

# KIC 010001368

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010001368-01	OBS	2785.01	4.768295	134.863680	249.7	3.369	29.9	32.3	1.12	6237	1.96	523.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010001368-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

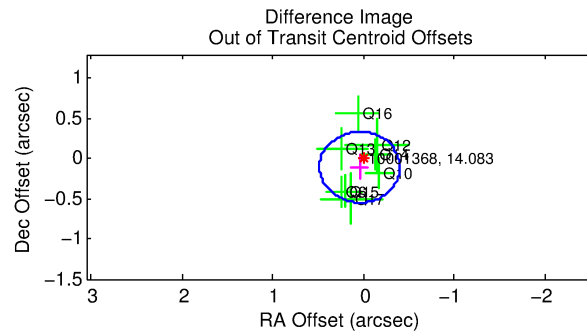
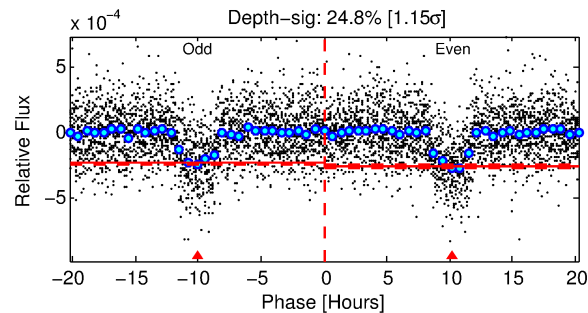
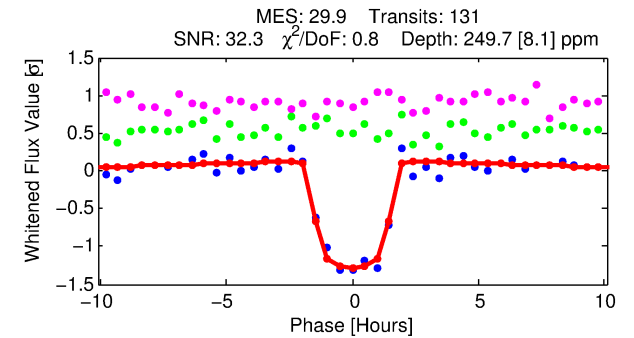
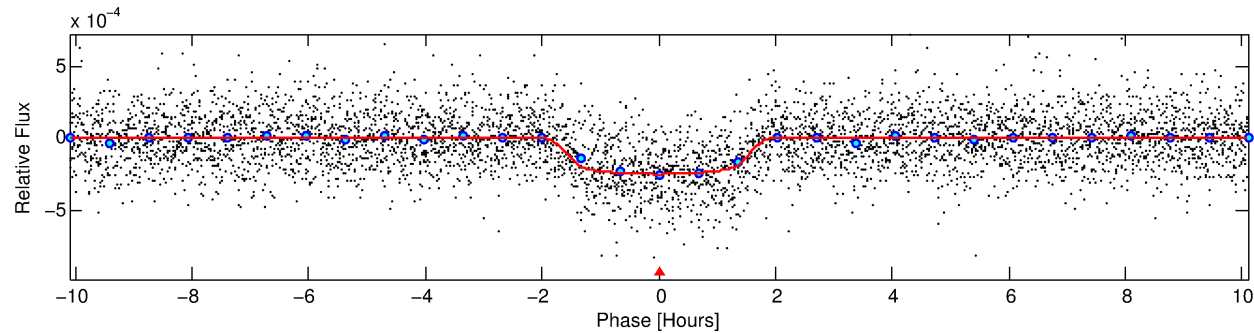
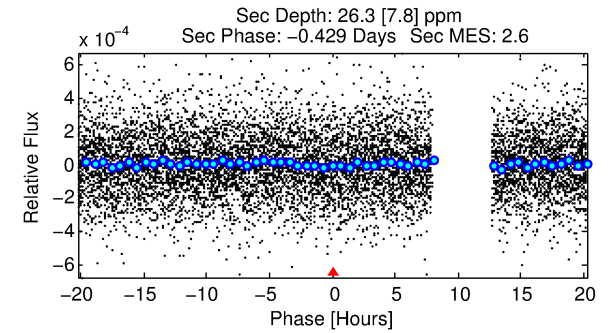
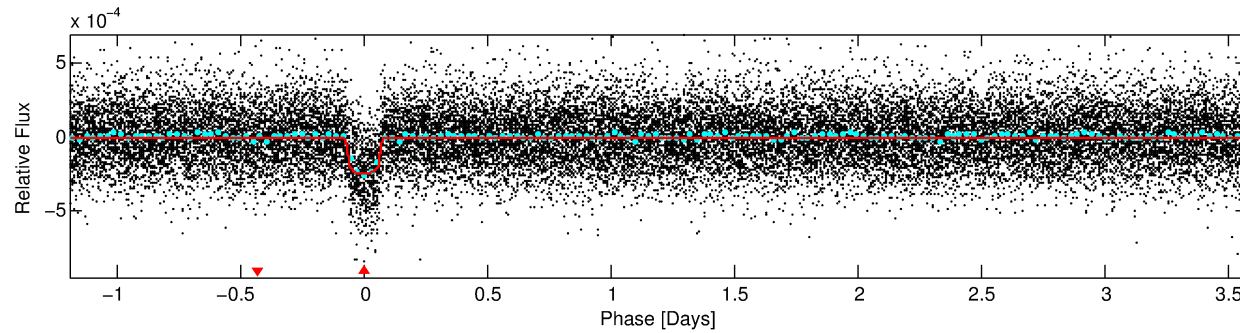
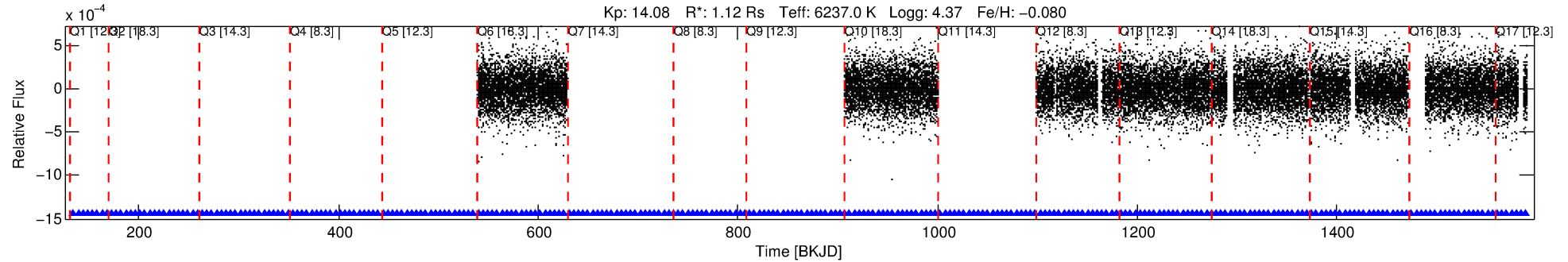
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010001368-01

No Significant Match Found

# DV One-Page Summary

KIC: 10001368 Candidate: 1 of 1 Period: 4.768 d  
KOI: K02785.01 Corr: 0.982



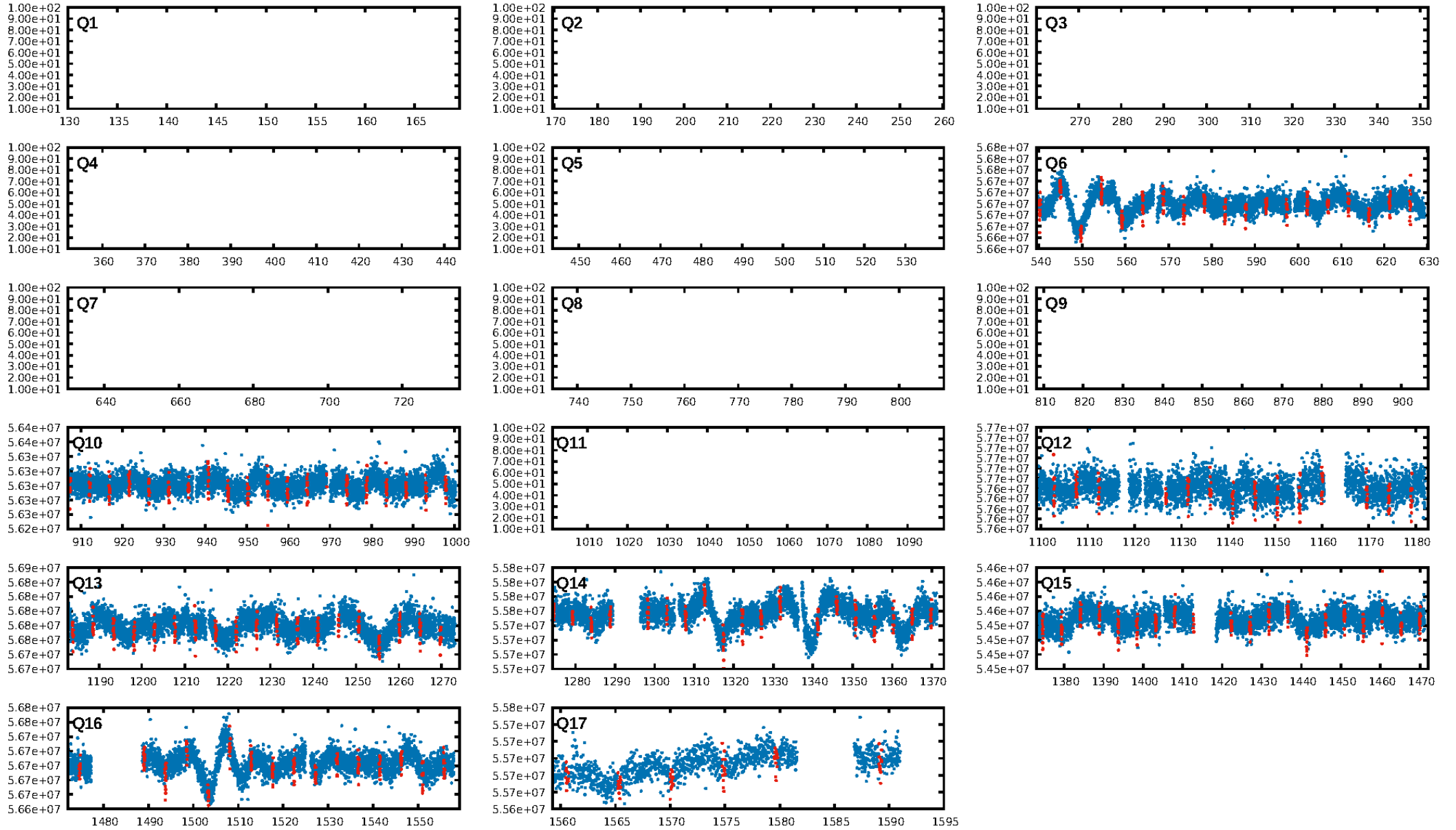
## DV Fit Results:

Period = 4.76830 [0.00001] d  
Epoch = 134.8637 [0.0017] BKJD  
Rp/R\* = 0.0161 [0.0037]  
a/R\* = 6.65 [7.74]  
b = 0.81 [0.50]  
Seff = 523.31 [223.06]  
Teq = 1220 [130] K  
Rp = 1.96 [0.80] Re  
a = 0.0568 [0.0157] AU  
Ag = 12.12 [8.14] [1.37σ]  
Teffp = 3519 [501] K [4.44σ]

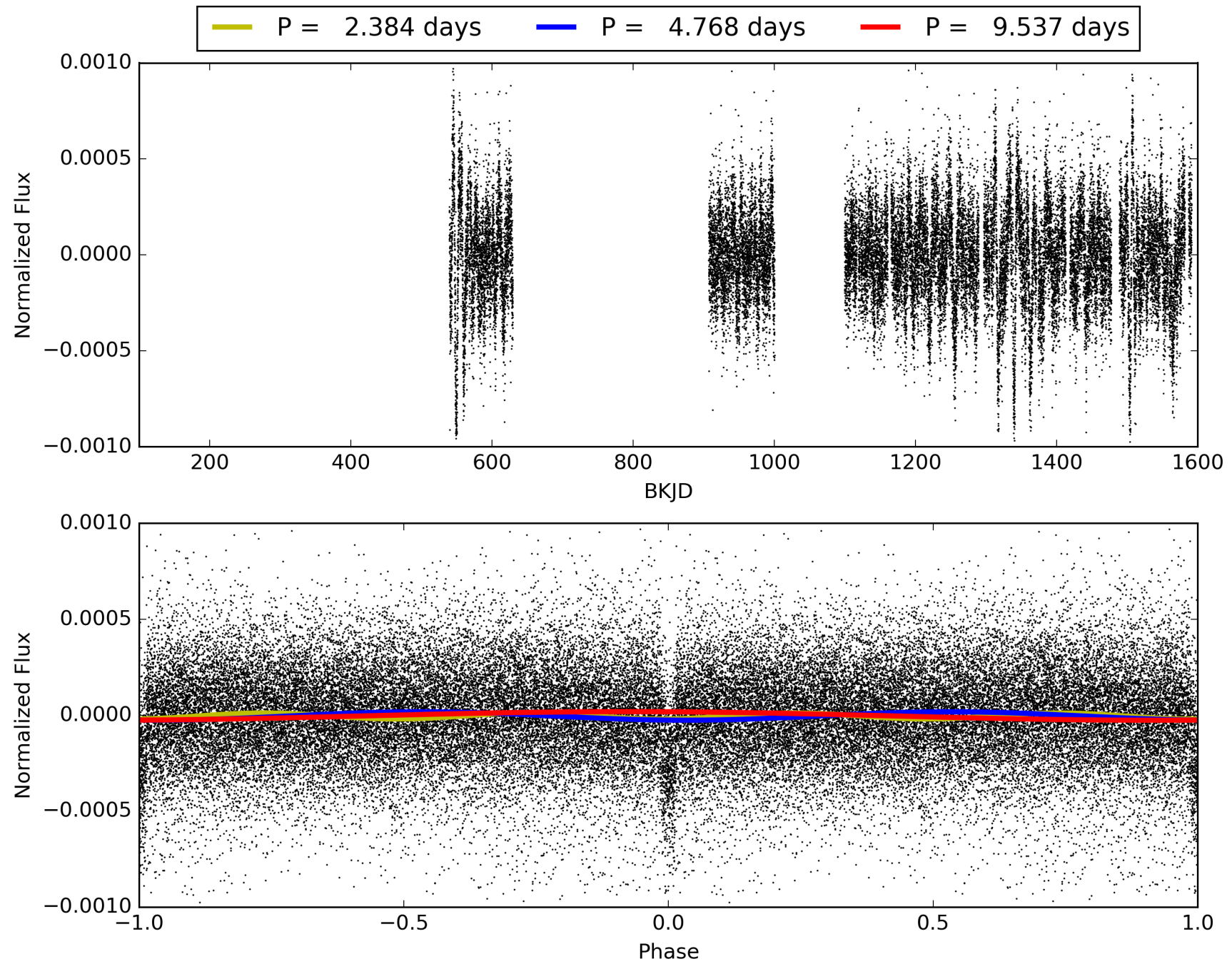
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 97.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.85e-190  
RollingBand-fgt: 1.00 [125/125]  
GhostDiagnostic-chr: 5.075  
Centroid-sig: 8.4%  
Centroid-so: 0.445 arcsec [1.20σ]  
OotOffset-rm: 0.115 arcsec [0.78σ]  
KicOffset-rm: 0.142 arcsec [0.96σ]  
OotOffset-st: 3/1/2/2 [8]  
KicOffset-st: 3/1/2/2 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [8/8]

# TCE 010001368-01, PDC Light Curves

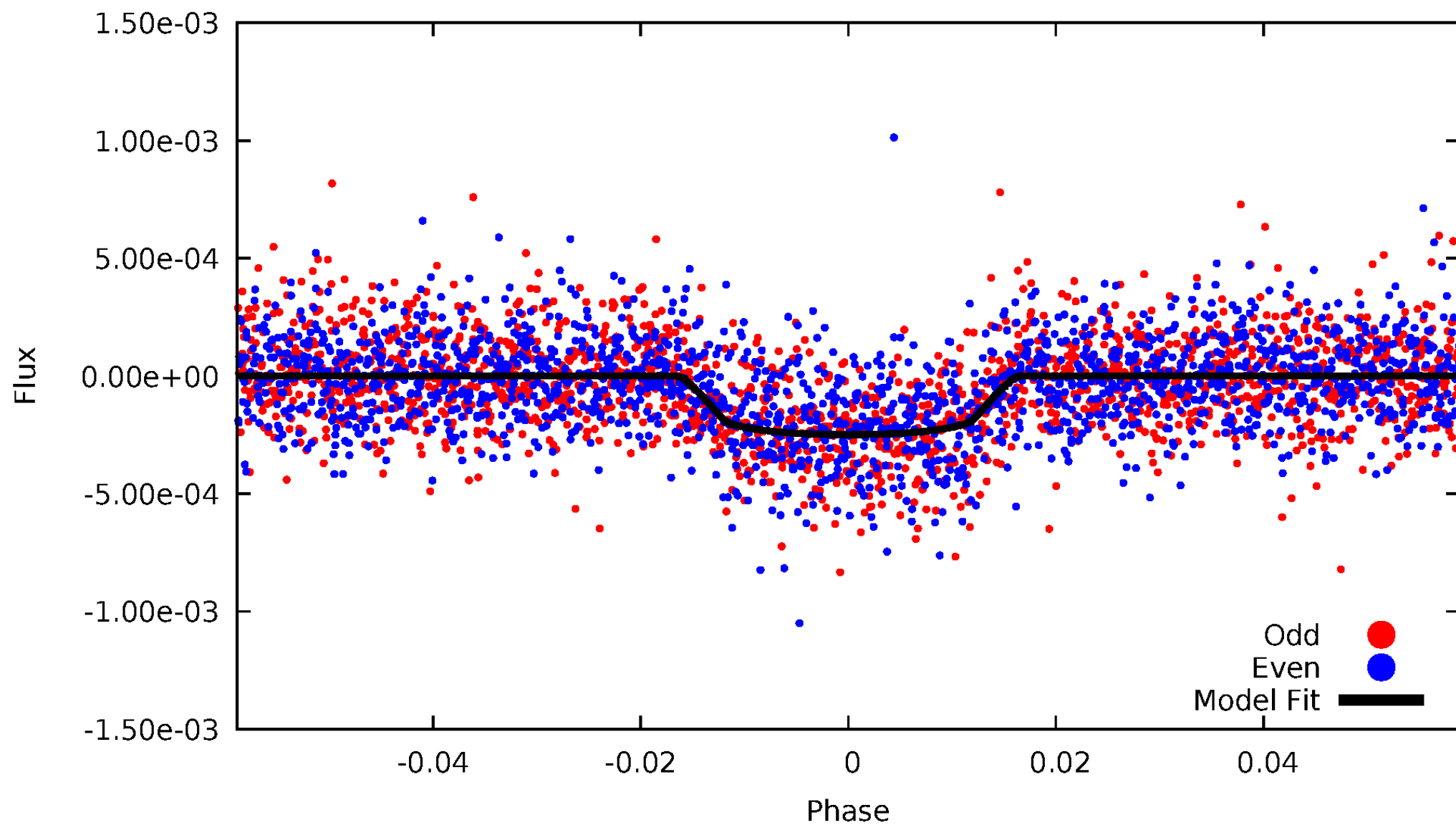


TCE 010001368-01



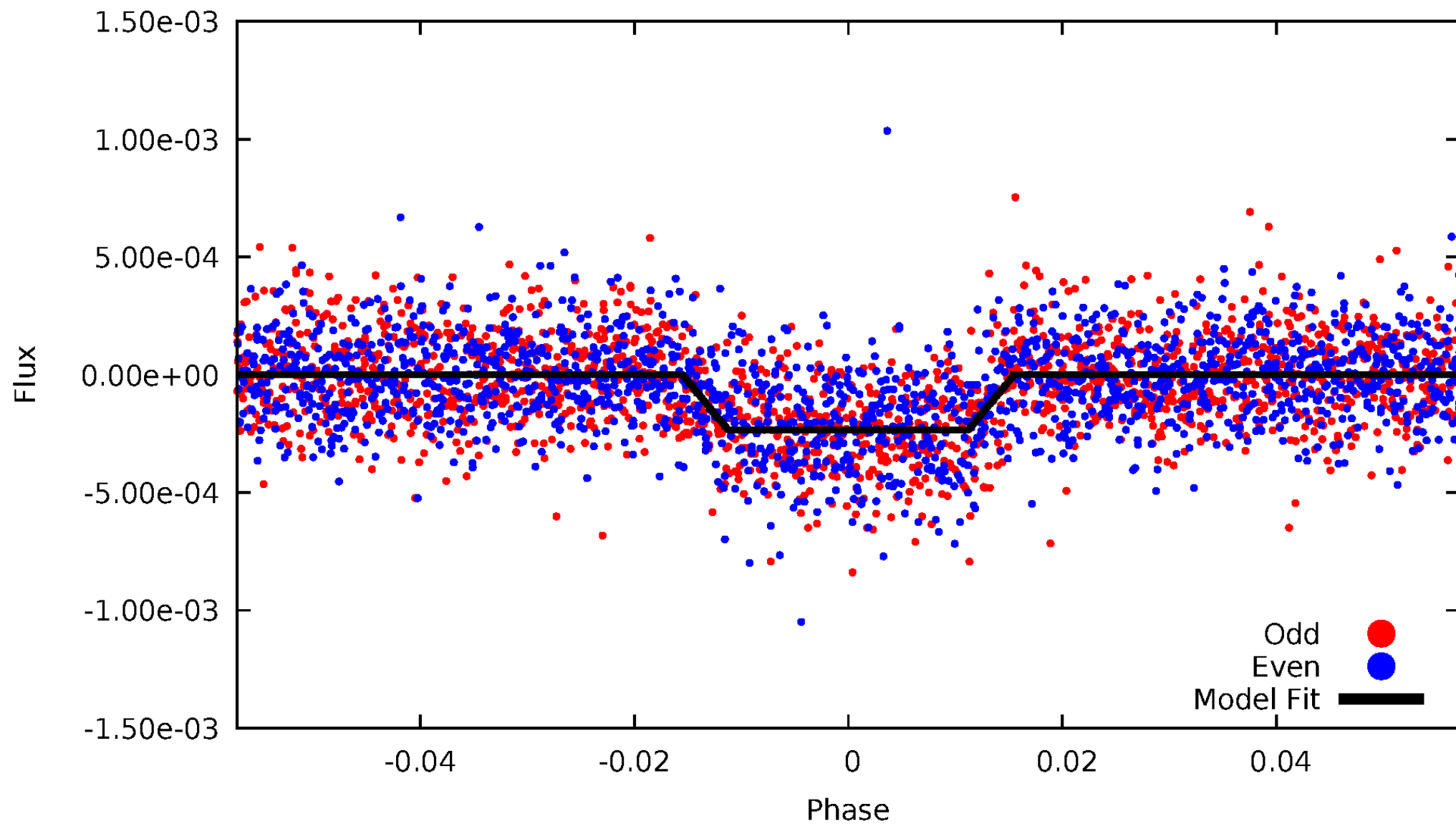
# DV Odd/Even

TCE 010001368-01



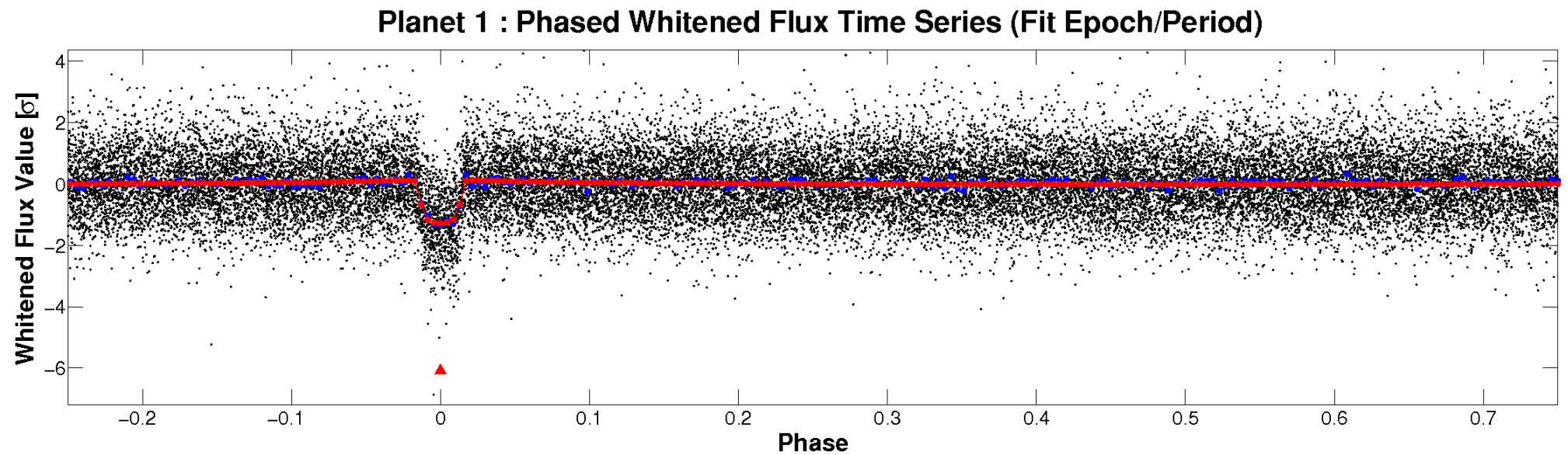
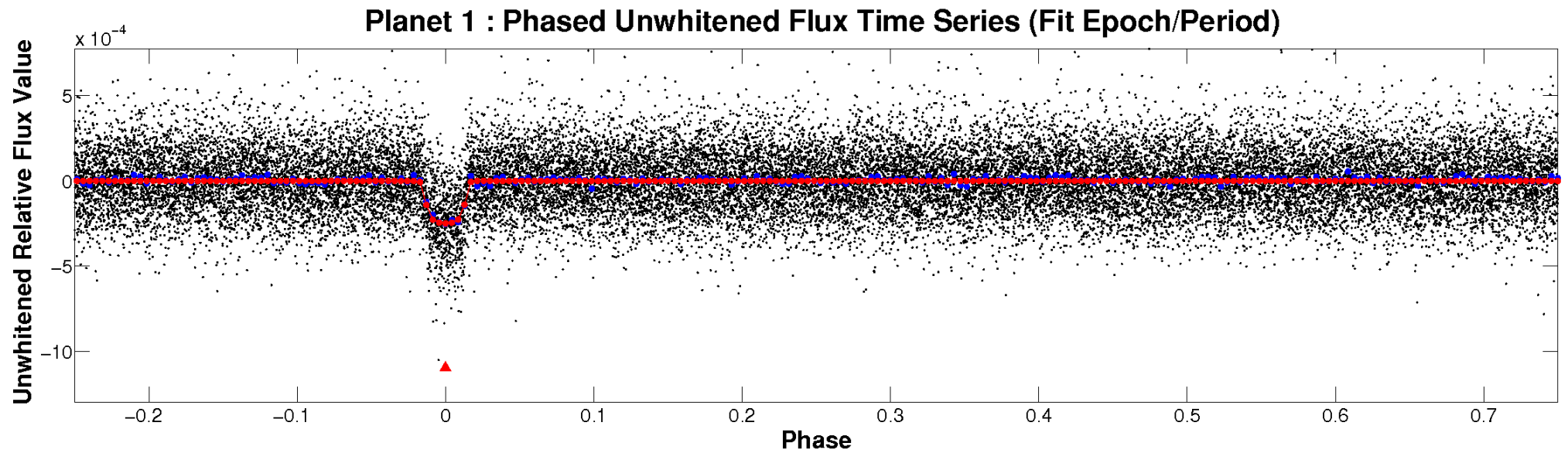
# ALT Odd/Even

TCE 010001368-01



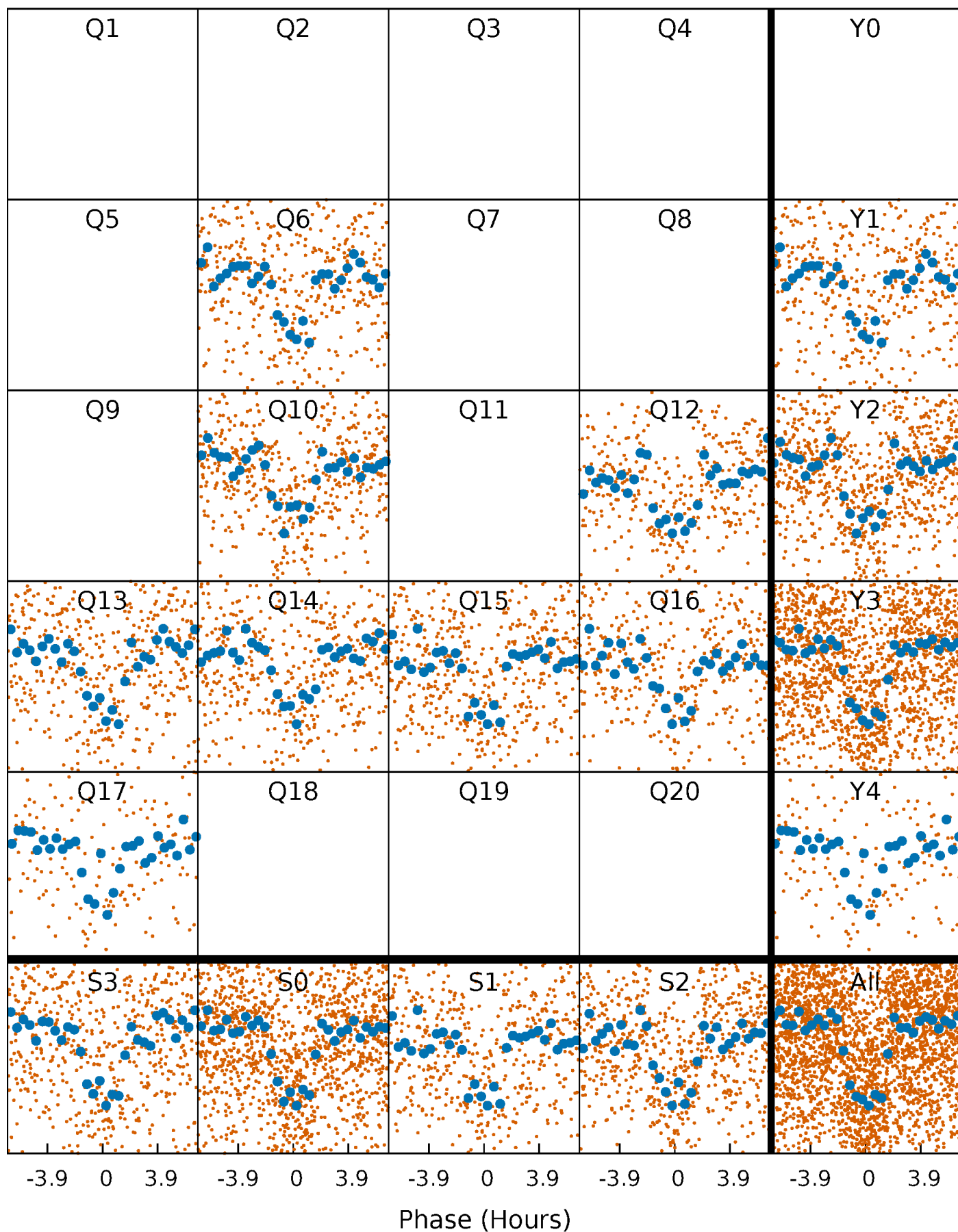


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

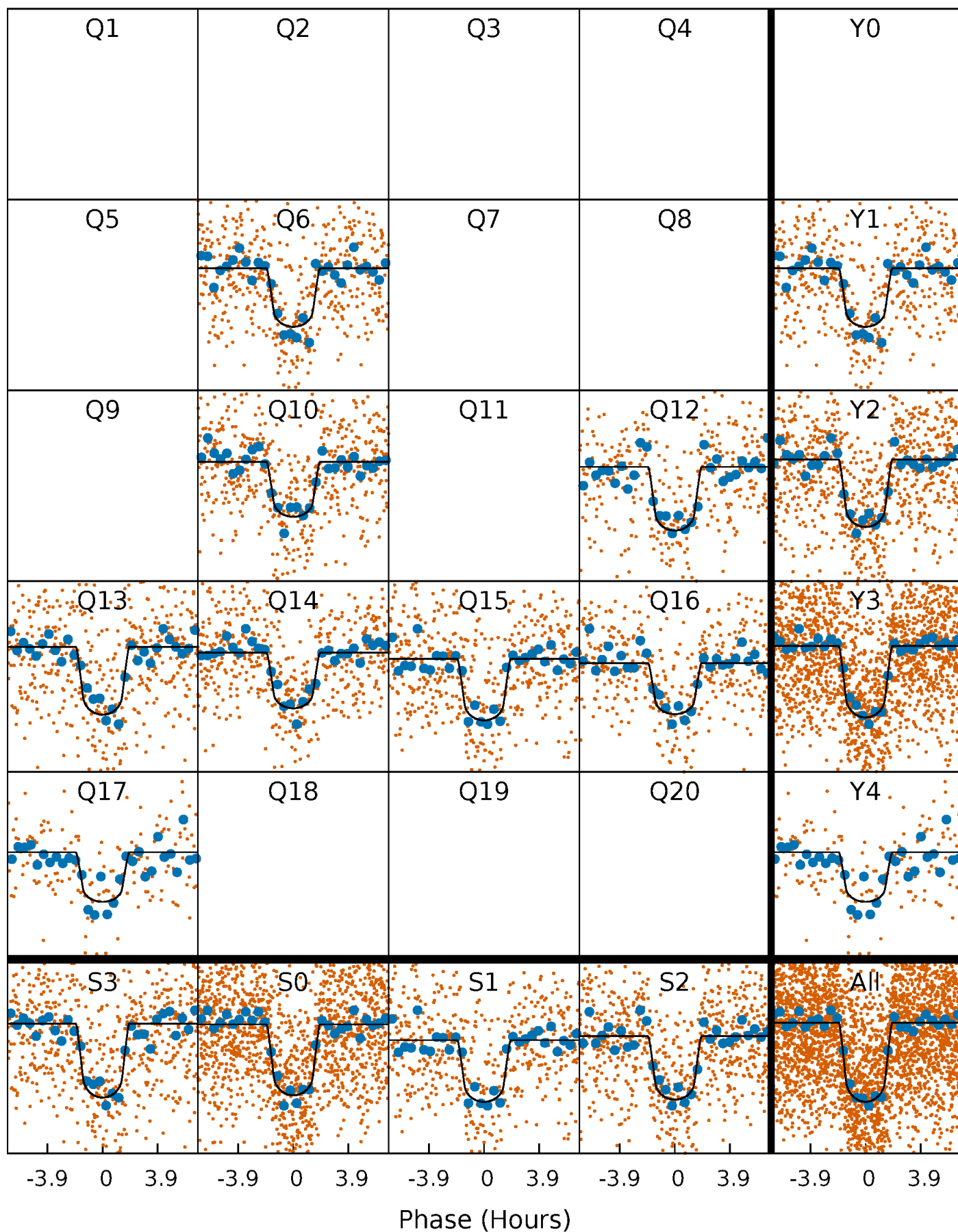
TCE 010001368-01 P= 4.768295 Days  $T_0=134.863680$  (BKJD)





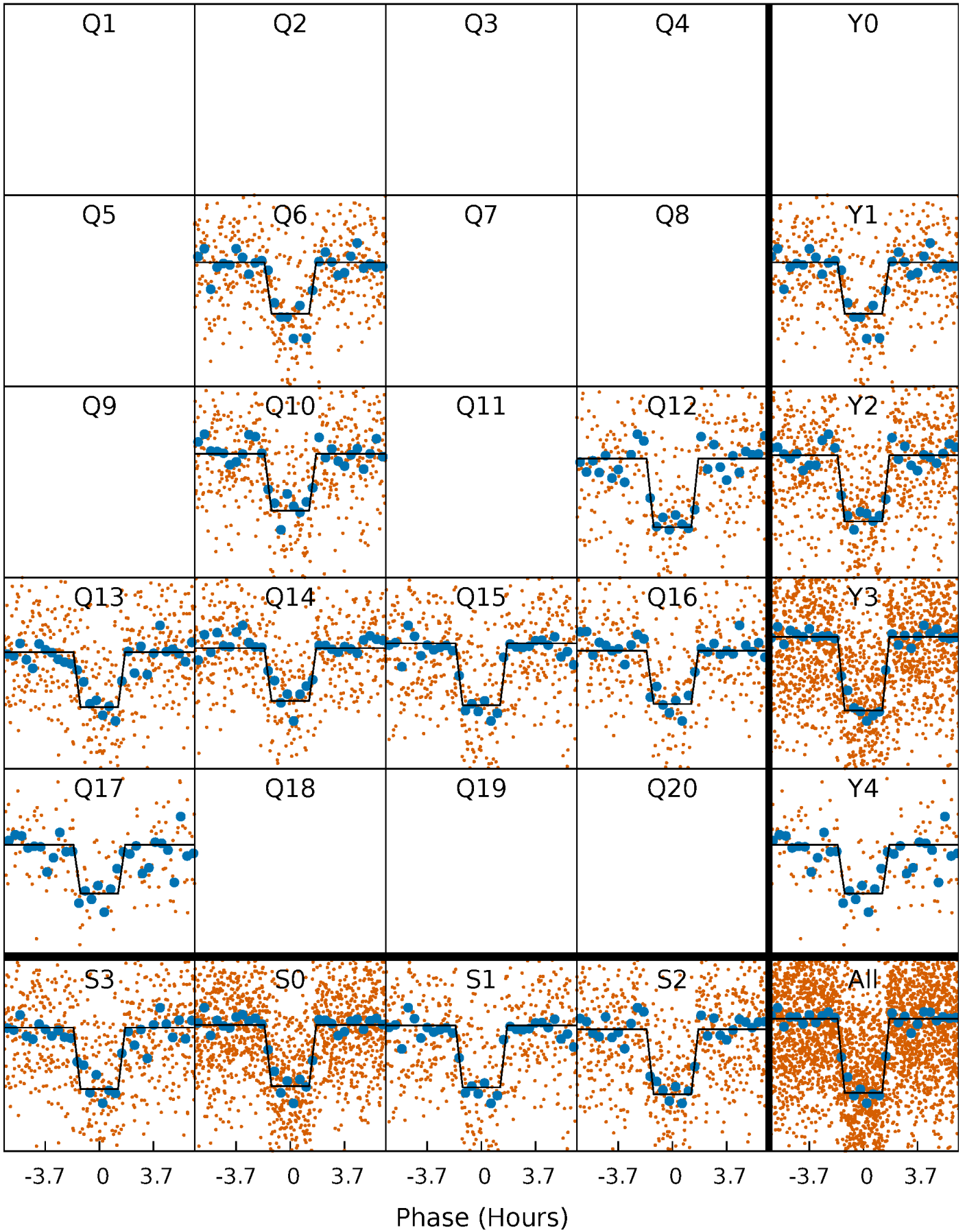
# DV Quarter-Phased Transit Curves

TCE 010001368-01 P= 4.768295 Days  $T_0=134.863680$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

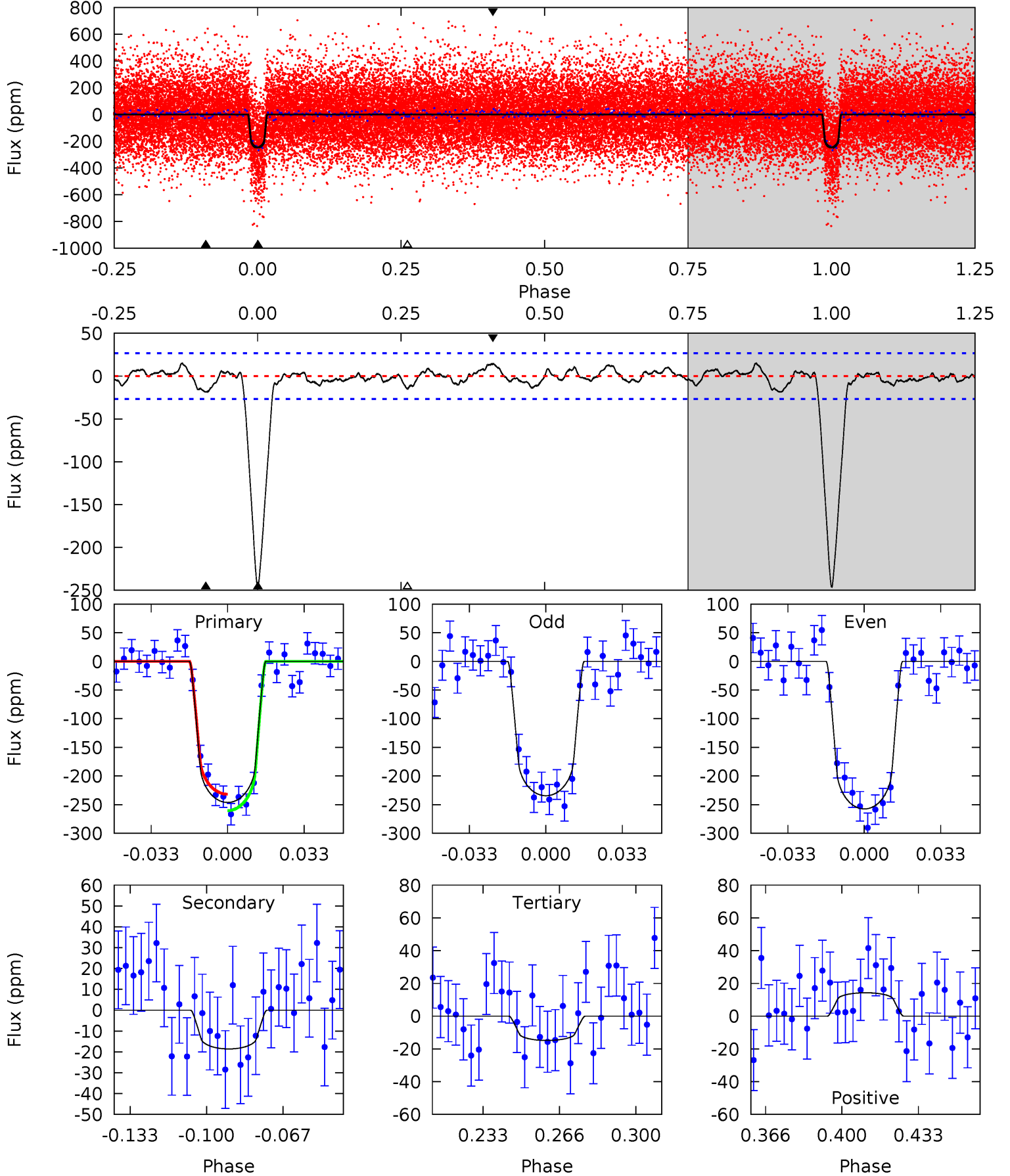
TCE 010001368-01 P= 4.768343 Days  $T_0=134.853961$  (BKJD)



# DV Model-Shift Uniqueness Test

010001368-01, P = 4.768295 Days, E = 134.863680 Days

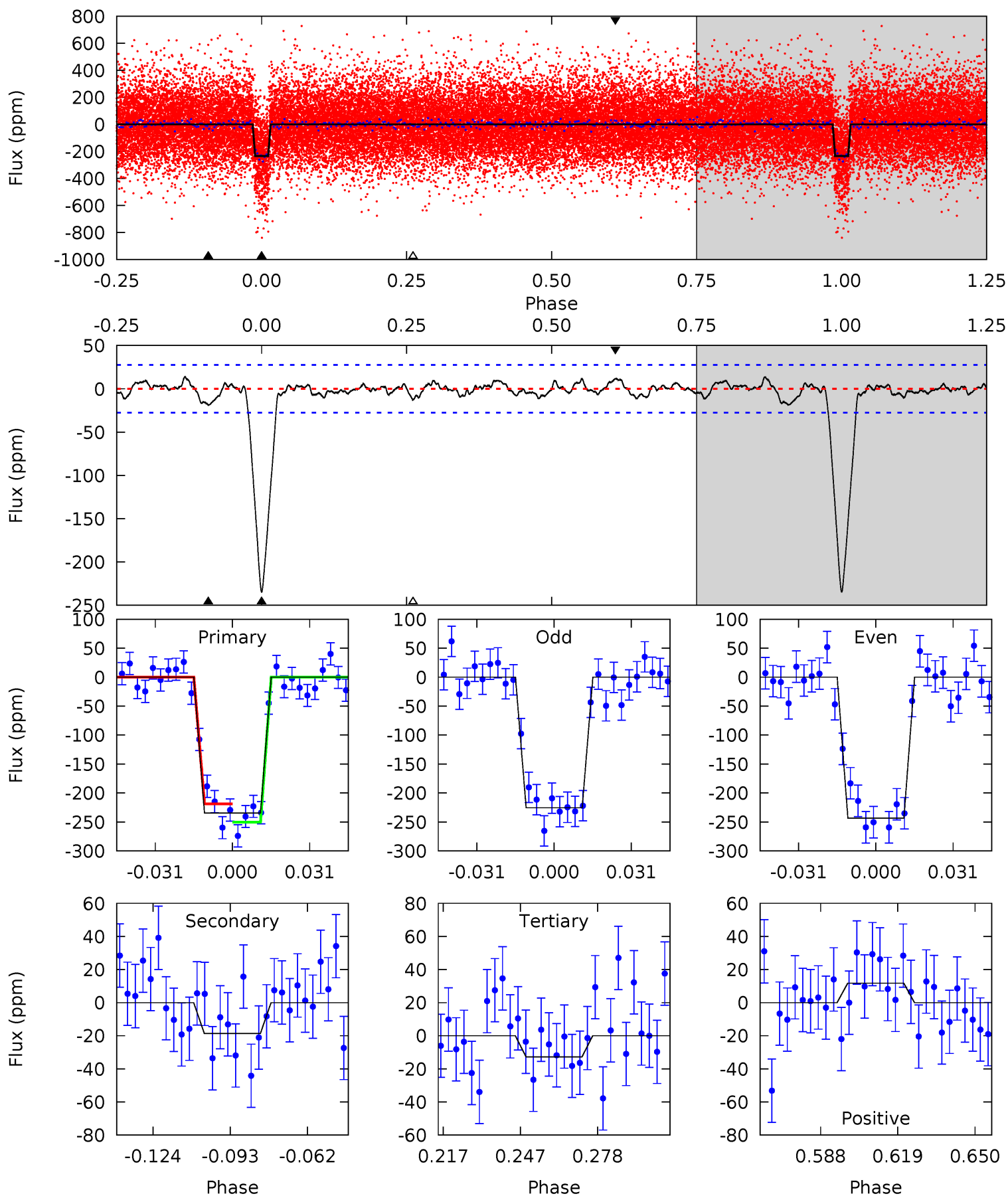
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.3	3.34	2.67	2.57	4.79	2.13	1.09	41.6	41.7	0.67	0.78	2.08	1.00	0.06	2.57



# Alt Model-Shift Uniqueness Test

010001368-01, P = 4.768343 Days, E = 134.853961 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
40.7	3.25	2.21	2.04	4.81	2.16	0.91	38.5	38.7	1.04	1.20	1.55	1.00	0.06	2.76



### Stellar Parameters For KIC 010001368

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6237^{+194}_{-259}$	$4.374^{+0.090}_{-0.210}$	$-0.080^{+0.250}_{-0.300}$	$1.116^{+0.375}_{-0.161}$	$1.069^{+0.181}_{-0.131}$	$1.084^{+0.432}_{-0.558}$
	+3%/-4%	+2%/-5%	+312%/-375%	+34%/-14%	+17%/-12%	+40%/-51%
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 010001368-01 / KOI 2785.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-19 \pm 6$	$1.99^{+0.61}_{-0.47}$	$1729^{+135}_{-110}$	$3646^{+342}_{-341}$	$8.188^{+5.886}_{-3.823}$
Alt.	$-19 \pm 6$	$1.94^{+0.61}_{-0.49}$	$1725^{+143}_{-101}$	$3660^{+449}_{-323}$	$8.423^{+8.247}_{-3.773}$

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



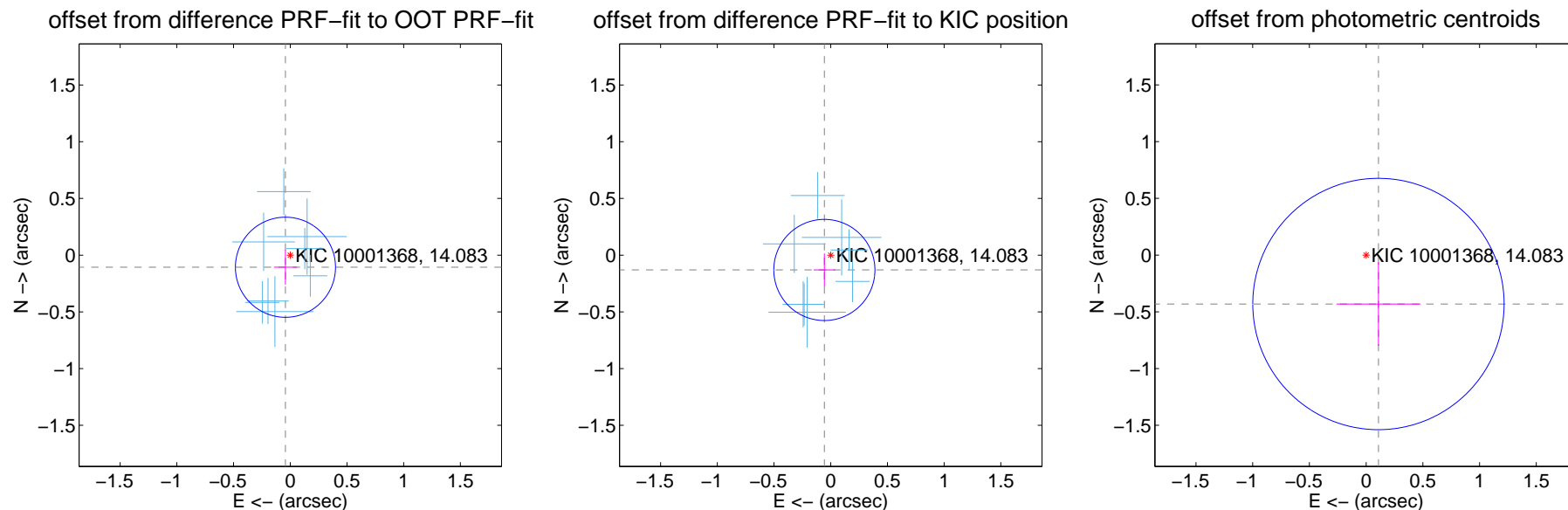
## DV Centroid Data

Supplemental centroid analysis for 010001368-01. Kepler magnitude: 14.08. Transit SNR 32.30

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.115 \pm 0.147$	0.78	$0.042 \pm 0.101$	$-0.107 \pm 0.153$
PRF-fit source offset from KIC position	$0.142 \pm 0.149$	0.96	$0.056 \pm 0.094$	$-0.130 \pm 0.145$
photometric centroid source offset	$0.44 \pm 0.37$	1.20	$-0.11 \pm 0.37$	$-0.43 \pm 0.37$

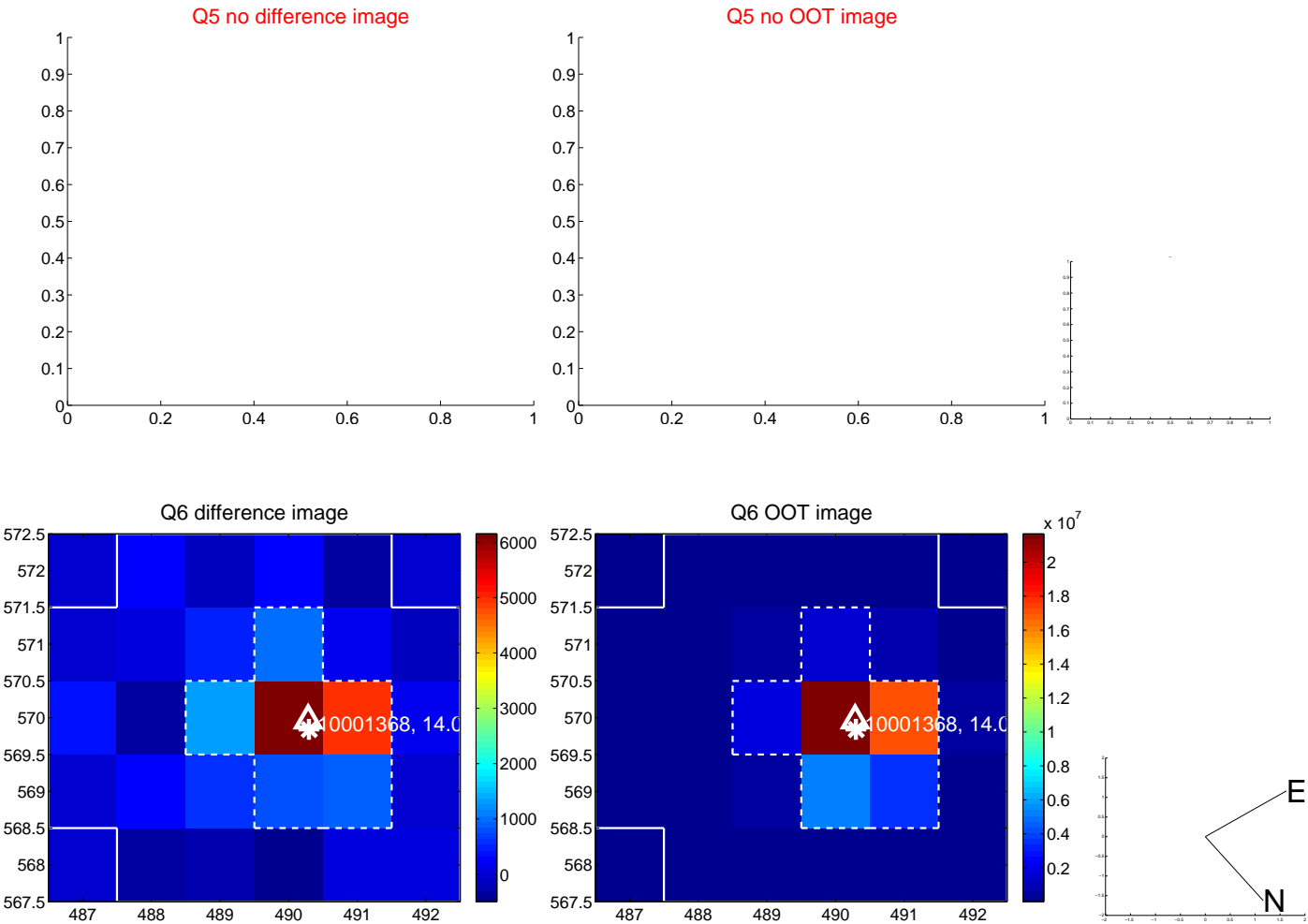


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

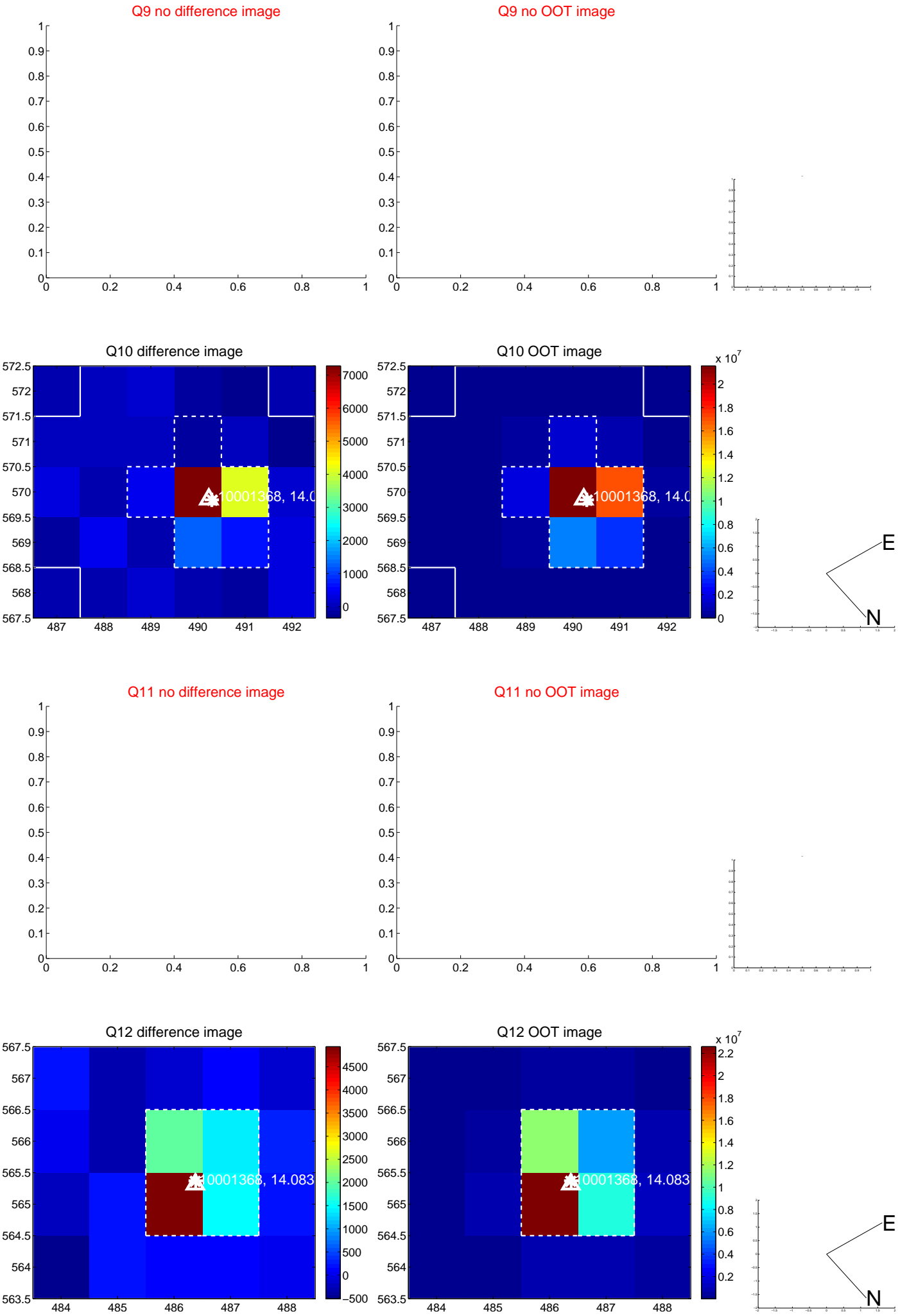
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



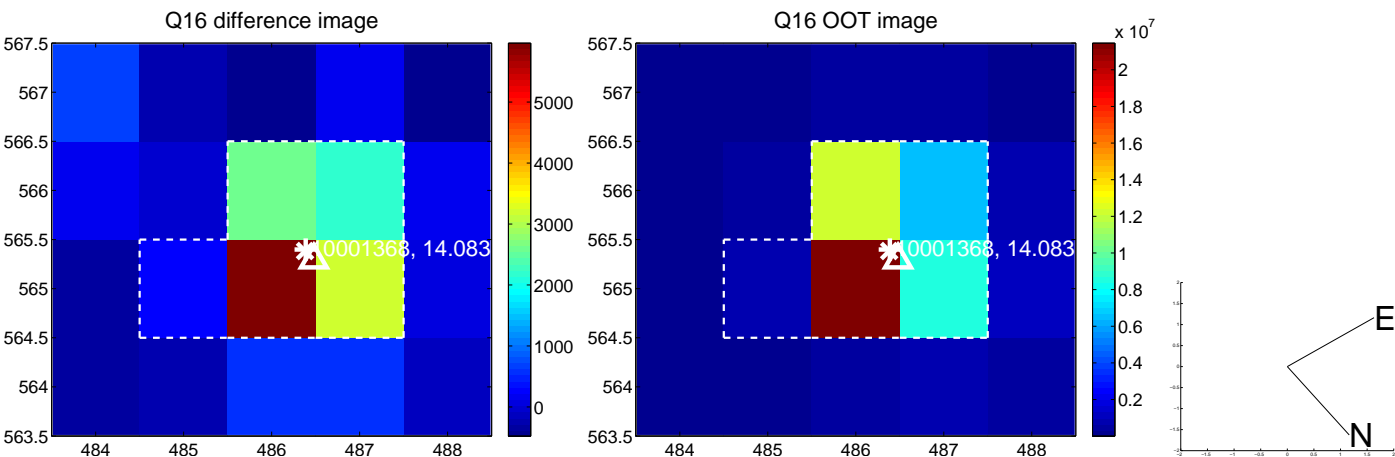
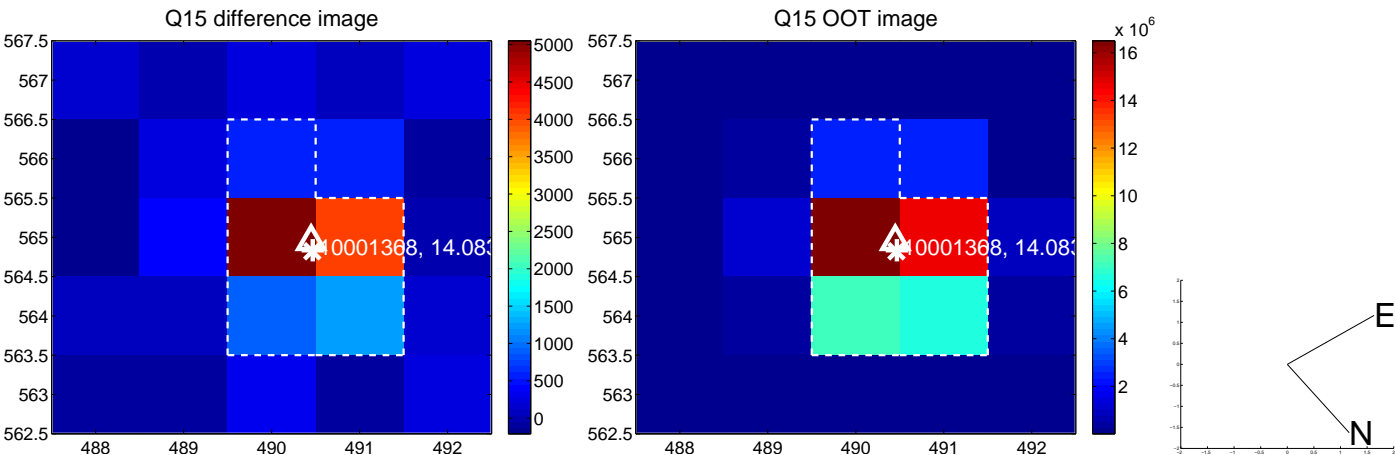
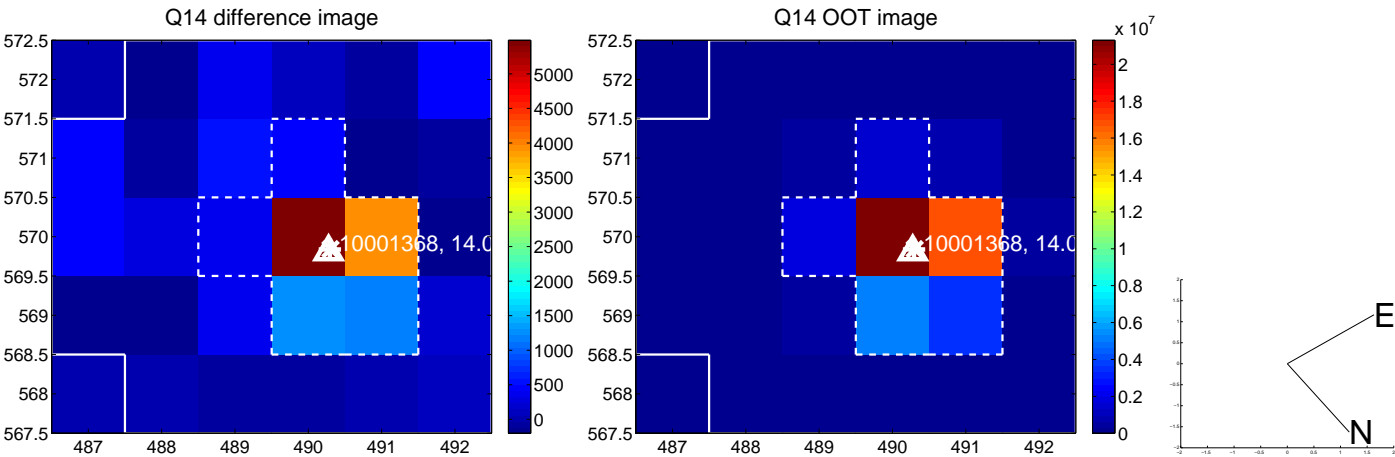
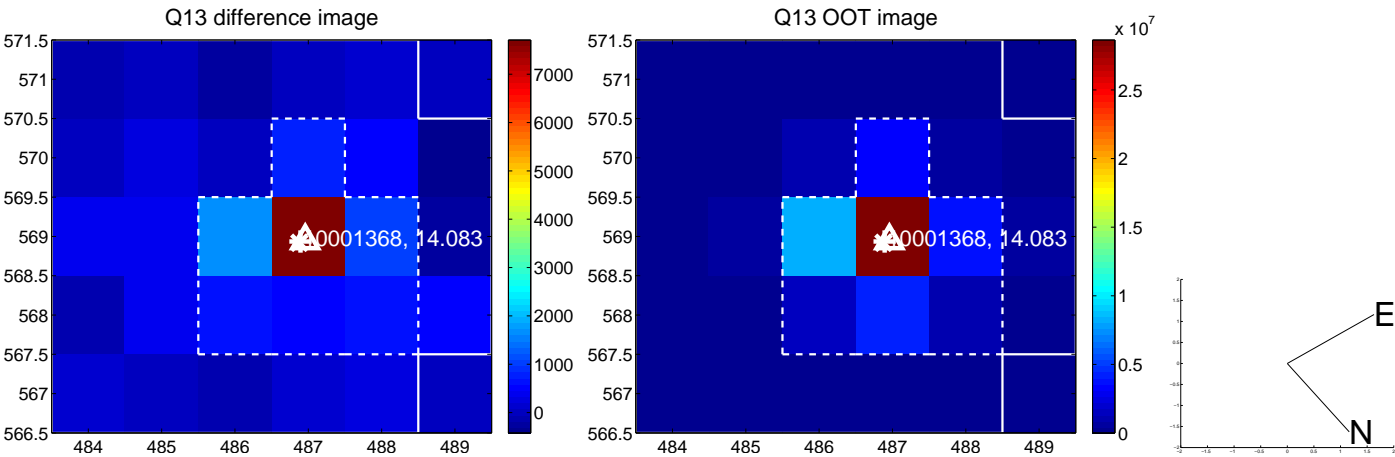
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

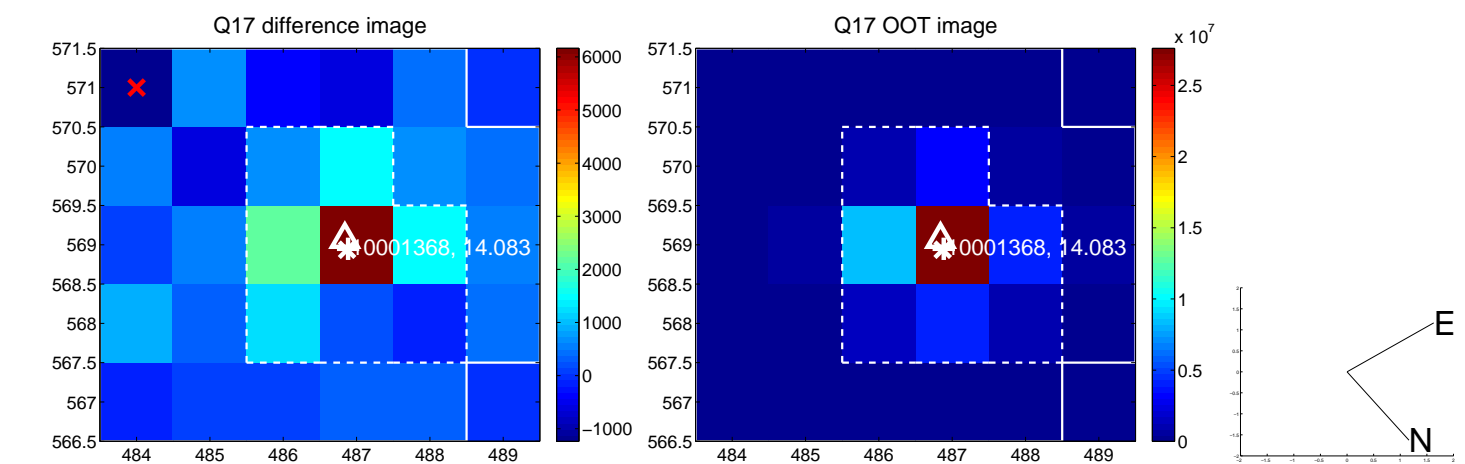


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

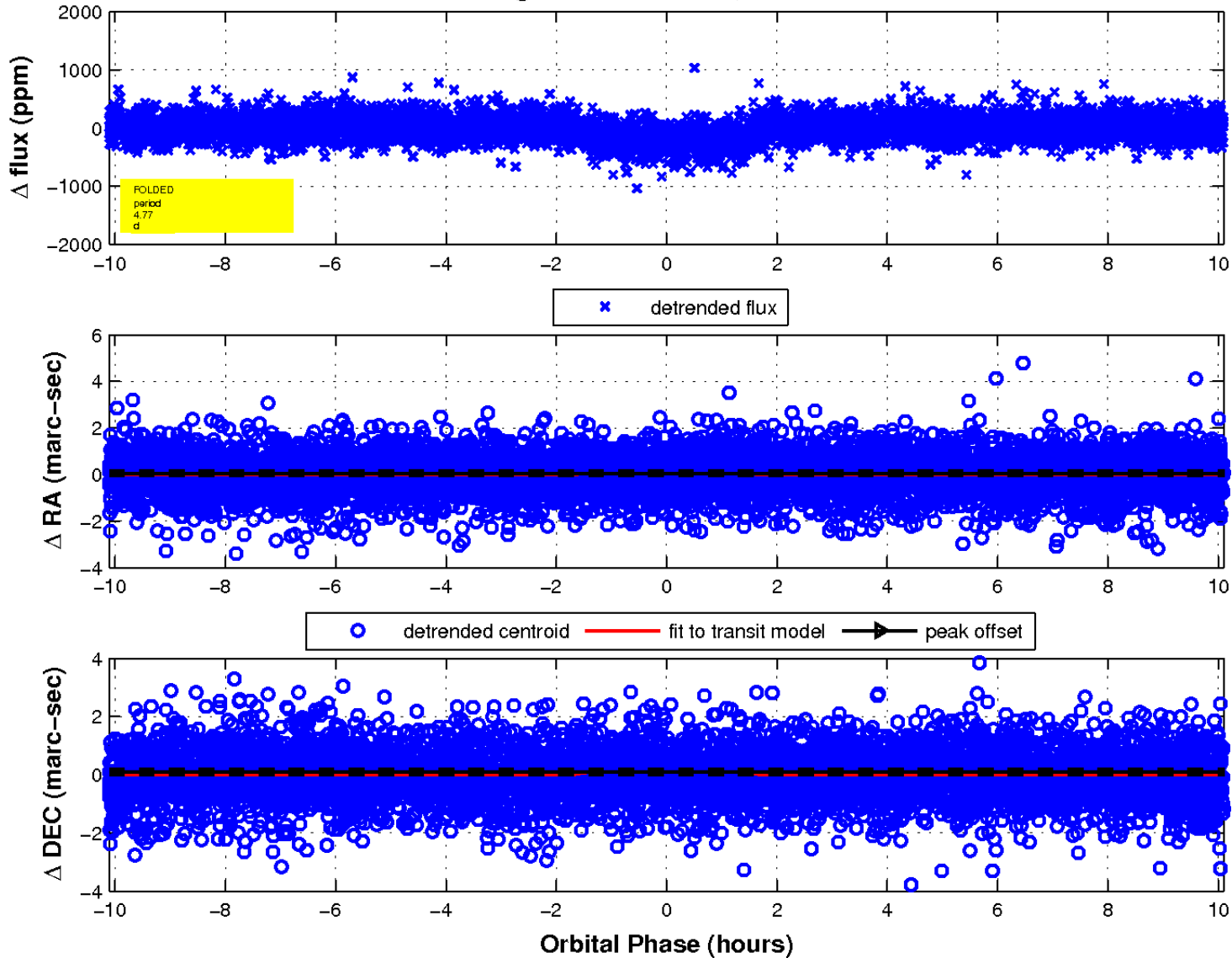




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

