

# KIC 002860866

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002860866-01	OBS	1103.01	90.125025	175.979222	3101.4	12.281	49.1	48.2	1.22	6520	7.45	13.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002860866-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

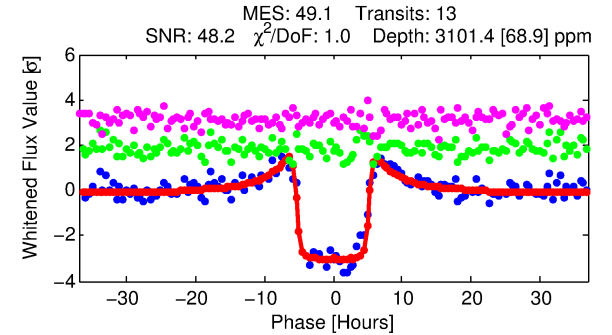
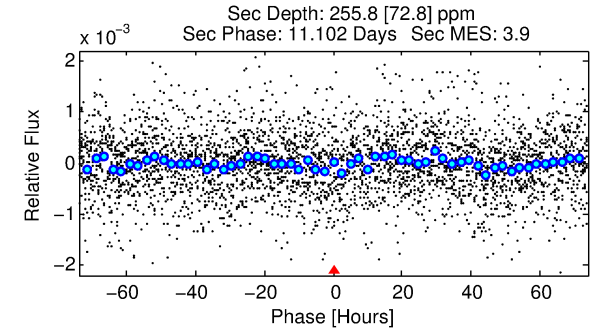
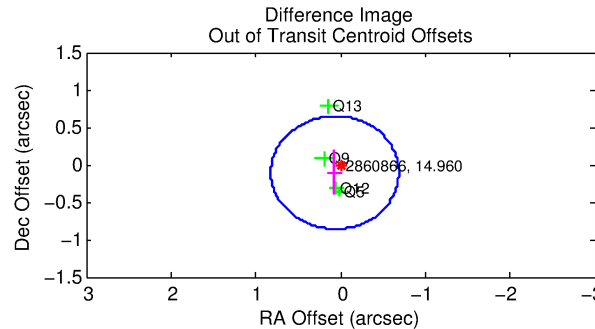
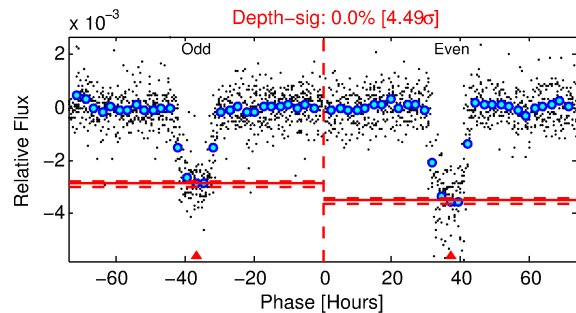
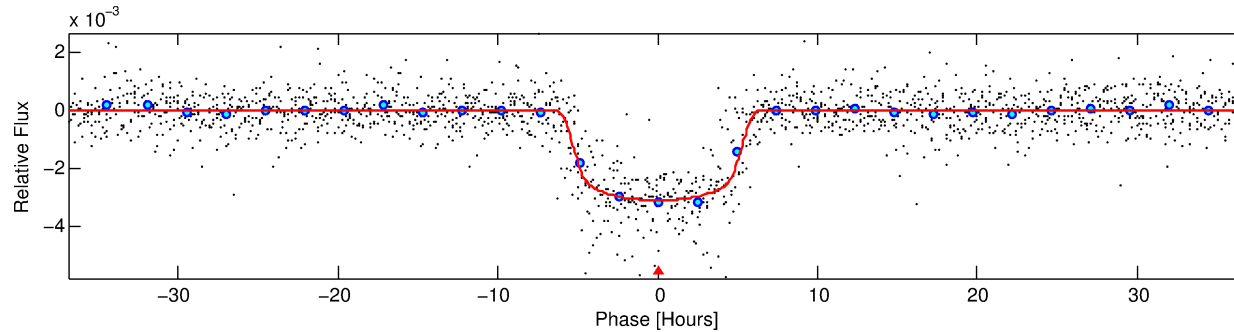
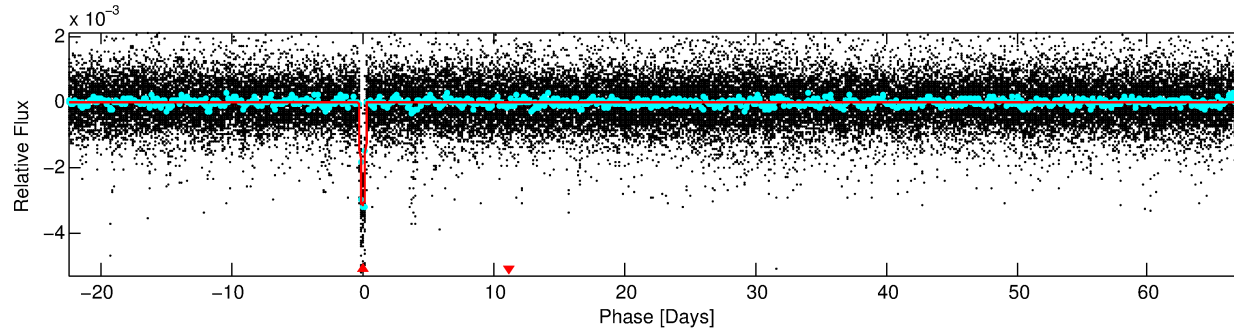
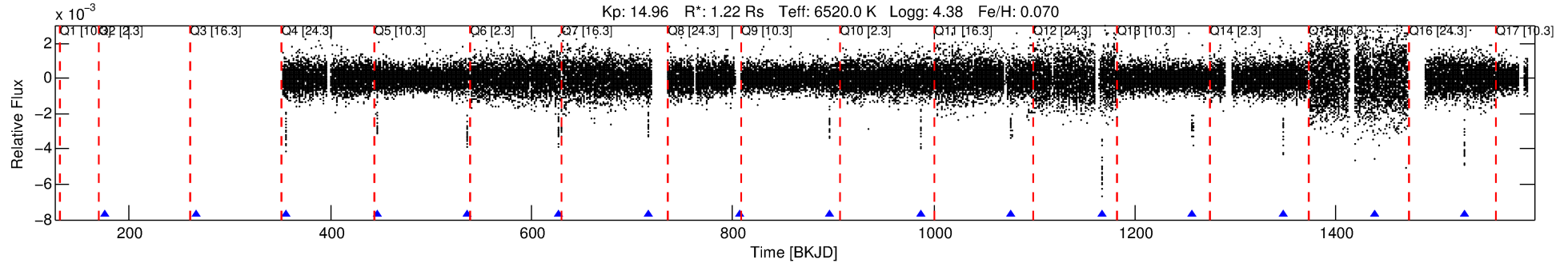
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002860866-01

No Significant Match Found

# DV One-Page Summary

KIC: 2860866 Candidate: 1 of 1 Period: 90.125 d  
KOI: K01103.01 Corr: 0.978



## DV Fit Results:

Period = 90.12503 [0.00044] d  
Epoch = 175.9792 [0.0038] BKJD  
Rp/R\* = 0.0562 [0.0010]  
a/R\* = 39.38 [2.47]  
b = 0.79 [0.03]  
Seff = 13.12 [5.75]  
Teq = 485 [53] K  
Rp = 7.45 [2.52] Re  
a = 0.4269 [0.1209] AU  
Ag = 462.30 [231.71] [1.99σ]  
Teffp = 3479 [283] K [10.41σ]

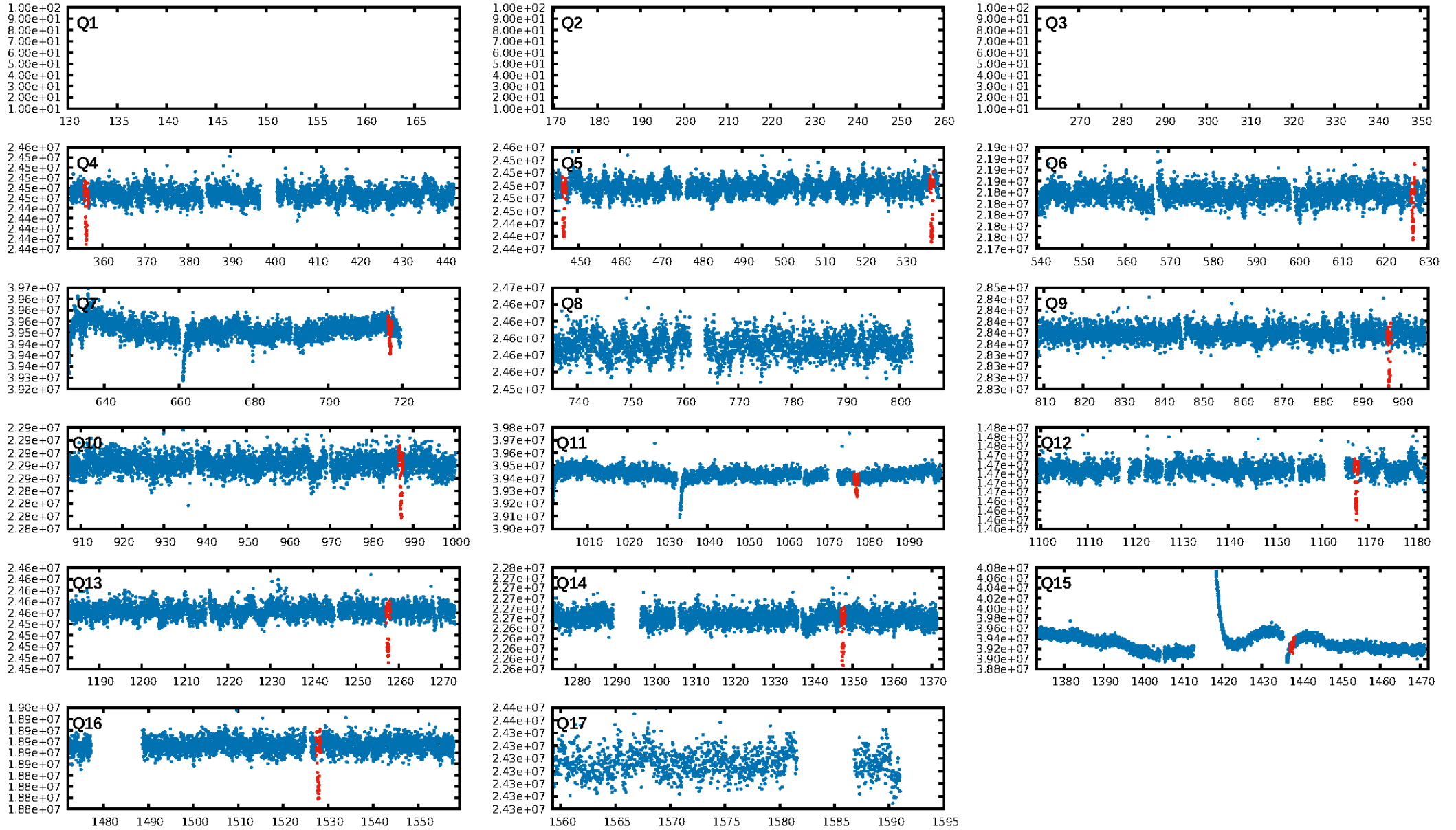
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 4.161  
Centroid-sig: 0.0%  
Centroid-so: 1.592 arcsec [13.17σ]  
OotOffset-rm: 0.126 arcsec [0.50σ]  
KicOffset-rm: 0.275 arcsec [0.63σ]  
OotOffset-st: 0/0/1/3 [4]  
KicOffset-st: 2/2/1/3 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [10/10]

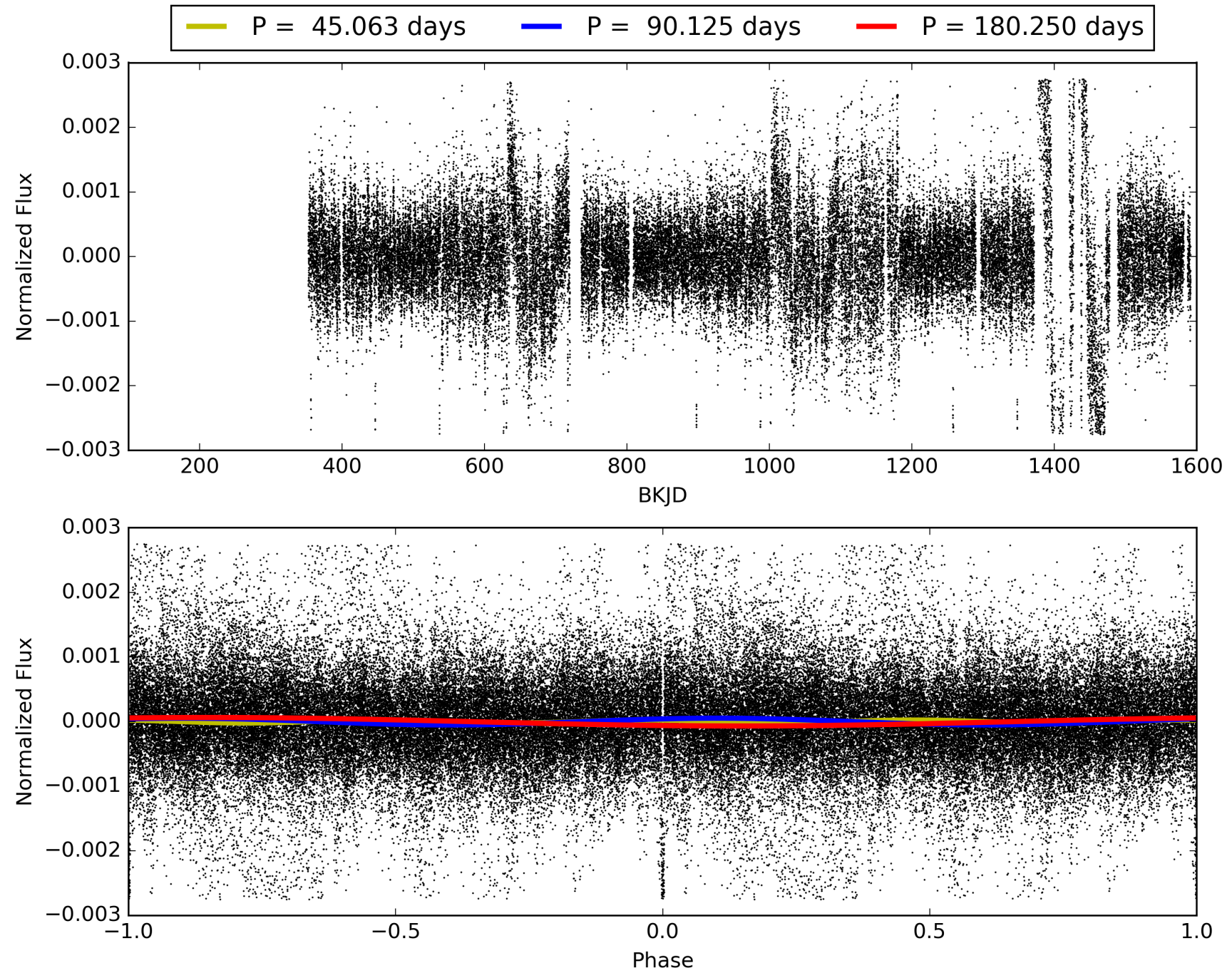
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:16:43 Z

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

# TCE 002860866-01, PDC Light Curves

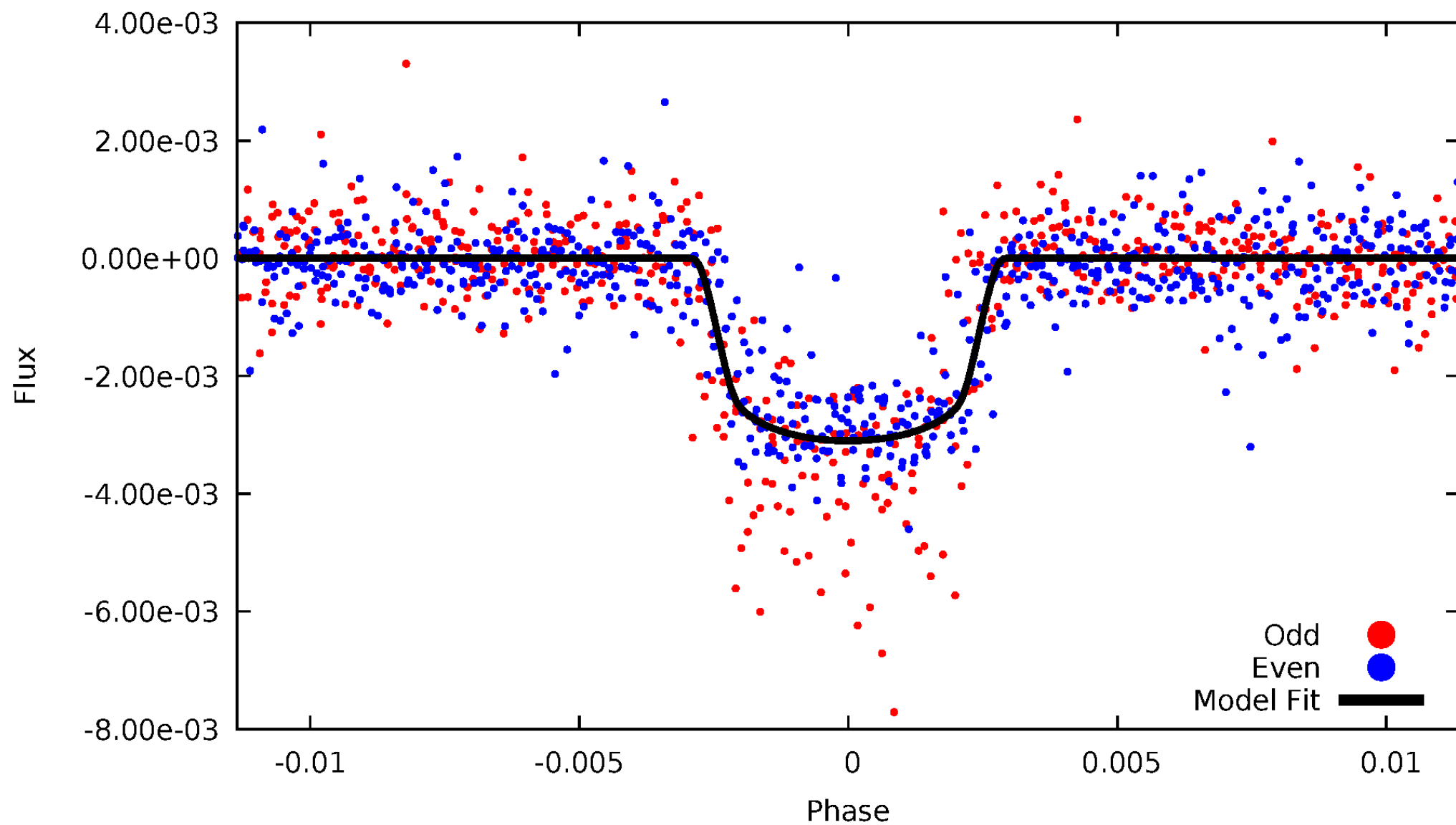


TCE 002860866-01



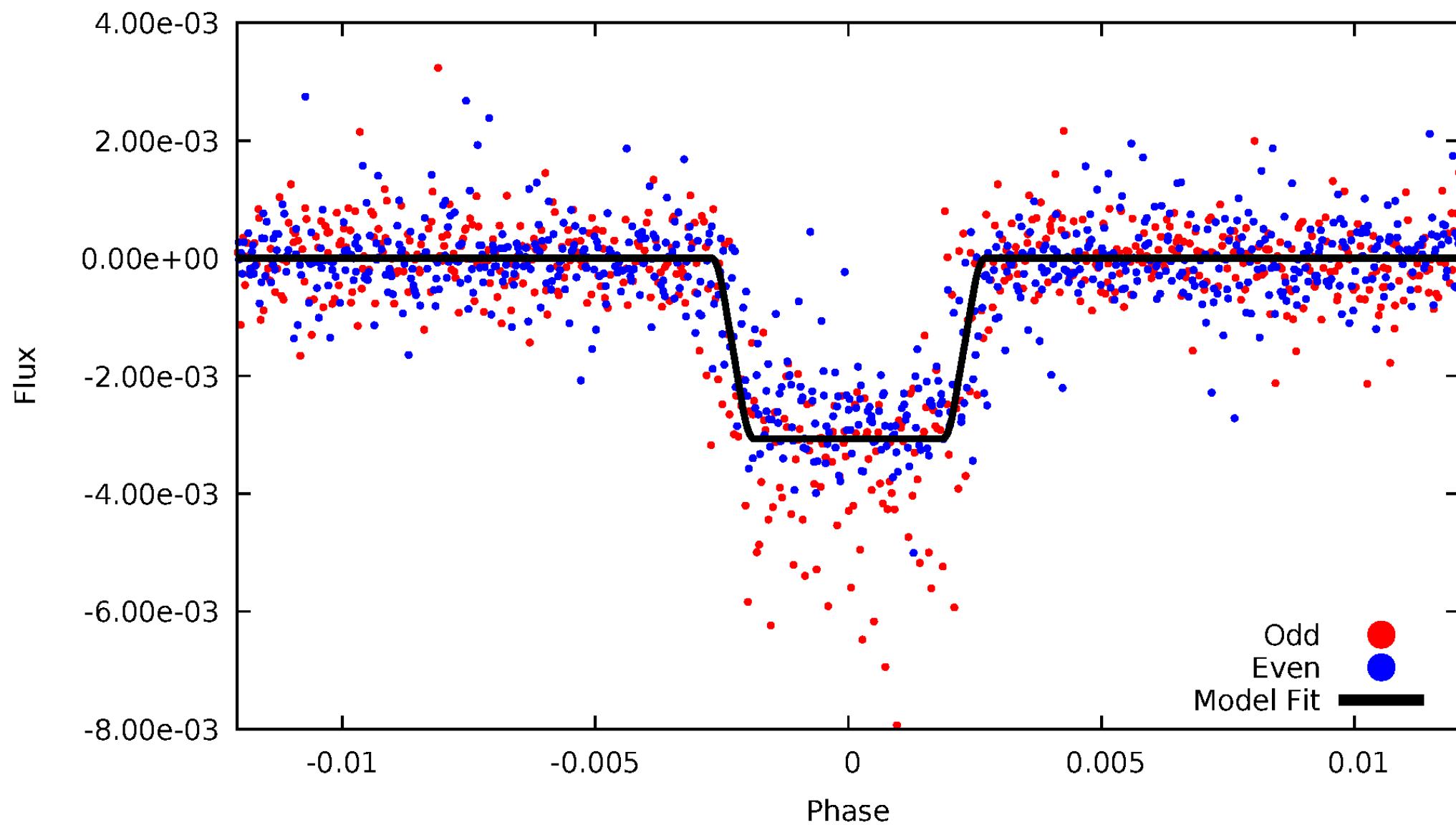
# DV Odd/Even

TCE 002860866-01



# ALT Odd/Even

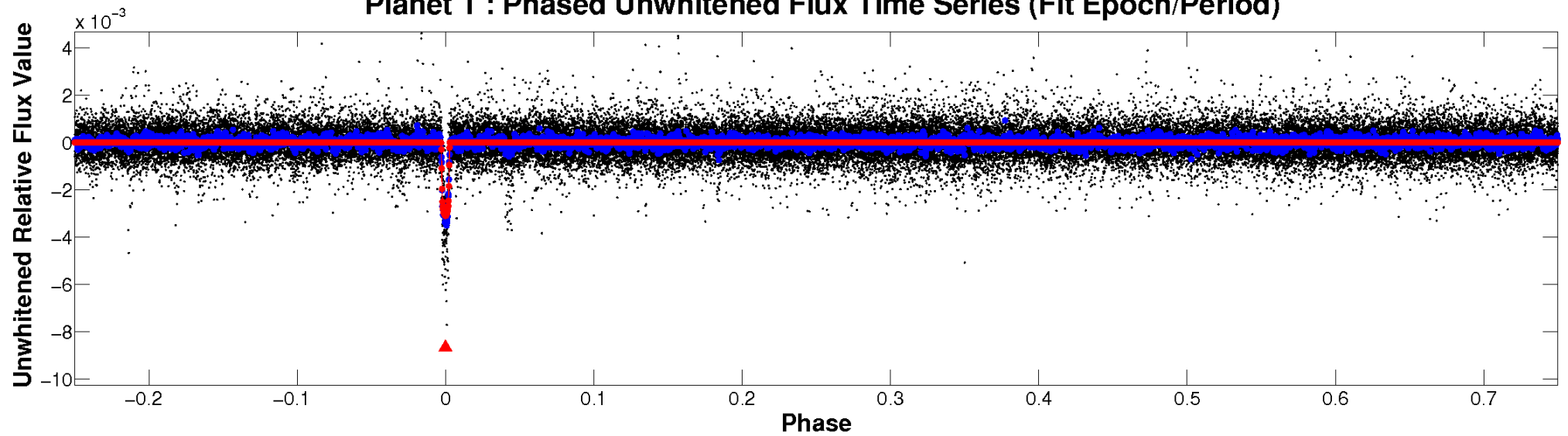
TCE 002860866-01



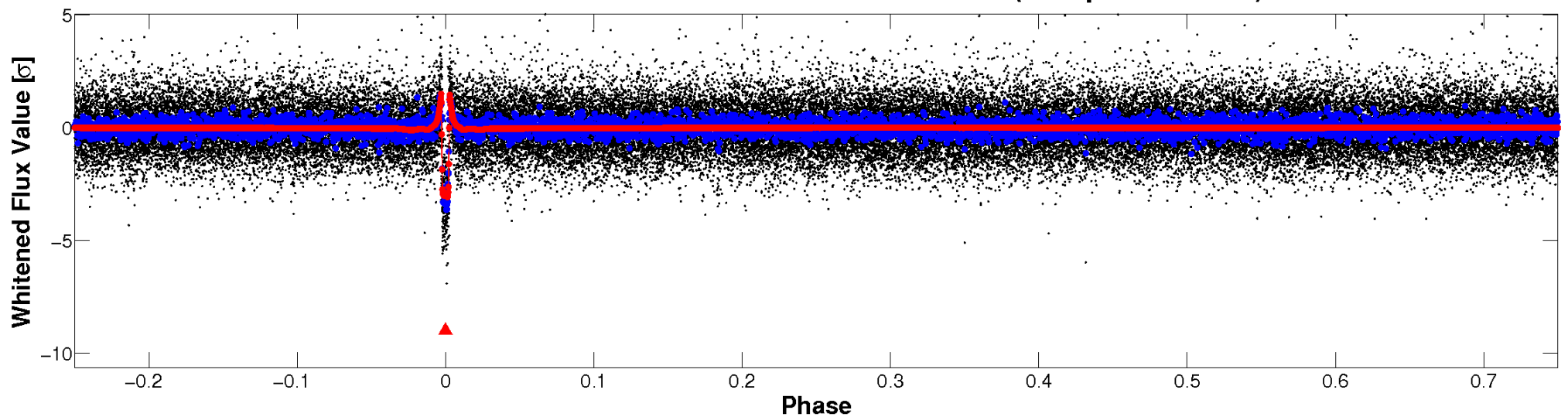


# Non-Whitened Vs. Whitened Light Curve

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

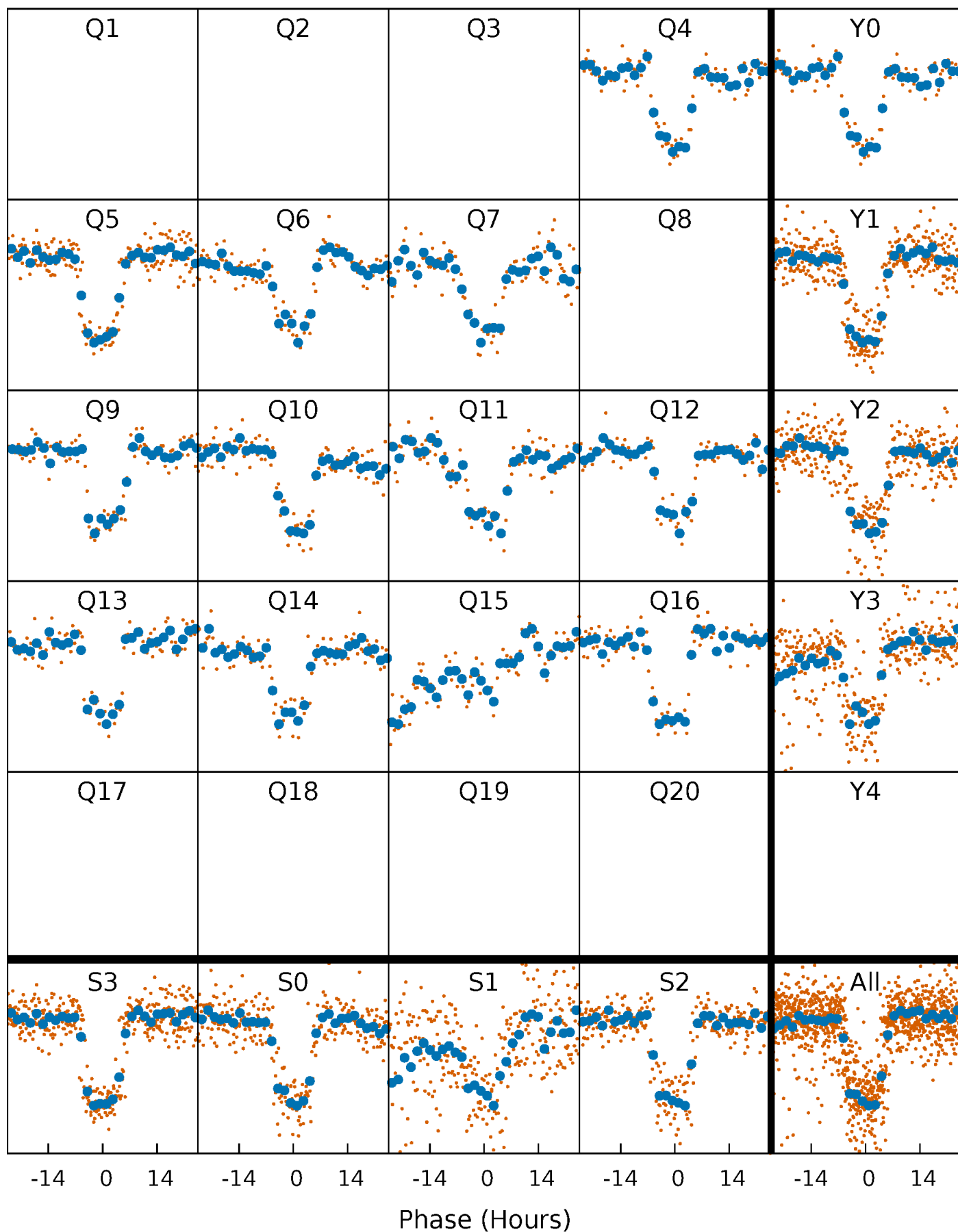


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

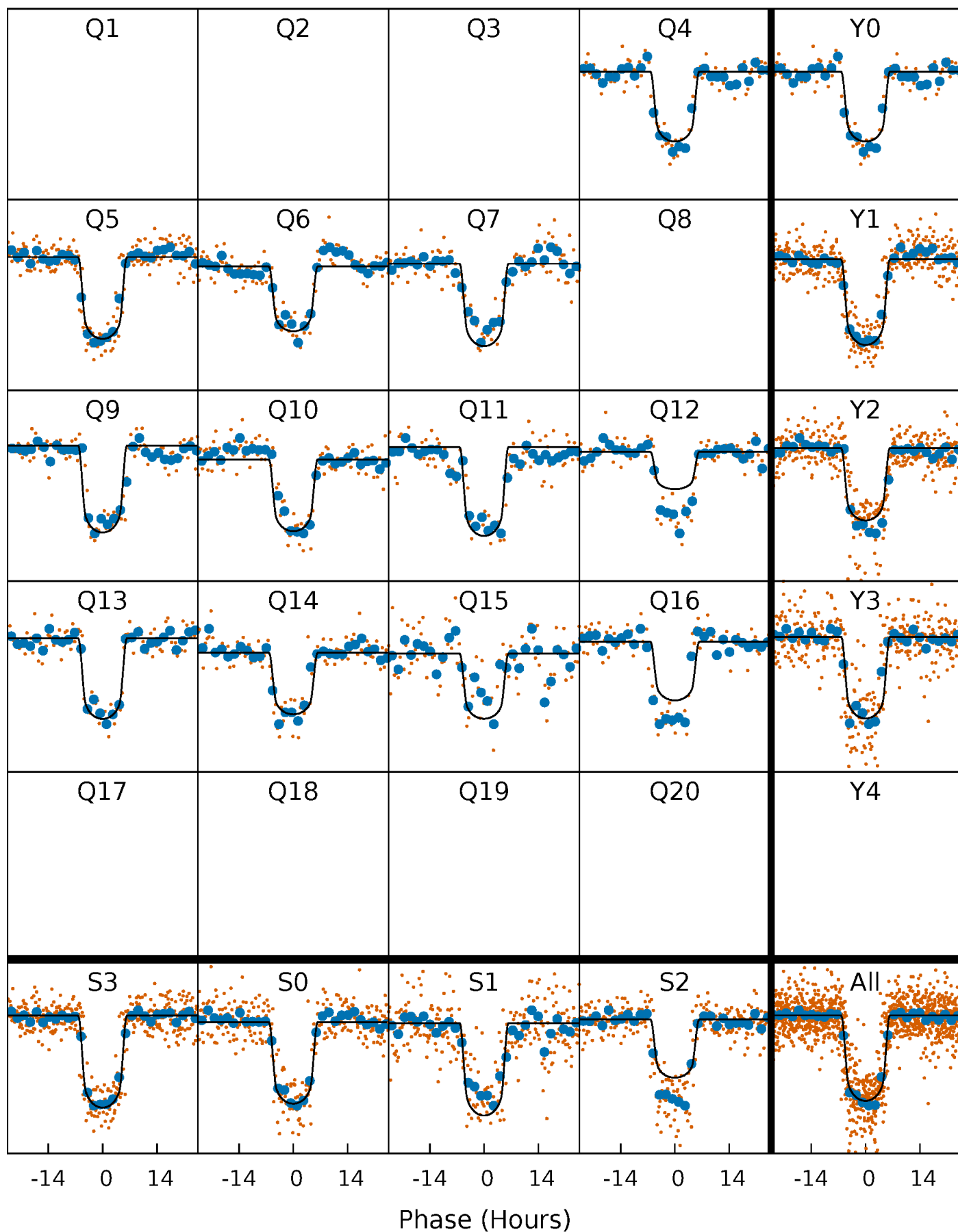
TCE 002860866-01 P= 90.125025 Days  $T_0=175.979222$  (BKJD)





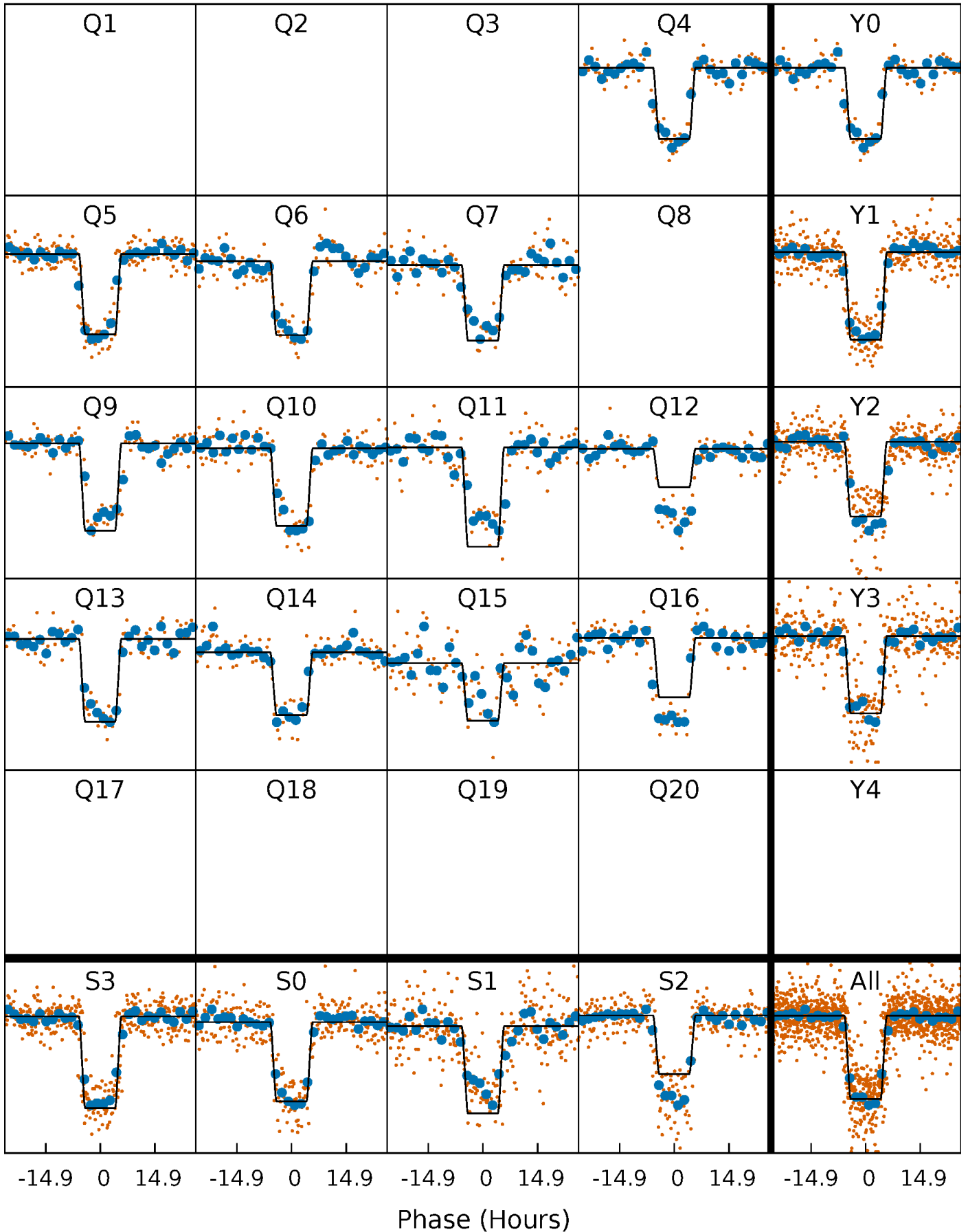
# DV Quarter-Phased Transit Curves

TCE 002860866-01 P= 90.125025 Days  $T_0=175.979222$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

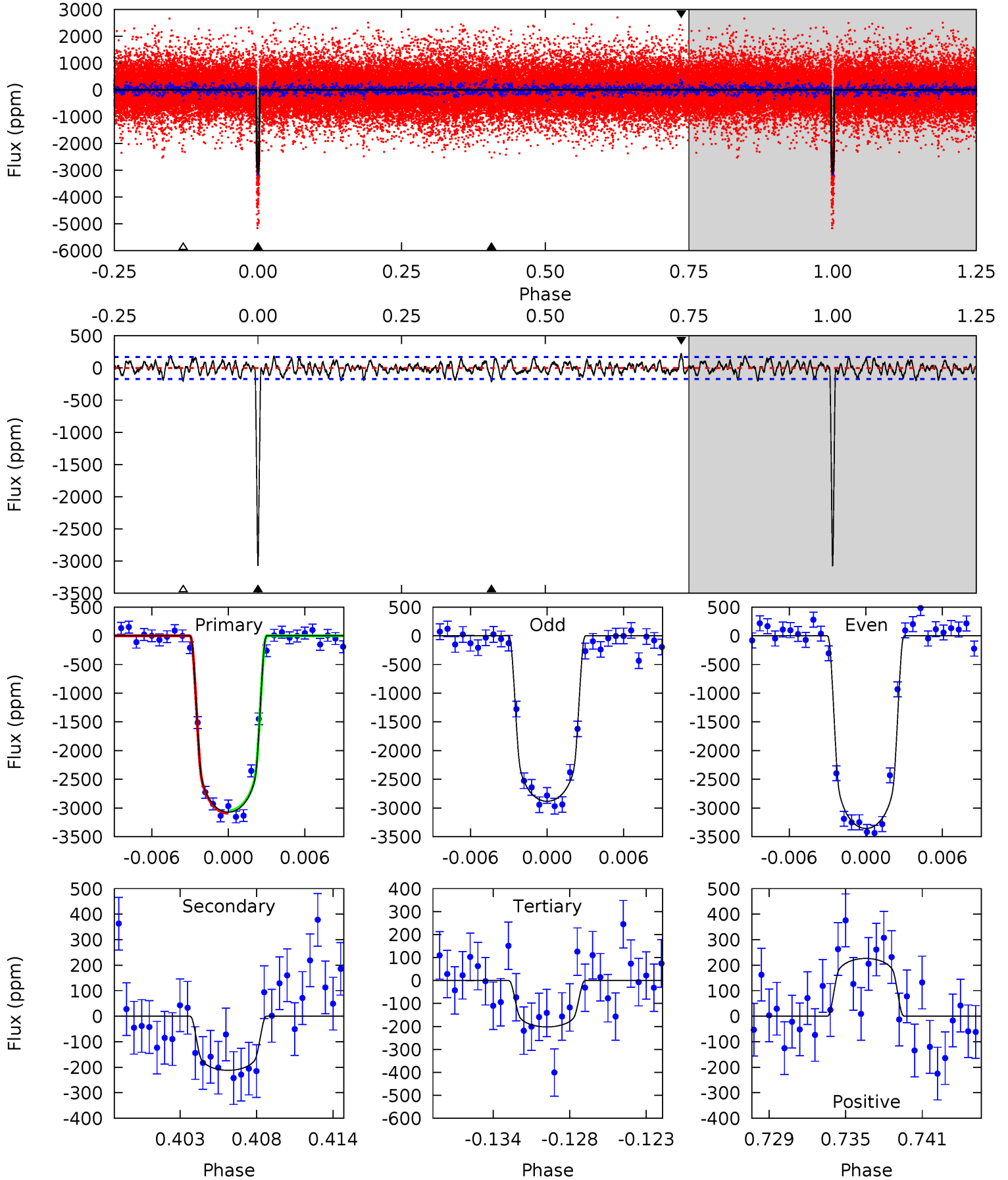
TCE 002860866-01 P= 90.123370 Days  $T_0=175.987672$  (BKJD)



# DV Model-Shift Uniqueness Test

002860866-01, P = 90.125025 Days, E = 175.979222 Days

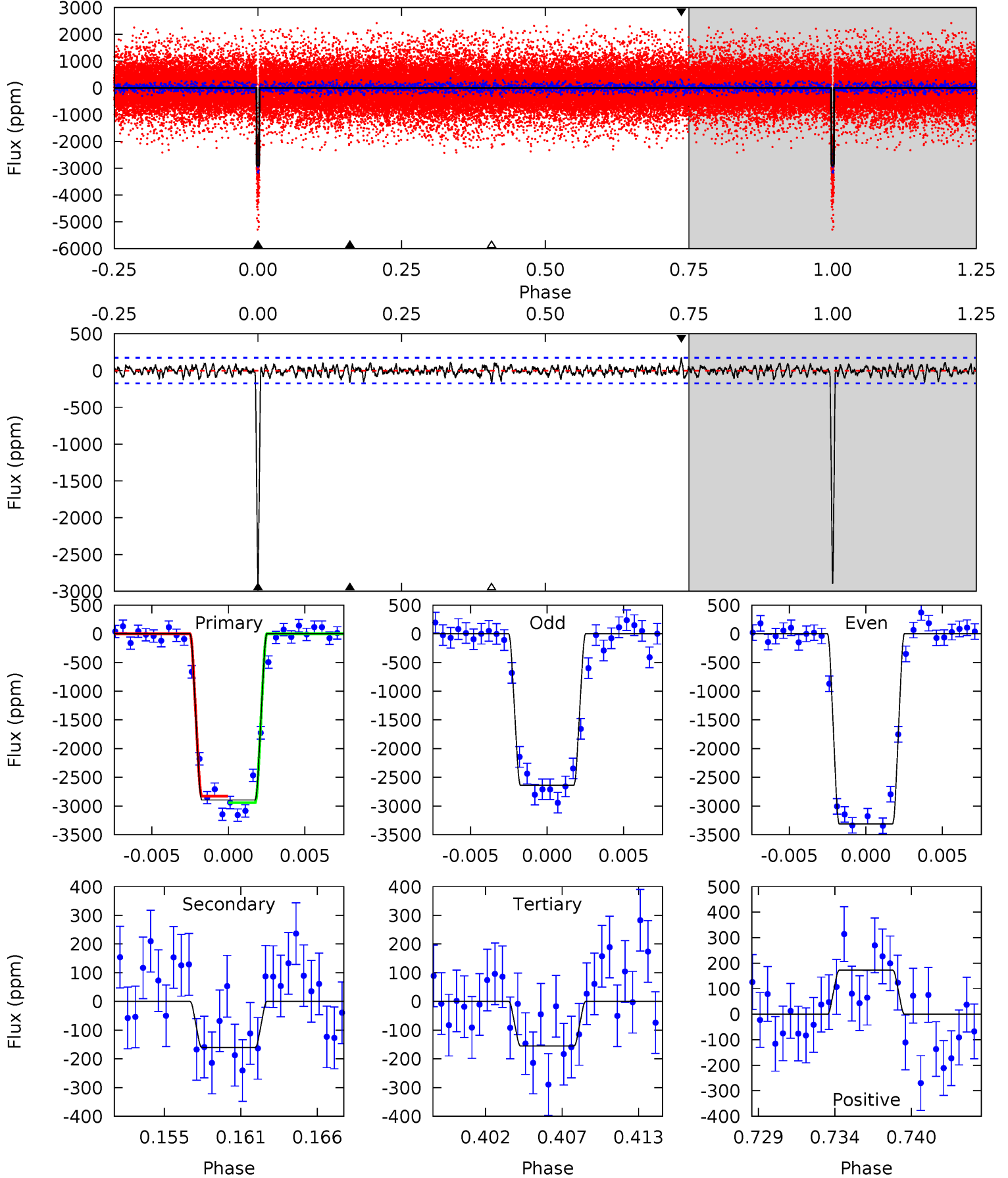
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.8	6.34	6.04	6.77	5.13	2.76	2.08	85.8	85.1	0.30	-0.43	7.07	1.06	0.07	0.65



# Alt Model-Shift Uniqueness Test

002860866-01,  $P = 90.123370$  Days,  $E = 175.987672$  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
85.1	4.72	4.56	5.08	5.14	2.78	1.27	80.6	80.1	0.16	-0.36	9.90	1.05	0.06	1.67



### Stellar Parameters For KIC 002860866

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6520^{+180}_{-248}$	$4.375^{+0.056}_{-0.224}$	$0.070^{+0.250}_{-0.300}$	$1.215^{+0.410}_{-0.137}$	$1.279^{+0.165}_{-0.202}$	$1.005^{+0.291}_{-0.532}$
	+3%/-4%	+1%/-5%	+357%/-429%	+34%/-11%	+13%/-16%	+29%/-53%
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 002860866-01 / KOI 1103.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-212 \pm 33$	$7.65^{+1.42}_{-0.67}$	$691^{+56}_{-39}$	$3705^{+124}_{-140}$	$338^{+91}_{-95}$
Alt.	$-161 \pm 34$	$7.56^{+1.42}_{-0.64}$	$692^{+58}_{-38}$	$3562^{+139}_{-148}$	$265^{+84}_{-79}$

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

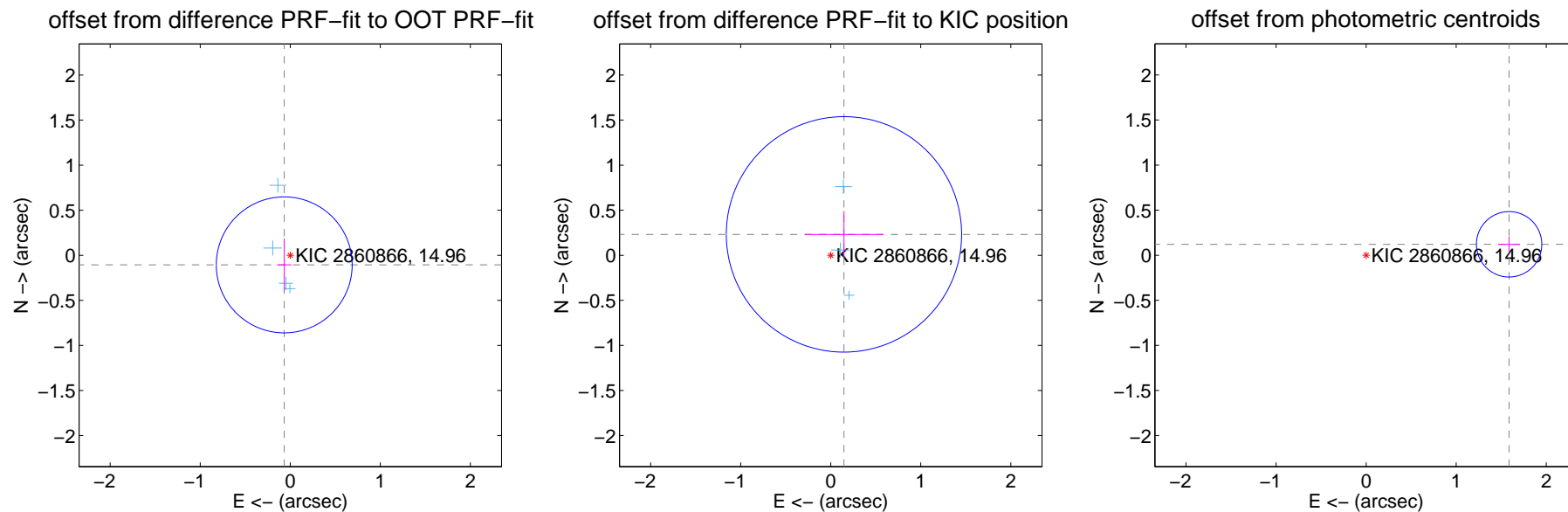
## DV Centroid Data

Supplemental centroid analysis for 002860866-01. Kepler magnitude: 14.96. Transit SNR 48.17

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

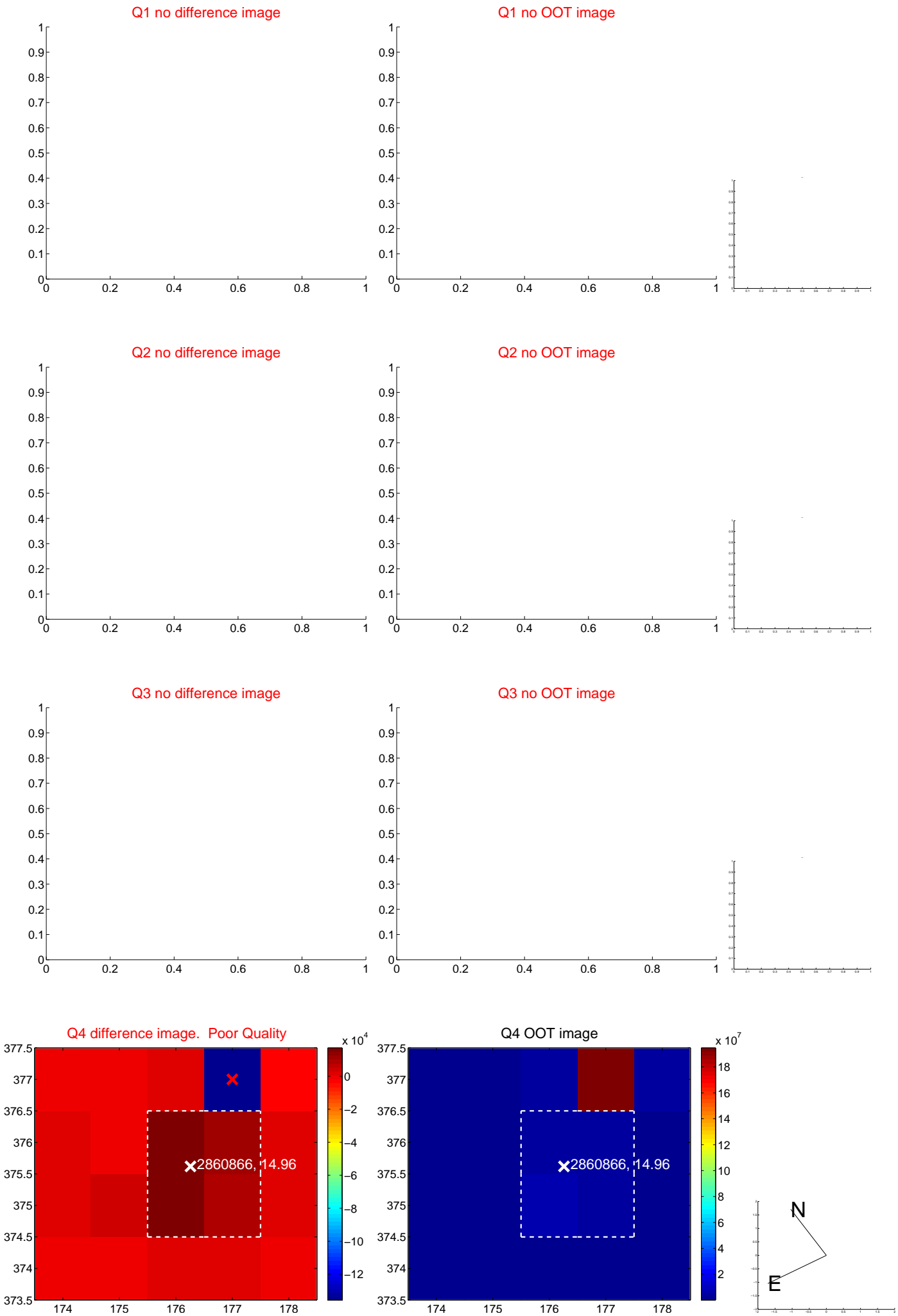
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.126 \pm 0.251$	0.50	$0.067 \pm 0.081$	$-0.106 \pm 0.293$
PRF-fit source offset from KIC position	$0.275 \pm 0.435$	0.63	$-0.147 \pm 0.432$	$0.232 \pm 0.261$
photometric centroid source offset	$1.59 \pm 0.12$	13.17	$-1.59 \pm 0.12$	$0.12 \pm 0.08$



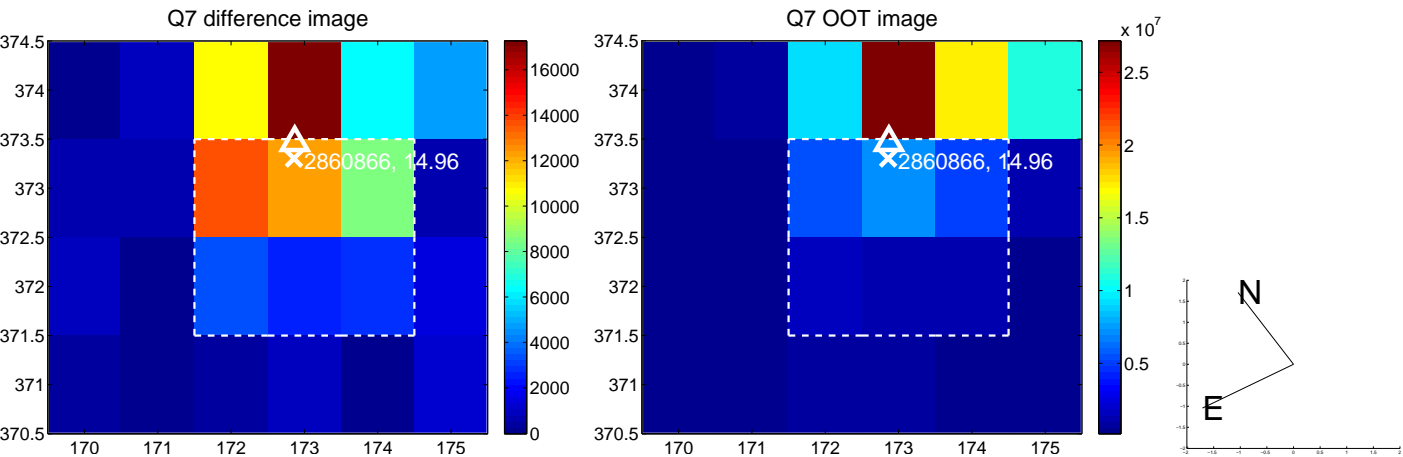
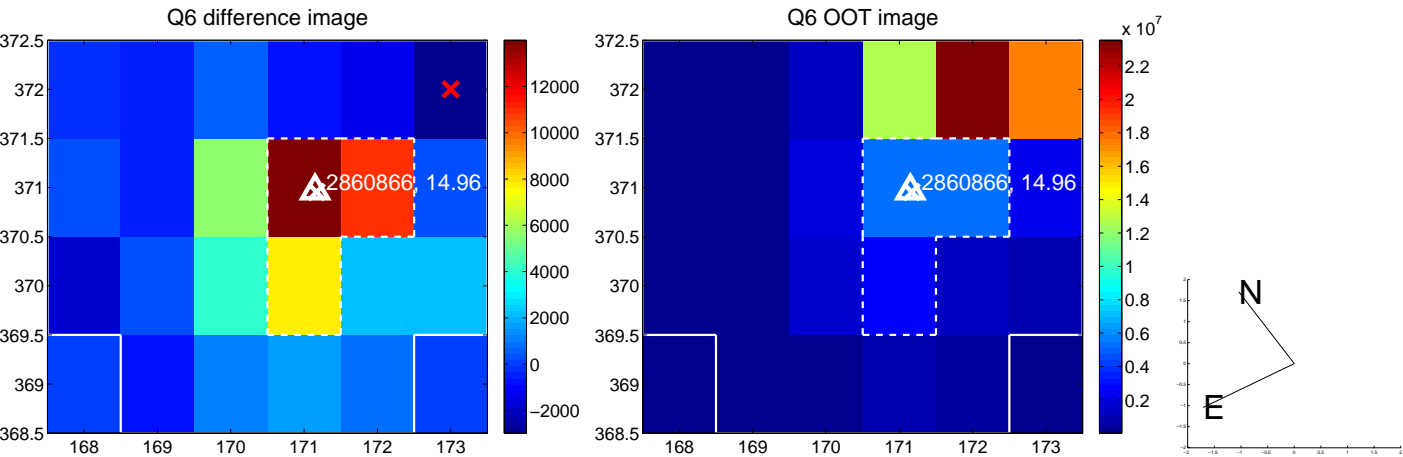
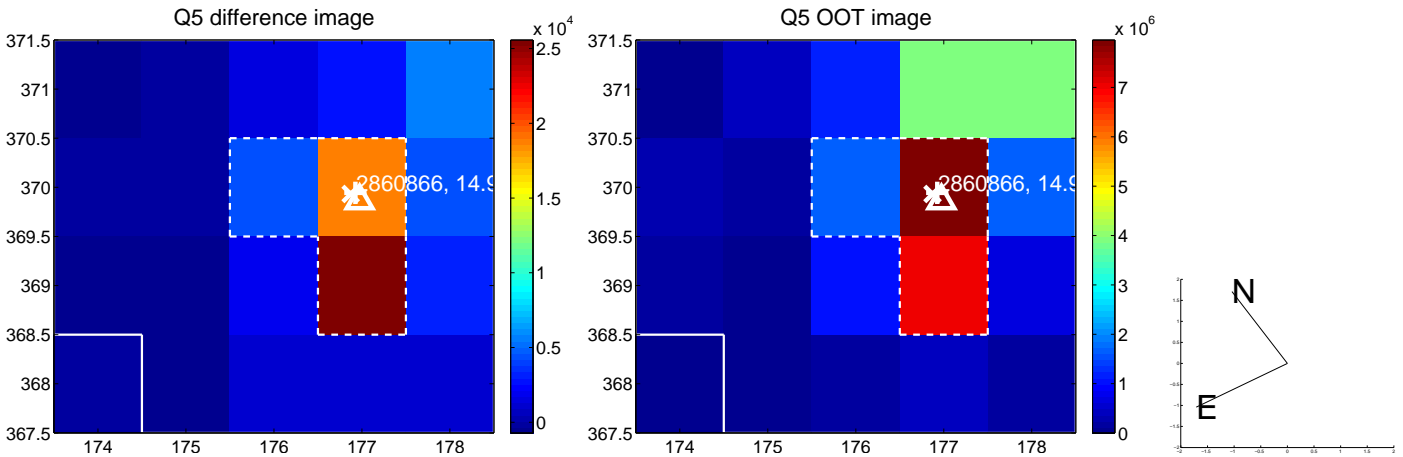
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



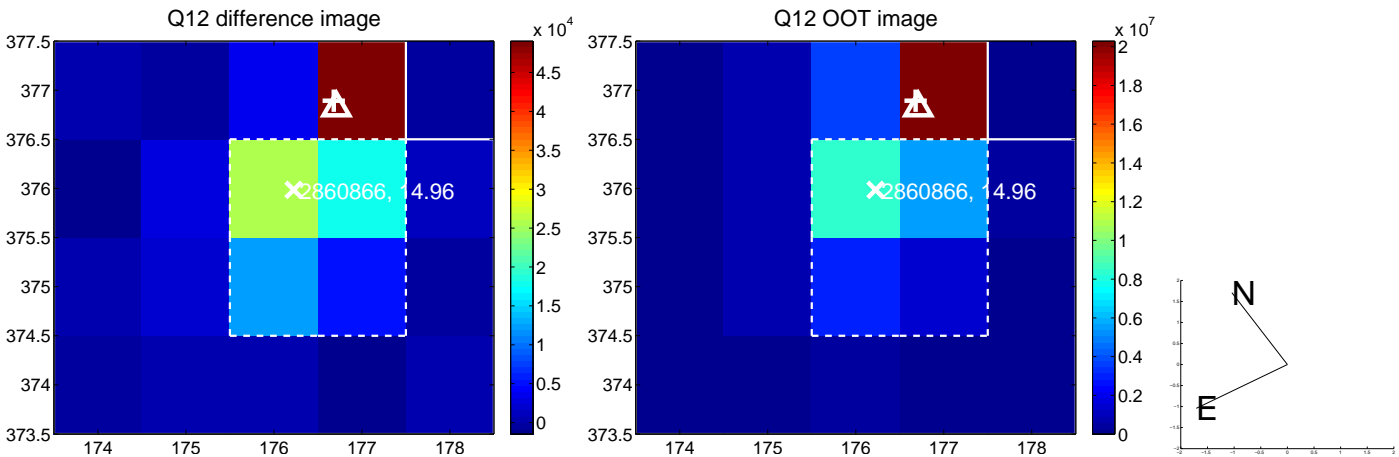
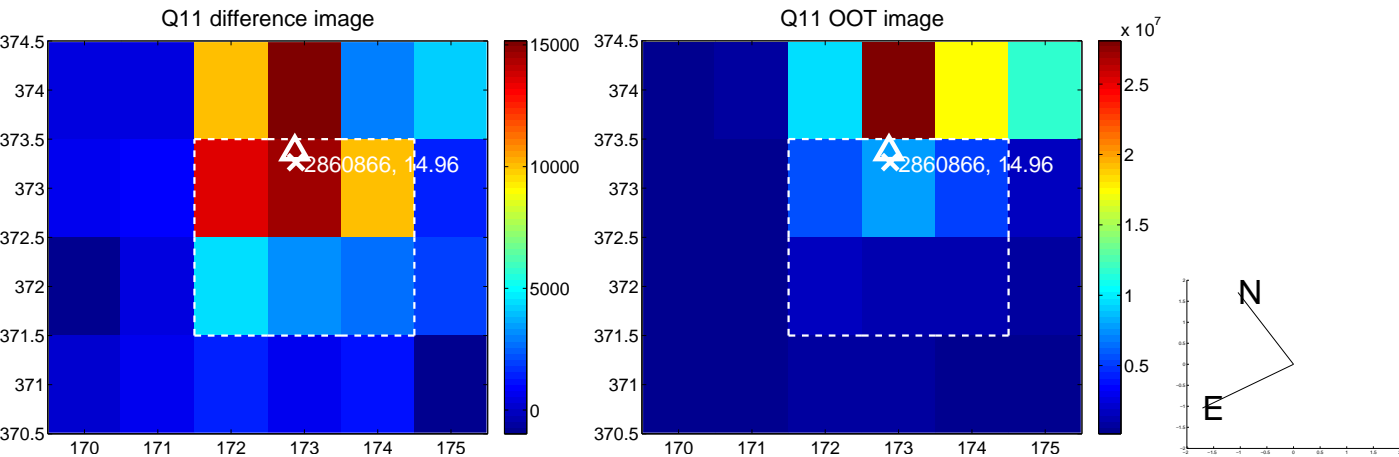
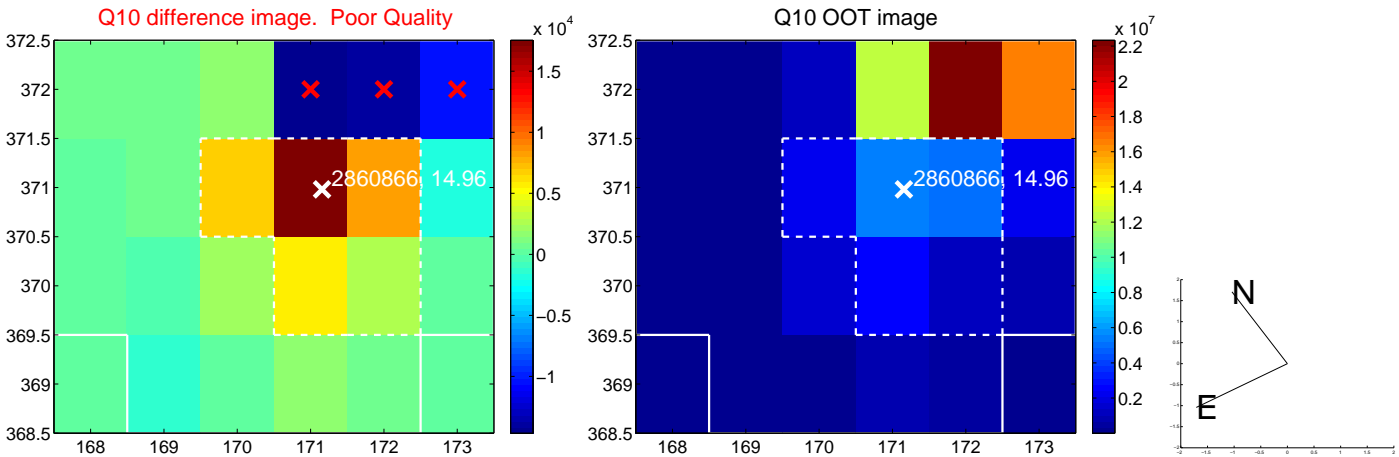
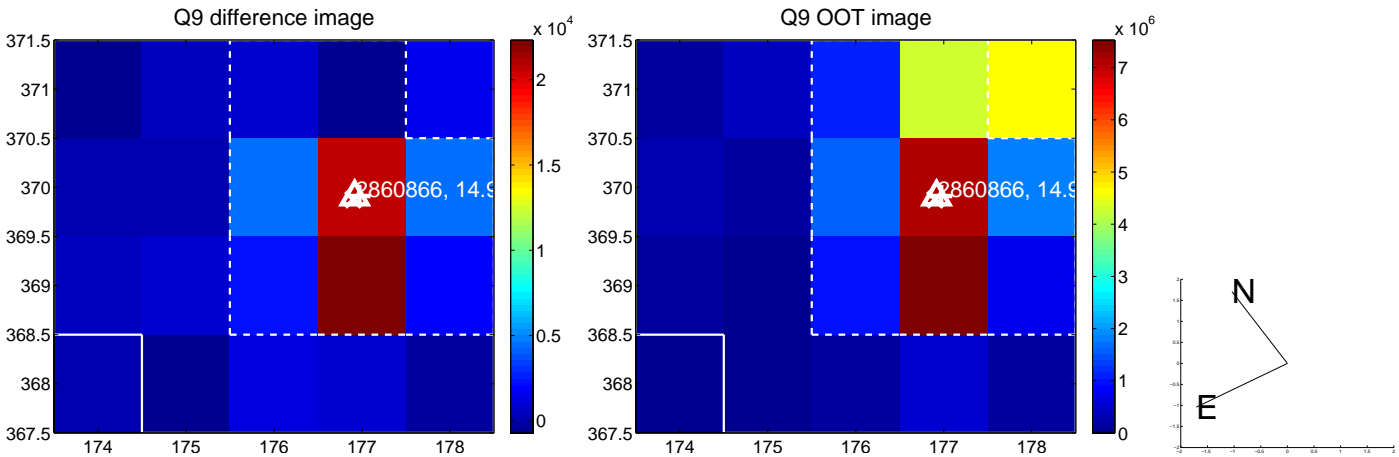
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



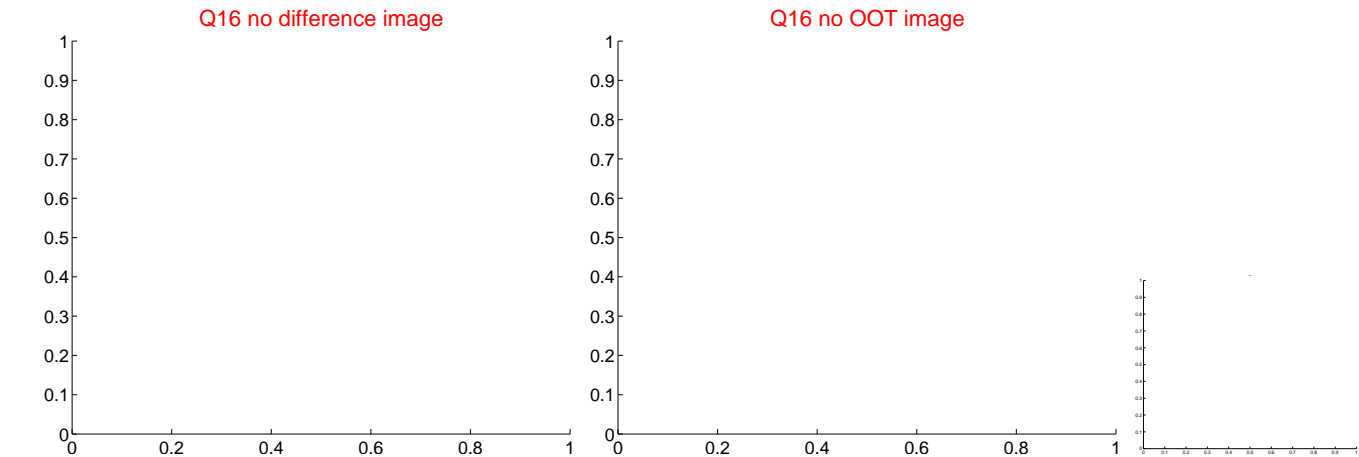
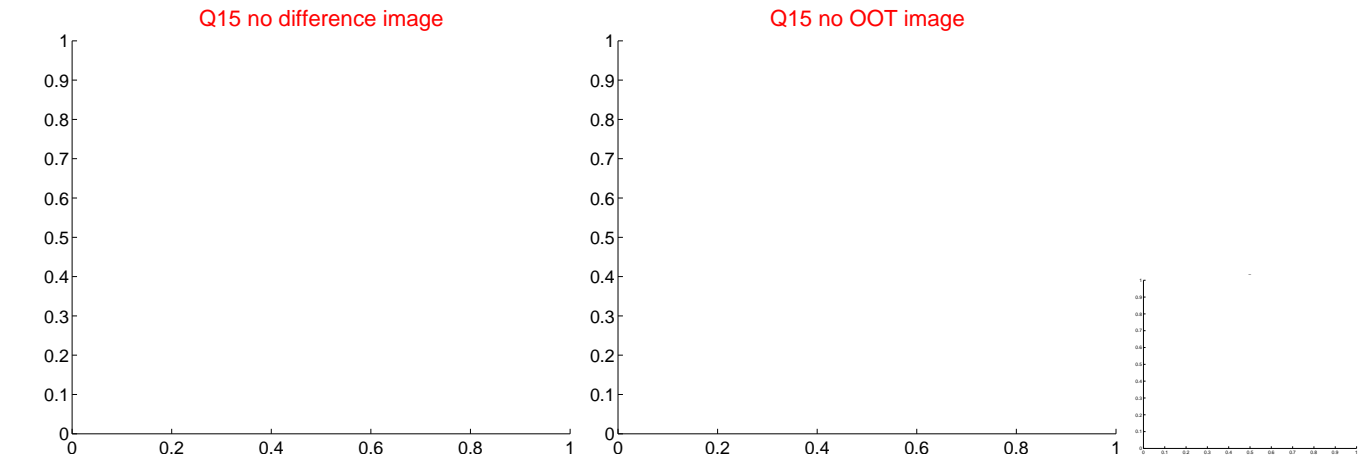
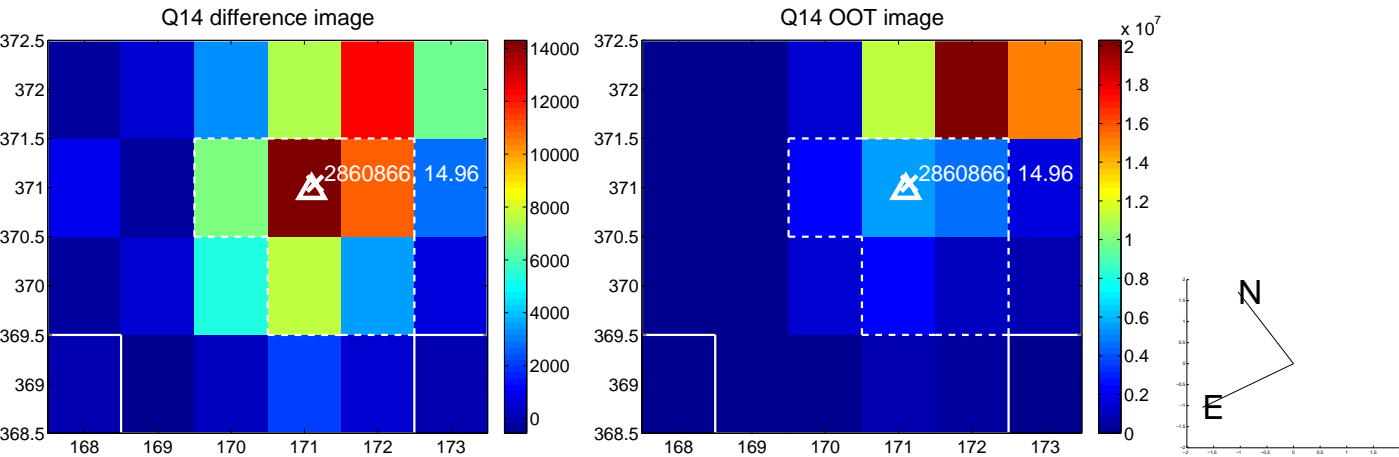
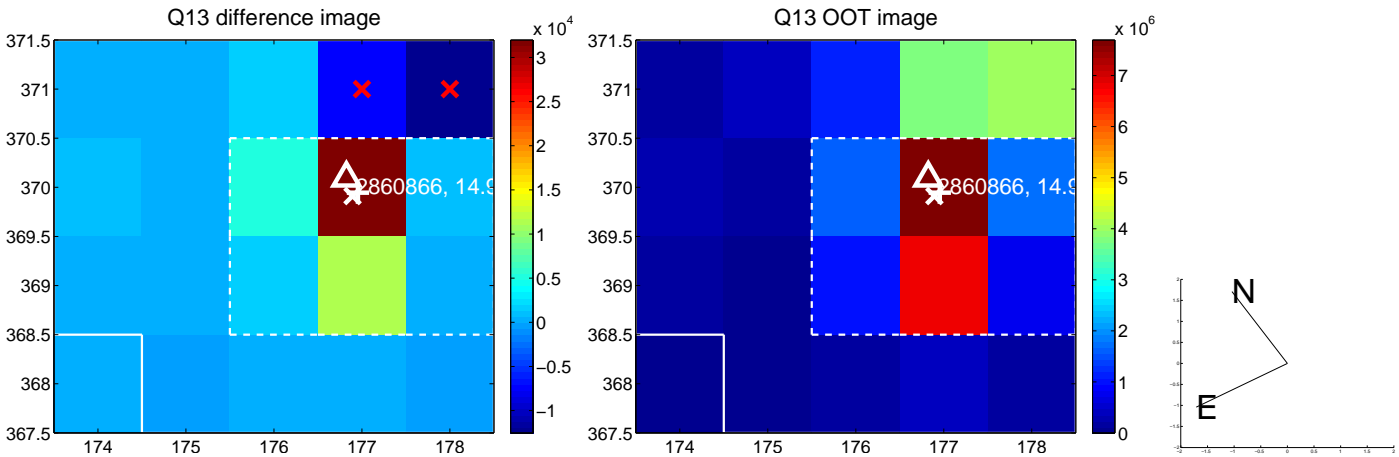
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



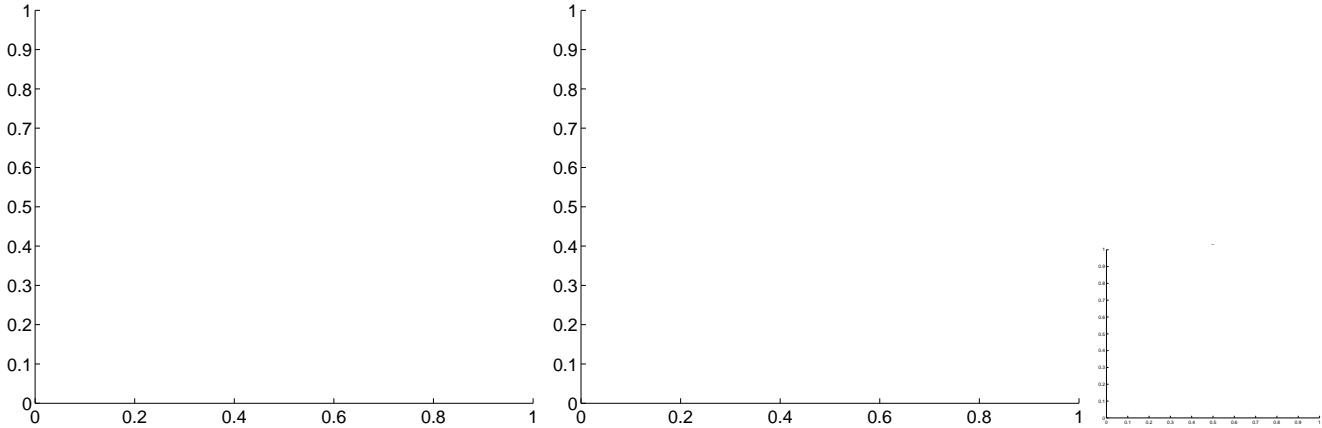
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



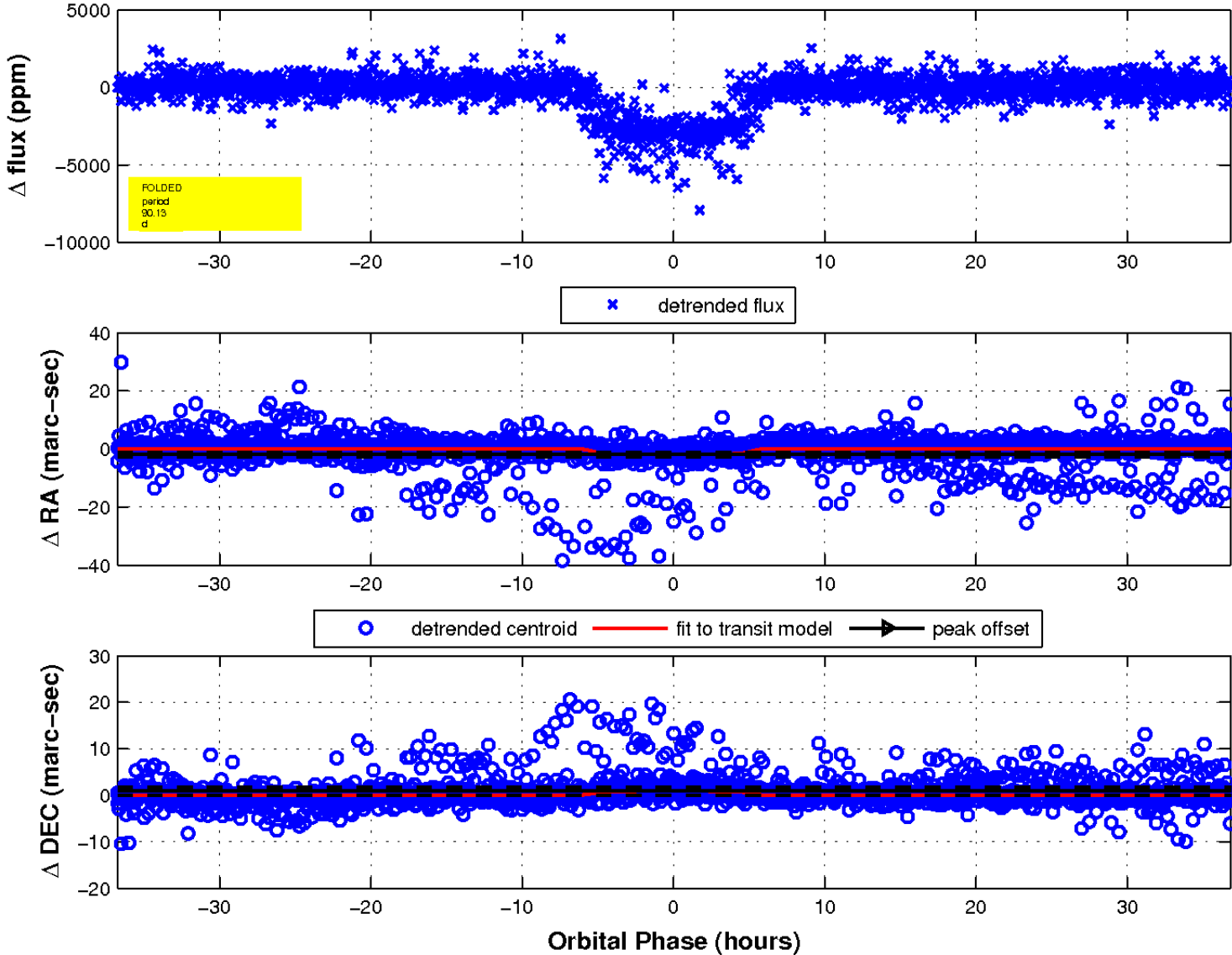
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

