

# KIC 009472000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009472000-01	OBS	2082.01	31.588930	155.614560	356.5	3.723	23.0	24.2	1.37	5866	3.13	51.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009472000-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

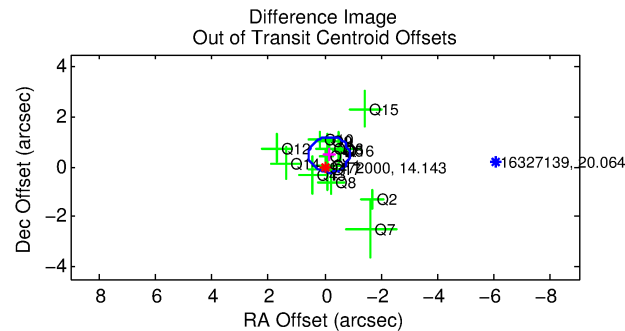
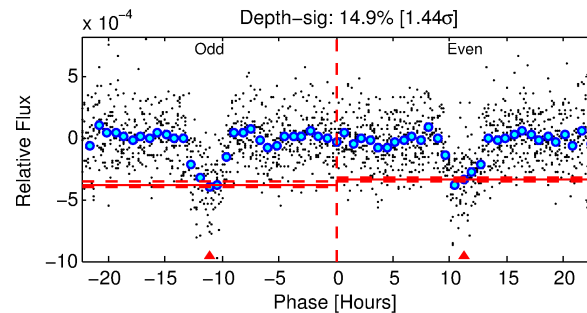
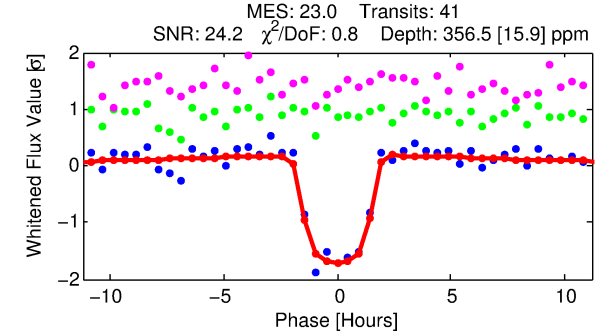
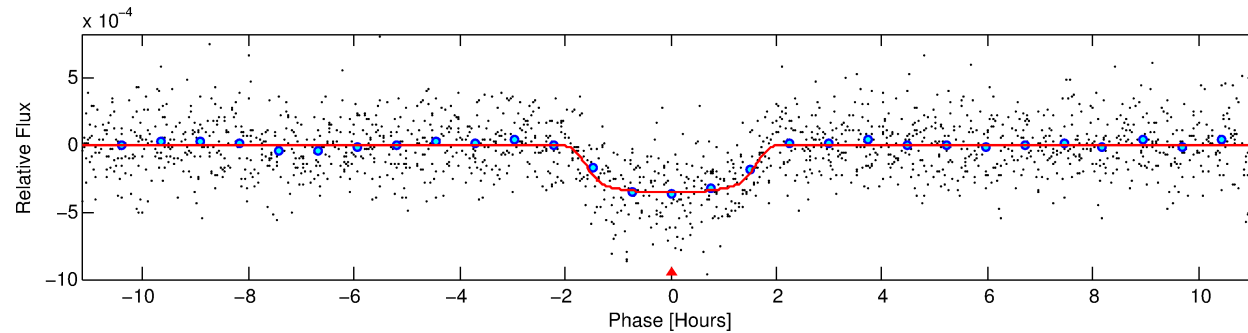
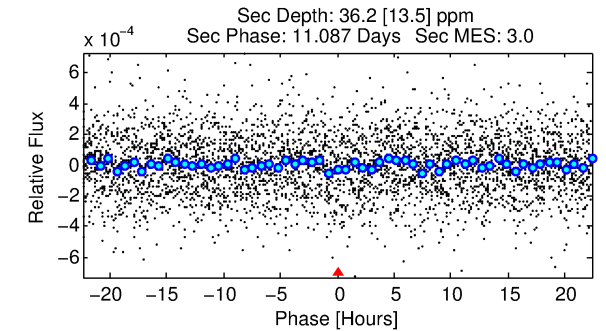
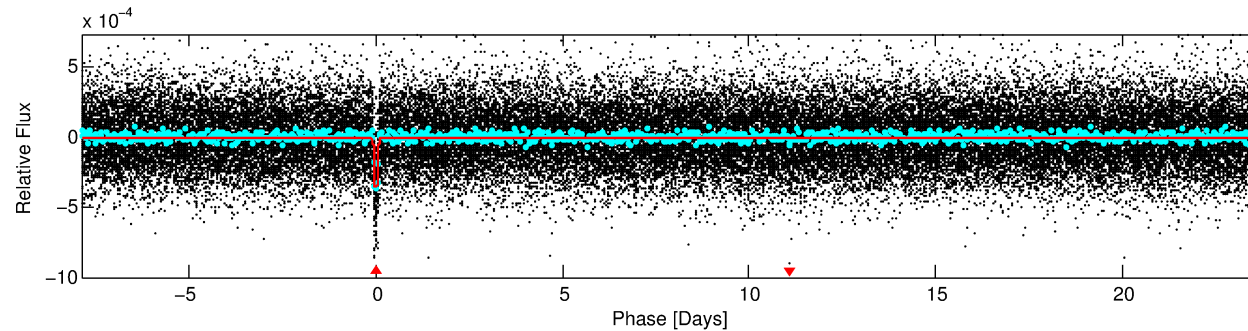
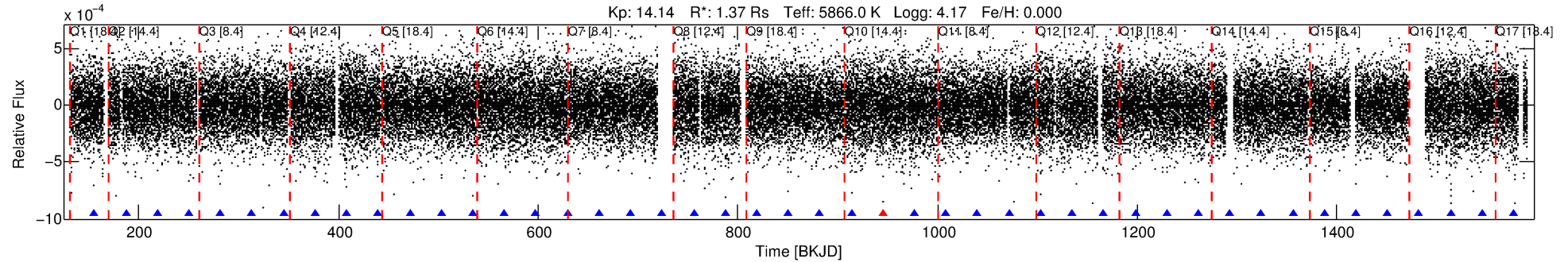
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009472000-01

No Significant Match Found

# DV One-Page Summary

KIC: 9472000 Candidate: 1 of 1 Period: 31.589 d  
KOI: K02082.01 Corr: 0.956



## DV Fit Results:

Period = 31.58893 [0.00012] d  
Epoch = 155.6146 [0.0032] BKJD  
Rp/R\* = 0.0210 [0.0021]  
a/R\* = 28.67 [12.94]  
b = 0.92 [0.08]  
Seff = 51.14 [16.17]  
Teff = 682 [54] K  
Rp = 3.13 [0.66] Re  
a = 0.1969 [0.0369] AU  
Ag = 78.96 [41.04] [1.90σ]  
Teffp = 3143 [336] K [7.23σ]

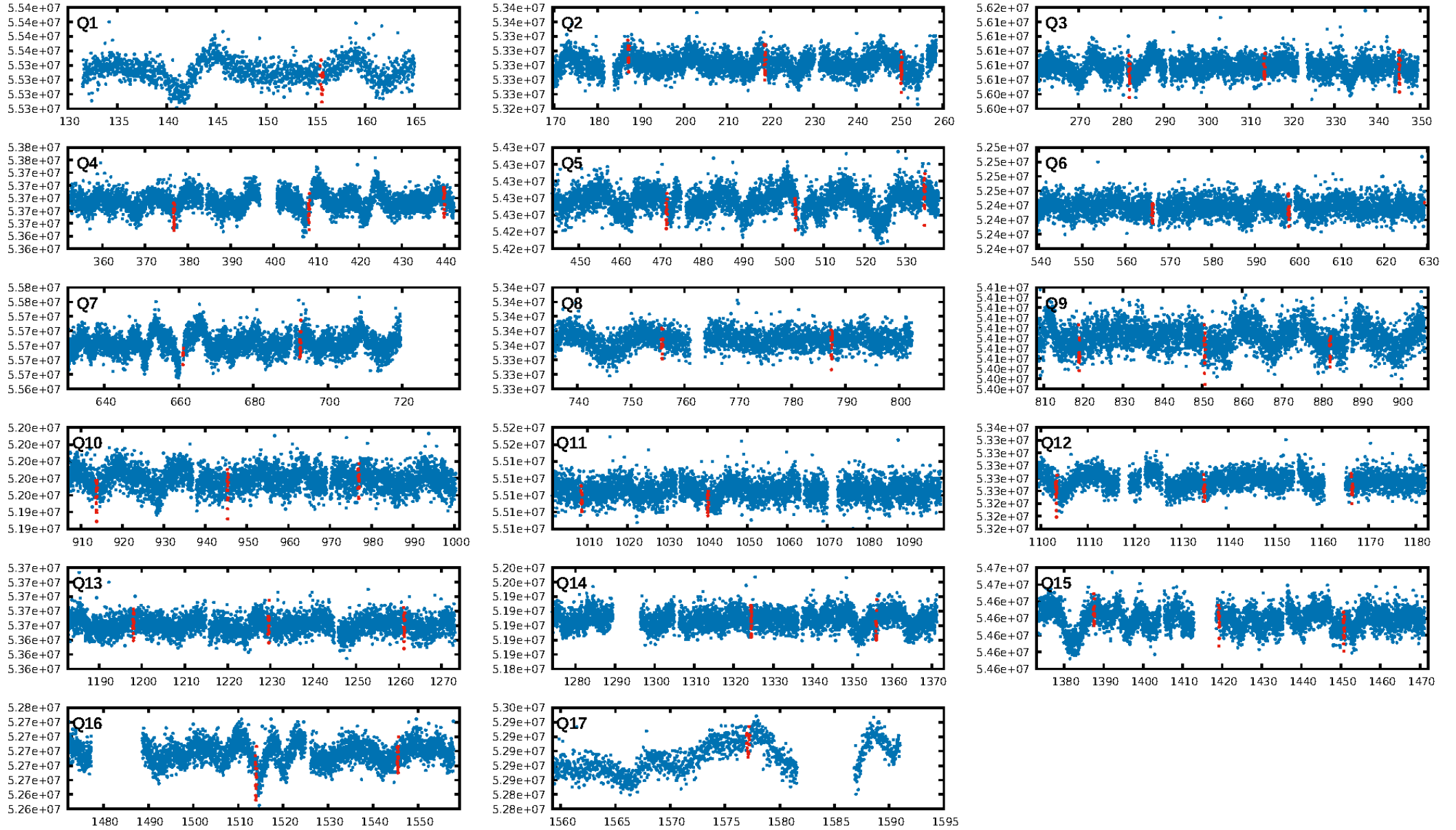
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.37e-115  
RollingBand-fgt: 0.97 [38/39]  
GhostDiagnostic-chr: 3.551  
Centroid-sig: 0.0%  
Centroid-so: 1.109 arcsec [2.29σ]  
OotOffset-rm: 0.510 arcsec [2.14σ]  
KicOffset-rm: 0.462 arcsec [1.97σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

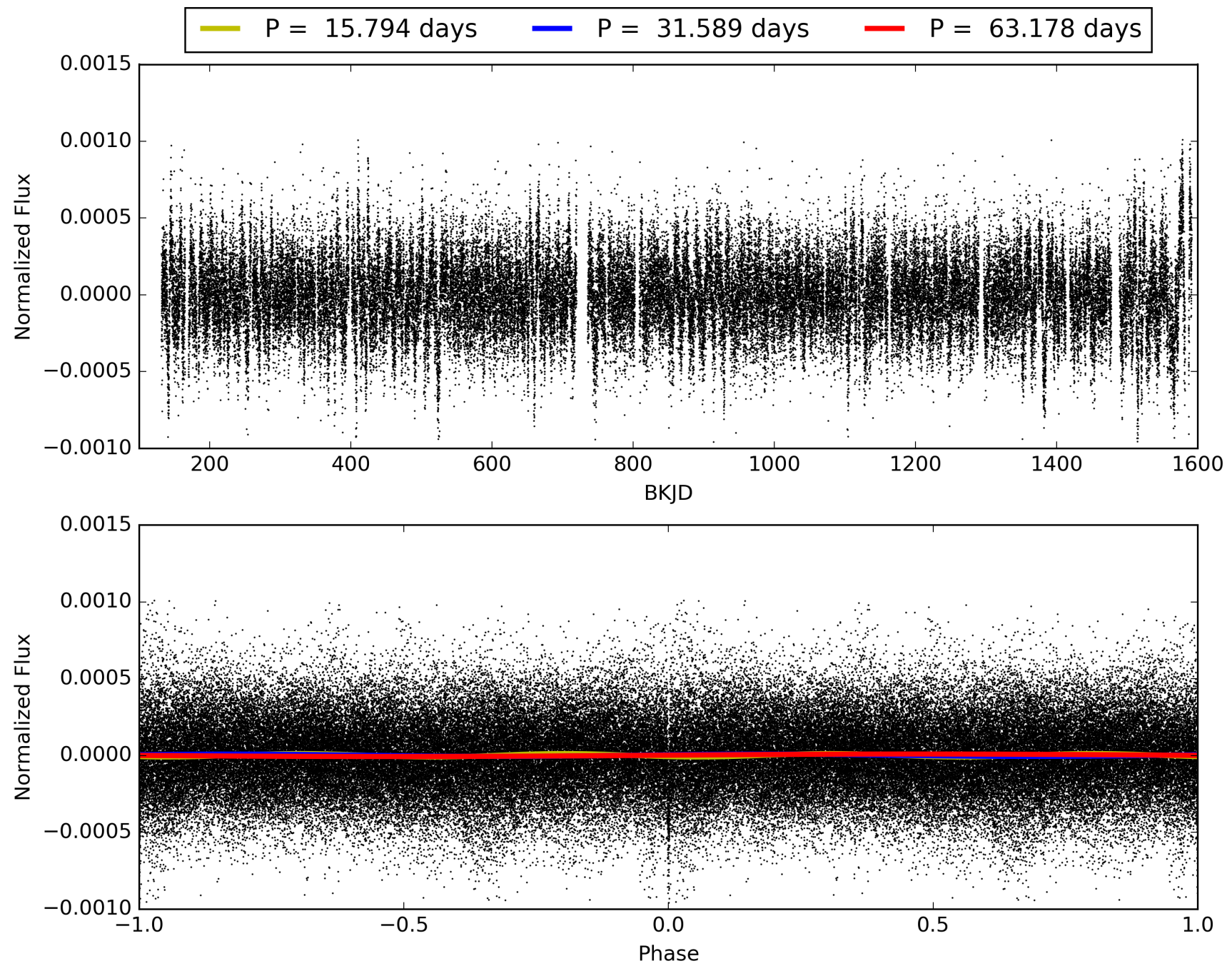
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:17:32 Z

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

# TCE 009472000-01, PDC Light Curves

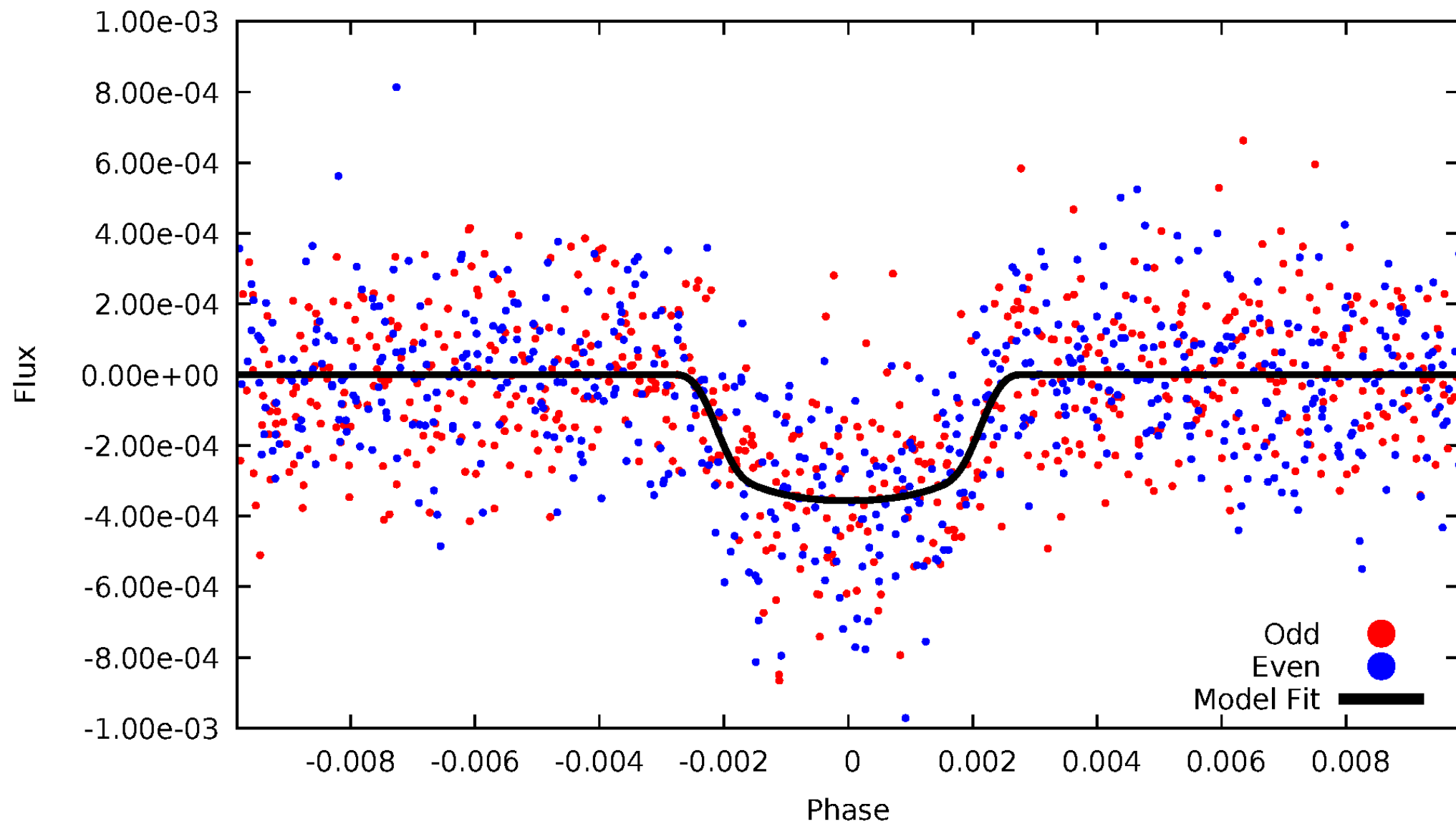


TCE 009472000-01



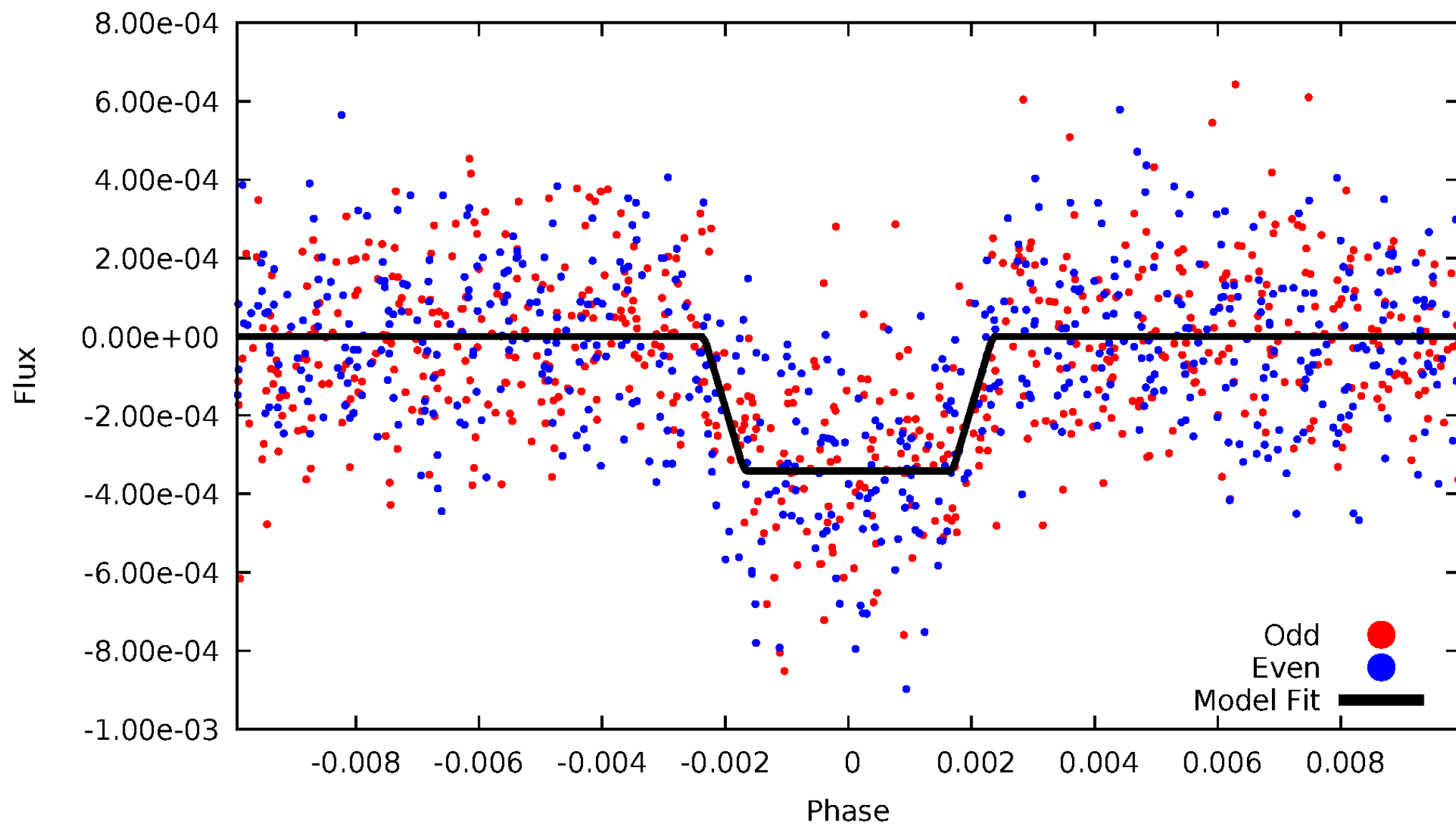
# DV Odd/Even

TCE 009472000-01



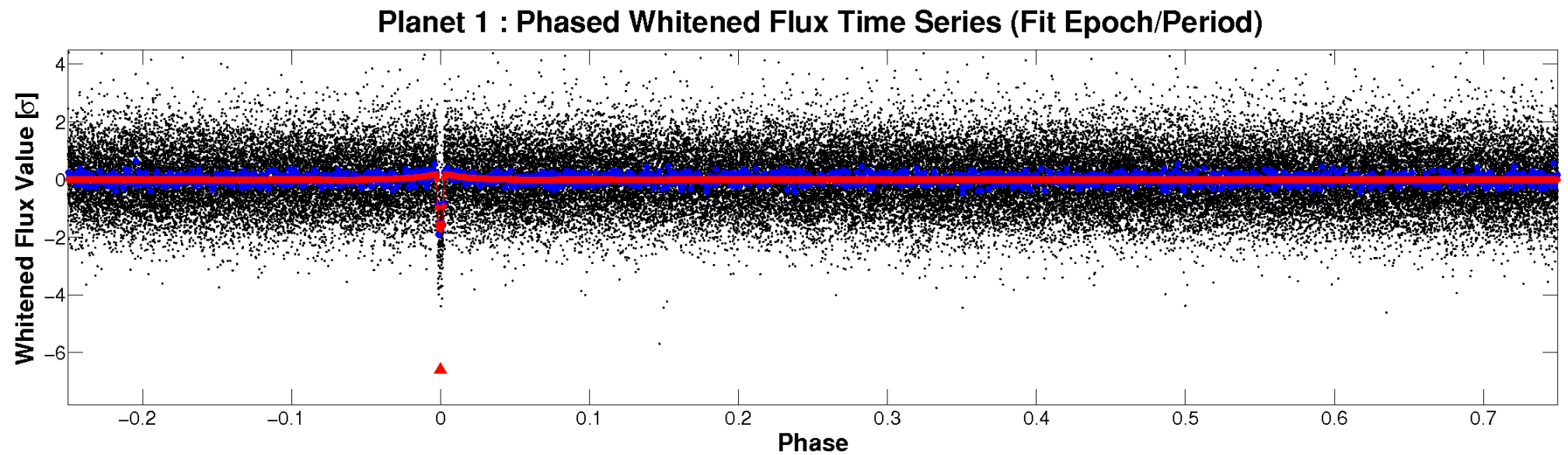
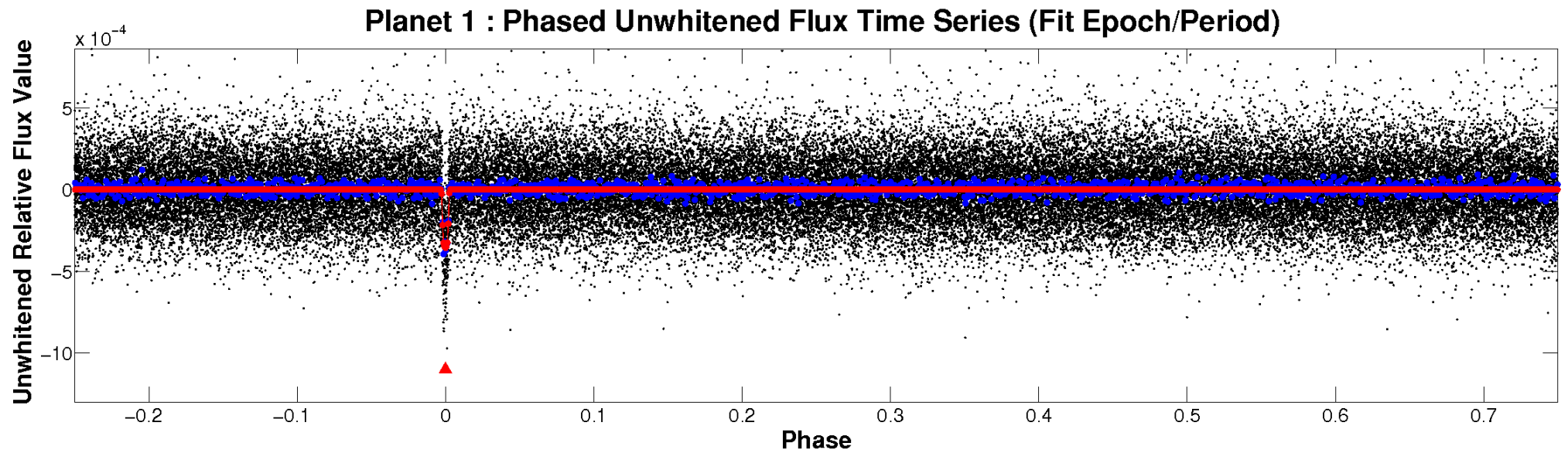
# ALT Odd/Even

TCE 009472000-01



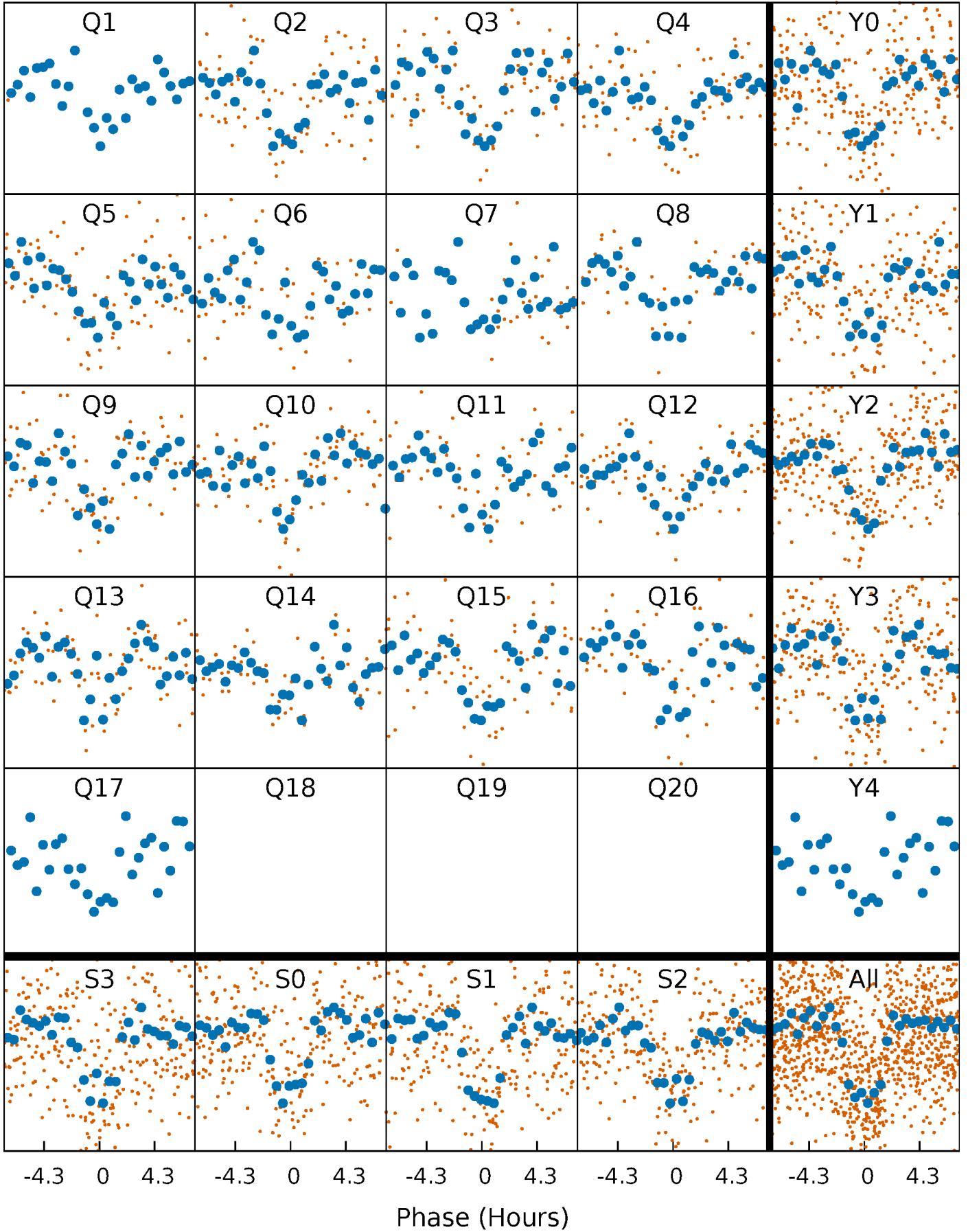


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

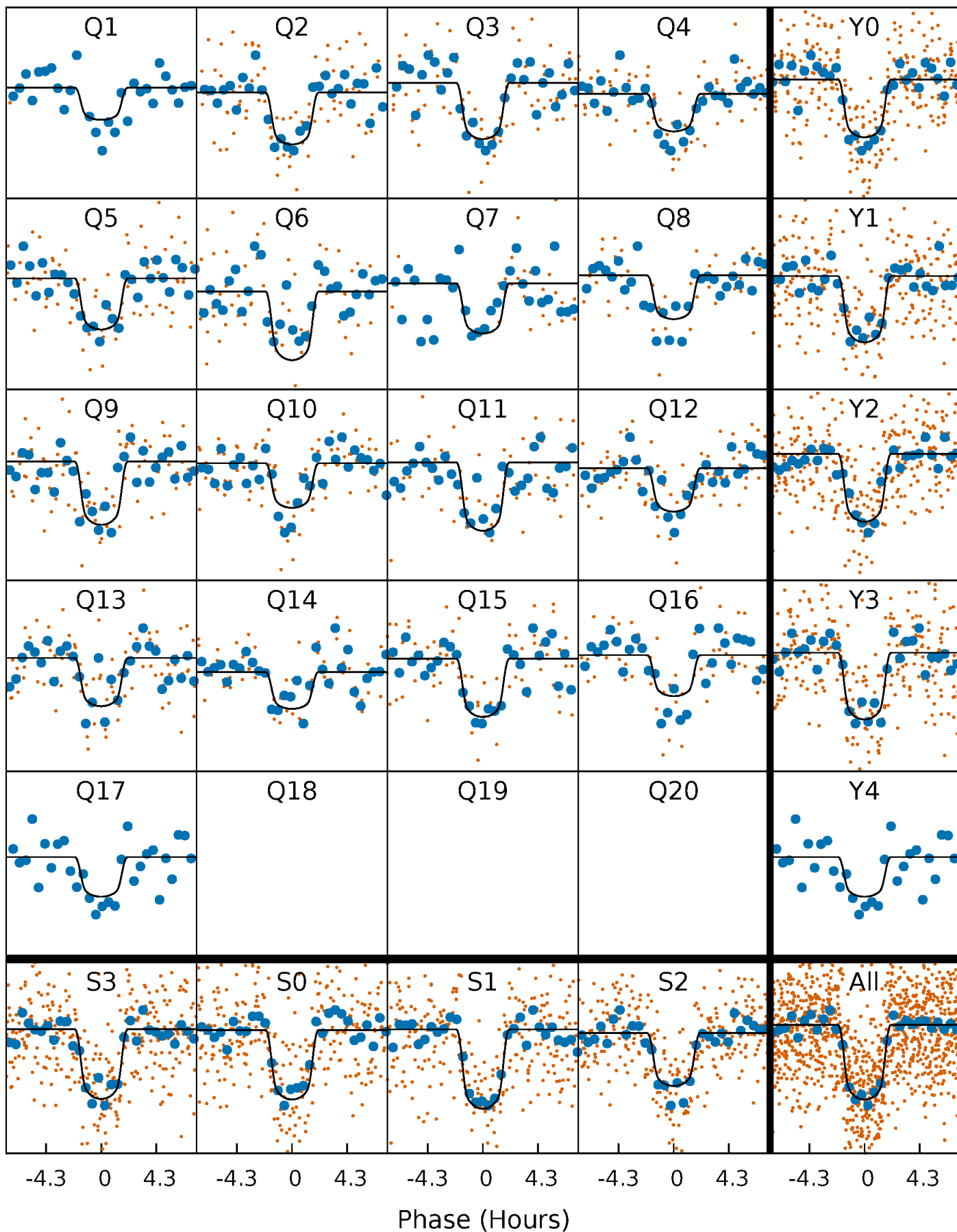
TCE 009472000-01 P= 31.588930 Days  $T_0=155.614560$  (BKJD)





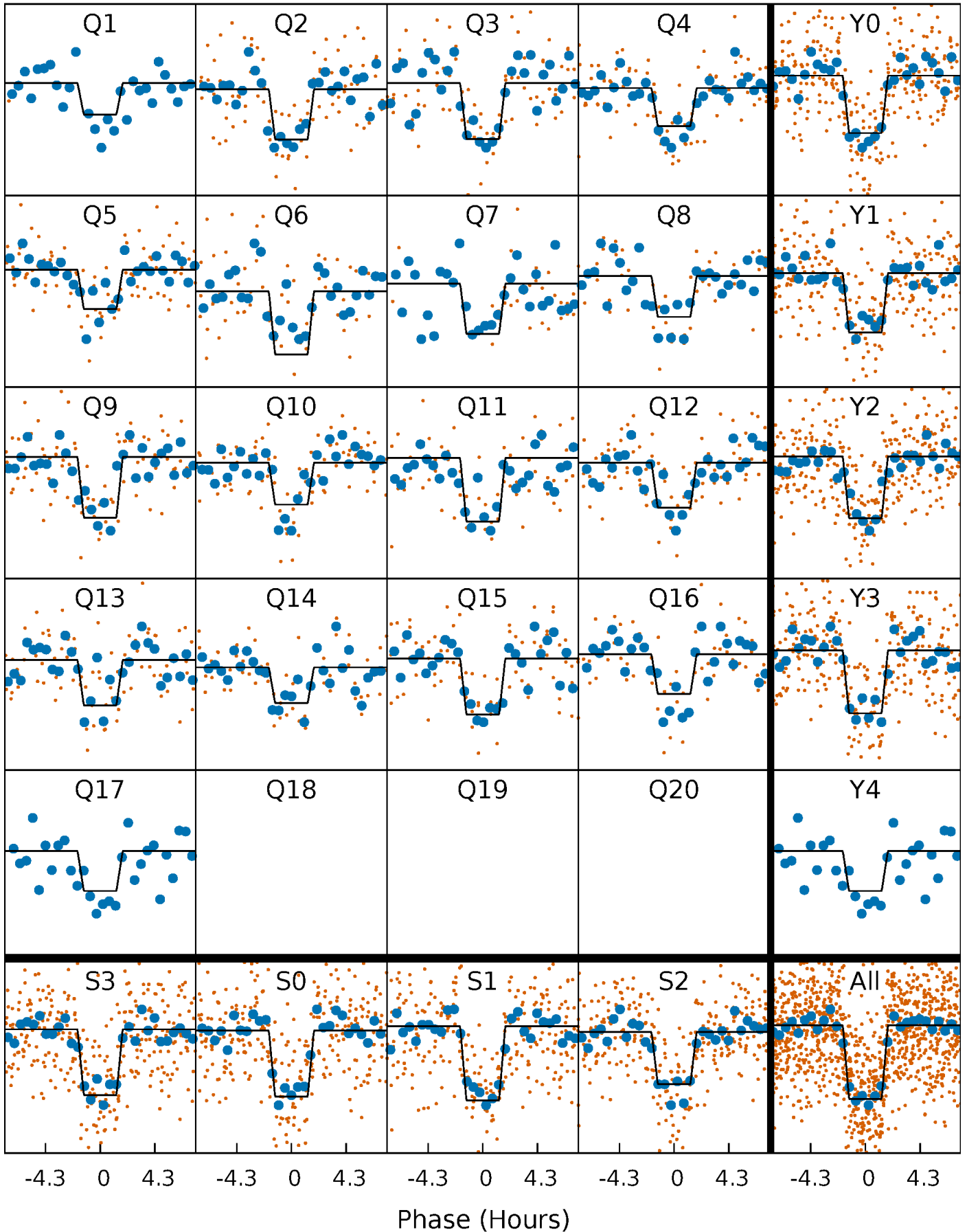
# DV Quarter-Phased Transit Curves

TCE 009472000-01 P= 31.588930 Days  $T_0=155.614560$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

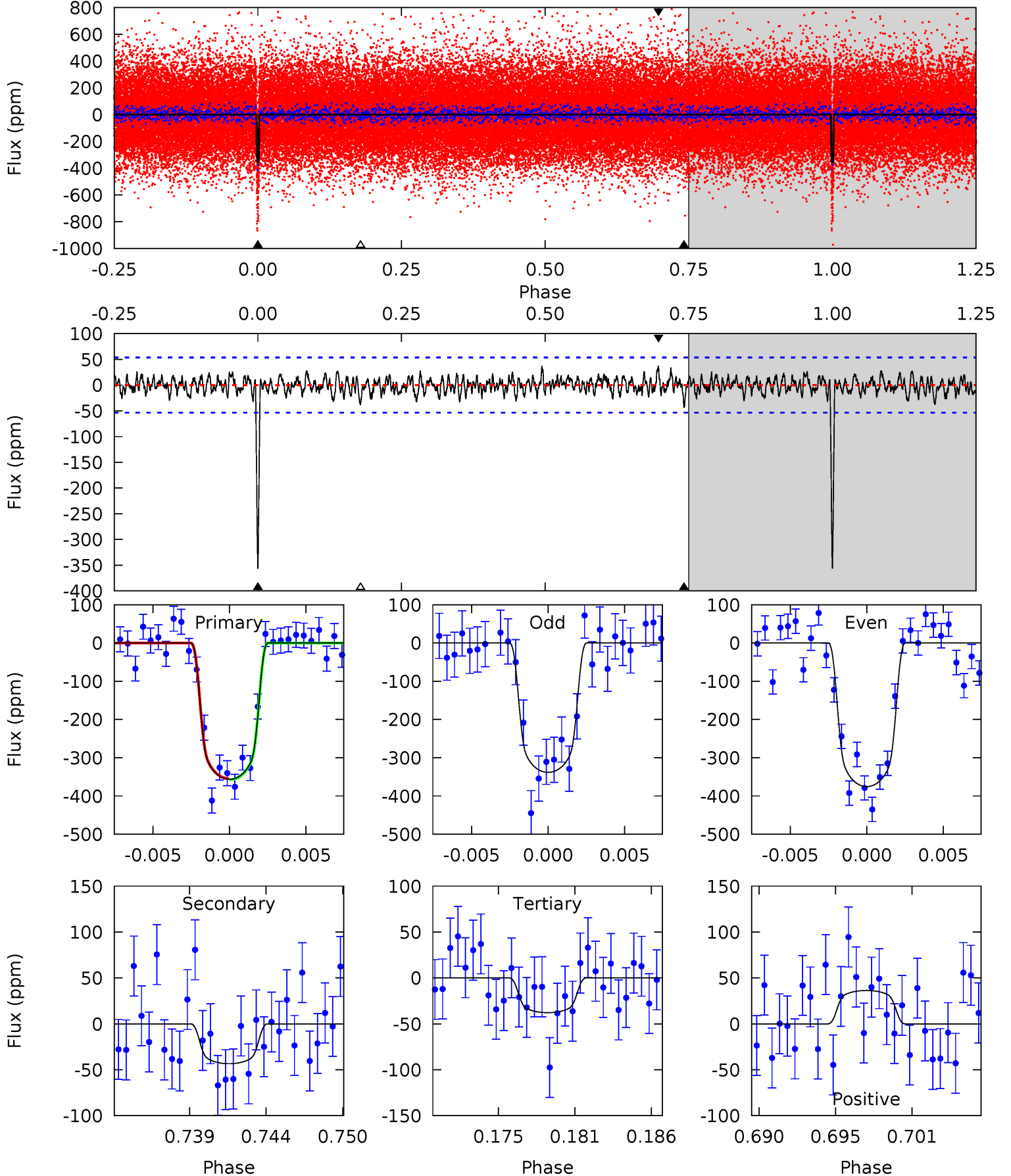
TCE 009472000-01     $P = 31.588820$  Days     $T_0 = 155.617140$  (BKJD)



# DV Model-Shift Uniqueness Test

009472000-01,  $P = 31.588930$  Days,  $E = 124.025630$  Days

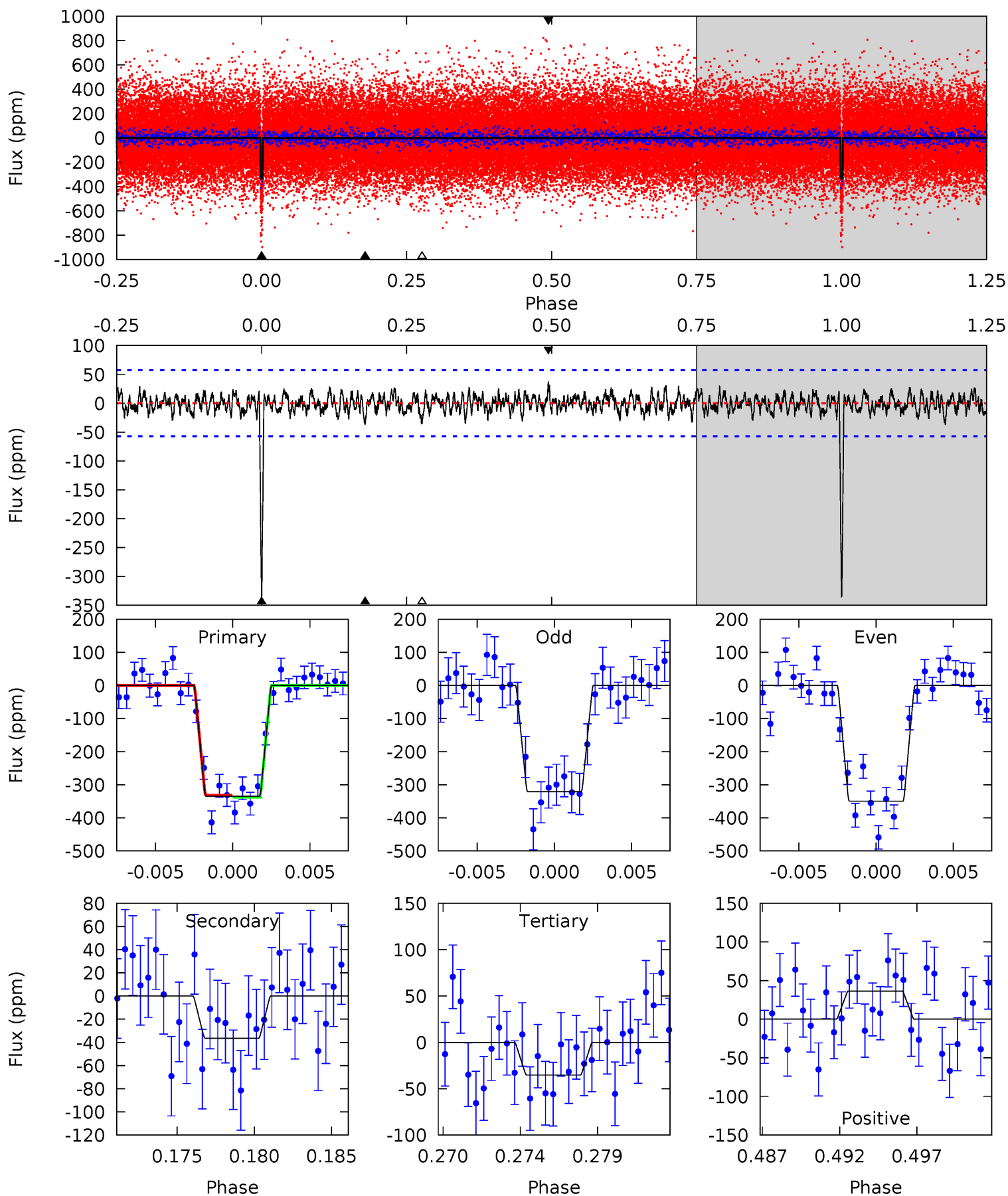
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.2	4.16	3.63	3.48	5.14	2.78	1.17	30.5	30.7	0.53	0.68	1.78	0.96	0.09	0.13



# Alt Model-Shift Uniqueness Test

009472000-01,  $P = 31.588820$  Days,  $E = 124.028320$  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
30.2	3.29	3.19	3.29	5.17	2.82	1.08	27.0	26.9	0.10	-0.01	1.31	1.01	0.10	0.27



### Stellar Parameters For KIC 009472000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5866^{+105}_{-117}$	$4.175^{+0.182}_{-0.098}$	$0.000^{+0.150}_{-0.150}$	$1.367^{+0.209}_{-0.256}$	$1.020^{+0.093}_{-0.078}$	$0.562^{+0.472}_{-0.169}$
	+2%/-2%	+4%/-2%	+inf%/-inf%	+15%/-19%	+9%/-8%	+84%/-30%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 009472000-01 / KOI 2082.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-43 \pm 10$	$3.11^{+0.42}_{-0.45}$	$947^{+43}_{-54}$	$3695^{+199}_{-208}$	$95^{+43}_{-28}$
Alt.	$-36 \pm 11$	$2.74^{+0.40}_{-0.42}$	$949^{+46}_{-54}$	$3729^{+242}_{-256}$	$102^{+53}_{-38}$

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



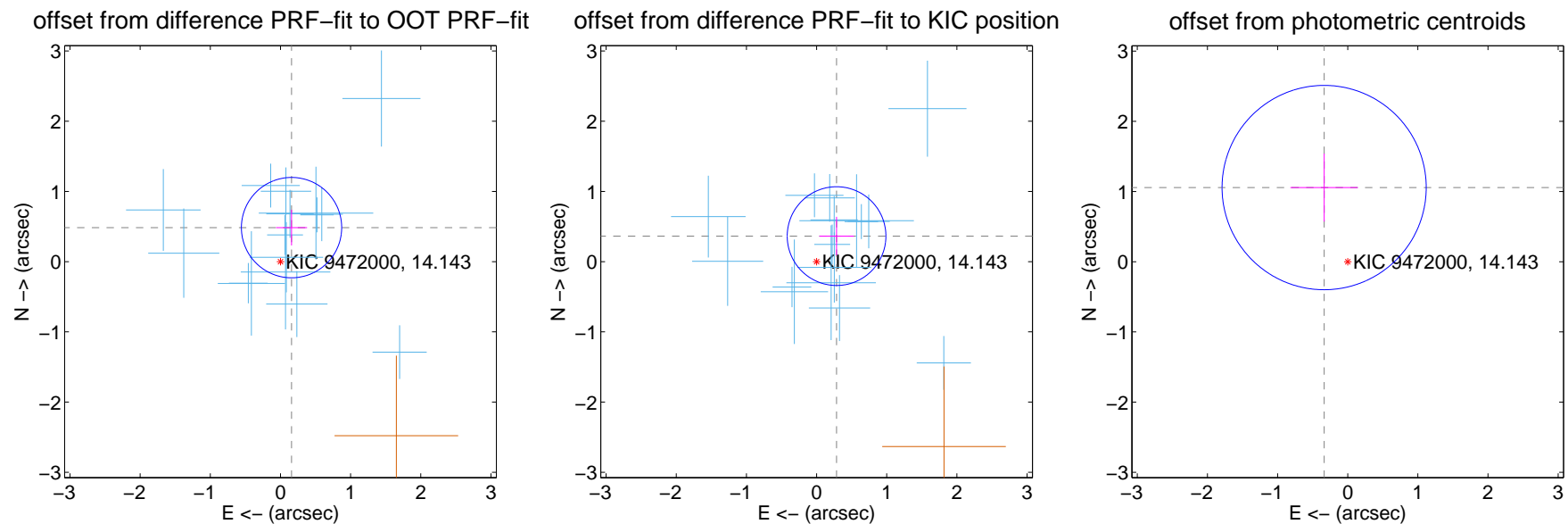
## DV Centroid Data

Supplemental centroid analysis for 009472000-01. Kepler magnitude: 14.14. Transit SNR 24.18

There are 16 quarters with good PRF difference image offsets

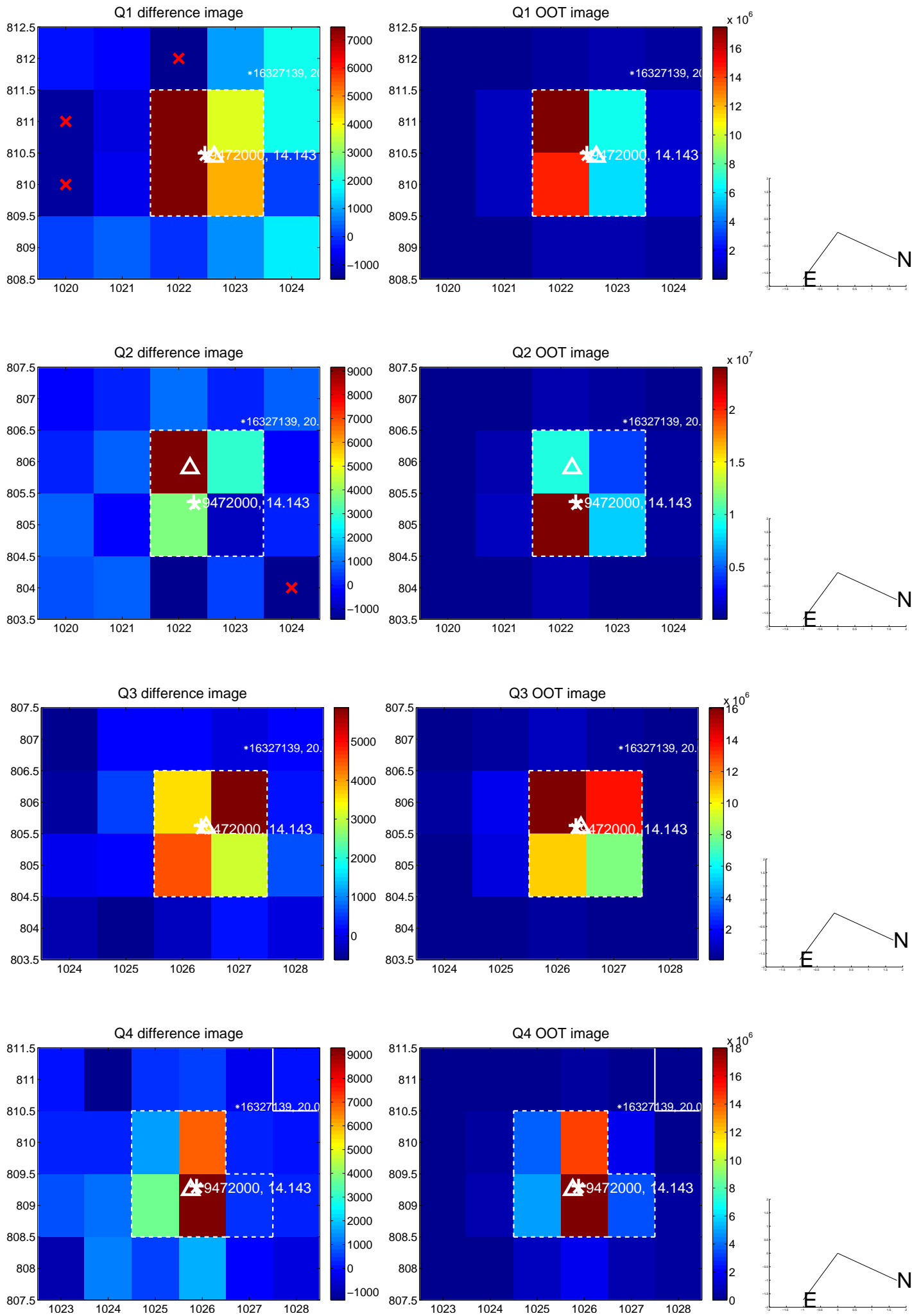
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.510 \pm 0.238$	2.14	$-0.158 \pm 0.221$	$0.485 \pm 0.254$
PRF-fit source offset from KIC position	$0.462 \pm 0.234$	1.97	$-0.285 \pm 0.244$	$0.364 \pm 0.274$
photometric centroid source offset	$1.11 \pm 0.49$	2.29	$0.34 \pm 0.48$	$1.06 \pm 0.49$

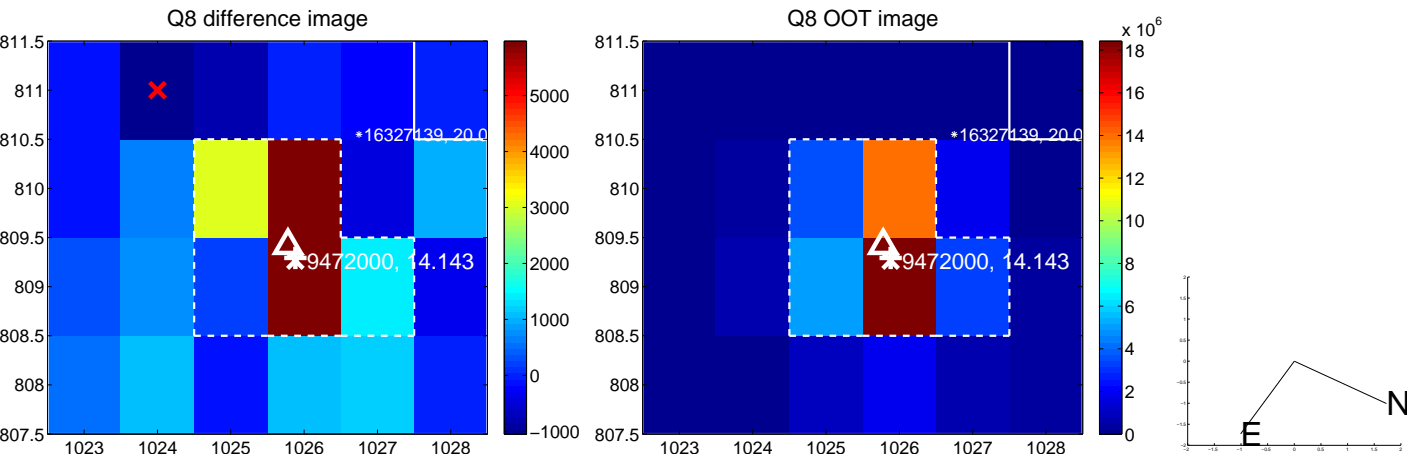
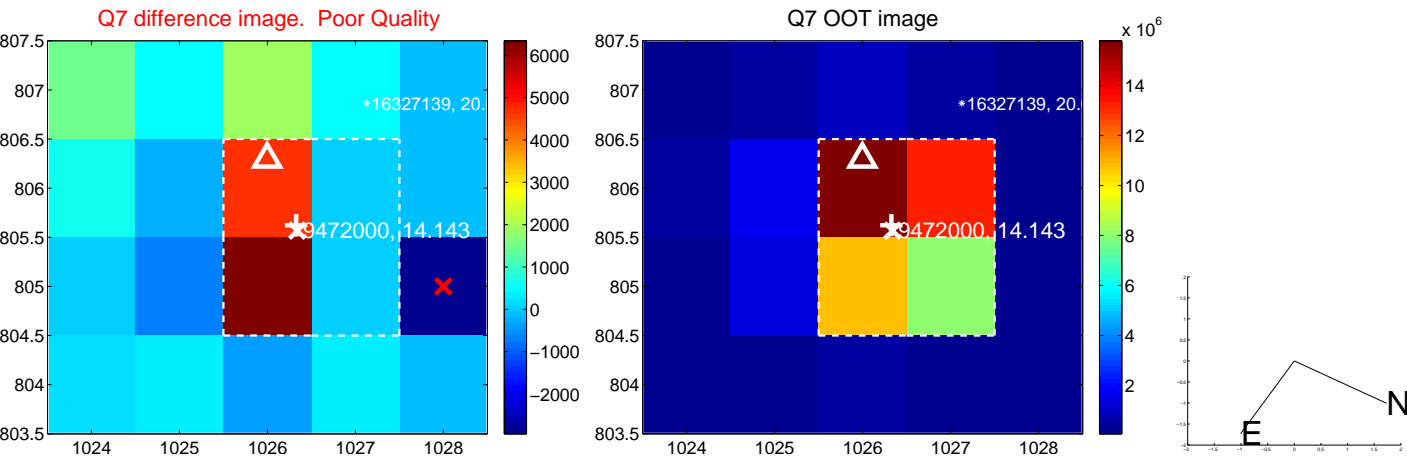
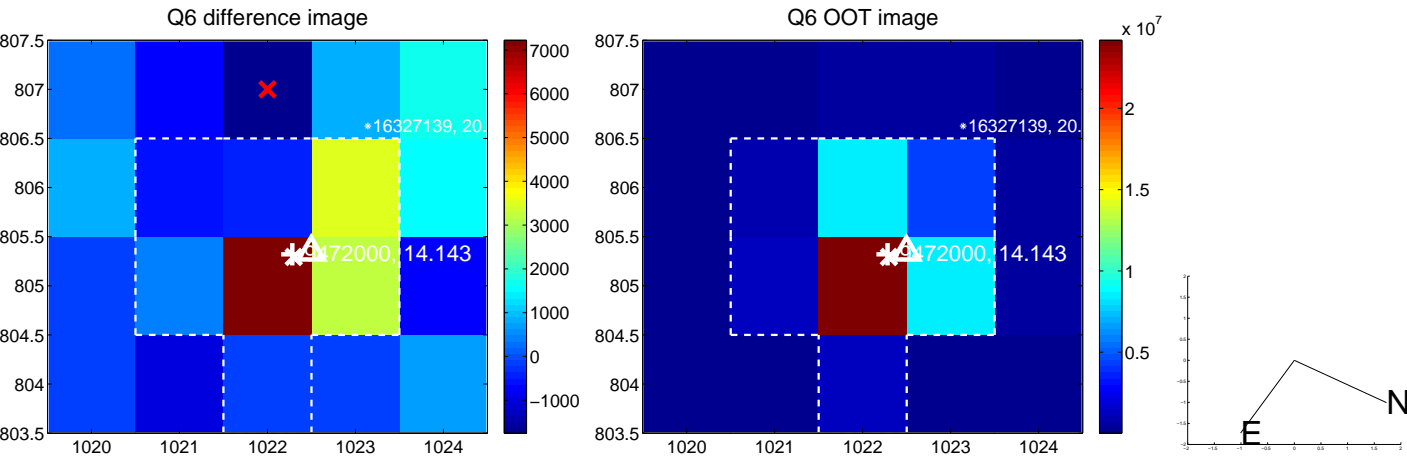
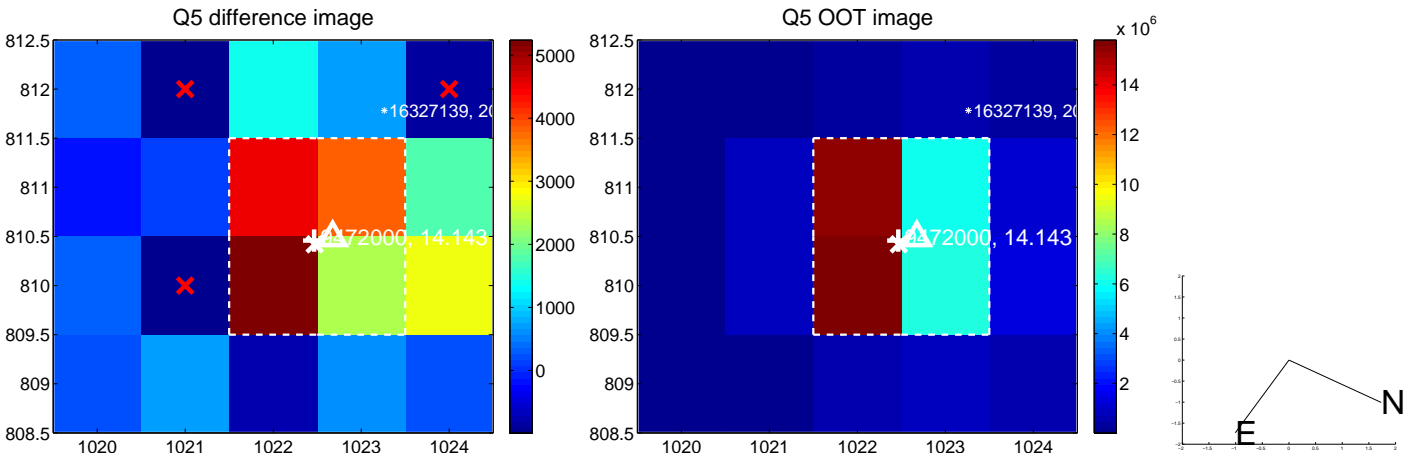


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

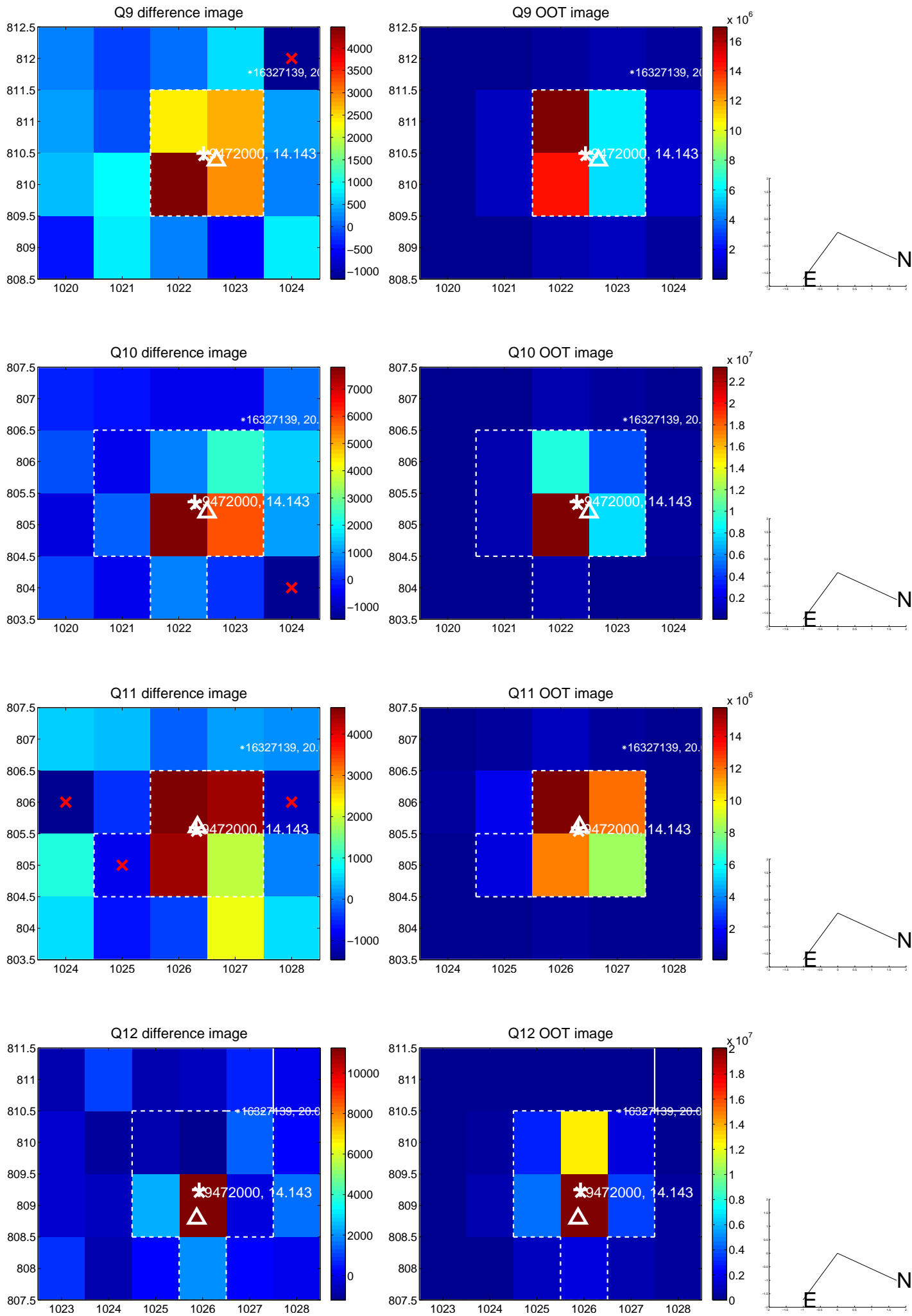
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



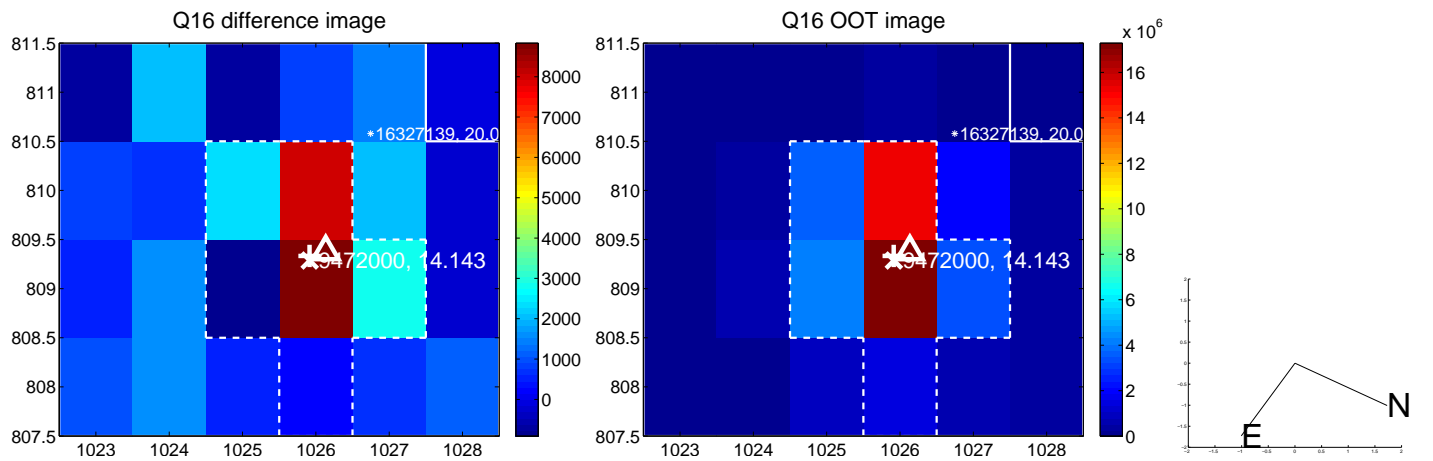
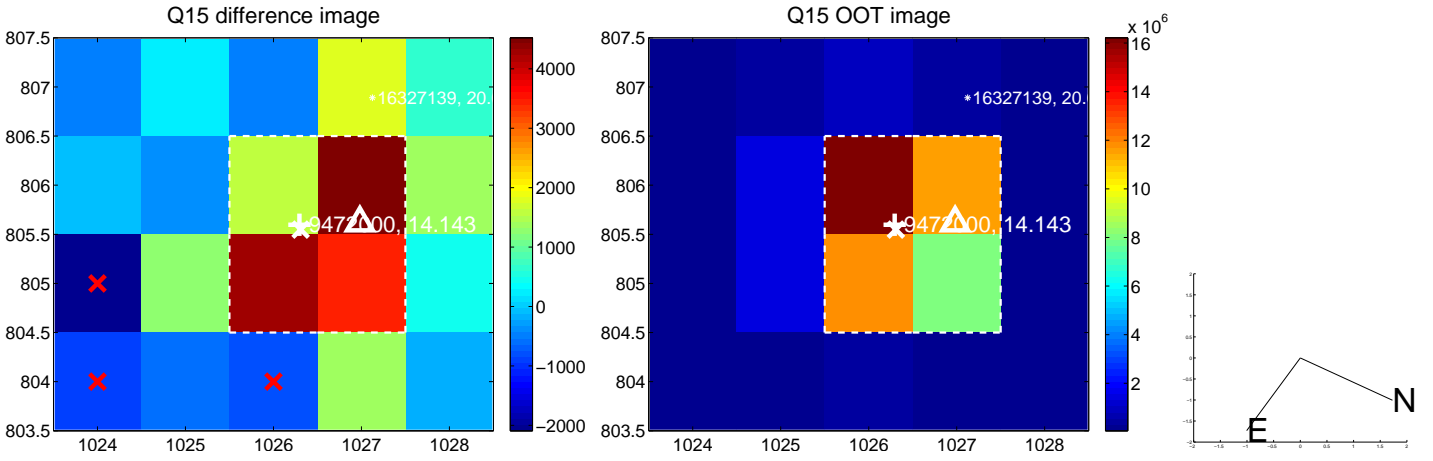
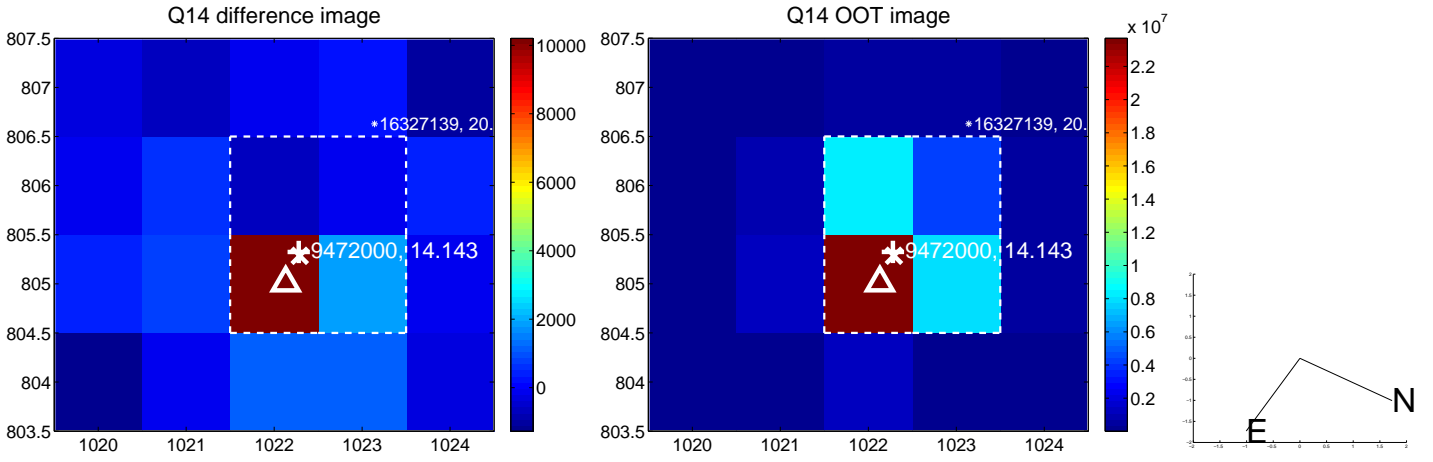
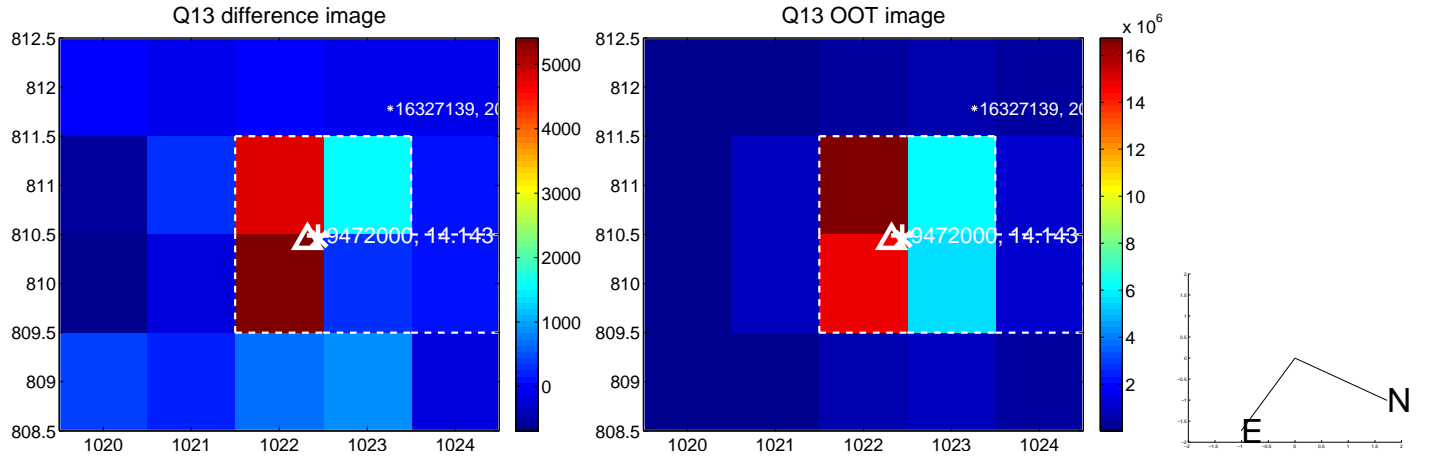
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

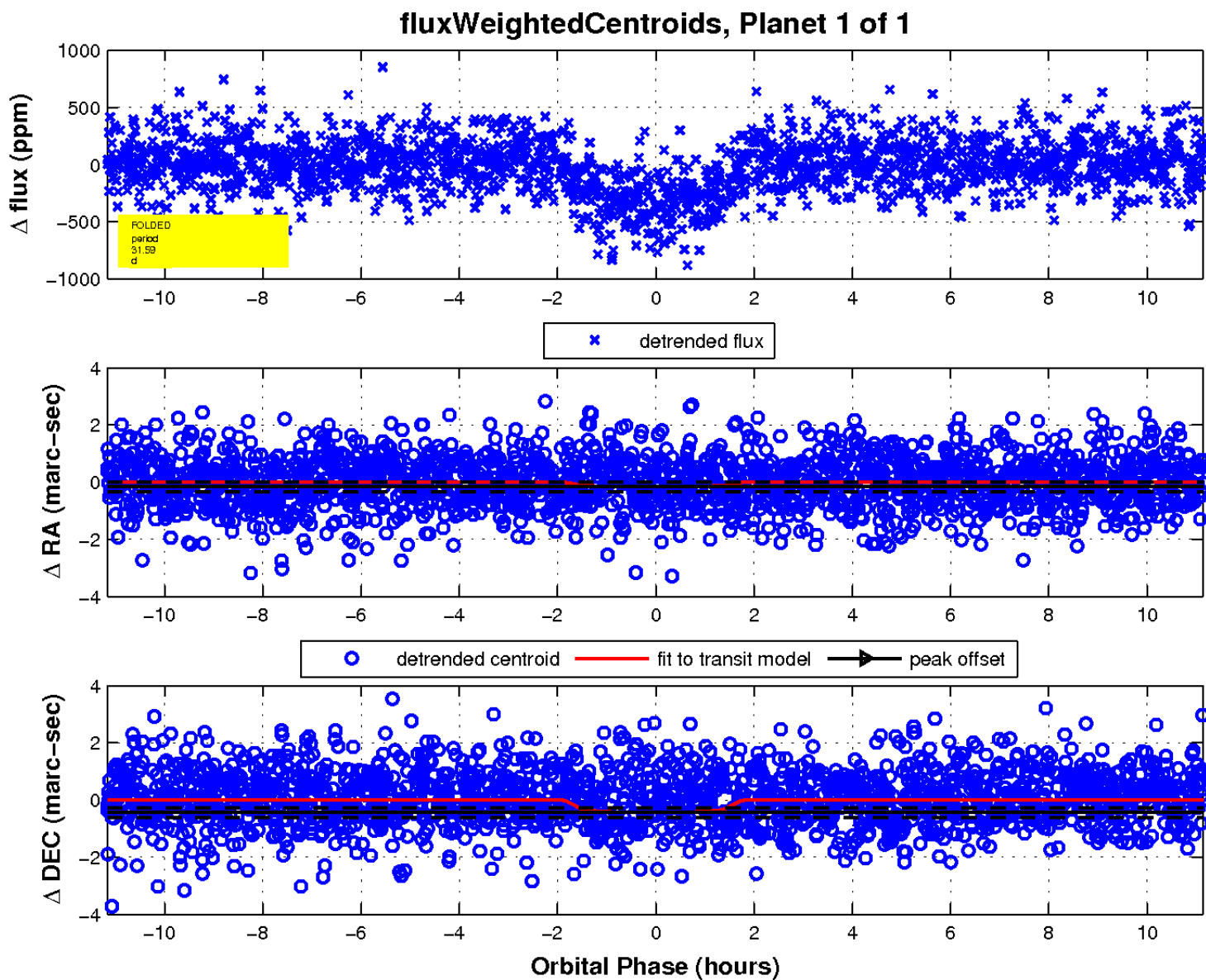
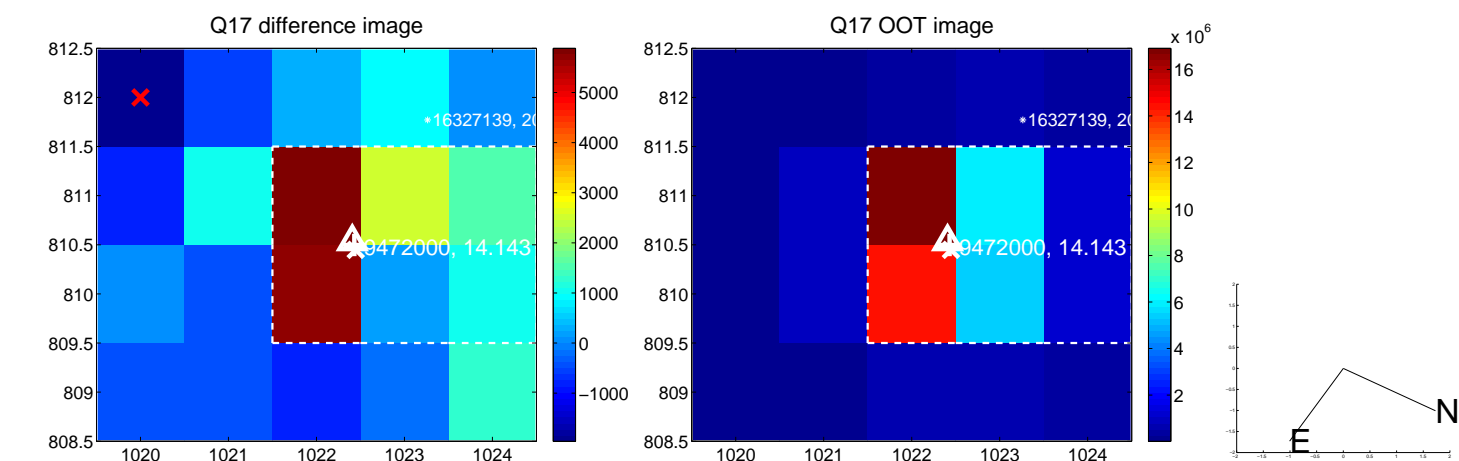


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

