

# KIC 009340460

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009340460-01	OBS	8181.01	388.512819	352.295608	111.0	10.185	8.7	8.2	1.82	6164	2.26	3.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009340460-01	OBS	FP	0.01	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

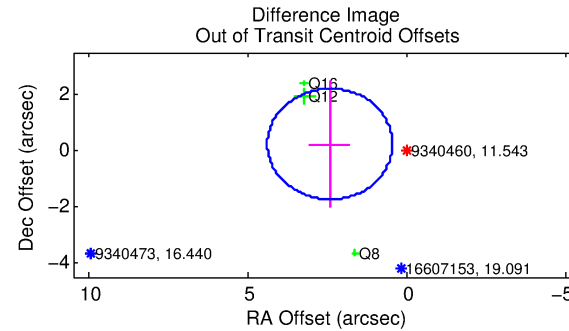
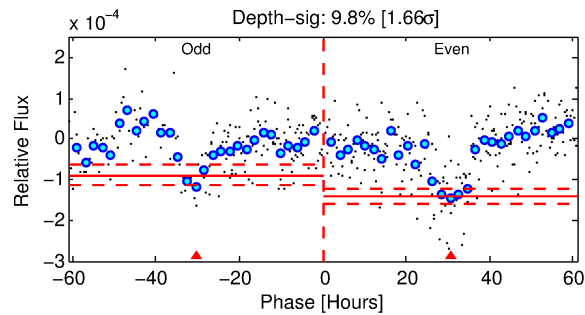
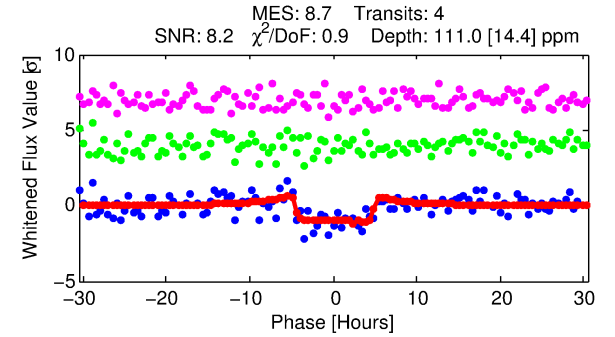
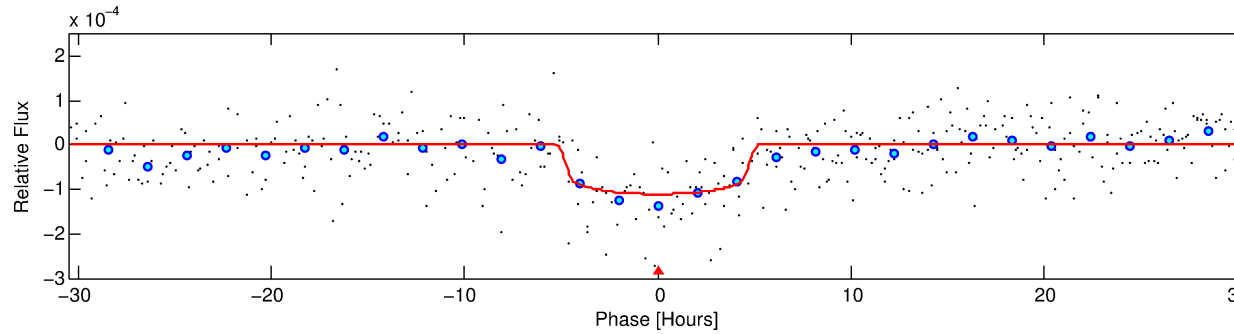
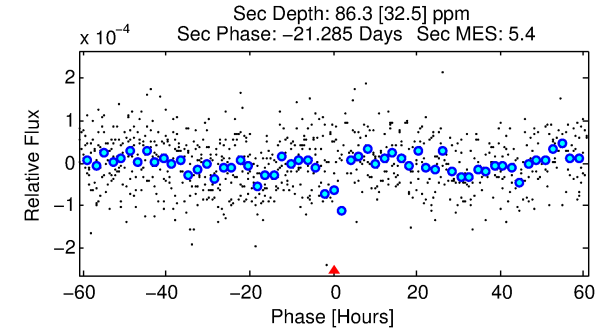
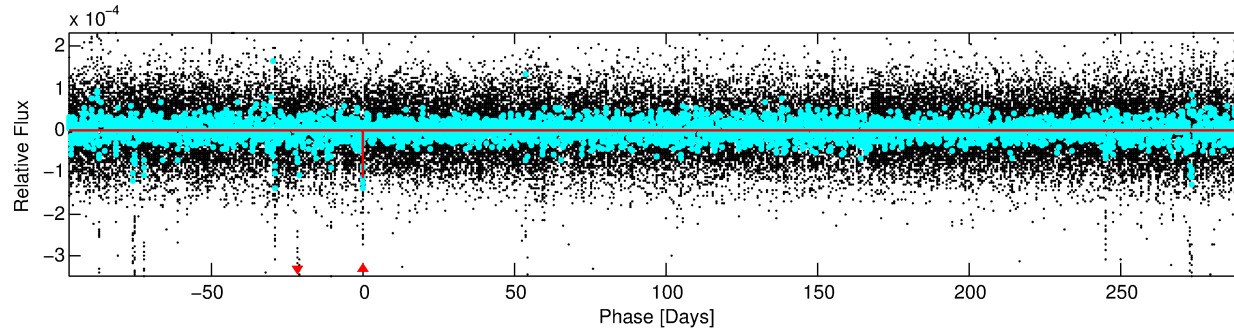
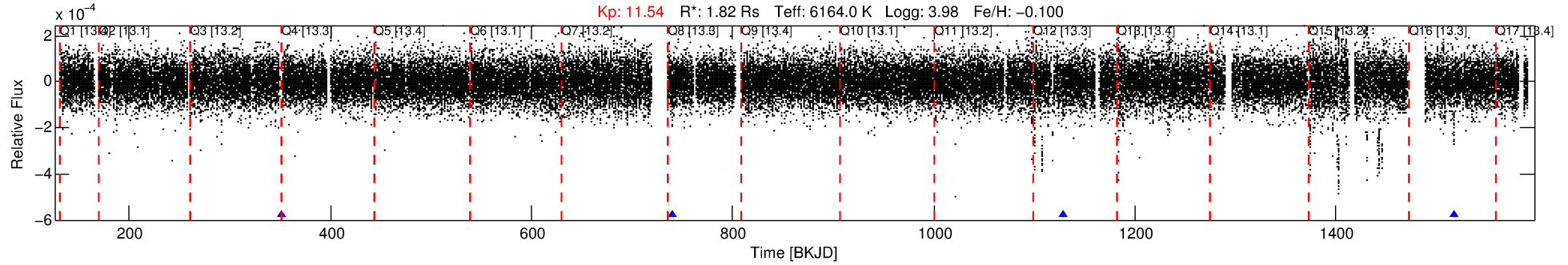
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009340460-01

No Significant Match Found

# DV One-Page Summary

KIC: 9340460 Candidate: 1 of 1 Period: 388.513 d



## DV Fit Results:

Period = 388.51282 [0.01072] d  
Epoch = 352.2956 [0.0162] BKJD  
Rp/R\* = 0.0113 [0.0021]  
a/R\* = 134.47 [124.10]  
b = 0.90 [0.19]  
Seff = 3.56 [2.27]  
Teq = 350 [56] K  
Rp = 2.26 [0.98] Re  
a = 1.0994 [0.4216] AU  
Ag = 11250.93 [9162.26] [1.23σ]  
Teffp = 5579 [771] K [6.76σ]

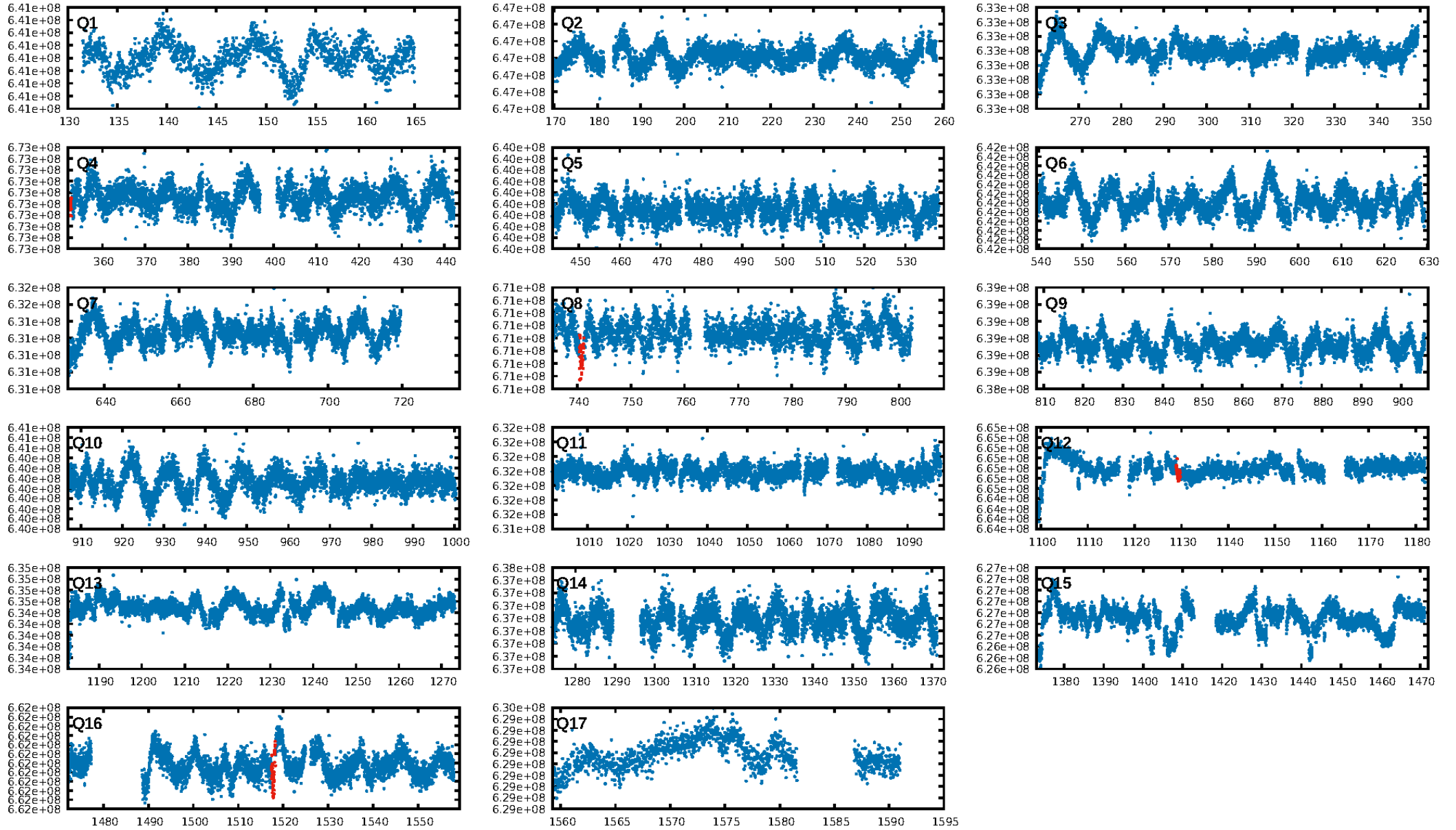
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.91e-10**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -4.54  
Centroid-sig: 25.7%  
Centroid-so: 3.011 arcsec [1.27σ]  
**OotOffset-rm: 2.437 arcsec [3.72σ]**  
**KicOffset-rm: 2.350 arcsec [3.75σ]**  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

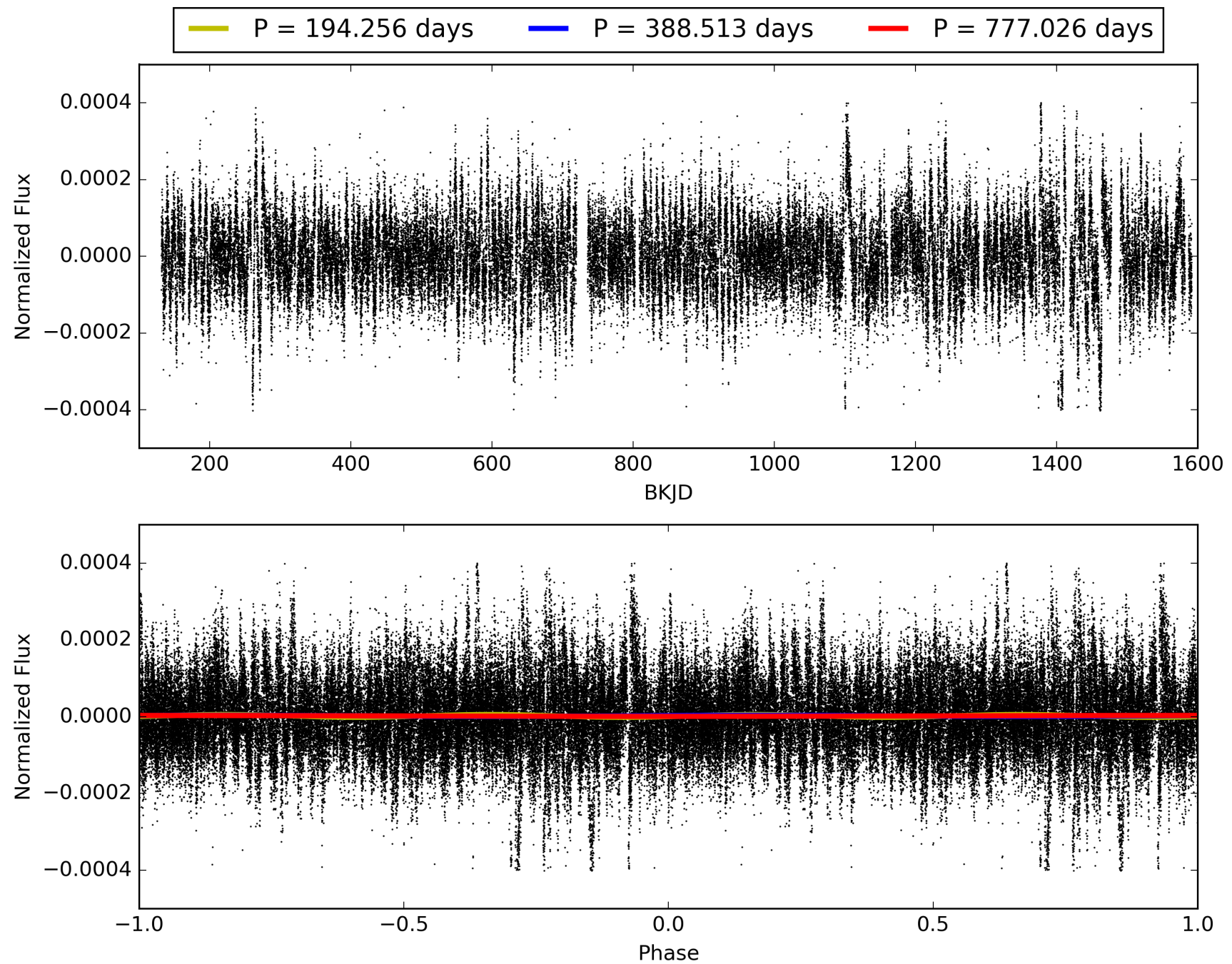
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:19:08 Z

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

# TCE 009340460-01, PDC Light Curves

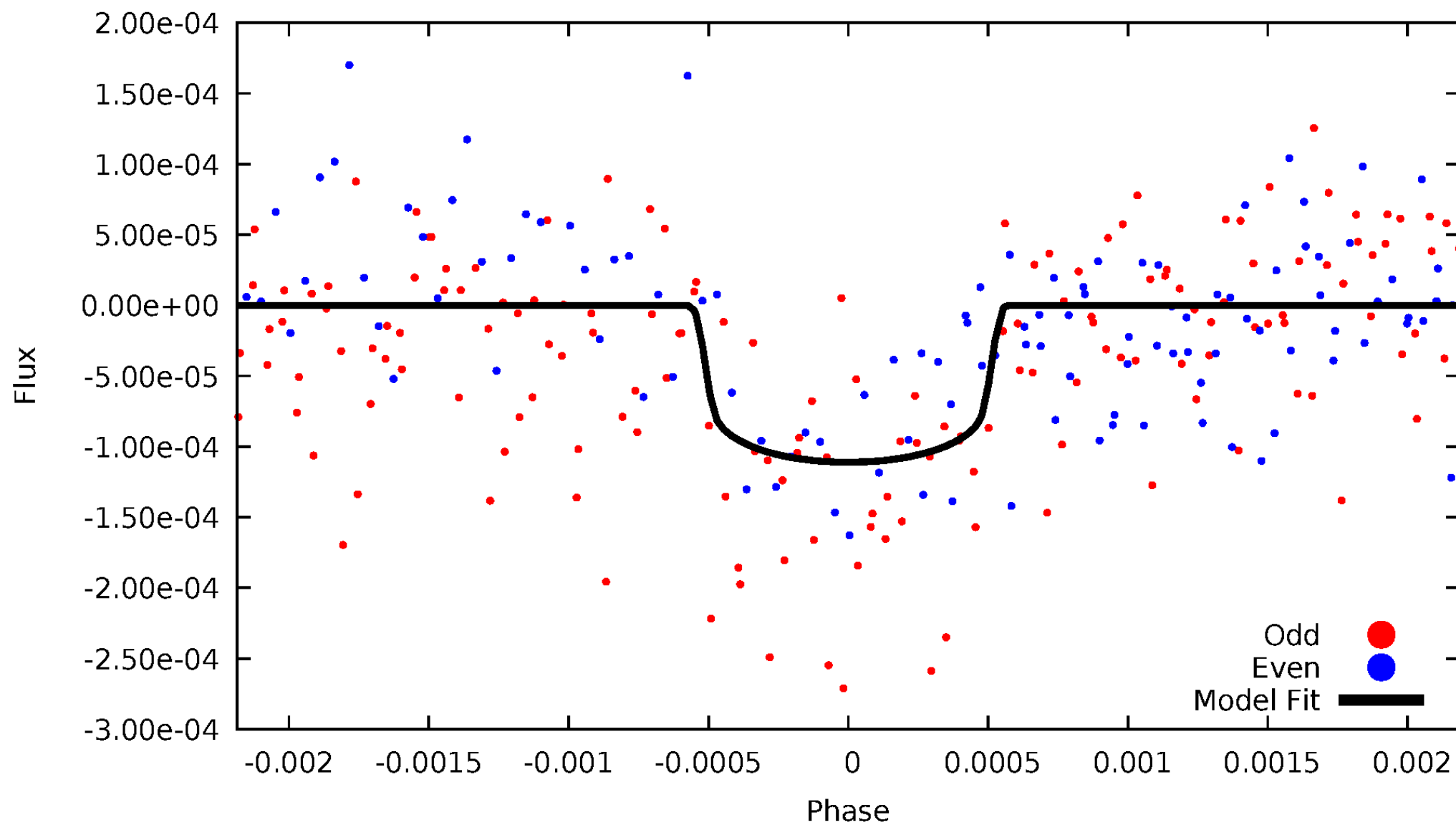


TCE 009340460-01



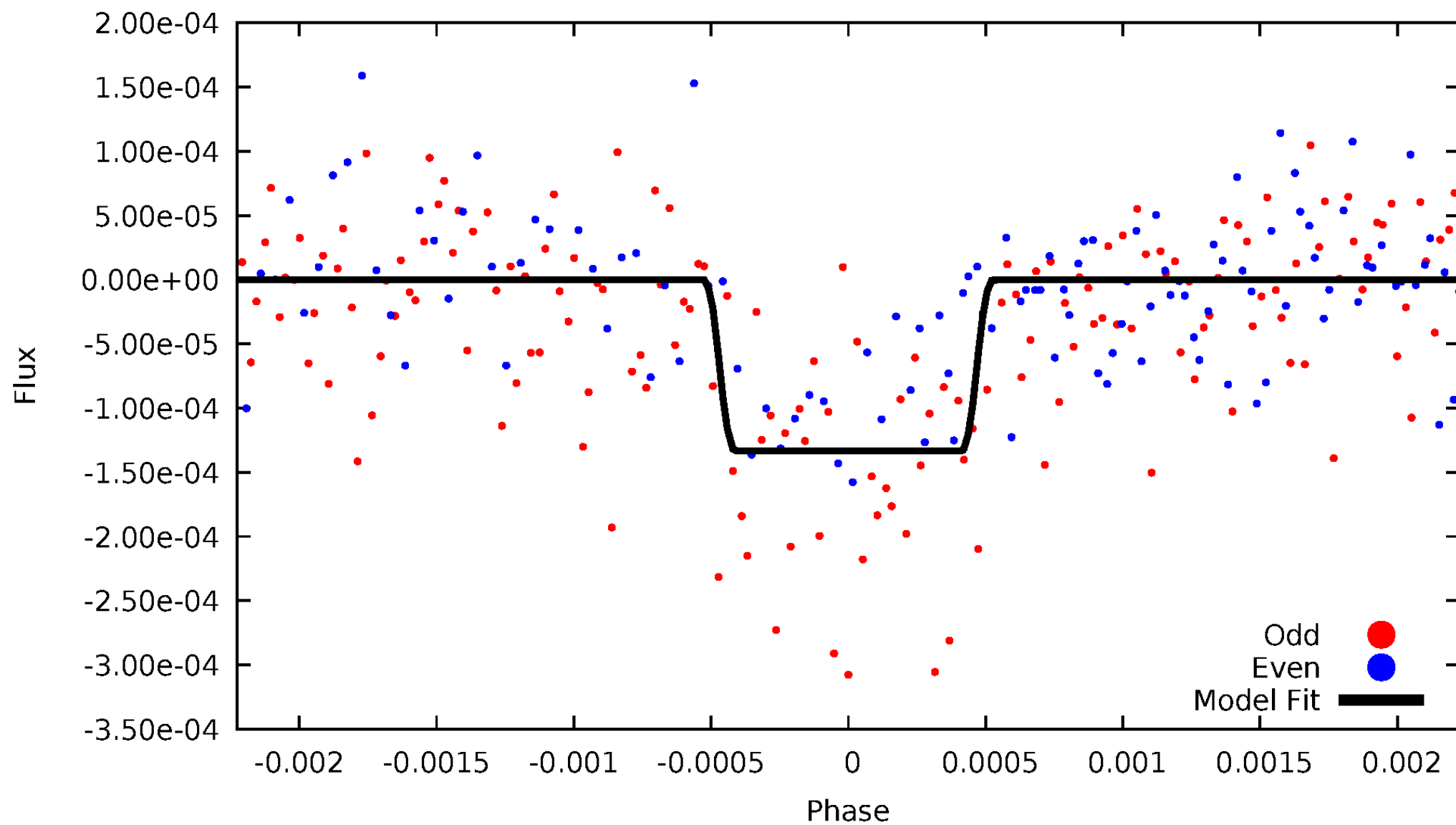
# DV Odd/Even

TCE 009340460-01



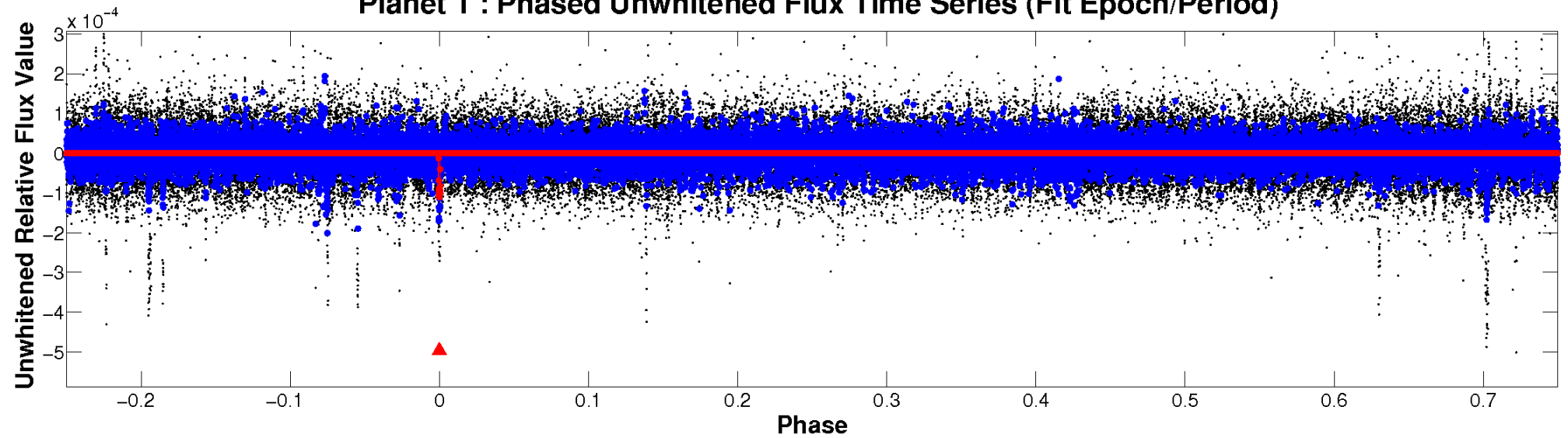
# ALT Odd/Even

TCE 009340460-01

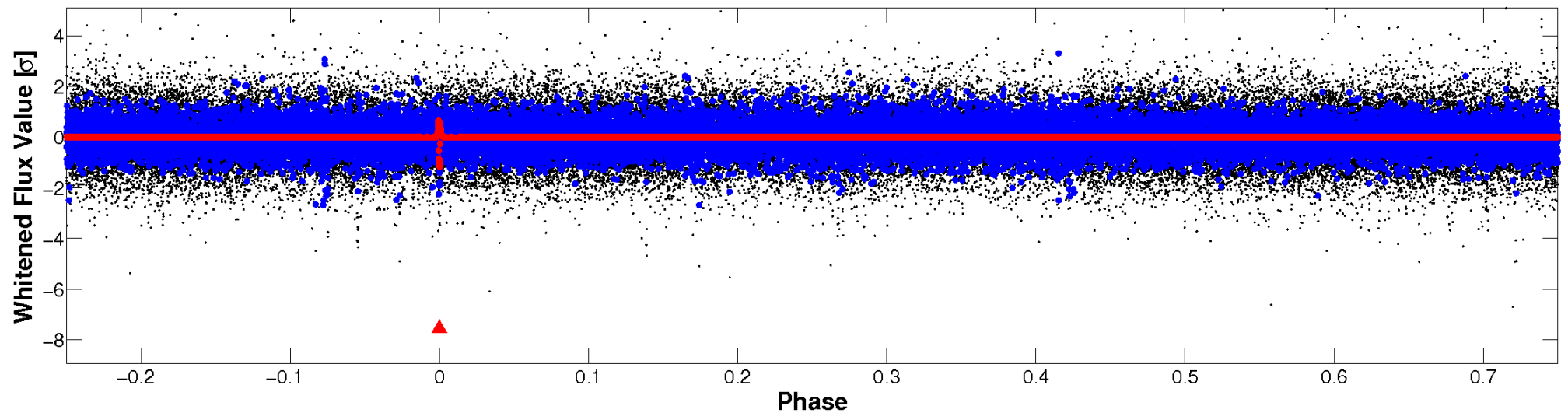


# Non-Whitened Vs. Whitened Light Curve

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

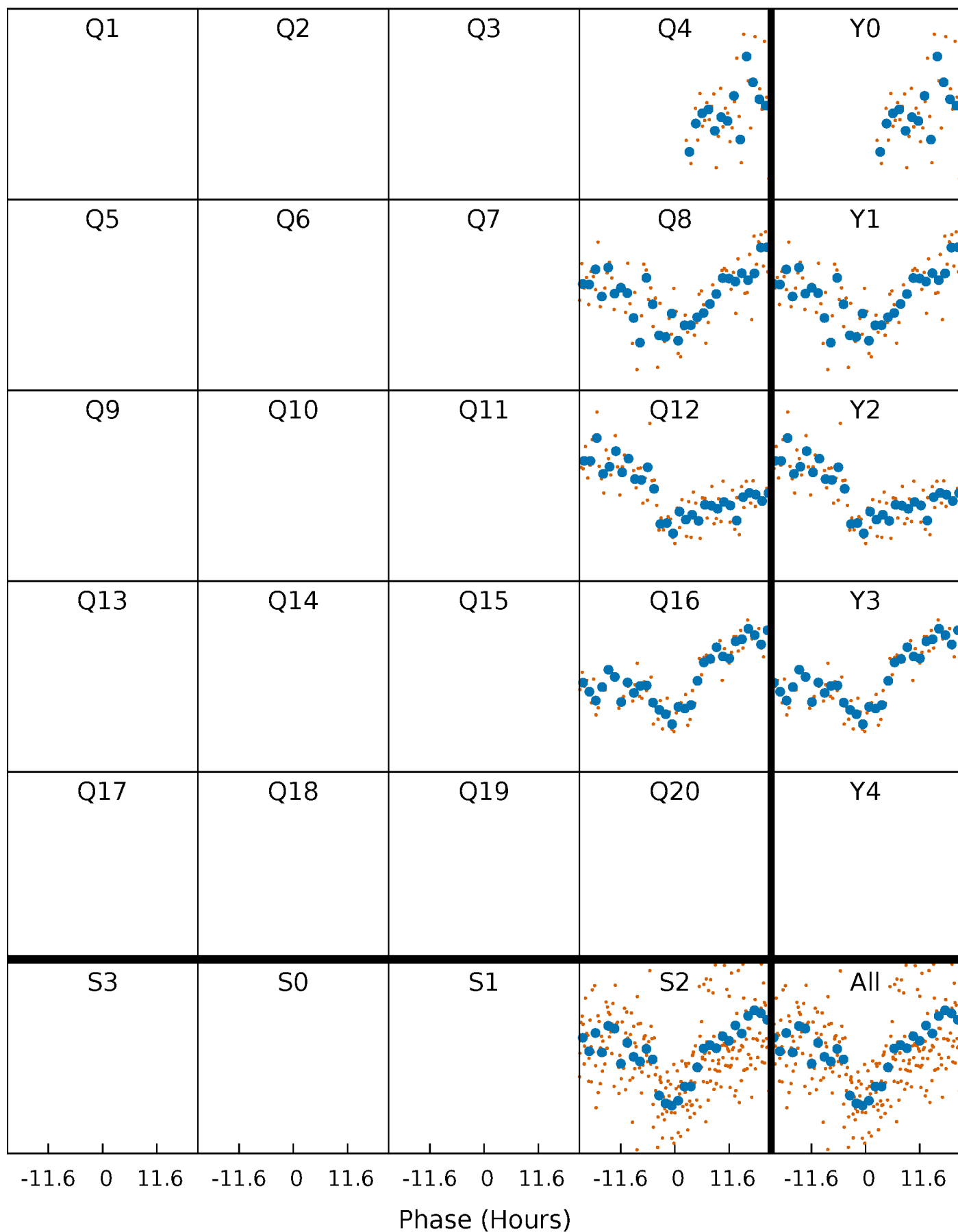


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



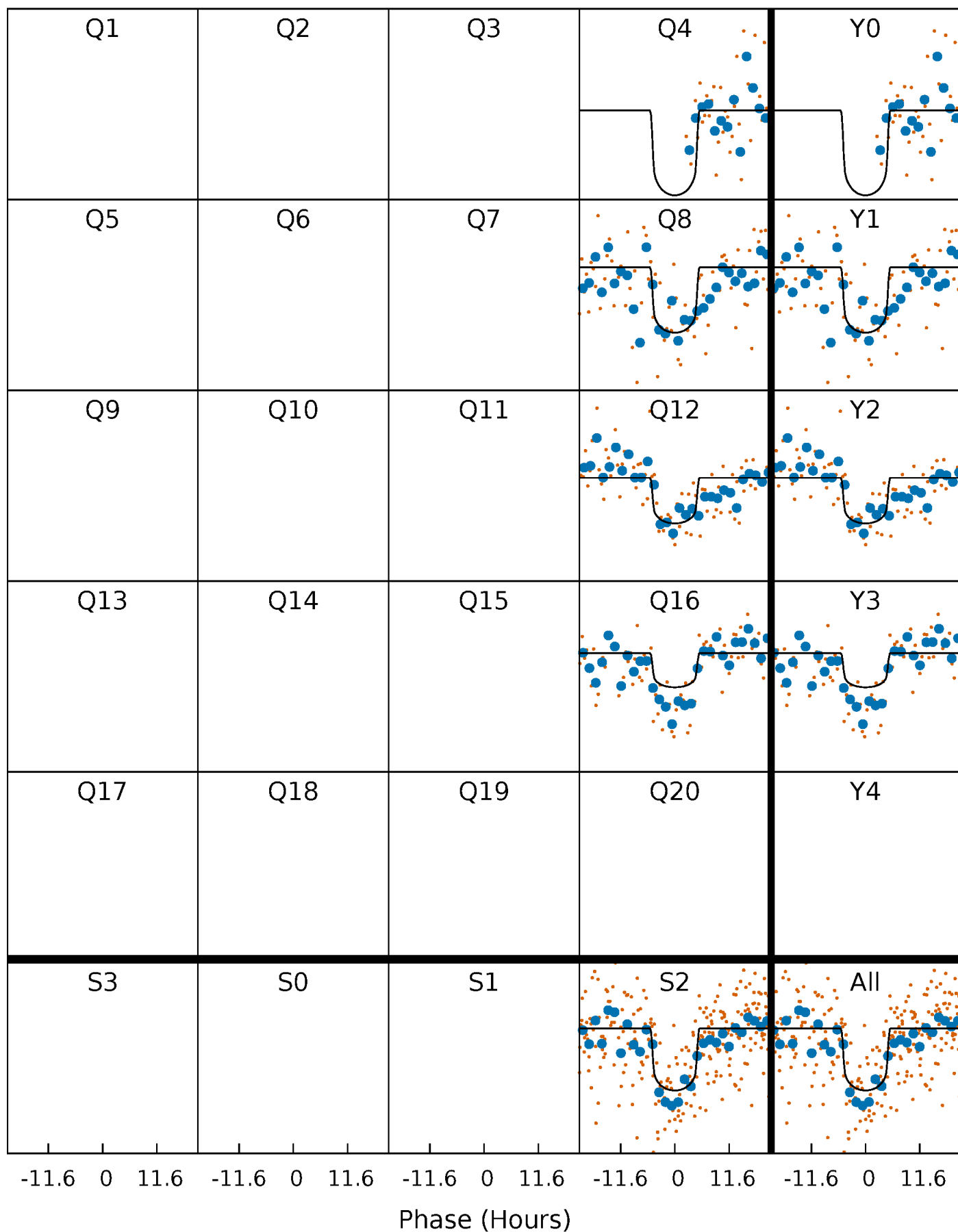
# PDC Quarter-Phased Transit Curves

TCE 009340460-01 P=388.512819 Days  $T_0=352.295608$  (BKJD)



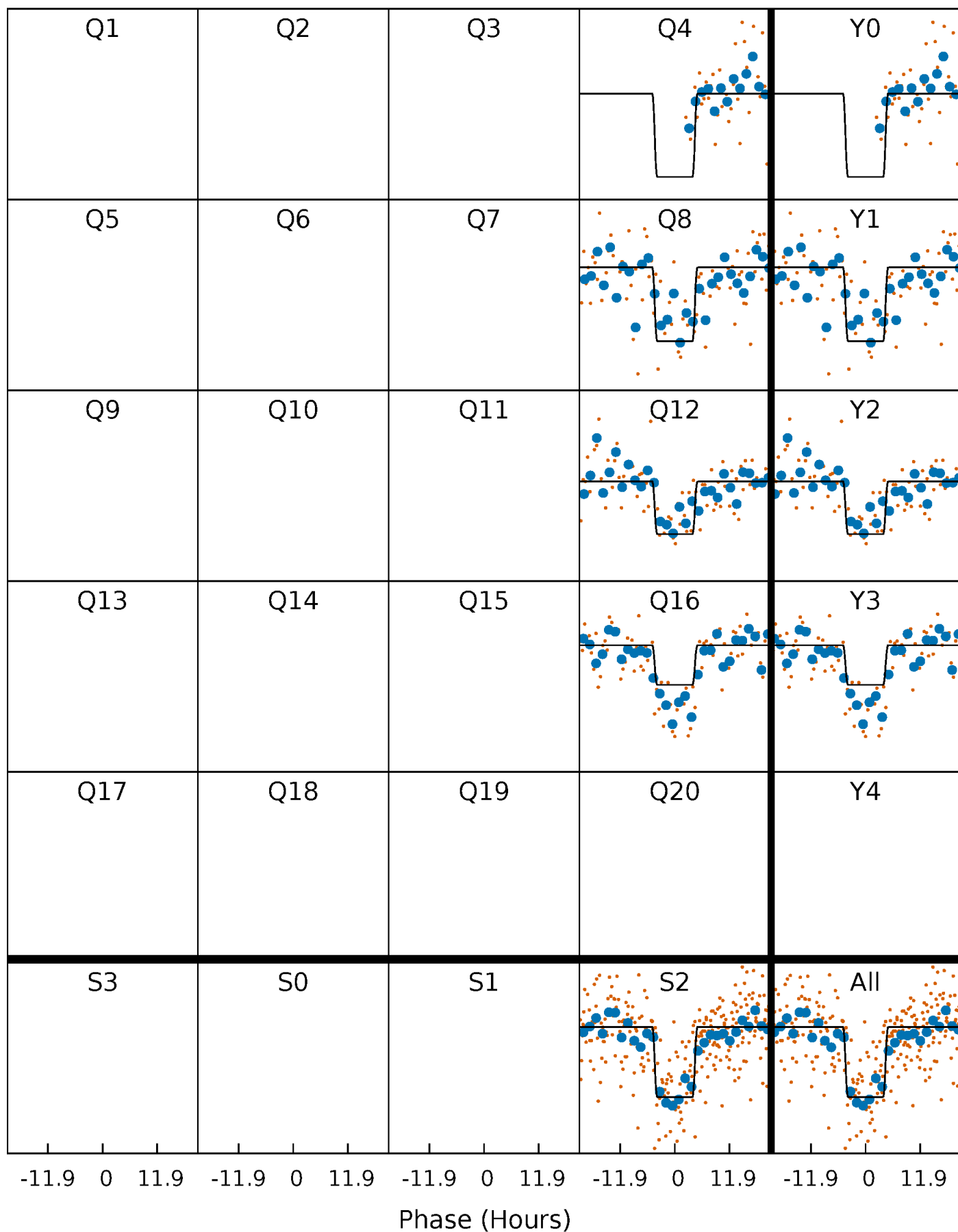
# DV Quarter-Phased Transit Curves

TCE 009340460-01 P=388.512819 Days  $T_0=352.295608$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

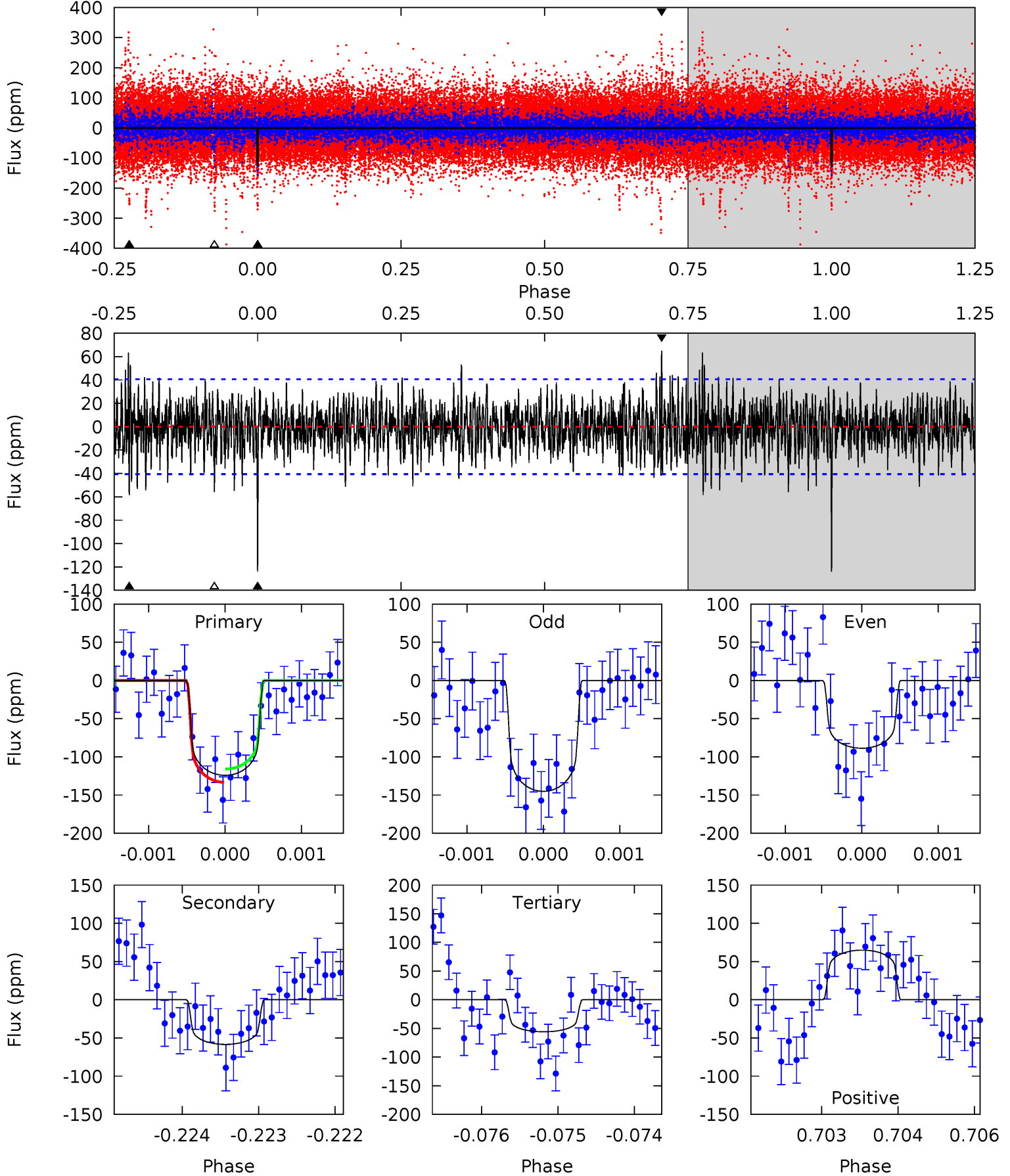
TCE 009340460-01 P=388.510087 Days  $T_0=352.296543$  (BKJD)



# DV Model-Shift Uniqueness Test

009340460-01, P = 388.512819 Days, E = 352.295608 Days

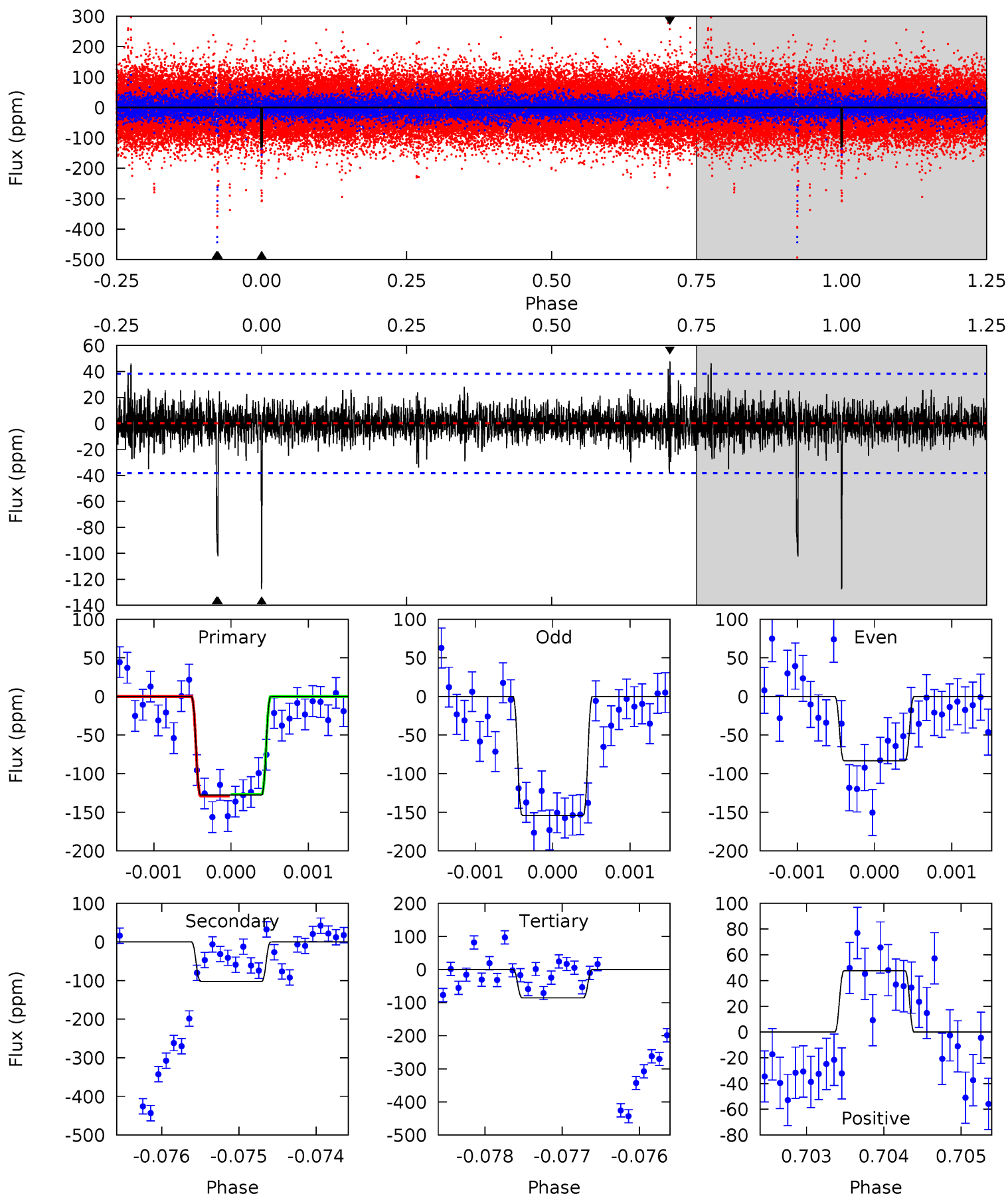
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	7.81	7.47	8.68	5.43	3.26	2.11	9.12	7.91	0.34	-0.87	3.68	1.06	0.34	1.16



# Alt Model-Shift Uniqueness Test

009340460-01, P = 388.510087 Days, E = 352.296543 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
18.2	14.6	12.2	6.77	5.45	3.28	1.23	5.97	11.4	2.35	7.78	4.91	1.18	0.27	0.17



### Stellar Parameters For KIC 009340460

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6164^{+195}_{-238}$	$3.985^{+0.364}_{-0.130}$	$-0.100^{+0.250}_{-0.300}$	$1.825^{+0.479}_{-0.719}$	$1.173^{+0.179}_{-0.198}$	$0.272^{+0.785}_{-0.122}$
	+3%/-4%	+9%/-3%	+250%/-300%	+26%/-39%	+15%/-17%	+289%/-45%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 009340460-01 / KOI 8181.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-58 \pm 7$	$2.15^{+0.55}_{-0.60}$	$480^{+36}_{-53}$	$5112^{+591}_{-413}$	$8446^{+8044}_{-3175}$
Alt.	$-102 \pm 7$	$2.13^{+0.61}_{-0.53}$	$478^{+37}_{-52}$	$5774^{+619}_{-467}$	$14876^{+11690}_{-5682}$

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

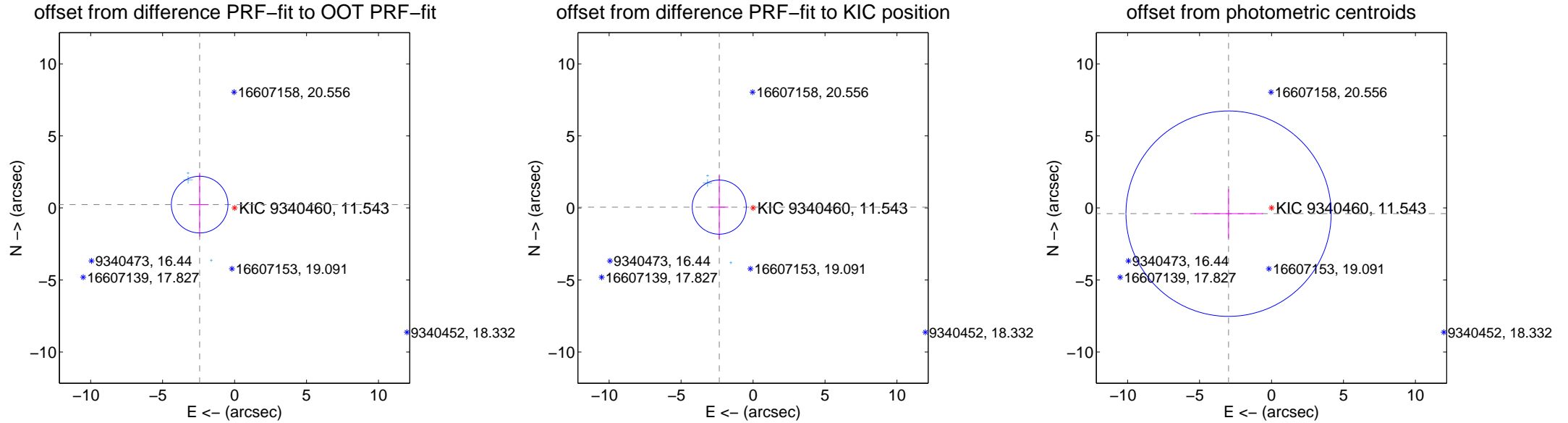
## DV Centroid Data

Supplemental centroid analysis for 009340460-01. **Kepler magnitude: 11.54.** Transit SNR 8.16

**There are 3 quarters with good PRF difference image offsets**

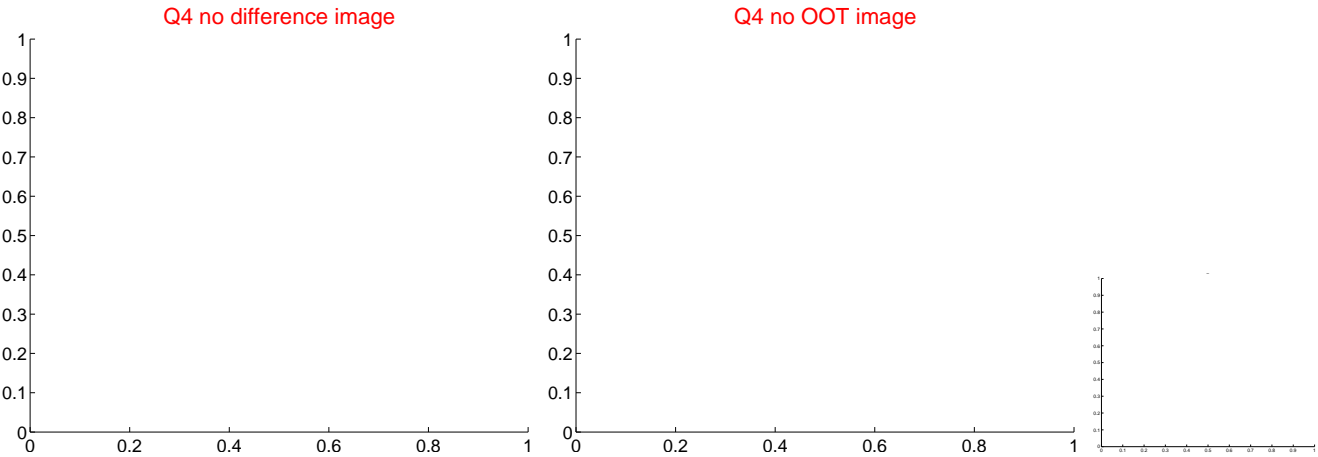
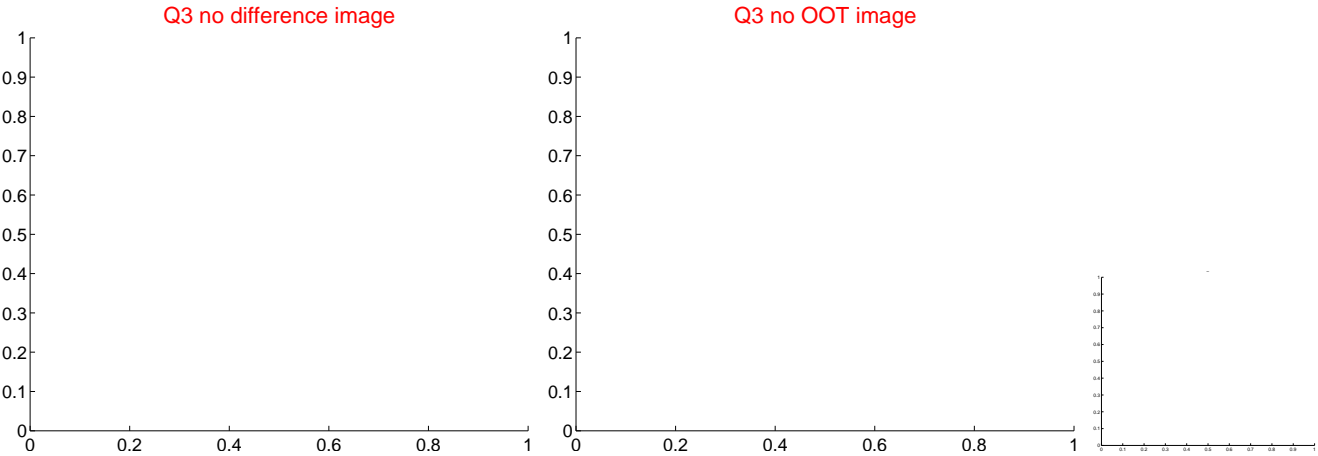
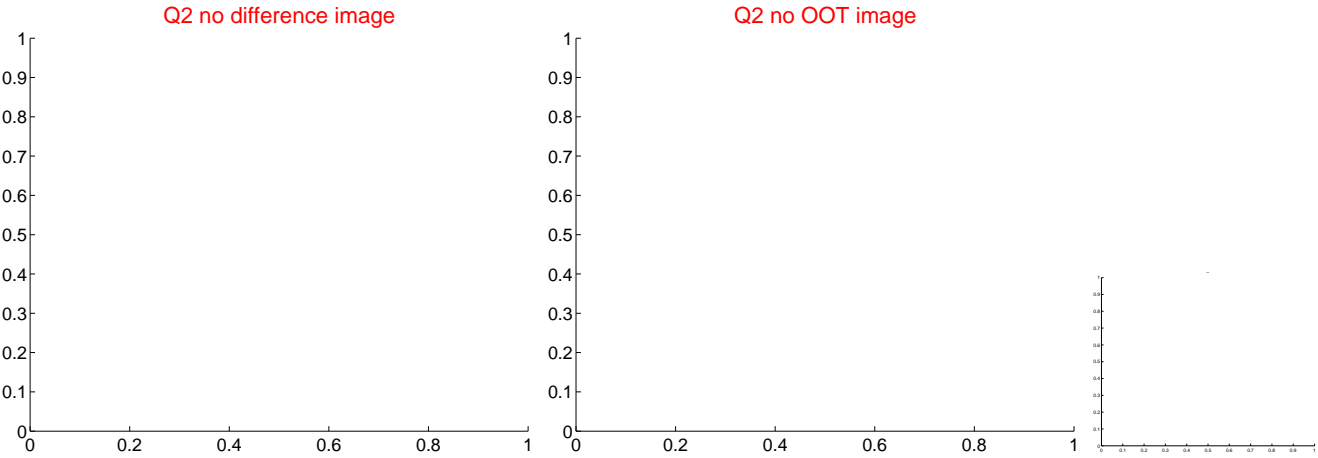
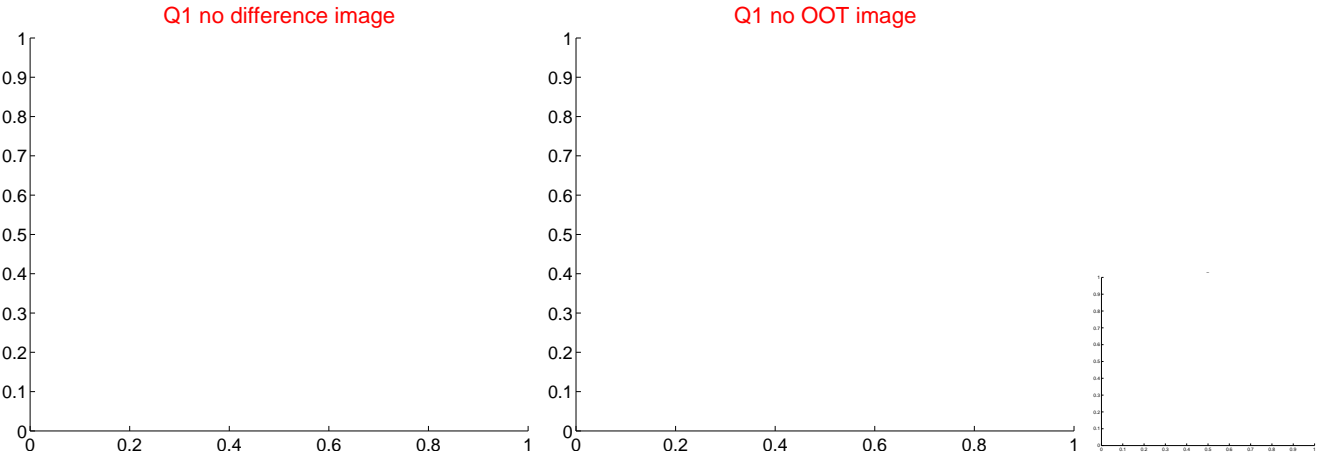
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.437 \pm 0.656</math></b>	<b>3.72</b>	$2.426 \pm 0.624$	$0.233 \pm 2.220$
PRF-fit source offset from KIC position	<b><math>2.350 \pm 0.626</math></b>	<b>3.75</b>	$2.349 \pm 0.624$	$0.057 \pm 2.211$
photometric centroid source offset	$3.01 \pm 2.38$	1.27	$2.98 \pm 2.39$	$-0.40 \pm 1.70$

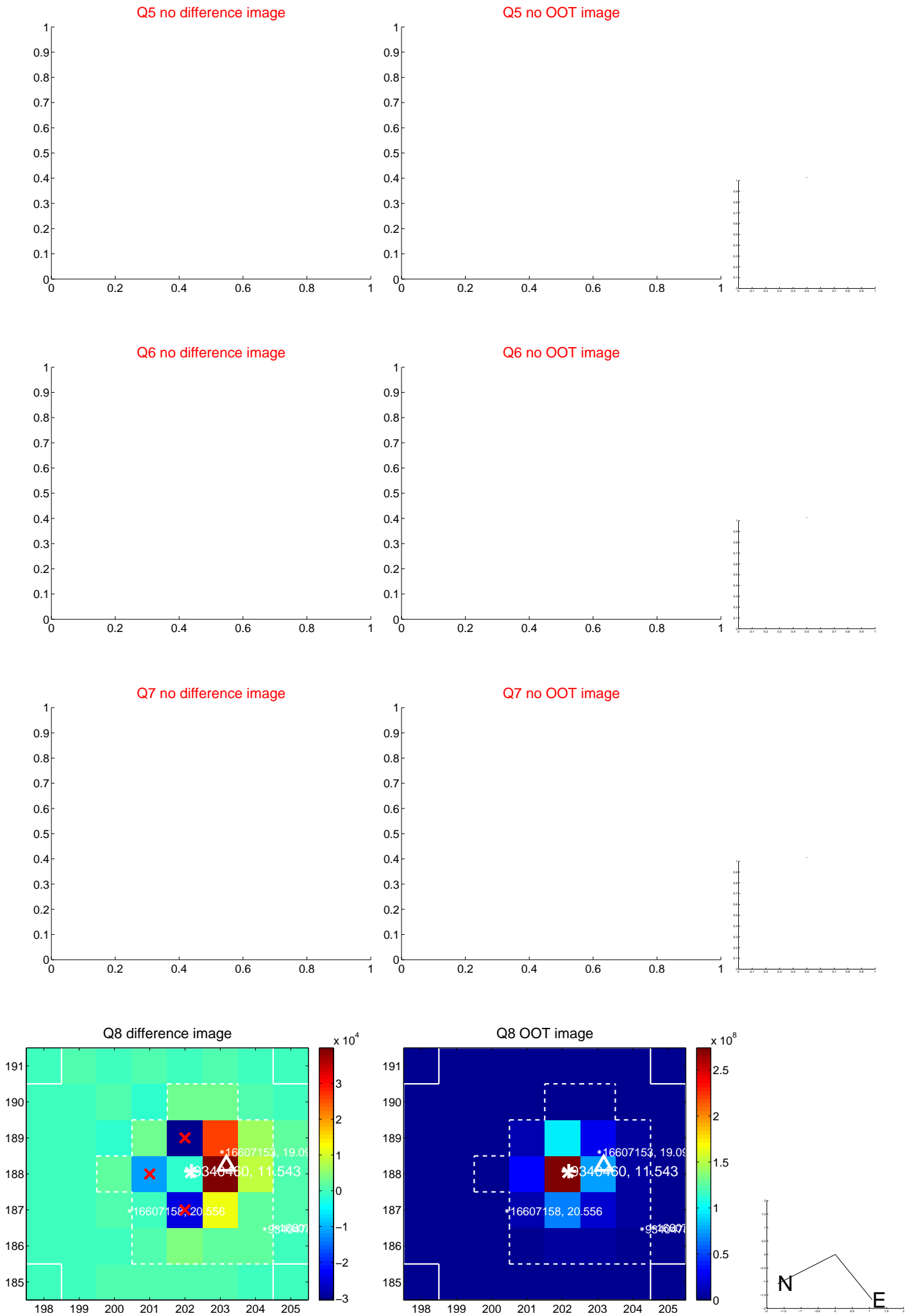


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

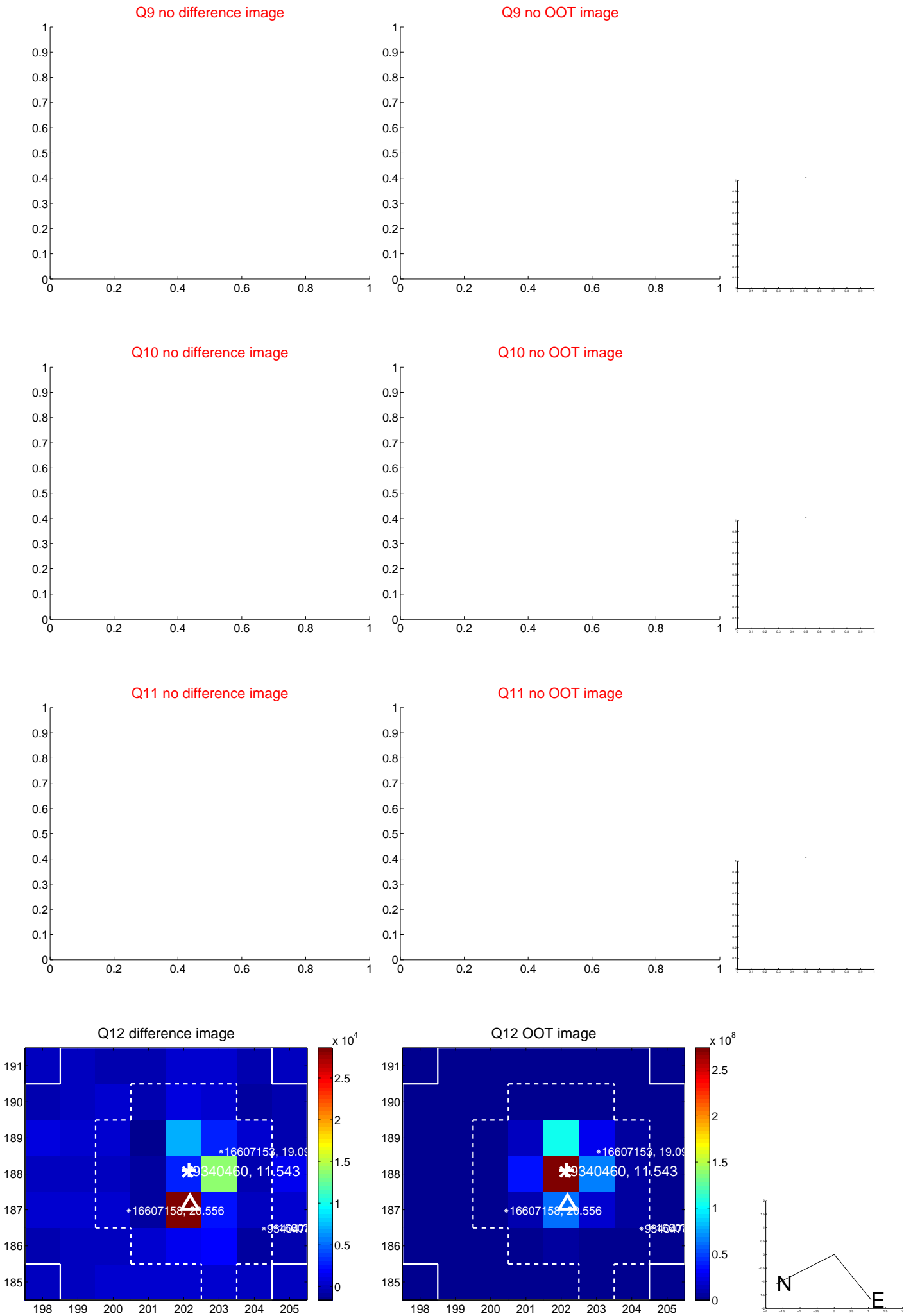
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



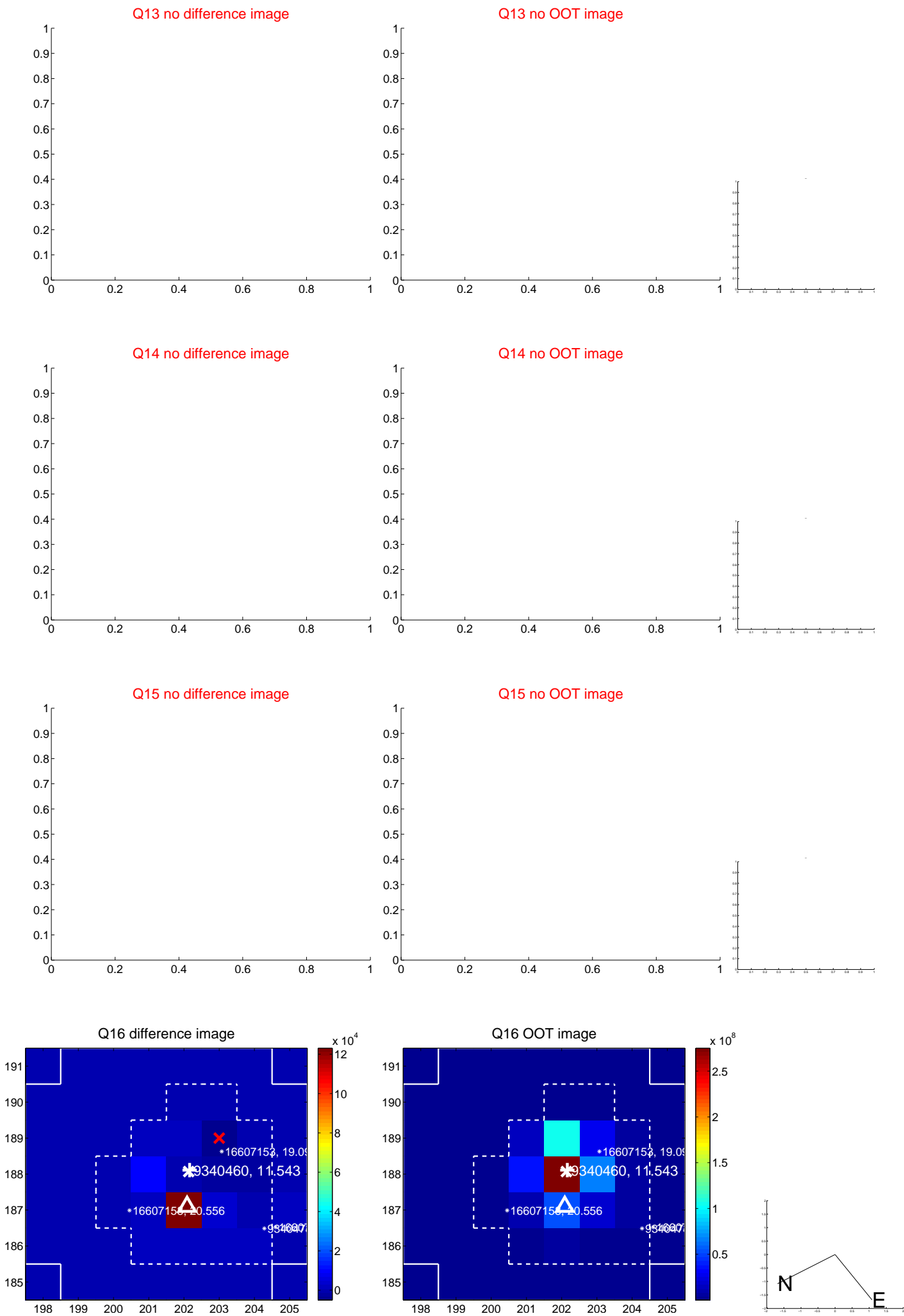
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



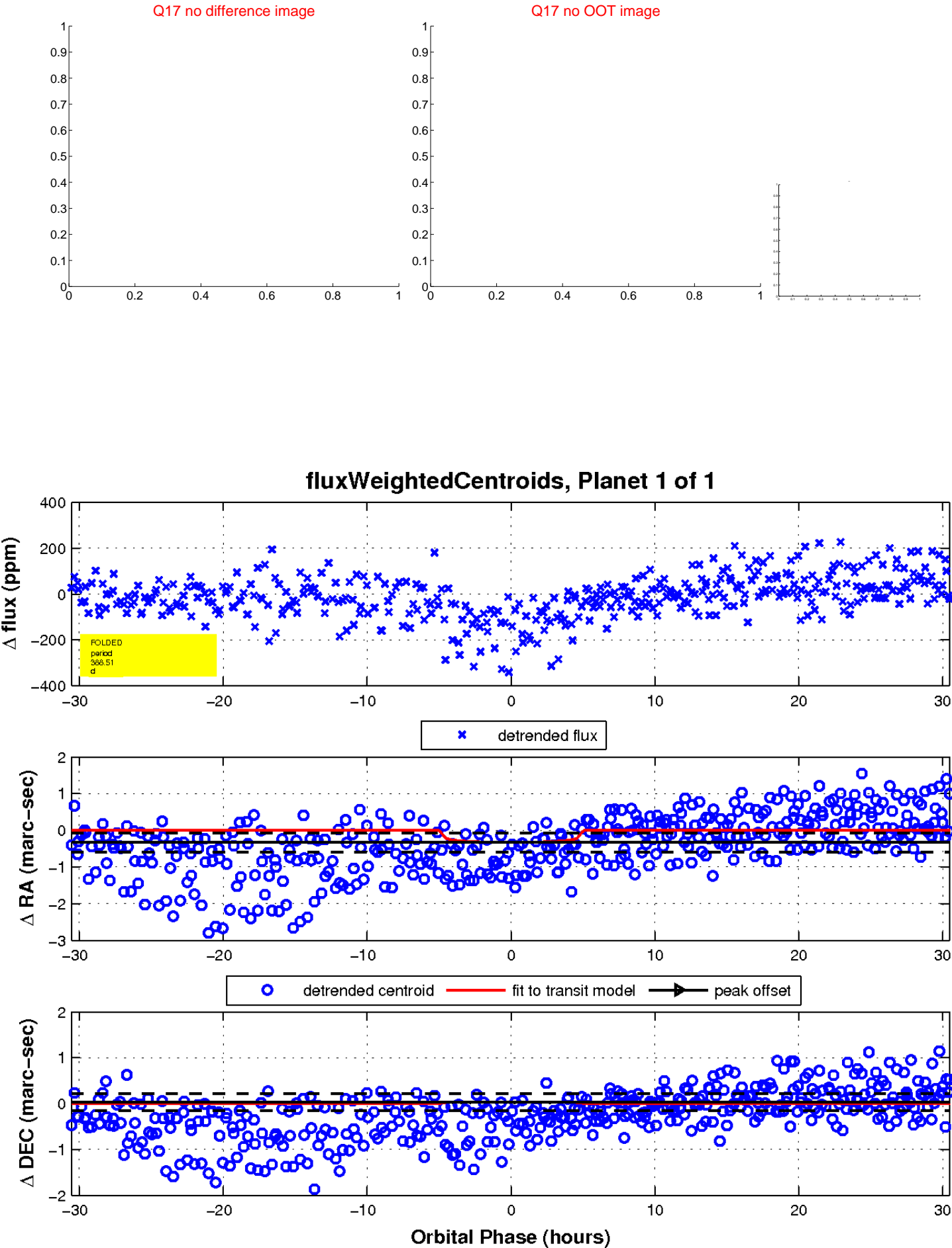
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

