

# KIC 007816977

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007816977-01	OBS	No	372.502926	307.739933	2229.4	57.864	9.5	15.1	0.84	5635	7.51	0.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007816977-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—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.

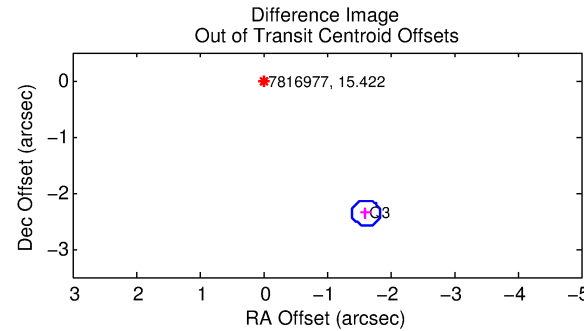
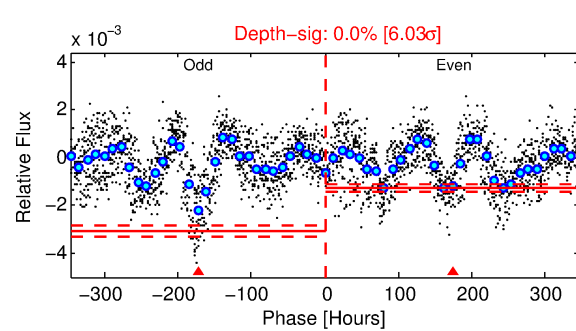
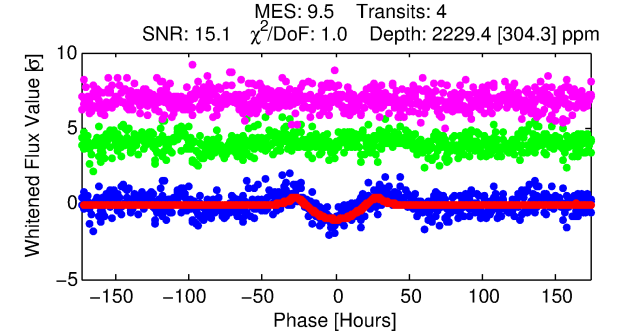
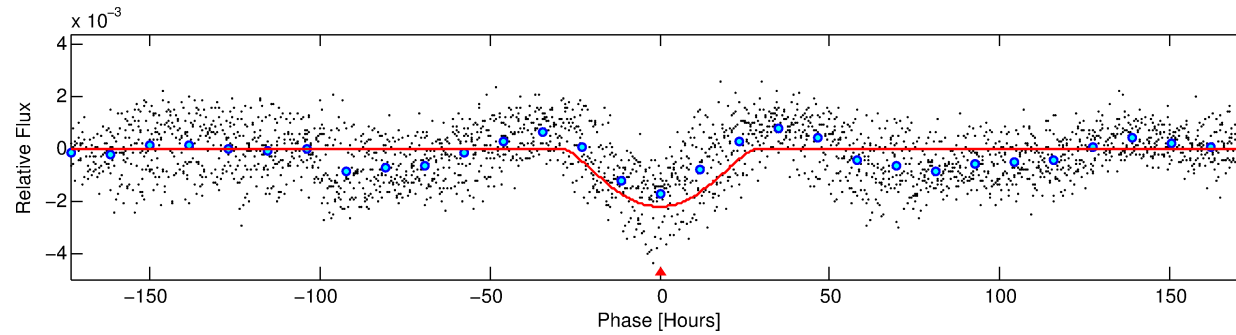
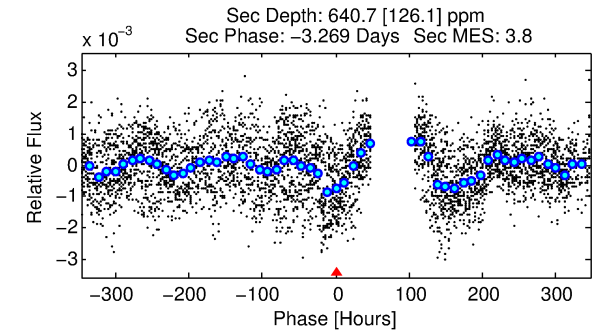
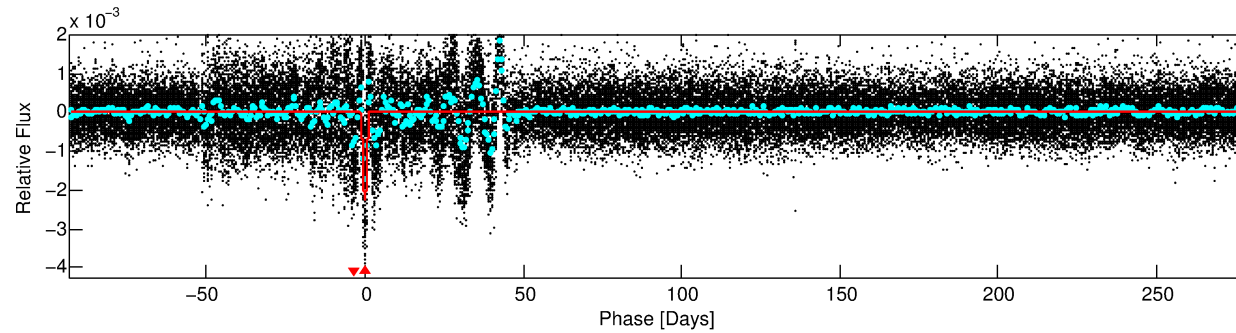
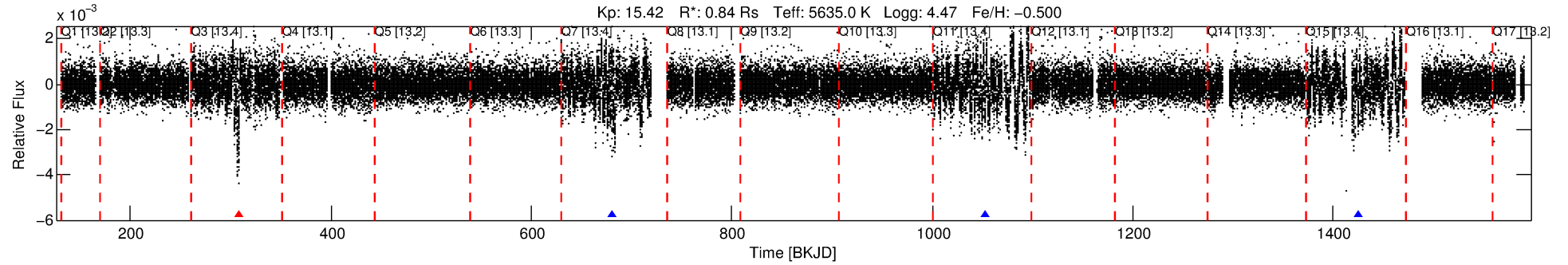
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007816977-01

No Significant Match Found

# DV One-Page Summary

KIC: 7816977 Candidate: 1 of 1 Period: 372.503 d



## DV Fit Results:

Period = 372.50293 [0.02790] d  
Epoch = 307.7399 [0.0459] BKJD  
Rp/R\* = 0.0816 [0.0930]  
a/R\* = 20.32 [4.84]  
b = 1.00 [0.14]  
Seff = 0.75 [0.22]  
Teq = 237 [17] K  
Rp = 7.51 [8.70] Re  
a = 0.9254 [0.1674] AU  
Ag = 5357.28 [12335.04] [0.43σ]  
Teff = 3138 [1797] K [1.61σ]

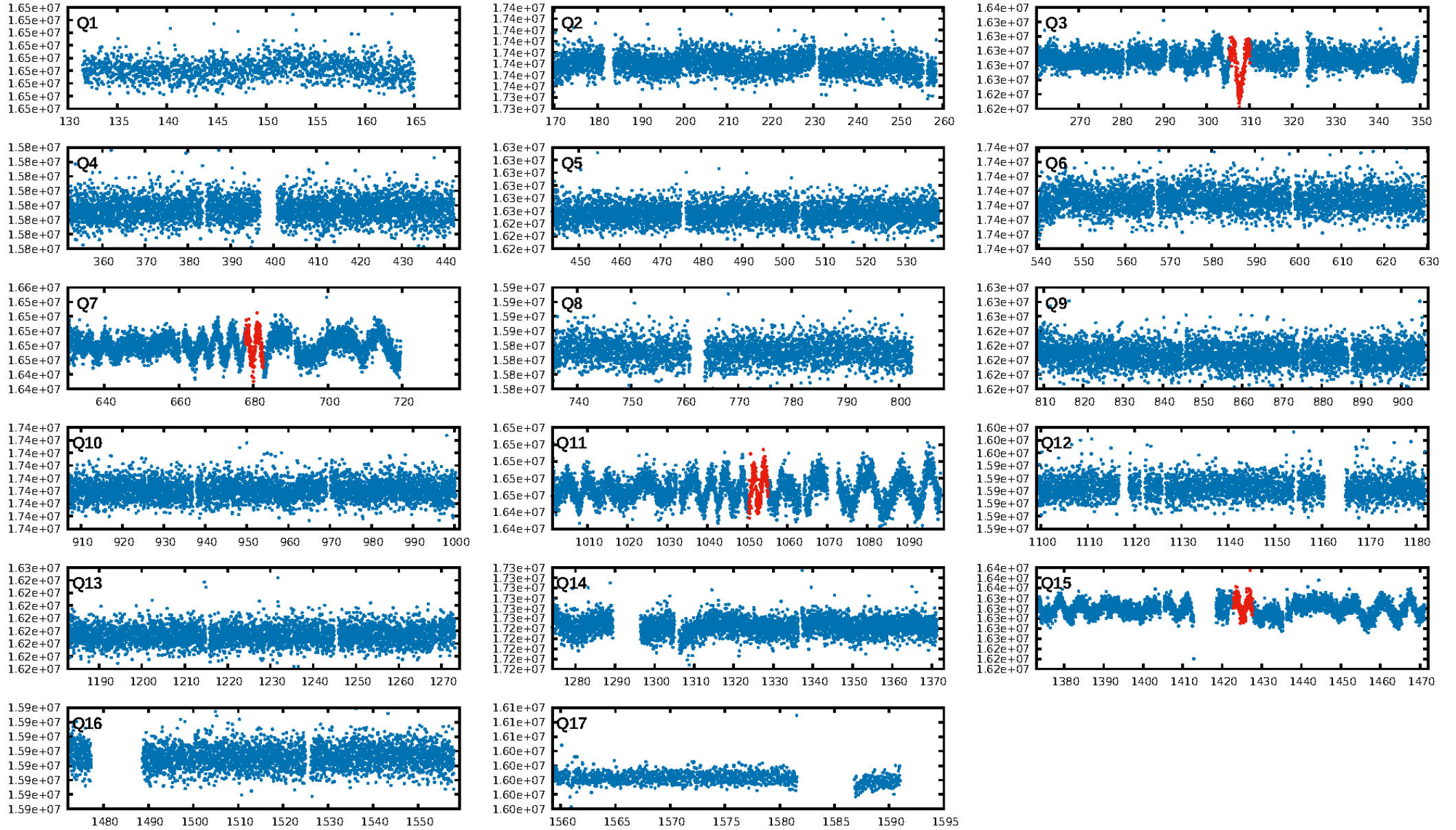
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 1.85e-14  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 16.87  
Centroid-sig: 0.0%  
Centroid-so: 12.502 arcsec [5.92σ]  
OotOffset-rm: 2.861 arcsec [37.97σ]  
KicOffset-rm: 2.965 arcsec [39.34σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [4/4]

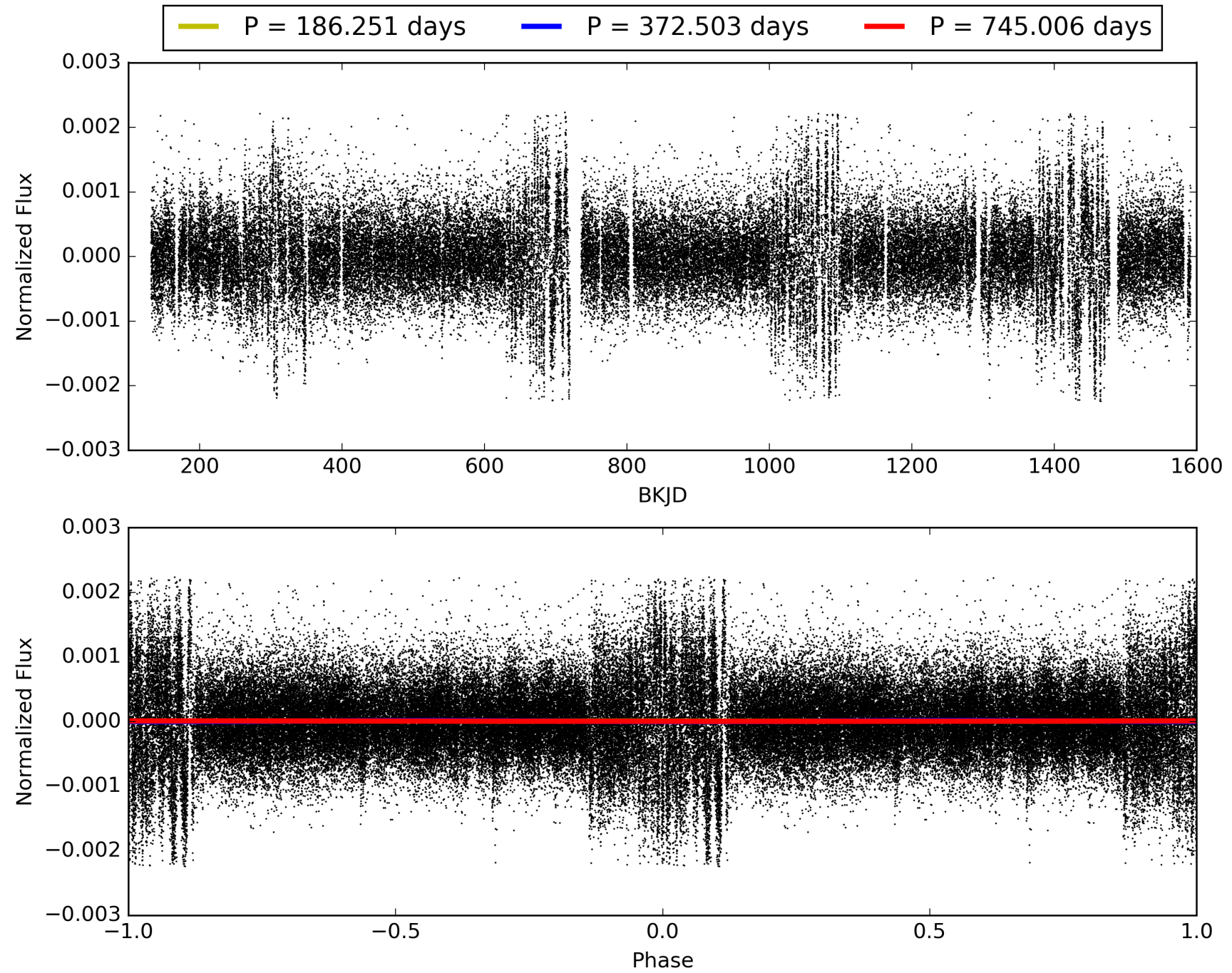
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:23:28 Z

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

# TCE 007816977-01, PDC Light Curves

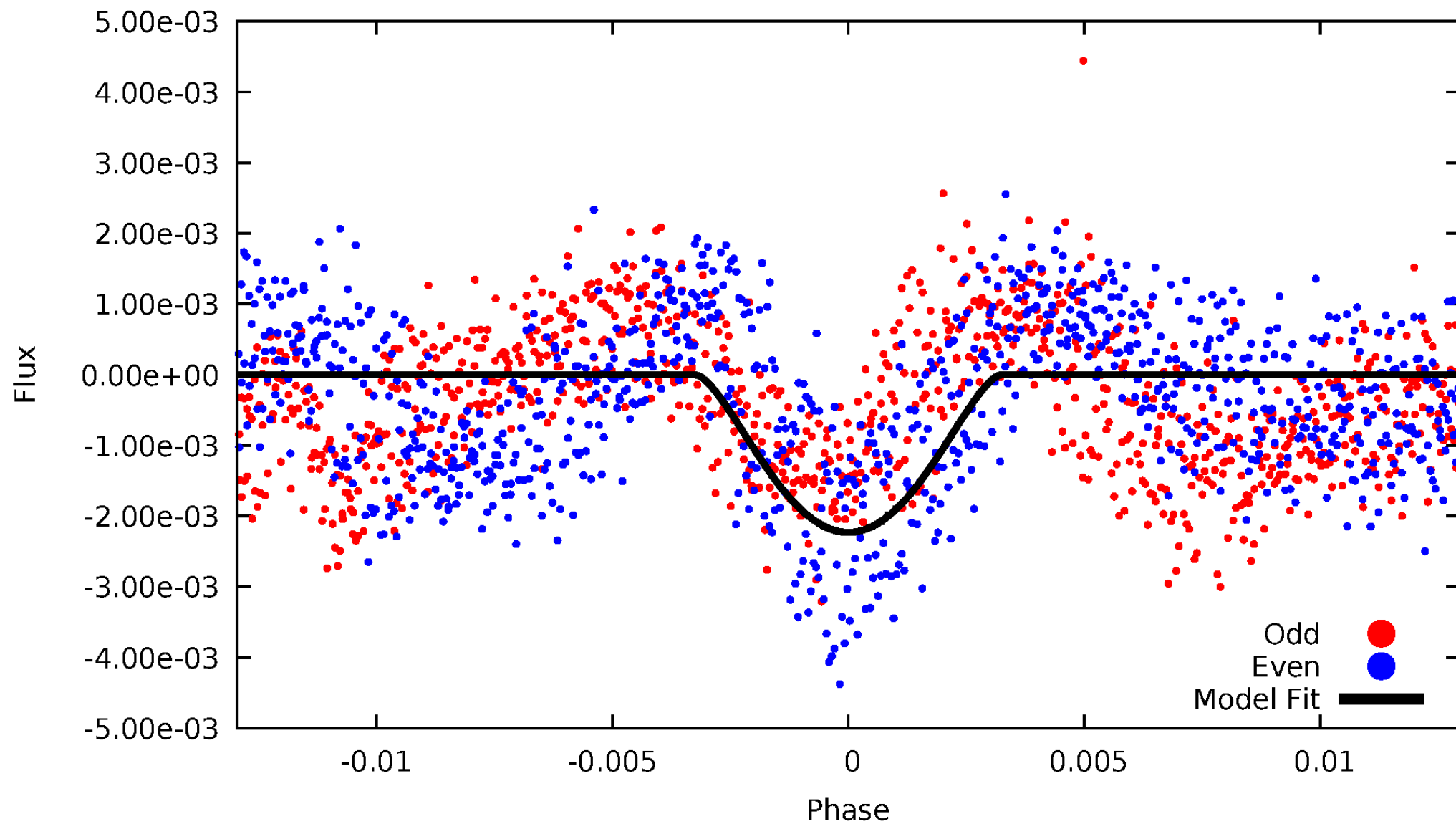


TCE 007816977-01



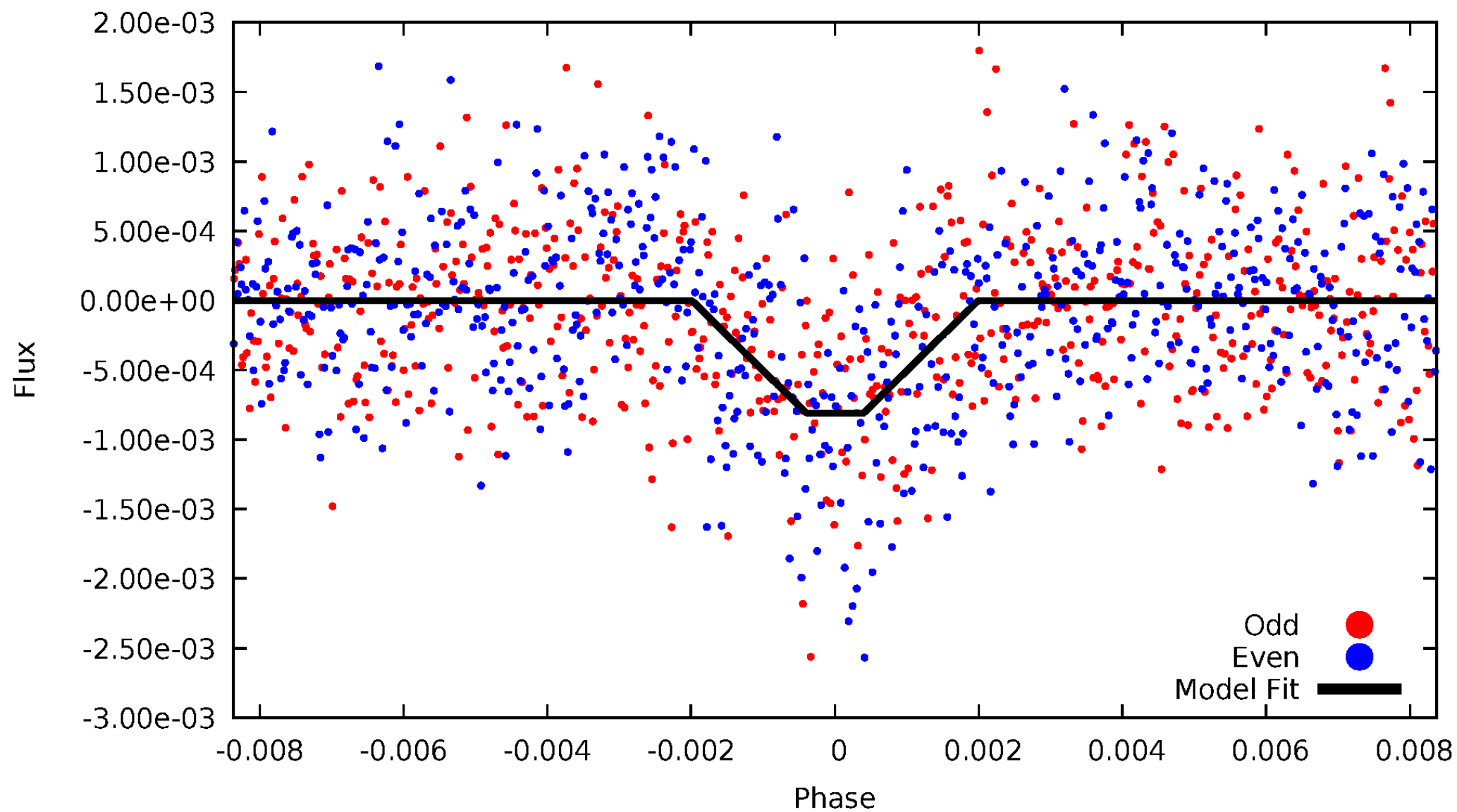
# DV Odd/Even

TCE 007816977-01



# ALT Odd/Even

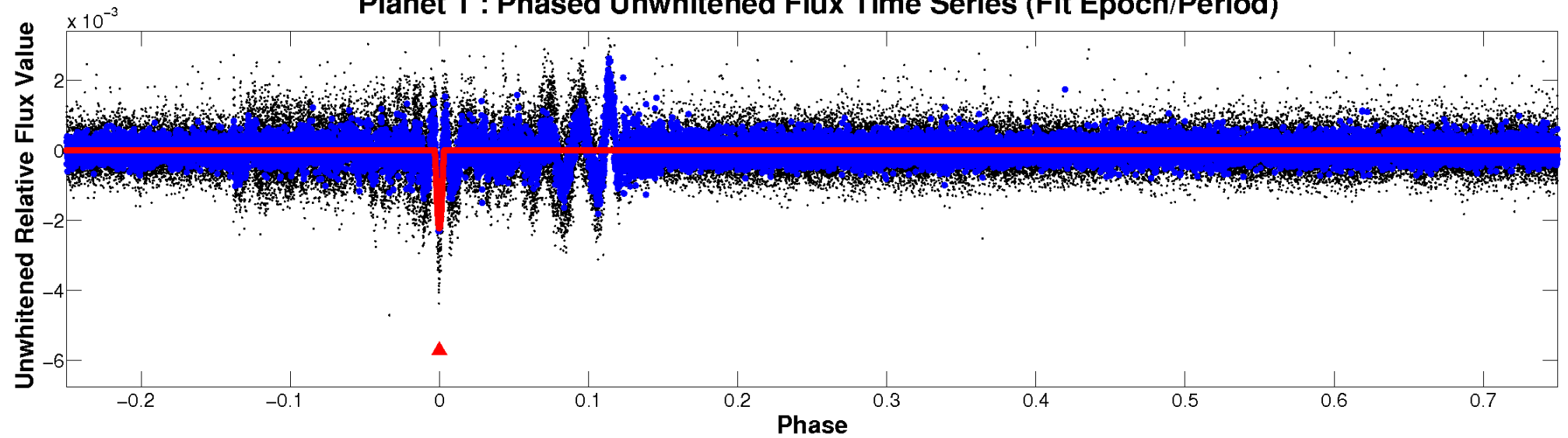
TCE 007816977-01



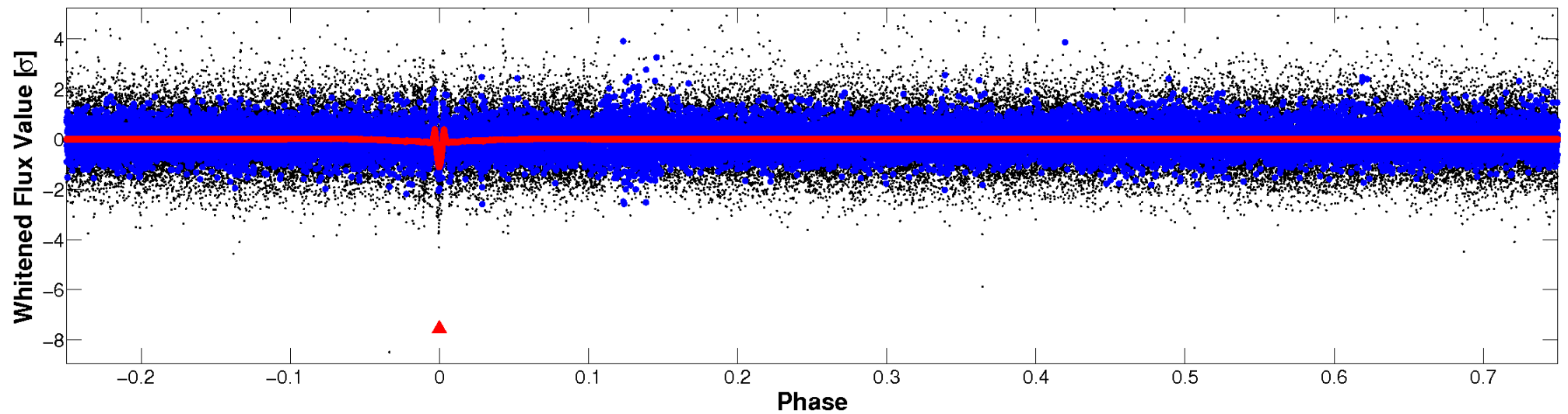


# Non-Whitened Vs. Whitened Light Curve

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

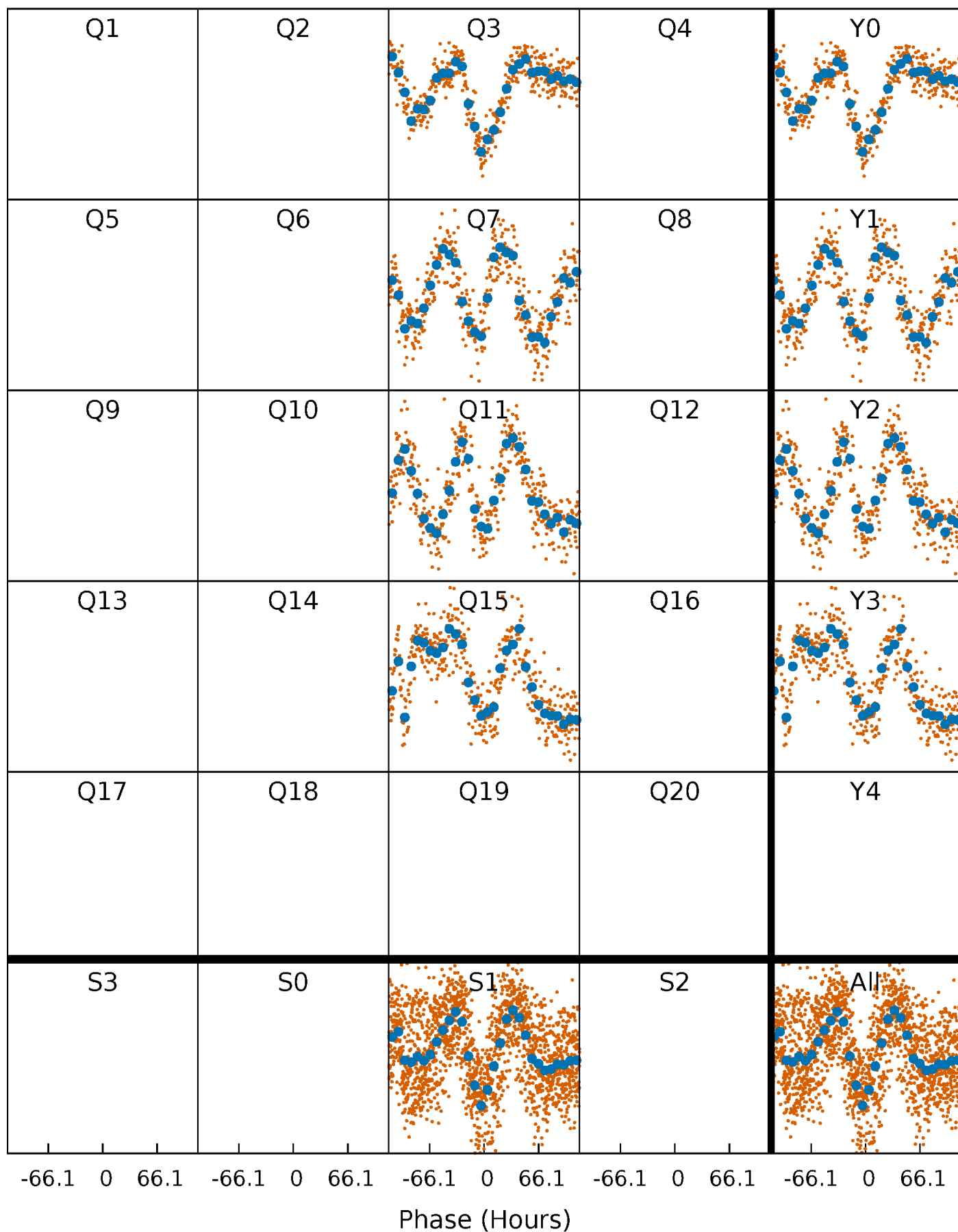


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

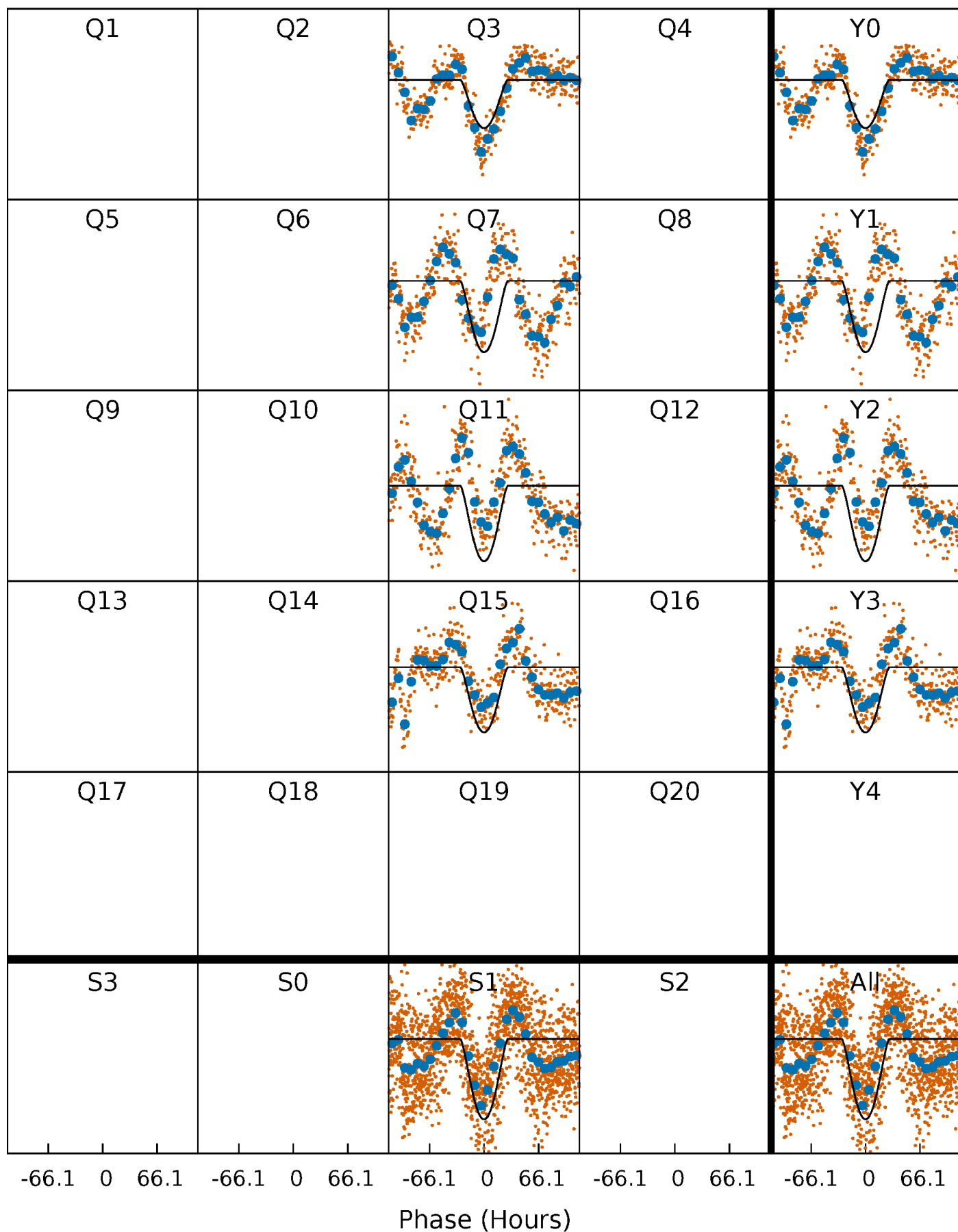
TCE 007816977-01 P=372.502926 Days  $T_0=307.739933$  (BKJD)





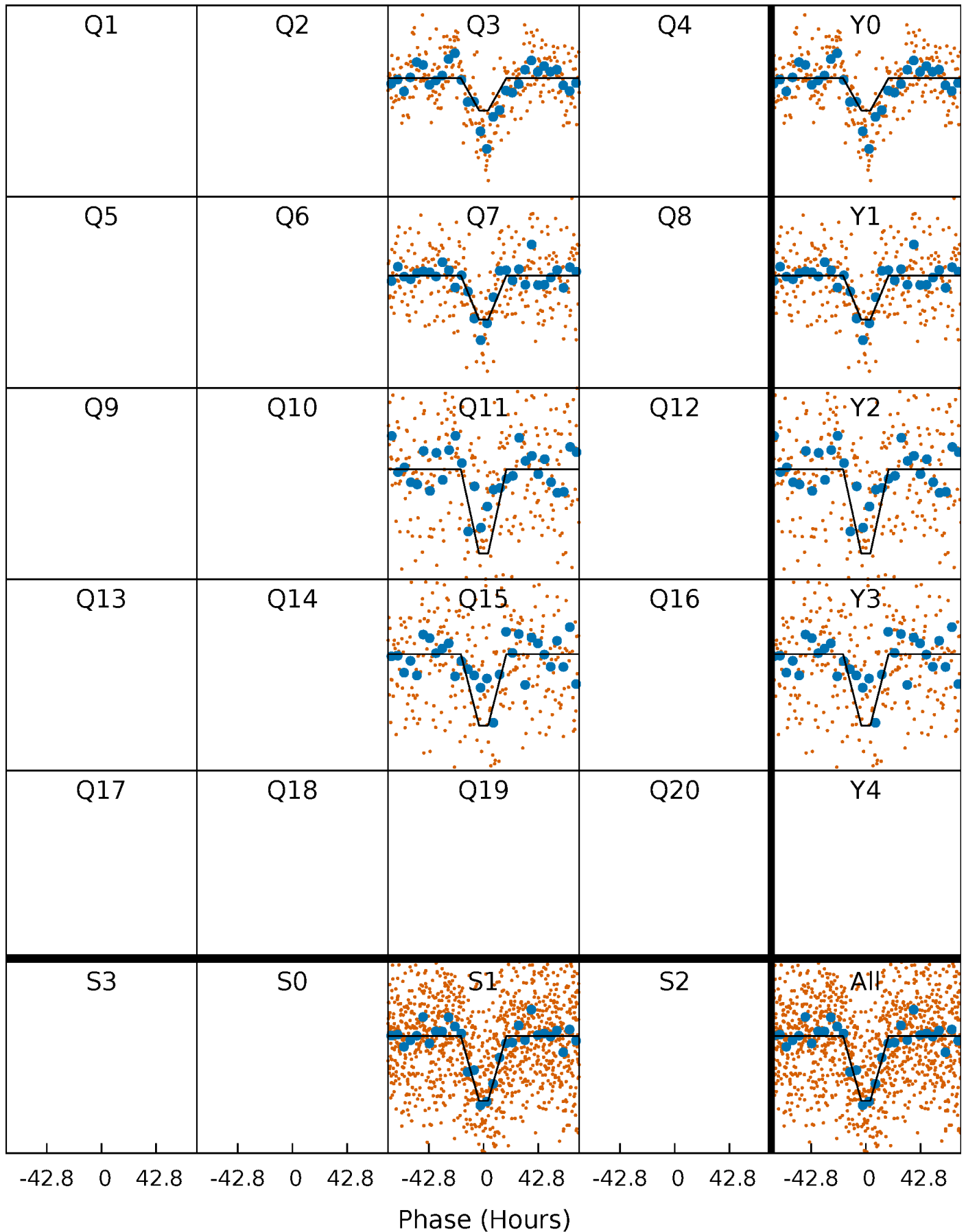
# DV Quarter-Phased Transit Curves

TCE 007816977-01 P=372.502926 Days  $T_0=307.739933$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

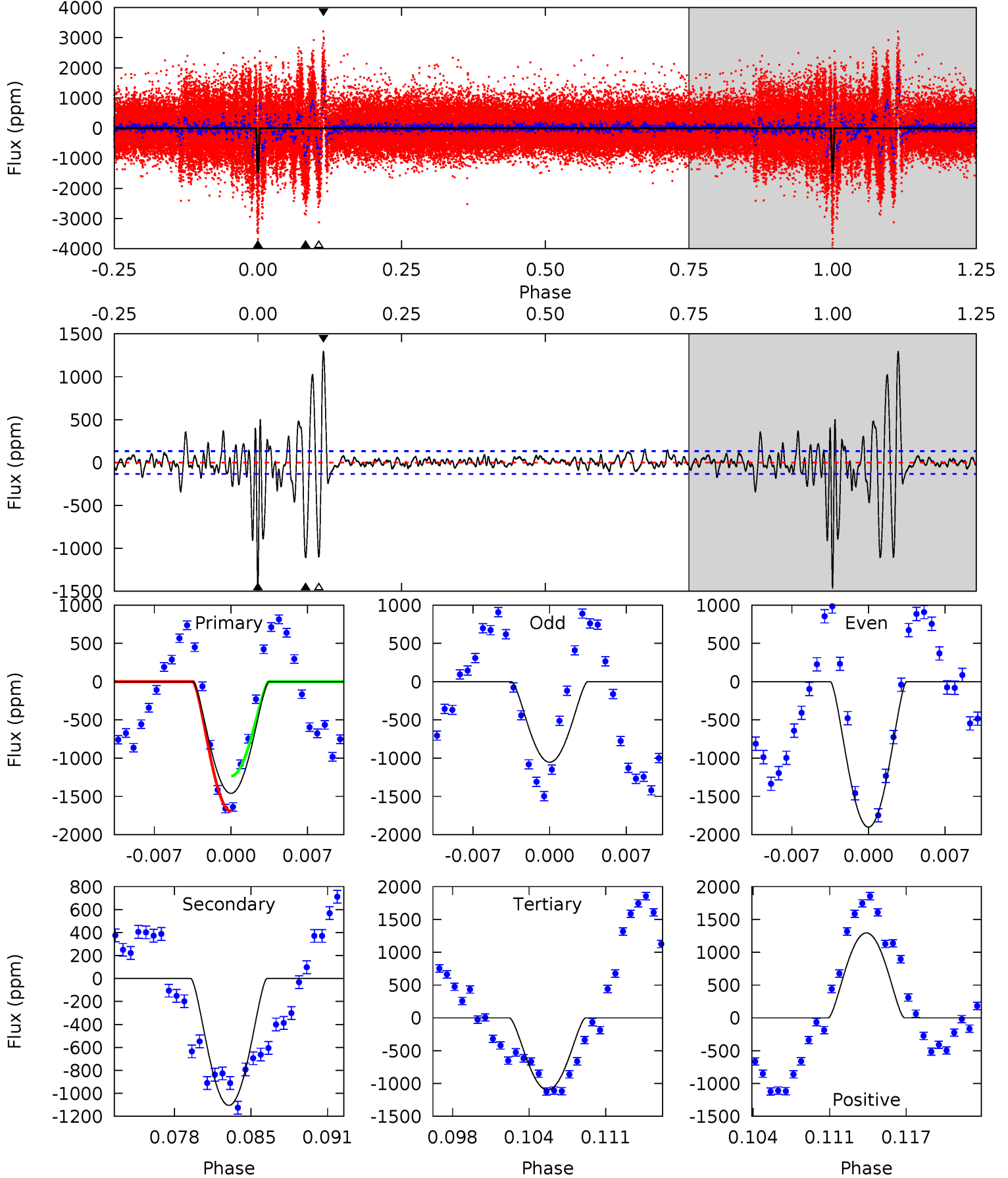
TCE 007816977-01 P=372.640022 Days  $T_0=307.516684$  (BKJD)



# DV Model-Shift Uniqueness Test

007816977-01, P = 372.502926 Days, E = 307.739933 Days

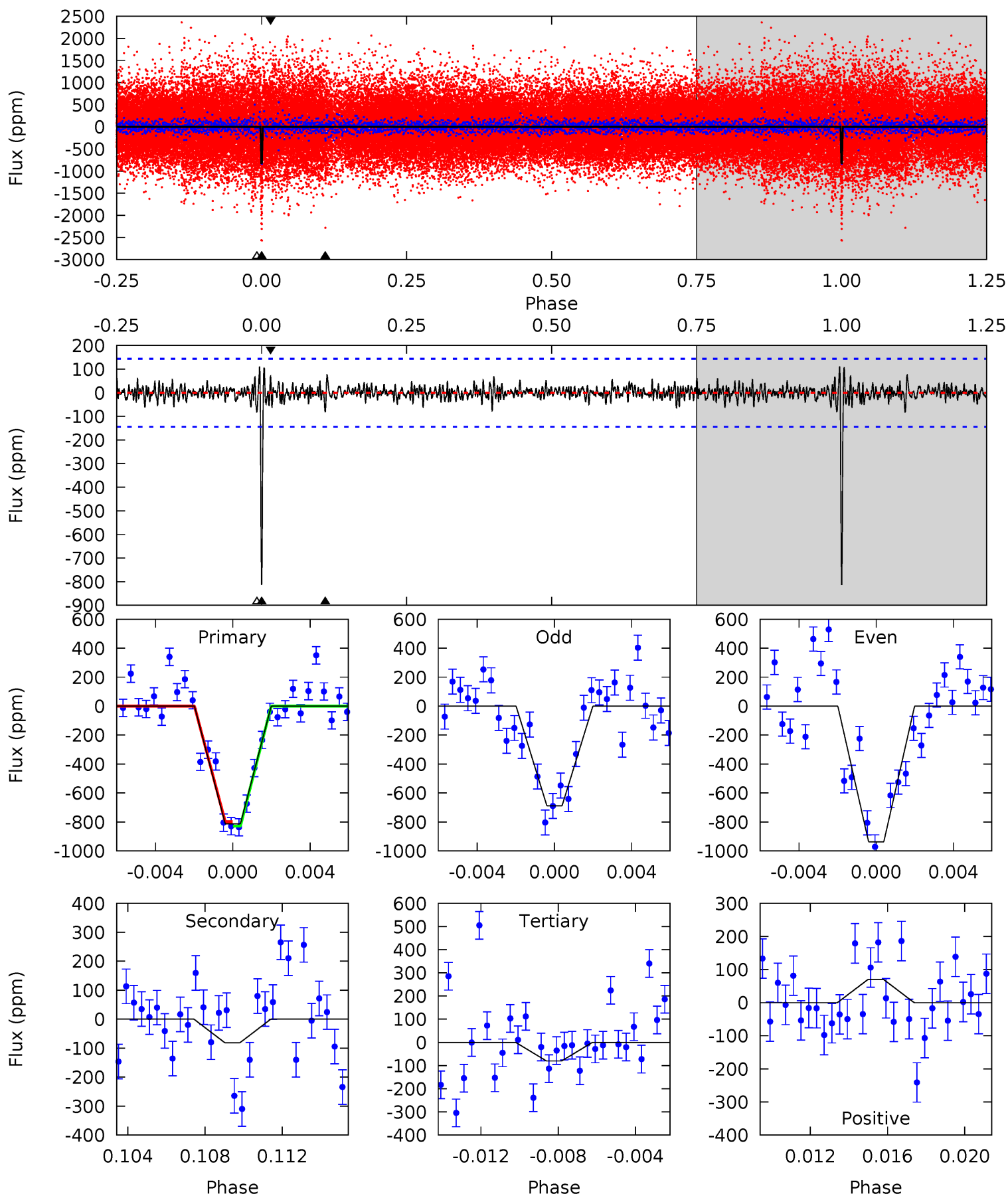
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.6	42.9	42.6	50.2	5.11	2.72	7.04	14.0	6.43	0.26	-7.34	16.6	1.41	0.47	8.75



# Alt Model-Shift Uniqueness Test

007816977-01,  $P = 372.640022$  Days,  $E = 307.516684$  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
29.3	2.93	2.90	2.54	5.20	2.88	0.76	26.4	26.8	0.03	0.39	4.51	1.18	0.12	0.54



### Stellar Parameters For KIC 007816977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5635^{+169}_{-169}$	$4.468^{+0.121}_{-0.148}$	$-0.500^{+0.300}_{-0.300}$	$0.843^{+0.178}_{-0.119}$	$0.763^{+0.113}_{-0.048}$	$1.791^{+0.938}_{-0.718}$
	+3%/-3%	+3%/-3%	+60%/-60%	+21%/-14%	+15%/-6%	+52%/-40%
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 007816977-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1105 \pm 26$	$9.71^{+7.87}_{-6.03}$	$333^{+21}_{-19}$	$3617^{+1614}_{-596}$	$5639^{+32747}_{-3923}$
Alt.	$-81 \pm 28$	$6.91^{+7.51}_{-4.77}$	$334^{+19}_{-20}$	$2708^{+1236}_{-445}$	$761^{+8510}_{-592}$

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

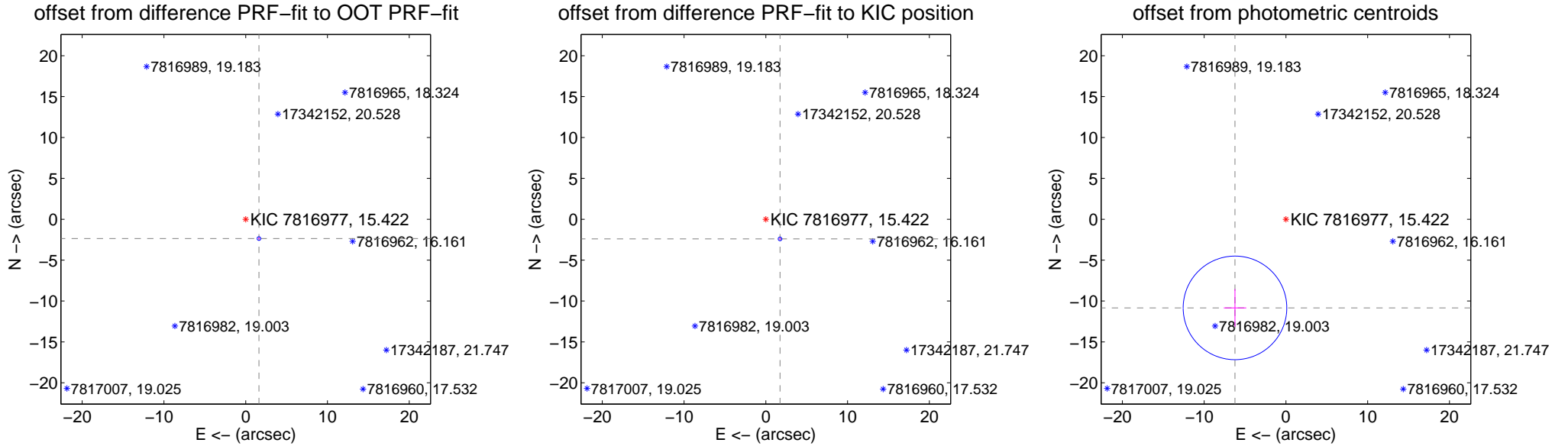
## DV Centroid Data

Supplemental centroid analysis for 007816977-01. Kepler magnitude: 15.42. Transit SNR 15.12

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

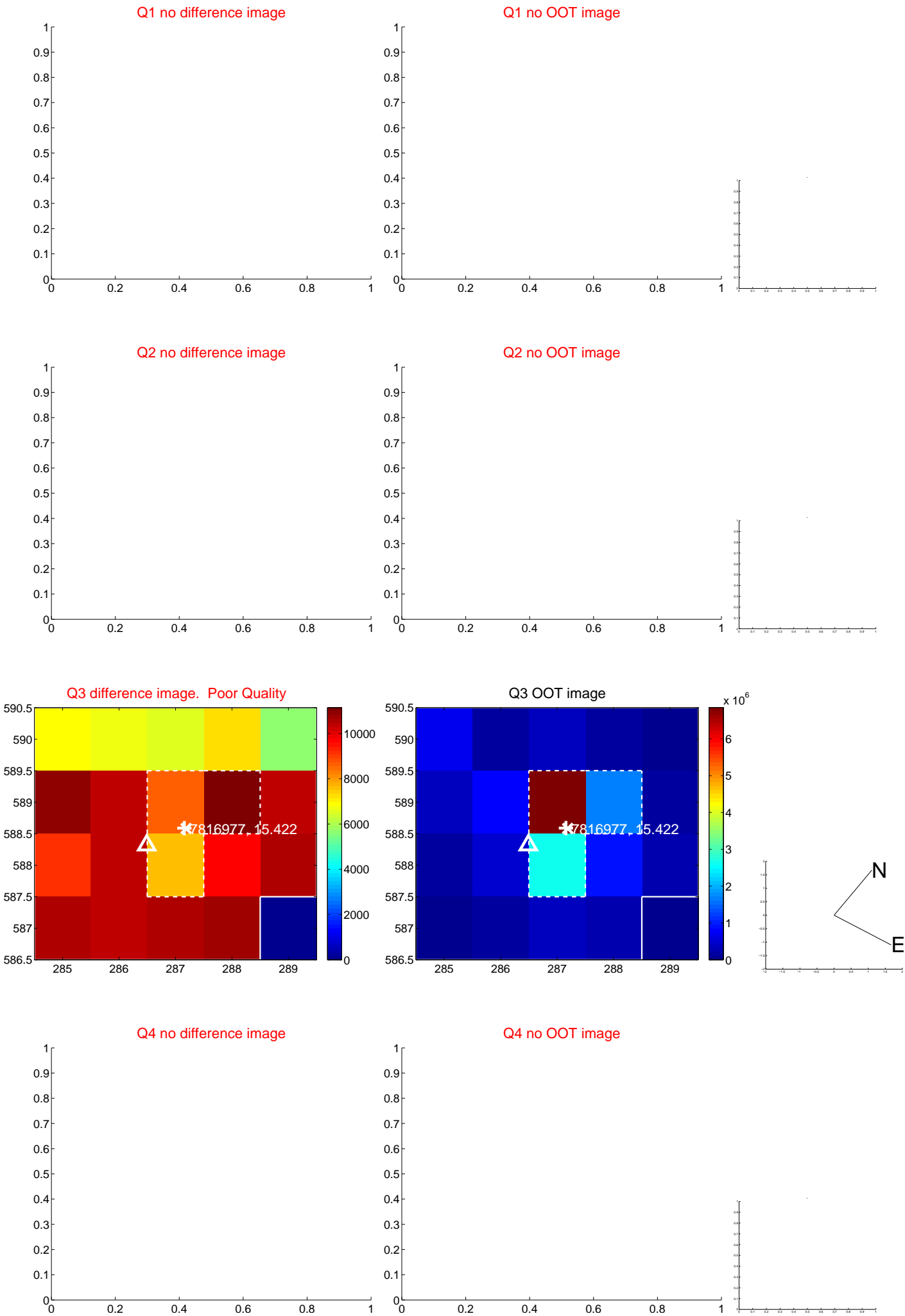
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.861 \pm 0.075$	37.97	$-1.617 \pm 0.076$	$-2.360 \pm 0.075$
PRF-fit source offset from KIC position	$2.965 \pm 0.075$	39.34	$-1.736 \pm 0.076$	$-2.404 \pm 0.075$
photometric centroid source offset	$12.50 \pm 2.11$	5.92	$6.23 \pm 1.38$	$-10.84 \pm 2.30$



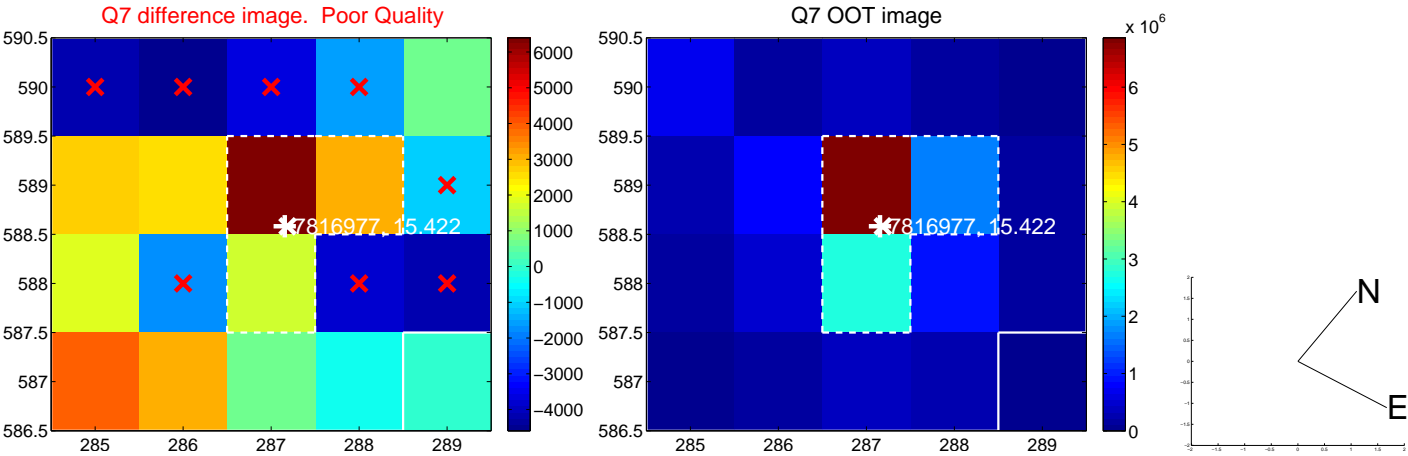
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000 are from the UKIRT catalog.



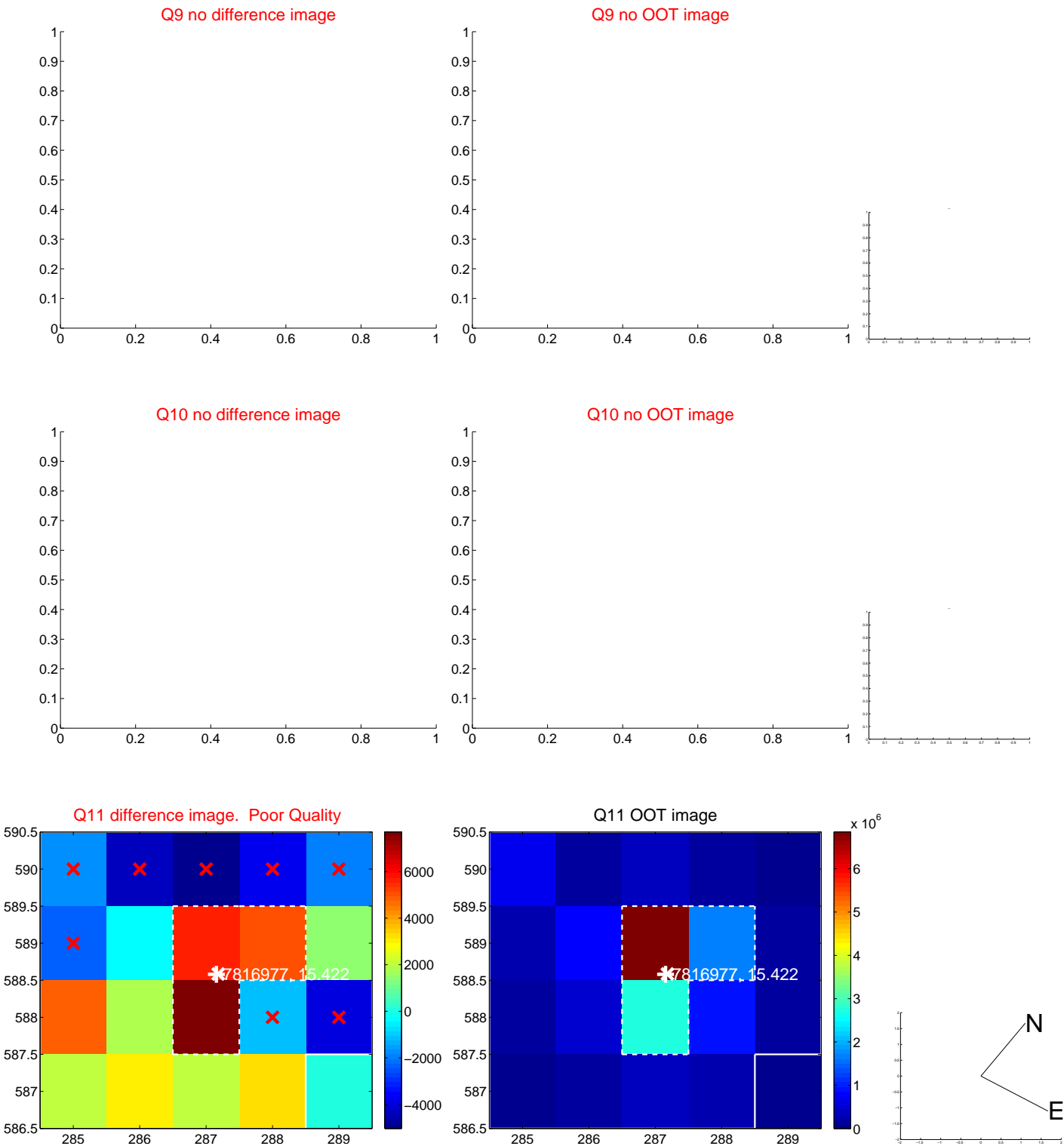
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



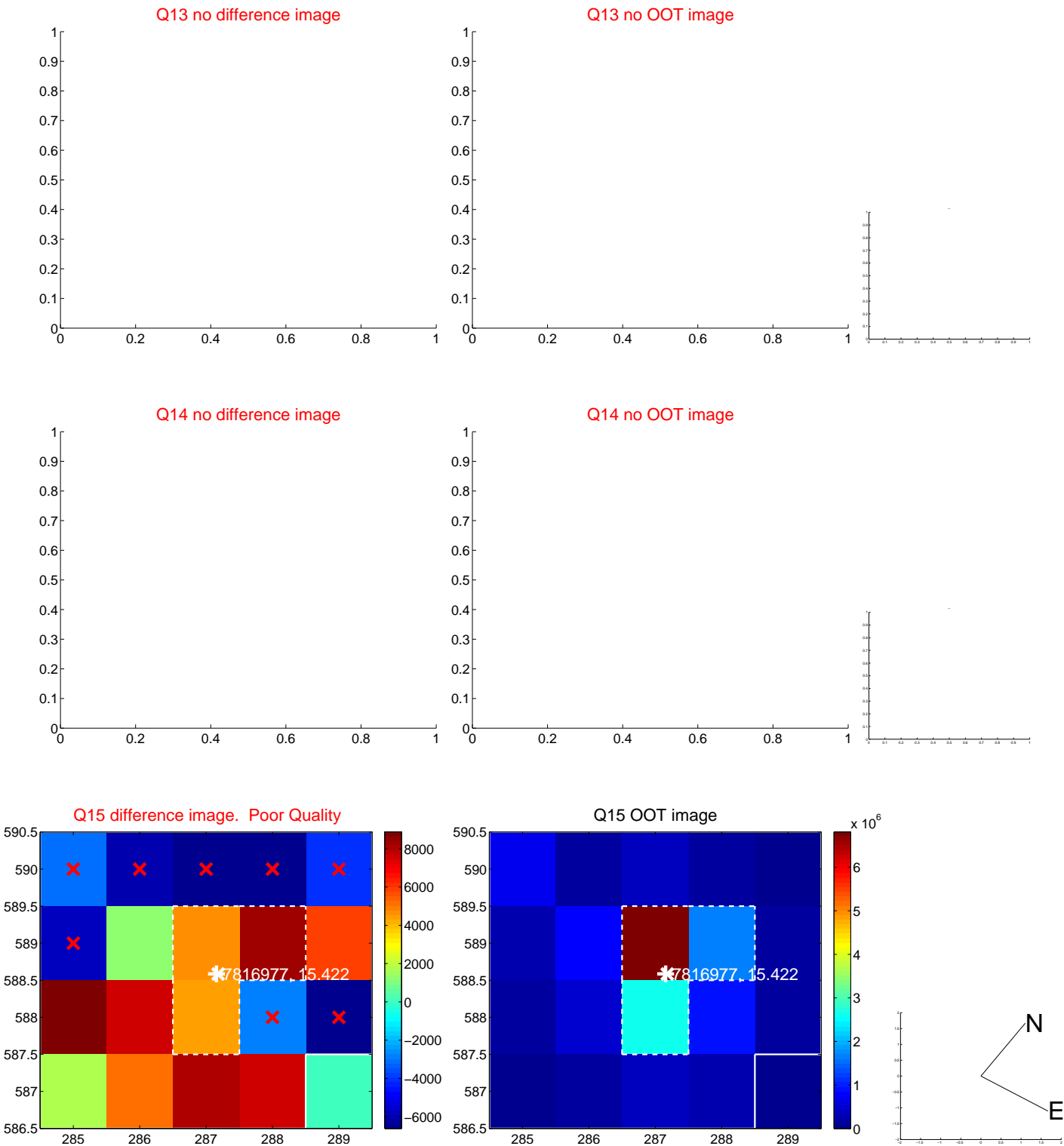
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



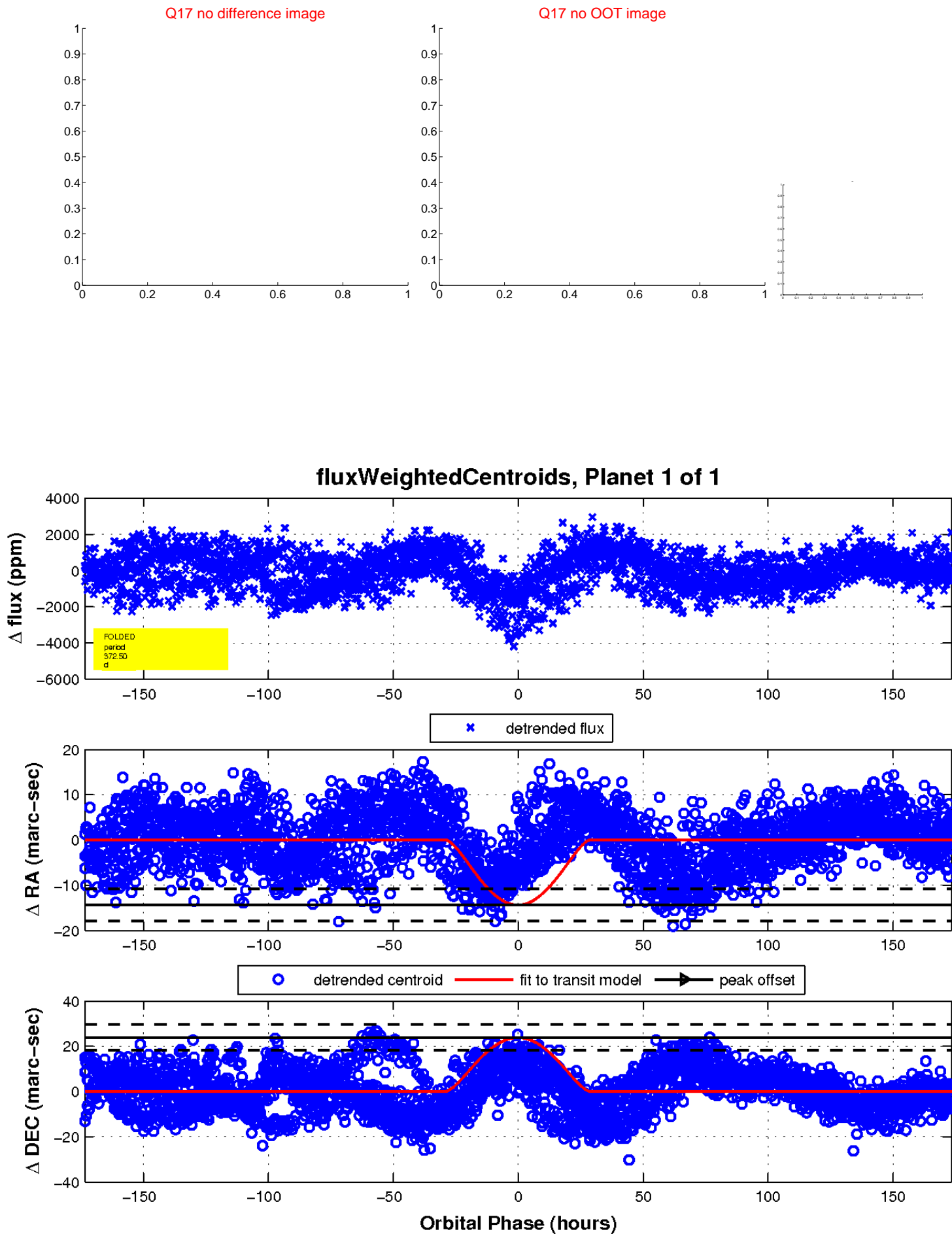
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

