

# KIC 008240746

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008240746-01	OBS	No	371.354007	233.731027	678.7	14.399	7.7	7.6	0.74	5686	2.01	0.58

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008240746-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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 008240746-01

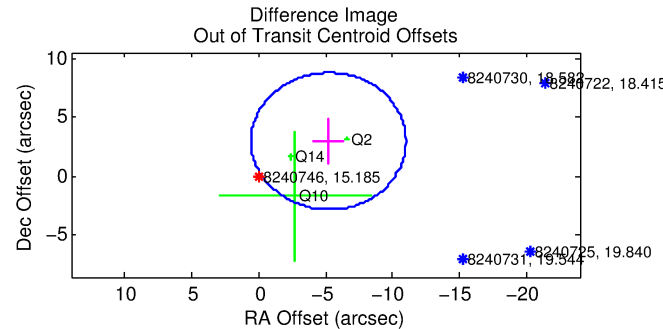
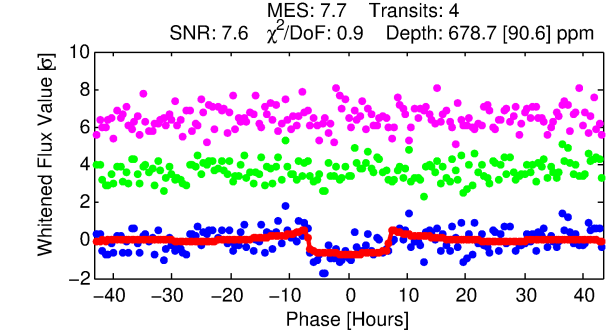
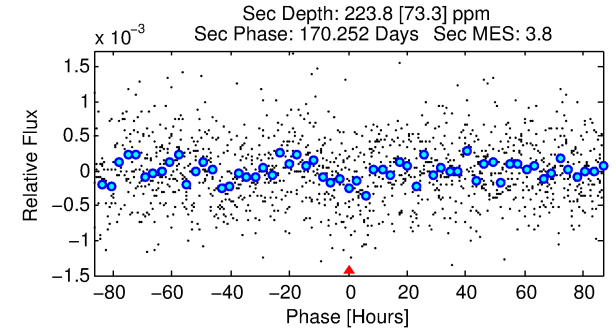
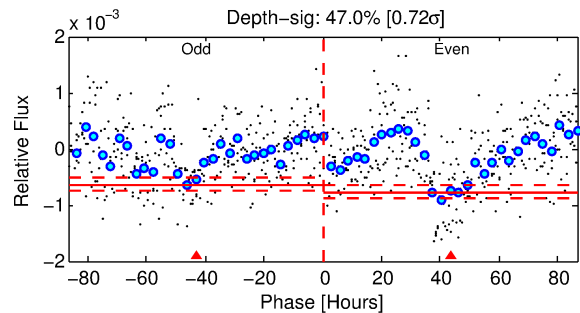
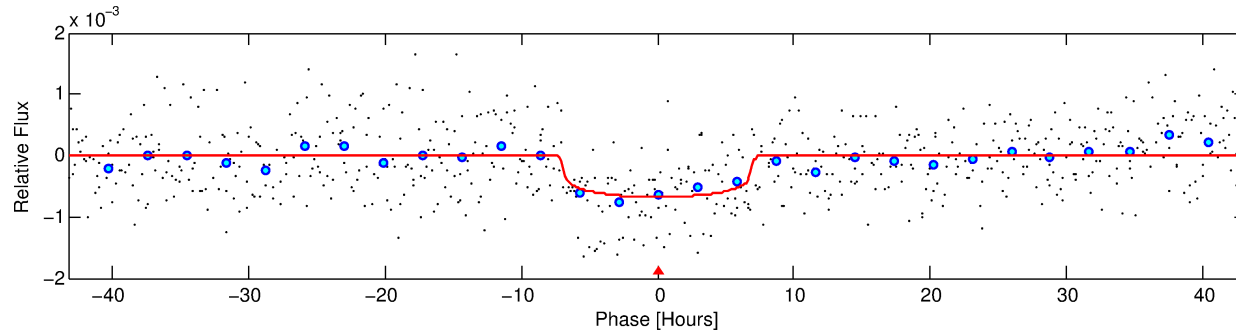
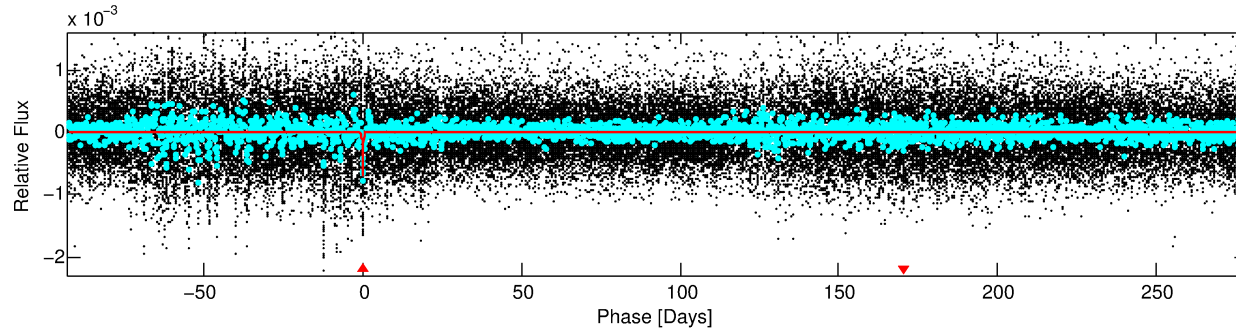
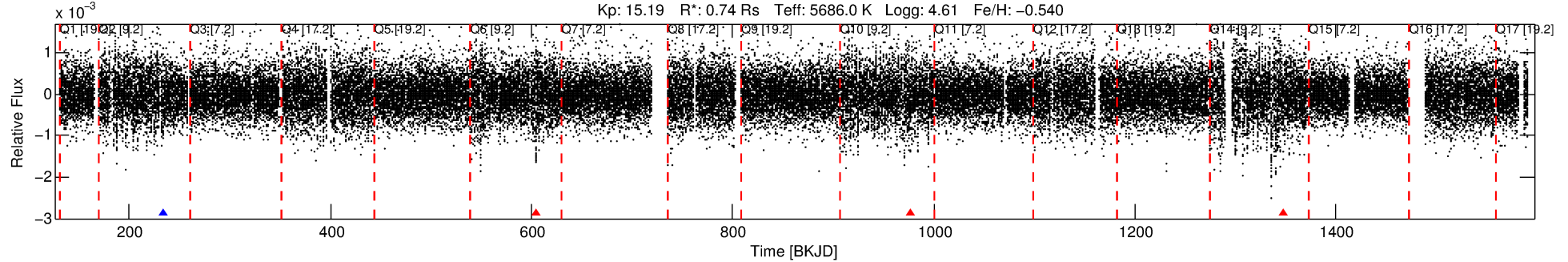
No Significant Match Found

# DV One-Page Summary

KIC: 8240746 Candidate: 1 of 1 Period: 371.354 d

KOI: K04576 Corr: No Ephemeris Match

Kp: 15.19 R\*: 0.74 Rs Teff: 5686.0 K Logg: 4.61 Fe/H: -0.540



## DV Fit Results:

Period = 371.35401 [0.00883] d  
Epoch = 233.7310 [0.0154] BKJD  
Rp/R\* = 0.0247 [0.0086]  
a/R\* = 167.92 [261.59]  
b = 0.57 [1.86]  
Seff = 0.58 [0.16]  
Teq = 222 [15] K  
Rp = 2.01 [0.81] Re  
a = 0.9445 [0.1645] AU  
Ag = 27297.77 [22016.21] [1.24σ]  
Teffp = 4421 [858] K [4.89σ]

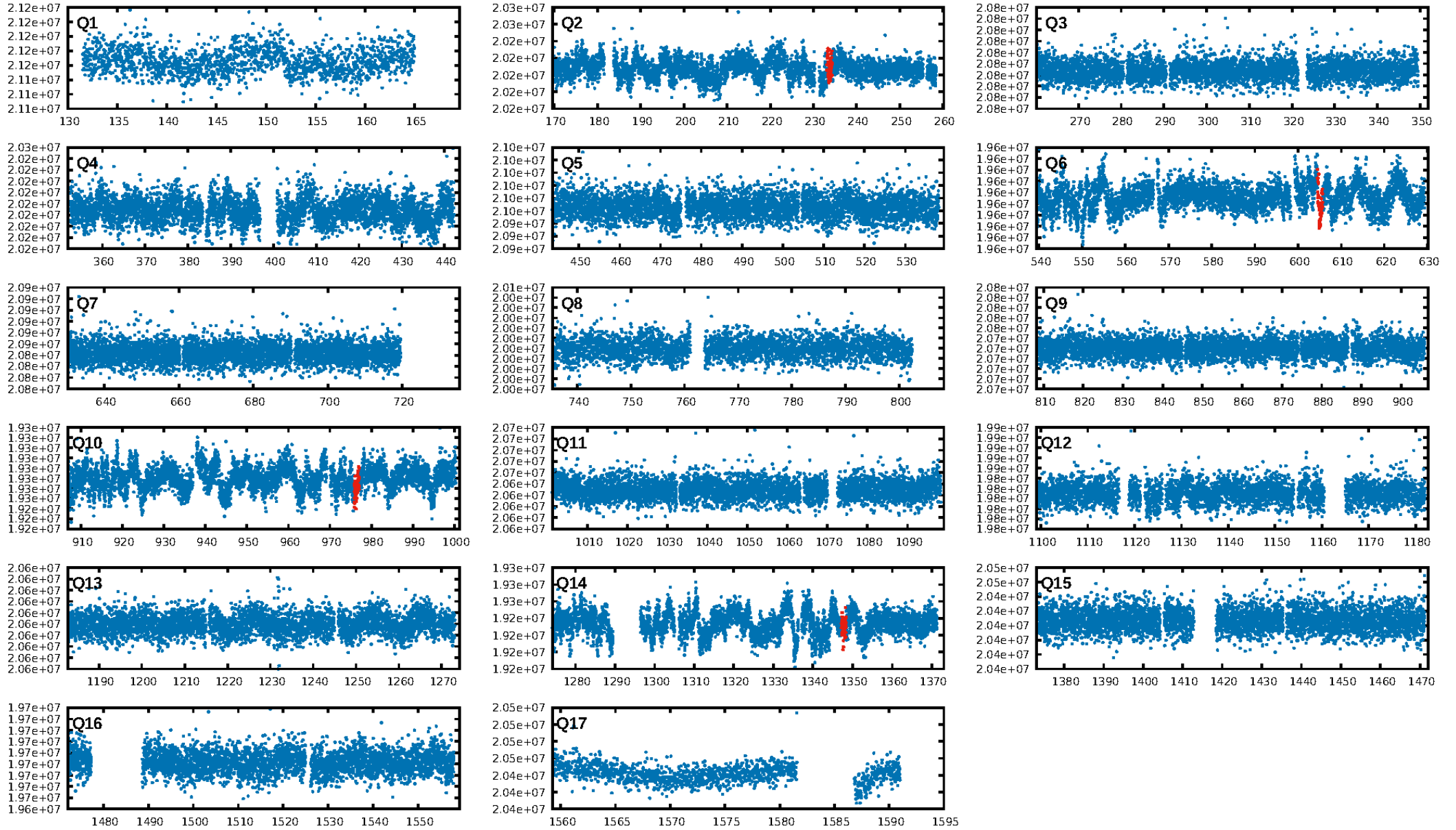
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 38.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.49e-11  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 0.4085  
Centroid-sig: 1.7%  
Centroid-so: 6.586 arcsec [2.25σ]  
OotOffset-rm: 6.017 arcsec [3.12σ]  
KicOffset-rm: 6.140 arcsec [3.29σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [4/4]

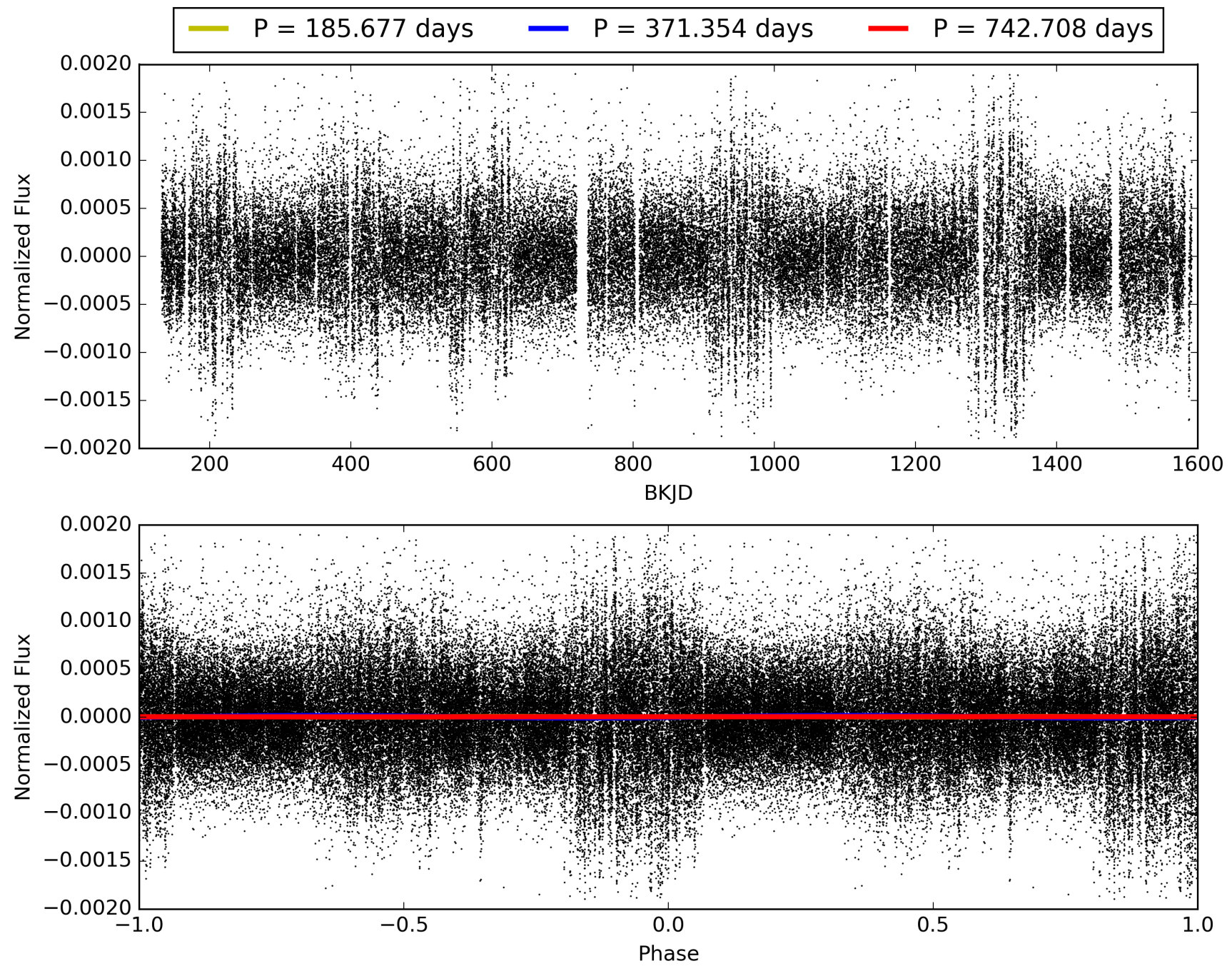
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:06:51 Z

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

# TCE 008240746-01, PDC Light Curves

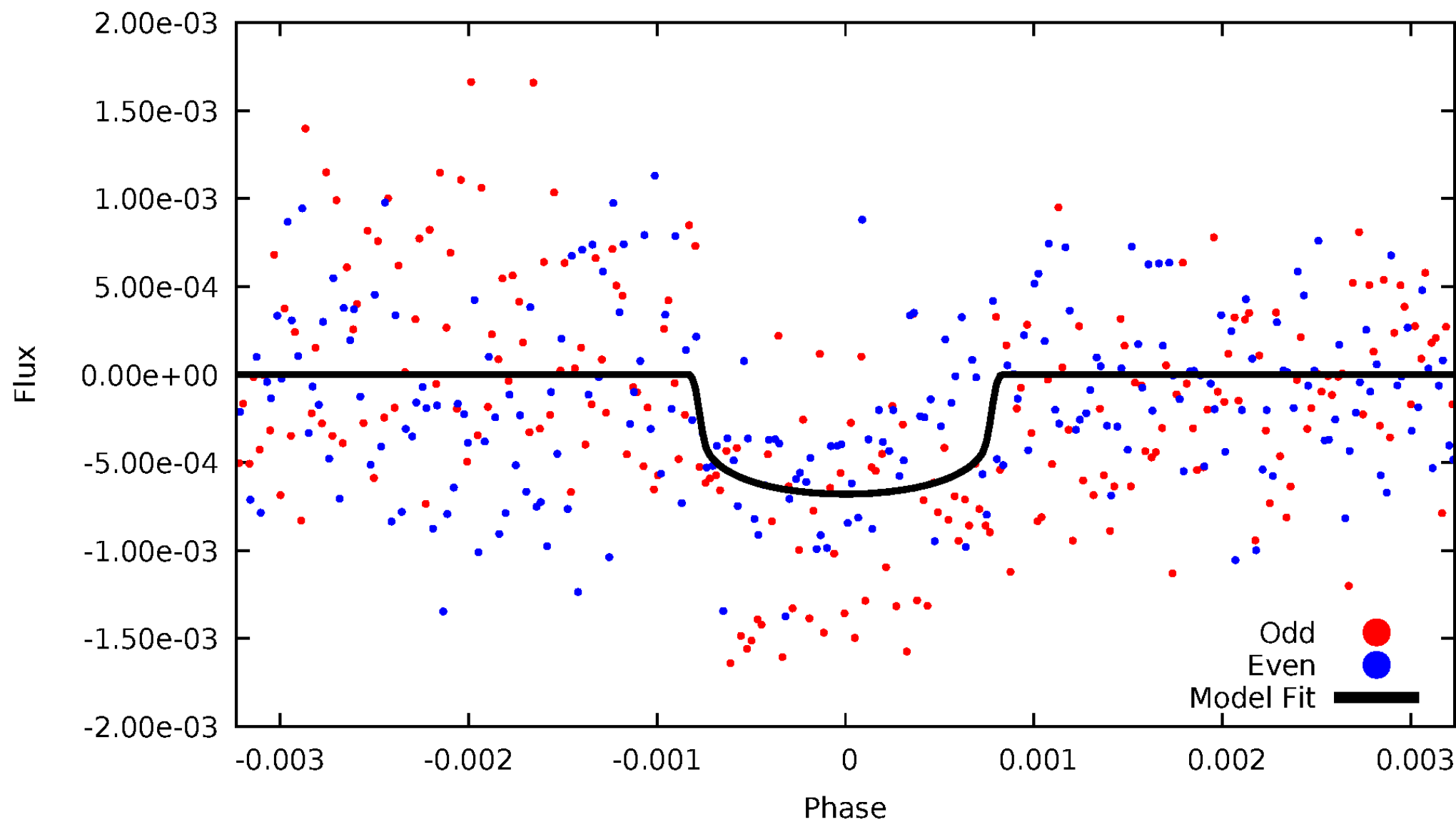


TCE 008240746-01



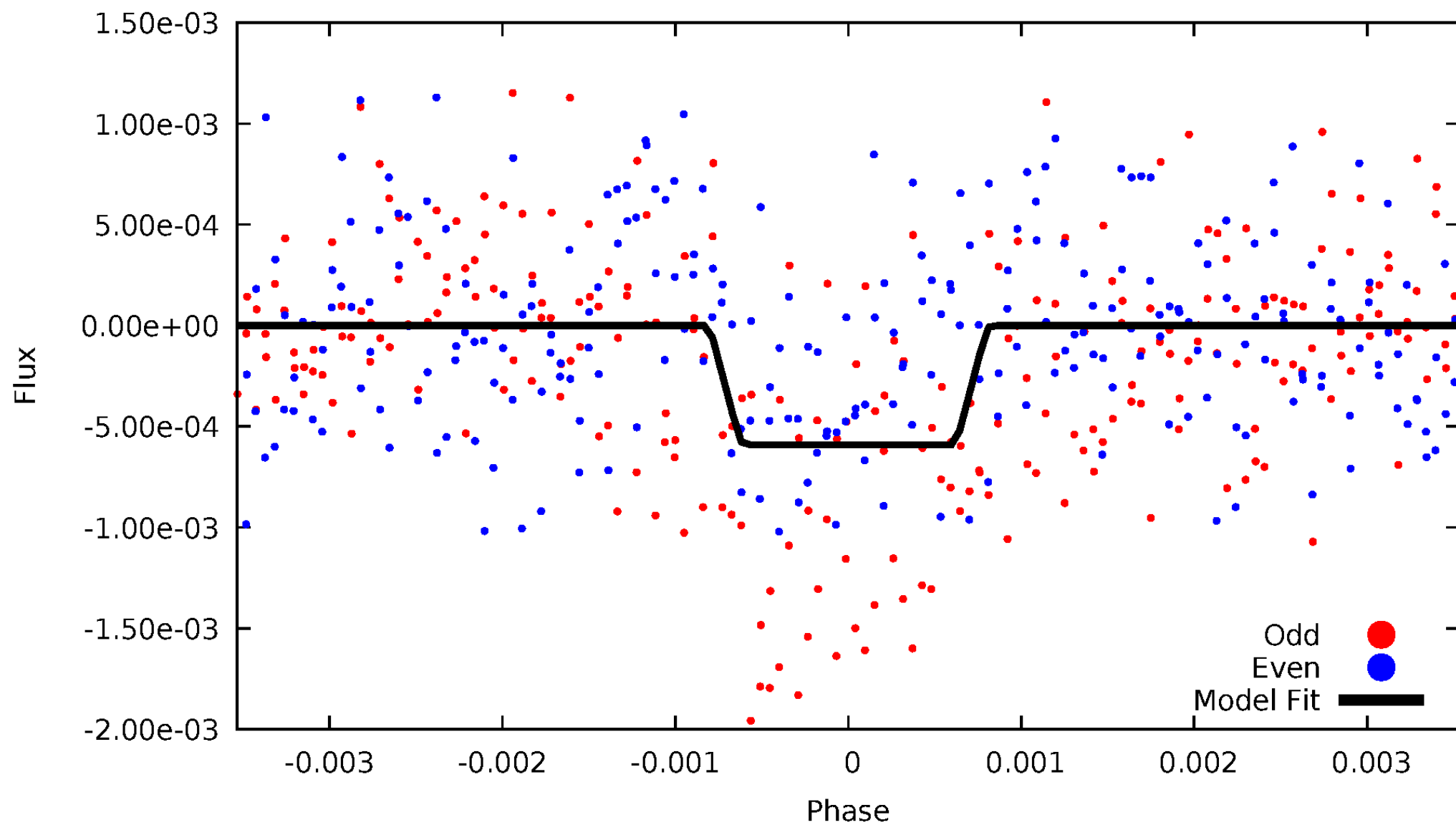
# DV Odd/Even

TCE 008240746-01



# ALT Odd/Even

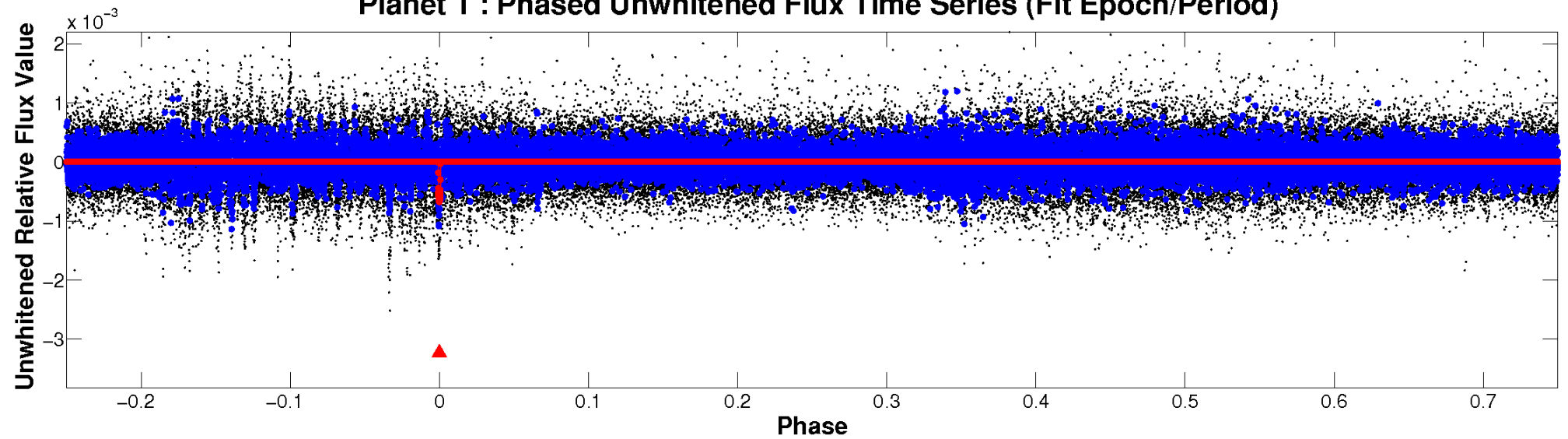
TCE 008240746-01



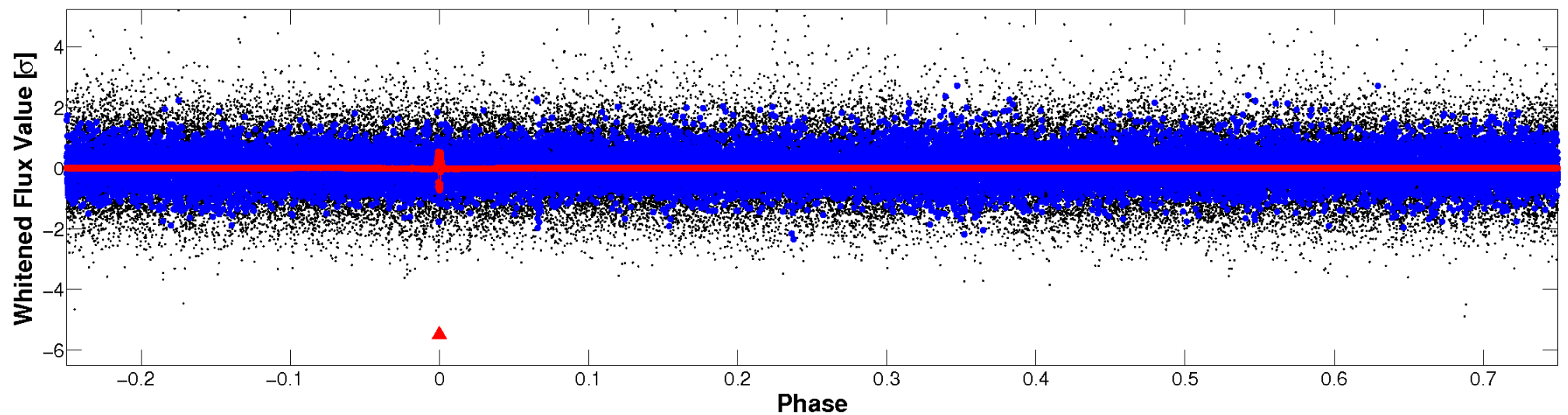


# Non-Whitened Vs. Whitened Light Curve

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

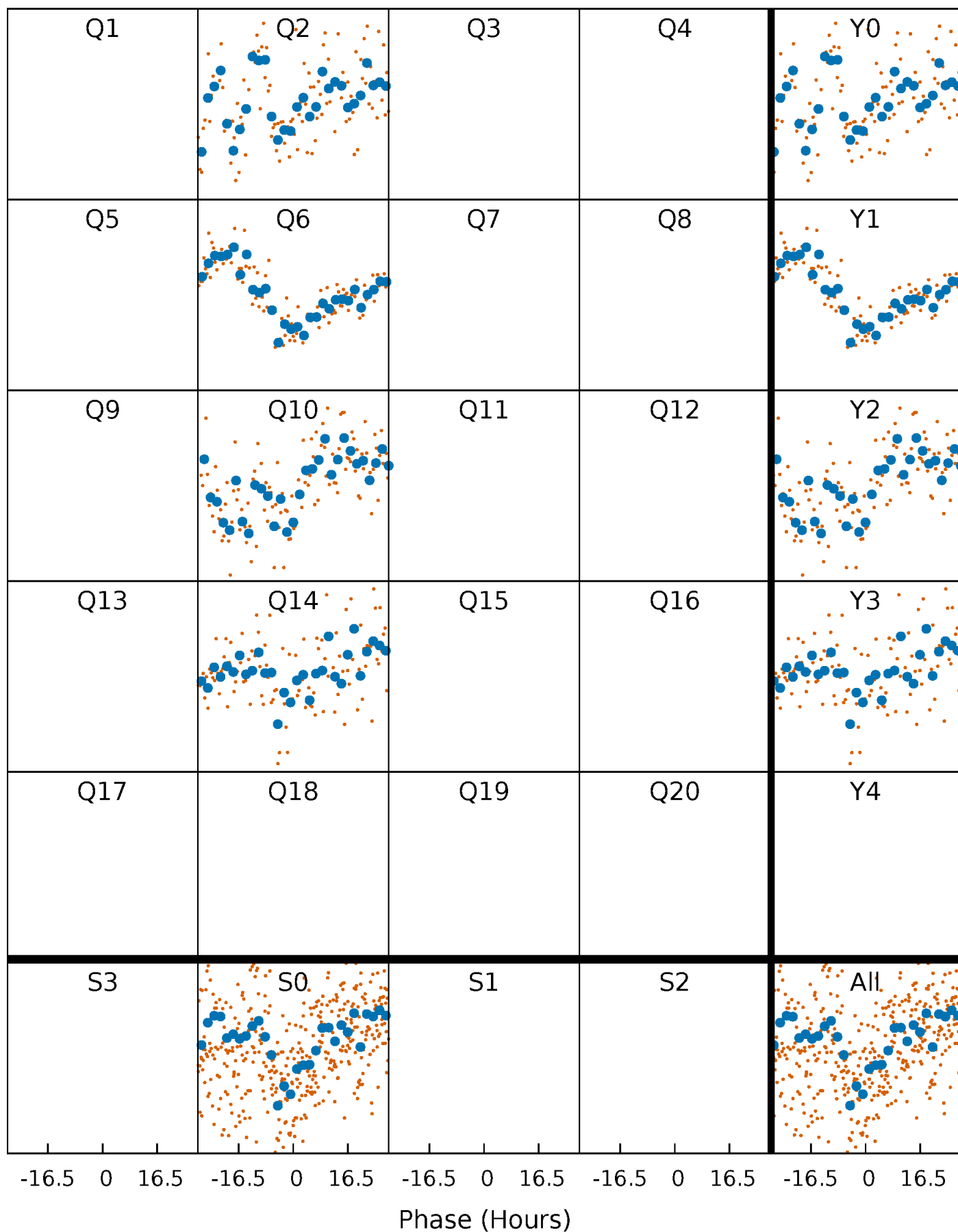


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

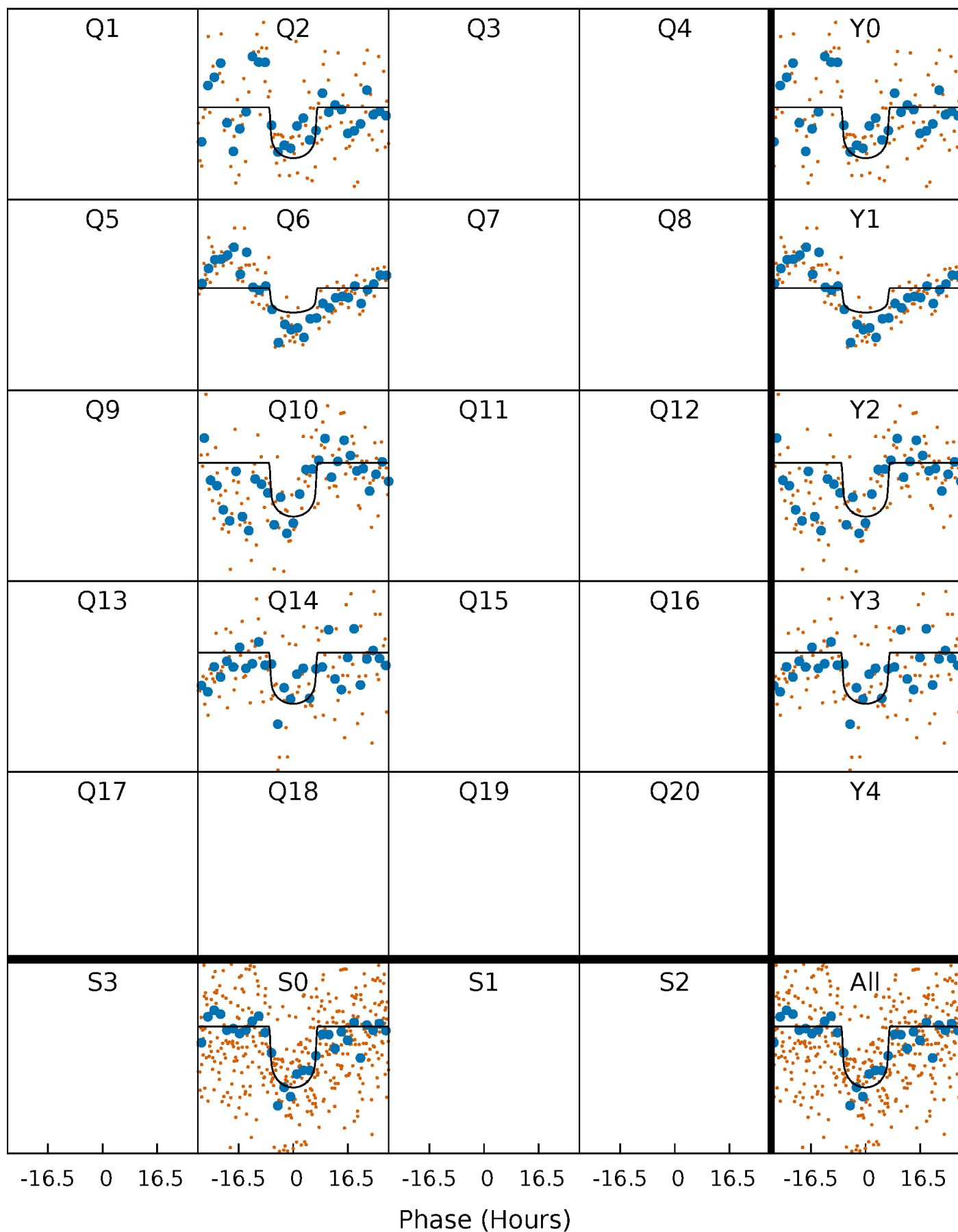
TCE 008240746-01 P=371.354007 Days  $T_0=233.731027$  (BKJD)





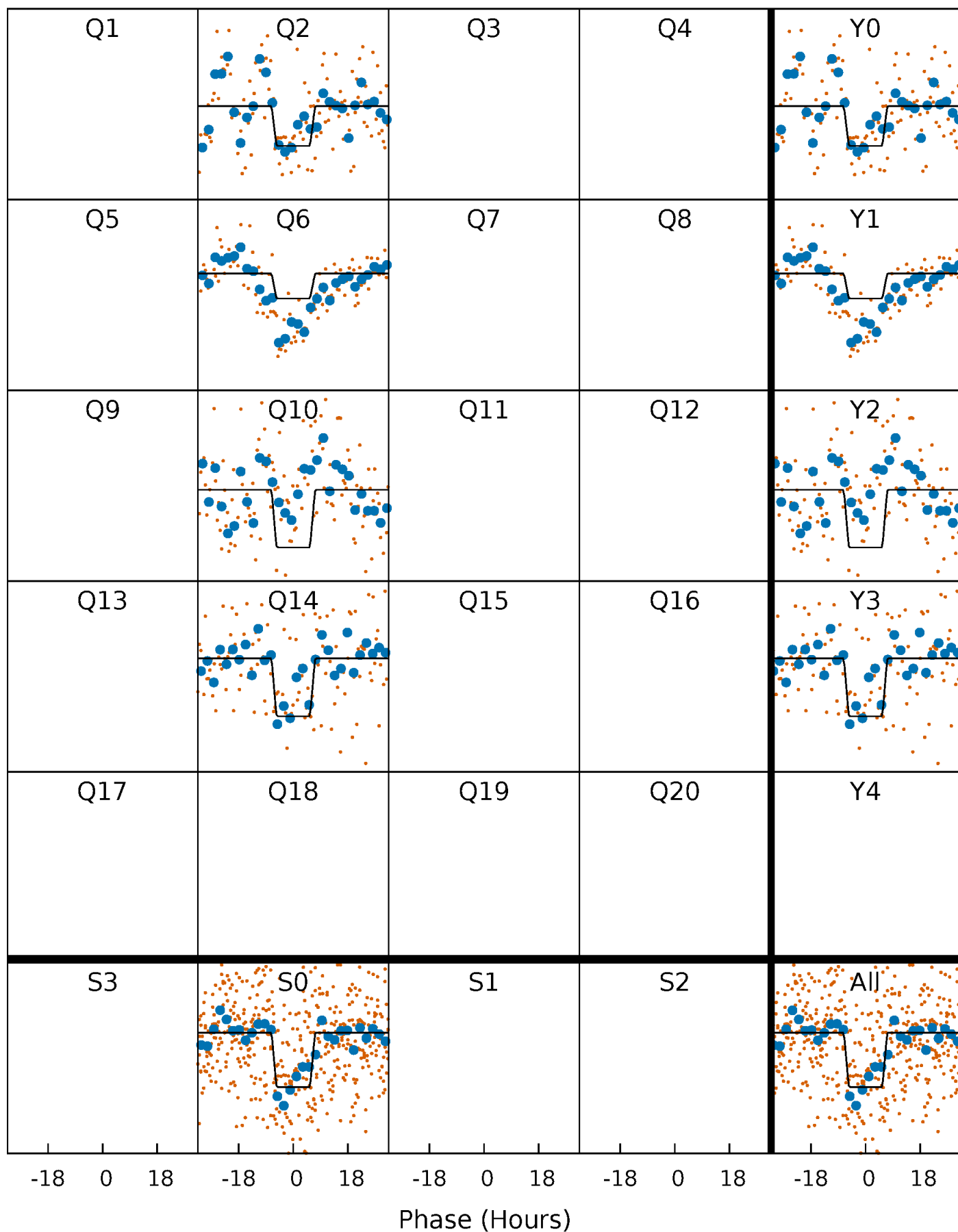
# DV Quarter-Phased Transit Curves

TCE 008240746-01 P=371.354007 Days  $T_0=233.731027$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

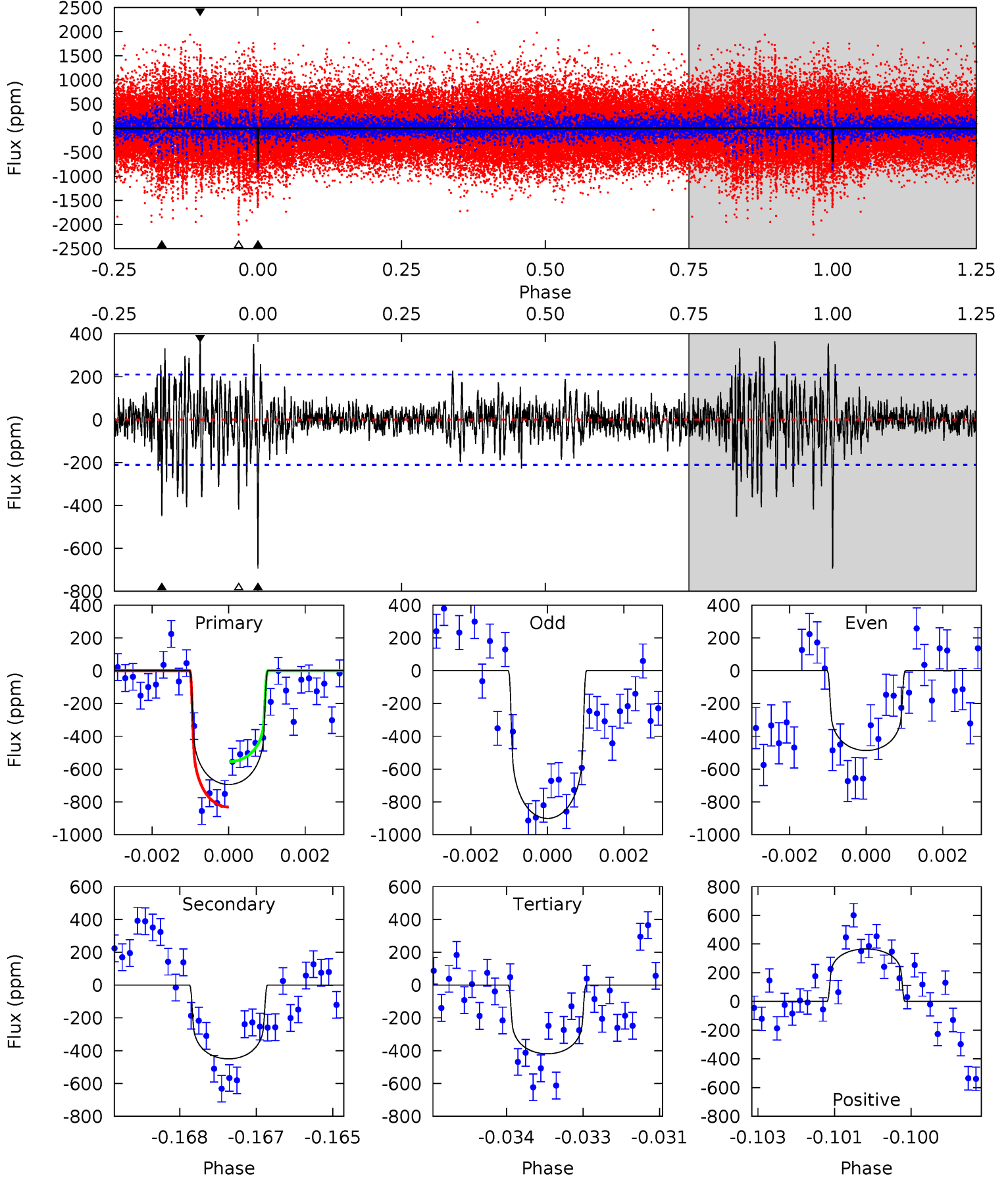
TCE 008240746-01 P=371.359519 Days  $T_0=233.708743$  (BKJD)



# DV Model-Shift Uniqueness Test

008240746-01, P = 371.354007 Days, E = 233.731027 Days

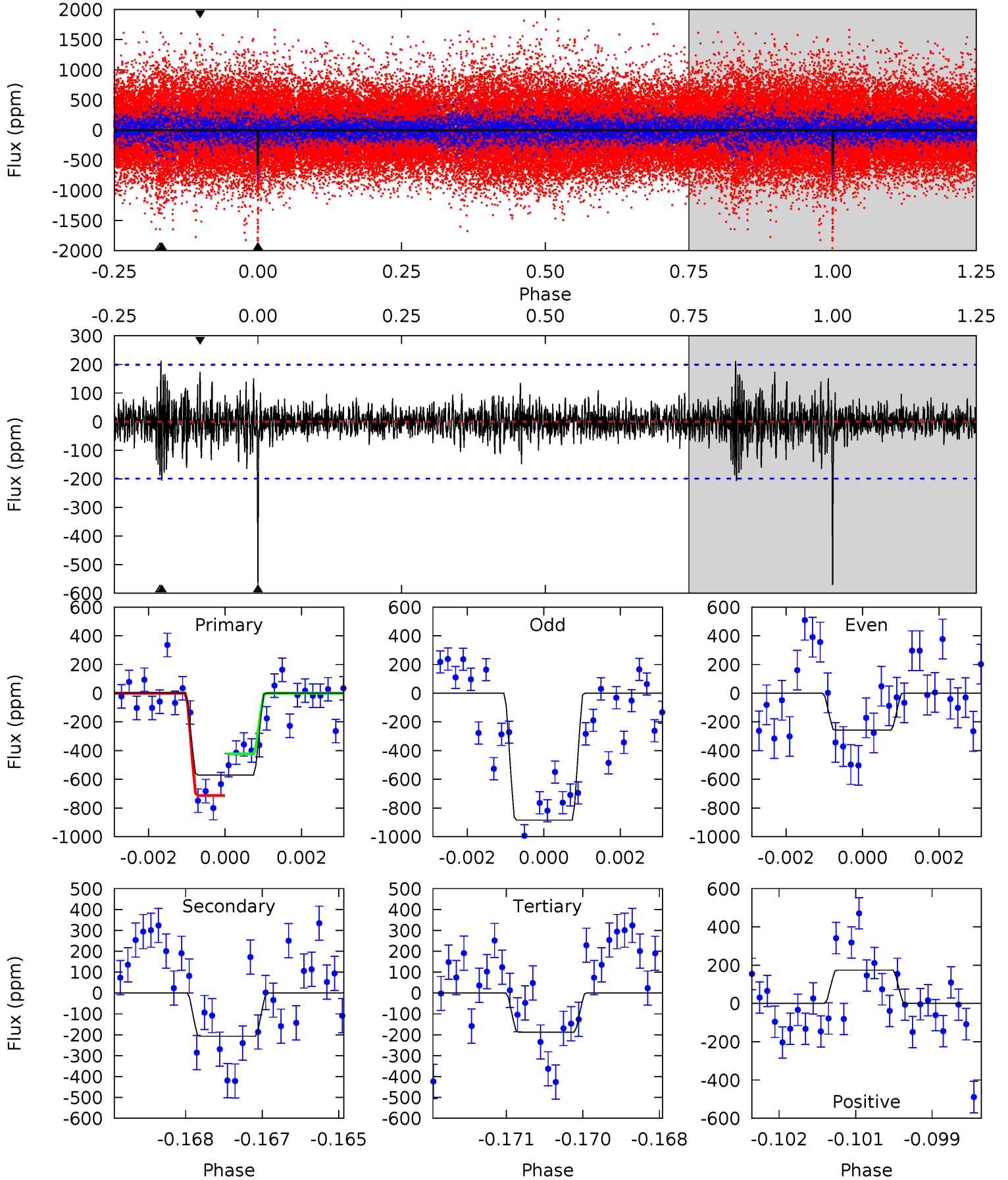
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	11.5	10.7	9.32	5.36	3.15	1.99	7.00	8.37	0.78	2.15	5.30	1.26	0.35	3.53



# Alt Model-Shift Uniqueness Test

008240746-01, P = 371.359519 Days, E = 233.708743 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
15.4	5.58	5.05	4.70	5.37	3.16	1.04	10.4	10.7	0.53	0.89	8.47	1.25	0.27	3.92



### Stellar Parameters For KIC 008240746

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5686^{+155}_{-173}$	$4.607^{+0.036}_{-0.135}$	$-0.540^{+0.300}_{-0.300}$	$0.743^{+0.156}_{-0.063}$	$0.831^{+0.079}_{-0.095}$	$2.851^{+0.510}_{-1.107}$
	+3%/-3%	+1%/-3%	+56%/-56%	+21%/-8%	+10%/-11%	+18%/-39%
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 008240746-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-450 \pm 39$	$2.06^{+0.81}_{-0.81}$	$316^{+16}_{-12}$	$5293^{+1462}_{-665}$	$50786^{+87679}_{-24499}$
Alt.	$-207 \pm 37$	$2.05^{+0.81}_{-0.69}$	$317^{+15}_{-13}$	$4528^{+875}_{-510}$	$23941^{+32021}_{-11905}$

$T_{\text{max}}$  = 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

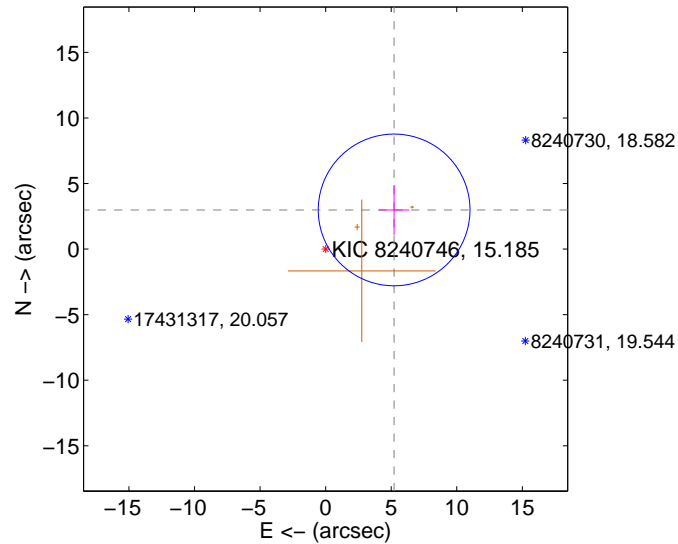
Supplemental centroid analysis for 008240746-01. Kepler magnitude: 15.19. Transit SNR 7.65

There are 0 quarters with good PRF difference image offsets

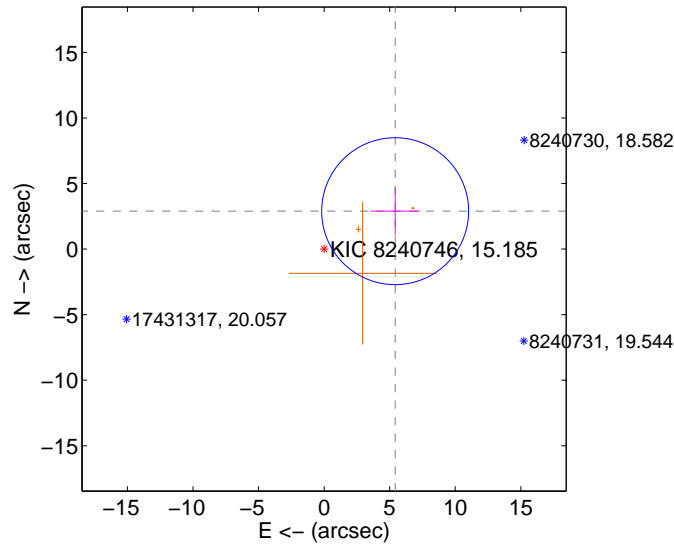
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.017 \pm 1.929$	3.12	$-5.223 \pm 1.153$	$2.987 \pm 1.906$
PRF-fit source offset from KIC position	$6.140 \pm 1.868$	3.29	$-5.416 \pm 1.882$	$2.892 \pm 1.816$
photometric centroid source offset	$6.59 \pm 2.93$	2.25	$-6.57 \pm 2.93$	$0.44 \pm 2.20$

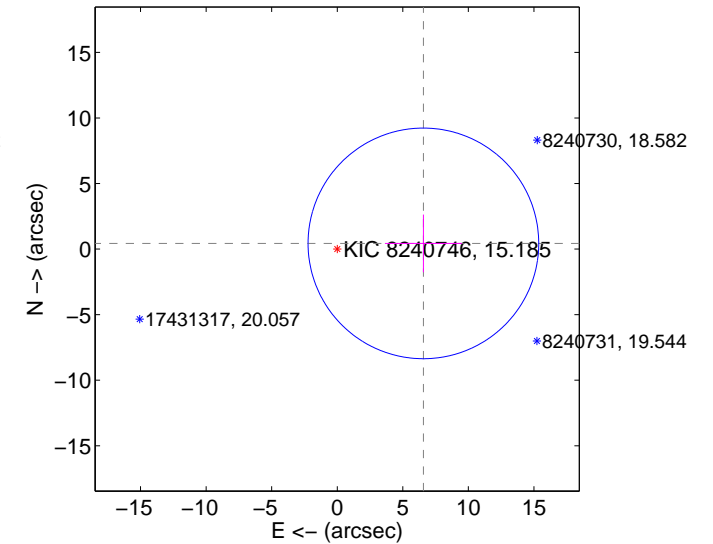
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



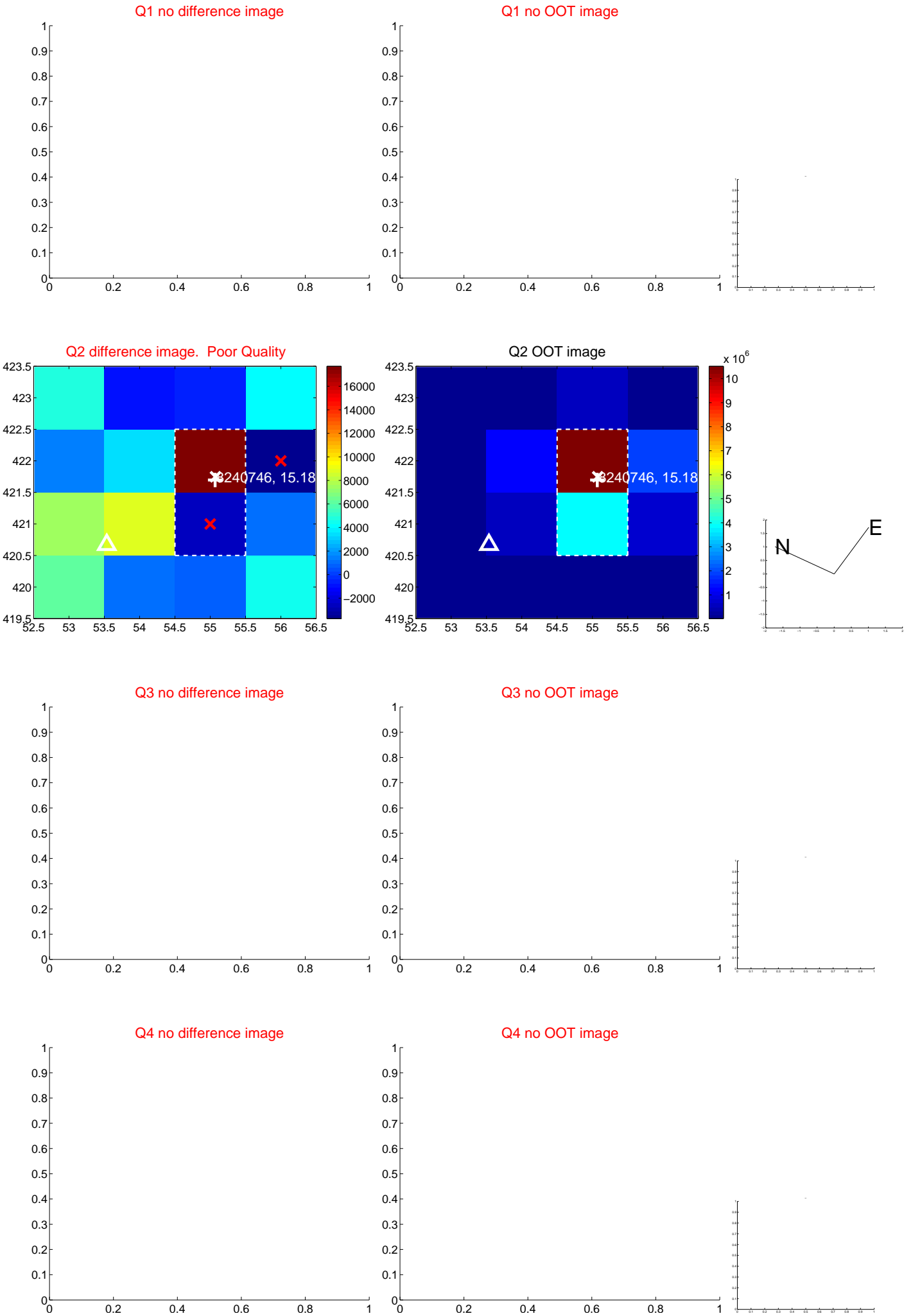
offset from photometric centroids



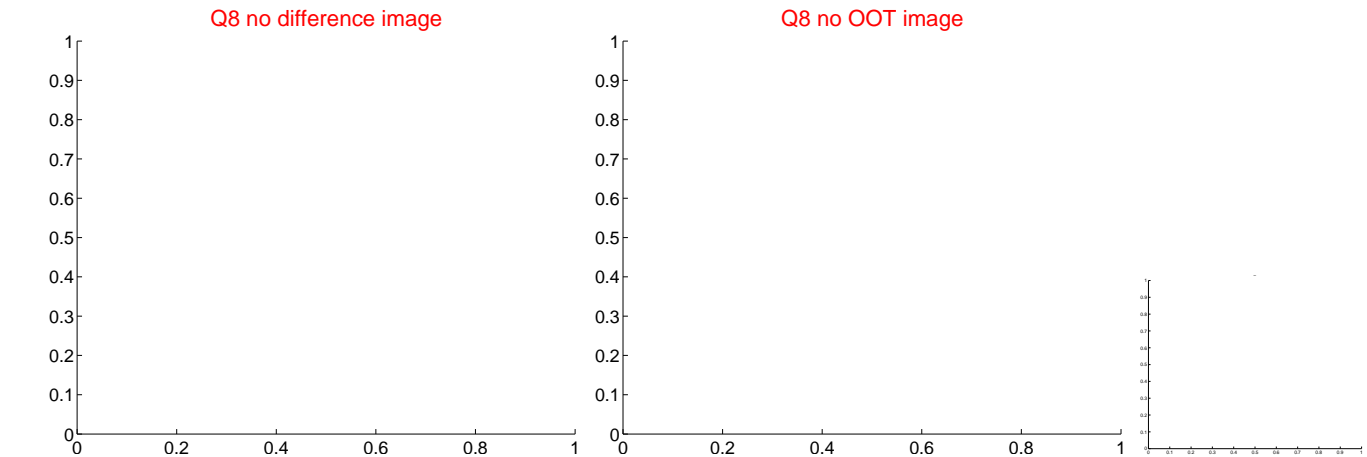
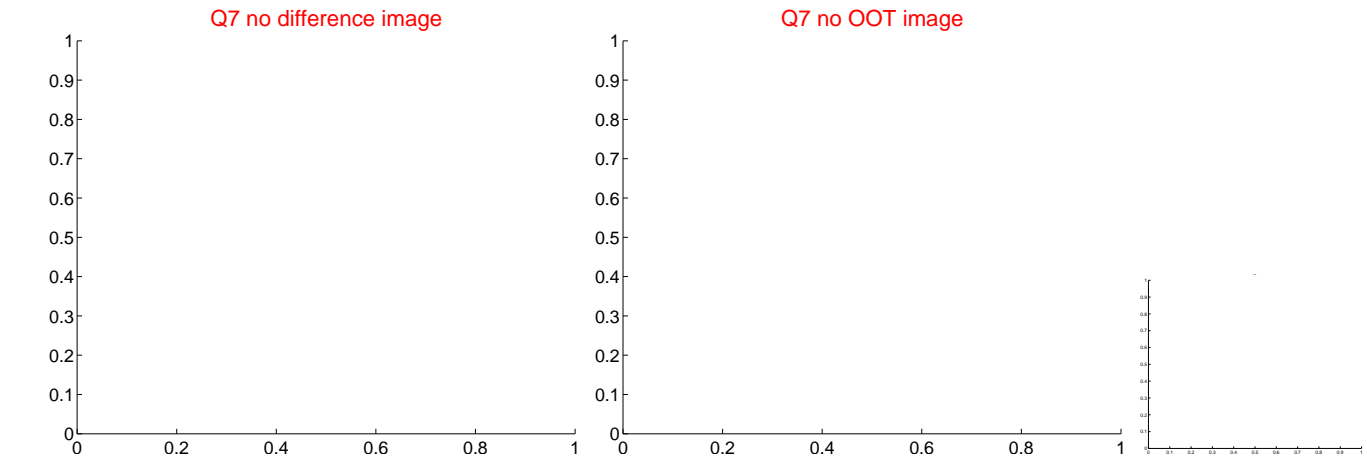
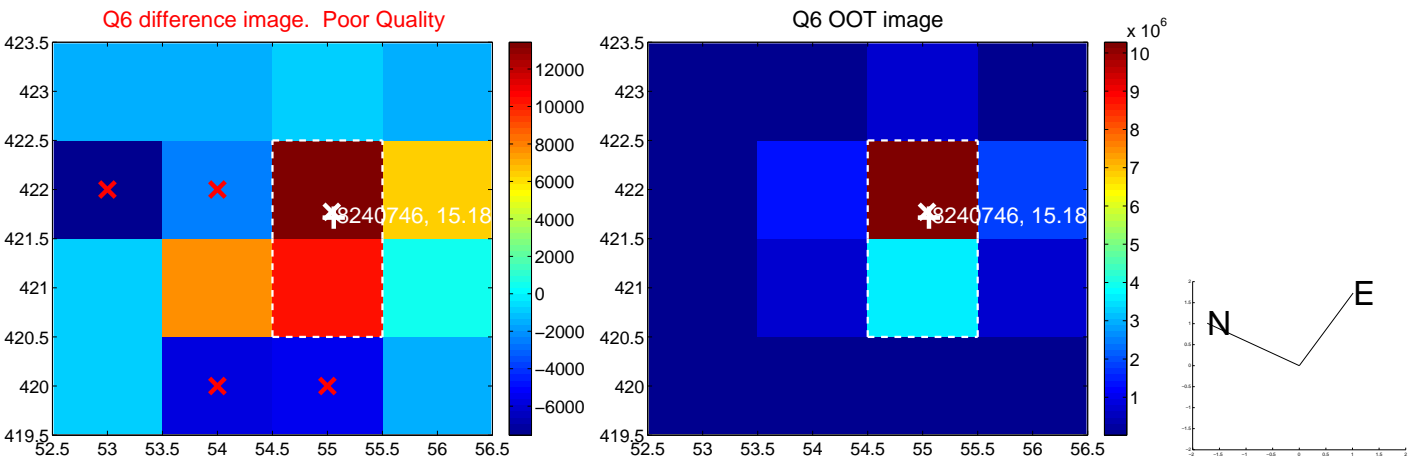
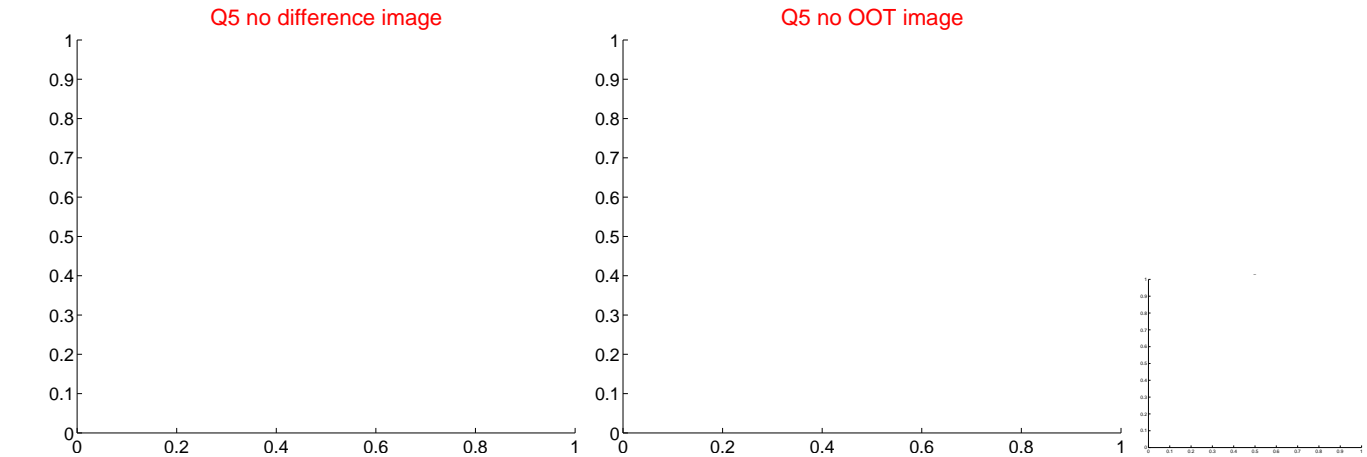
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



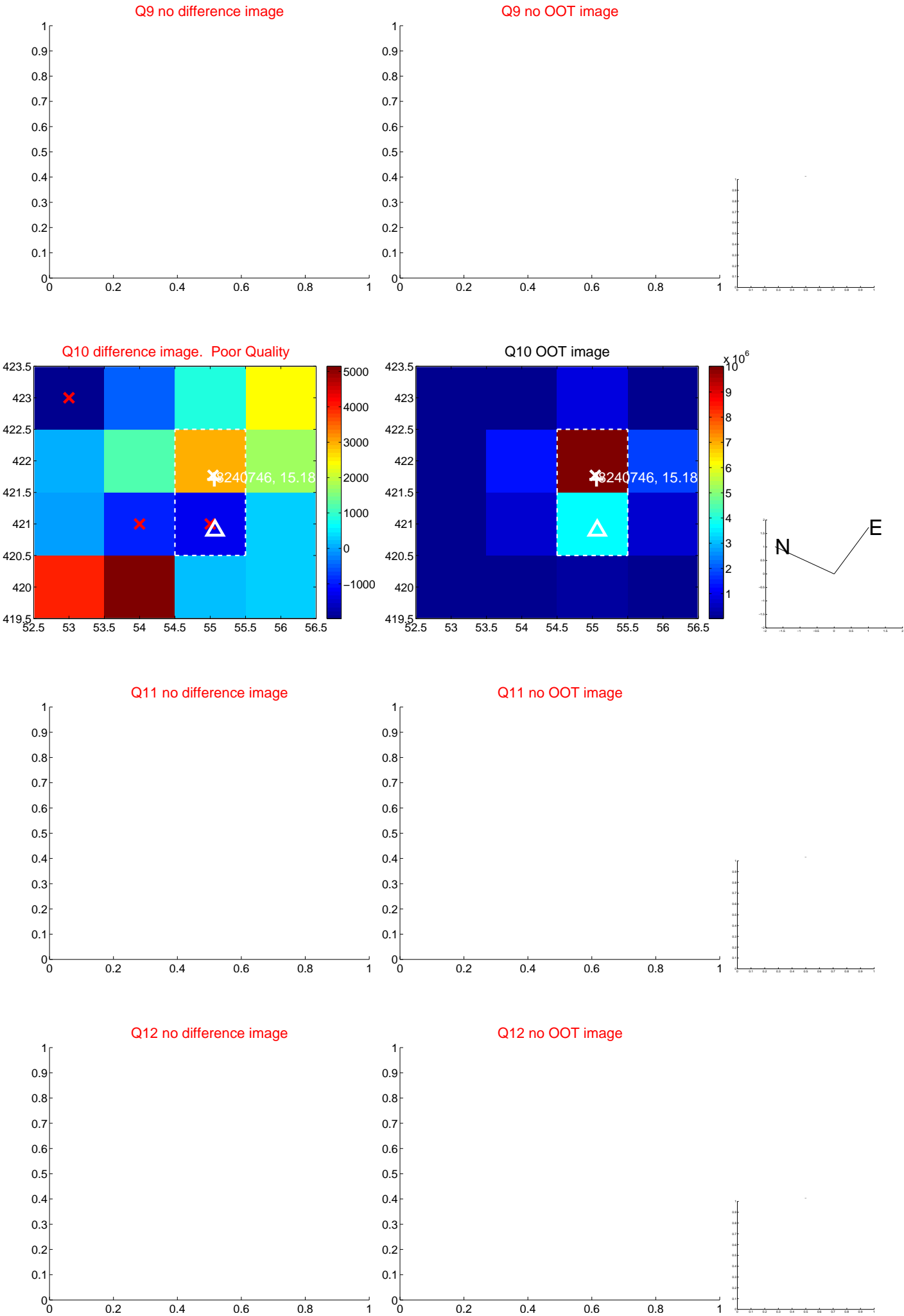
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



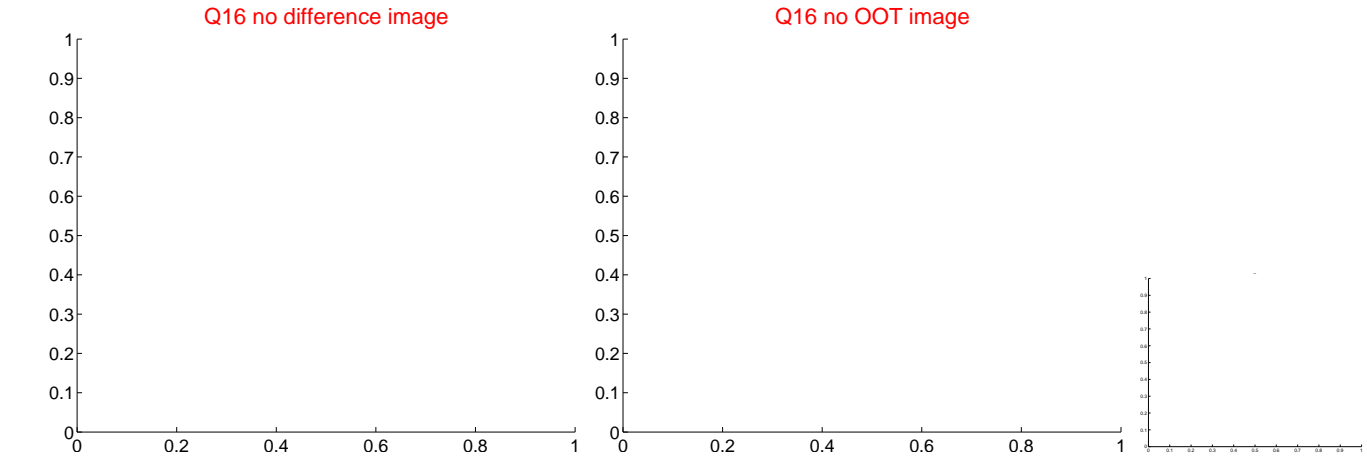
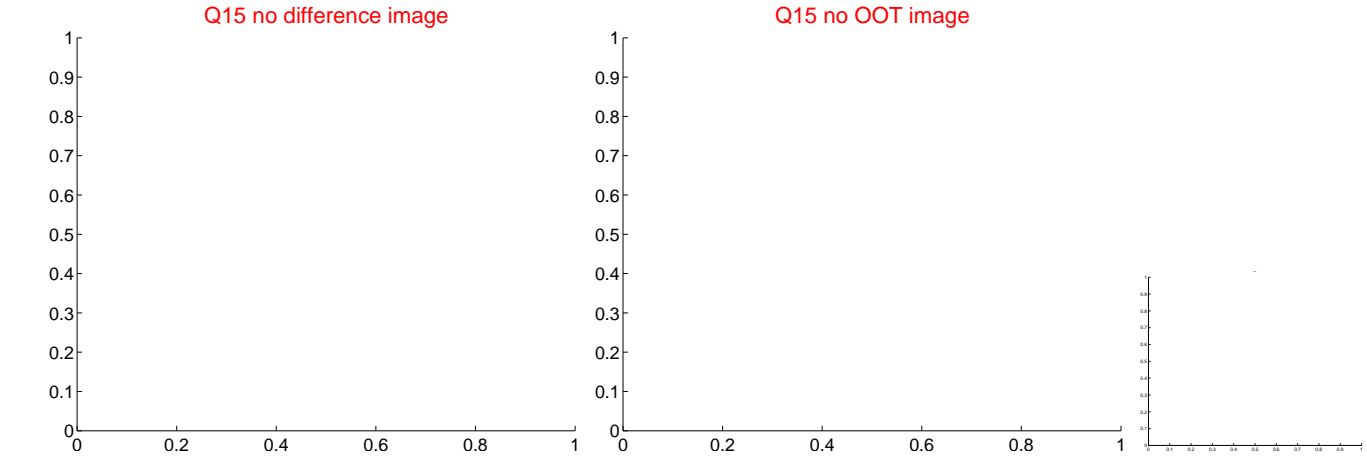
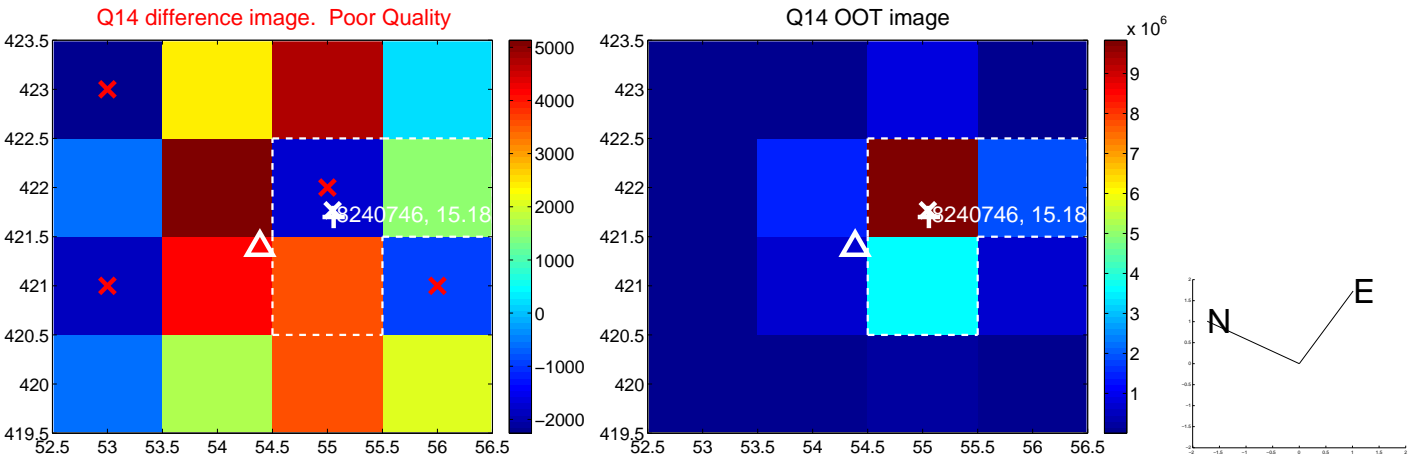
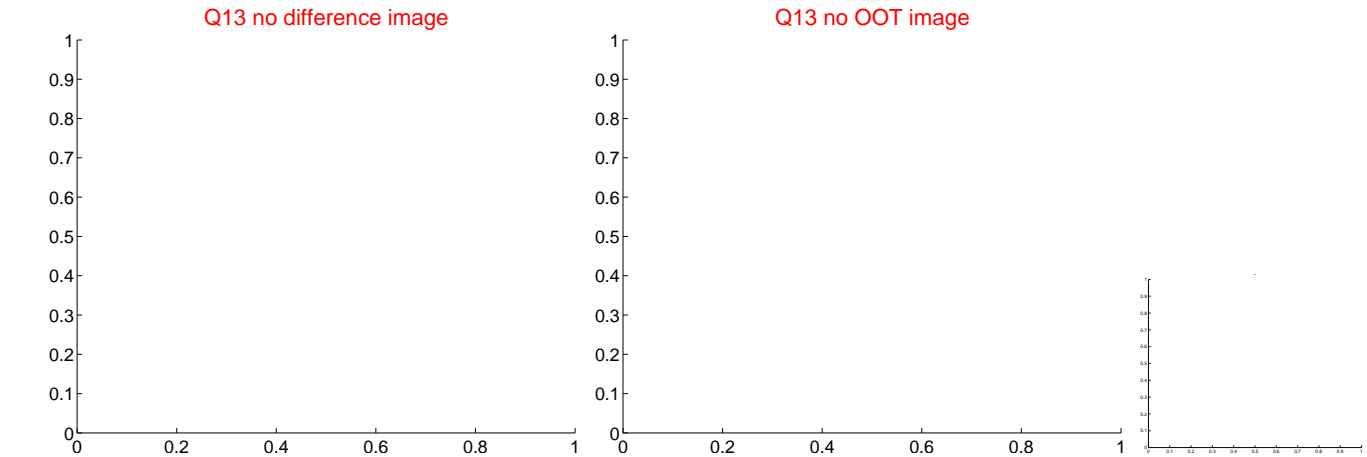
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



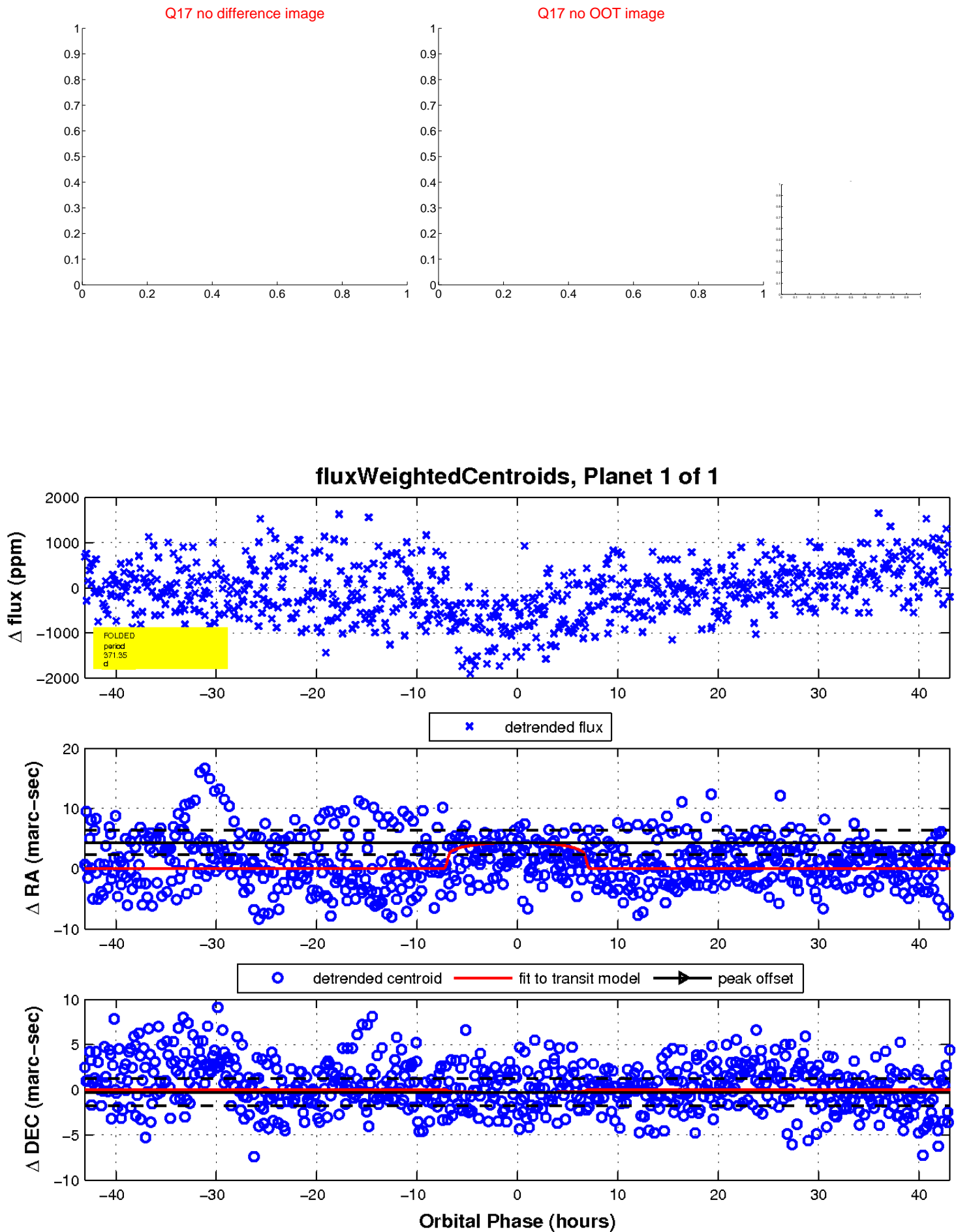
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

