

# KIC 012118372

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012118372-01	OBS	No	155.349886	231.452955	686.3	2.776	7.7	7.2	1.05	6161	2.98	4.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012118372-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

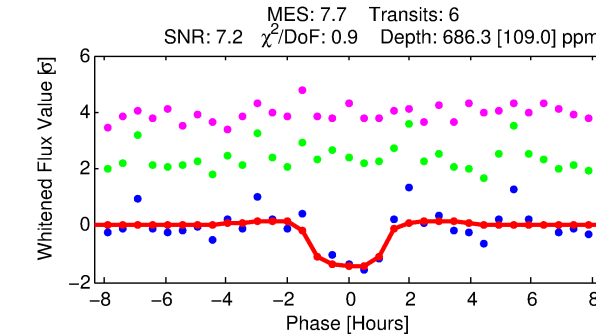
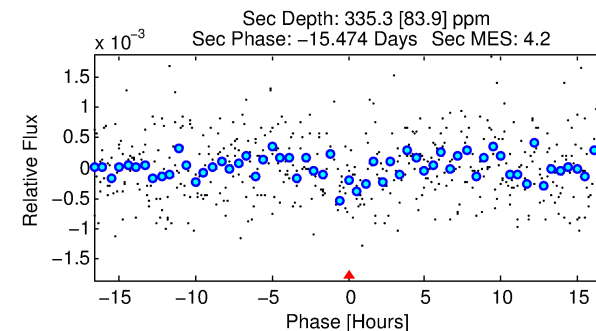
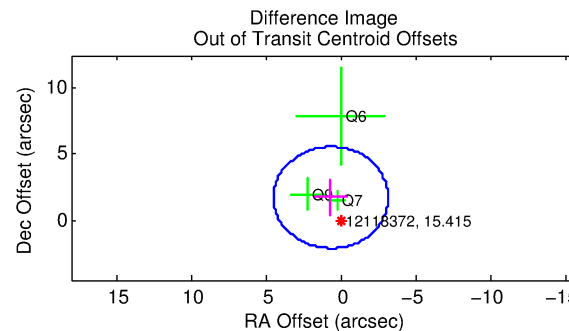
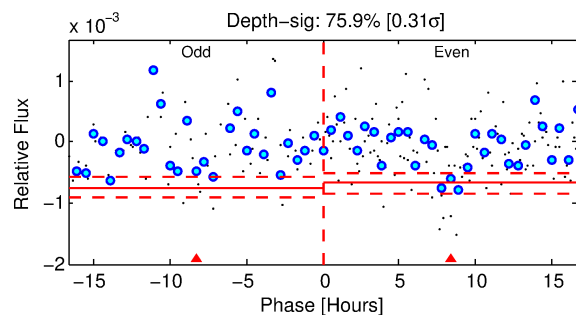
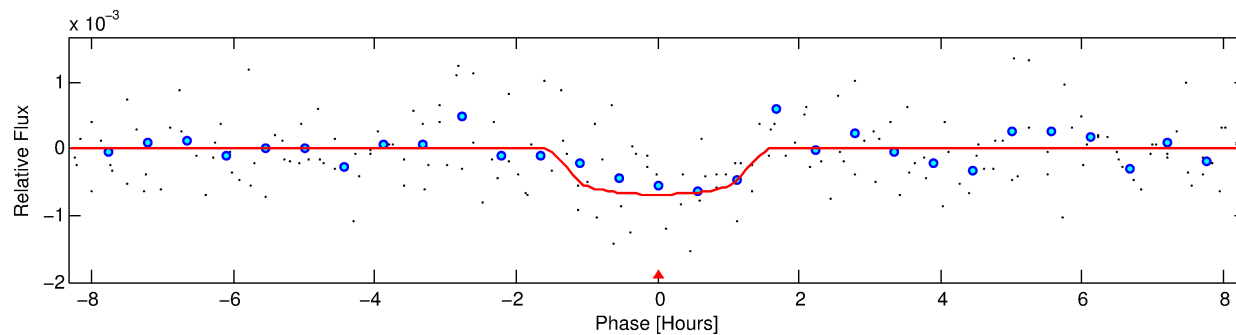
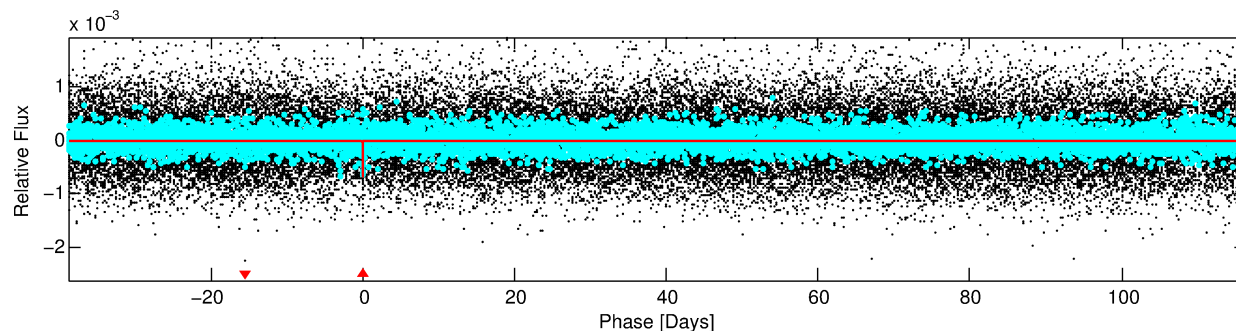
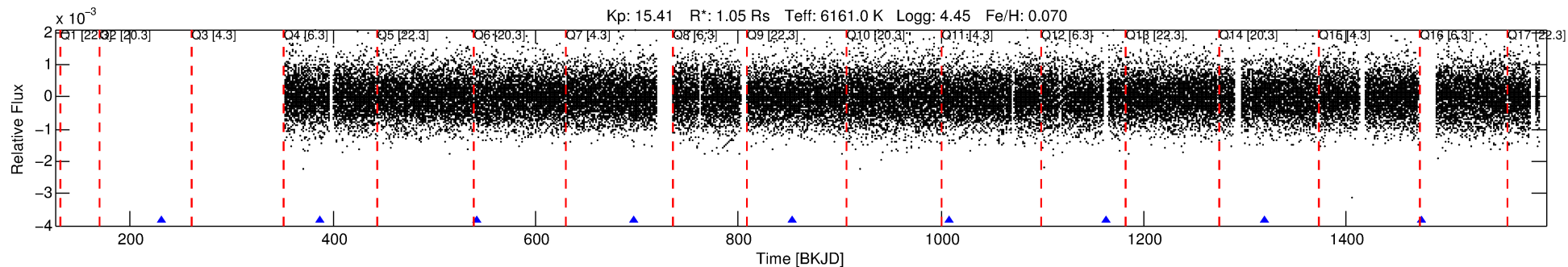
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012118372-01

No Significant Match Found

# DV One-Page Summary

KIC: 12118372 Candidate: 1 of 1 Period: 155.350 d



## DV Fit Results:

Period = 155.34989 [0.00254] d  
Epoch = 231.4530 [0.0120] BKJD  
Rp/R\* = 0.0260 [0.0689]  
a/R\* = 306.20 [3963.93]  
b = 0.73 [8.22]  
Seff = 4.07 [1.77]  
Teq = 362 [39] K  
Rp = 2.98 [7.98] Re  
a = 0.5927 [0.1661] AU  
Ag = 7288.81 [38843.15] [0.19 $\sigma$ ]  
Teffp = 5175 [6879] K [0.70 $\sigma$ ]

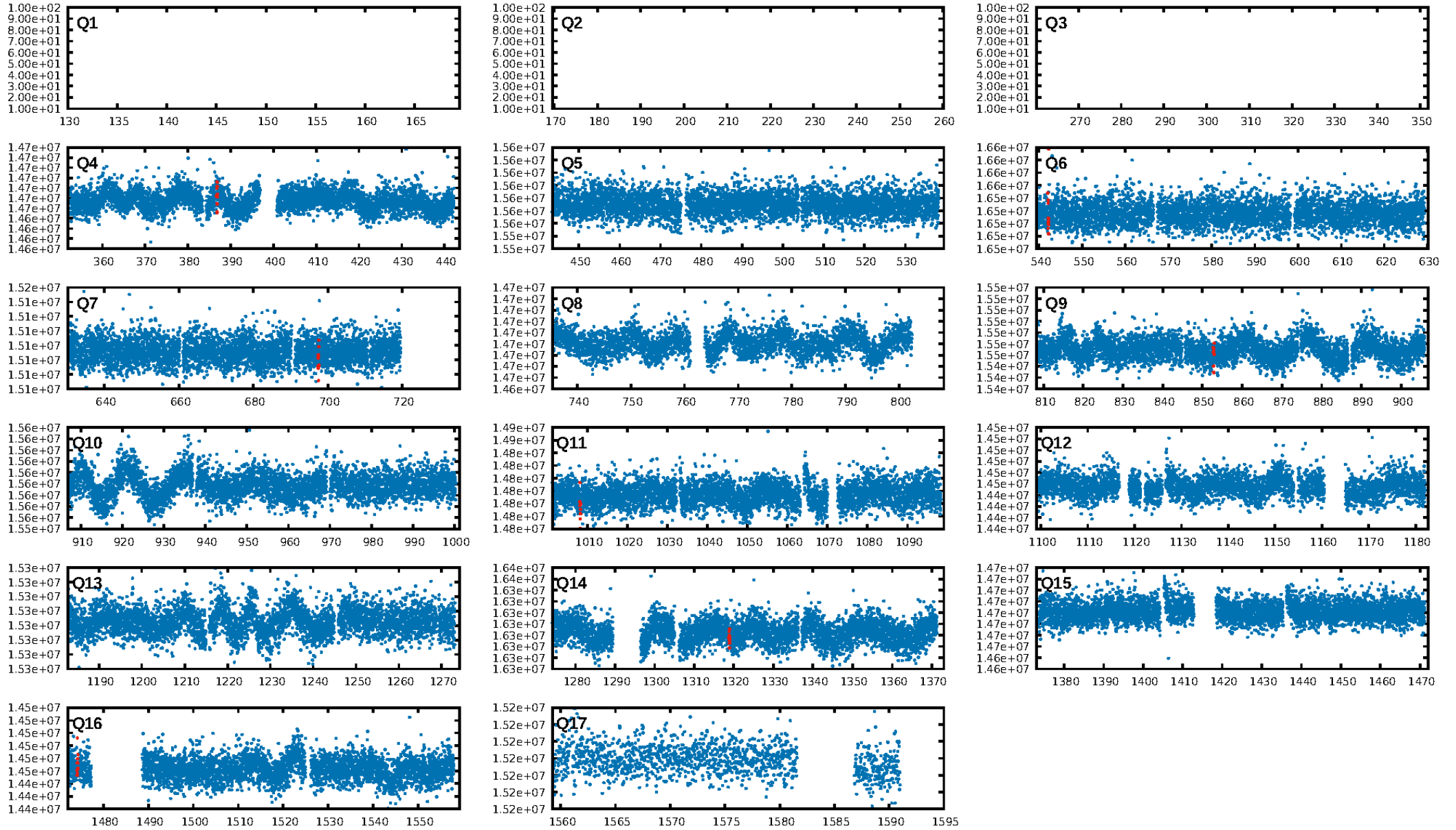
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.3%  
ModelChiSquareGof-sig: 94.8%  
Bootstrap-pfa: 9.05e-15  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 1.634  
Centroid-sig: 24.7%  
Centroid-so: 2.806 arcsec [1.41 $\sigma$ ]  
OotOffset-rm: 1.855 arcsec [1.45 $\sigma$ ]  
KicOffset-rm: 1.709 arcsec [1.33 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [5/5]

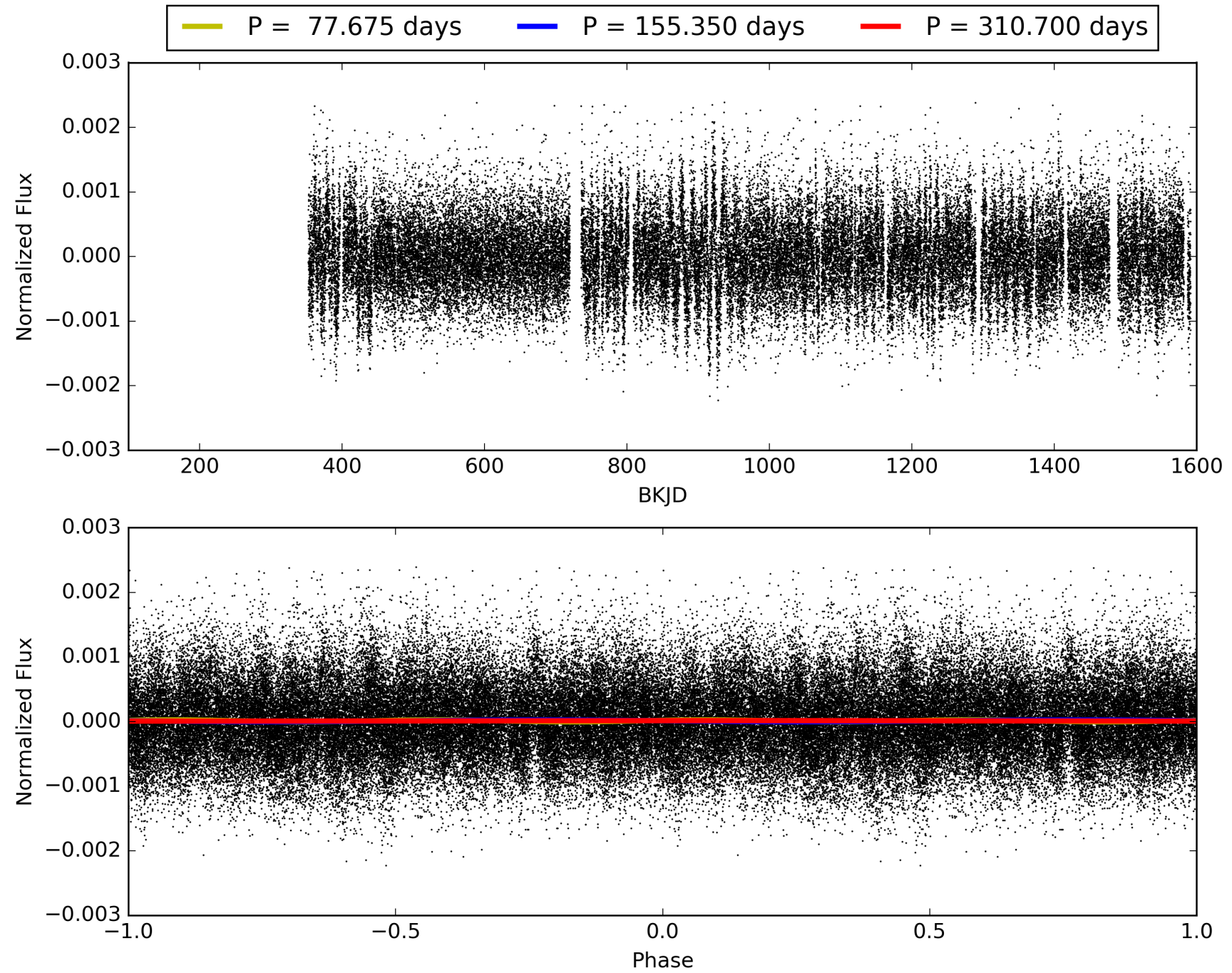
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:18:41 Z

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

# TCE 012118372-01, PDC Light Curves

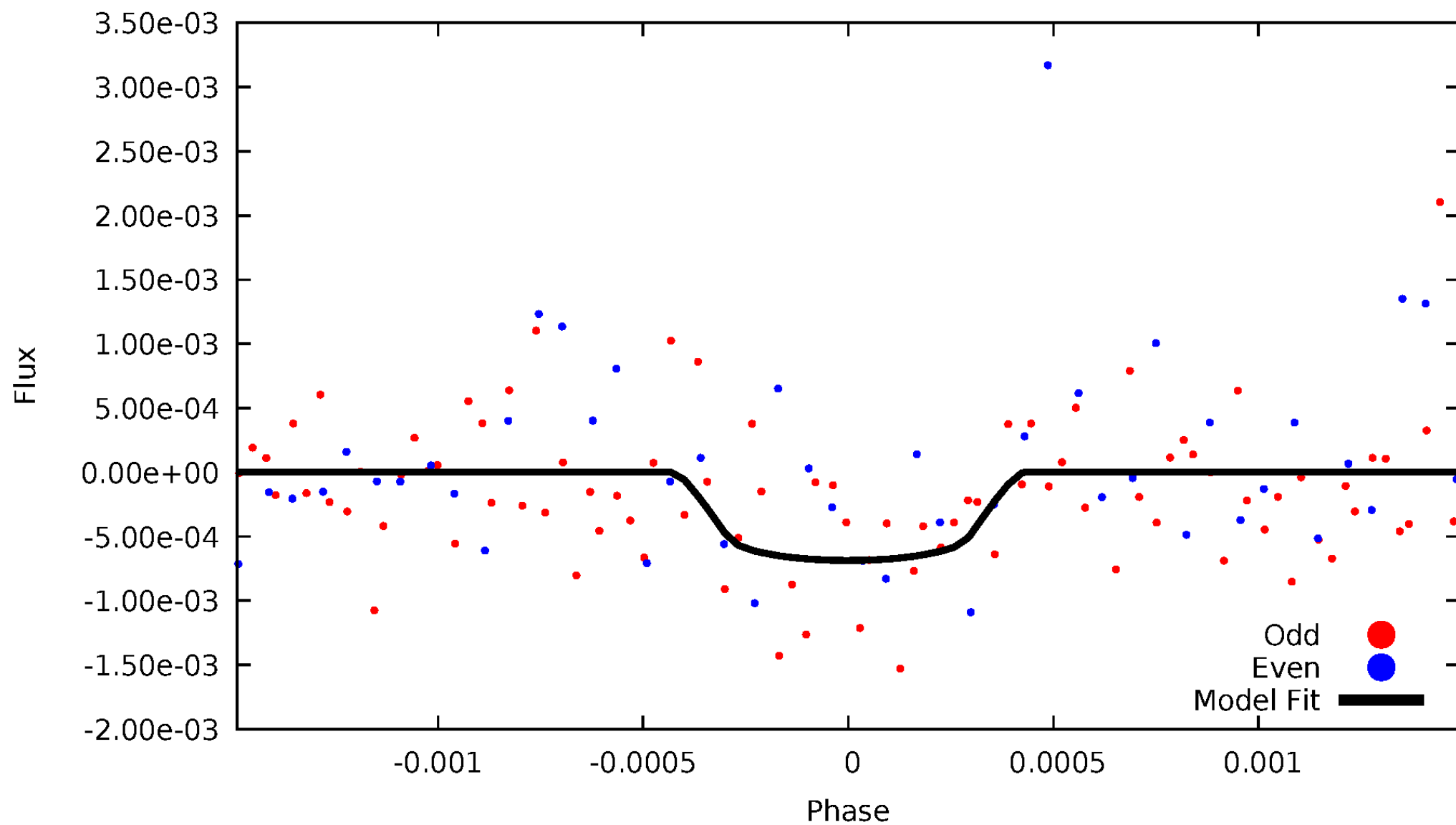


TCE 012118372-01



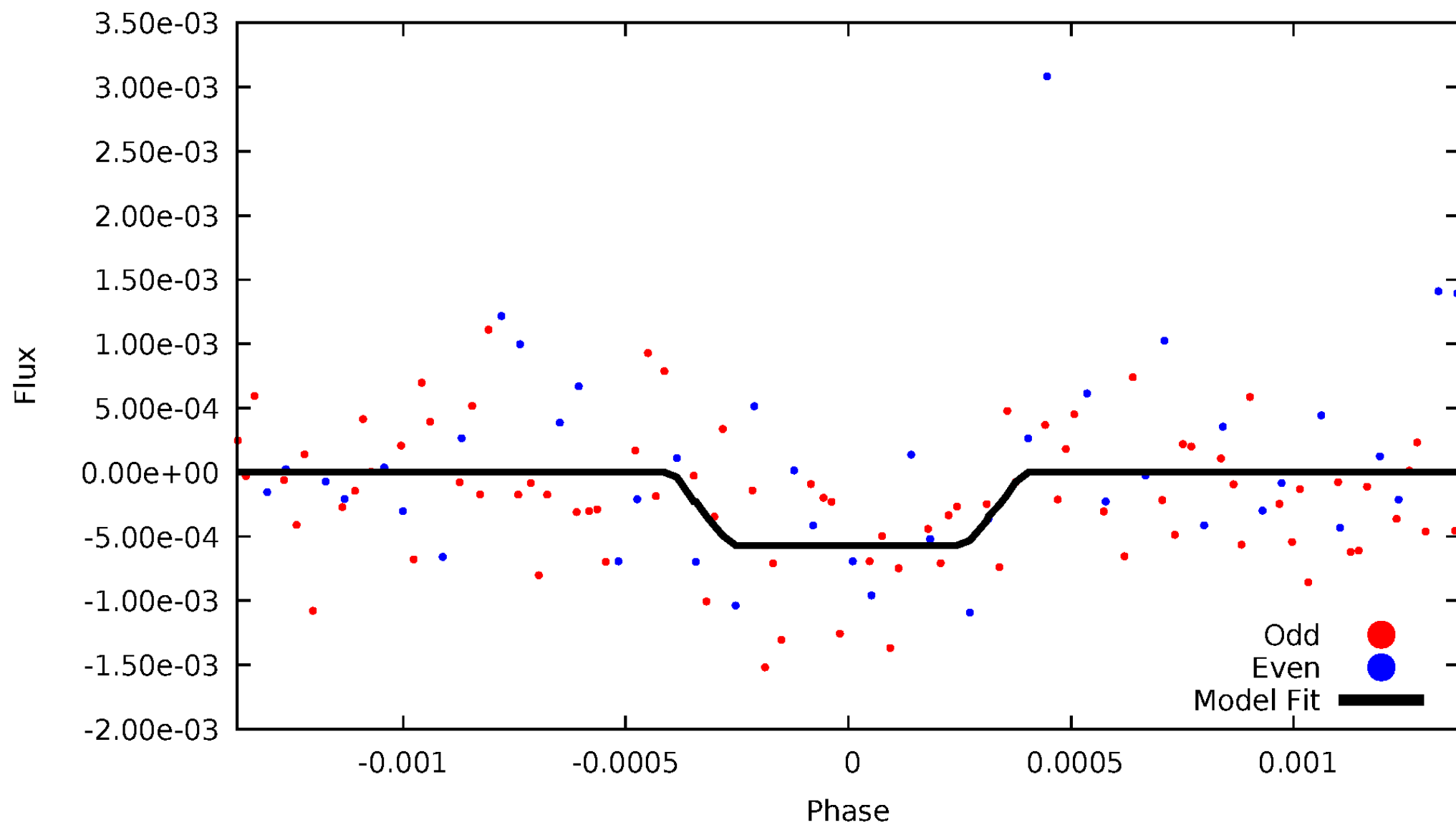
# DV Odd/Even

TCE 012118372-01



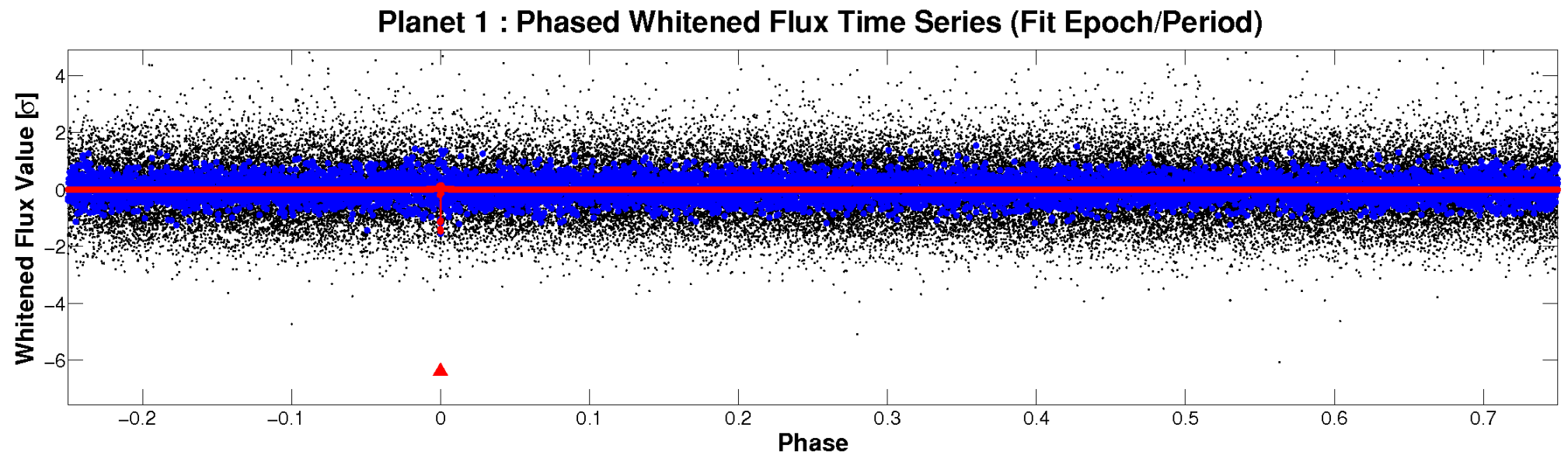
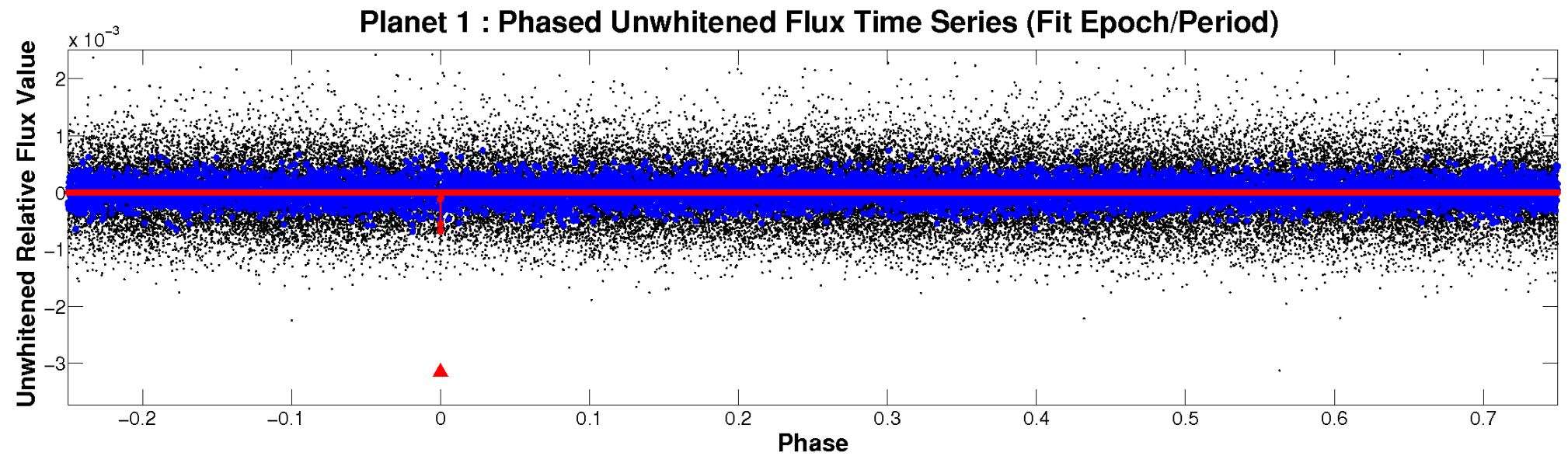
# ALT Odd/Even

TCE 012118372-01



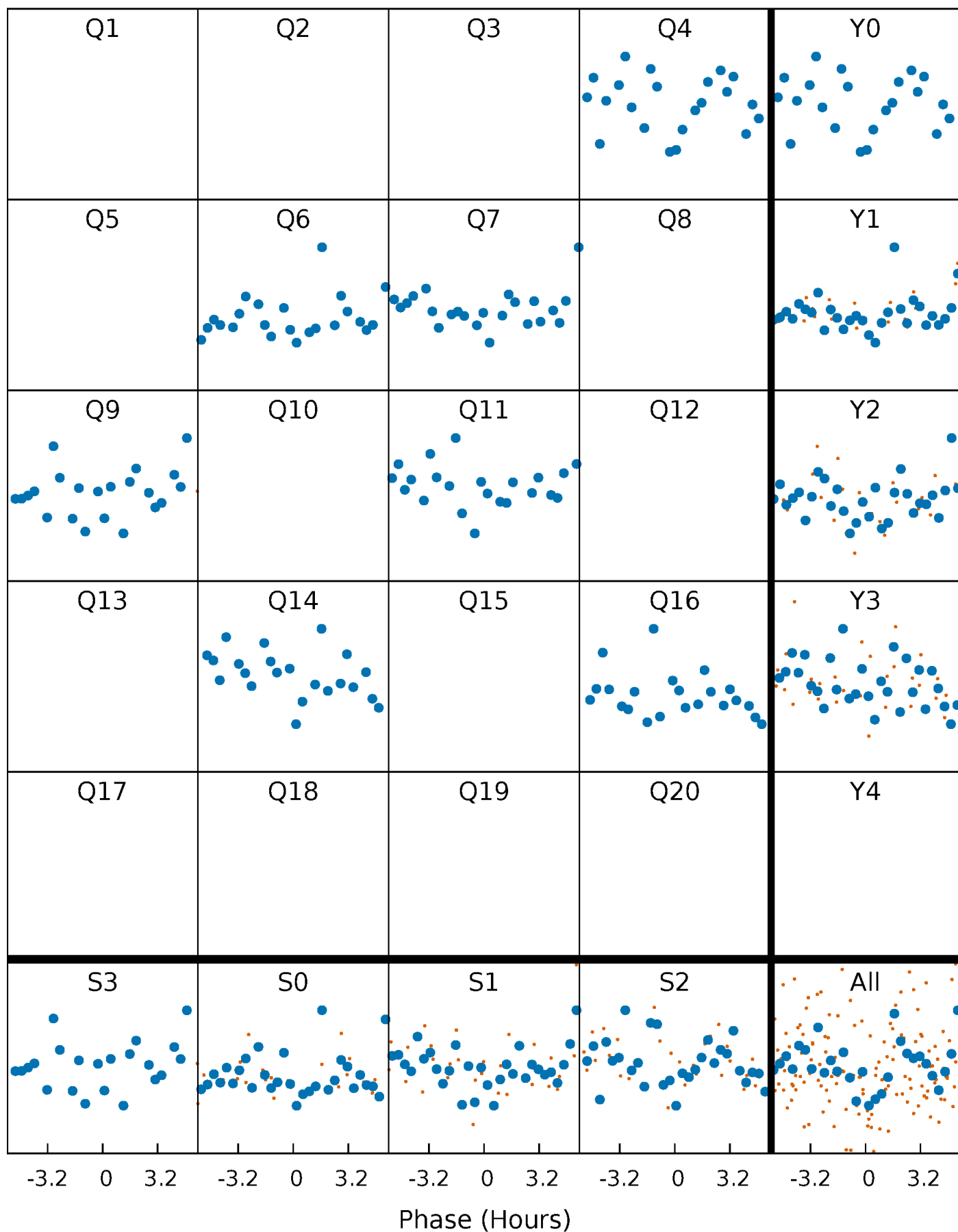


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

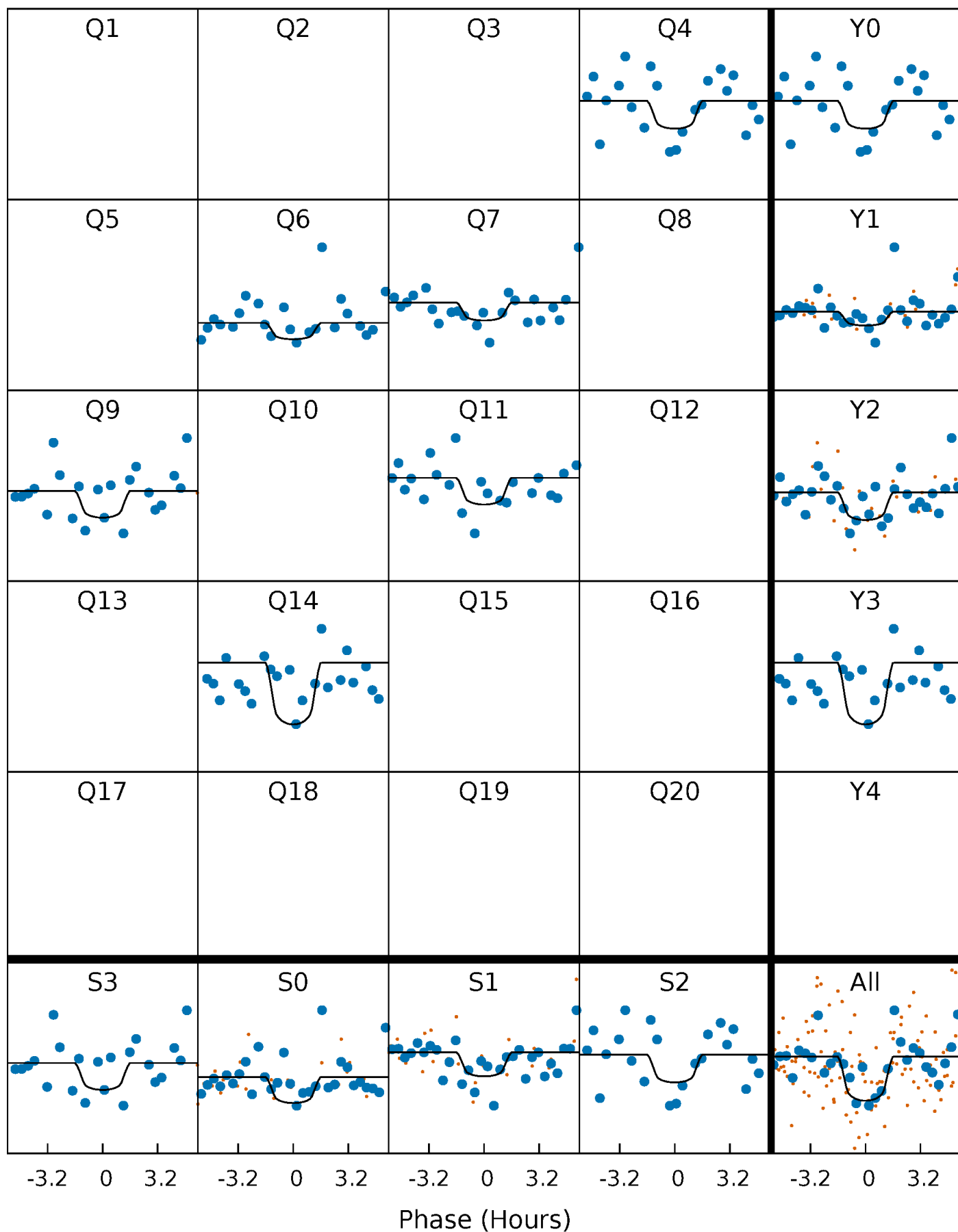
TCE 012118372-01 P=155.349886 Days  $T_0=231.452955$  (BKJD)





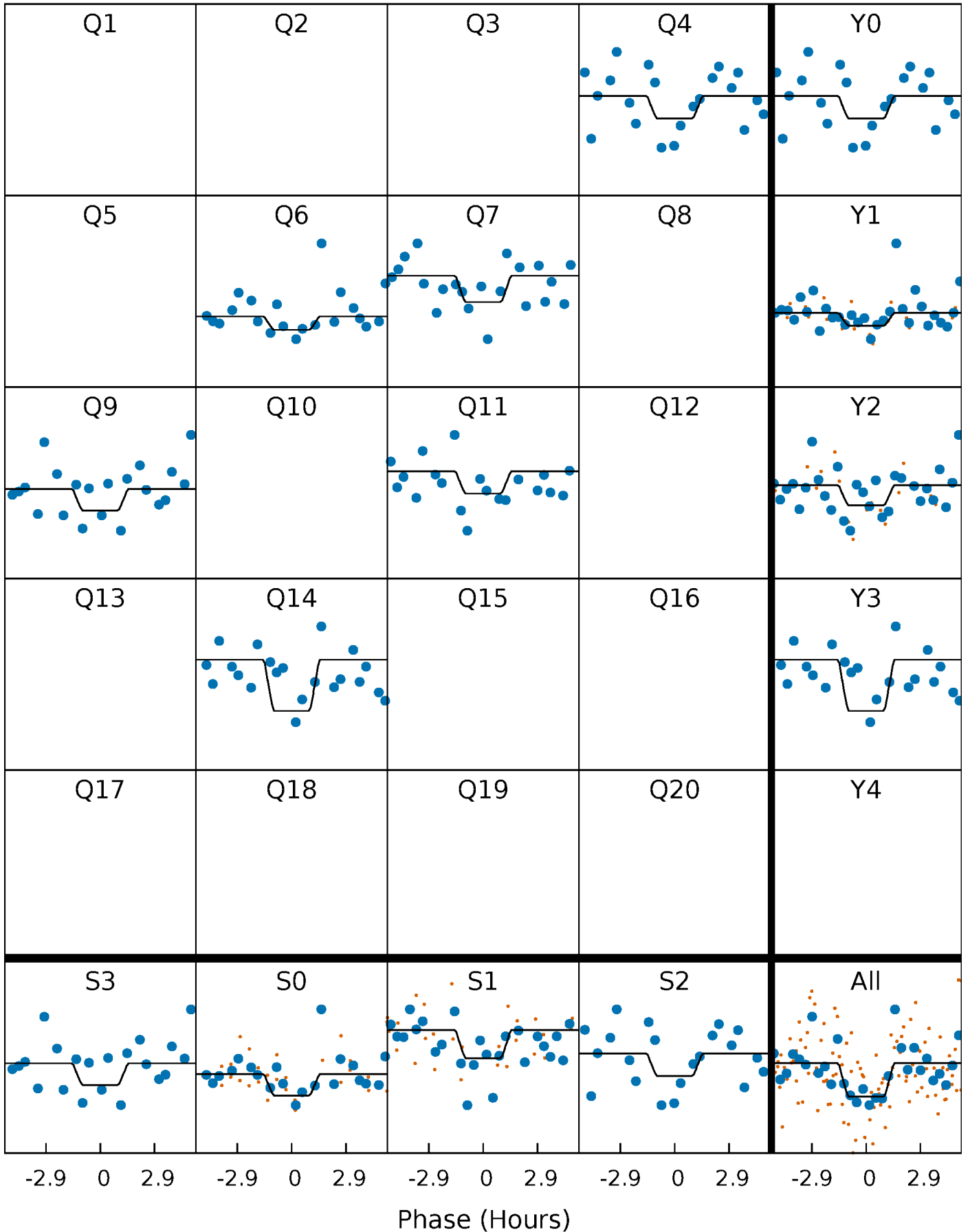
# DV Quarter-Phased Transit Curves

TCE 012118372-01 P=155.349886 Days  $T_0=231.452955$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

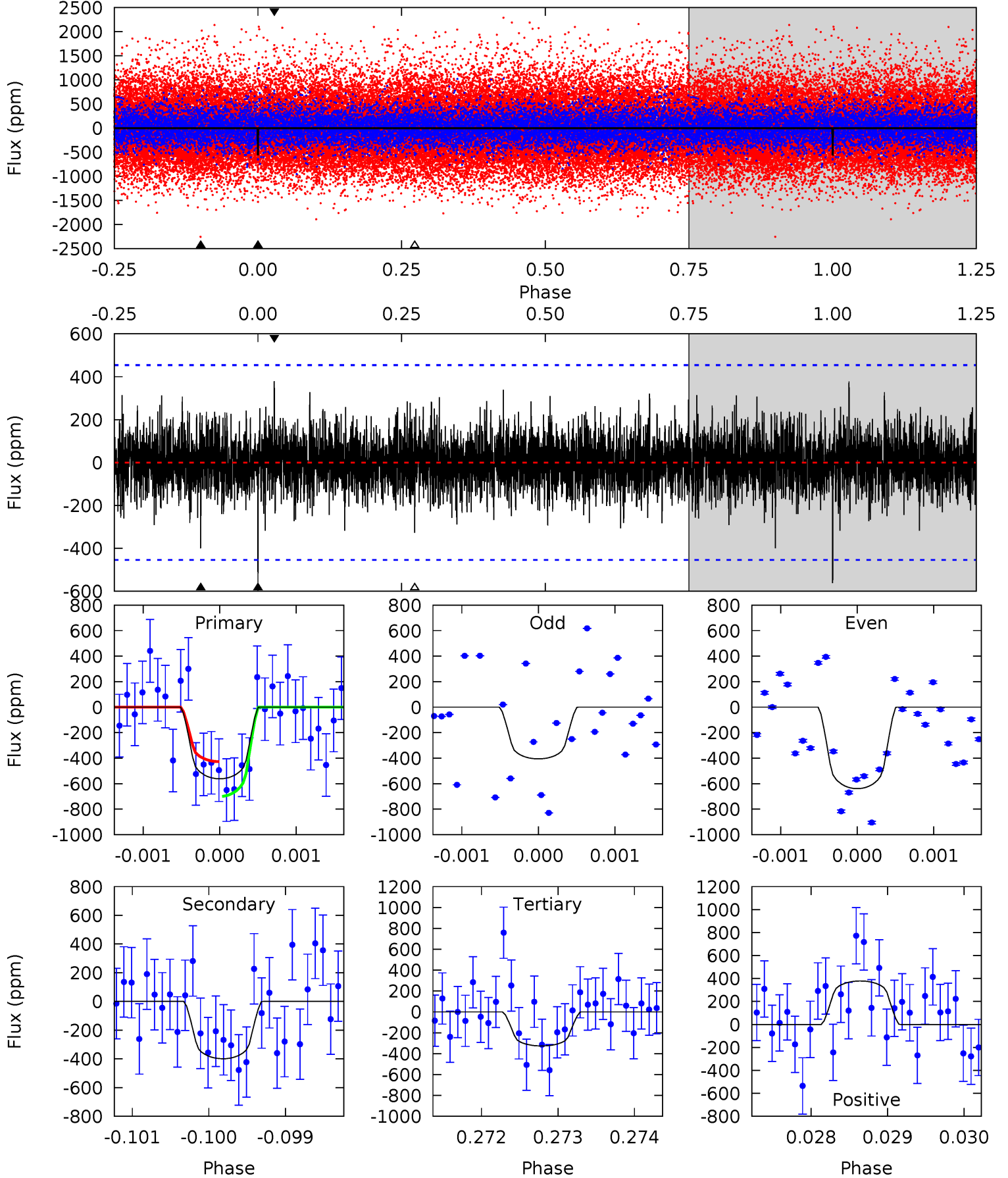
TCE 012118372-01 P=155.348752 Days  $T_0=231.461400$  (BKJD)



# DV Model-Shift Uniqueness Test

012118372-01, P = 155.349886 Days, E = 231.452955 Days

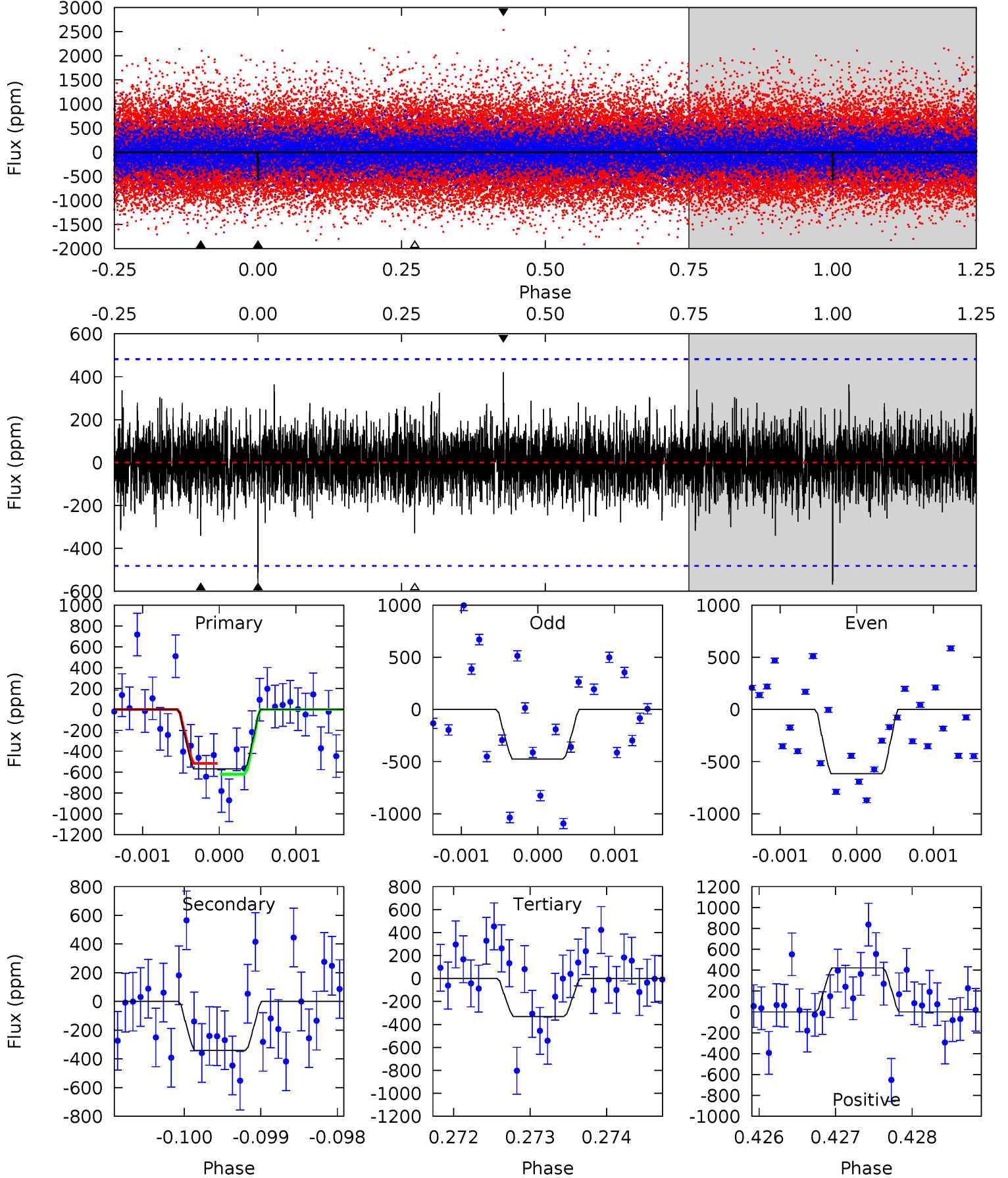
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.78	4.82	3.94	4.57	5.48	3.34	1.12	2.84	2.21	0.88	0.25	1.34	0.97	0.40	1.64



# Alt Model-Shift Uniqueness Test

012118372-01, P = 155.348752 Days, E = 231.461400 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
6.49	3.90	3.77	4.81	5.50	3.37	1.03	2.72	1.68	0.13	-0.91	0.75	1.01	0.43	0.60



### Stellar Parameters For KIC 012118372

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6161^{+193}_{-258}$	$4.454^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.300}$	$1.053^{+0.357}_{-0.119}$	$1.150^{+0.153}_{-0.153}$	$1.388^{+0.323}_{-0.757}$
	+3%/-4%	+1%/-5%	+357%/-429%	+34%/-11%	+13%/-13%	+23%/-55%
Source	KIC0	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 012118372-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-399 \pm 83$	$7.14^{+7.89}_{-4.86}$	$518^{+38}_{-30}$	$3935^{+2557}_{-822}$	$1463^{+13844}_{-1130}$
Alt.	$-342 \pm 88$	$6.70^{+7.62}_{-4.44}$	$516^{+44}_{-29}$	$3842^{+2317}_{-760}$	$1361^{+11869}_{-1056}$

$T_{max}$  = 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

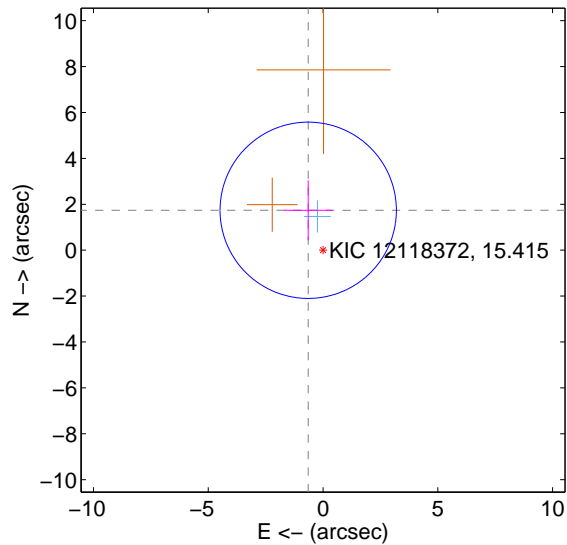
Supplemental centroid analysis for 012118372-01. Kepler magnitude: 15.41. Transit SNR 7.18

There are 1 quarters with good PRF difference image offsets

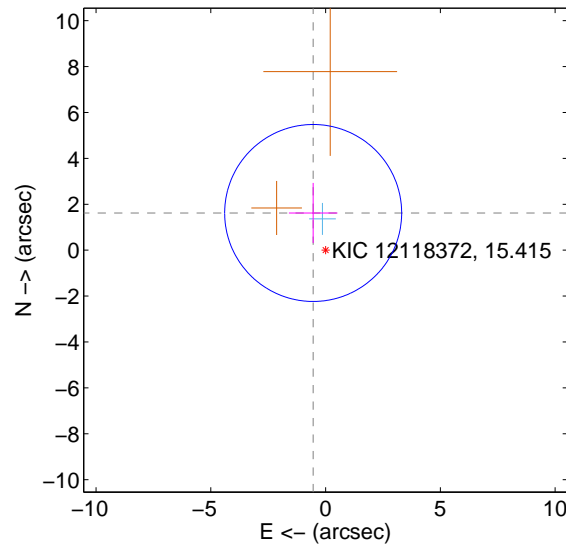
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.855 \pm 1.280$	1.45	$0.646 \pm 1.059$	$1.739 \pm 1.308$
PRF-fit source offset from KIC position	$1.709 \pm 1.285$	1.33	$0.541 \pm 1.059$	$1.621 \pm 1.308$
photometric centroid source offset	$2.81 \pm 1.99$	1.41	$2.81 \pm 1.99$	$-0.02 \pm 2.25$

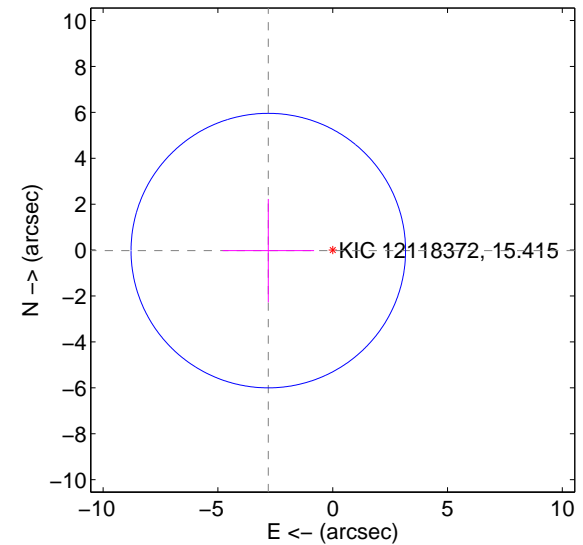
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

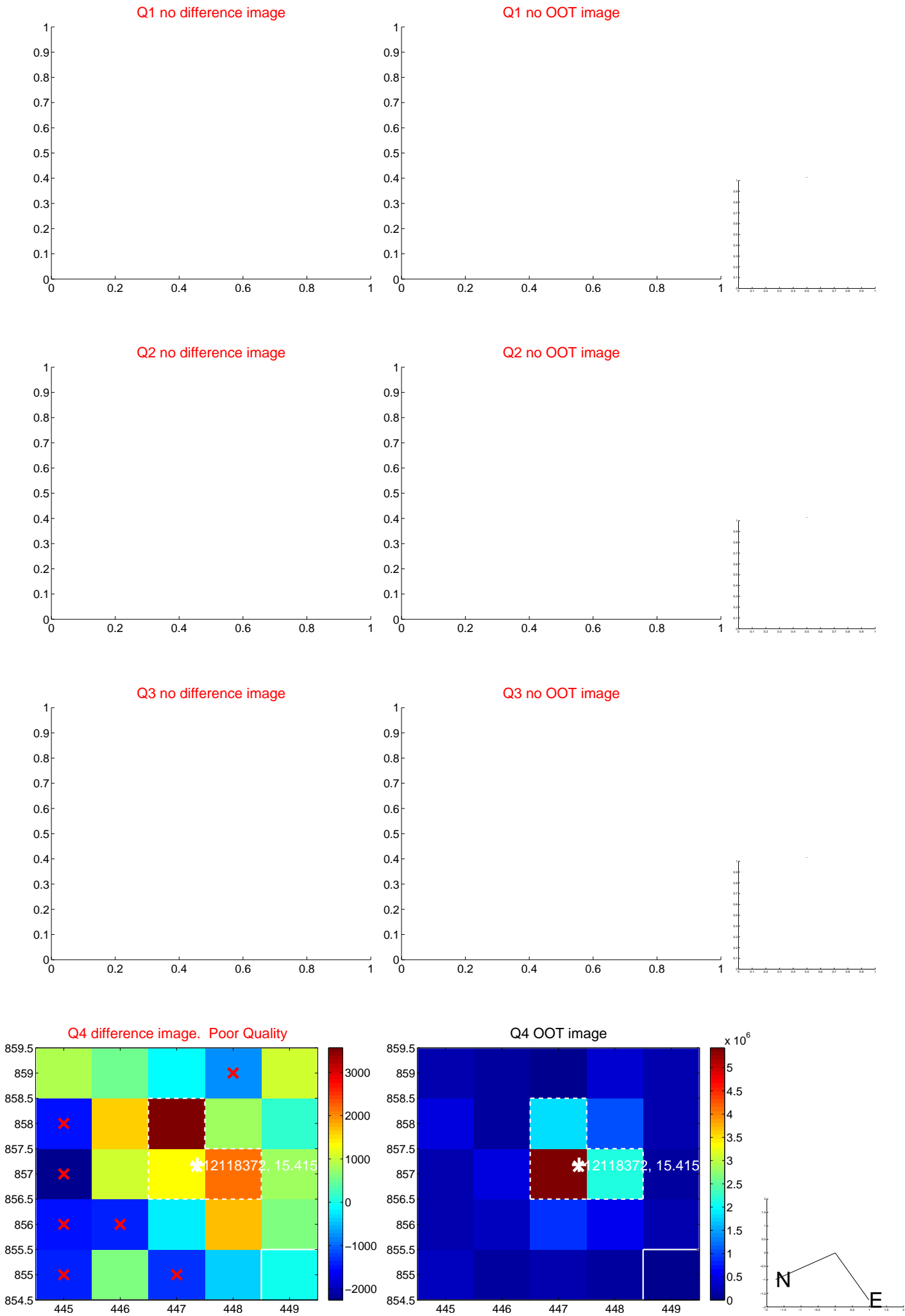


offset from photometric centroids



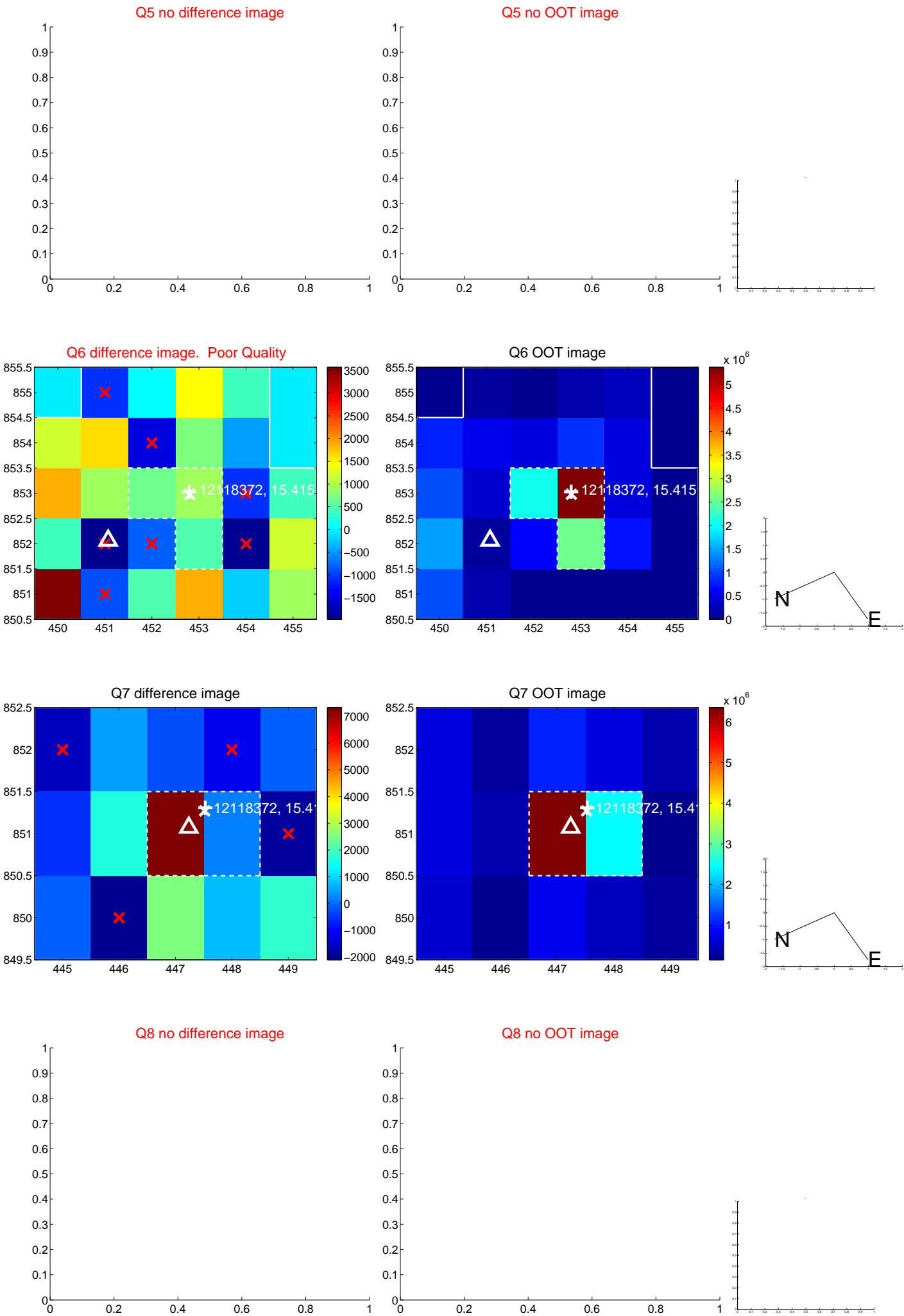
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

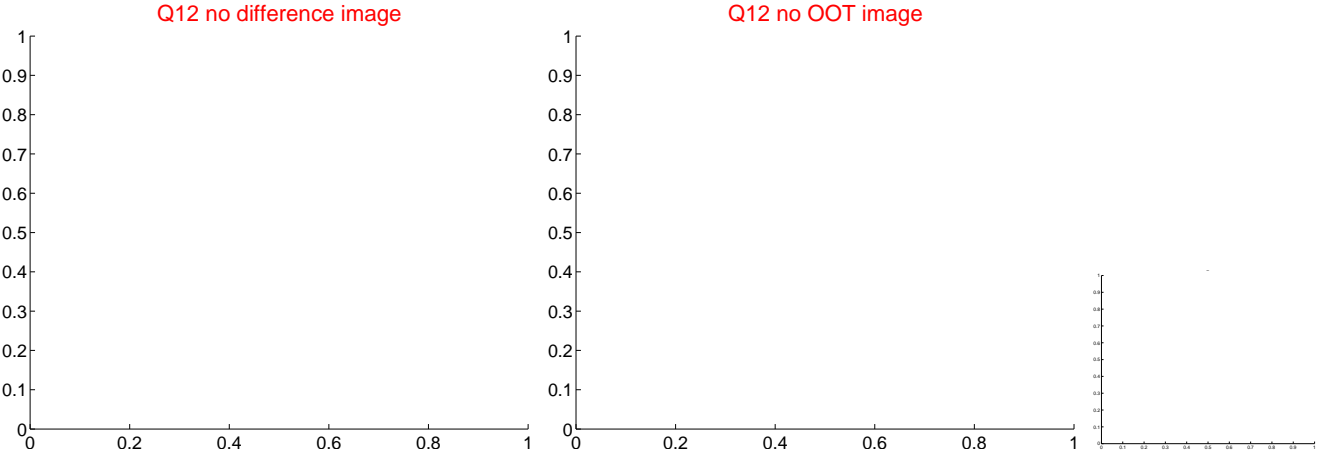
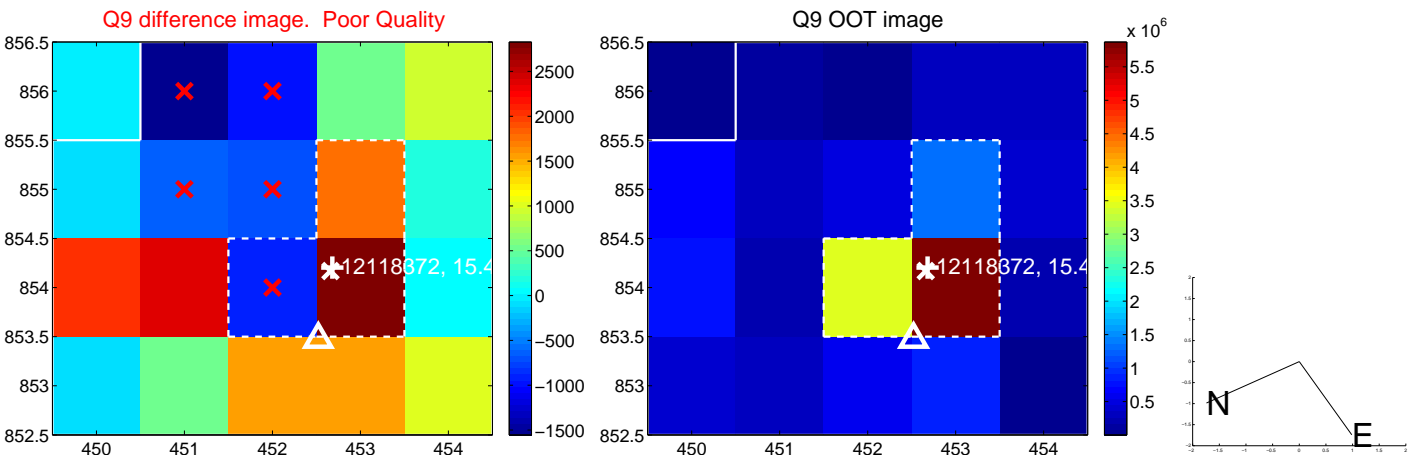




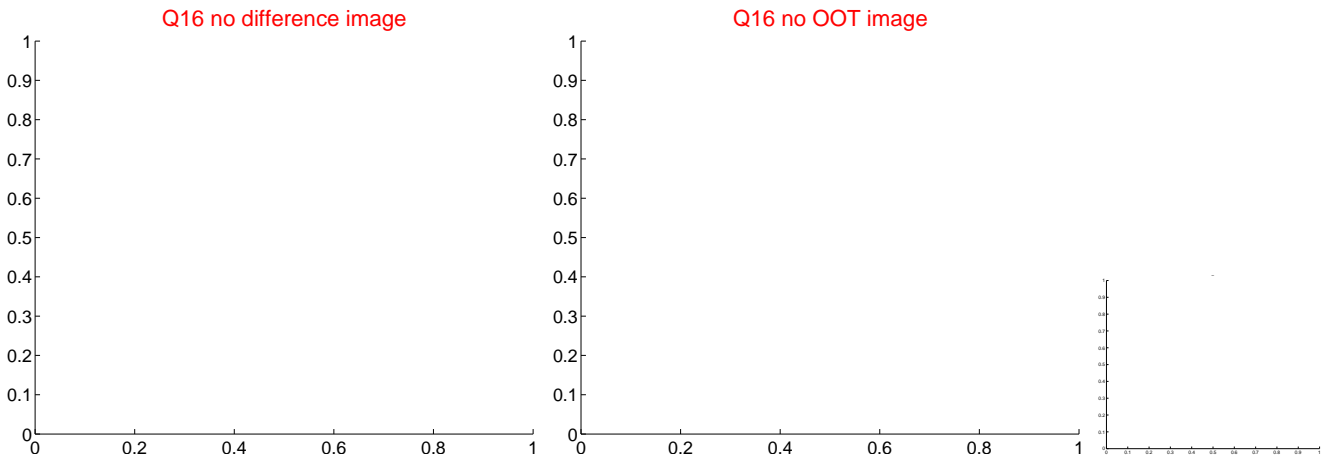
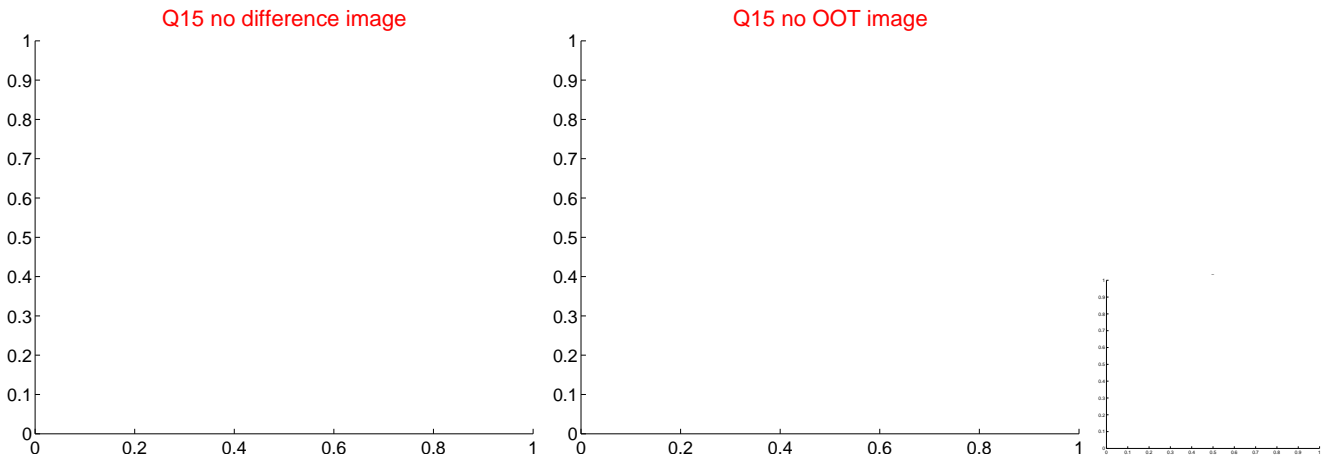
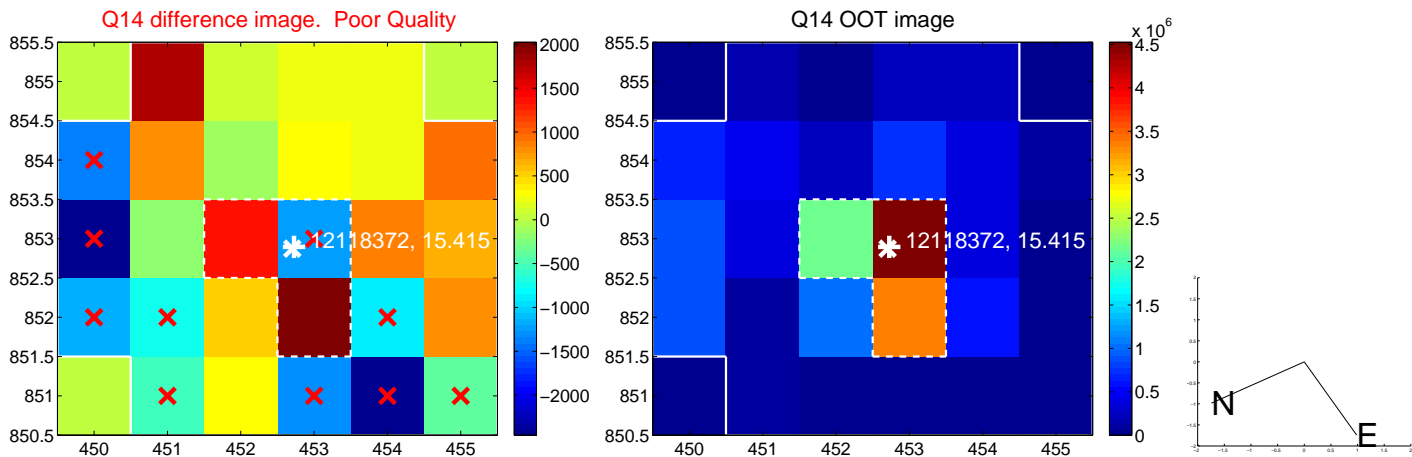
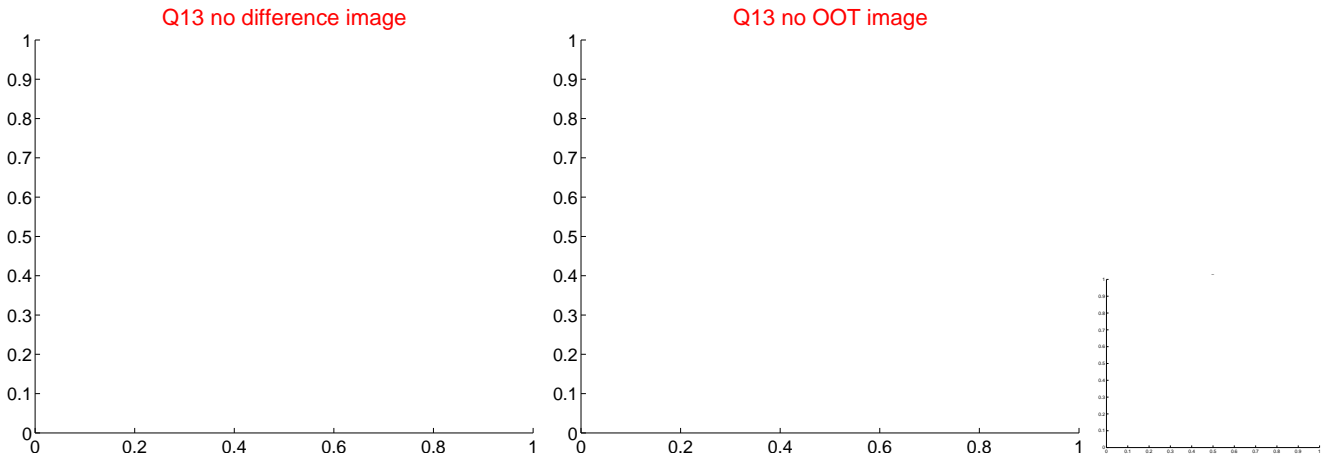
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

