

# KIC 007212184

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007212184-01	OBS	2487.01	36.292291	132.173287	355.9	8.391	18.8	19.6	1.61	5843	3.56	55.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007212184-01	OBS	PC	0.99	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.

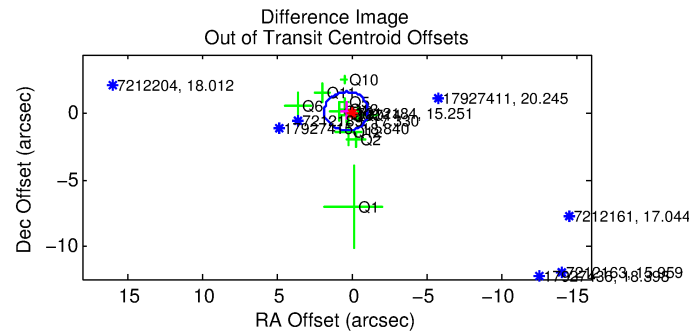
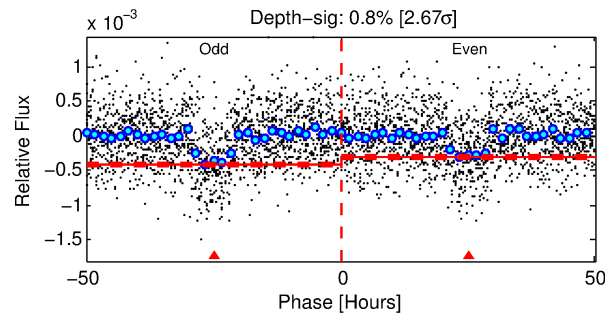
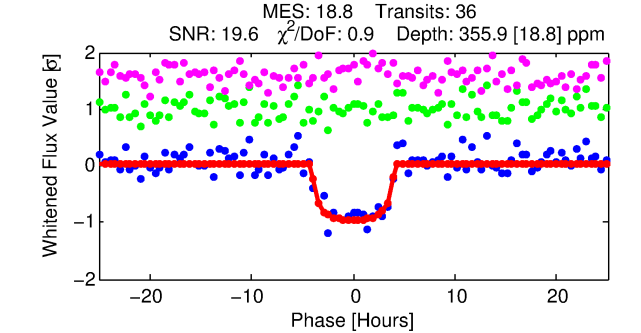
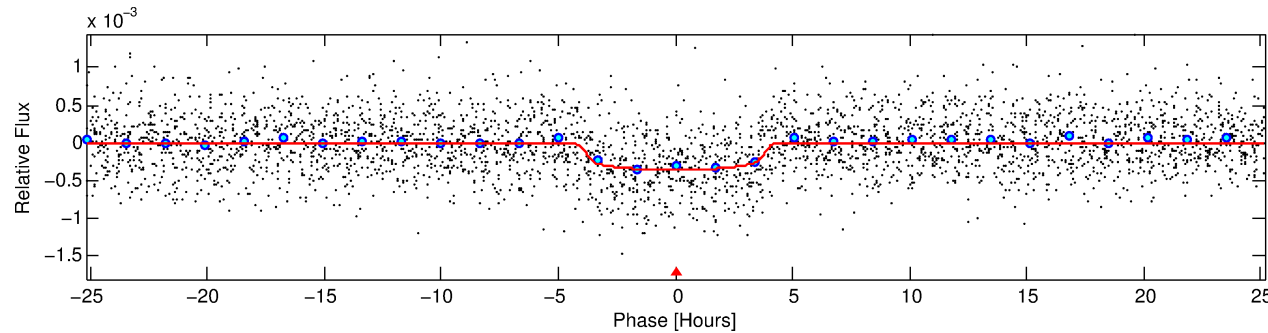
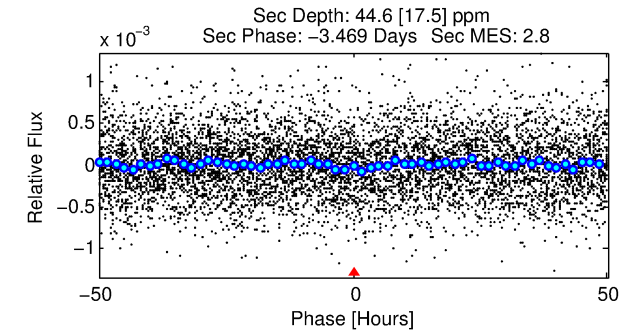
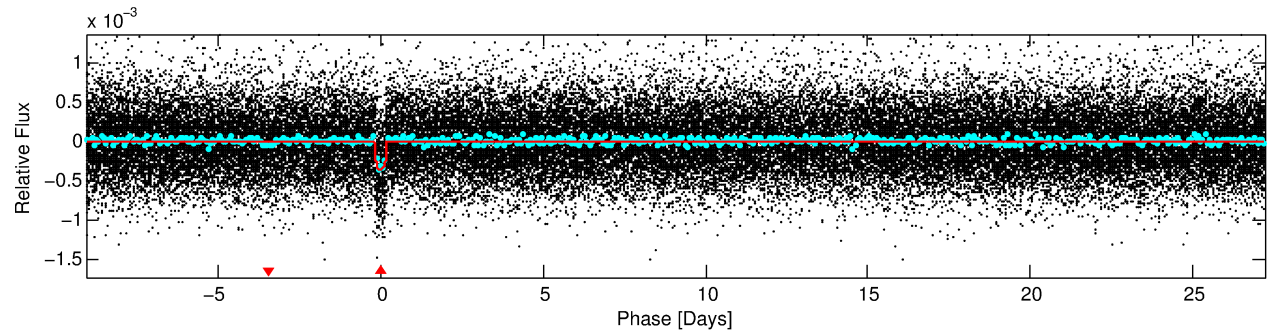
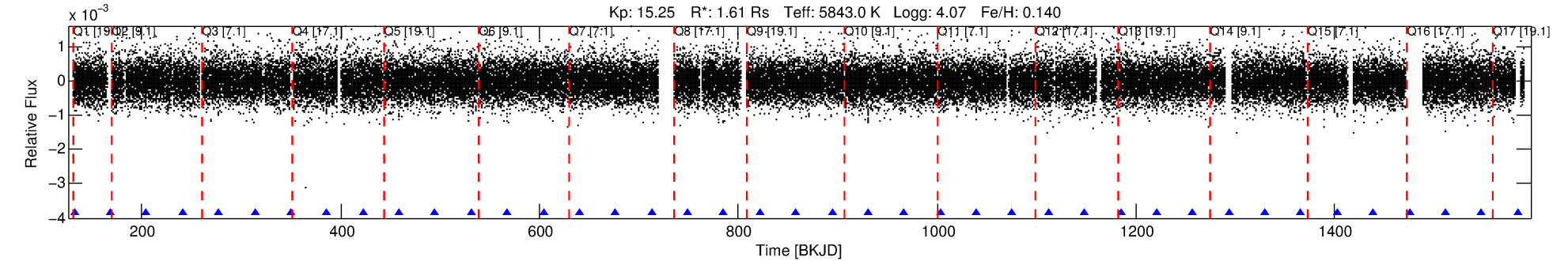
## Ephemeris Match Information For 007212184-01

No Significant Match Found

# DV One-Page Summary

KIC: 7212184 Candidate: 1 of 1 Period: 36.292 d

KOI: K02487.01 Corr: 0.984



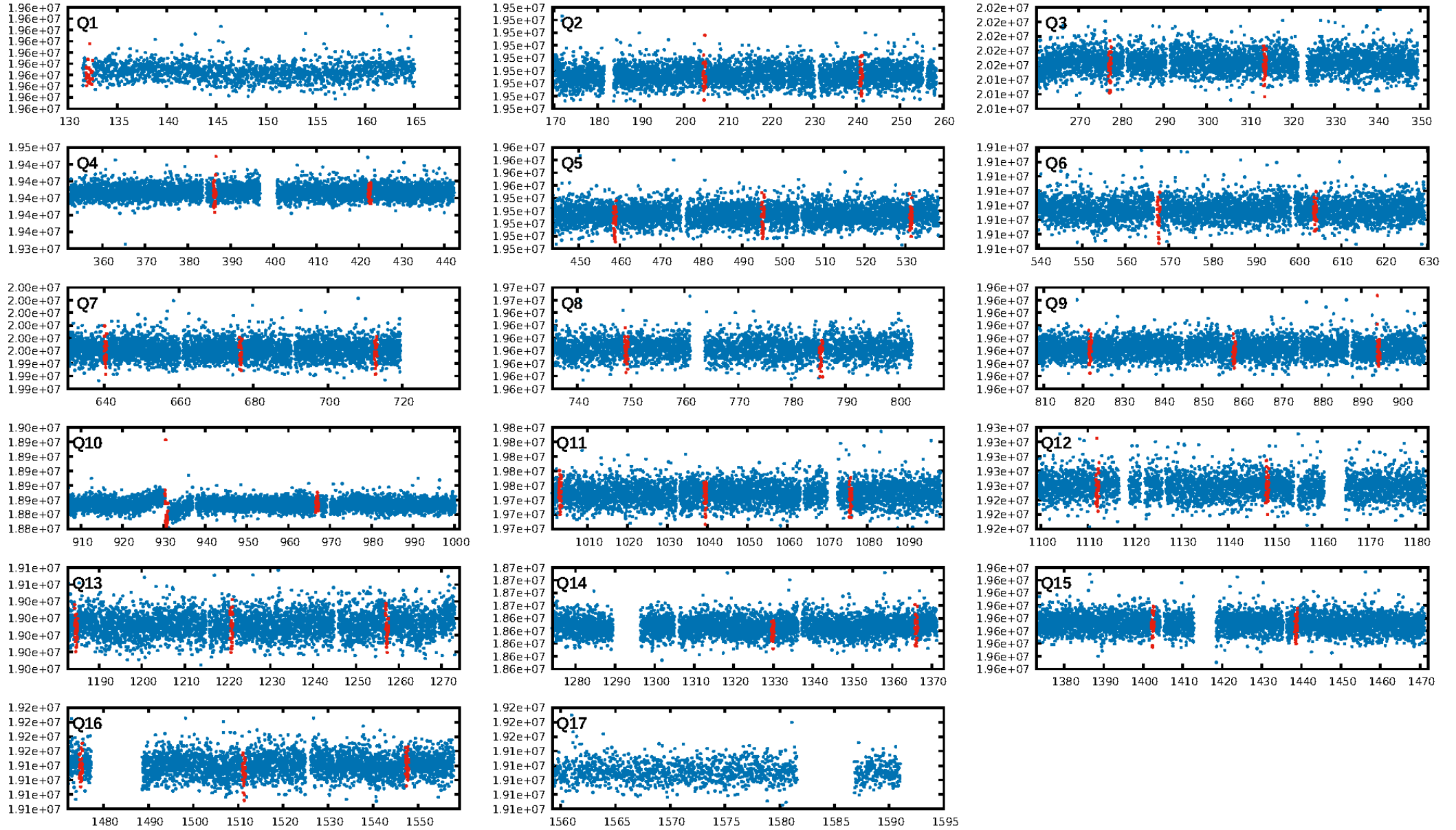
## DV Fit Results:

Period = 36.29229 [0.00039] d  
Epoch = 132.1733 [0.0089] BKJD  
Rp/R\* = 0.0202 [0.0021]  
a/R\* = 16.97 [7.86]  
b = 0.88 [0.12]  
Seff = 55.01 [17.52]  
Teff = 694 [55] K  
Rp = 3.56 [0.84] Re  
a = 0.2225 [0.0445] AU  
Ag = 95.75 [52.02] [1.82 $\sigma$ ]  
Teffp = 3359 [375] K [7.03 $\sigma$ ]

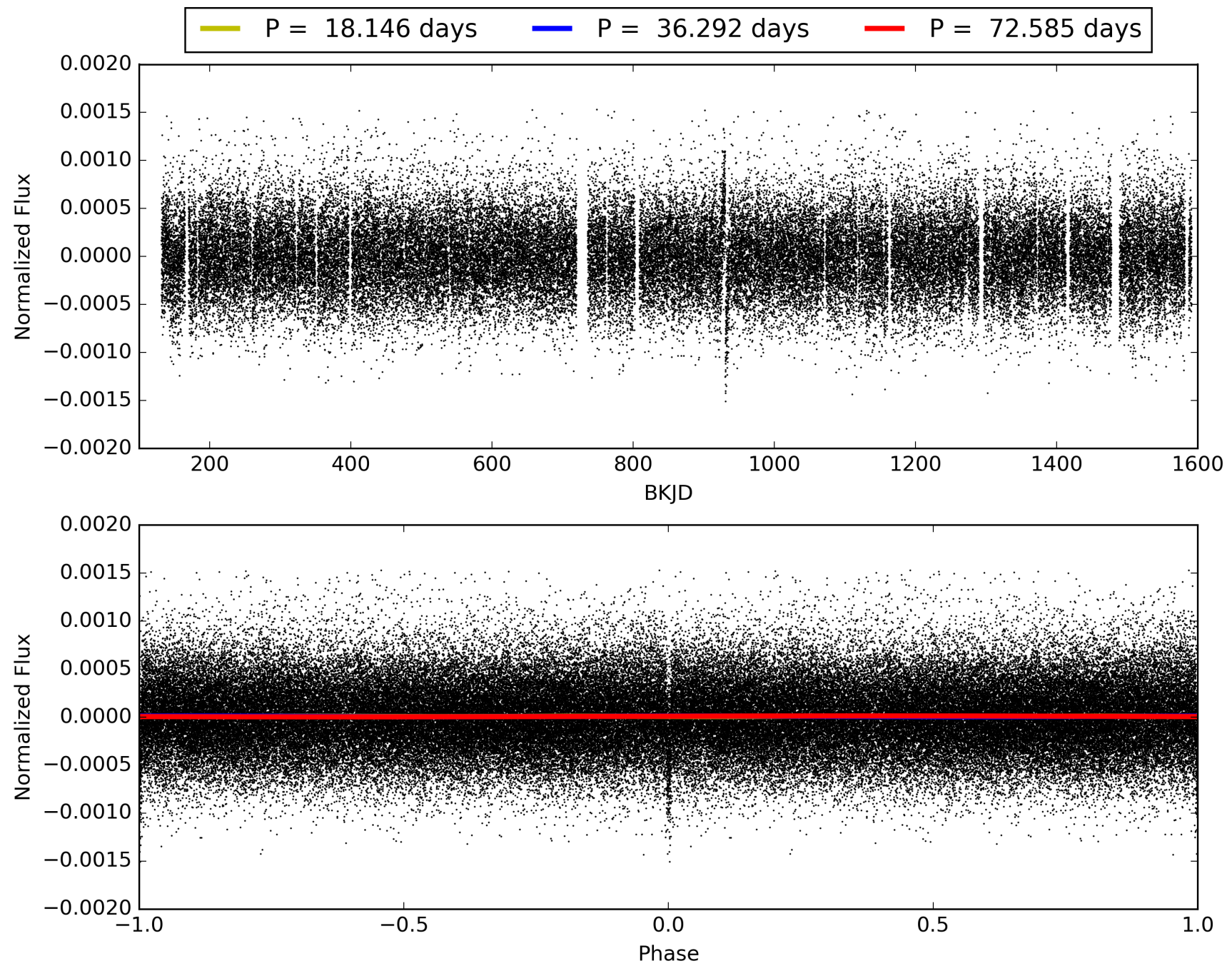
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.38e-78  
RollingBand-fgt: 1.00 [35/35]  
GhostDiagnostic-chr: 2.068  
Centroid-sig: 0.8%  
Centroid-so: 1.174 arcsec [1.73 $\sigma$ ]  
OotOffset-rm: 0.404 arcsec [0.83 $\sigma$ ]  
KicOffset-rm: 0.525 arcsec [0.99 $\sigma$ ]  
OotOffset-st: 4/2/3/4 [13]  
KicOffset-st: 4/2/3/4 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 007212184-01, PDC Light Curves

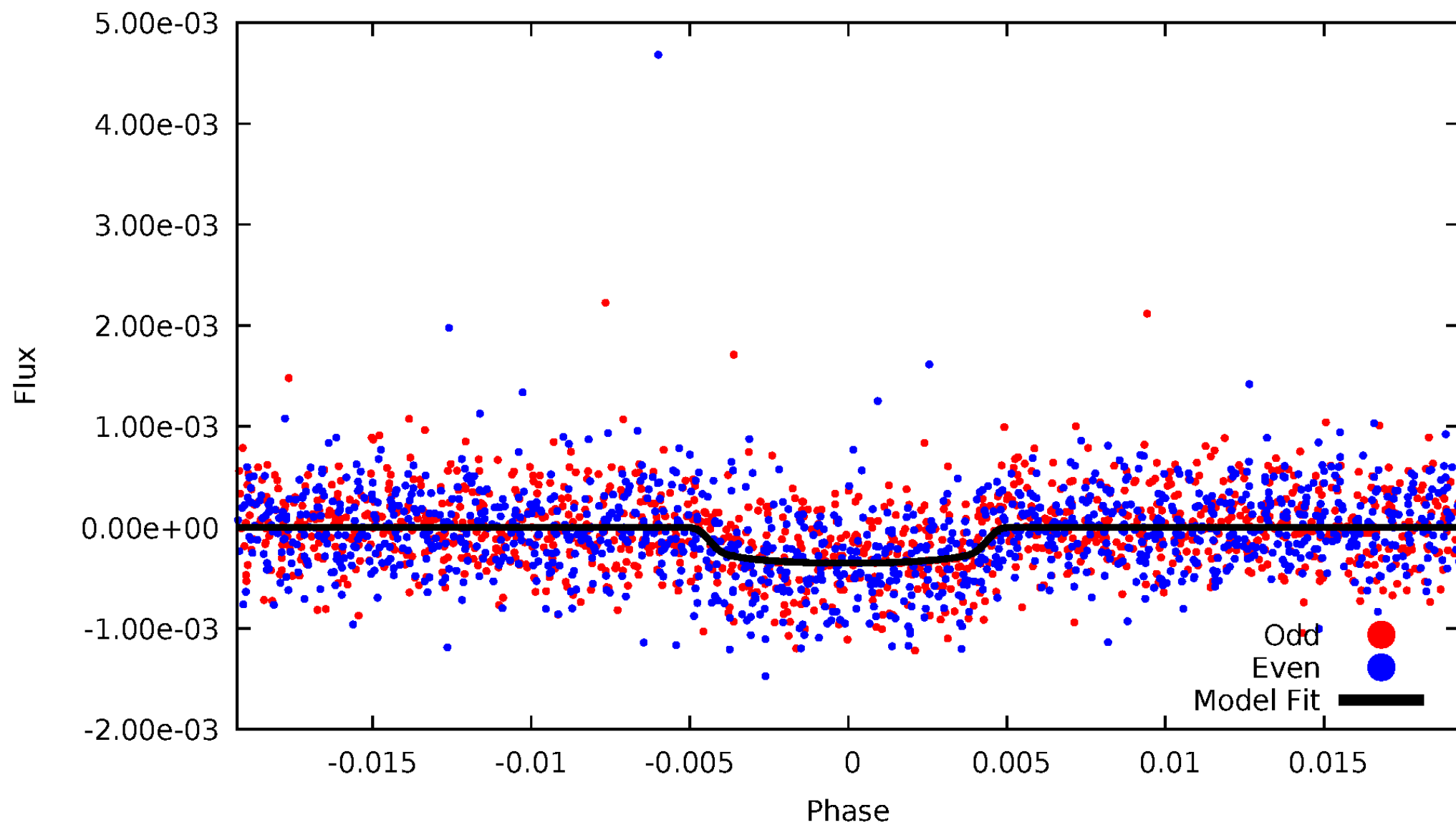


TCE 007212184-01



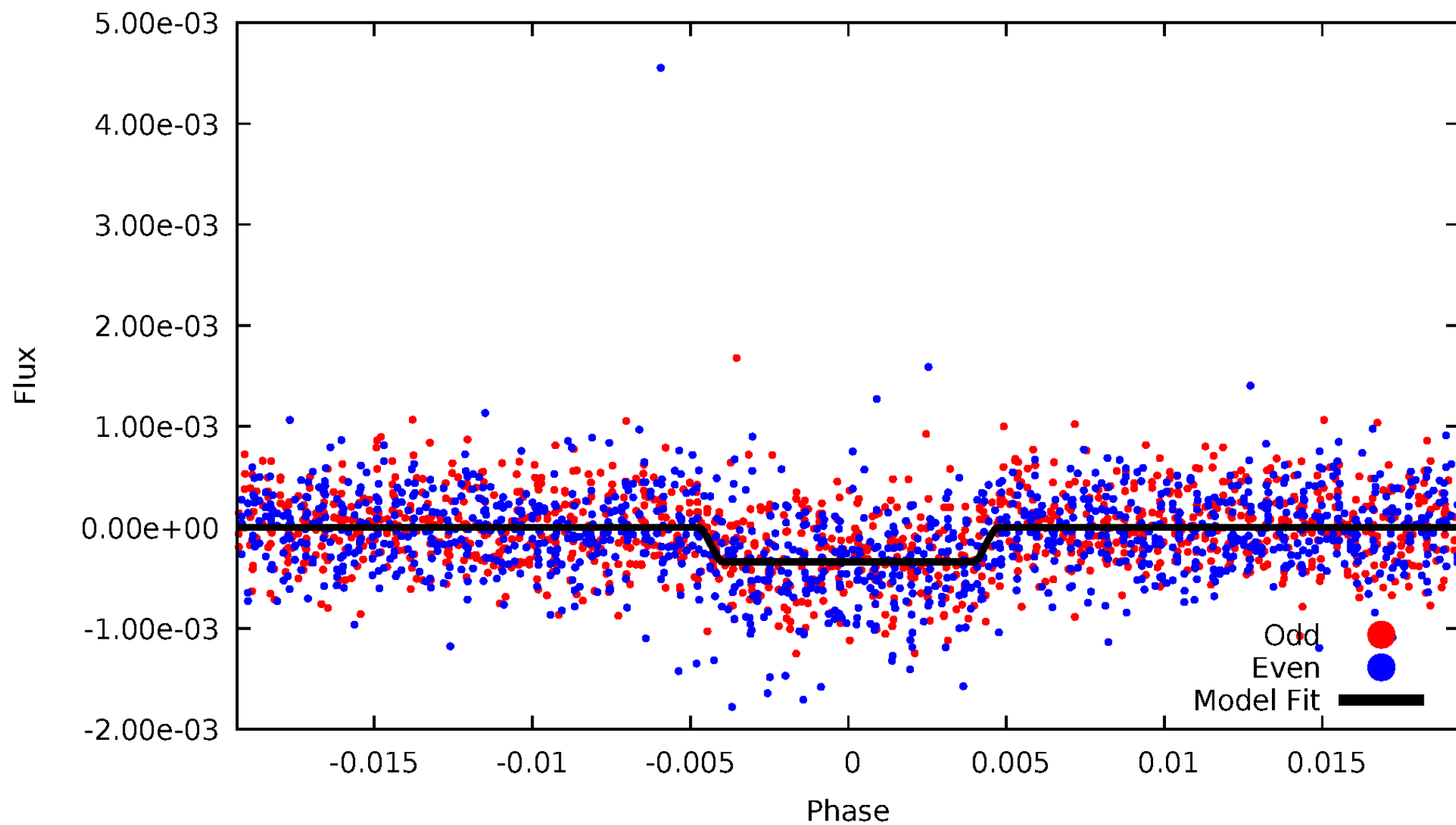
# DV Odd/Even

TCE 007212184-01



# ALT Odd/Even

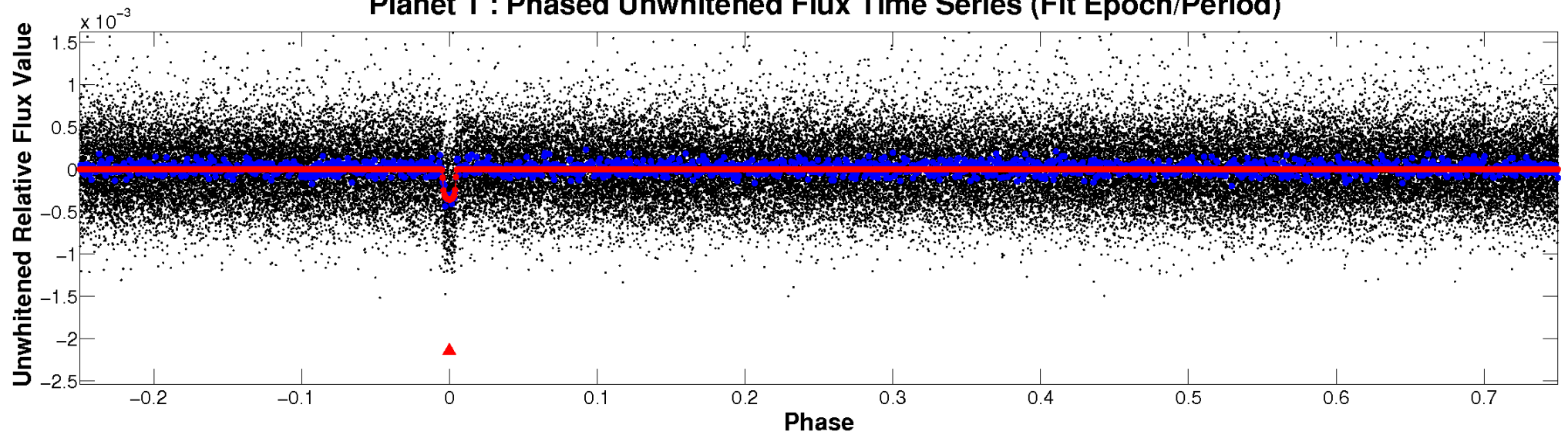
TCE 007212184-01



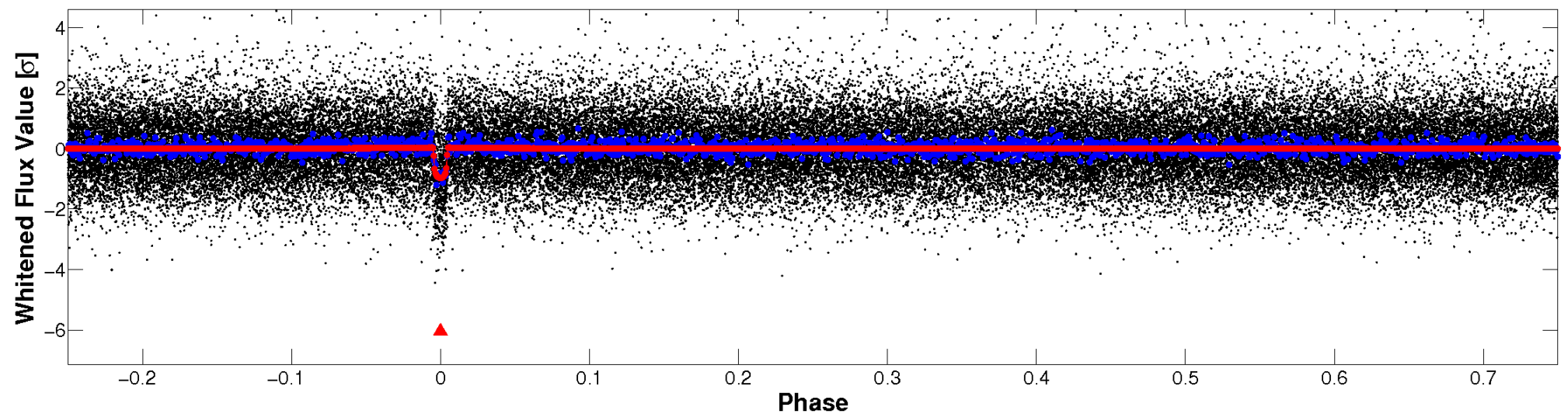


# Non-Whitened Vs. Whitened Light Curve

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

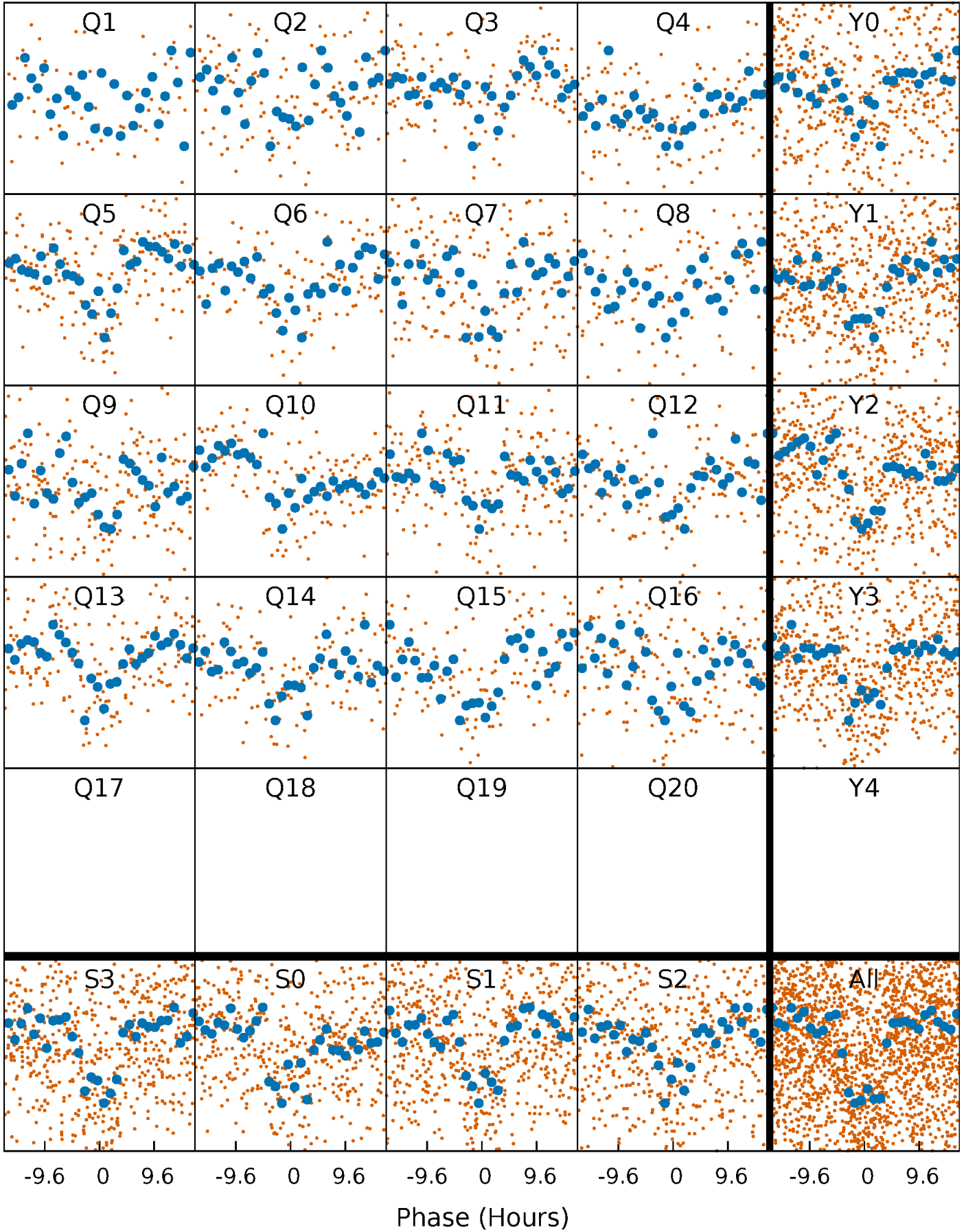


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

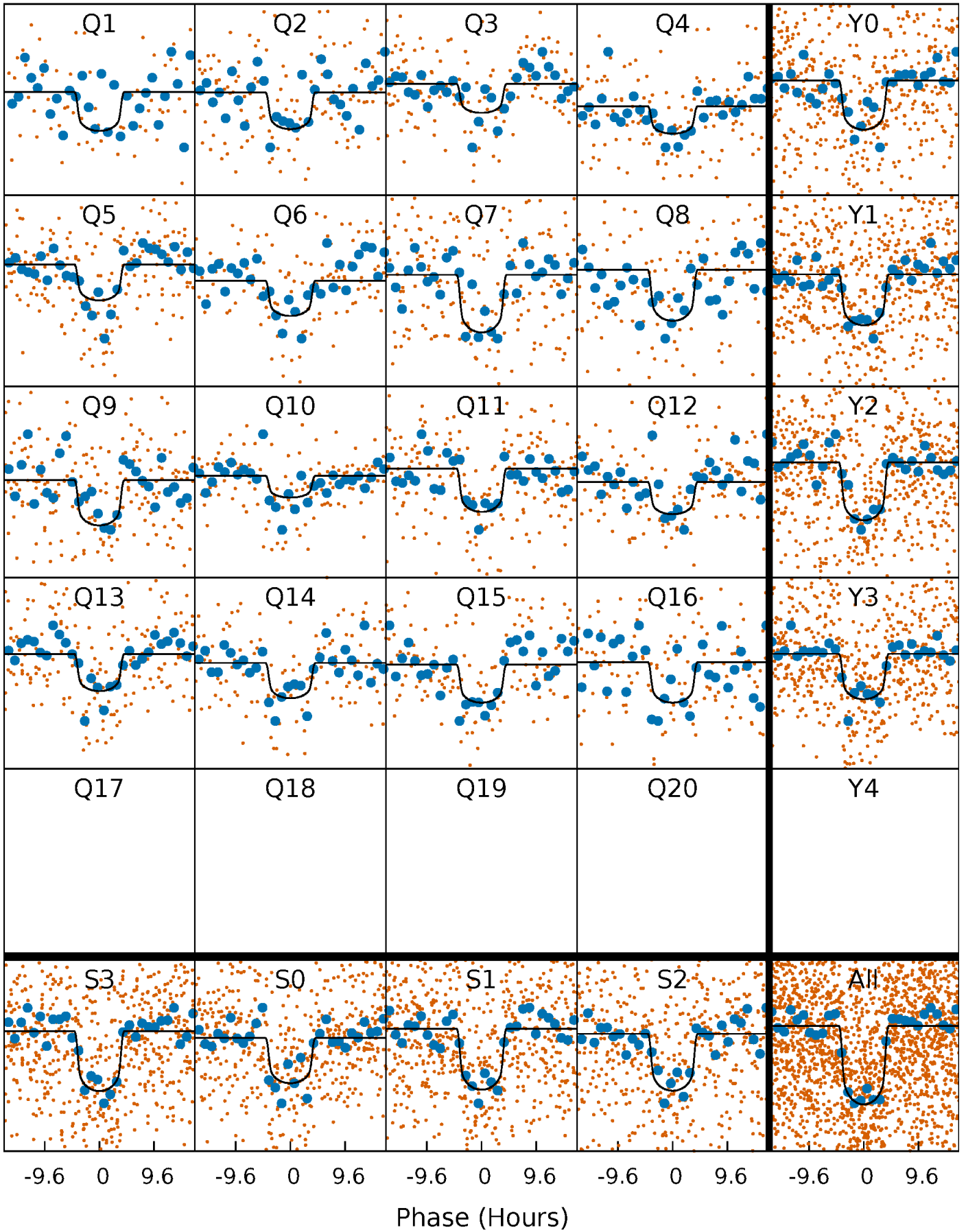
TCE 007212184-01 P= 36.292291 Days  $T_0=132.173287$  (BKJD)





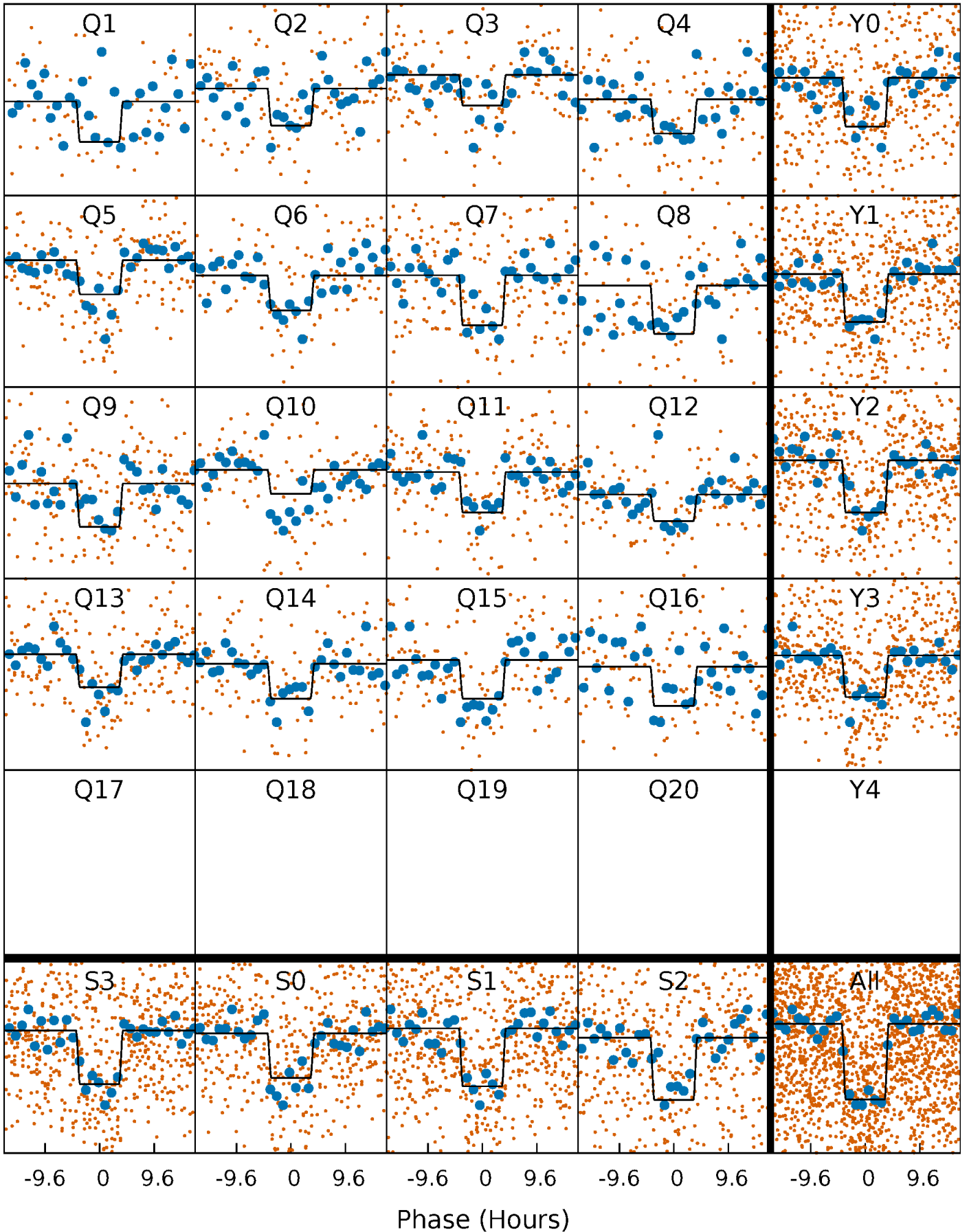
# DV Quarter-Phased Transit Curves

TCE 007212184-01 P= 36.292291 Days  $T_0=132.173287$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

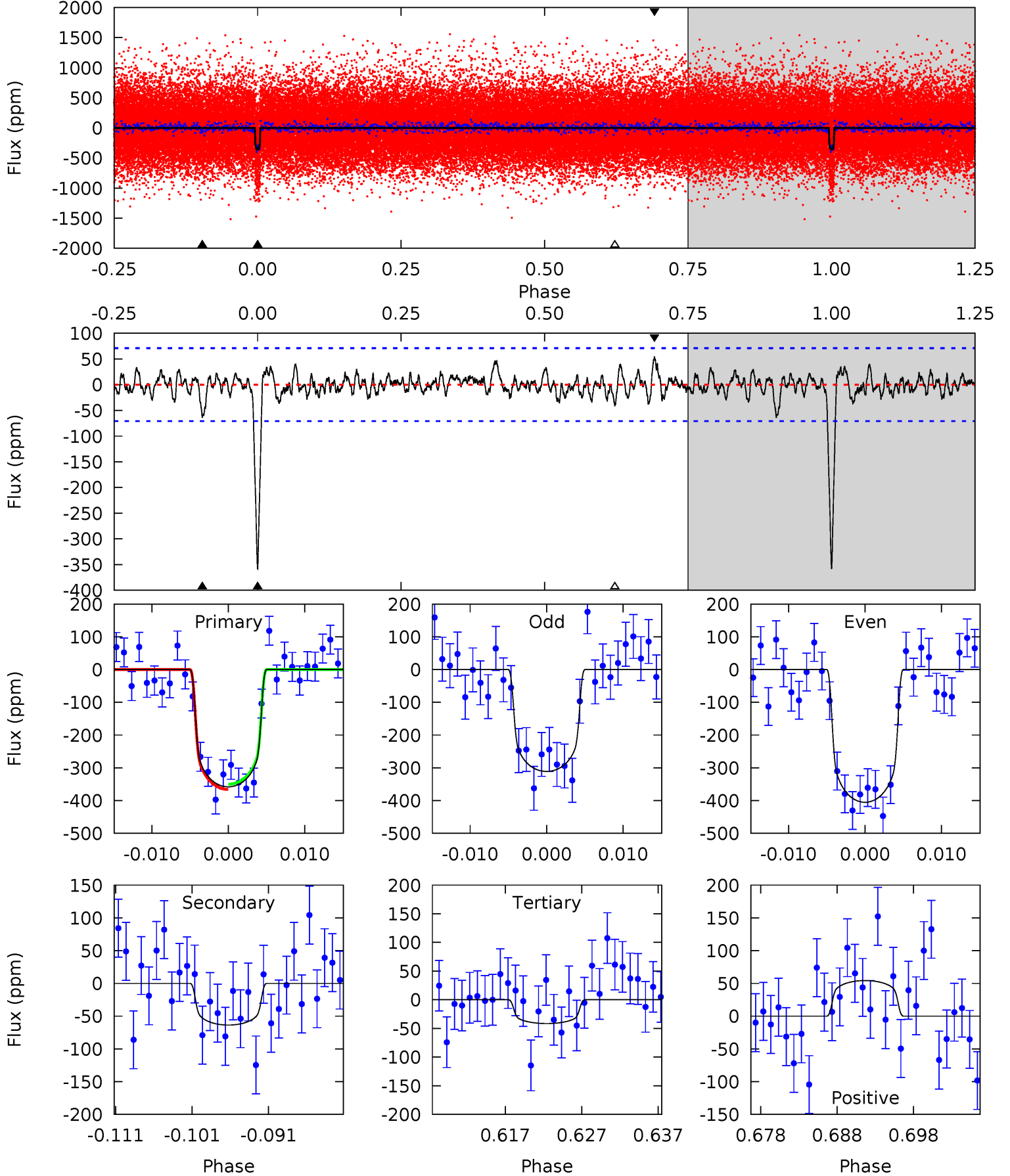
TCE 007212184-01 P= 36.292142 Days  $T_0=132.174341$  (BKJD)



# DV Model-Shift Uniqueness Test

007212184-01, P = 36.292291 Days, E = 95.880996 Days

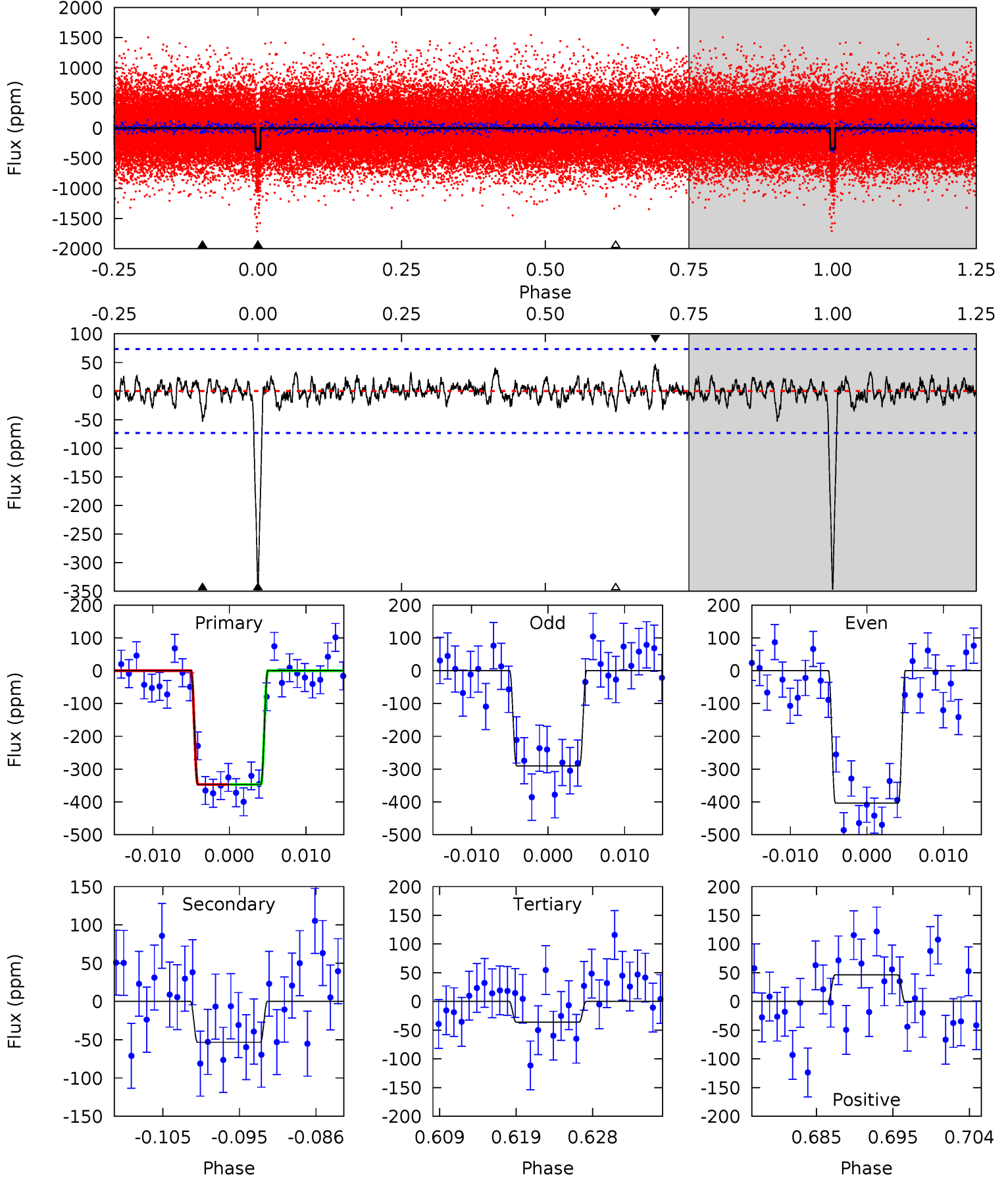
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	4.50	2.93	3.84	5.02	2.57	1.08	22.4	21.5	1.57	0.66	3.34	1.06	0.13	0.57



# Alt Model-Shift Uniqueness Test

007212184-01, P = 36.292142 Days, E = 95.882199 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
23.9	3.67	2.49	3.18	5.04	2.59	0.88	21.4	20.7	1.18	0.49	3.90	1.15	0.12	0.00



### Stellar Parameters For KIC 007212184

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5843^{+79}_{-79}$	$4.069^{+0.182}_{-0.084}$	$0.140^{+0.150}_{-0.150}$	$1.615^{+0.252}_{-0.346}$	$1.115^{+0.119}_{-0.095}$	$0.373^{+0.358}_{-0.113}$
	+1%/-1%	+4%/-2%	+107%/-107%	+16%/-21%	+11%/-9%	+96%/-30%
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 007212184-01 / KOI 2487.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-64 \pm 14$	$3.48^{+0.50}_{-0.52}$	$959^{+41}_{-50}$	$4000^{+205}_{-229}$	$143^{+65}_{-42}$
Alt.	$-53 \pm 15$	$3.20^{+0.47}_{-0.51}$	$959^{+44}_{-52}$	$3989^{+233}_{-252}$	$145^{+69}_{-51}$

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



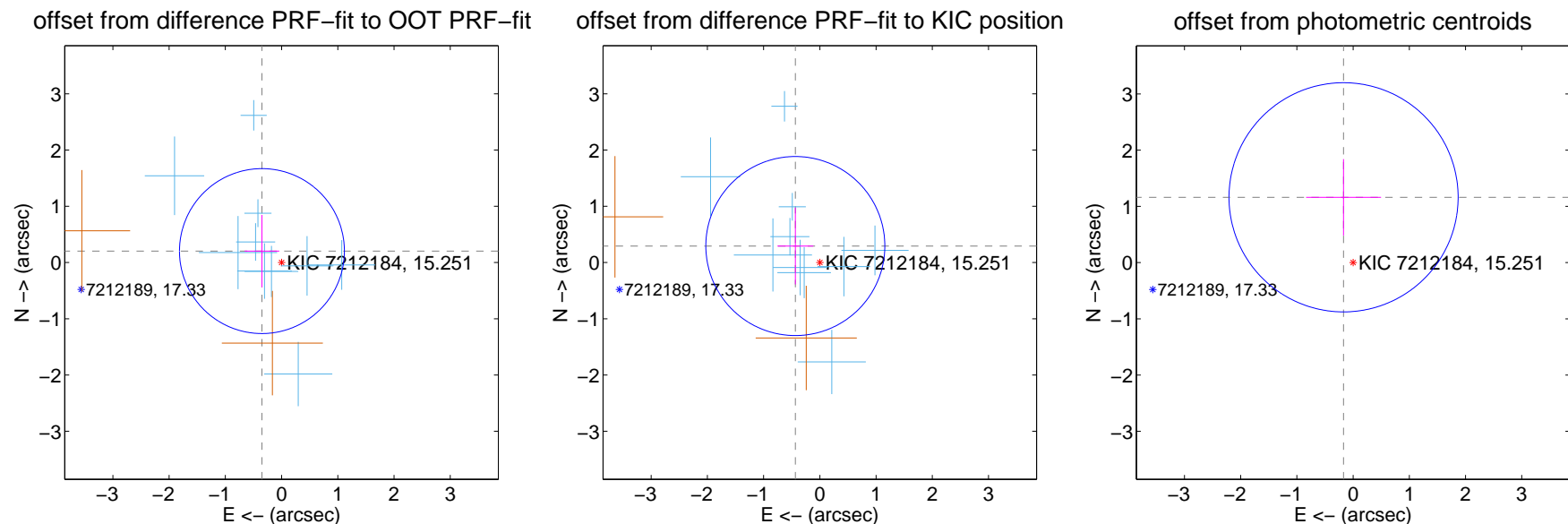
## DV Centroid Data

Supplemental centroid analysis for 007212184-01. Kepler magnitude: 15.25. Transit SNR 19.64

There are 10 quarters with good PRF difference image offsets

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

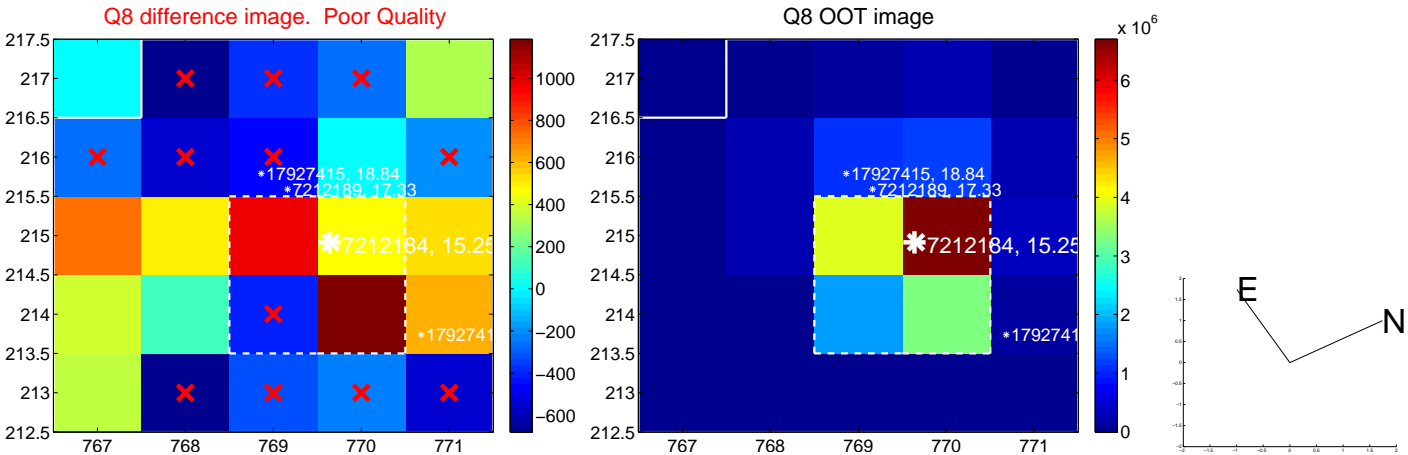
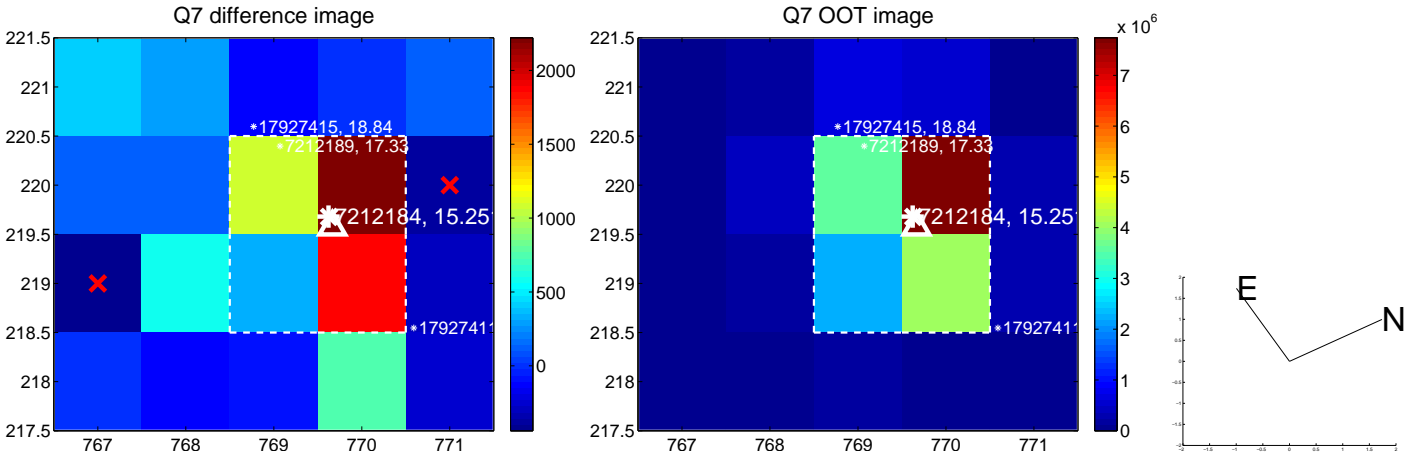
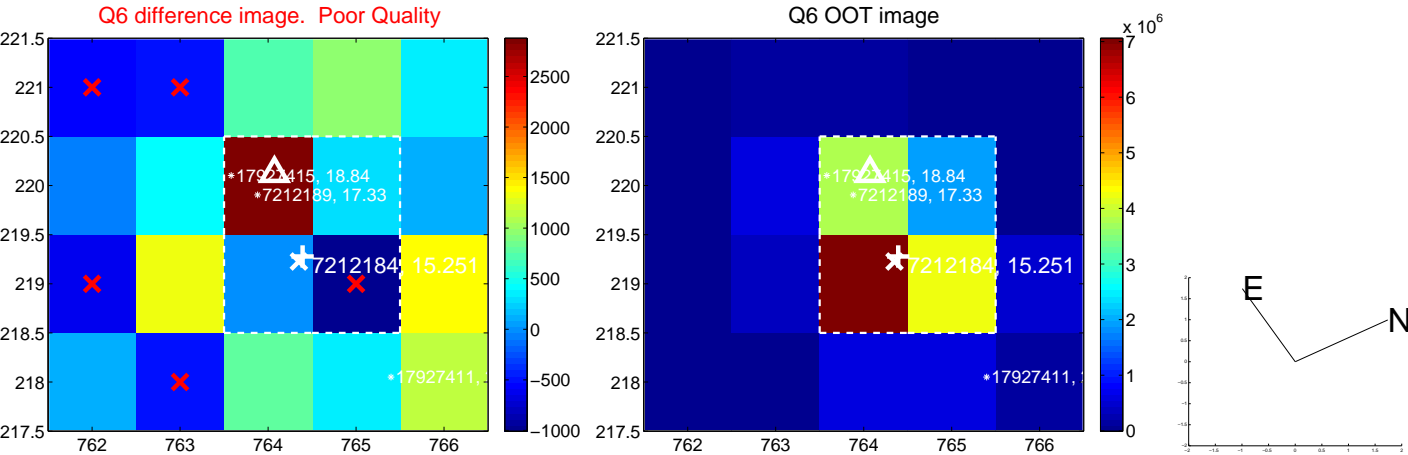
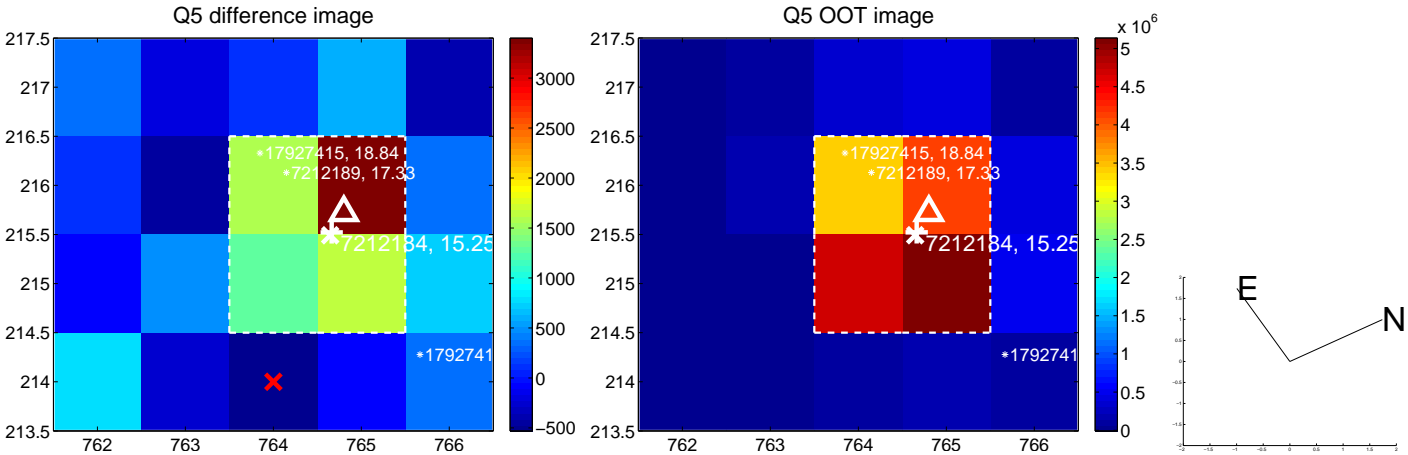
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.404 \pm 0.489$	0.83	$0.349 \pm 0.309$	$0.204 \pm 0.642$
PRF-fit source offset from KIC position	$0.525 \pm 0.530$	0.99	$0.436 \pm 0.319$	$0.293 \pm 0.683$
photometric centroid source offset	$1.17 \pm 0.68$	1.73	$0.17 \pm 0.67$	$1.16 \pm 0.68$



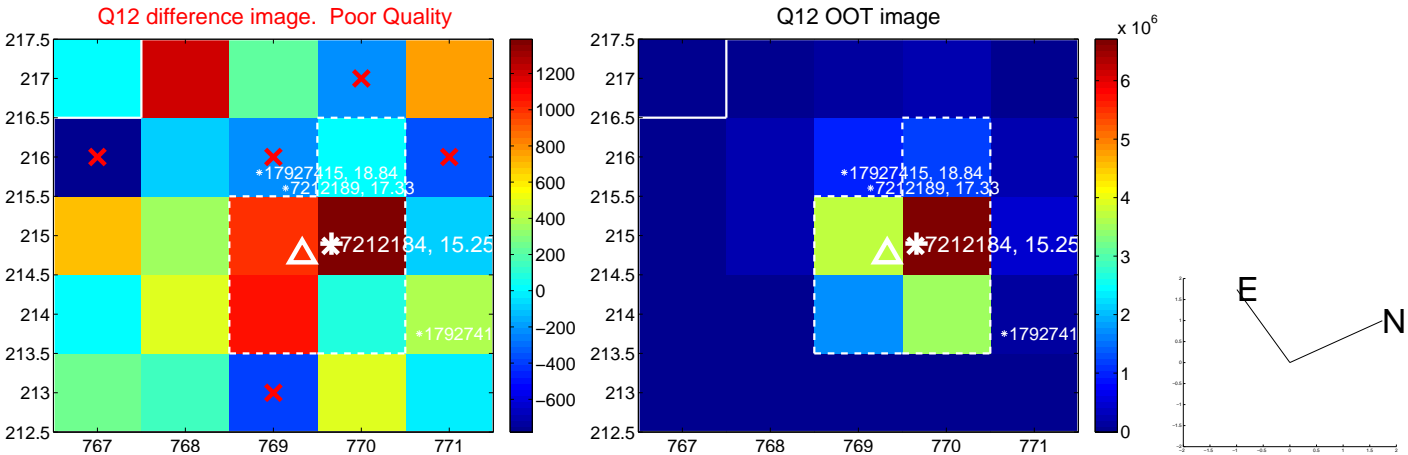
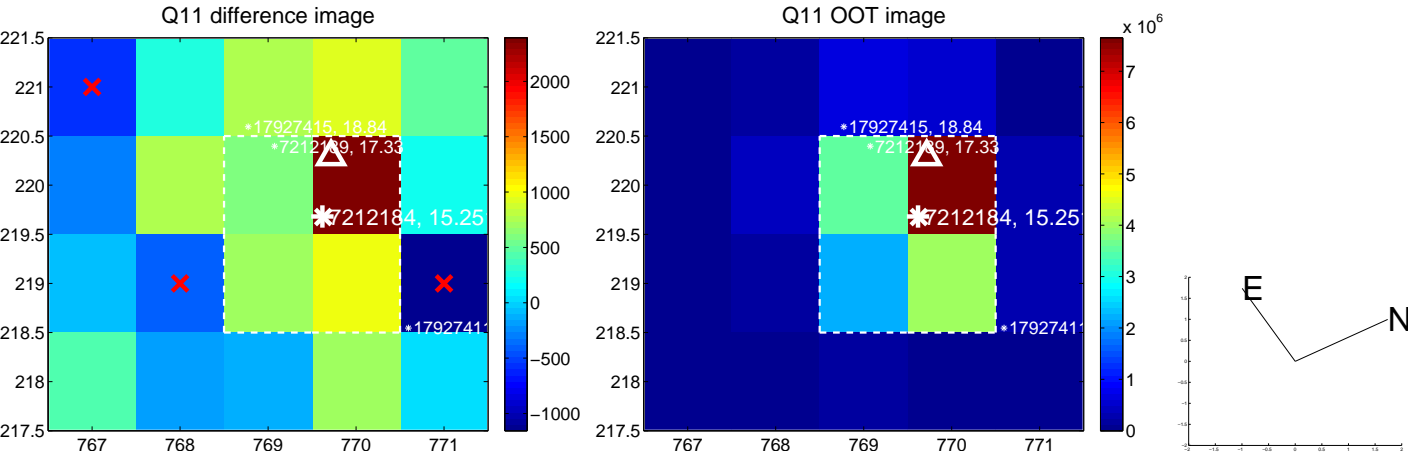
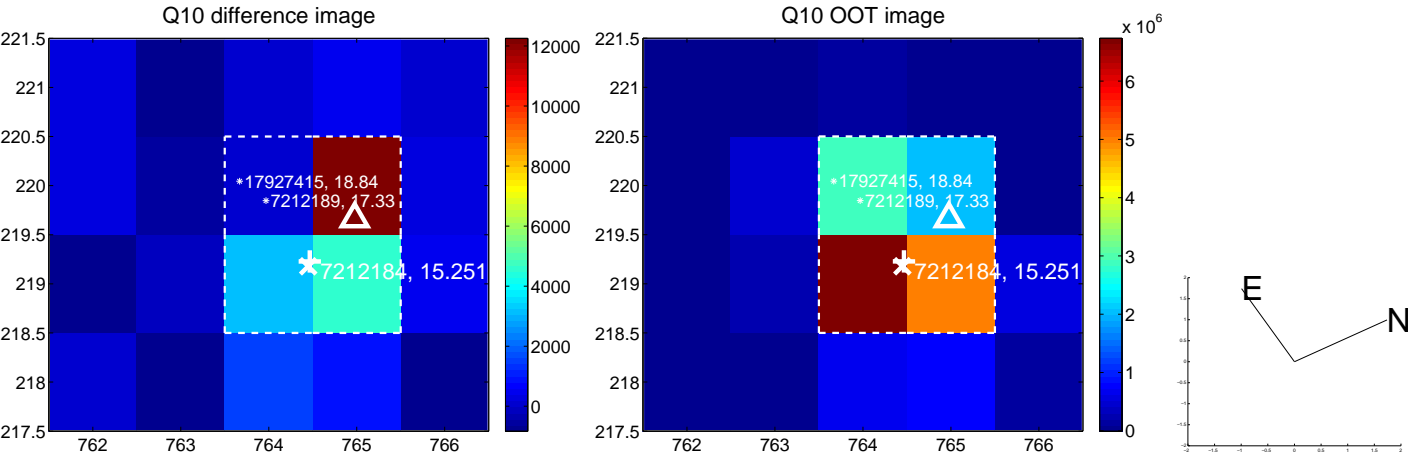
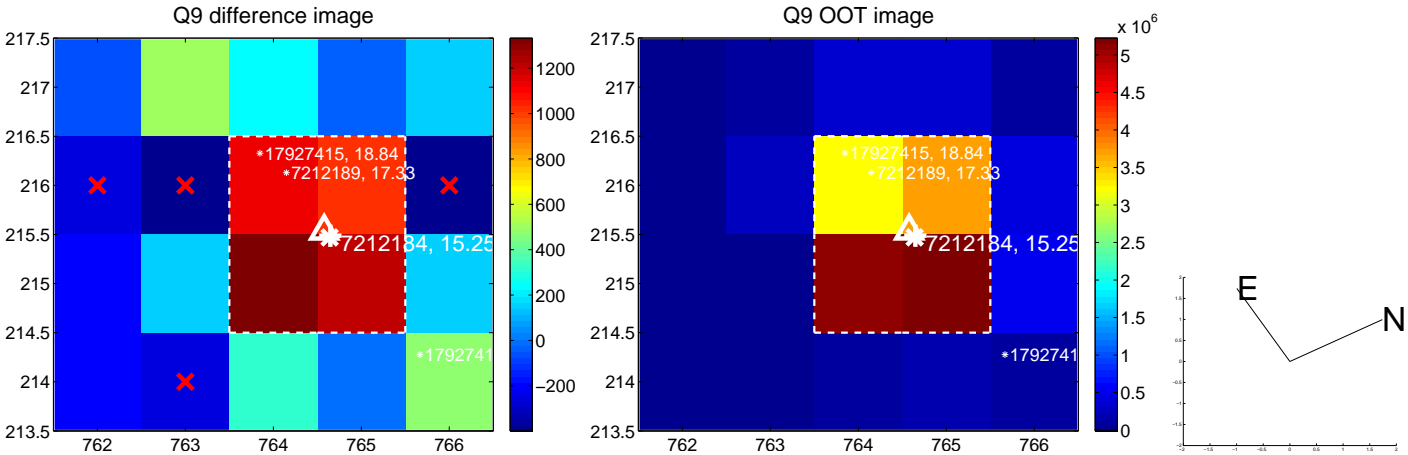
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



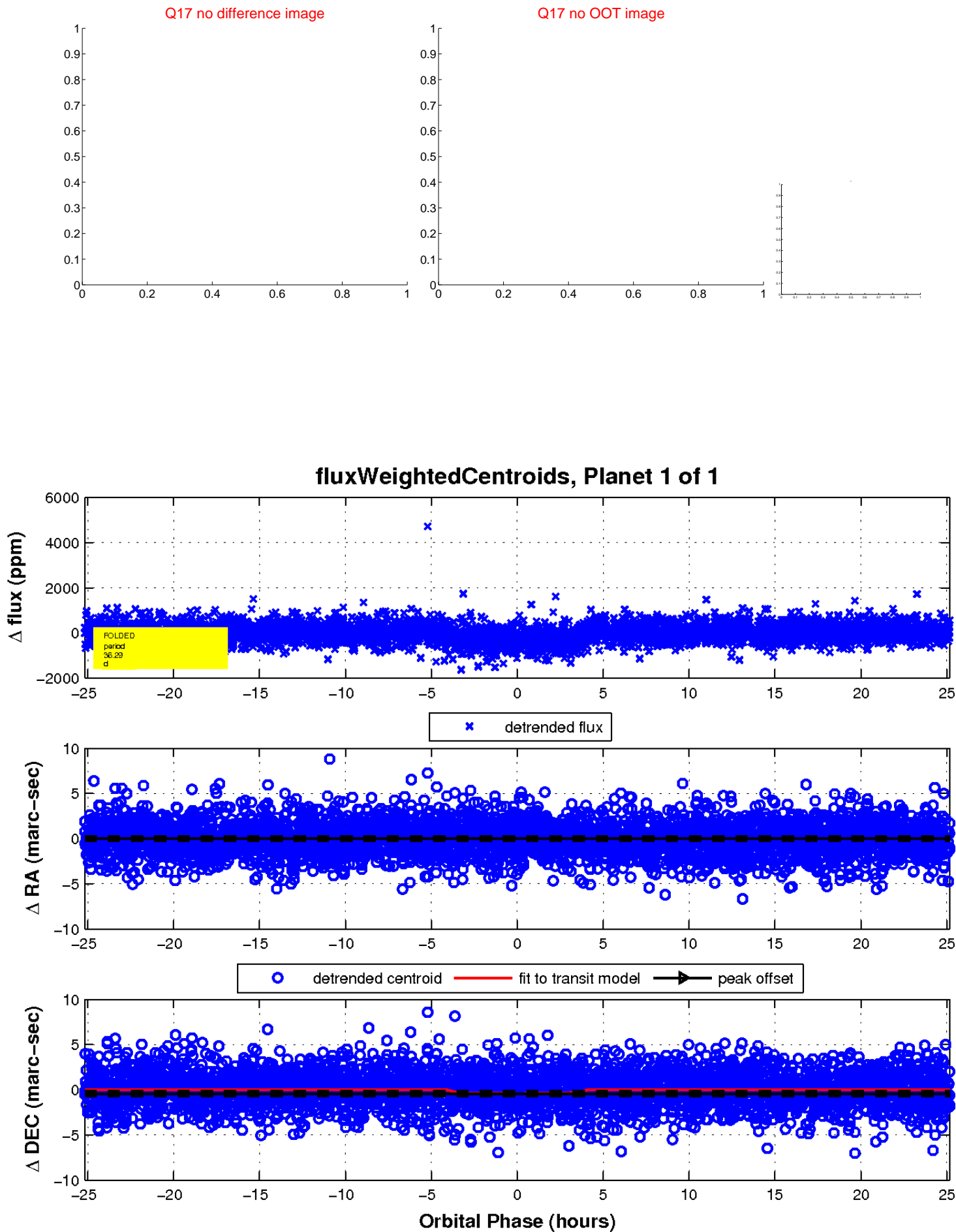
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.







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



UKIRT Image

