

# KIC 005768816

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005768816-01	OBS	3288.01	47.987268	160.650435	833.1	5.287	24.9	25.3	0.98	5641	3.28	14.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005768816-01	OBS	PC	0.83	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.

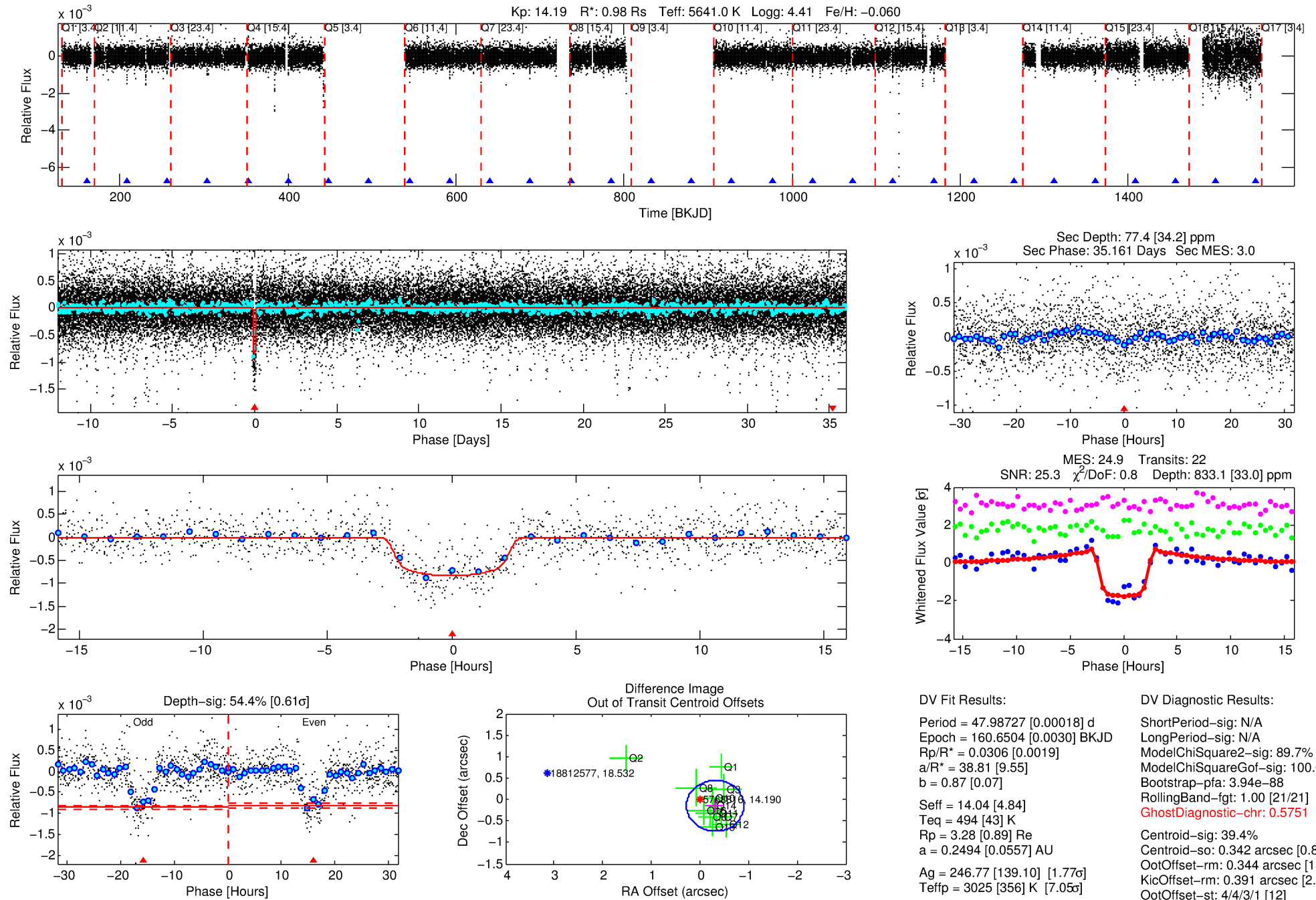
## Ephemeris Match Information For 005768816-01

No Significant Match Found

# DV One-Page Summary

KIC: 5768816 Candidate: 1 of 1 Period: 47.987 d

KOI: K03288.01 Corr: 0.948



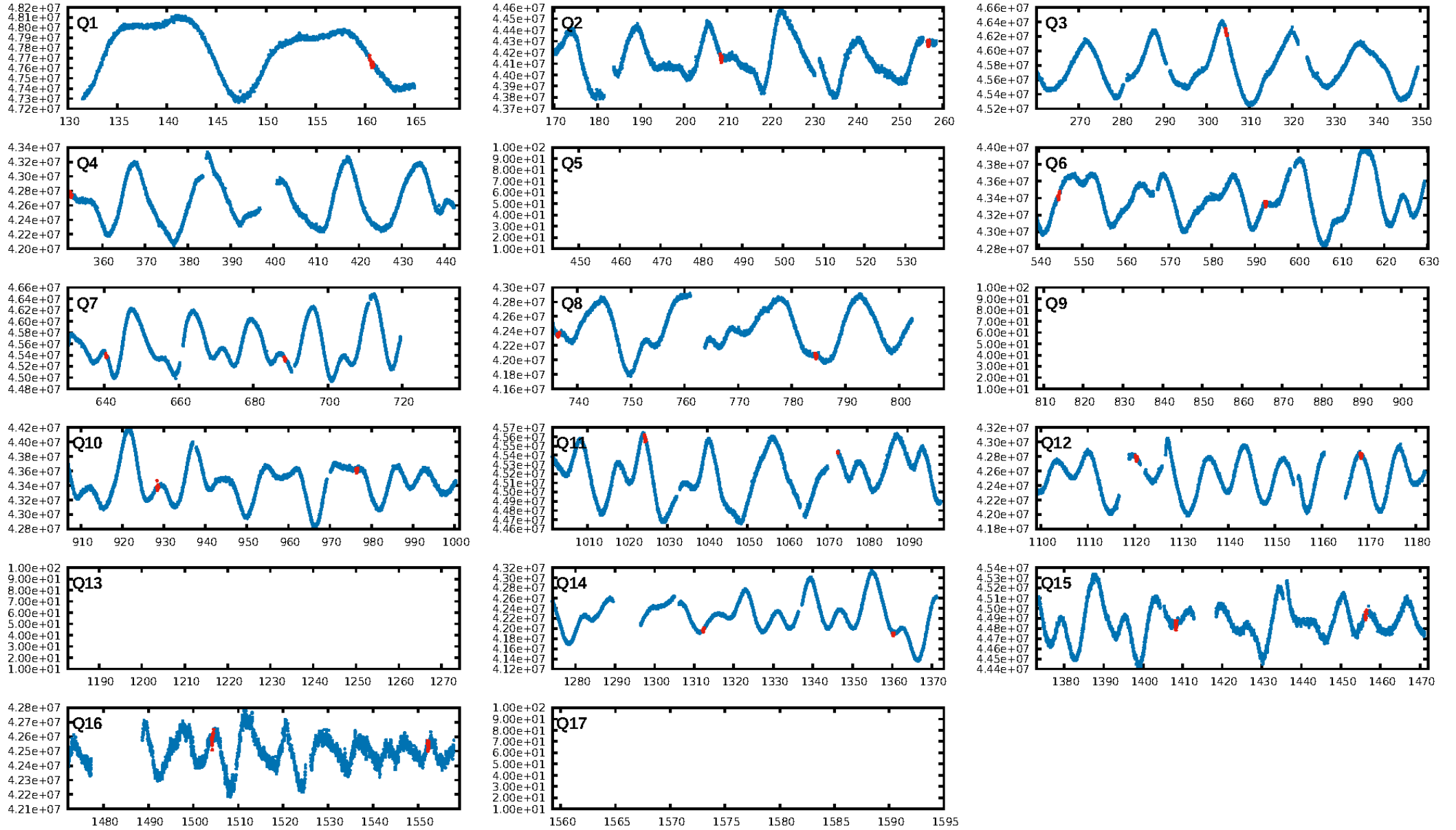
## DV Fit Results:

Period = 47.98727 [0.00018] d  
 Epoch = 160.6504 [0.0030] BKJD  
 Rp/R\* = 0.0306 [0.0019]  
 a/R\* = 38.81 [9.55]  
 b = 0.87 [0.07]  
 Seff = 14.04 [4.84]  
 Teq = 494 [43] K  
 Rp = 3.28 [0.89] Re  
 a = 0.2494 [0.0557] AU  
 Ag = 246.77 [139.10] [1.77 $\sigma$ ]  
 Tefp = 3025 [356] K [7.05 $\sigma$ ]

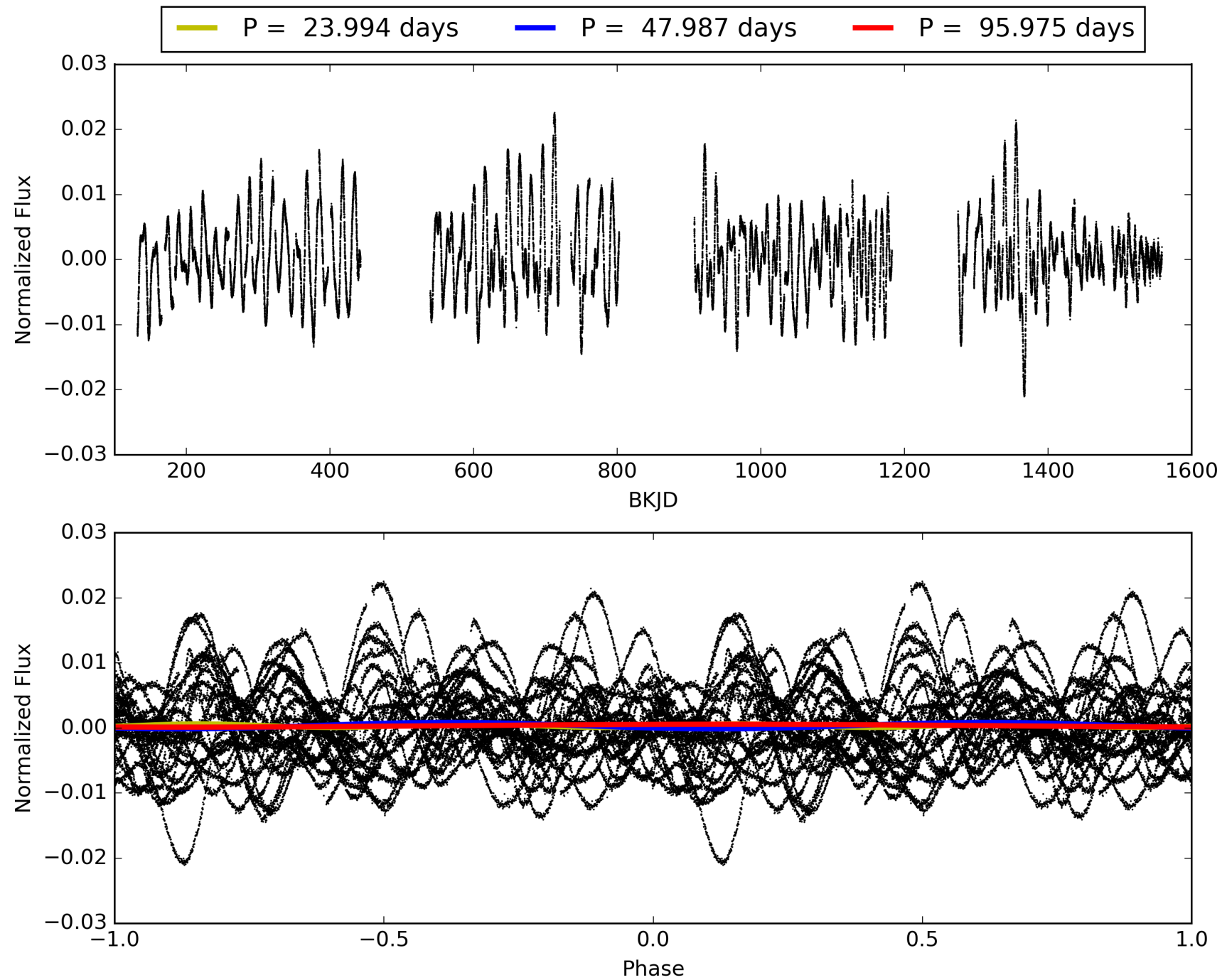
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
 LongPeriod-sig: N/A  
 ModelChiSquare2-sig: 89.7%  
 ModelChiSquareGof-sig: 100.0%  
 Bootstrap-pfa: 3.94e-88  
 RollingBand-fgt: 1.00 [21/21]  
 GhostDiagnostic-chr: 0.5751  
 Centroid-sig: 39.4%  
 Centroid-so: 0.342 arcsec [0.87 $\sigma$ ]  
 OotOffset-rm: 0.344 arcsec [1.74 $\sigma$ ]  
 KicOffset-rm: 0.391 arcsec [2.07 $\sigma$ ]  
 OotOffset-st: 4/4/3/1 [12]  
 KicOffset-st: 4/4/3/1 [12]  
 DiffImageQuality-fgm: 1.00 [12/12]  
 DiffImageOverlap-fno: 1.00 [12/12]

# TCE 005768816-01, PDC Light Curves

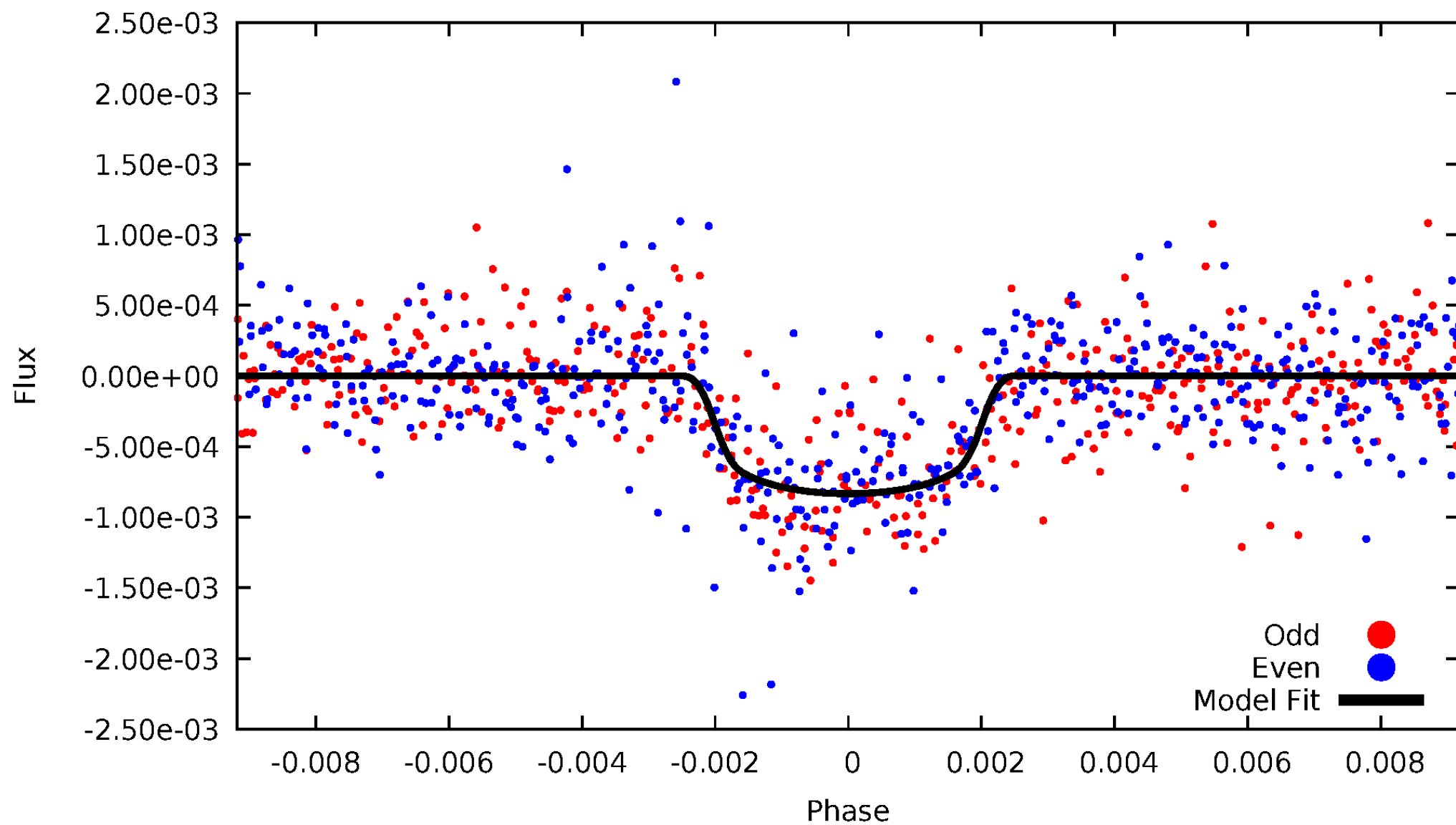


TCE 005768816-01



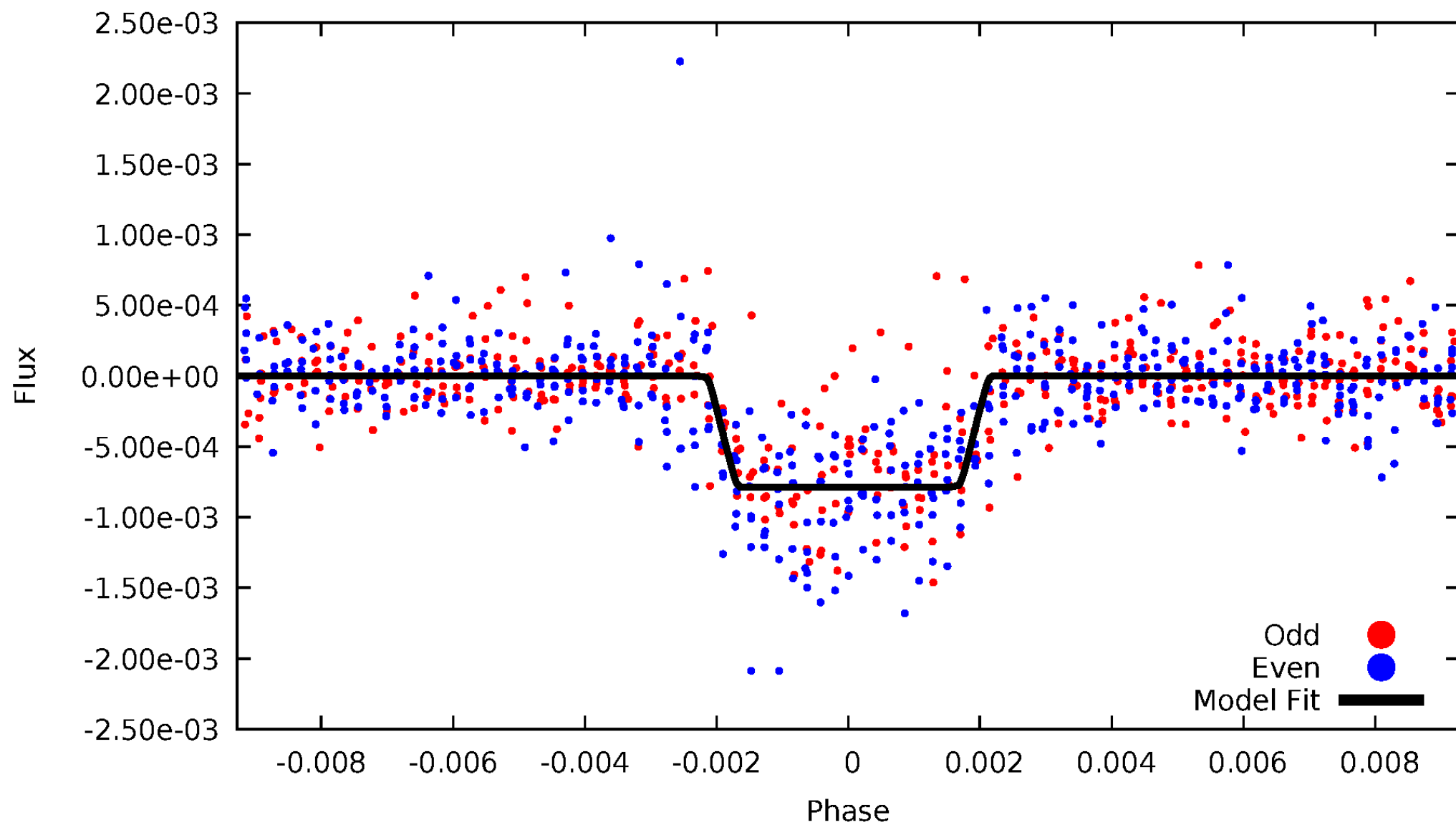
# DV Odd/Even

TCE 005768816-01



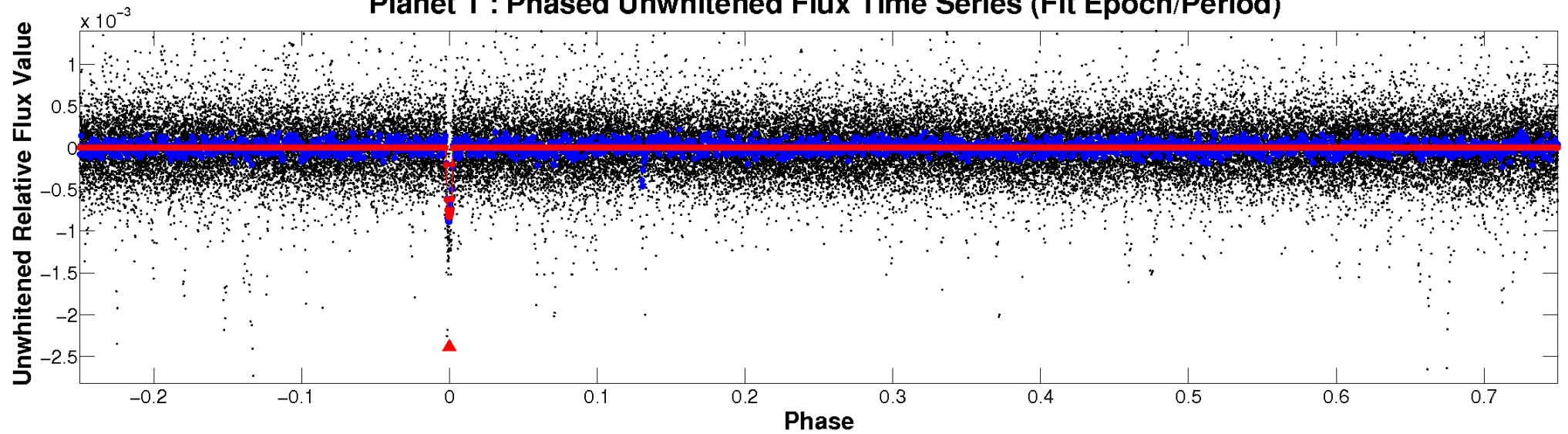
# ALT Odd/Even

TCE 005768816-01

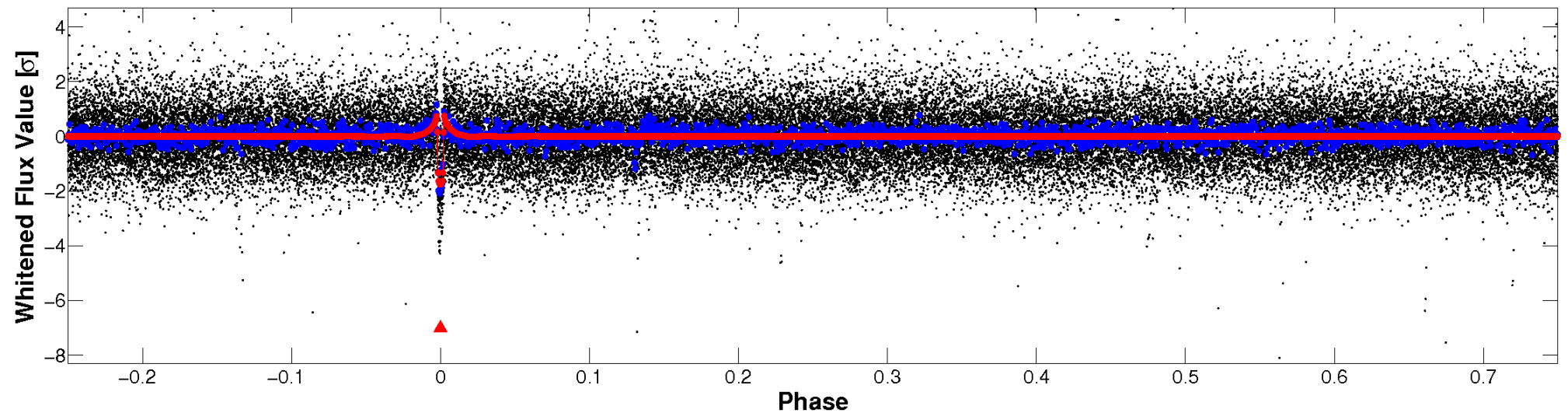


# Non-Whitened Vs. Whitened Light Curve

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

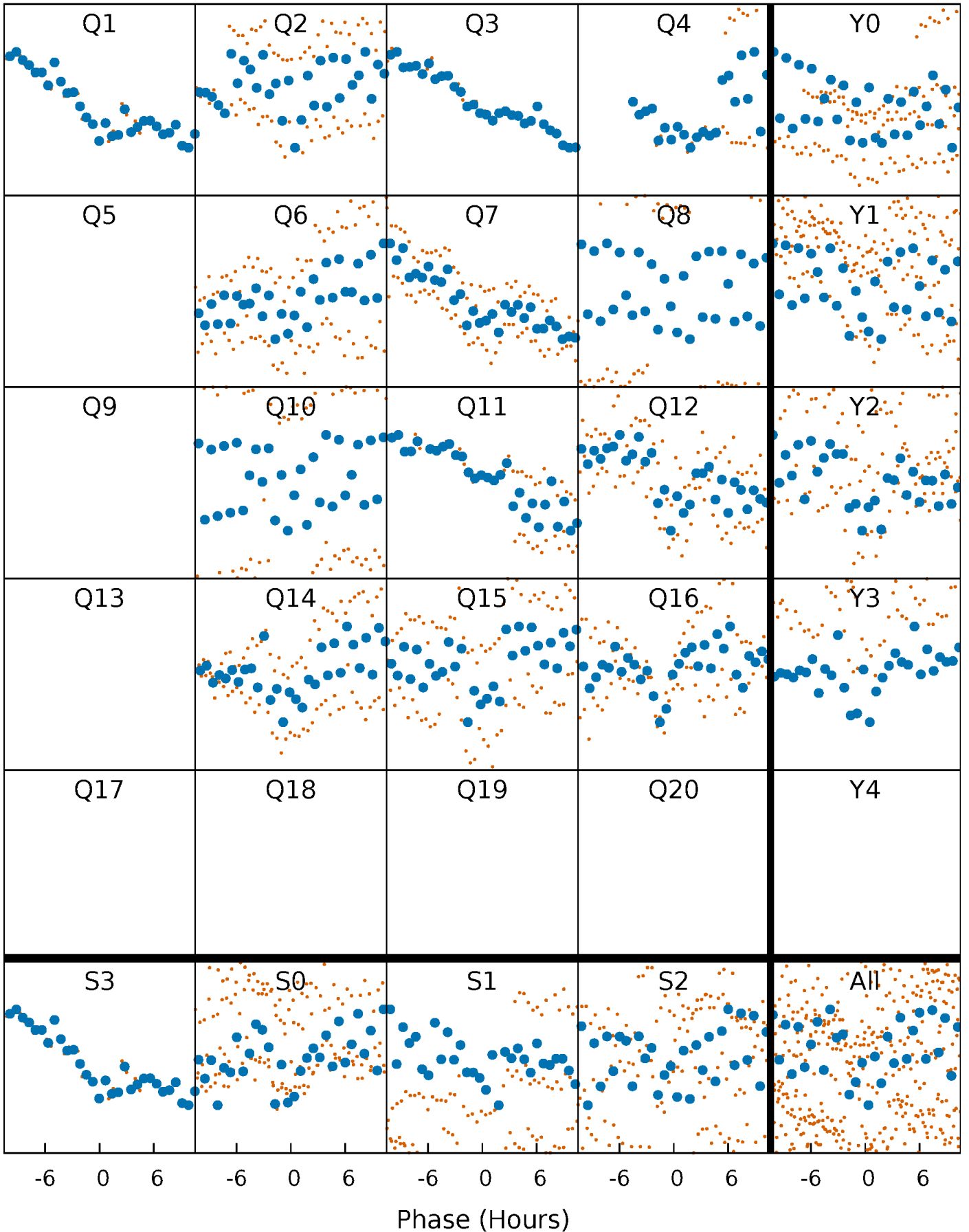


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

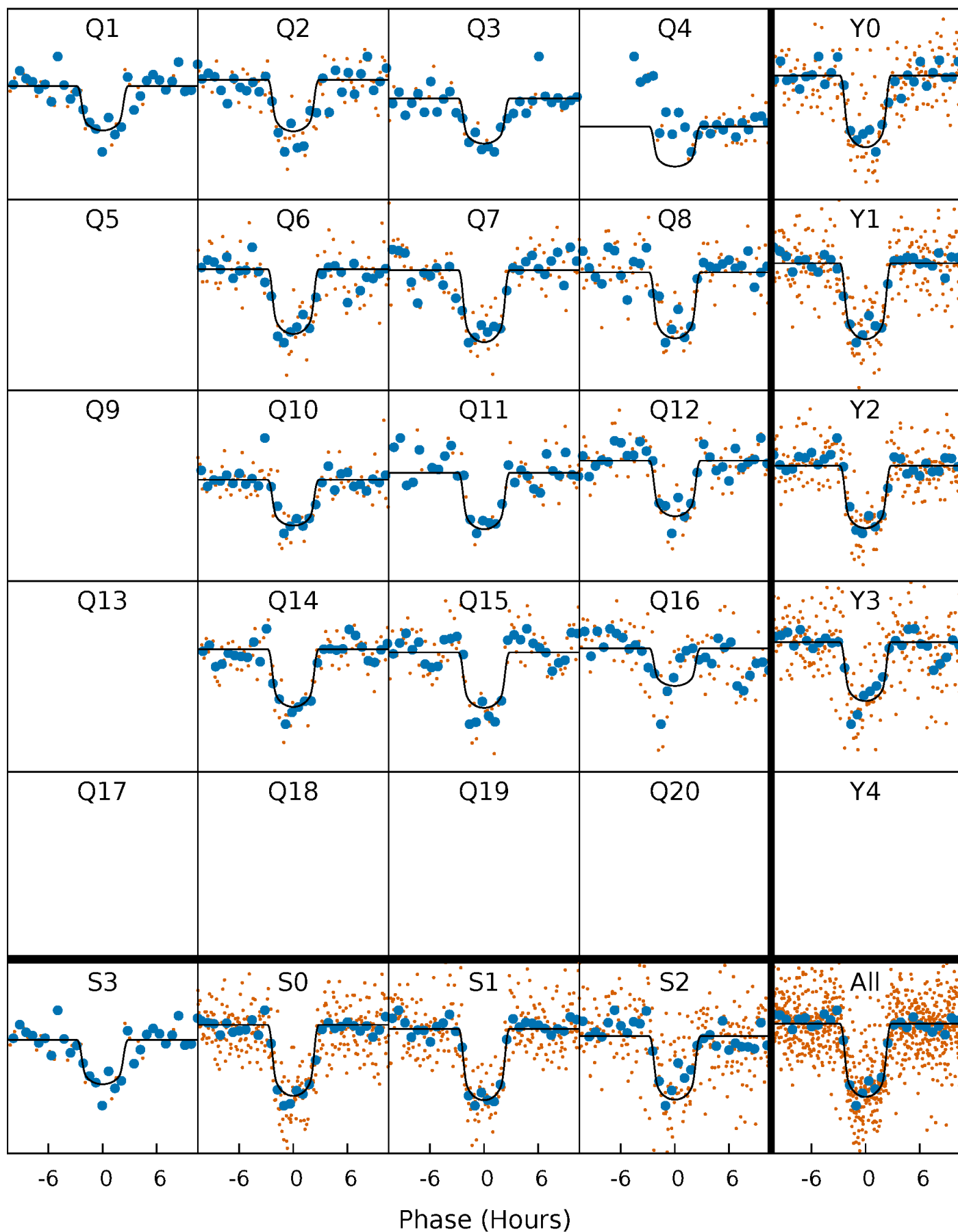
TCE 005768816-01   P= 47.987268 Days    $T_0=160.650435$  (BKJD)





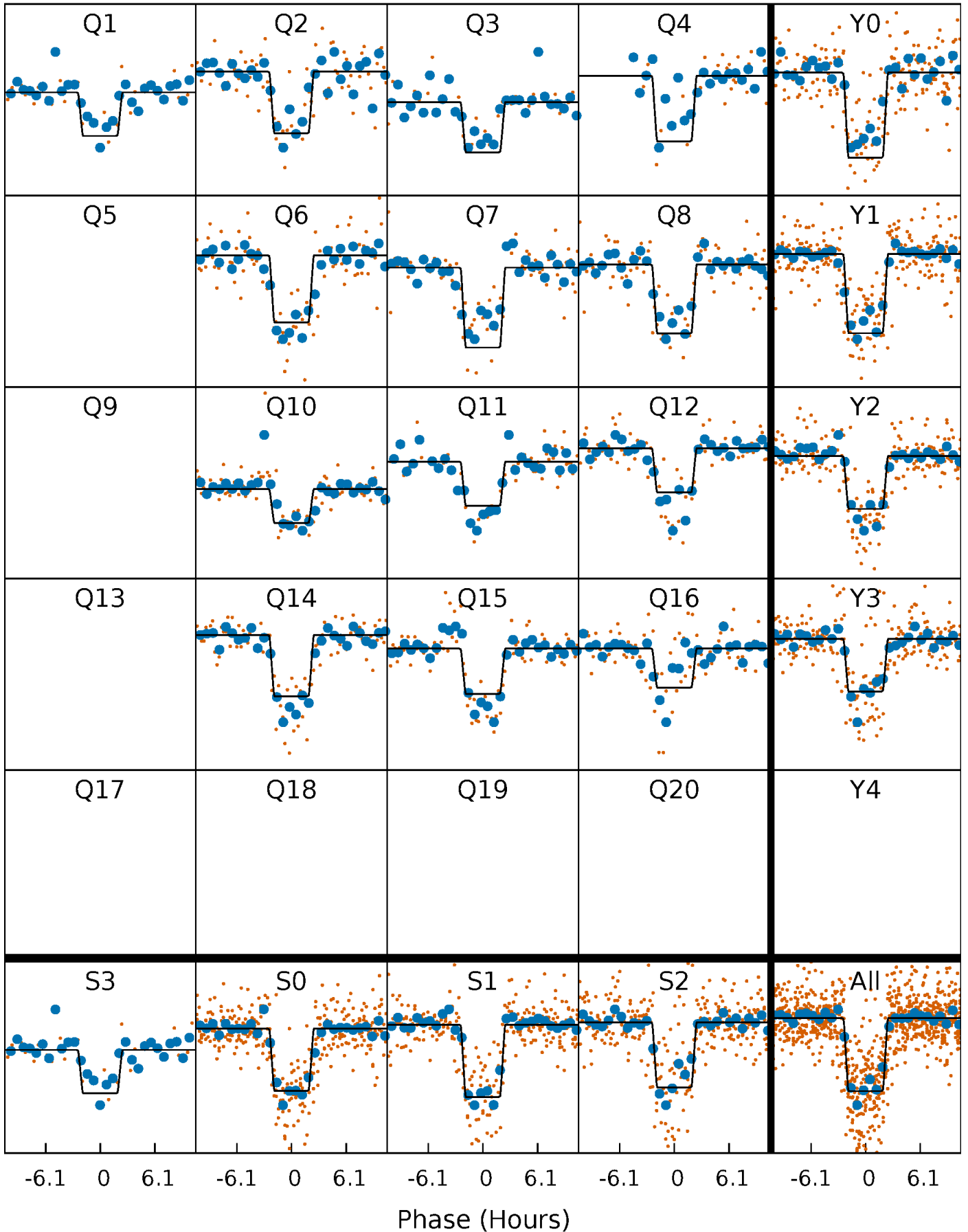
# DV Quarter-Phased Transit Curves

TCE 005768816-01 P= 47.987268 Days  $T_0=160.650435$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

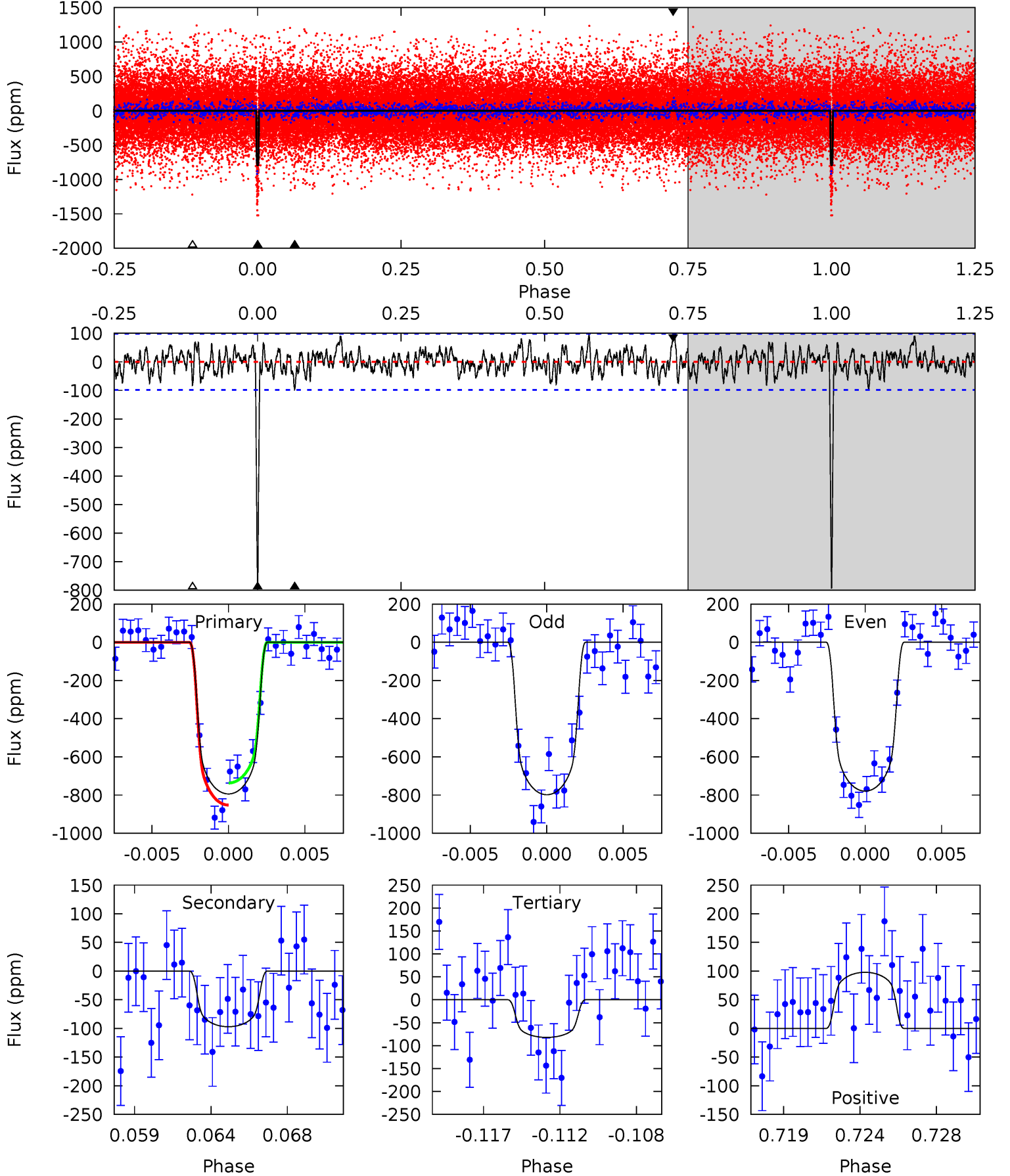
TCE 005768816-01 P= 47.986963 Days  $T_0=160.653772$  (BKJD)



# DV Model-Shift Uniqueness Test

005768816-01,  $P = 47.987268$  Days,  $E = 112.663167$  Days

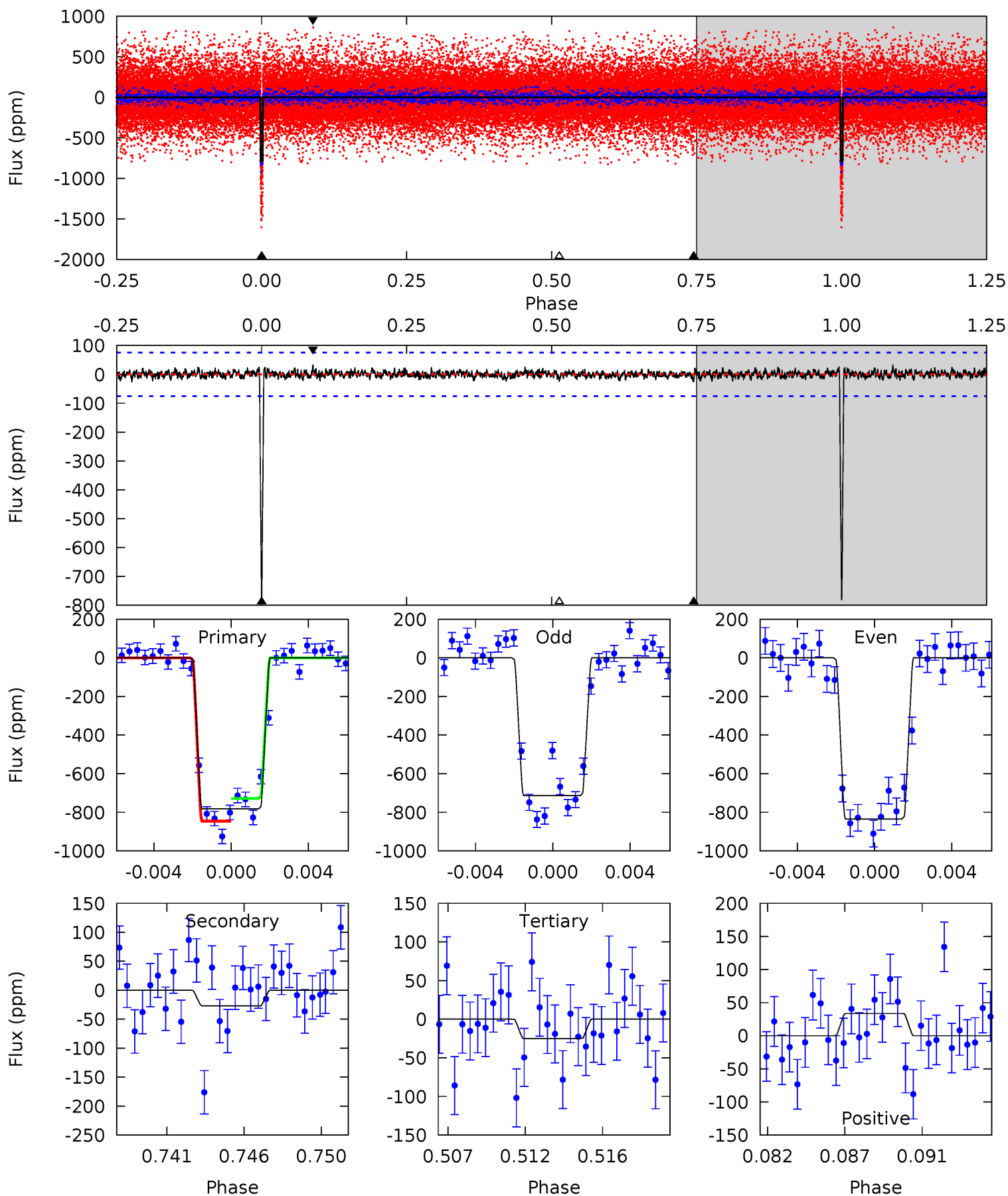
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.6	5.09	4.30	5.13	5.16	2.81	1.65	37.3	36.5	0.78	-0.04	0.50	0.95	0.11	3.05



# Alt Model-Shift Uniqueness Test

005768816-01,  $P = 47.986963$  Days,  $E = 112.666809$  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
53.9	1.86	1.72	2.31	5.18	2.85	0.55	52.1	51.5	0.14	-0.45	4.14	1.06	0.04	4.01



### Stellar Parameters For KIC 005768816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5641^{+152}_{-152}$	$4.408^{+0.120}_{-0.180}$	$-0.060^{+0.300}_{-0.300}$	$0.981^{+0.258}_{-0.139}$	$0.899^{+0.114}_{-0.085}$	$1.340^{+0.732}_{-0.646}$
	+3%/-3%	+3%/-4%	+500%/-500%	+26%/-14%	+13%/-9%	+55%/-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 005768816-01 / KOI 3288.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-97 \pm 19$	$3.29^{+0.50}_{-0.33}$	$692^{+46}_{-36}$	$3625^{+153}_{-144}$	$299^{+103}_{-84}$
Alt.	$-27 \pm 15$	$3.04^{+0.49}_{-0.34}$	$694^{+47}_{-37}$	$3068^{+218}_{-328}$	$95^{+68}_{-52}$

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

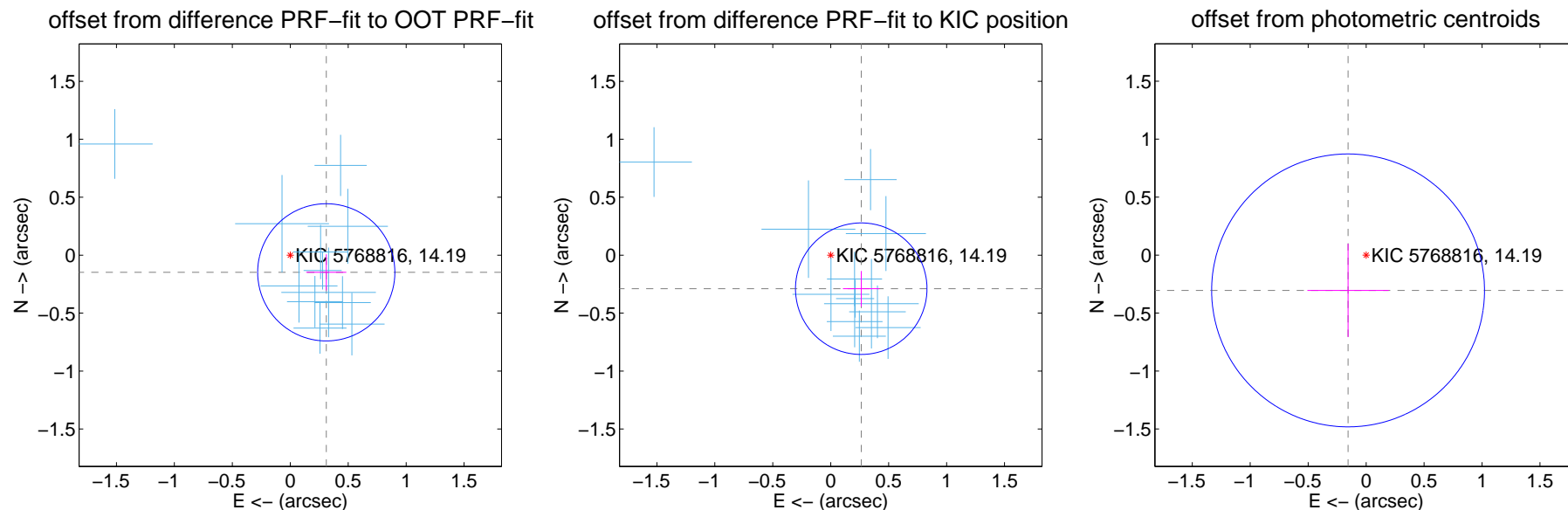
## DV Centroid Data

Supplemental centroid analysis for 005768816-01. Kepler magnitude: 14.19. Transit SNR 25.29

There are 12 quarters with good PRF difference image offsets

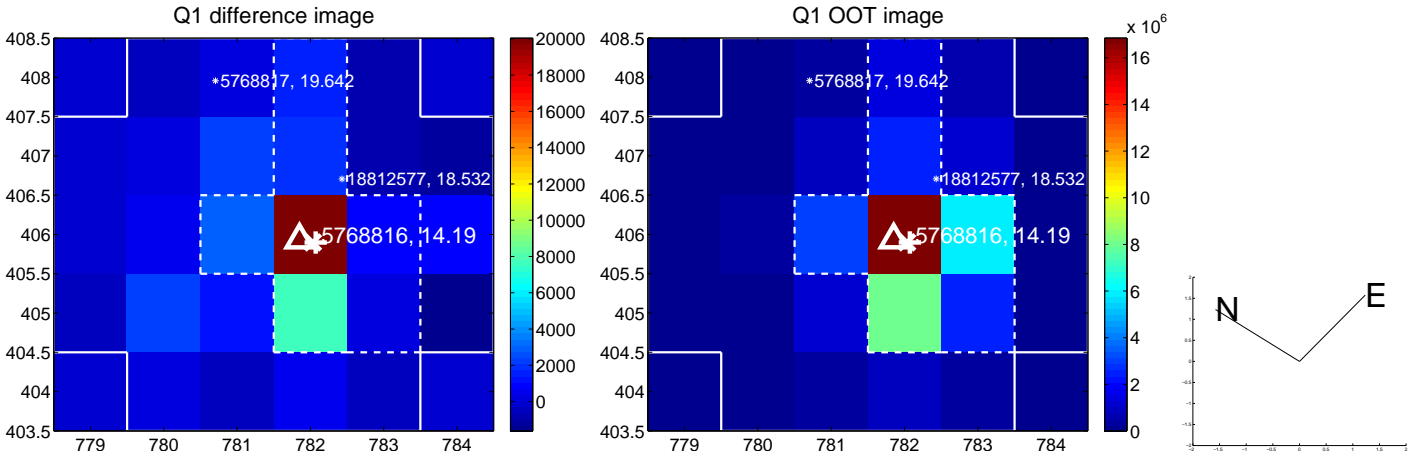
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.344 \pm 0.197$	1.74	$-0.311 \pm 0.173$	$-0.148 \pm 0.156$
PRF-fit source offset from KIC position	$0.391 \pm 0.189$	2.07	$-0.263 \pm 0.158$	$-0.289 \pm 0.153$
photometric centroid source offset	$0.34 \pm 0.39$	0.87	$0.16 \pm 0.35$	$-0.30 \pm 0.40$

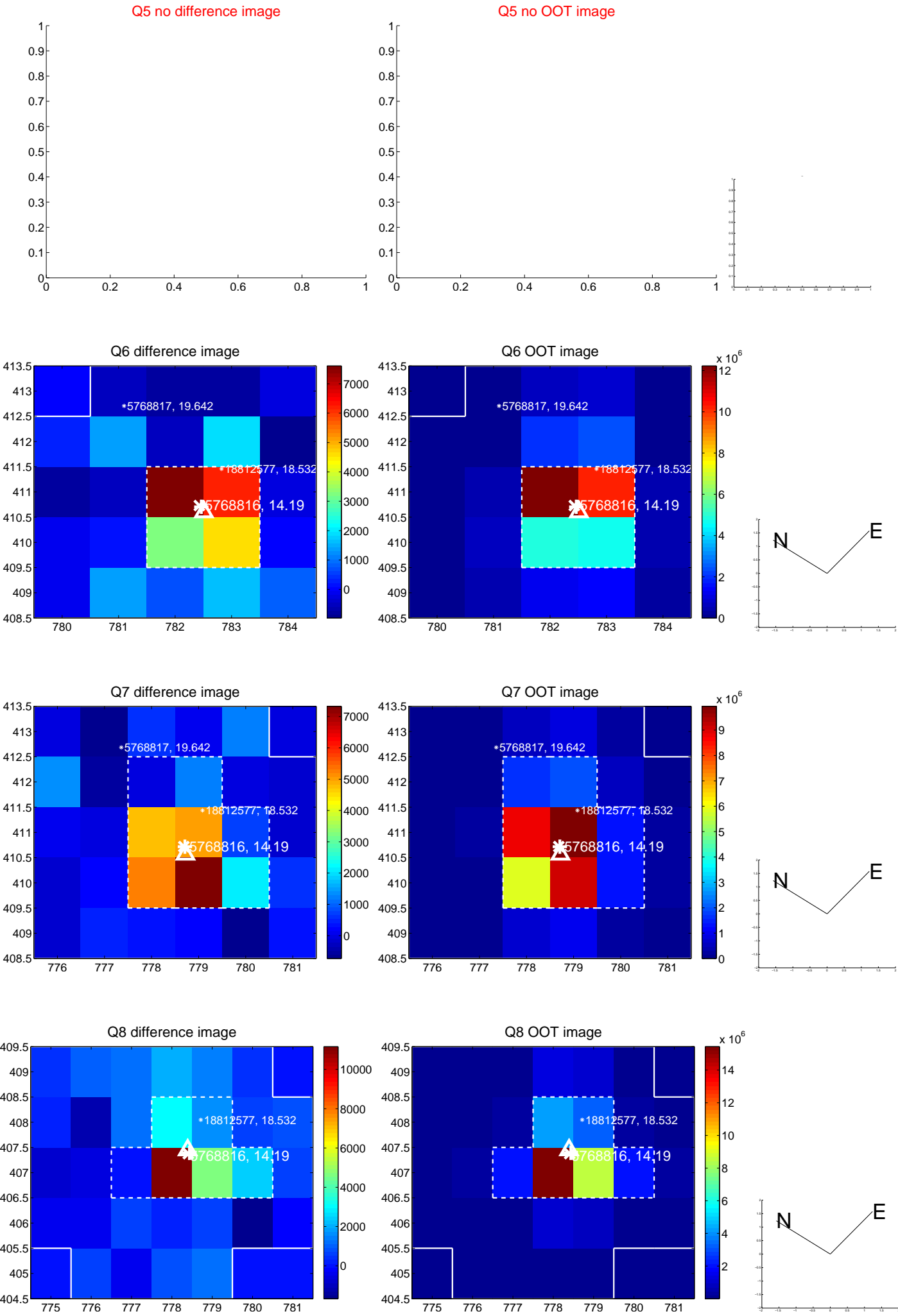


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

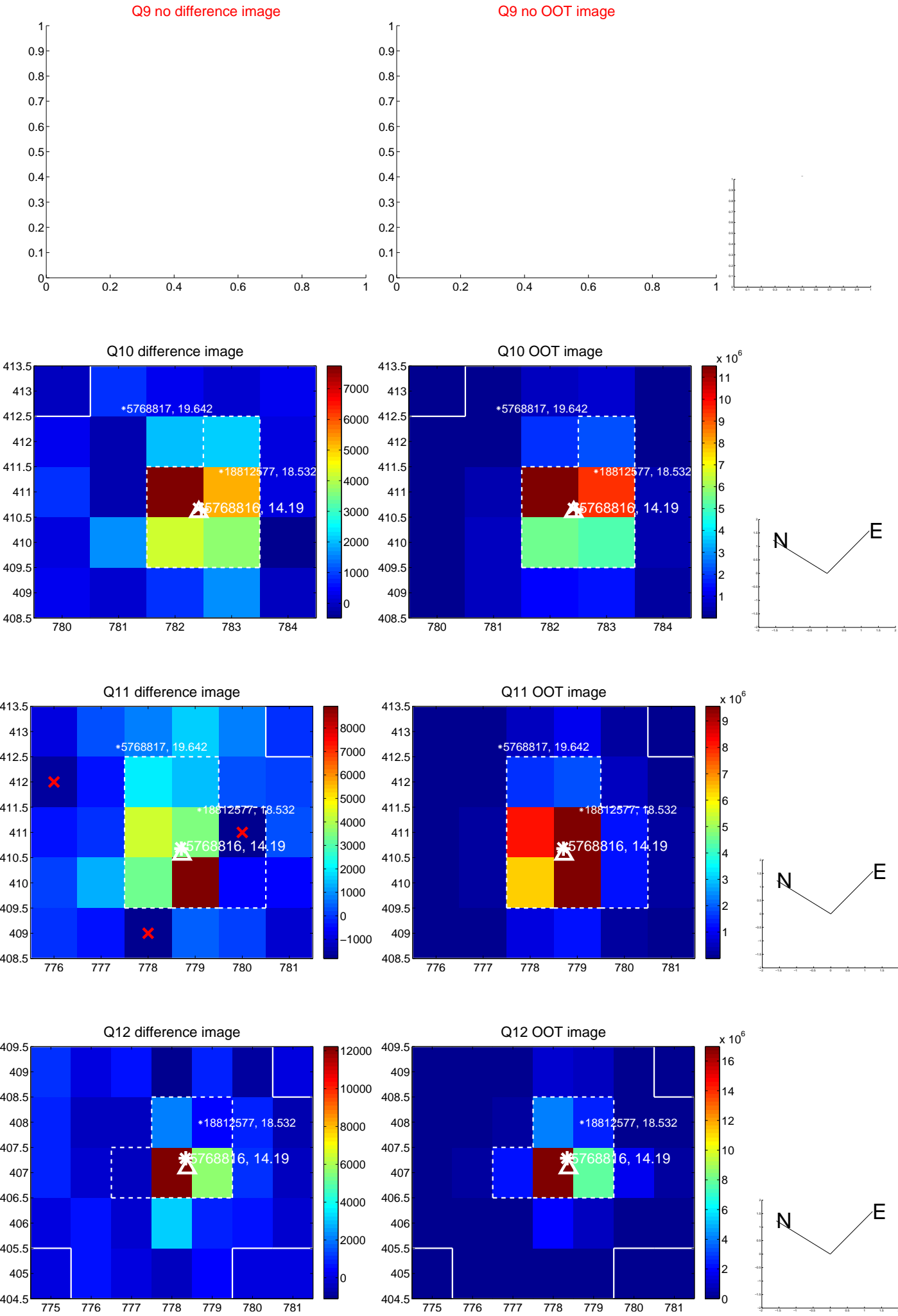


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

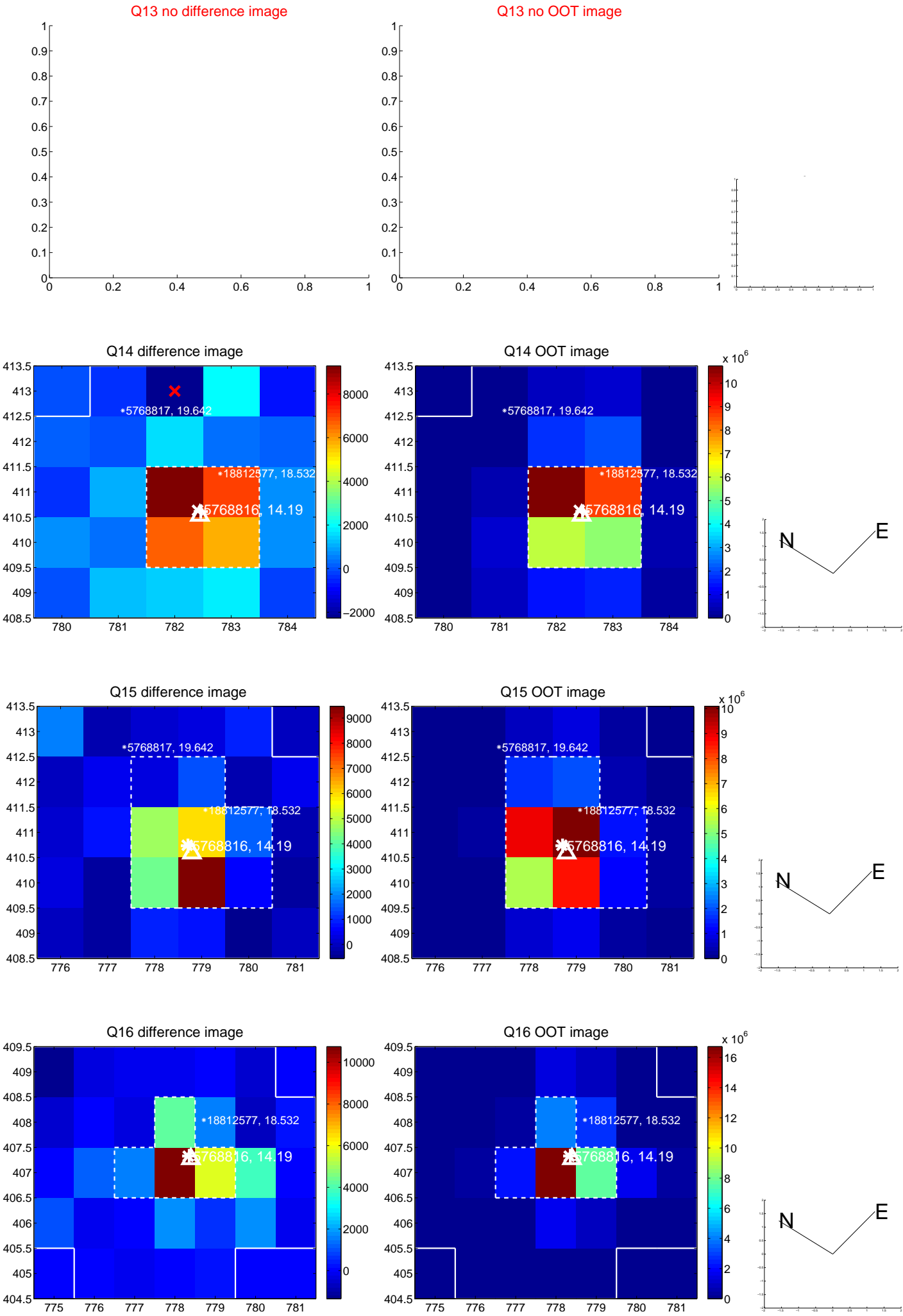




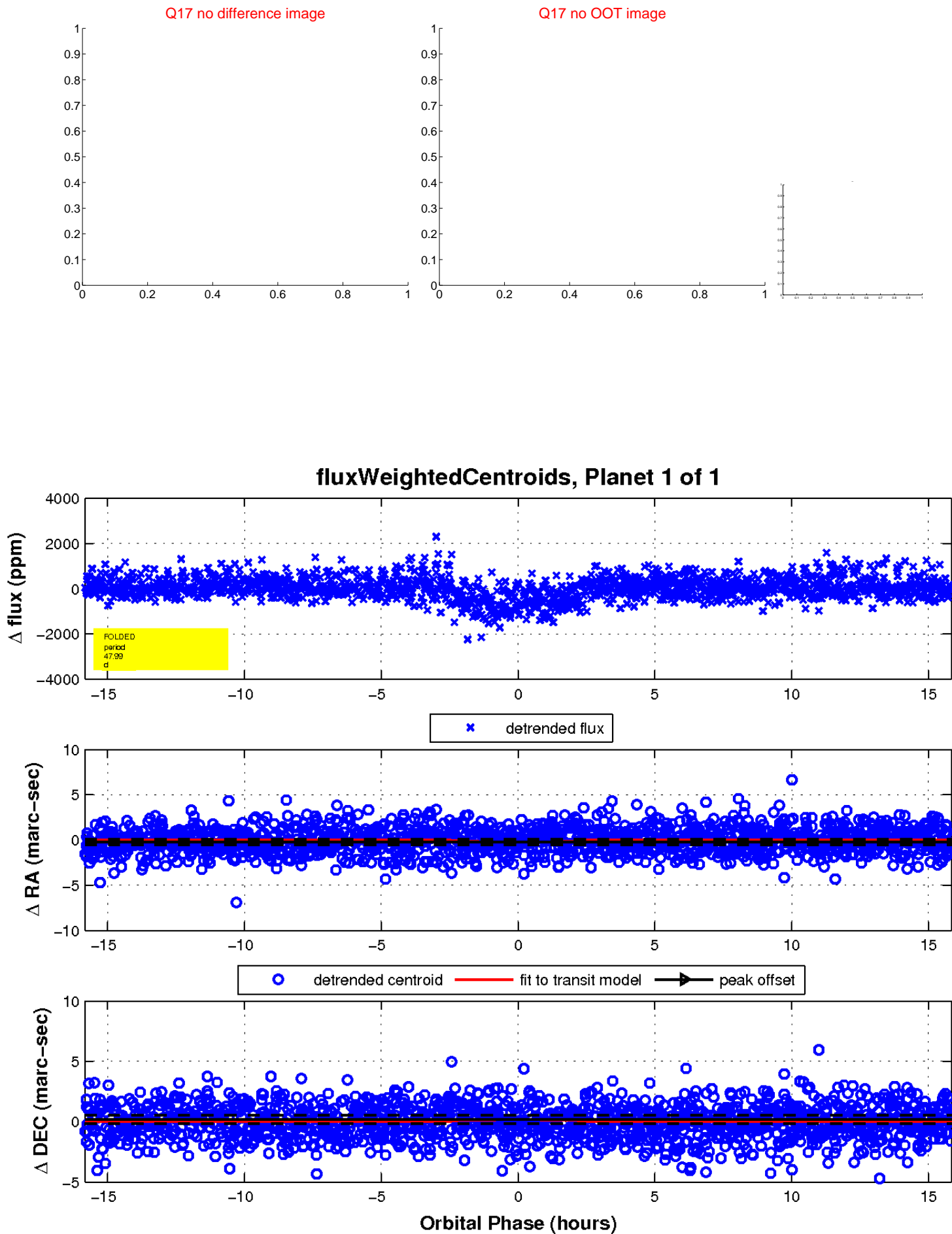
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

