

# KIC 006020723

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006020723-01	OBS	No	275.733737	214.847760	154.7	16.082	8.0	7.5	2.58	6231	3.62	11.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006020723-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

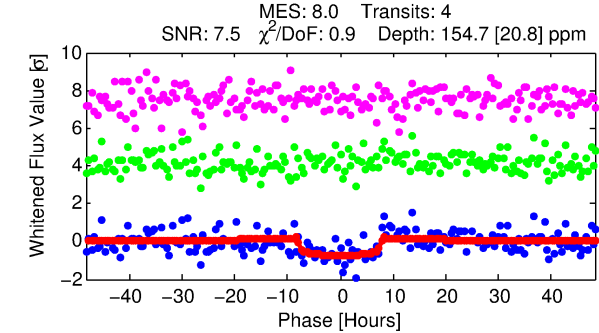
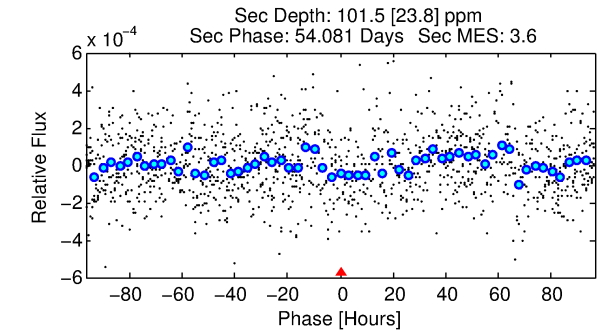
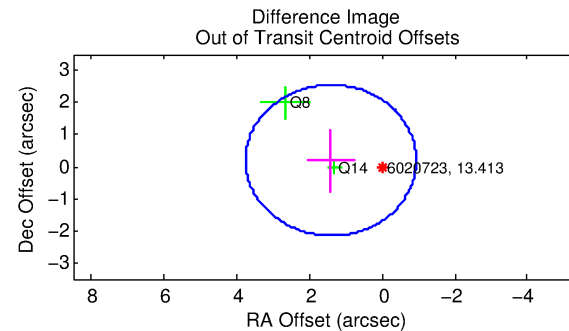
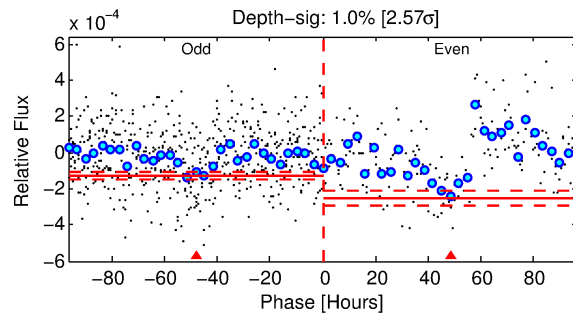
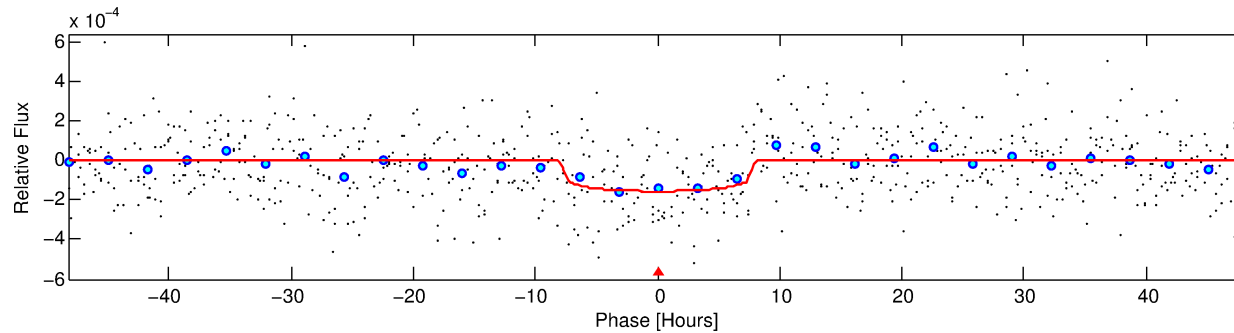
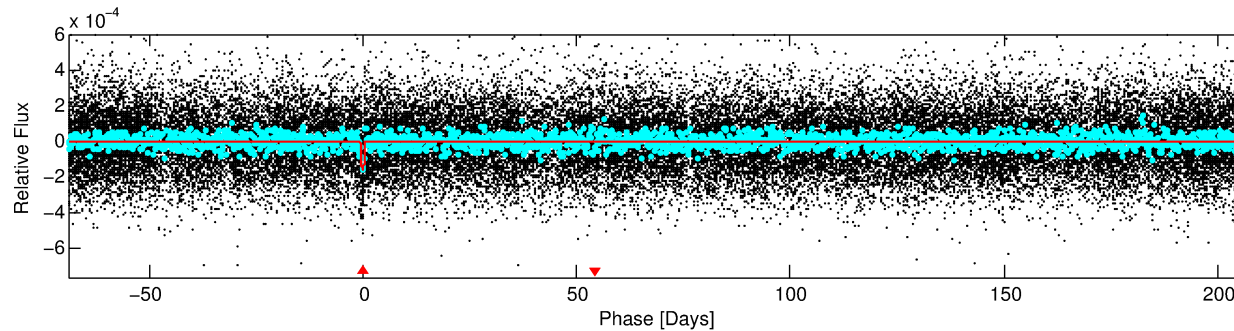
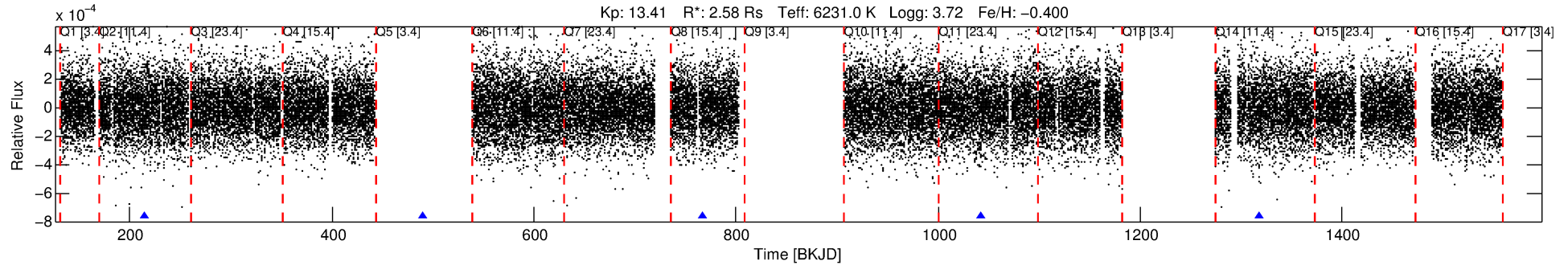
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006020723-01

No Significant Match Found

# DV One-Page Summary

KIC: 6020723 Candidate: 1 of 1 Period: 275.734 d



## DV Fit Results:

Period = 275.73374 [0.01008] d  
Epoch = 214.8478 [0.0271] BKJD  
Rp/R\* = 0.0128 [0.0030]  
a/R\* = 73.68 [88.78]  
b = 0.84 [0.42]  
Seff = 11.06 [6.44]  
Teq = 465 [68] K  
Rp = 3.62 [1.59] Re  
a = 0.9025 [0.3223] AU  
Ag = 3470.81 [2687.37] [1.29 $\sigma$ ]  
Teffp = 5519 [736] K [6.84 $\sigma$ ]

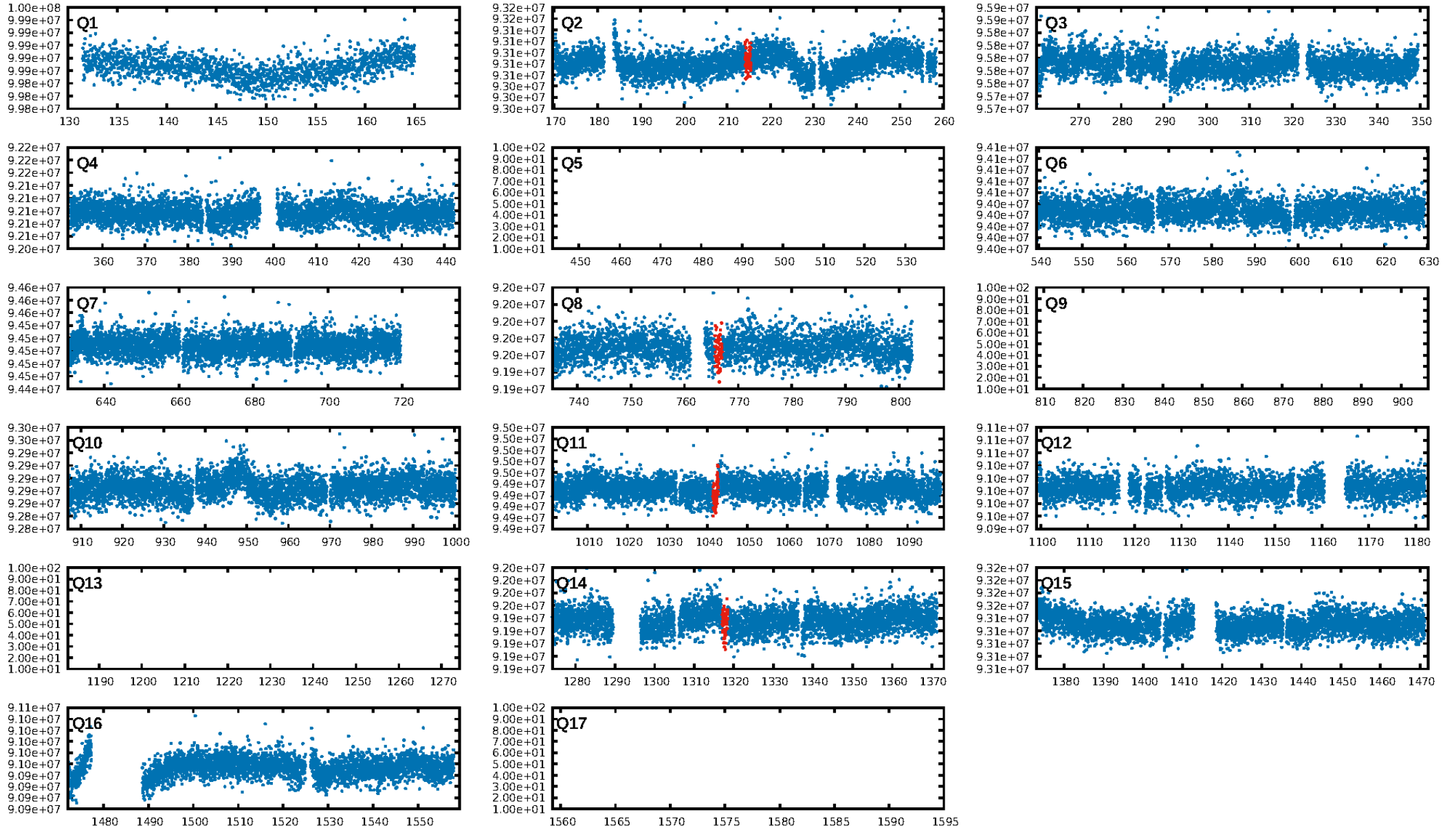
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 10.5%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 2.47e-15  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 9.155  
Centroid-sig: 0.8%  
Centroid-so: 3.314 arcsec [1.68 $\sigma$ ]  
OotOffset-rm: 1.421 arcsec [1.81 $\sigma$ ]  
KicOffset-rm: 1.291 arcsec [2.79 $\sigma$ ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

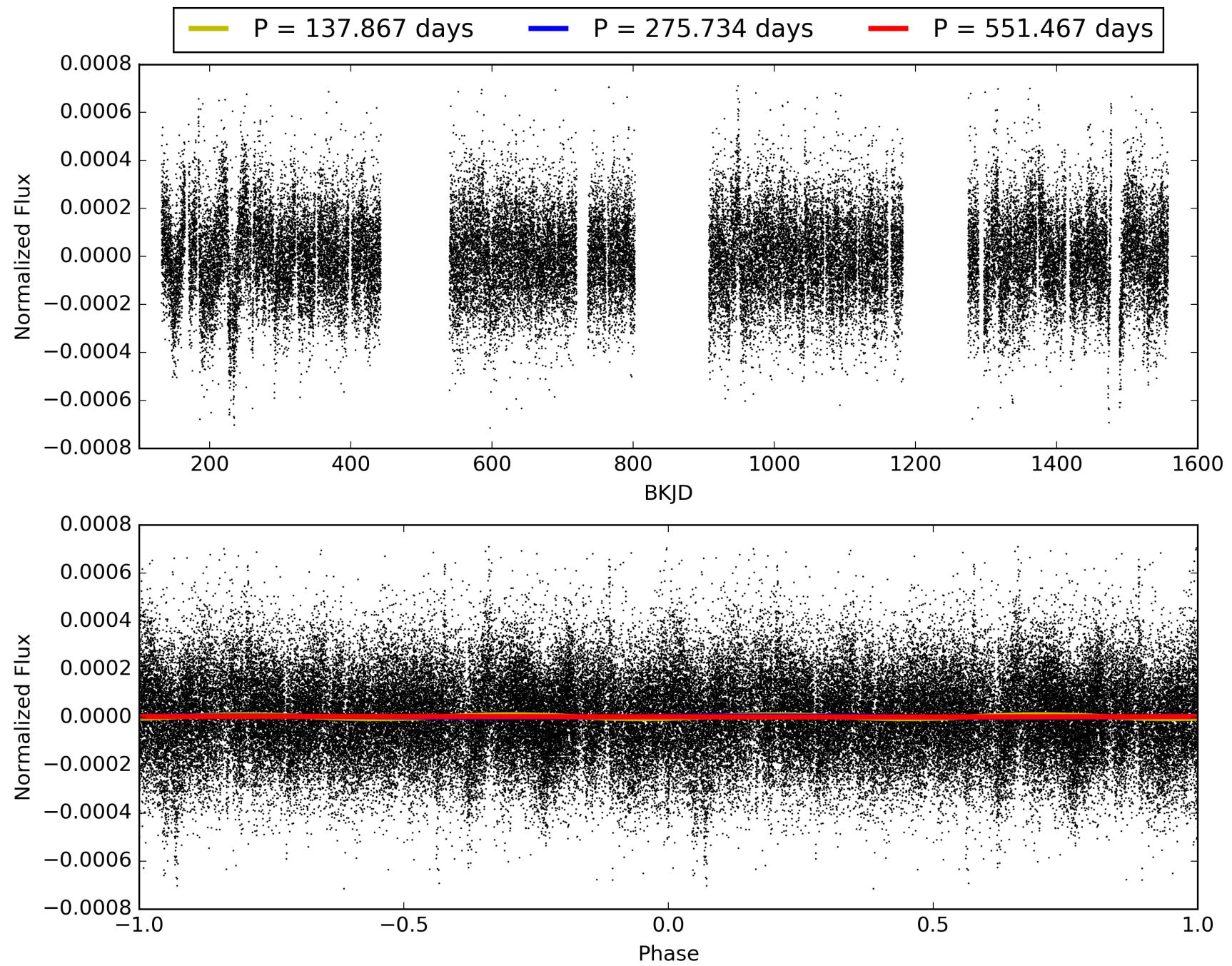
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:38:04 Z

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

# TCE 006020723-01, PDC Light Curves

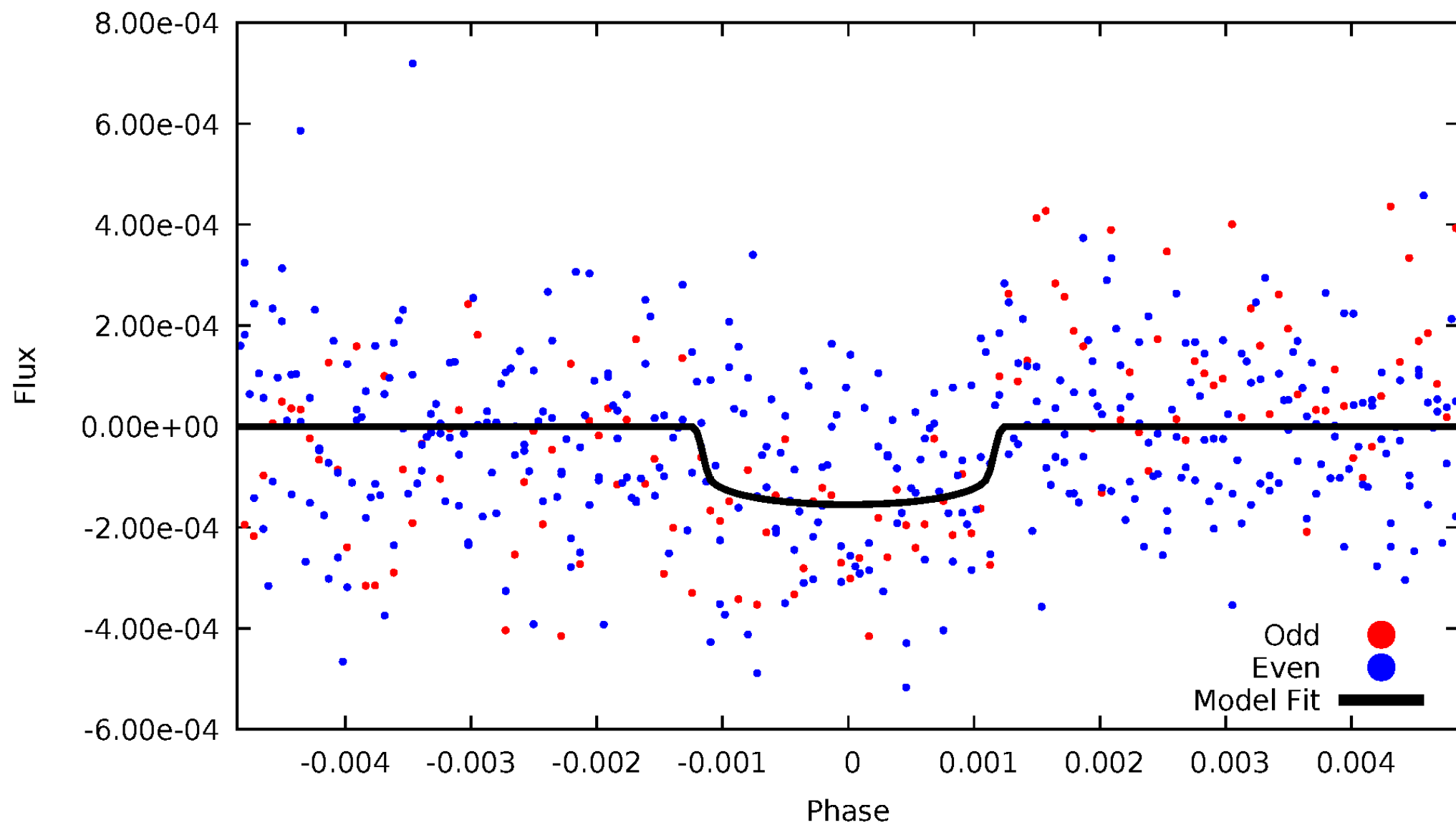


TCE 006020723-01



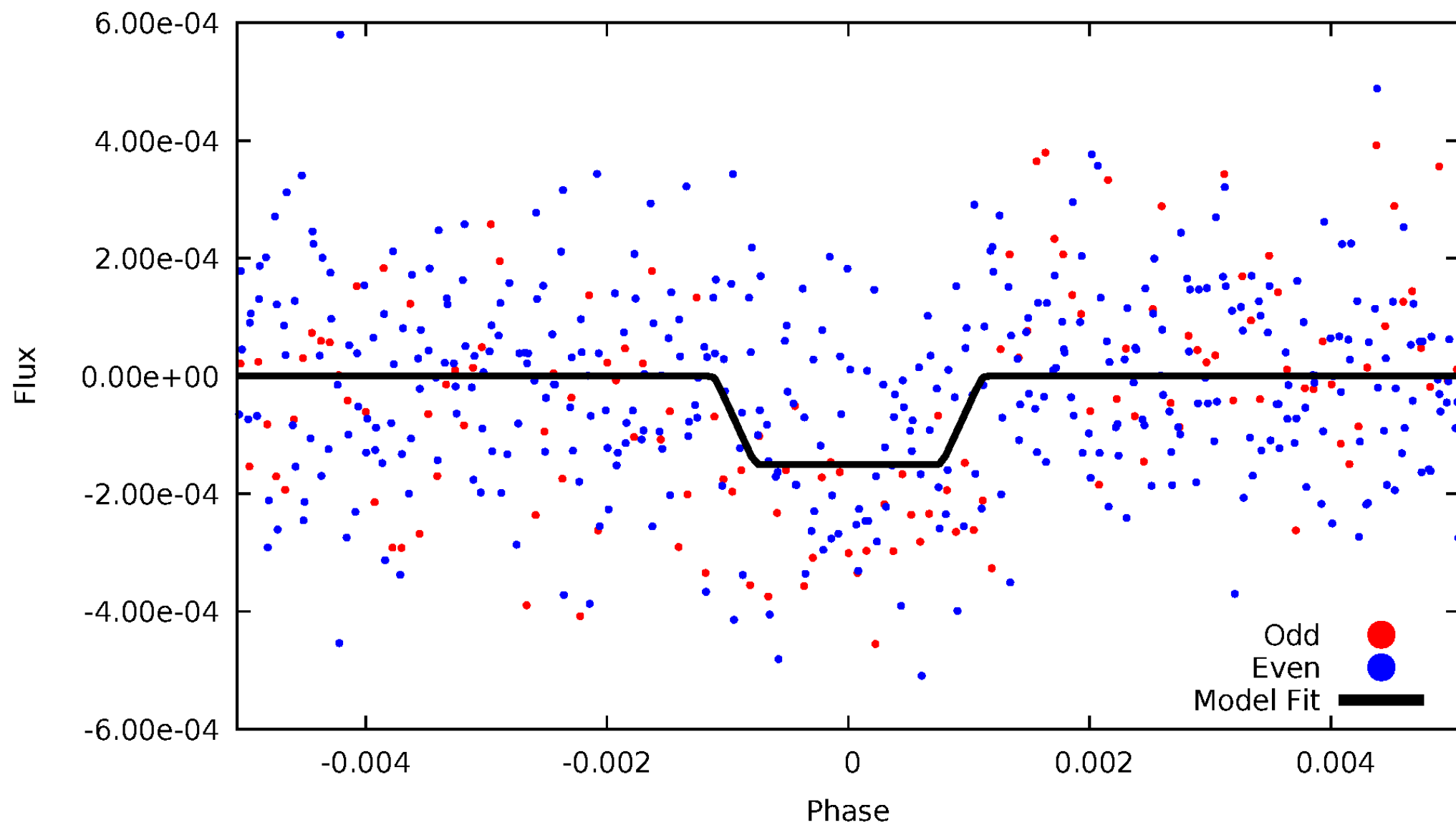
# DV Odd/Even

TCE 006020723-01



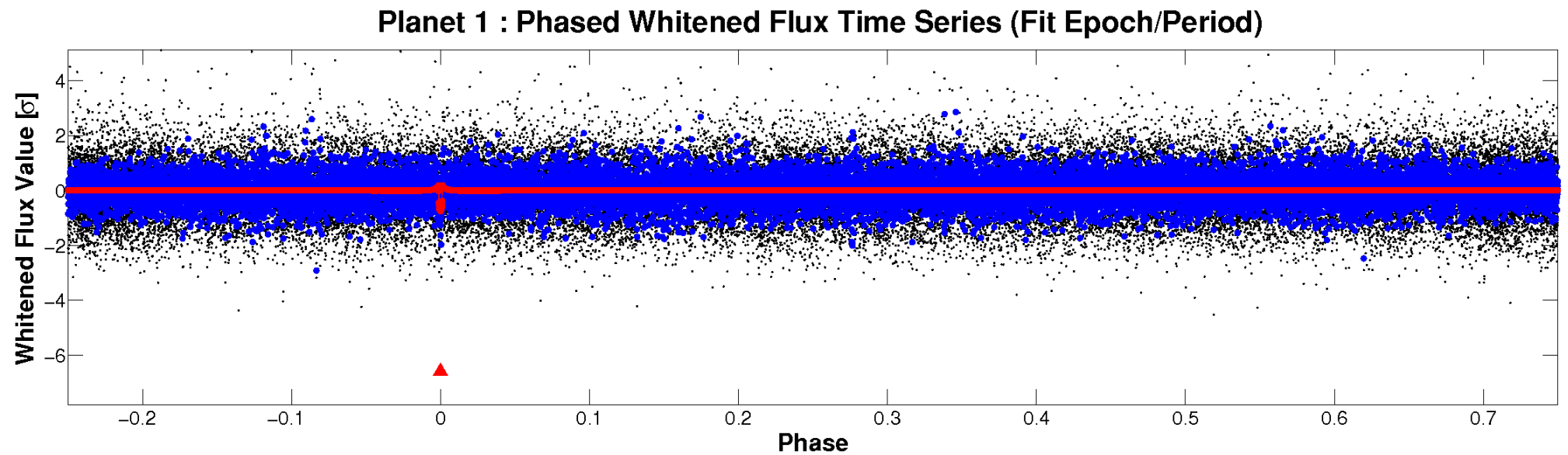
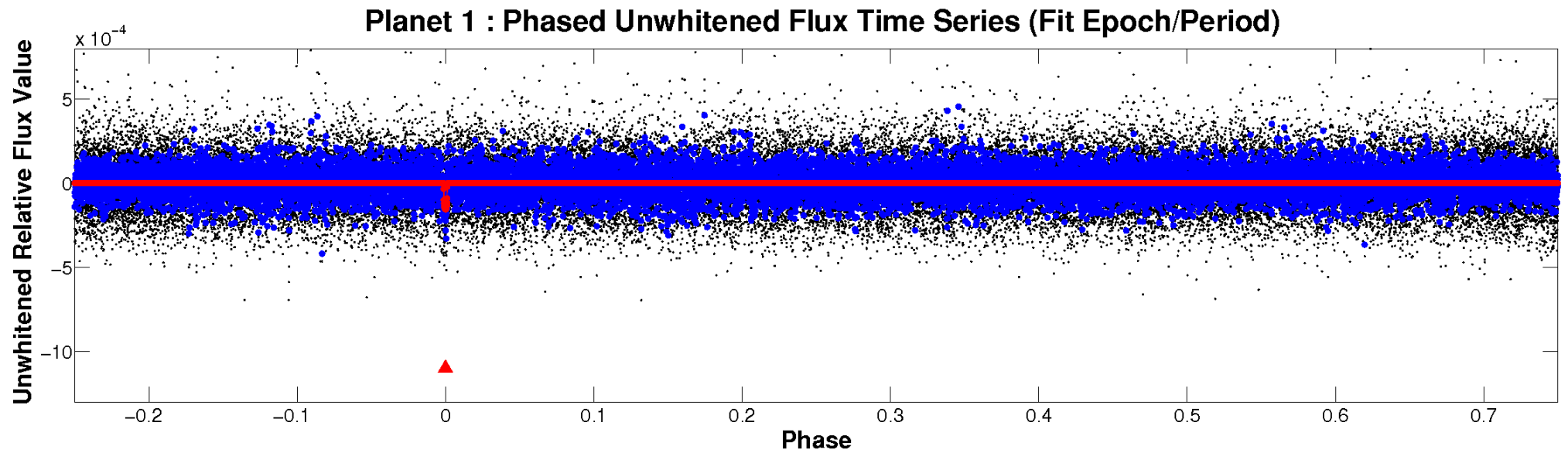
# ALT Odd/Even

TCE 006020723-01



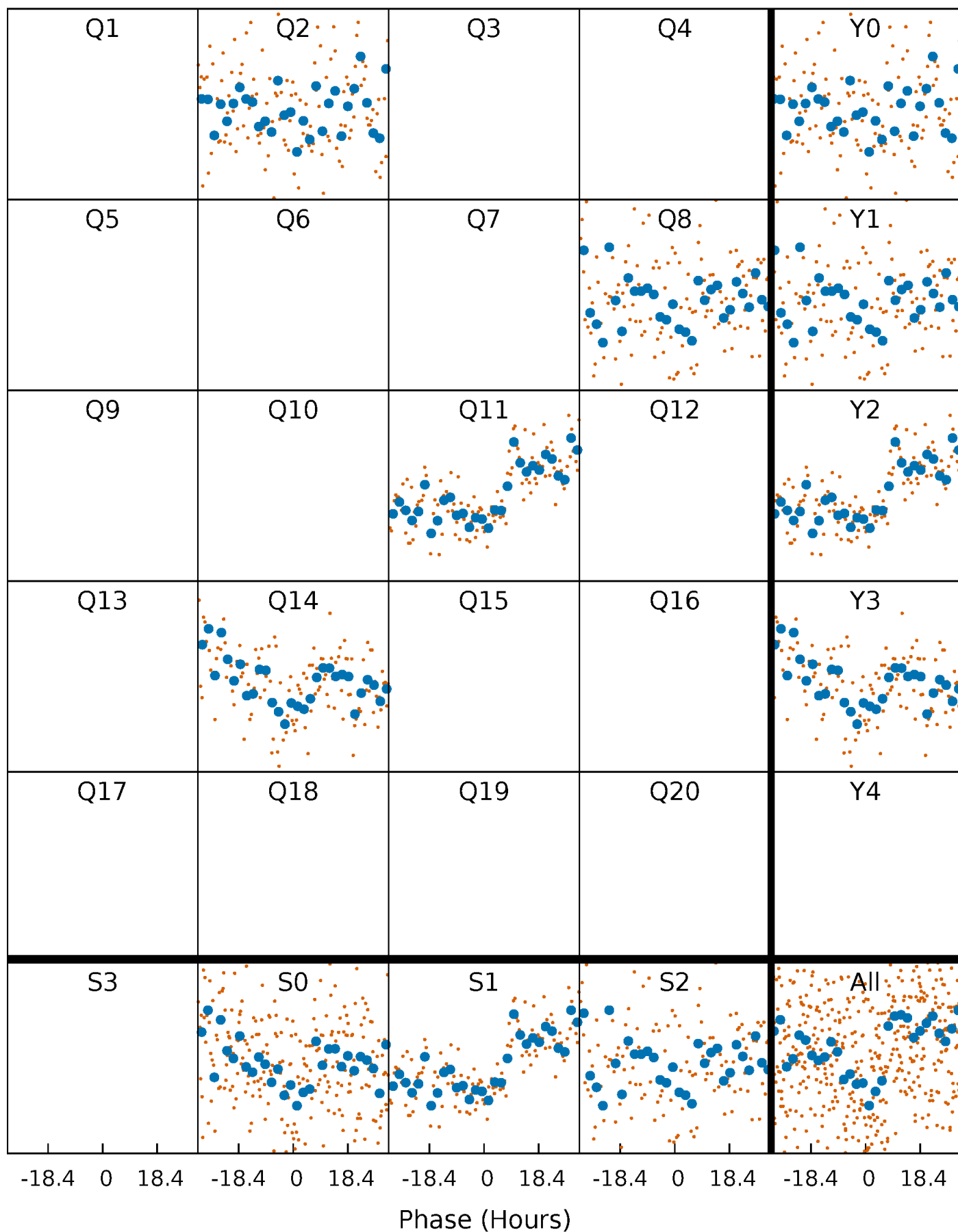


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

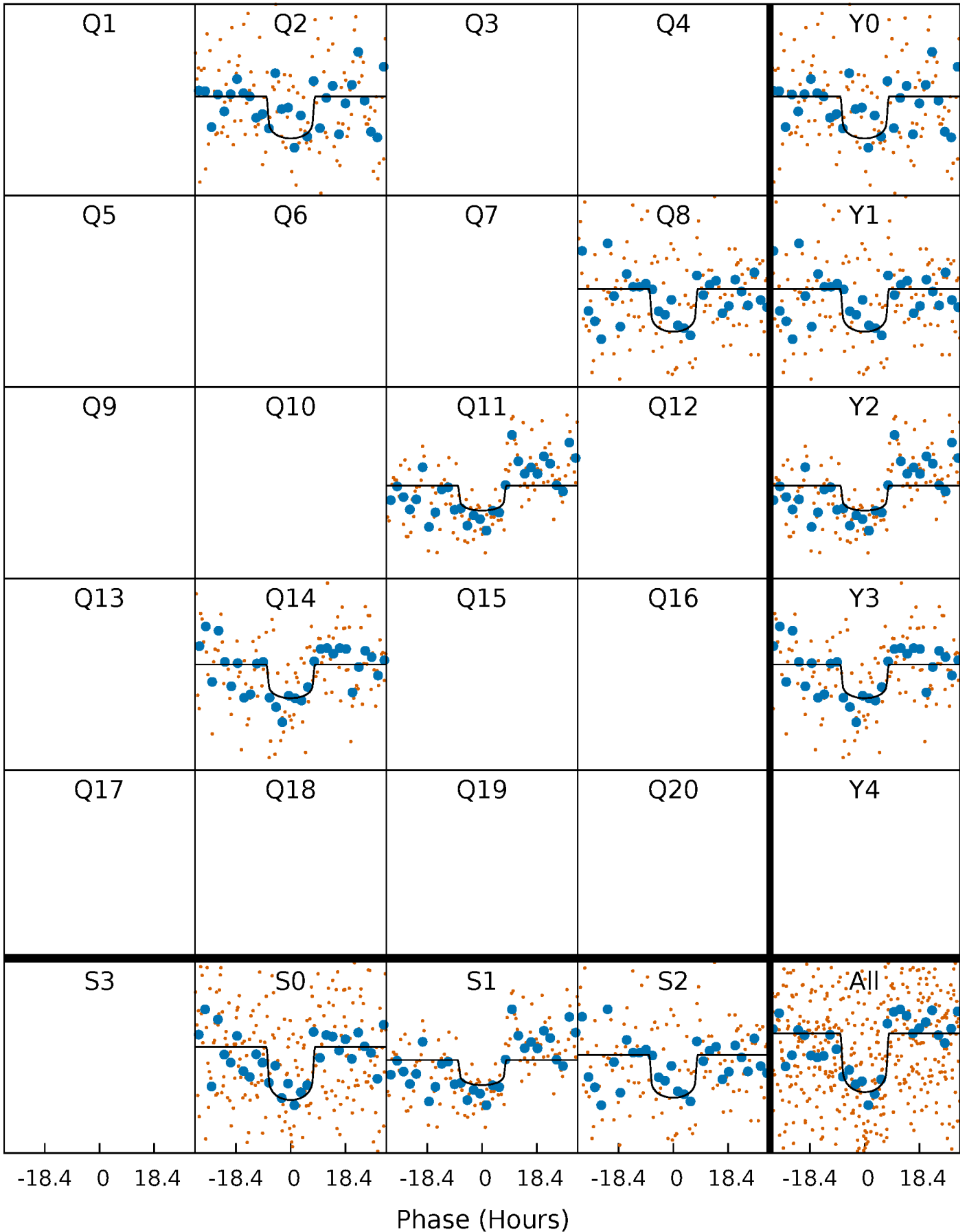
TCE 006020723-01 P=275.733737 Days  $T_0=214.847760$  (BKJD)





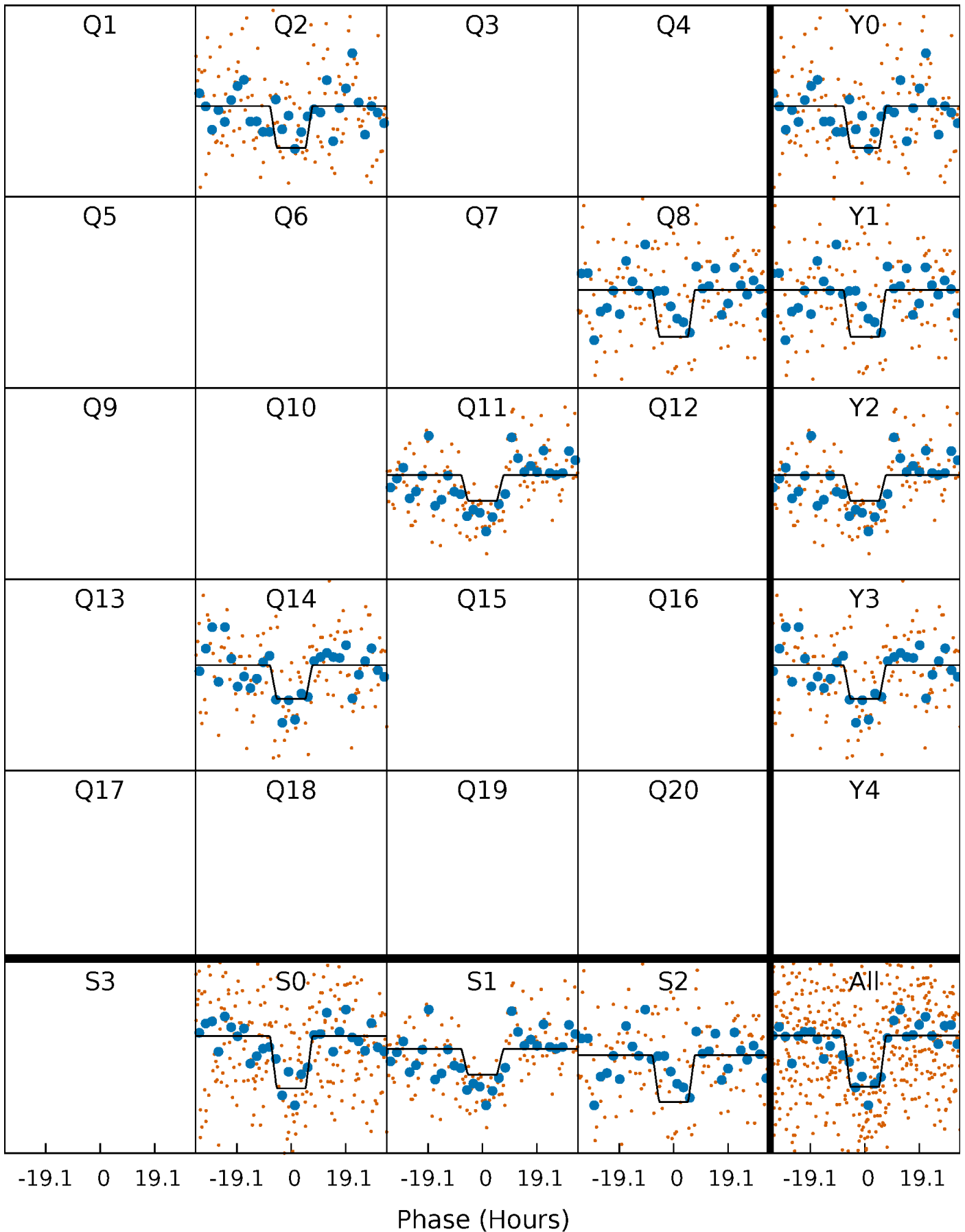
# DV Quarter-Phased Transit Curves

TCE 006020723-01 P=275.733737 Days  $T_0=214.847760$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

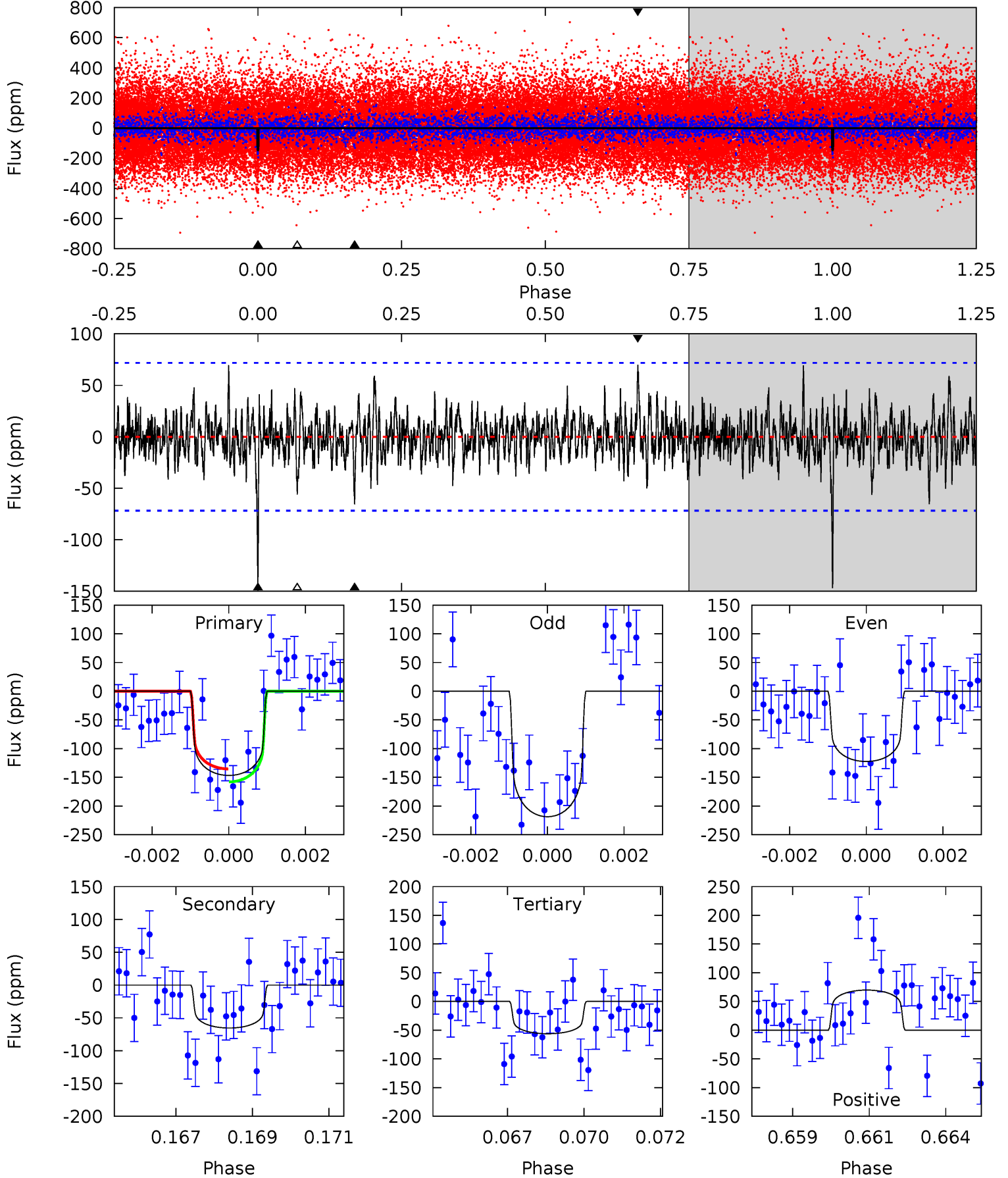
TCE 006020723-01 P=275.710025 Days  $T_0=214.901916$  (BKJD)



# DV Model-Shift Uniqueness Test

006020723-01, P = 275.733737 Days, E = 214.847760 Days

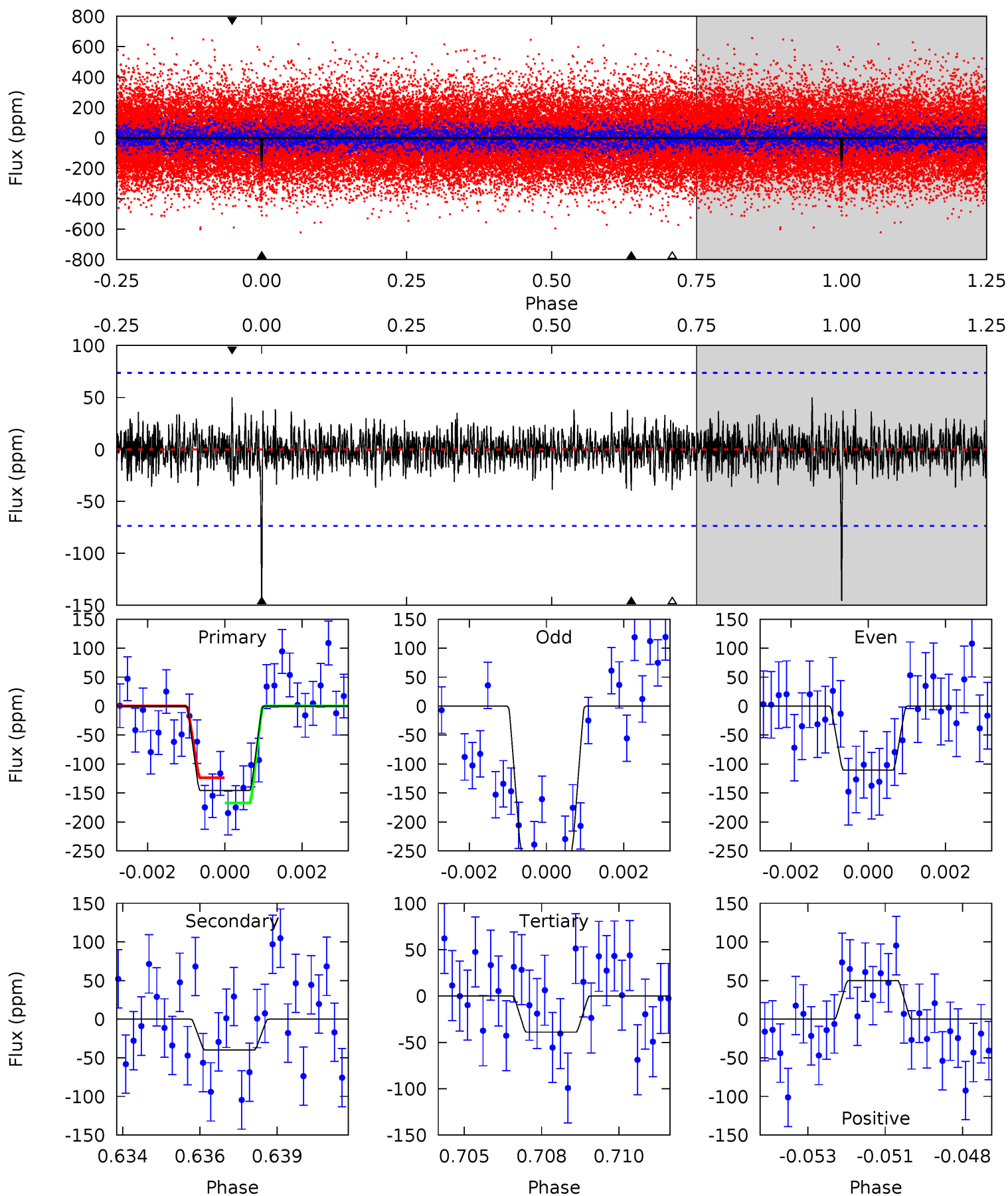
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	4.82	4.14	5.14	5.29	3.03	1.24	6.67	5.66	0.69	-0.32	3.03	1.01	0.32	0.83



# Alt Model-Shift Uniqueness Test

006020723-01, P = 275.710025 Days, E = 214.901916 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
10.5	2.87	2.81	3.59	5.30	3.05	0.87	7.69	6.91	0.06	-0.72	4.34	1.12	0.25	1.56



### Stellar Parameters For KIC 006020723

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6231^{+171}_{-171}$	$3.724^{+0.336}_{-0.105}$	$-0.400^{+0.400}_{-0.250}$	$2.583^{+0.410}_{-0.957}$	$1.289^{+0.221}_{-0.270}$	$0.105^{+0.250}_{-0.029}$
	+3%/-3%	+9%/-3%	+100%/-62%	+16%/-37%	+17%/-21%	+238%/-28%
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 006020723-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-65 \pm 14$	$3.44^{+1.07}_{-0.96}$	$642^{+39}_{-62}$	$5015^{+690}_{-464}$	$2445^{+2262}_{-1002}$
Alt.	$-40 \pm 14$	$3.25^{+1.04}_{-1.01}$	$635^{+42}_{-61}$	$4592^{+698}_{-497}$	$1689^{+2110}_{-856}$

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

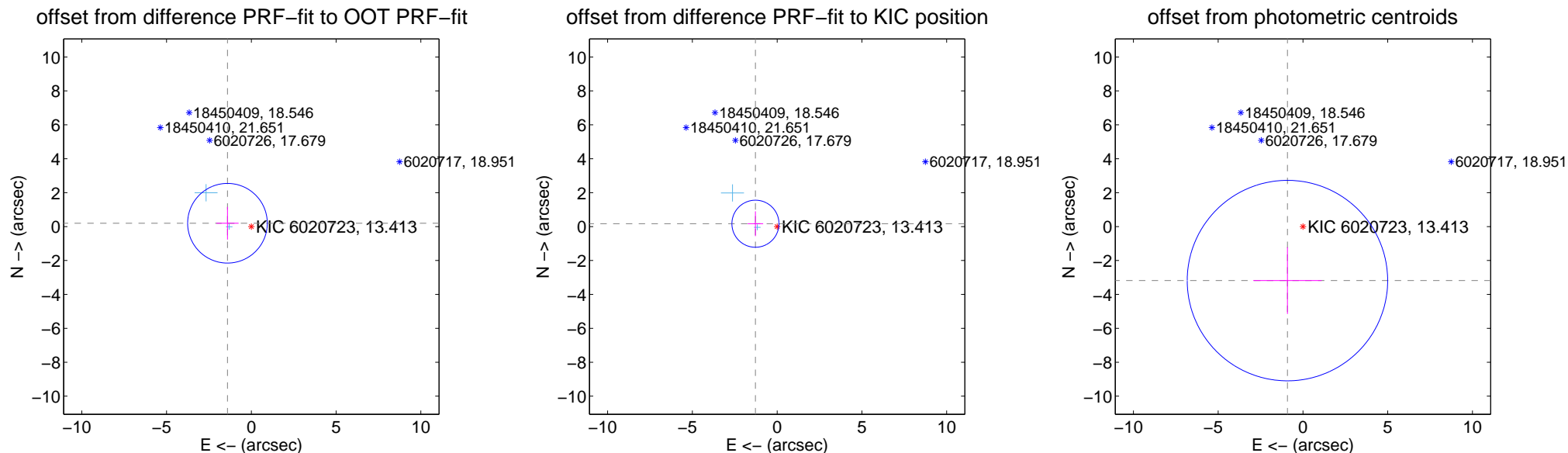
## DV Centroid Data

Supplemental centroid analysis for 006020723-01. Kepler magnitude: 13.41. Transit SNR 7.47

There are 2 quarters with good PRF difference image offsets

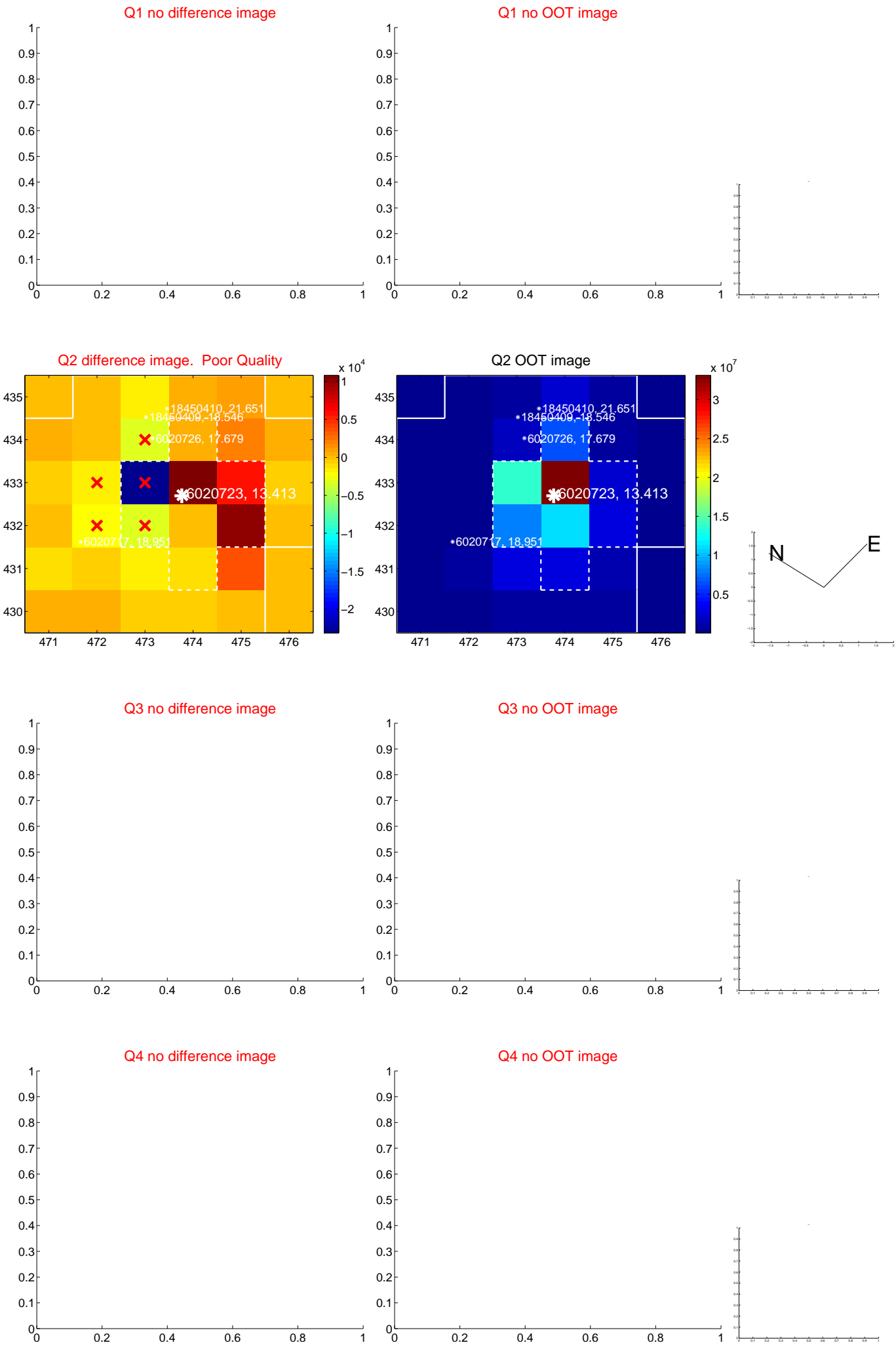
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.421 \pm 0.783$	1.81	$1.407 \pm 0.657$	$0.197 \pm 0.962$
PRF-fit source offset from KIC position	$1.291 \pm 0.463$	2.79	$1.280 \pm 0.457$	$0.168 \pm 0.729$
photometric centroid source offset	$3.31 \pm 1.97$	1.68	$0.91 \pm 2.02$	$-3.18 \pm 1.97$



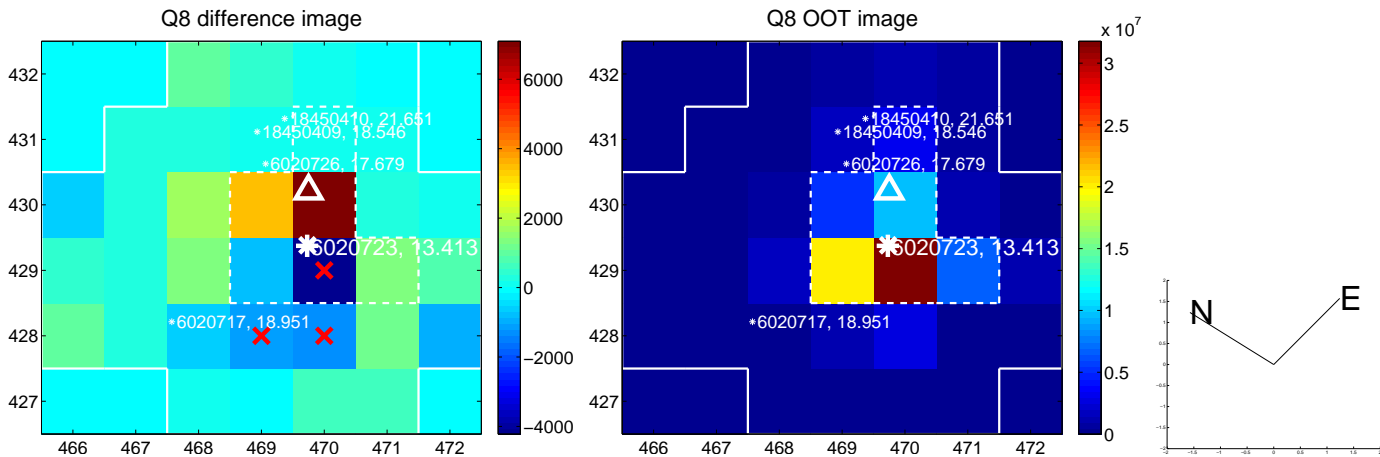
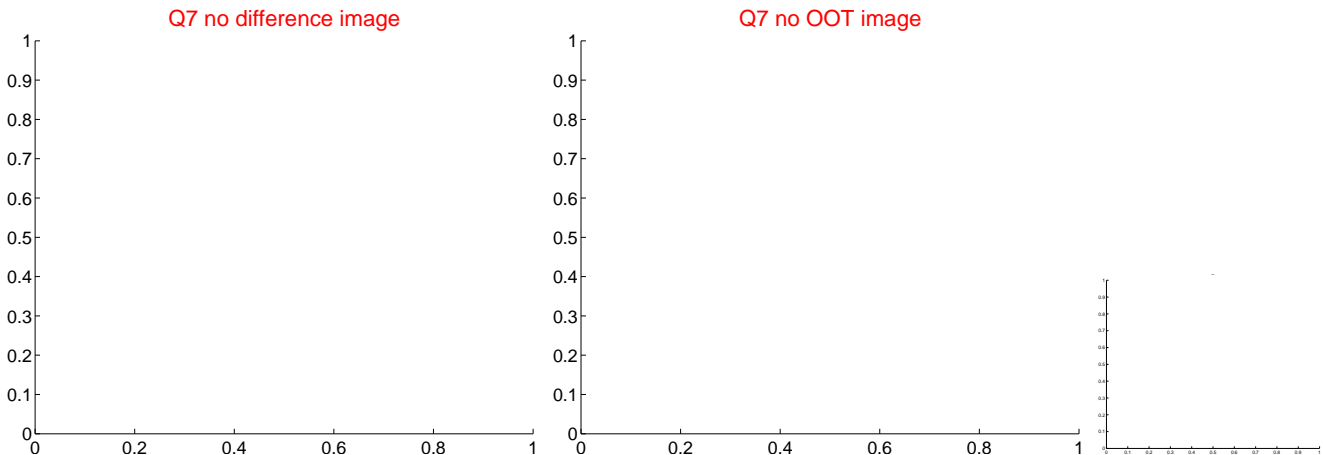
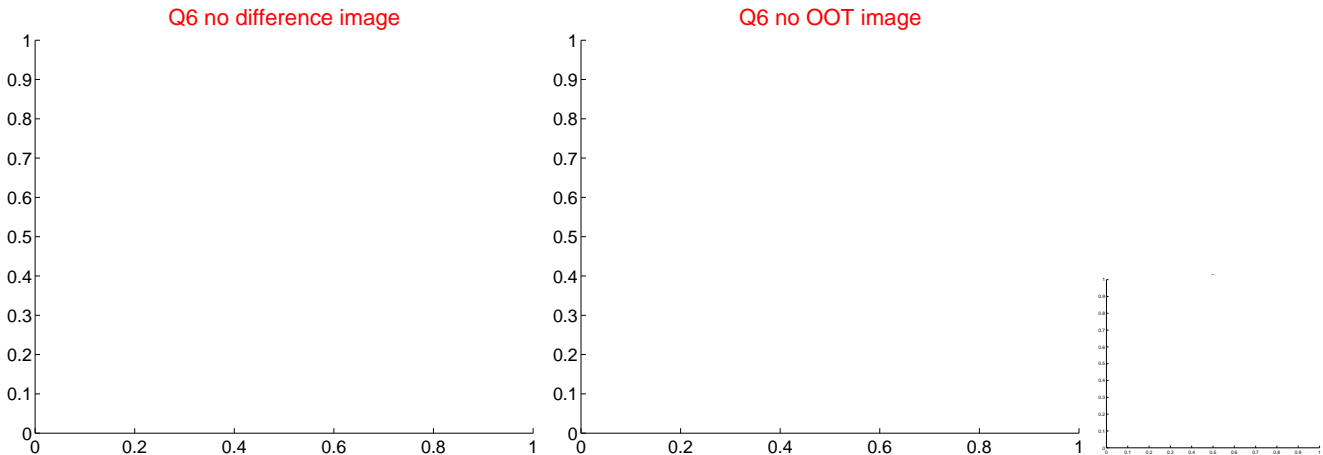
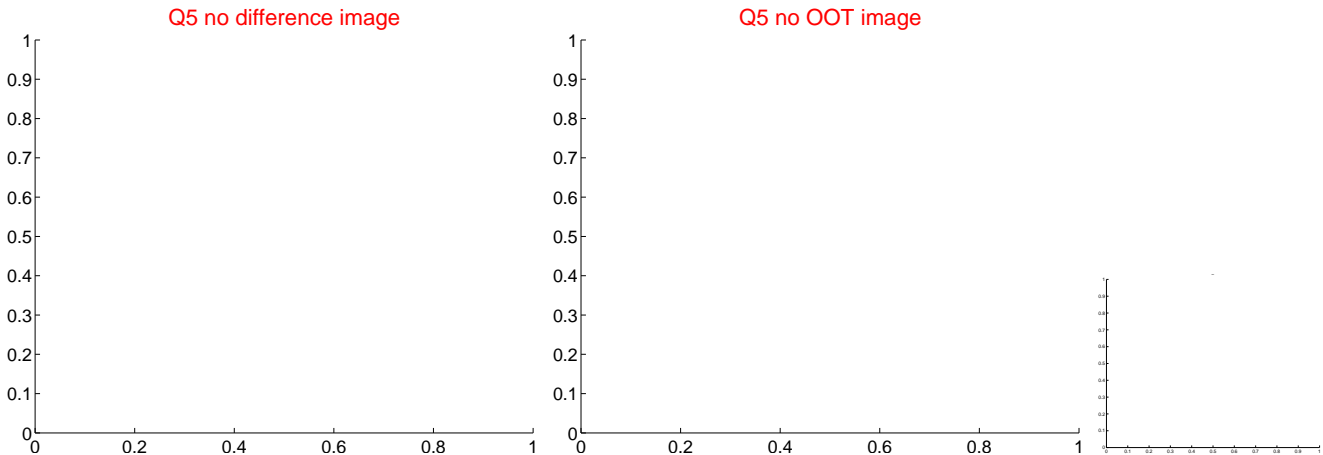
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

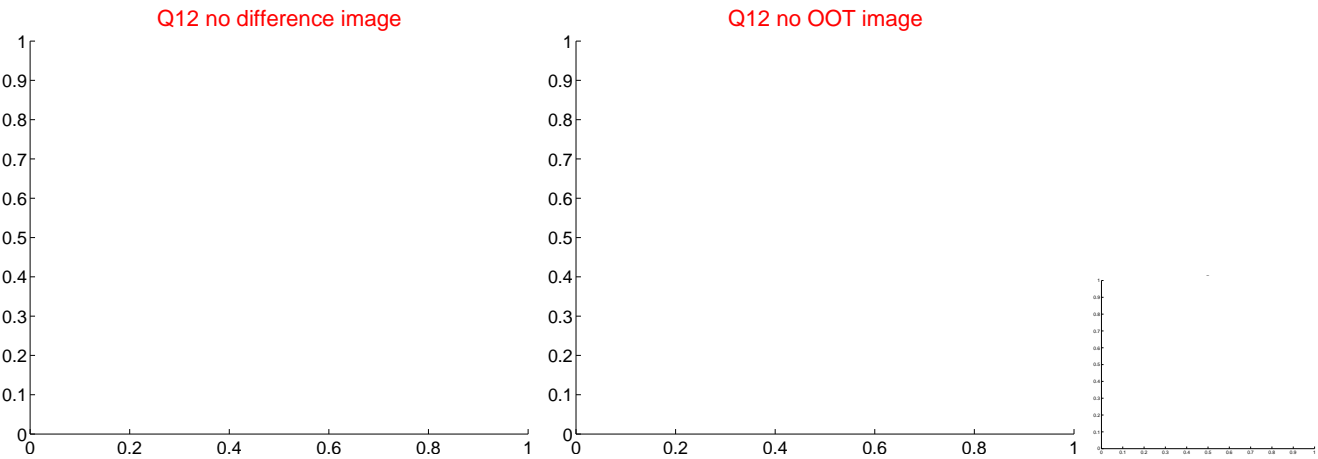




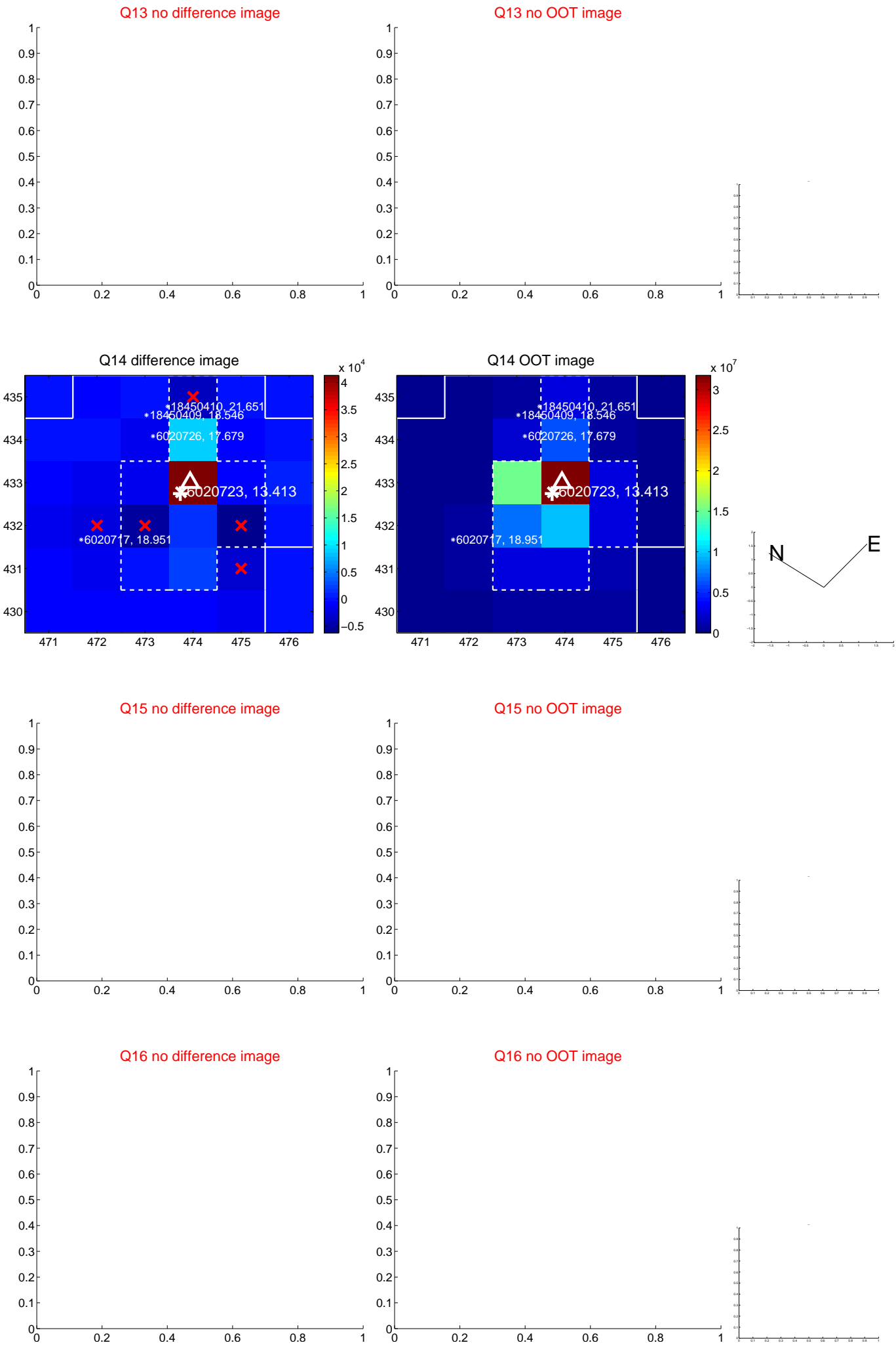
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



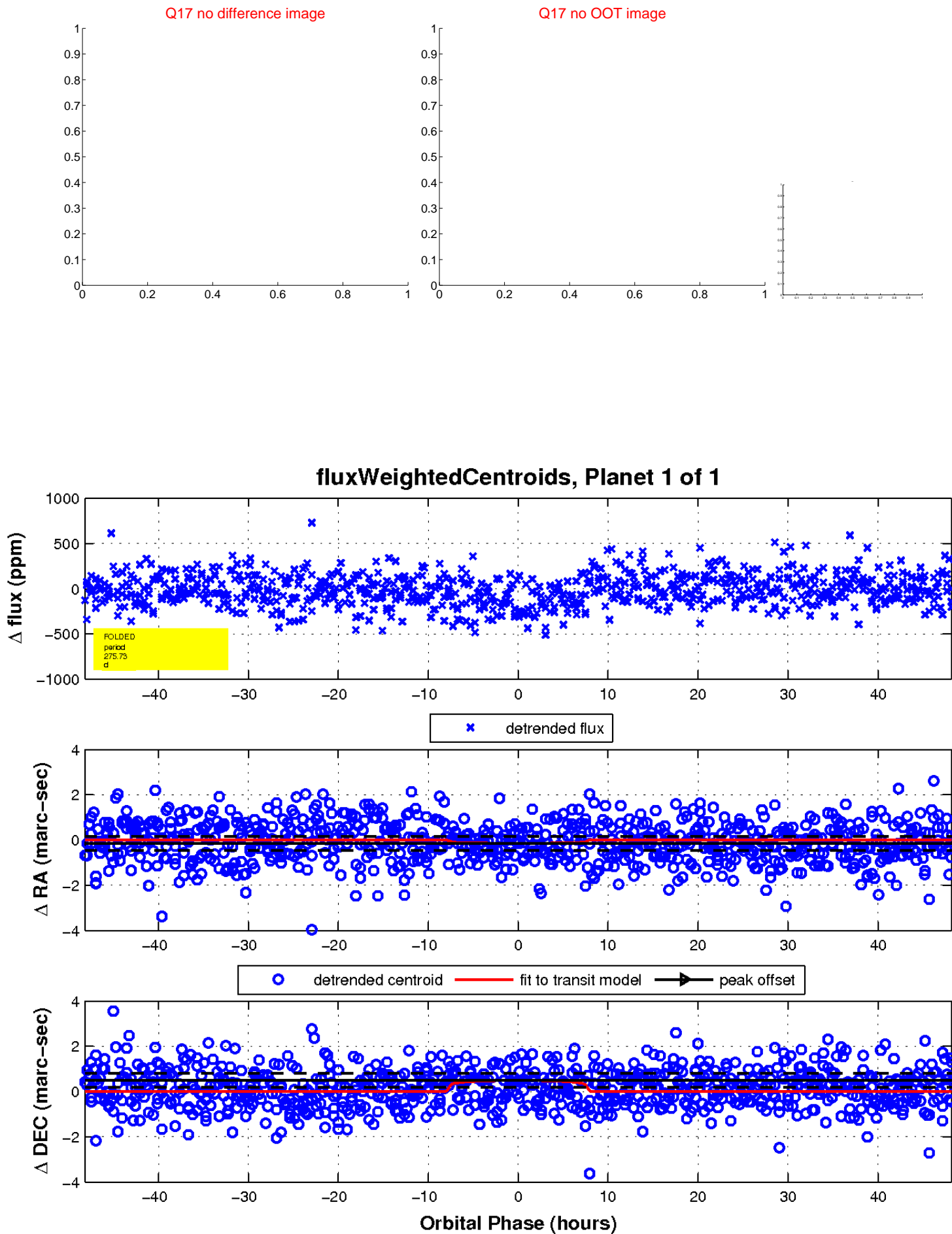
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

