

# KIC 008109692

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008109692-01	OBS	7864.01	117.920680	197.981509	205.9	7.007	8.7	10.1	2.60	6790	4.12	41.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008109692-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

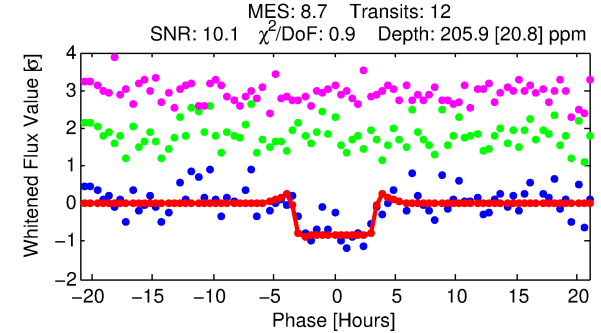
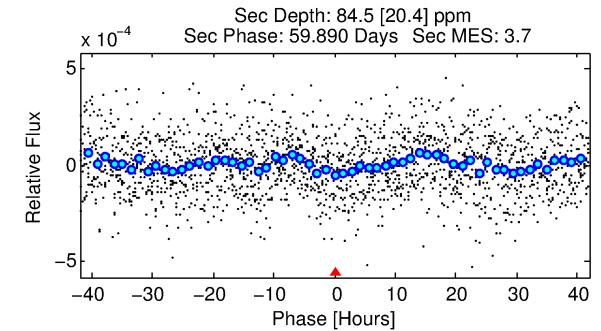
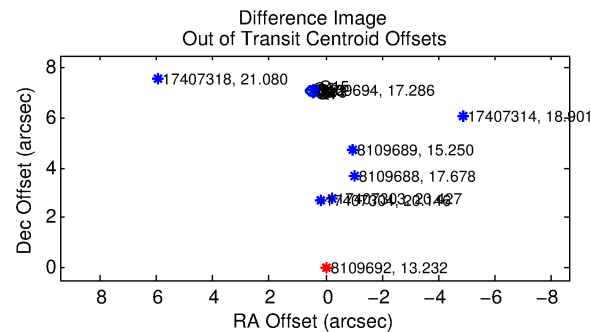
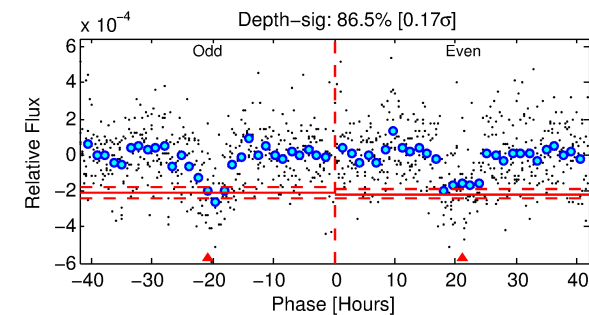
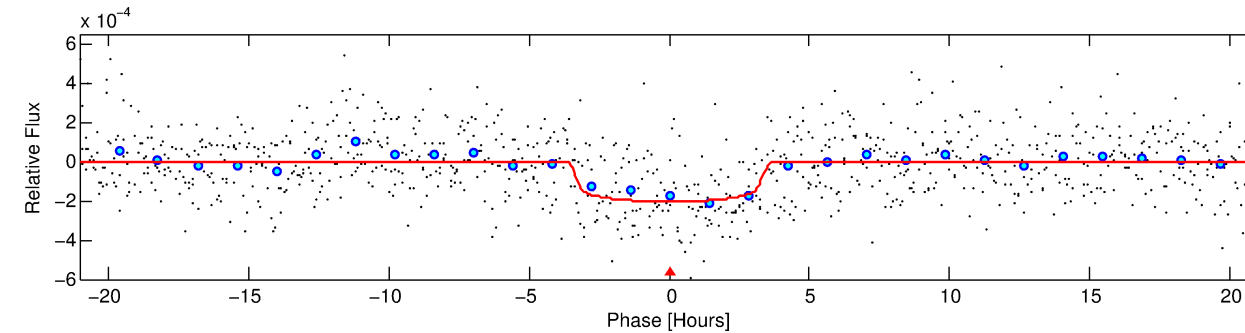
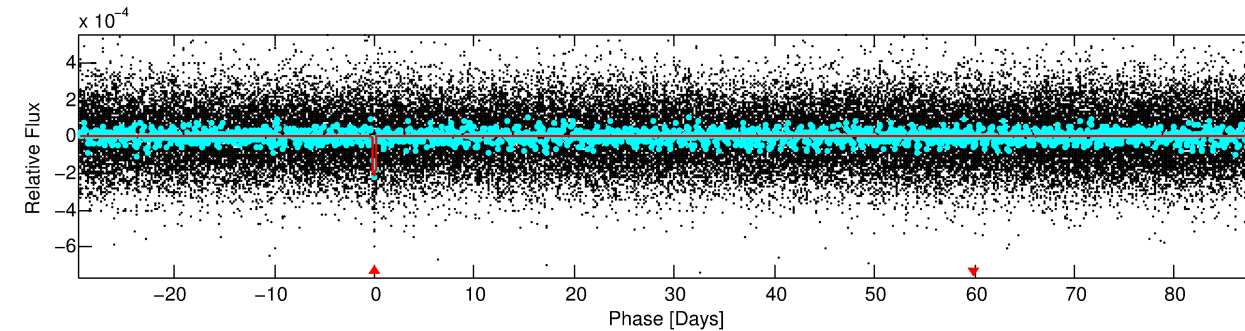
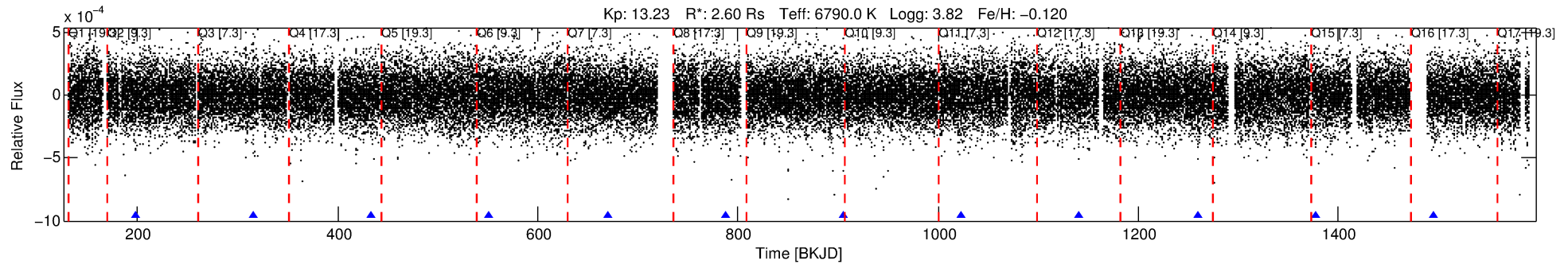
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008109692-01

No Significant Match Found

# DV One-Page Summary

KIC: 8109692 Candidate: 1 of 1 Period: 117.921 d



## DV Fit Results:

Period = 117.92068 [0.00125] d  
Epoch = 197.9815 [0.0079] BKJD  
Rp/R\* = 0.0145 [0.0036]  
a/R\* = 79.19 [111.97]  
b = 0.81 [0.62]  
Seff = 41.81 [22.14]  
Teq = 648 [86] K  
Rp = 4.12 [1.85] Re  
a = 0.5543 [0.1857] AU  
Ag = 841.06 [636.32] [1.32 $\sigma$ ]  
Teffp = 5399 [772] K [6.12 $\sigma$ ]

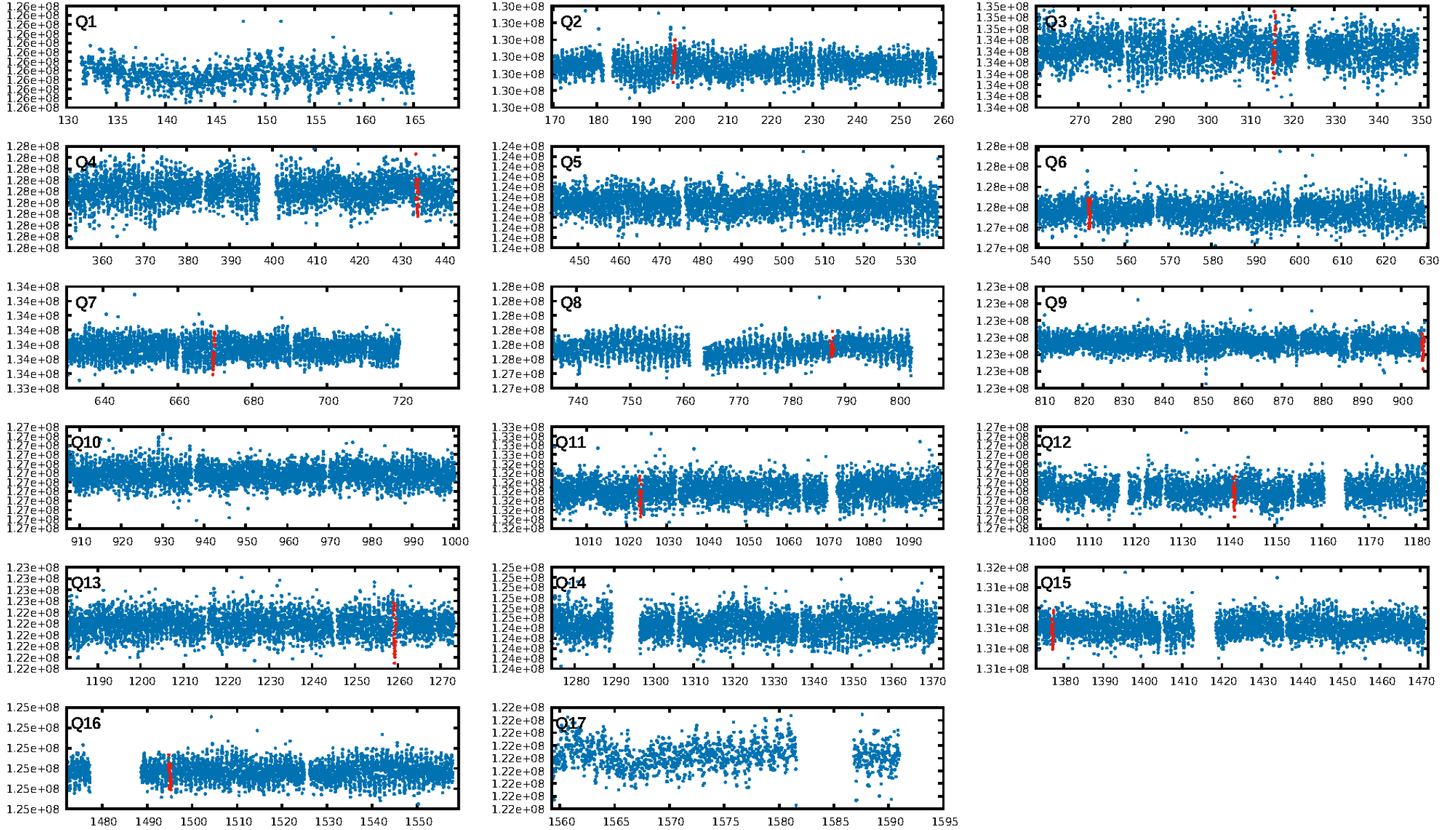
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 9.63e-16  
RollingBand-fgt: 1.00 [12/12]  
GhostDiagnostic-chr: 0.1589  
Centroid-sig: 0.0%  
Centroid-so: 15.921 arcsec [22.98 $\sigma$ ]  
OotOffset-rm: 7.081 arcsec [96.90 $\sigma$ ]  
KicOffset-rm: 7.036 arcsec [93.45 $\sigma$ ]  
OotOffset-st: 1/4/4/1 [10]  
KicOffset-st: 1/4/4/1 [10]  
DiffImageQuality-fgm: 0.90 [9/10]  
DiffImageOverlap-fno: 1.00 [11/11]

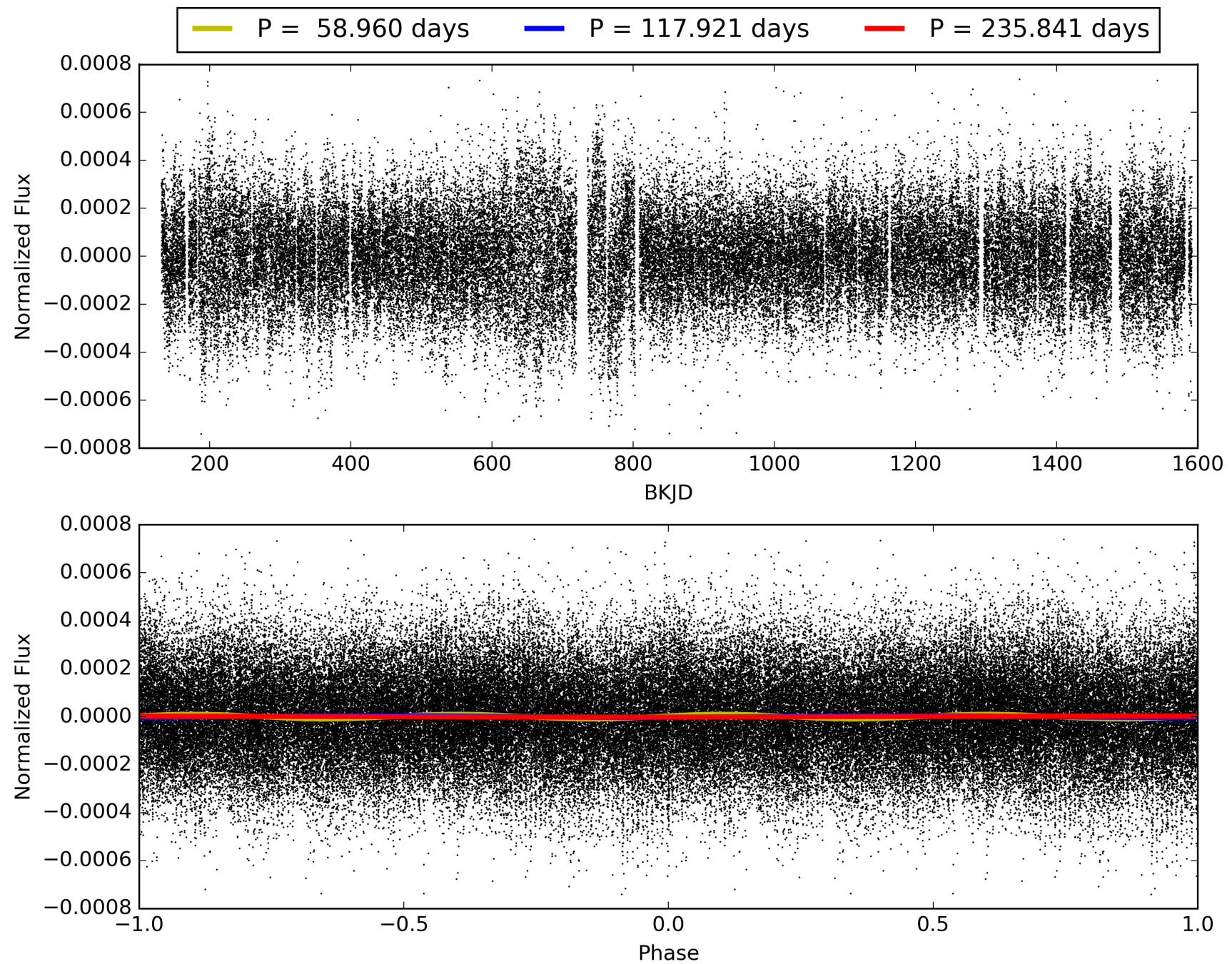
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:25:48 Z

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

# TCE 008109692-01, PDC Light Curves

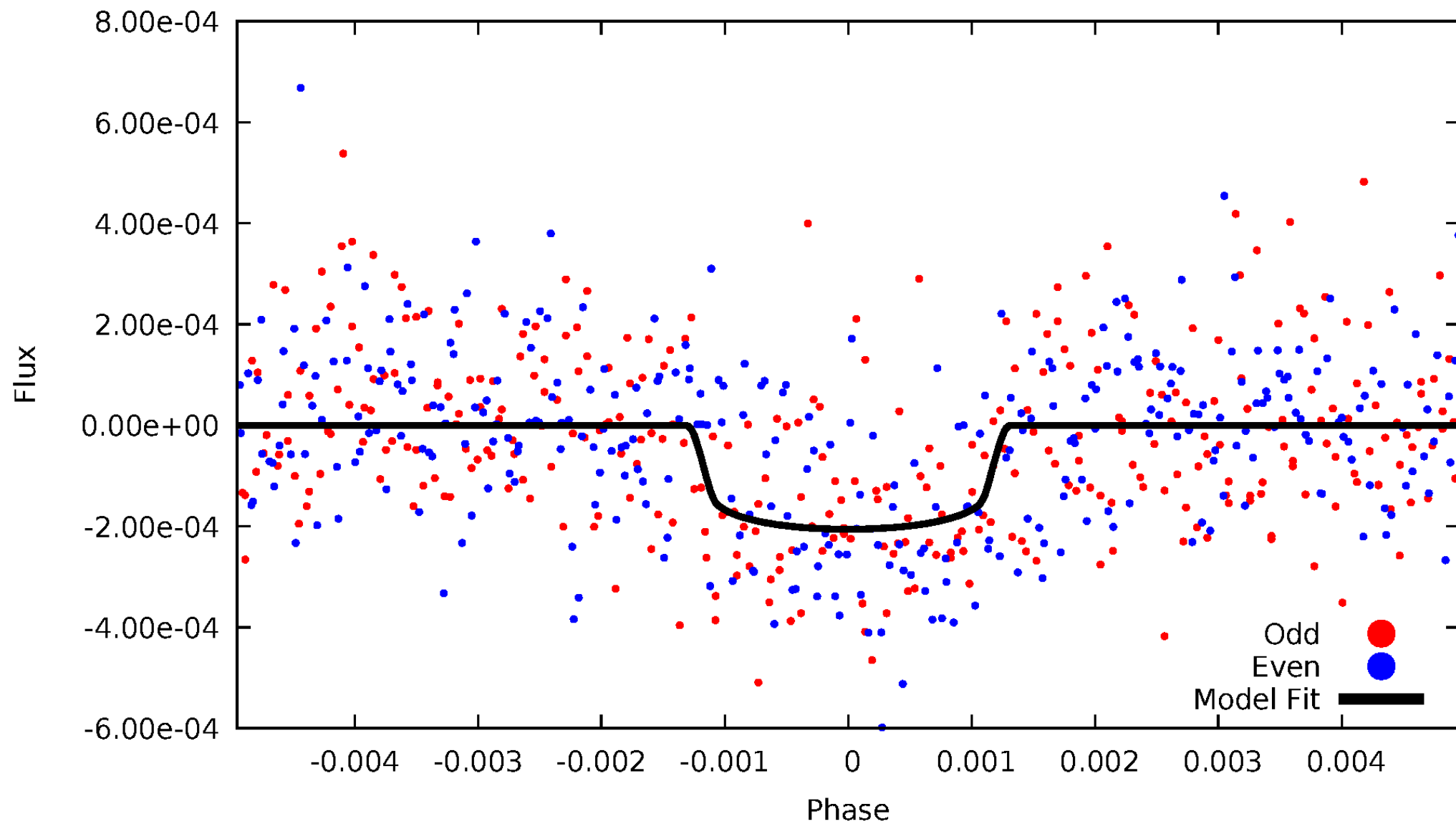


# TCE 008109692-01



# DV Odd/Even

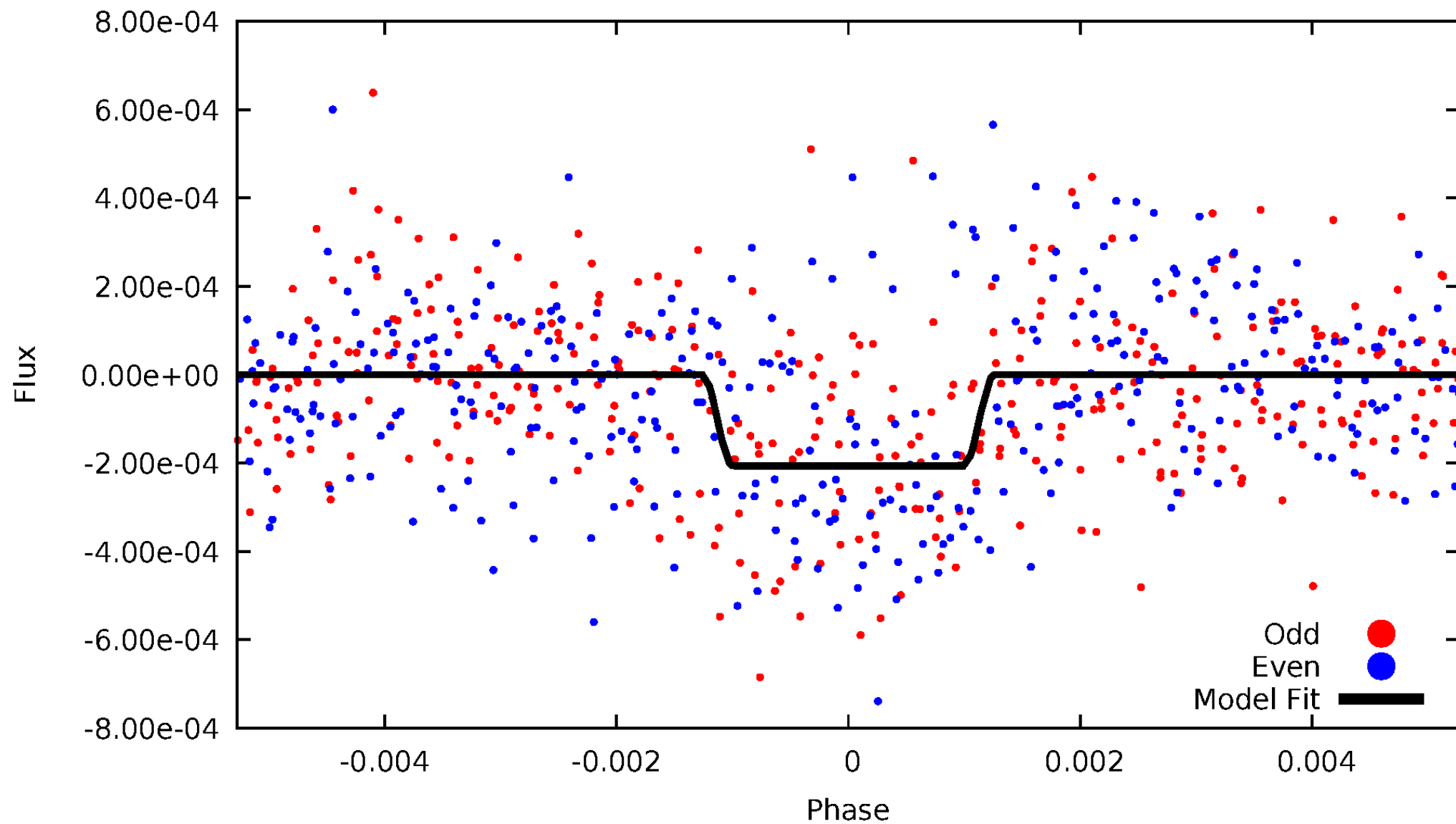
TCE 008109692-01





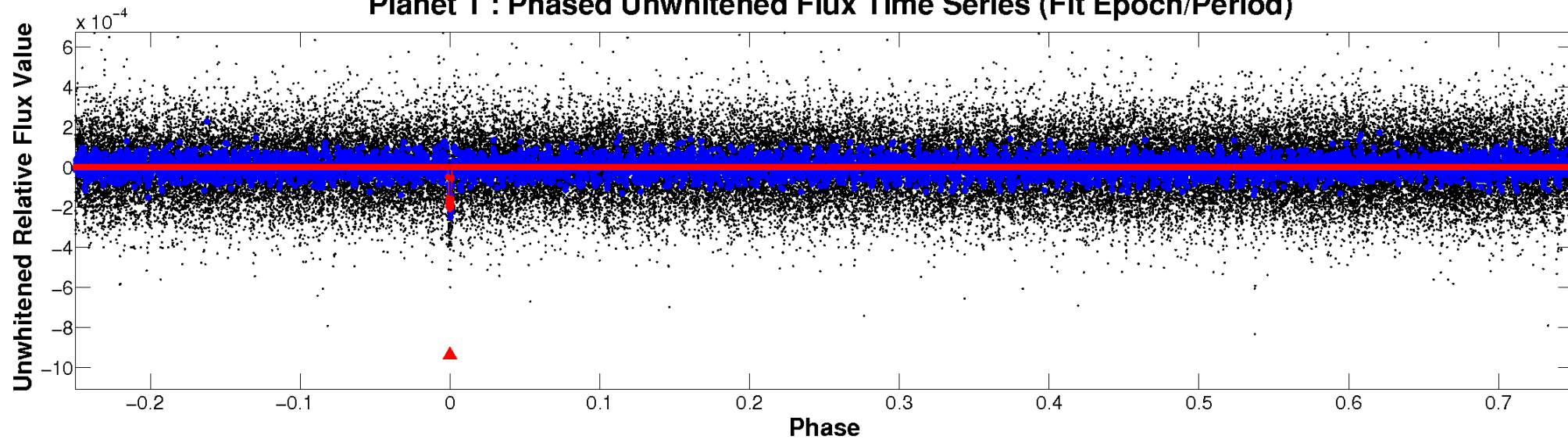
# ALT Odd/Even

TCE 008109692-01

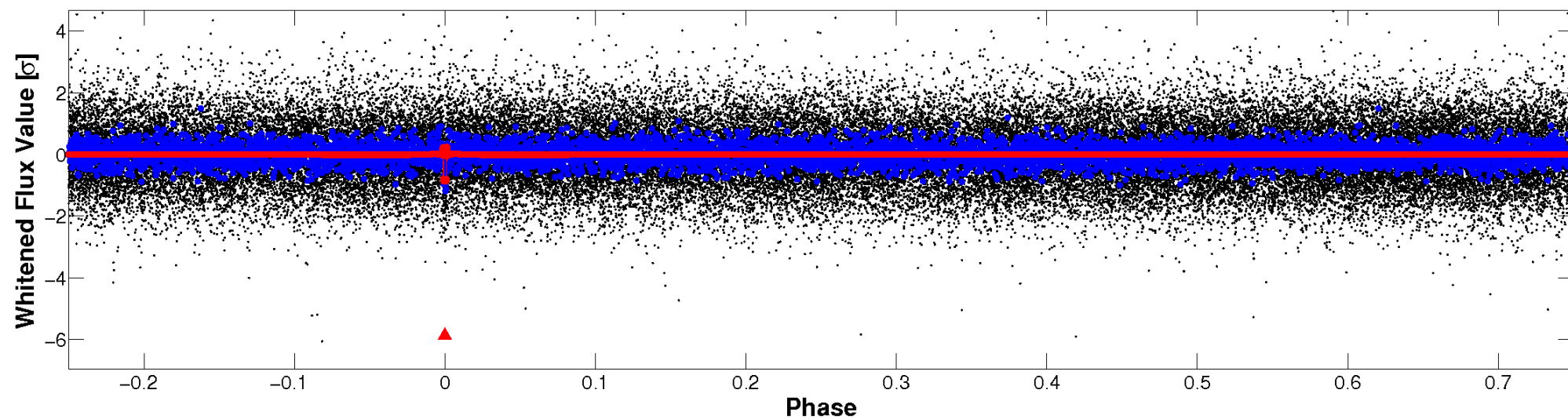


# Non-Whitened Vs. Whitened Light Curve

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

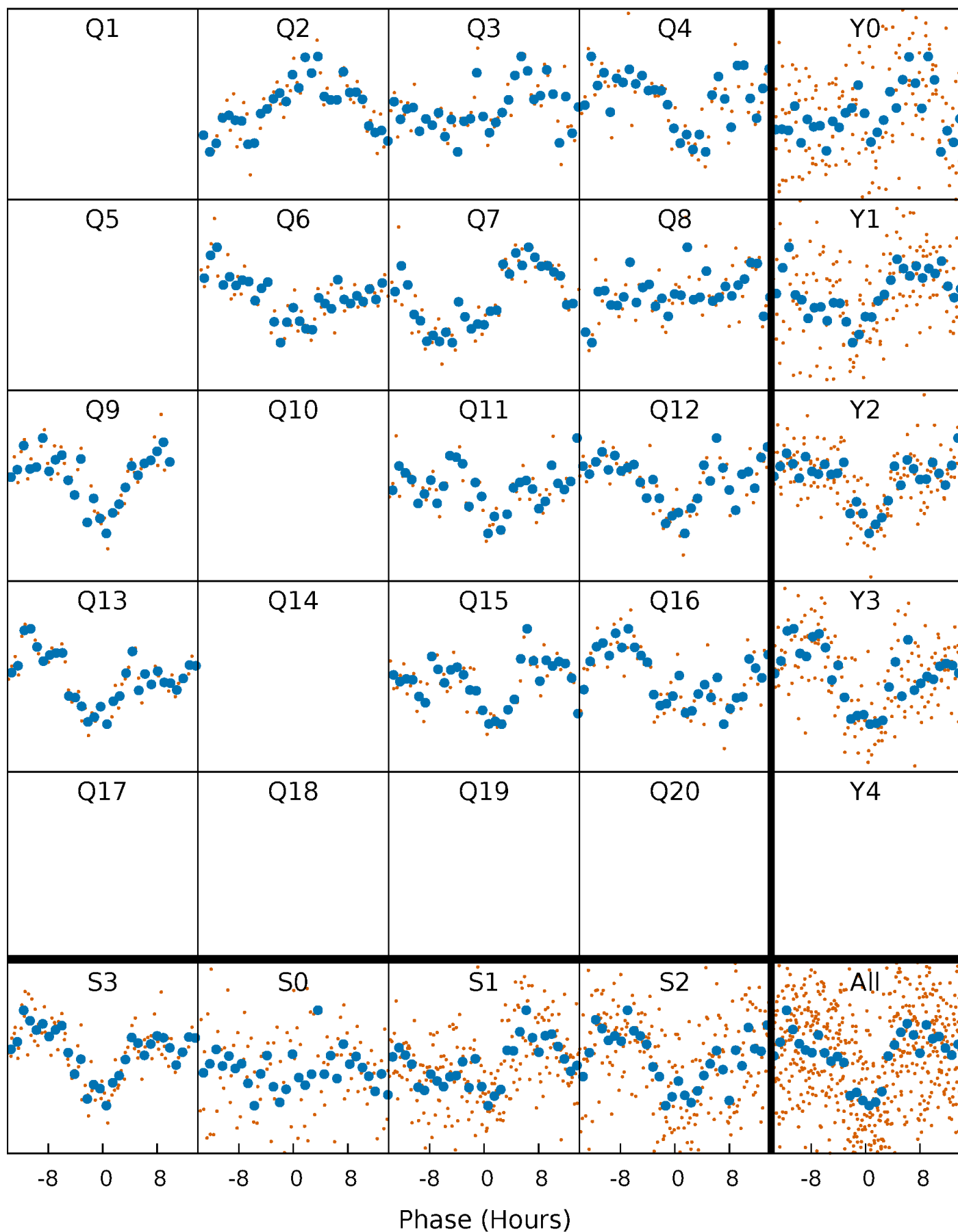


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

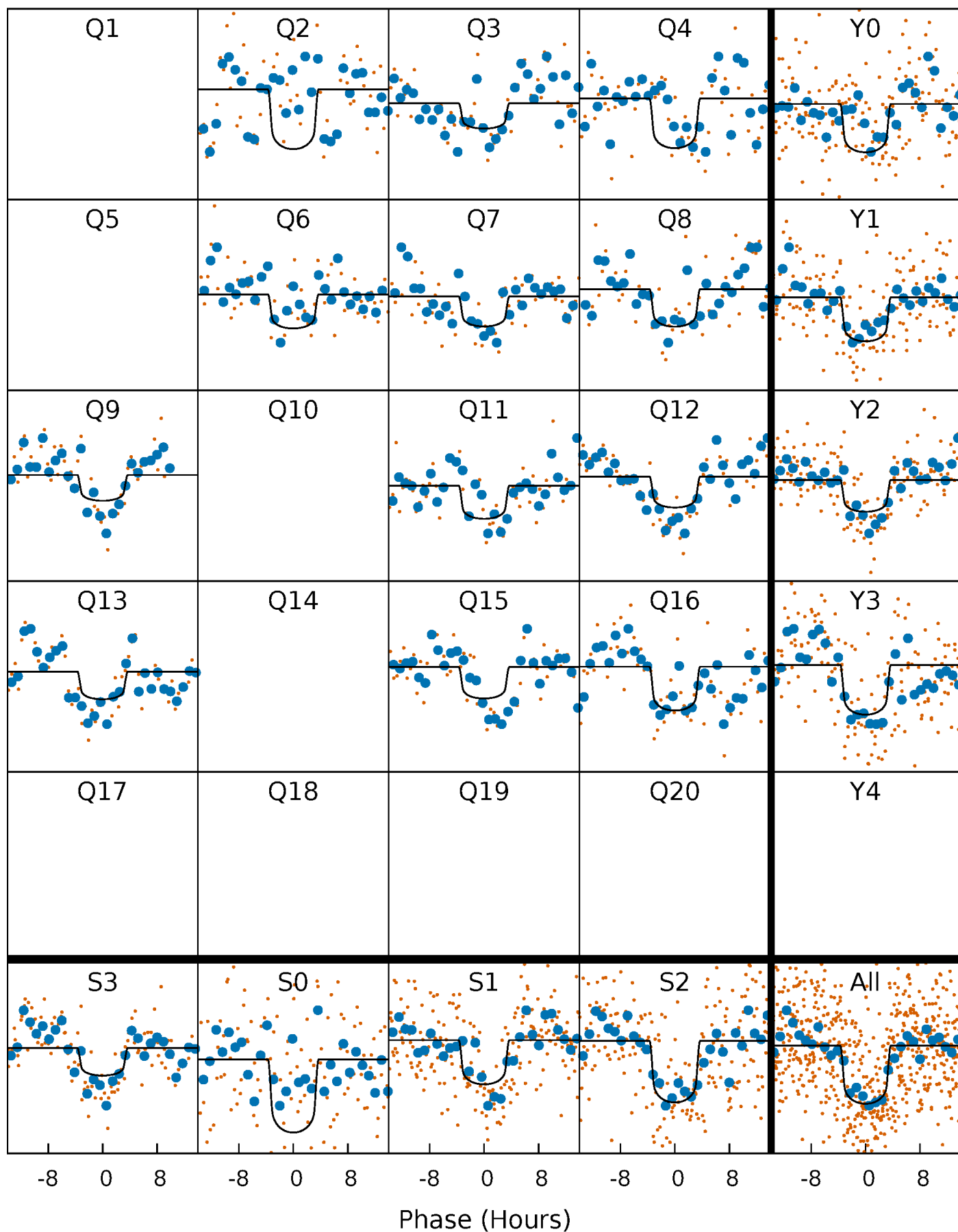
TCE 008109692-01 P=117.920680 Days  $T_0=197.981509$  (BKJD)





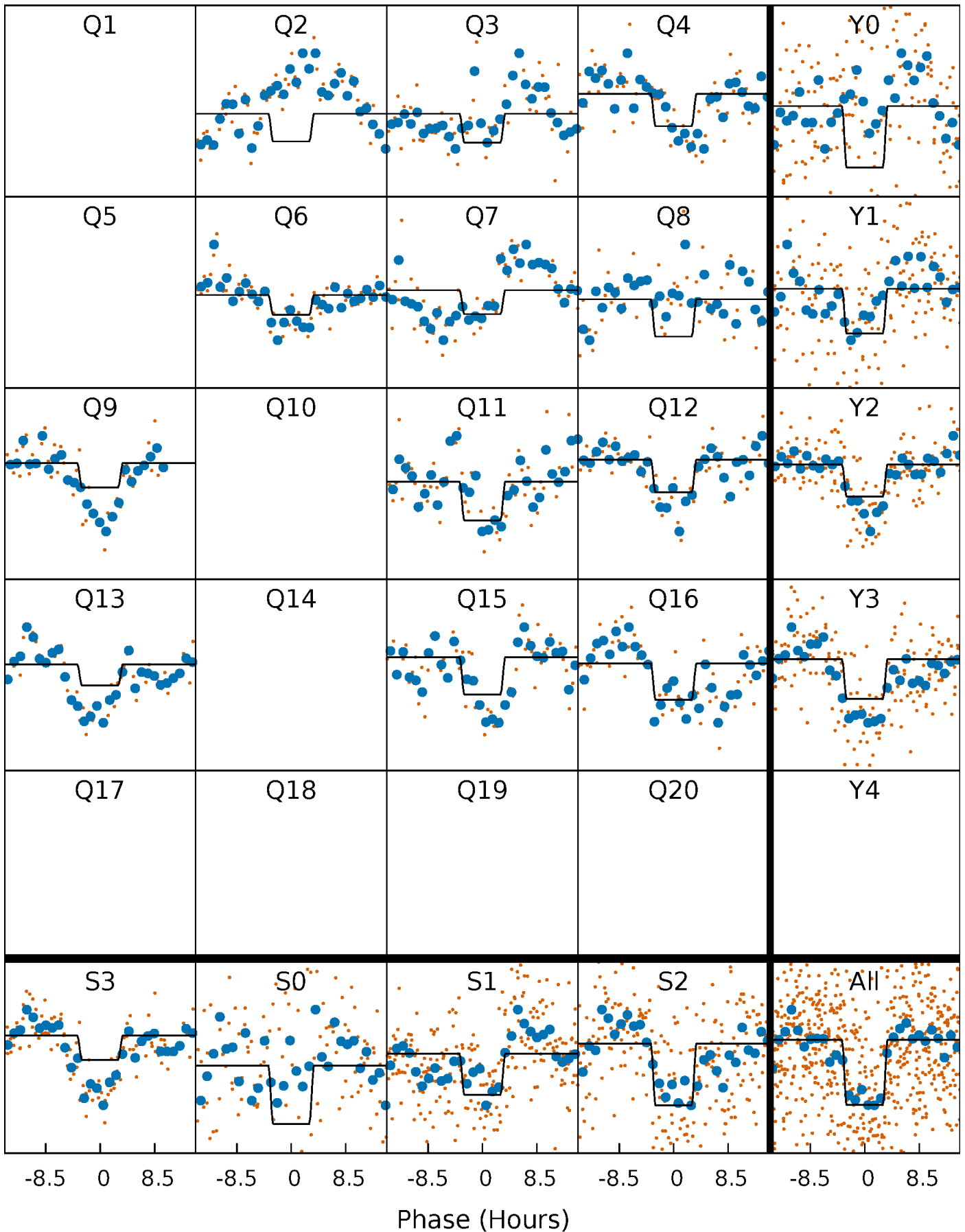
# DV Quarter-Phased Transit Curves

TCE 008109692-01 P=117.920680 Days  $T_0=197.981509$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

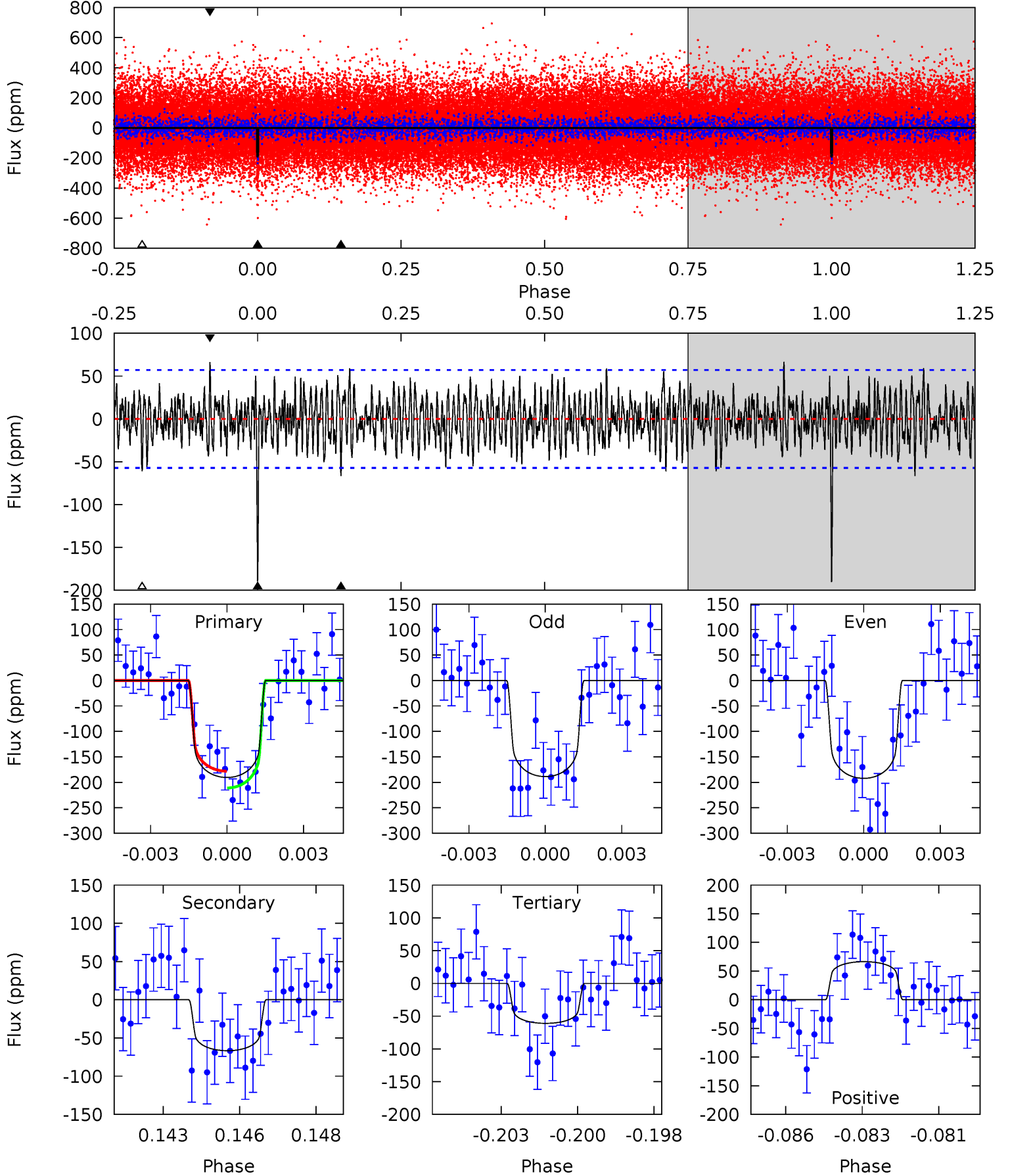
TCE 008109692-01 P=117.921205 Days  $T_0=197.980534$  (BKJD)



# DV Model-Shift Uniqueness Test

008109692-01,  $P = 117.920680$  Days,  $E = 80.060829$  Days

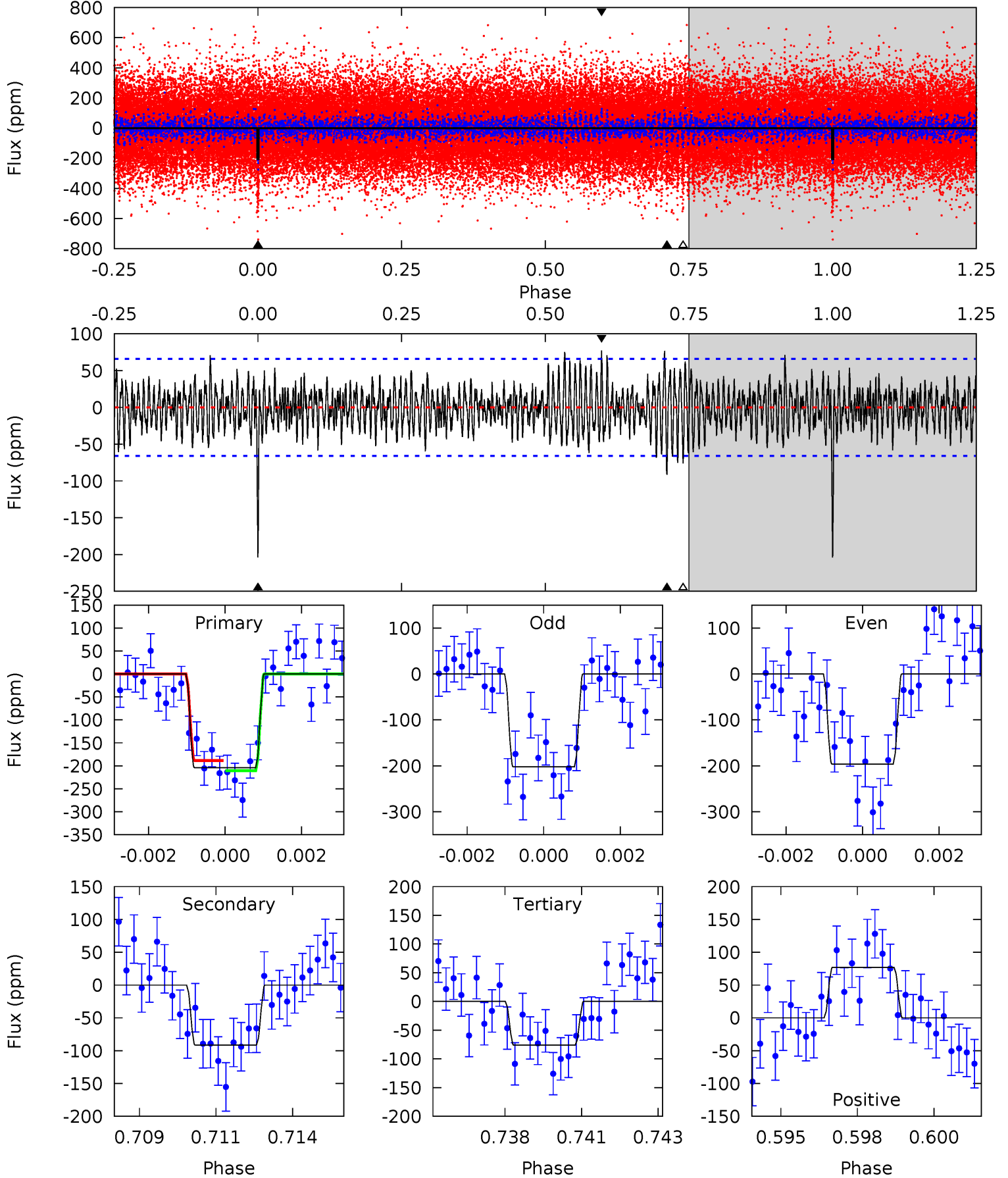
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	6.16	5.64	6.14	5.28	3.01	2.01	12.0	11.5	0.52	0.02	0.16	1.04	0.26	1.52



# Alt Model-Shift Uniqueness Test

008109692-01, P = 117.921205 Days, E = 80.059329 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
16.4	7.34	6.12	6.19	5.29	3.03	2.00	10.3	10.2	1.21	1.15	0.24	0.89	0.27	0.88



### Stellar Parameters For KIC 008109692

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6790^{+184}_{-225}$	$3.822^{+0.292}_{-0.097}$	$-0.120^{+0.300}_{-0.250}$	$2.597^{+0.485}_{-0.970}$	$1.631^{+0.190}_{-0.353}$	$0.131^{+0.269}_{-0.040}$
	+3%/-3%	+8%/-3%	+250%/-208%	+19%/-37%	+12%/-22%	+205%/-31%
Source	PHO1	FLK73	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 008109692-01 / KOI 7864.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-67 \pm 11$	$3.85^{+1.31}_{-1.15}$	$894^{+54}_{-74}$	$5157^{+851}_{-505}$	$736^{+837}_{-301}$
Alt.	$-91 \pm 12$	$3.84^{+1.23}_{-1.12}$	$889^{+53}_{-87}$	$5467^{+845}_{-525}$	$1004^{+1005}_{-412}$

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

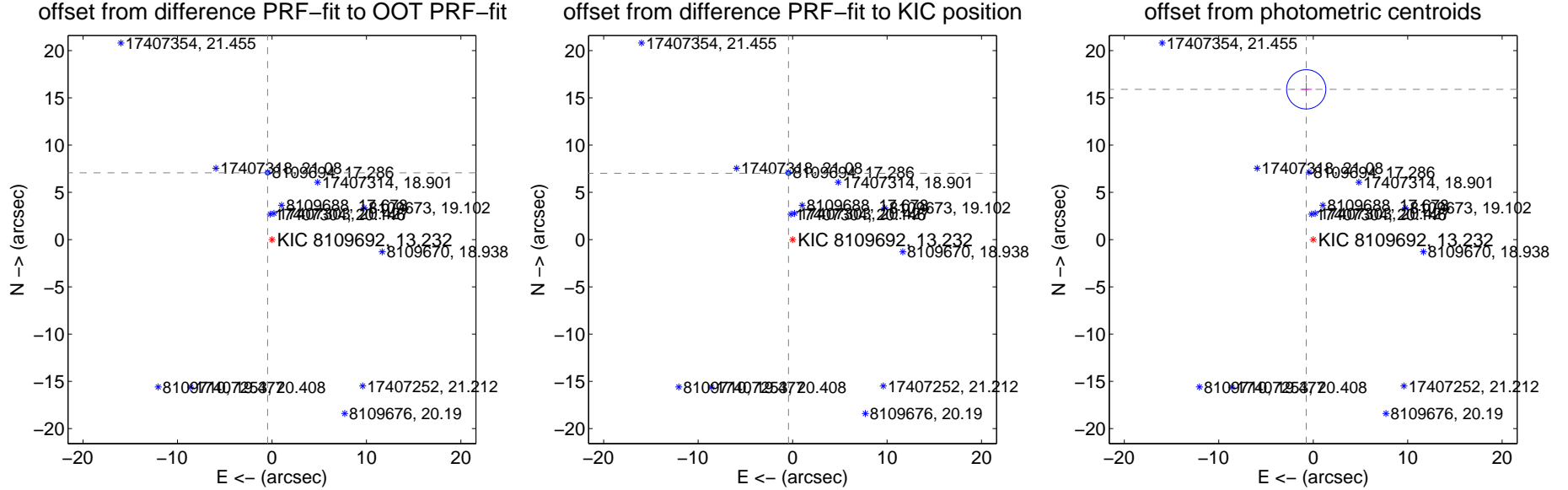
## DV Centroid Data

Supplemental centroid analysis for 008109692-01. Kepler magnitude: 13.23. Transit SNR 10.11

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

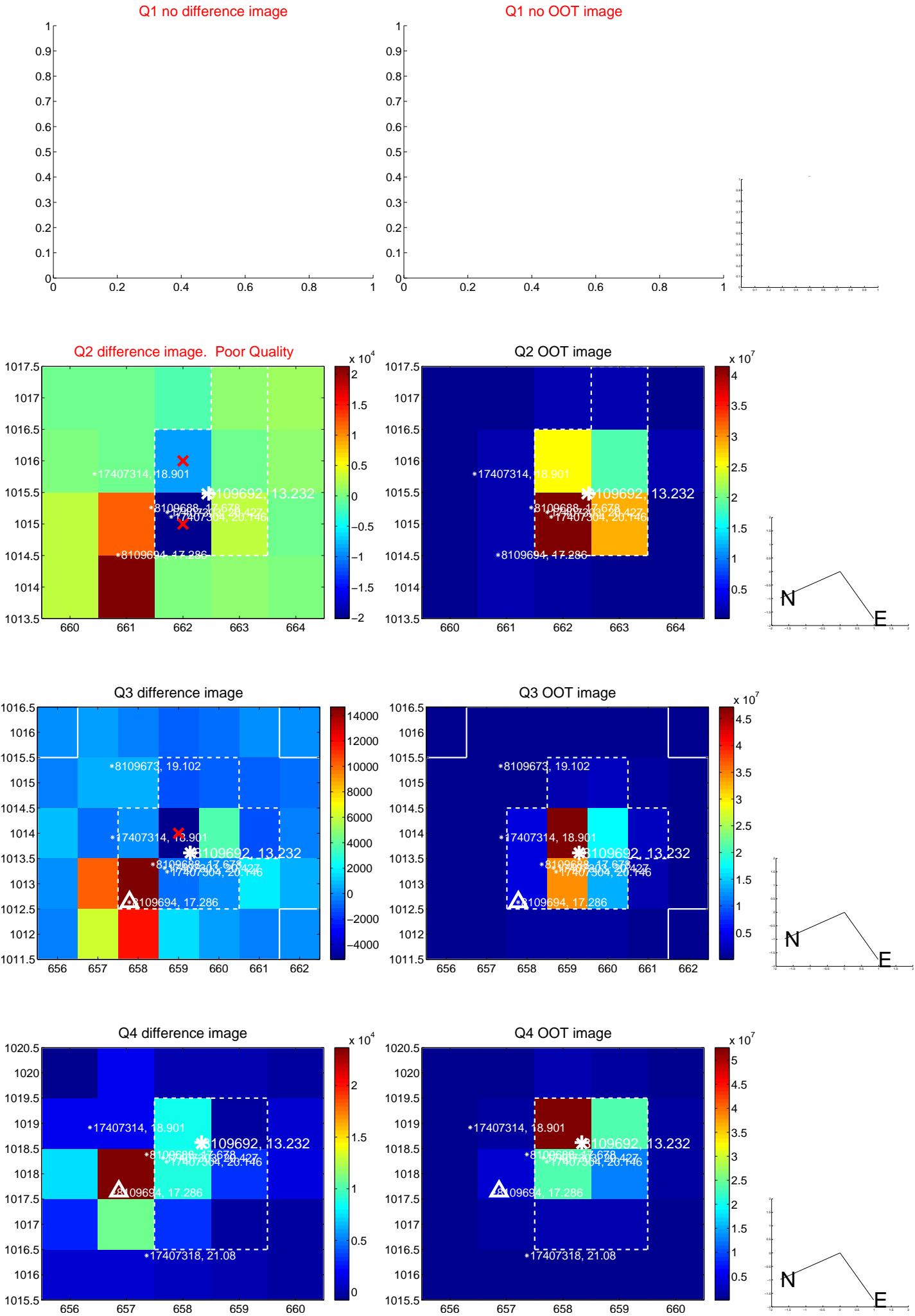
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>7.081 <math>\pm</math> 0.073</b>	<b>96.90</b>	0.461 $\pm$ 0.071	7.066 $\pm$ 0.073
PRF-fit source offset from KIC position	<b>7.036 <math>\pm</math> 0.075</b>	<b>93.45</b>	0.433 $\pm$ 0.070	7.022 $\pm$ 0.075
photometric centroid source offset	<b>15.92 <math>\pm</math> 0.69</b>	<b>22.98</b>	0.74 $\pm$ 0.60	15.90 $\pm$ 0.69



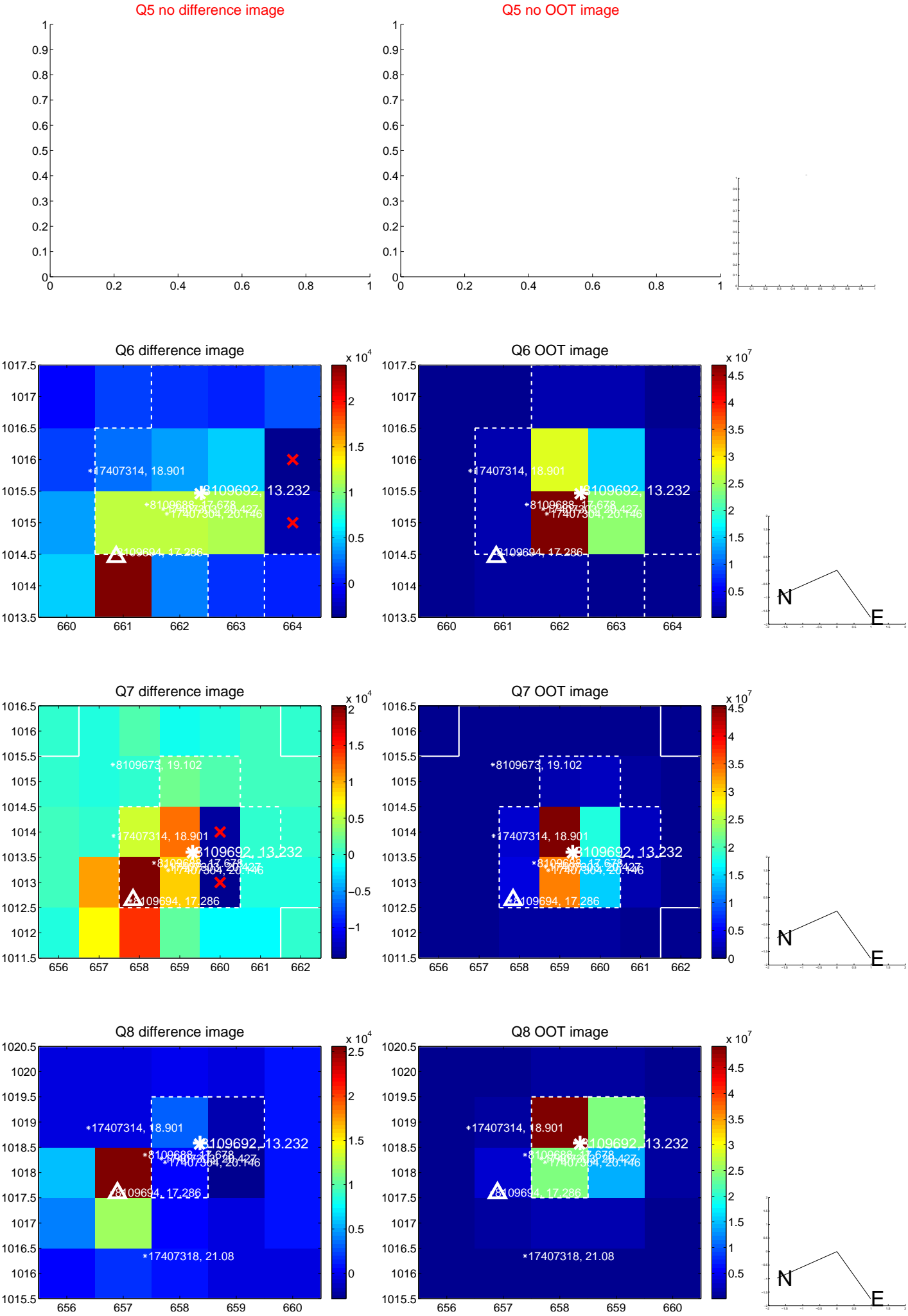
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



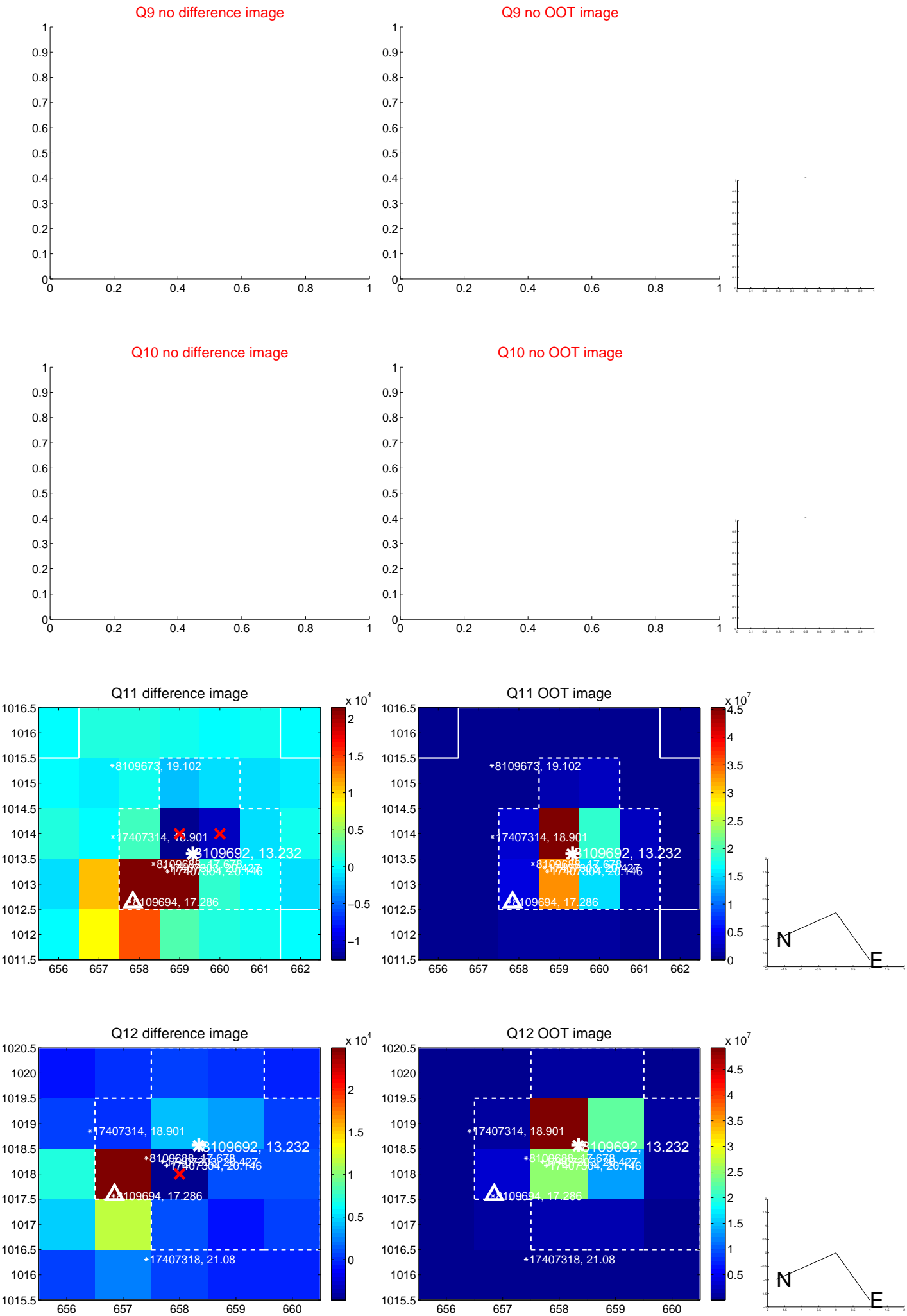
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



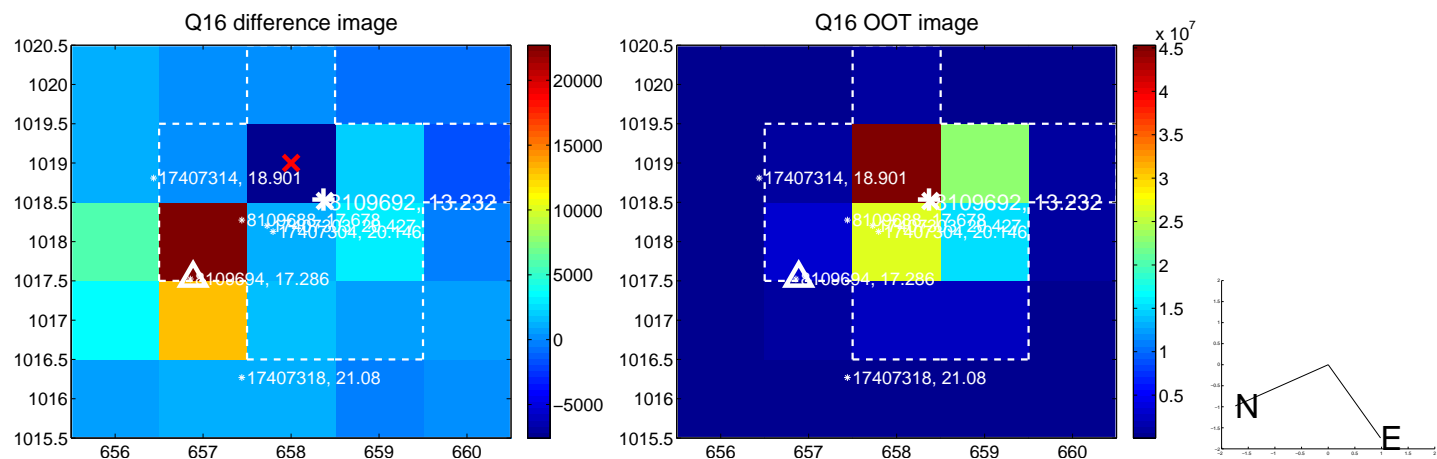
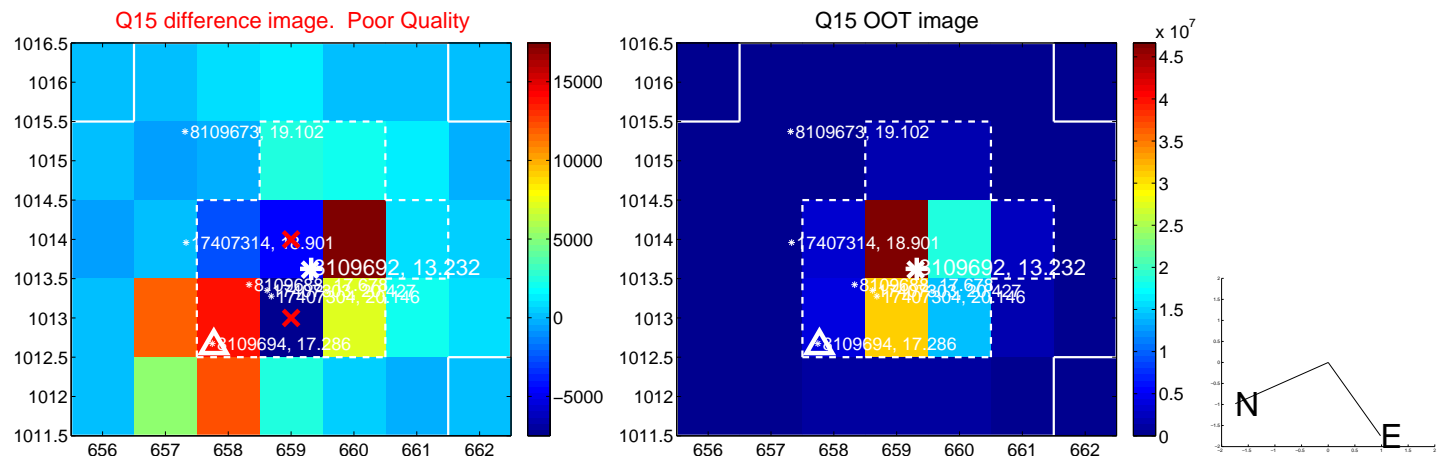
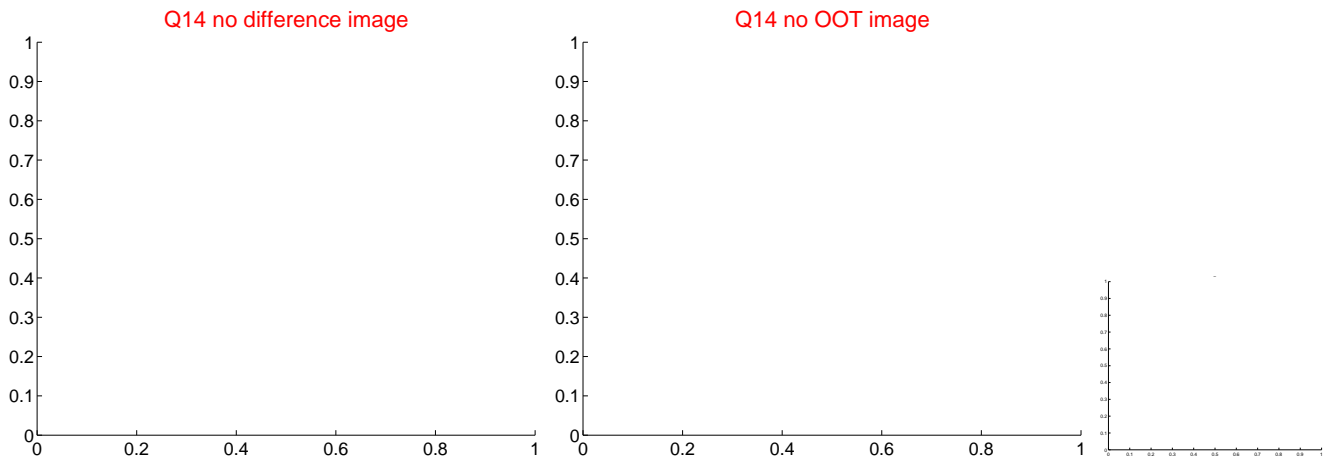
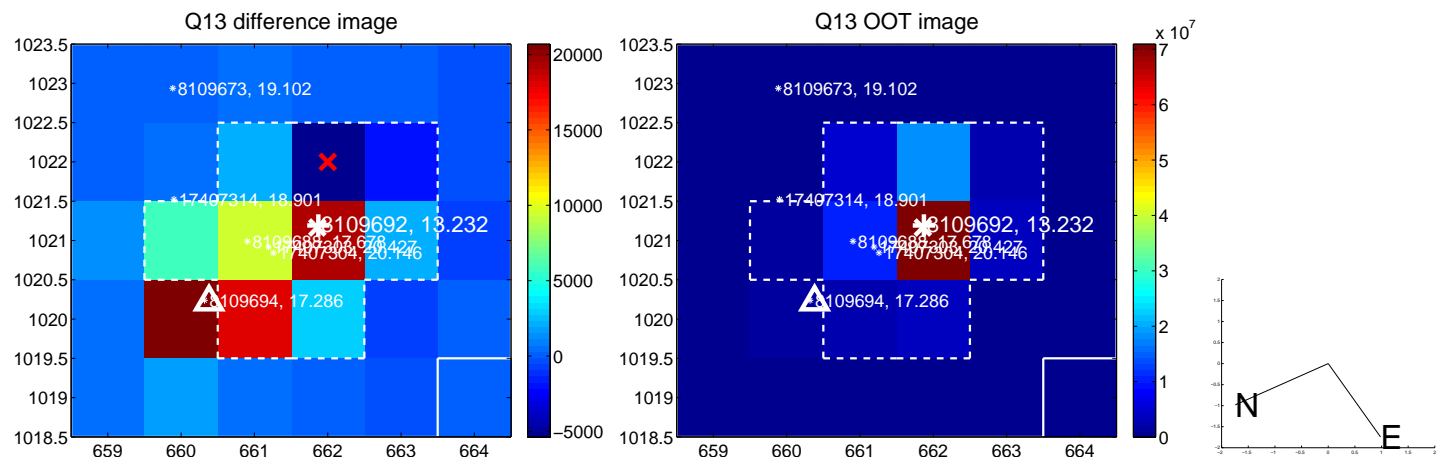
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



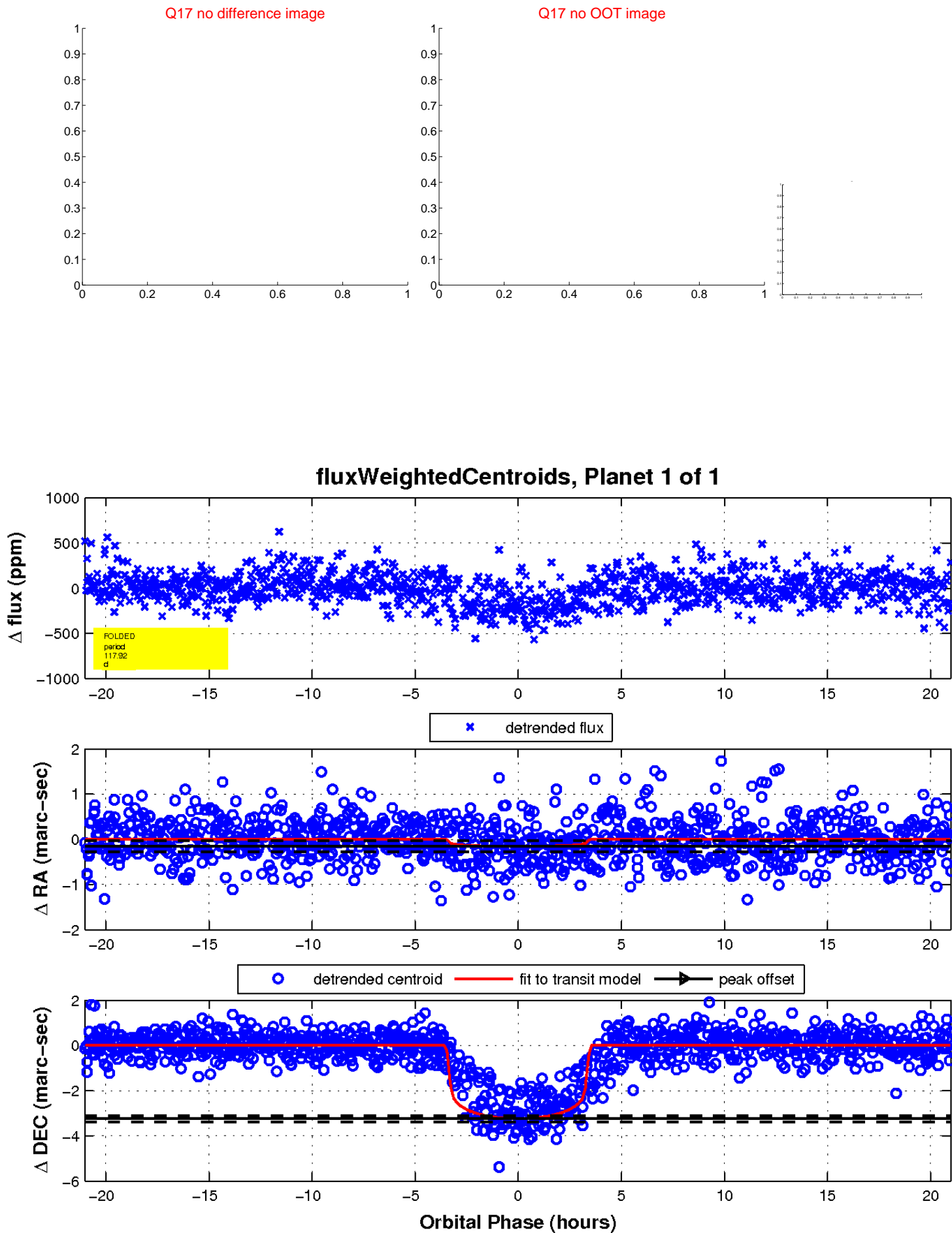
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

