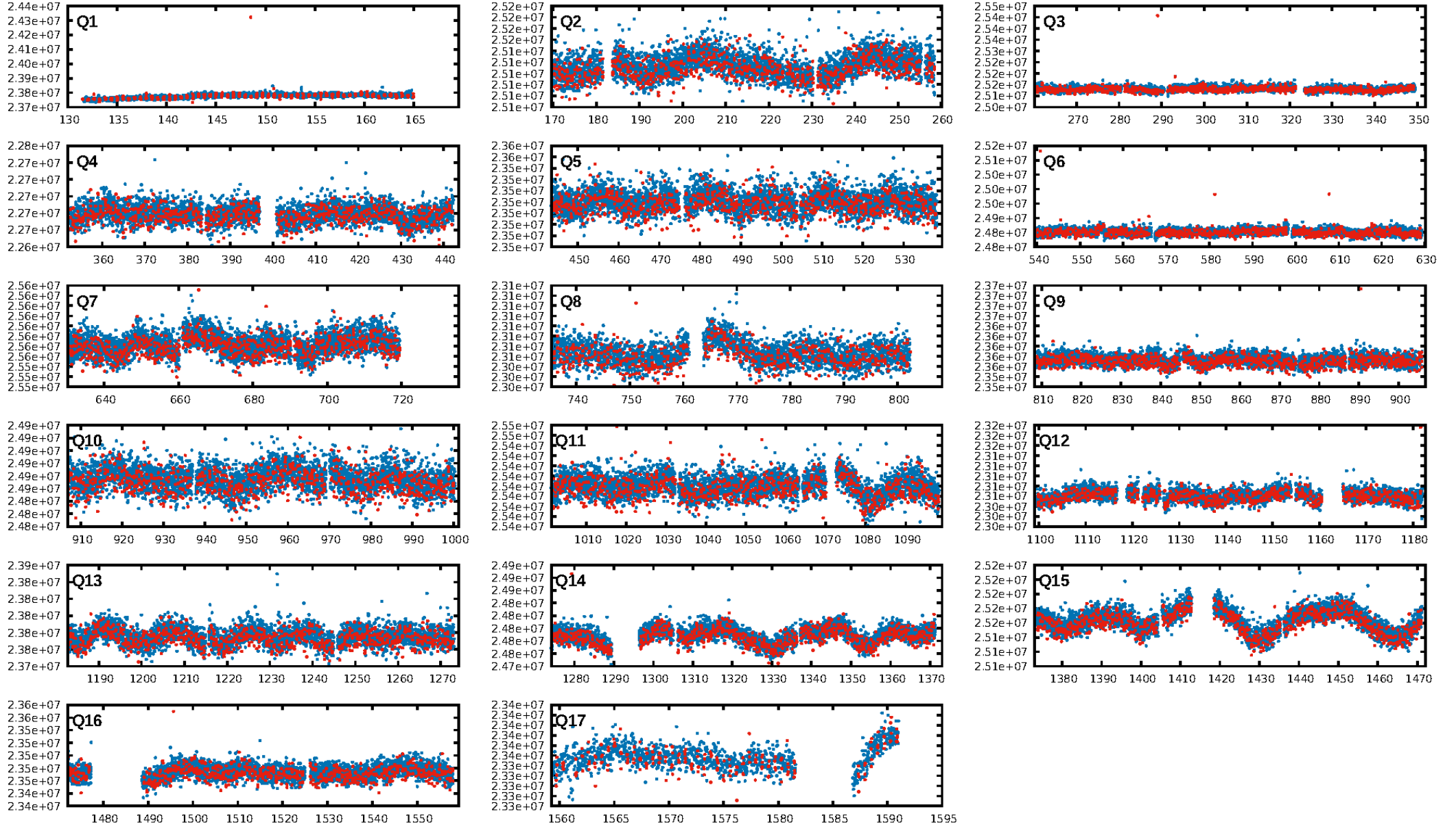
## DV Fit Results:

Period = 0.58800 [0.00000] d  
Epoch = 132.0606 [0.0005] BKJD  
Rp/R\* = 0.0169 [0.0045]  
a/R\* = 2.03 [1.64]  
b = 0.90 [0.23]  
Seff = 471.16 [54.17]  
Teff = 1188 [34] K  
Rp = 1.05 [0.29] Re  
a = 0.0114 [0.0006] AU  
Ag = N/A  
Teffp = N/A

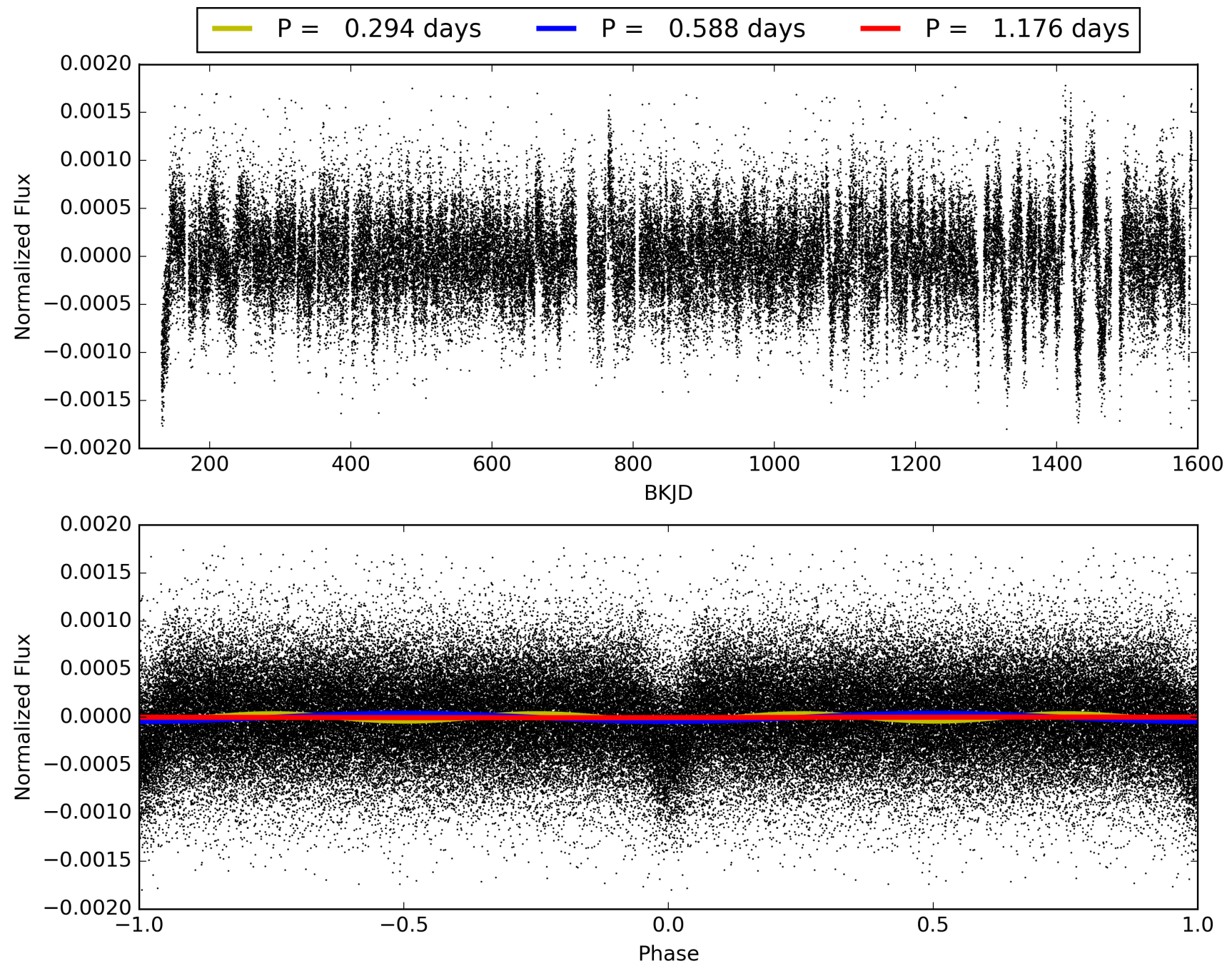
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.44e-201  
RollingBand-fgt: 0.99 [2146/2173]  
GhostDiagnostic-chr: 4.48  
Centroid-sig: 2.7%  
Centroid-so: 0.890 arcsec [2.59σ]  
OotOffset-rm: 0.131 arcsec [0.99σ]  
KicOffset-rm: 0.379 arcsec [2.48σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008235924-01, PDC Light Curves

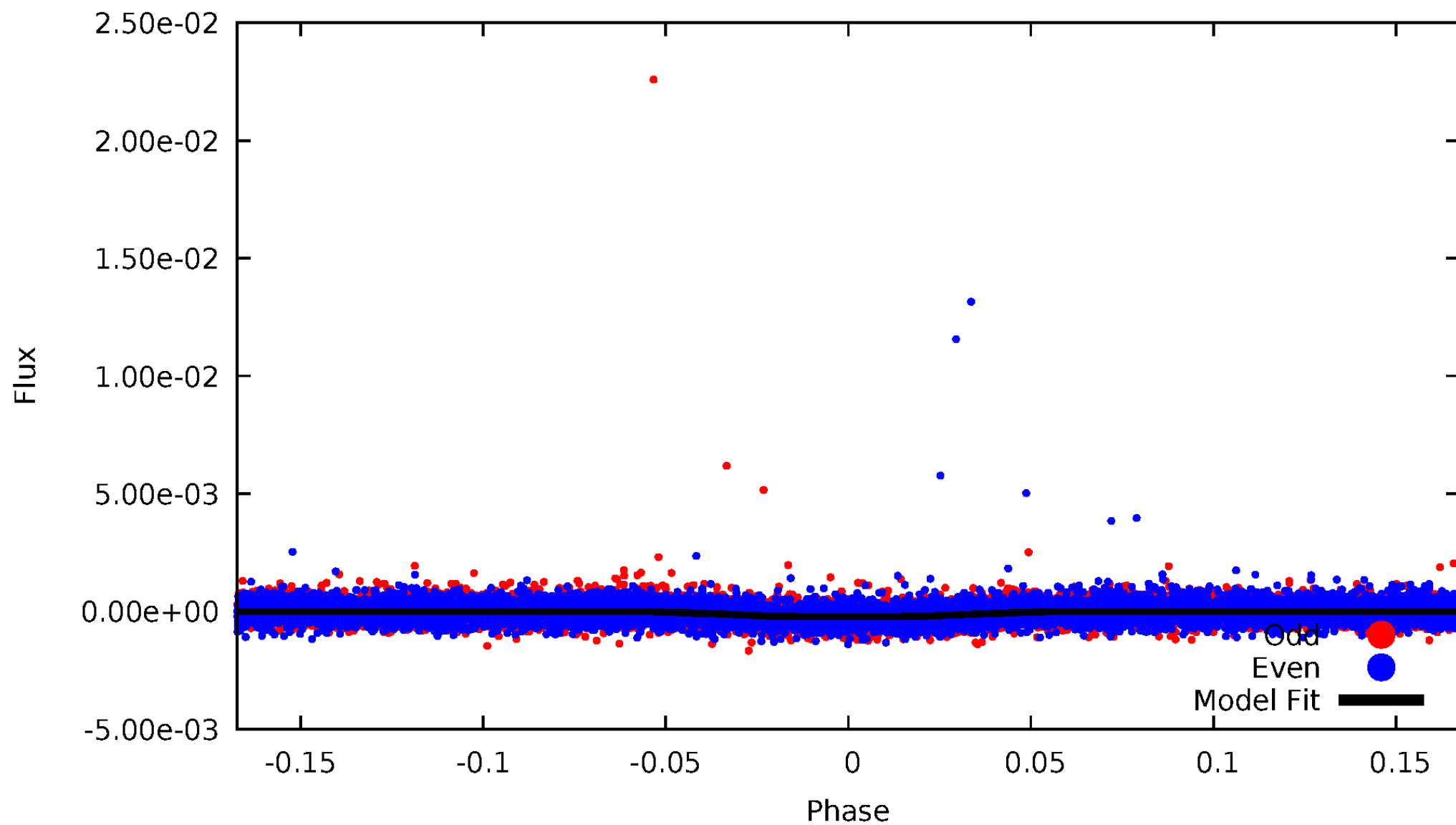


# TCE 008235924-01



# DV Odd/Even

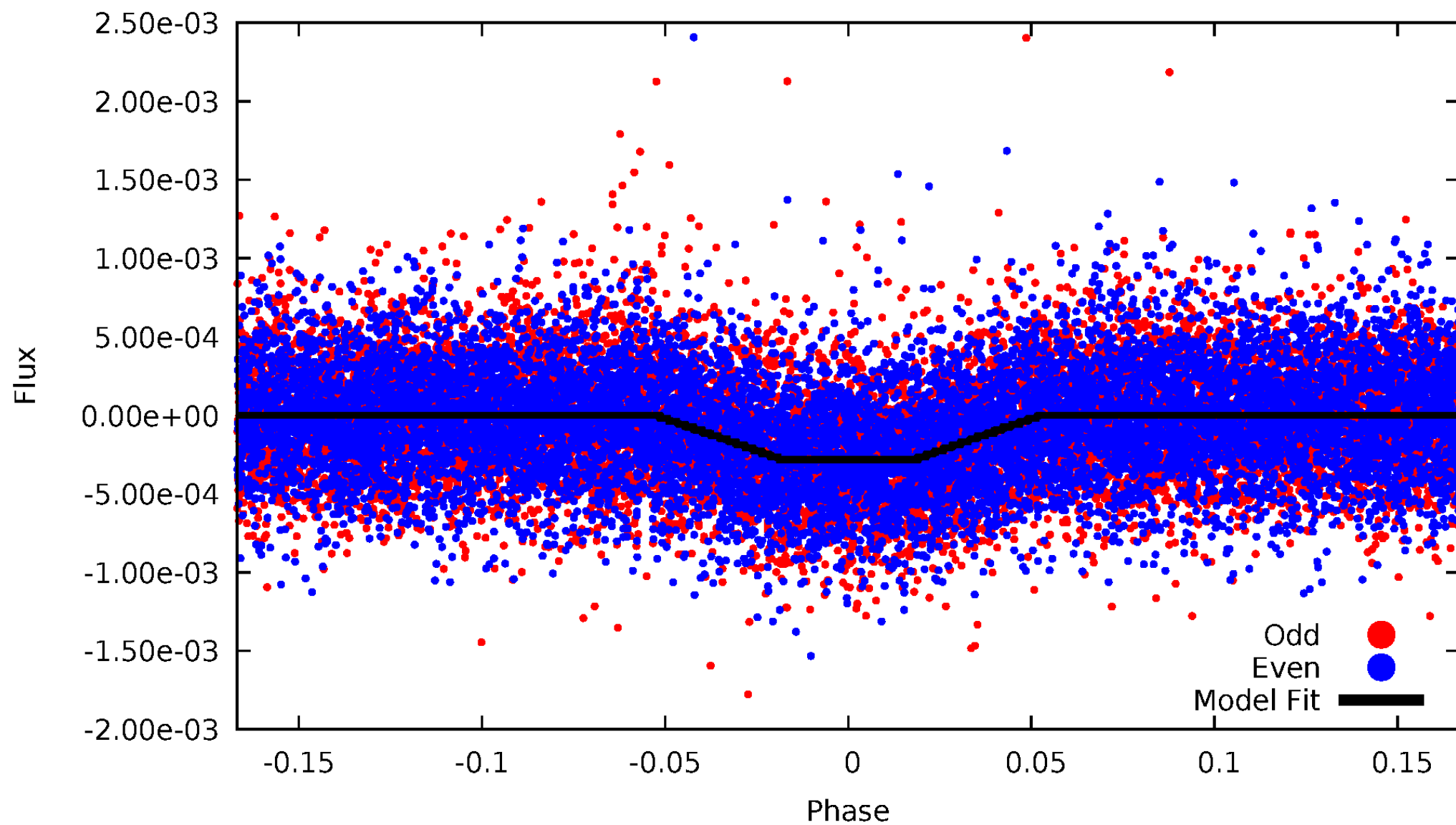
TCE 008235924-01





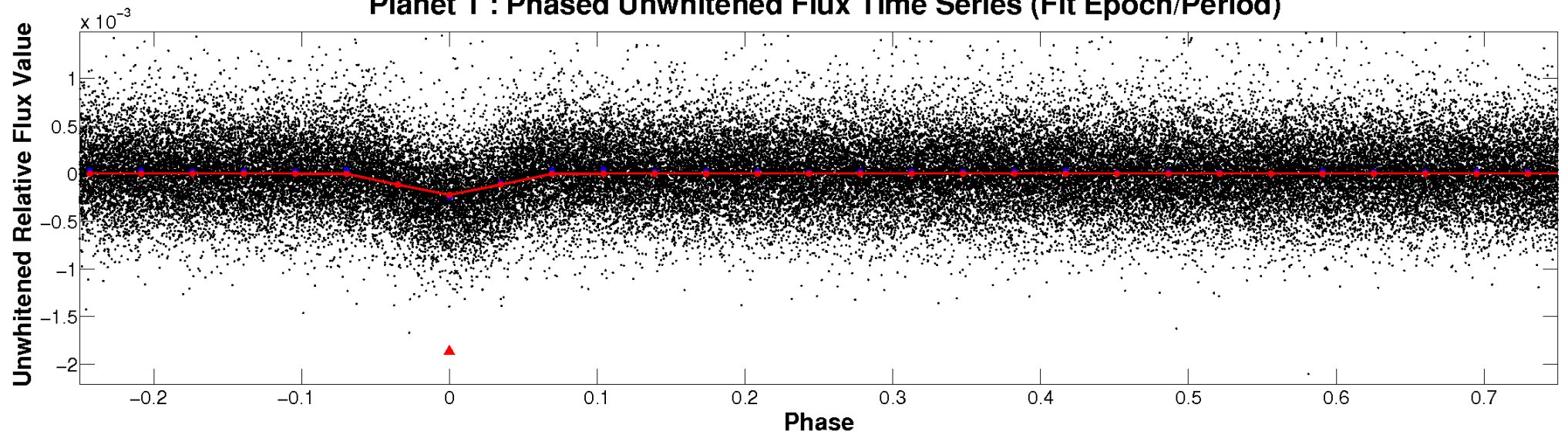
# ALT Odd/Even

TCE 008235924-01

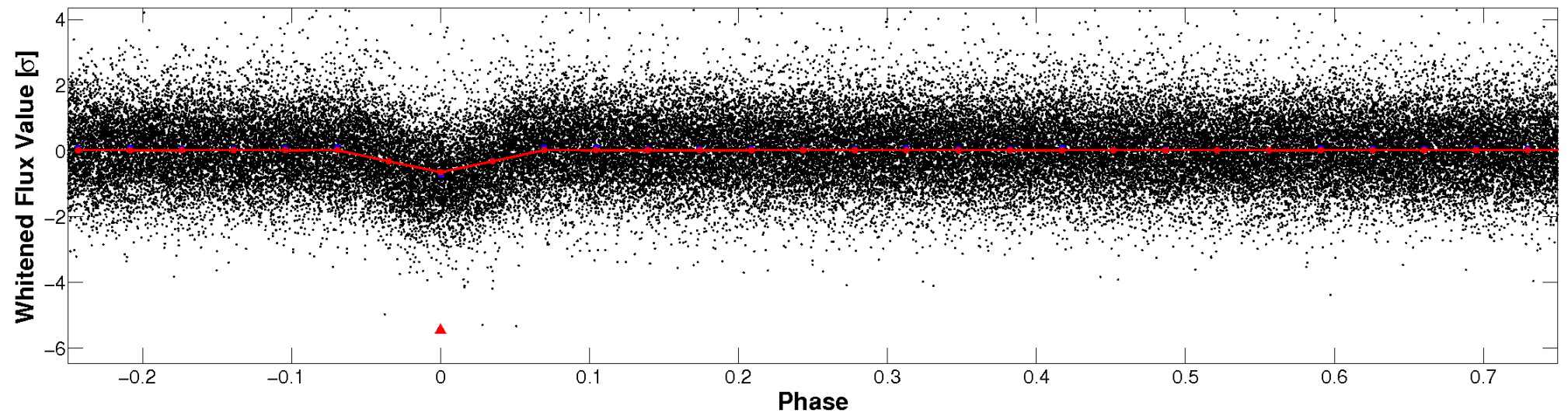


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

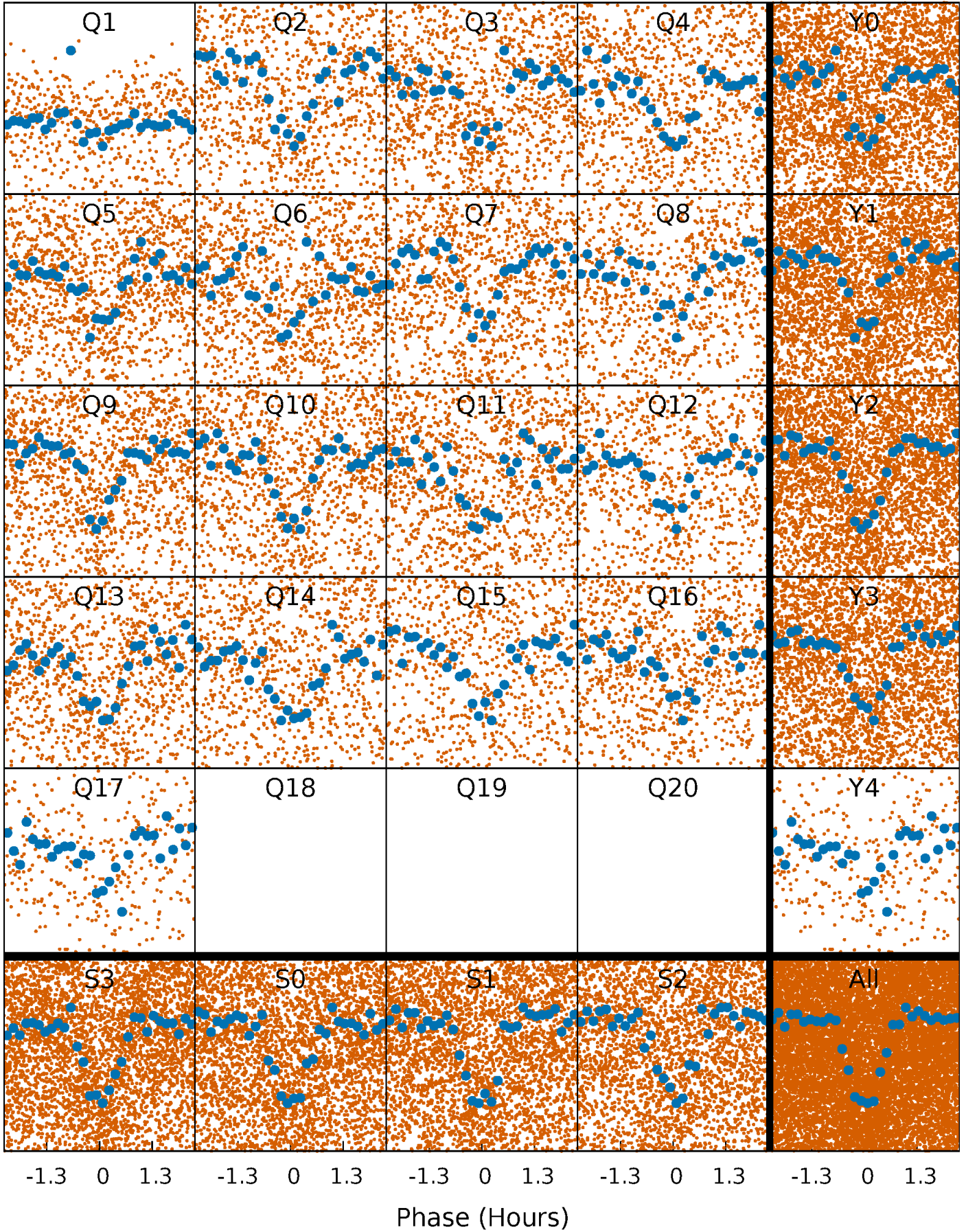


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

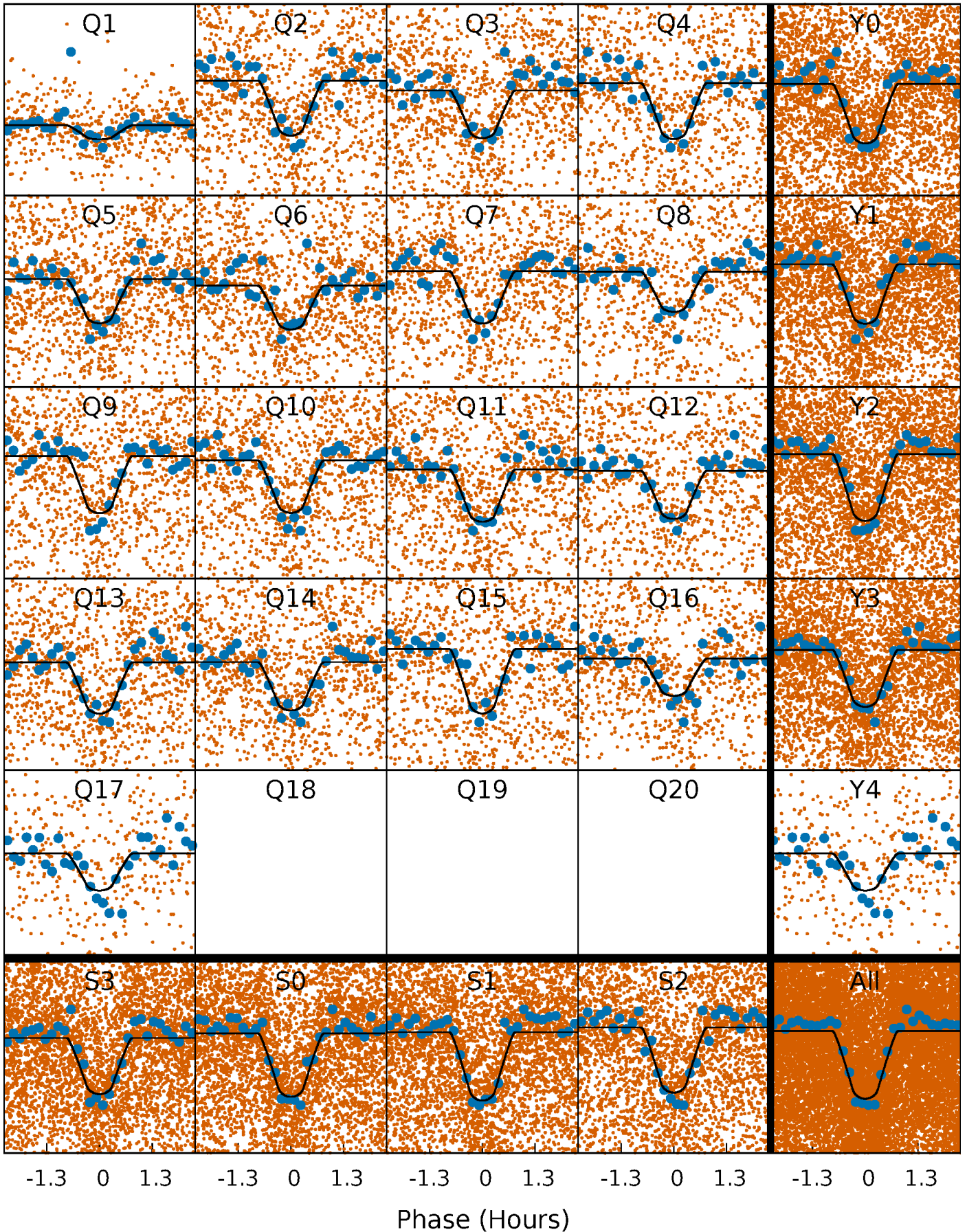
TCE 008235924-01 P= 0.587999 Days  $T_0=132.060599$  (BKJD)





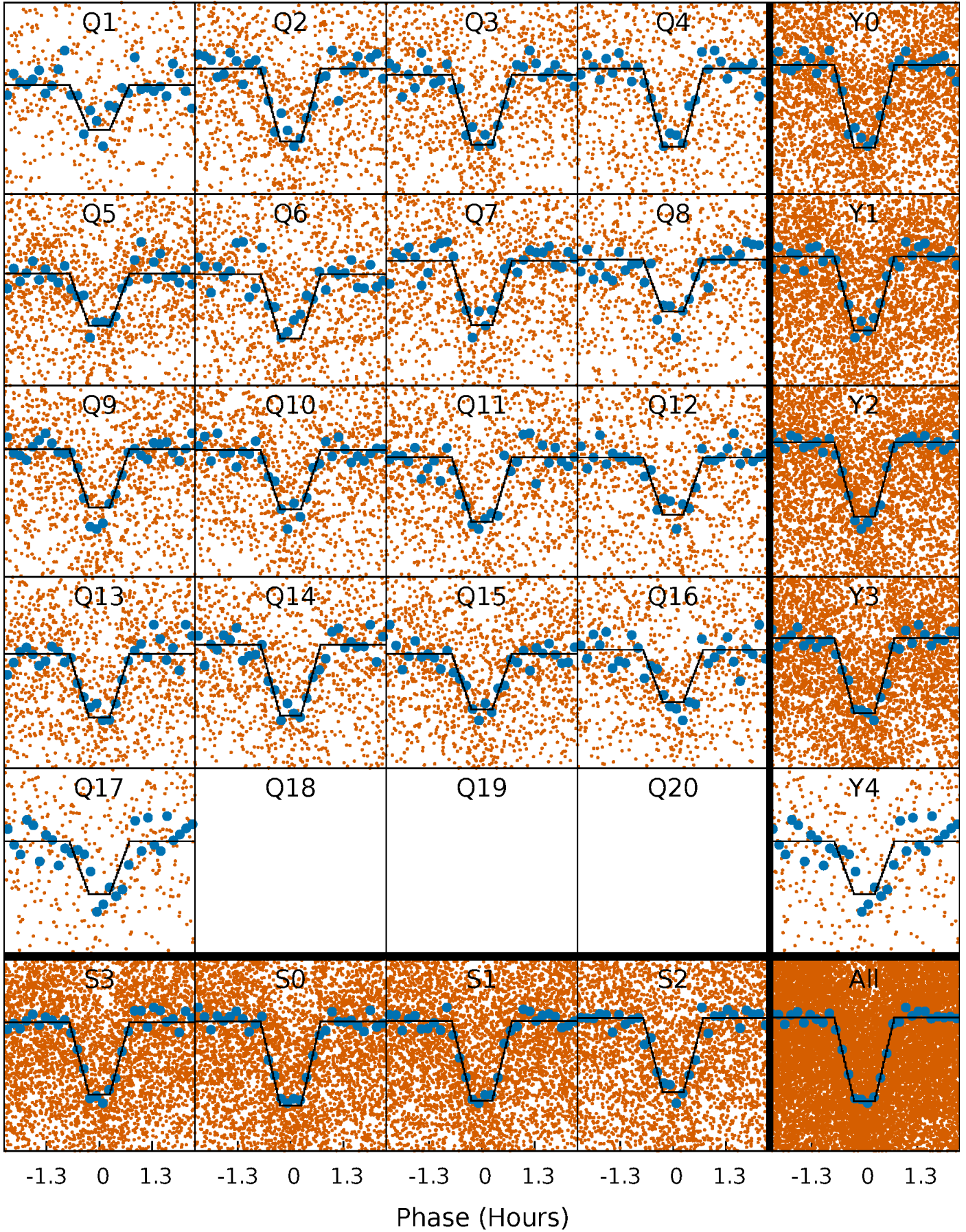
# DV Quarter-Phased Transit Curves

TCE 008235924-01 P= 0.587999 Days  $T_0=132.060599$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008235924-01 P= 0.587999 Days  $T_0=132.060609$  (BKJD)

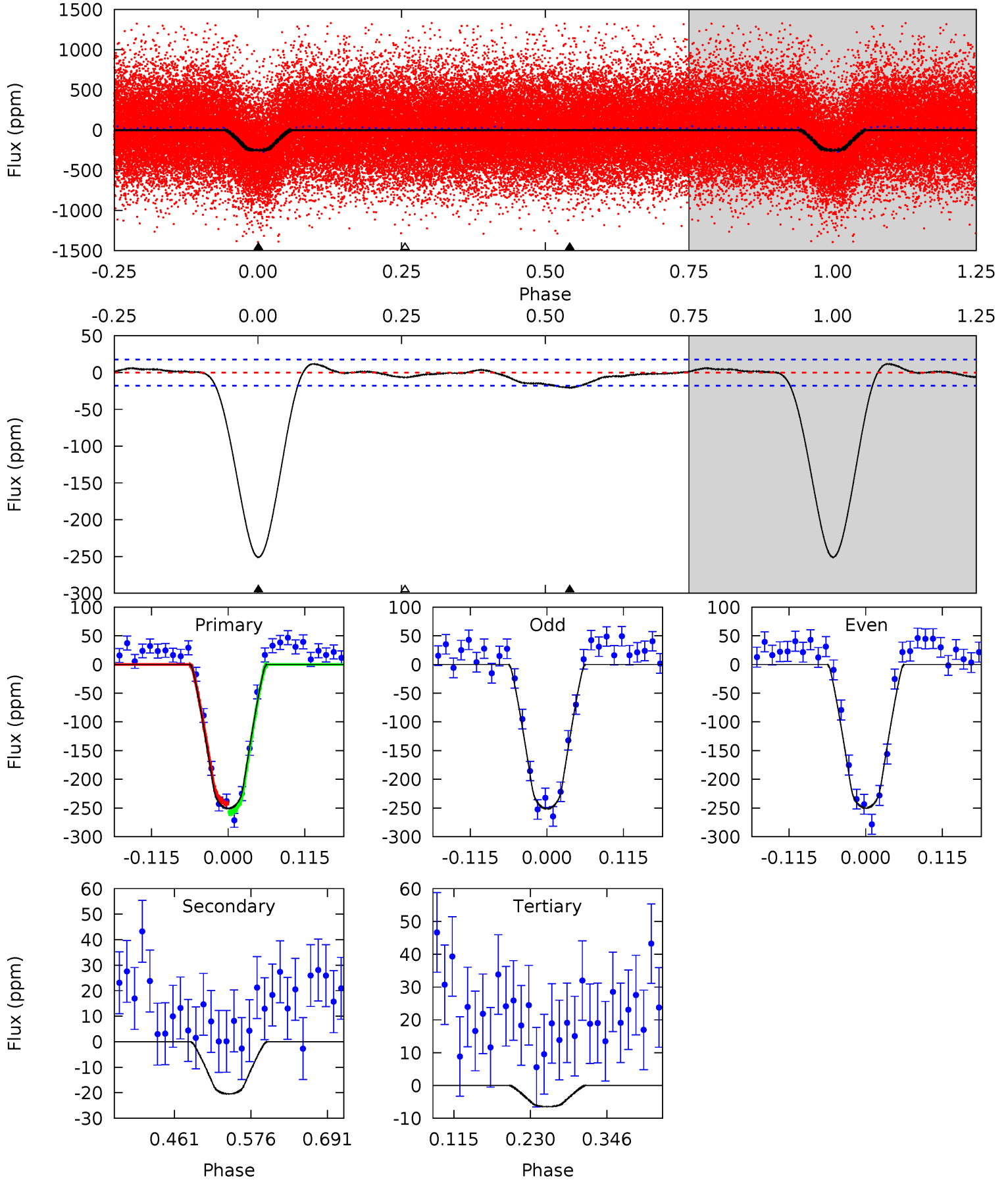




# DV Model-Shift Uniqueness Test

008235924-01, P = 0.587999 Days, E = 131.472600 Days

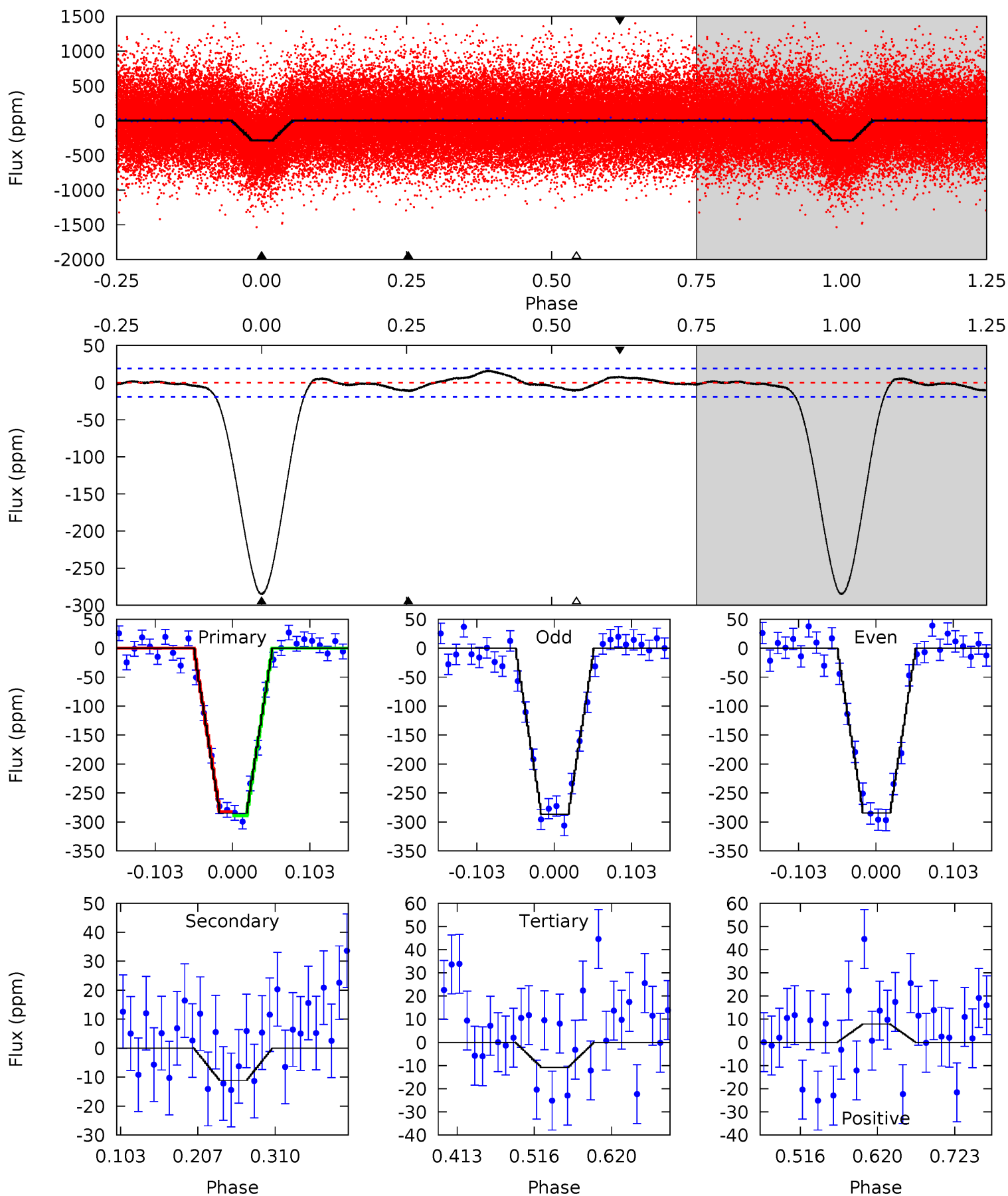
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.2	5.23	1.65	0	4.54	1.58	0.76	62.5	64.2	3.58	5.23	0.16	0.97	0.04	2.10



# Alt Model-Shift Uniqueness Test

008235924-01, P = 0.587999 Days, E = 131.472610 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
68.4	2.68	2.59	1.90	4.56	1.63	1.42	65.8	66.5	0.09	0.78	0.27	1.01	0.05	0.85





### Stellar Parameters For KIC 008235924

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3814^{+76}_{-84}$	$4.687^{+0.039}_{-0.018}$	$0.240^{+0.150}_{-0.150}$	$0.570^{+0.023}_{-0.037}$	$0.576^{+0.032}_{-0.032}$	$4.381^{+0.779}_{-0.319}$
	+2%/-2%	+1%/-0%	+62%/-62%	+4%/-6%	+6%/-6%	+18%/-7%
Source	SPE70	SPE60	SPE70	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008235924-01 / KOI 2347.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-20 \pm 4$	$1.04^{+0.29}_{-0.28}$	$1653^{+41}_{-43}$	$2520^{+262}_{-217}$	$1.378^{+1.235}_{-0.574}$
Alt.	$-11 \pm 4$	$1.05^{+0.26}_{-0.29}$	$1651^{+40}_{-41}$	$2253^{+292}_{-298}$	$0.712^{+0.719}_{-0.298}$

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

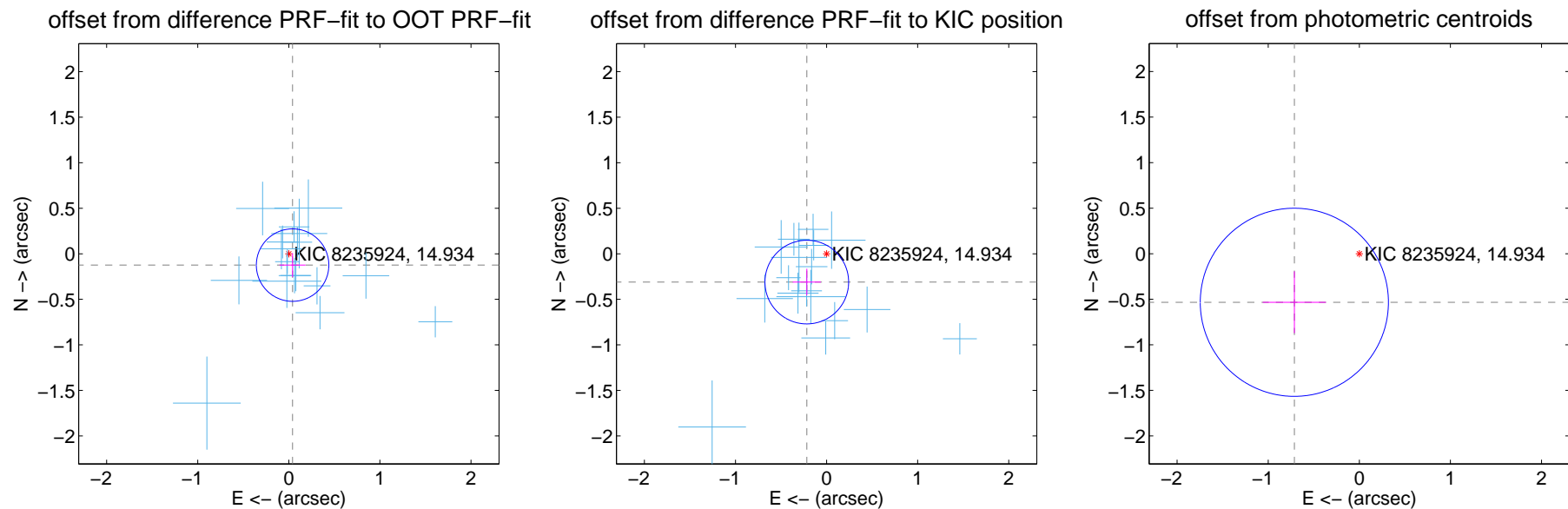
## DV Centroid Data

Supplemental centroid analysis for 008235924-01. Kepler magnitude: 14.93. Transit SNR 38.30

There are 17 quarters with good PRF difference image offsets

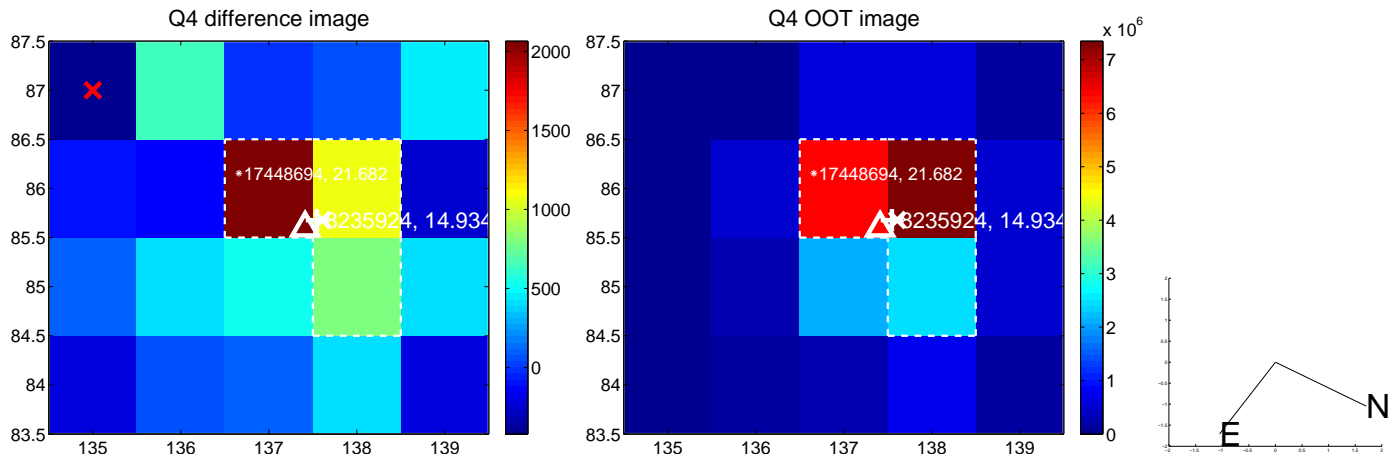
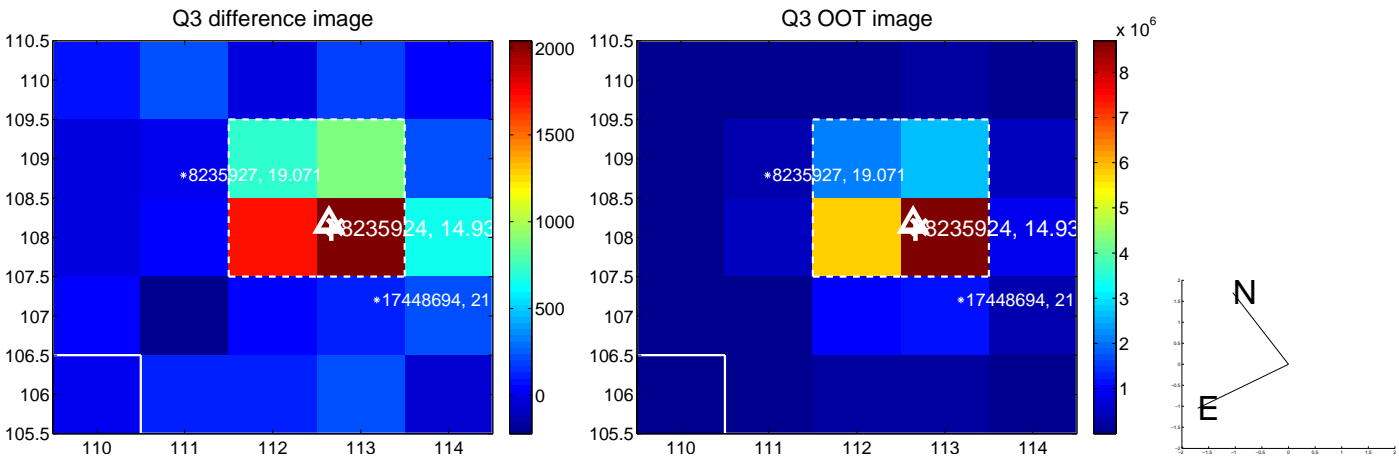
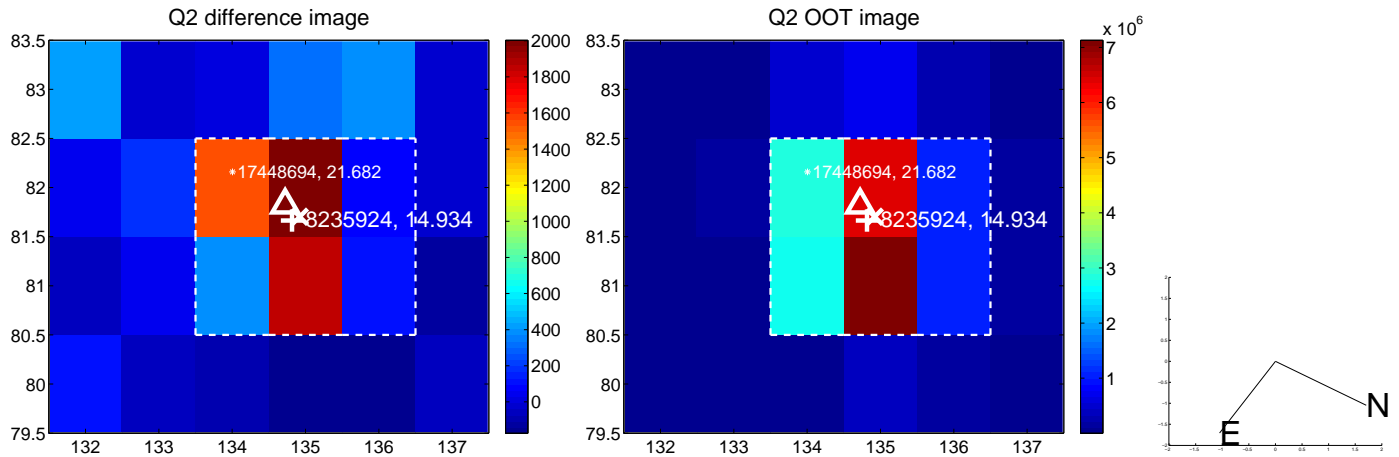
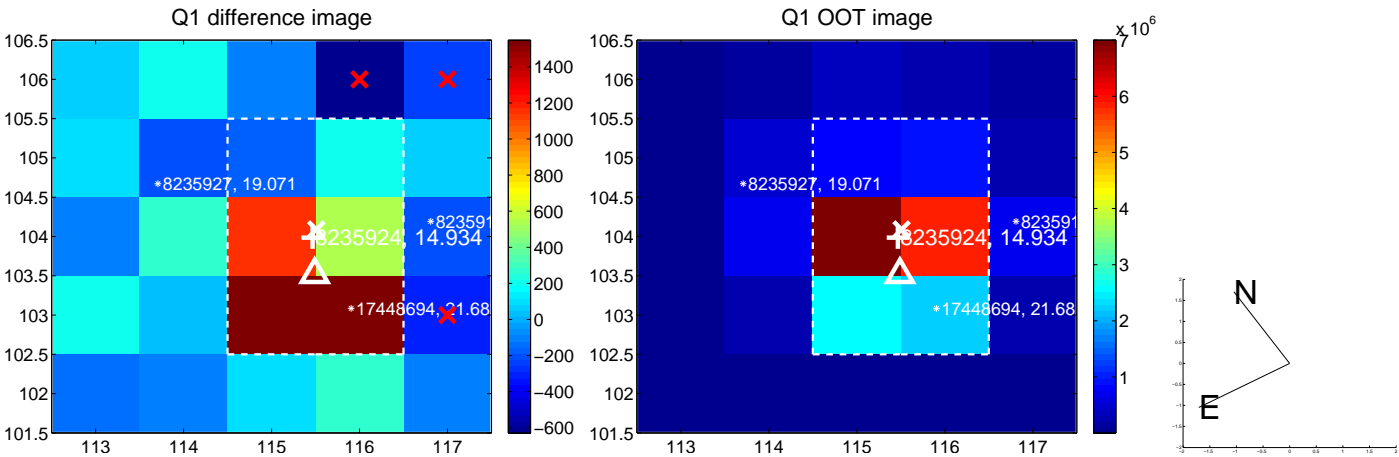
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.131 \pm 0.133$	0.99	$-0.041 \pm 0.143$	$-0.124 \pm 0.132$
PRF-fit source offset from KIC position	$0.379 \pm 0.153$	2.48	$0.217 \pm 0.155$	$-0.311 \pm 0.147$
photometric centroid source offset	$0.89 \pm 0.34$	2.59	$0.71 \pm 0.35$	$-0.53 \pm 0.34$

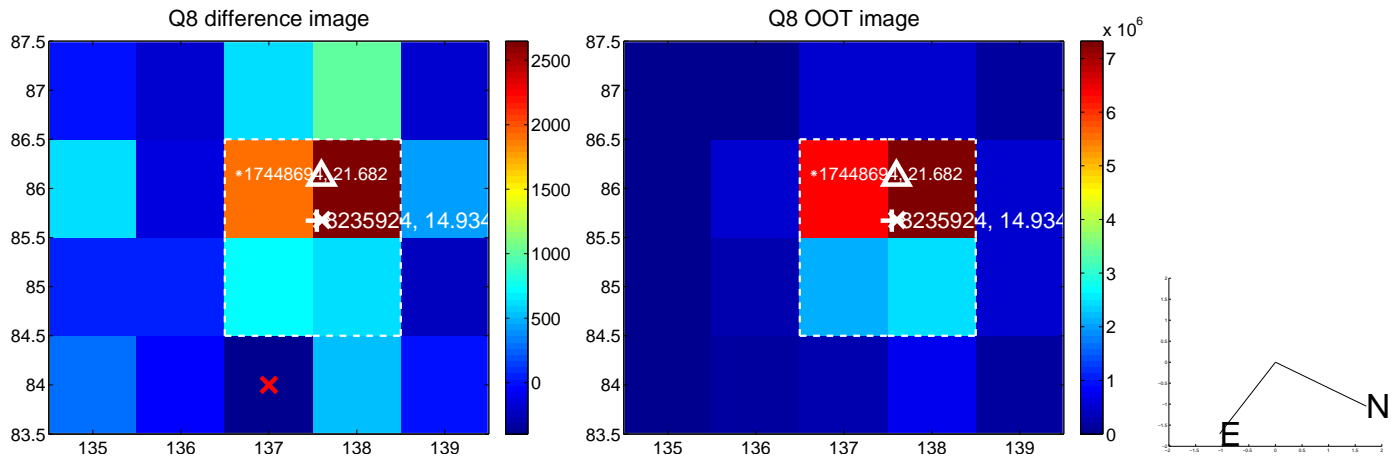
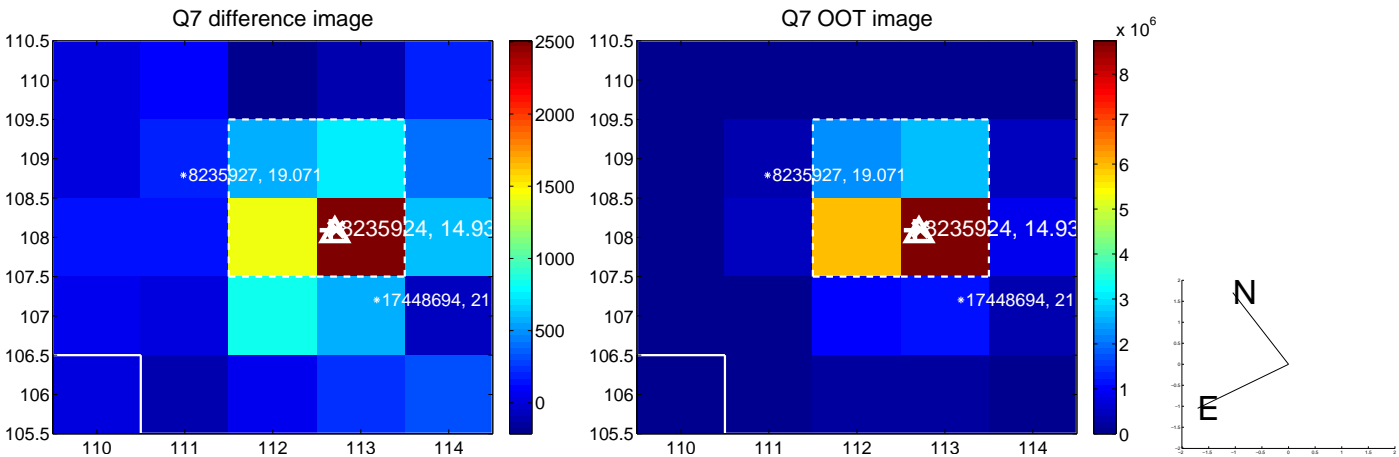
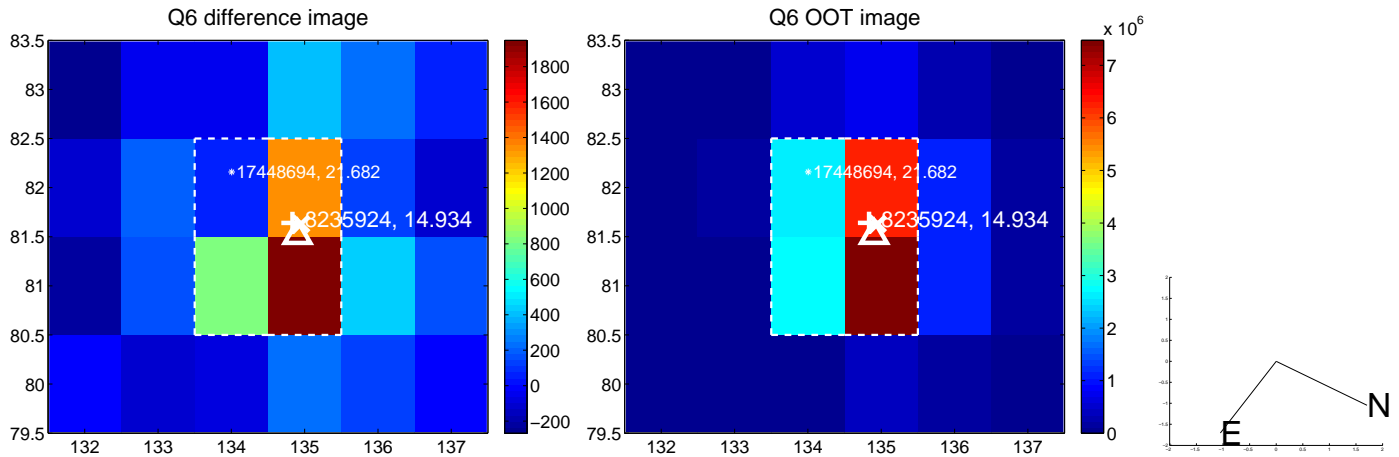
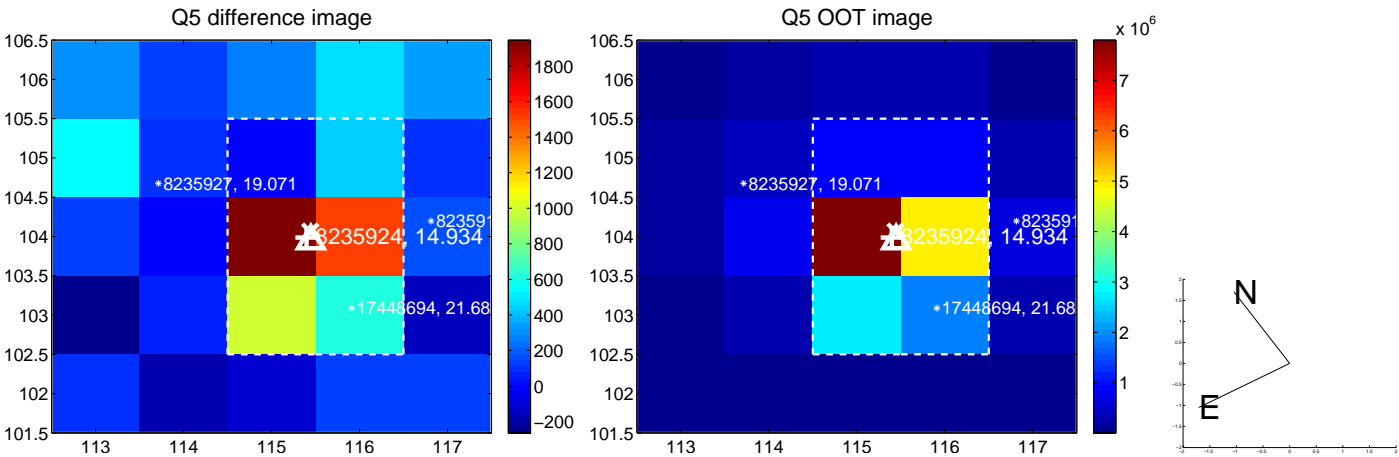


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

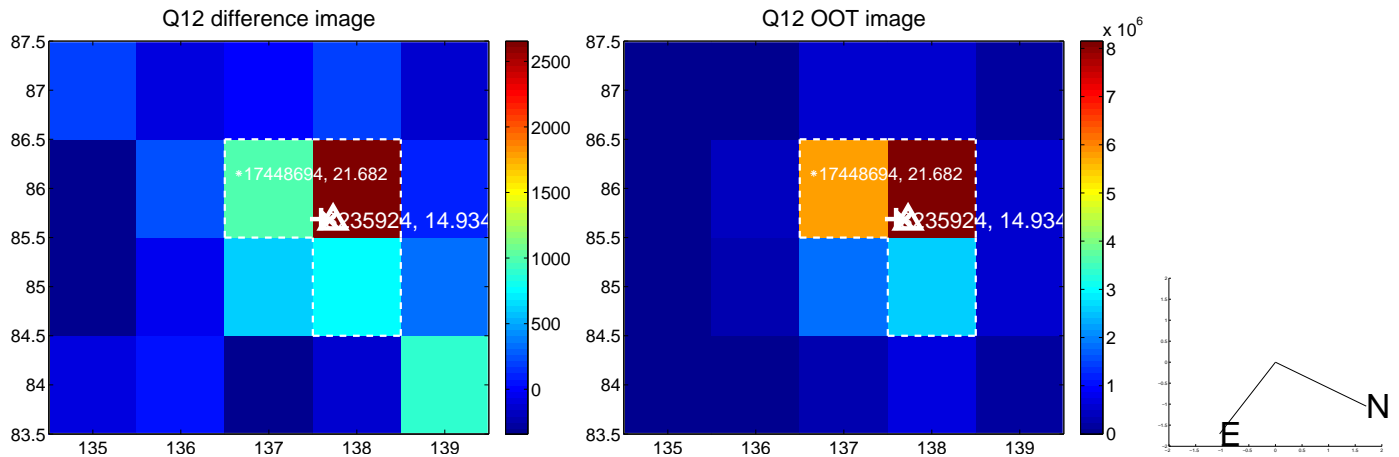
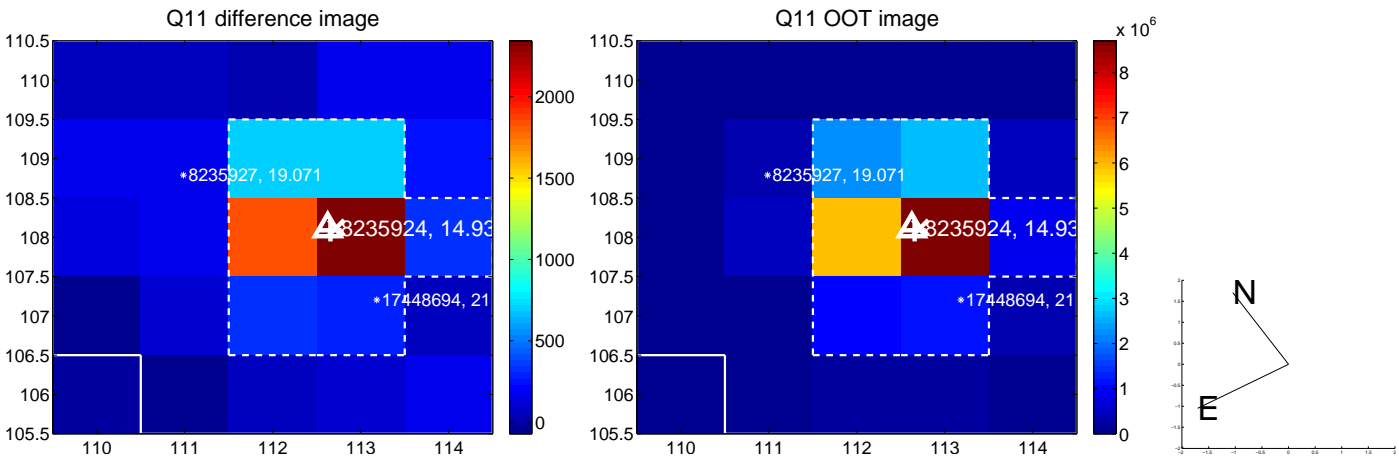
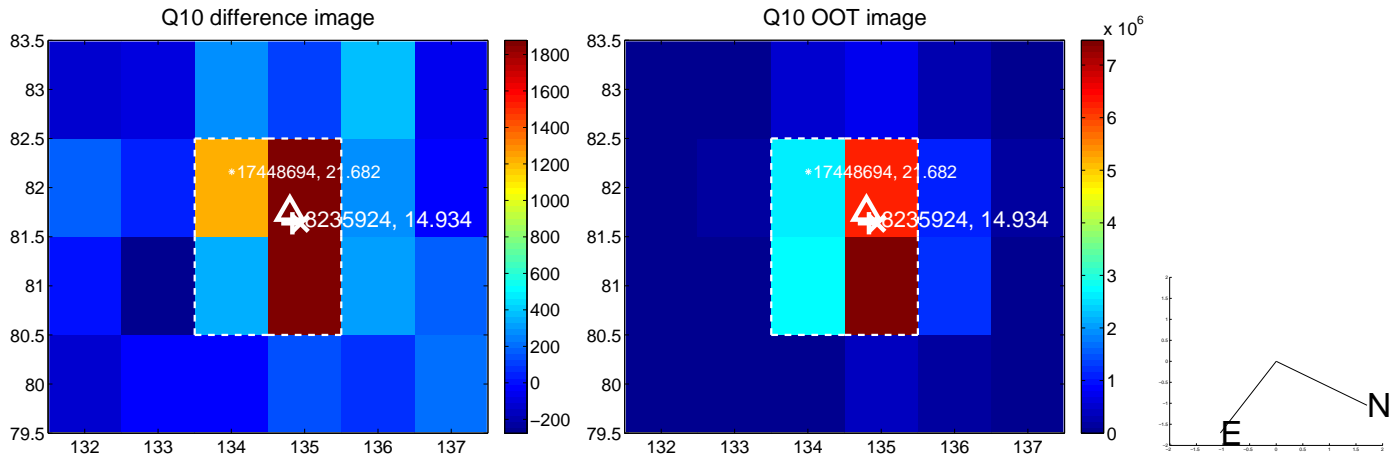
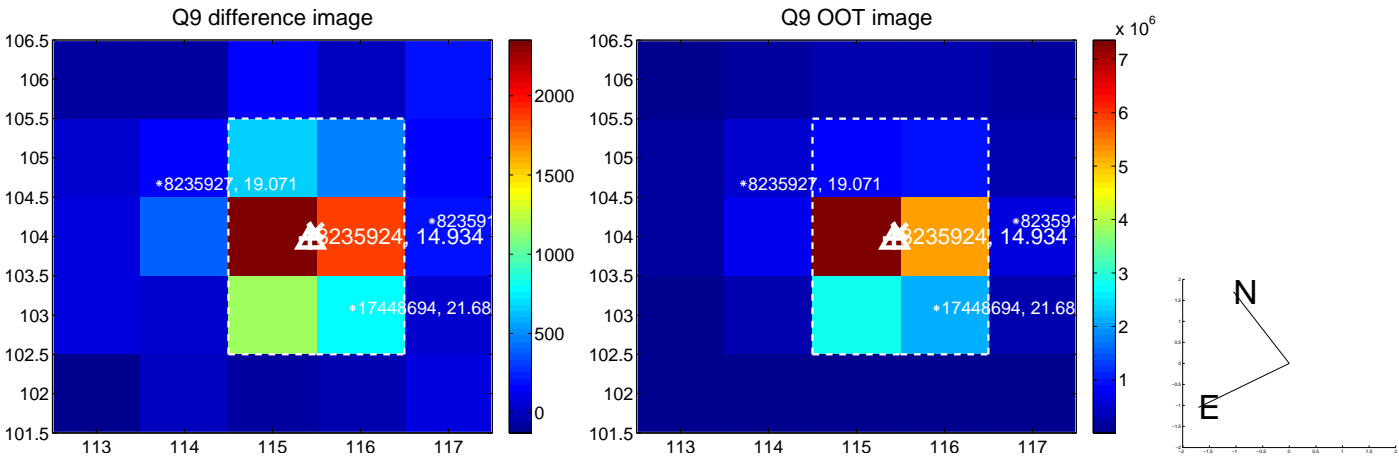


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

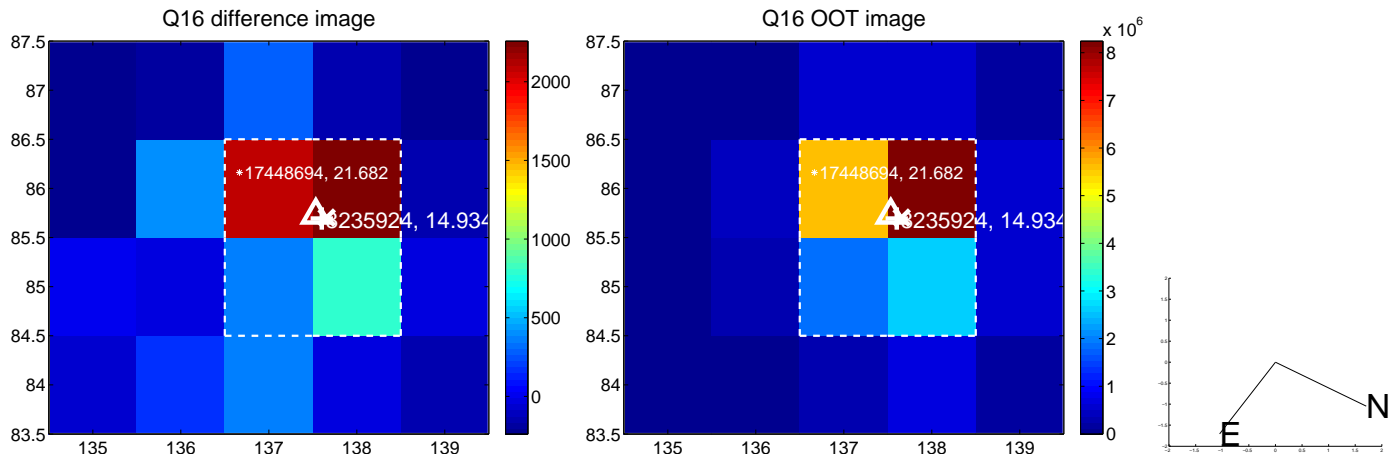
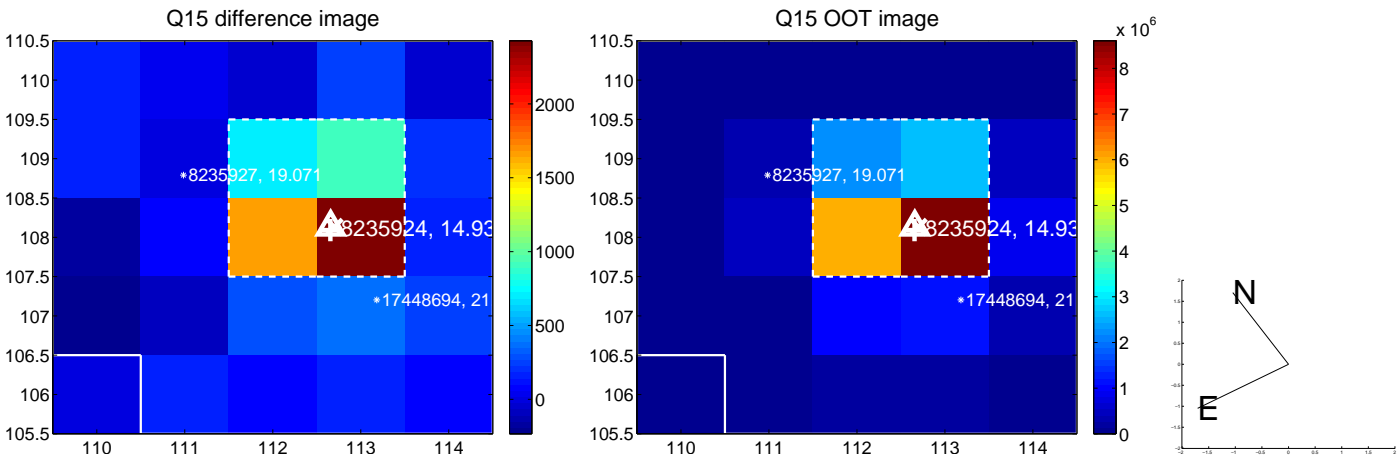
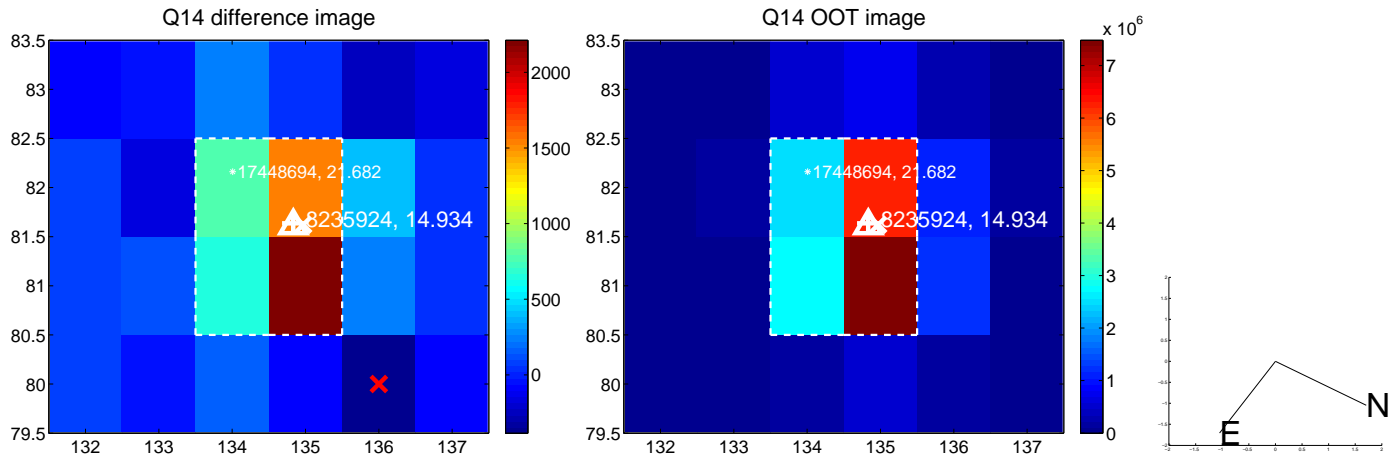
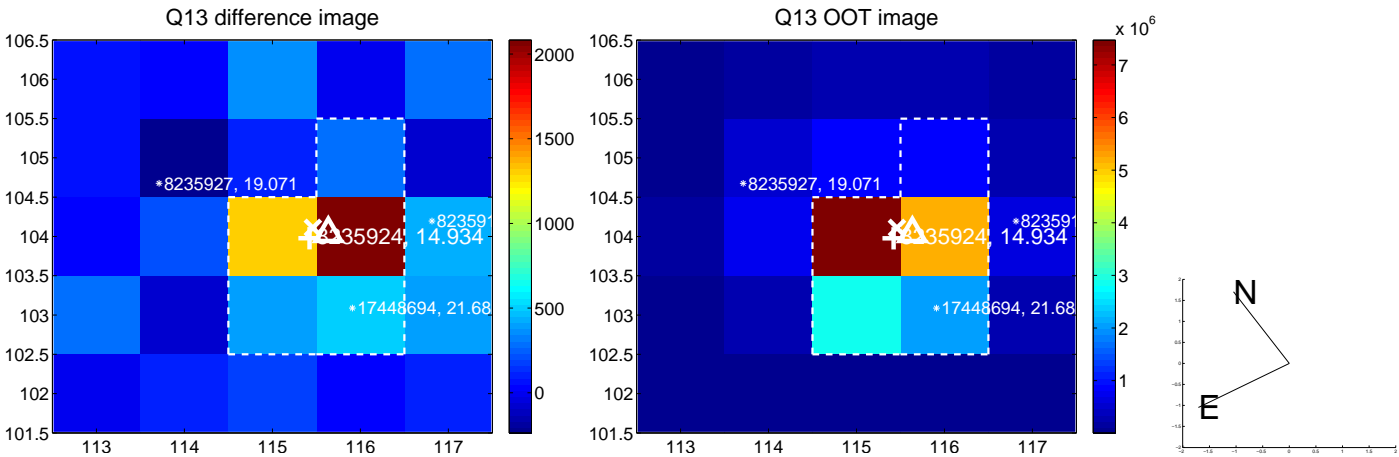




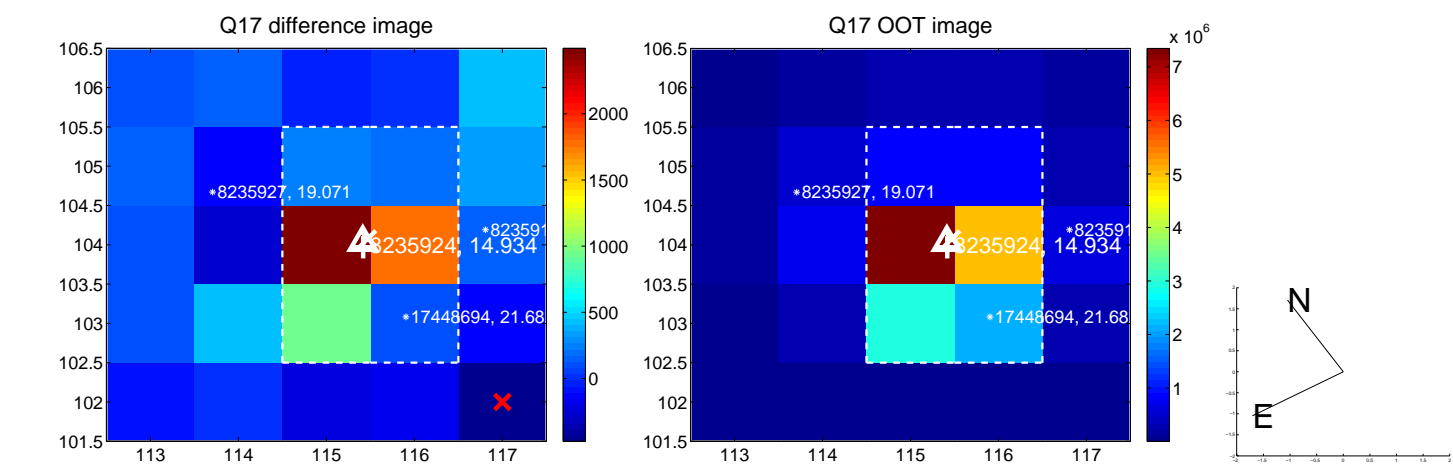
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



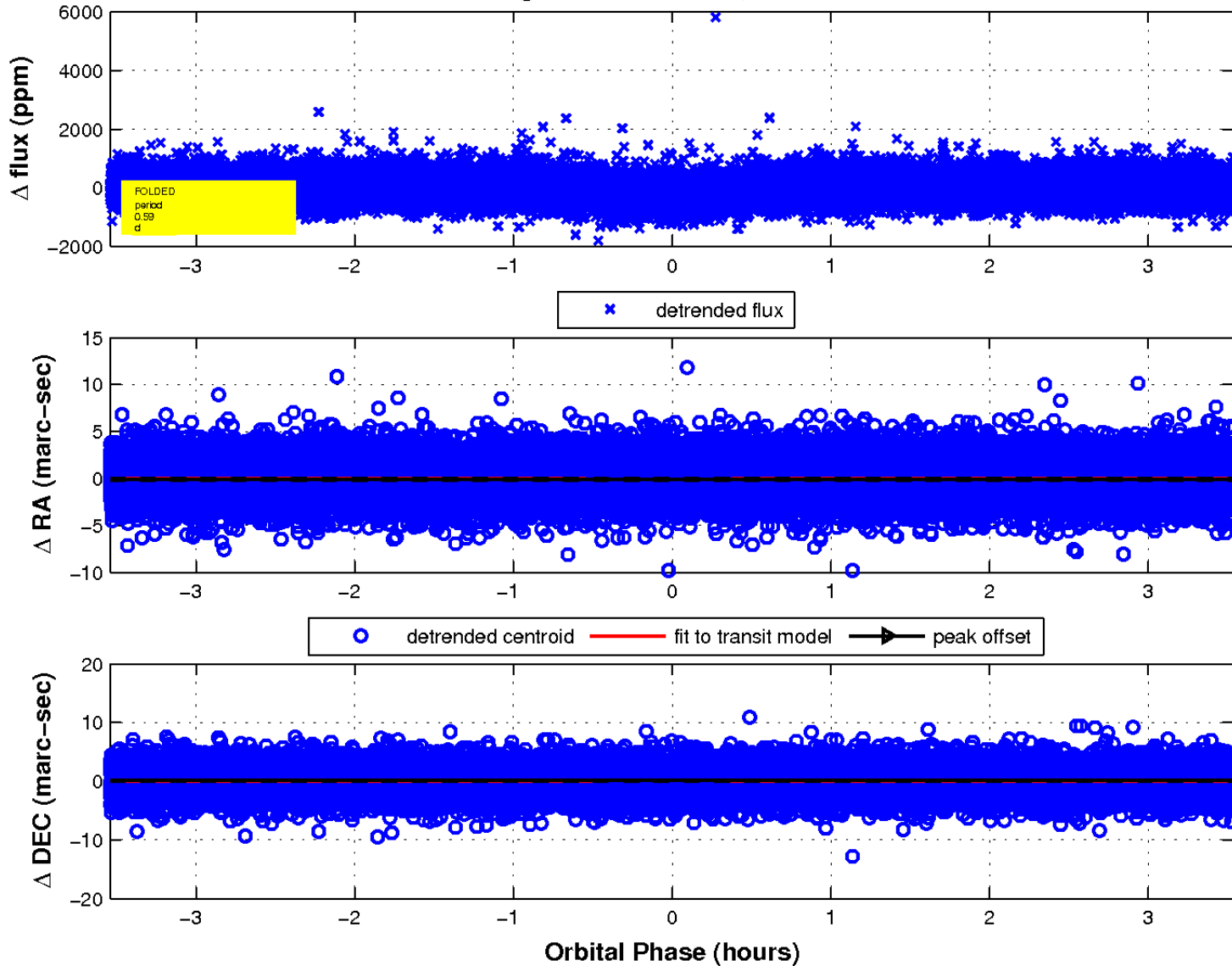
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

