

# KIC 009469494

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009469494-01	OBS	7938.01	275.538567	237.152179	101.5	15.751	7.5	7.2	2.47	5989	2.73	8.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009469494-01	OBS	PC	0.51	0	0	0	0	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.

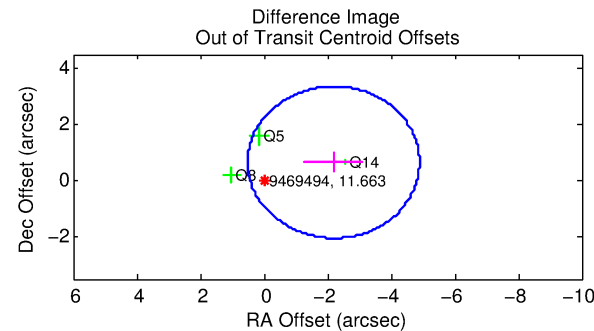
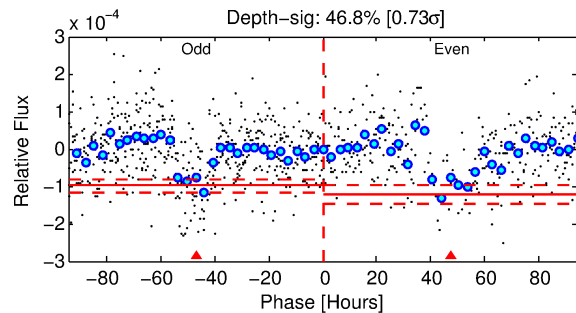
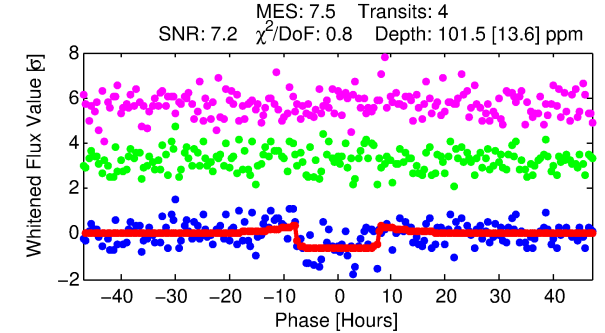
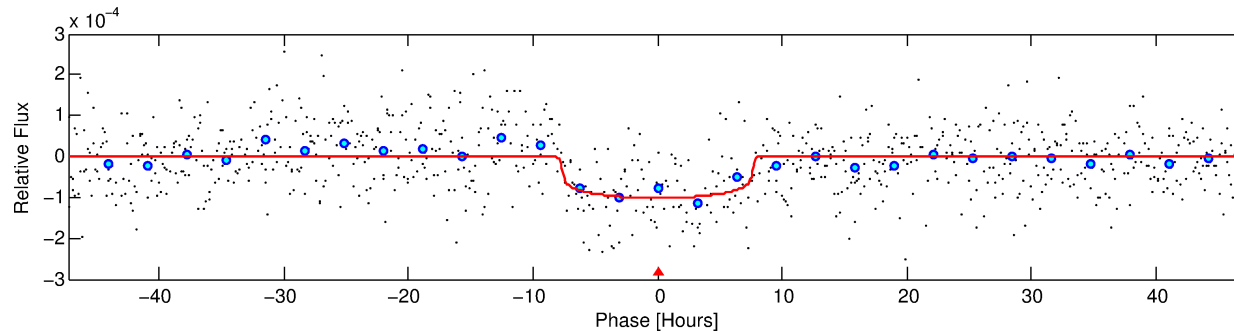
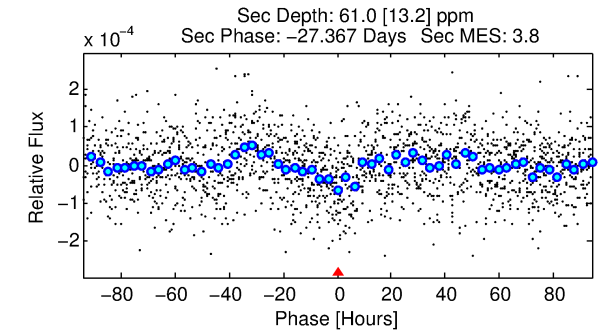
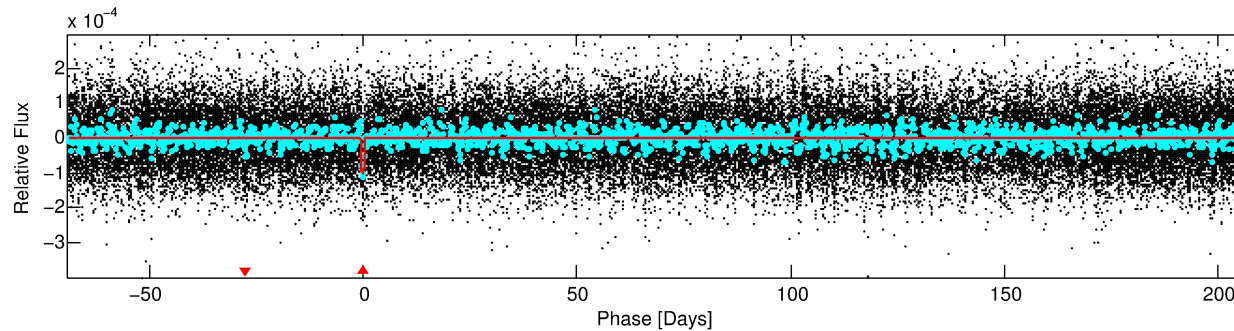
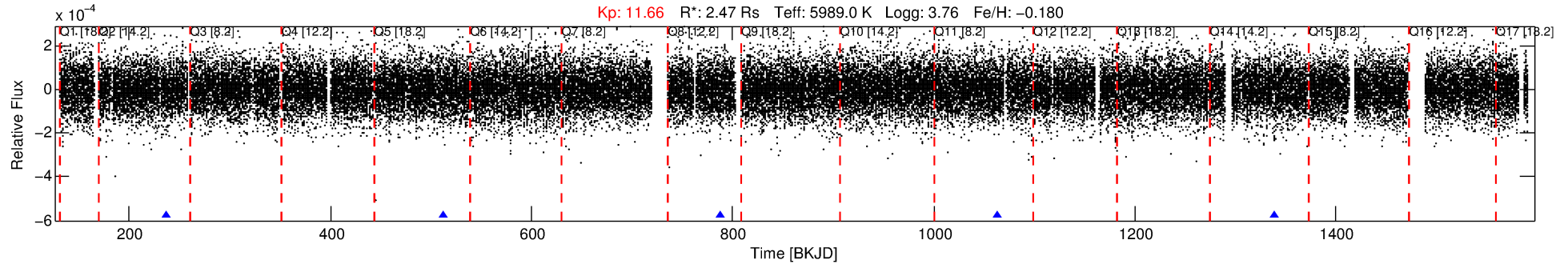
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009469494-01

No Significant Match Found

# DV One-Page Summary

KIC: 9469494 Candidate: 1 of 1 Period: 275.539 d



## DV Fit Results:

Period = 275.53857 [0.00710] d  
Epoch = 237.1522 [0.0153] BKJD  
Rp/R\* = 0.0101 [0.0028]  
a/R\* = 86.18 [112.84]  
b = 0.78 [0.67]  
Seff = 8.62 [8.28]  
Teq = 437 [105] K  
Rp = 2.72 [1.71] Re  
a = 0.9021 [0.5201] AU  
Ag = 3680.75 [4112.93] [0.89σ]  
Teffp = 5262 [796] K [6.0σ]

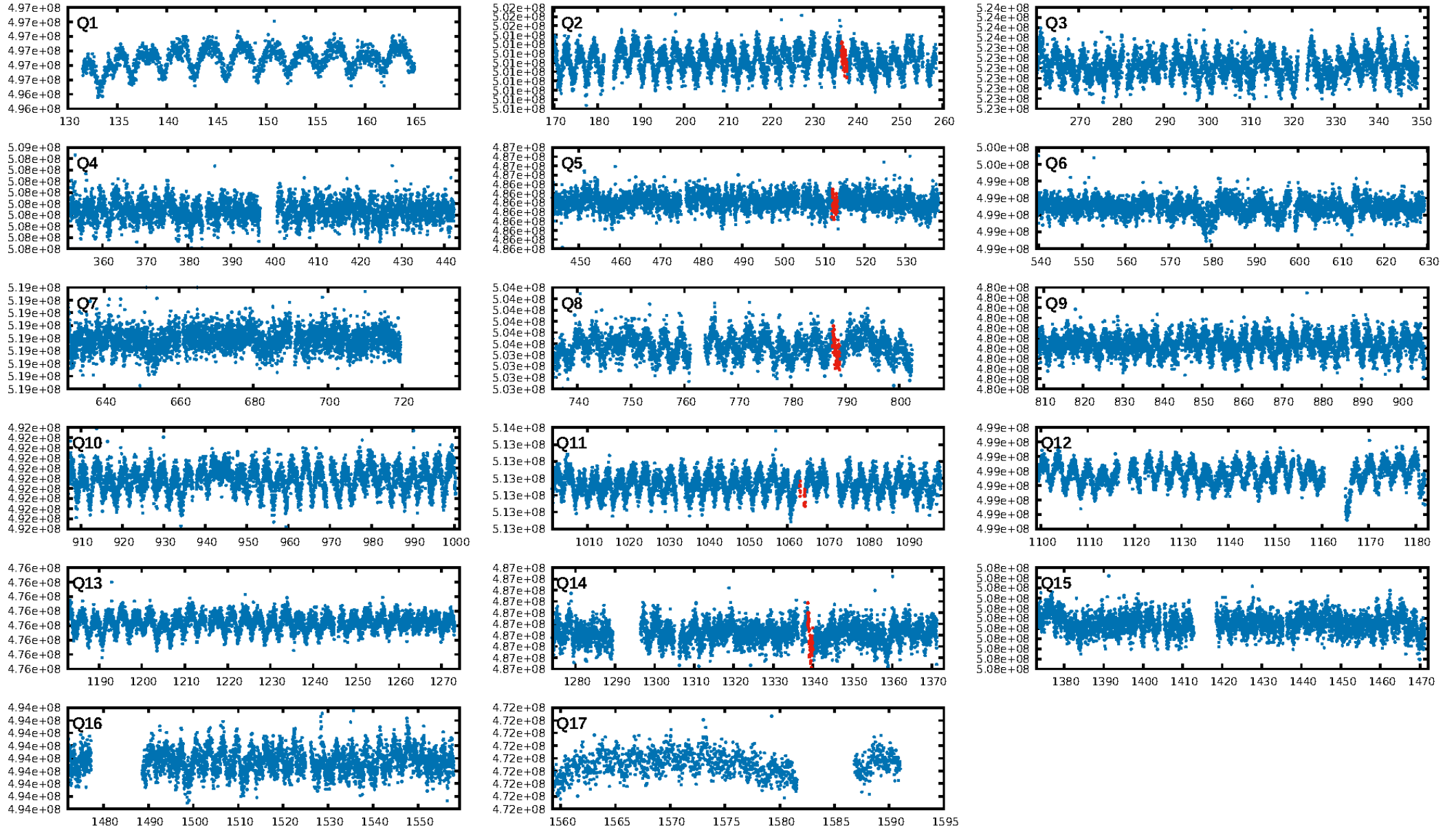
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 41.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.40e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -195.8  
Centroid-sig: 0.4%  
Centroid-so: 1.942 arcsec [1.87σ]  
OotOffset-rm: 2.286 arcsec [2.54σ]  
KicOffset-rm: 2.315 arcsec [2.84σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [4/4]

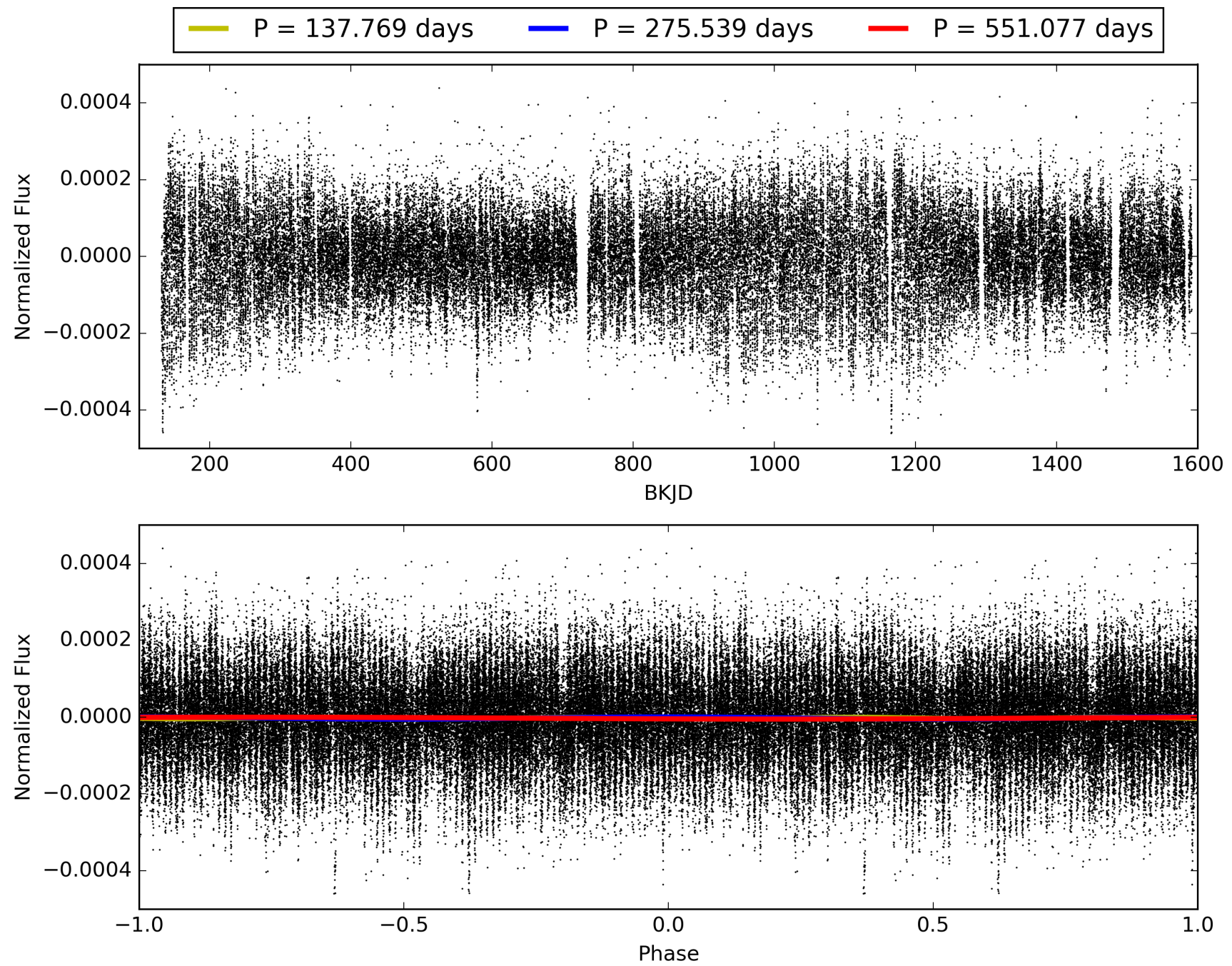
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:30:05 Z

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

# TCE 009469494-01, PDC Light Curves

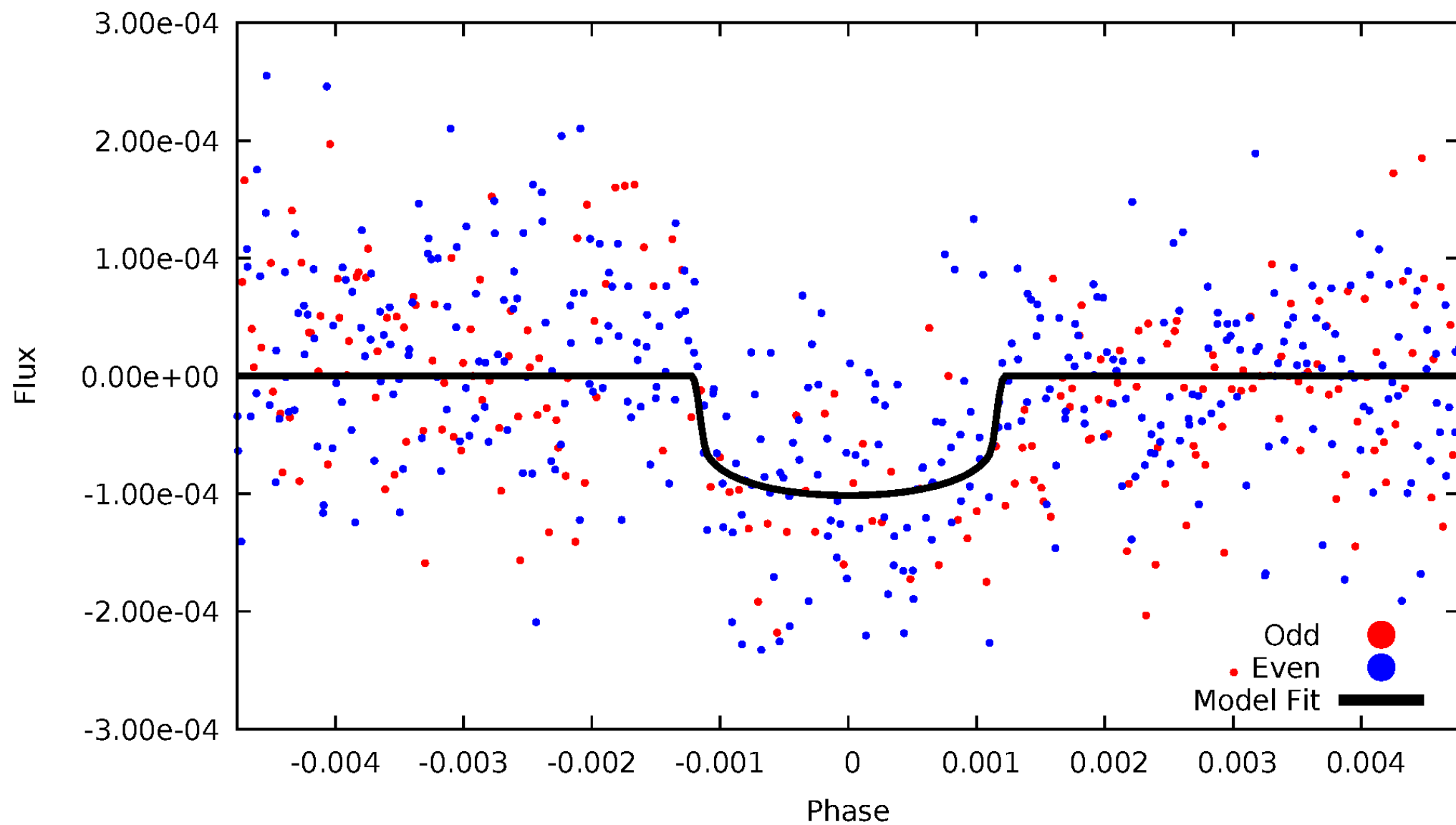


TCE 009469494-01



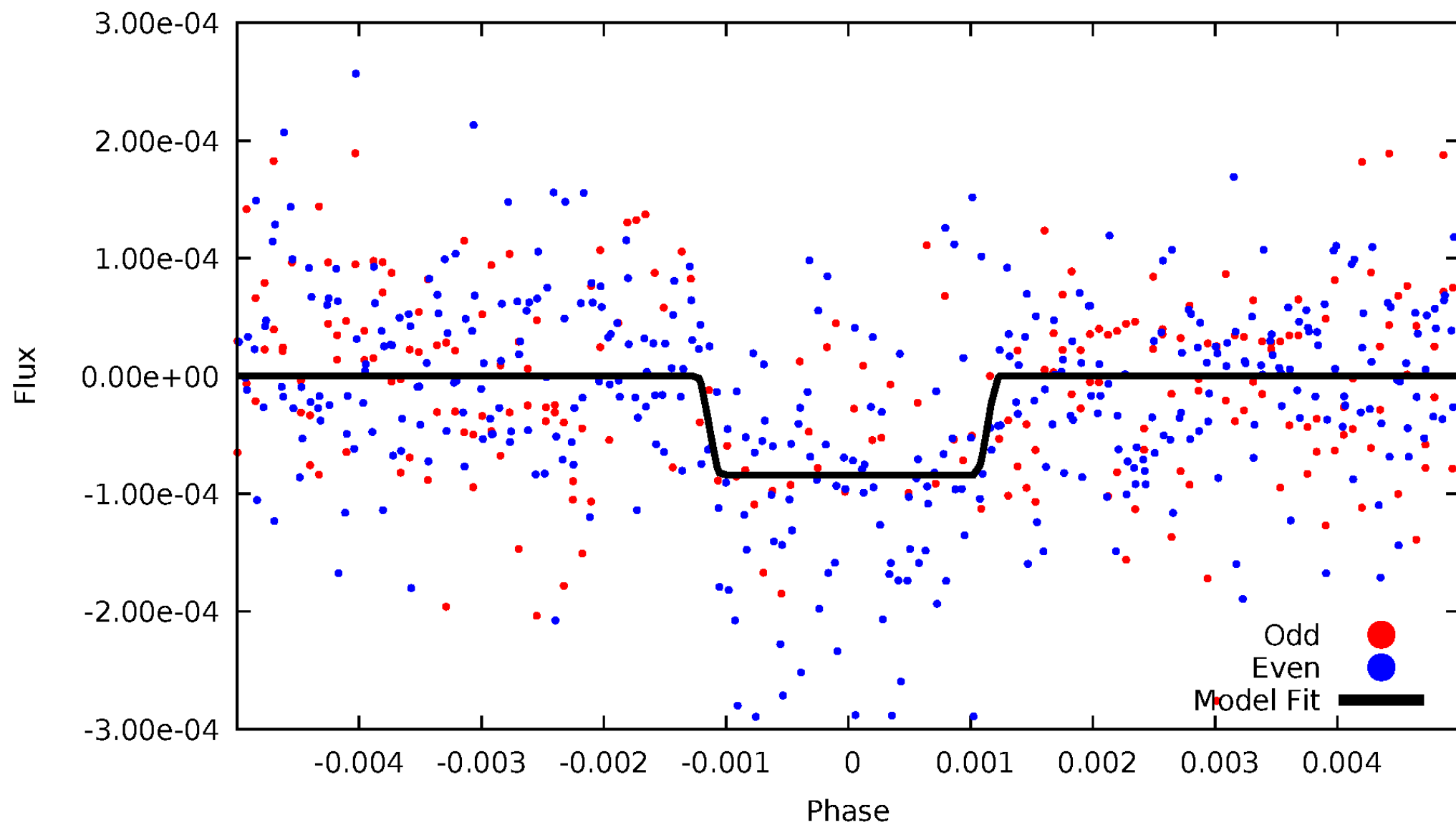
# DV Odd/Even

TCE 009469494-01



# ALT Odd/Even

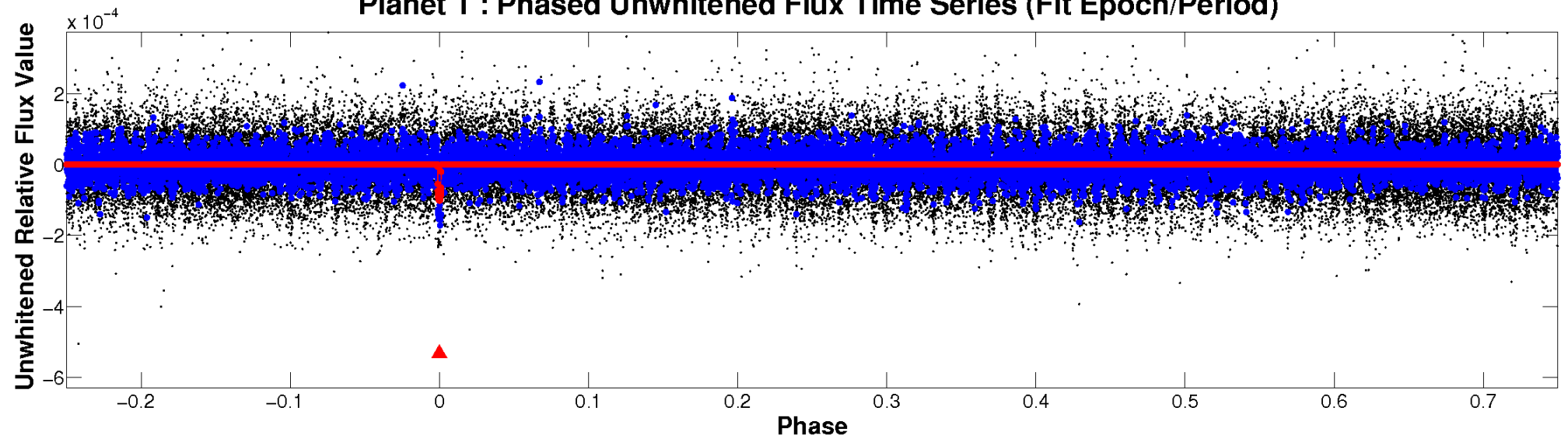
TCE 009469494-01



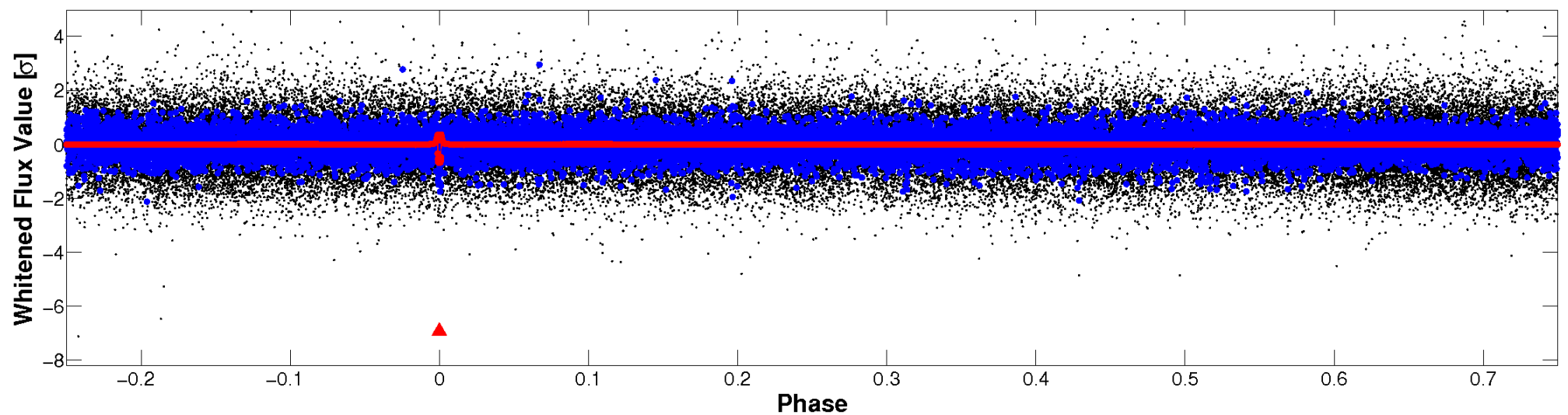


# Non-Whitened Vs. Whitened Light Curve

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

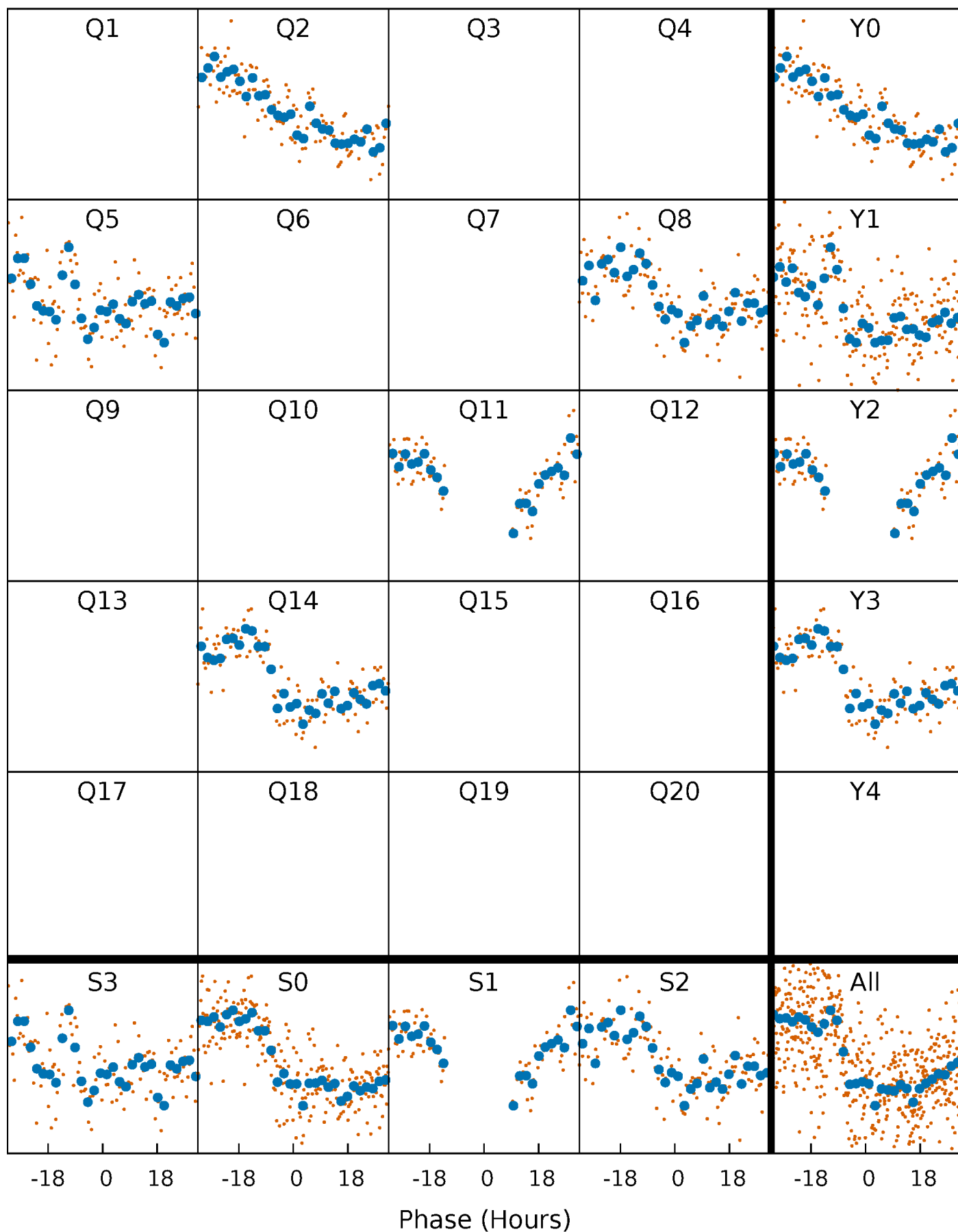


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

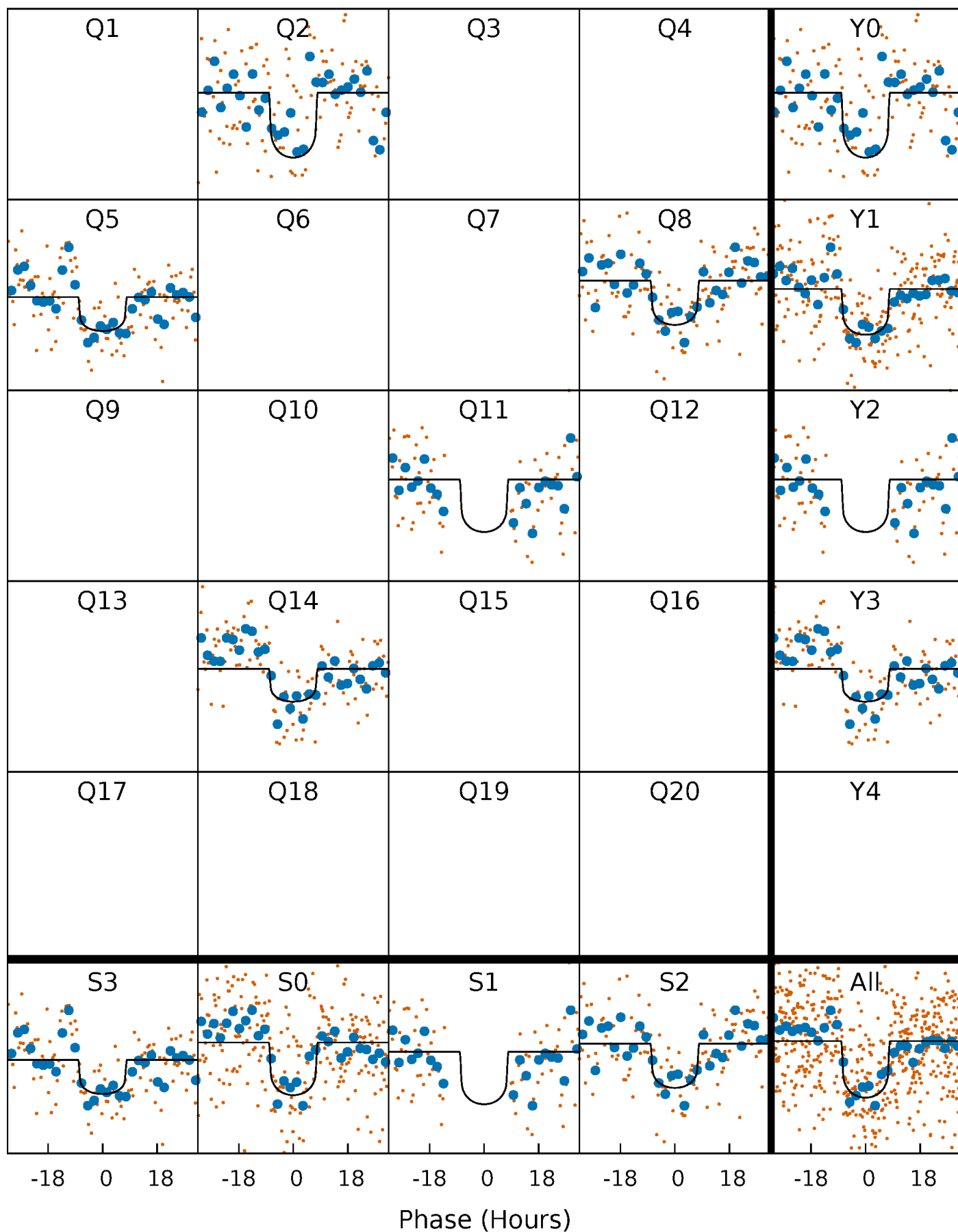
TCE 009469494-01 P=275.538567 Days  $T_0=237.152179$  (BKJD)





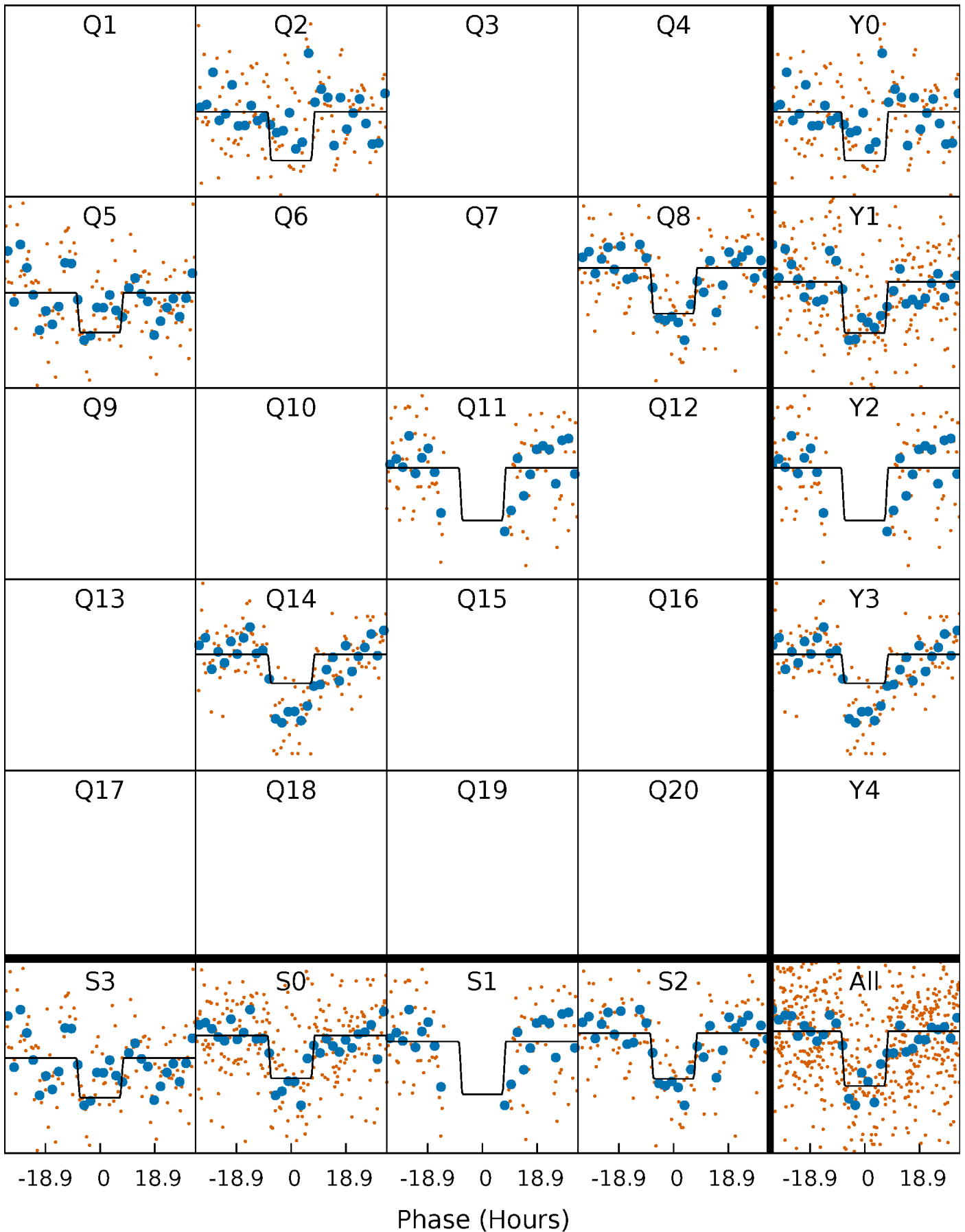
# DV Quarter-Phased Transit Curves

TCE 009469494-01 P=275.538567 Days  $T_0=237.152179$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

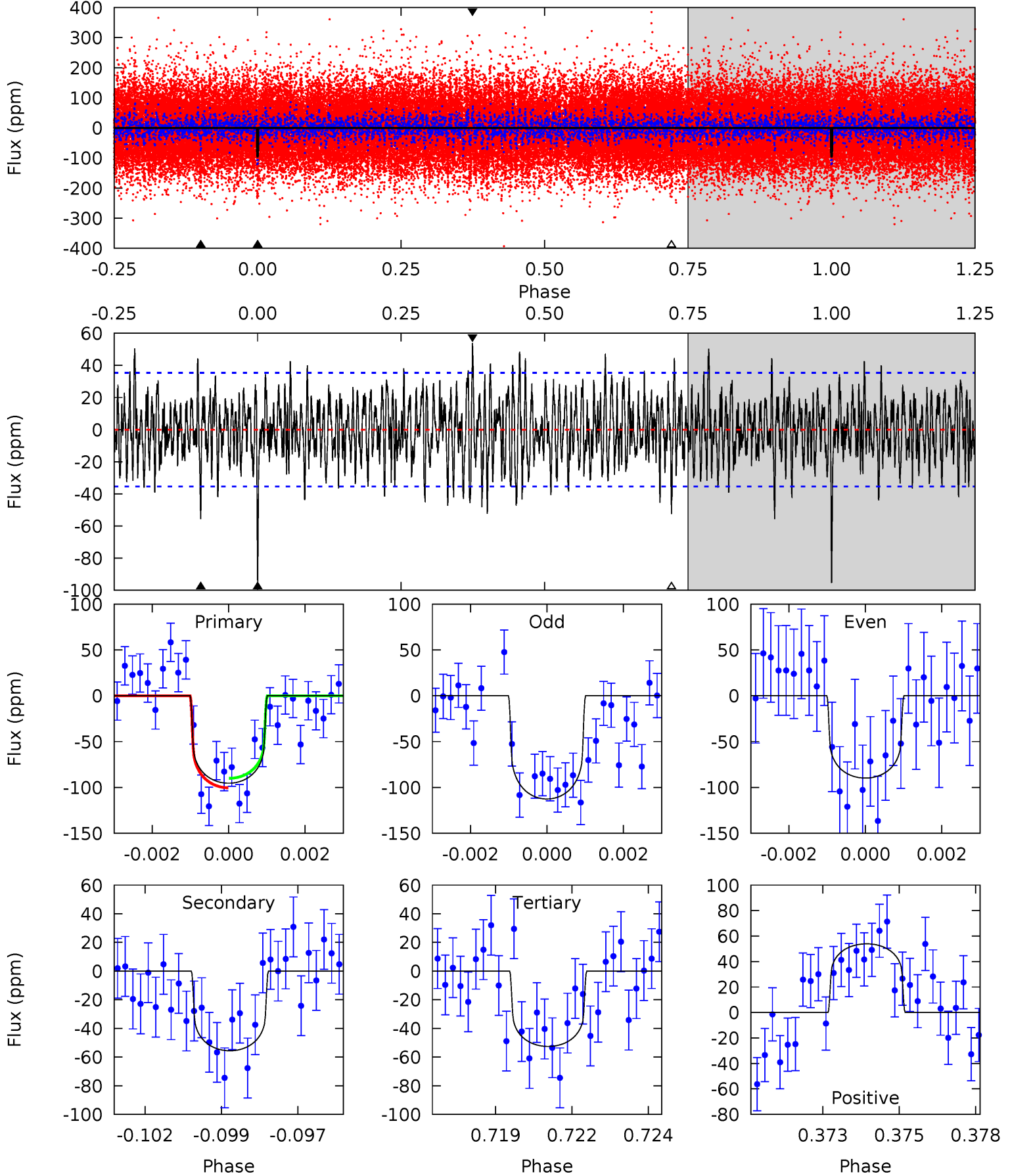
TCE 009469494-01 P=275.546557 Days  $T_0=237.141750$  (BKJD)



# DV Model-Shift Uniqueness Test

009469494-01,  $P = 275.538567$  Days,  $E = 237.152179$  Days

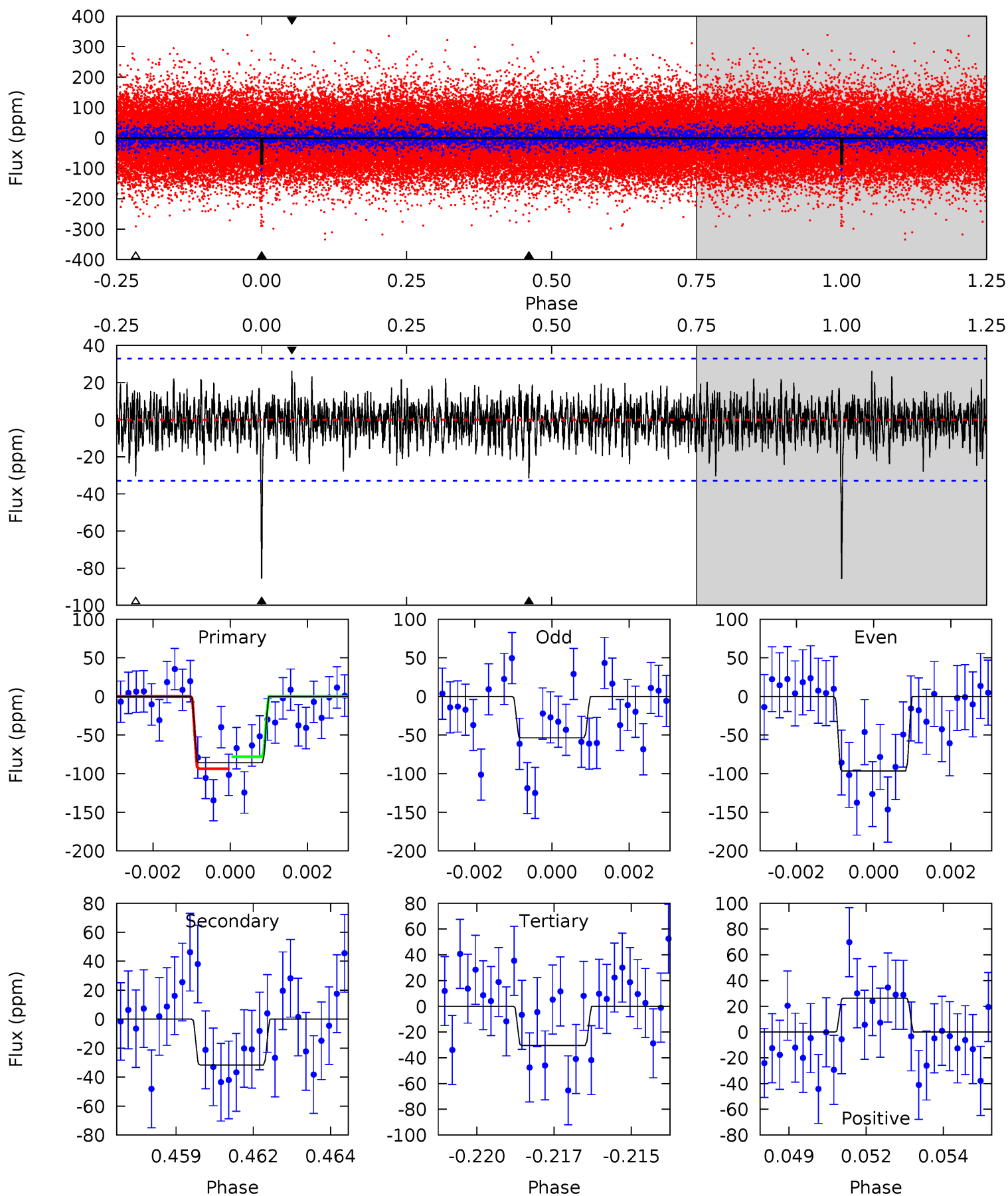
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	8.31	7.86	8.06	5.29	3.03	2.53	6.40	6.20	0.45	0.25	1.45	0.91	0.36	0.77



# Alt Model-Shift Uniqueness Test

009469494-01, P = 275.546557 Days, E = 237.141750 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
13.8	5.08	4.88	4.22	5.29	3.03	1.25	8.89	9.55	0.19	0.85	2.97	1.16	0.23	1.23



### Stellar Parameters For KIC 009469494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5989^{+213}_{-192}$	$3.764^{+0.568}_{-0.142}$	$-0.180^{+0.300}_{-0.300}$	$2.467^{+0.559}_{-1.396}$	$1.289^{+0.185}_{-0.343}$	$0.121^{+0.983}_{-0.048}$
	+4%/-3%	+15%/-4%	+167%/-167%	+23%/-57%	+14%/-27%	+812%/-40%
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 009469494-01 / KOI 7938.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-56 \pm 7$	$2.40^{+0.93}_{-0.86}$	$596^{+54}_{-84}$	$5253^{+866}_{-559}$	$4285^{+5677}_{-2066}$
Alt.	$-32 \pm 6$	$2.25^{+1.00}_{-0.90}$	$599^{+52}_{-93}$	$4785^{+843}_{-500}$	$2768^{+4494}_{-1449}$

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

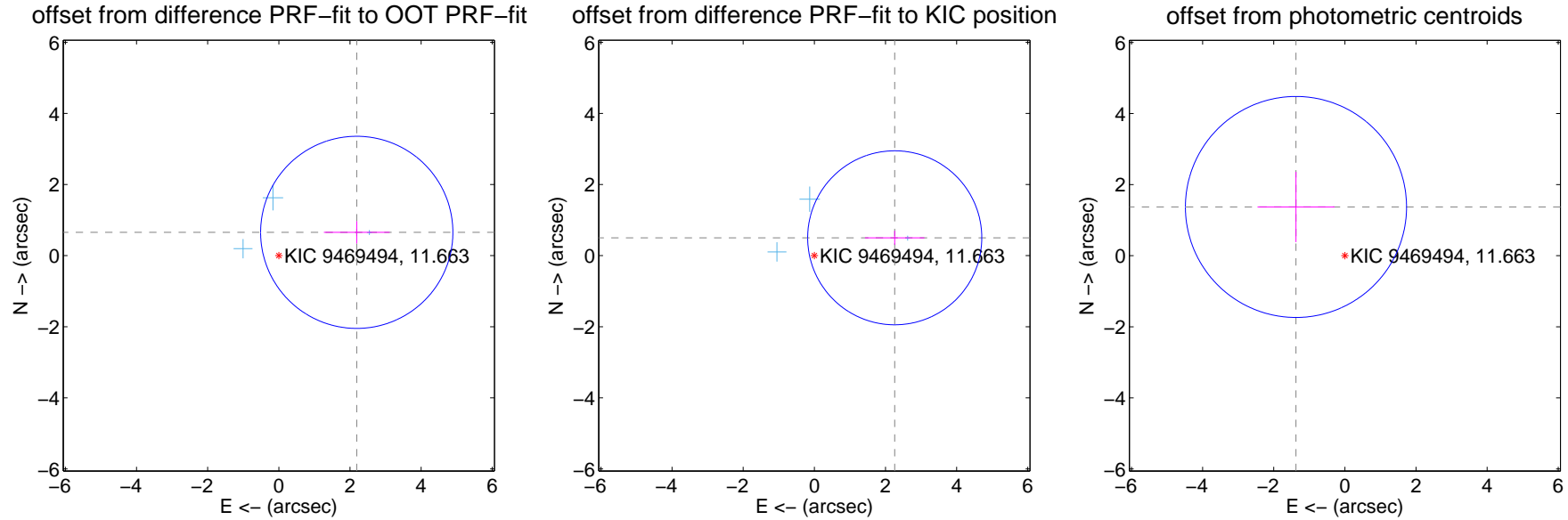
## DV Centroid Data

Supplemental centroid analysis for 009469494-01. **Kepler magnitude: 11.66.** Transit SNR 7.19

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

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

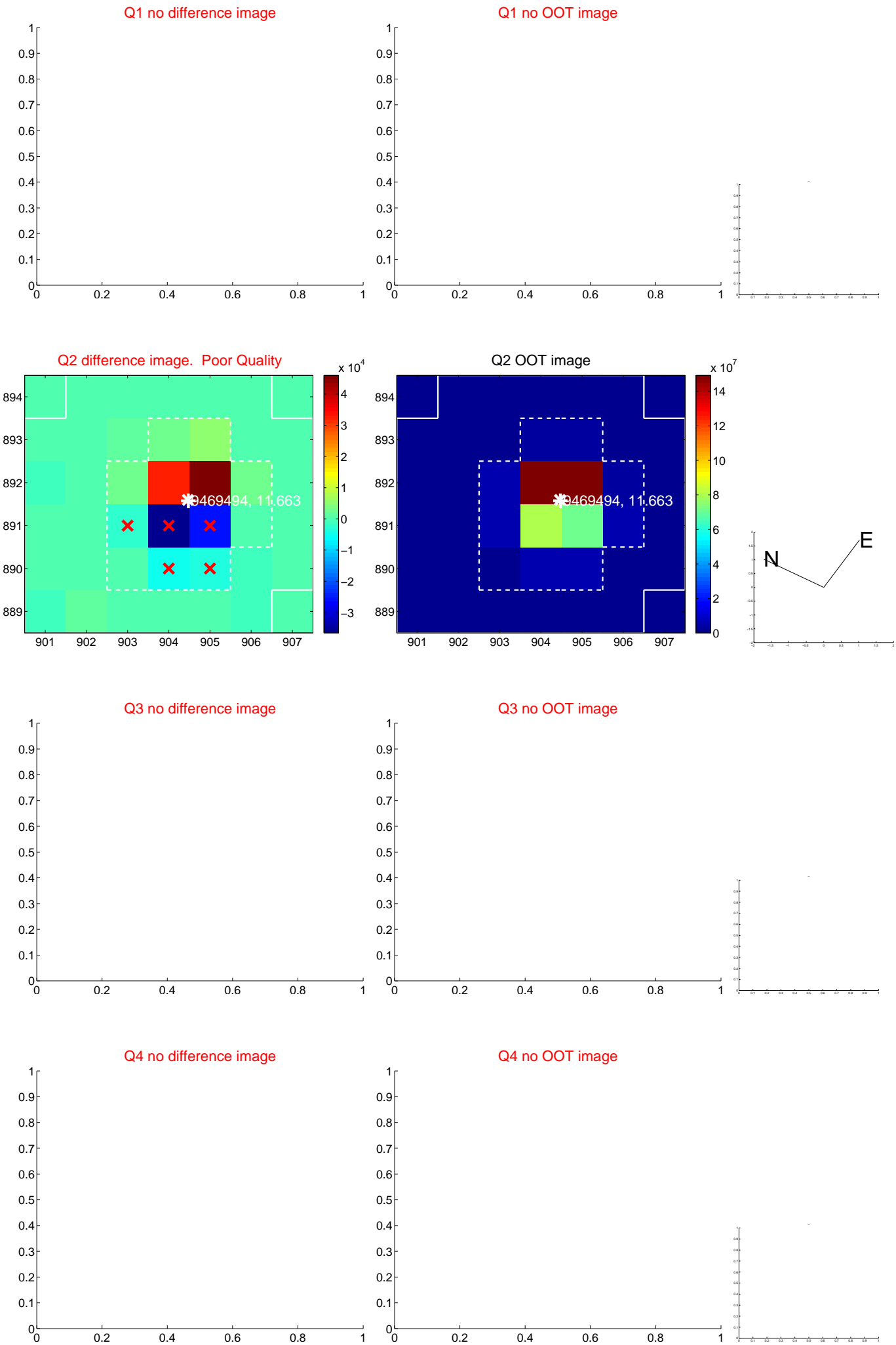
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.286 \pm 0.901$	2.54	$-2.190 \pm 0.923$	$0.655 \pm 0.313$
PRF-fit source offset from KIC position	$2.315 \pm 0.816$	2.84	$-2.260 \pm 0.834$	$0.502 \pm 0.197$
photometric centroid source offset	$1.94 \pm 1.04$	1.87	$1.37 \pm 1.08$	$1.37 \pm 0.99$



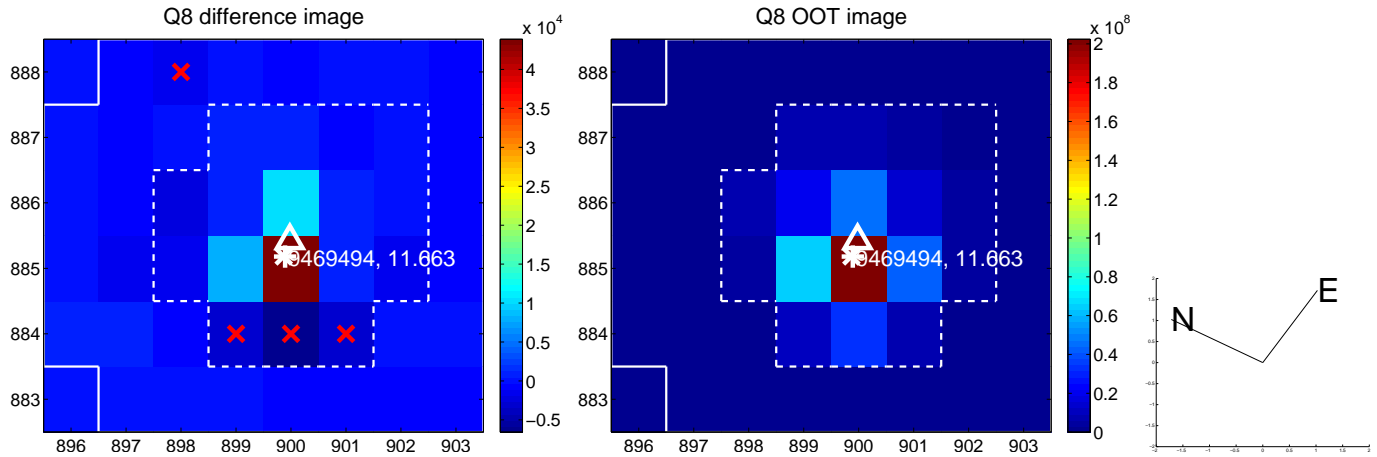
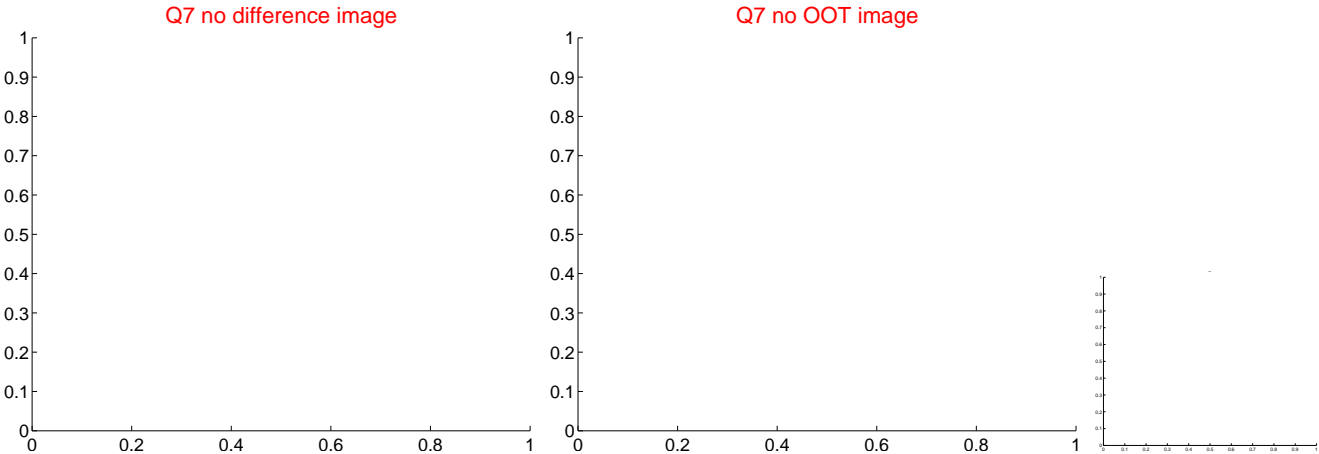
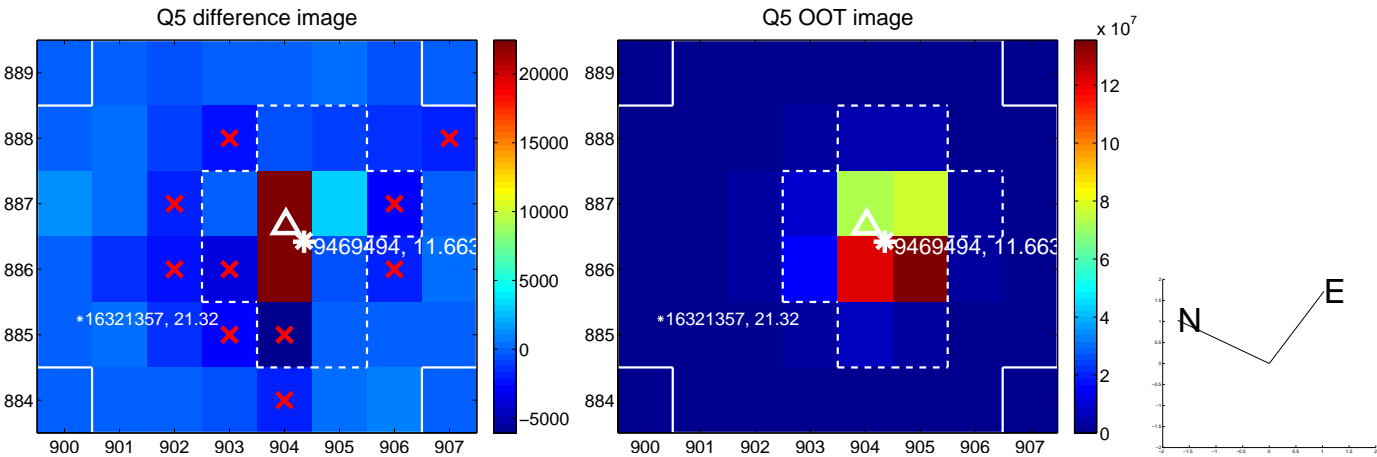
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



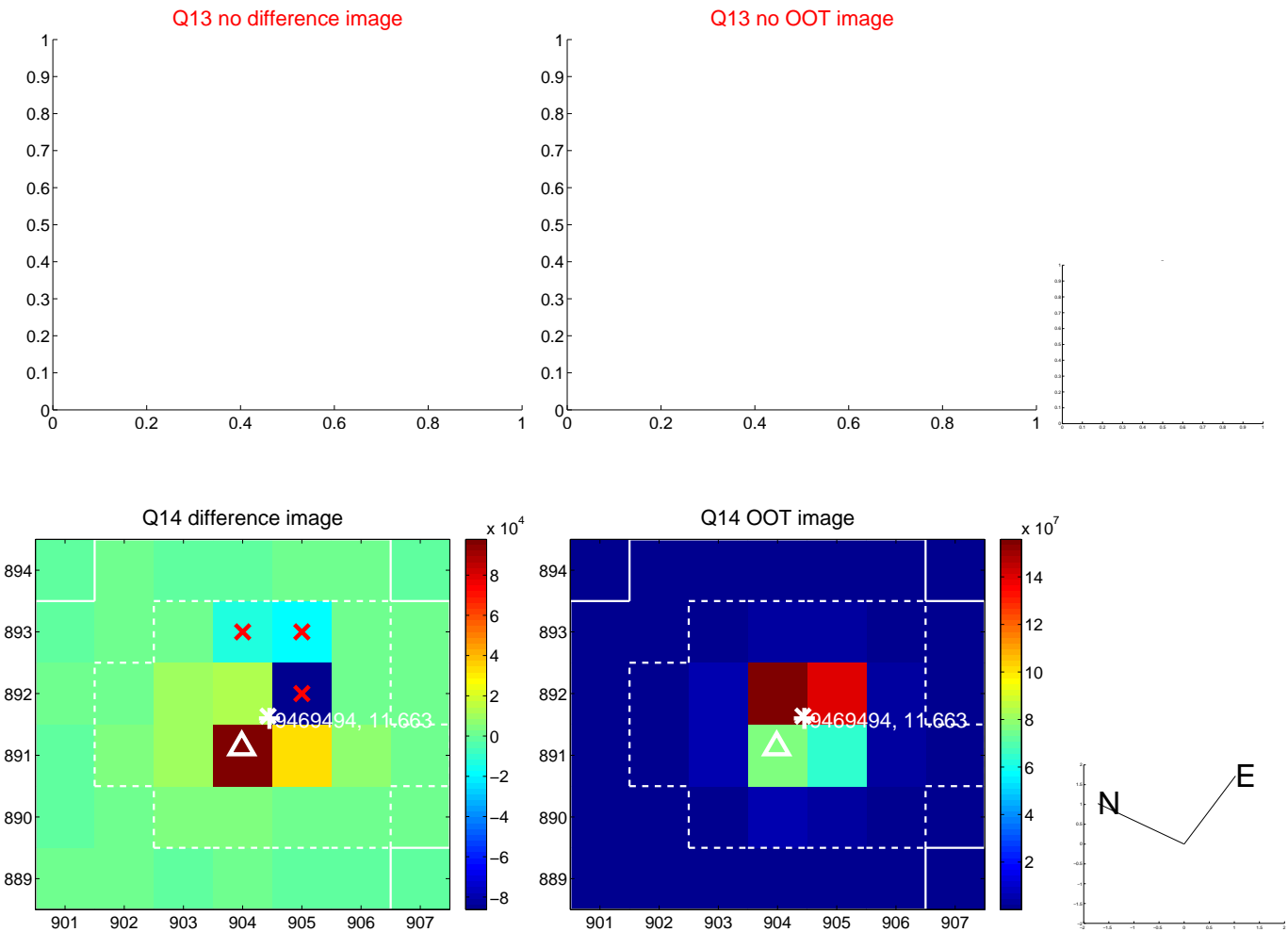
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



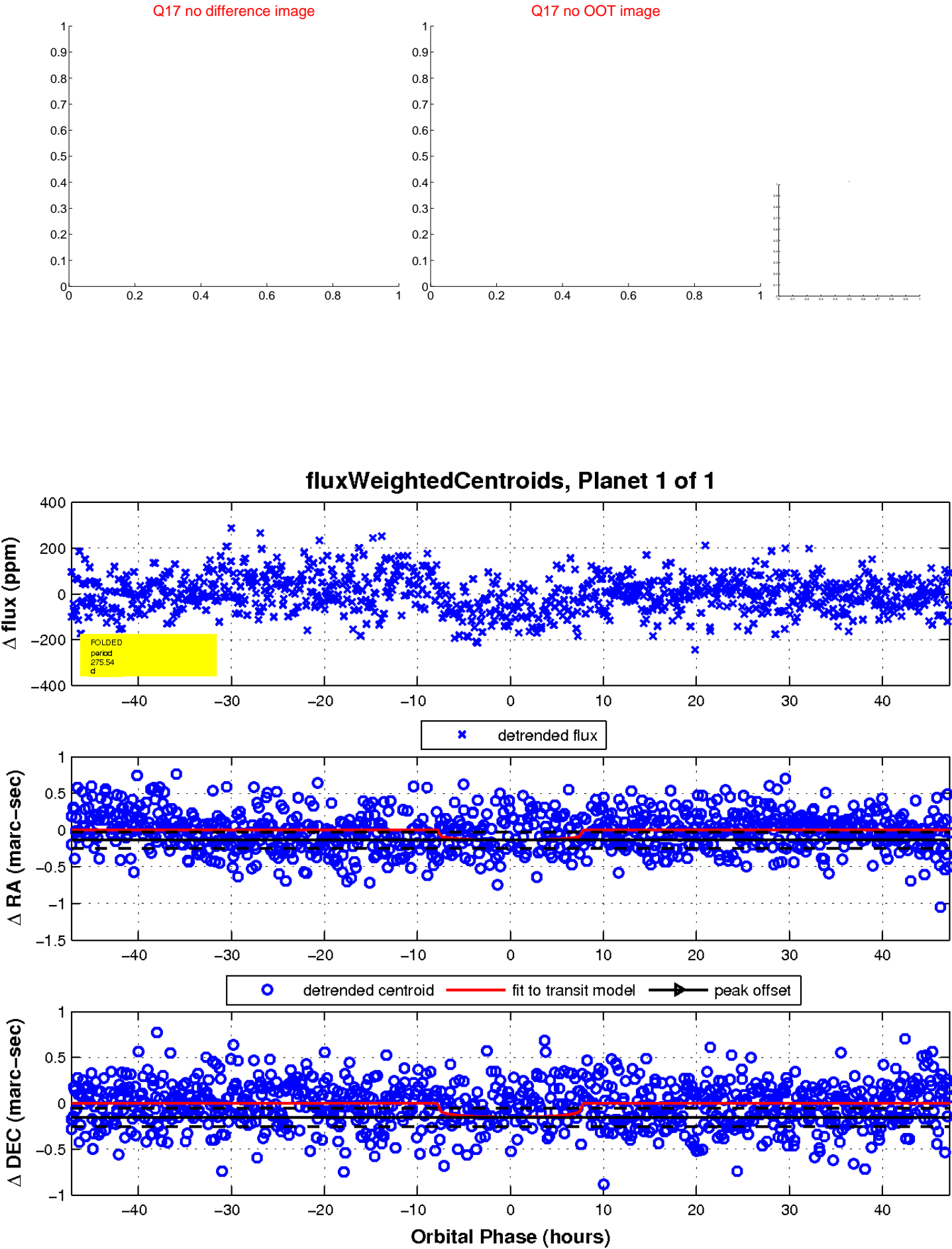
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

