

# KIC 009714358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009714358-01	OBS	6073.01	6.474173	134.402069	211265.3	3.385	9107.3	4584.0	0.62	4947	49.21	62.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009714358-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED

**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 009714358-01

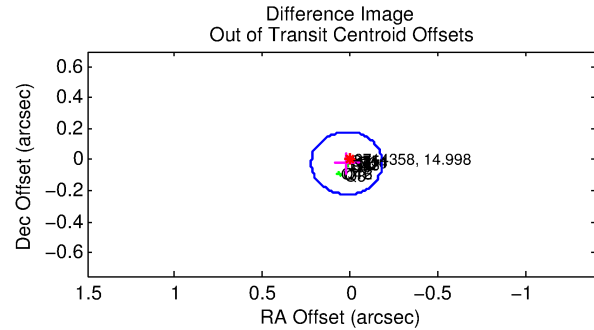
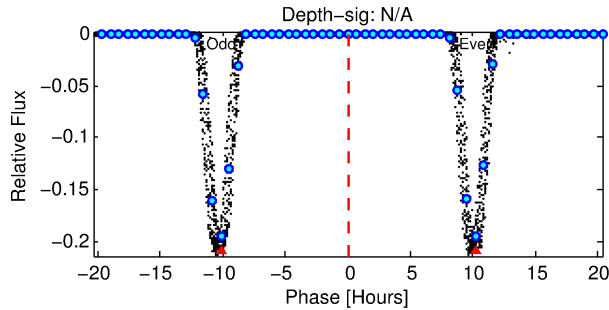
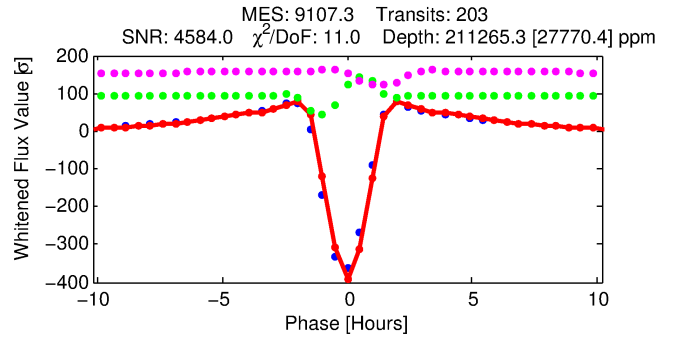
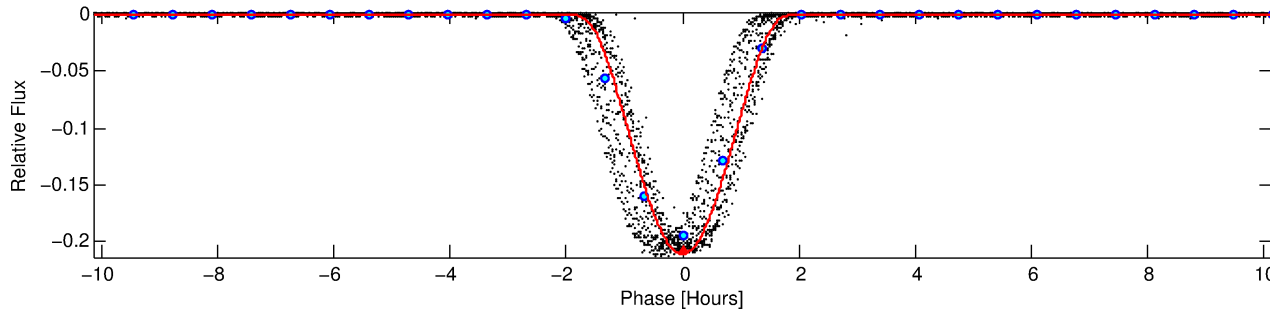
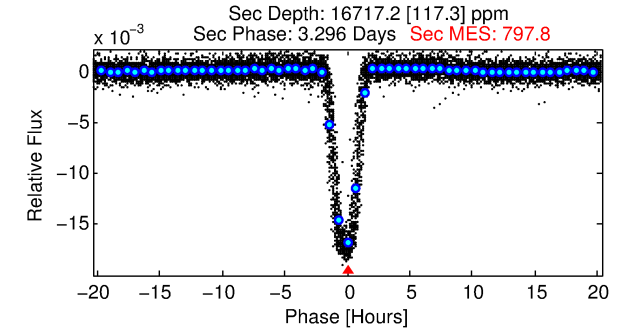
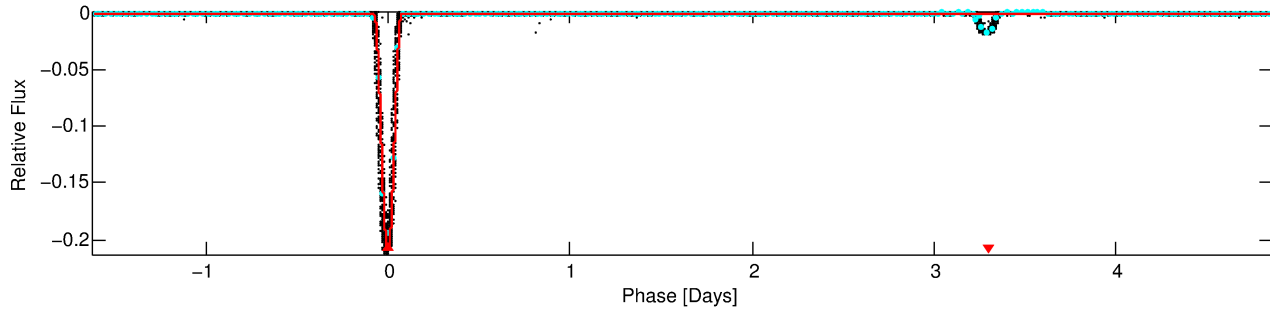
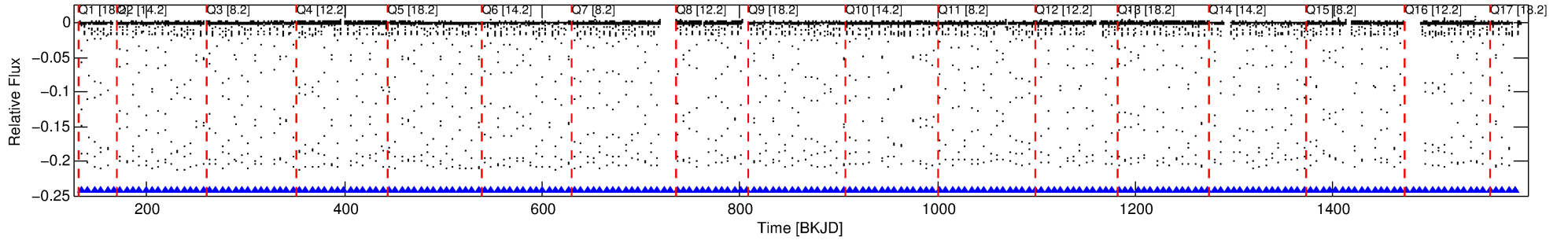
No Significant Match Found

# DV One-Page Summary

KIC: 9714358 Candidate: 1 of 1 Period: 6.474 d

KOI: K06073.01 Corr: 0.968

Kp: 15.00 R\*: 0.62 Rs Teff: 4947.0 K Logg: 4.64 Fe/H: -0.760



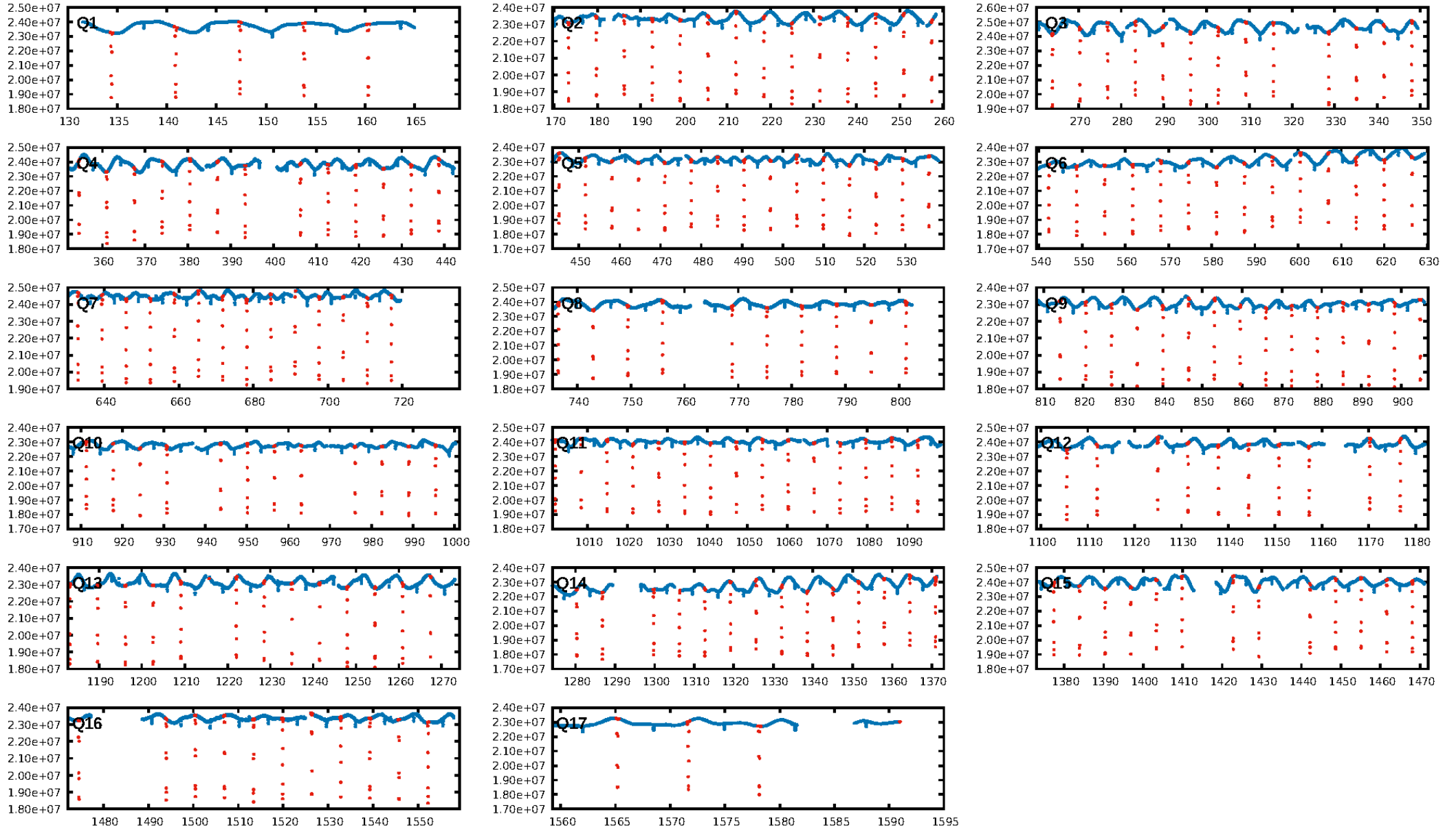
## DV Fit Results:

Period = 6.47417 [0.00000] d  
Epoch = 134.4021 [0.0000] BKJD  
Rp/R\* = 0.7226 [0.0232]  
a/R\* = 20.54 [0.14]  
b = 1.00 [0.09]  
Seff = 62.54 [10.39]  
Teq = 717 [30] K  
Rp = 49.21 [4.54] Re  
a = 0.0578 [0.0044] AU  
Ag = 12.69 [1.68] [6.97]  
Teffp = 2093 [71] K [17.84]

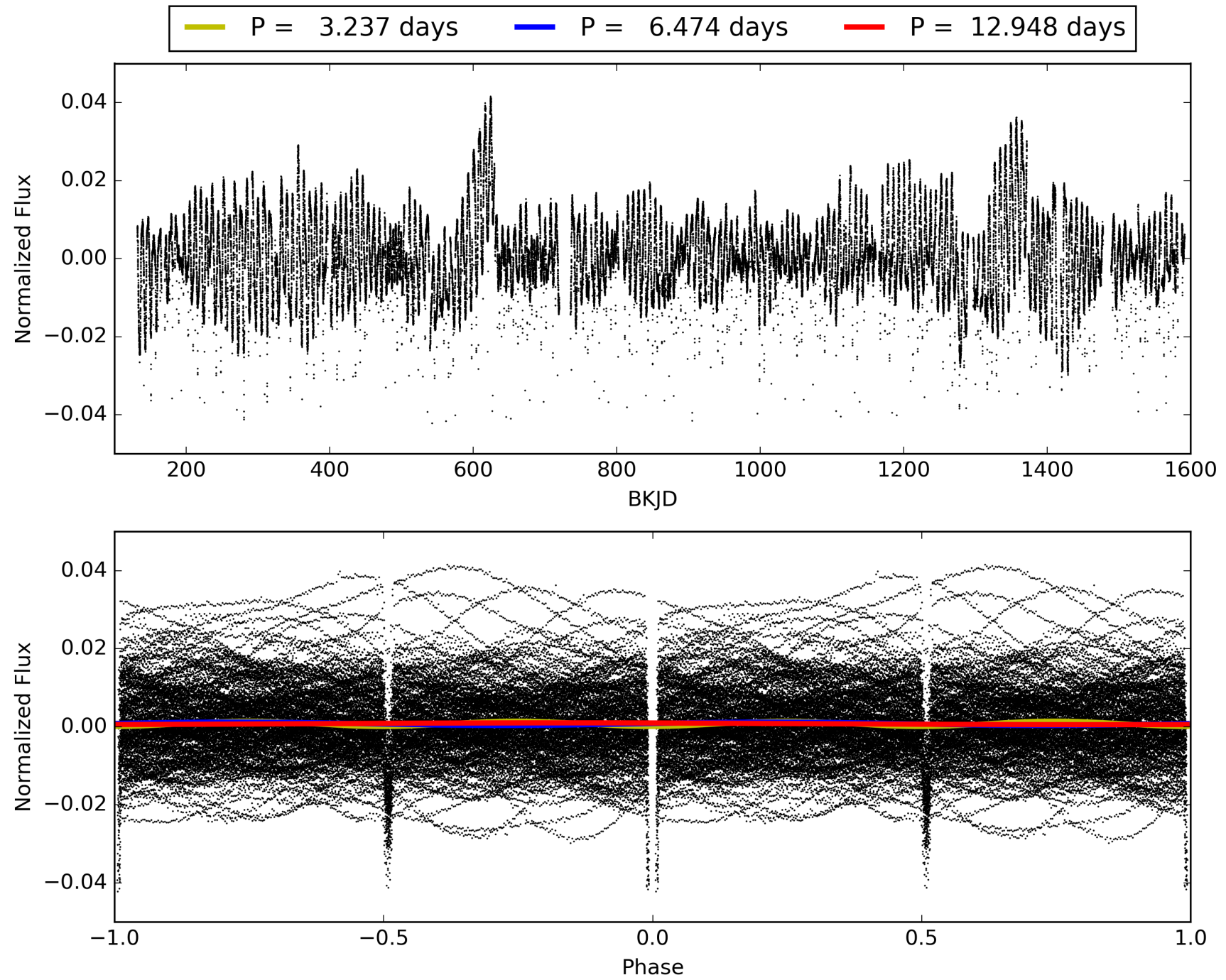
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [195/195]  
GhostDiagnostic-chr: 2.489  
Centroid-sig: 0.0%  
Centroid-so: 0.013 arcsec [11.33]  
OotOffset-rm: 0.030 arcsec [0.45]  
KicOffset-rm: 0.249 arcsec [3.68]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009714358-01, PDC Light Curves

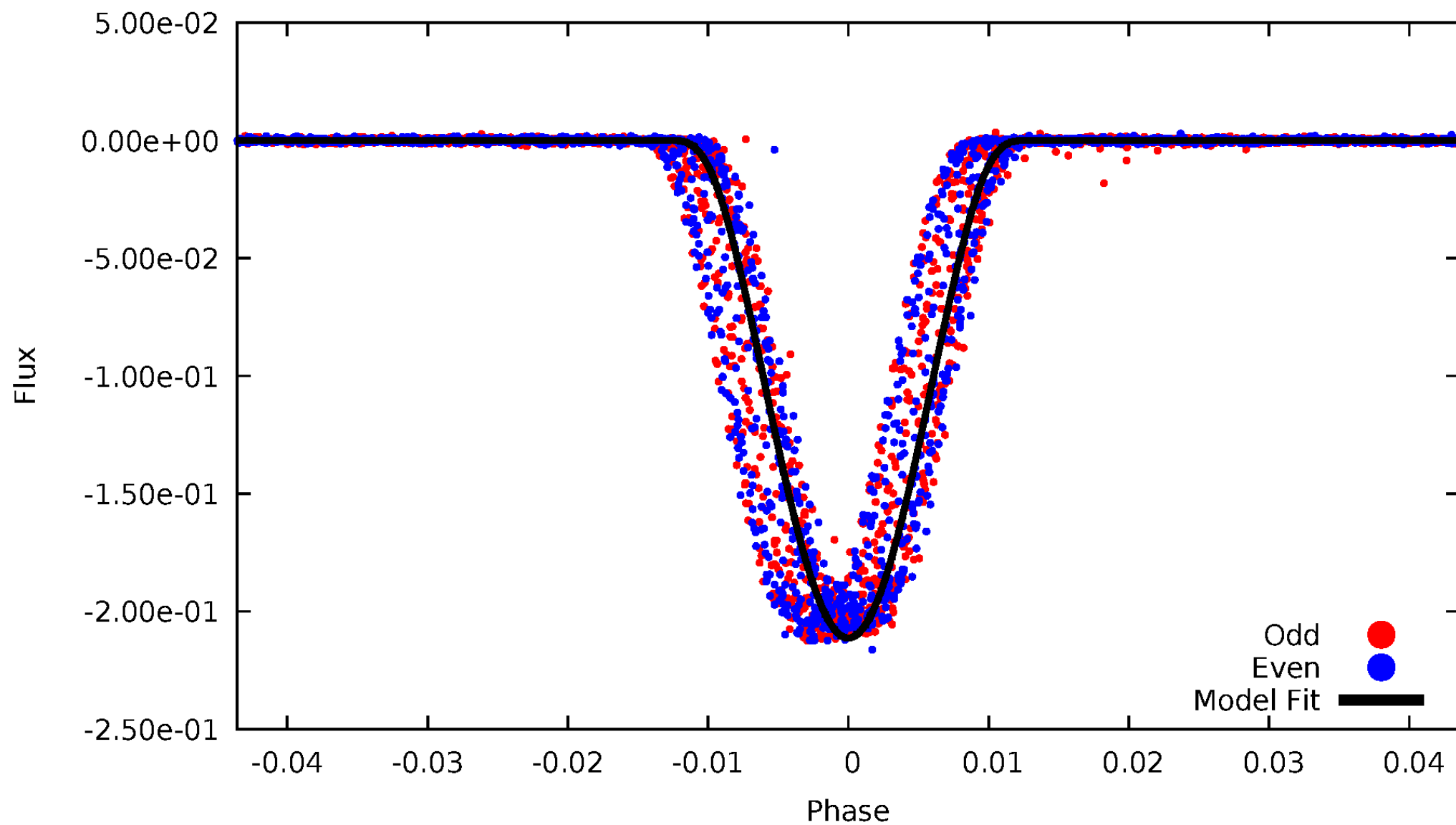


TCE 009714358-01



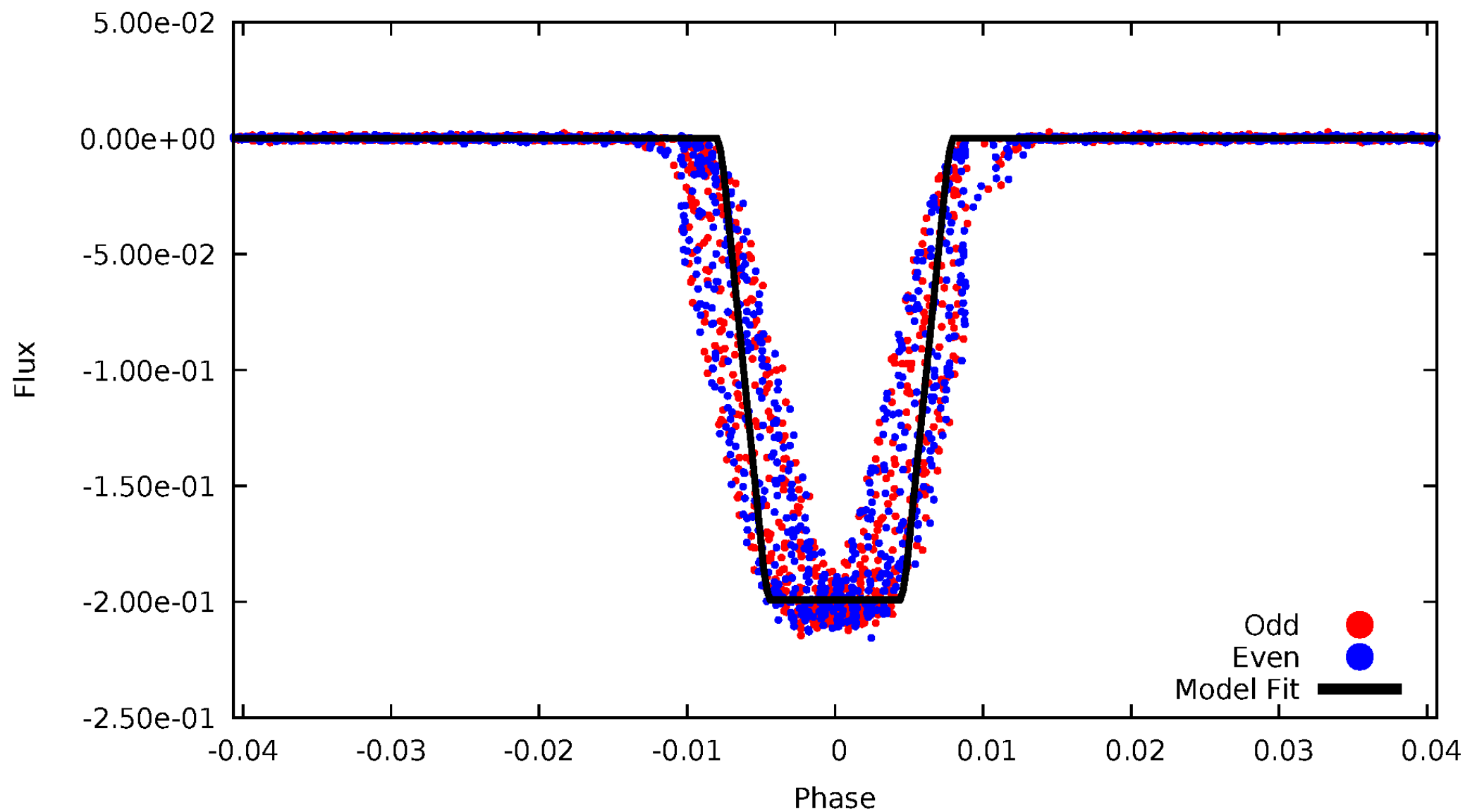
# DV Odd/Even

TCE 009714358-01



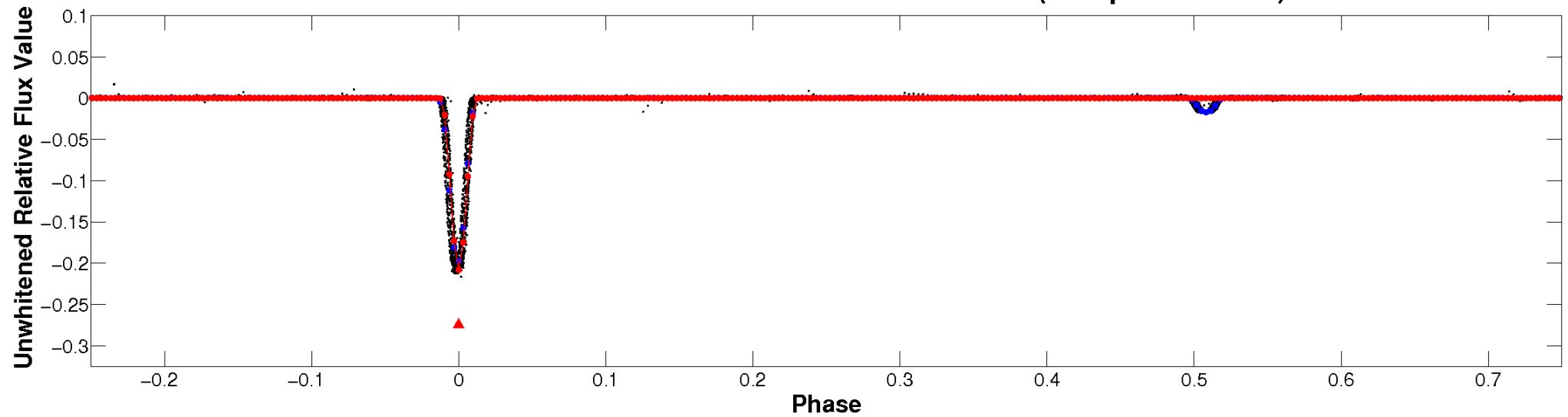
# ALT Odd/Even

TCE 009714358-01

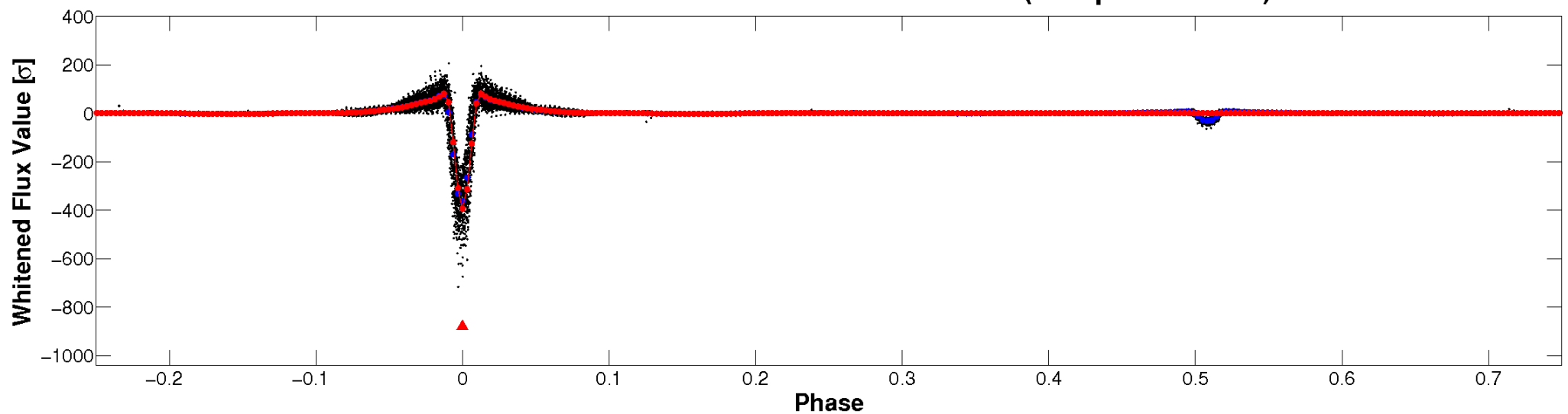


# Non-Whitened Vs. Whitened Light Curve

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

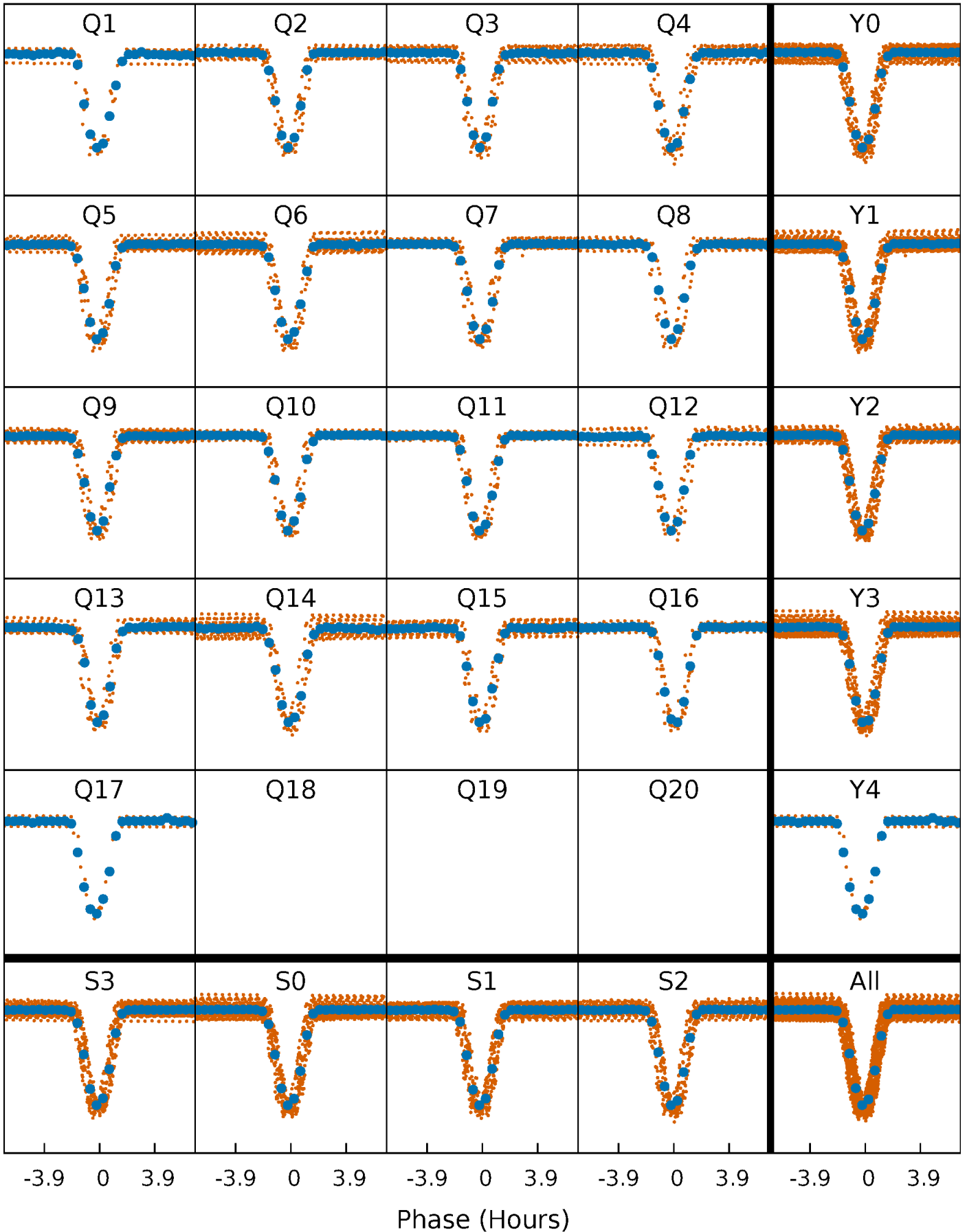


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

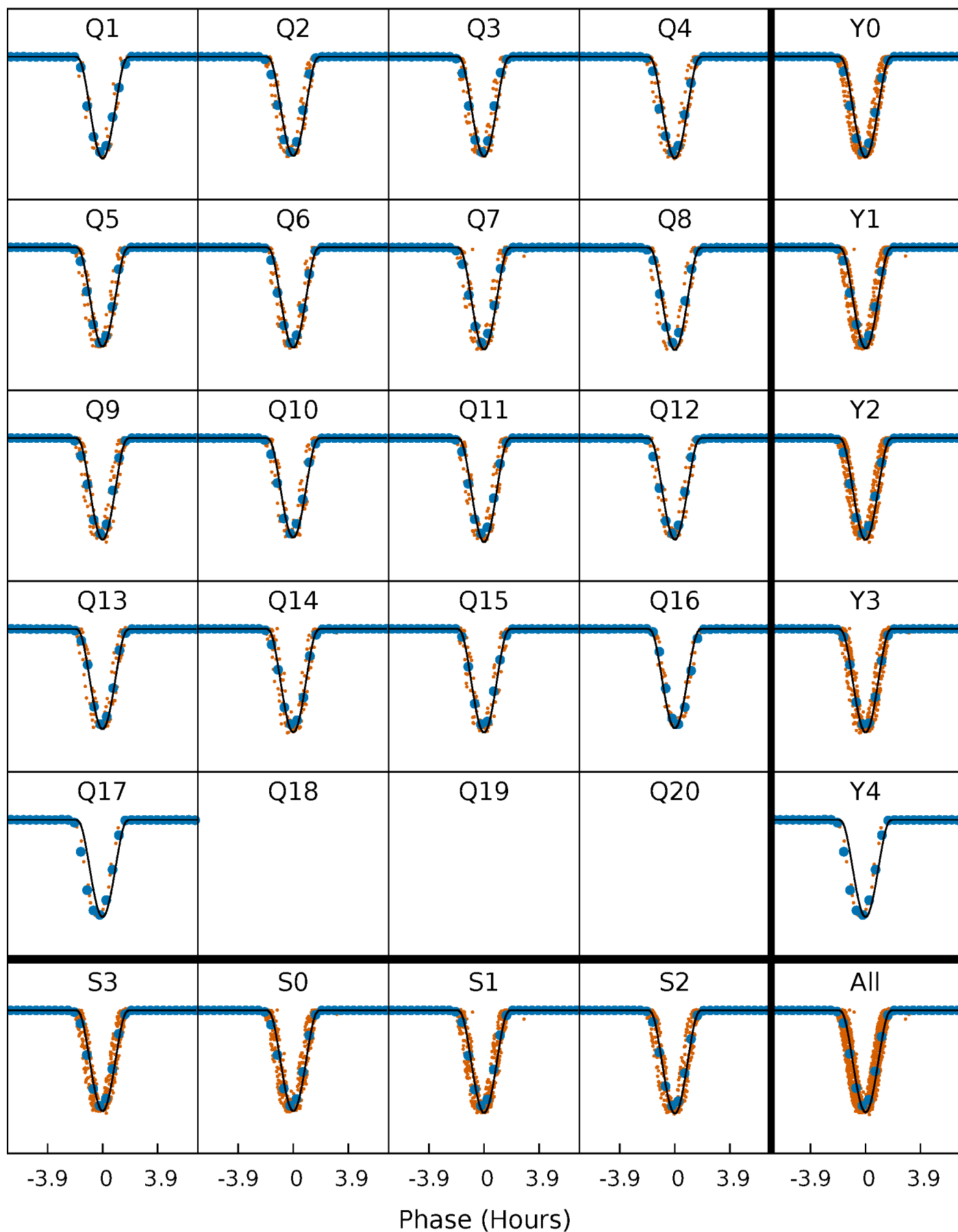
TCE 009714358-01 P= 6.474173 Days  $T_0=134.402069$  (BKJD)





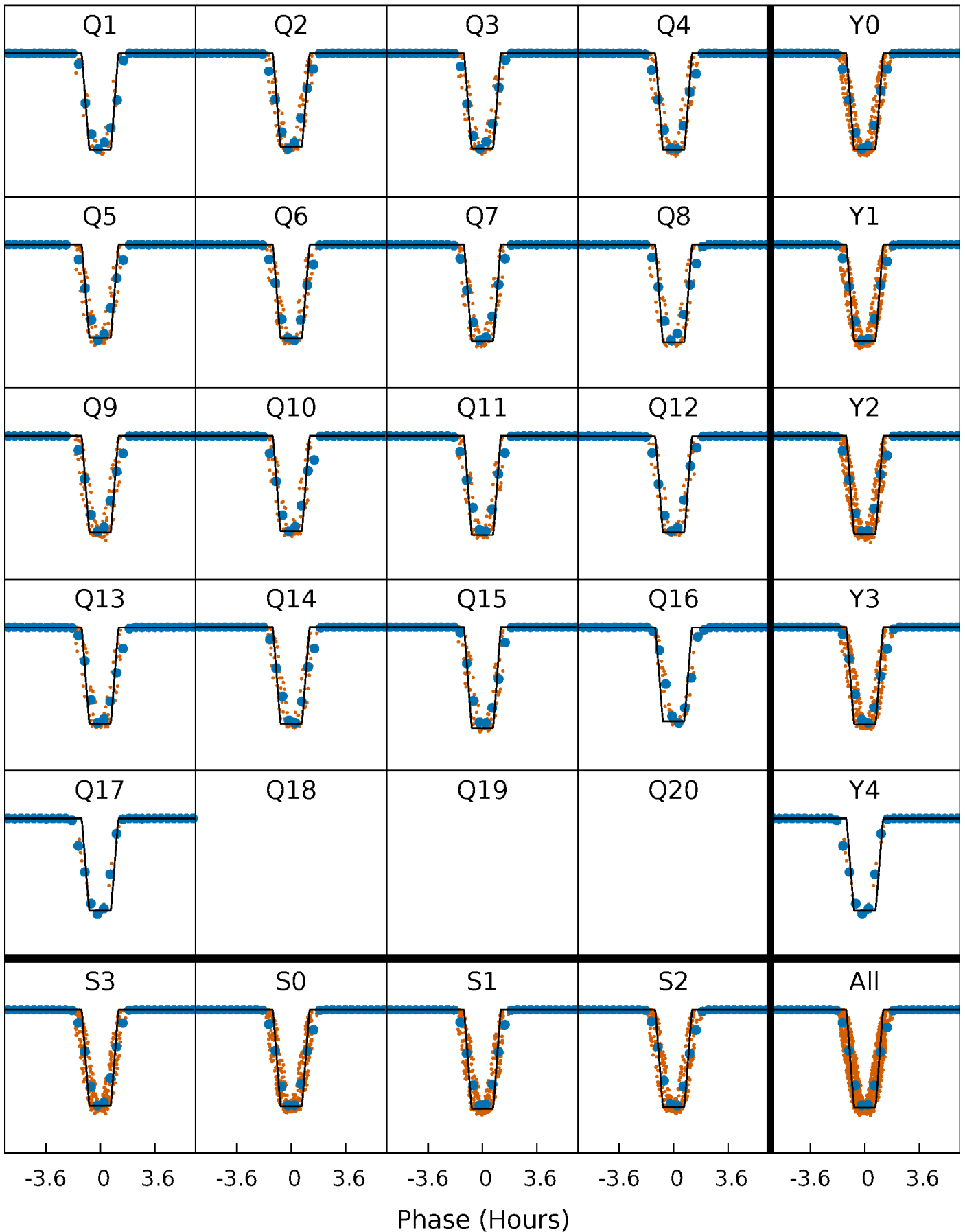
# DV Quarter-Phased Transit Curves

TCE 009714358-01 P= 6.474173 Days  $T_0=134.402069$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

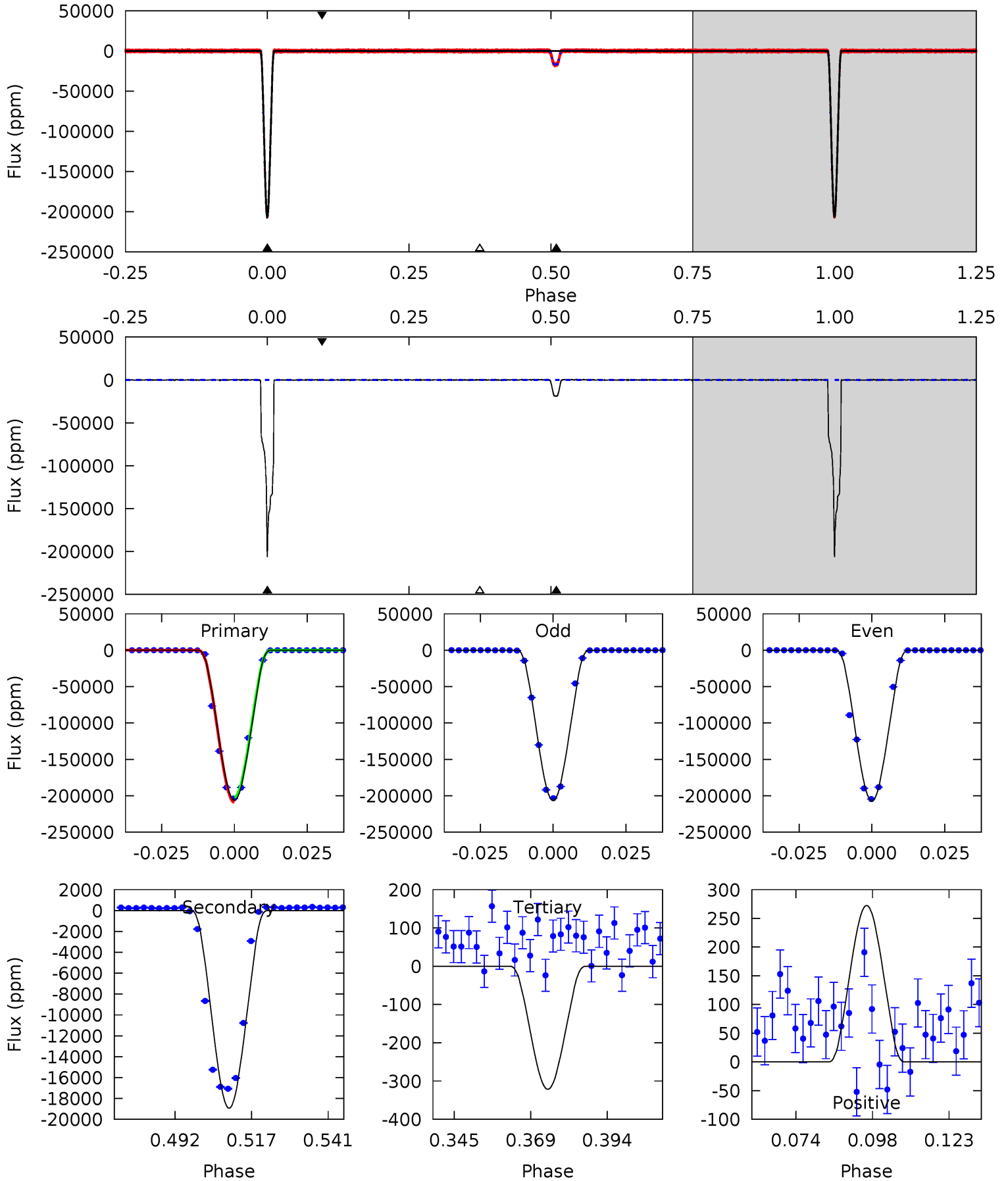
TCE 009714358-01 P= 6.474165 Days  $T_0=134.398166$  (BKJD)



# DV Model-Shift Uniqueness Test

009714358-01, P = 6.474173 Days, E = 127.927896 Days

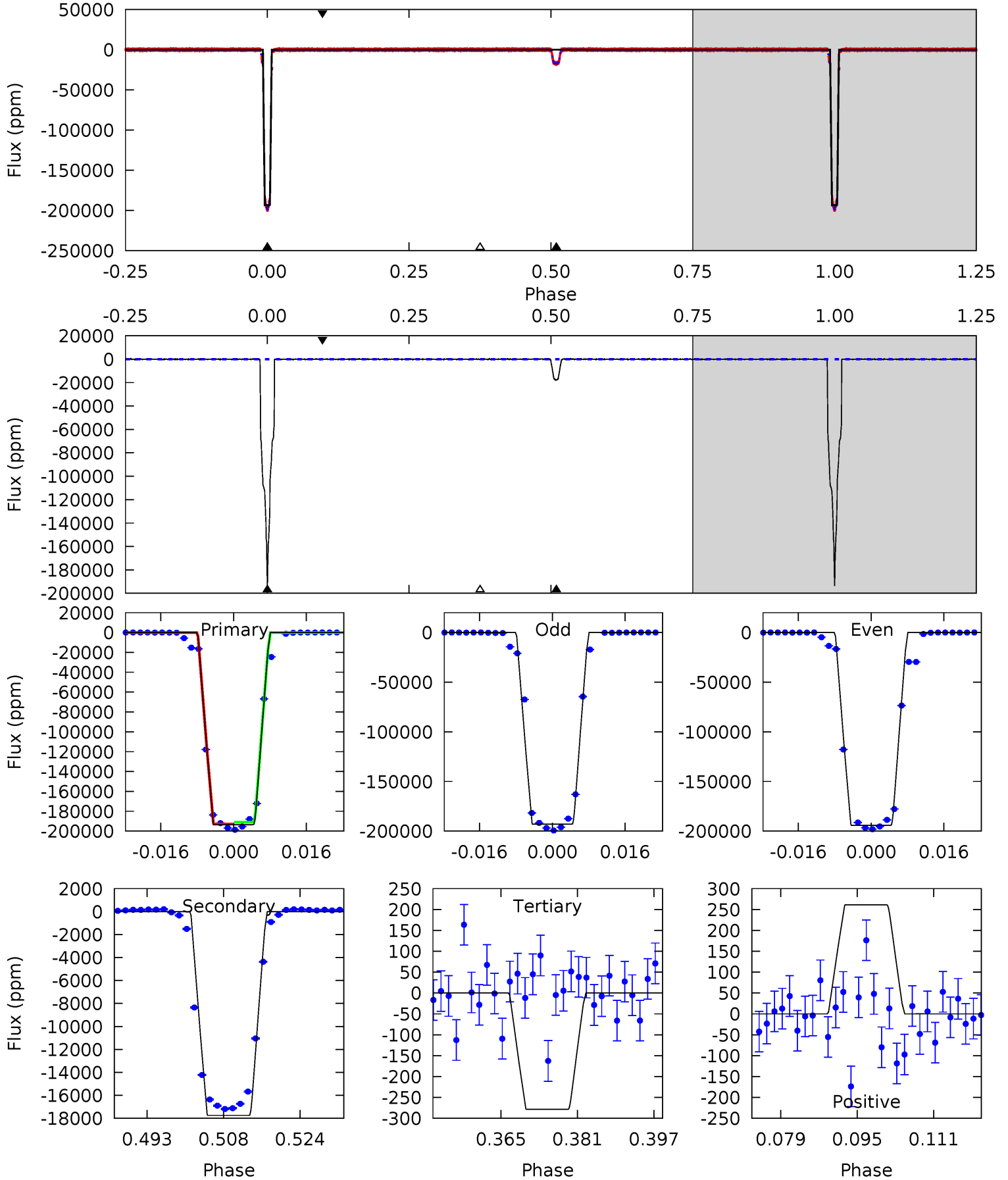
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5404	496.0	8.42	7.14	4.85	2.25	2.38	5396	5397	487.6	488.9	6.29	0.99	0.00	0



# Alt Model-Shift Uniqueness Test

009714358-01, P = 6.474165 Days, E = 127.924001 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
3332	305.5	4.80	4.49	4.94	2.41	1.16	3327	3327	300.7	301.0	9.61	1.00	0.00	13.6



### Stellar Parameters For KIC 009714358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4947^{+148}_{-148}$	$4.636^{+0.065}_{-0.035}$	$-0.760^{+0.300}_{-0.300}$	$0.624^{+0.054}_{-0.049}$	$0.614^{+0.062}_{-0.027}$	$3.554^{+0.856}_{-0.516}$
	+3%/-3%	+1%/-1%	+39%/-39%	+9%/-8%	+10%/-4%	+24%/-15%
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 009714358-01 / KOI 6073.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-18926 \pm 38$	$48.89^{+2.76}_{-2.53}$	$996^{+36}_{-34}$	$2850^{+60}_{-64}$	$15^{+2}_{-1}$
Alt.	$-17749 \pm 58$	$30.33^{+2.19}_{-2.12}$	$993^{+37}_{-35}$	$3228^{+92}_{-86}$	$36^{+5}_{-4}$

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

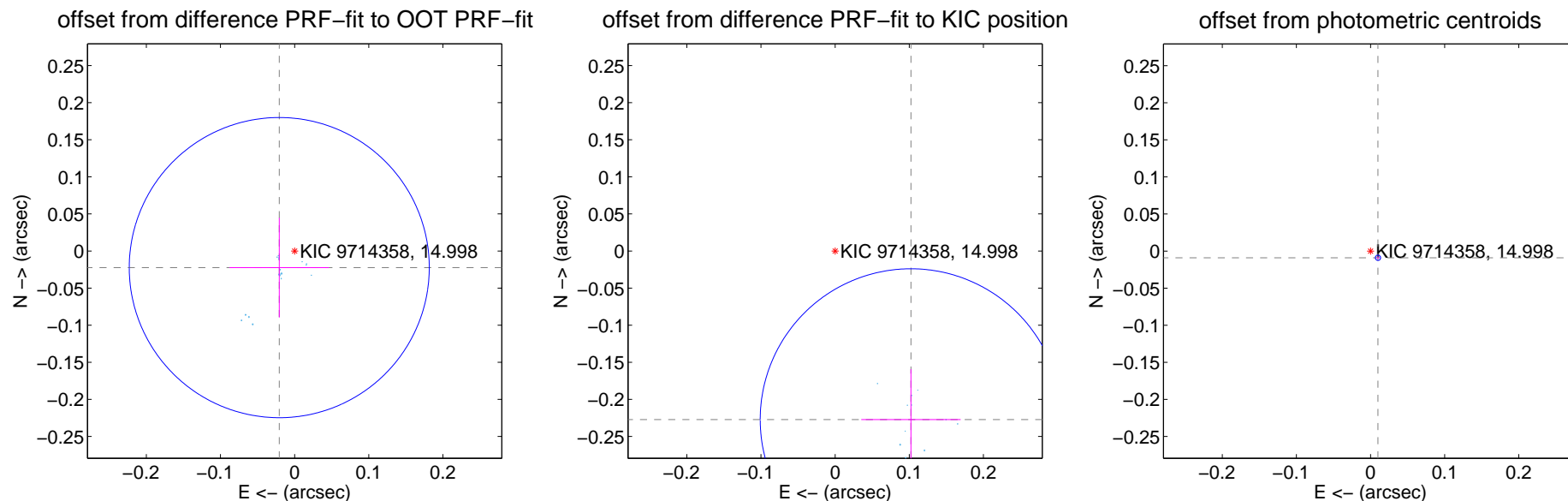
## DV Centroid Data

Supplemental centroid analysis for 009714358-01. Kepler magnitude: 15.00. Transit SNR 4583.97

There are 17 quarters with good PRF difference image offsets

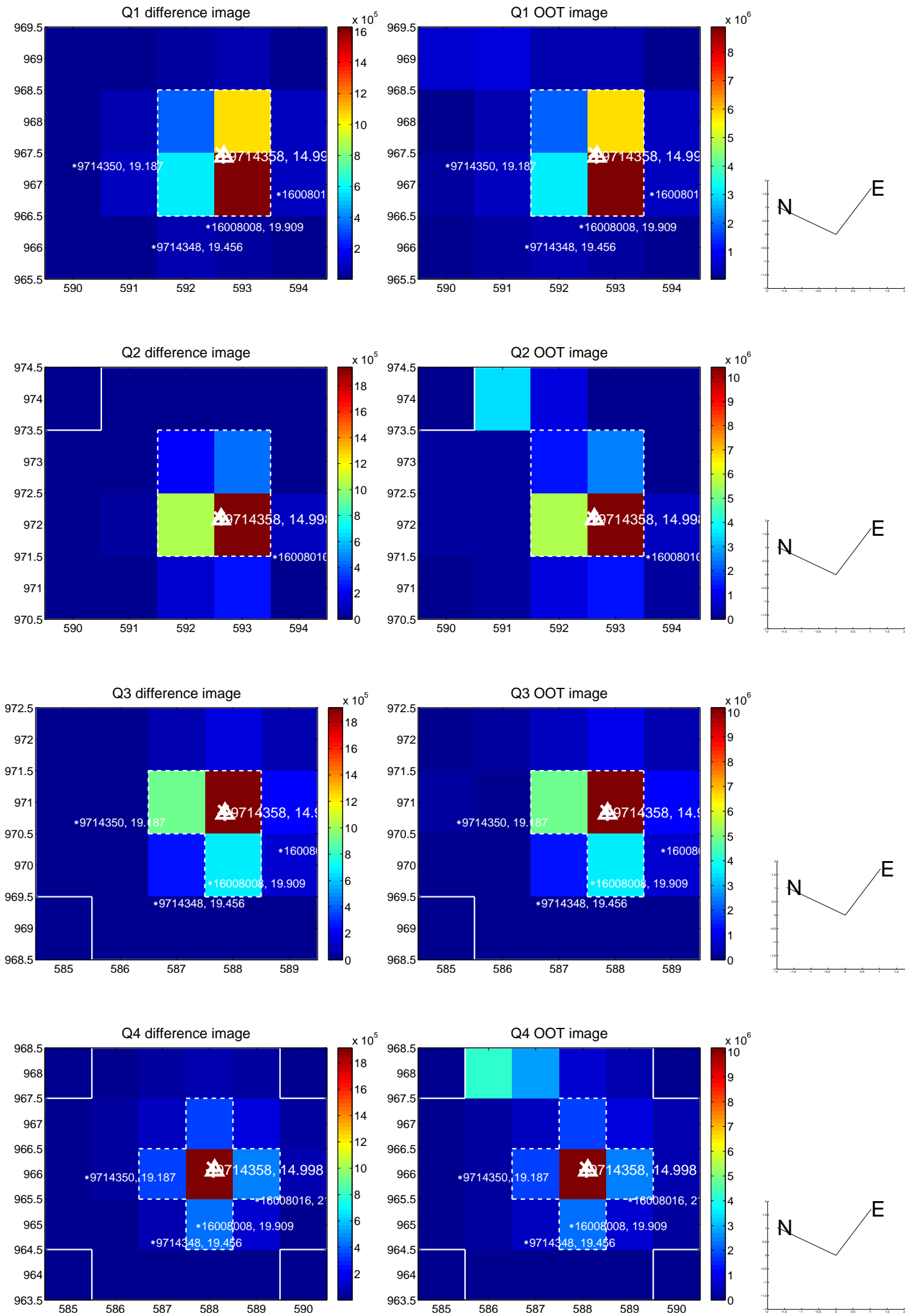
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.030 \pm 0.067$	0.45	$0.021 \pm 0.067$	$-0.022 \pm 0.067$
PRF-fit source offset from KIC position	<b><math>0.249 \pm 0.068</math></b>	<b>3.68</b>	$-0.102 \pm 0.067$	$-0.227 \pm 0.068$
photometric centroid source offset	<b><math>0.01 \pm 0.00</math></b>	<b>11.33</b>	$-0.01 \pm 0.00$	$-0.01 \pm 0.00$

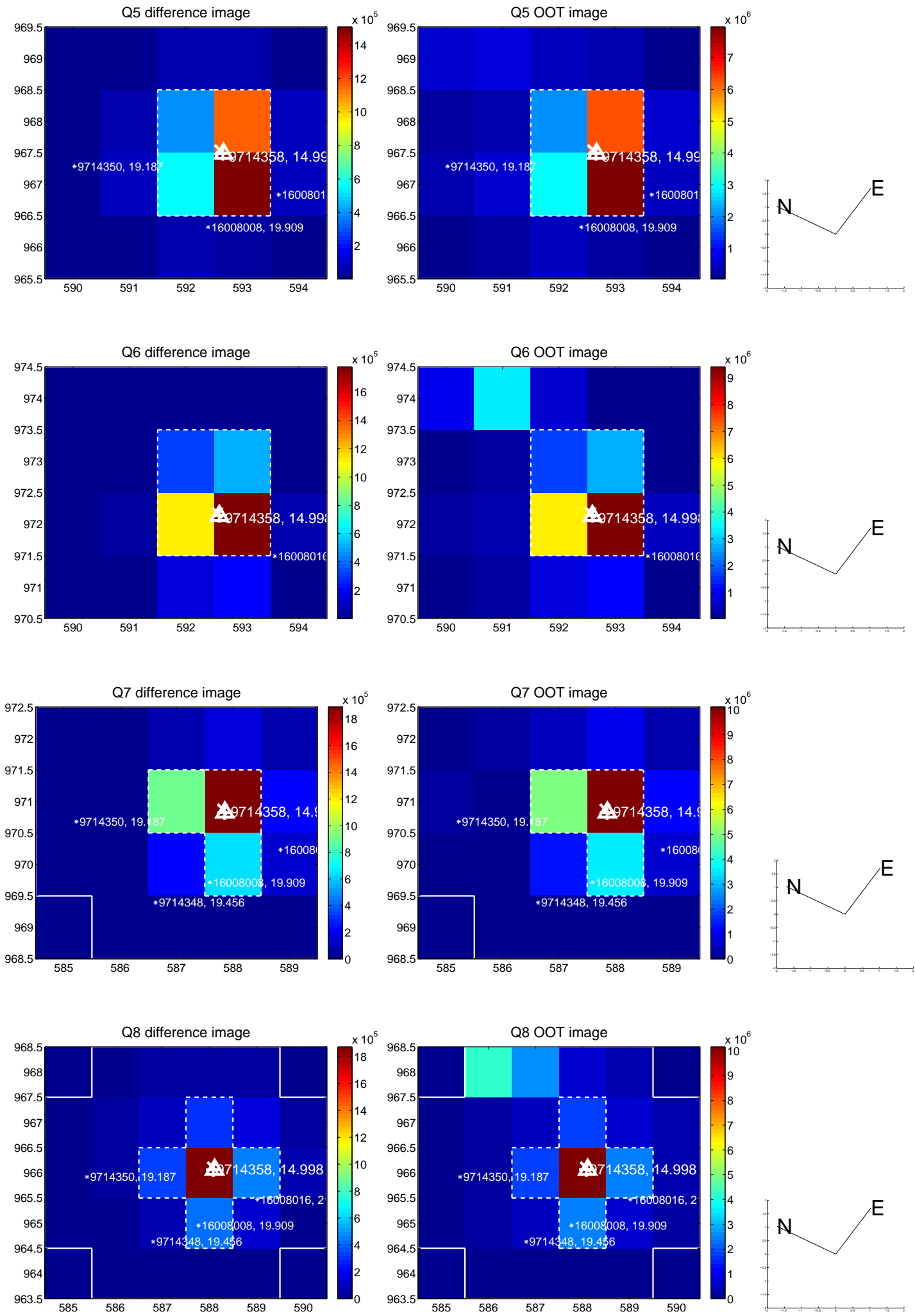


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

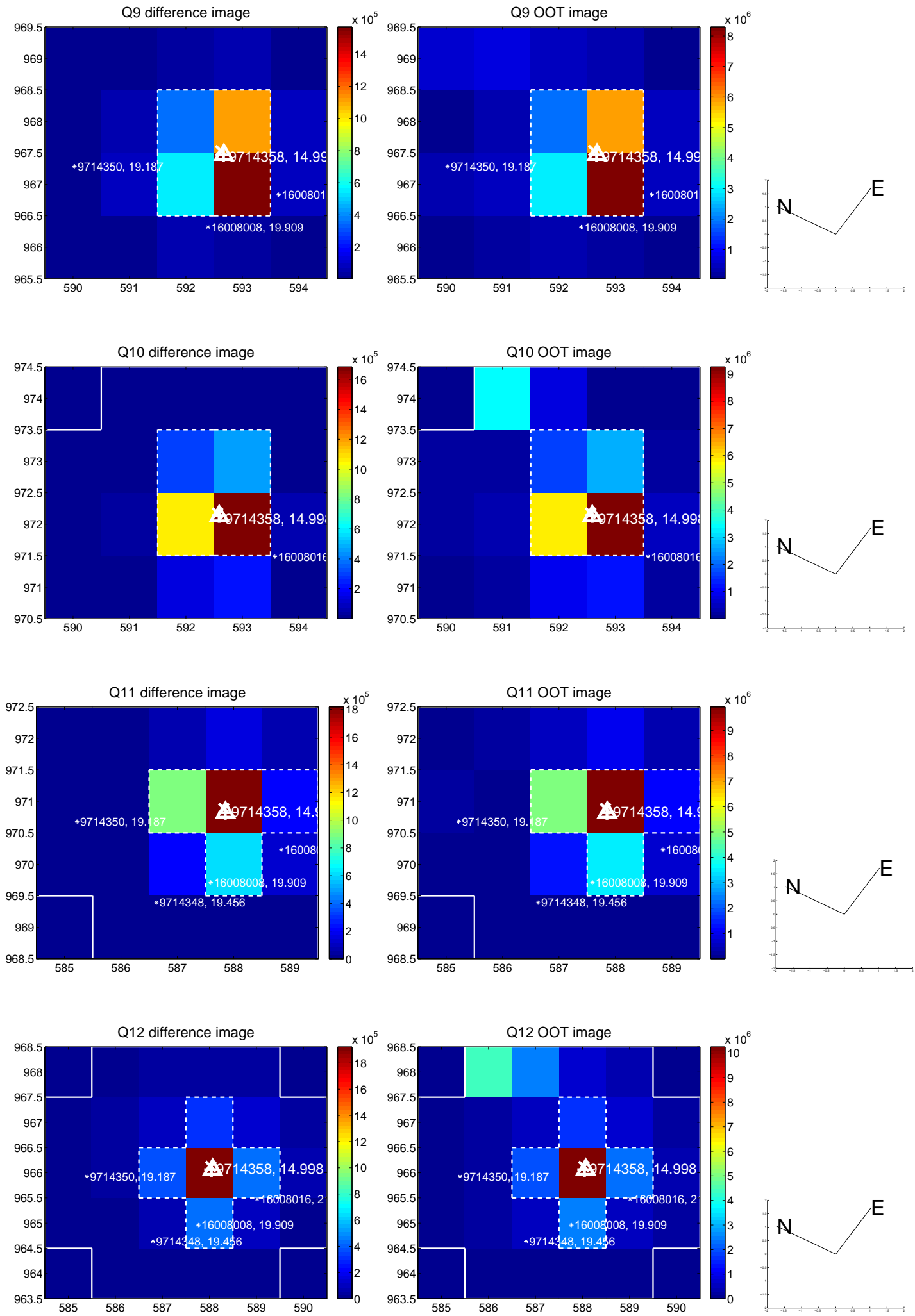


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



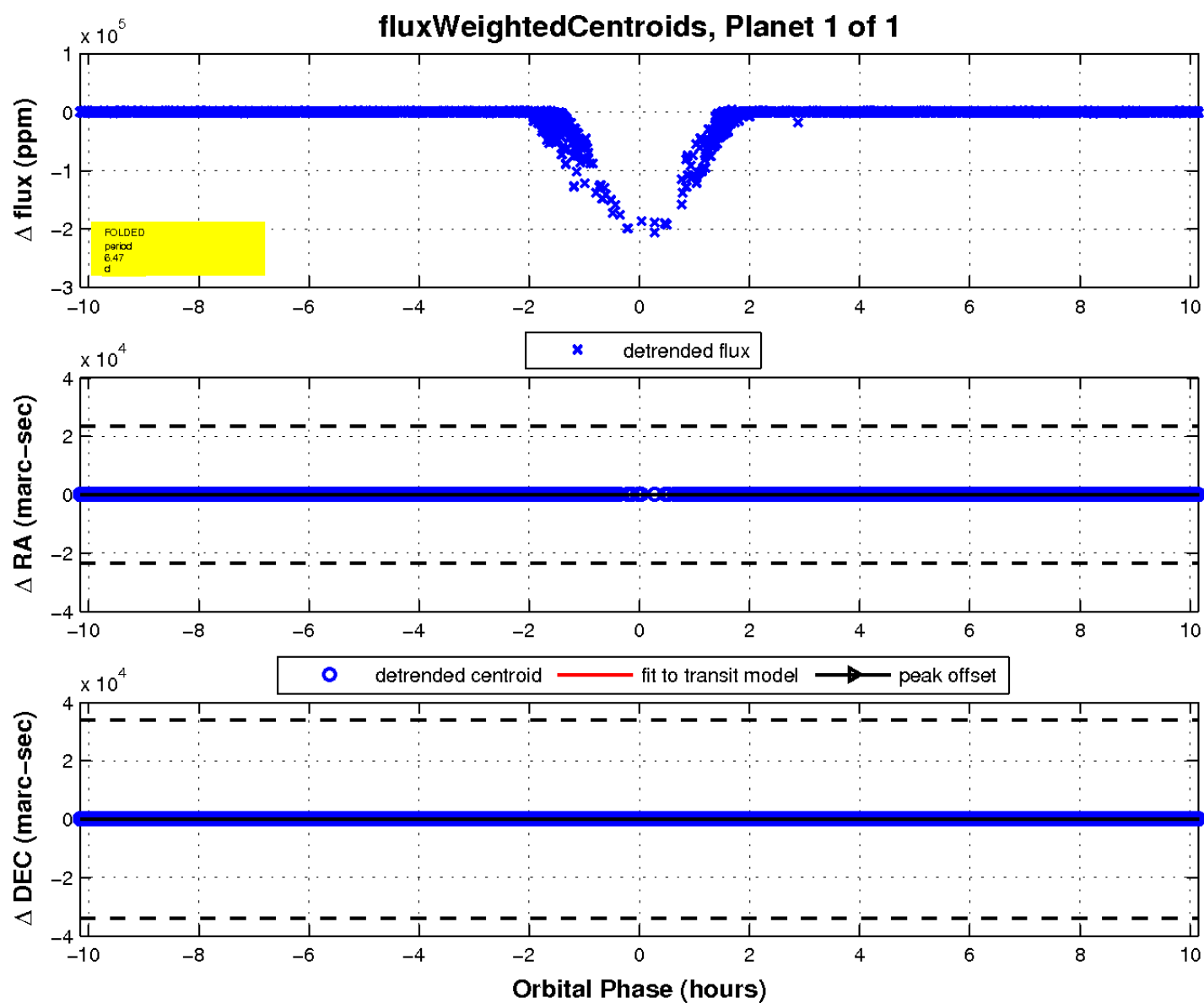
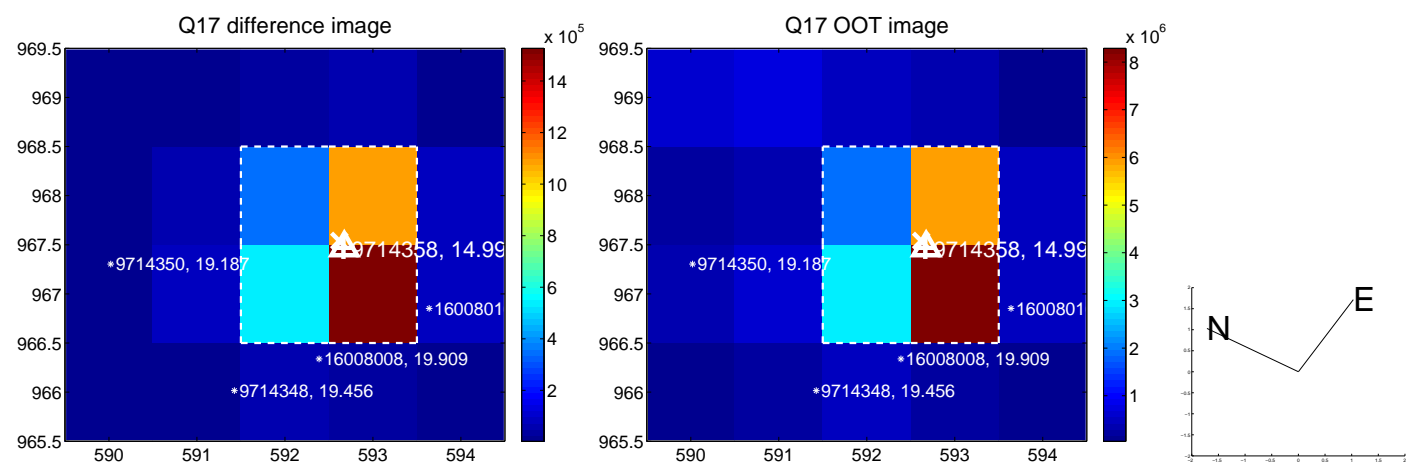


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

