

# KIC 008738775

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008738775-01	OBS	3432.01	48.050880	140.509899	273.3	8.240	13.7	13.8	1.45	5332	2.91	23.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008738775-01	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.

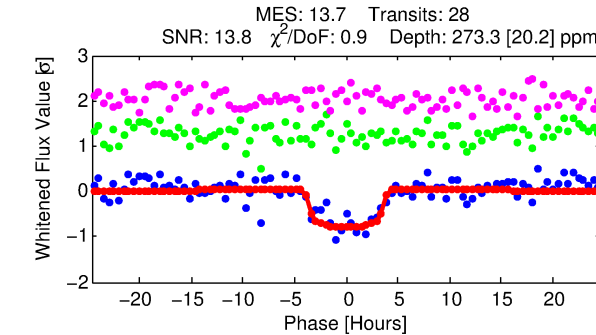
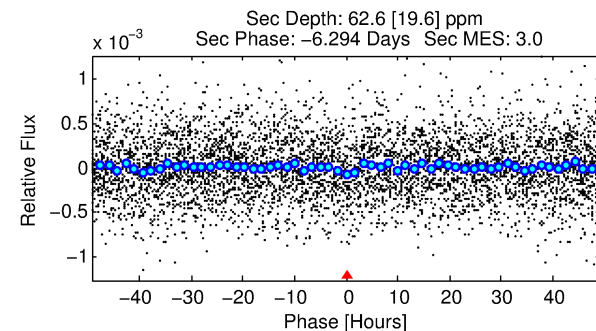
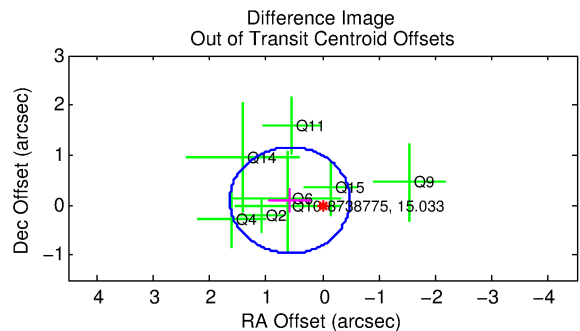
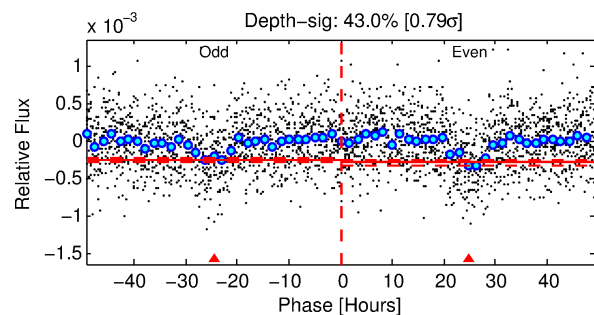
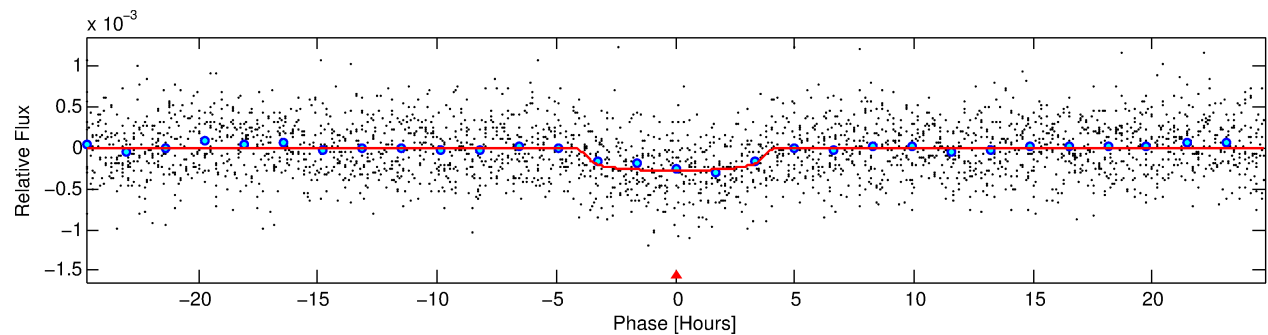
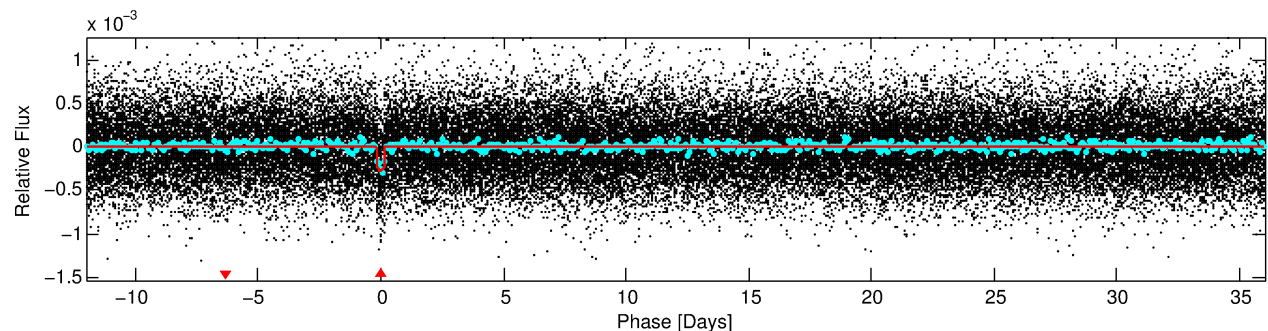
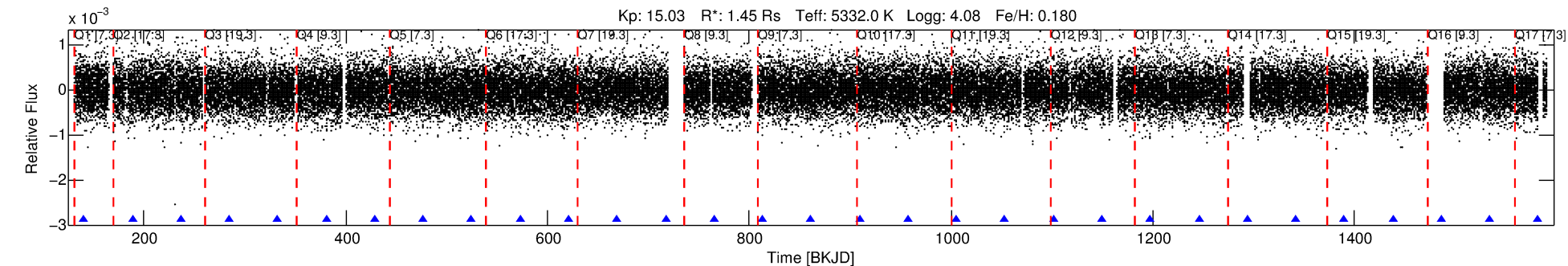
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008738775-01

No Significant Match Found

# DV One-Page Summary

KIC: 8738775 Candidate: 1 of 1 Period: 48.051 d  
KOI: K03432.01 Corr: 0.963



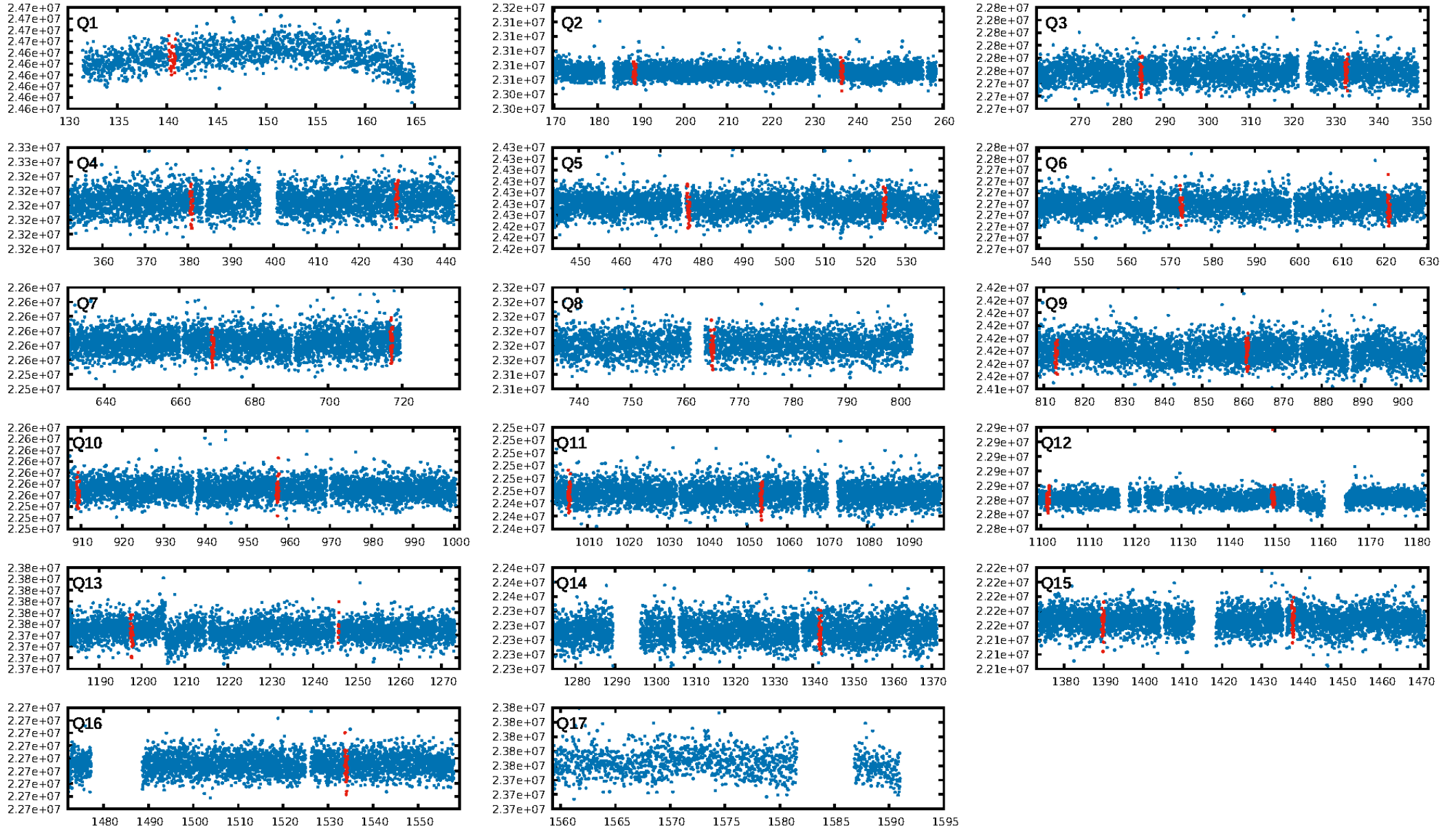
## DV Fit Results:

Period = 48.05088 [0.00073] d  
Epoch = 140.5099 [0.0118] BKJD  
Rp/R\* = 0.0184 [0.0027]  
a/R\* = 20.87 [12.52]  
b = 0.90 [0.12]  
Seff = 23.93 [13.61]  
Teff = 564 [80] K  
Rp = 2.91 [1.06] Re  
a = 0.2527 [0.0862] AU  
Ag = 259.06 [183.79] [1.40 $\sigma$ ]  
Teffp = 3498 [381] K [7.53 $\sigma$ ]

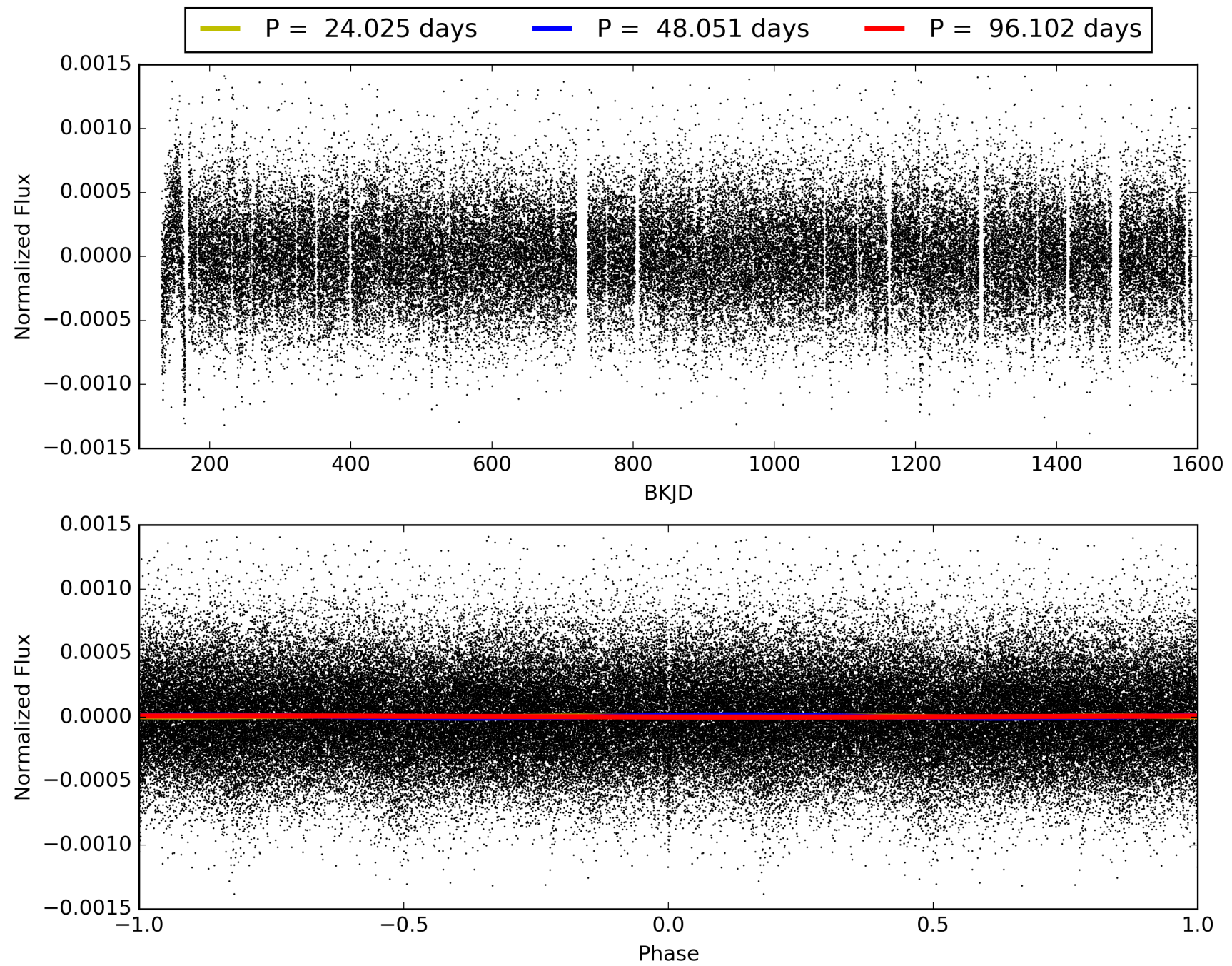
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.10e-41  
RollingBand-fgt: 1.00 [27/27]  
GhostDiagnostic-chr: 3.035  
Centroid-sig: 31.3%  
Centroid-so: 0.797 arcsec [0.84 $\sigma$ ]  
OotOffset-rm: 0.582 arcsec [1.64 $\sigma$ ]  
KicOffset-rm: 0.817 arcsec [2.14 $\sigma$ ]  
OotOffset-st: 4/2/1/1 [8]  
KicOffset-st: 4/2/1/1 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 008738775-01, PDC Light Curves

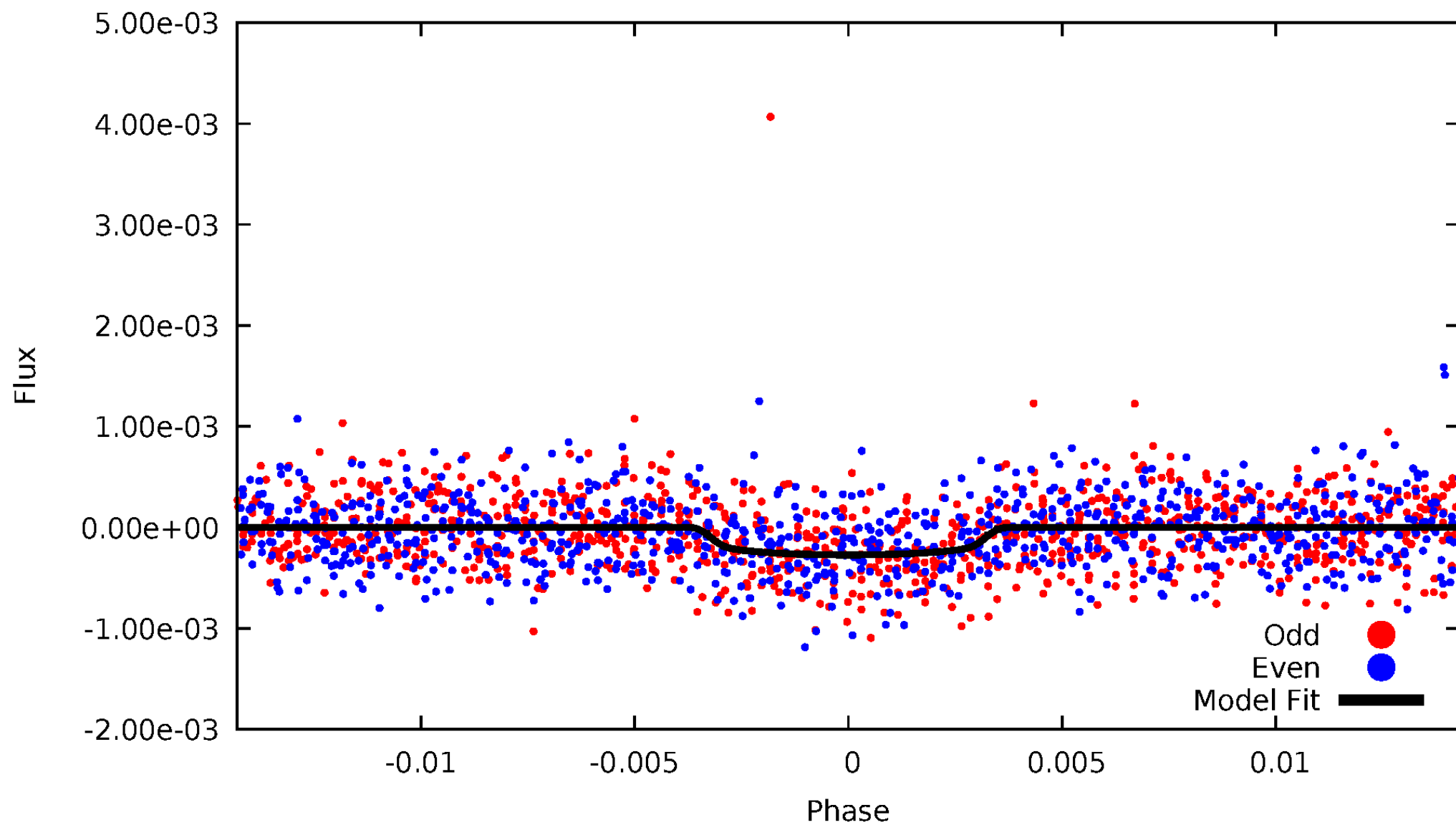


TCE 008738775-01



# DV Odd/Even

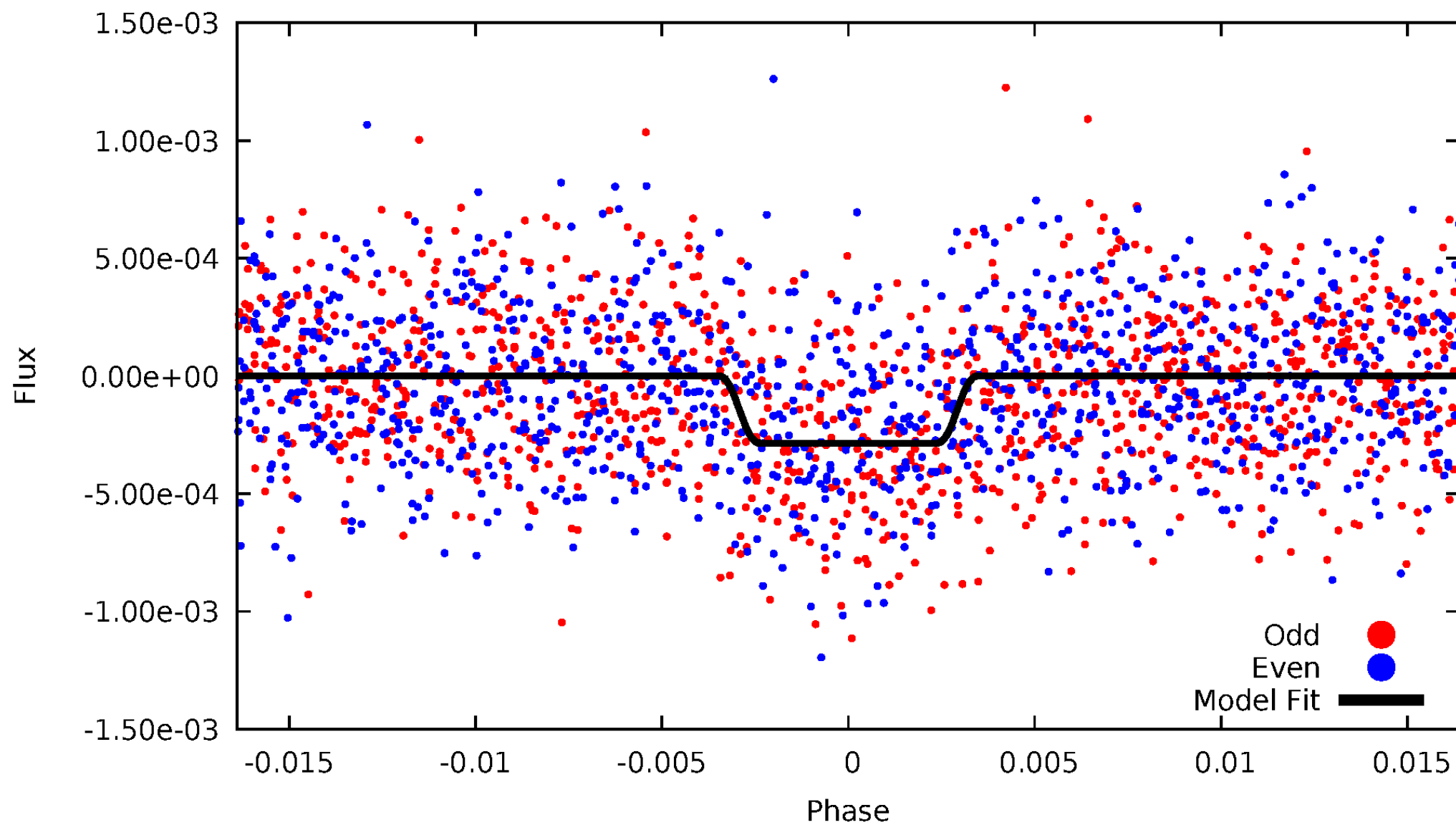
TCE 008738775-01



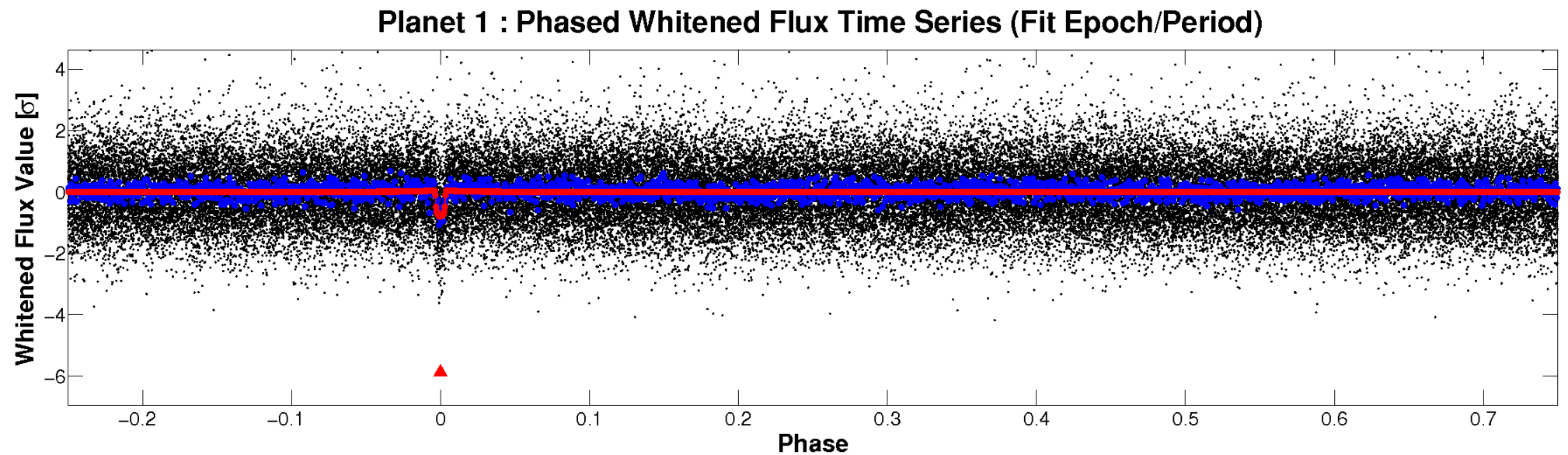
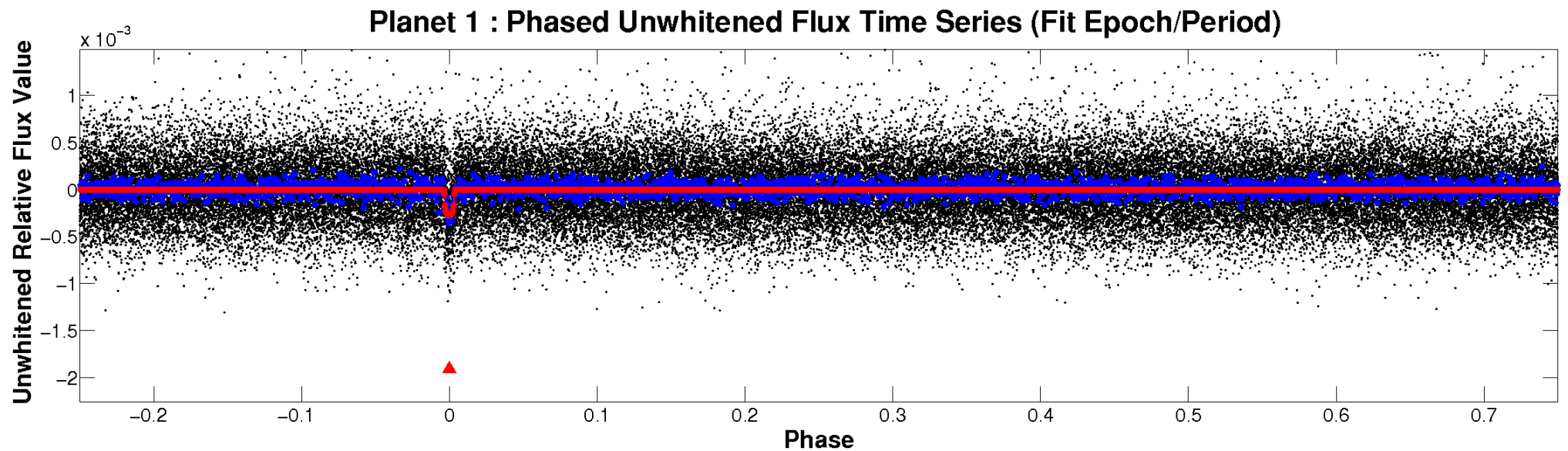


# ALT Odd/Even

TCE 008738775-01

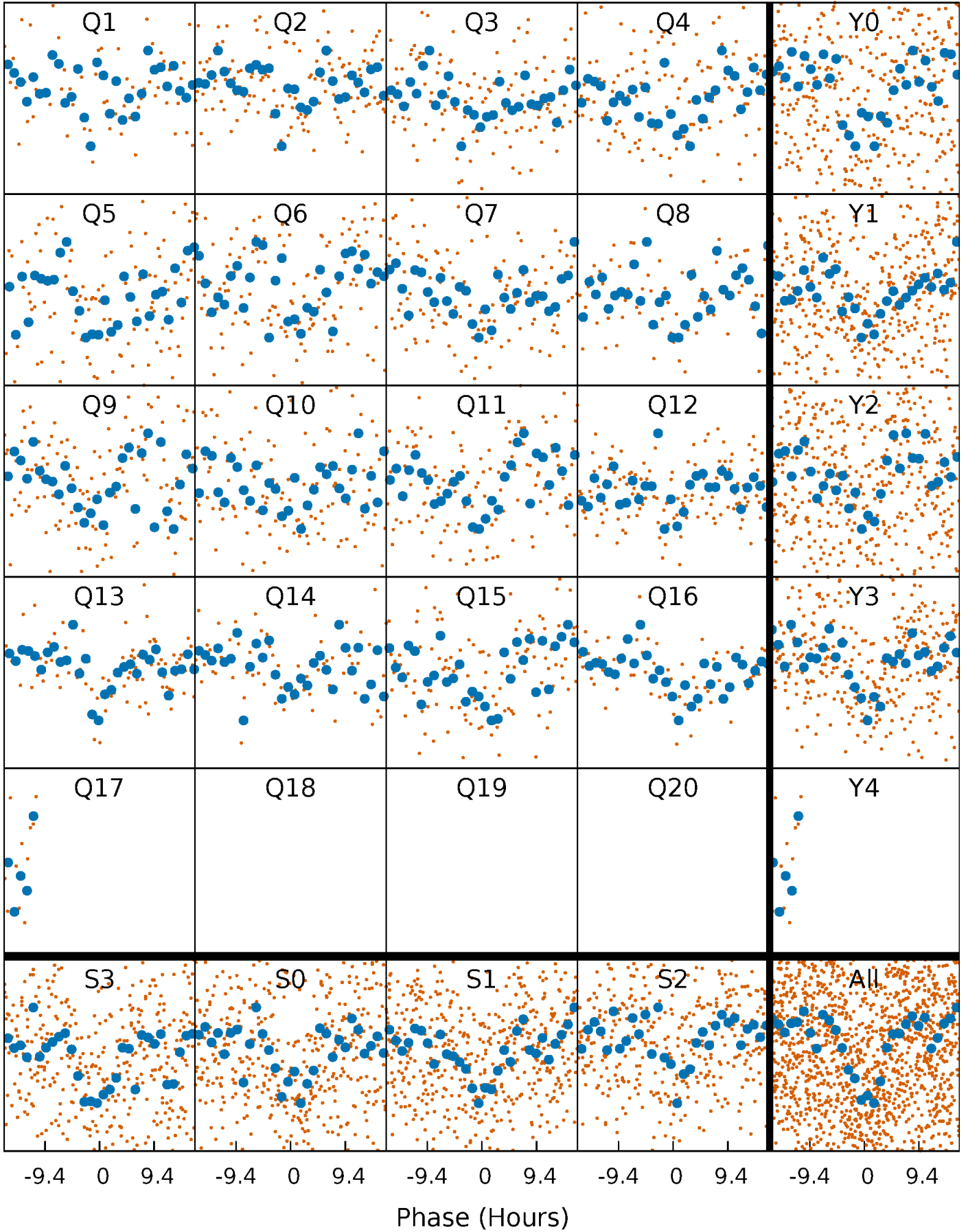


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

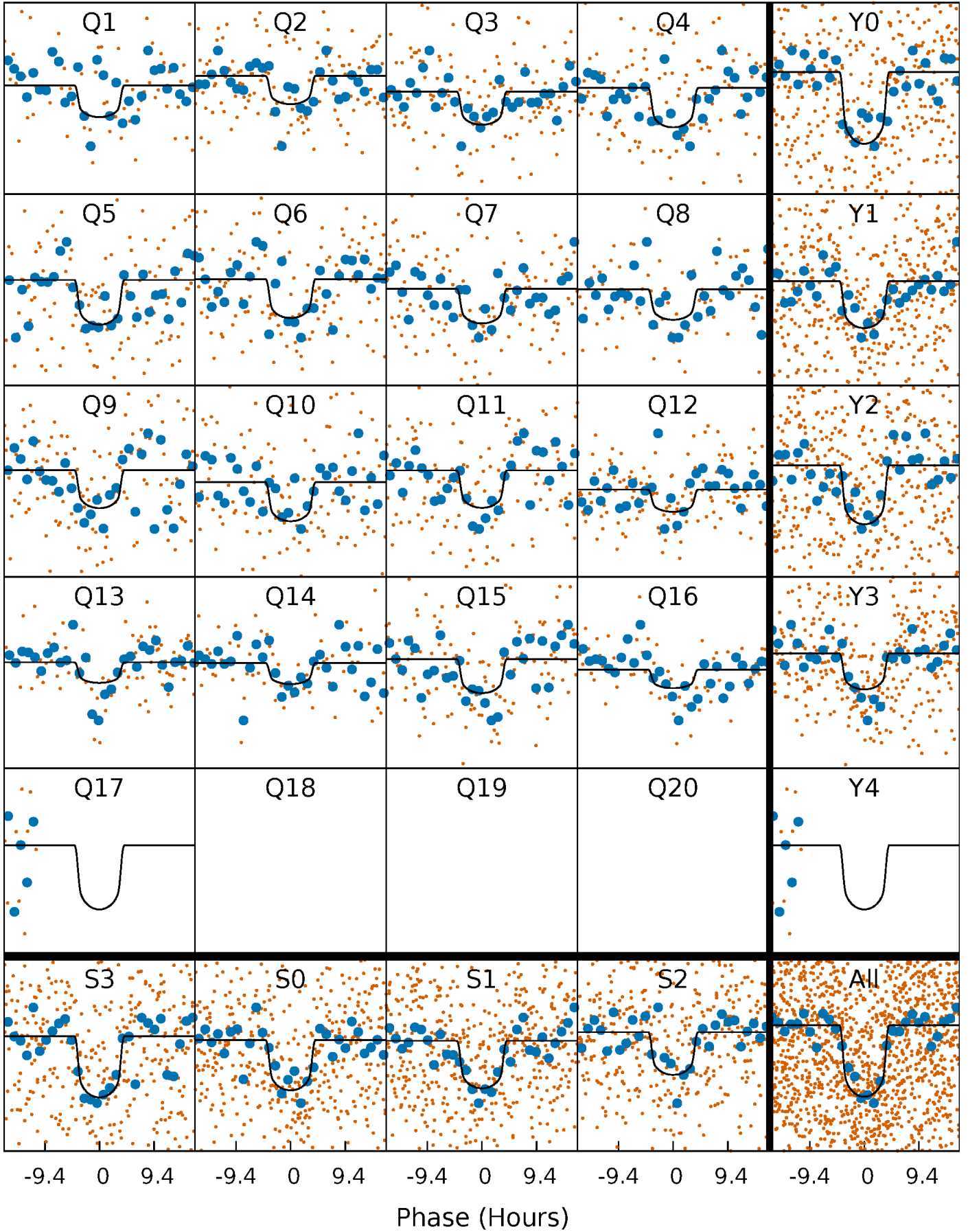
TCE 008738775-01 P= 48.050880 Days  $T_0=140.509899$  (BKJD)





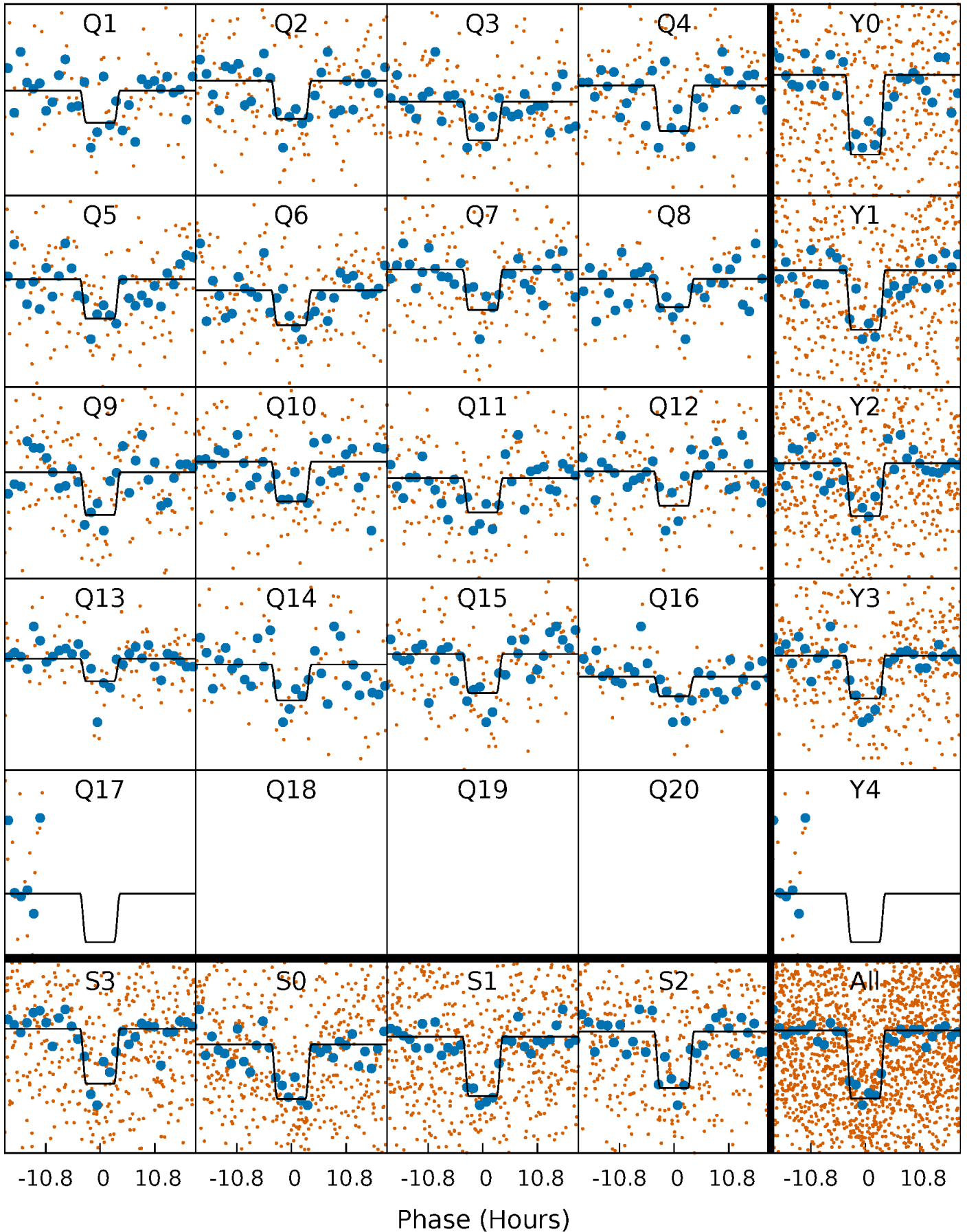
# DV Quarter-Phased Transit Curves

TCE 008738775-01 P= 48.050880 Days  $T_0=140.509899$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

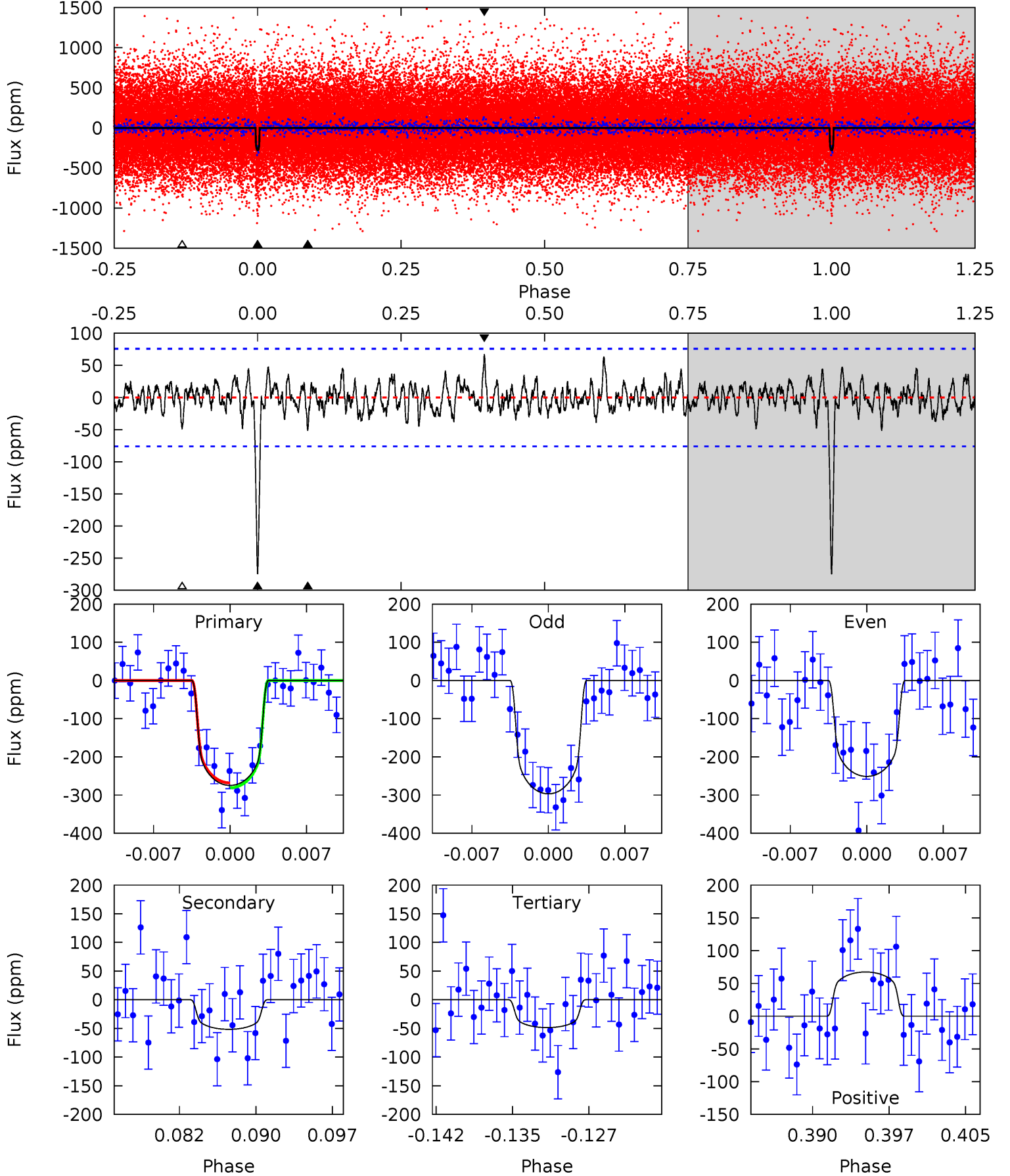
TCE 008738775-01 P= 48.052155 Days  $T_0=140.493579$  (BKJD)



# DV Model-Shift Uniqueness Test

008738775-01, P = 48.050880 Days, E = 92.459019 Days

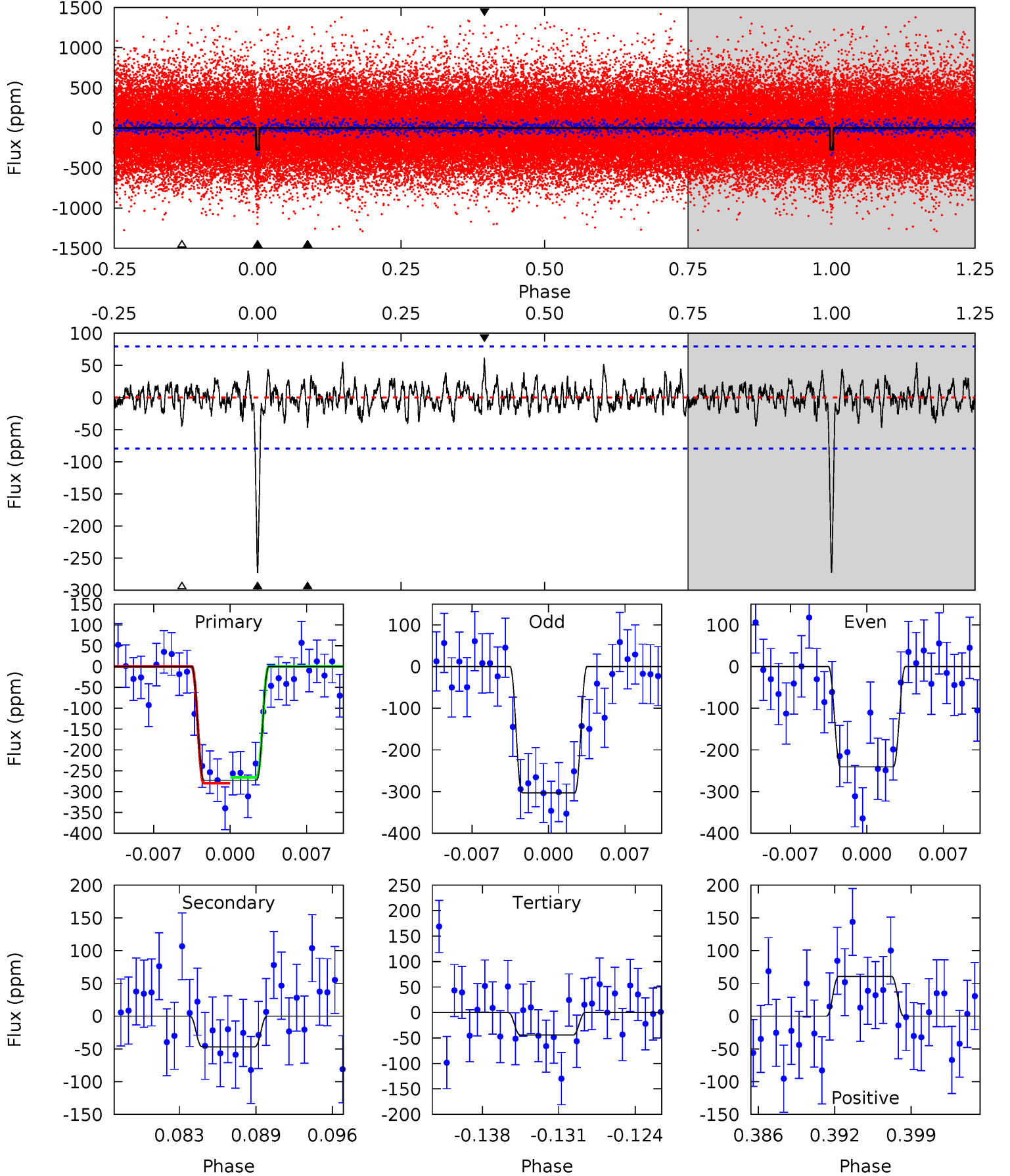
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	3.45	3.25	4.50	5.08	2.67	1.16	15.1	13.9	0.20	-1.06	1.53	0.96	0.20	0.43



# Alt Model-Shift Uniqueness Test

008738775-01, P = 48.052155 Days, E = 92.441424 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
17.5	3.00	2.84	3.89	5.10	2.70	1.00	14.7	13.6	0.16	-0.89	2.00	1.04	0.18	0.43



### Stellar Parameters For KIC 008738775

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5332^{+95}_{-63}$	$4.083^{+0.338}_{-0.113}$	$0.180^{+0.200}_{-0.100}$	$1.453^{+0.260}_{-0.483}$	$0.932^{+0.051}_{-0.057}$	$0.428^{+1.032}_{-0.146}$
	+2%/-1%	+8%/-3%	+111%/-56%	+18%/-33%	+5%/-6%	+241%/-34%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 008738775-01 / KOI 3432.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-52 \pm 15$	$2.80^{+0.60}_{-0.61}$	$782^{+43}_{-69}$	$3708^{+289}_{-247}$	$227^{+168}_{-93}$
Alt.	$-47 \pm 16$	$2.55^{+0.54}_{-0.55}$	$779^{+42}_{-74}$	$3738^{+308}_{-282}$	$245^{+192}_{-104}$

$T_{\text{max}}$  = 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

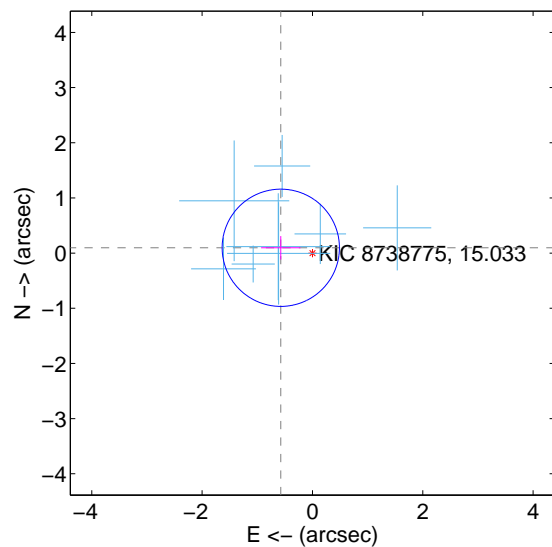
Supplemental centroid analysis for 008738775-01. Kepler magnitude: 15.03. Transit SNR 13.84

There are 8 quarters with good PRF difference image offsets

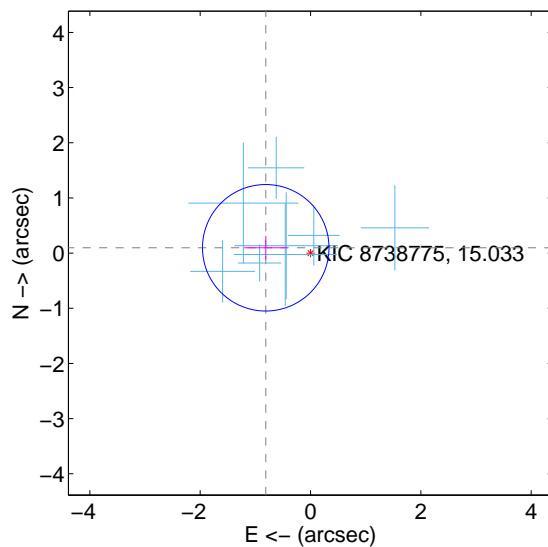
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.582 \pm 0.354$	1.64	$0.574 \pm 0.357$	$0.096 \pm 0.213$
PRF-fit source offset from KIC position	$0.817 \pm 0.382$	2.14	$0.812 \pm 0.390$	$0.096 \pm 0.214$
photometric centroid source offset	$0.80 \pm 0.95$	0.84	$-0.09 \pm 0.94$	$-0.79 \pm 0.95$

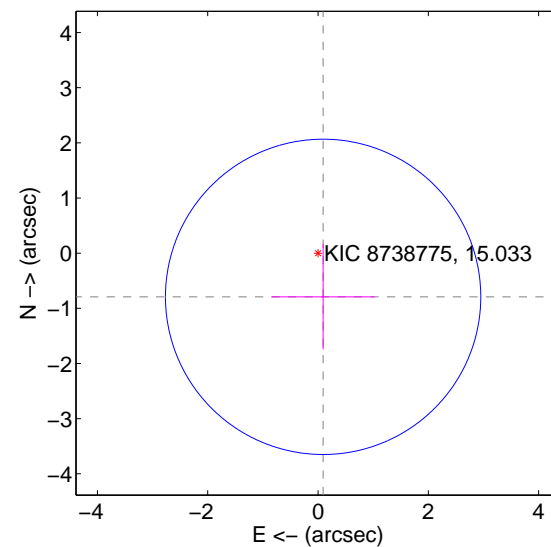
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

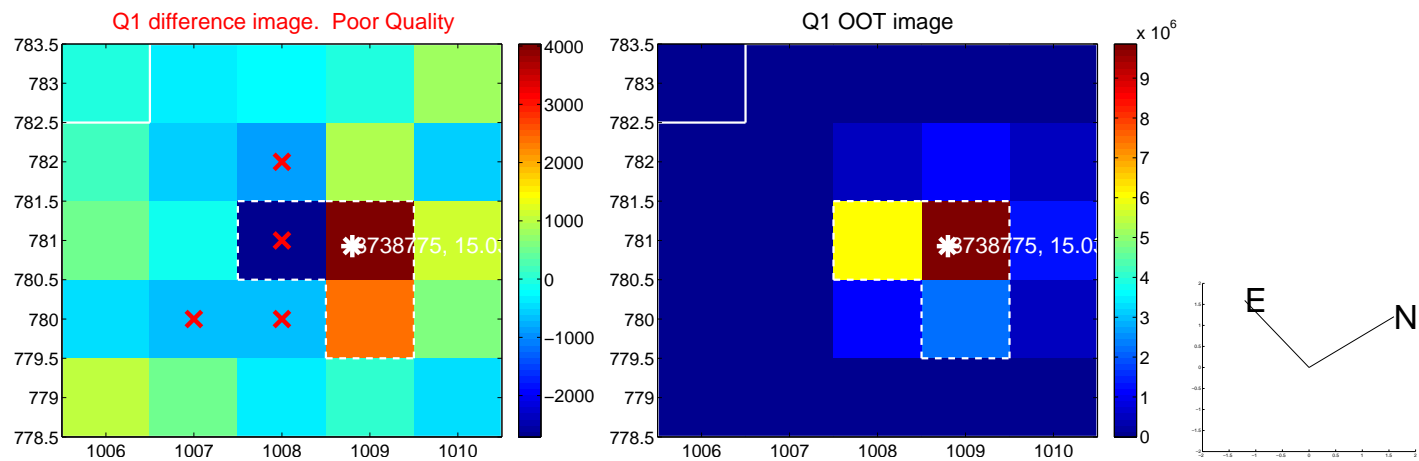


offset from photometric centroids

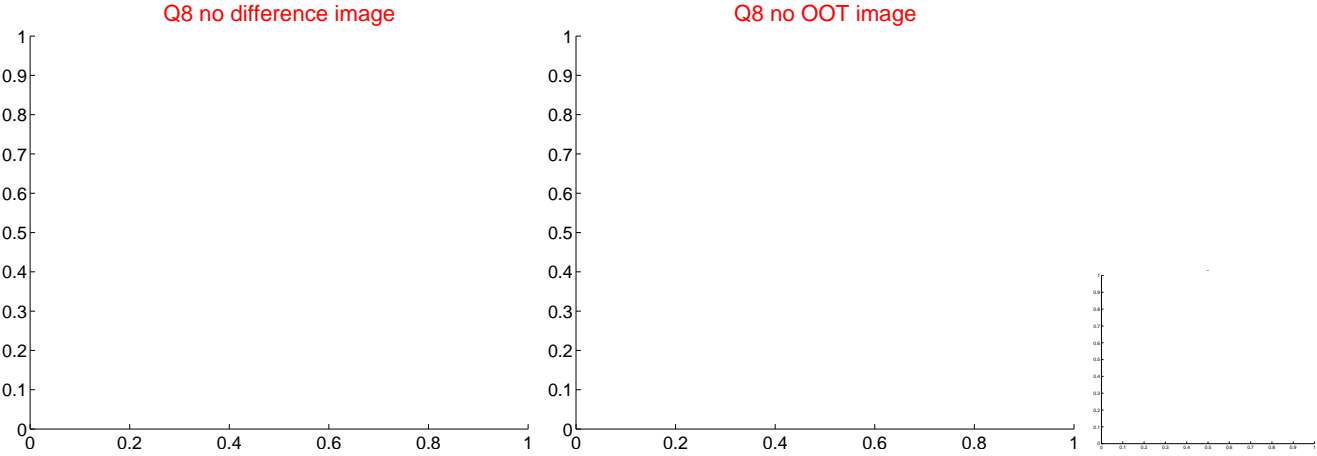
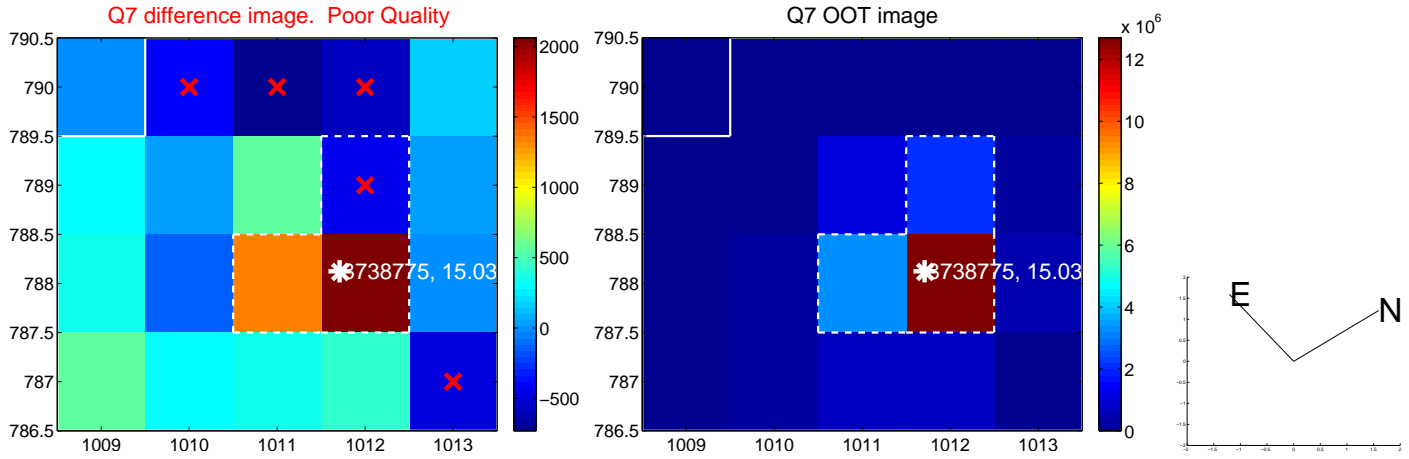
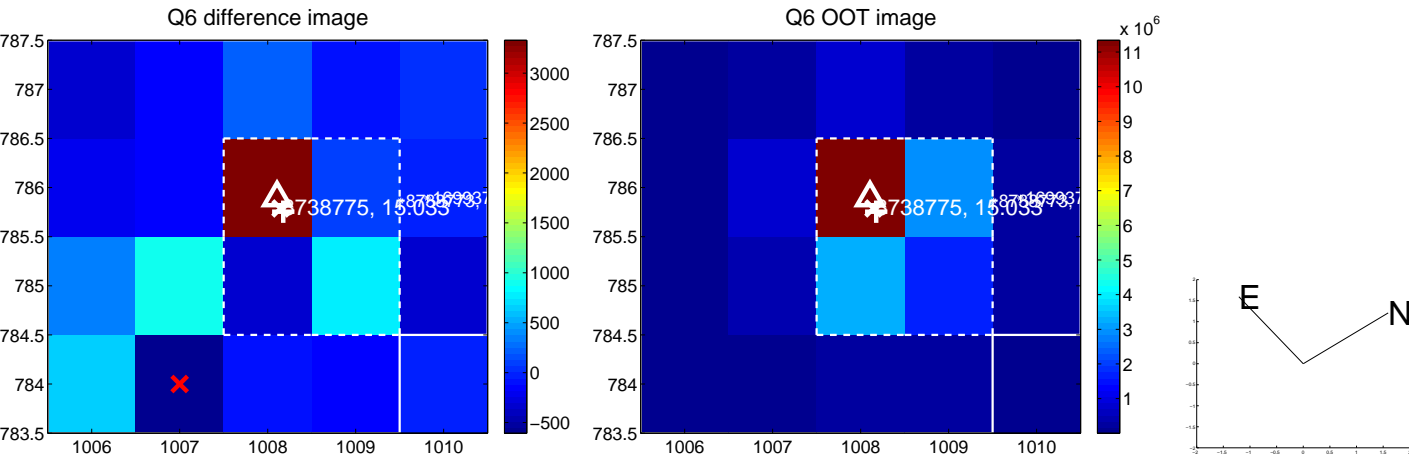
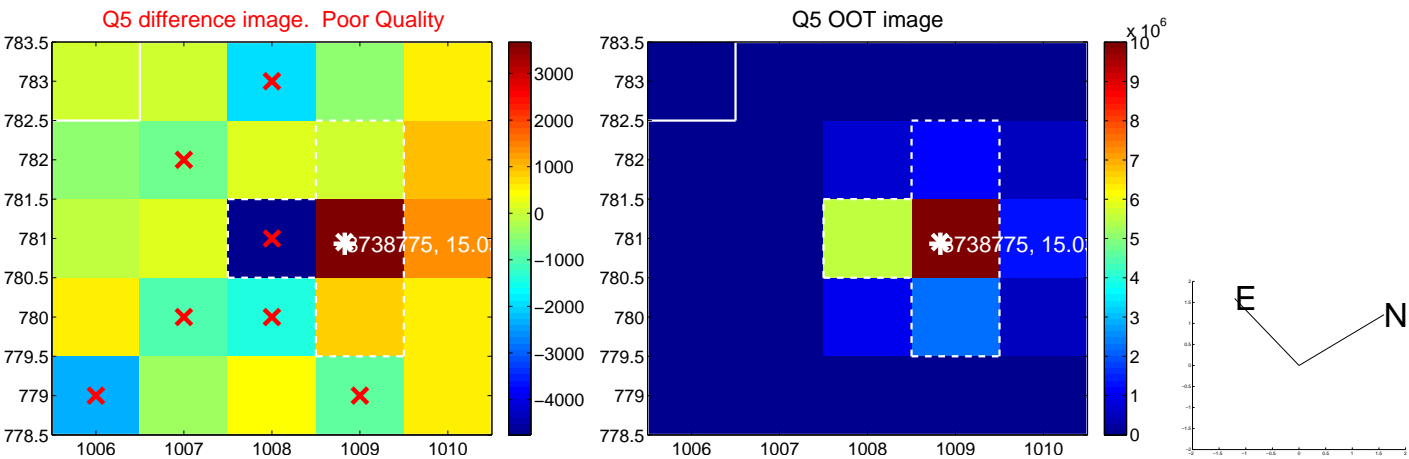


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

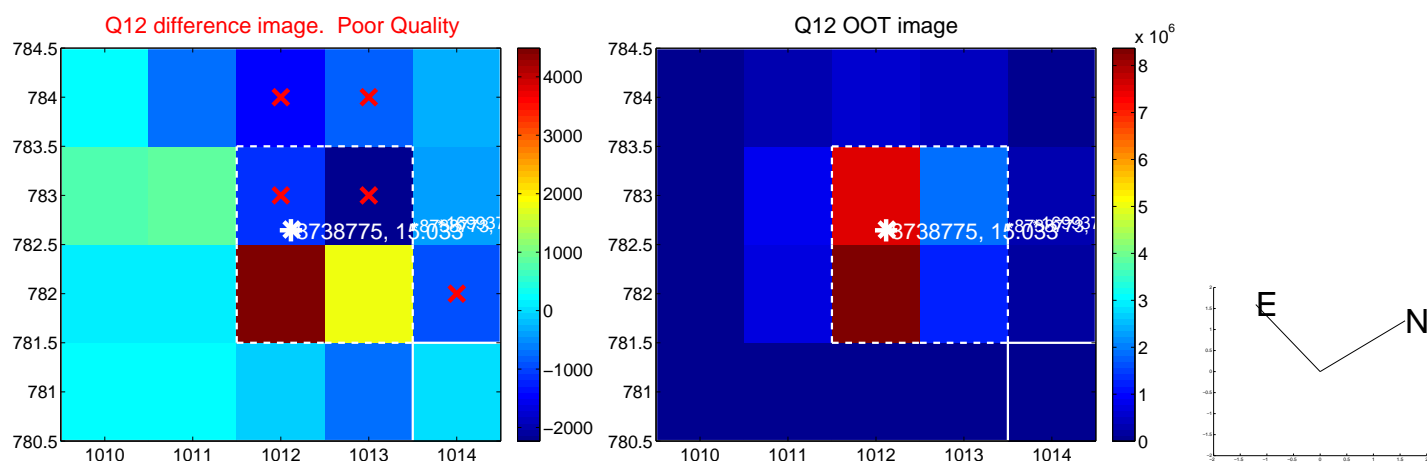
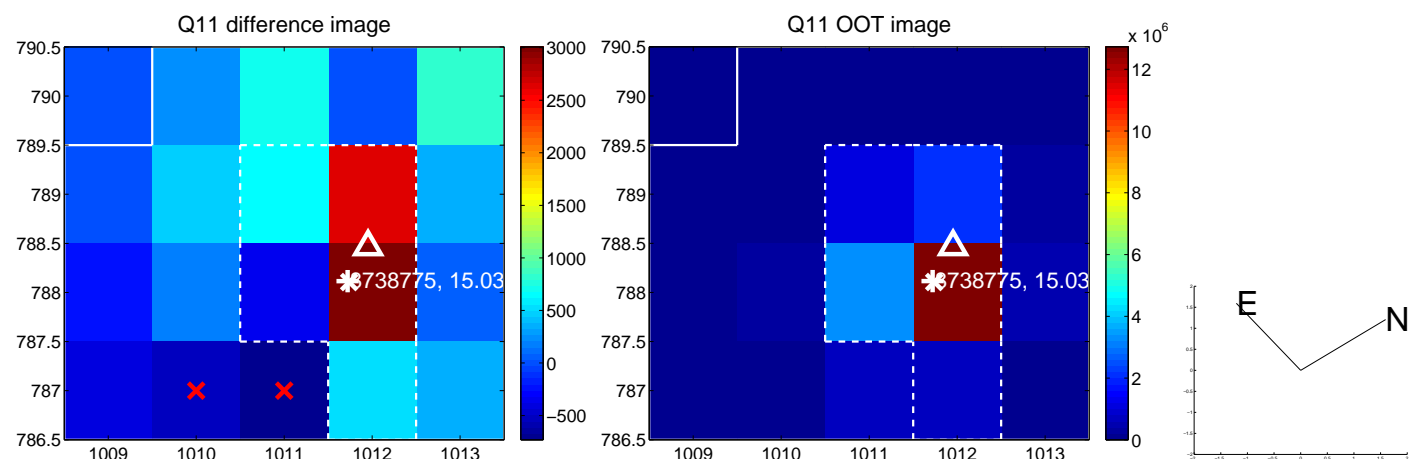
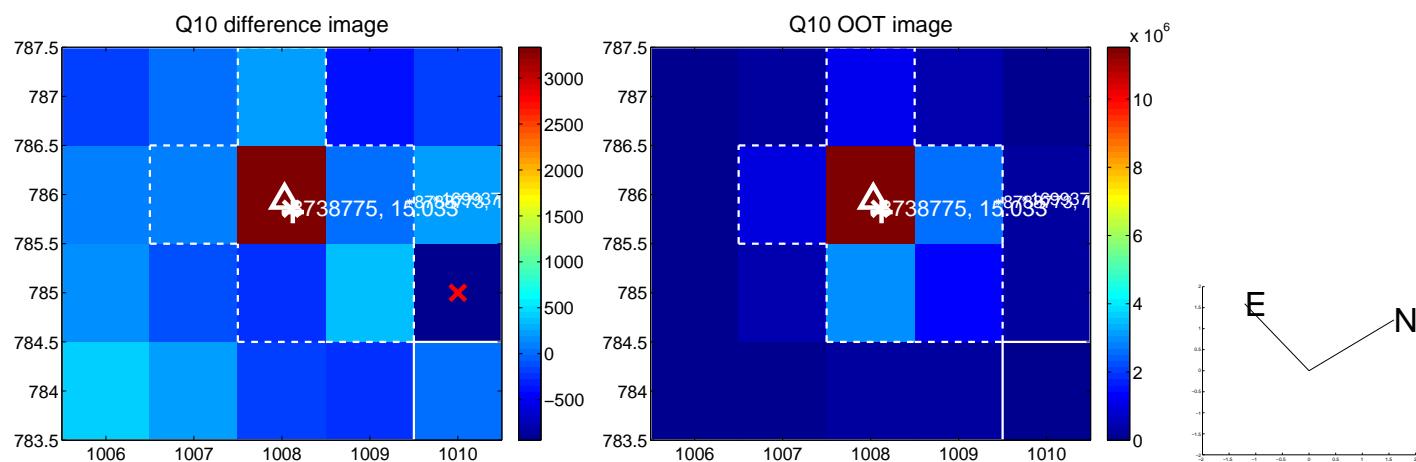
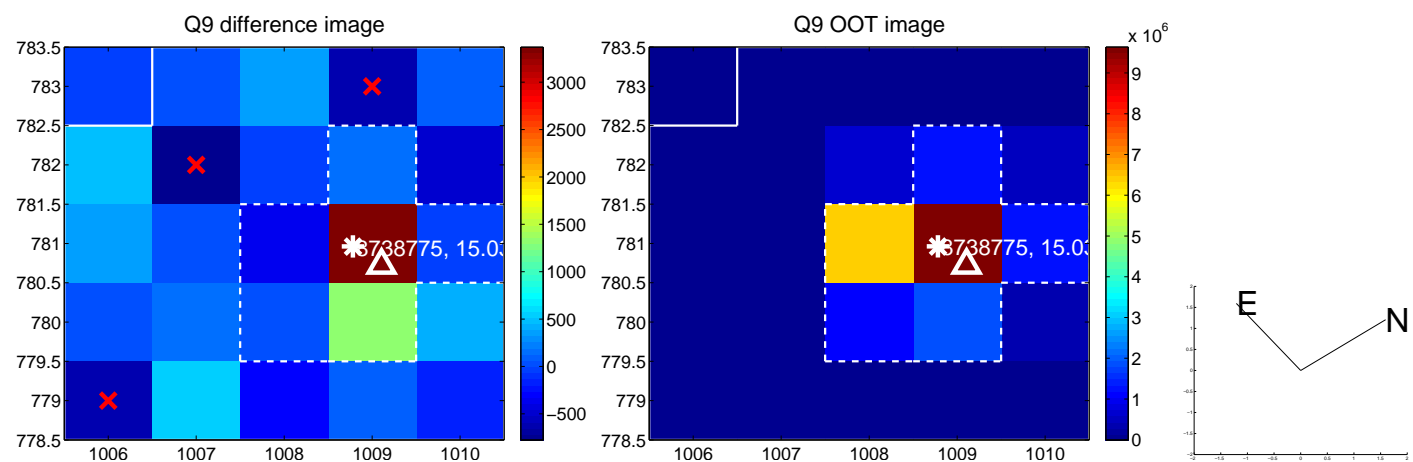
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

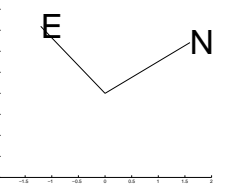
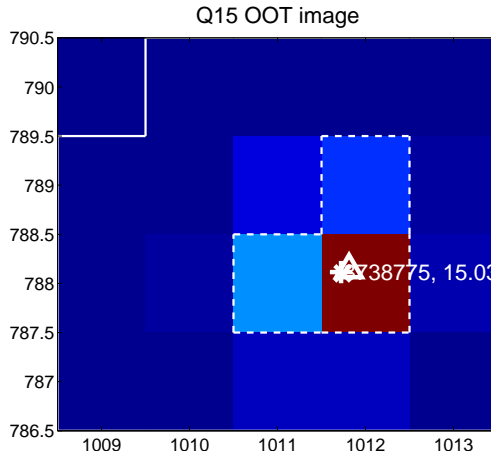
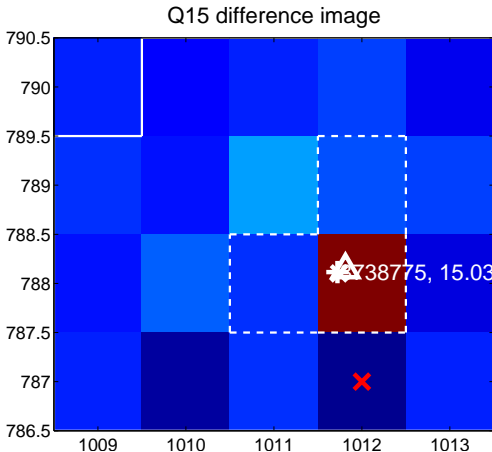
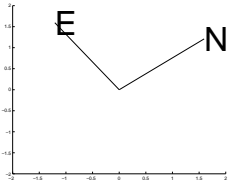
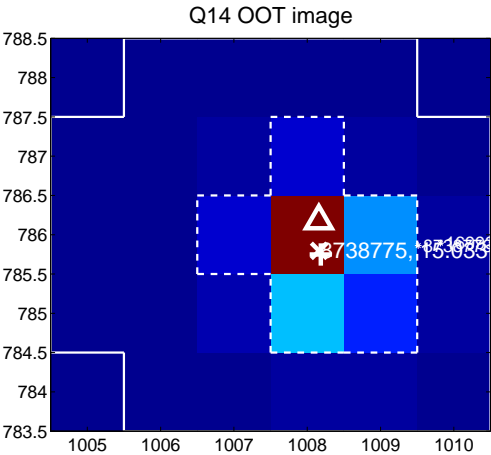
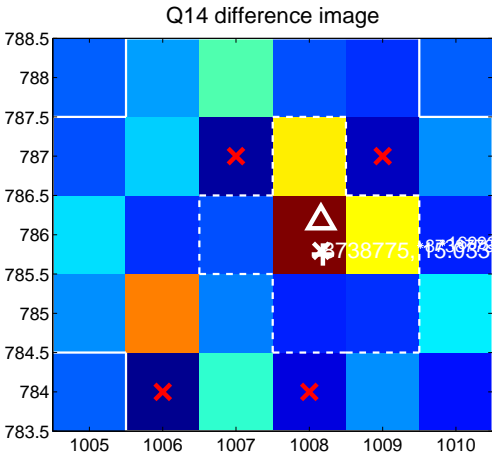
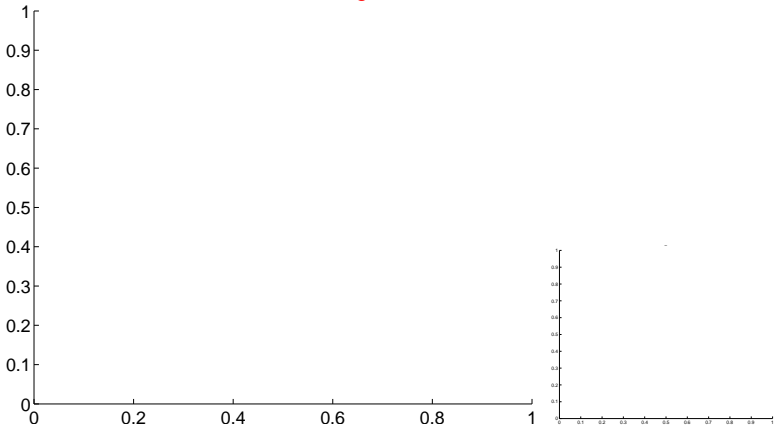


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

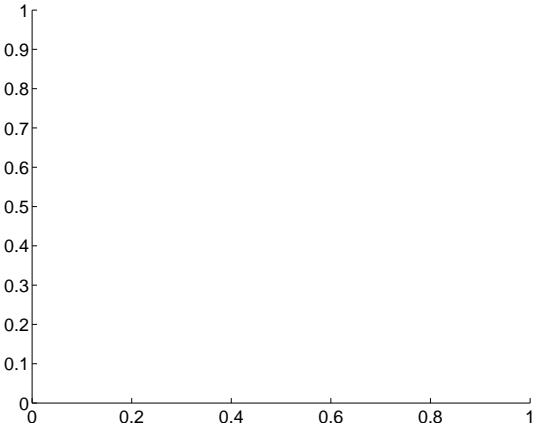
Q13 no difference image



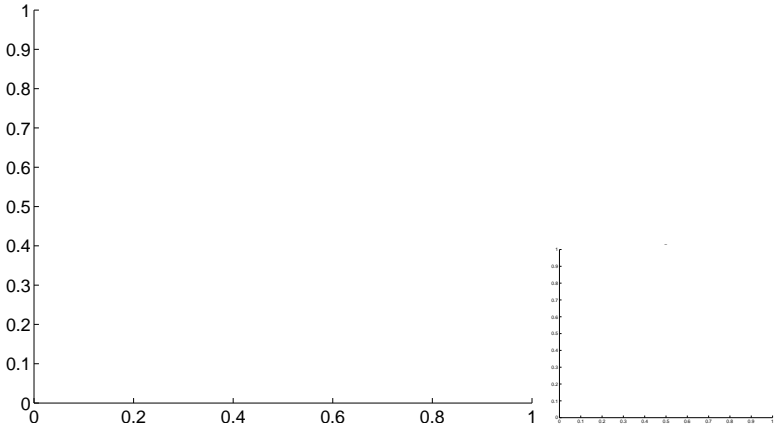
Q13 no OOT image



Q16 no difference image

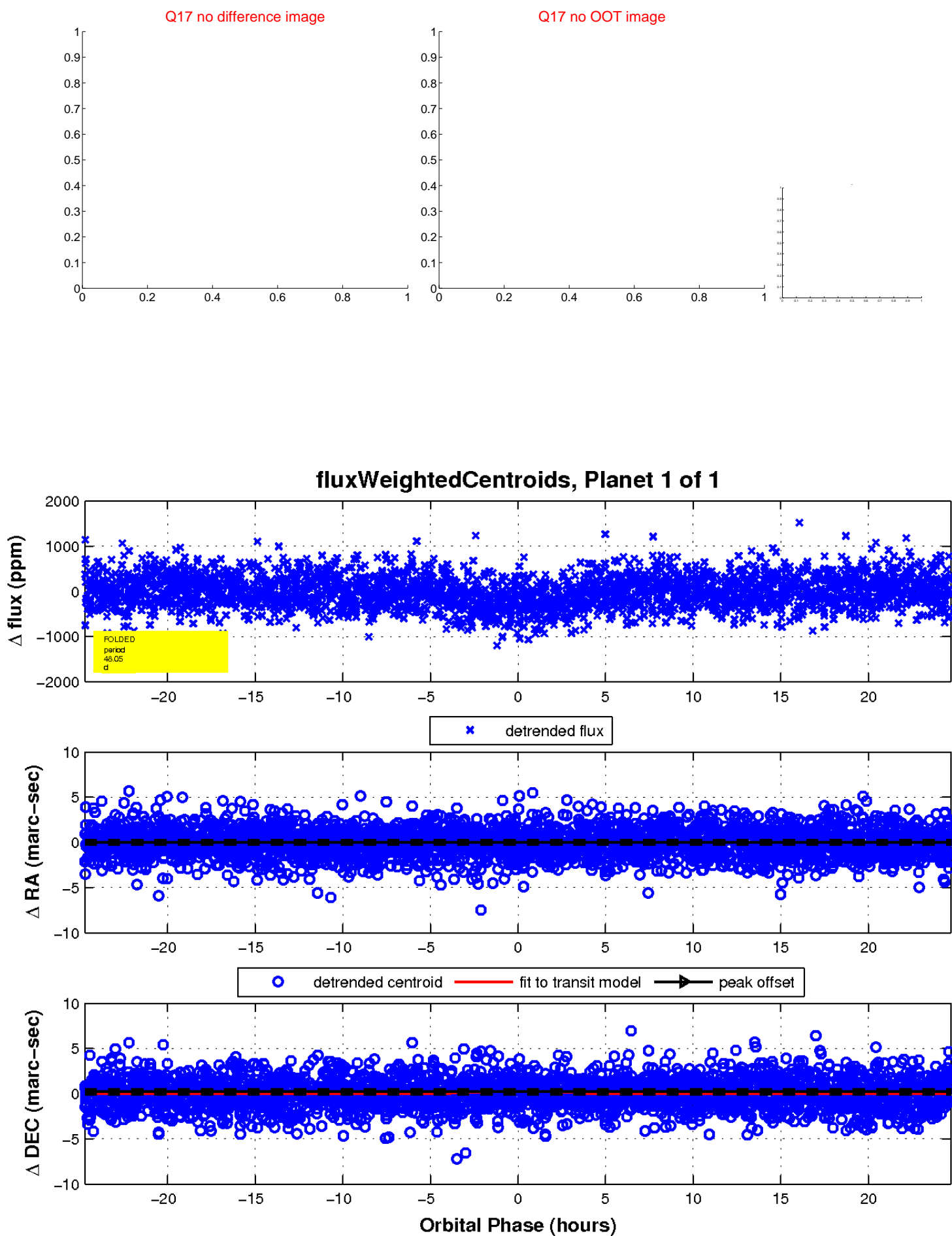


Q16 no OOT image





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



UKIRT Image

Declination

