

# KIC 003354846

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354846-01	OBS	2444.01	18.552497	135.515947	827.2	4.682	17.1	17.2	0.83	5569	2.88	33.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354846-01	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.

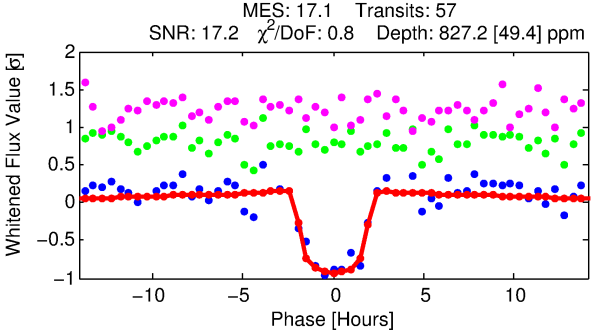
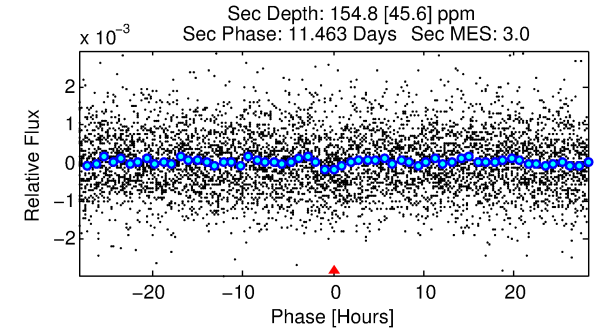
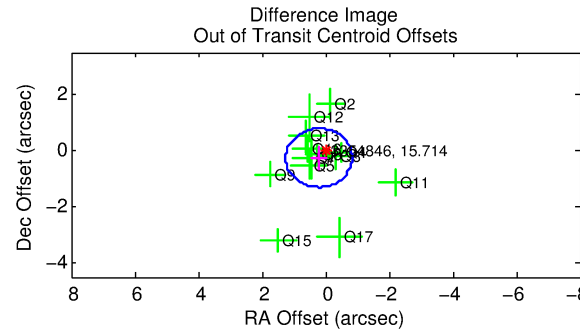
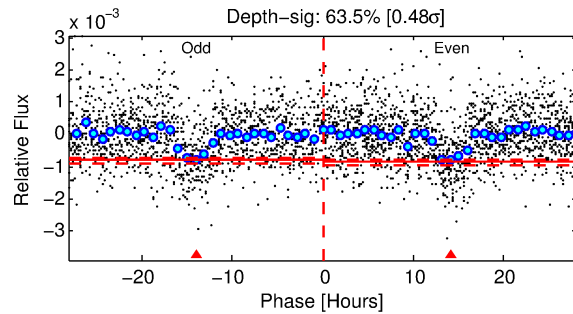
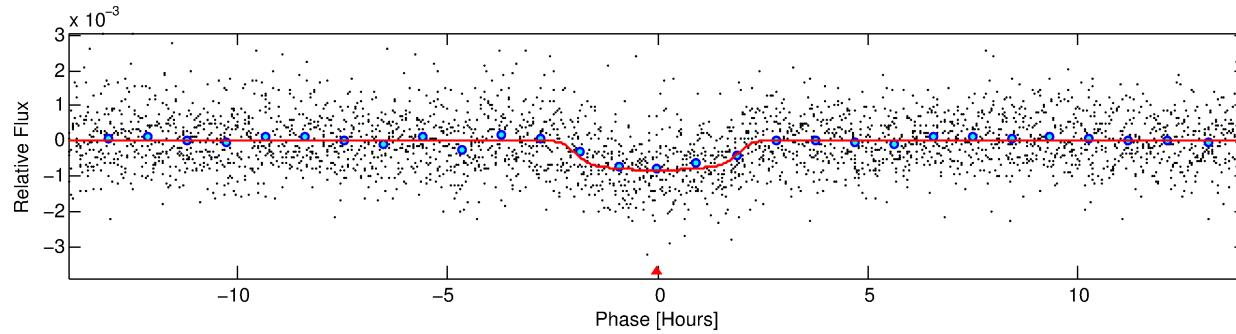
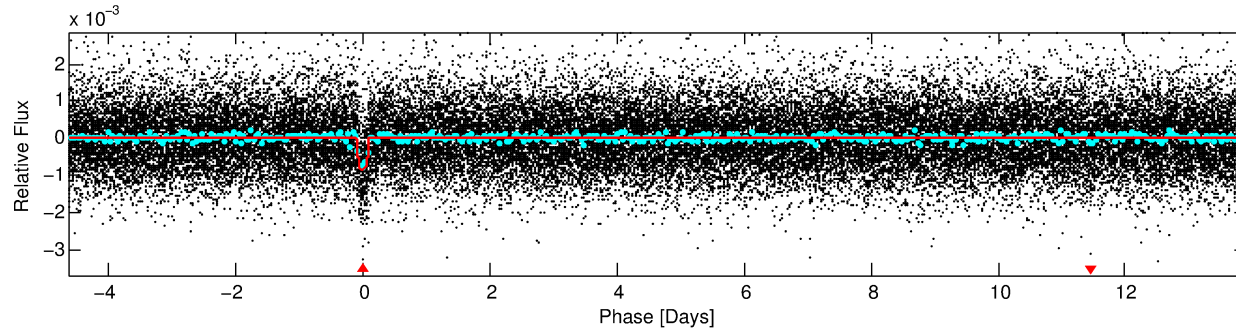
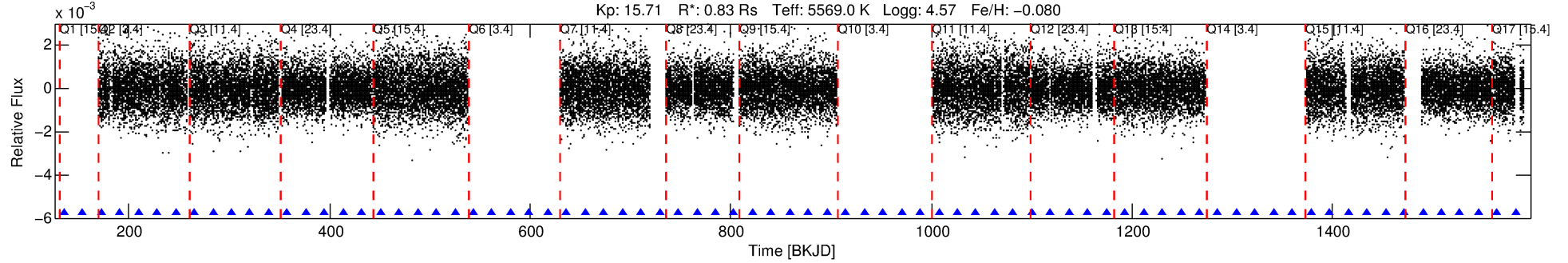
## Ephemeris Match Information For 003354846-01

No Significant Match Found

# DV One-Page Summary

KIC: 3354846 Candidate: 1 of 1 Period: 18.552 d  
KOI: K02444.01 Corr: 0.948

Kp: 15.71 R\*: 0.83 Rs Teff: 5569.0 K Logg: 4.57 Fe/H: -0.080



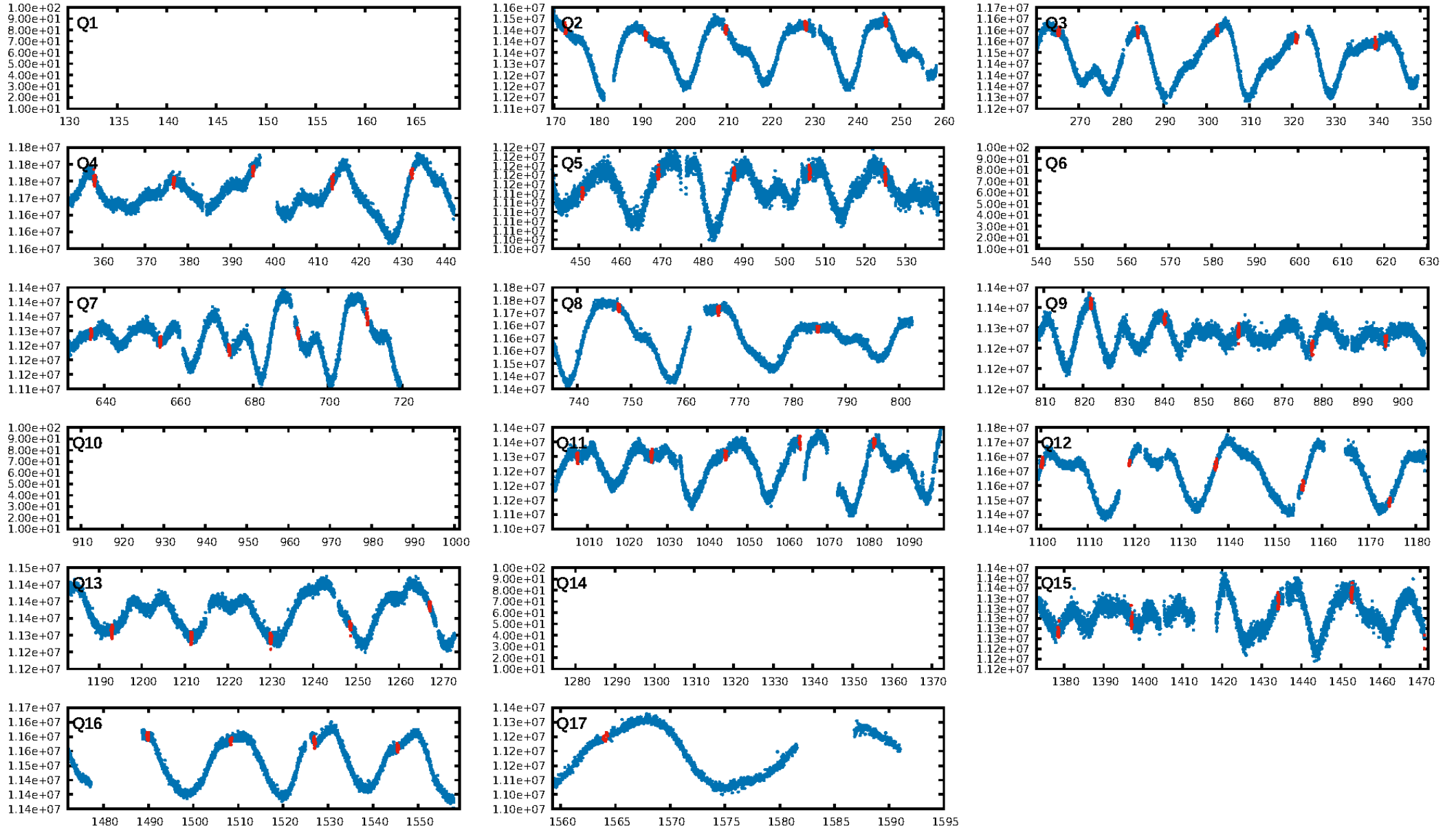
## DV Fit Results:

Period = 18.55250 [0.00011] d  
Epoch = 135.5159 [0.0053] BKJD  
Rp/R\* = 0.0318 [0.0026]  
a/R\* = 14.85 [4.65]  
b = 0.91 [0.06]  
Seff = 33.20 [11.59]  
Teq = 612 [53] K  
Rp = 2.88 [0.78] Re  
a = 0.1336 [0.0293] AU  
Ag = 183.57 [85.72] [2.13σ]  
Teffp = 3483 [314] K [9.01σ]

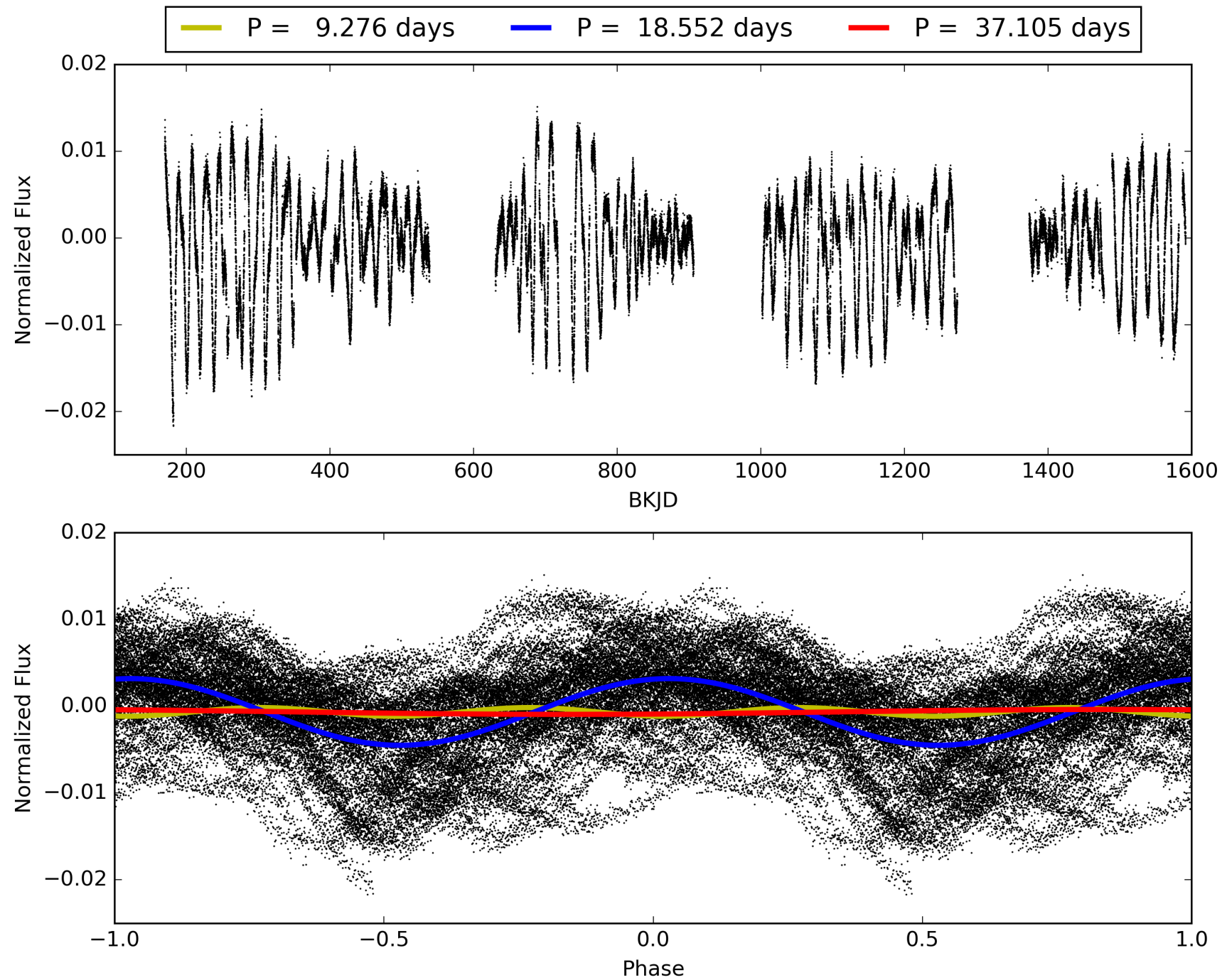
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.24e-65  
RollingBand-fgt: 1.00 [56/56]  
GhostDiagnostic-chr: 1.864  
Centroid-sig: 67.1%  
Centroid-so: 1.405 arcsec [1.92σ]  
OotOffset-rm: 0.333 arcsec [0.96σ]  
KicOffset-rm: 0.323 arcsec [0.91σ]  
OotOffset-st: 1/4/4/4 [13]  
KicOffset-st: 1/4/4/4 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 003354846-01, PDC Light Curves

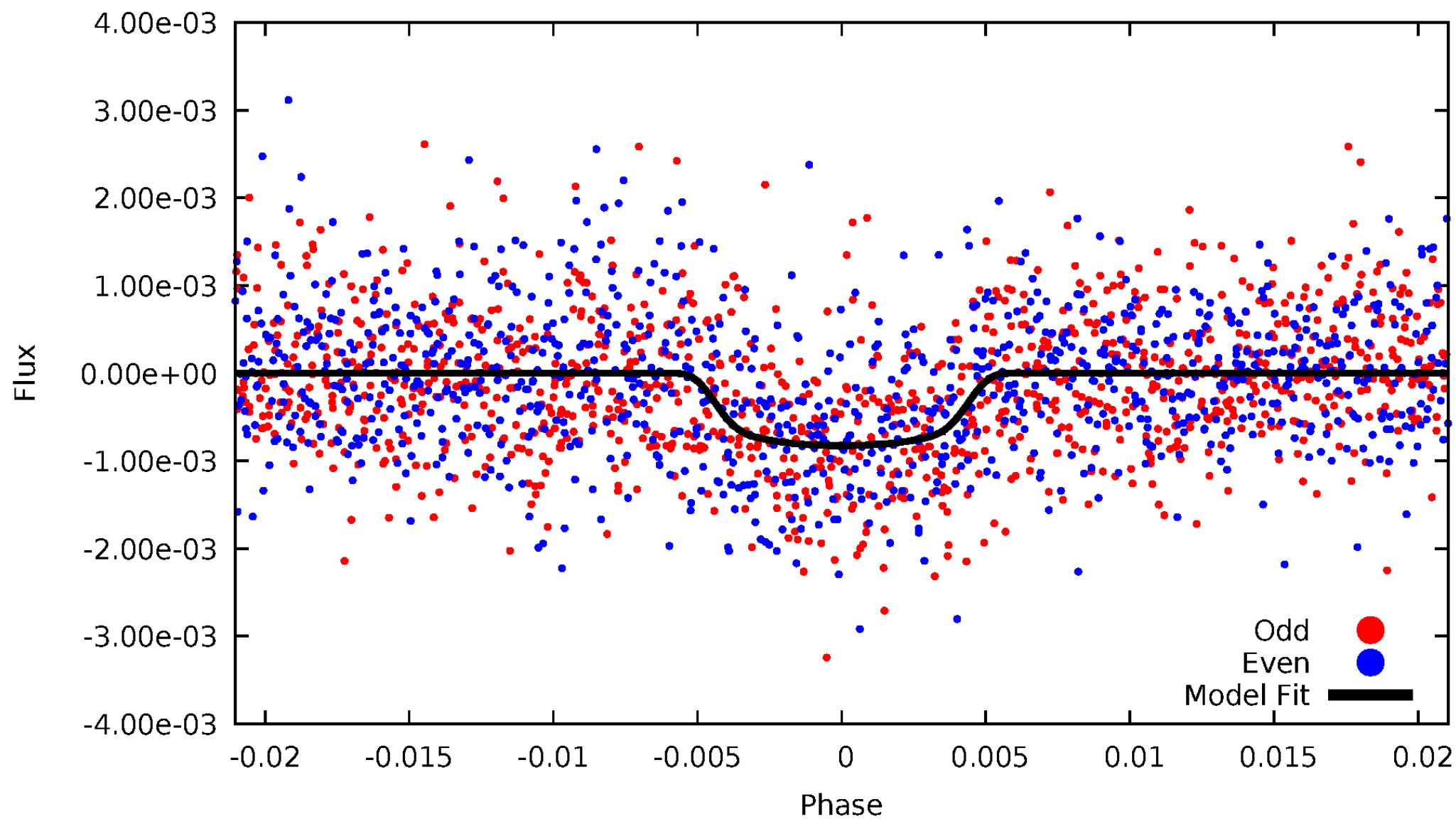


TCE 003354846-01



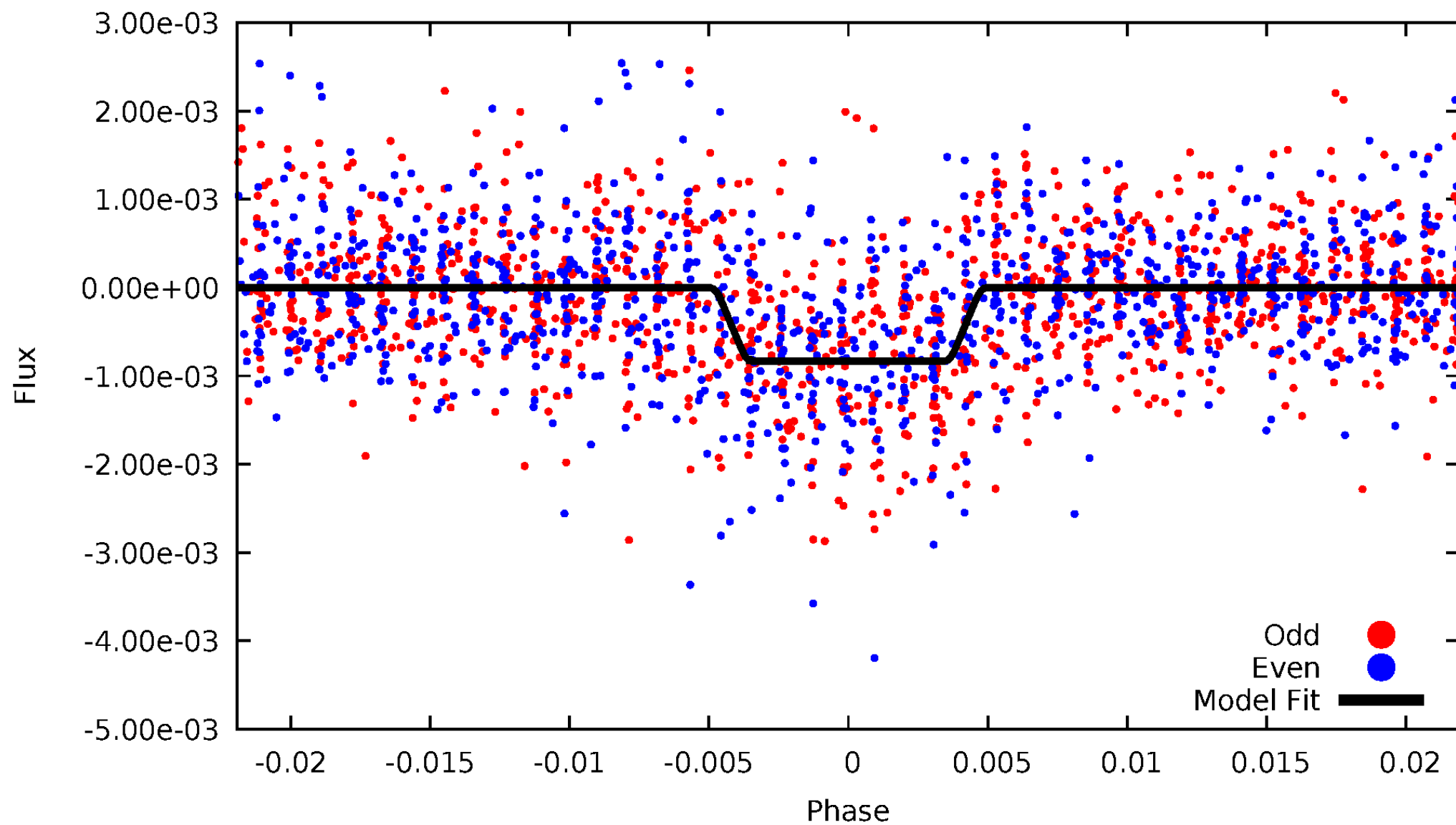
# DV Odd/Even

TCE 003354846-01



# ALT Odd/Even

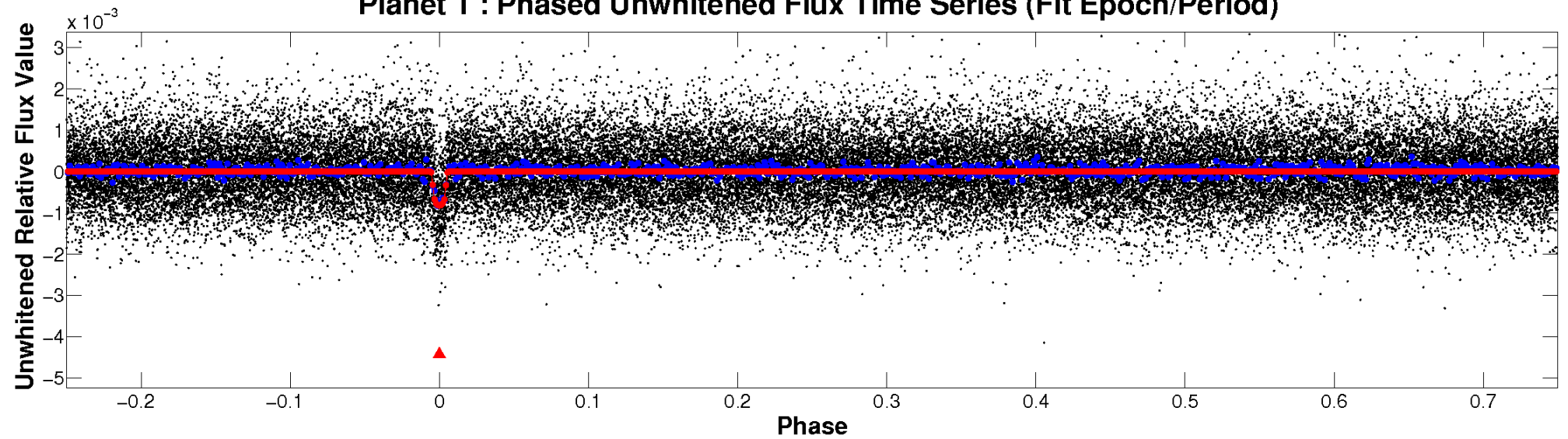
TCE 003354846-01



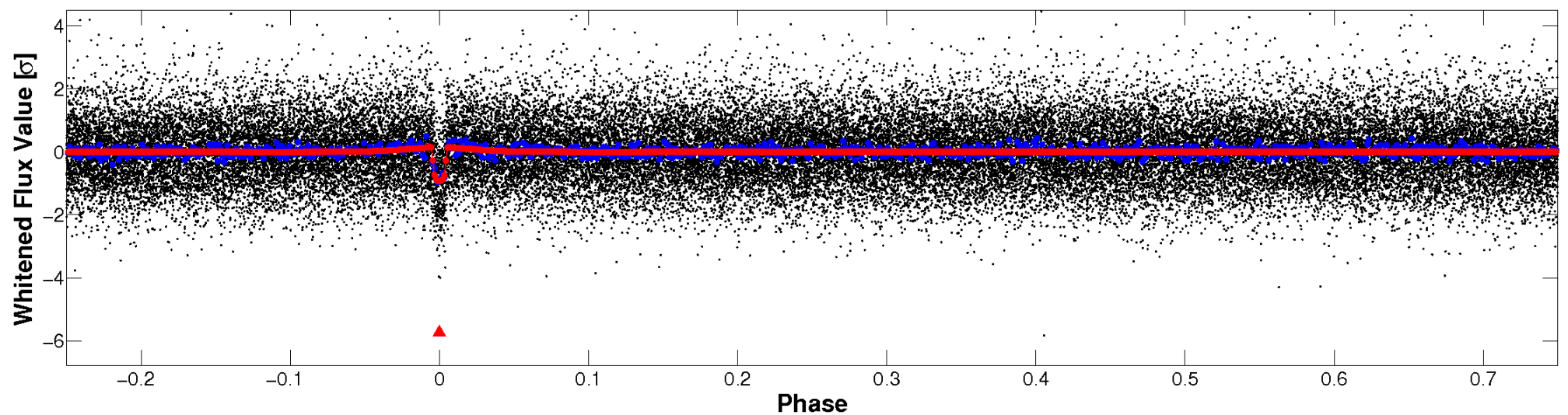


# Non-Whitened Vs. Whitened Light Curve

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

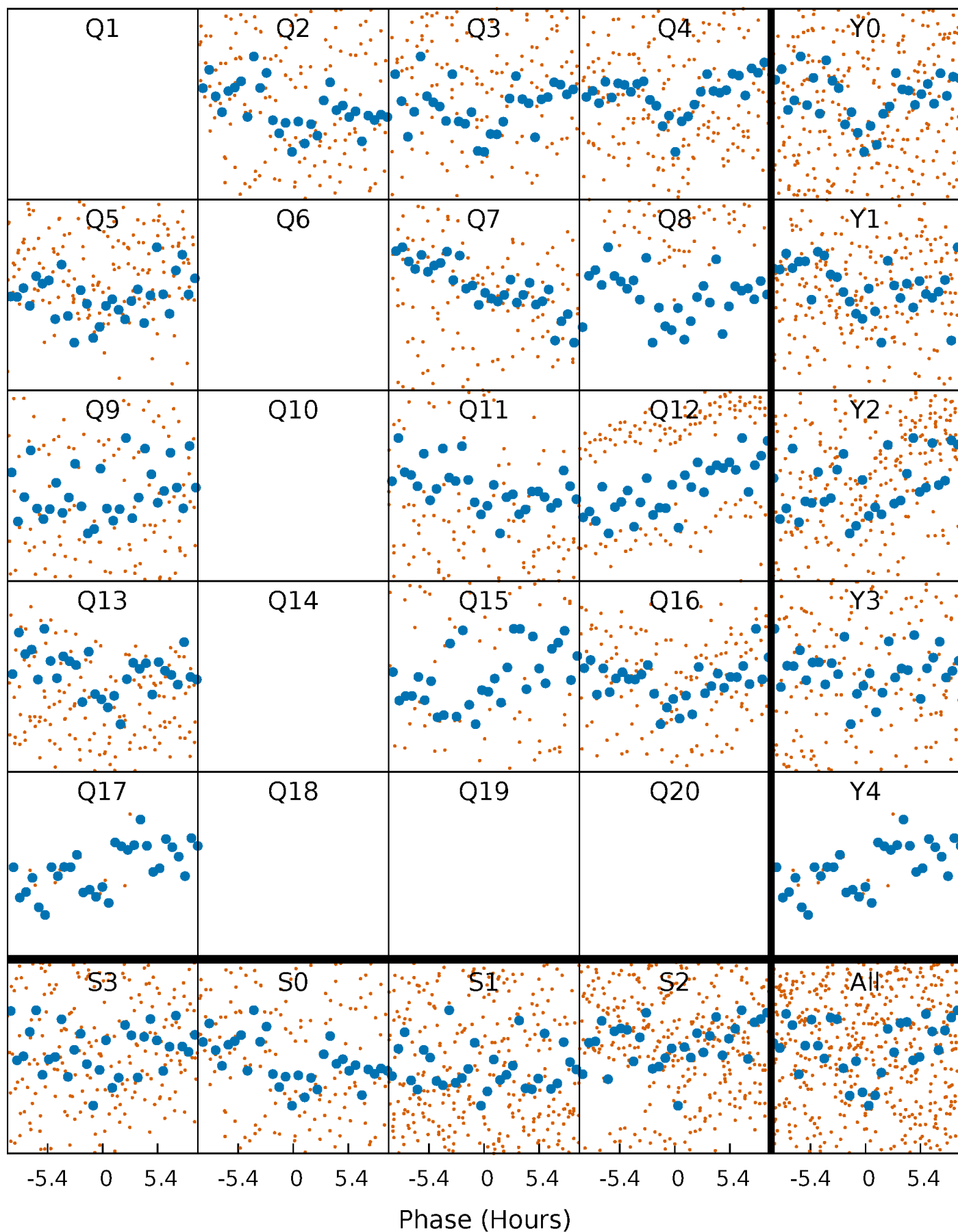


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

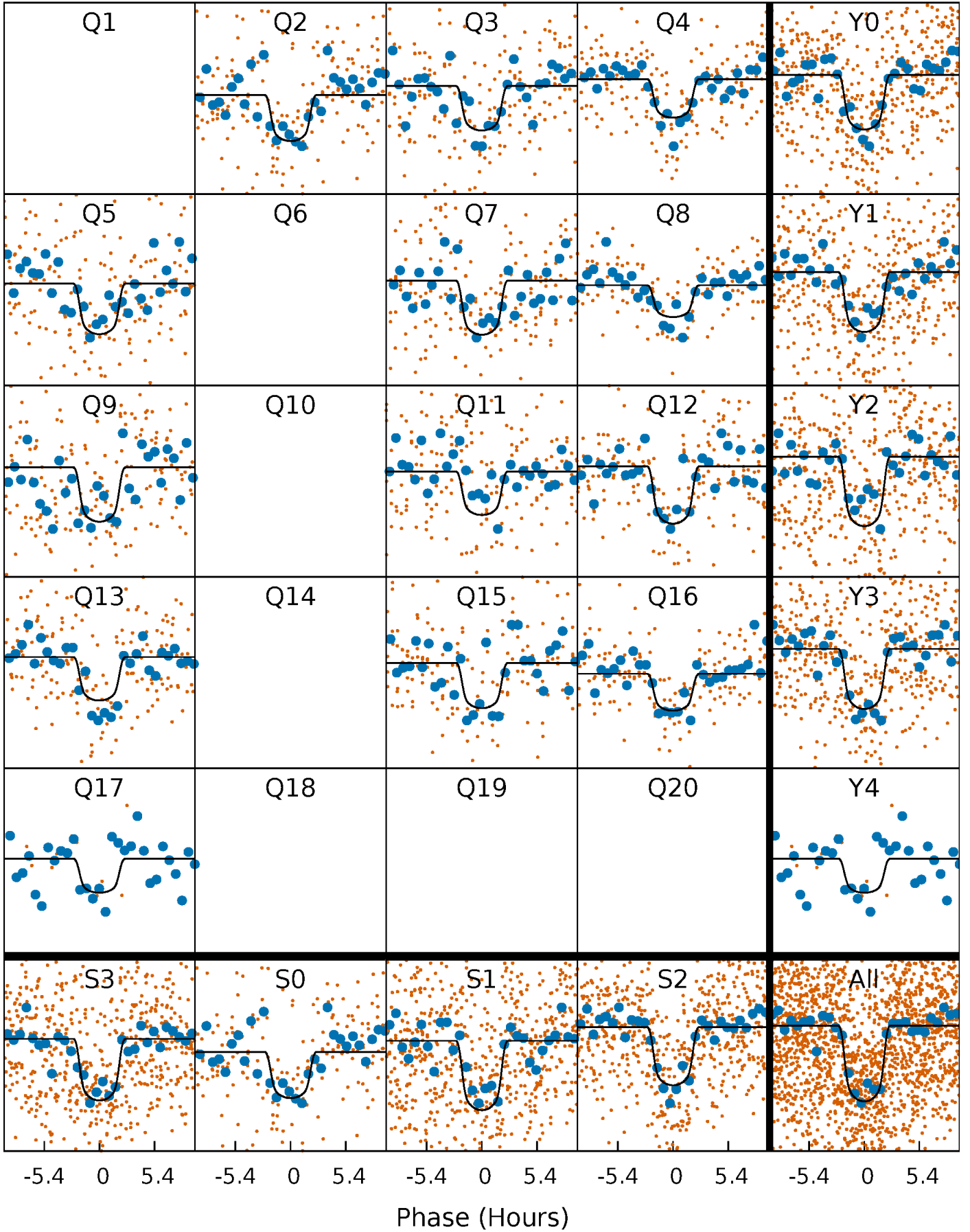
TCE 003354846-01 P= 18.552497 Days  $T_0=135.515947$  (BKJD)





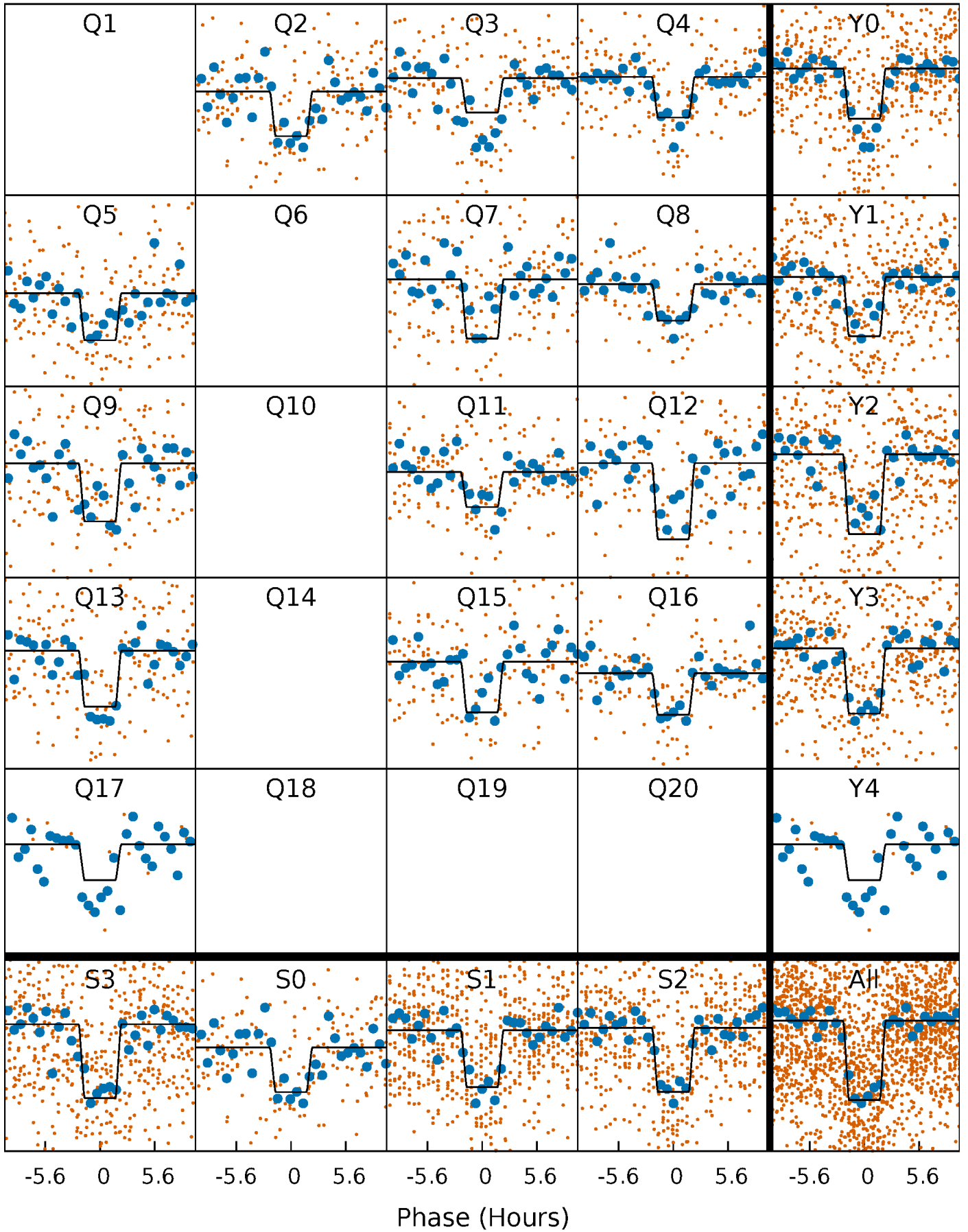
# DV Quarter-Phased Transit Curves

TCE 003354846-01 P= 18.552497 Days  $T_0=135.515947$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

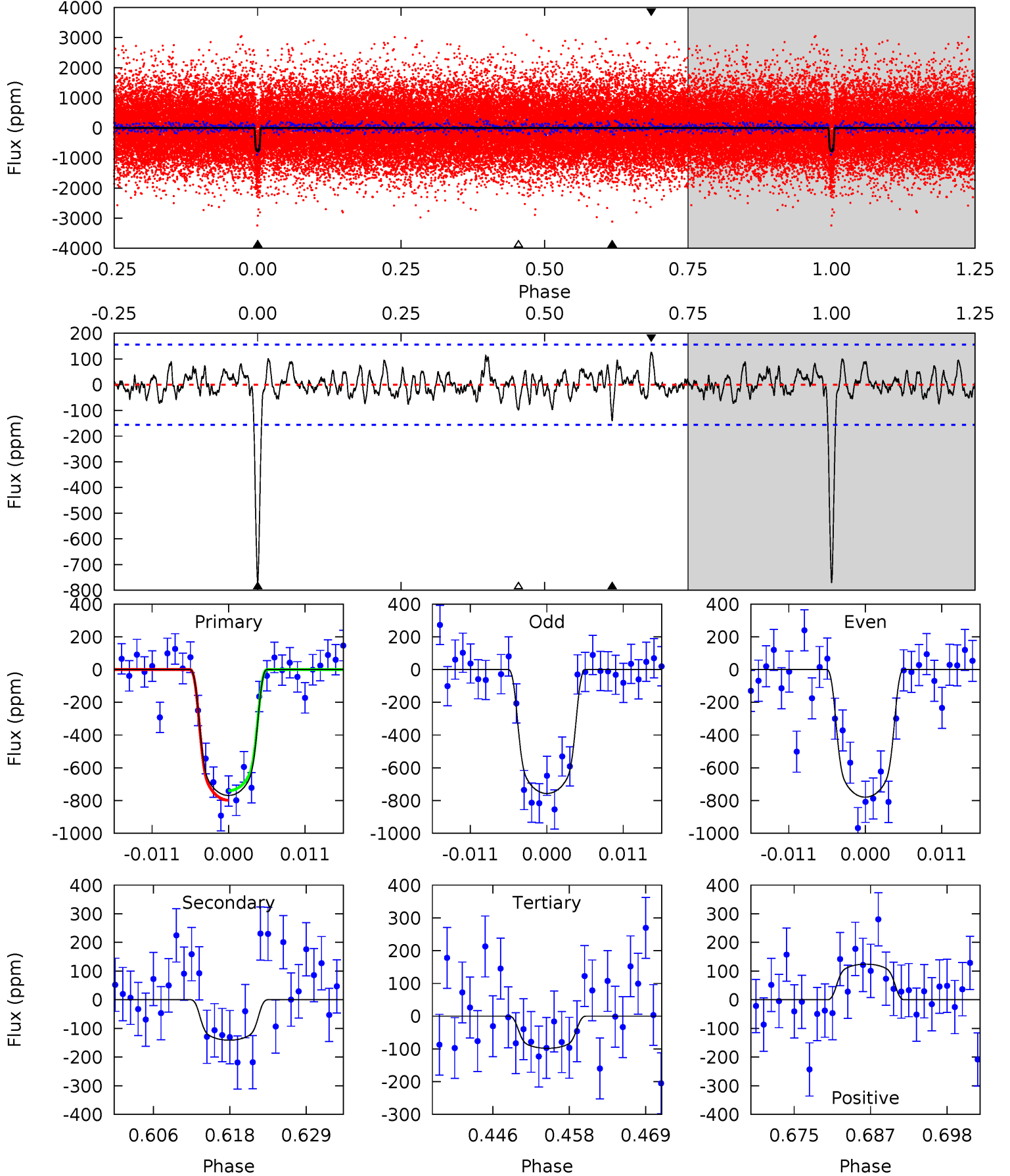
TCE 003354846-01 P= 18.552726 Days  $T_0=135.508463$  (BKJD)



# DV Model-Shift Uniqueness Test

003354846-01,  $P = 18.552497$  Days,  $E = 135.515947$  Days

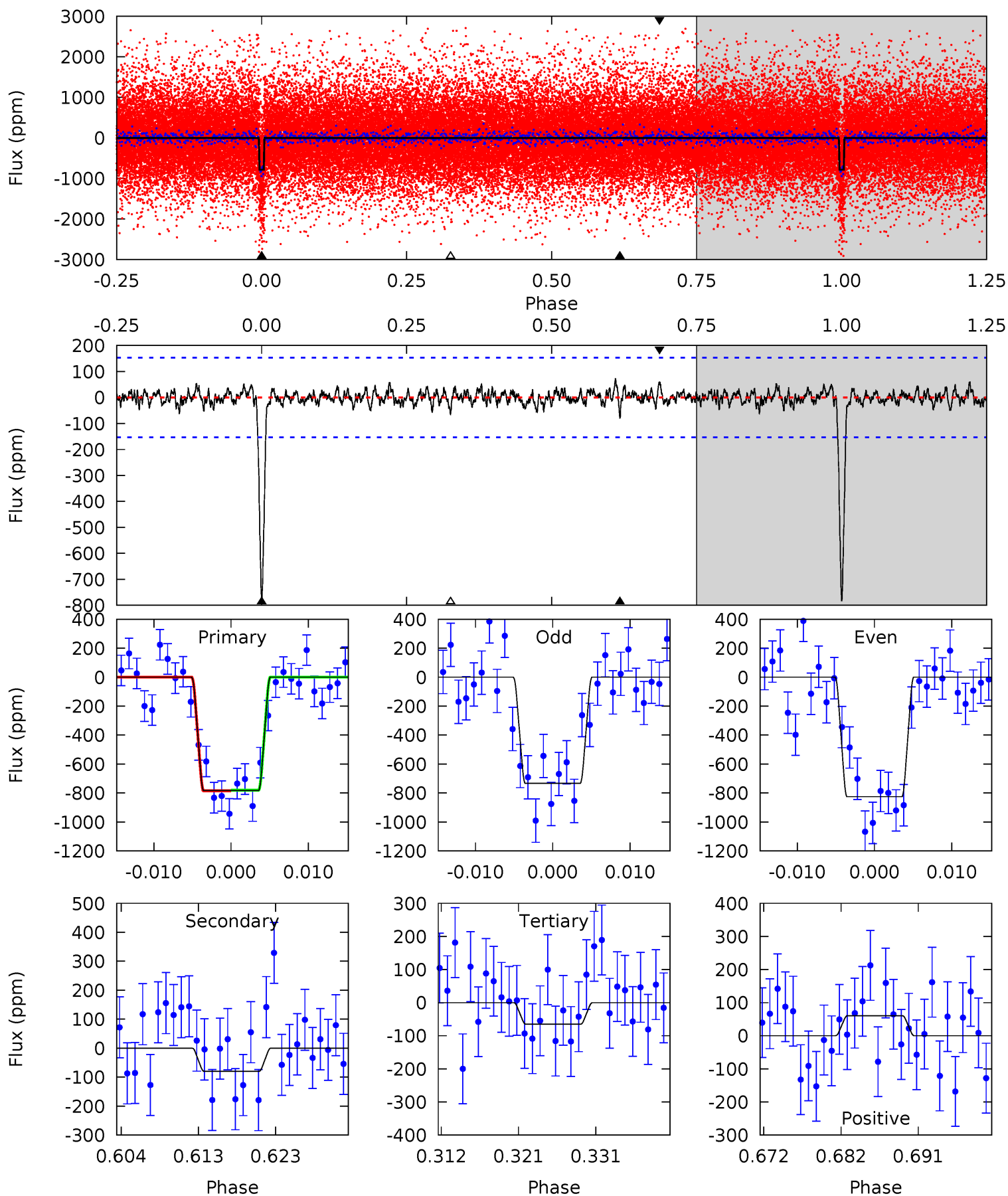
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.6	4.52	3.15	3.98	5.00	2.53	1.17	21.5	20.7	1.37	0.54	0.36	0.98	0.14	0.93



# Alt Model-Shift Uniqueness Test

003354846-01,  $P = 18.552726$  Days,  $E = 135.508463$  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
25.7	2.62	2.13	1.99	5.03	2.59	0.66	23.6	23.7	0.49	0.63	1.52	1.06	0.09	0.07



### Stellar Parameters For KIC 003354846

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5569^{+166}_{-182}$	$4.566^{+0.032}_{-0.179}$	$-0.080^{+0.300}_{-0.300}$	$0.829^{+0.213}_{-0.071}$	$0.928^{+0.091}_{-0.112}$	$2.295^{+0.400}_{-1.088}$
	+3%/-3%	+1%/-4%	+375%/-375%	+26%/-9%	+10%/-12%	+17%/-47%
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 003354846-01 / KOI 2444.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-141 \pm 31$	$3.01^{+0.44}_{-0.35}$	$874^{+52}_{-39}$	$3765^{+193}_{-205}$	$146^{+52}_{-42}$
Alt.	$-80 \pm 30$	$2.73^{+0.42}_{-0.34}$	$876^{+53}_{-39}$	$3529^{+254}_{-279}$	$99^{+54}_{-43}$

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

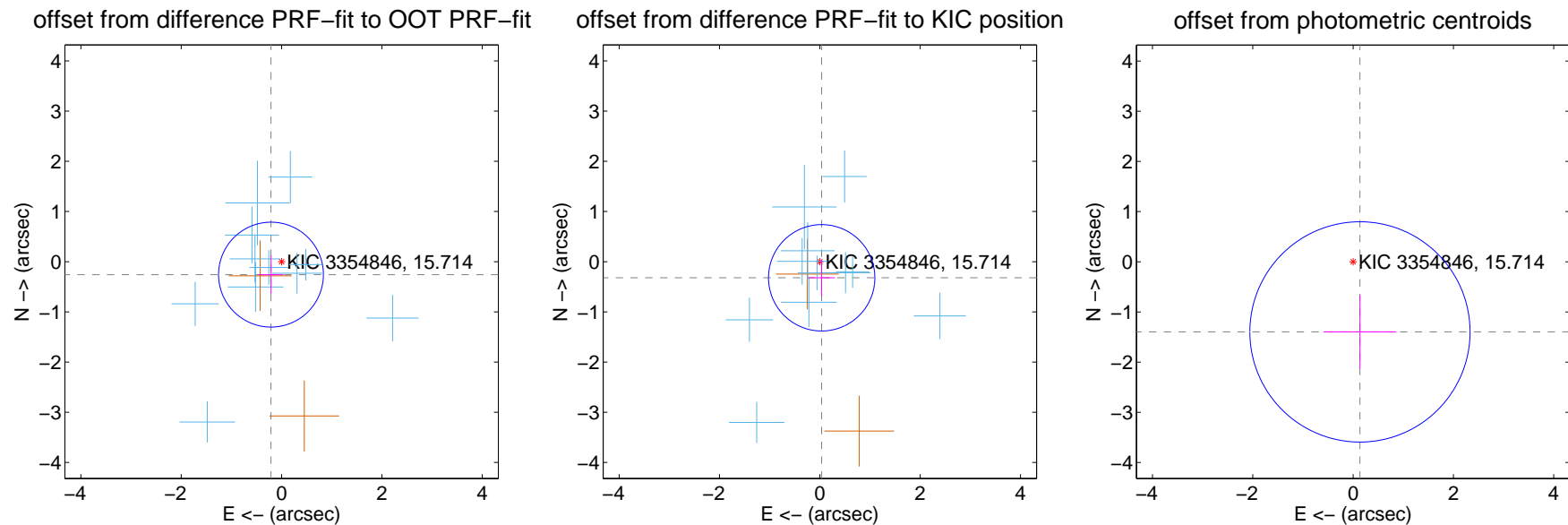
## DV Centroid Data

Supplemental centroid analysis for 003354846-01. Kepler magnitude: 15.71. Transit SNR 17.21

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

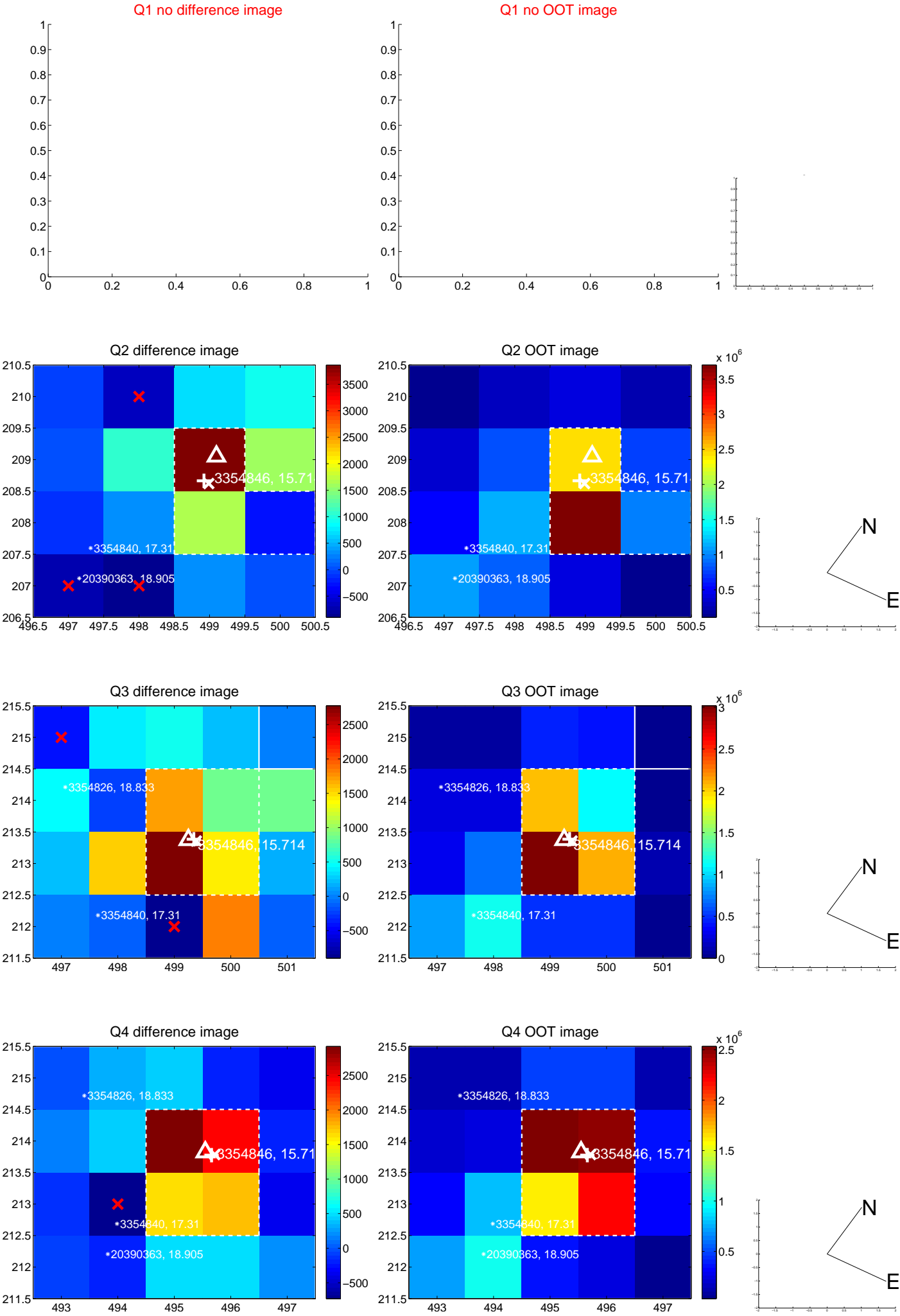
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.333 \pm 0.348$	0.96	$0.211 \pm 0.248$	$-0.258 \pm 0.384$
PRF-fit source offset from KIC position	$0.323 \pm 0.353$	0.91	$-0.036 \pm 0.265$	$-0.321 \pm 0.358$
photometric centroid source offset	$1.40 \pm 0.73$	1.92	$-0.14 \pm 0.73$	$-1.40 \pm 0.73$



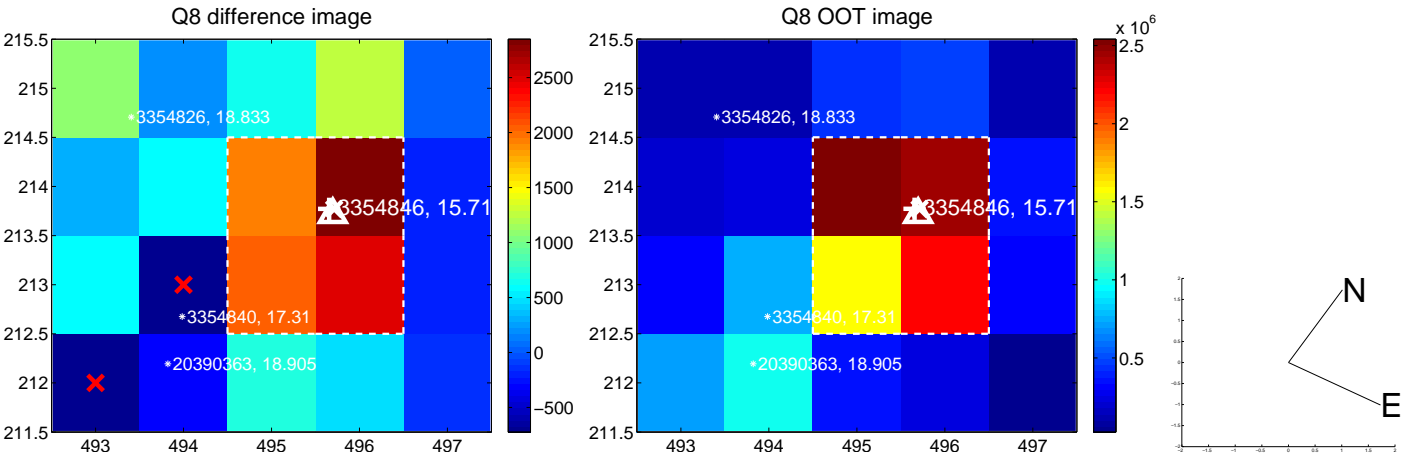
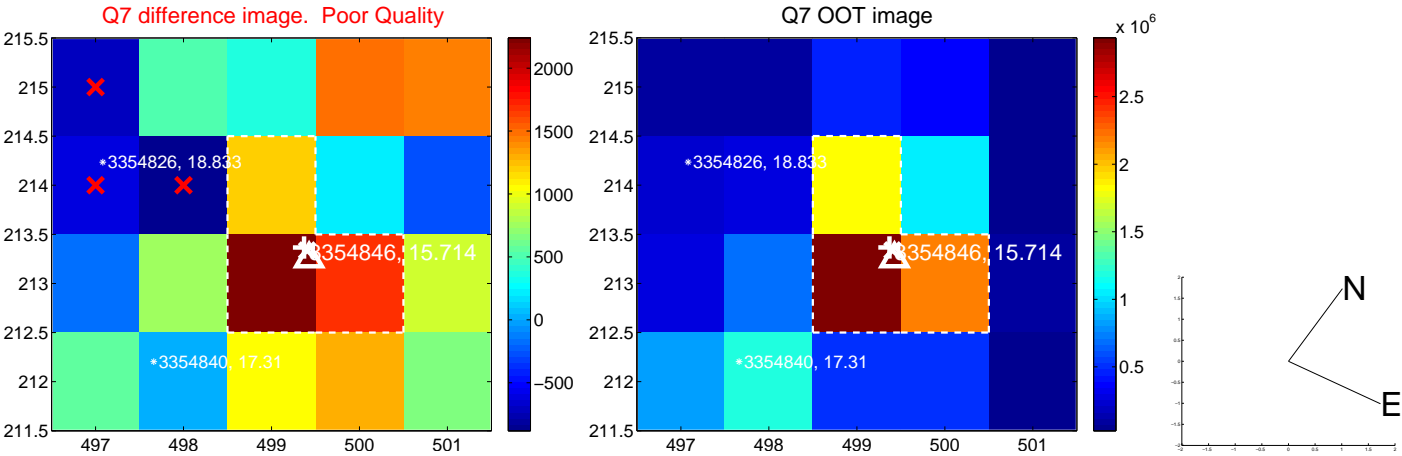
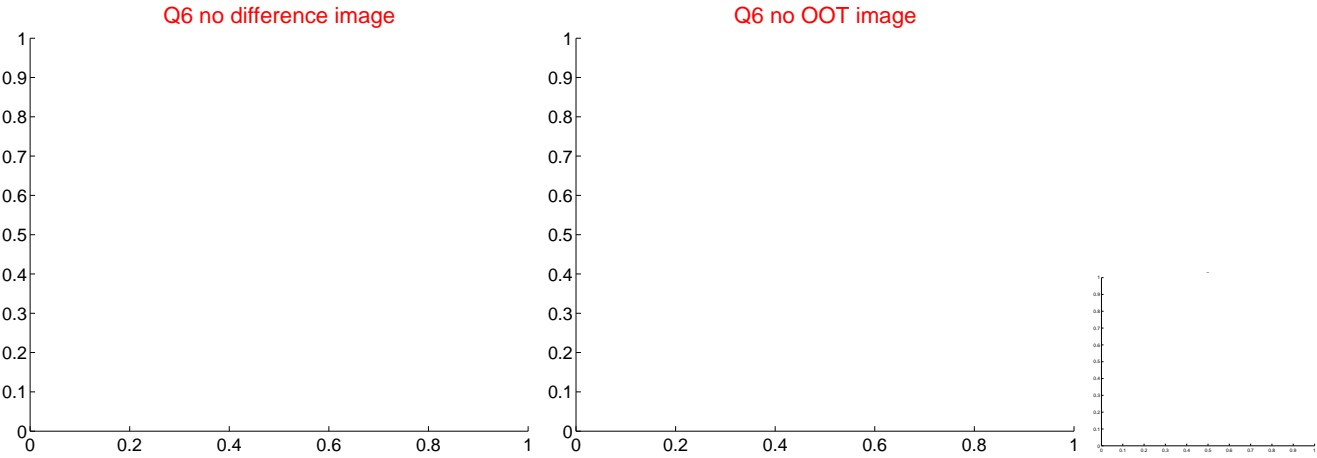
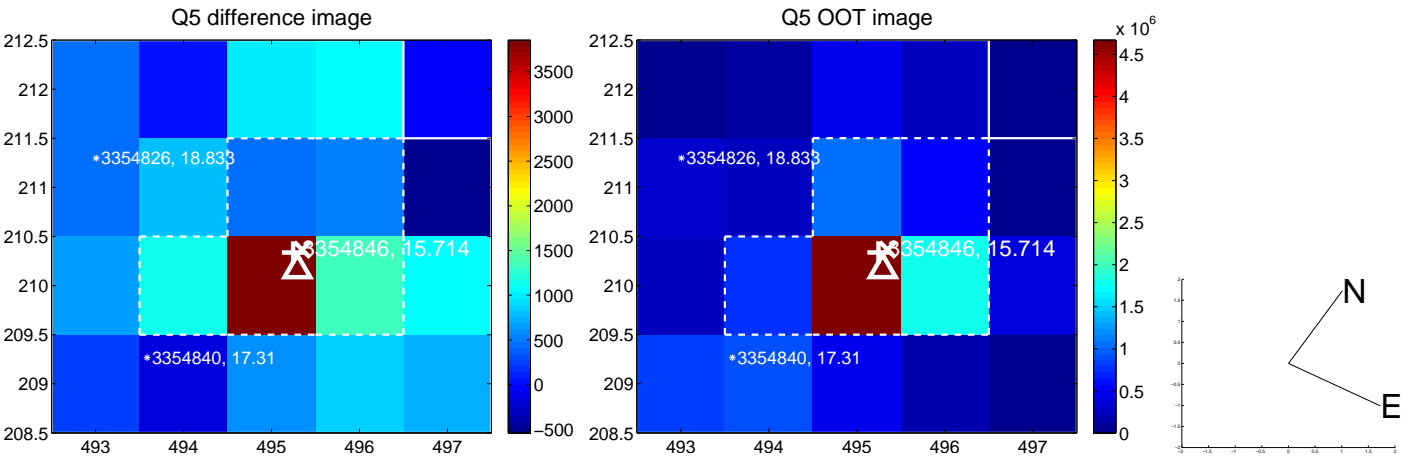
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



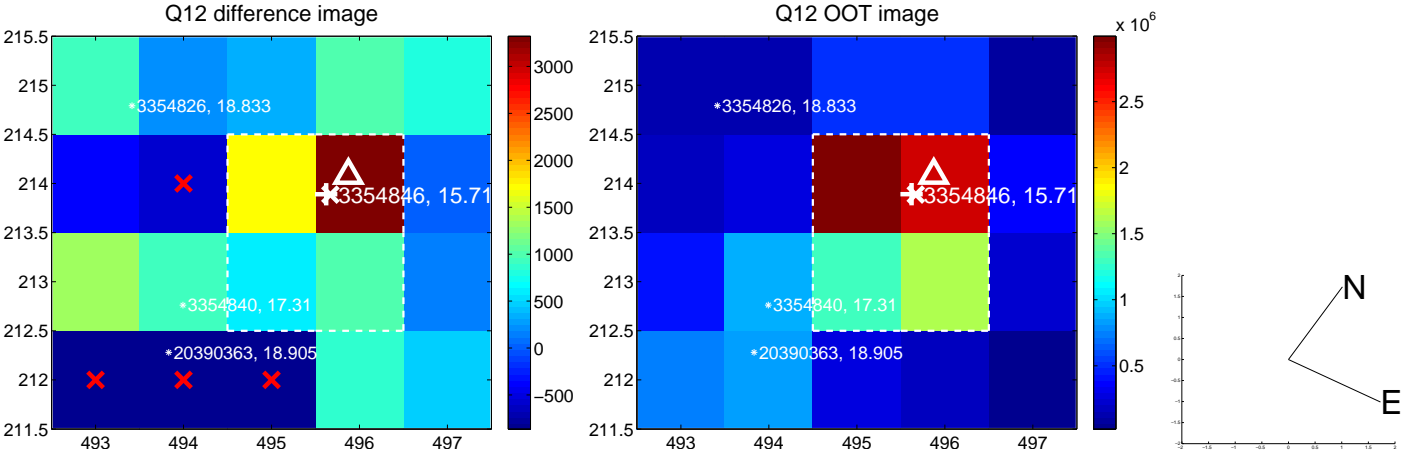
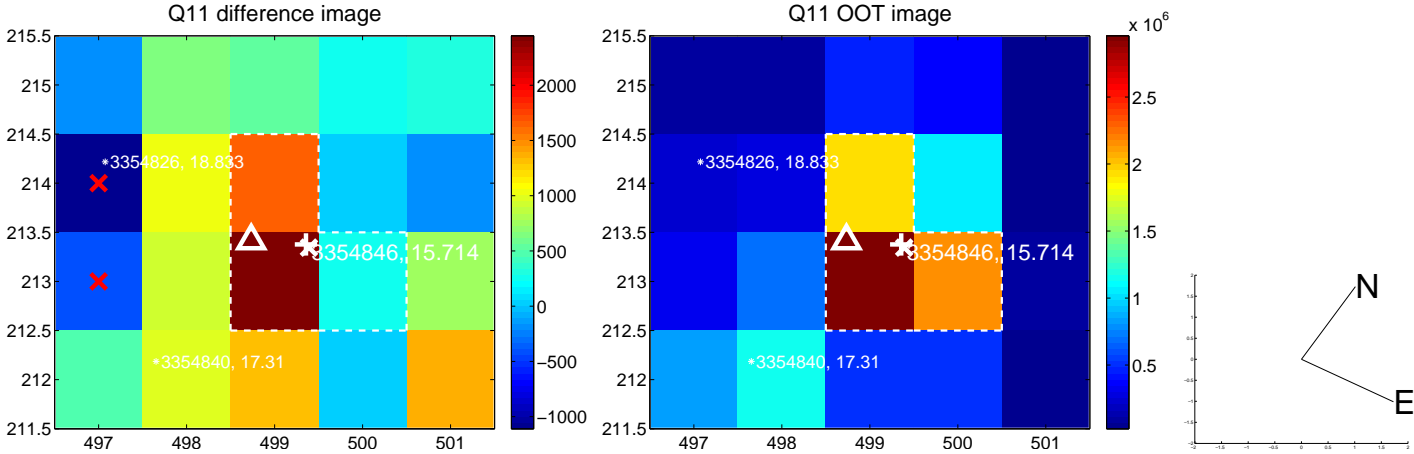
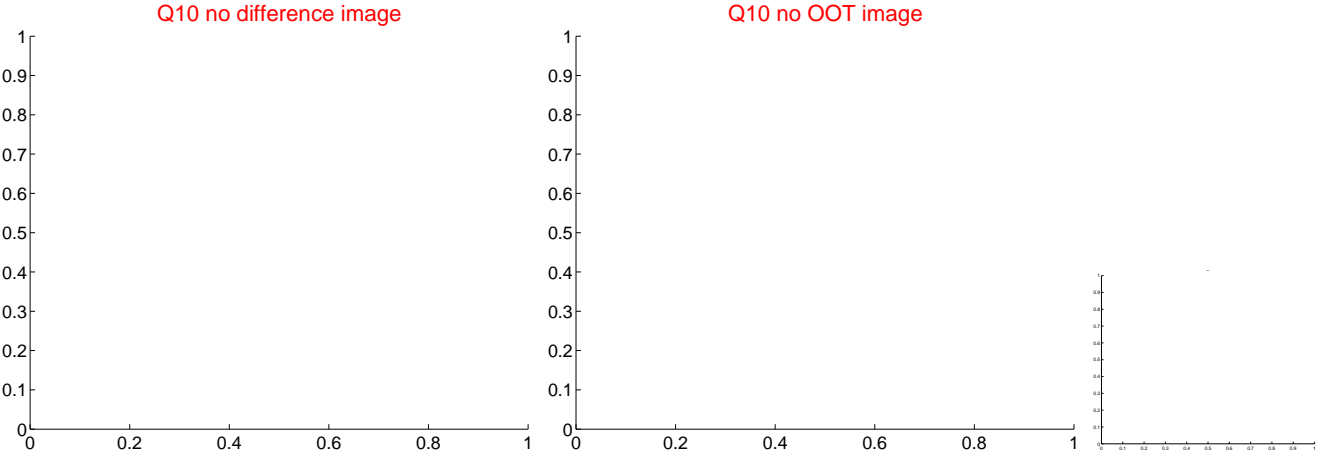
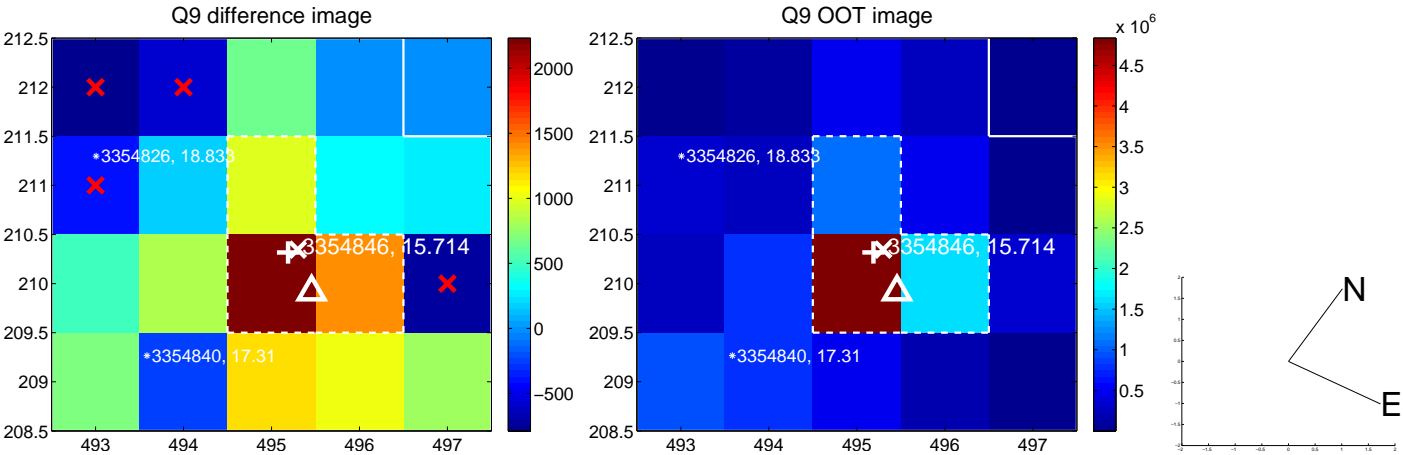
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



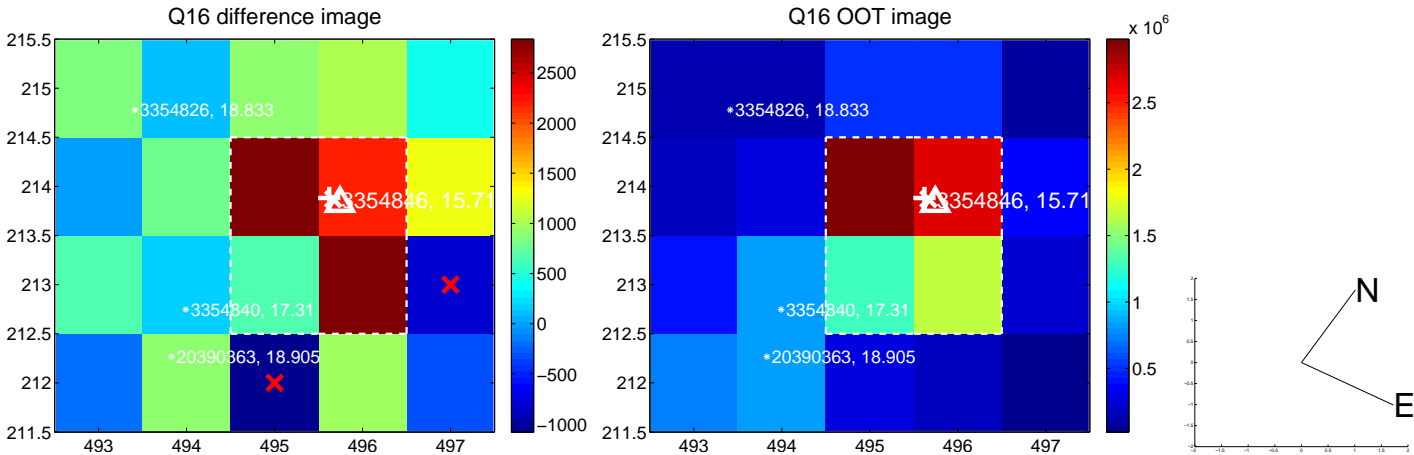
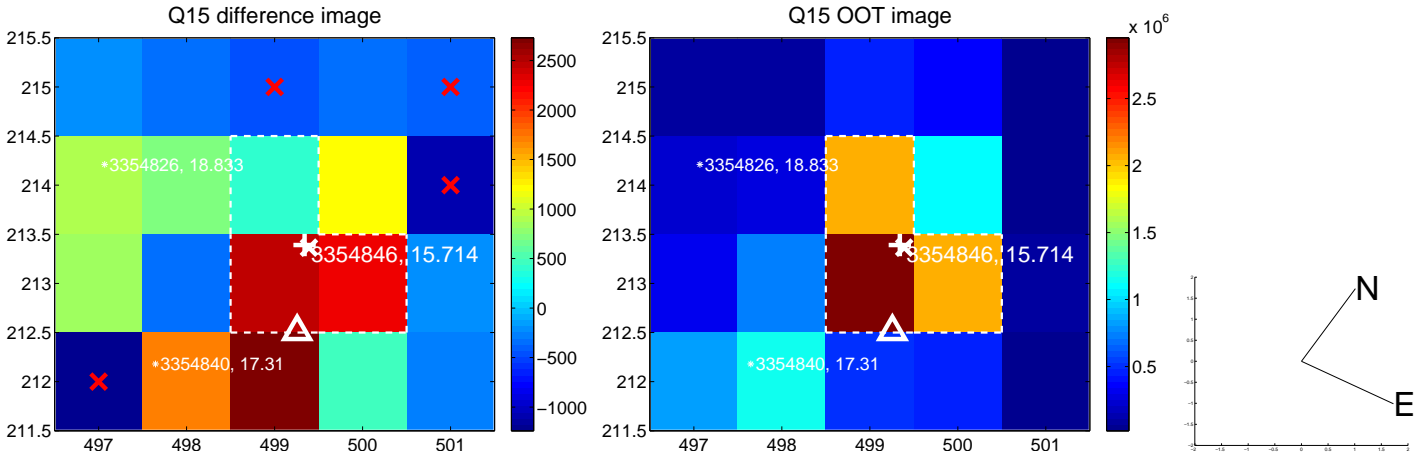
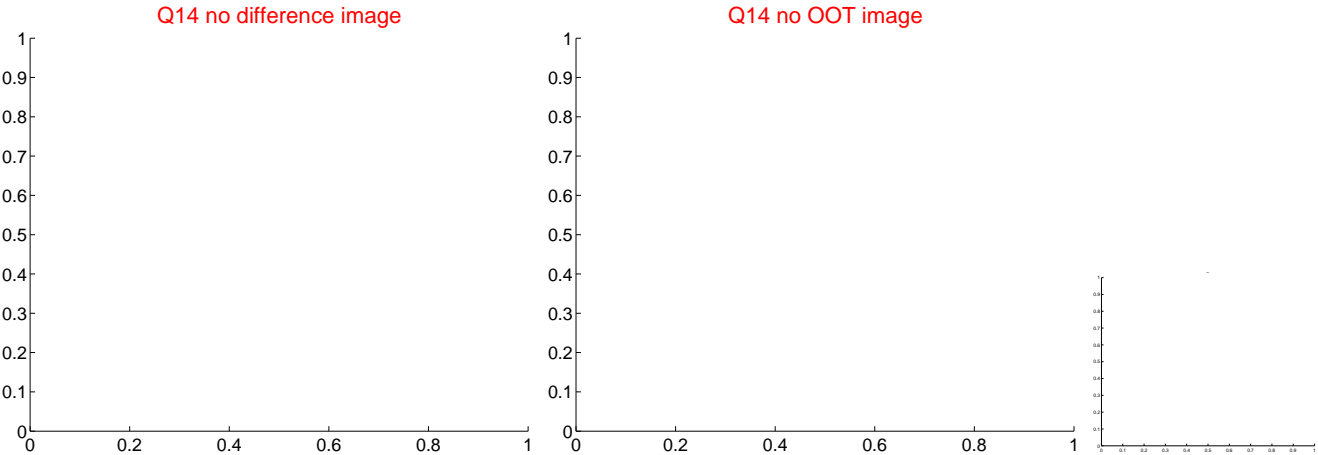
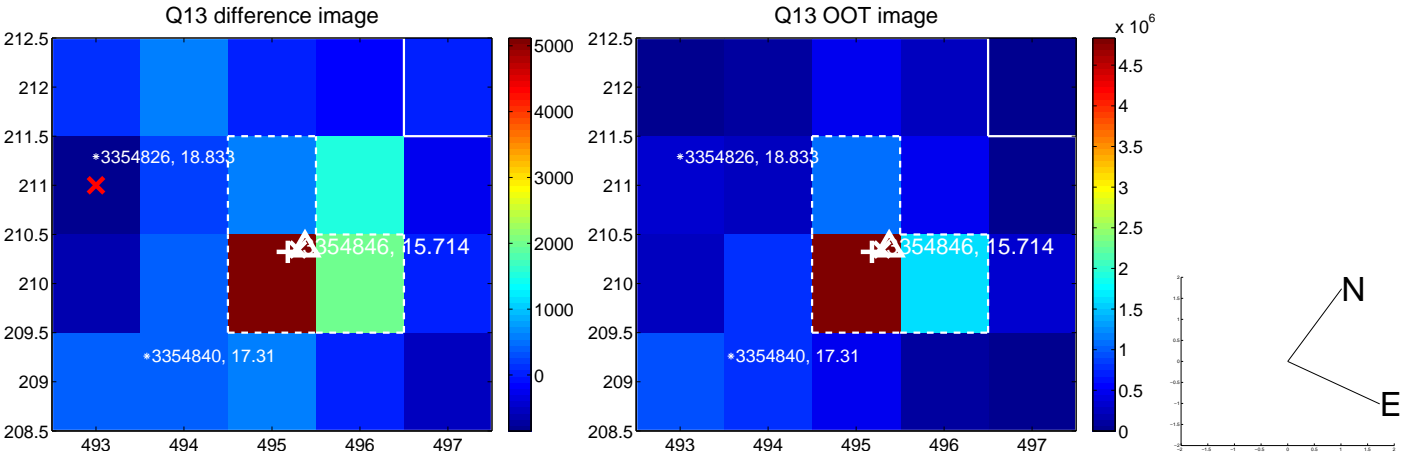
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



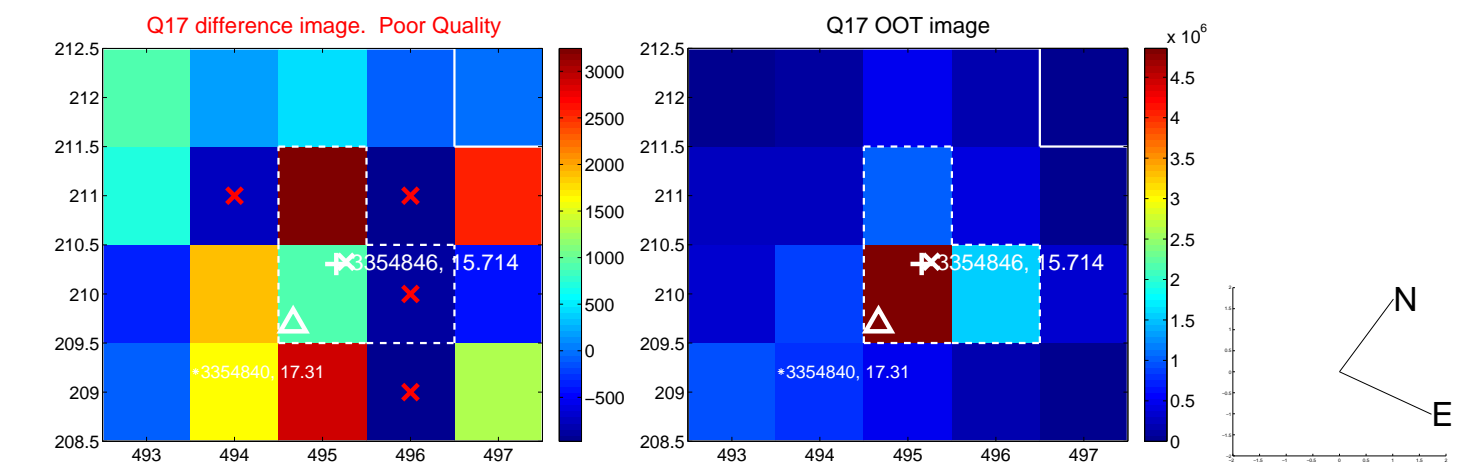
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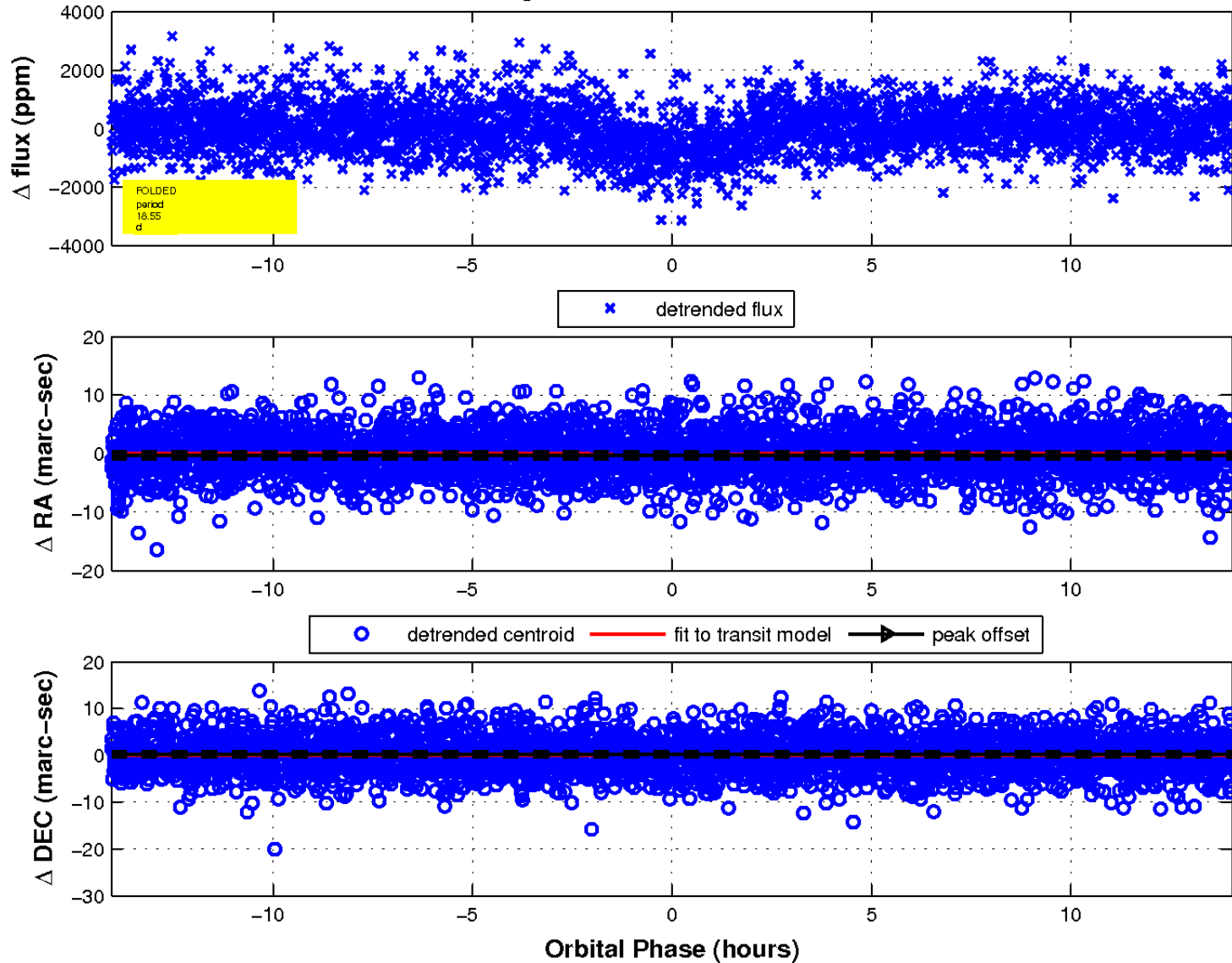
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

