

# KIC 010208345

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010208345-01	OBS	No	0.588682	131.692762	47.5	1.044	8.5	8.7	2.25	7401	1.62	49956.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010208345-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

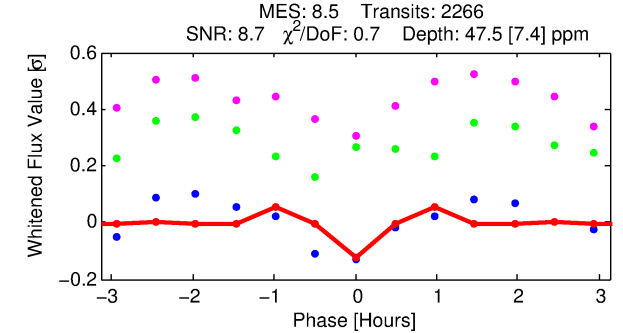
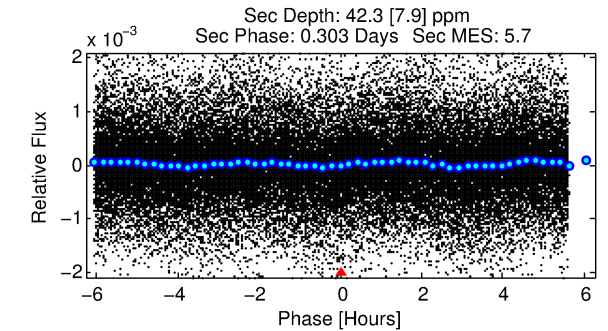
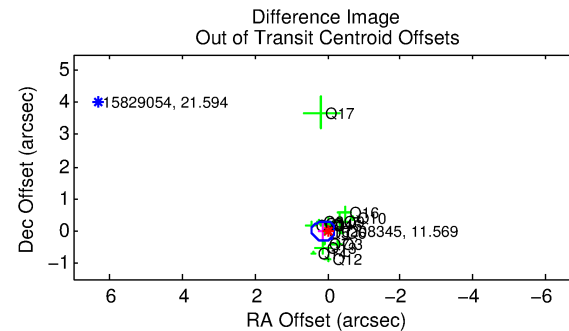
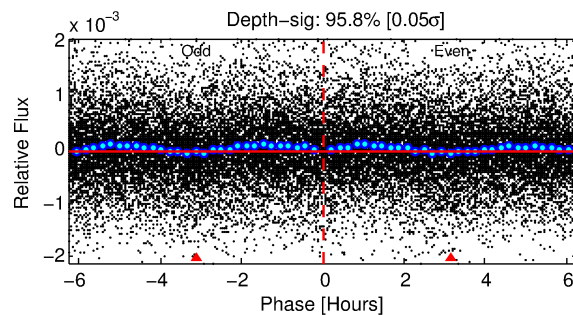
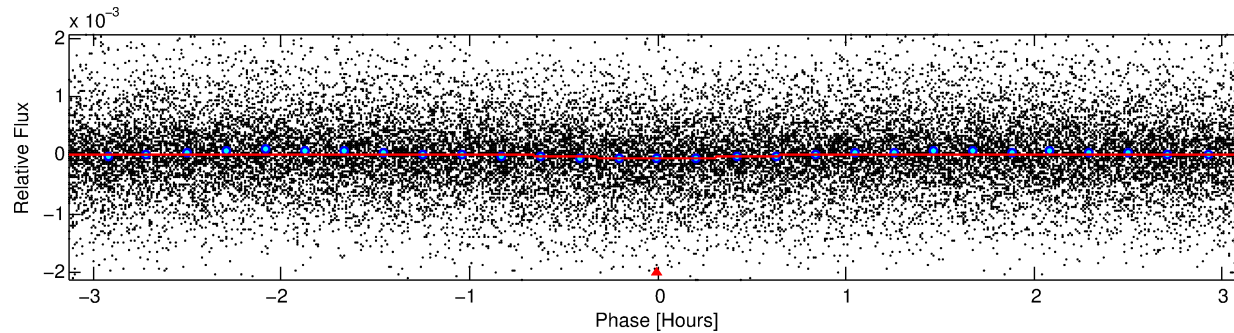
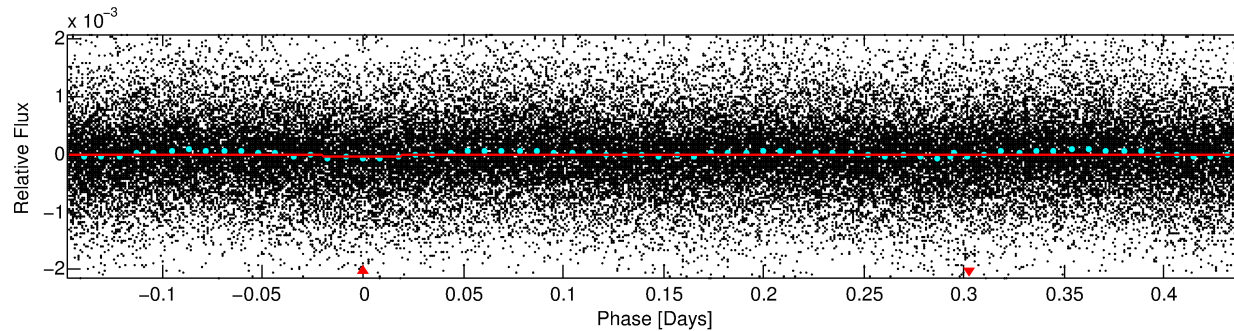
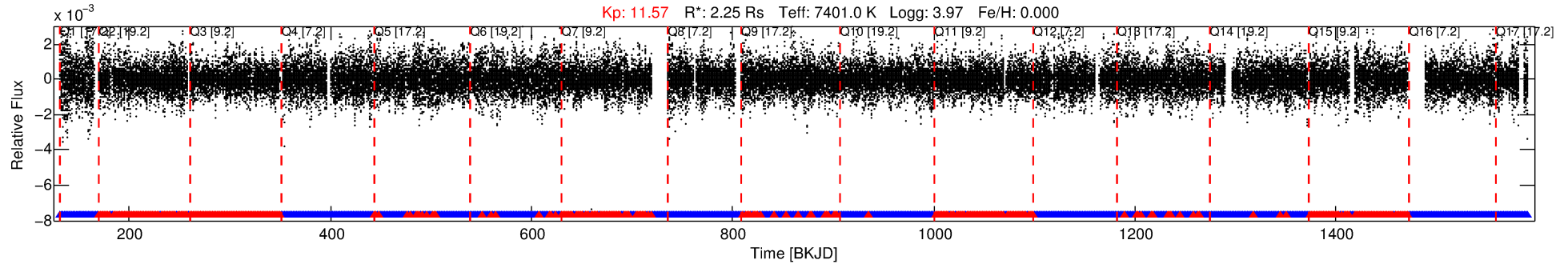
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010208345-01

No Significant Match Found

# DV One-Page Summary

KIC: 10208345 Candidate: 1 of 1 Period: 0.589 d



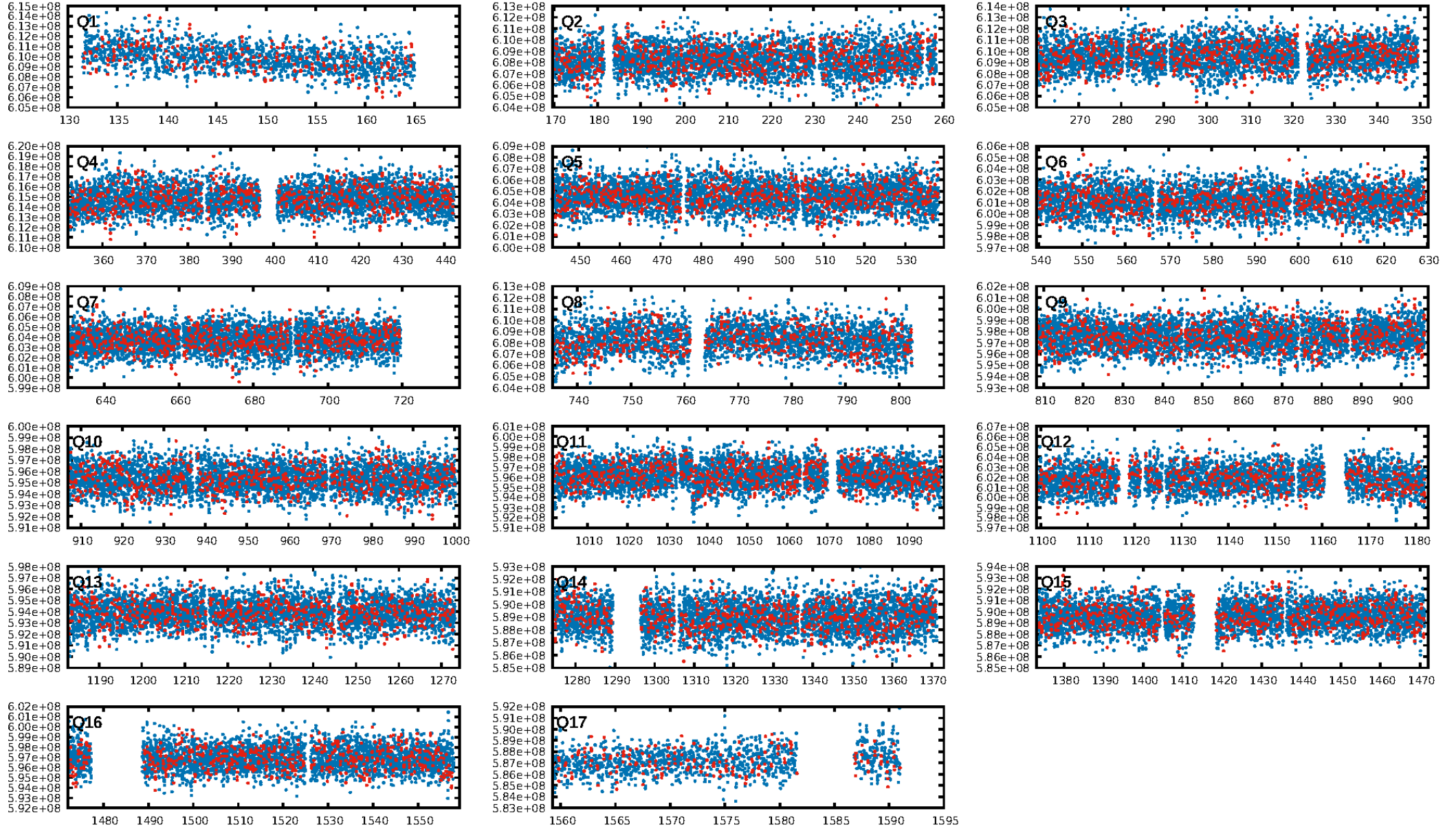
## DV Fit Results:

Period = 0.58868 [0.00001] d  
Epoch = 131.6928 [0.0011] BKJD  
 $R_p/R^* = 0.0066$  [0.0013]  
 $a/R^* = 3.83$  [4.09]  
 $b = 0.50$  [1.72]  
 $\text{Seff} = 49956.70$  [21959.41]  
 $T_{\text{eq}} = 3812$  [419] K  
 $R_p = 1.62$  [0.59]  $R_e$   
 $a = 0.0165$  [0.0044] AU  
 $A_g = 2.41$  [1.45] [0.97 $\sigma$ ]  
 $T_{\text{effp}} = 7345$  [879] K [3.63 $\sigma$ ]

## DV Diagnostic Results:

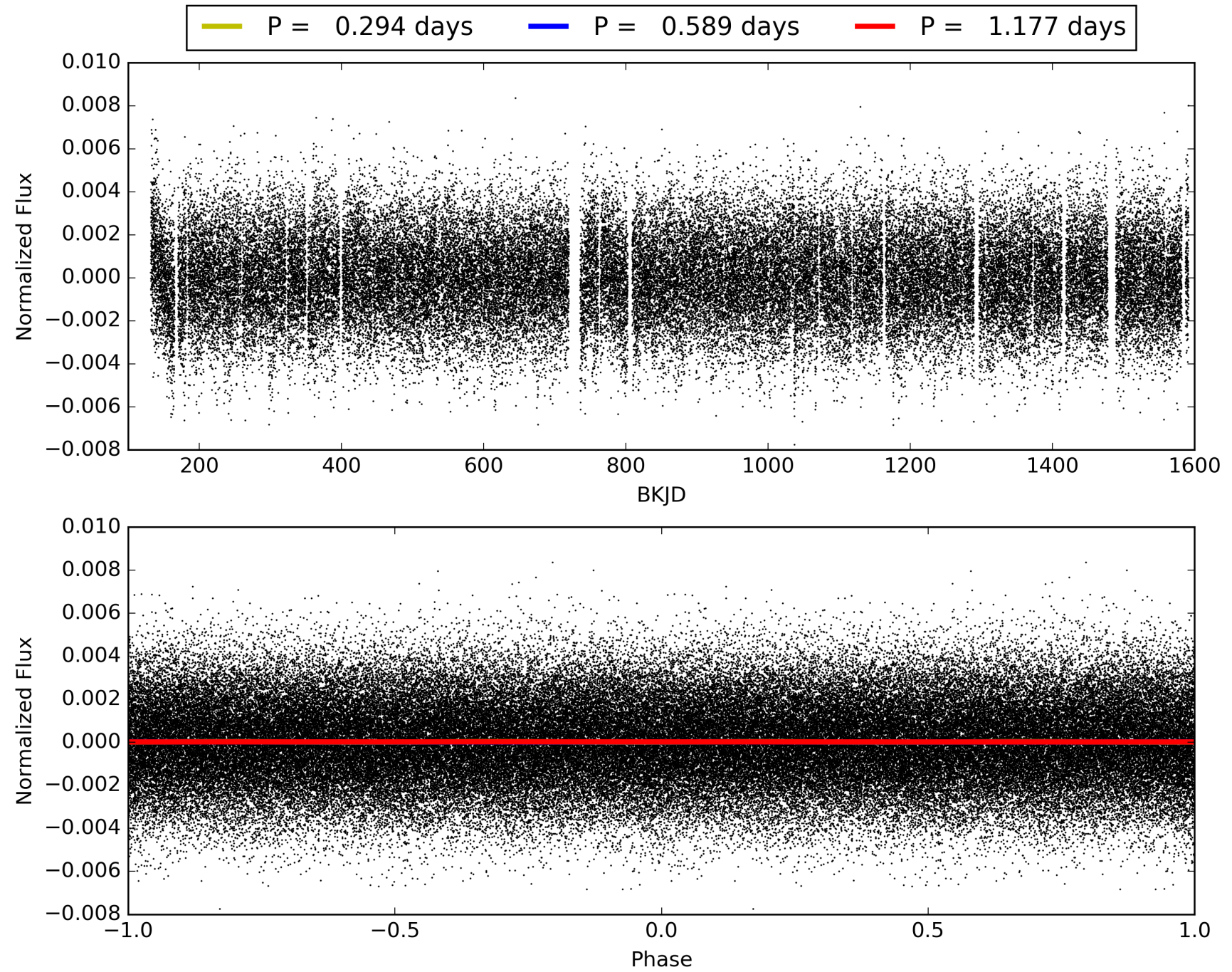
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.13e-52  
RollingBand-fgt: 0.70 [1519/2162]  
GhostDiagnostic-chr: 1.06  
Centroid-sig: 89.3%  
Centroid-so: 0.187 arcsec [0.90 $\sigma$ ]  
OotOffset-rm: 0.123 arcsec [1.18 $\sigma$ ]  
KicOffset-rm: 0.187 arcsec [0.87 $\sigma$ ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010208345-01, PDC Light Curves



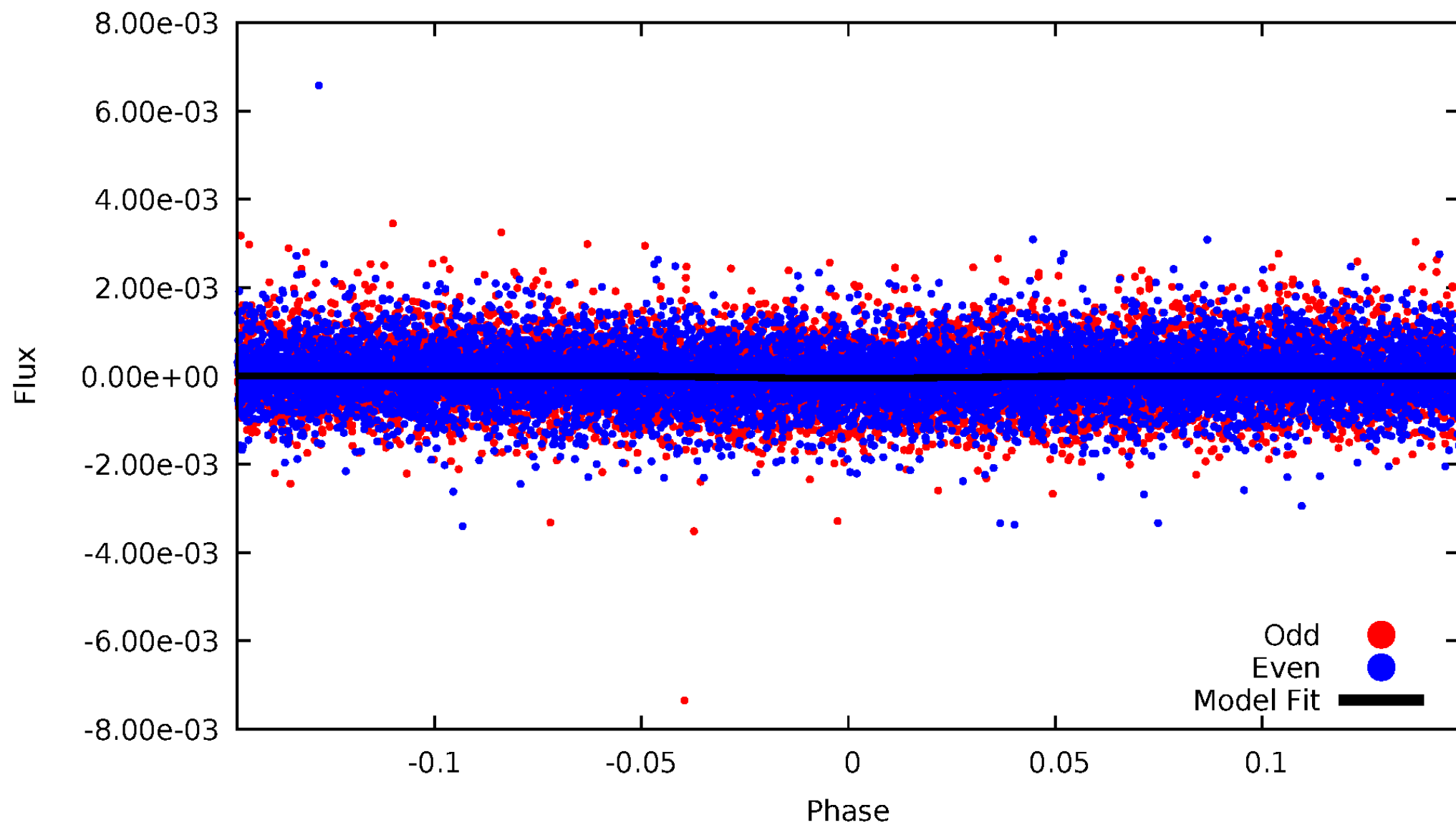


# TCE 010208345-01



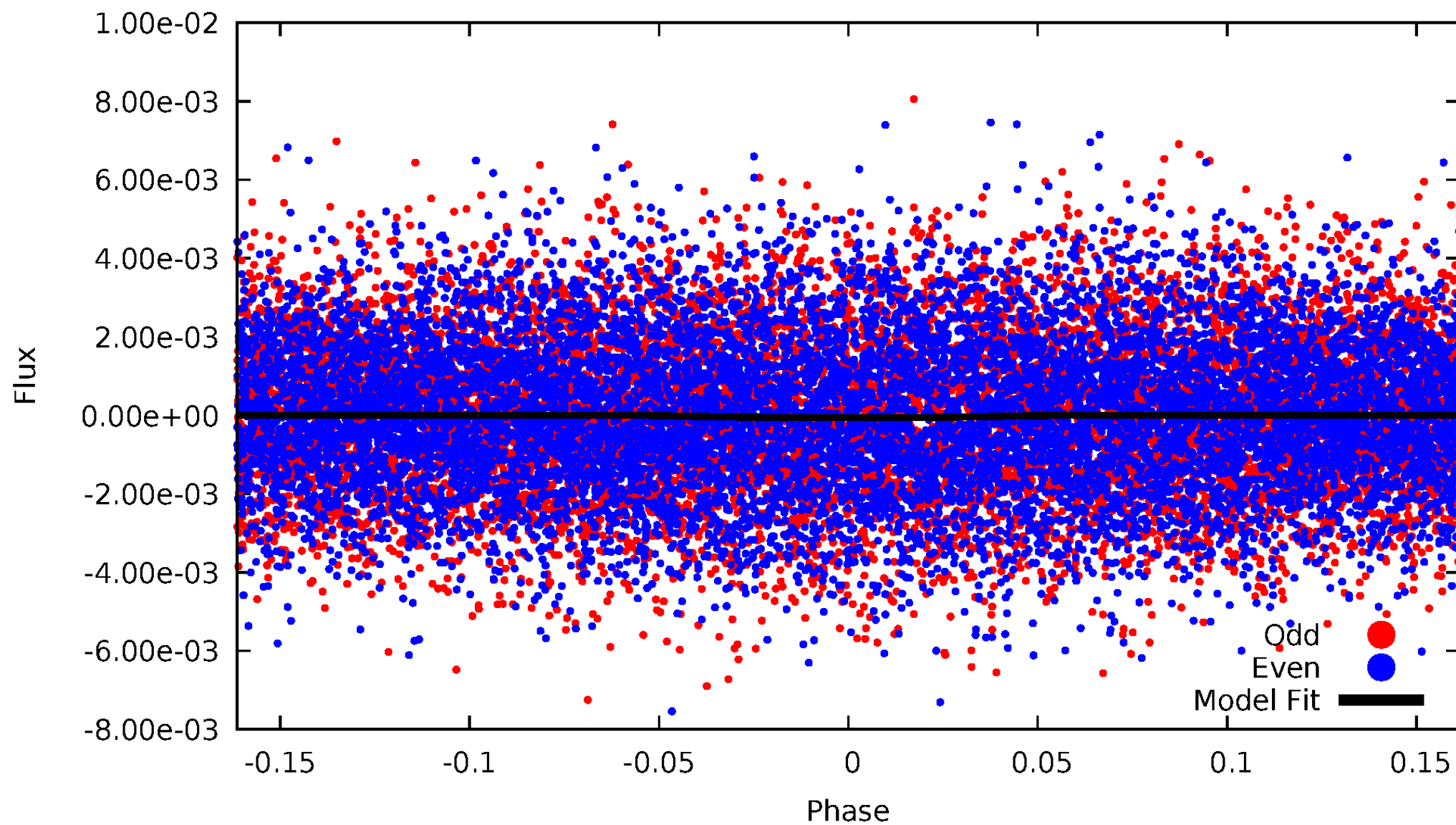
# DV Odd/Even

TCE 010208345-01



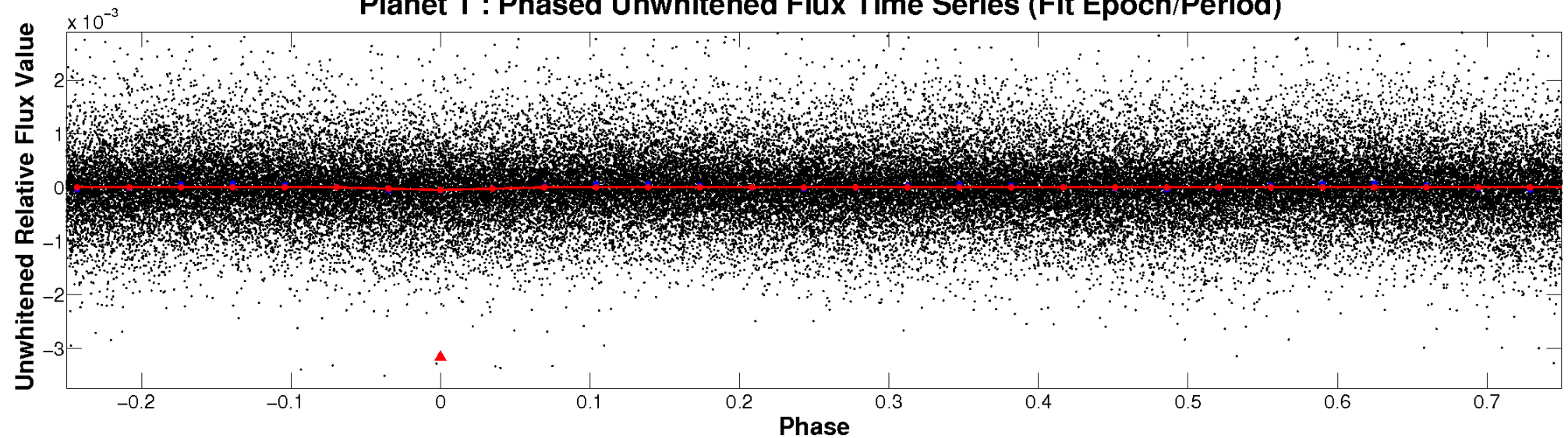
# ALT Odd/Even

TCE 010208345-01

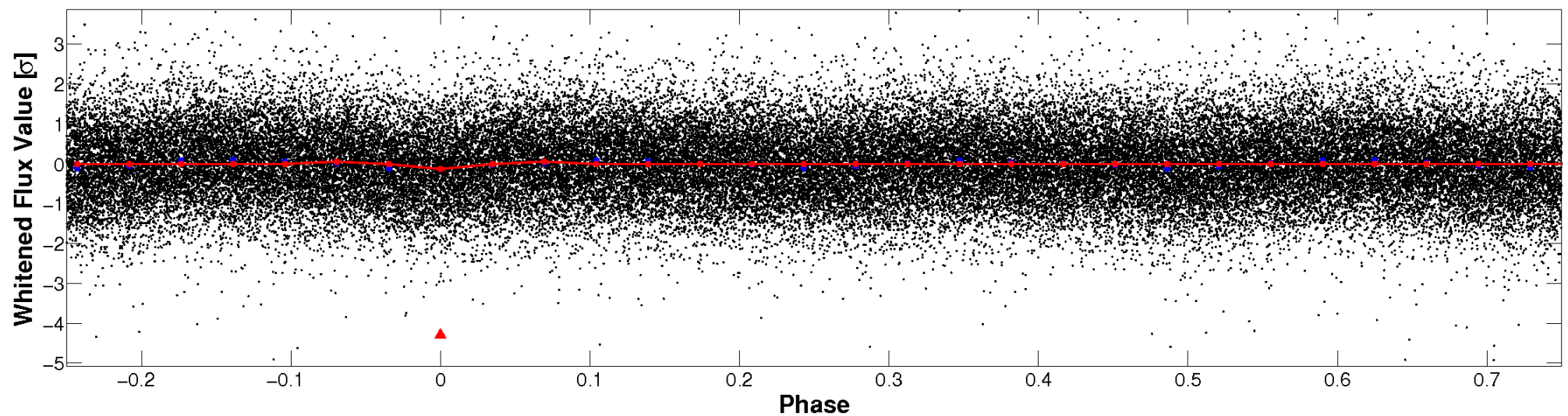


# Non-Whitened Vs. Whitened Light Curve

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



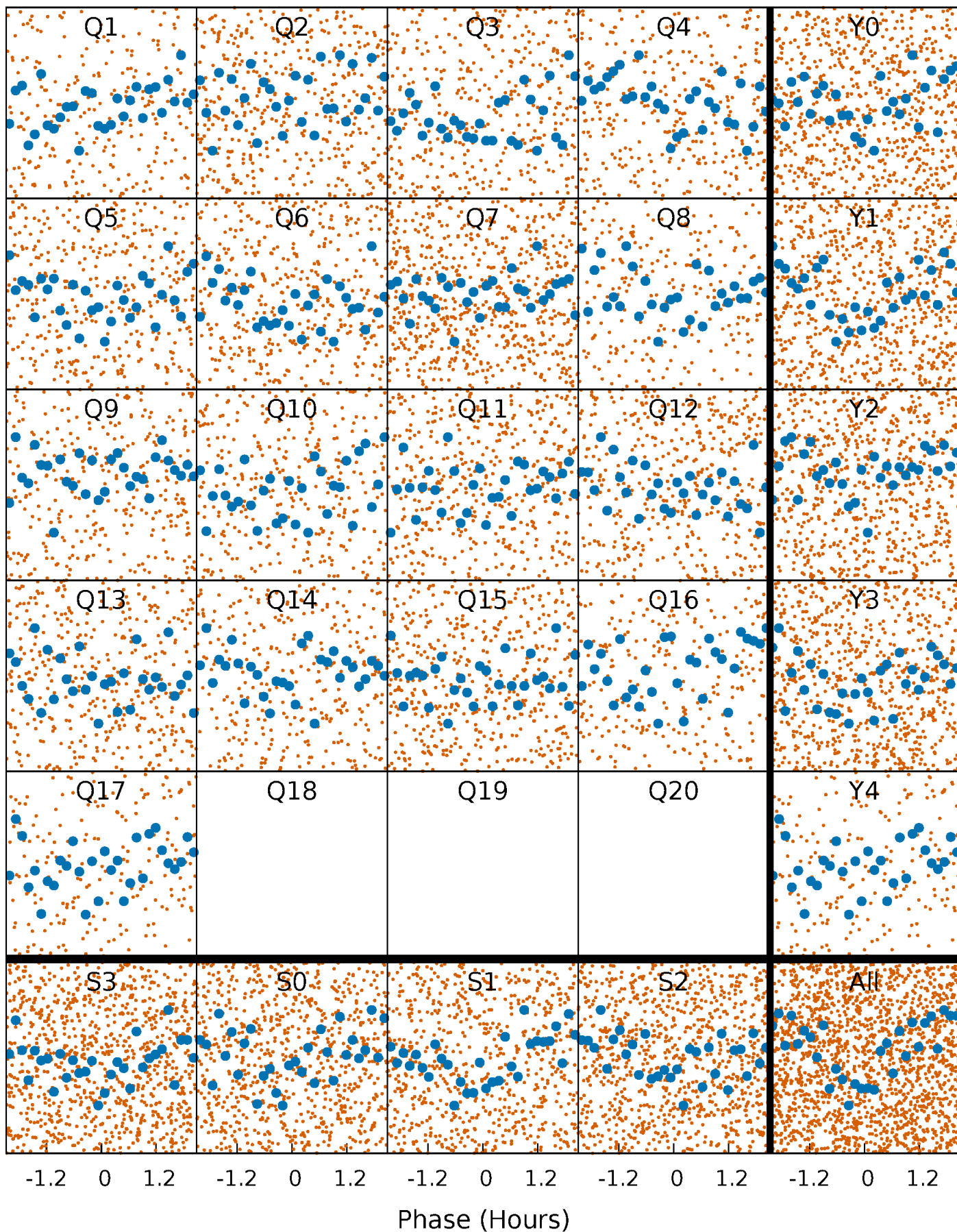
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

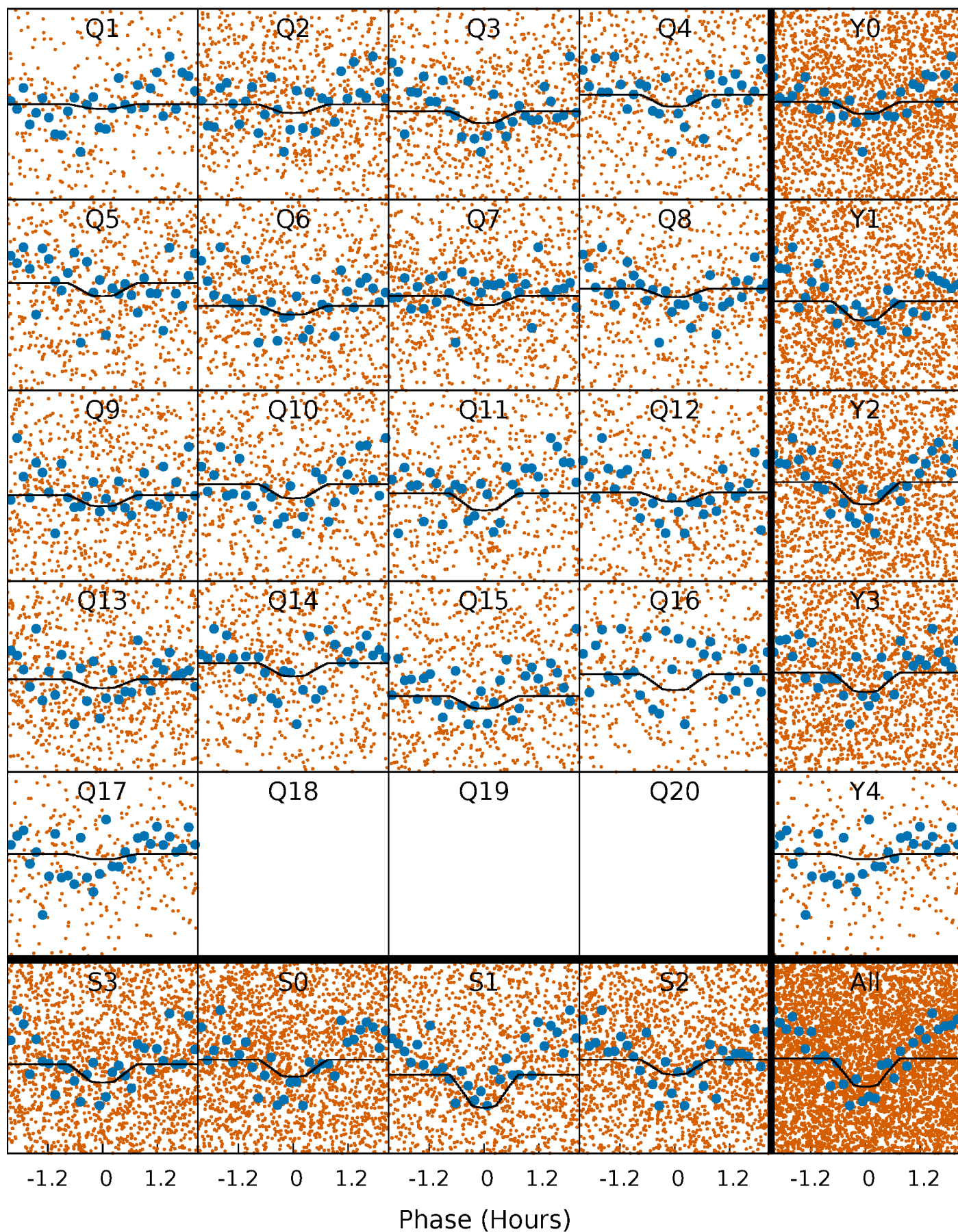
TCE 010208345-01 P= 0.588682 Days  $T_0=131.692762$  (BKJD)





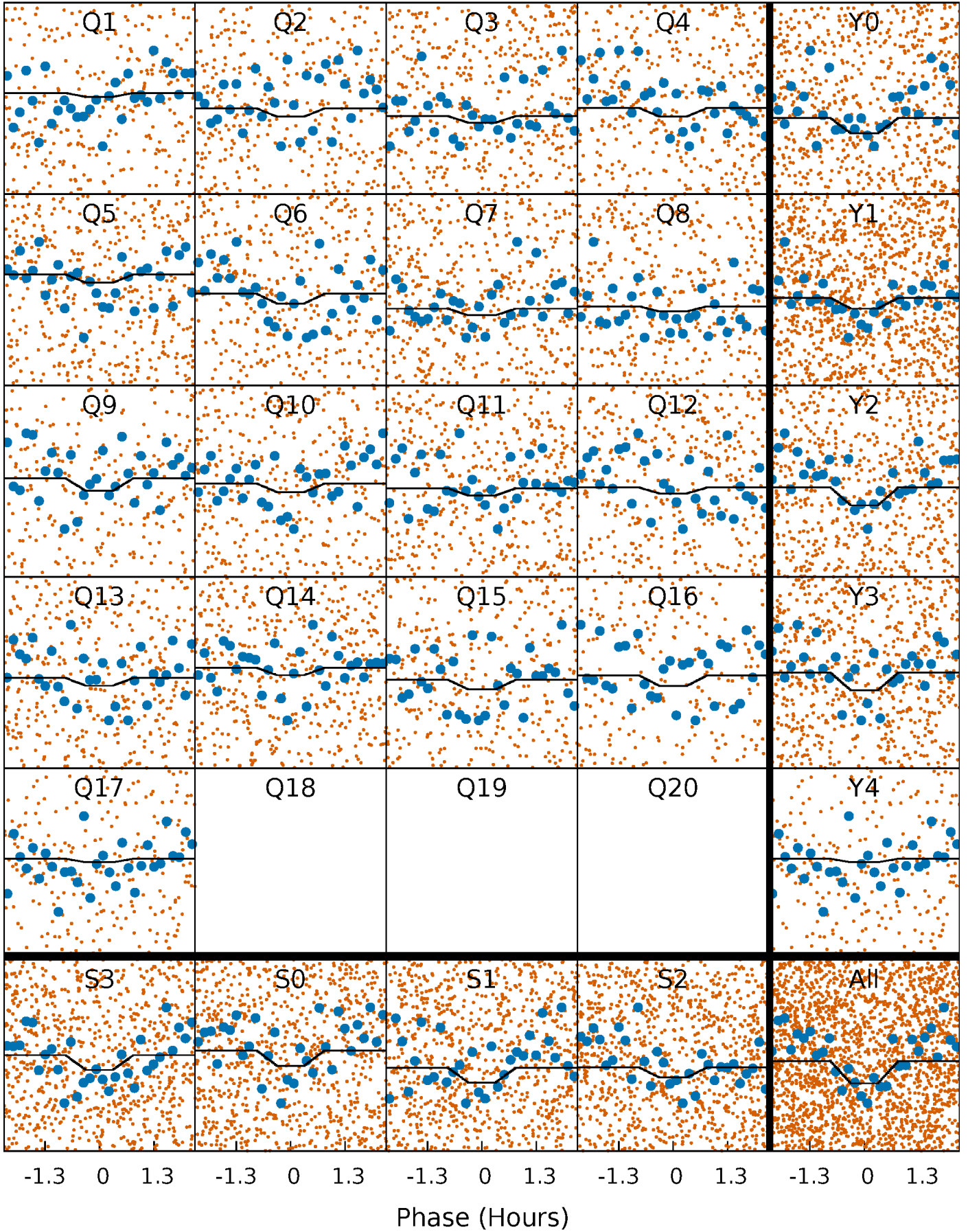
# DV Quarter-Phased Transit Curves

TCE 010208345-01 P= 0.588682 Days  $T_0=131.692762$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

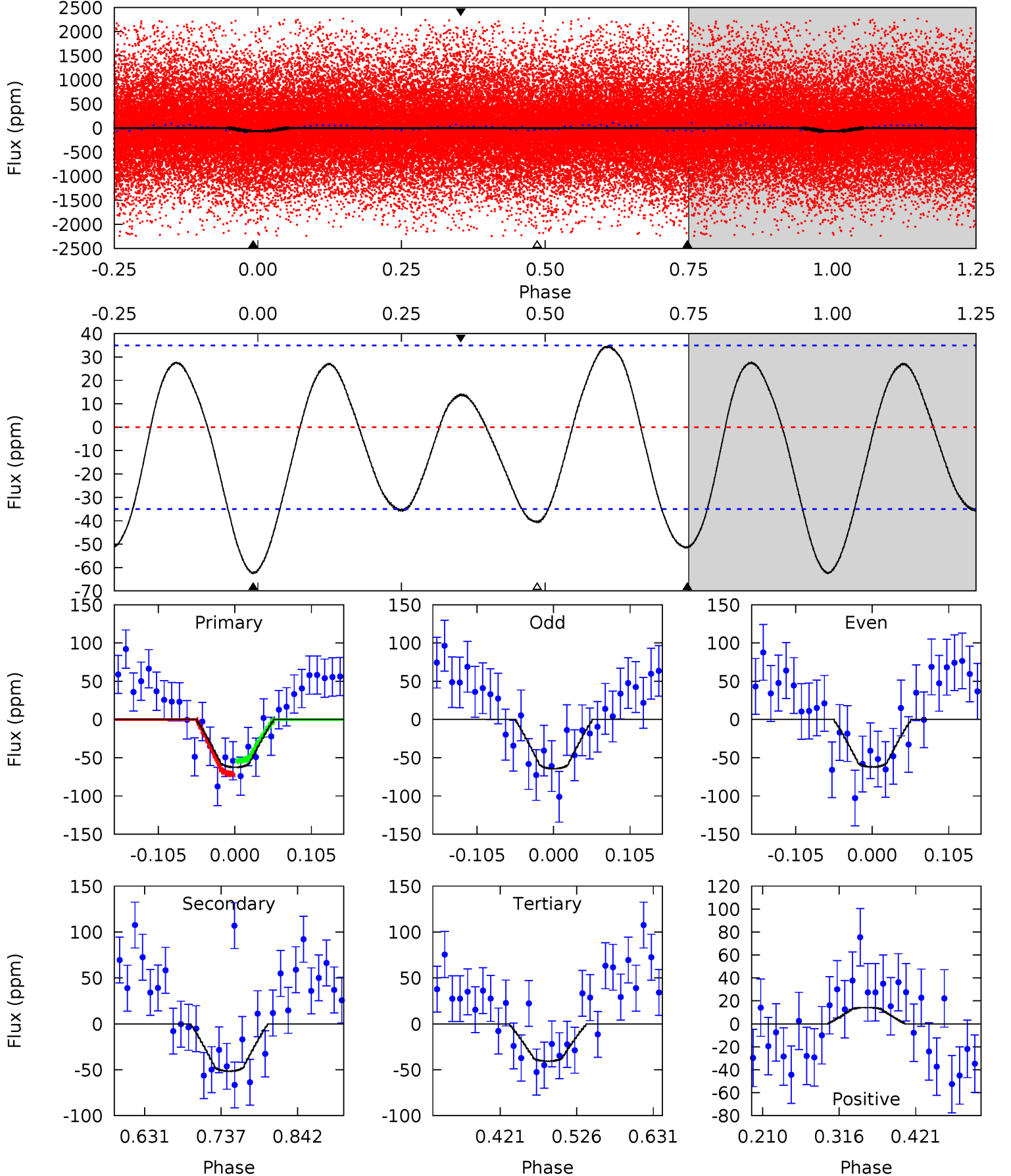
TCE 010208345-01 P= 0.588677 Days  $T_0=131.691580$  (BKJD)



# DV Model-Shift Uniqueness Test

010208345-01, P = 0.588682 Days, E = 131.104080 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
8.14	6.72	5.31	1.84	4.55	1.62	3.10	2.84	6.30	1.41	4.88	0.15	1.54	0.36	1.13

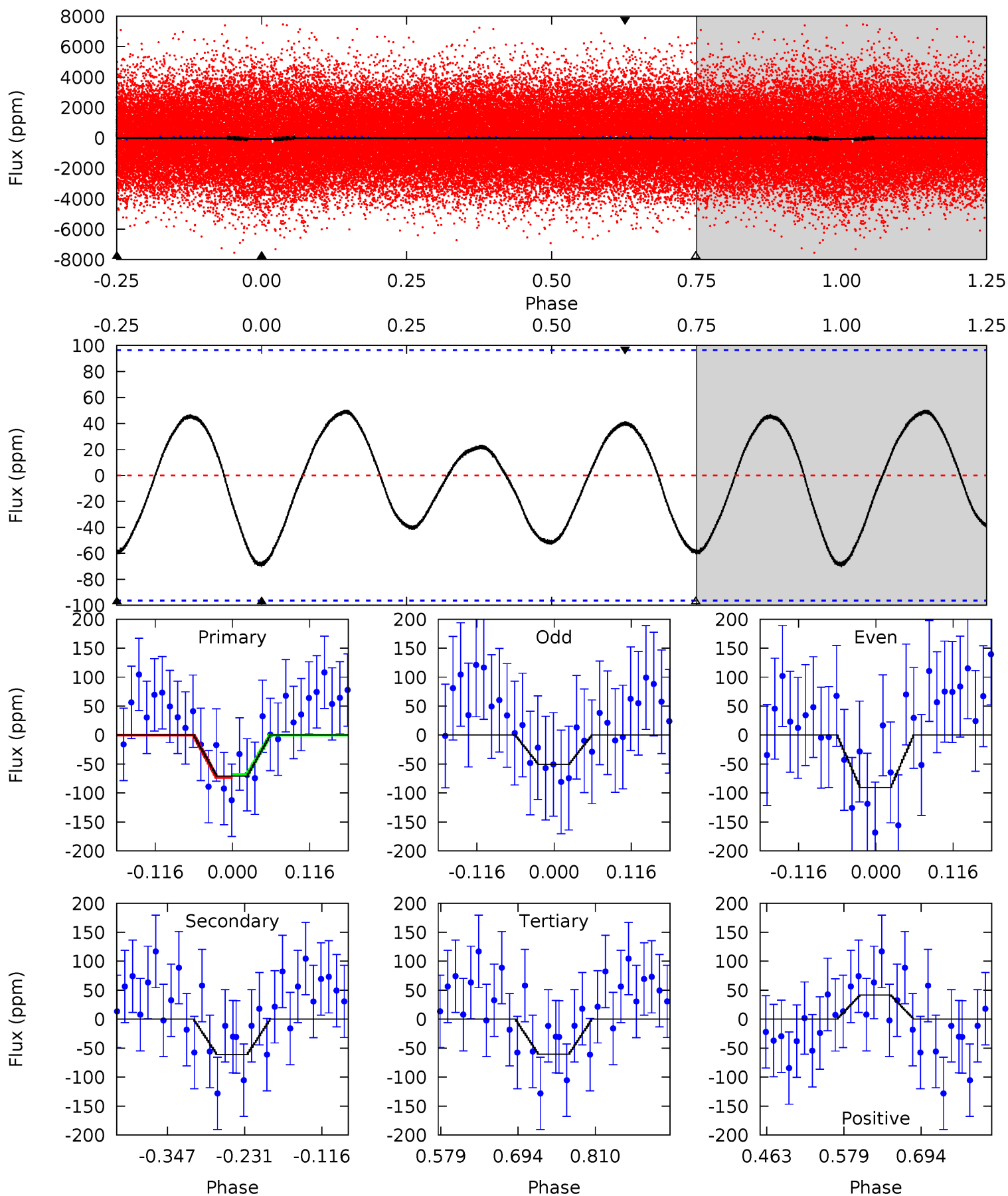




# Alt Model-Shift Uniqueness Test

010208345-01, P = 0.588677 Days, E = 131.102903 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
3.32	2.86	2.85	1.96	4.53	1.57	1.51	0.48	1.36	0.01	0.89	0.92	0.76	0.42	0.11





### Stellar Parameters For KIC 010208345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7401^{+203}_{-319}$	$3.972^{+0.228}_{-0.152}$	$0.000^{+0.200}_{-0.350}$	$2.252^{+0.560}_{-0.684}$	$1.732^{+0.184}_{-0.342}$	$0.214^{+0.313}_{-0.098}$
	+3%/-4%	+6%/-4%	+inf%/-inf%	+25%/-30%	+11%/-20%	+146%/-46%
Source	KIC0	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 010208345-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-52 \pm 8$	$1.54^{+0.47}_{-0.37}$	$5270^{+429}_{-447}$	$7510^{+1400}_{-977}$	$3.094^{+2.524}_{-1.250}$
Alt.	$-61 \pm 21$	$1.78^{+0.44}_{-0.41}$	$5281^{+361}_{-423}$	$7251^{+1370}_{-1123}$	$2.754^{+2.206}_{-1.198}$

$T_{max}$  = 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

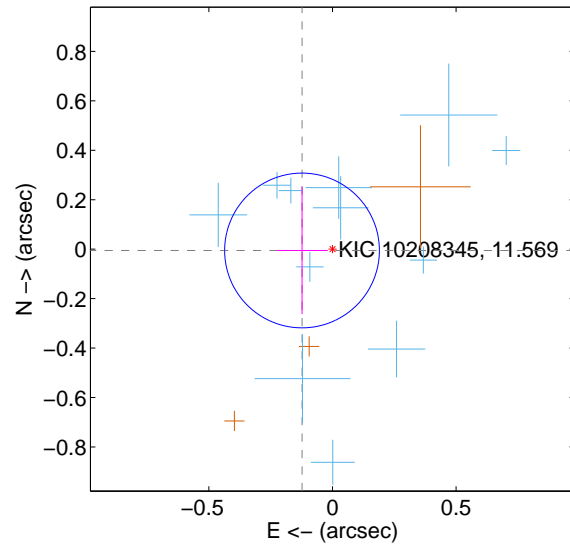
Supplemental centroid analysis for 010208345-01. **Kepler magnitude: 11.57.** Transit SNR 8.72

There are 12 quarters with good PRF difference image offsets

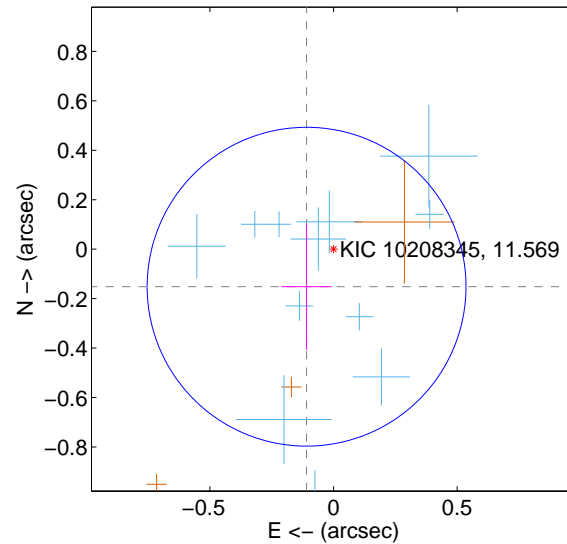
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.123 \pm 0.104$	1.18	$0.123 \pm 0.103$	$-0.005 \pm 0.258$
PRF-fit source offset from KIC position	$0.187 \pm 0.215$	0.87	$0.109 \pm 0.102$	$-0.152 \pm 0.255$
photometric centroid source offset	$0.19 \pm 0.21$	0.90	$0.12 \pm 0.21$	$-0.15 \pm 0.21$

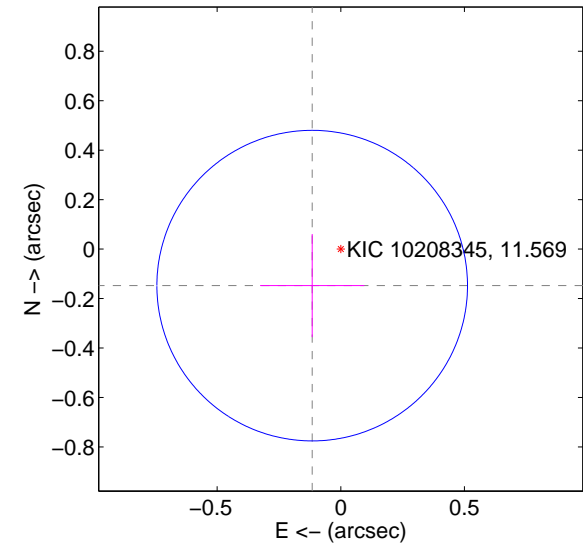
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

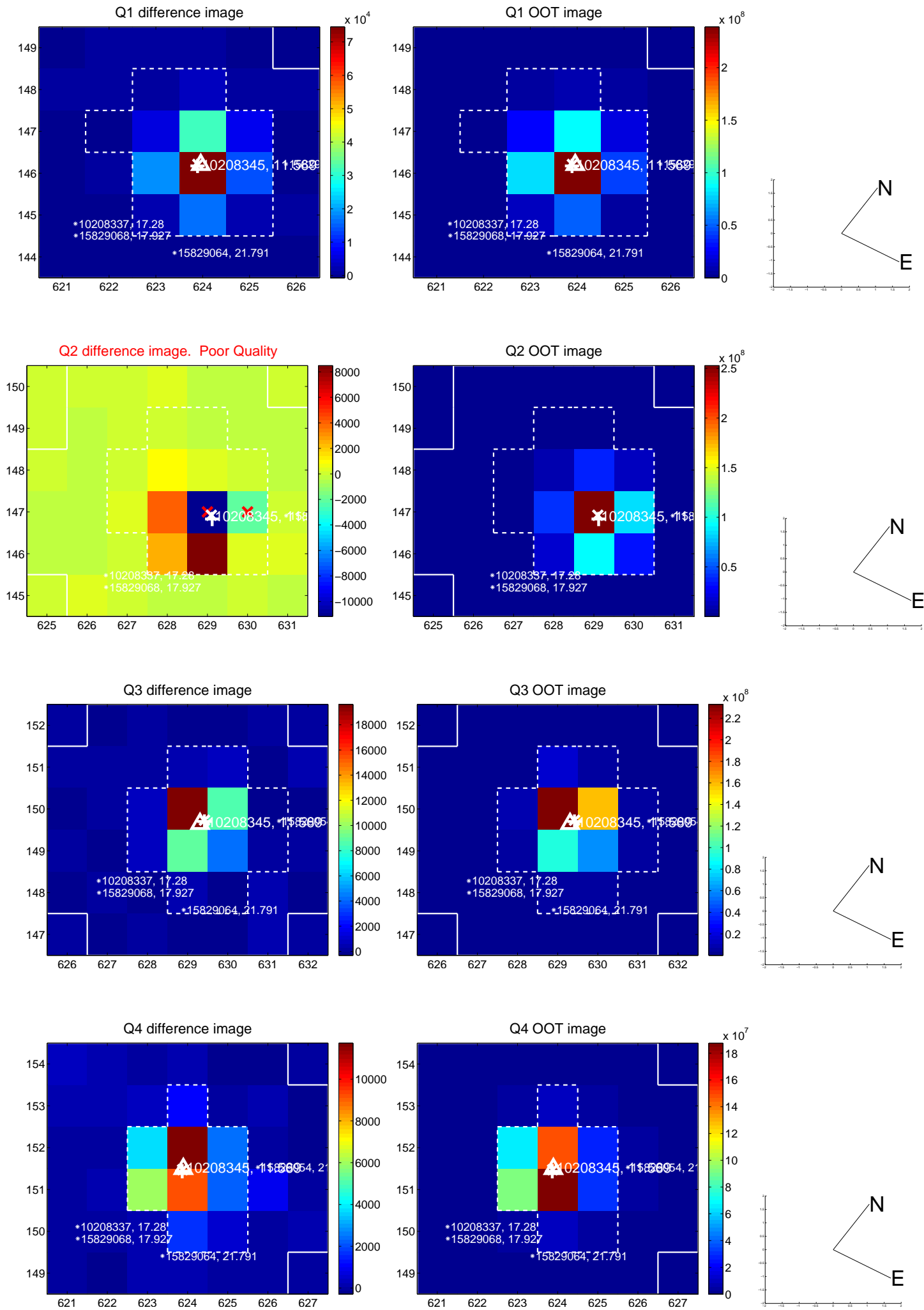


offset from photometric centroids

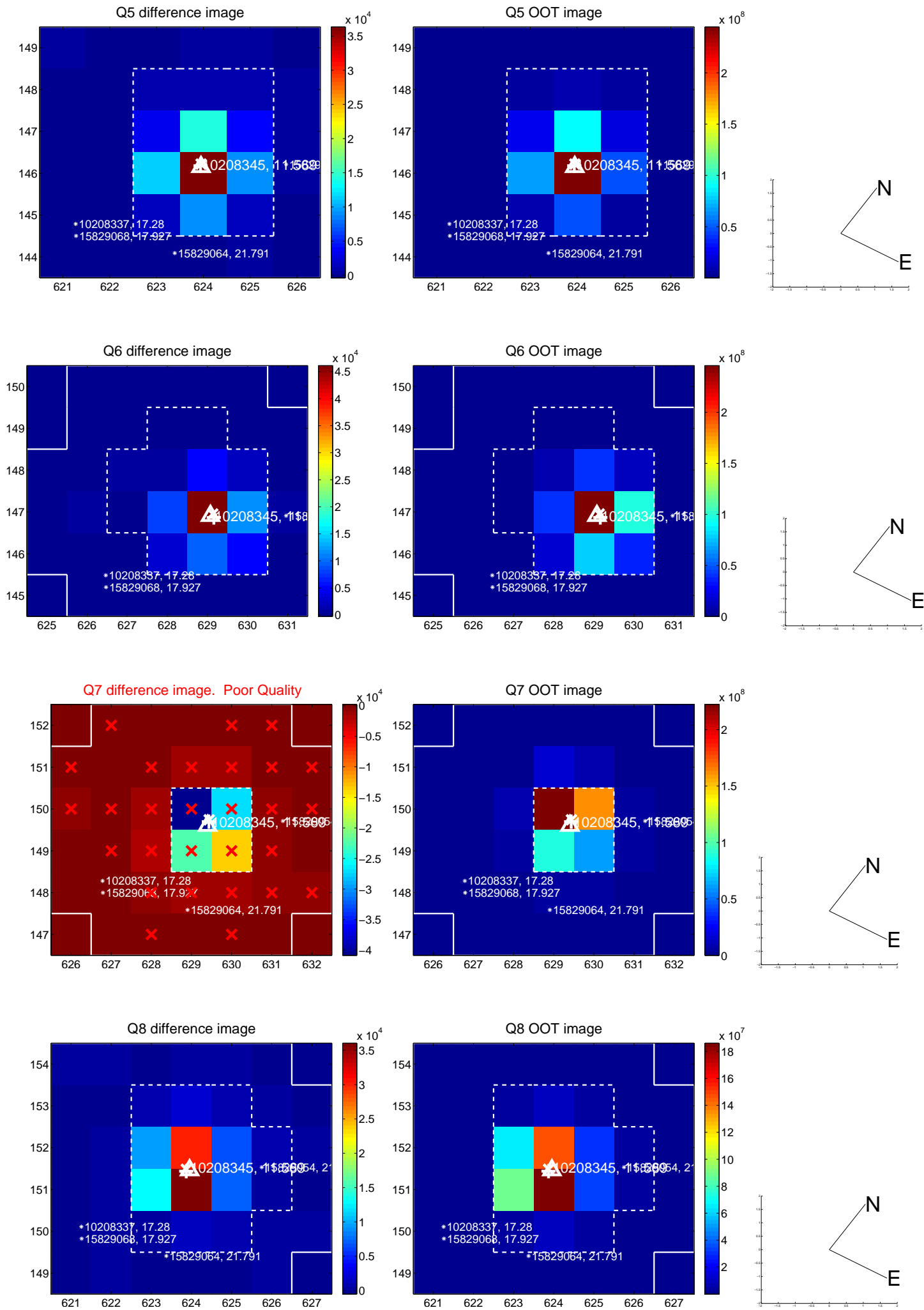


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

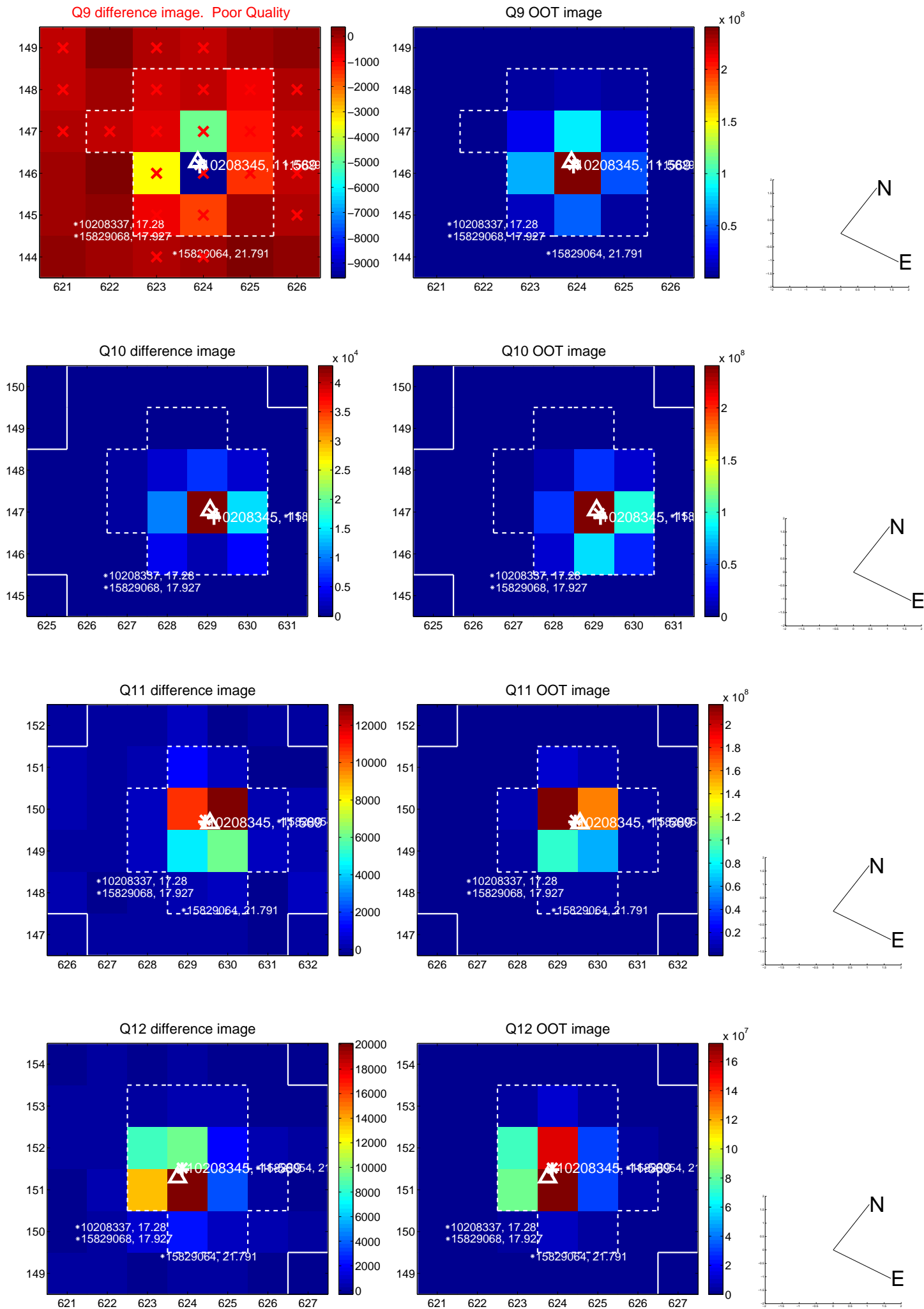


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

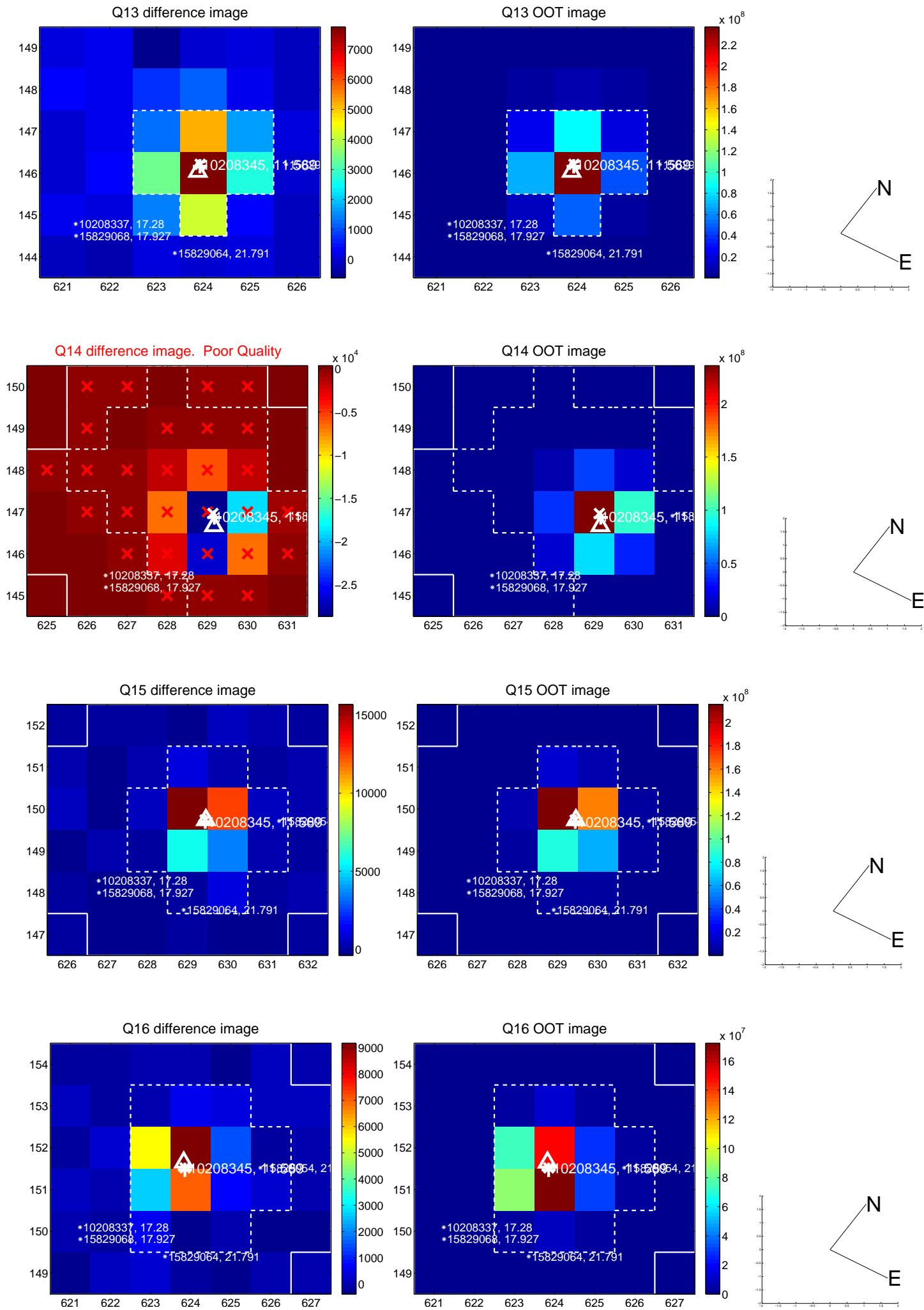




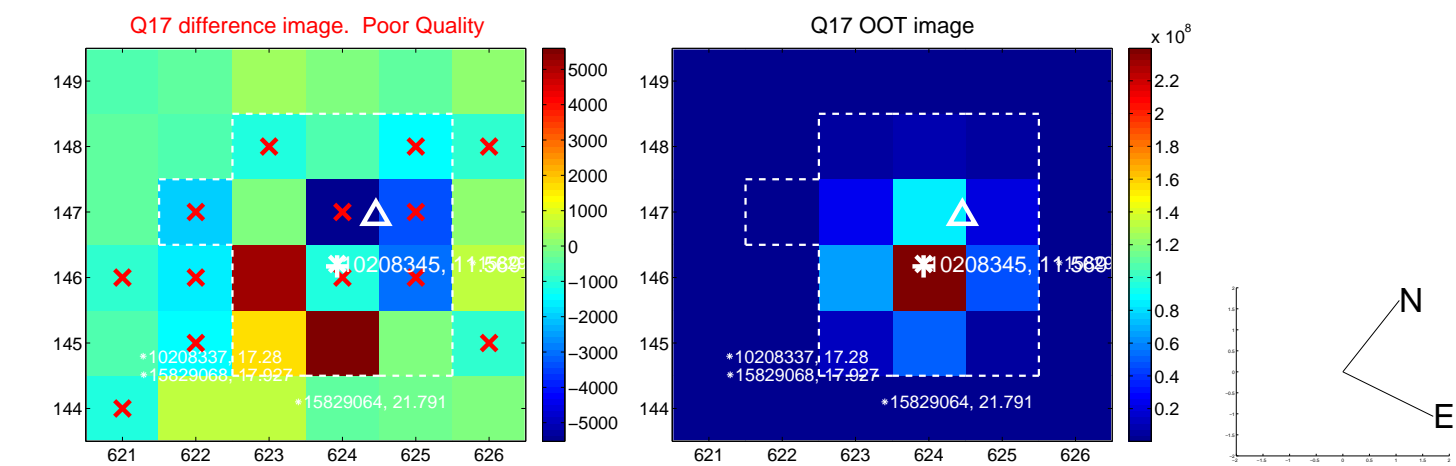
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



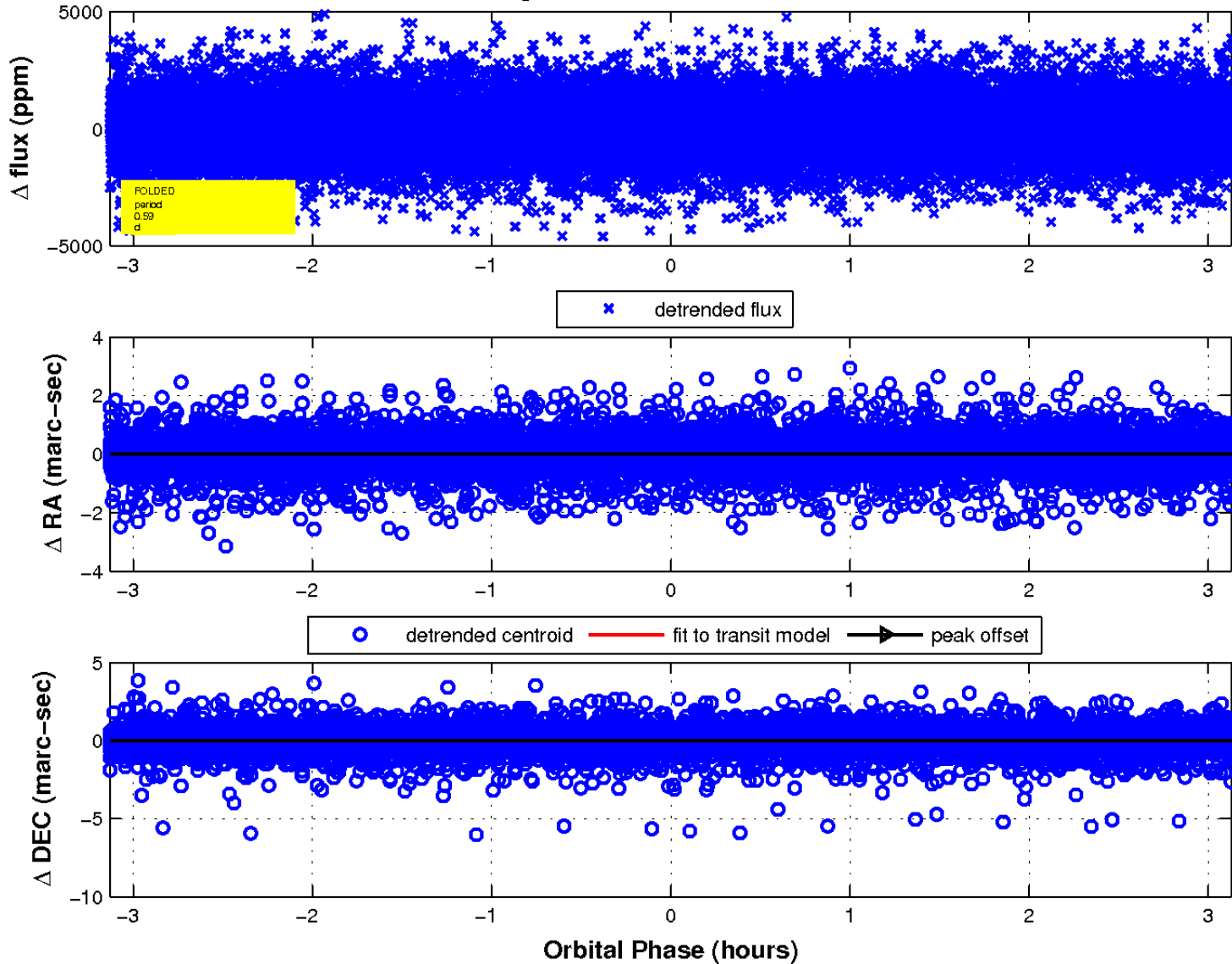
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

