

# KIC 009273312

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009273312-01	OBS	No	231.730423	240.000061	229.5	12.976	9.1	4.4	61.02	3903	86.14	946.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009273312-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS

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

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

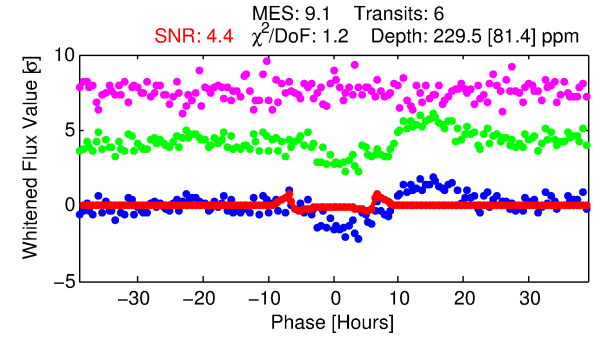
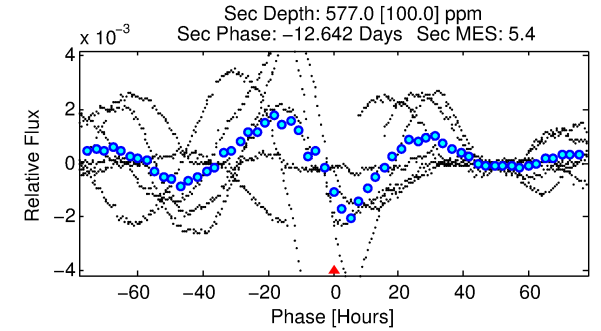
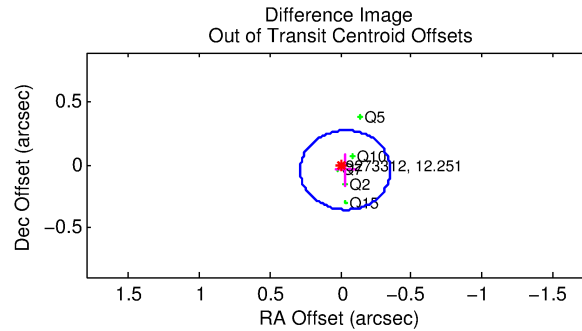
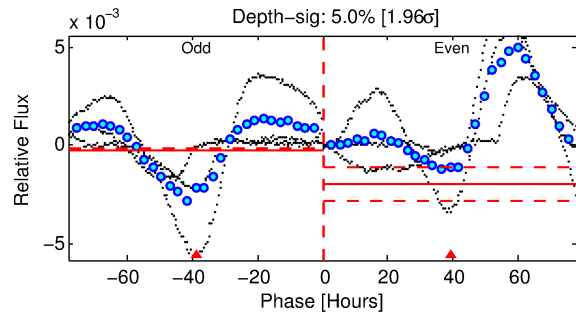
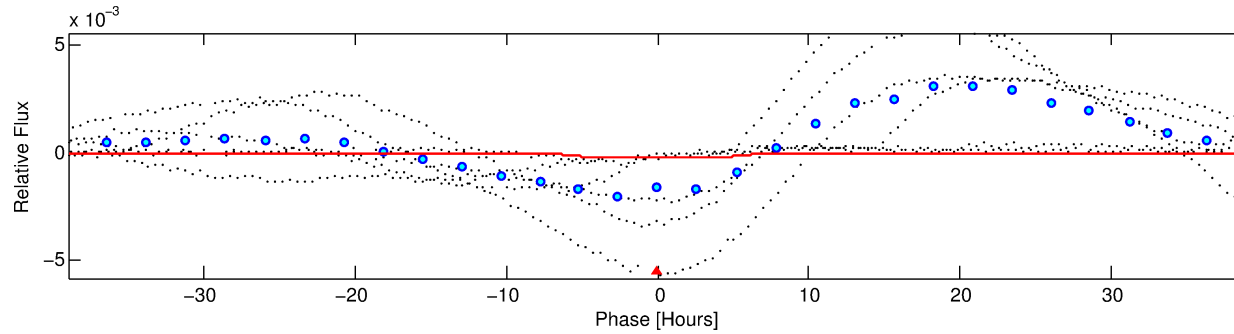
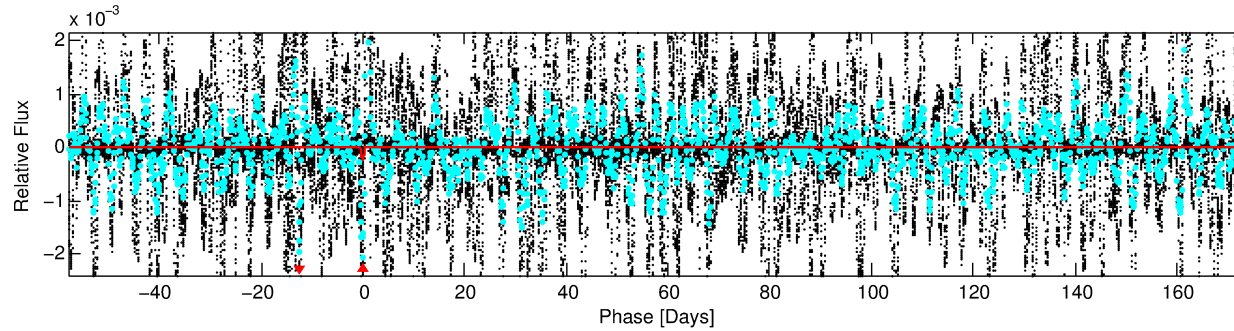
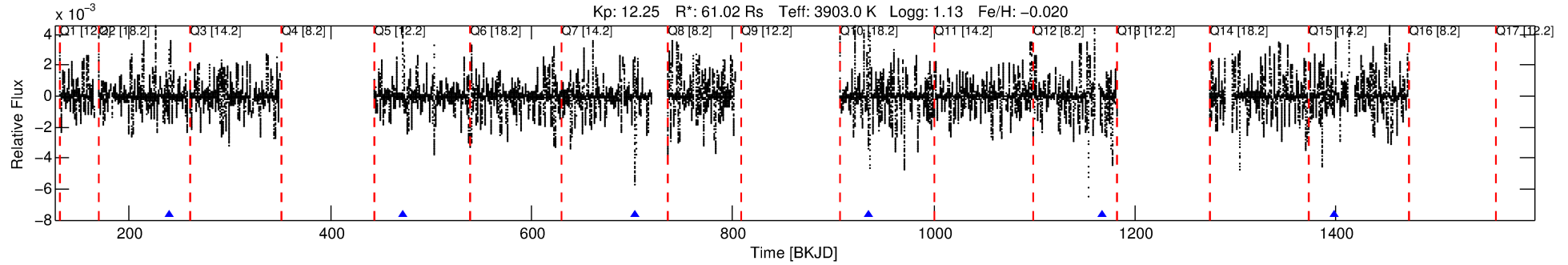
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009273312-01

No Significant Match Found

# DV One-Page Summary

KIC: 9273312 Candidate: 1 of 1 Period: 231.730 d



## DV Fit Results:

Period = 231.73042 [0.00454] d  
Epoch = 240.0001 [0.0122] BKJD  
Rp/R\* = 0.0129 [0.0066]  
a/R\* = 137.60 [193.45]  
b = 0.09 [15.12]  
Seff = 946.64 [467.22]  
Teq = 1414 [175] K  
Rp = 86.15 [53.92] Re  
a = 0.9044 [0.2897] AU  
Ag = 34.99 [40.12] [0.85 $\sigma$ ]  
Teffp = 5319 [1384] K [2.80 $\sigma$ ]

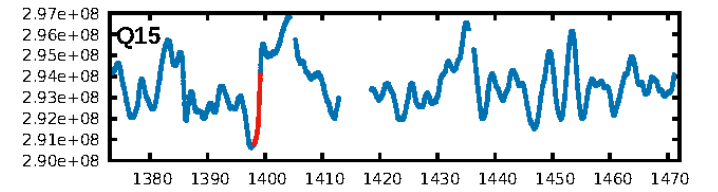
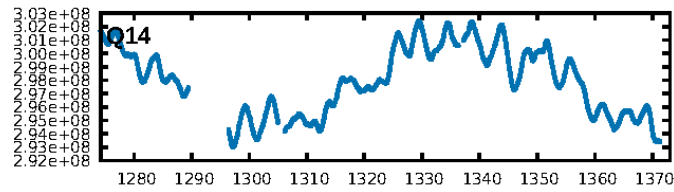
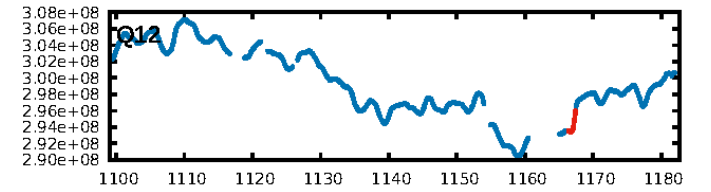
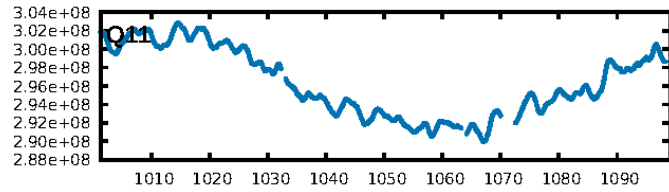
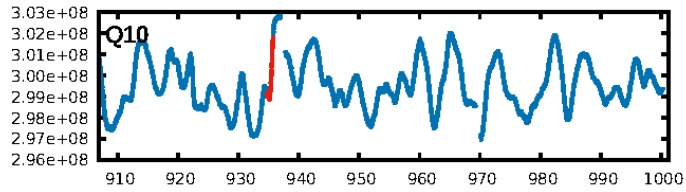
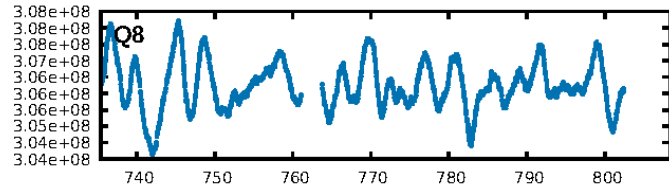
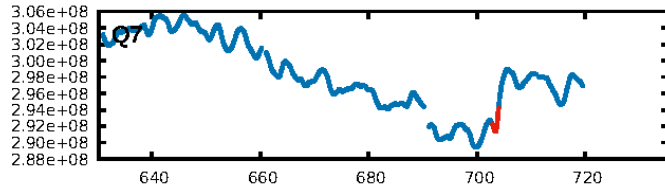
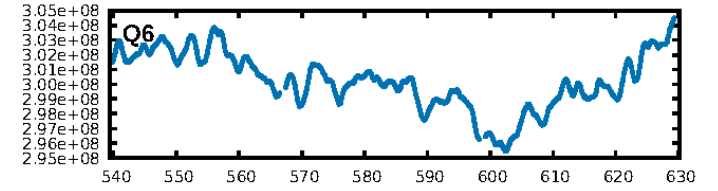
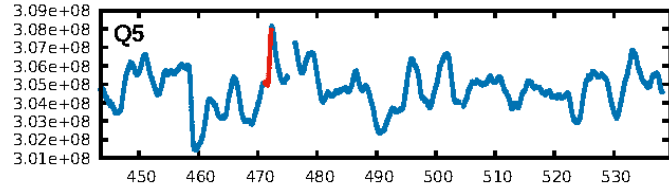
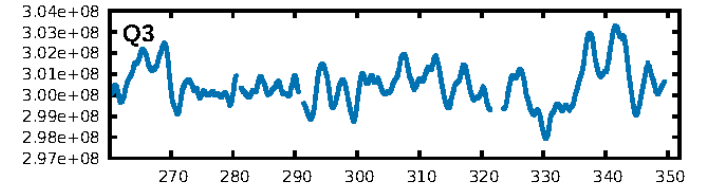
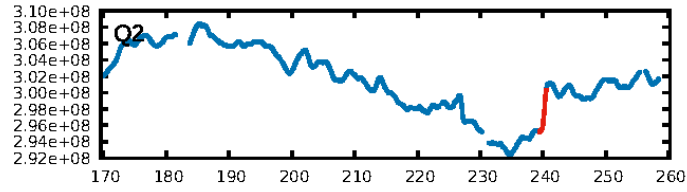
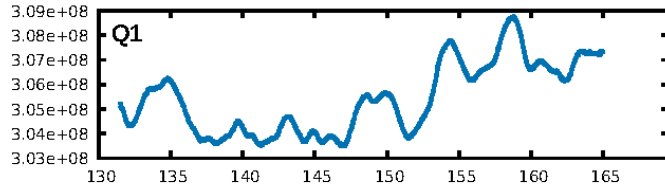
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 25.5%  
ModelChiSquareGof-sig: 52.3%  
Bootstrap-pfa: 2.26e-11  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 1.372  
Centroid-sig: 12.5%  
Centroid-so: 0.718 arcsec [1.35 $\sigma$ ]  
OotOffset-rm: 0.055 arcsec [0.52 $\sigma$ ]  
OotOffset-st: 2/2/0/1 [5]  
KicOffset-rm: 0.101 arcsec [1.19 $\sigma$ ]  
KicOffset-st: 2/2/0/1 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

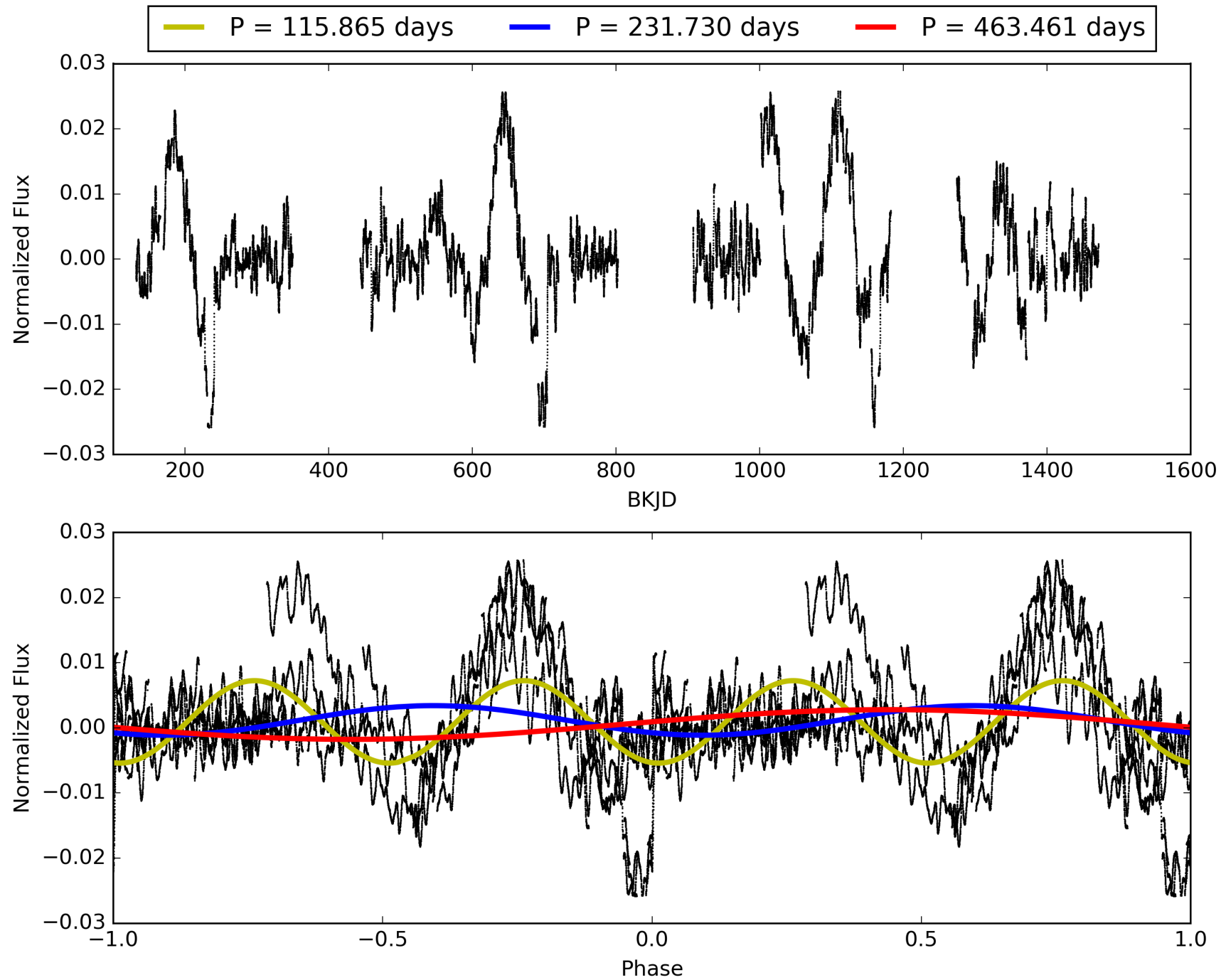
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:25:58 Z

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

# TCE 009273312-01, PDC Light Curves

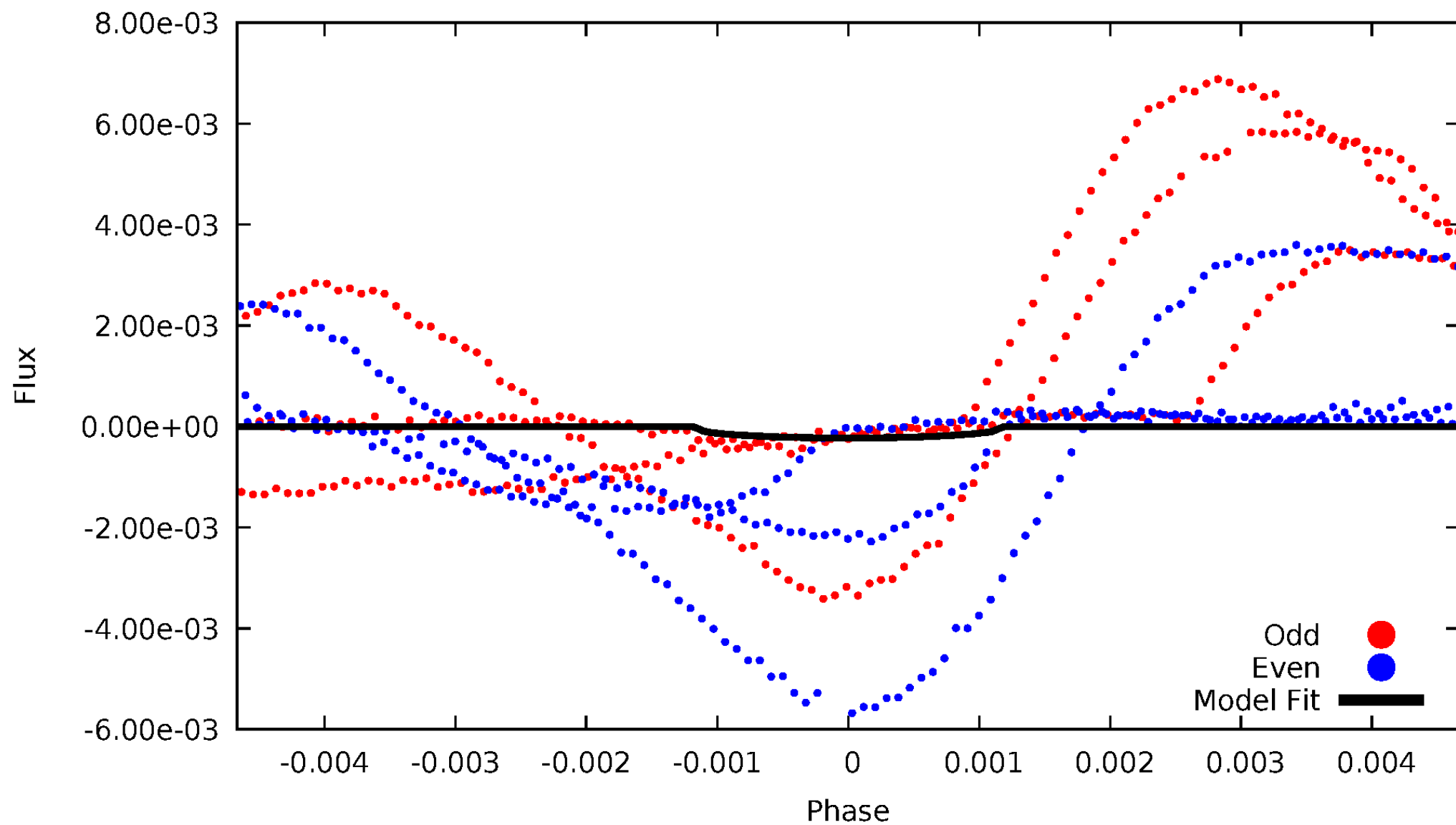


TCE 009273312-01



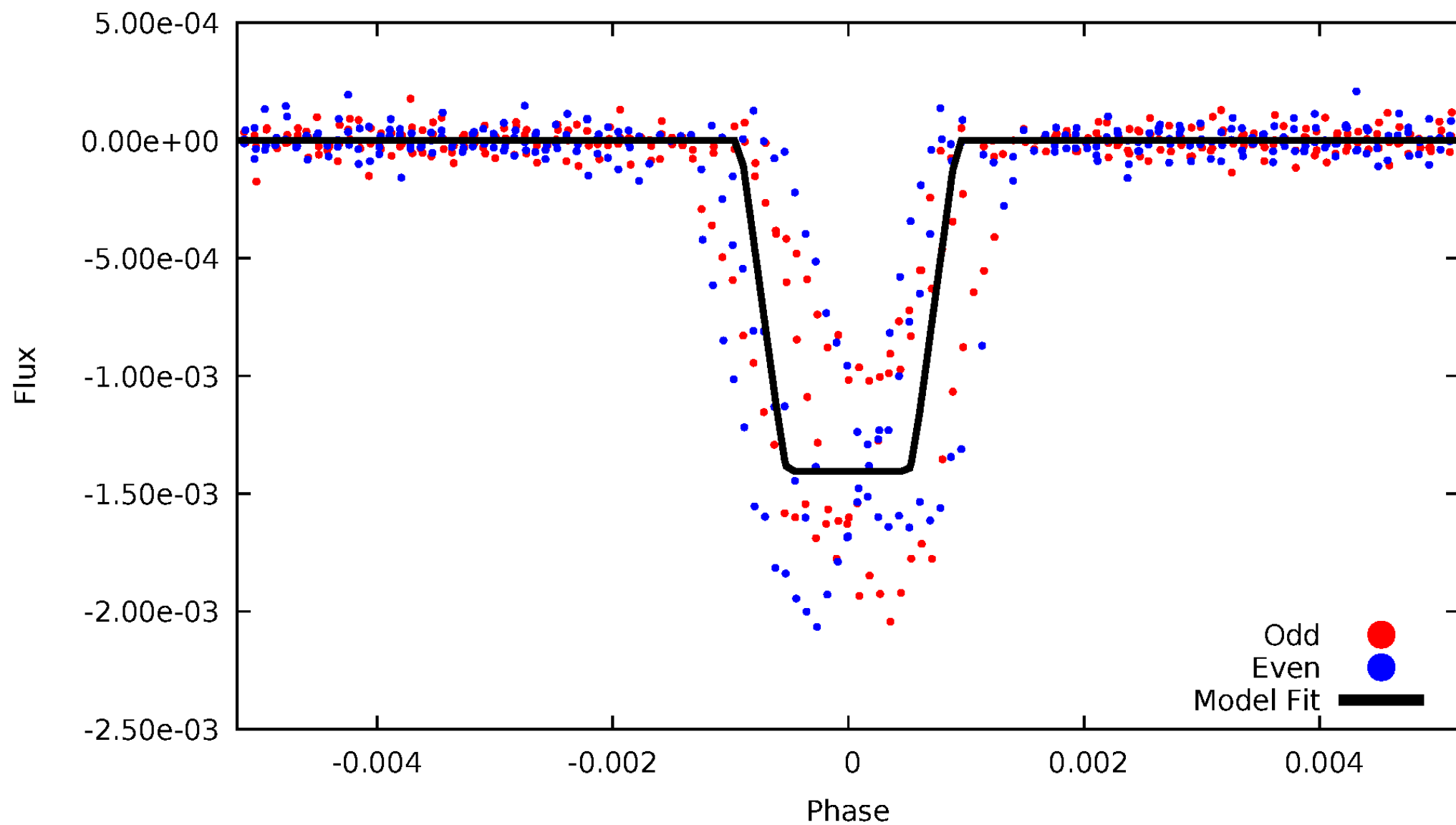
# DV Odd/Even

TCE 009273312-01

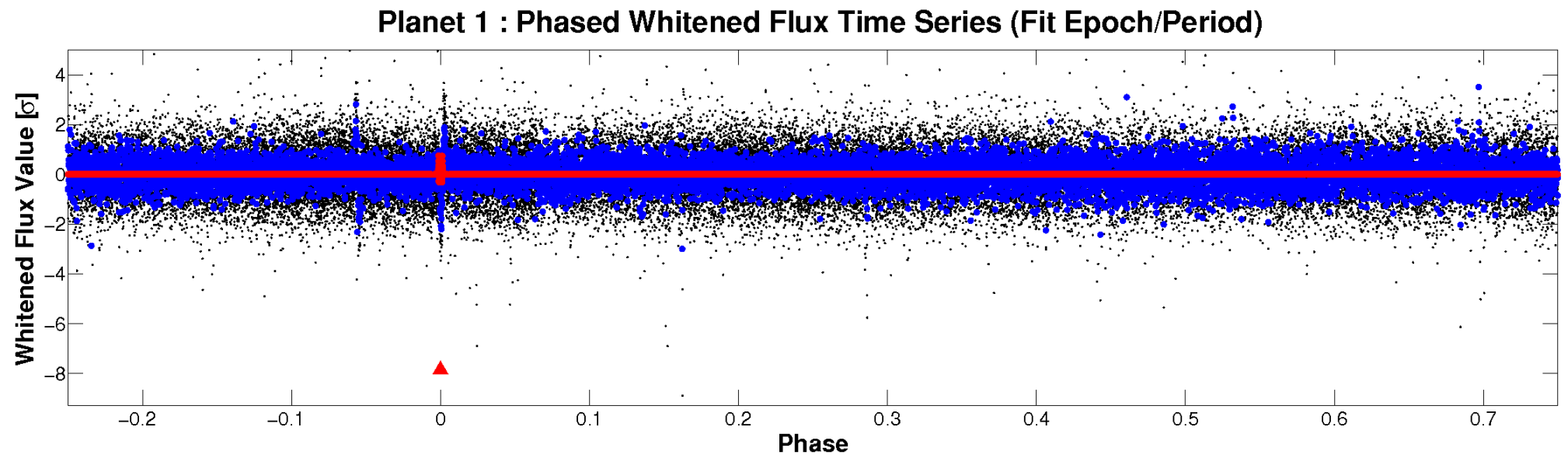
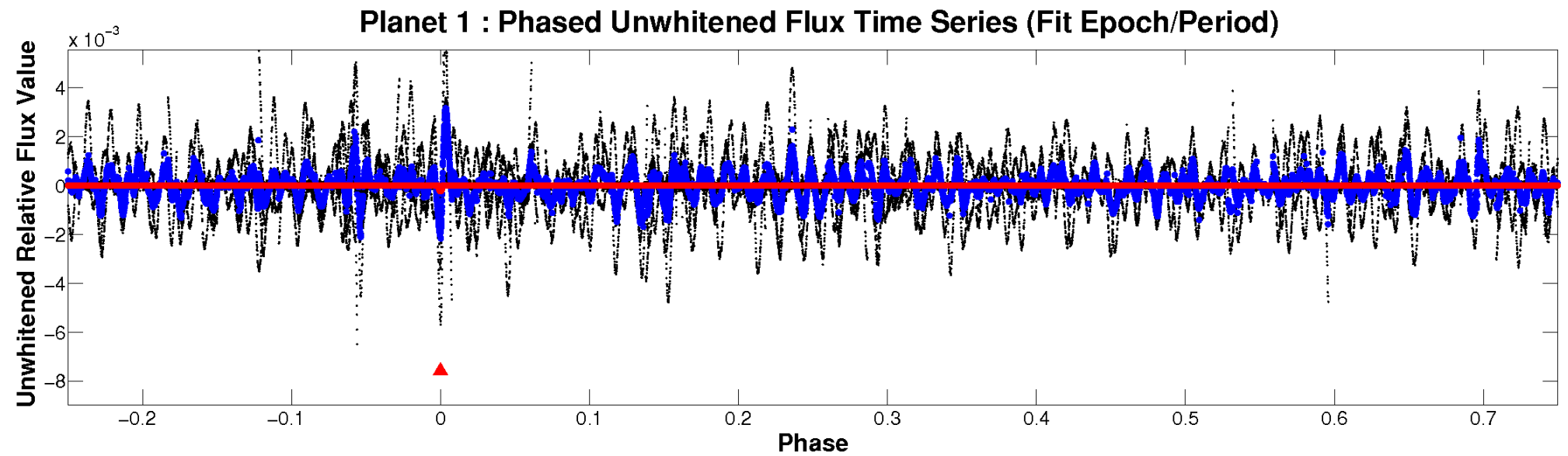


# ALT Odd/Even

TCE 009273312-01

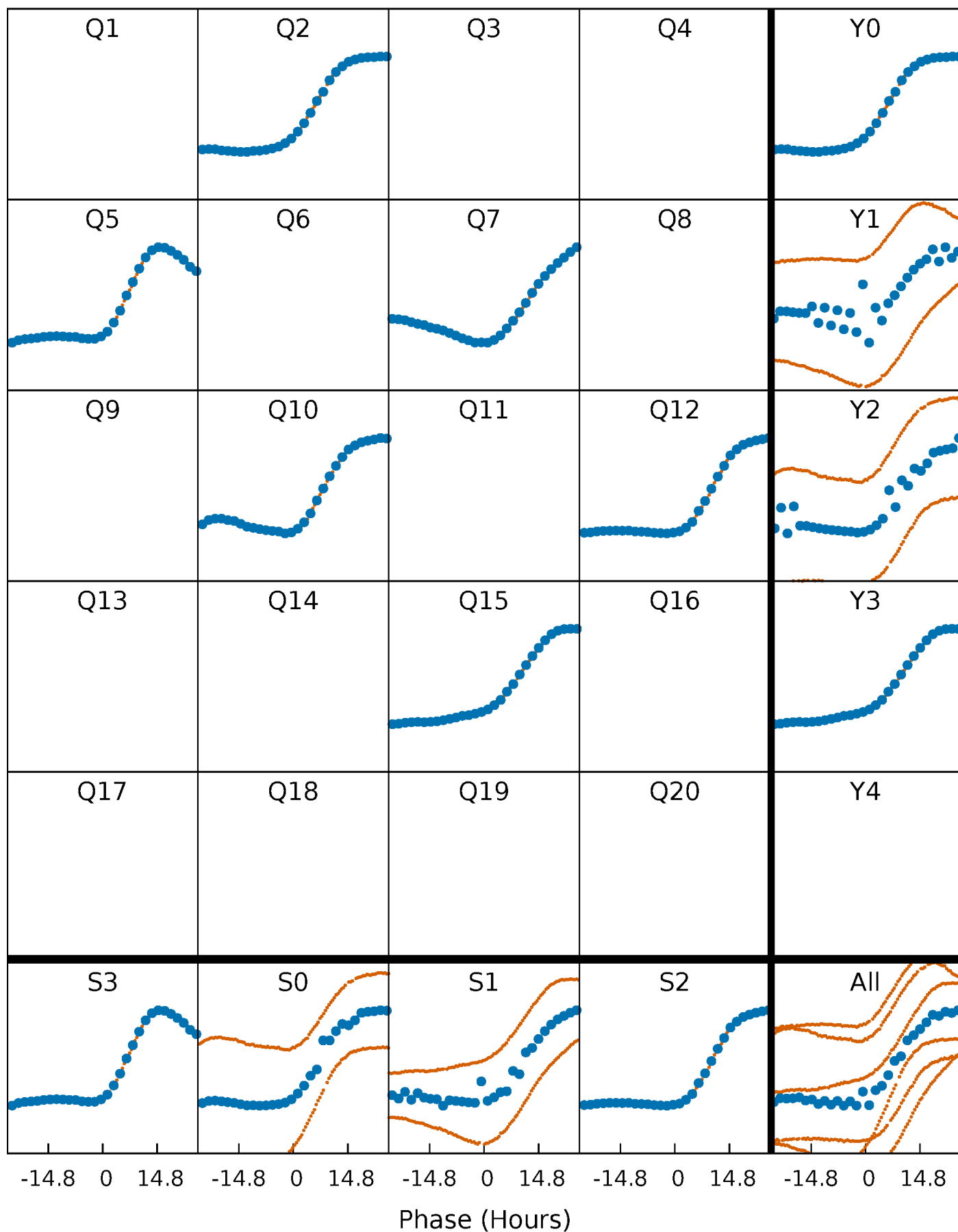


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

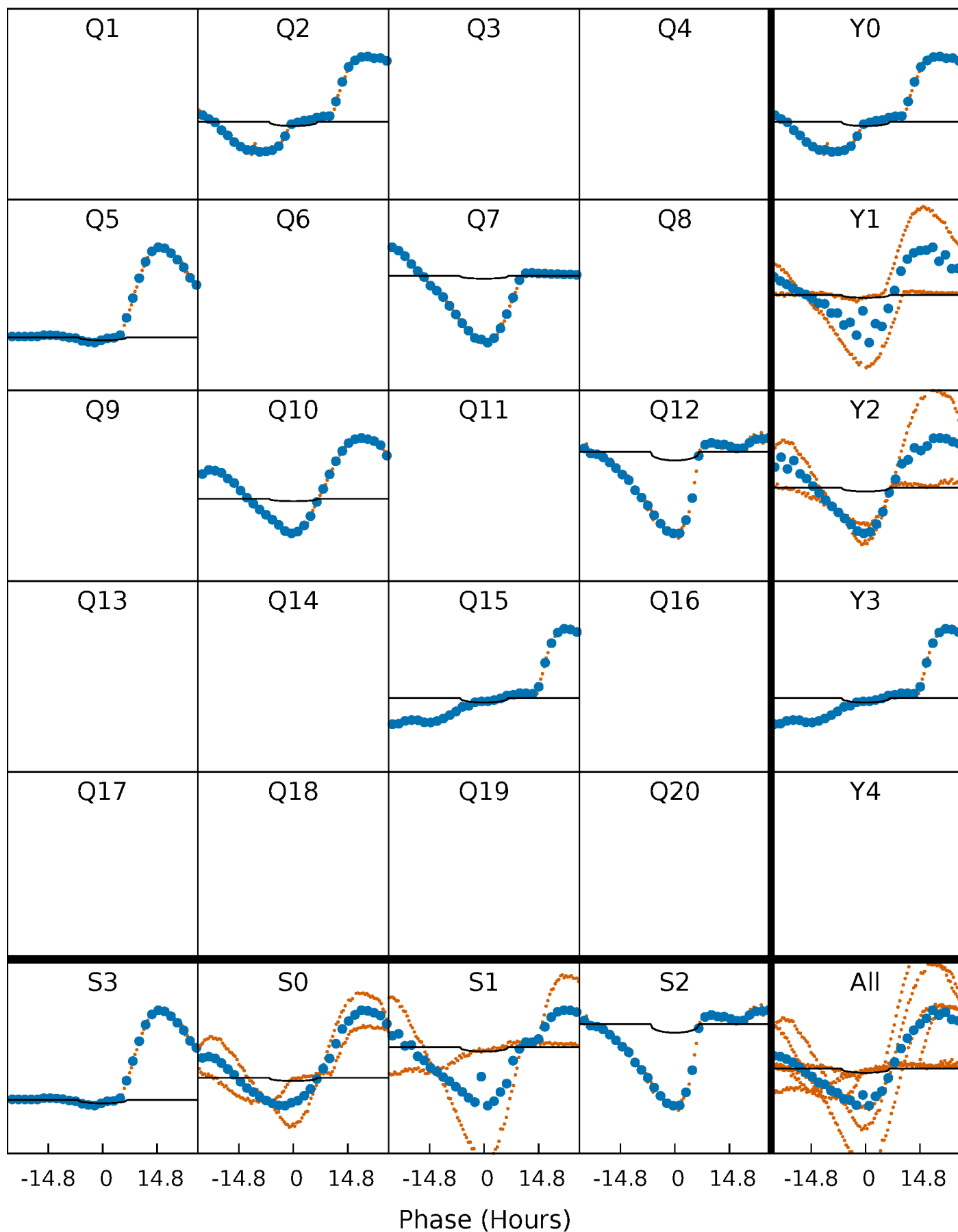
TCE 009273312-01 P=231.730423 Days  $T_0=240.000061$  (BKJD)





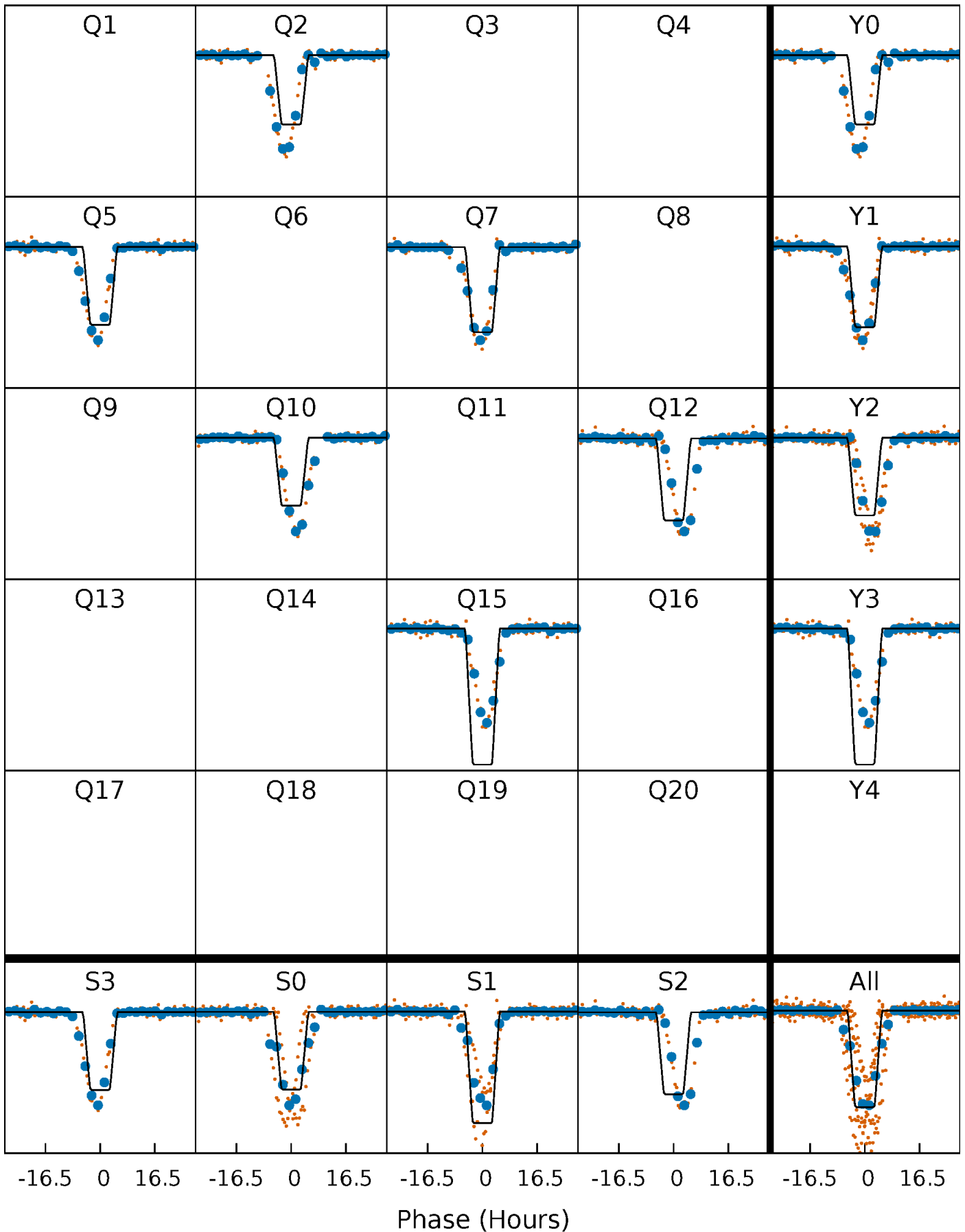
# DV Quarter-Phased Transit Curves

TCE 009273312-01 P=231.730423 Days  $T_0=240.000061$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

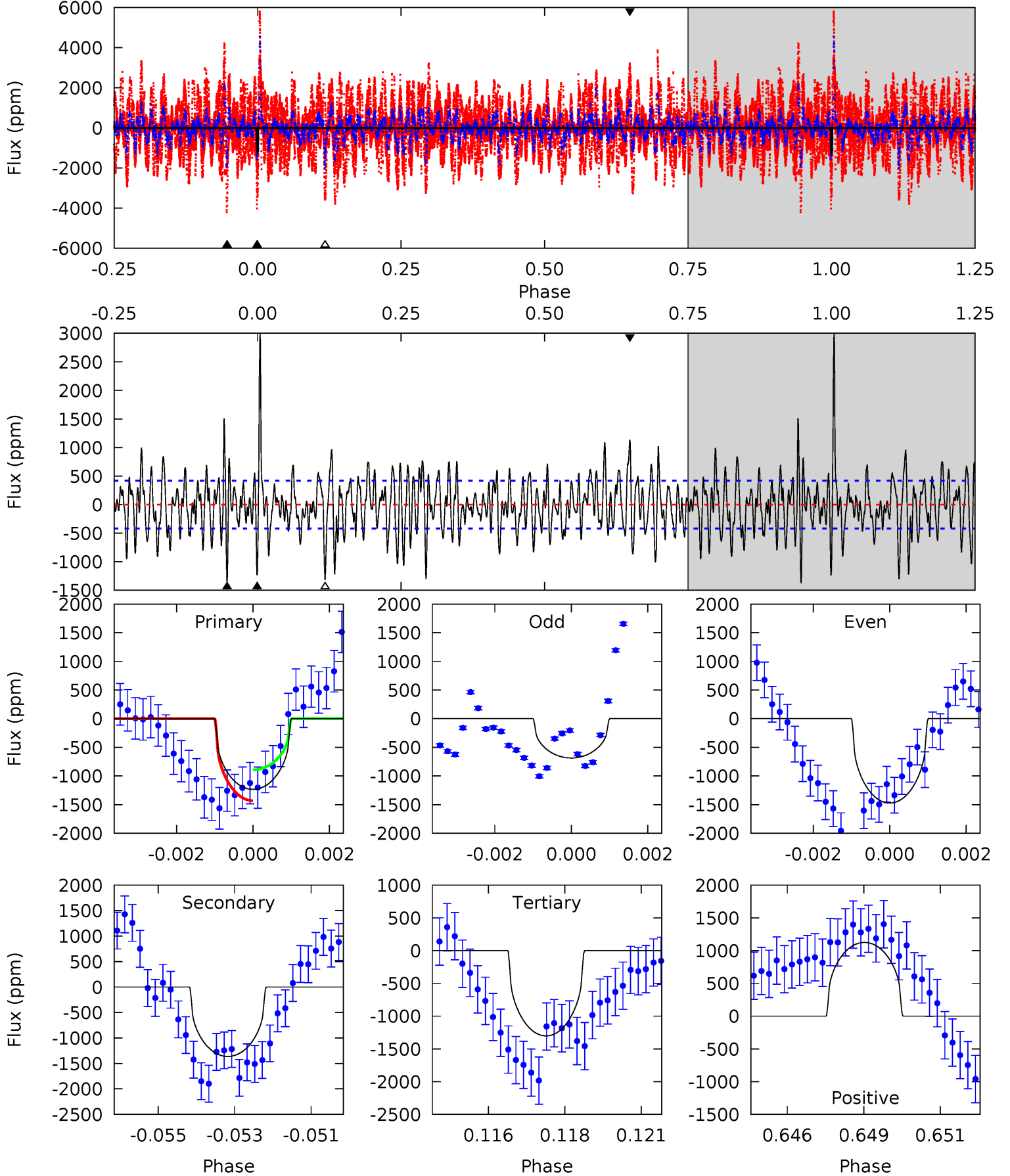
TCE 009273312-01 P=231.716570 Days  $T_0=240.037065$  (BKJD)



# DV Model-Shift Uniqueness Test

009273312-01, P = 231.730423 Days, E = 8.269638 Days

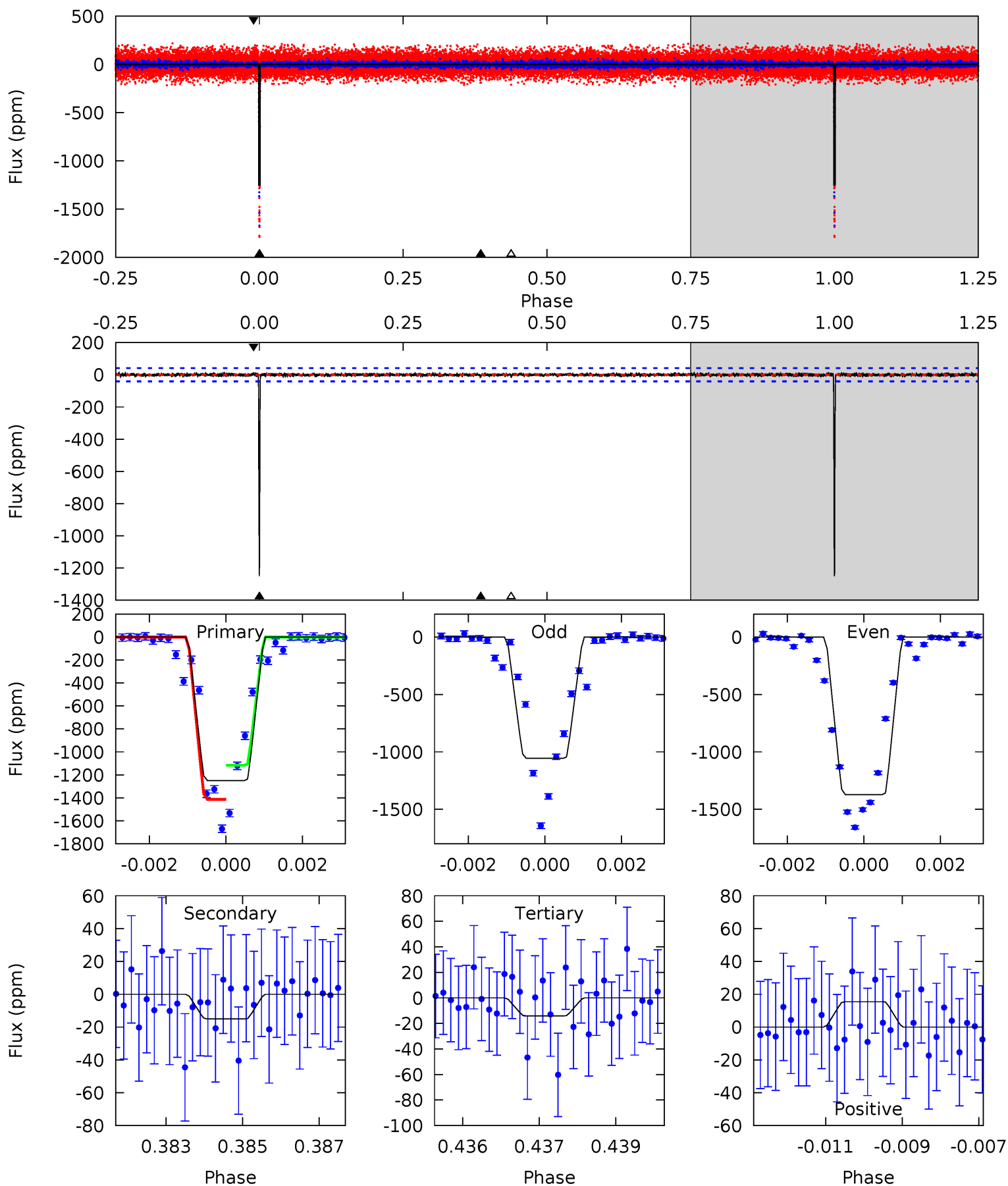
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	17.2	16.5	14.2	5.29	3.03	5.34	-0.85	1.38	0.77	3.00	4.53	1.50	0.69	3.44



# Alt Model-Shift Uniqueness Test

009273312-01, P = 231.716570 Days, E = 8.320495 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
162.8	1.96	1.84	2.01	5.34	3.11	0.49	161.0	160.8	0.13	-0.05	23.2	0.94	0.01	19.0



### Stellar Parameters For KIC 009273312

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3903^{+78}_{-70}$	$1.131^{+0.276}_{-0.161}$	$-0.020^{+0.250}_{-0.250}$	$61.025^{+10.149}_{-21.989}$	$1.836^{+1.080}_{-0.665}$	$0.000^{+0.000}_{-0.000}$
	+2%/-2%	+24%/-14%	+1250%/-1250%	+17%/-36%	+59%/-36%	+216%/-39%
Source	SPE14	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 009273312-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1363 \pm 79$	$85.43^{+52.52}_{-40.94}$	$1954^{+137}_{-154}$	$5985^{+2675}_{-1062}$	$88^{+270}_{-51}$
Alt.	$-15 \pm 8$	$250.51^{+66.18}_{-62.48}$	$1955^{+120}_{-145}$	$-2224^{+221}_{-128}$	$0.116^{+0.100}_{-0.065}$

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

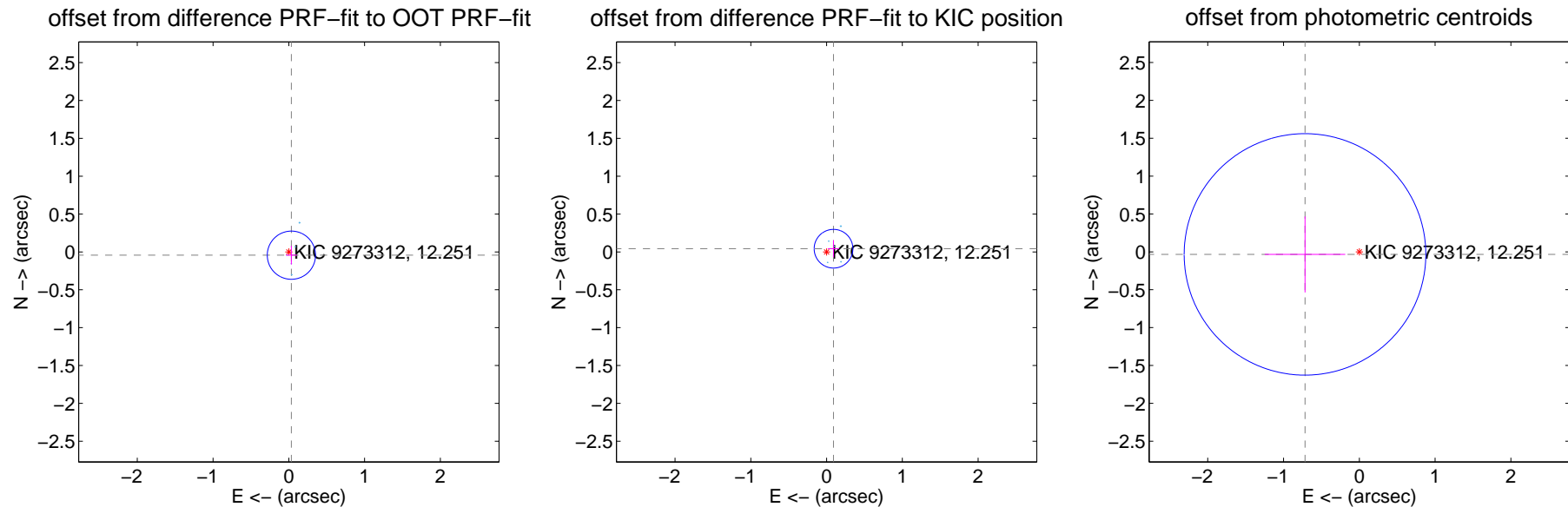
## DV Centroid Data

Supplemental centroid analysis for 009273312-01. Kepler magnitude: 12.25. Transit SNR 4.38

There are 5 quarters with good PRF difference image offsets

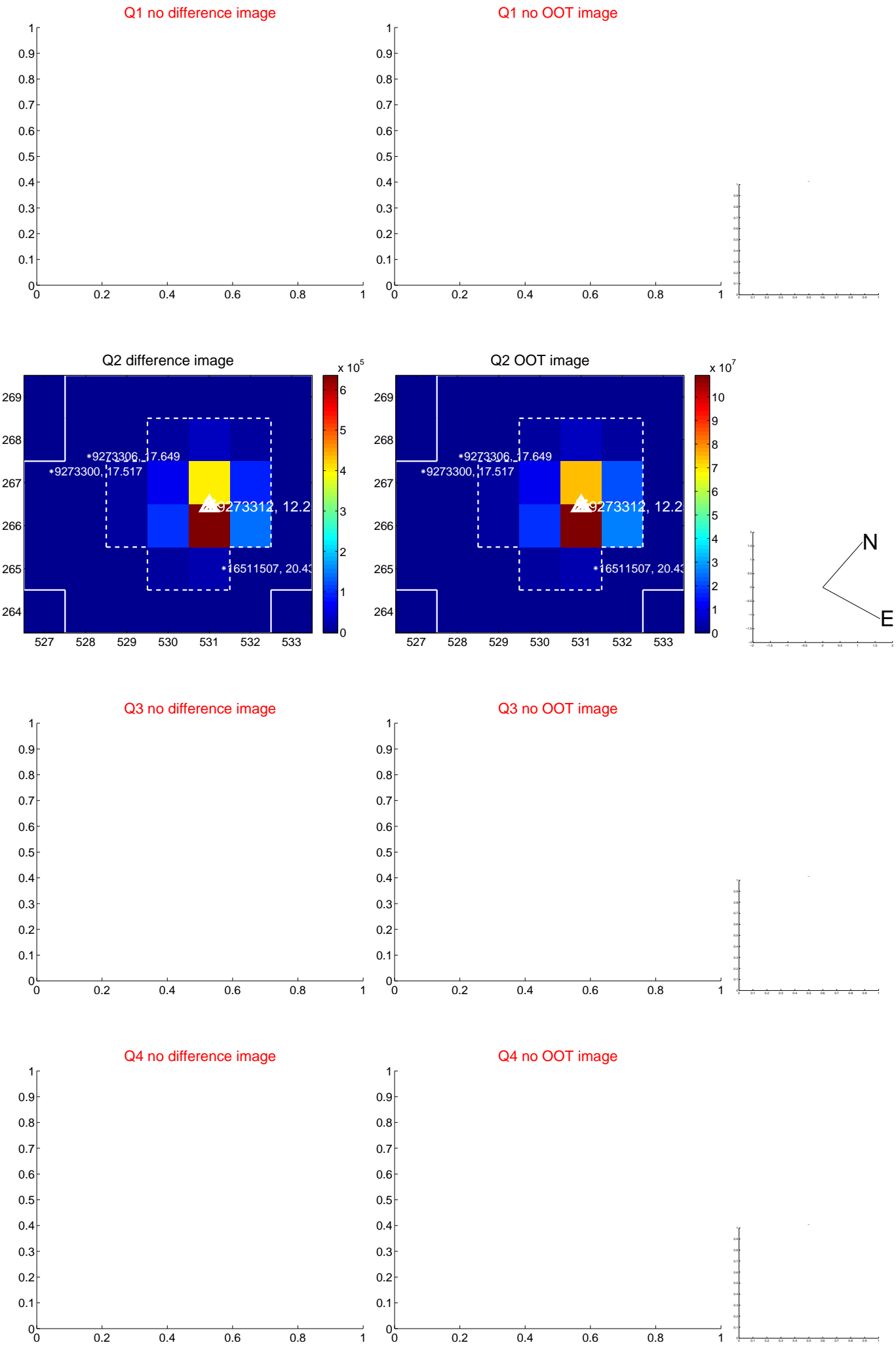
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.055 \pm 0.106$	0.52	$-0.034 \pm 0.073$	$-0.043 \pm 0.122$
PRF-fit source offset from KIC position	$0.101 \pm 0.085$	1.19	$-0.092 \pm 0.074$	$0.042 \pm 0.112$
photometric centroid source offset	$0.72 \pm 0.53$	1.35	$0.72 \pm 0.53$	$-0.03 \pm 0.50$

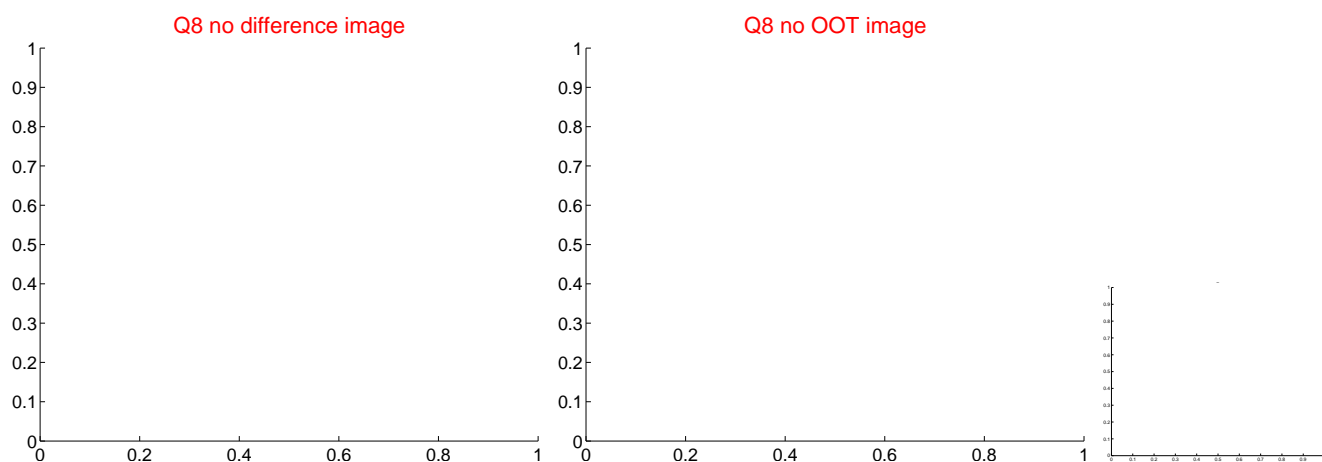
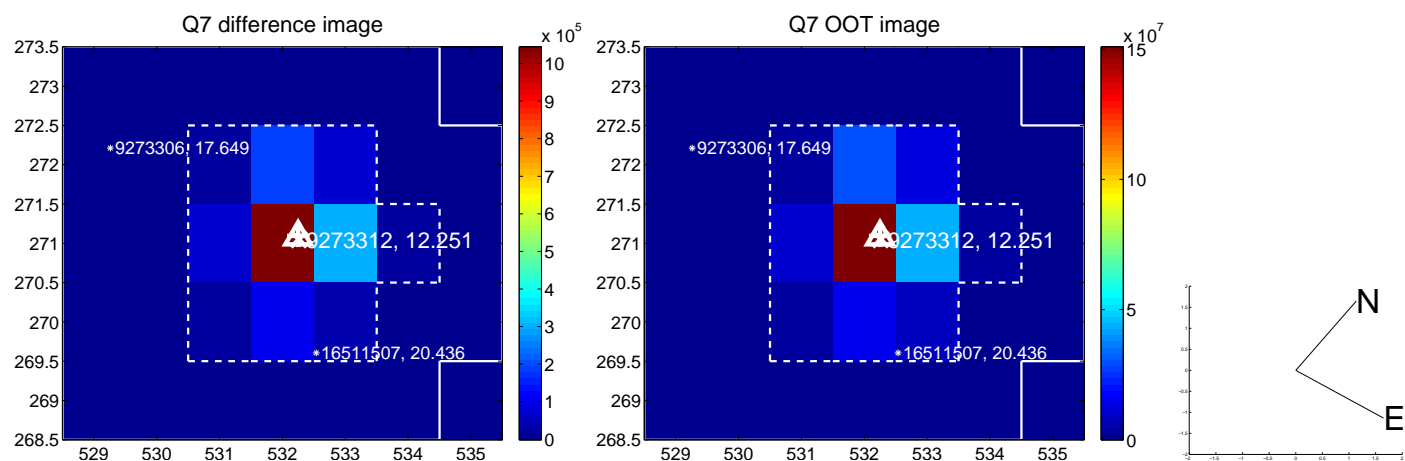
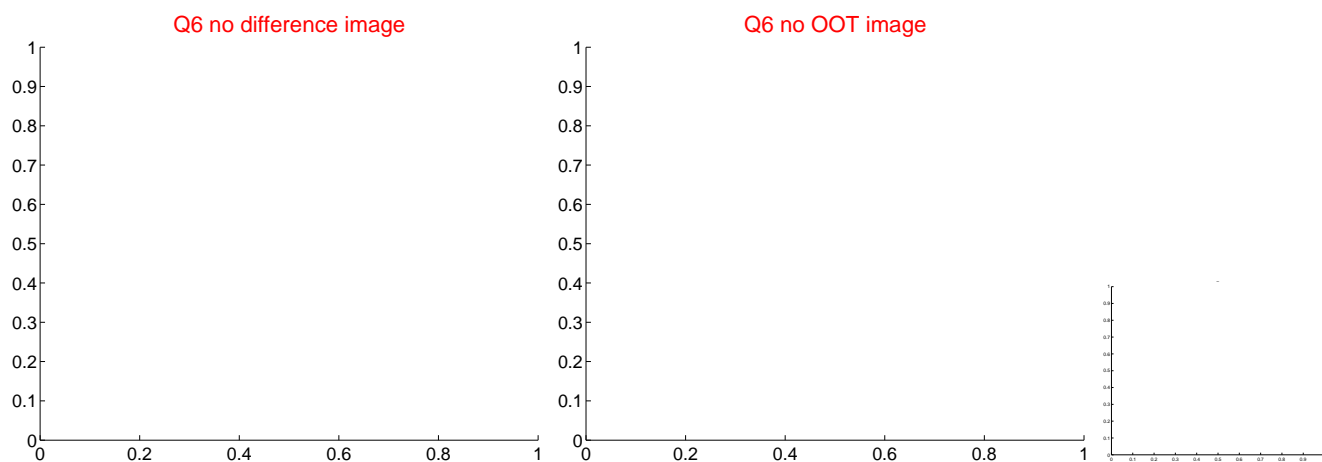
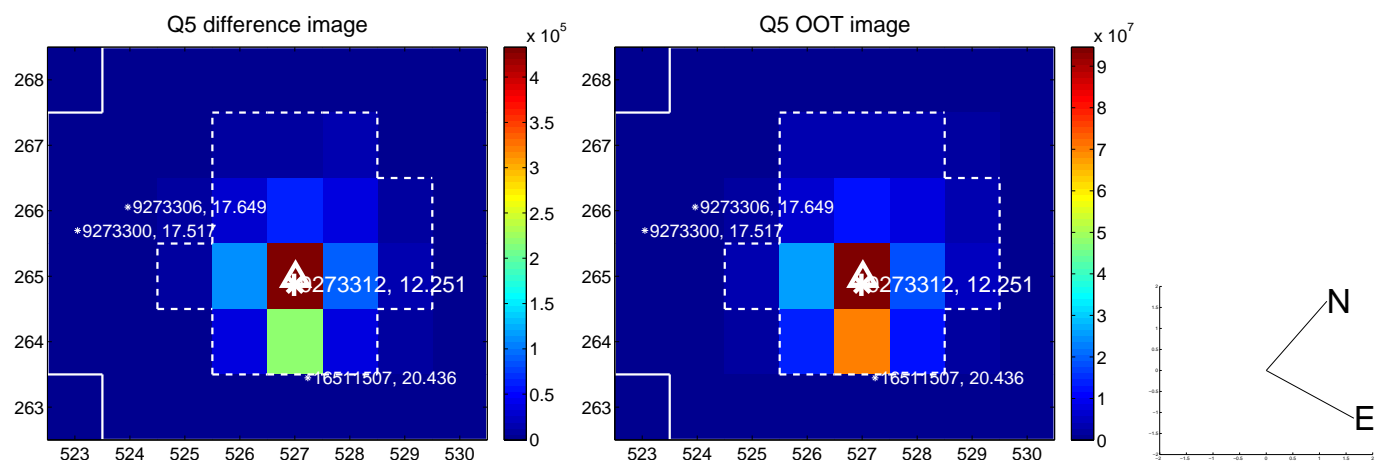


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

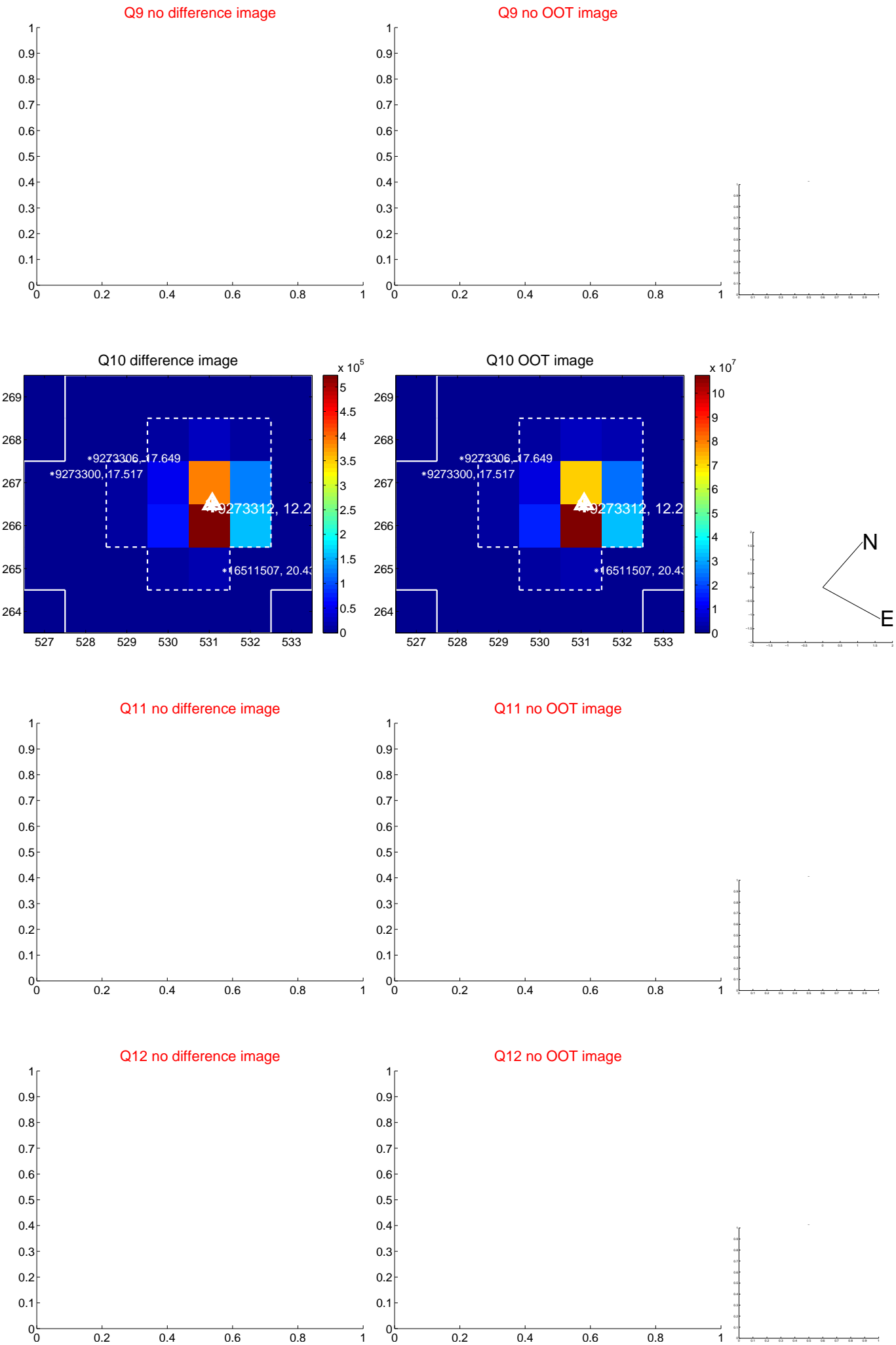


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

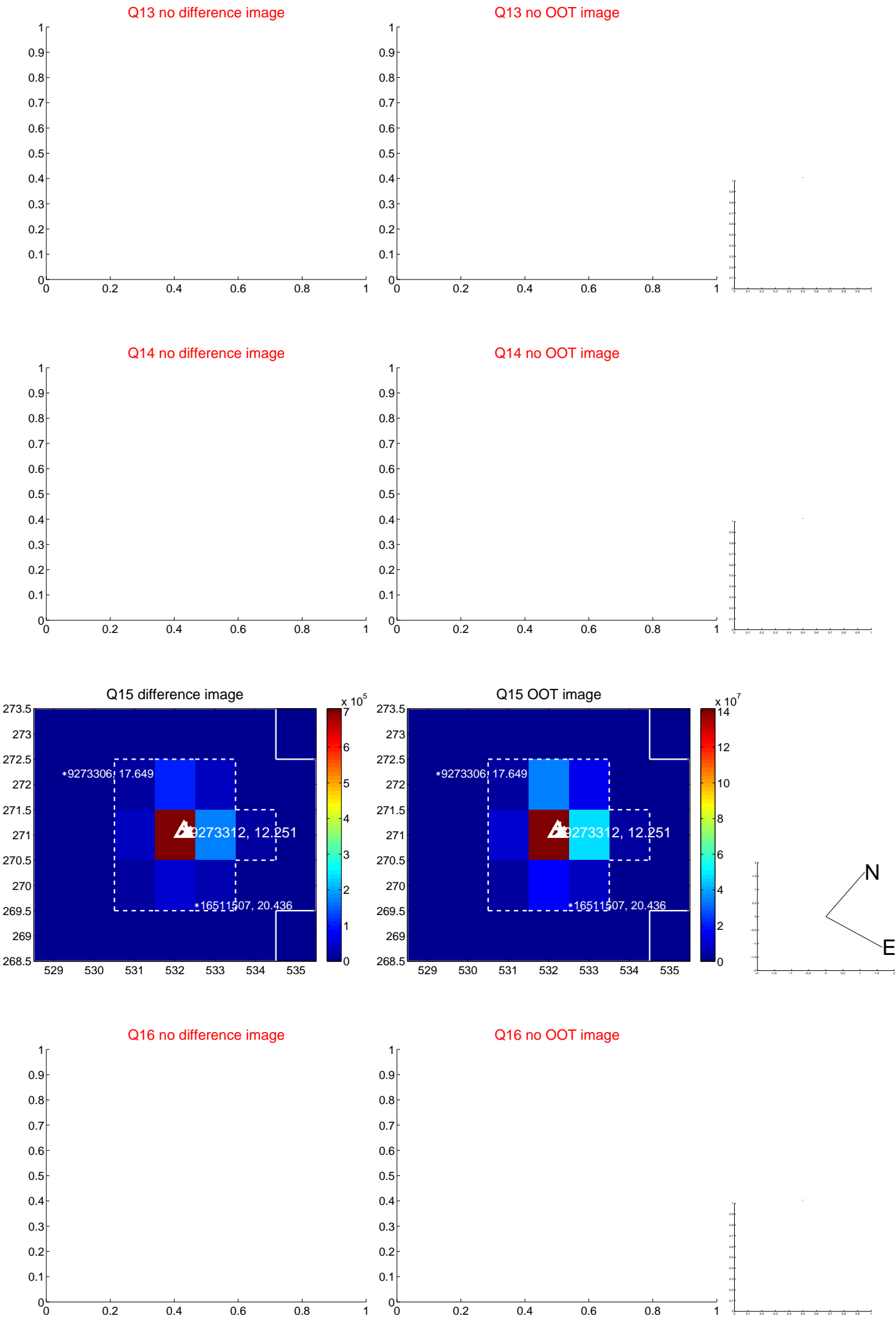




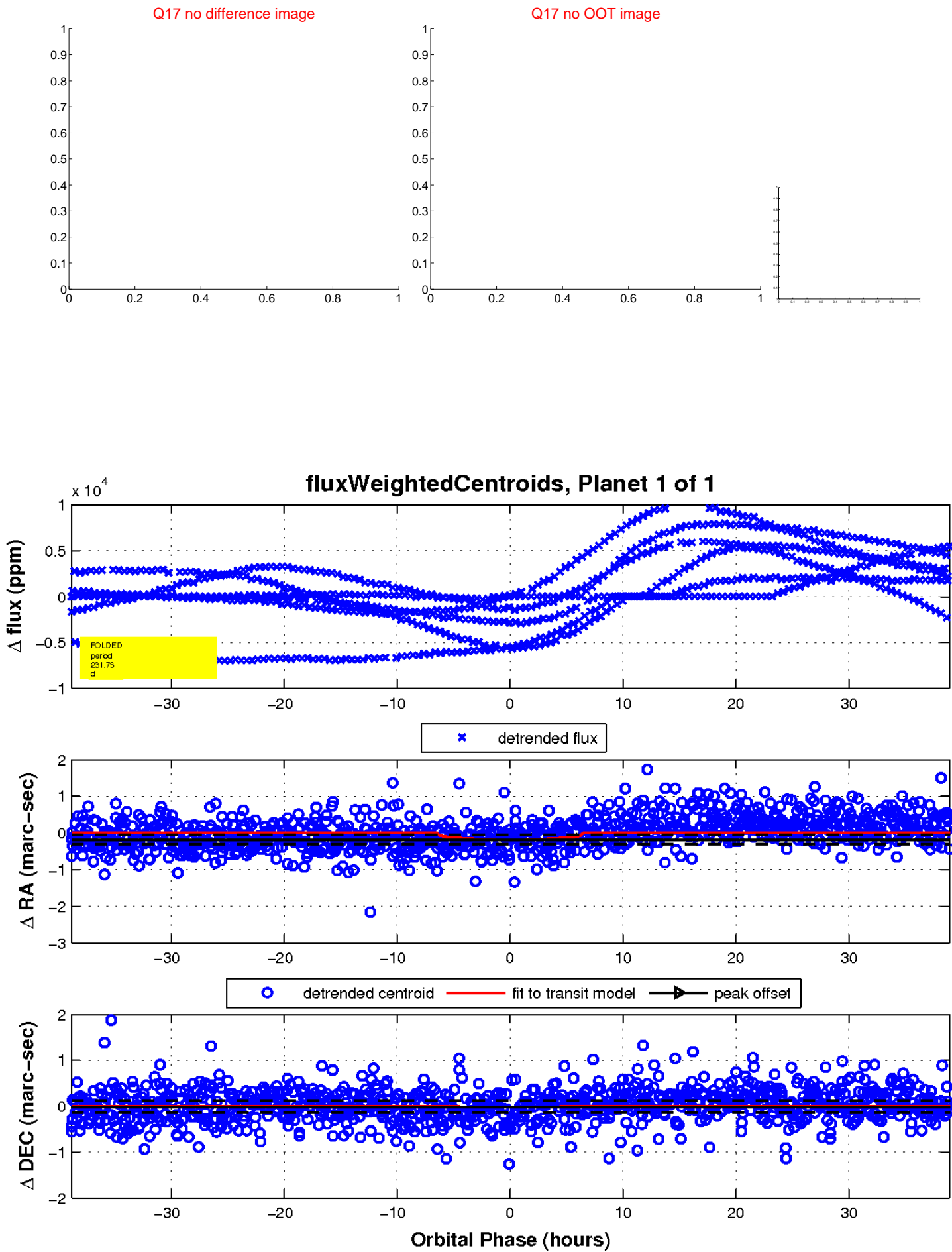
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

