

# KIC 011509792

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011509792-01	OBS	No	110.729262	186.580217	14.4	0.532	54.0	0.5	18.50	4692	14.32	462.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011509792-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

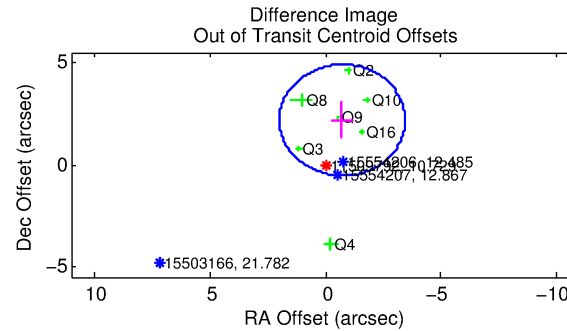
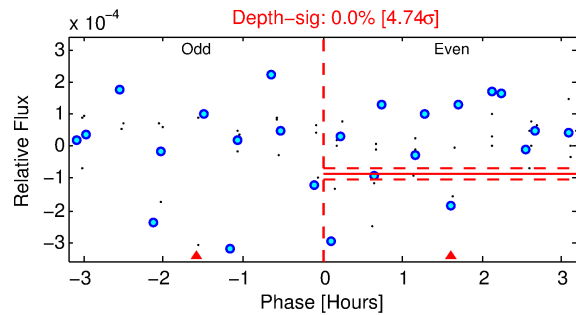
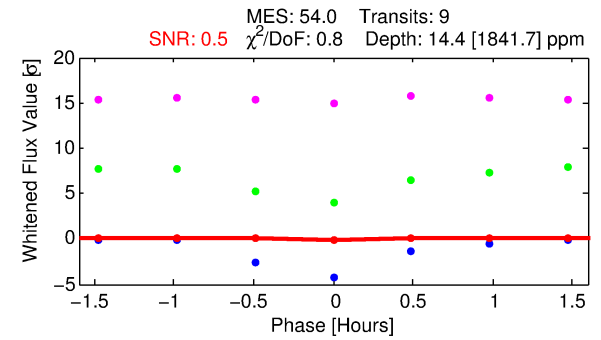
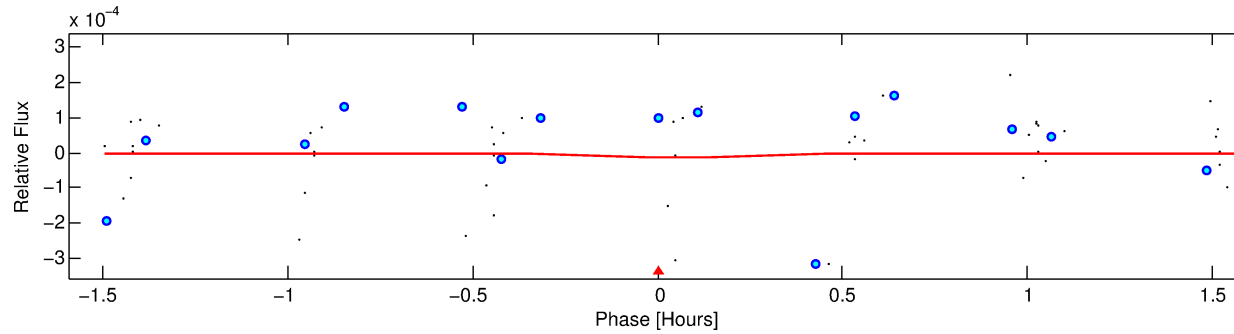
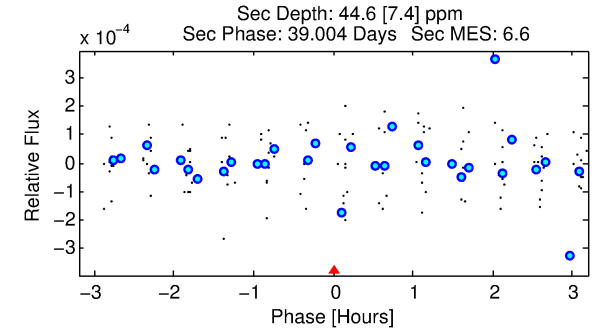
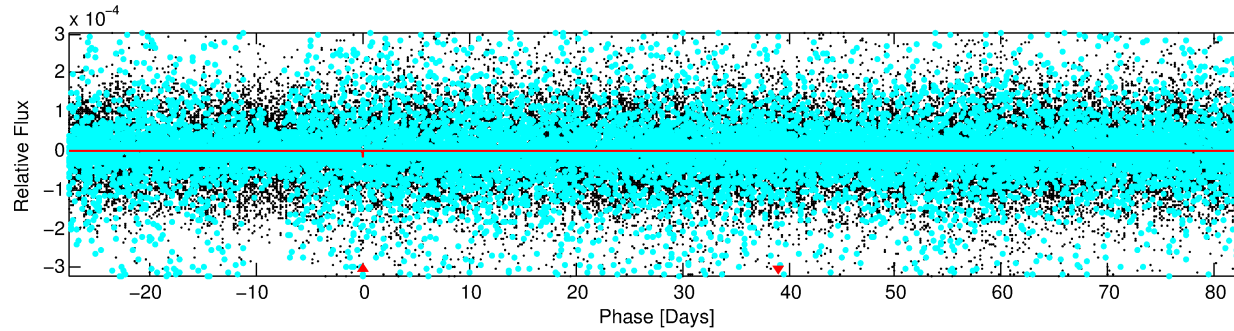
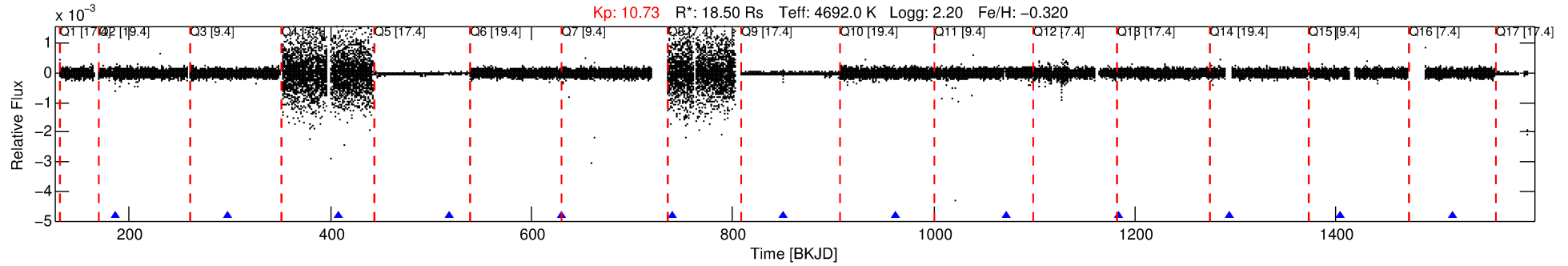
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011509792-01

No Significant Match Found

# DV One-Page Summary

KIC: 11509792 Candidate: 1 of 1 Period: 110.729 d



## DV Fit Results:

Period = 110.72926 [0.01559] d  
Epoch = 186.5802 [0.1447] BKJD  
 $R_p/R^* = 0.0071$  [1.0167]  
 $a/R^* = 248.89$  [14867.09]  
 $b = 0.99$  [2.50]  
 $\text{Seff} = 462.07$  [63.33]  
 $T_{\text{eq}} = 1182$  [41] K  
 $R_p = 14.32$  [2052.06]  $R_e$   
 $a = 0.5670$  [0.0635] AU  
 $A_g = 38.45$  [11019.28] [0.00σ]  
 $T_{\text{eff}} = 4552$  [326116] K [0.01σ]

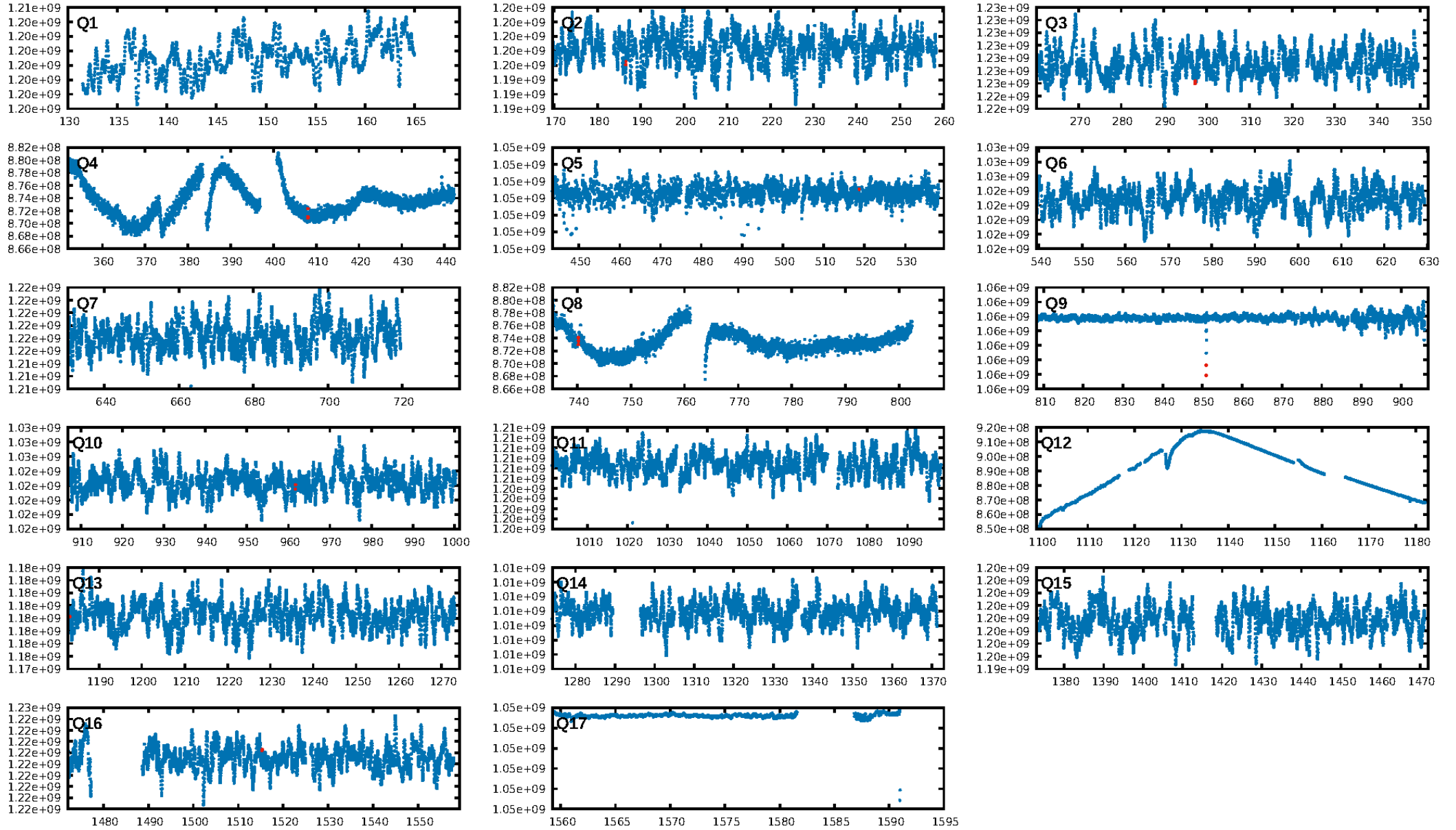
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 29.9%  
ModelChiSquareGof-sig: 69.7%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: 0.5551  
Centroid-sig: 20.1%  
Centroid-so: 19.212 arcsec [1.37σ]  
OotOffset-rm: 2.294 arcsec [2.53σ]  
OotOffset-st: 2/1/3/1 [7]  
KicOffset-rm: 2.743 arcsec [3.02σ]  
KicOffset-st: 2/1/3/1 [7]  
DiffImageQuality-fgm: 0.29 [2/7]  
DiffImageOverlap-fno: 1.00 [7/7]

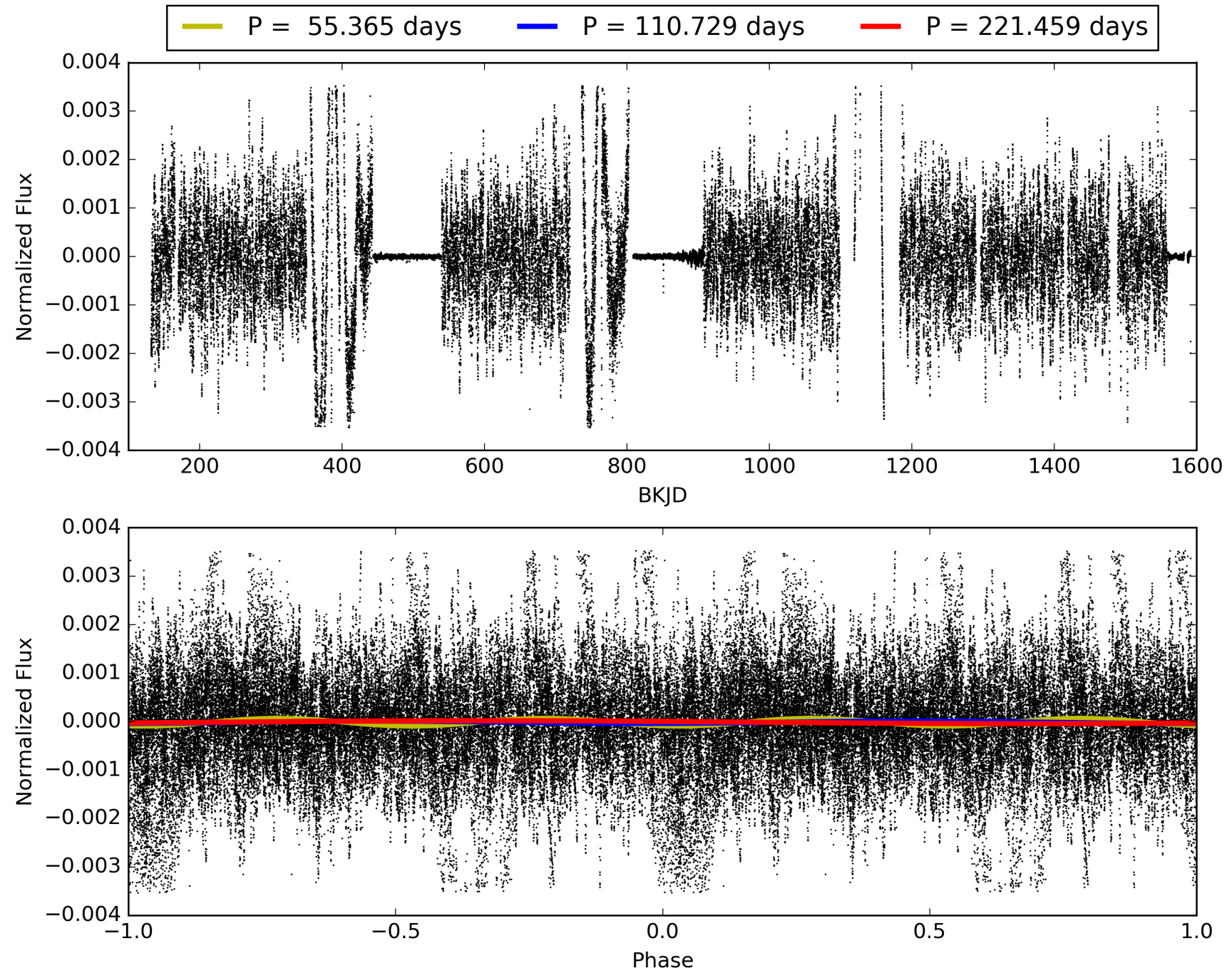
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:35:38 Z

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

# TCE 011509792-01, PDC Light Curves

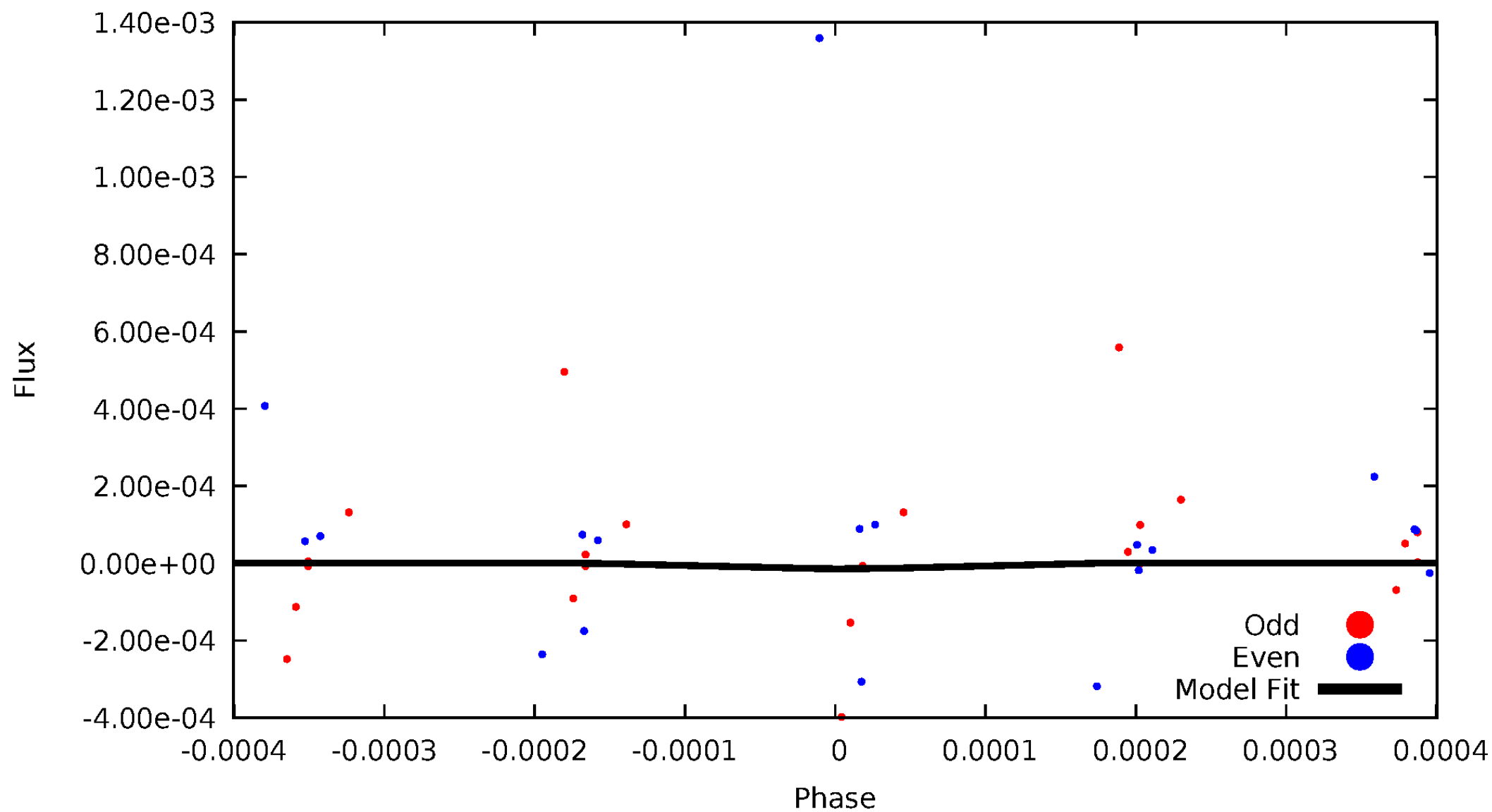


# TCE 011509792-01



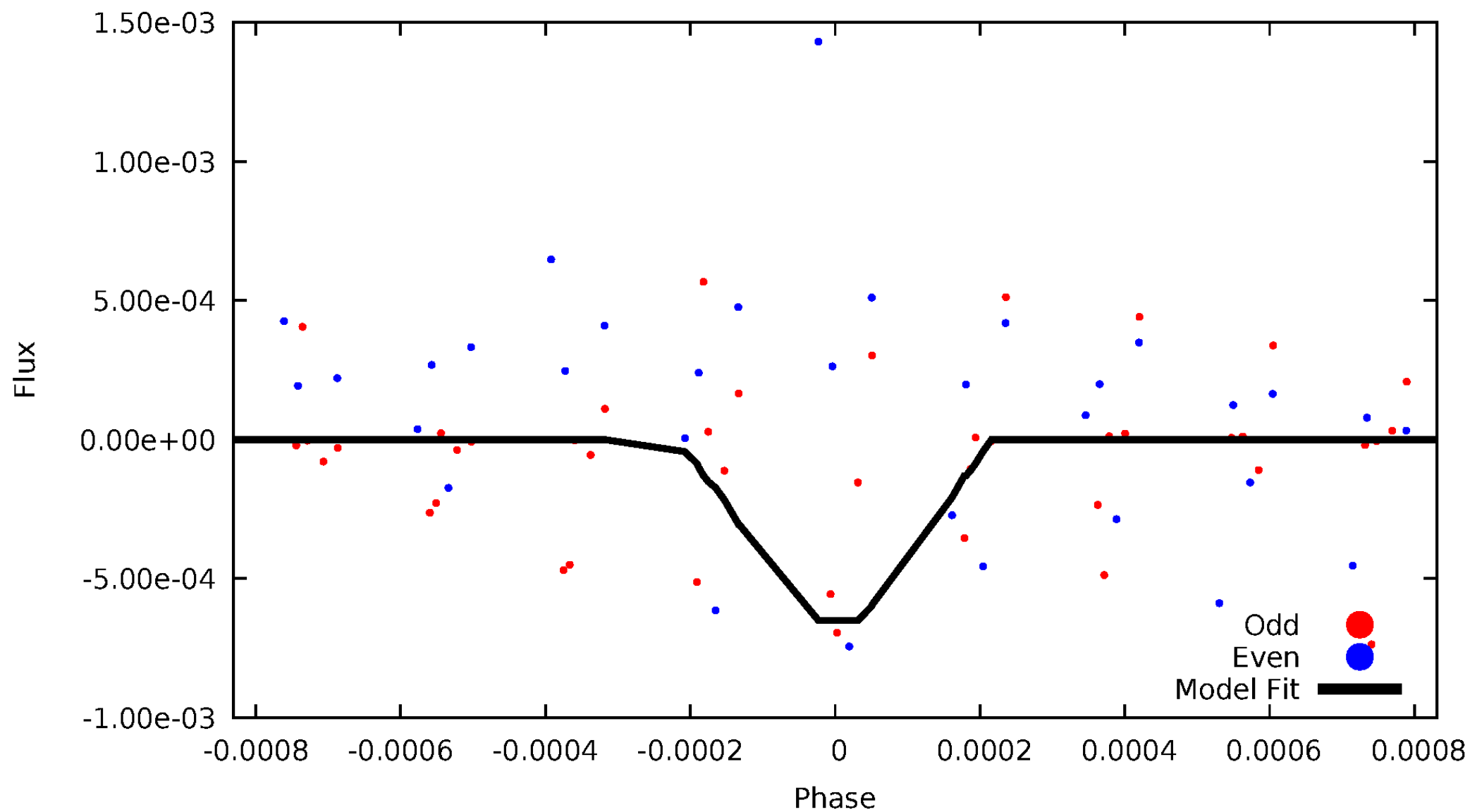
# DV Odd/Even

TCE 011509792-01



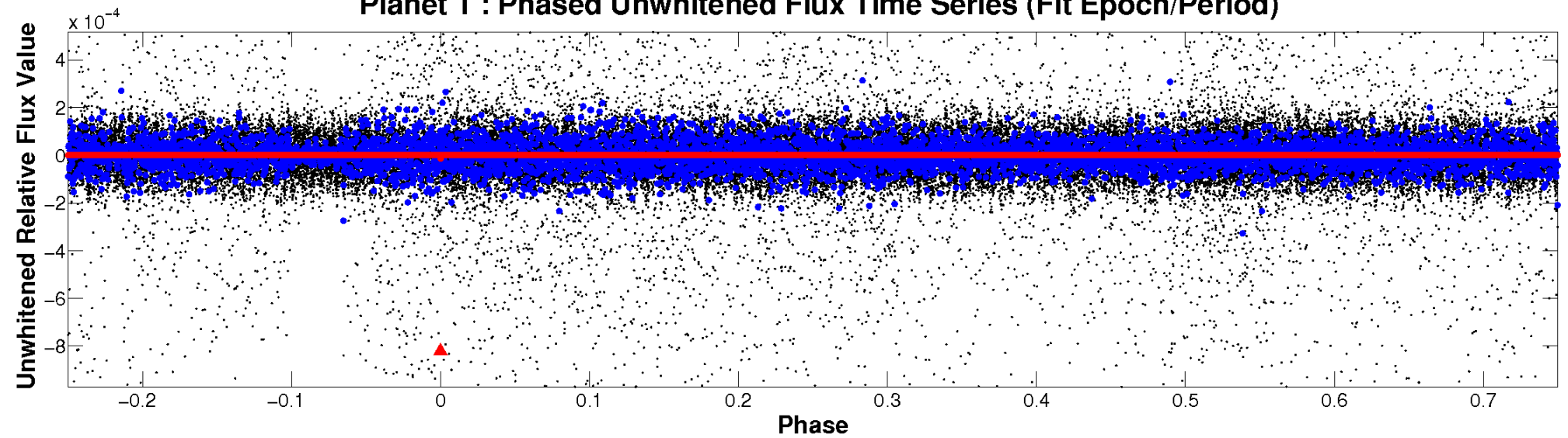
# ALT Odd/Even

TCE 011509792-01

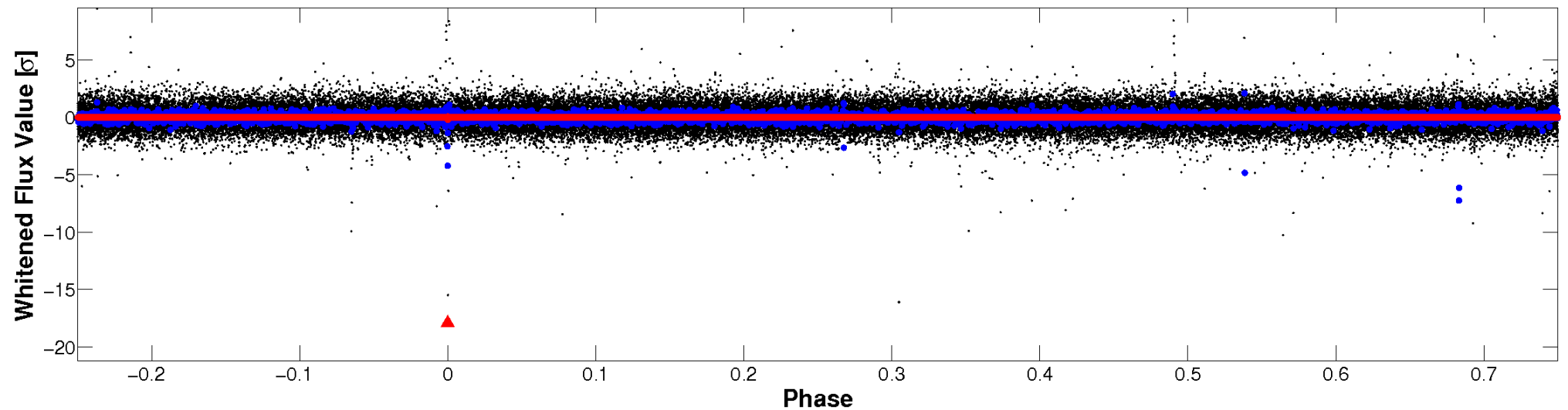


# Non-Whitened Vs. Whitened Light Curve

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



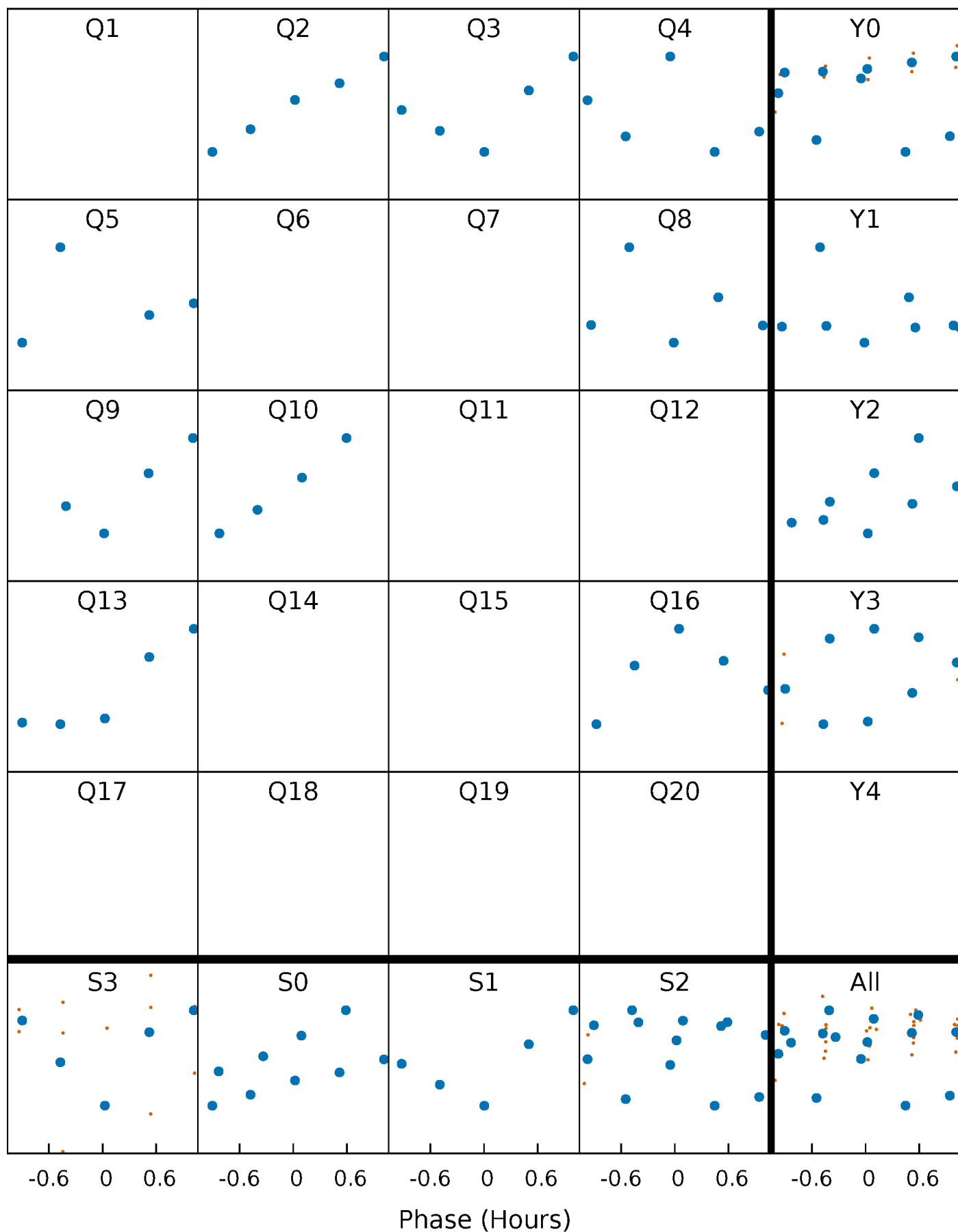
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

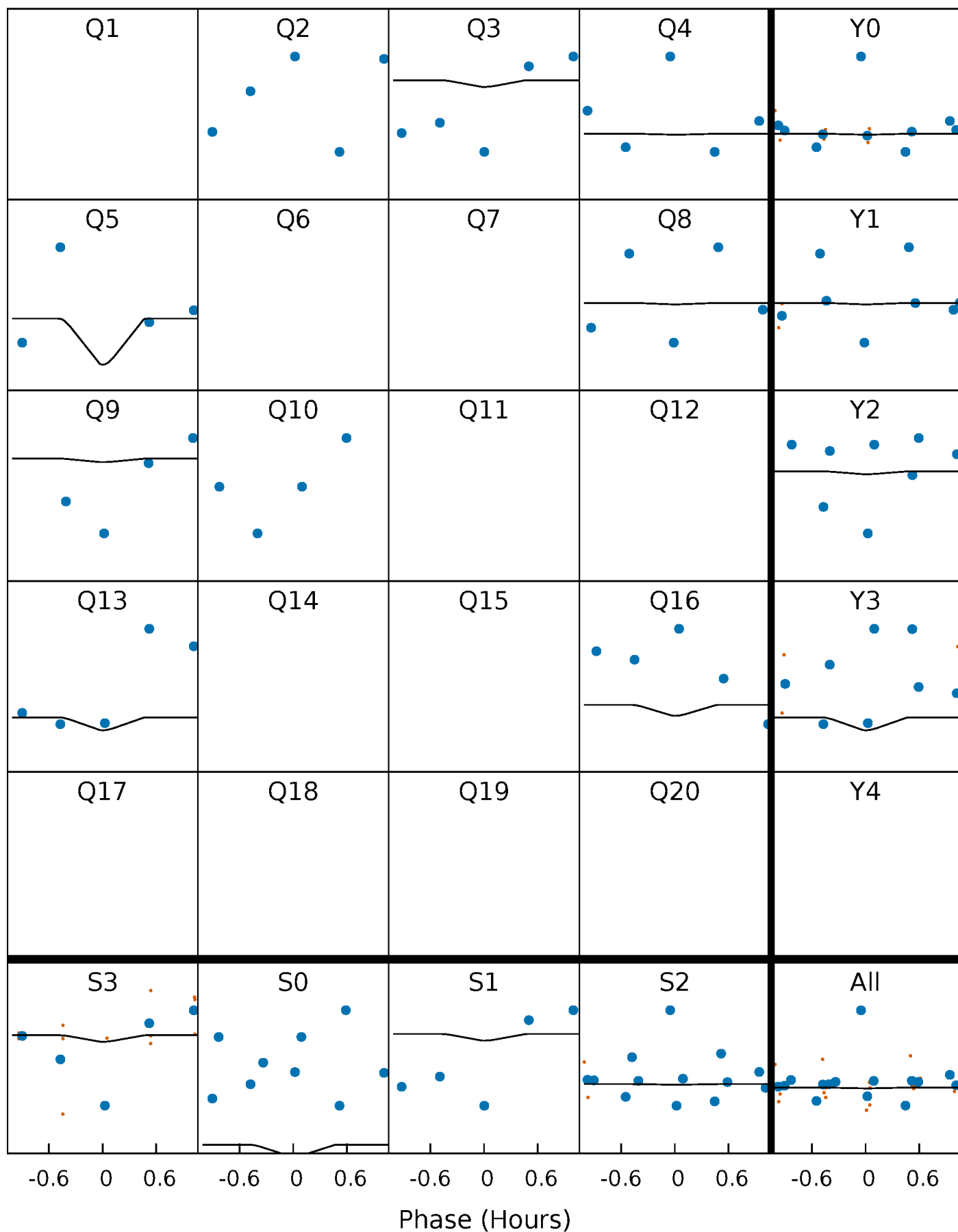
TCE 011509792-01 P=110.729262 Days  $T_0=186.580217$  (BKJD)





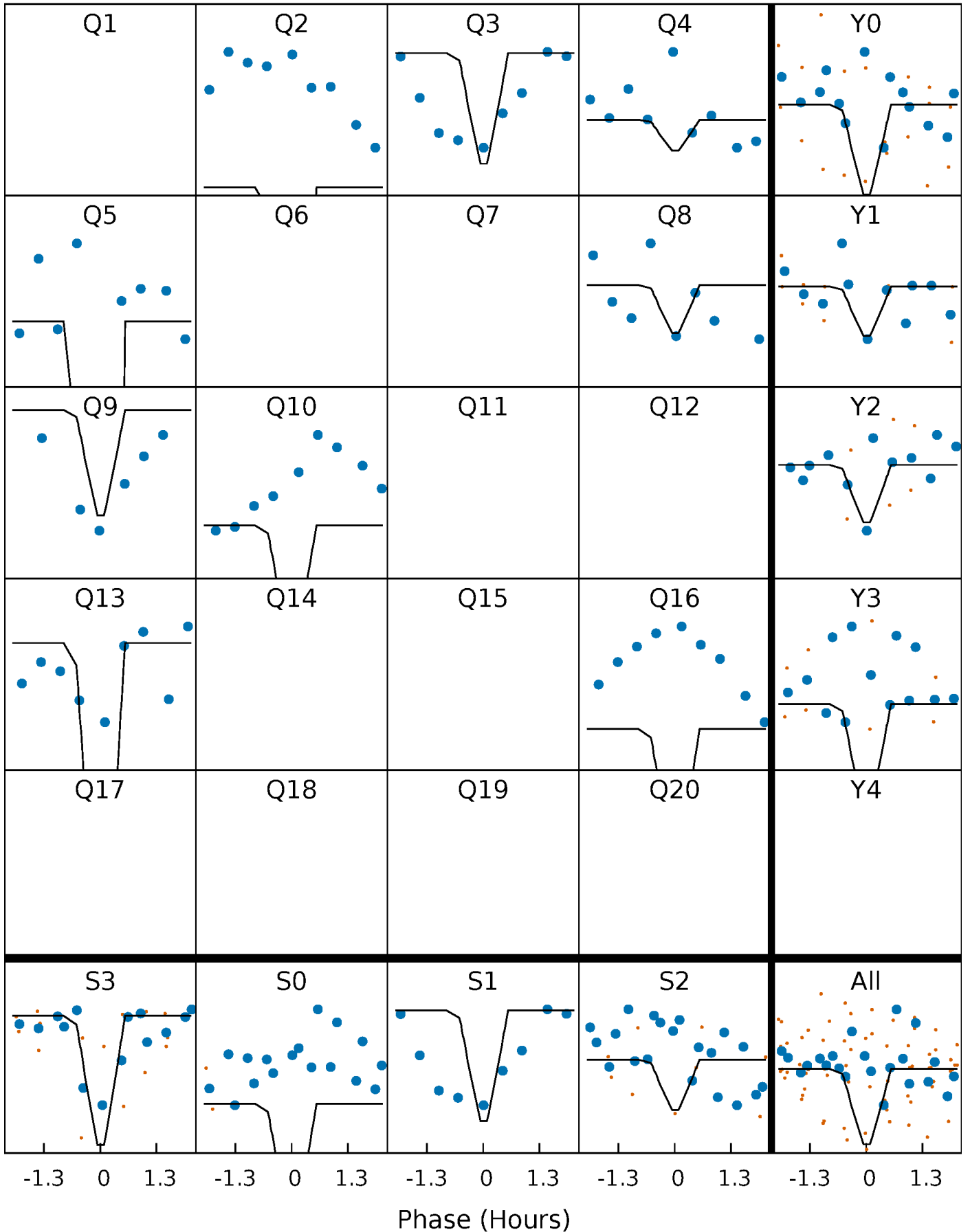
# DV Quarter-Phased Transit Curves

TCE 011509792-01 P=110.729262 Days  $T_0=186.580217$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

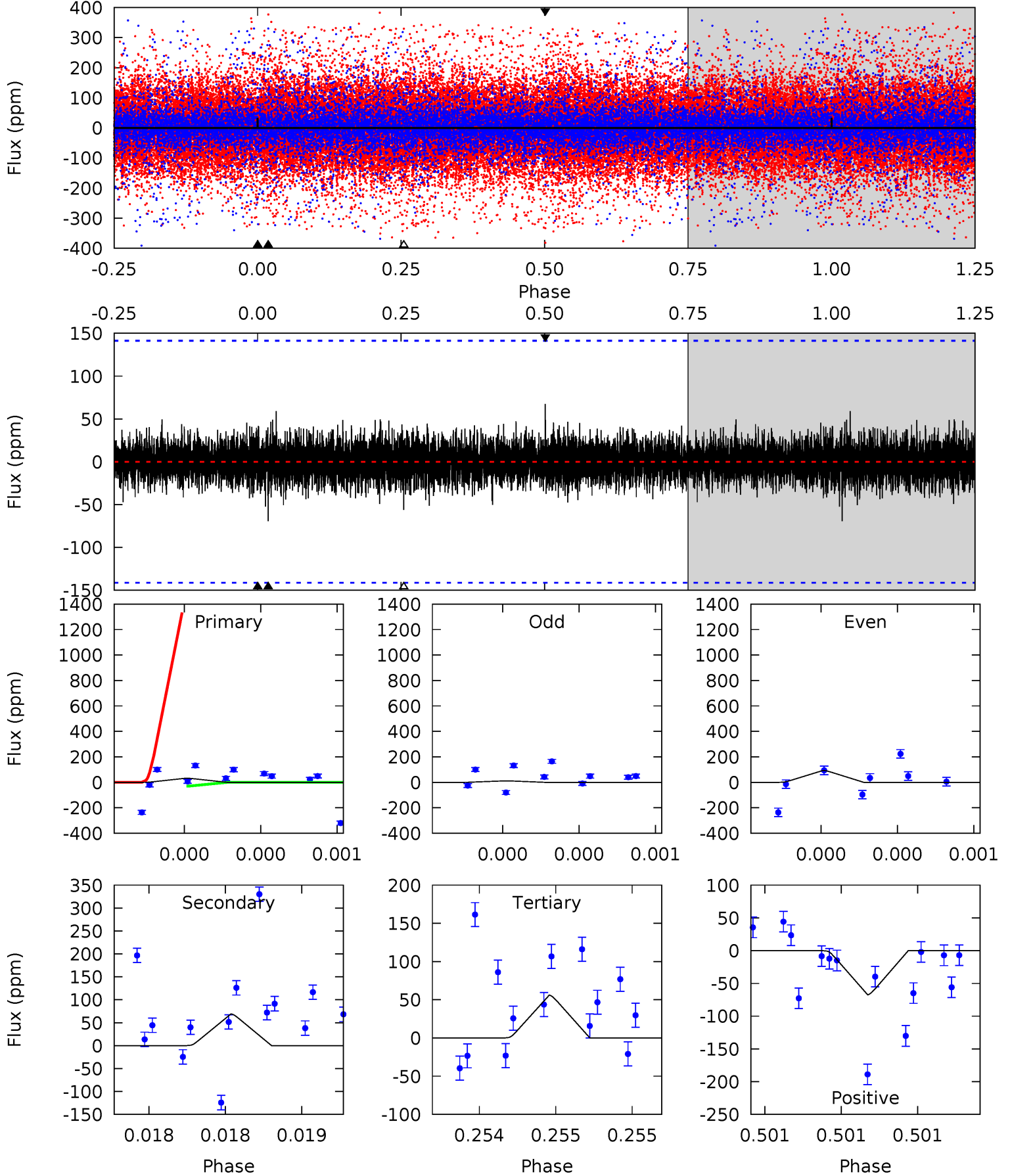
TCE 011509792-01 P=110.728854 Days  $T_0=186.582438$  (BKJD)



# DV Model-Shift Uniqueness Test

011509792-01, P = 110.729262 Days, E = 75.850955 Days

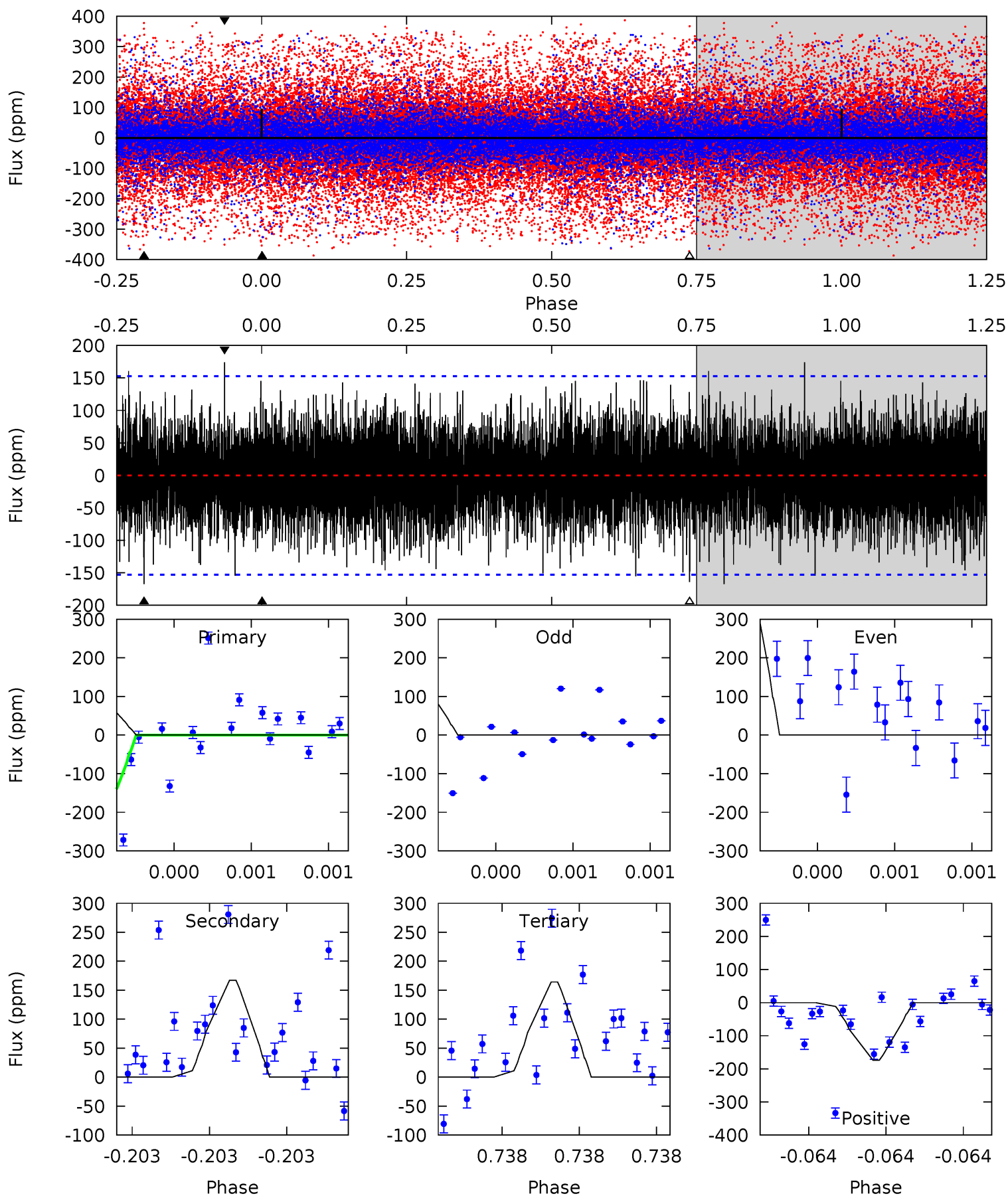
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.31	2.76	2.24	2.69	5.64	3.58	0.49	-0.93	-1.38	0.52	0.07	1.63	2.50	0.49	28.4



# Alt Model-Shift Uniqueness Test

011509792-01,  $P = 110.728854$  Days,  $E = 75.853584$  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
3.52	6.13	6.01	6.37	5.60	3.52	1.37	-2.49	-2.85	0.11	-0.24	6.23	0.39	0.51	0.20



### Stellar Parameters For KIC 011509792

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4692^{+56}_{-77}$	$2.201^{+0.033}_{-0.027}$	$-0.320^{+0.100}_{-0.200}$	$18.497^{+3.028}_{-2.753}$	$1.981^{+0.893}_{-0.481}$	$0.000^{+0.000}_{-0.000}$
	+1%/-2%	+1%/-1%	+31%/-62%	+16%/-15%	+45%/-24%	+25%/-9%
Source	PHO55	AST55	SPE55	DSEP		

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

### Secondary Eclipse Parameters for KIC 011509792-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-69 \pm 25$	$1518.78^{+1625.02}_{-1070.42}$	$1648^{+44}_{-43}$	$-2232^{+57}_{-35}$	$0.006^{+0.052}_{-0.004}$
Alt.	$-167 \pm 27$	$1467.90^{+1557.03}_{-1021.03}$	$1649^{+41}_{-41}$	$-2224^{+136}_{-37}$	$0.014^{+0.125}_{-0.011}$

$T_{max}$  = 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

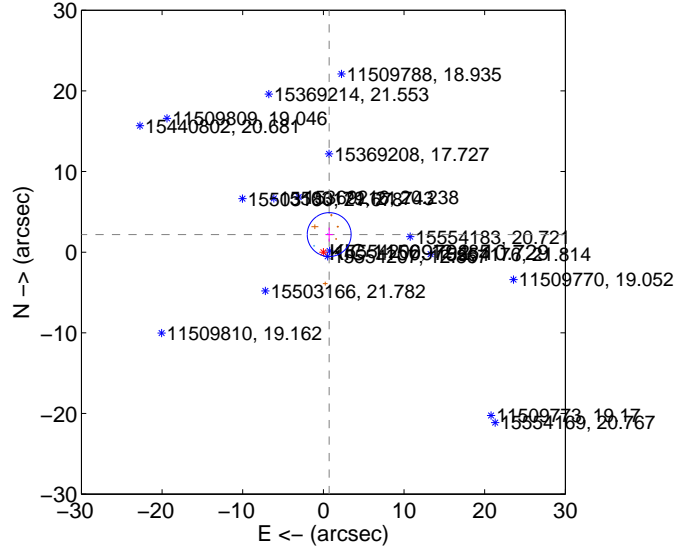
Supplemental centroid analysis for 011509792-01. **Kepler magnitude: 10.73.** Transit SNR 0.48

**There are 2 quarters with good PRF difference image offsets**

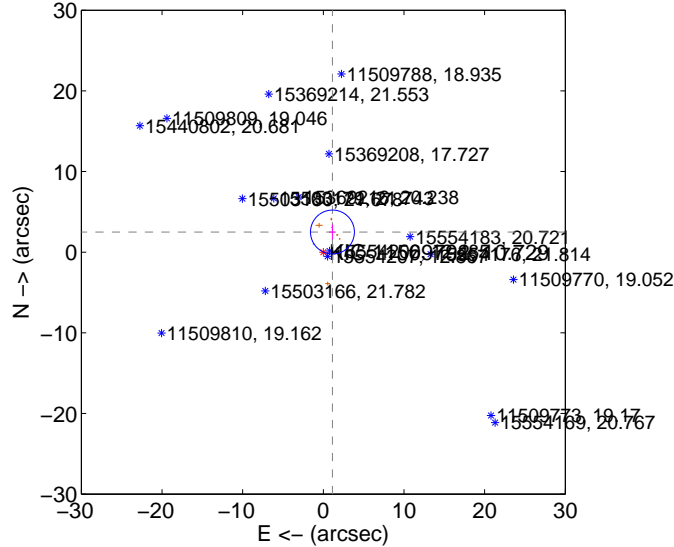
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.294 \pm 0.907$	2.53	$-0.719 \pm 0.467$	$2.179 \pm 0.872$
PRF-fit source offset from KIC position	<b><math>2.743 \pm 0.907</math></b>	<b>3.02</b>	$-1.132 \pm 0.423$	$2.498 \pm 0.934$
photometric centroid source offset	$19.21 \pm 13.99$	1.37	$18.95 \pm 14.07$	$-3.19 \pm 10.93$

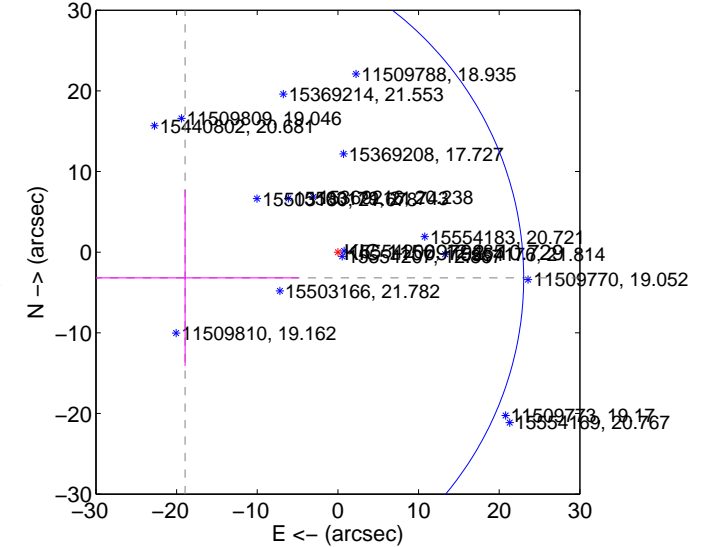
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

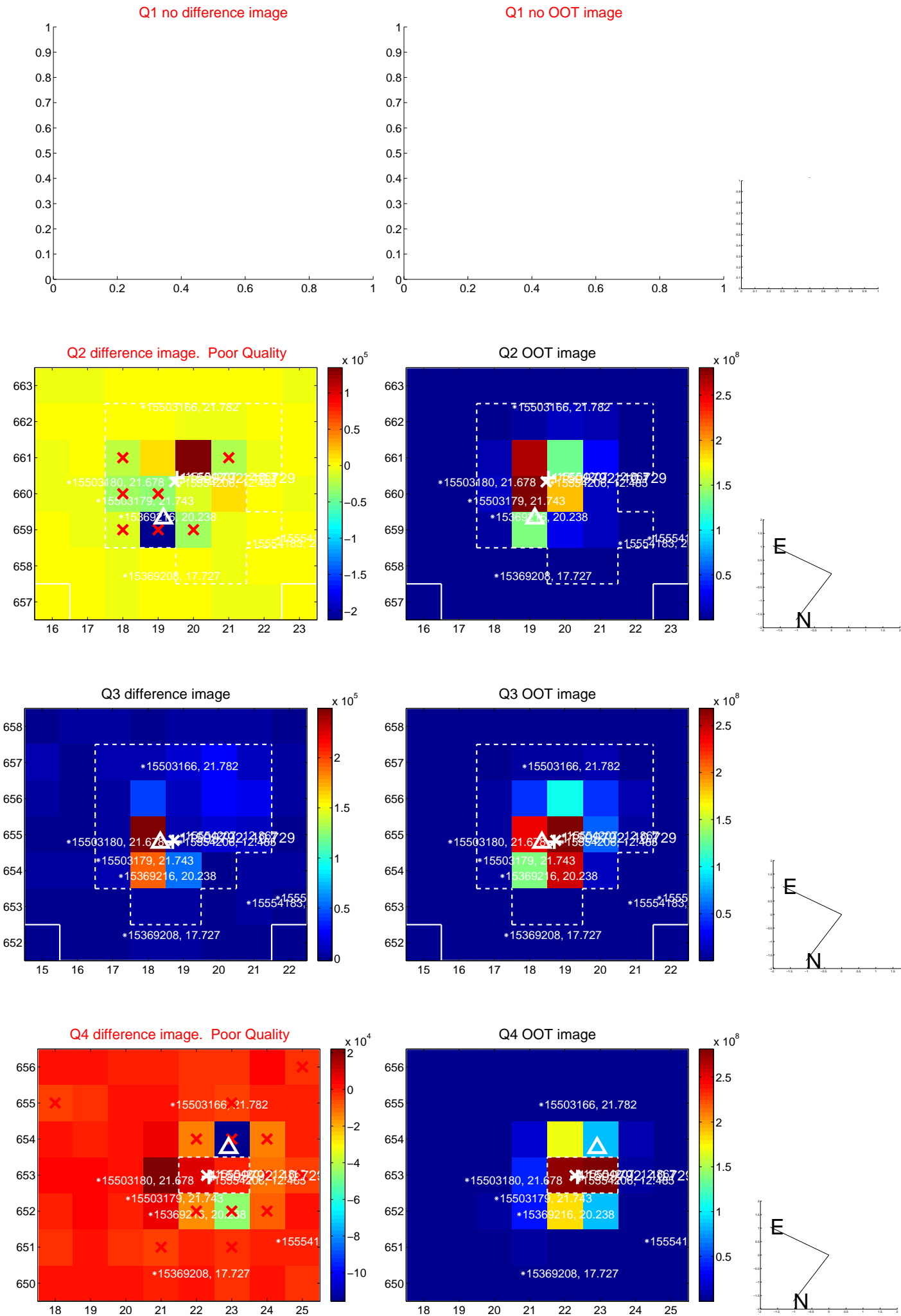


offset from photometric centroids



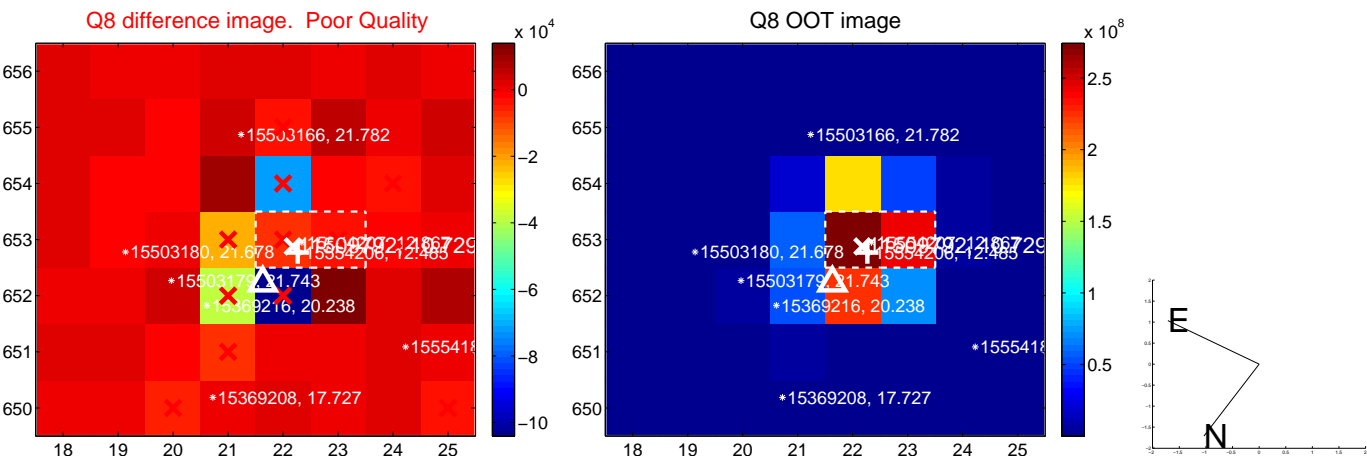
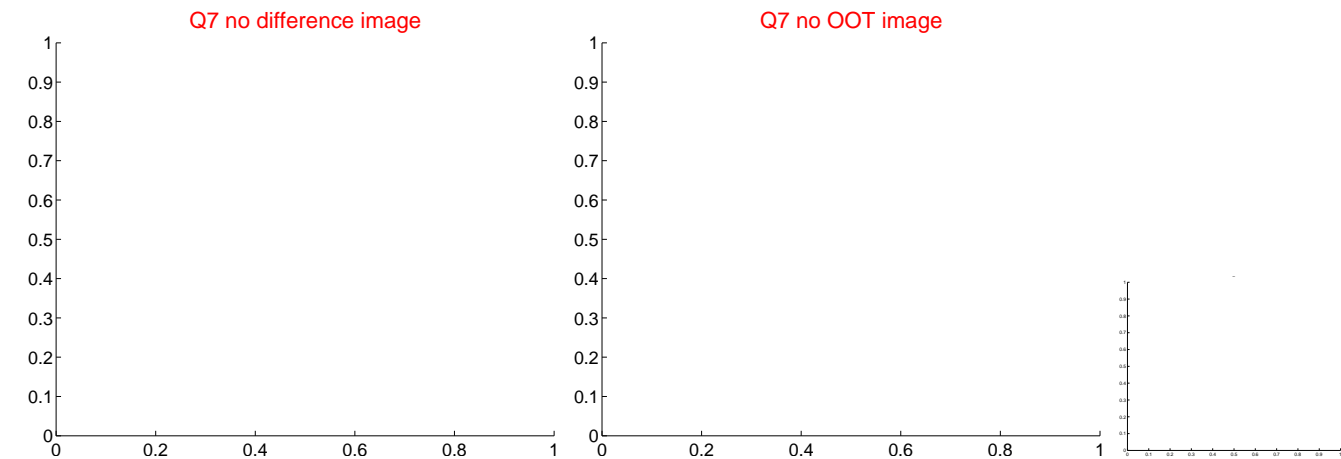
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

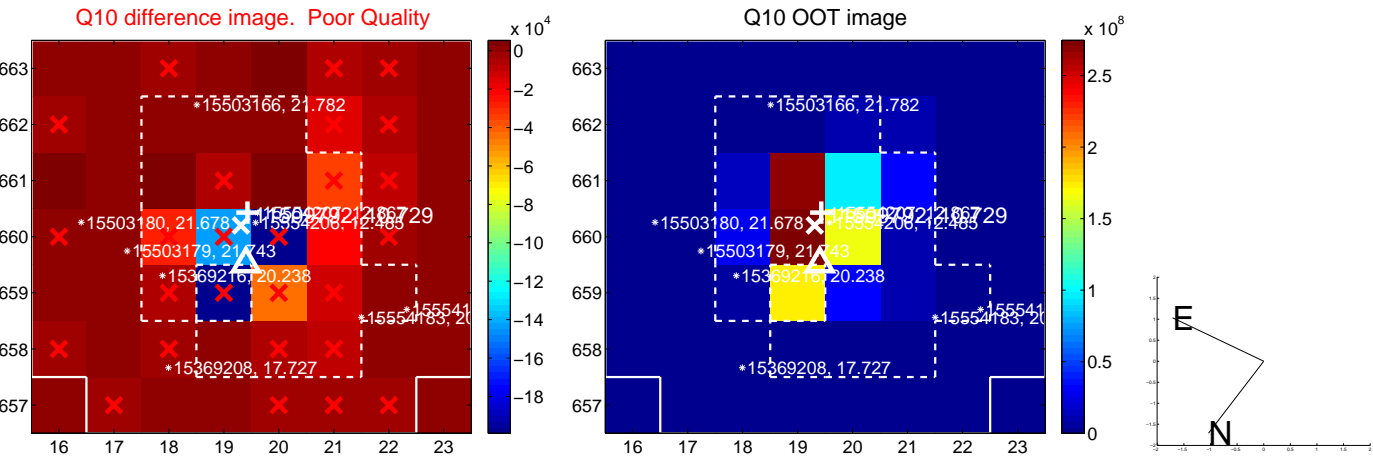
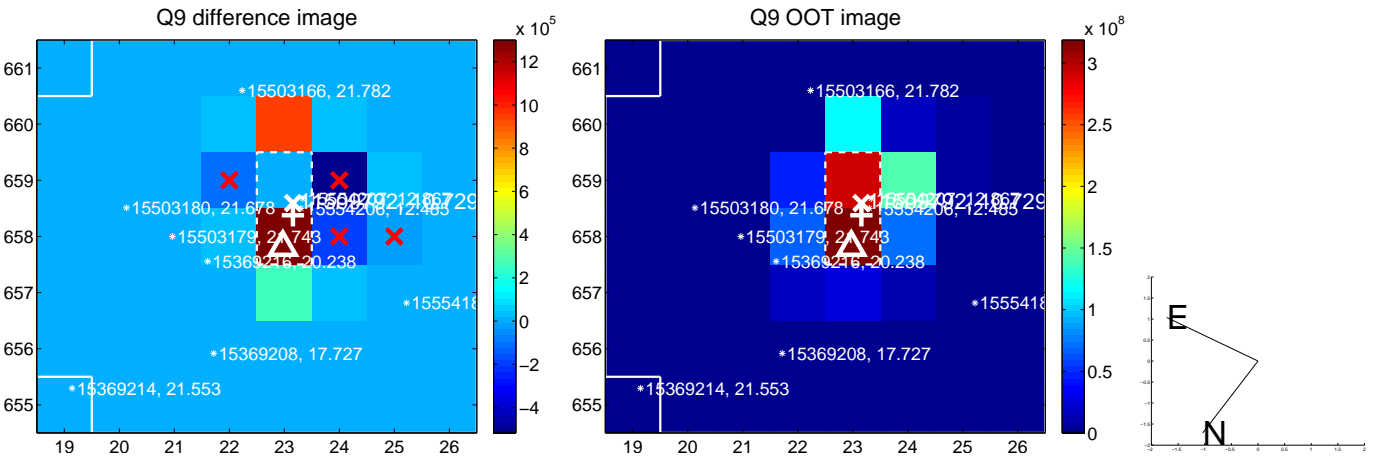




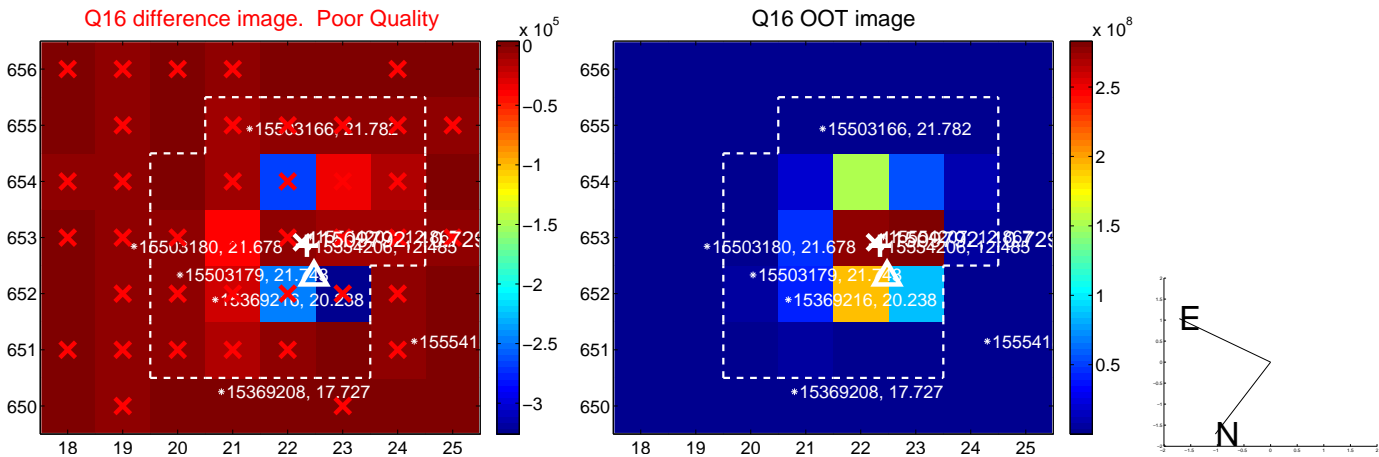
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



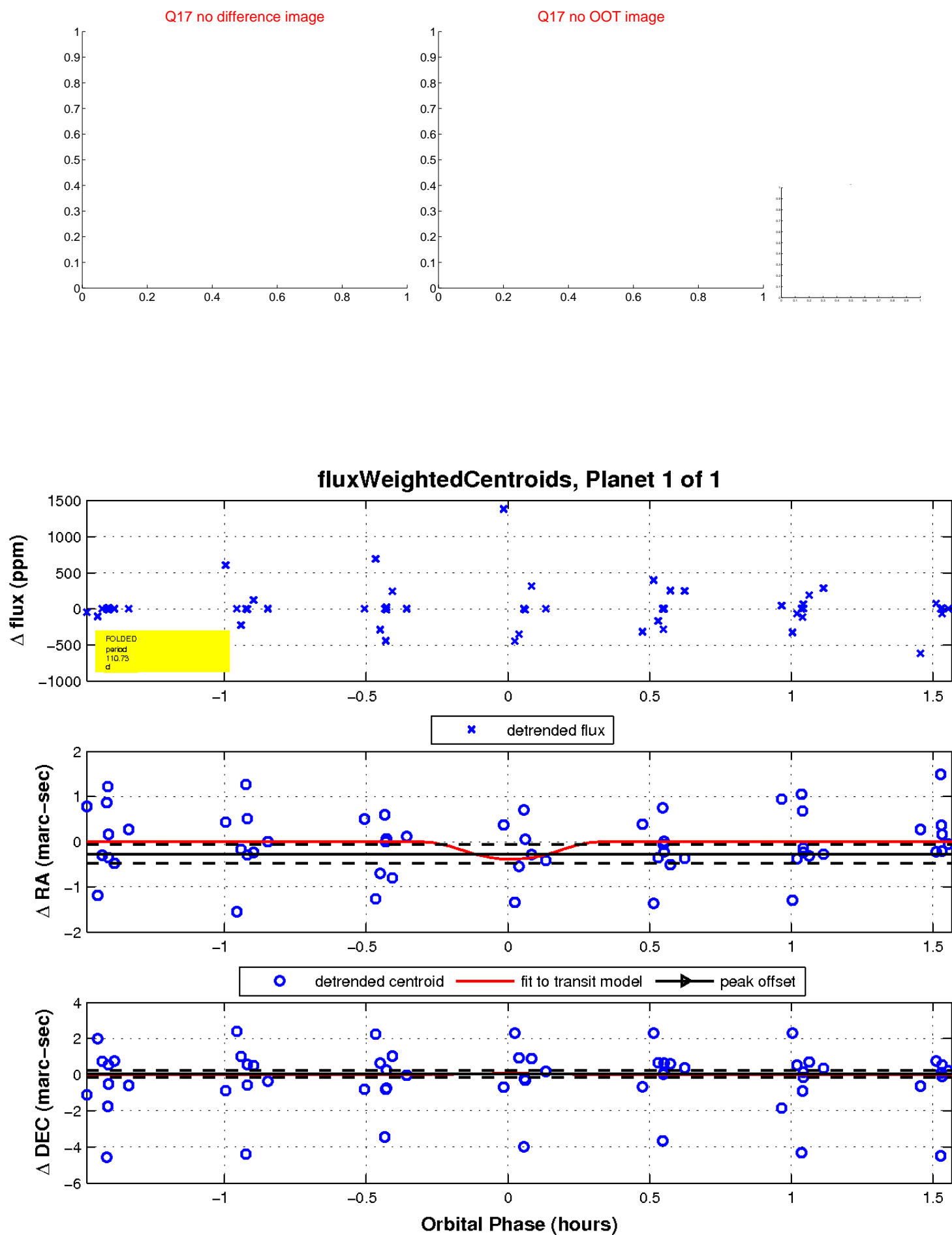
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

