

# KIC 008351704

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008351704-01	OBS	1146.01	7.097108	136.344754	356.6	2.219	14.4	16.4	0.39	3569	0.87	7.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008351704-01	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.

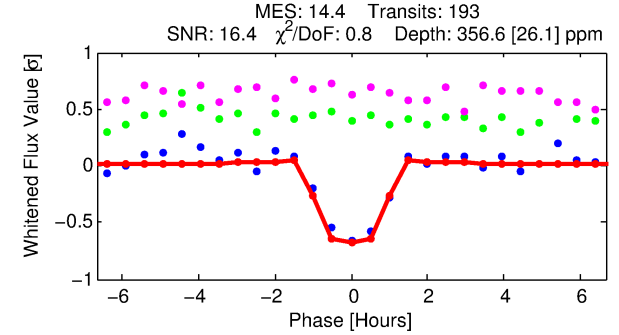
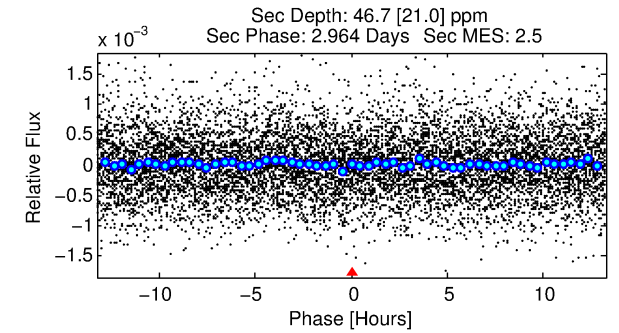
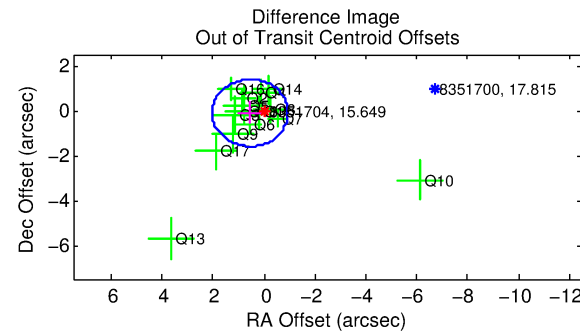
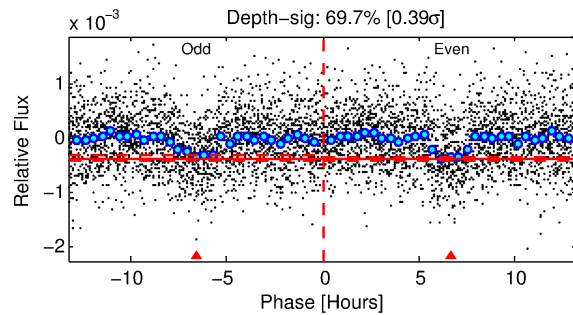
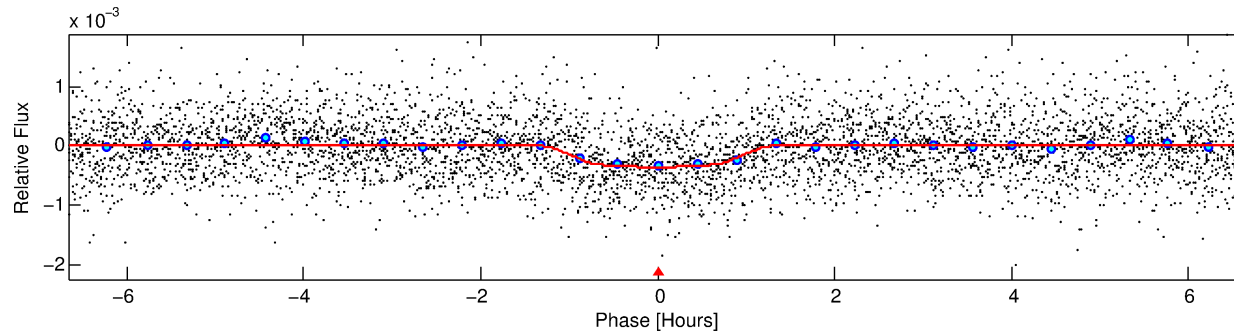
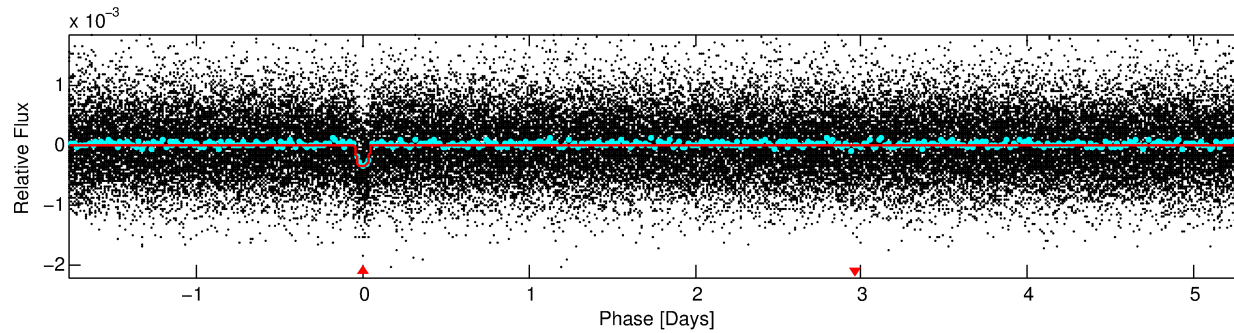
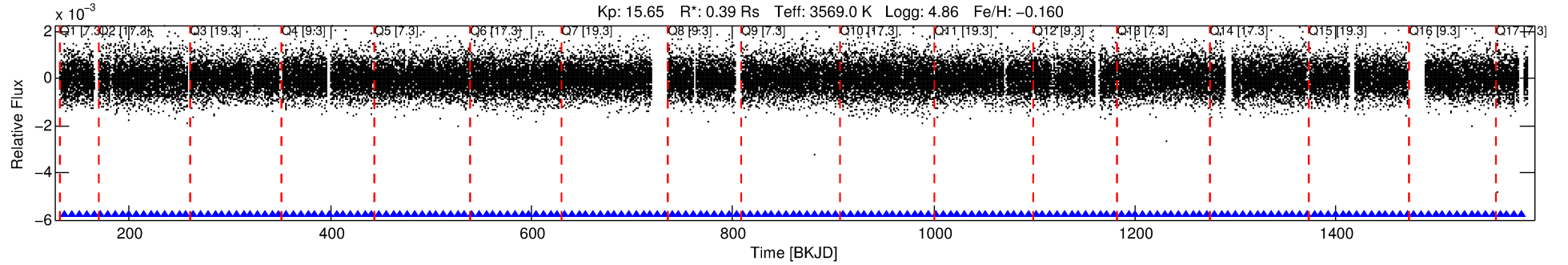
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008351704-01

No Significant Match Found

# DV One-Page Summary

KIC: 8351704 Candidate: 1 of 1 Period: 7.097 d  
KOI: K01146.01 Corr: 0.974



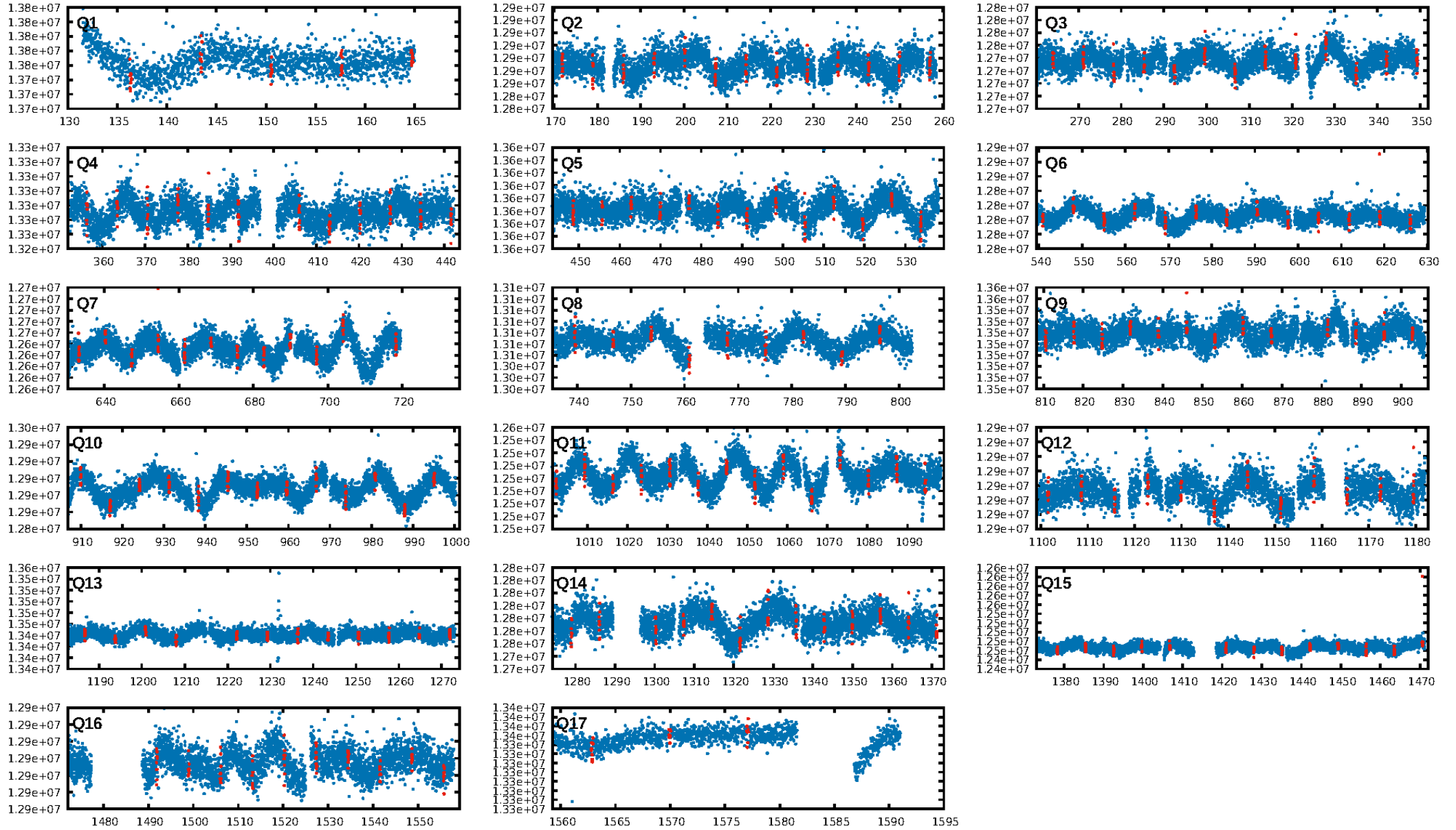
## DV Fit Results:

Period = 7.09711 [0.00003] d  
Epoch = 136.3448 [0.0029] BKJD  
Rp/R\* = 0.0204 [0.0077]  
a/R\* = 12.19 [20.24]  
b = 0.89 [0.39]  
Seff = 7.74 [1.28]  
Teq = 425 [18] K  
Rp = 0.87 [0.35] Re  
a = 0.0533 [0.0059] AU  
Ag = 97.25 [86.33] [1.11 $\sigma$ ]  
Teffp = 2065 [455] K [3.60 $\sigma$ ]

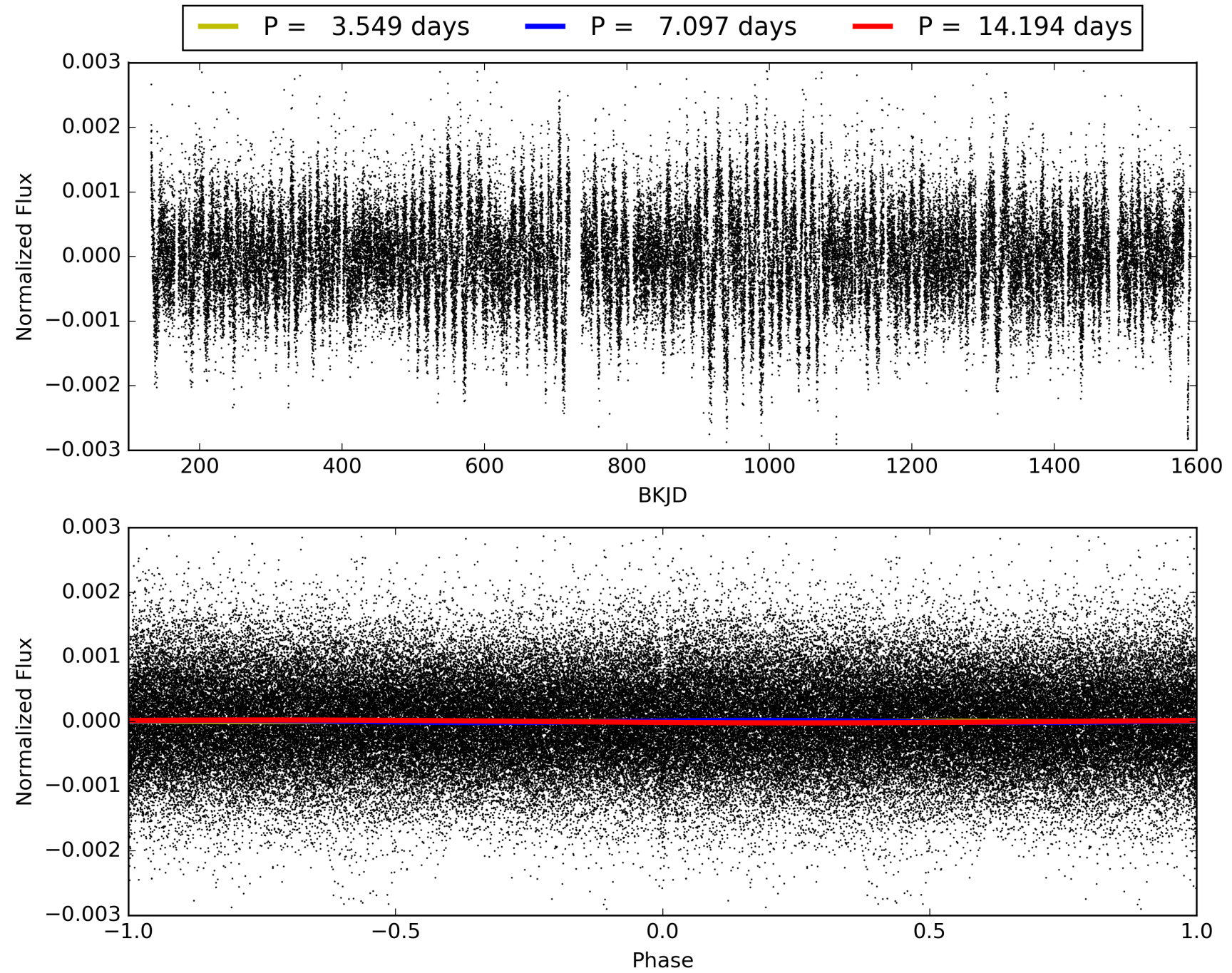
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.44e-45  
RollingBand-fgt: 1.00 [185/185]  
GhostDiagnostic-chr: 8.156  
Centroid-sig: 75.0%  
Centroid-so: 0.294 arcsec [0.36 $\sigma$ ]  
OotOffset-rm: 0.559 arcsec [1.12 $\sigma$ ]  
KicOffset-rm: 0.628 arcsec [1.24 $\sigma$ ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008351704-01, PDC Light Curves

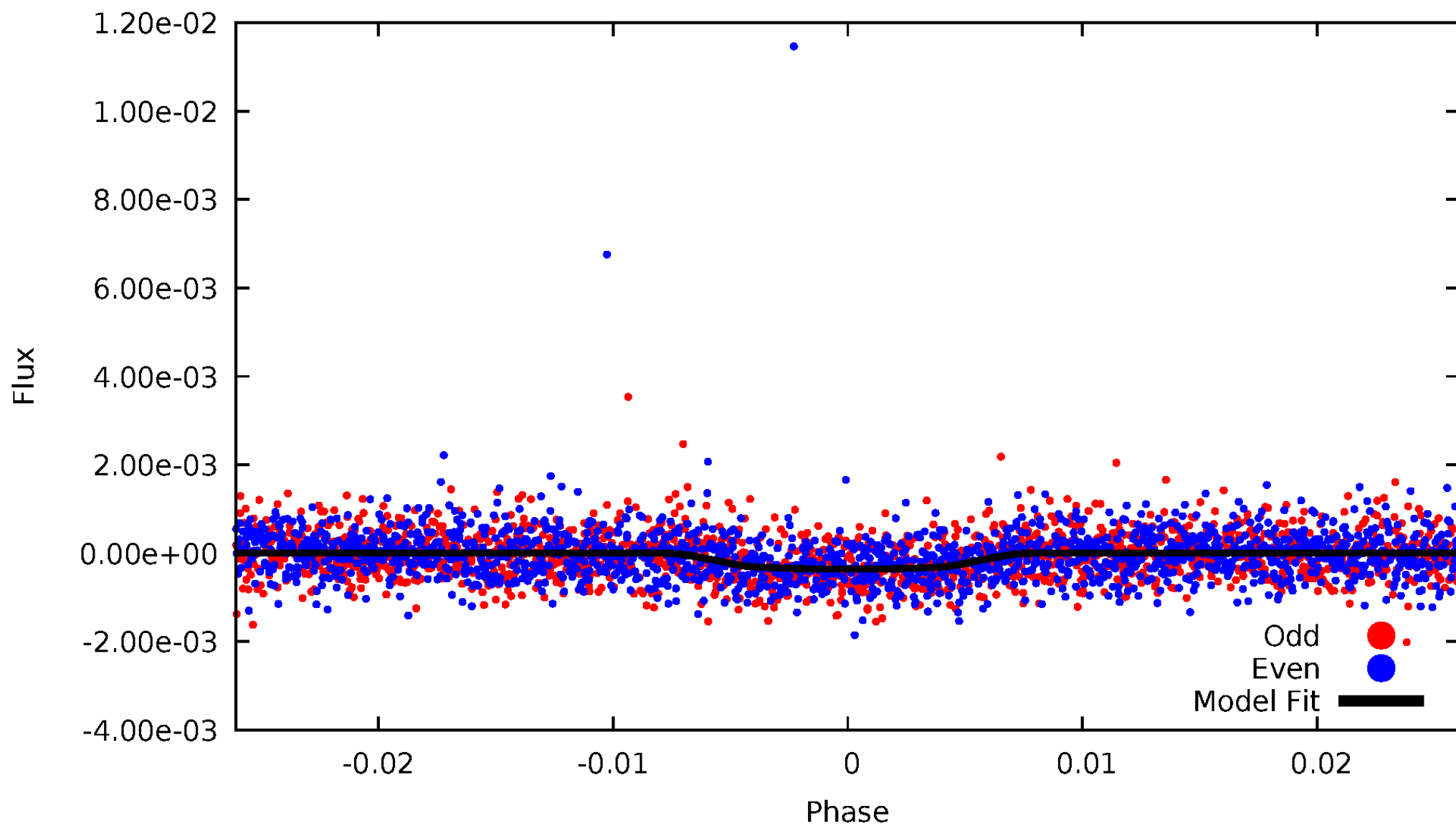


TCE 008351704-01



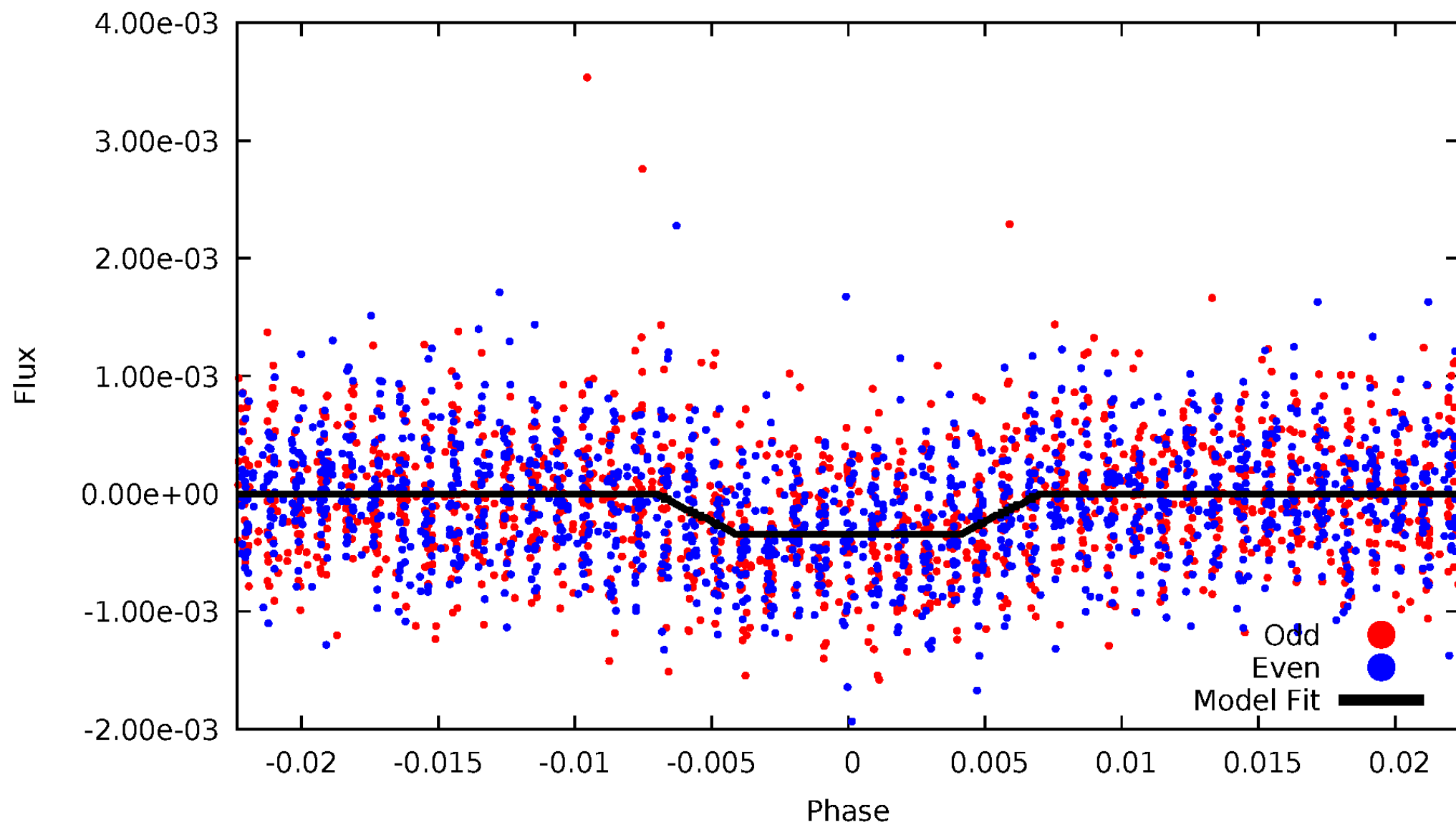
# DV Odd/Even

TCE 008351704-01



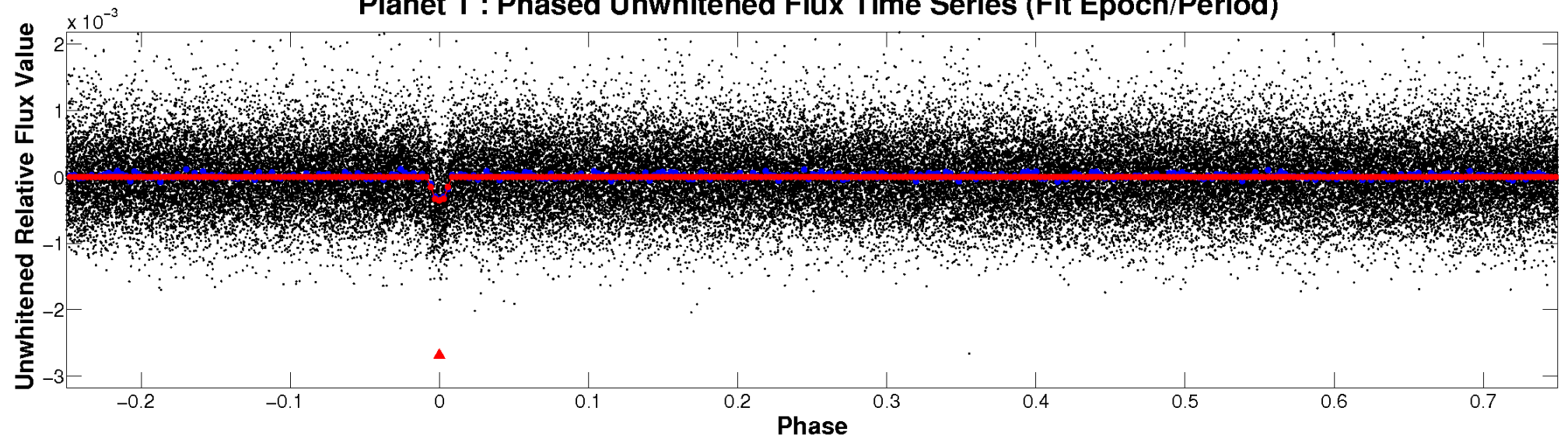
# ALT Odd/Even

TCE 008351704-01

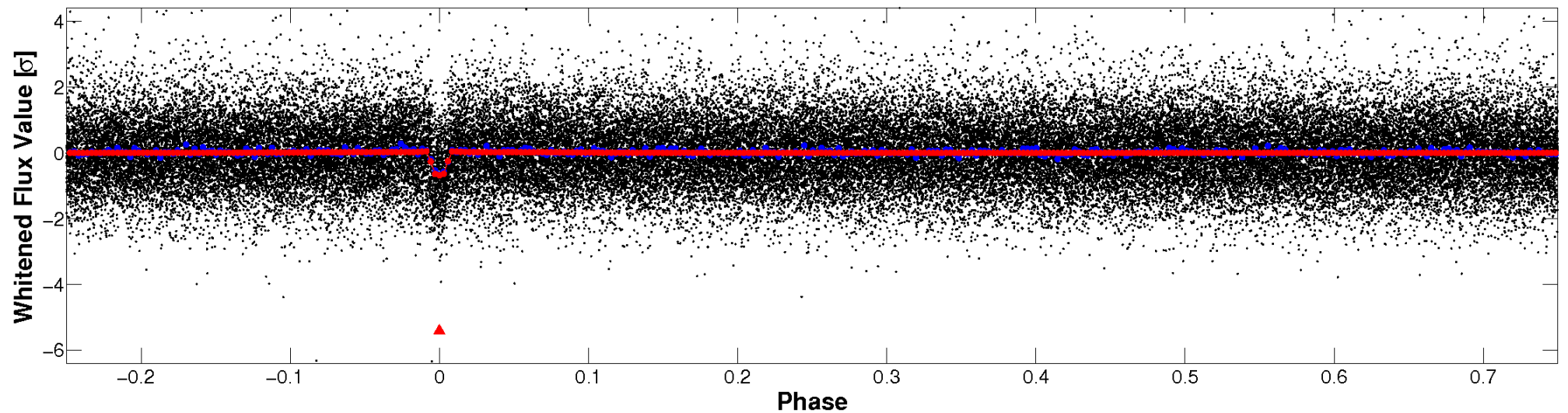


# Non-Whitened Vs. Whitened Light Curve

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

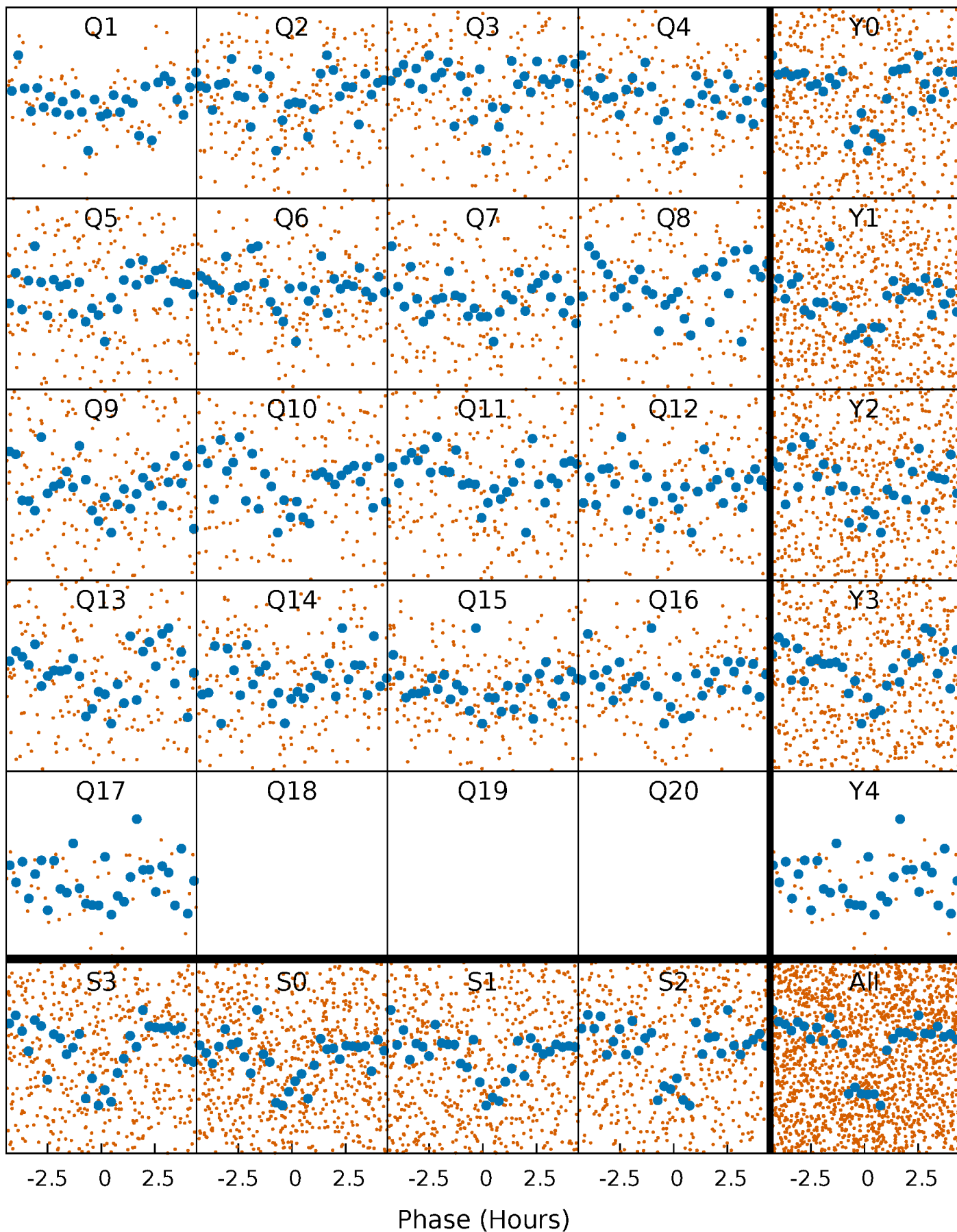


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



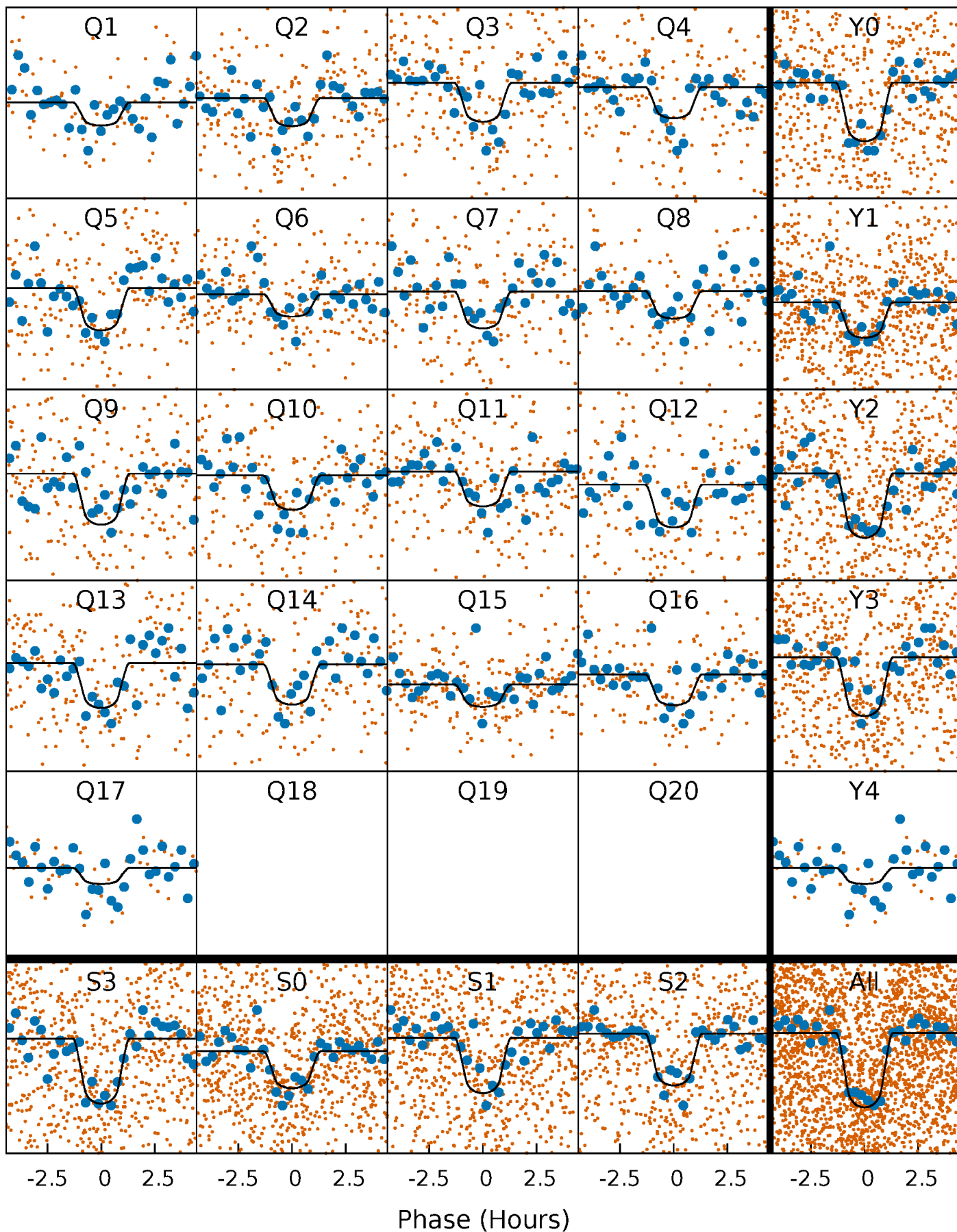
# PDC Quarter-Phased Transit Curves

TCE 008351704-01 P= 7.097108 Days  $T_0=136.344754$  (BKJD)



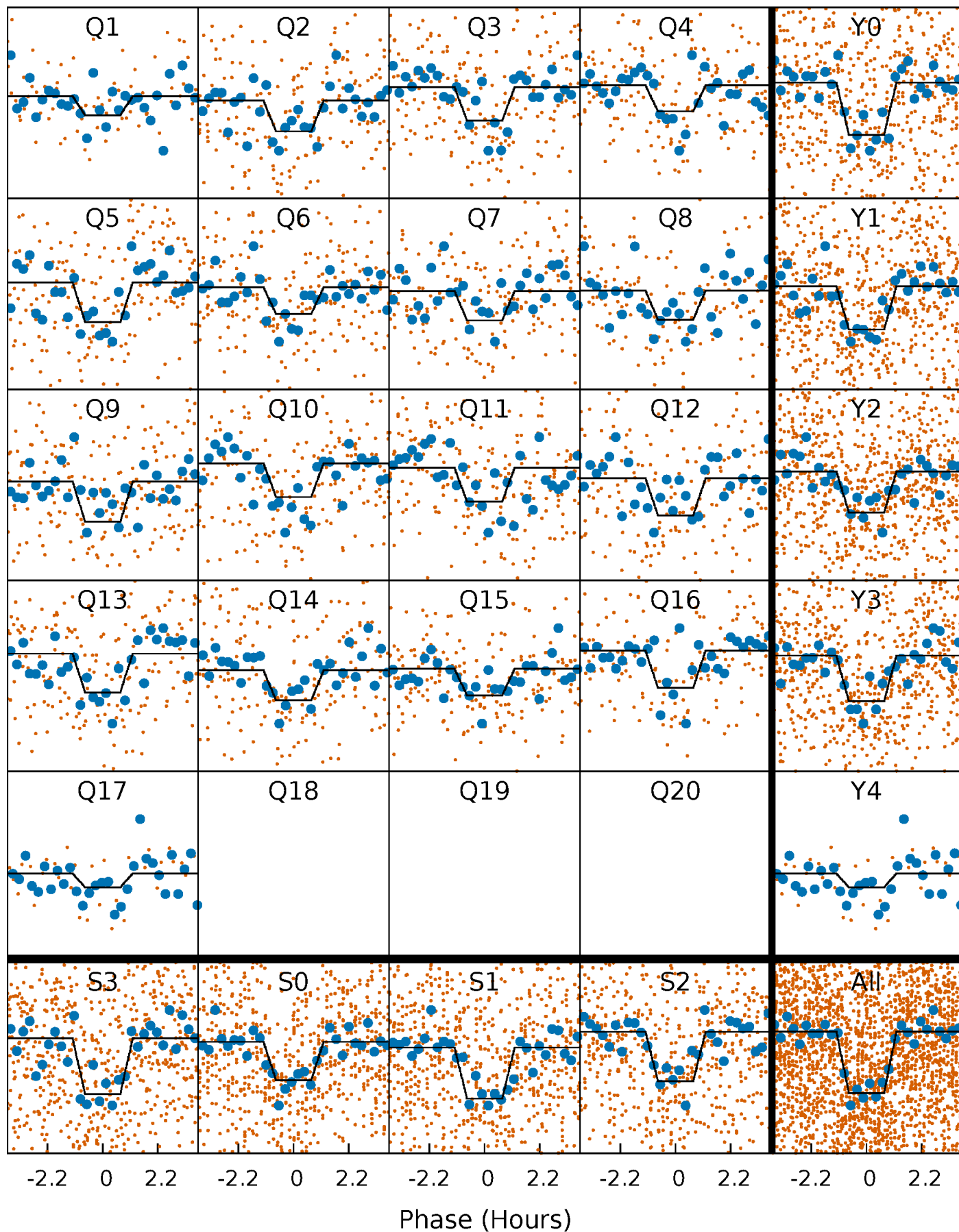
# DV Quarter-Phased Transit Curves

TCE 008351704-01 P= 7.097108 Days  $T_0=136.344754$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

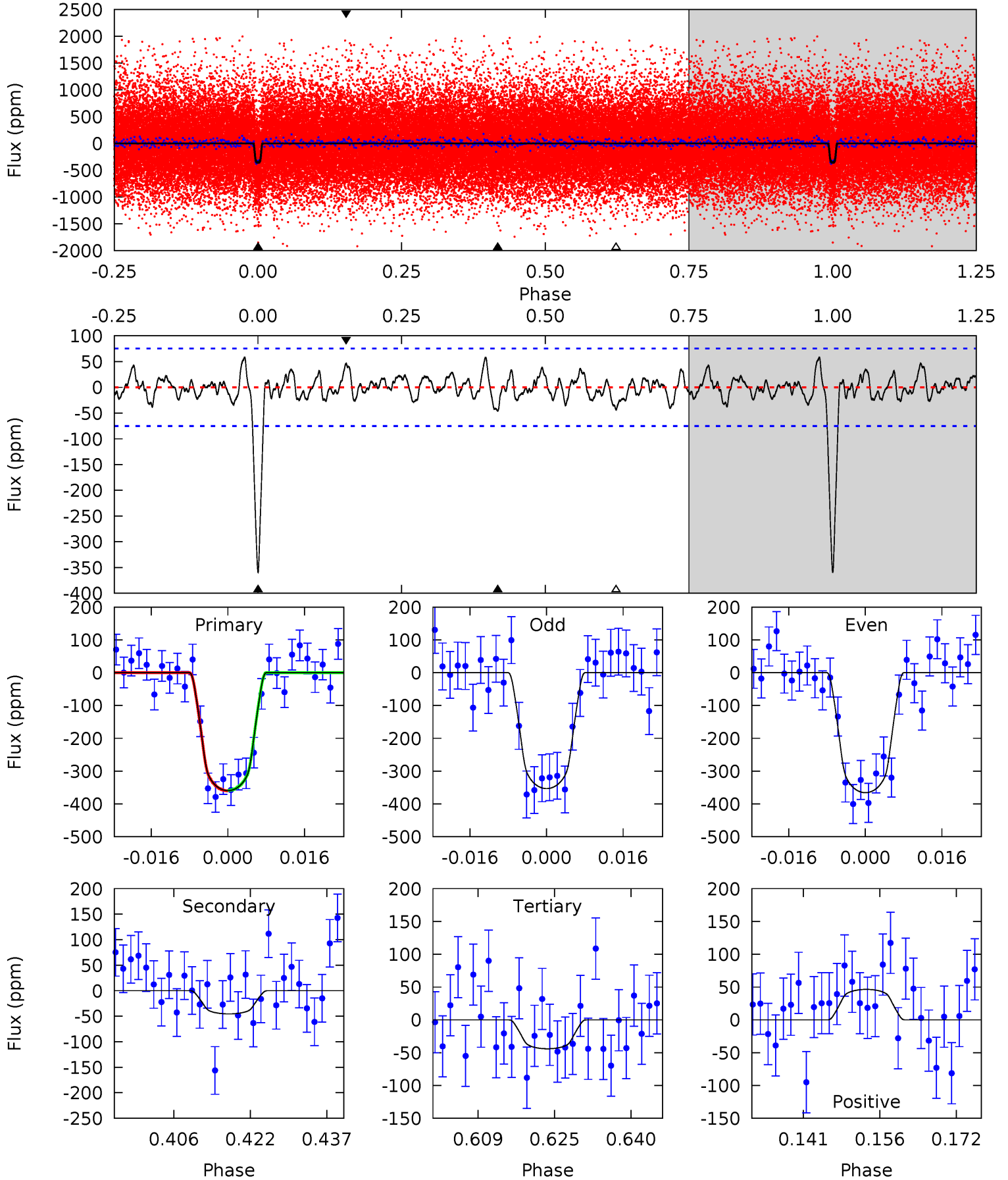
TCE 008351704-01 P= 7.097139 Days  $T_0=136.343956$  (BKJD)



# DV Model-Shift Uniqueness Test

008351704-01, P = 7.097108 Days, E = 129.247646 Days

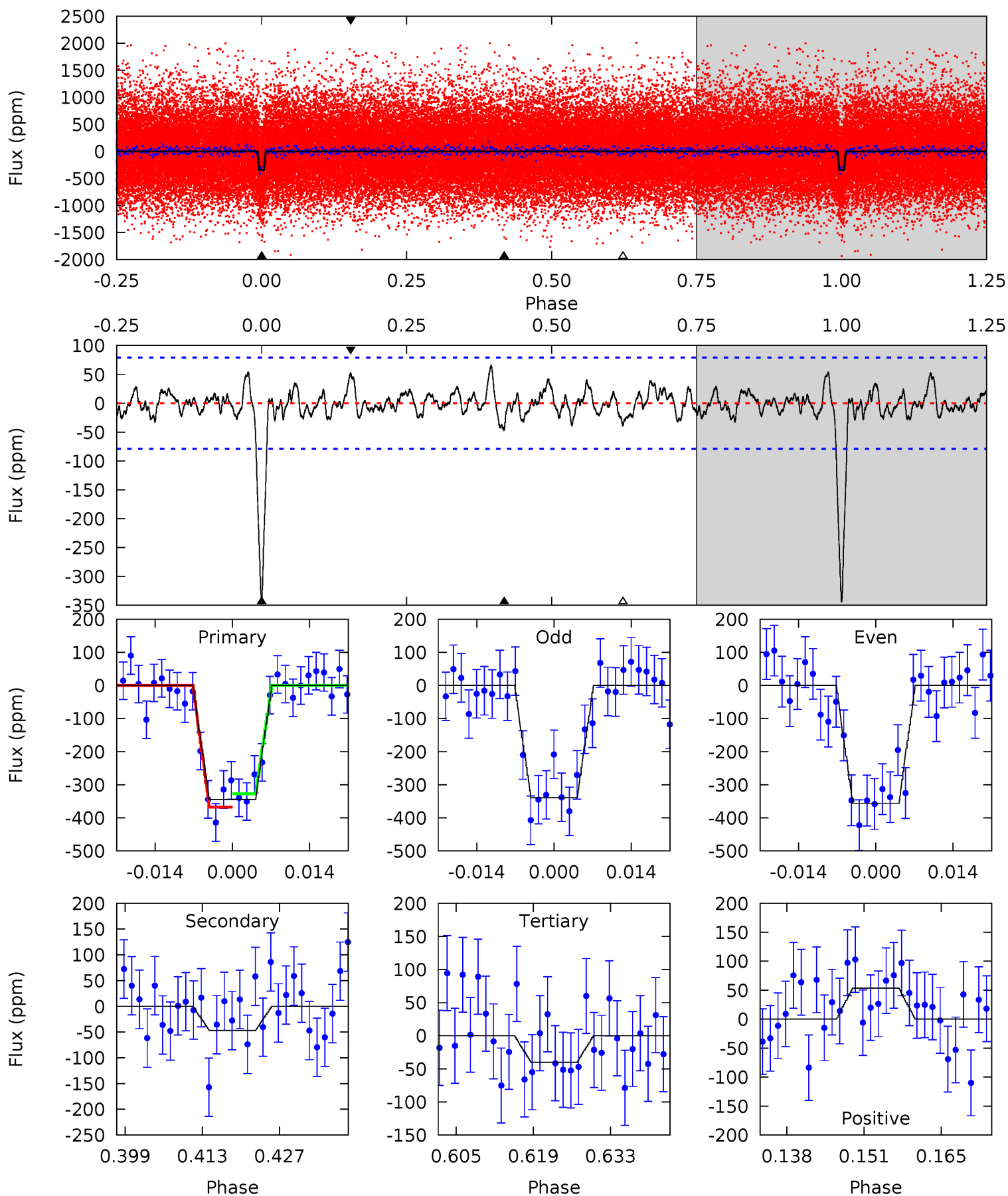
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	2.98	2.89	3.05	4.94	2.42	1.21	20.7	20.5	0.09	-0.06	0.41	0.93	0.14	0.05



# Alt Model-Shift Uniqueness Test

008351704-01, P = 7.097139 Days, E = 129.246817 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
21.6	2.95	2.51	3.35	4.96	2.46	1.11	19.1	18.3	0.44	-0.41	0.53	0.95	0.16	1.28



### Stellar Parameters For KIC 008351704

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3569^{+71}_{-78}$	$4.861^{+0.066}_{-0.044}$	$-0.160^{+0.150}_{-0.150}$	$0.389^{+0.047}_{-0.057}$	$0.400^{+0.048}_{-0.066}$	$9.611^{+3.616}_{-1.846}$
	+2%/-2%	+1%/-1%	+94%/-94%	+12%/-15%	+12%/-16%	+38%/-19%
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 008351704-01 / KOI 1146.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-45 \pm 15$	$0.86^{+0.36}_{-0.33}$	$591^{+19}_{-18}$	$2594^{+361}_{-239}$	$93^{+165}_{-52}$
Alt.	$-47 \pm 16$	$0.79^{+0.30}_{-0.31}$	$592^{+19}_{-18}$	$2668^{+432}_{-246}$	$116^{+226}_{-63}$

$T_{\text{max}}$  = 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

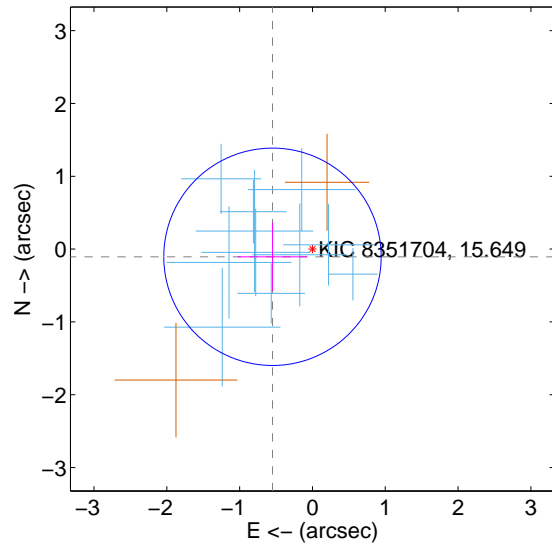
Supplemental centroid analysis for 008351704-01. Kepler magnitude: 15.65. Transit SNR 16.40

There are 11 quarters with good PRF difference image offsets

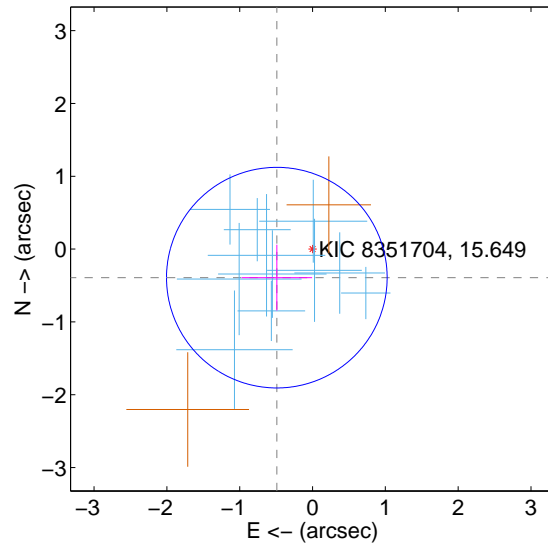
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.559 \pm 0.497$	1.12	$0.549 \pm 0.479$	$-0.106 \pm 0.469$
PRF-fit source offset from KIC position	$0.628 \pm 0.505$	1.24	$0.490 \pm 0.484$	$-0.392 \pm 0.452$
photometric centroid source offset	$0.29 \pm 0.82$	0.36	$0.01 \pm 0.80$	$-0.29 \pm 0.82$

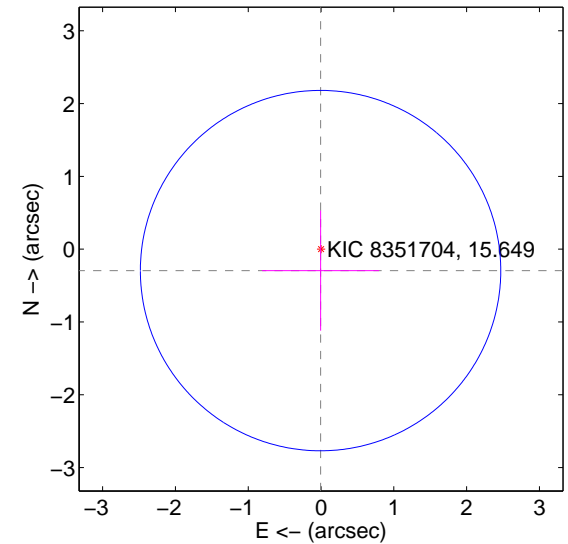
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

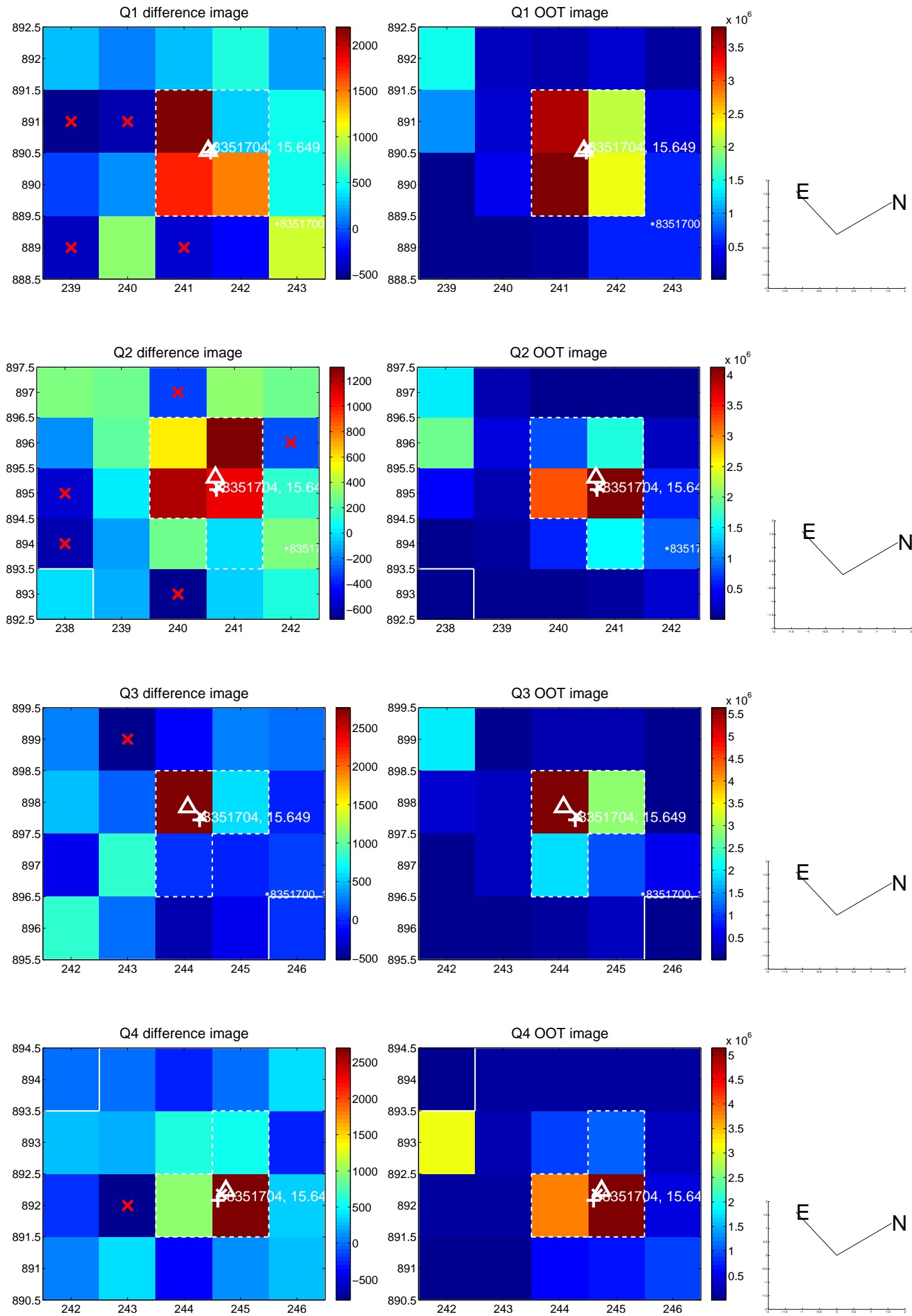


offset from photometric centroids

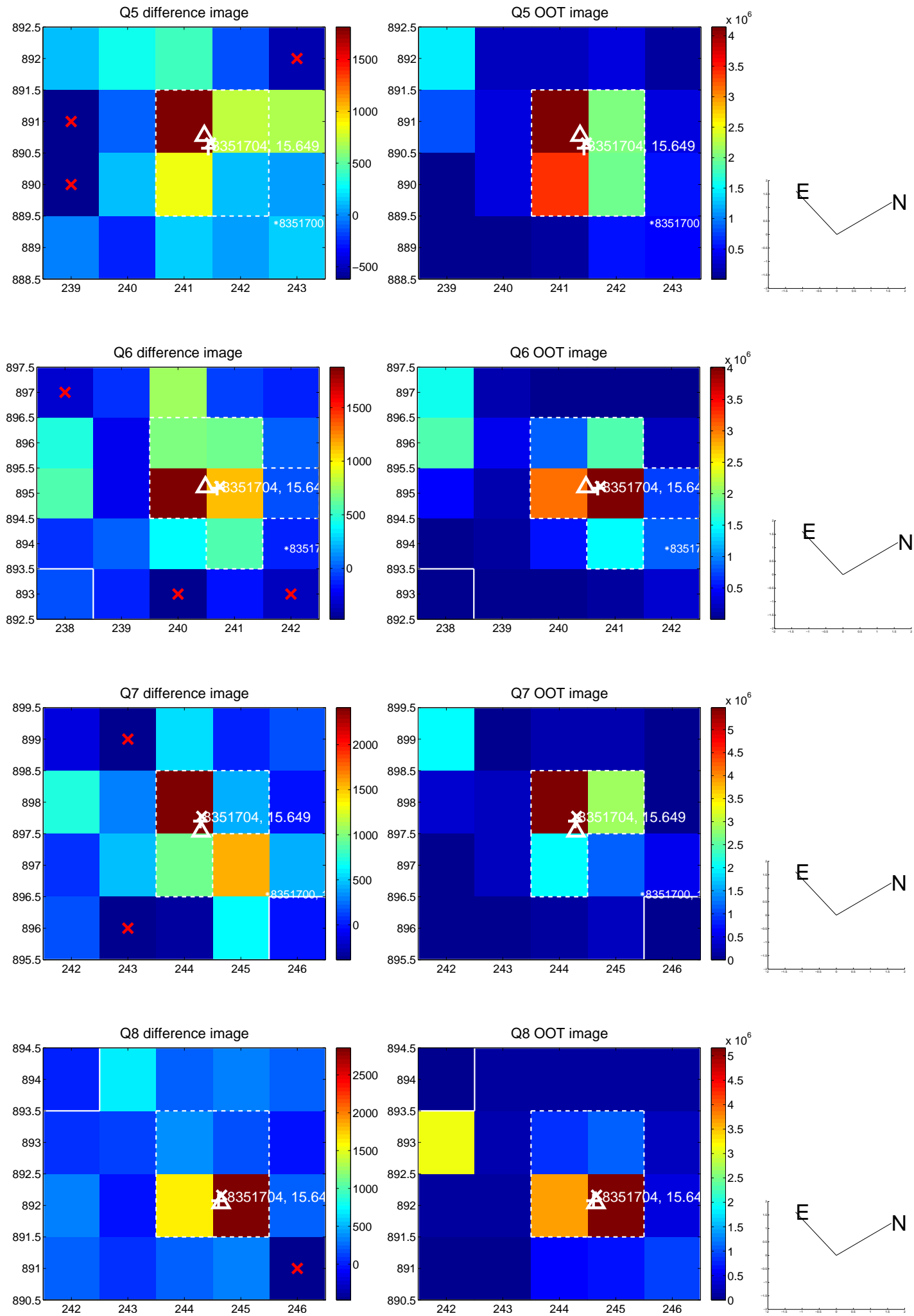


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



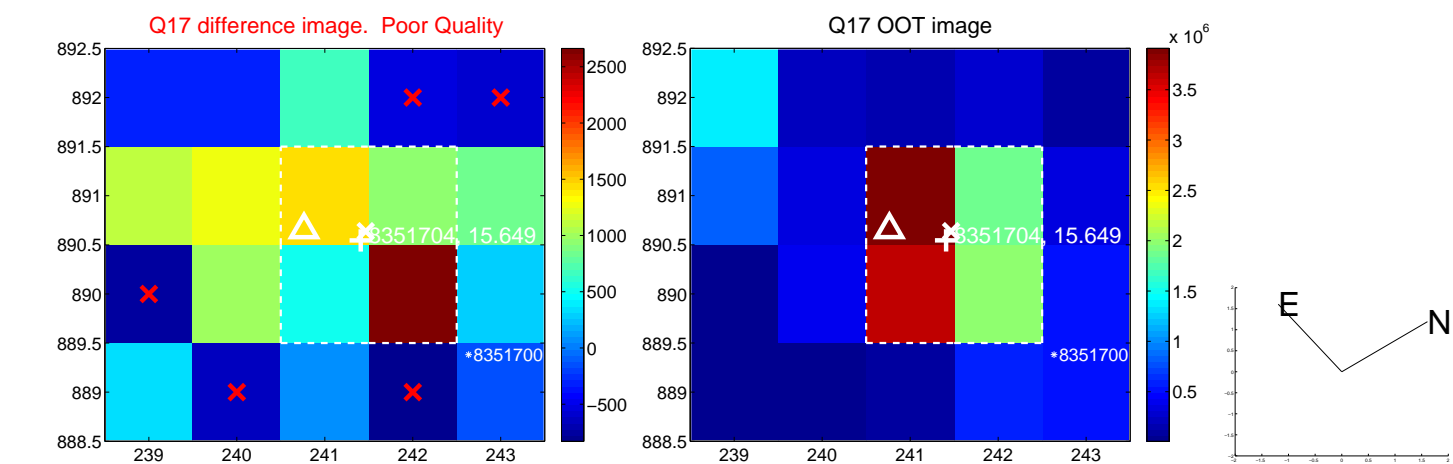
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



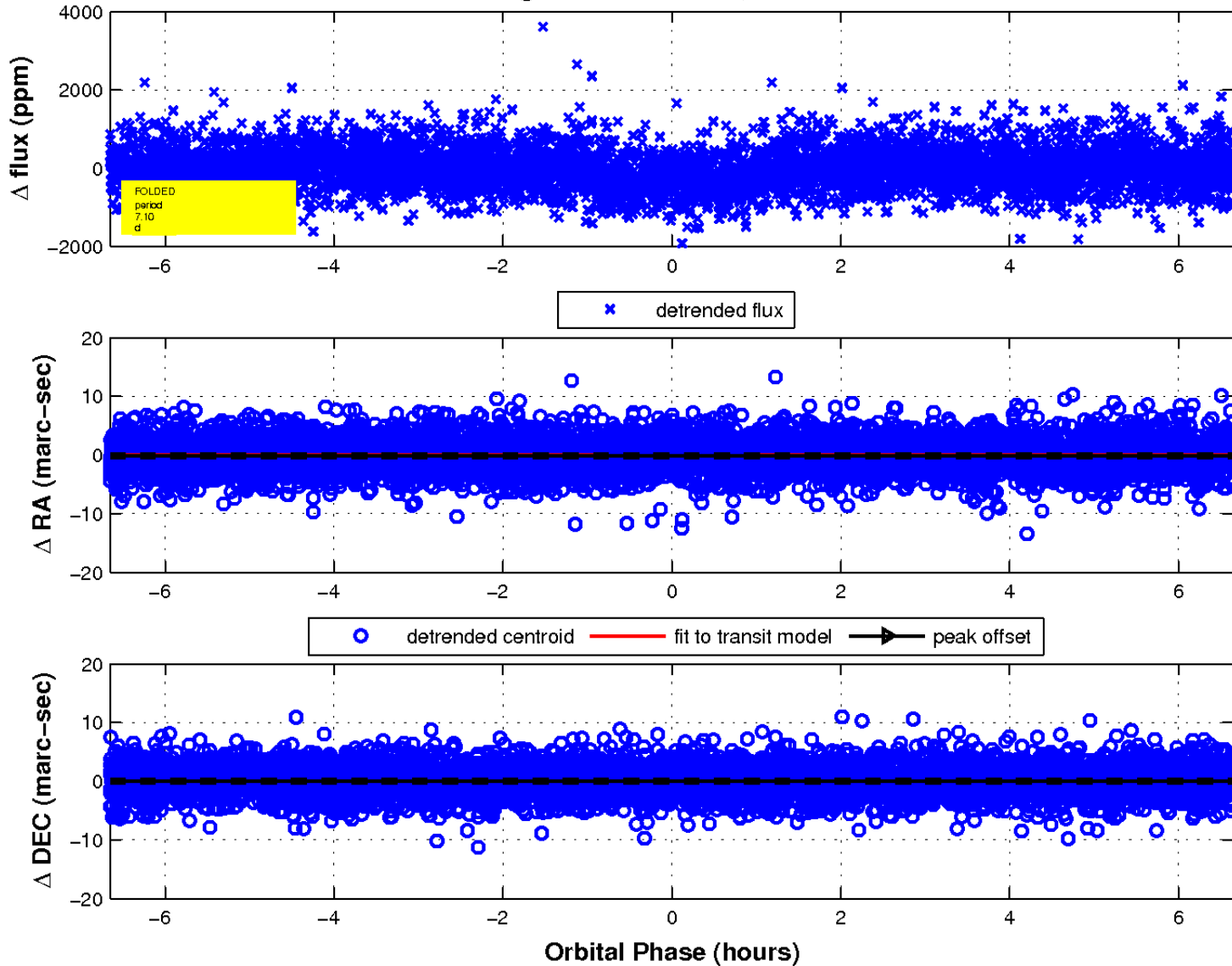




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

