

# KIC 003544595

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003544595-01	OBS	0069.01	4.726745	134.925688	270.7	3.027	244.9	244.0	0.89	5648	1.71	264.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003544595-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

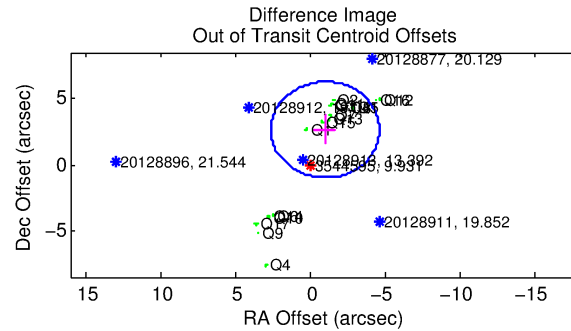
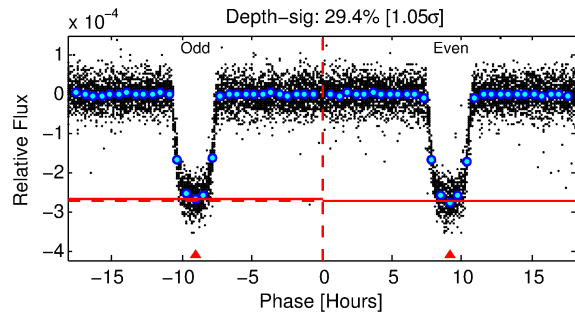
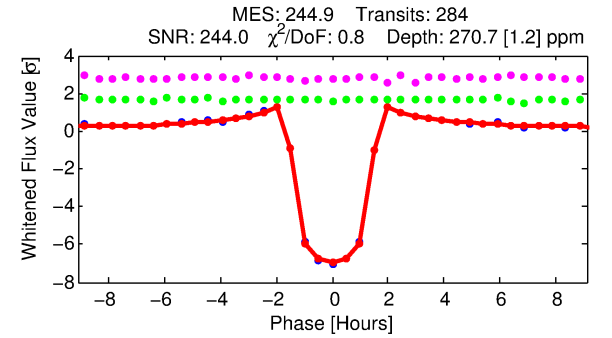
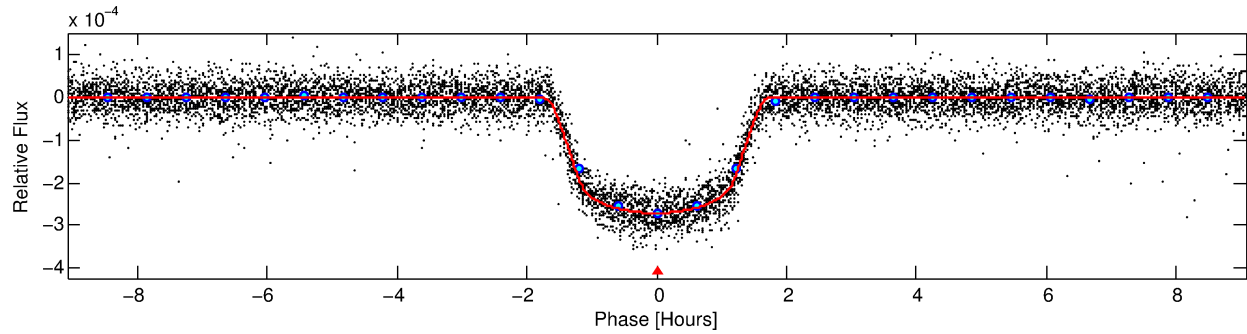
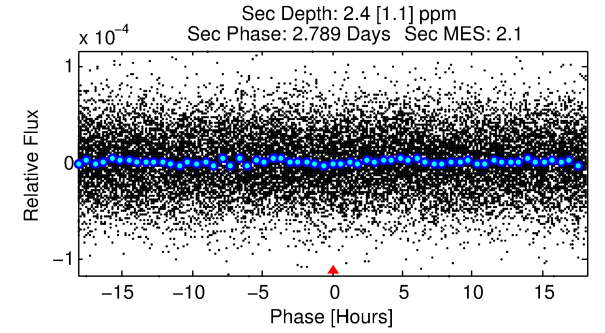
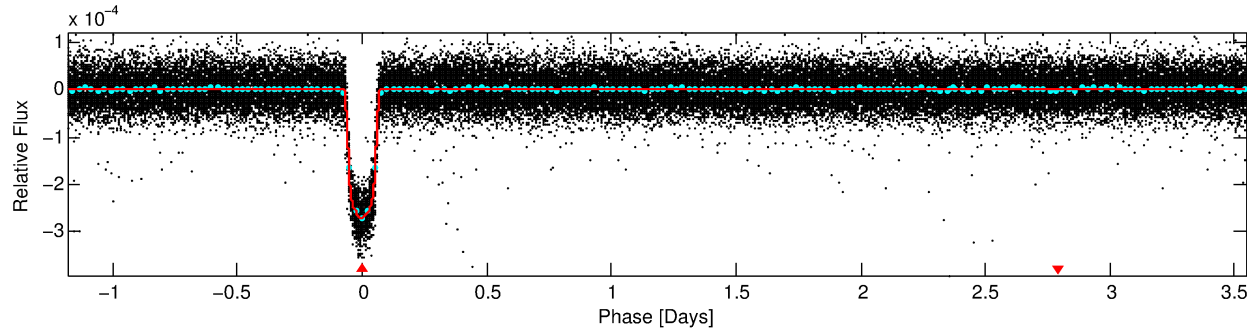
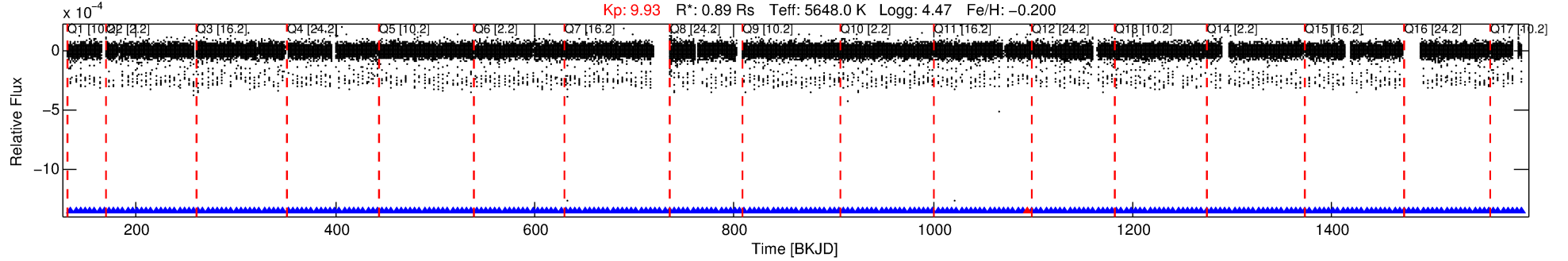
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003544595-01

No Significant Match Found

# DV One-Page Summary

KIC: 3544595 Candidate: 1 of 1 Period: 4.727 d  
KOI: K00069.01 Name: Kepler-93b Corr: 0.983



## DV Fit Results:

Period = 4.72674 [0.00000] d  
Epoch = 134.9257 [0.0002] BKJD  
 $R_p/R^*$  = 0.0176 [0.0004]  
 $a/R^*$  = 6.28 [0.60]  
 $b$  = 0.87 [0.03]  
 $S_{\text{eff}}$  = 264.21 [20.31]  
 $T_{\text{eq}}$  = 1028 [20] K  
 $R_p$  = 1.71 [0.09]  $R_e$   
 $a$  = 0.0525 [0.0020] AU  
 $A_g$  = 1.27 [0.57] [0.46σ]  
 $T_{\text{eff}}$  = 1686 [190] K [3.43σ]

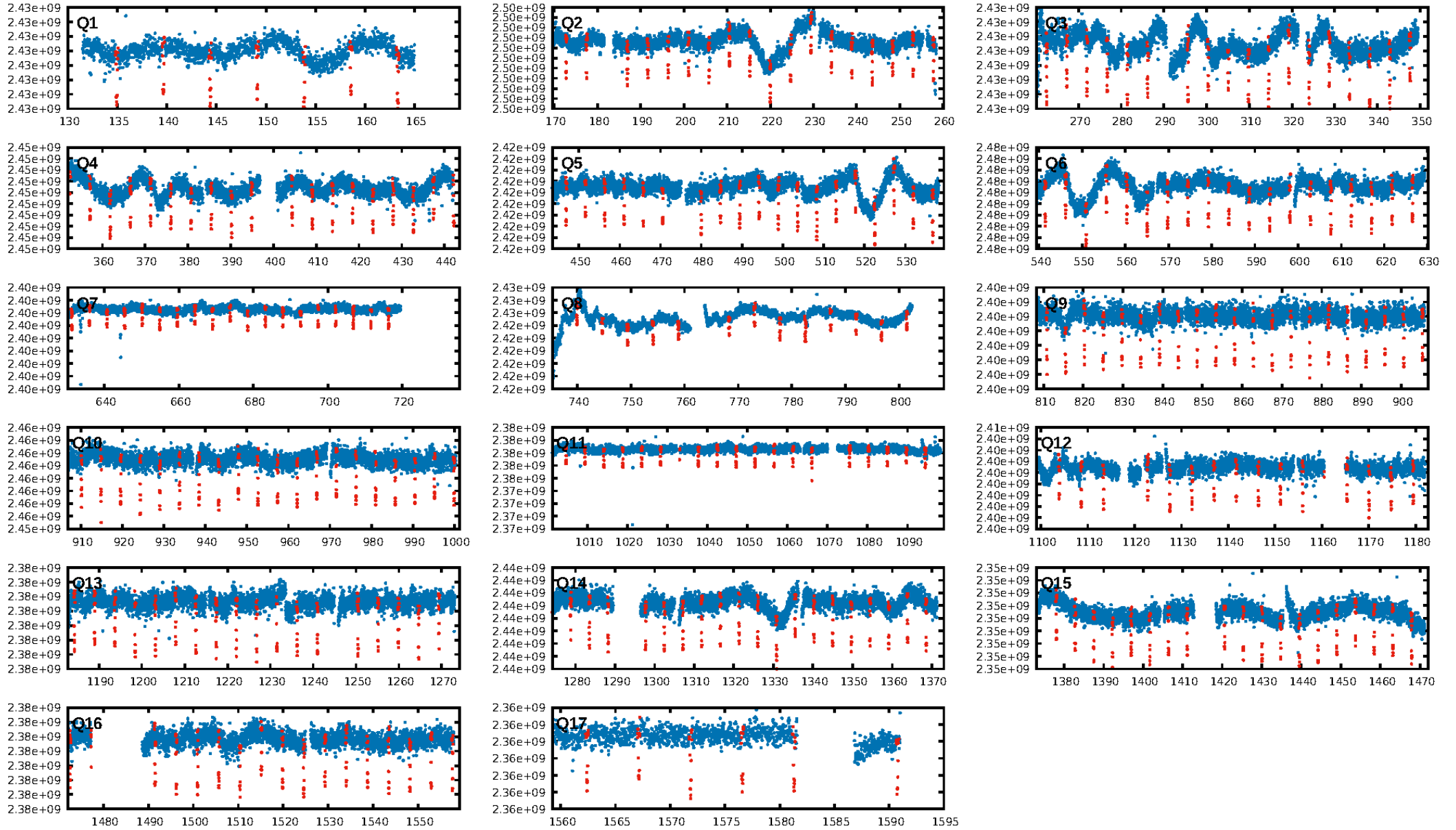
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [270/271]  
GhostDiagnostic-chr: 14.31  
Centroid-sig: 15.1%  
Centroid-so: 0.387 arcsec [4.96σ]  
OotOffset-rm: 2.834 arcsec [2.34σ]  
KicOffset-rm: 3.568 arcsec [3.12σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.35 [6/17]  
DiffImageOverlap-fno: 1.00 [17/17]

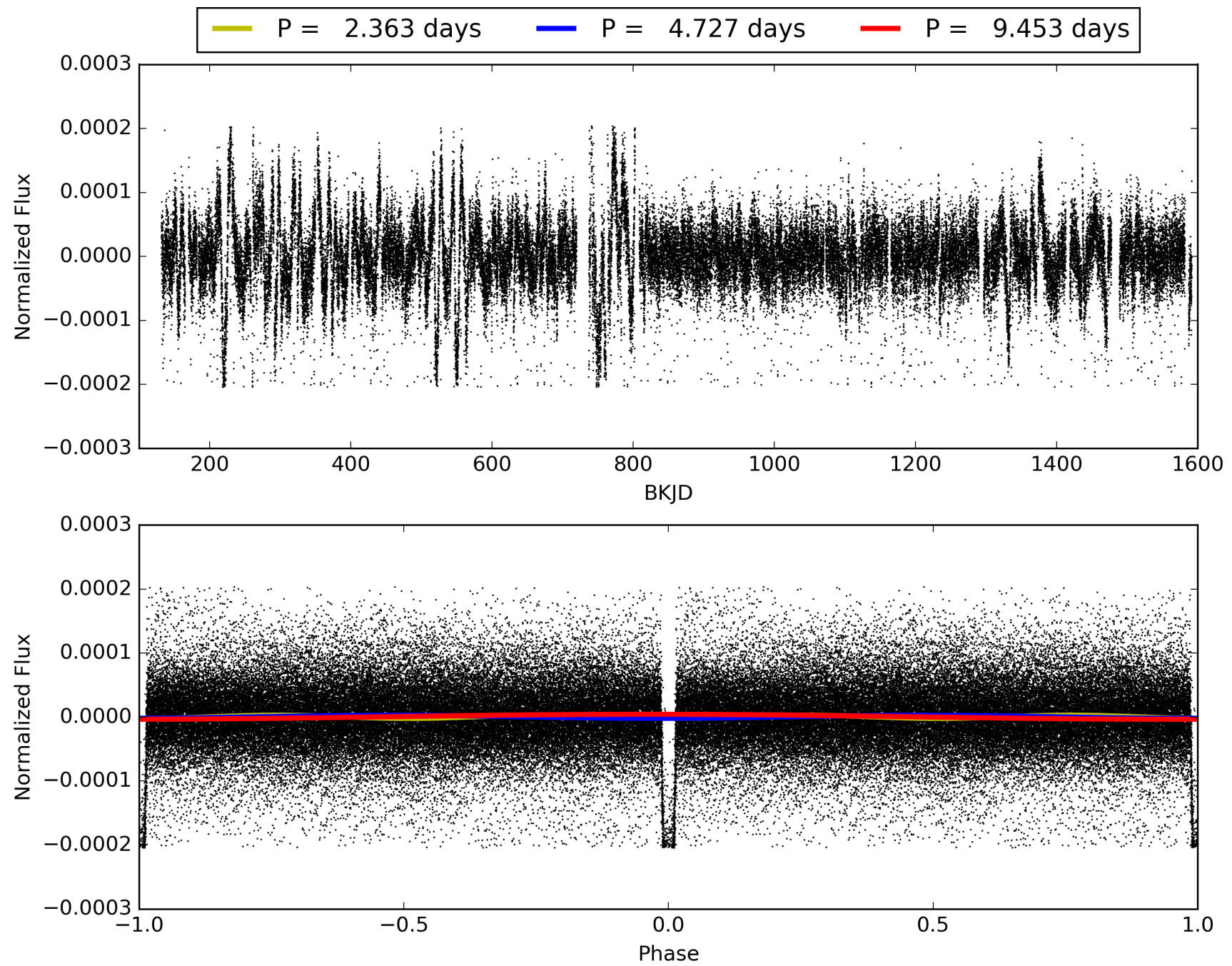
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:59:23 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003544595-01, PDC Light Curves

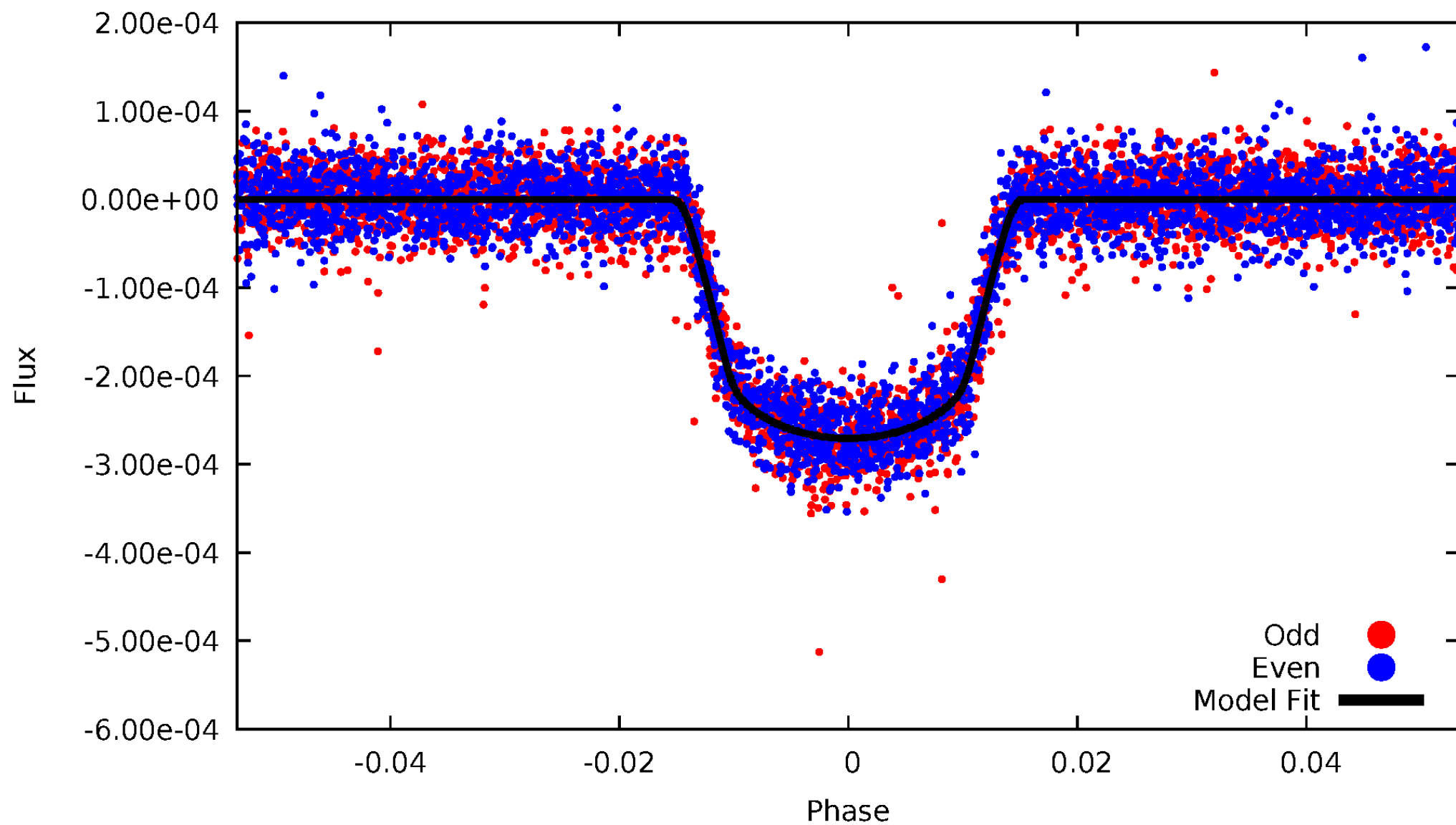


TCE 003544595-01



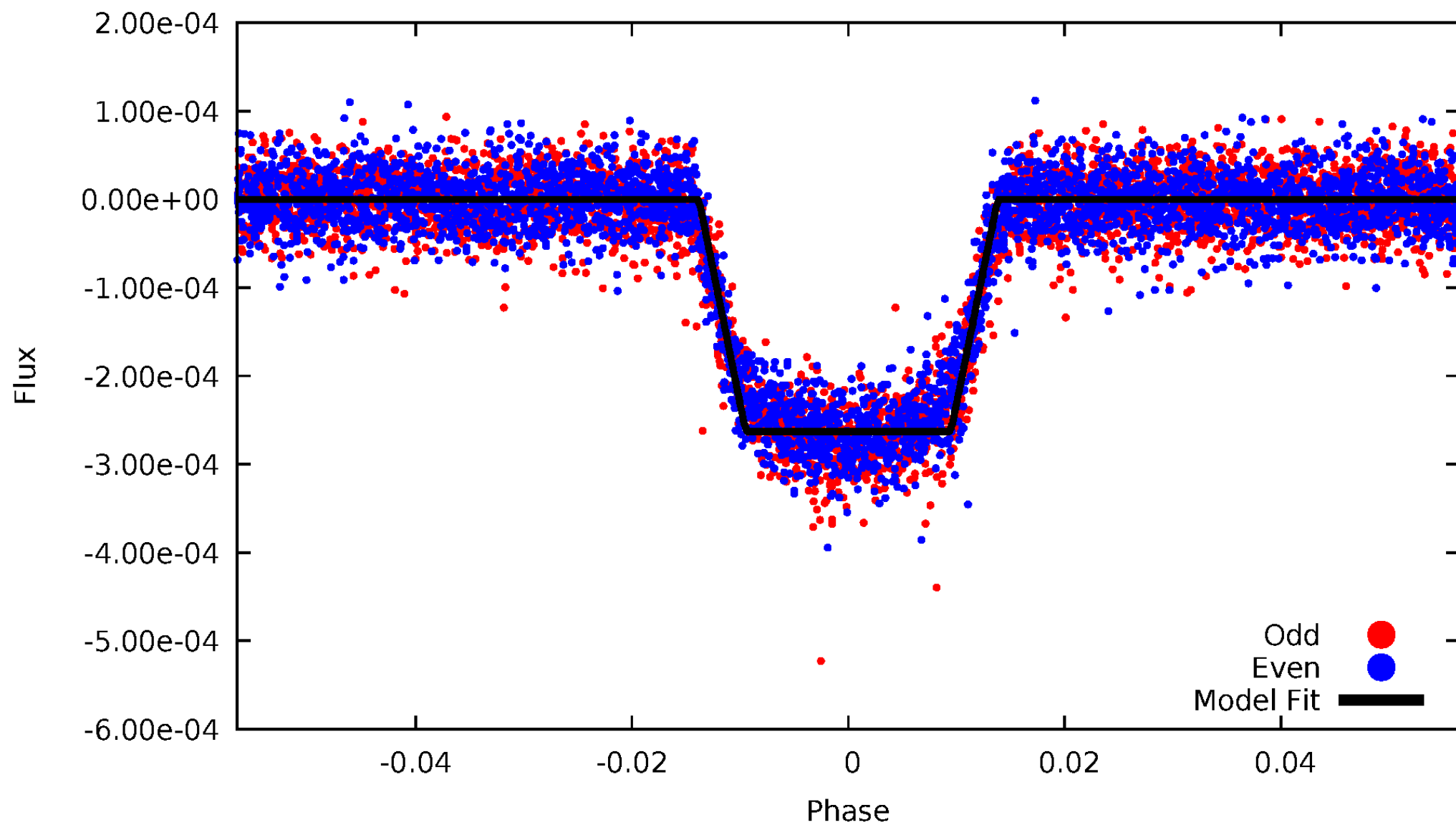
# DV Odd/Even

TCE 003544595-01



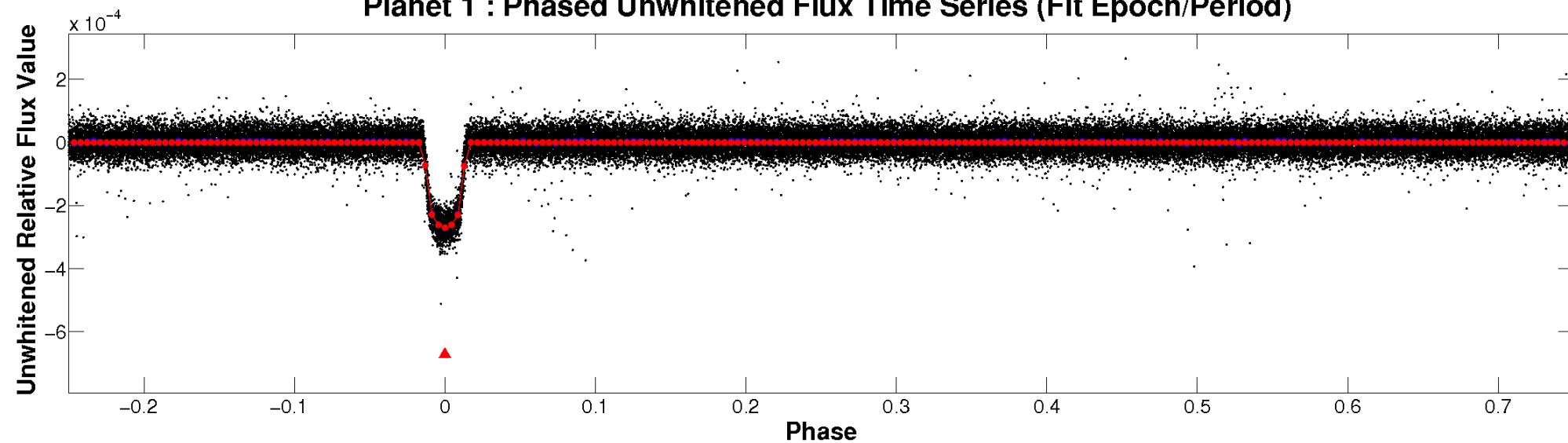
# ALT Odd/Even

TCE 003544595-01

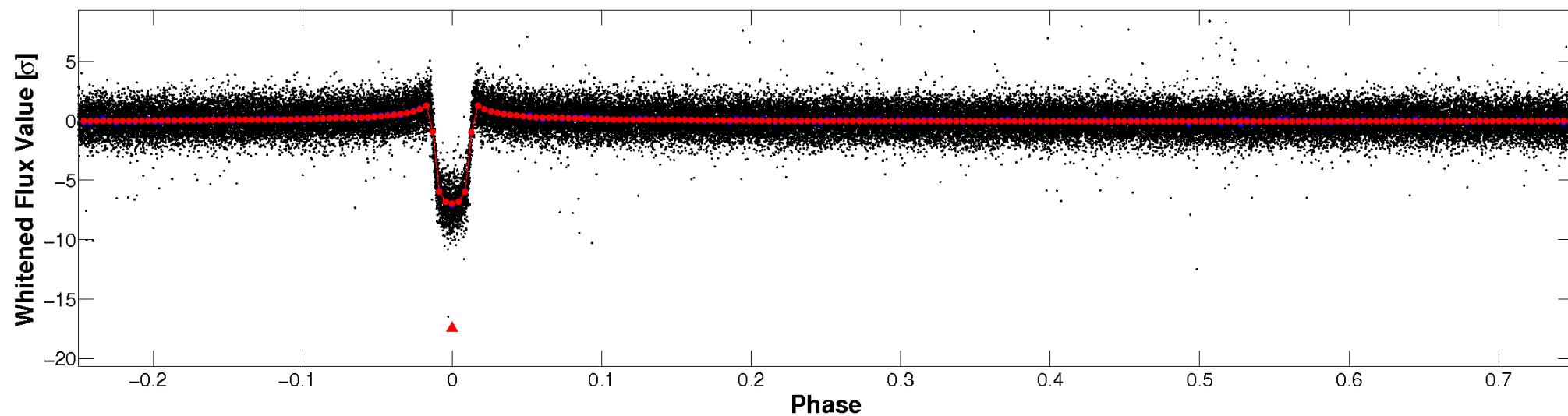


# Non-Whitened Vs. Whitened Light Curve

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



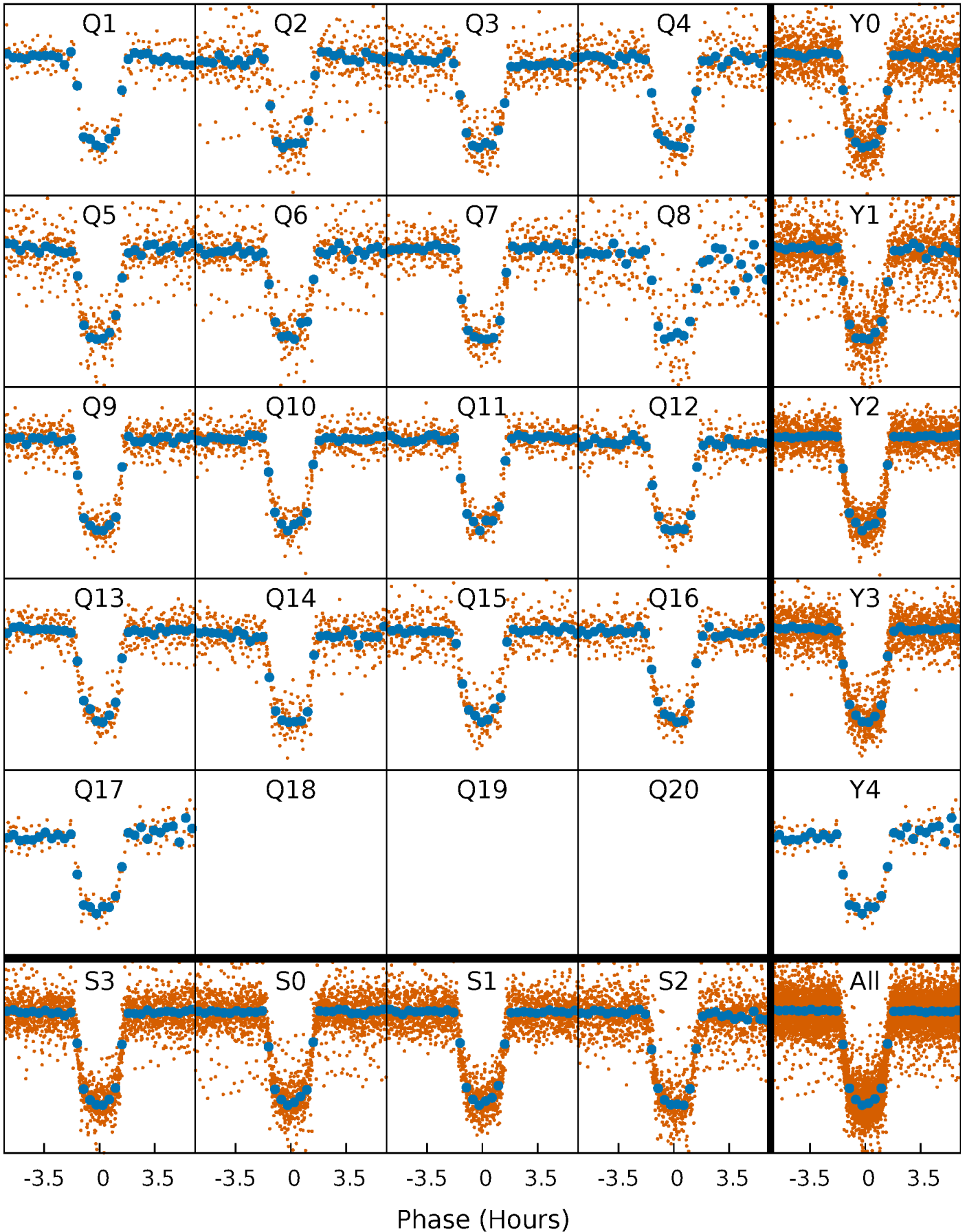
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

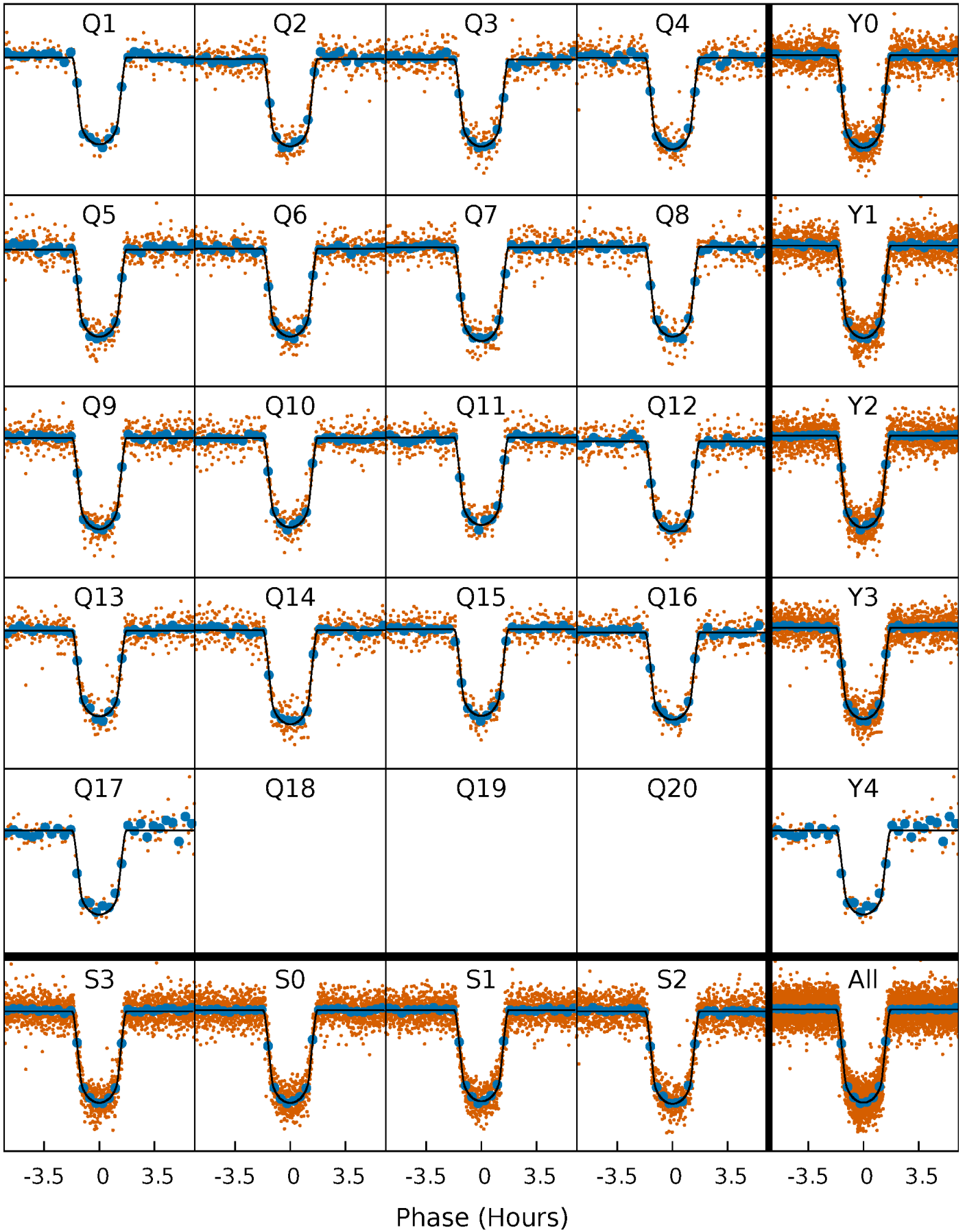
TCE 003544595-01   P= 4.726745 Days    $T_0=134.925688$  (BKJD)





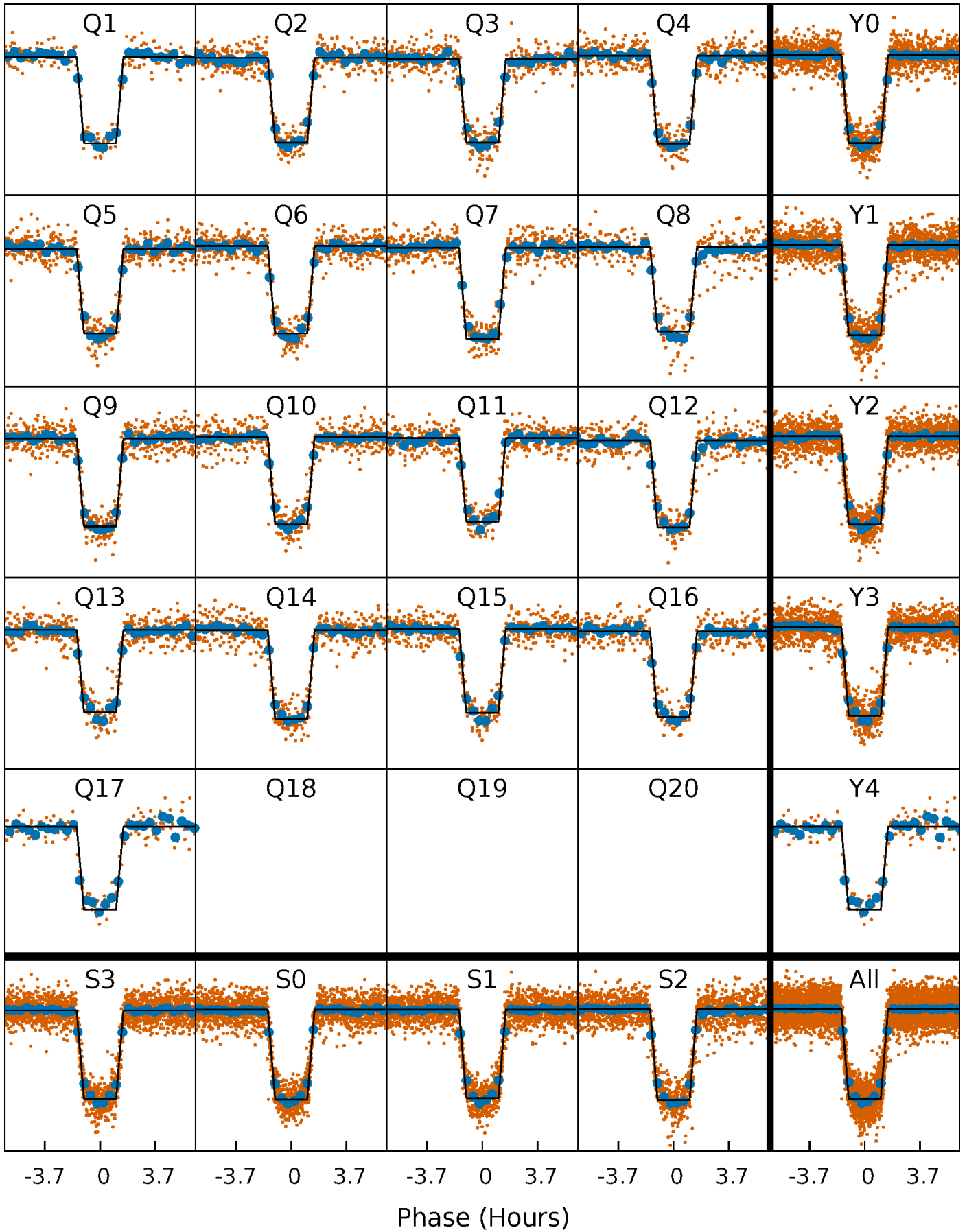
# DV Quarter-Phased Transit Curves

TCE 003544595-01   P= 4.726745 Days    $T_0=134.925688$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

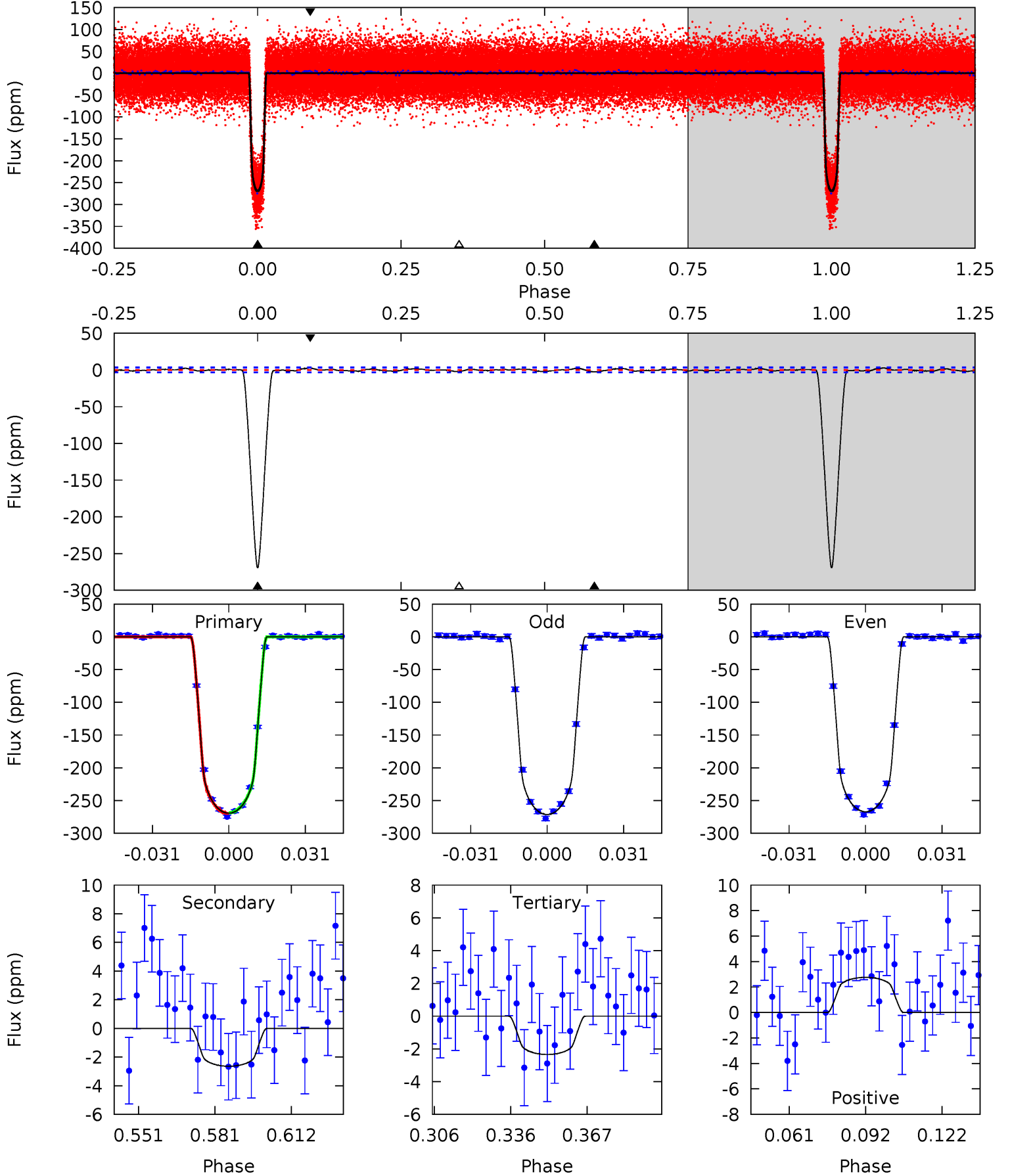
TCE 003544595-01   P= 4.726745 Days    $T_0=134.925559$  (BKJD)



# DV Model-Shift Uniqueness Test

003544595-01, P = 4.726745 Days, E = 130.198943 Days

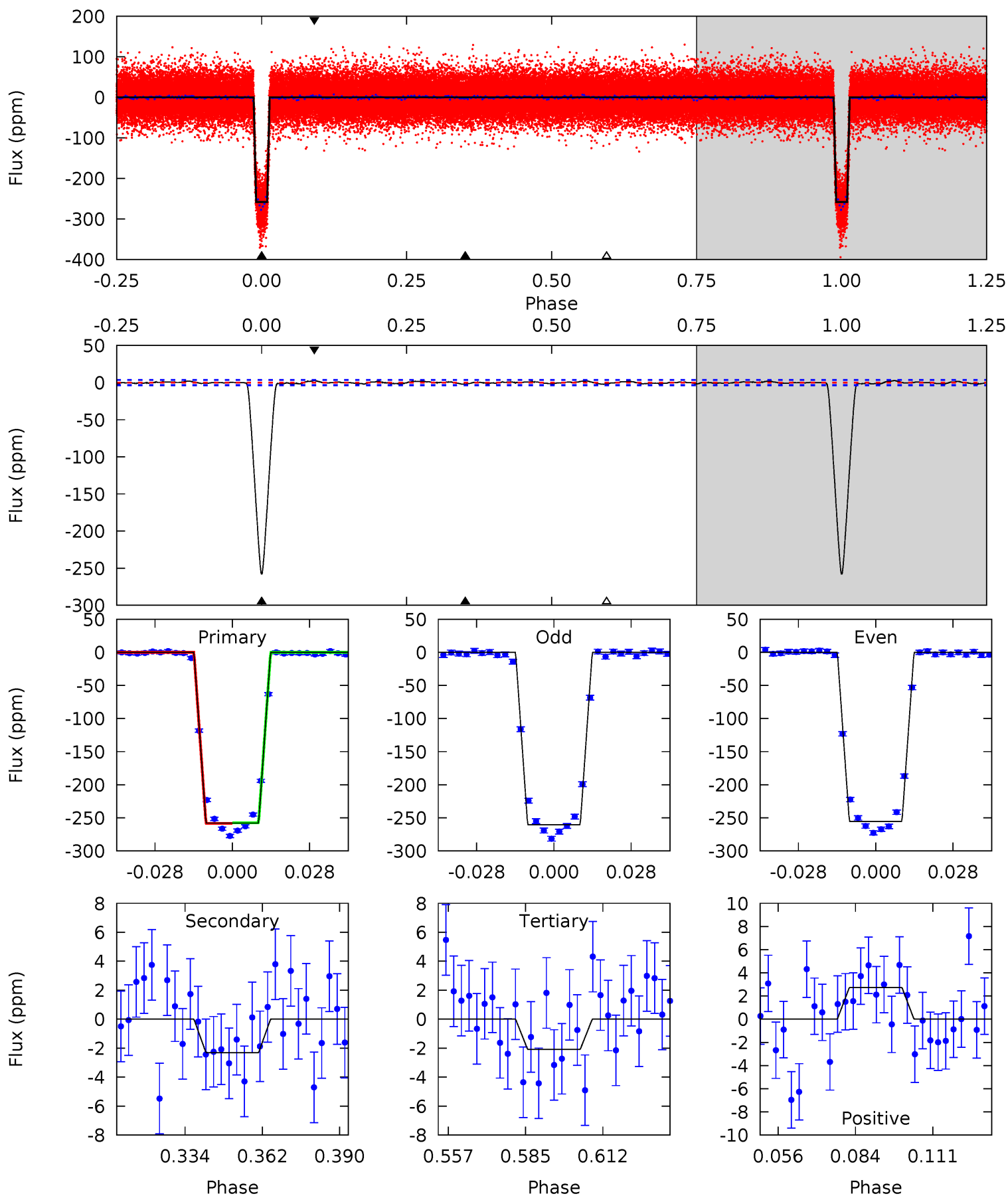
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
388.7	3.81	3.38	3.98	4.81	2.16	1.48	385.3	384.7	0.43	-0.17	3.01	1.00	0.01	0.84



# Alt Model-Shift Uniqueness Test

003544595-01, P = 4.726745 Days, E = 130.198814 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
353.1	3.16	2.85	3.74	4.83	2.20	1.33	350.2	349.3	0.31	-0.58	3.35	1.00	0.01	0.84



### Stellar Parameters For KIC 003544595

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5648^{+76}_{-76}$	$4.472^{+0.030}_{-0.030}$	$-0.200^{+0.150}_{-0.150}$	$0.894^{+0.040}_{-0.036}$	$0.866^{+0.058}_{-0.053}$	$1.706^{+0.186}_{-0.168}$
	+1%/-1%	+1%/-1%	+75%/-75%	+4%/-4%	+7%/-6%	+11%/-10%
Source	SPE72	AST69	SPE72	DSEP		

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

### Secondary Eclipse Parameters for KIC 003544595-01 / KOI 0069.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3\pm 1$	$1.72^{+0.06}_{-0.07}$	$1438^{+25}_{-27}$	$2478^{+93}_{-106}$	$1.370^{+0.367}_{-0.335}$
Alt.	$-2\pm 1$	$1.58^{+0.06}_{-0.06}$	$1437^{+25}_{-27}$	$2483^{+115}_{-145}$	$1.398^{+0.487}_{-0.440}$

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

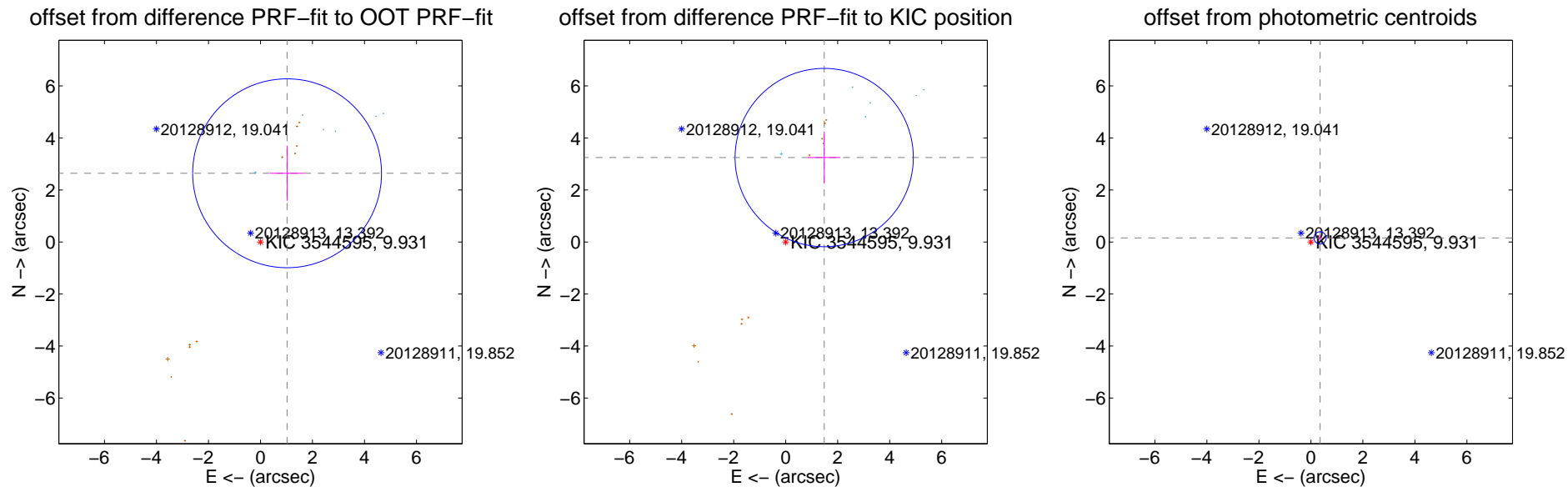
## DV Centroid Data

Supplemental centroid analysis for 003544595-01. **Kepler magnitude: 9.93.** Transit SNR 244.03

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

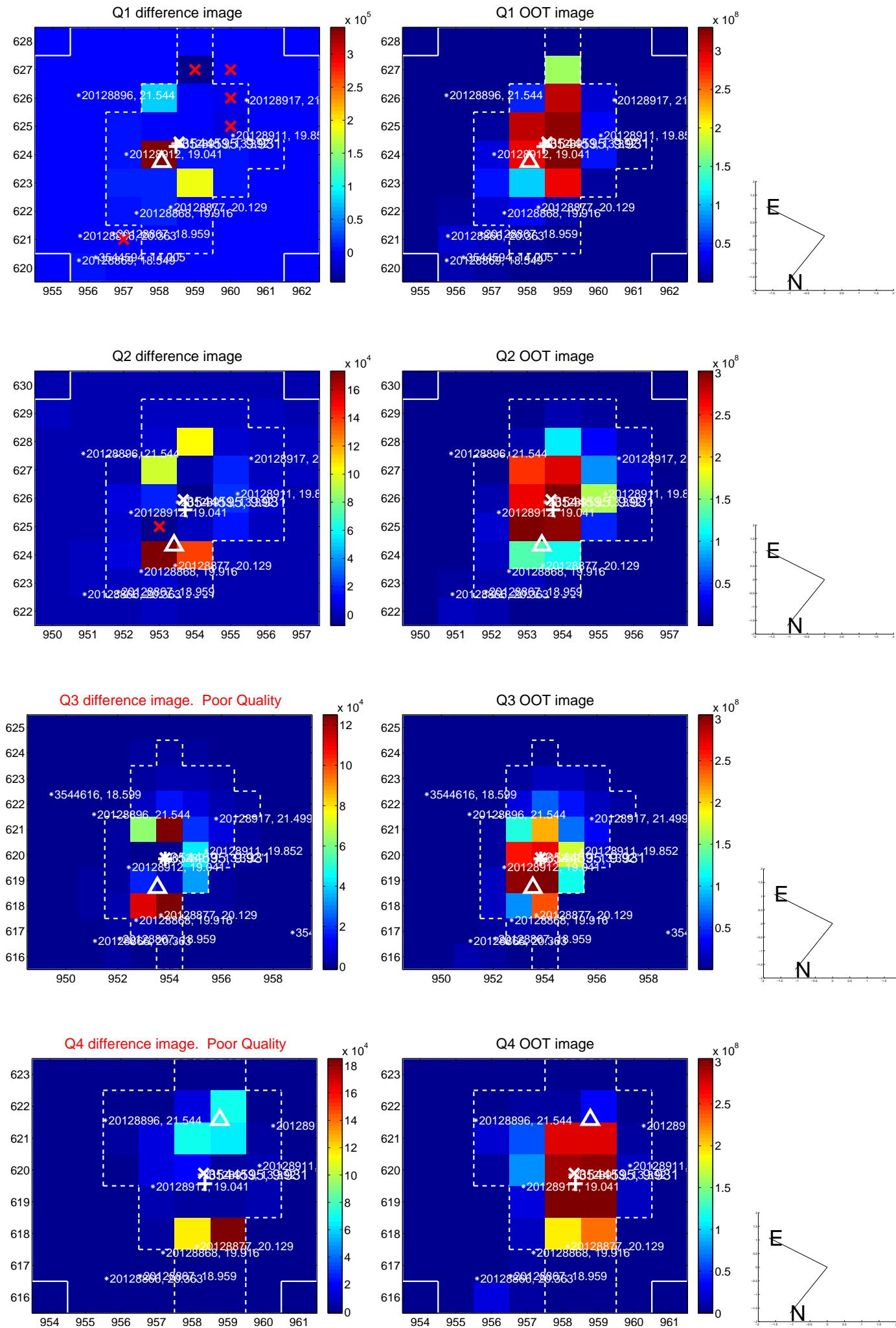
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.834 \pm 1.211$	2.34	$-1.024 \pm 0.654$	$2.642 \pm 1.062$
PRF-fit source offset from KIC position	<b><math>3.568 \pm 1.143</math></b>	<b>3.12</b>	$-1.481 \pm 0.619$	$3.246 \pm 0.997$
photometric centroid source offset	<b><math>0.39 \pm 0.08</math></b>	<b>4.96</b>	$-0.35 \pm 0.07$	$0.16 \pm 0.11$



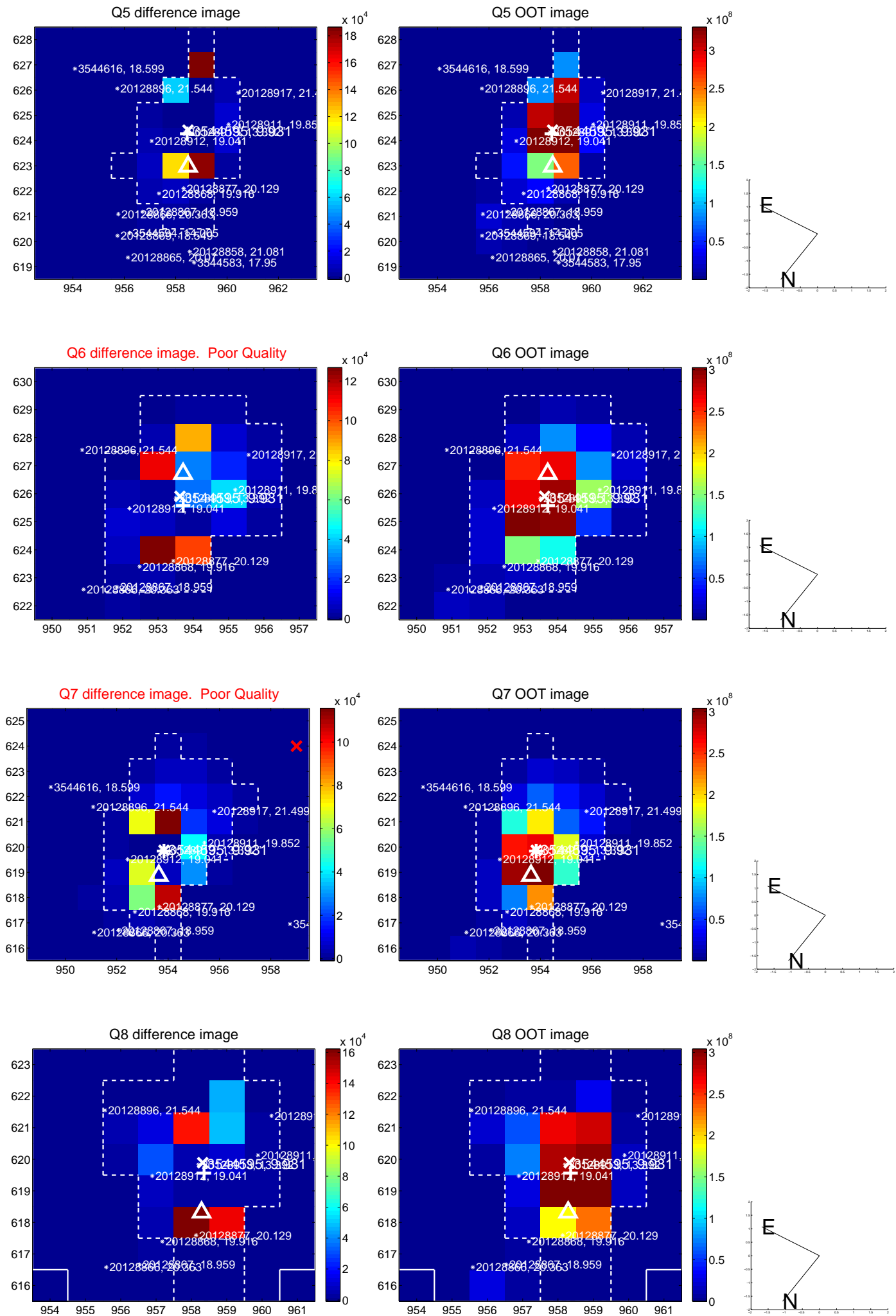
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



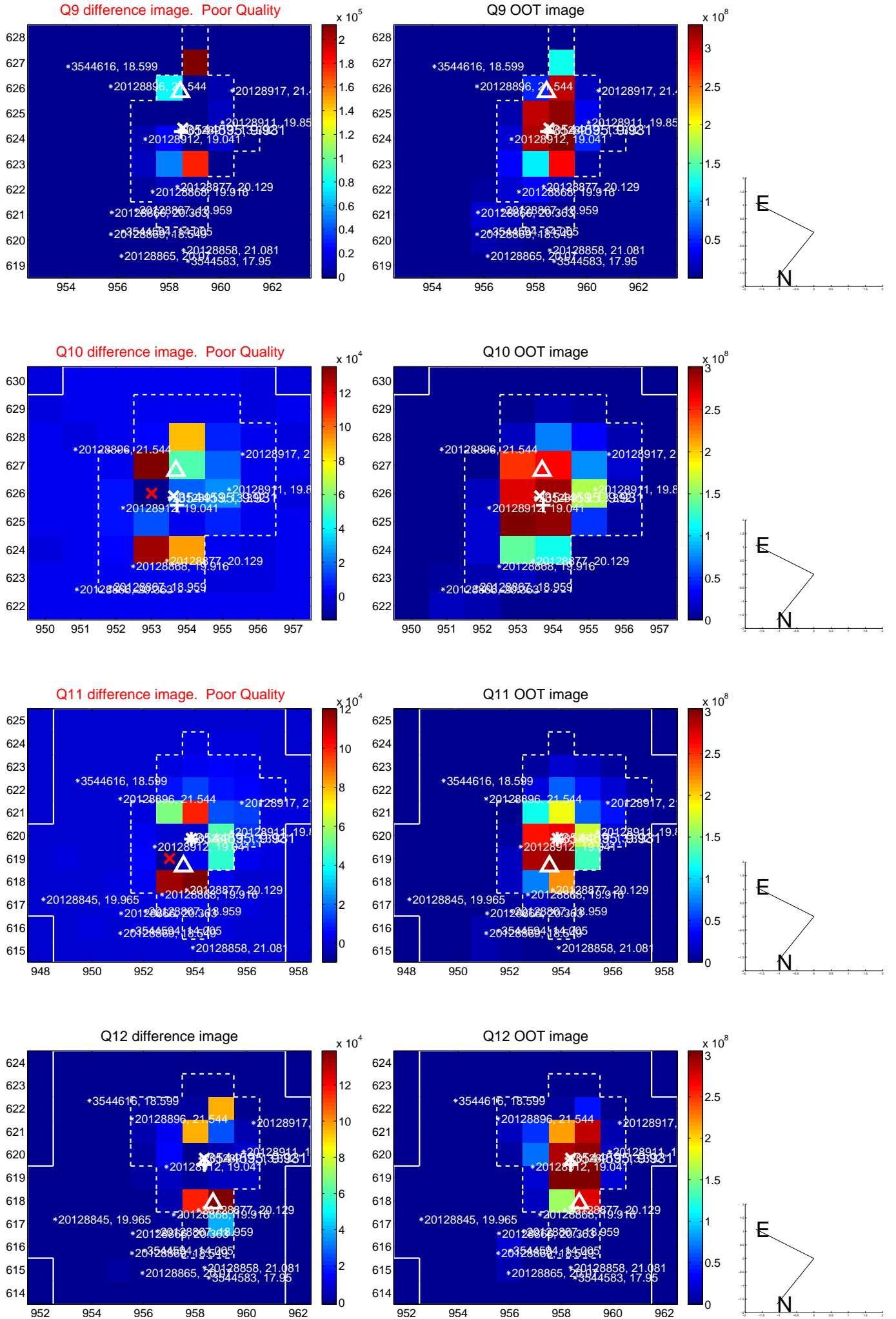
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



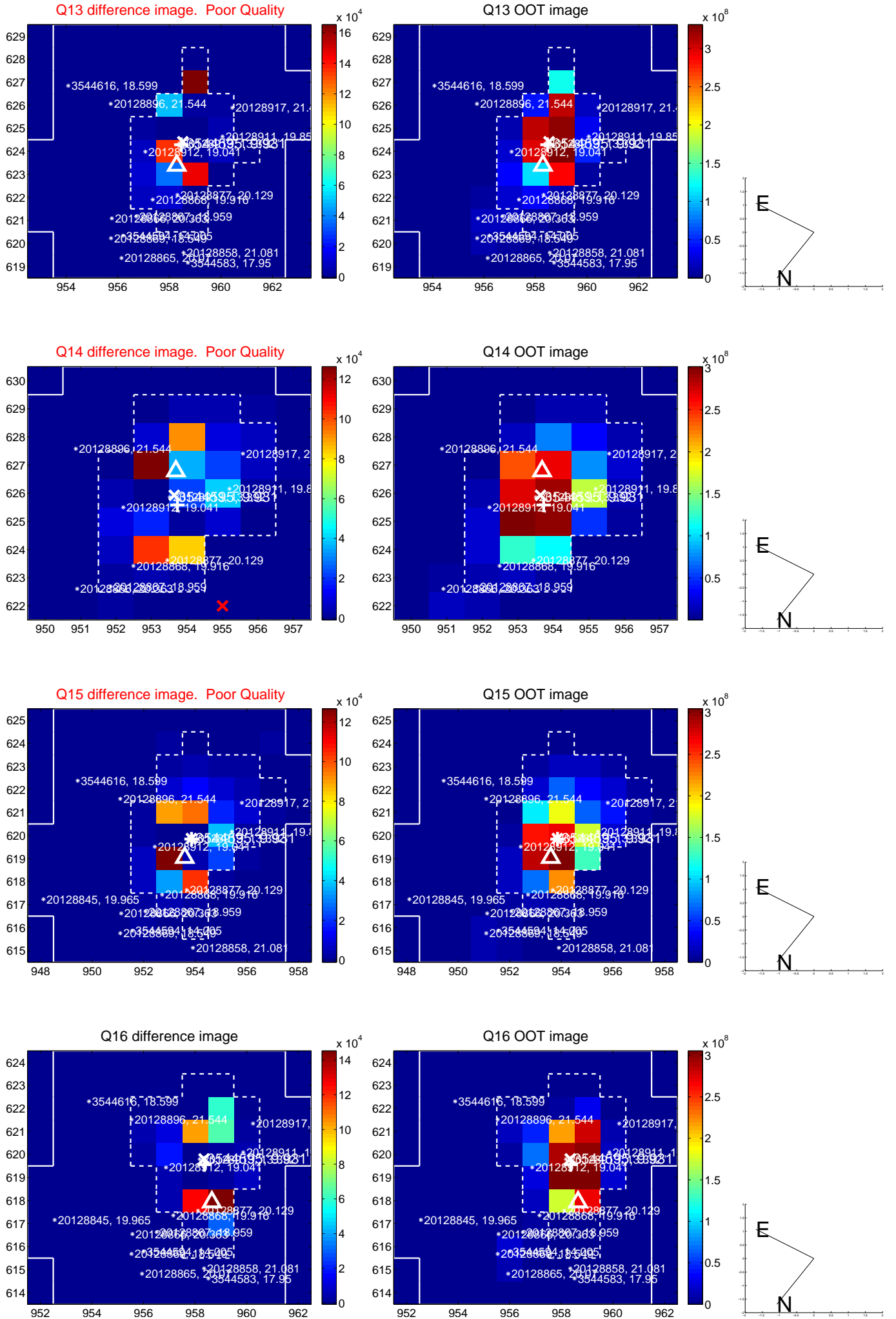
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



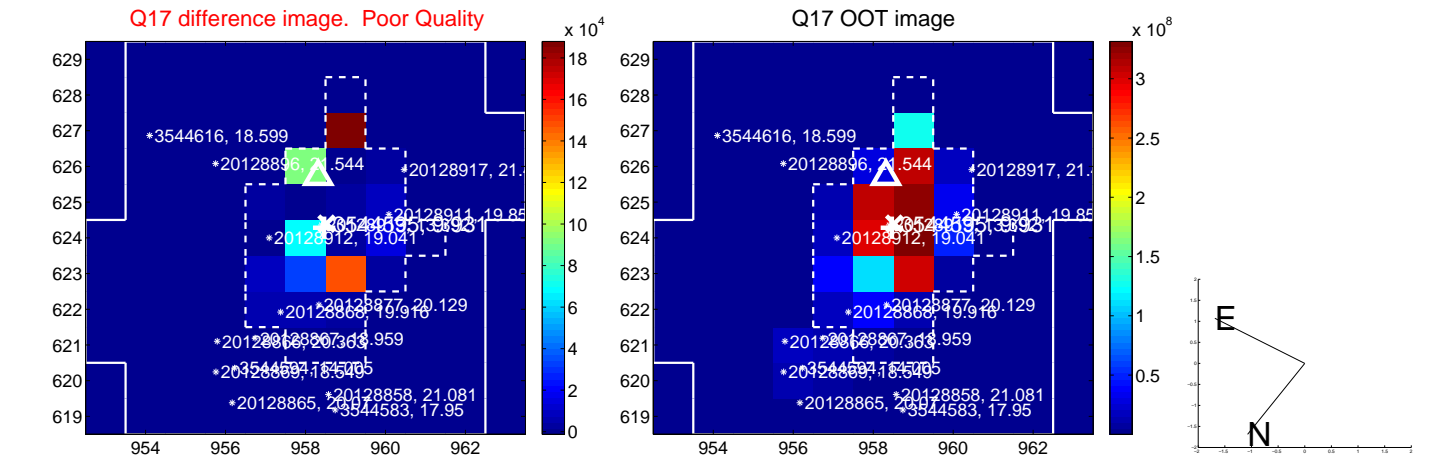
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



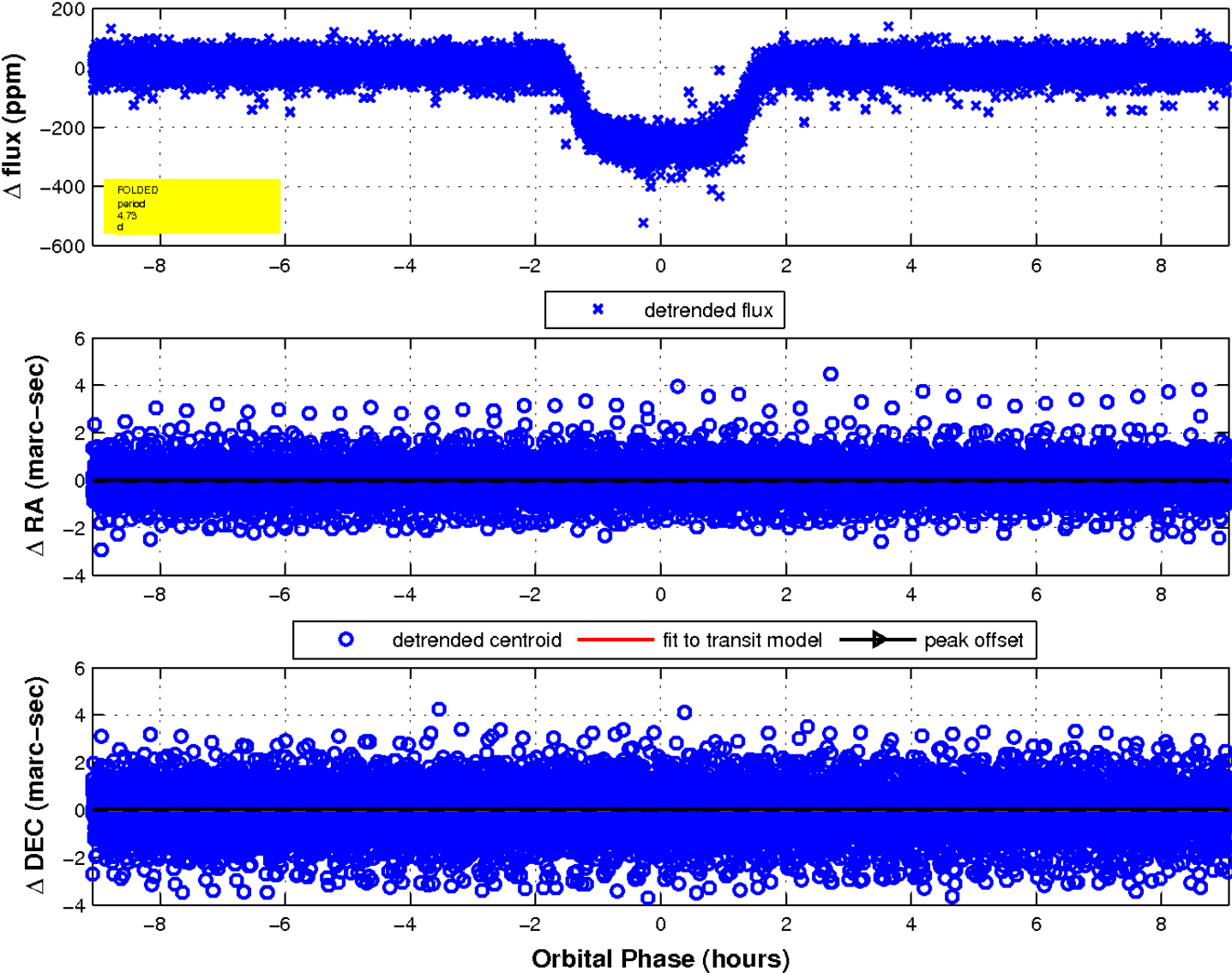
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

