

# KIC 009243464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009243464-01	OBS	No	0.899462	132.414812	165.0	3.542	11.9	11.6	4.02	6837	6.03	63096.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009243464-01	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.

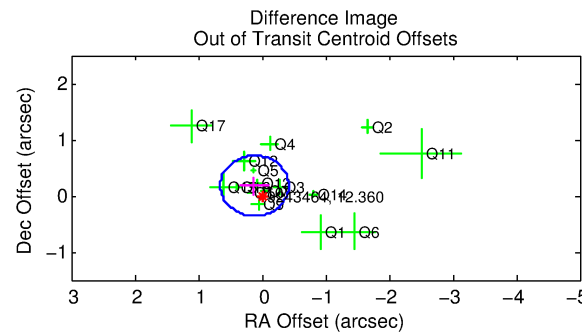
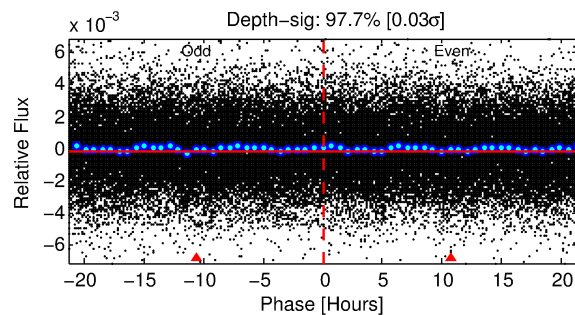
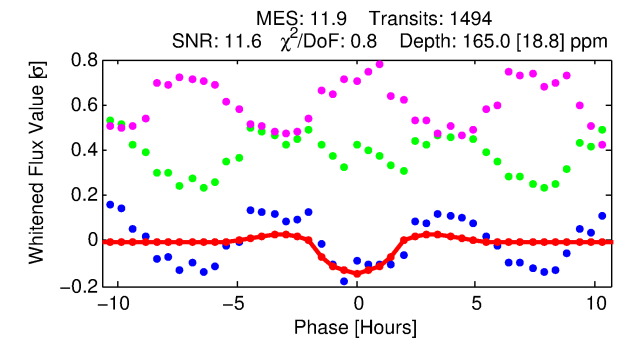
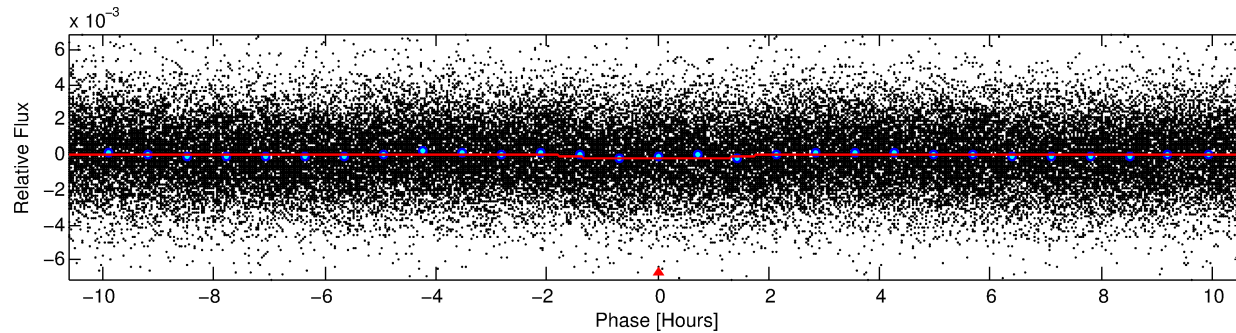
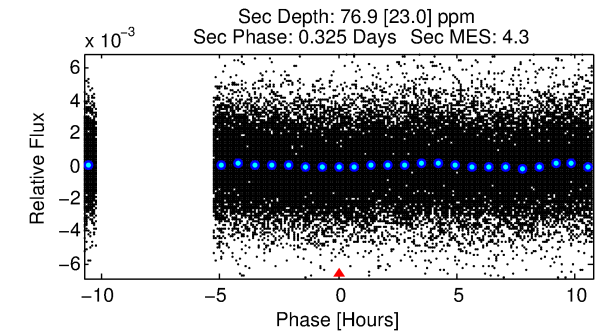
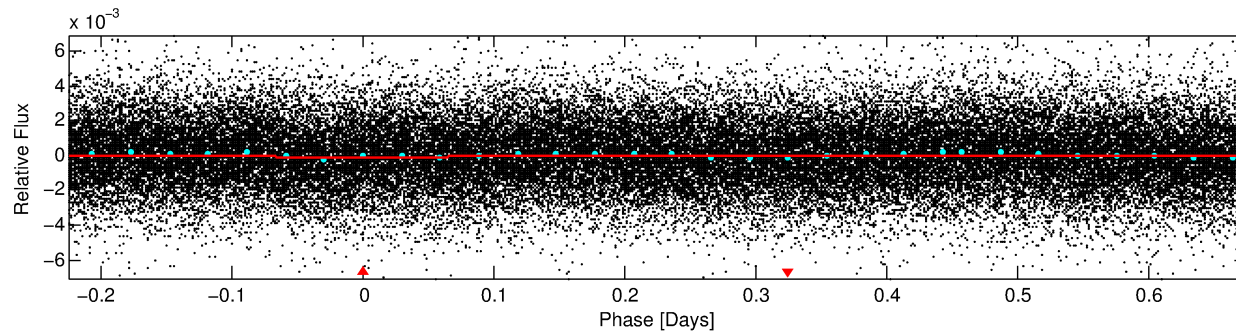
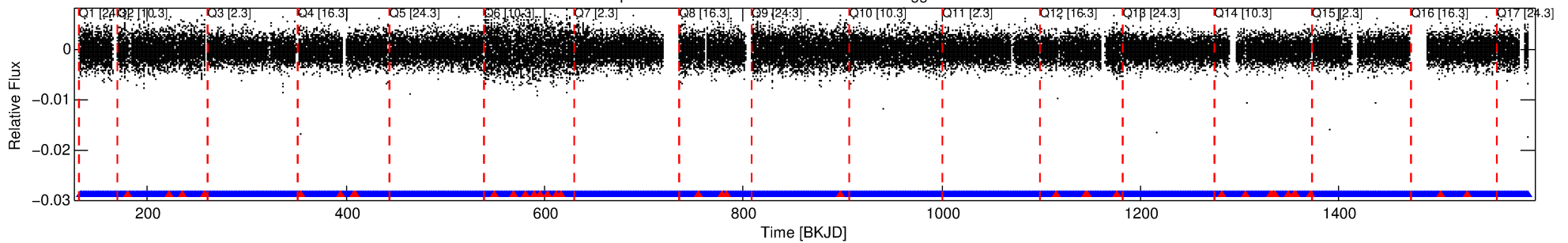
## Ephemeris Match Information For 009243464-01

No Significant Match Found

# DV One-Page Summary

KIC: 9243464 Candidate: 1 of 1 Period: 0.899 d

Kp: 12.36 R\*: 4.02 Rs Teff: 6837.0 K Logg: 3.50 Fe/H: -0.220



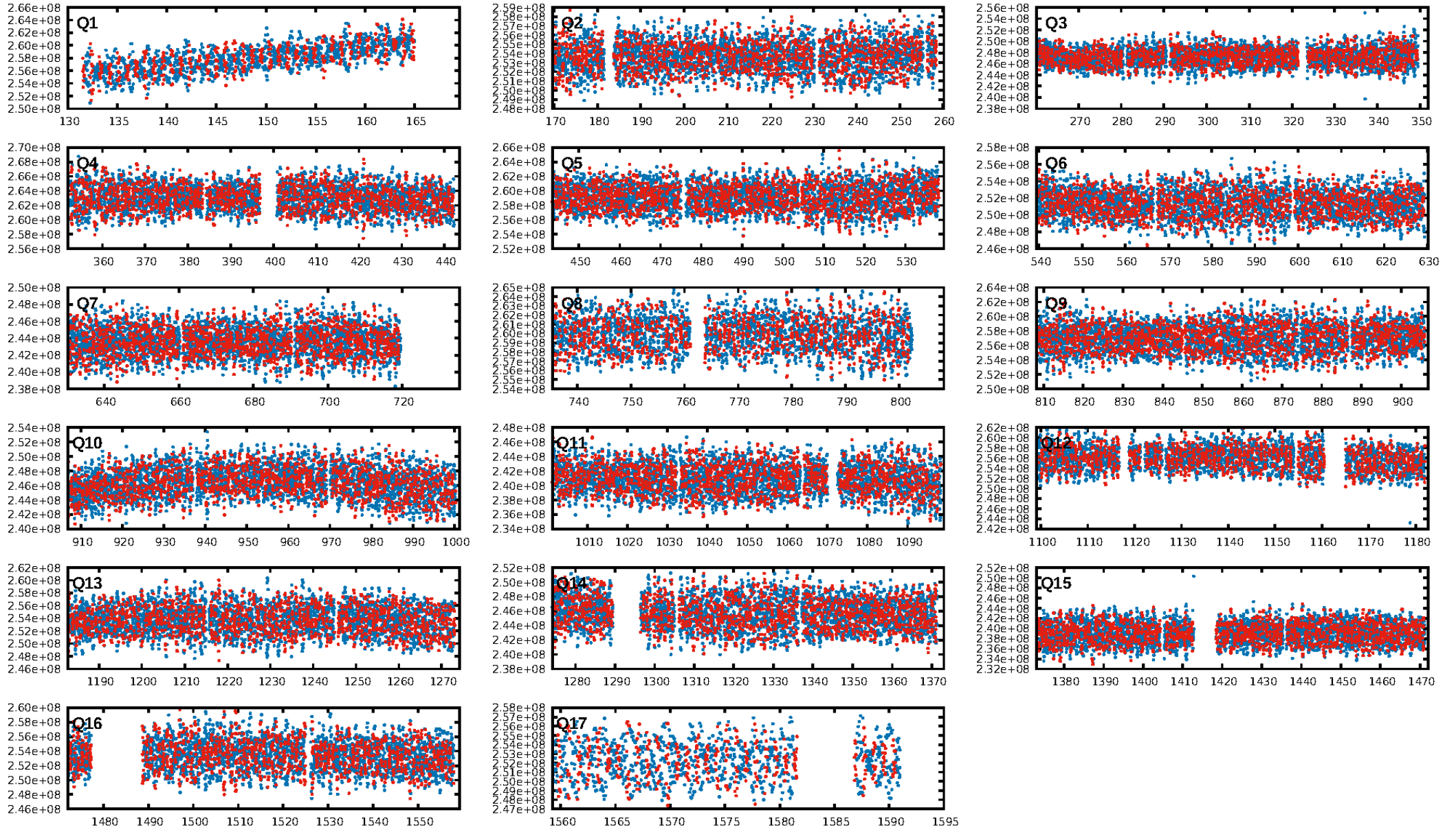
## DV Fit Results:

Period = 0.89946 [0.00001] d  
Epoch = 132.4148 [0.0039] BKJD  
Rp/R\* = 0.0137 [0.0054]  
a/R\* = 1.30 [1.24]  
b = 0.90 [0.48]  
Seff = 63096.87 [68006.68]  
Teff = 4041 [1089] K  
Rp = 6.03 [4.52] Re  
a = 0.0224 [0.0145] AU  
Ag = 0.58 [0.79] [-0.52σ]  
Teffp = 5465 [1162] K [0.89σ]

## DV Diagnostic Results:

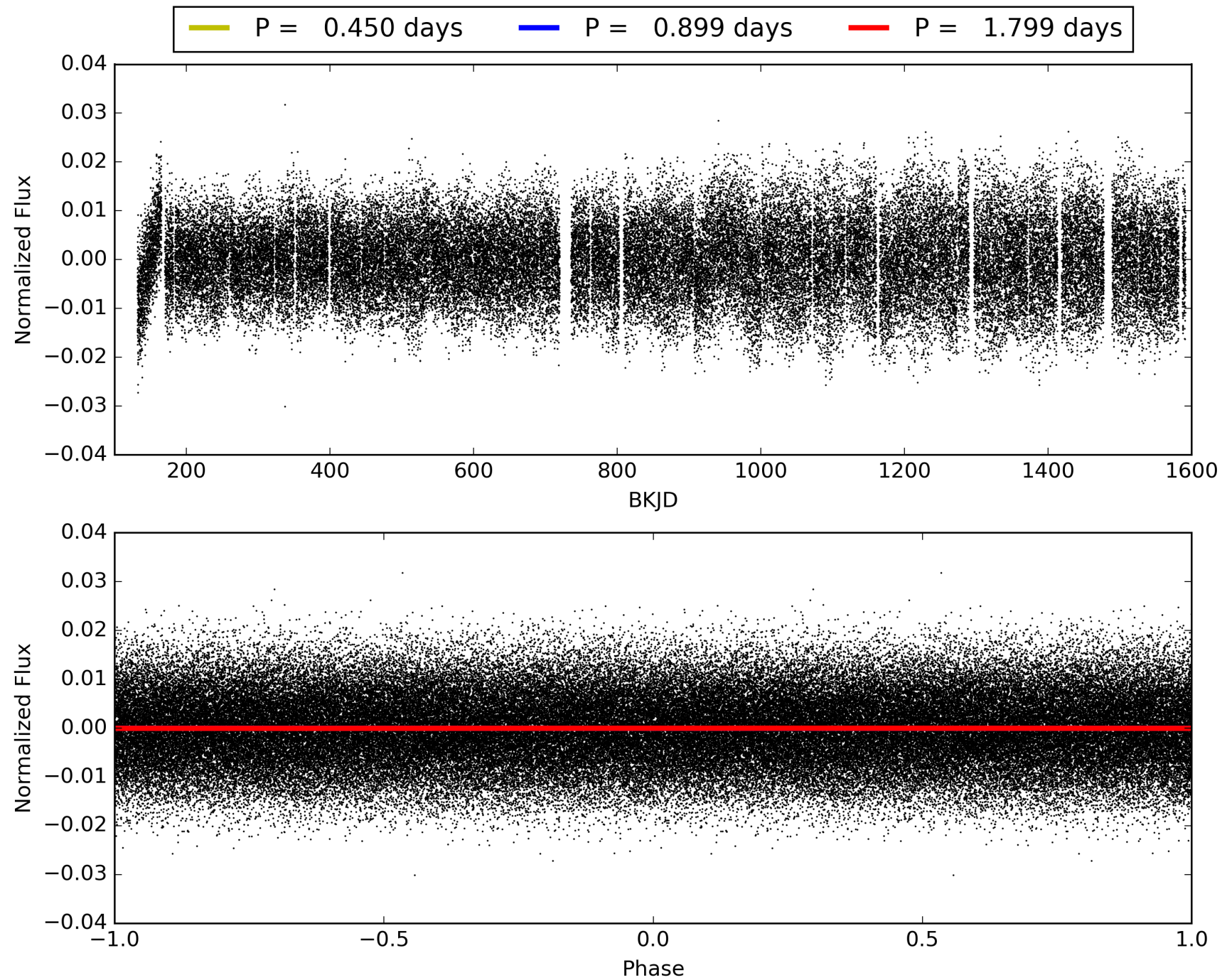
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.45e-35  
RollingBand-fgt: 0.98 [1391/1426]  
GhostDiagnostic-chr: 1.576  
Centroid-sig: 0.0%  
Centroid-so: 0.114 arcsec [1.04σ]  
OotOffset-rm: 0.212 arcsec [1.18σ]  
KicOffset-rm: 0.030 arcsec [0.19σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009243464-01, PDC Light Curves



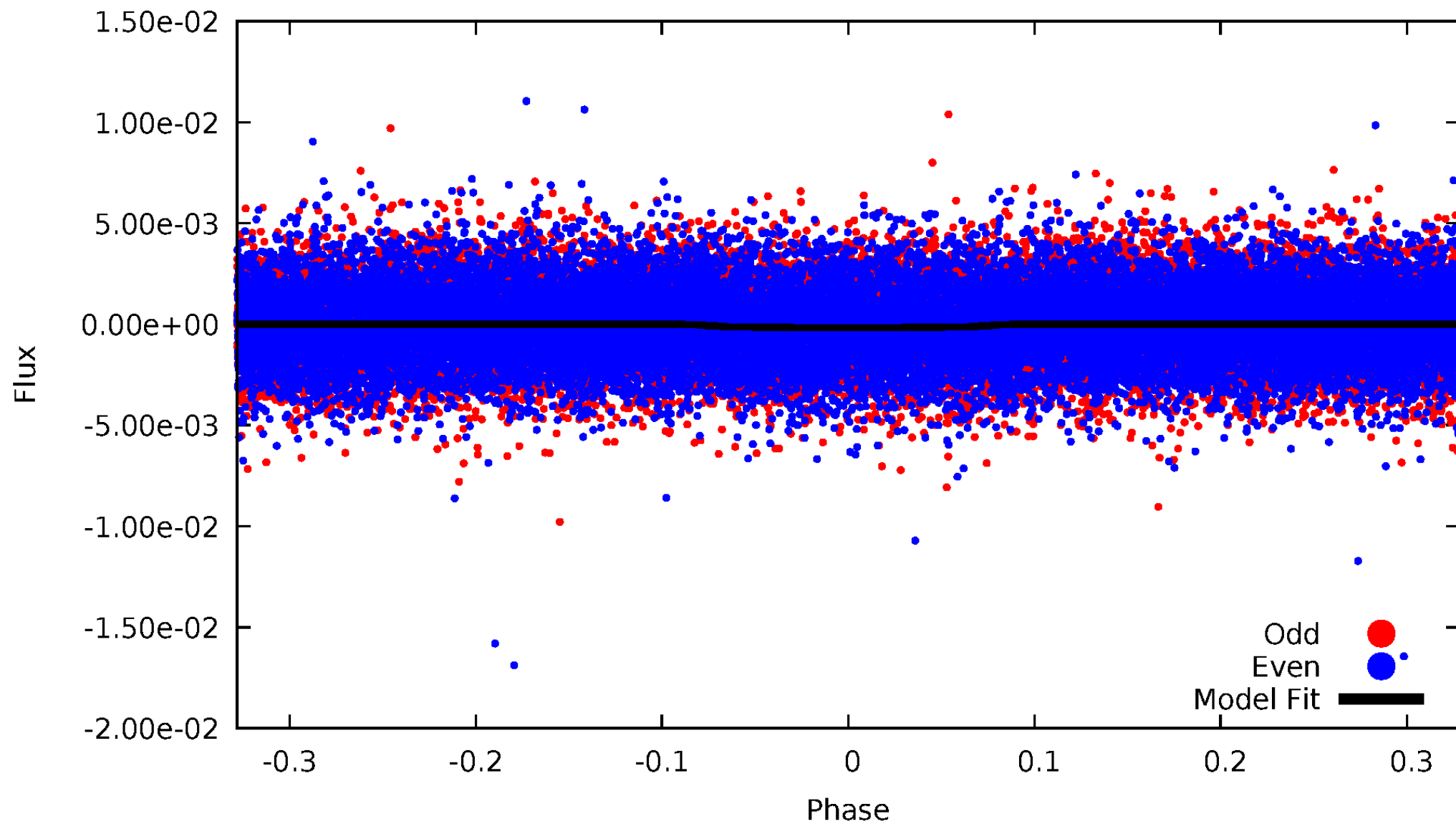


TCE 009243464-01



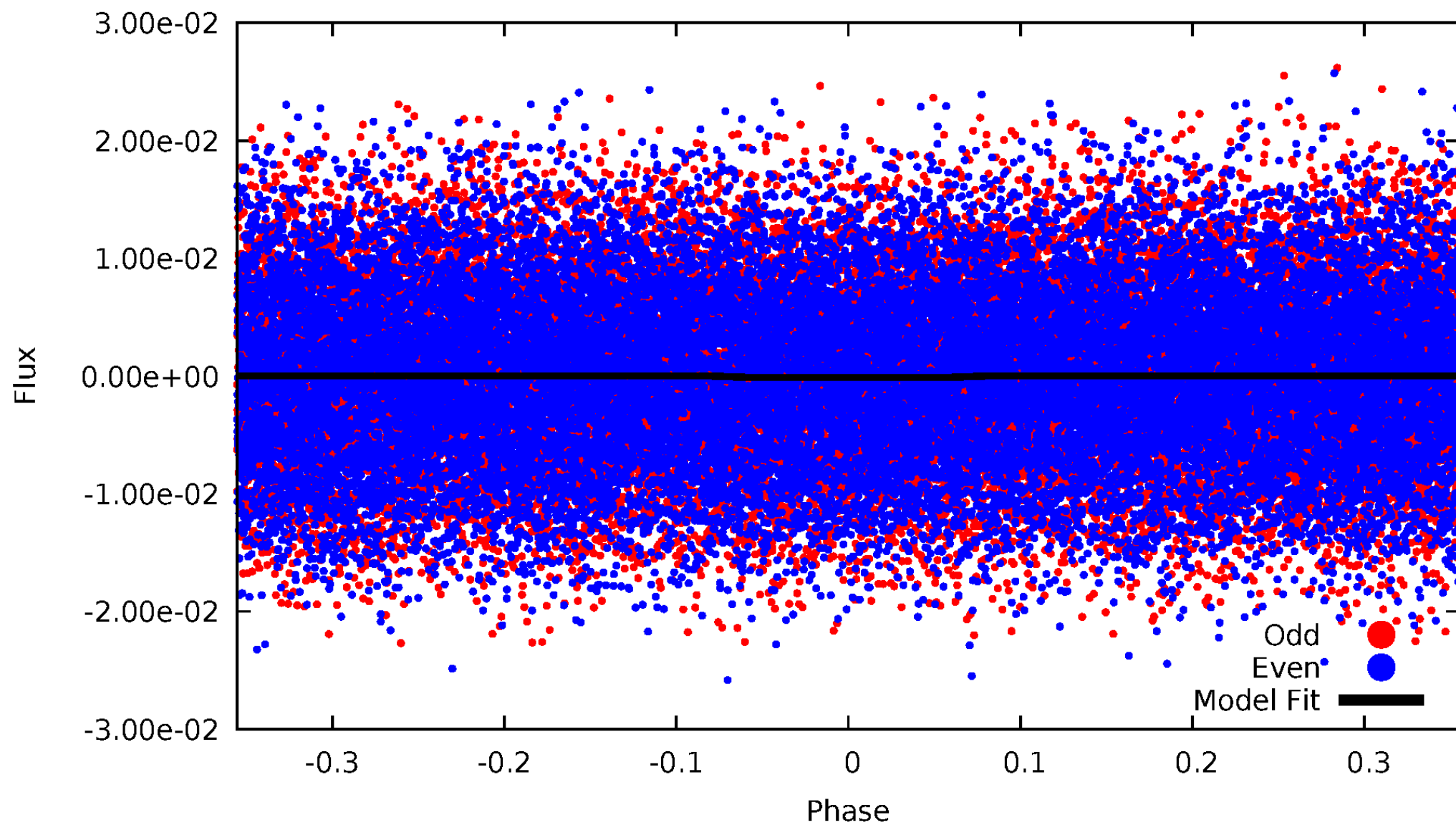
# DV Odd/Even

TCE 009243464-01

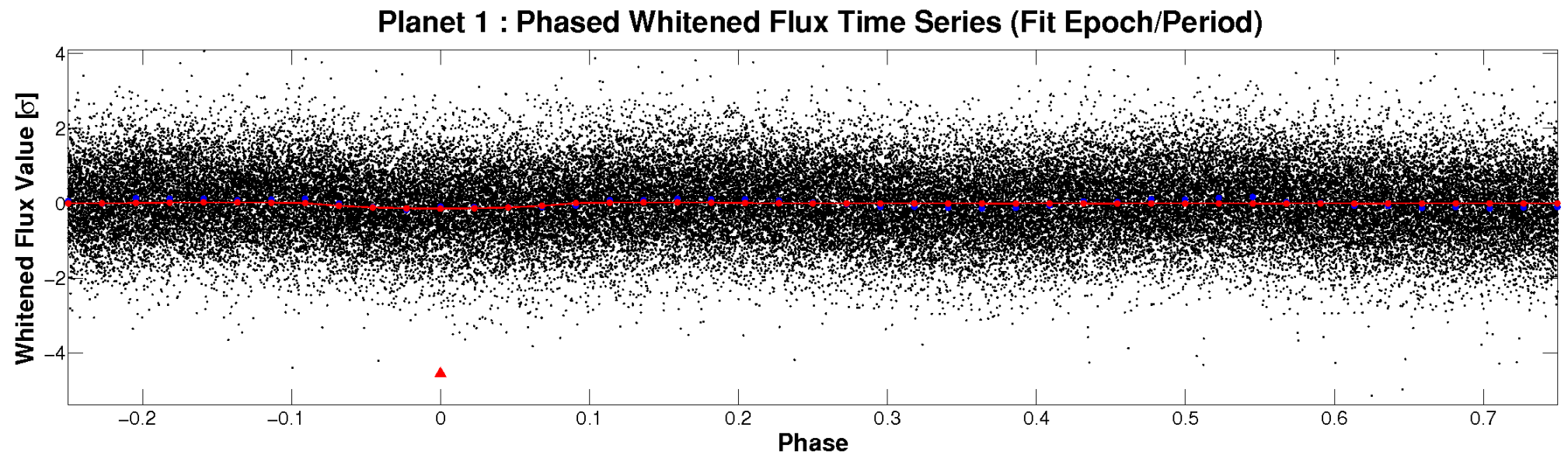
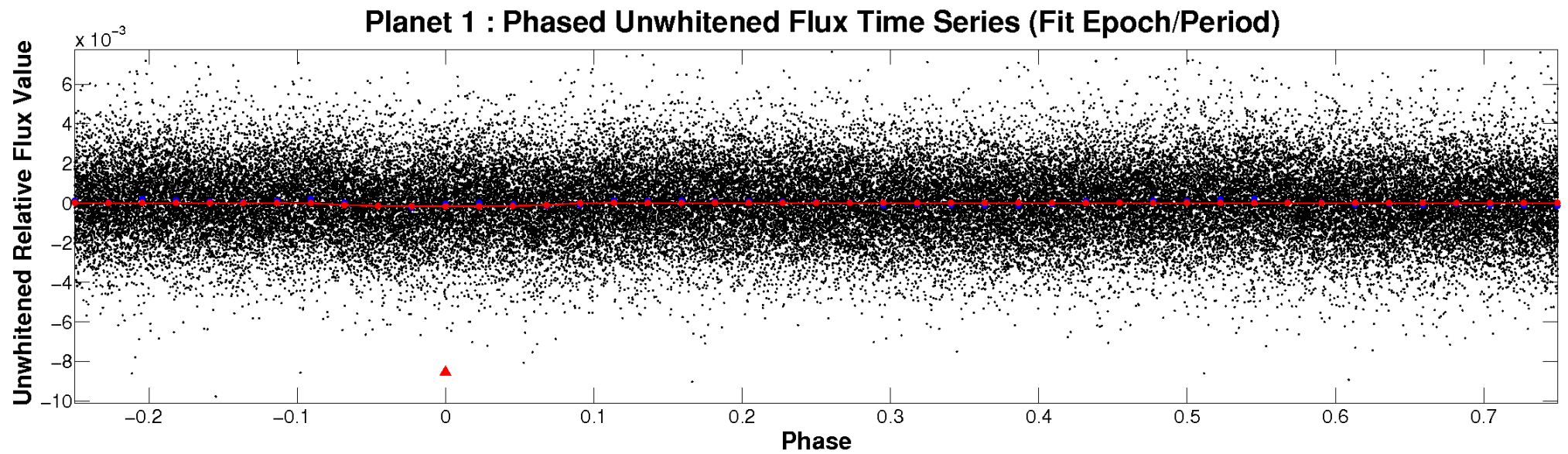


# ALT Odd/Even

TCE 009243464-01



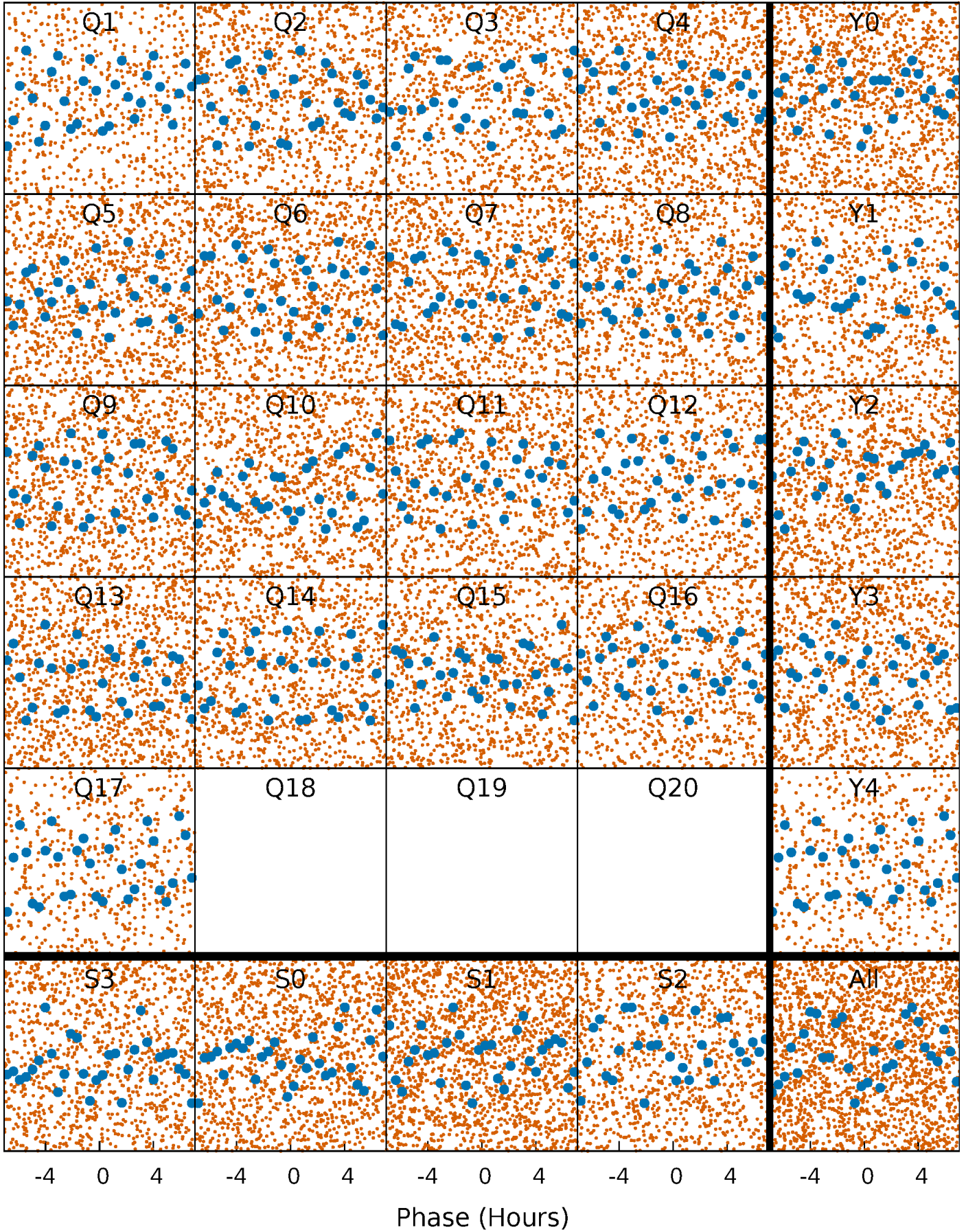
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

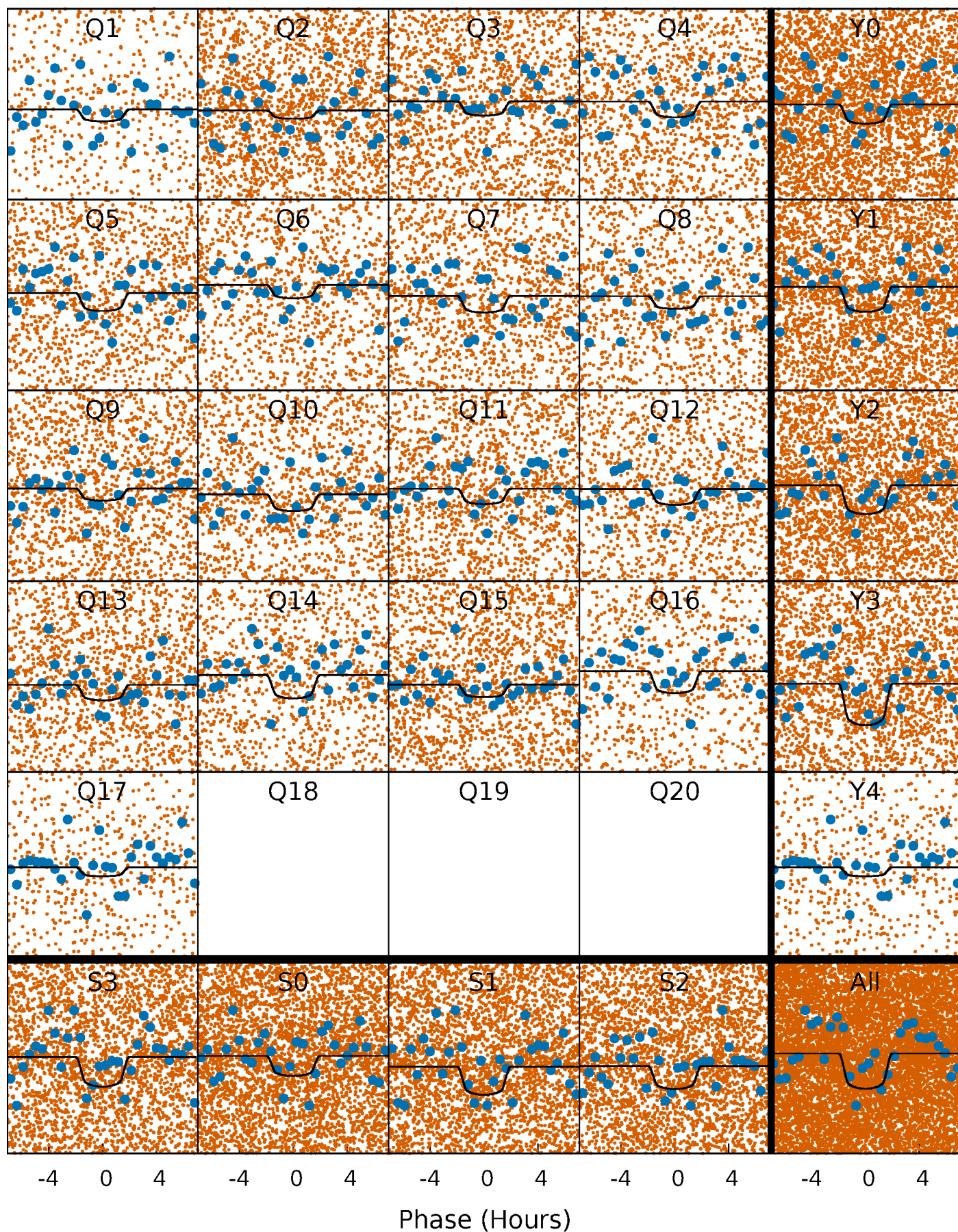
TCE 009243464-01   P= 0.899462 Days    $T_0=132.414812$  (BKJD)





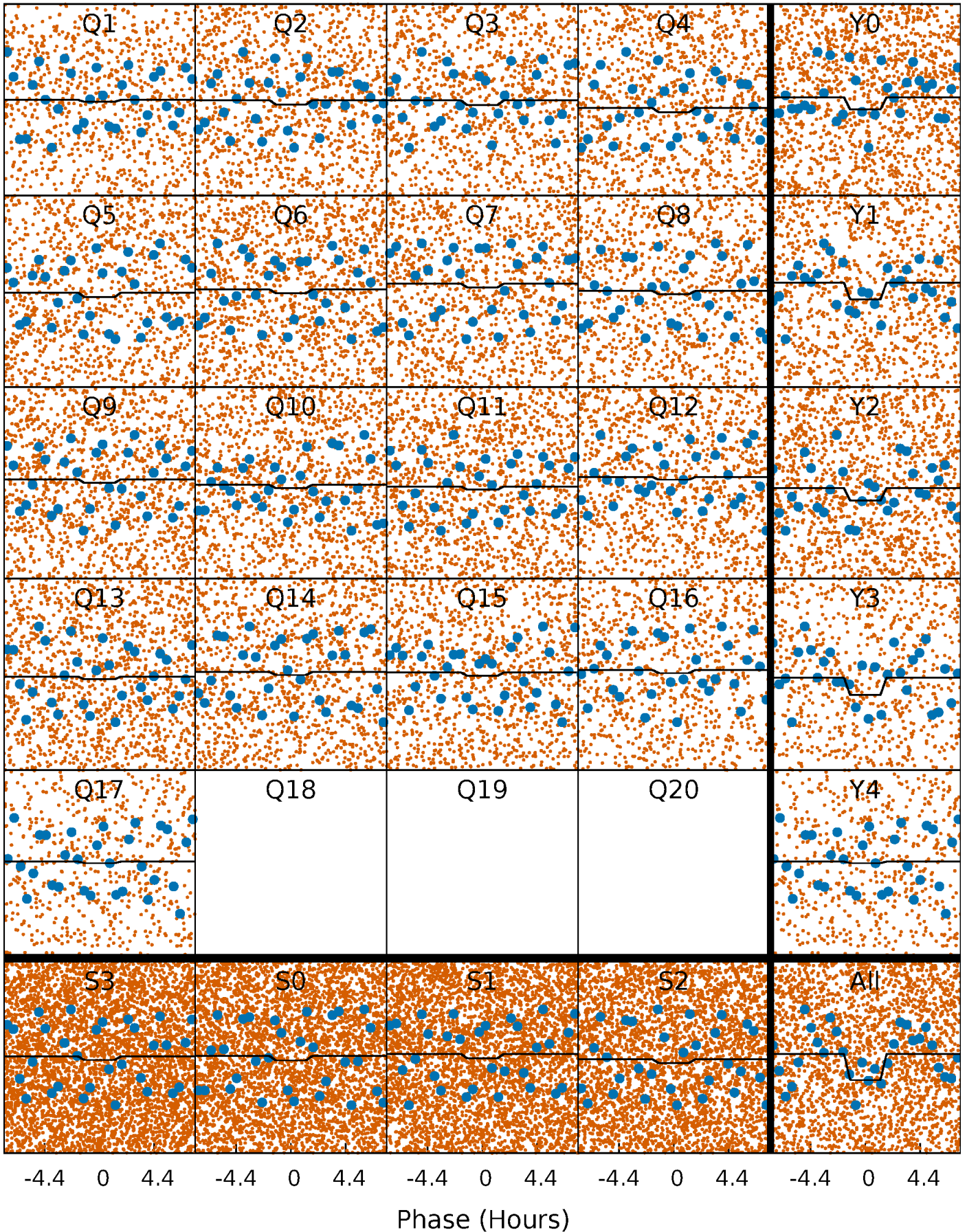
# DV Quarter-Phased Transit Curves

TCE 009243464-01 P= 0.899462 Days  $T_0=132.414812$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009243464-01   P= 0.899503 Days    $T_0=132.388752$  (BKJD)

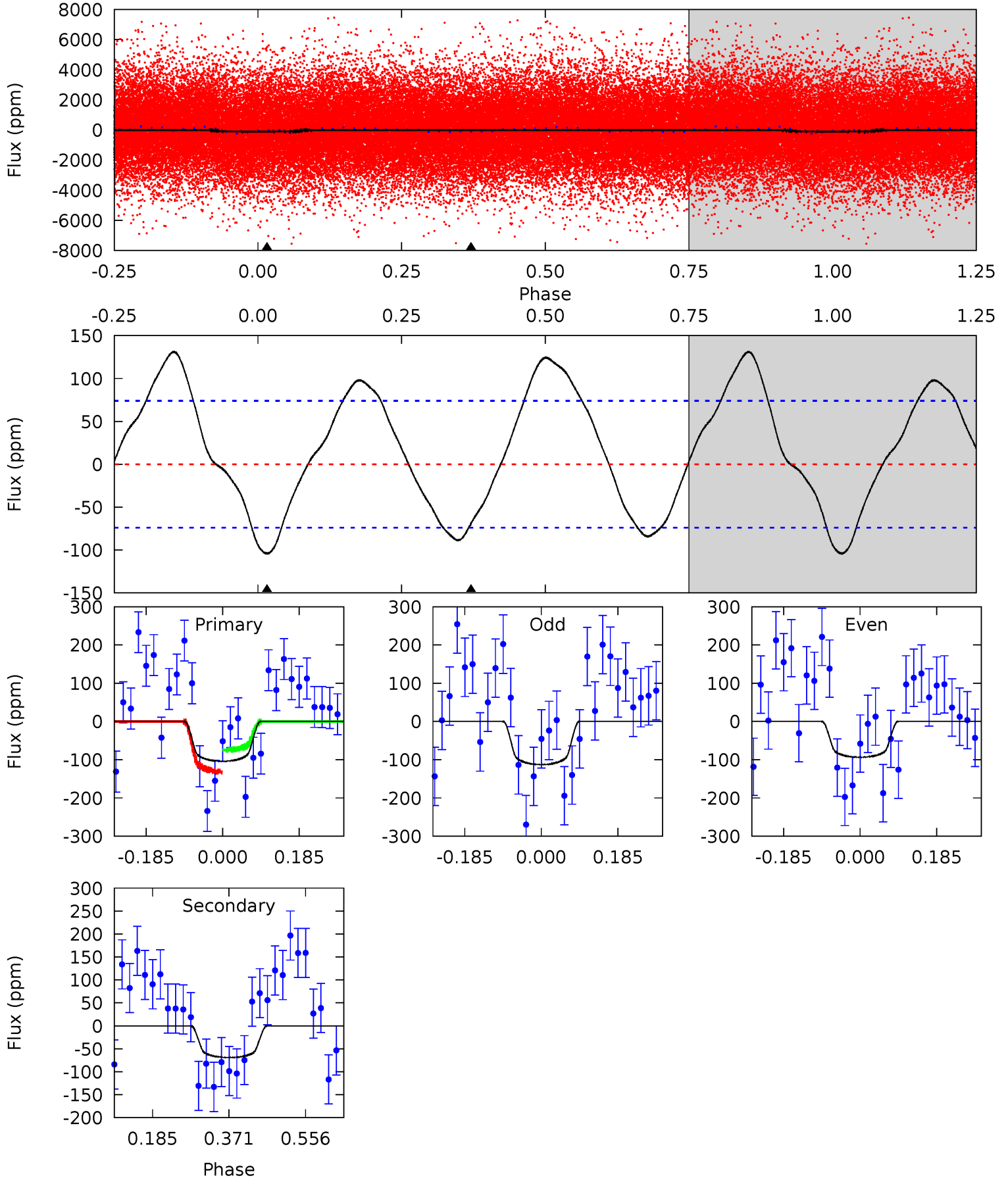




# DV Model-Shift Uniqueness Test

009243464-01, P = 0.899462 Days, E = 130.615888 Days

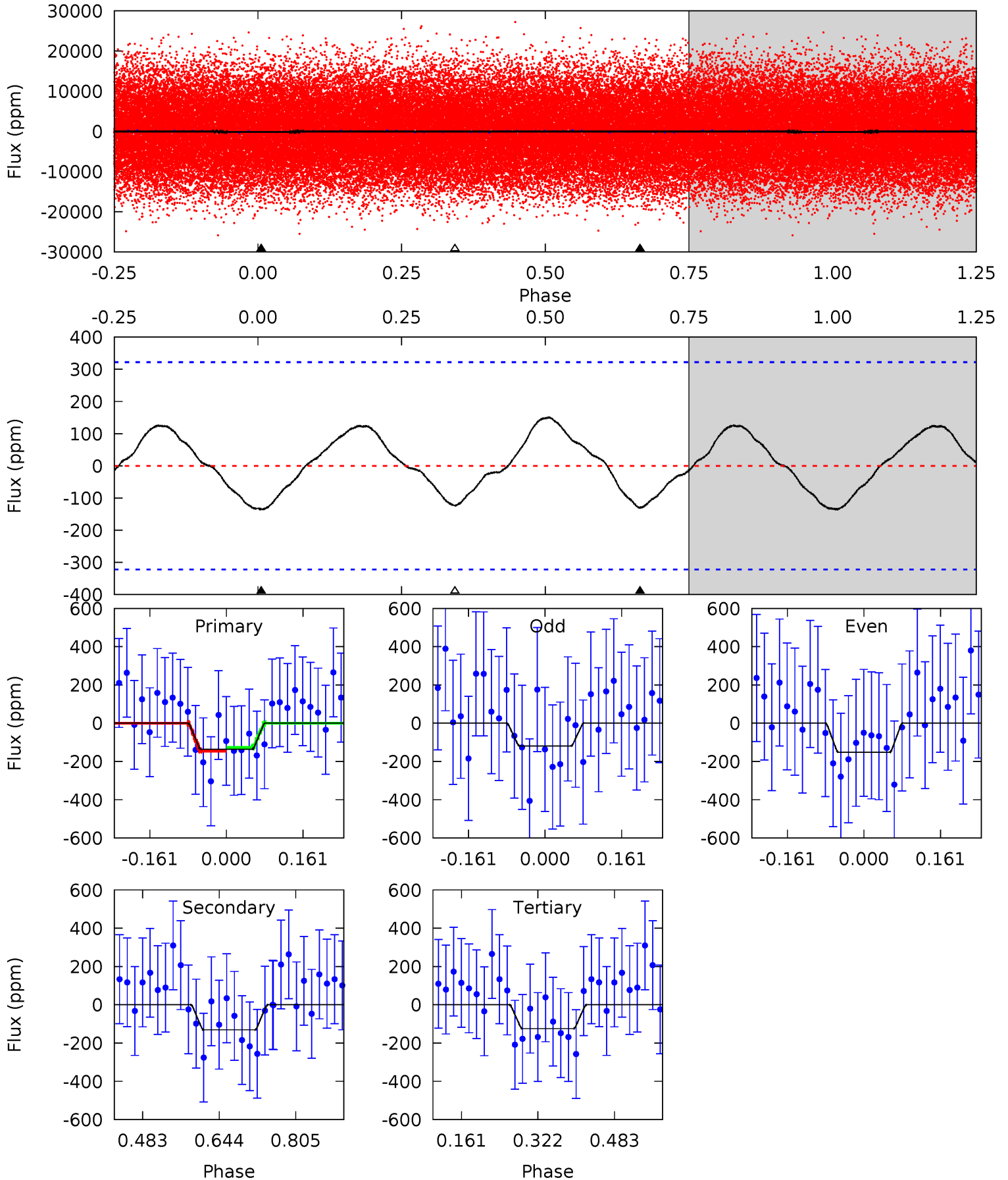
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.23	4.14	0	0	4.43	1.32	3.52	6.23	6.23	4.14	4.14	0.58	1.01	0.56	1.70



# Alt Model-Shift Uniqueness Test

009243464-01, P = 0.899503 Days, E = 131.489249 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
1.88	1.82	1.72	0	4.46	1.40	1.14	0.16	1.88	0.09	1.82	0.23	1.14	0.53	0.13





### Stellar Parameters For KIC 009243464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6837^{+214}_{-262}$	$3.497^{+0.637}_{-0.112}$	$-0.220^{+0.300}_{-0.300}$	$4.022^{+0.429}_{-2.574}$	$1.851^{+0.151}_{-0.605}$	$0.040^{+0.443}_{-0.009}$
	+3%/-4%	+18%/-3%	+136%/-136%	+11%/-64%	+8%/-33%	+1106%/-23%
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 009243464-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-69 \pm 17$	$5.22^{+2.59}_{-2.33}$	$5490^{+384}_{-841}$	$4650^{+1850}_{-6718}$	$0.670^{+1.634}_{-0.371}$
Alt.	$-131 \pm 72$	$4.30^{+2.61}_{-2.19}$	$5526^{+373}_{-902}$	$6358^{+3963}_{-2024}$	$1.662^{+5.625}_{-1.148}$

$T_{max}$  = 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

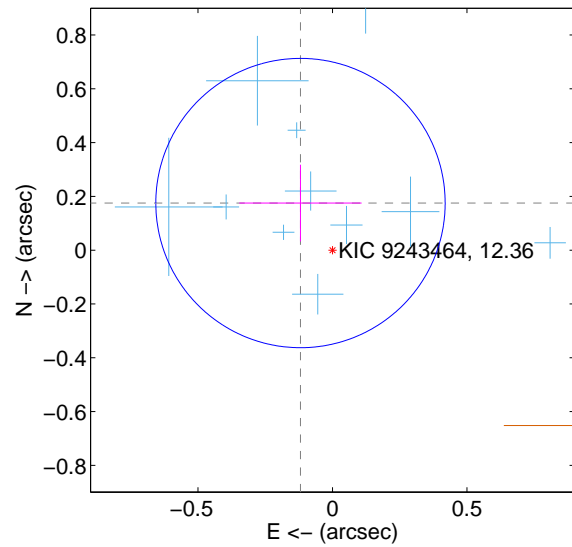
Supplemental centroid analysis for 009243464-01. Kepler magnitude: 12.36. Transit SNR 11.56

There are 14 quarters with good PRF difference image offsets

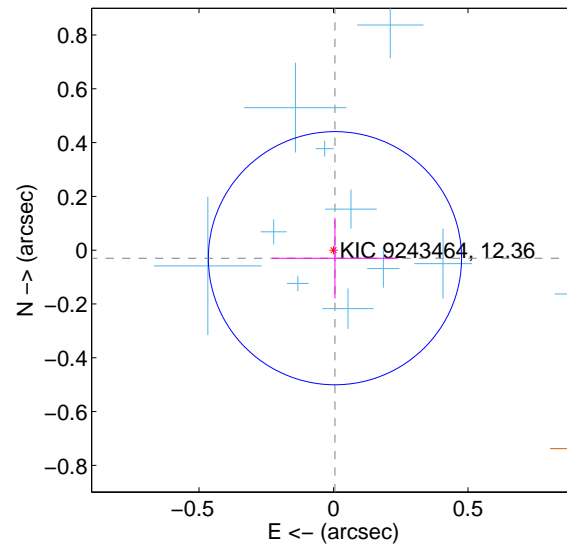
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.212 \pm 0.179$	1.18	$0.119 \pm 0.227$	$0.175 \pm 0.143$
PRF-fit source offset from KIC position	$0.030 \pm 0.157$	0.19	$-0.005 \pm 0.234$	$-0.030 \pm 0.150$
photometric centroid source offset	$0.11 \pm 0.11$	1.04	$0.07 \pm 0.12$	$-0.09 \pm 0.10$

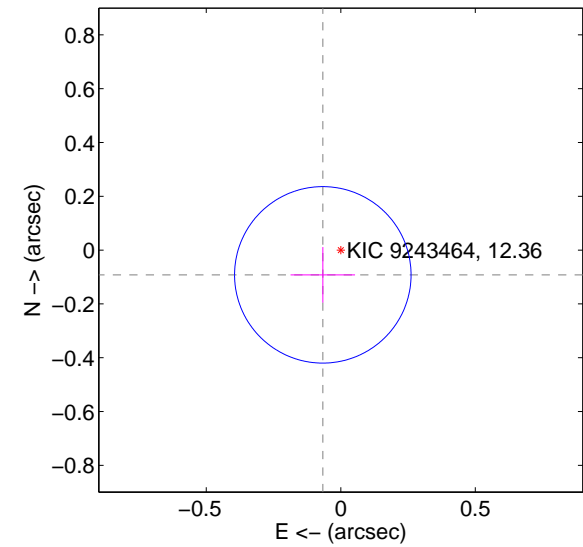
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

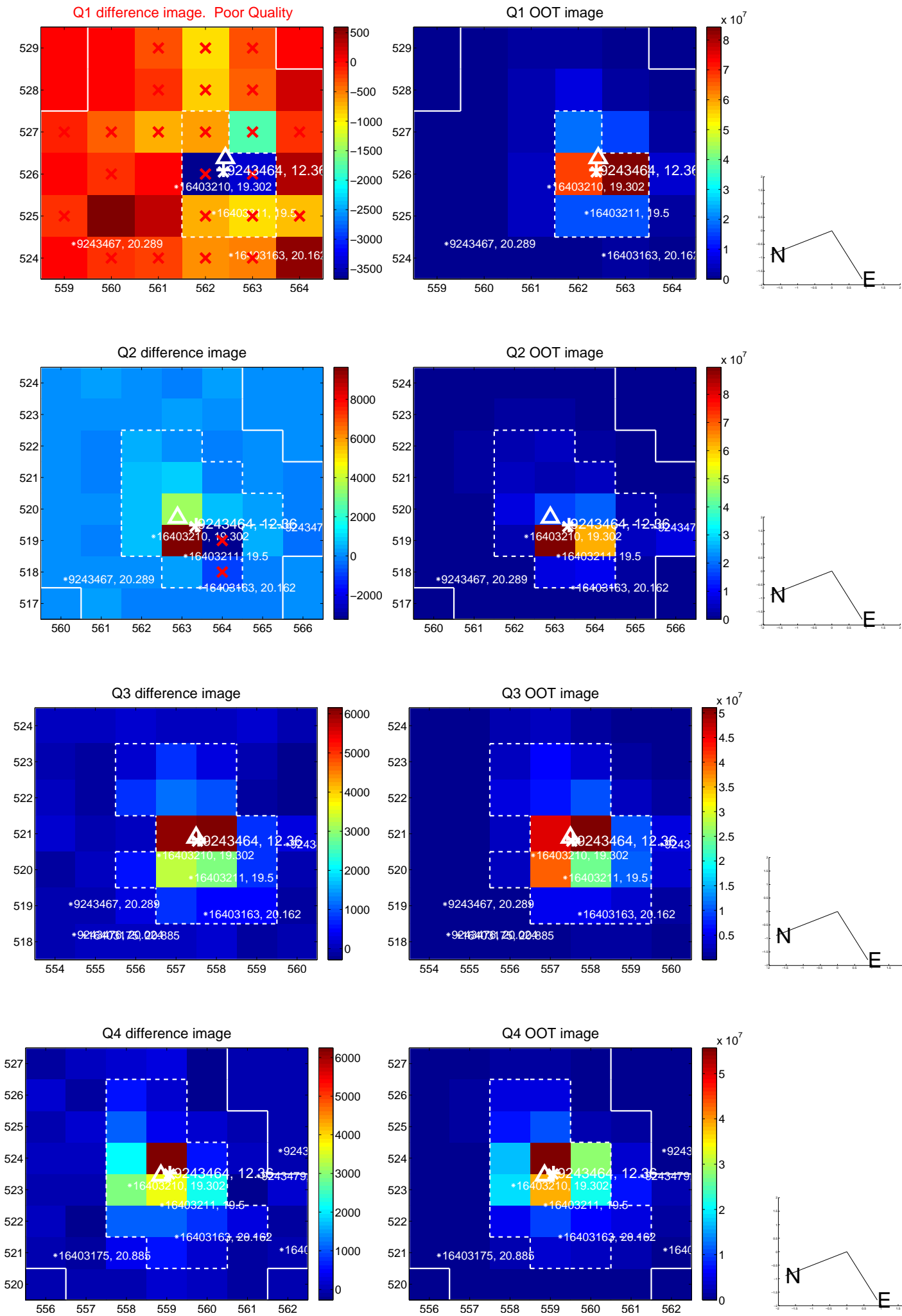


offset from photometric centroids

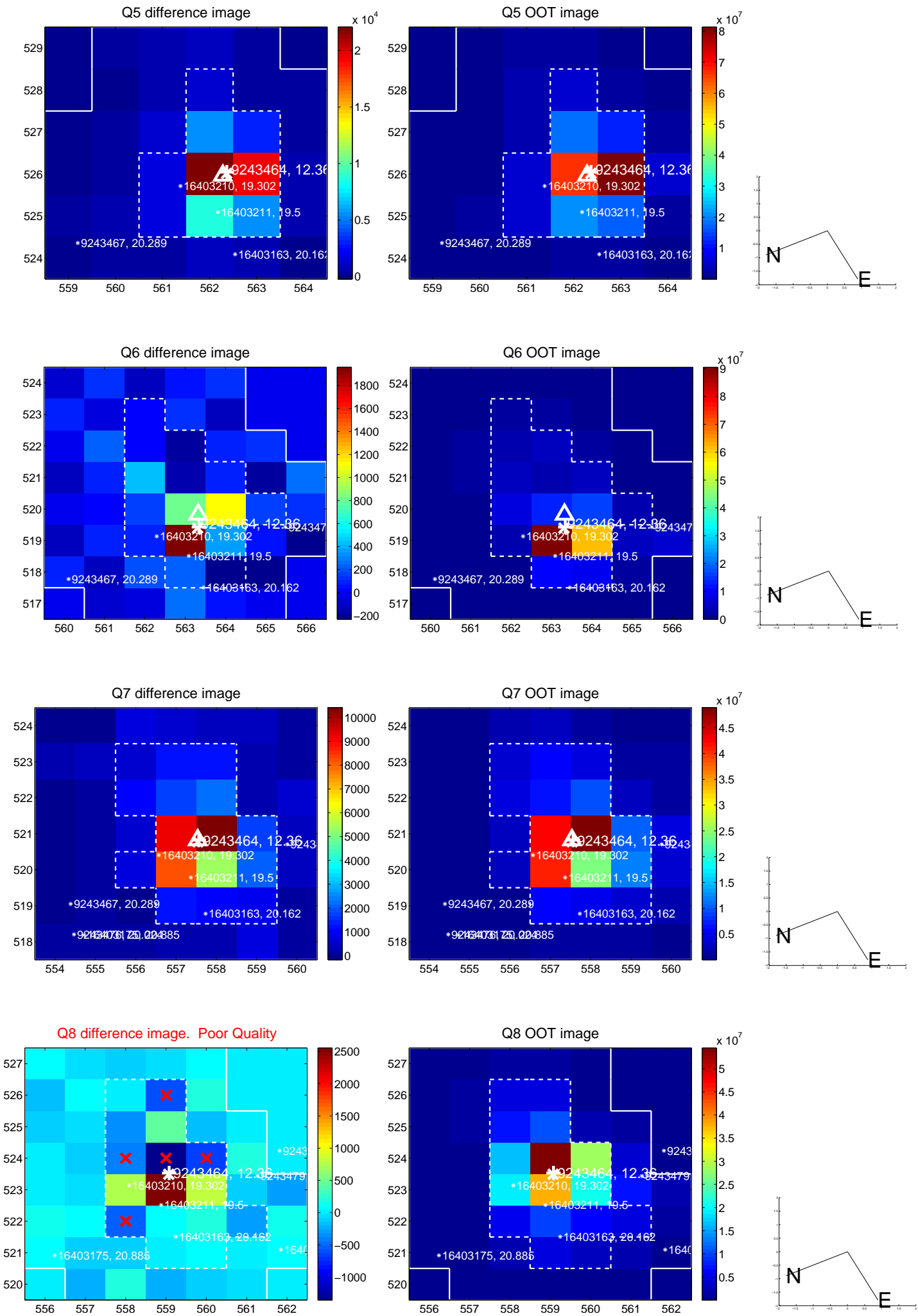


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

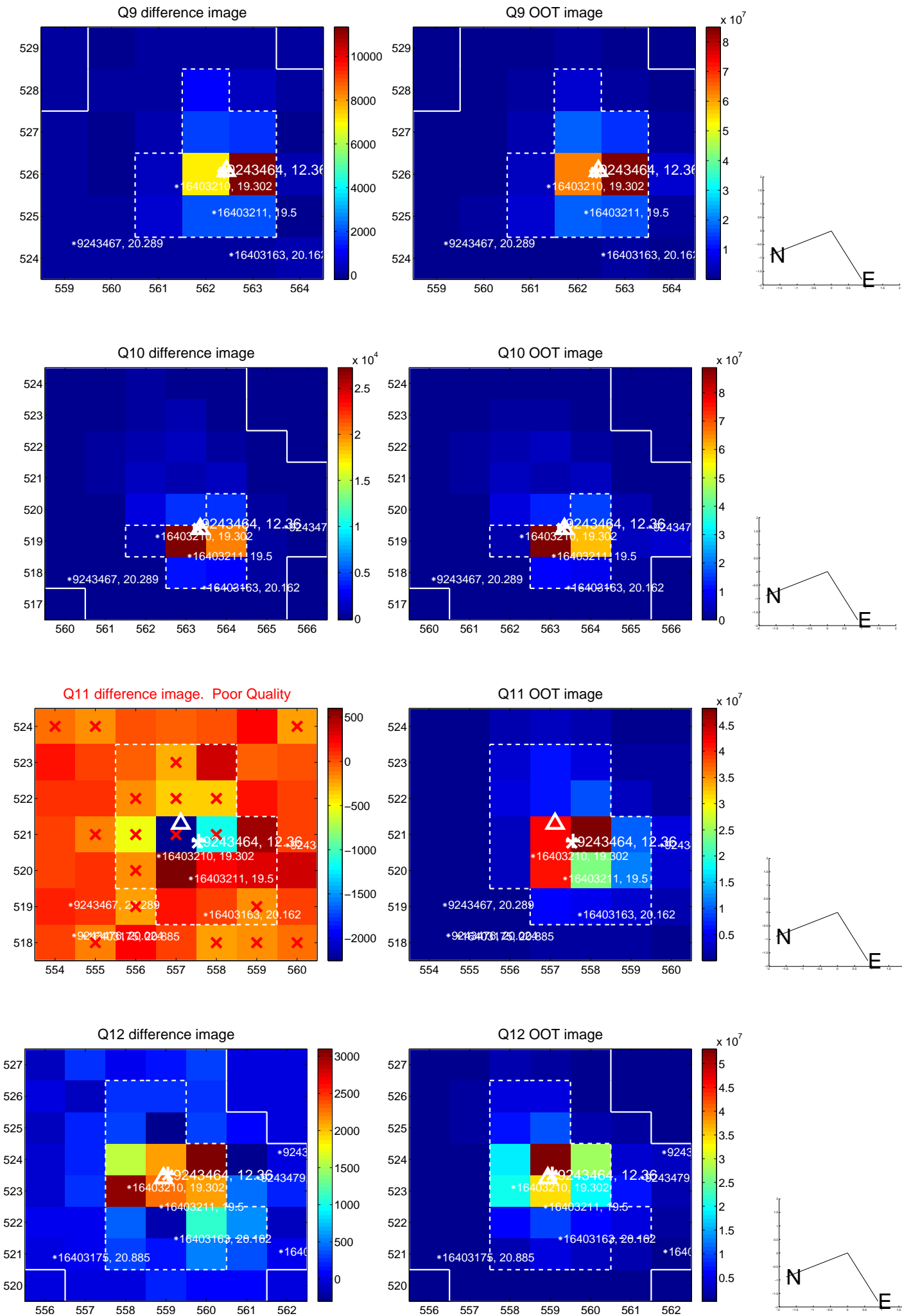


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

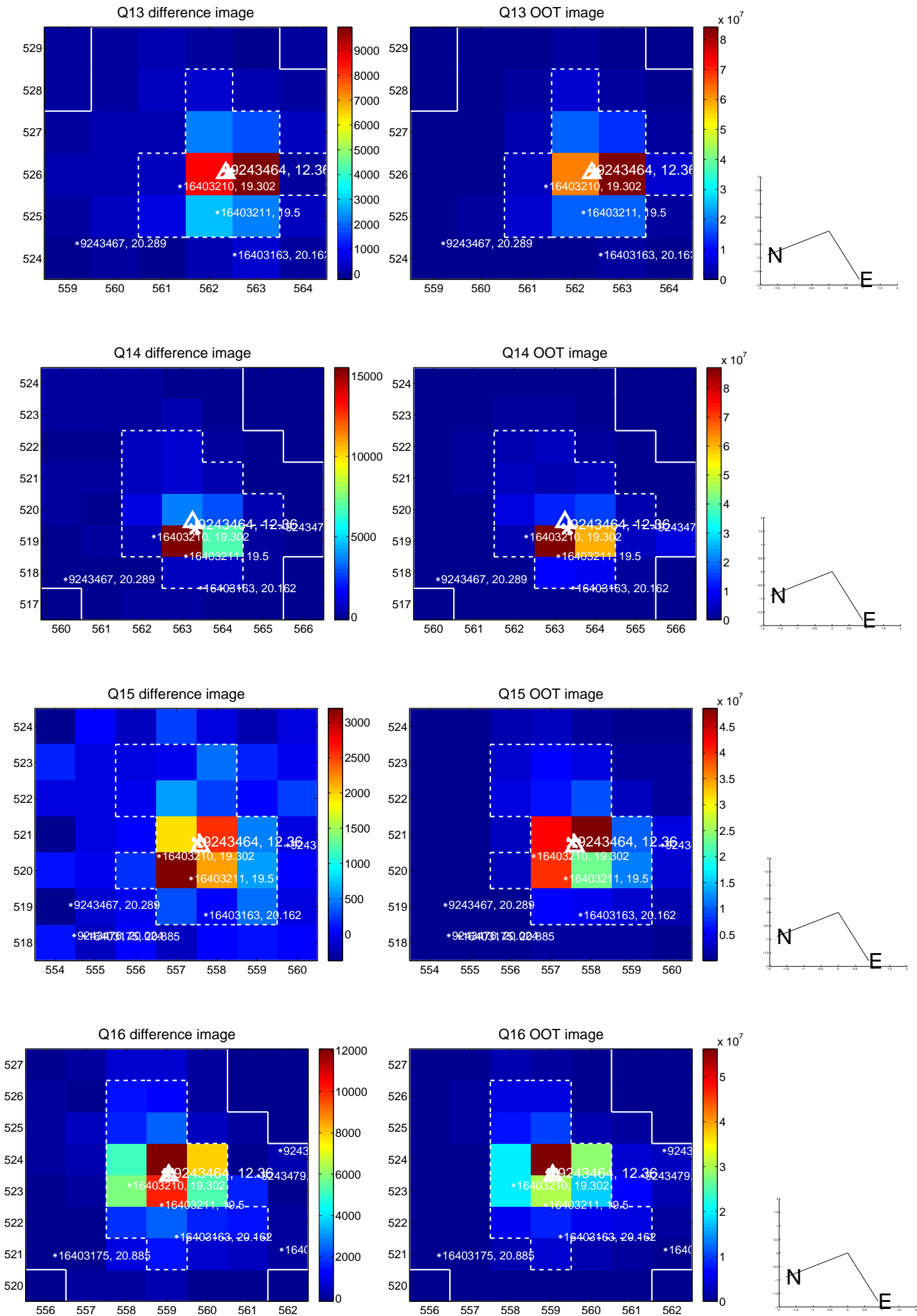




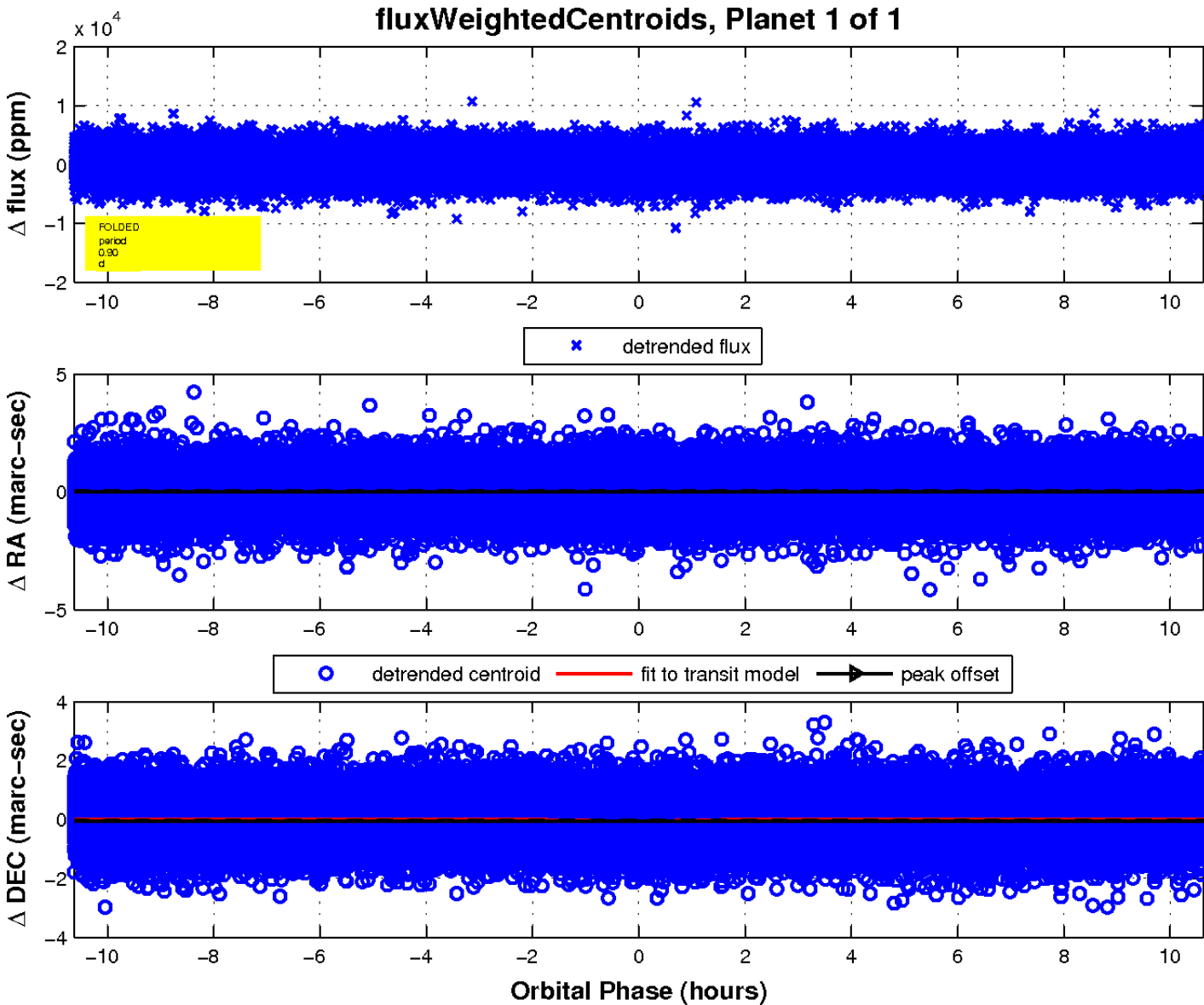
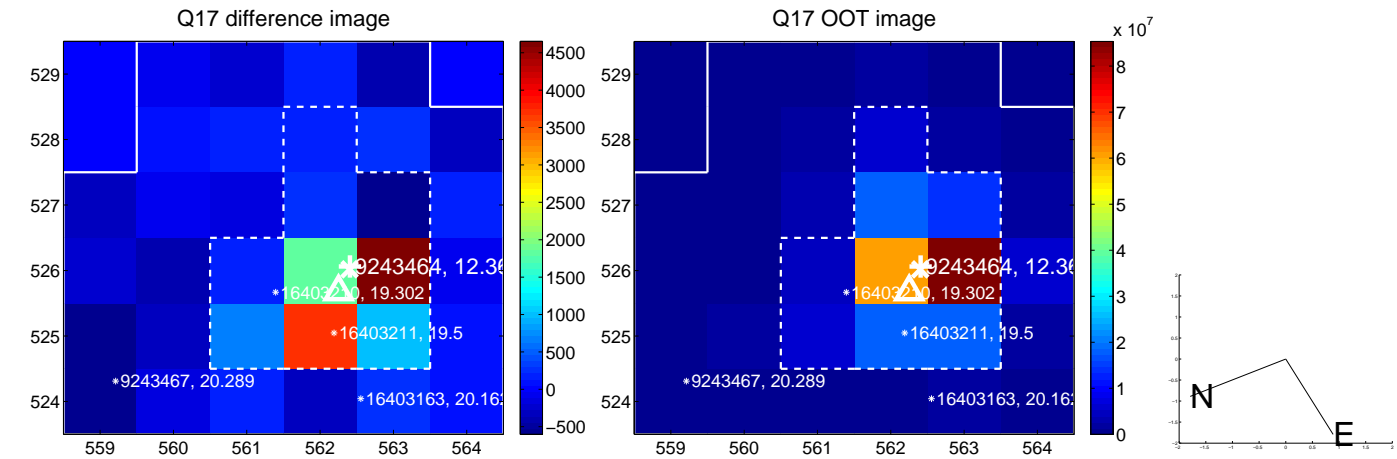
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

