

# KIC 007594098

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007594098-01	OBS	No	171.432610	204.927623	136.9	9.511	7.7	7.6	0.84	5842	1.12	2.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007594098-01	OBS	FP	0.03	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE

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

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

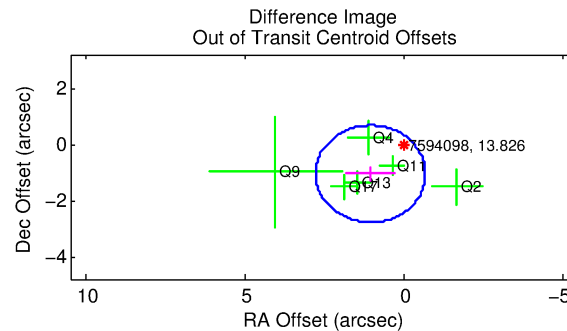
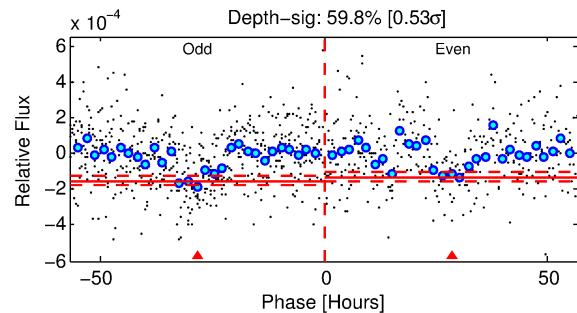
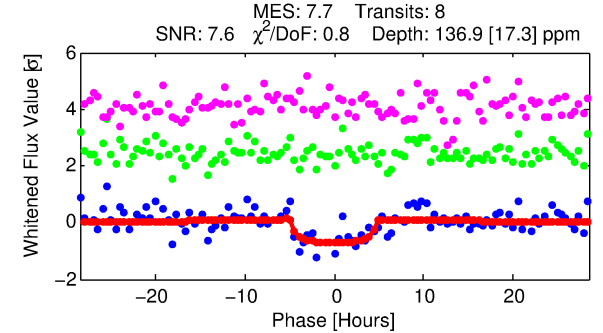
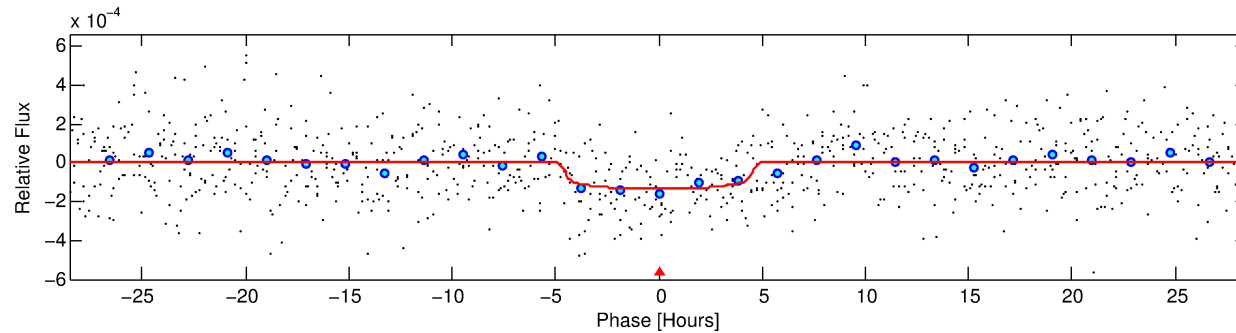
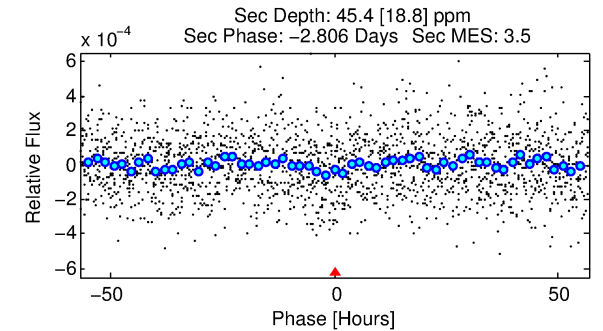
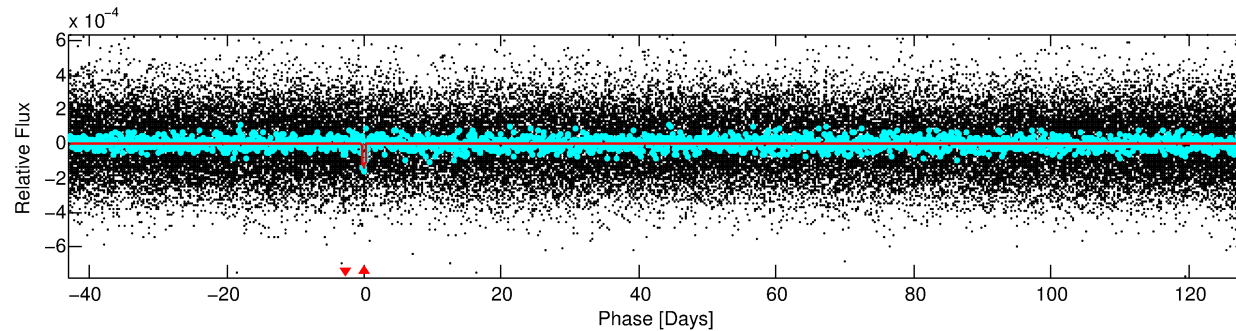
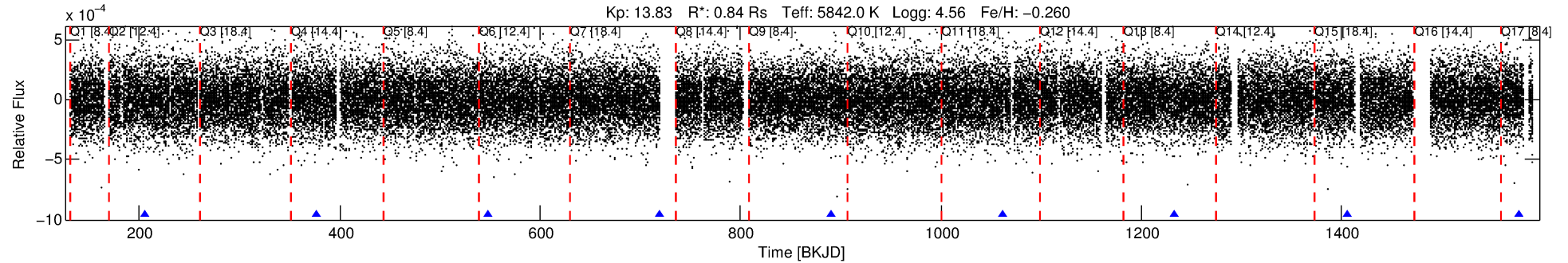
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007594098-01

No Significant Match Found

# DV One-Page Summary

KIC: 7594098 Candidate: 1 of 1 Period: 171.433 d



## DV Fit Results:

Period = 171.43261 [0.00365] d  
Epoch = 204.9276 [0.0163] BKJD  
Rp/R\* = 0.0121 [0.0045]  
a/R\* = 77.15 [137.90]  
b = 0.84 [0.62]  
Seff = 2.13 [0.78]  
Teq = 308 [28] K  
Rp = 1.12 [0.52] Re  
a = 0.5902 [0.1411] AU  
Ag = 6969.54 [6420.37] [1.09σ]  
Teffp = 4351 [934] K [4.32σ]

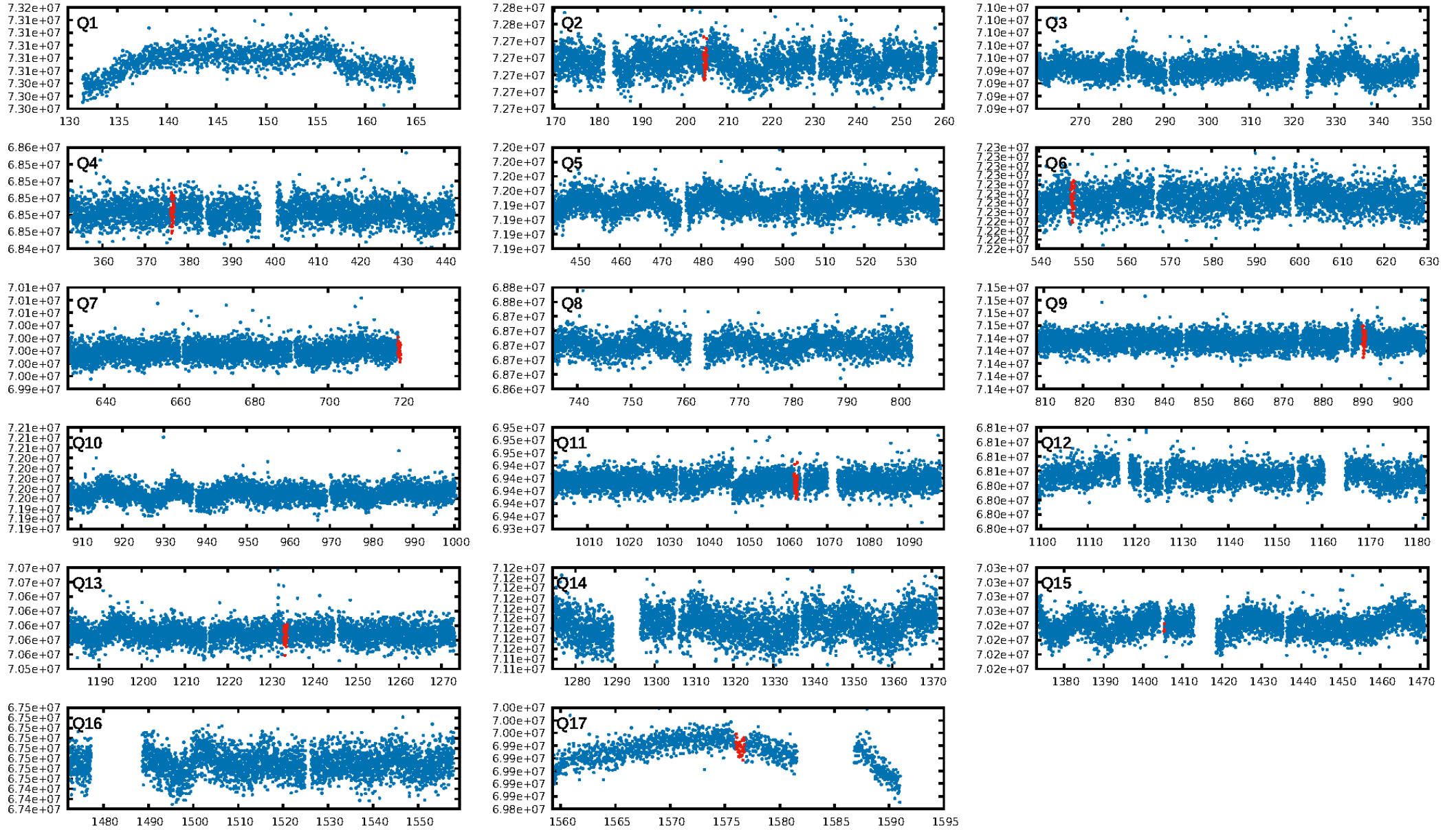
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.70e-14  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 11.11  
Centroid-sig: 0.1%  
Centroid-so: 3.775 arcsec [2.36σ]  
OotOffset-rm: 1.463 arcsec [2.54σ]  
KicOffset-rm: 1.239 arcsec [2.56σ]  
OotOffset-st: 1/1/1/3 [6]  
KicOffset-st: 1/1/1/3 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 1.00 [7/7]

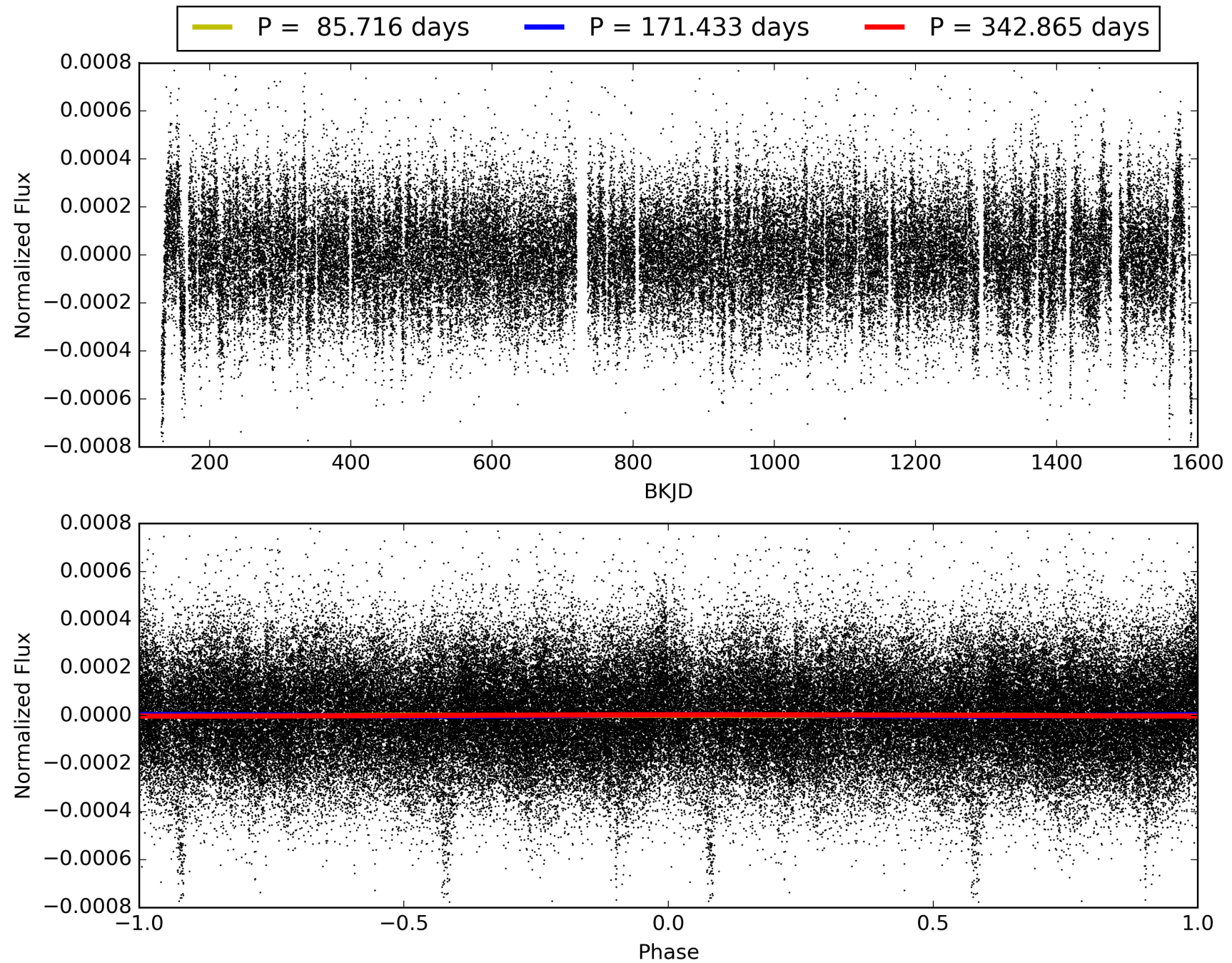
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:19:15 Z

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

# TCE 007594098-01, PDC Light Curves

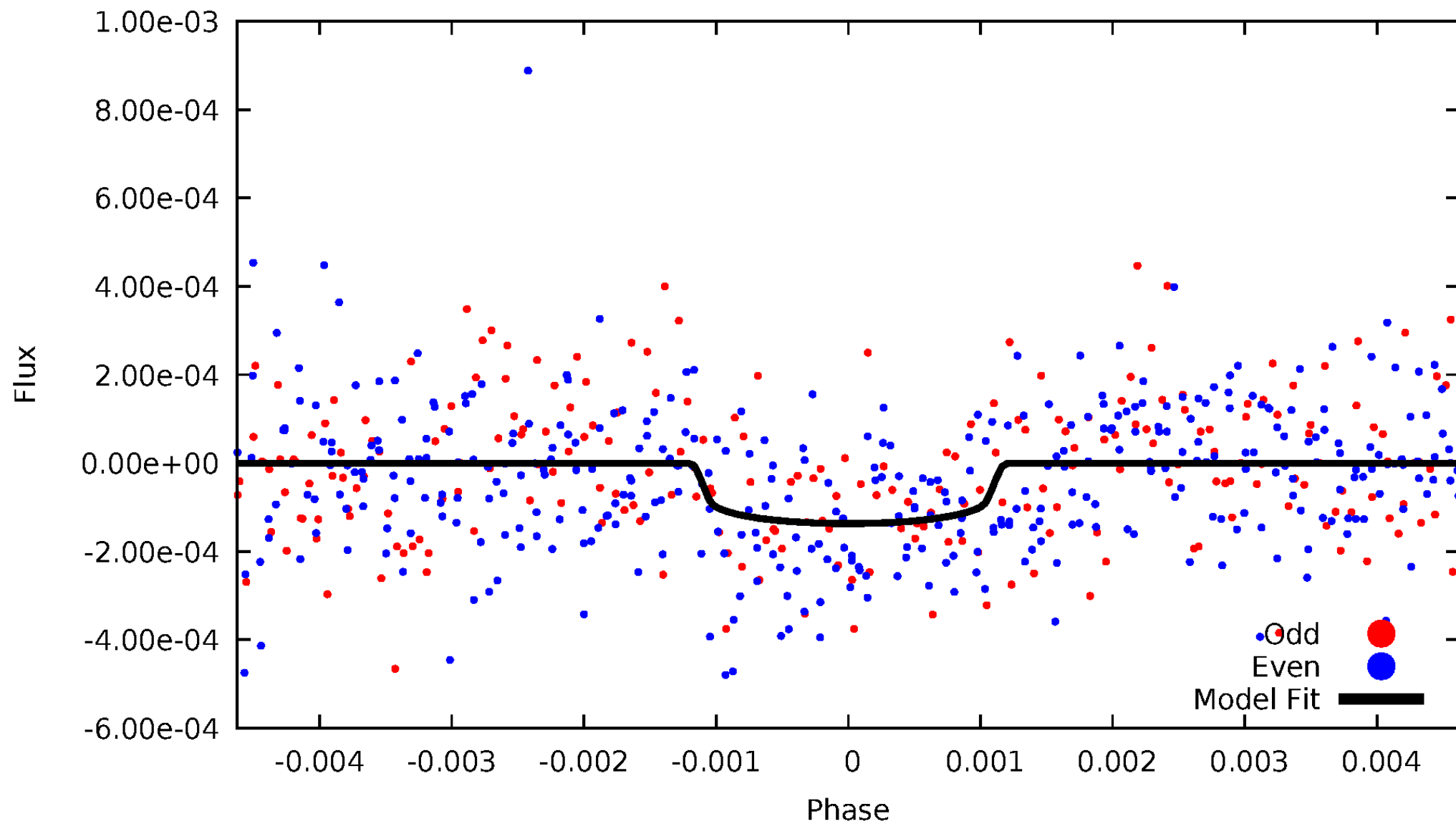


# TCE 007594098-01



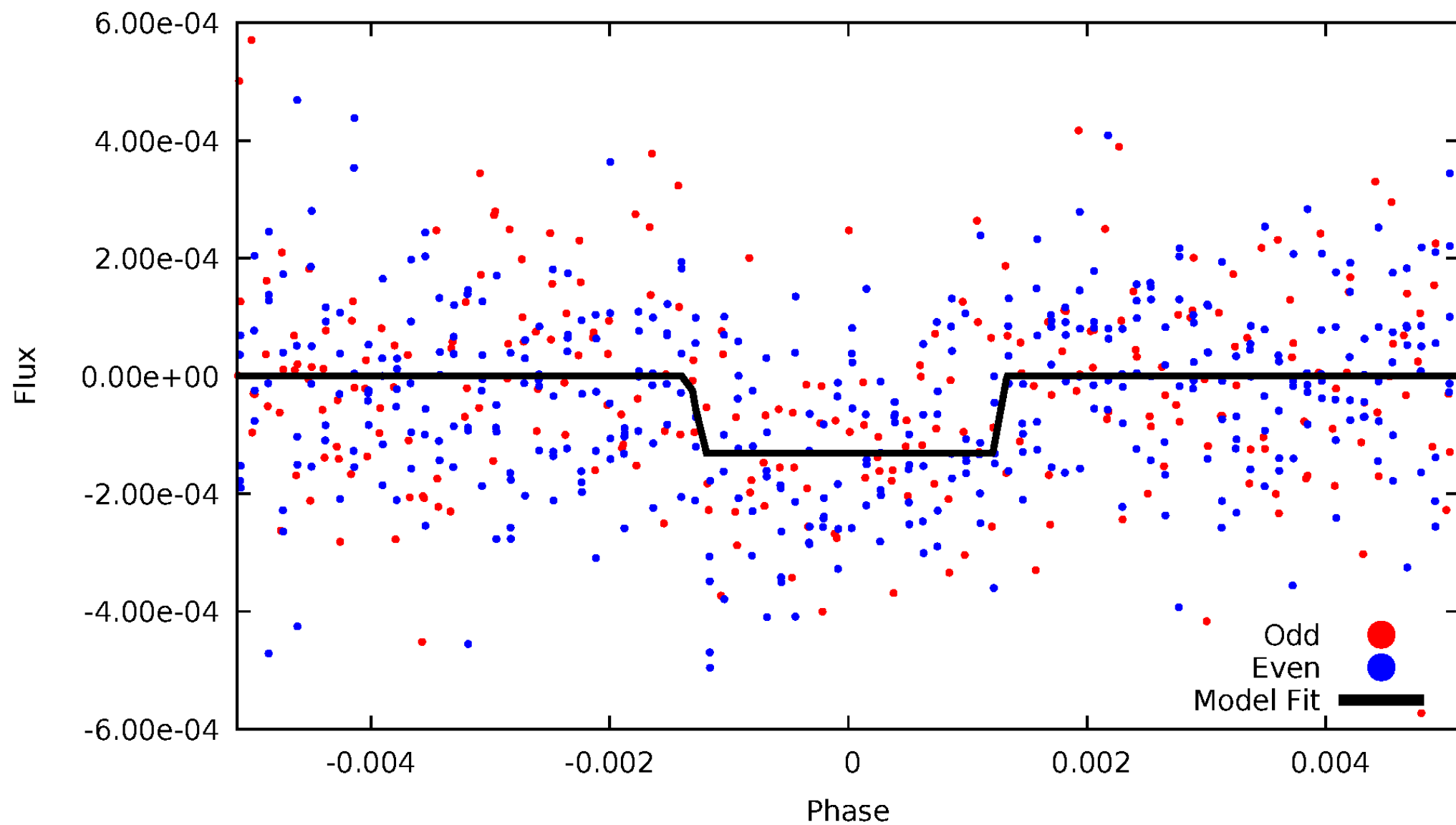
# DV Odd/Even

TCE 007594098-01



# ALT Odd/Even

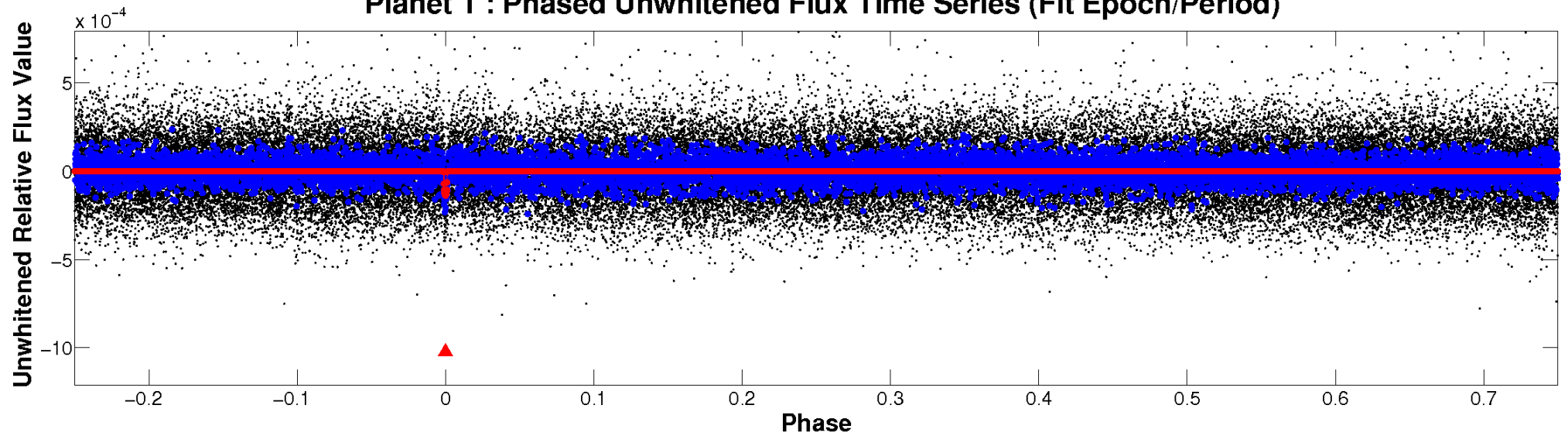
TCE 007594098-01



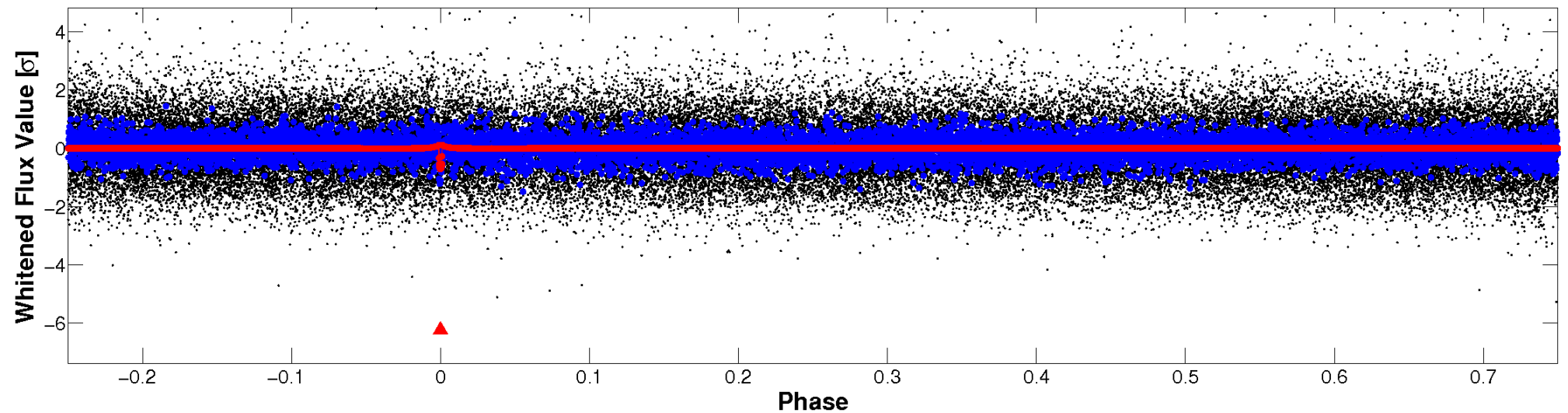


# Non-Whitened Vs. Whitened Light Curve

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

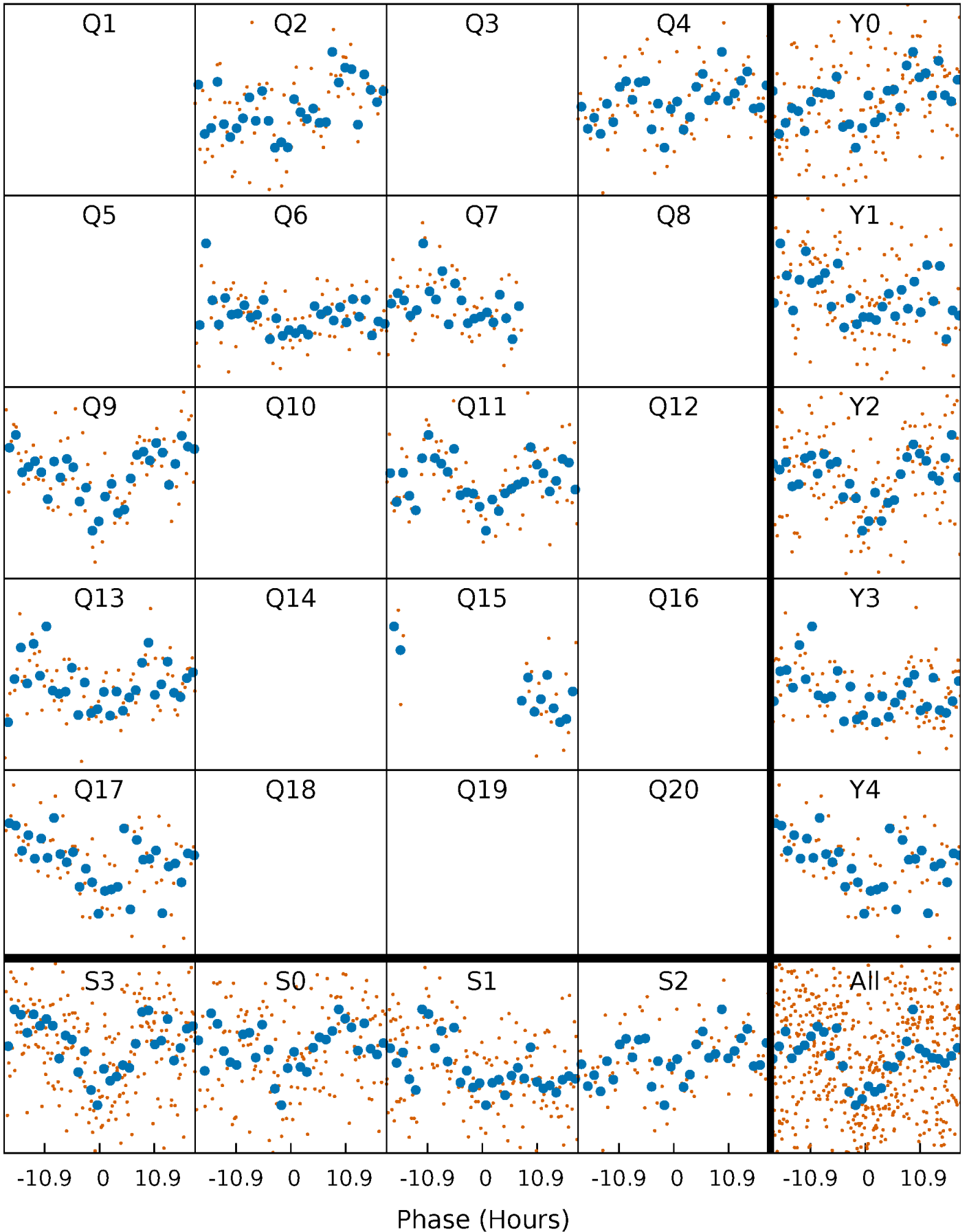


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

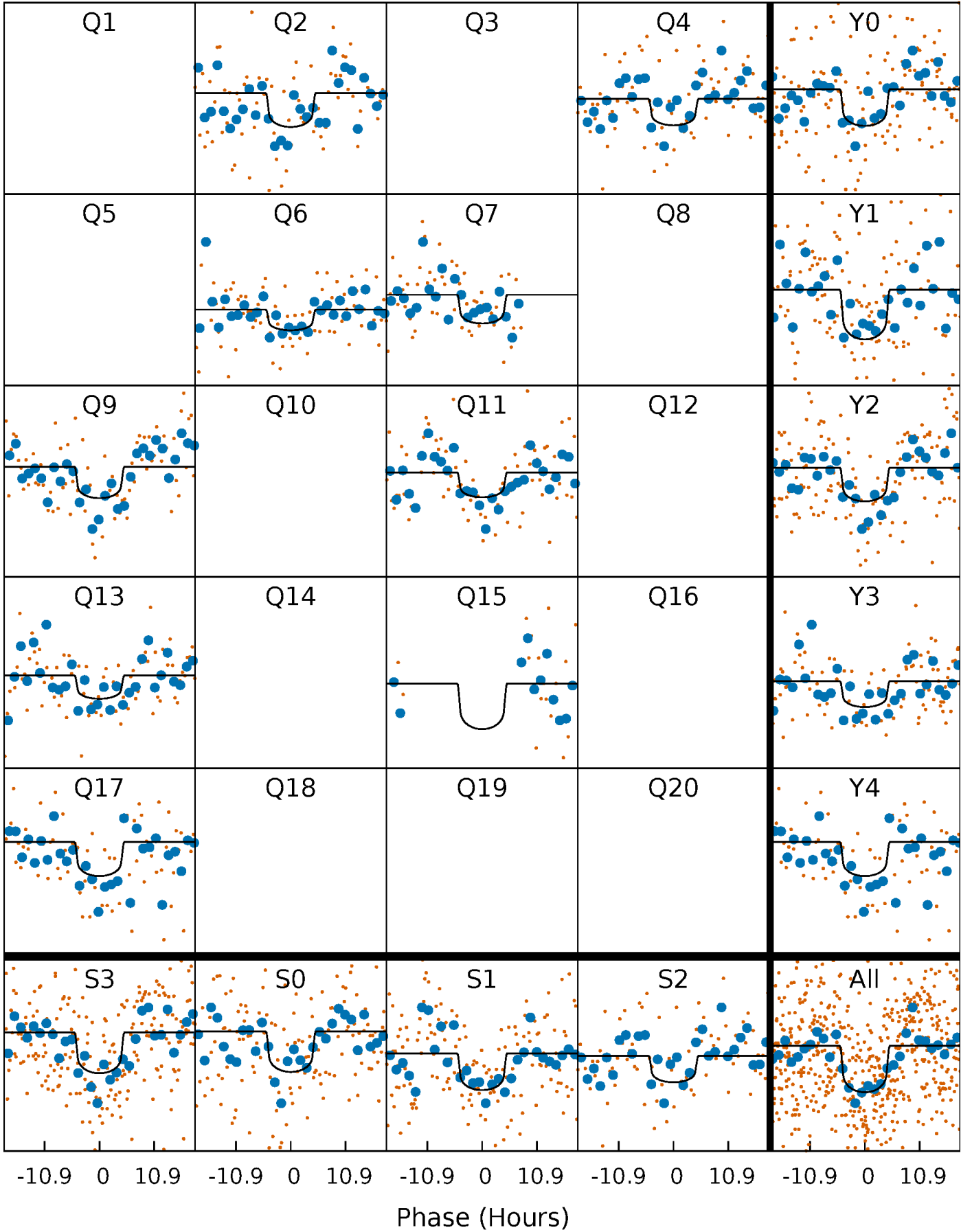
TCE 007594098-01   P=171.432611 Days    $T_0=204.927623$  (BKJD)





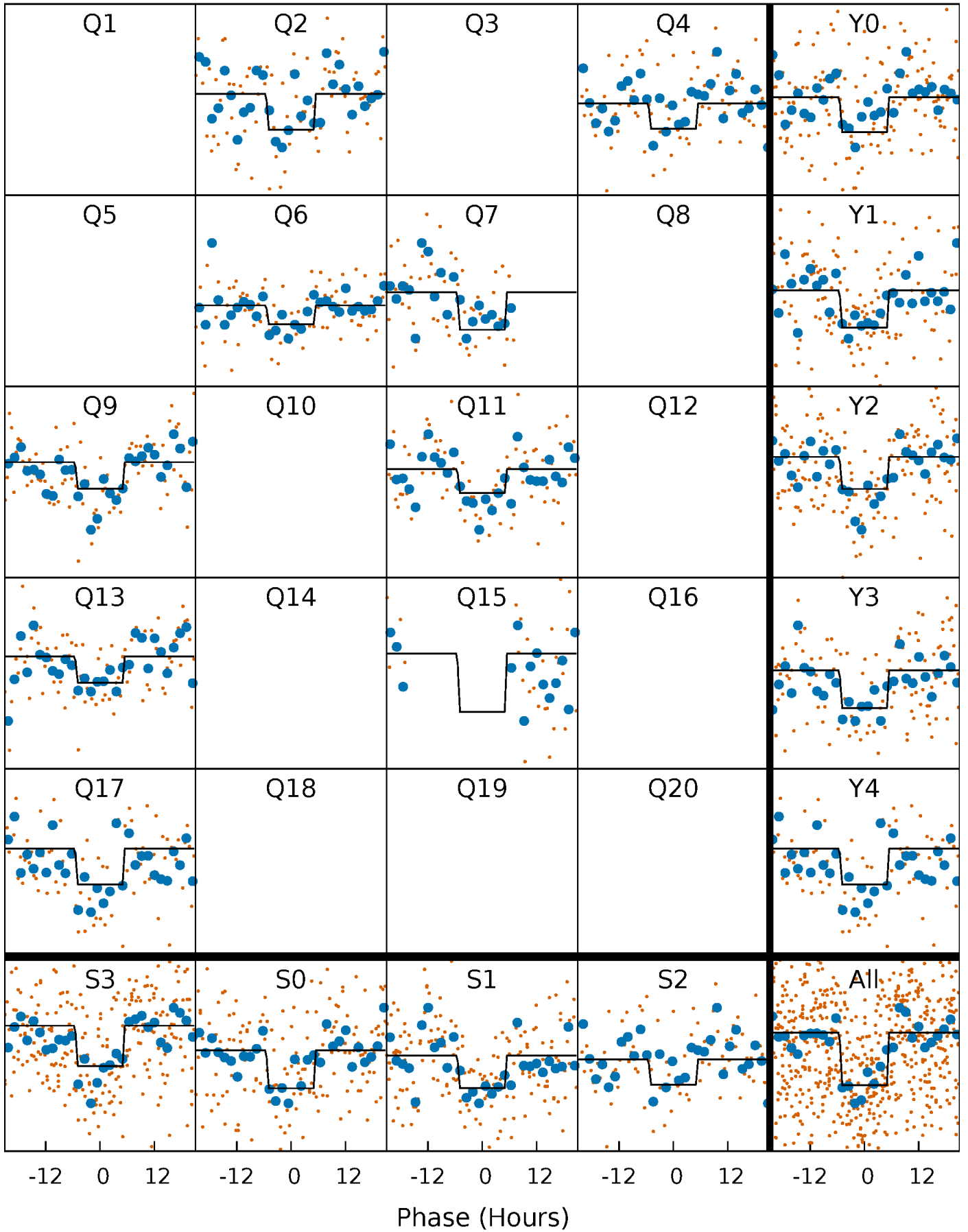
# DV Quarter-Phased Transit Curves

TCE 007594098-01     $P=171.432611$  Days     $T_0=204.927623$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

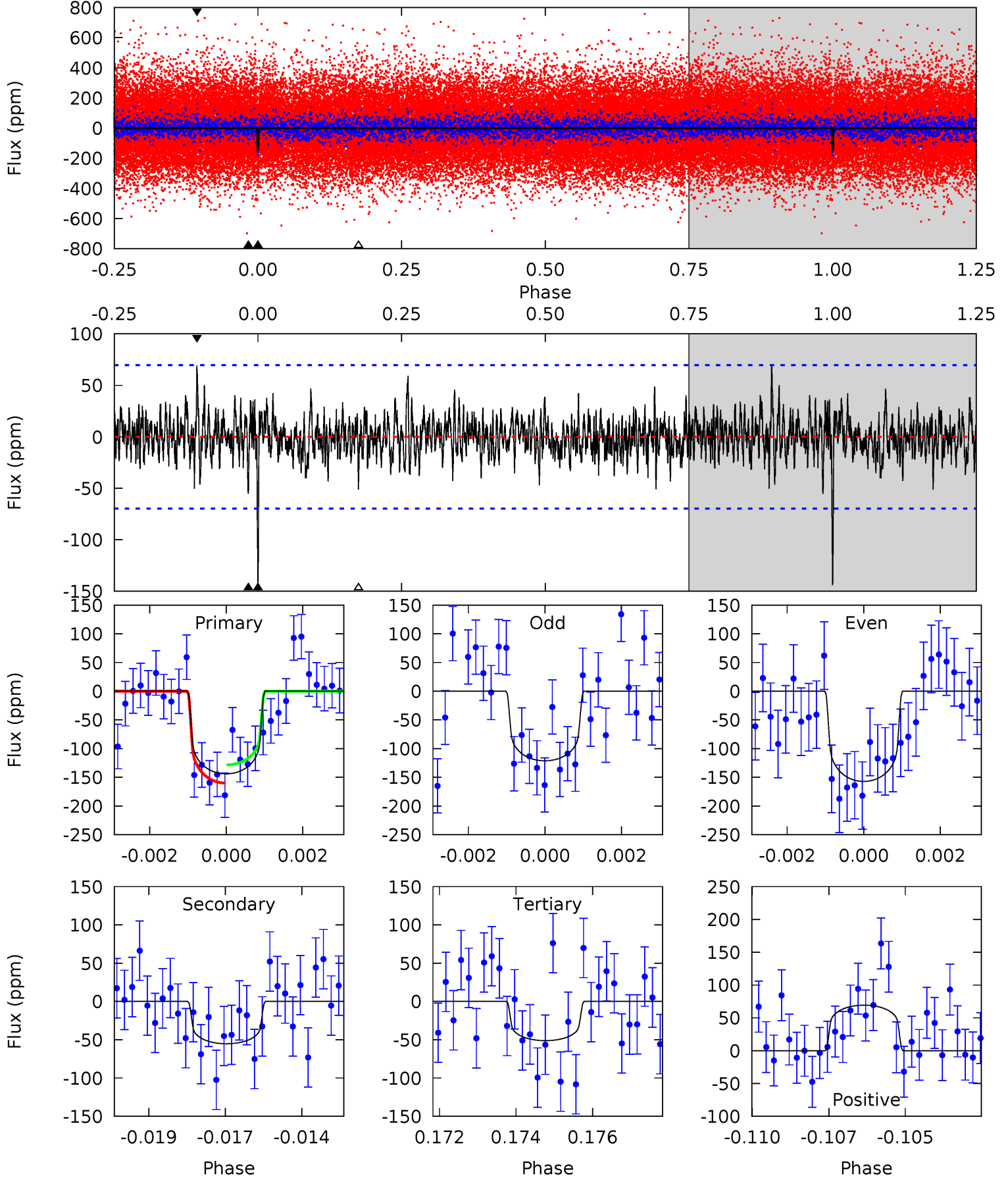
TCE 007594098-01 P=171.437568 Days  $T_0=204.947191$  (BKJD)



# DV Model-Shift Uniqueness Test

007594098-01, P = 171.432611 Days, E = 33.495012 Days

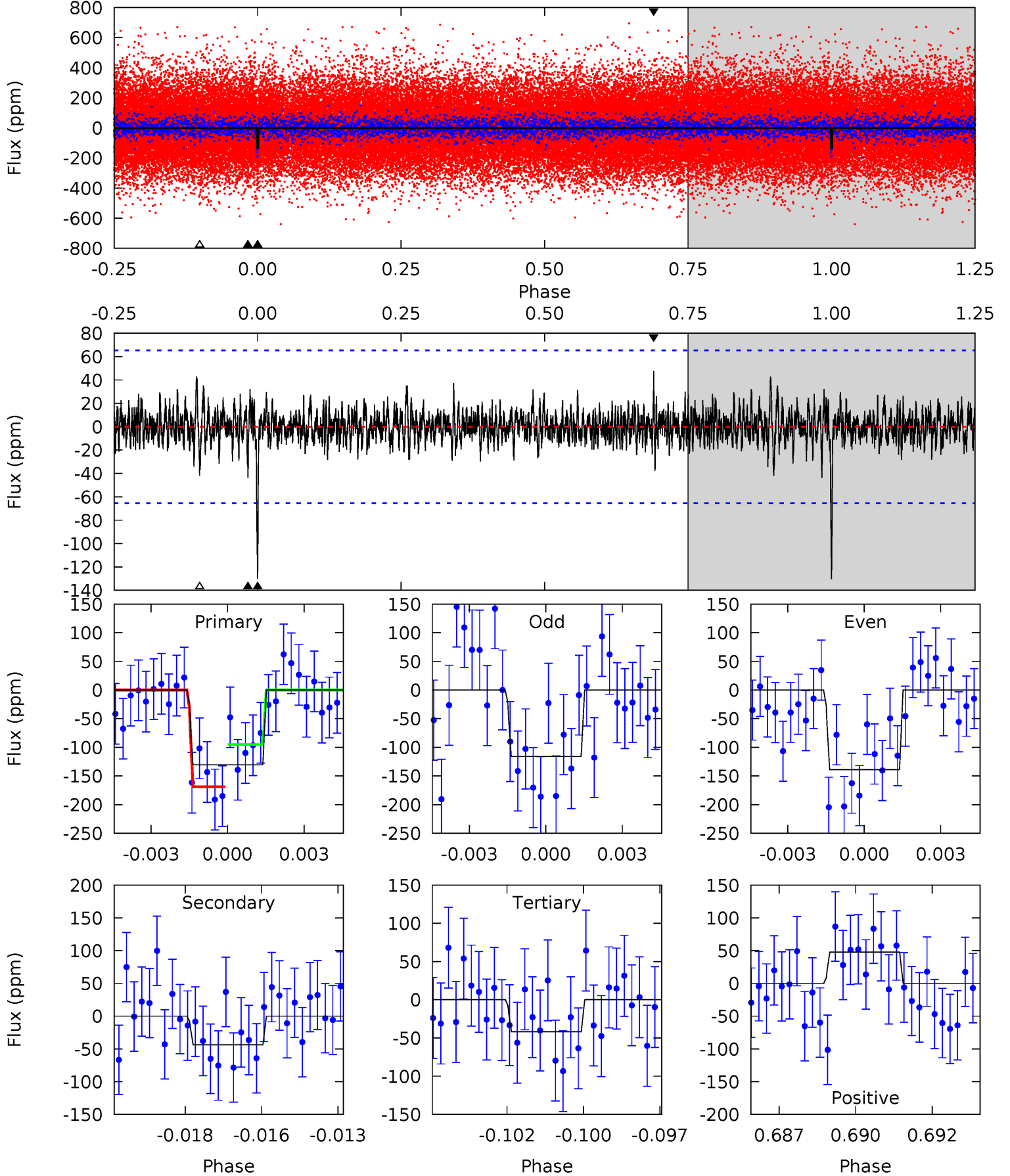
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	4.20	3.89	5.27	5.29	3.04	1.19	7.05	5.67	0.31	-1.07	1.32	0.97	0.33	1.21



# Alt Model-Shift Uniqueness Test

007594098-01,  $P = 171.437568$  Days,  $E = 33.509623$  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
10.5	3.53	3.38	3.85	5.28	3.01	0.85	7.15	6.67	0.15	-0.32	0.90	0.96	0.27	2.97



### Stellar Parameters For KIC 007594098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5842^{+139}_{-157}$	$4.556^{+0.036}_{-0.192}$	$-0.260^{+0.300}_{-0.300}$	$0.843^{+0.238}_{-0.063}$	$0.931^{+0.110}_{-0.110}$	$2.191^{+0.412}_{-1.085}$
	+2%/-3%	+1%/-4%	+115%/-115%	+28%/-7%	+12%/-12%	+19%/-50%
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 007594098-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-55 \pm 13$	$1.19^{+0.48}_{-0.45}$	$439^{+26}_{-18}$	$4665^{+1074}_{-610}$	$7291^{+11612}_{-3919}$
Alt.	$-44 \pm 12$	$1.10^{+0.49}_{-0.41}$	$441^{+27}_{-18}$	$4559^{+1125}_{-626}$	$6519^{+10272}_{-3664}$

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

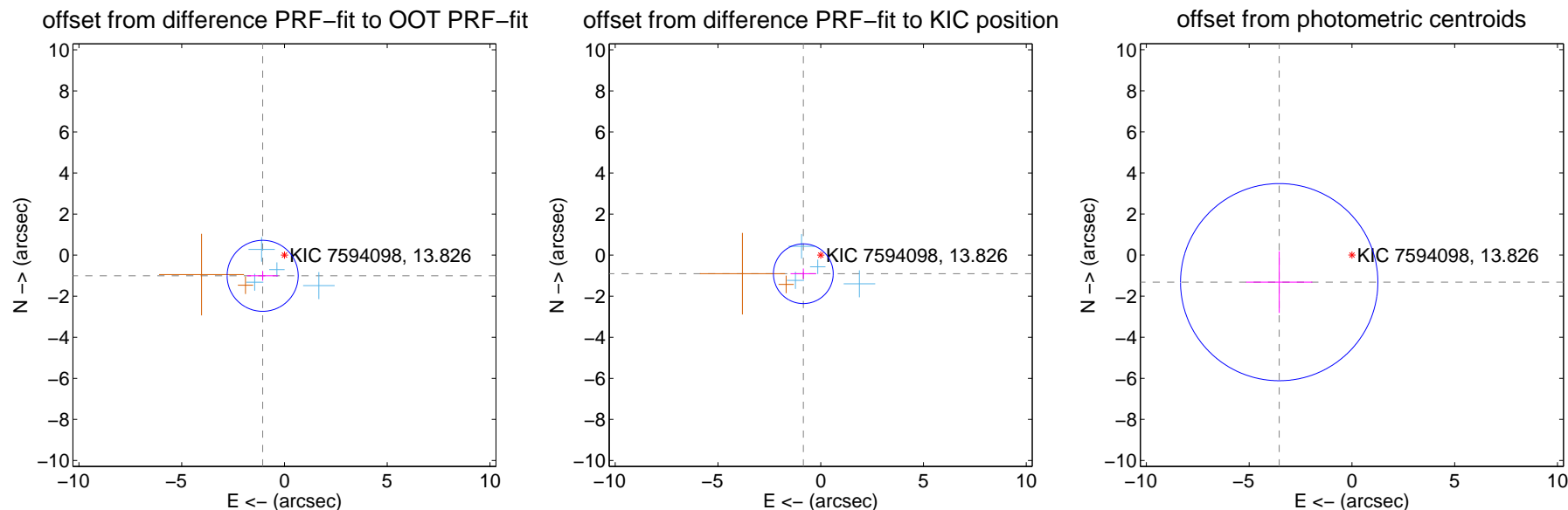
## DV Centroid Data

Supplemental centroid analysis for 007594098-01. Kepler magnitude: 13.83. Transit SNR 7.62

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

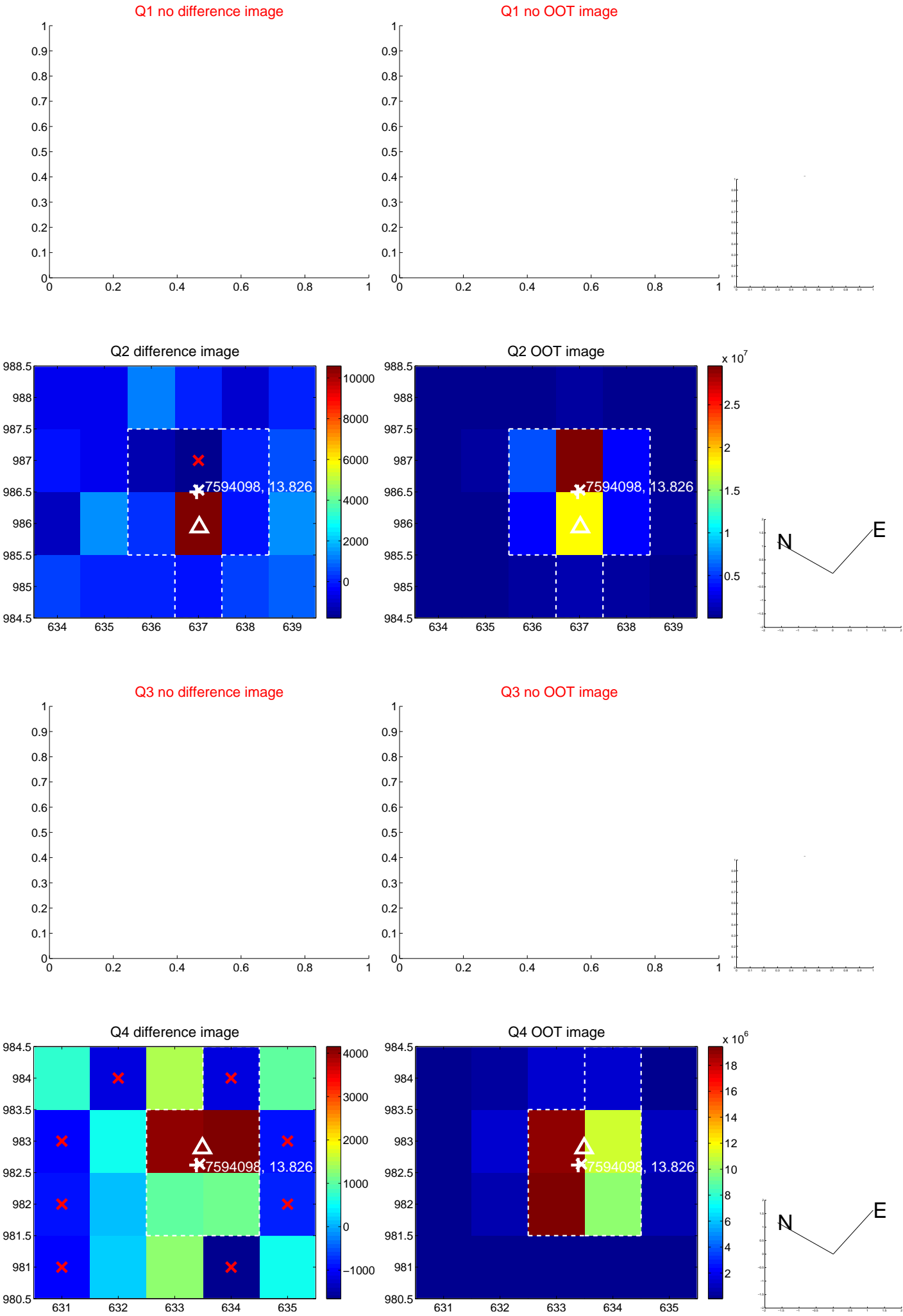
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.463 \pm 0.576$	2.54	$1.061 \pm 0.751$	$-1.007 \pm 0.239$
PRF-fit source offset from KIC position	$1.239 \pm 0.485$	2.56	$0.846 \pm 0.621$	$-0.905 \pm 0.254$
photometric centroid source offset	$3.78 \pm 1.60$	2.36	$3.54 \pm 1.61$	$-1.32 \pm 1.50$



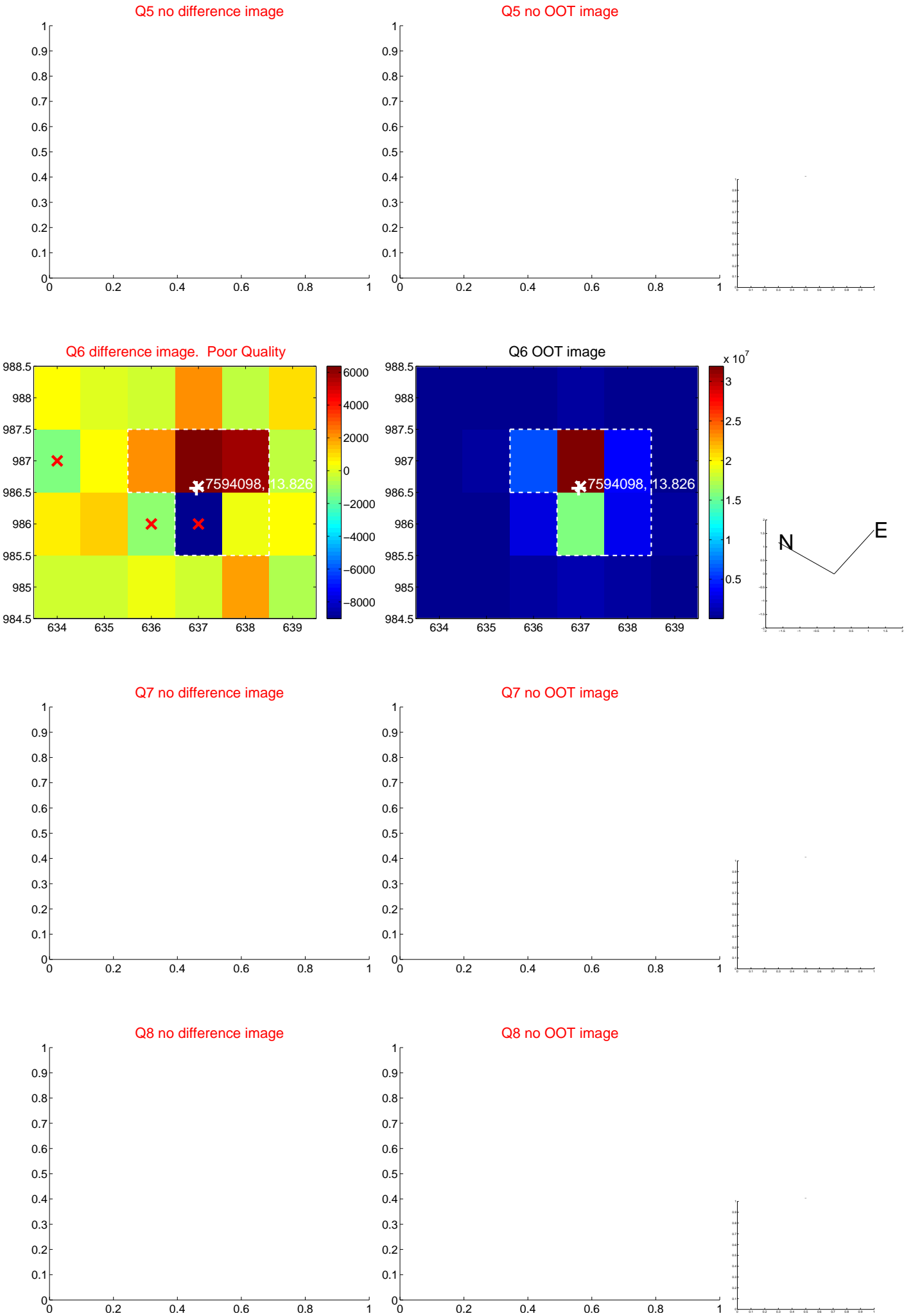
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



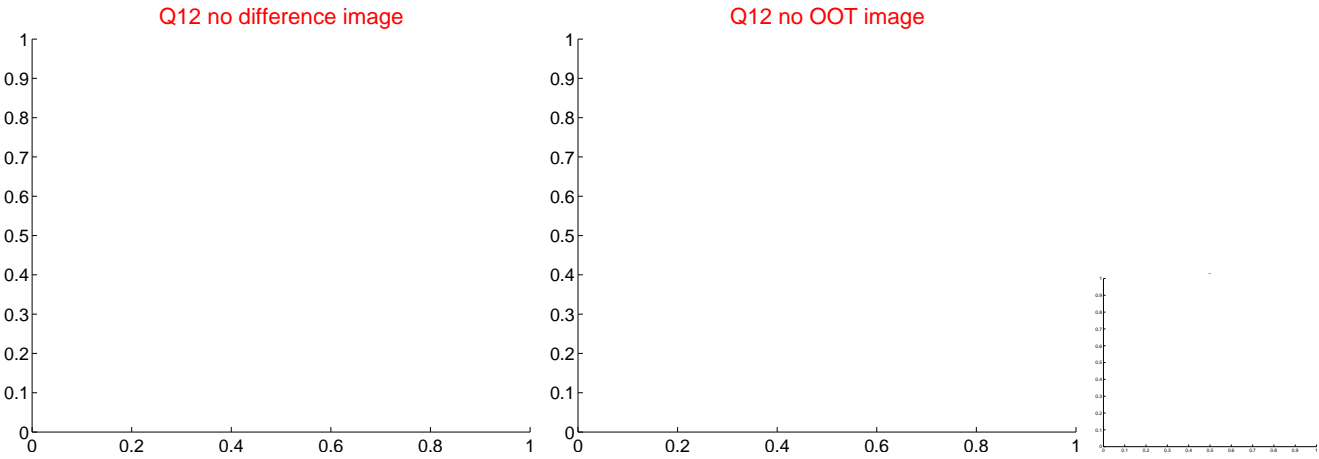
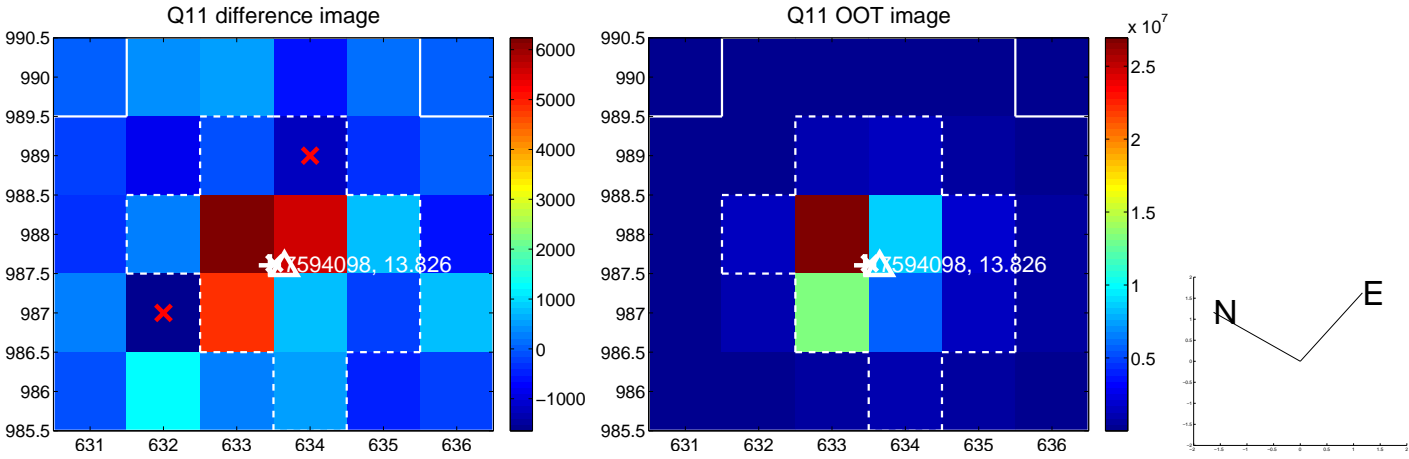
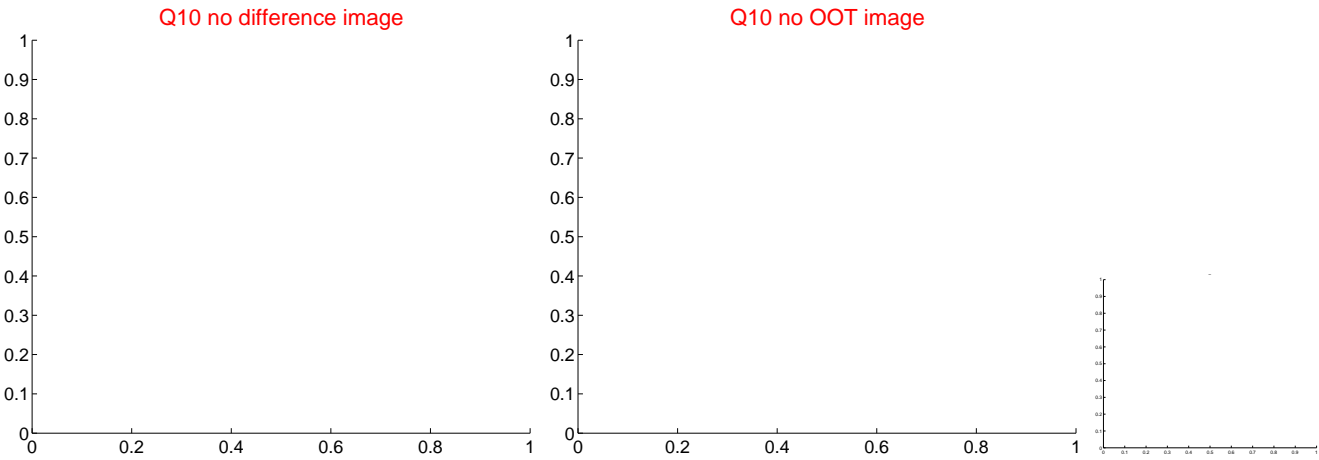
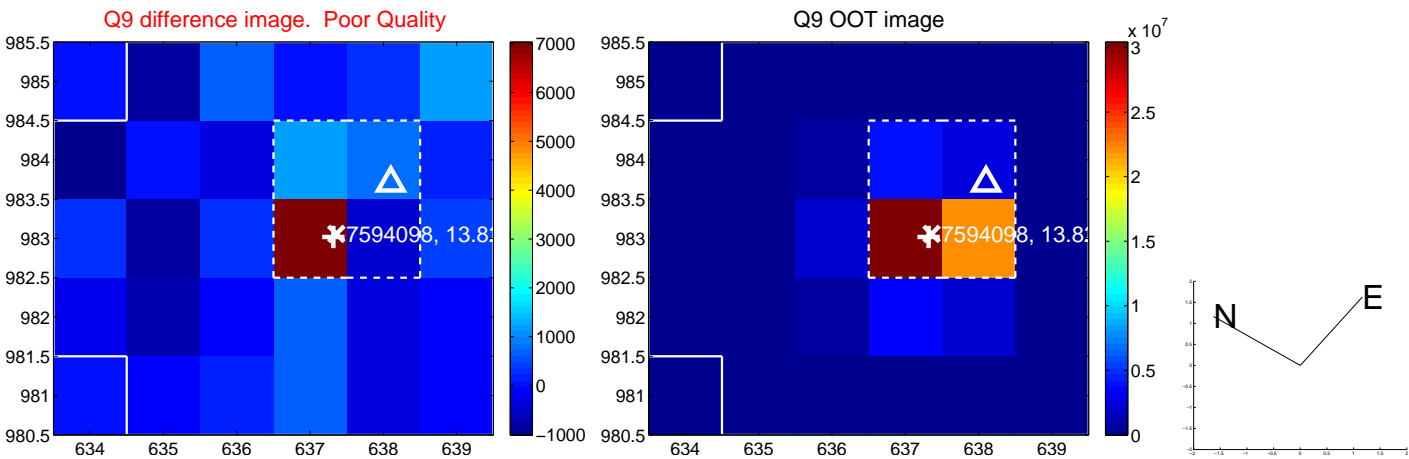
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



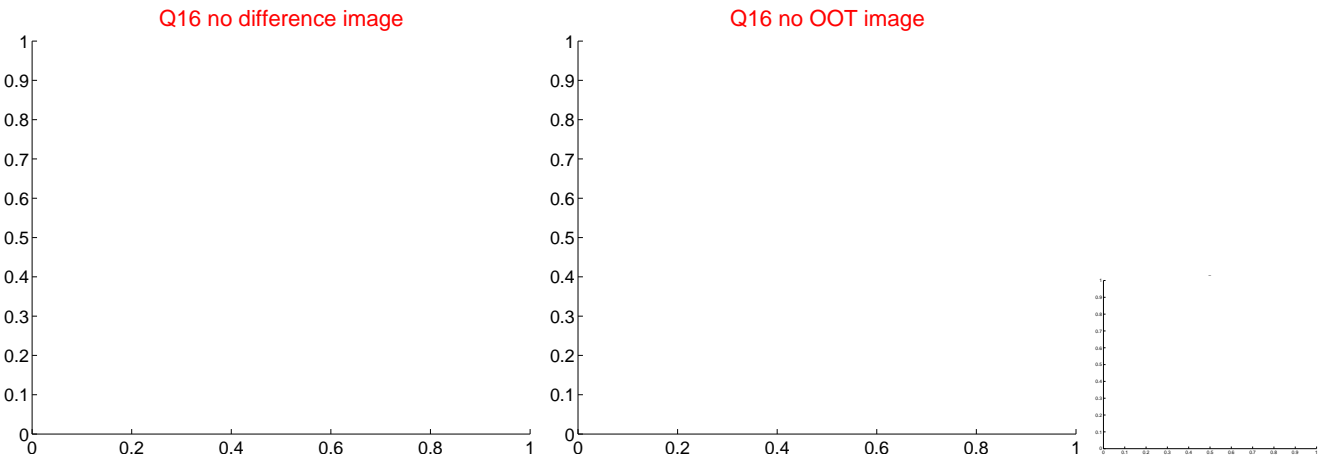
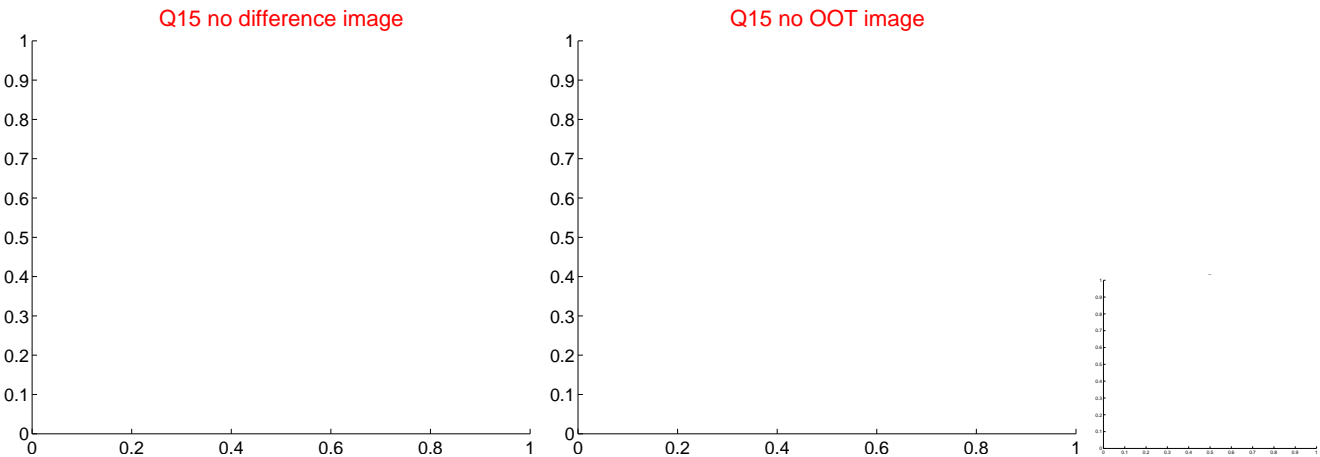
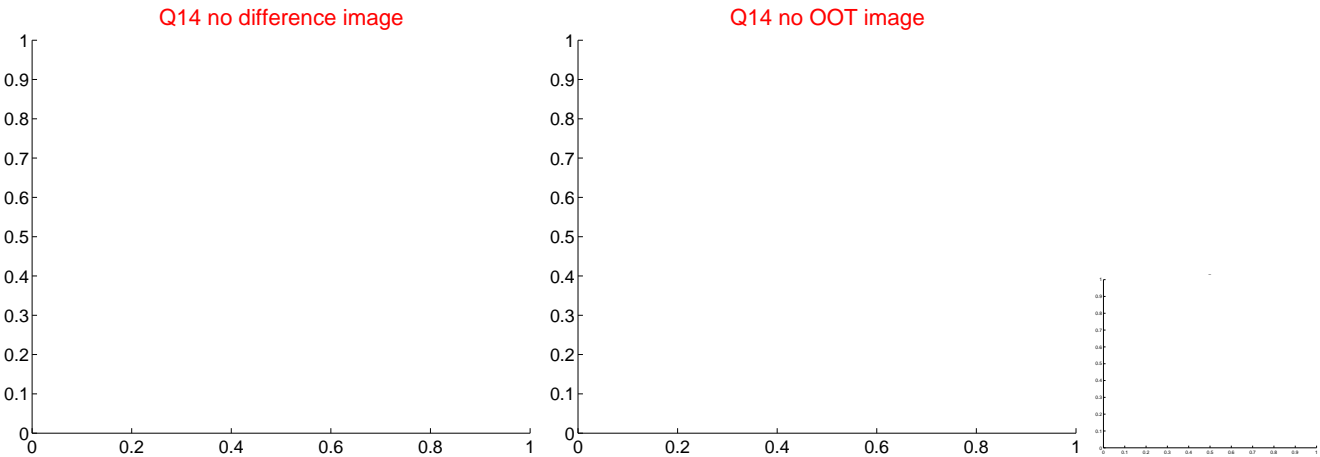
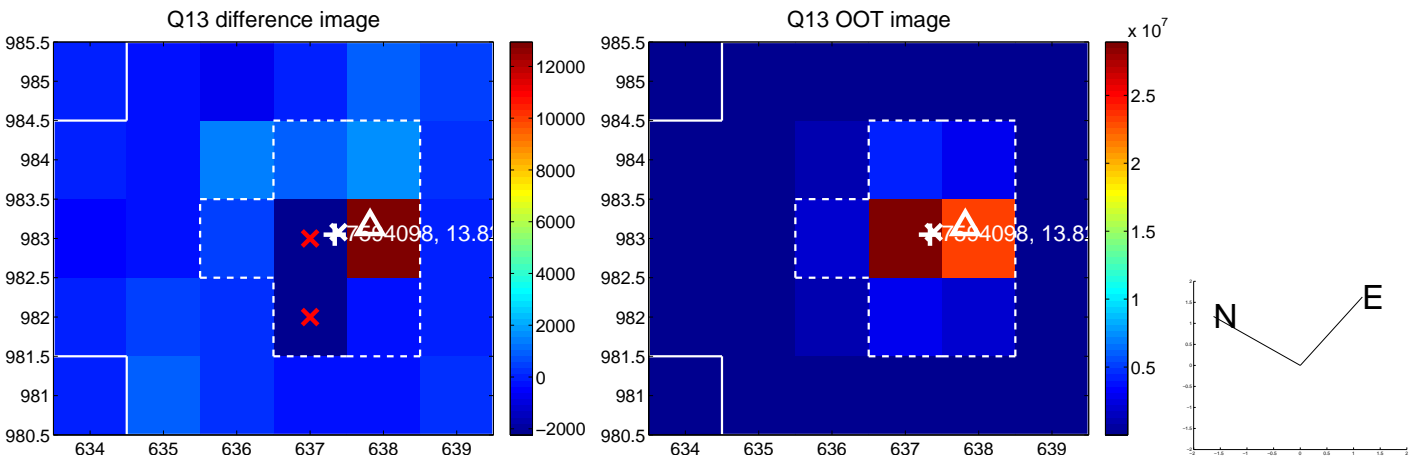
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



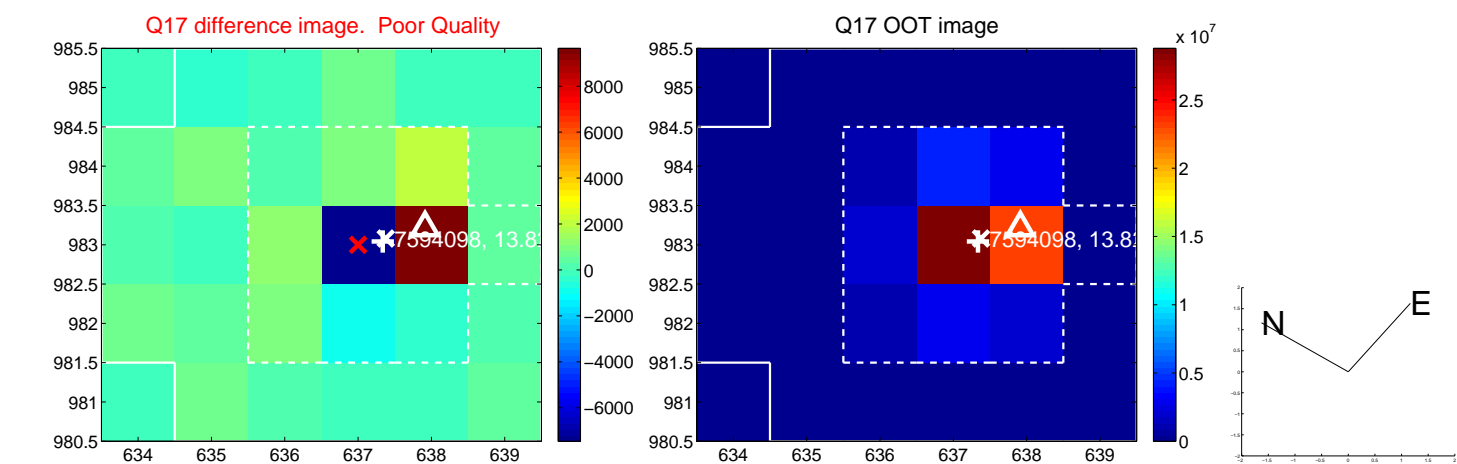
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



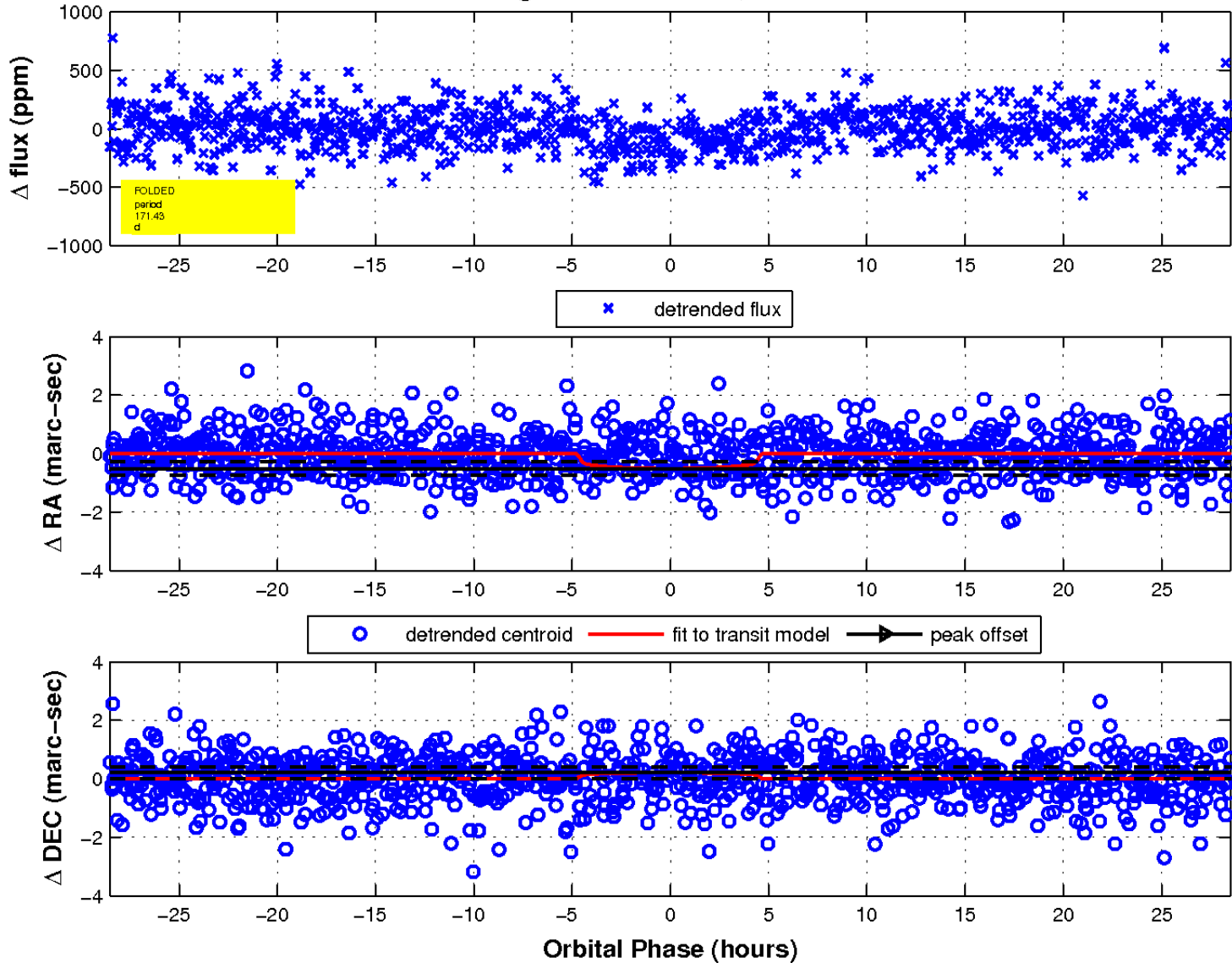
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

