

# KIC 004846856

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004846856-01	OBS	2900.01	46.151082	147.815567	624.4	5.419	14.1	13.9	0.77	5204	2.17	7.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004846856-01	OBS	PC	0.98	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.

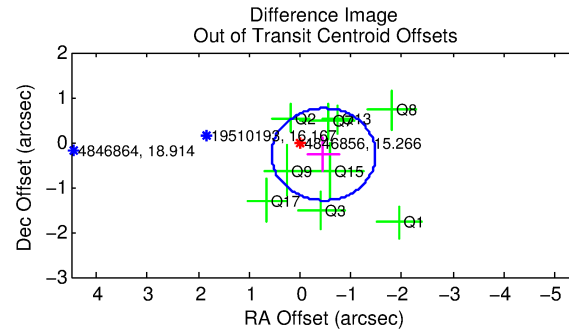
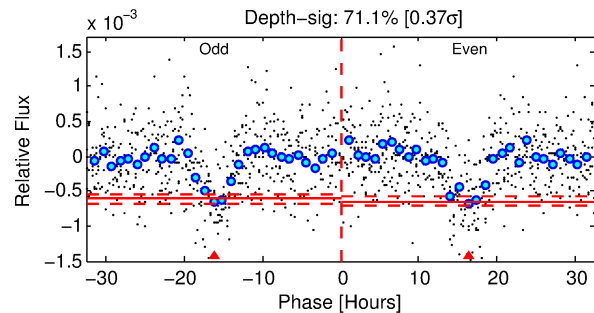
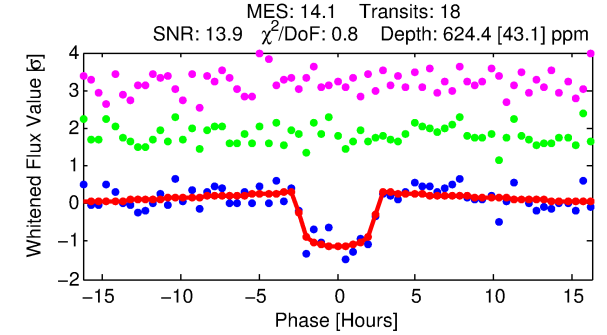
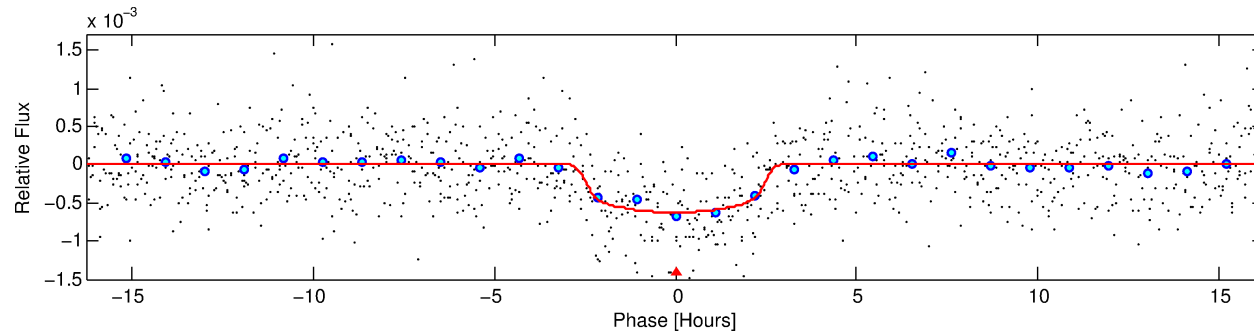
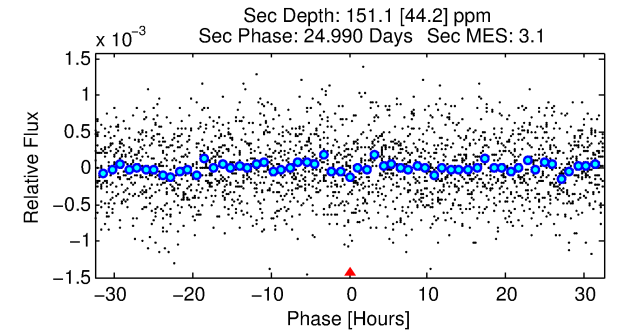
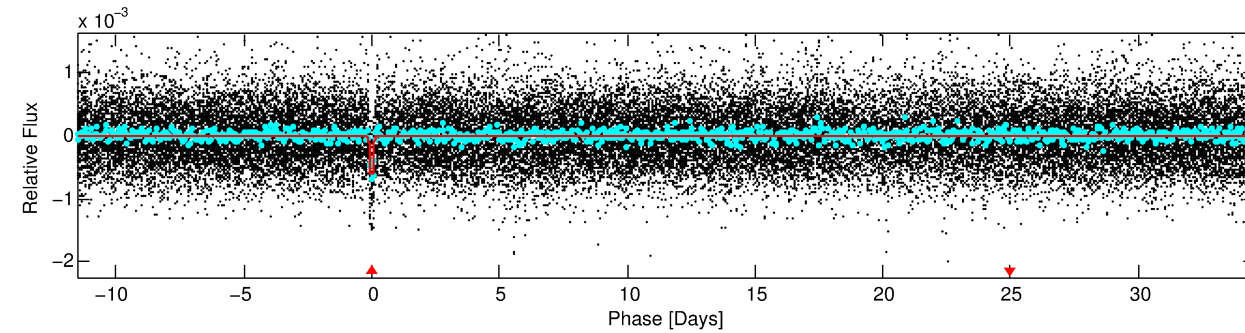
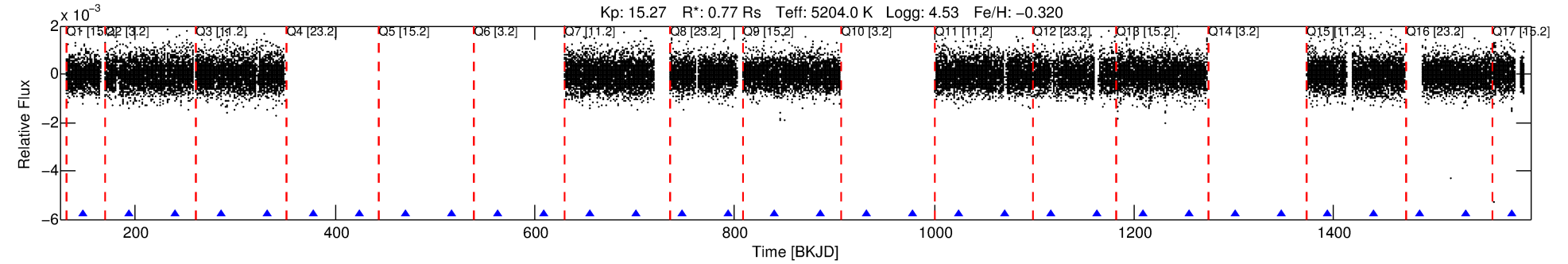
## Ephemeris Match Information For 004846856-01

No Significant Match Found

# DV One-Page Summary

KIC: 4846856 Candidate: 1 of 1 Period: 46.151 d

KOI: K02900.01 Corr: 0.987



## DV Fit Results:

Period = 46.15108 [0.00034] d  
Epoch = 147.8156 [0.0063] BKJD  
Rp/R\* = 0.0258 [0.0073]  
a/R\* = 40.05 [44.09]  
b = 0.82 [0.45]  
Seff = 7.61 [1.71]  
Teq = 423 [24] K  
Rp = 2.17 [0.68] Re  
a = 0.2260 [0.0274] AU  
Ag = 902.39 [595.13] [1.51σ]  
Teffp = 3589 [580] K [5.45σ]

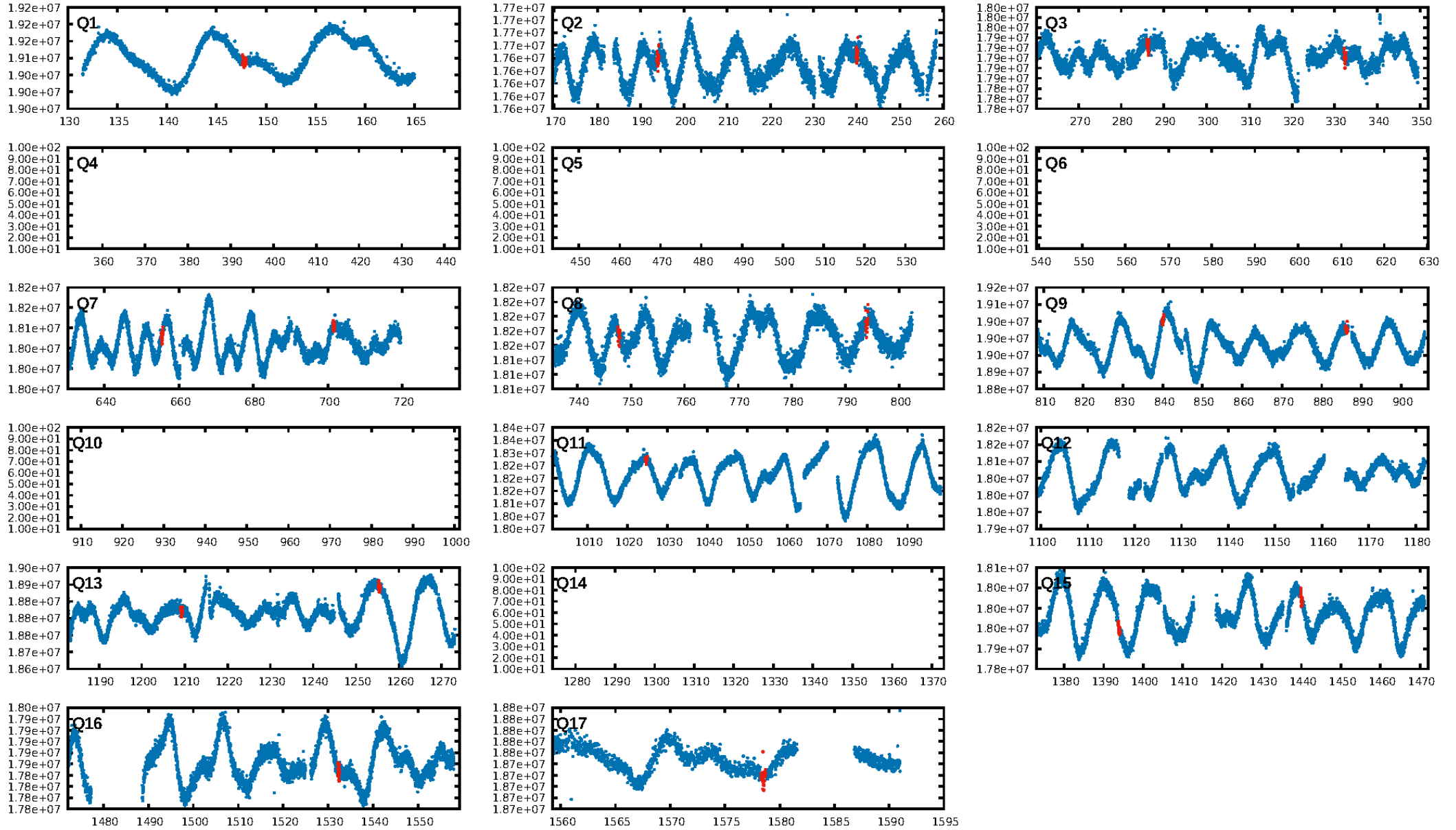
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.17e-35  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: 1.363  
Centroid-sig: 3.1%  
Centroid-so: 1.133 arcsec [1.26σ]  
OotOffset-rm: 0.536 arcsec [1.57σ]  
KicOffset-rm: 0.609 arcsec [1.78σ]  
OotOffset-st: 1/3/1/4 [9]  
KicOffset-st: 1/3/1/4 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [11/11]

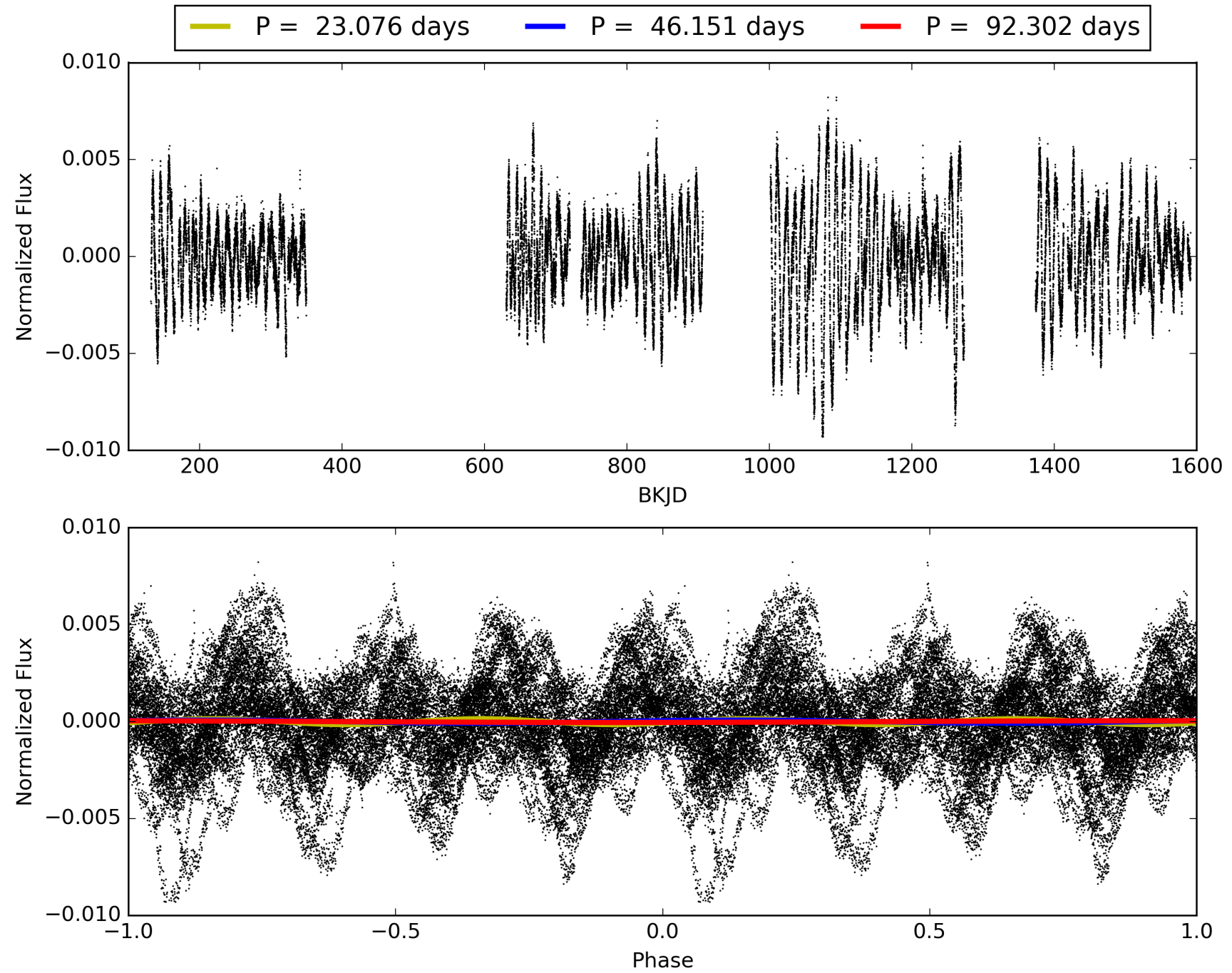
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:23:29 Z

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

# TCE 004846856-01, PDC Light Curves

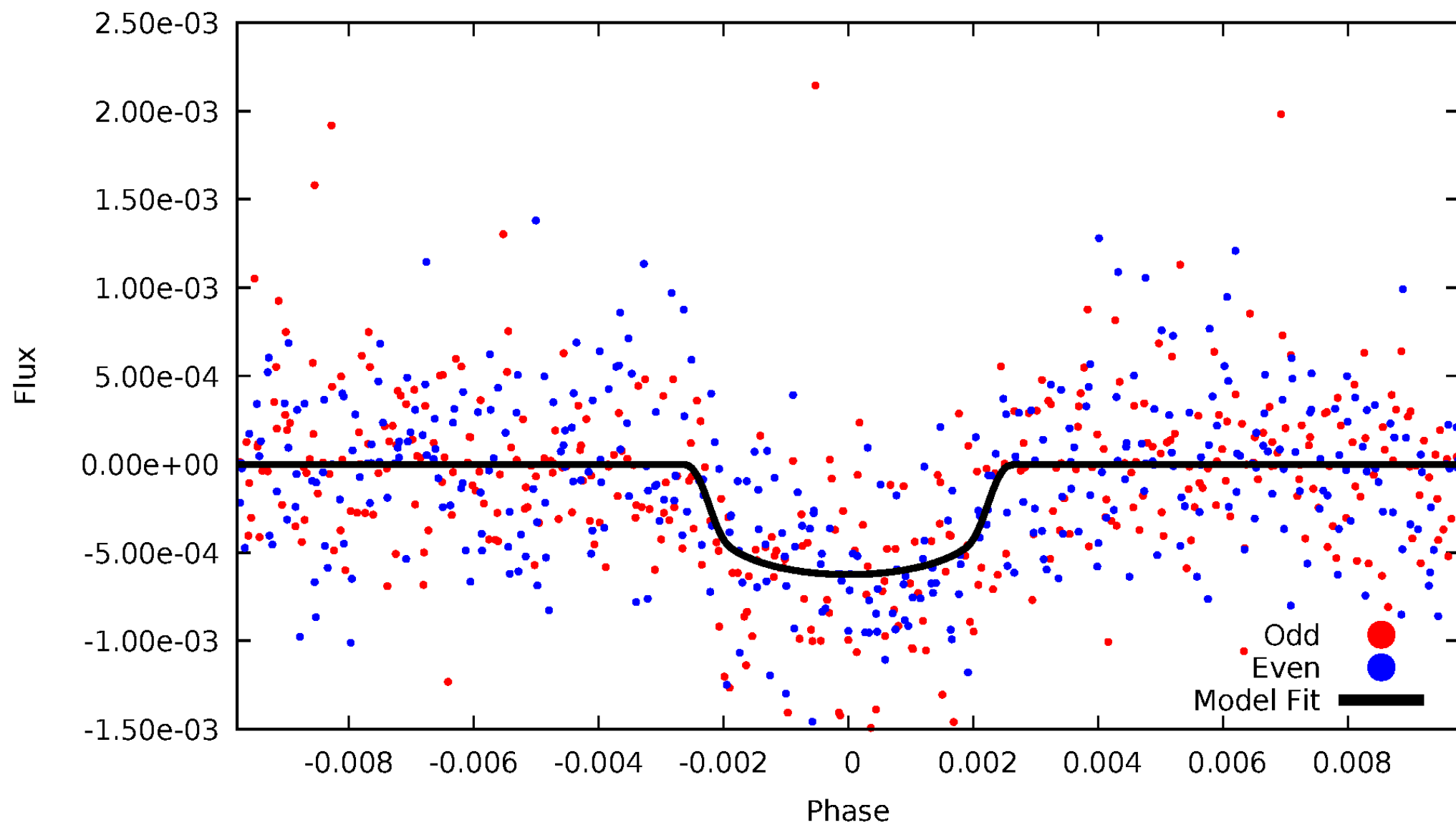


TCE 004846856-01



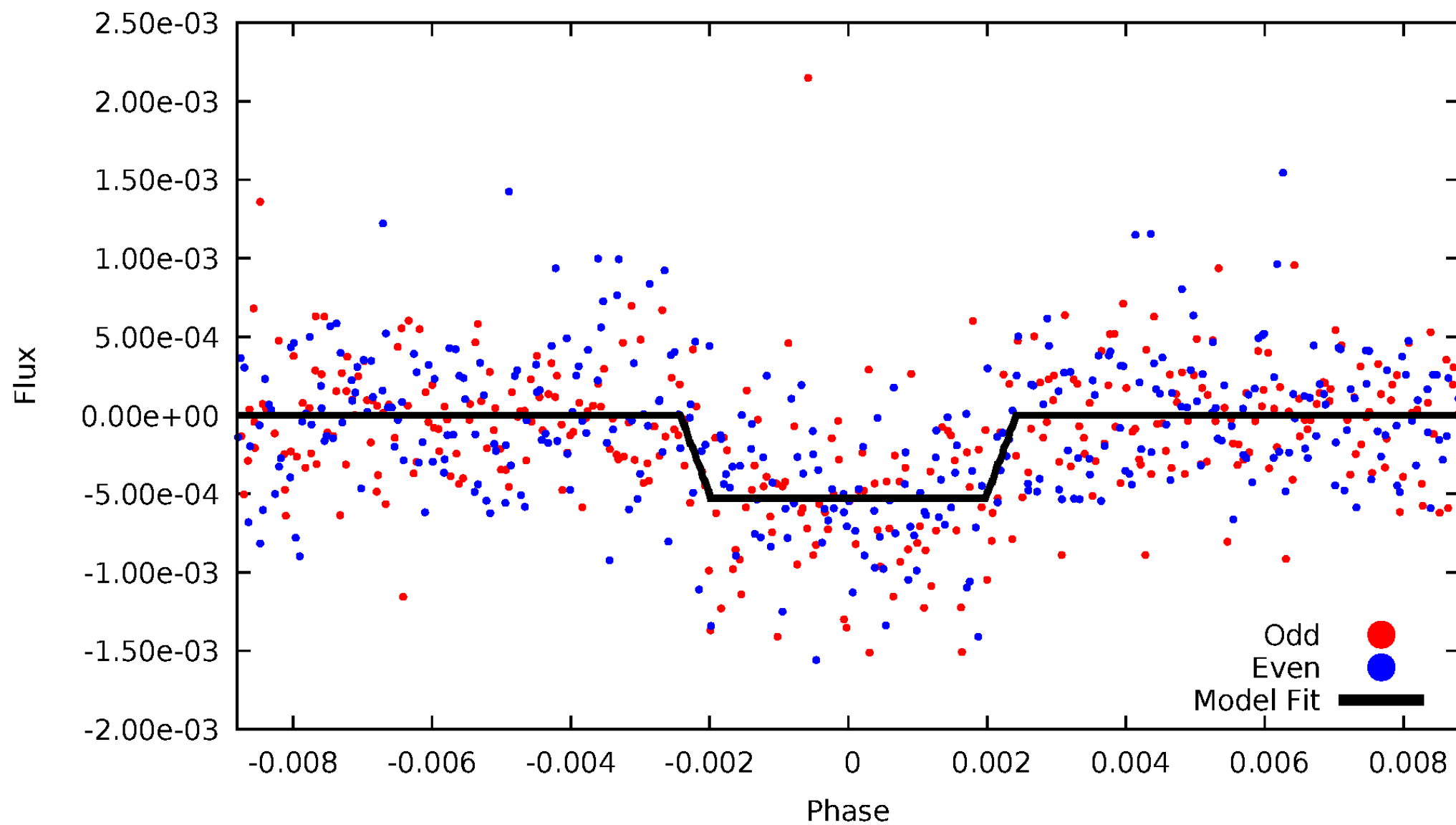
# DV Odd/Even

TCE 004846856-01



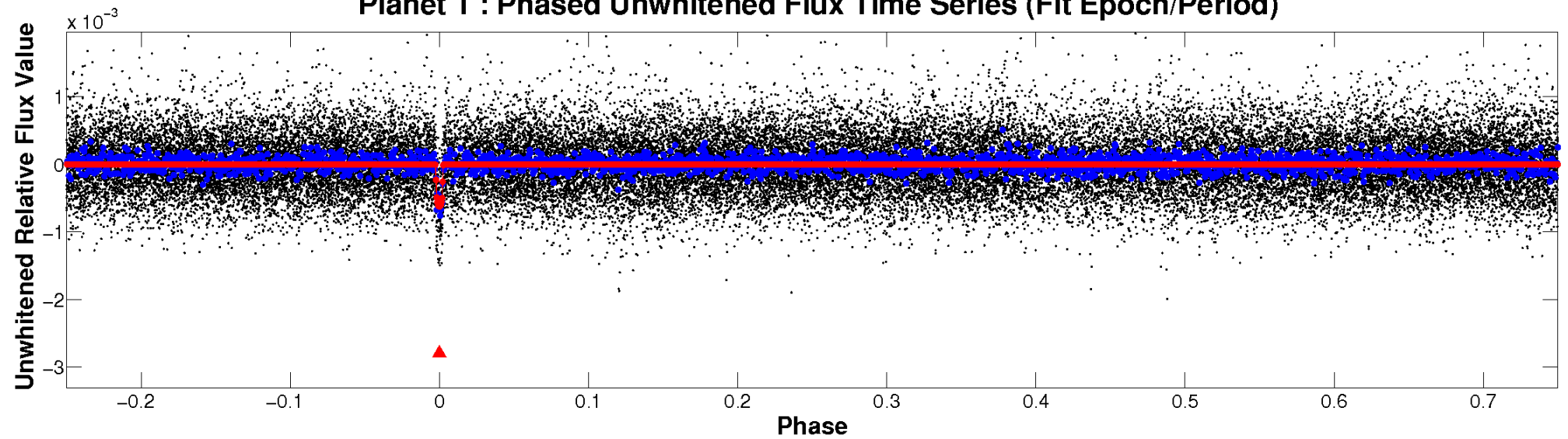
# ALT Odd/Even

TCE 004846856-01

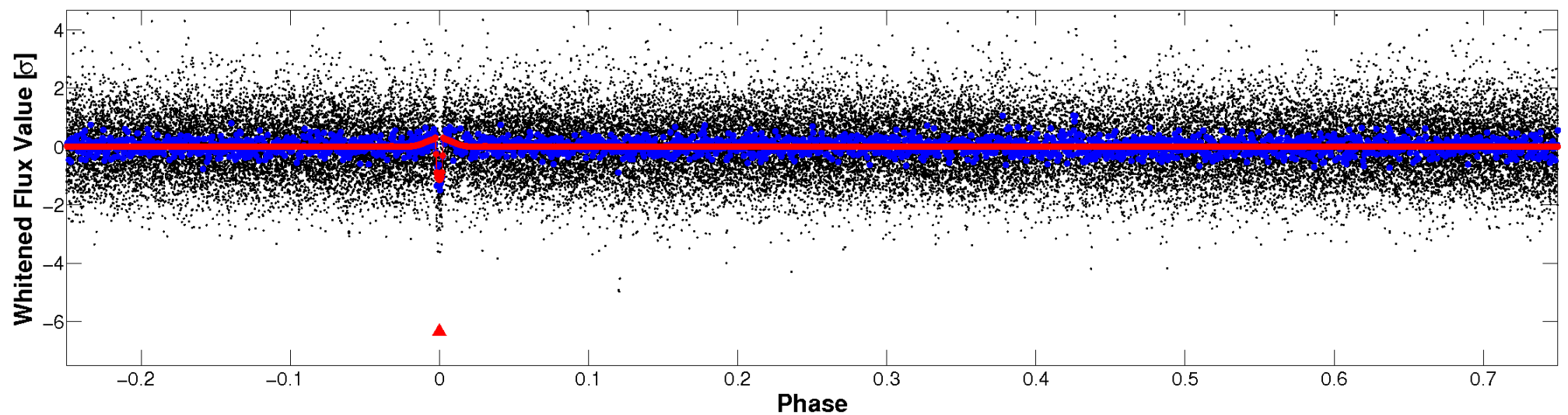


# Non-Whitened Vs. Whitened Light Curve

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



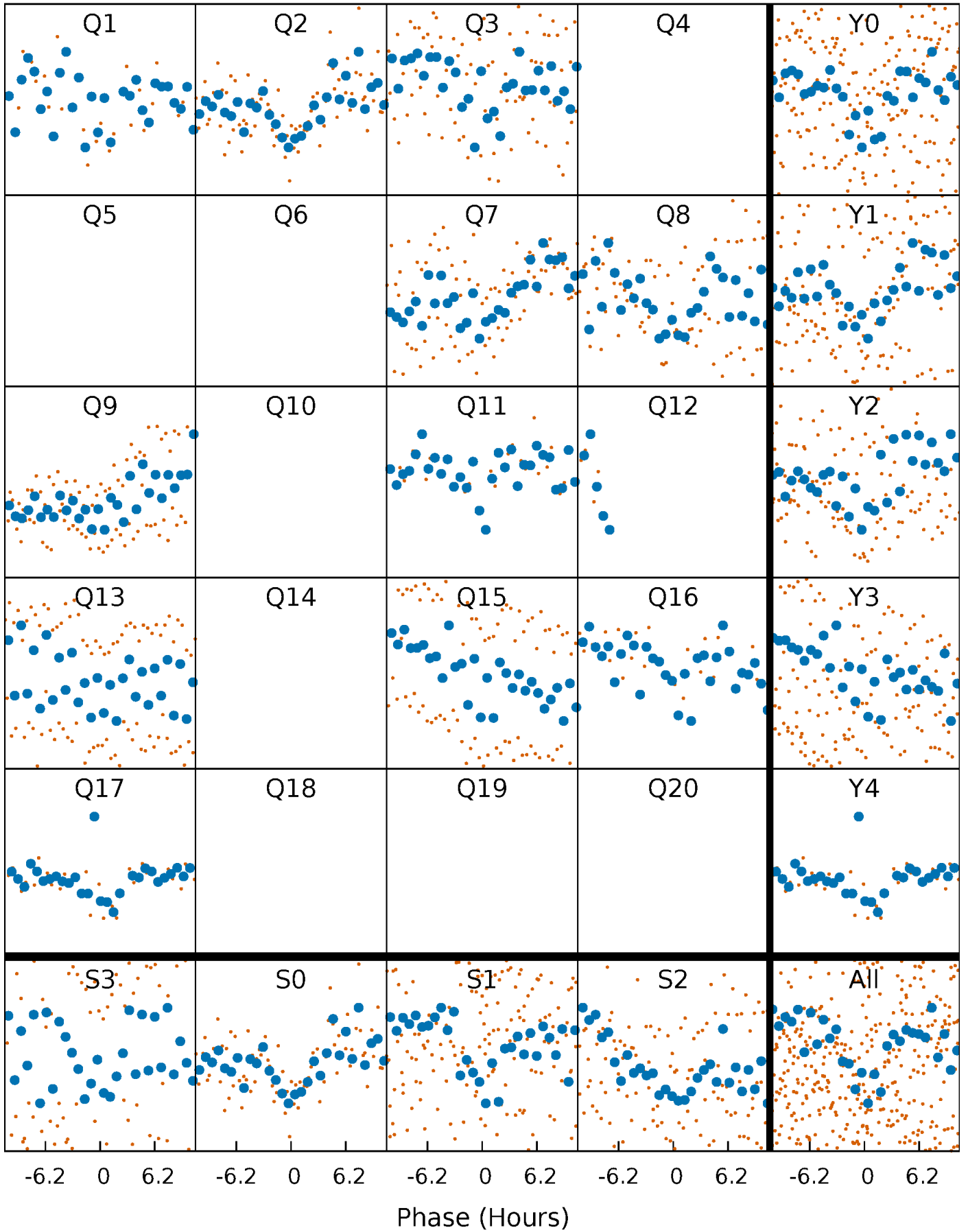
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

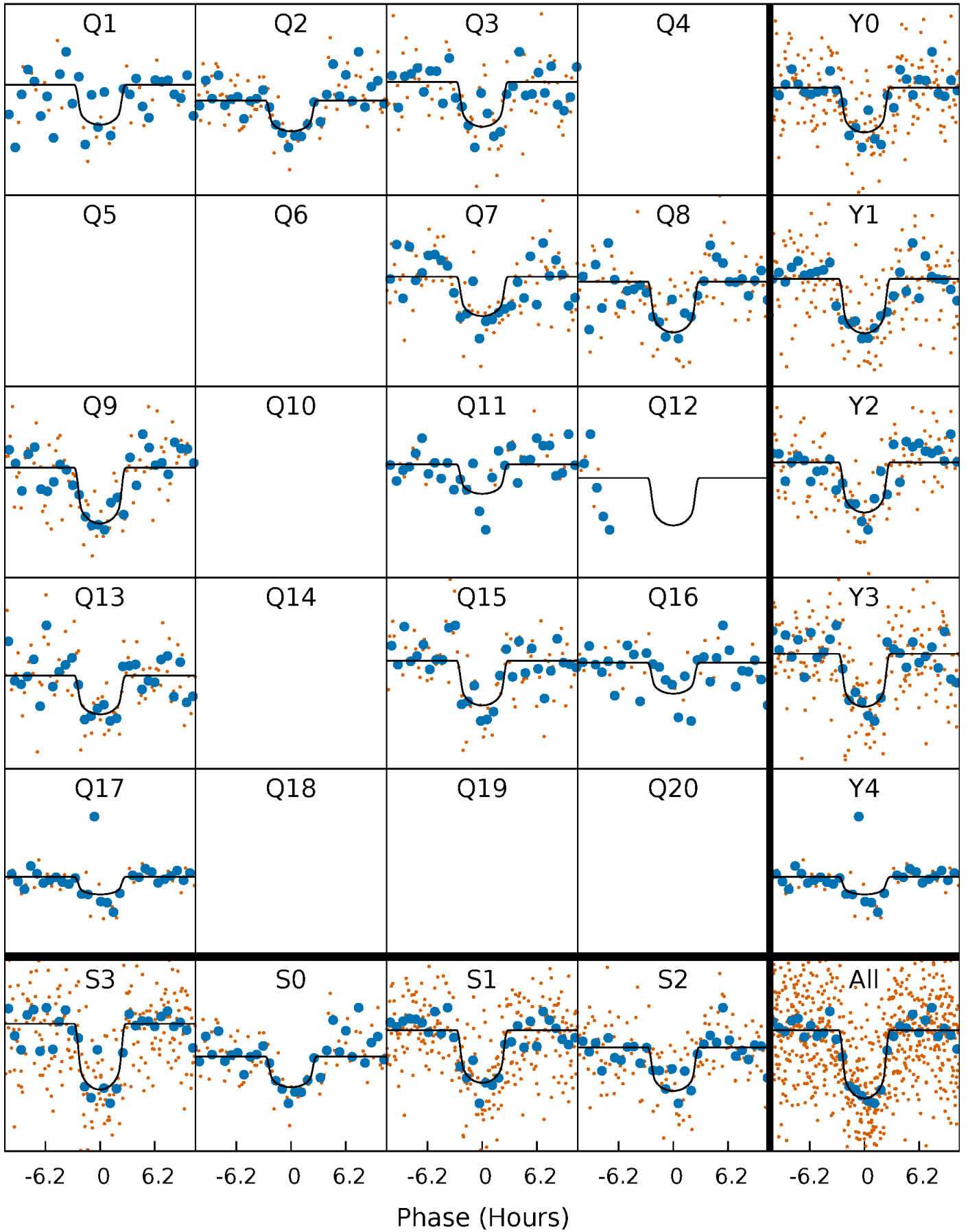
TCE 004846856-01 P= 46.151082 Days  $T_0=147.815567$  (BKJD)





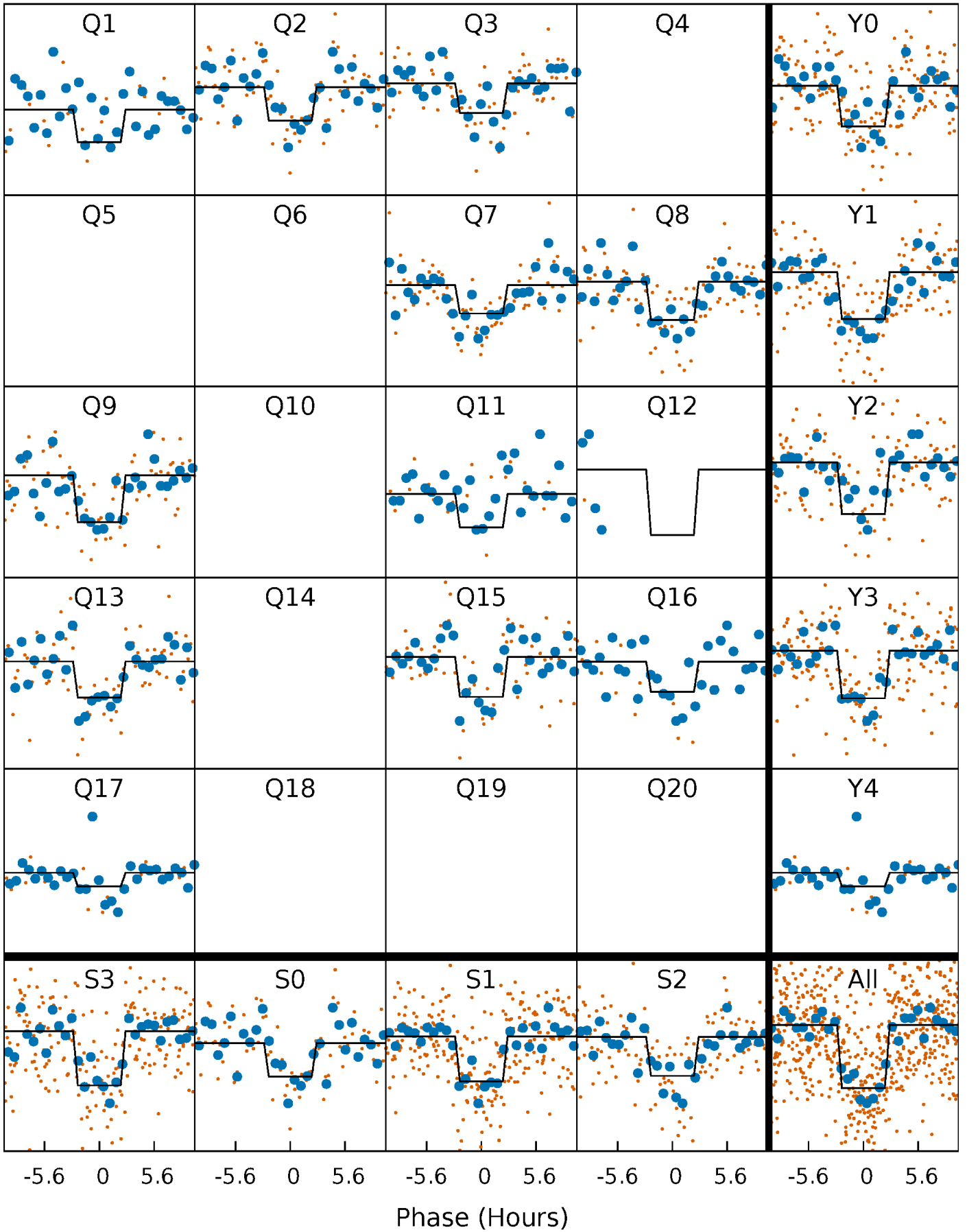
# DV Quarter-Phased Transit Curves

TCE 004846856-01   P= 46.151082 Days    $T_0=147.815567$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

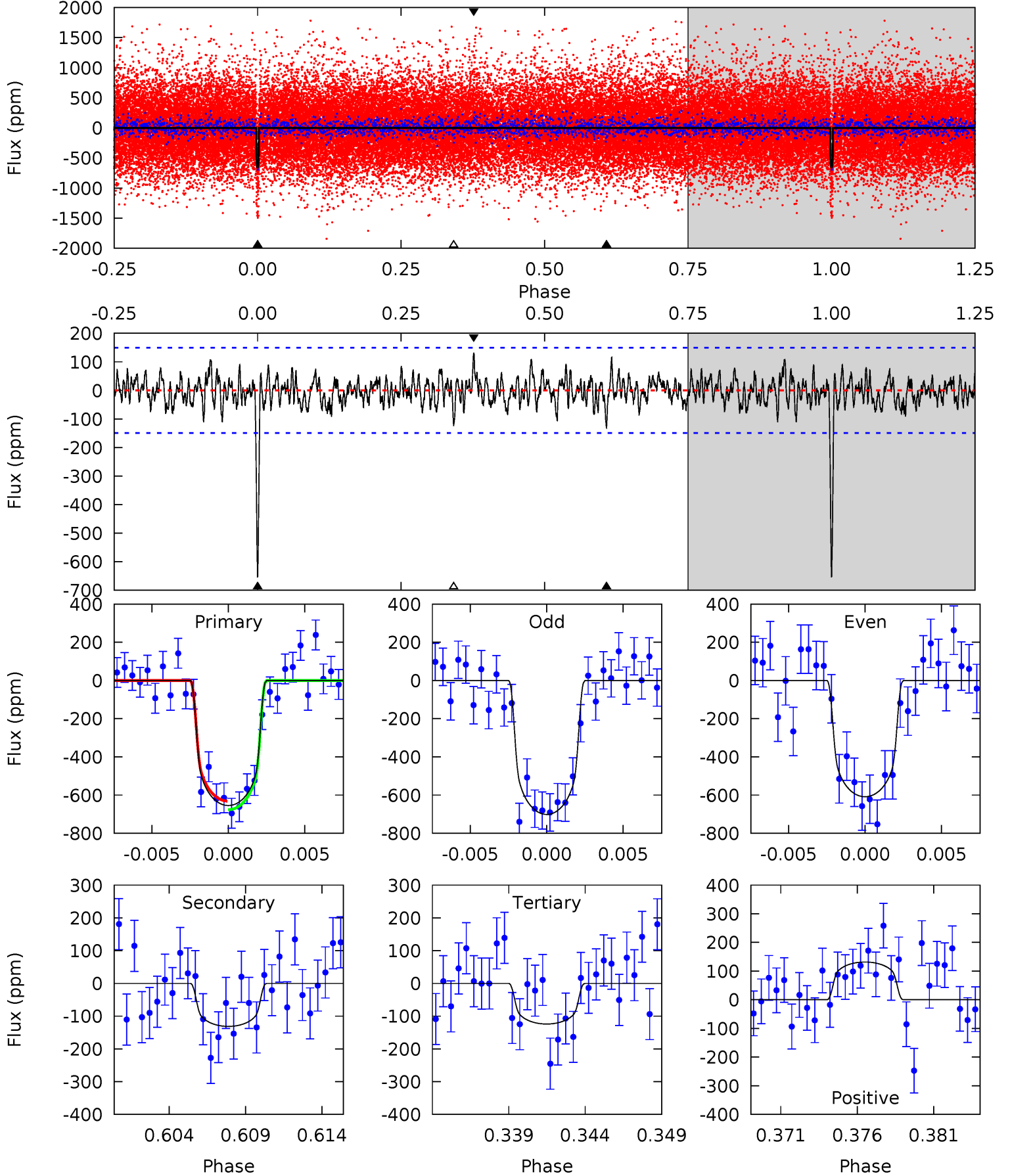
TCE 004846856-01 P= 46.151361 Days  $T_0=147.809318$  (BKJD)



# DV Model-Shift Uniqueness Test

004846856-01,  $P = 46.151082$  Days,  $E = 101.664485$  Days

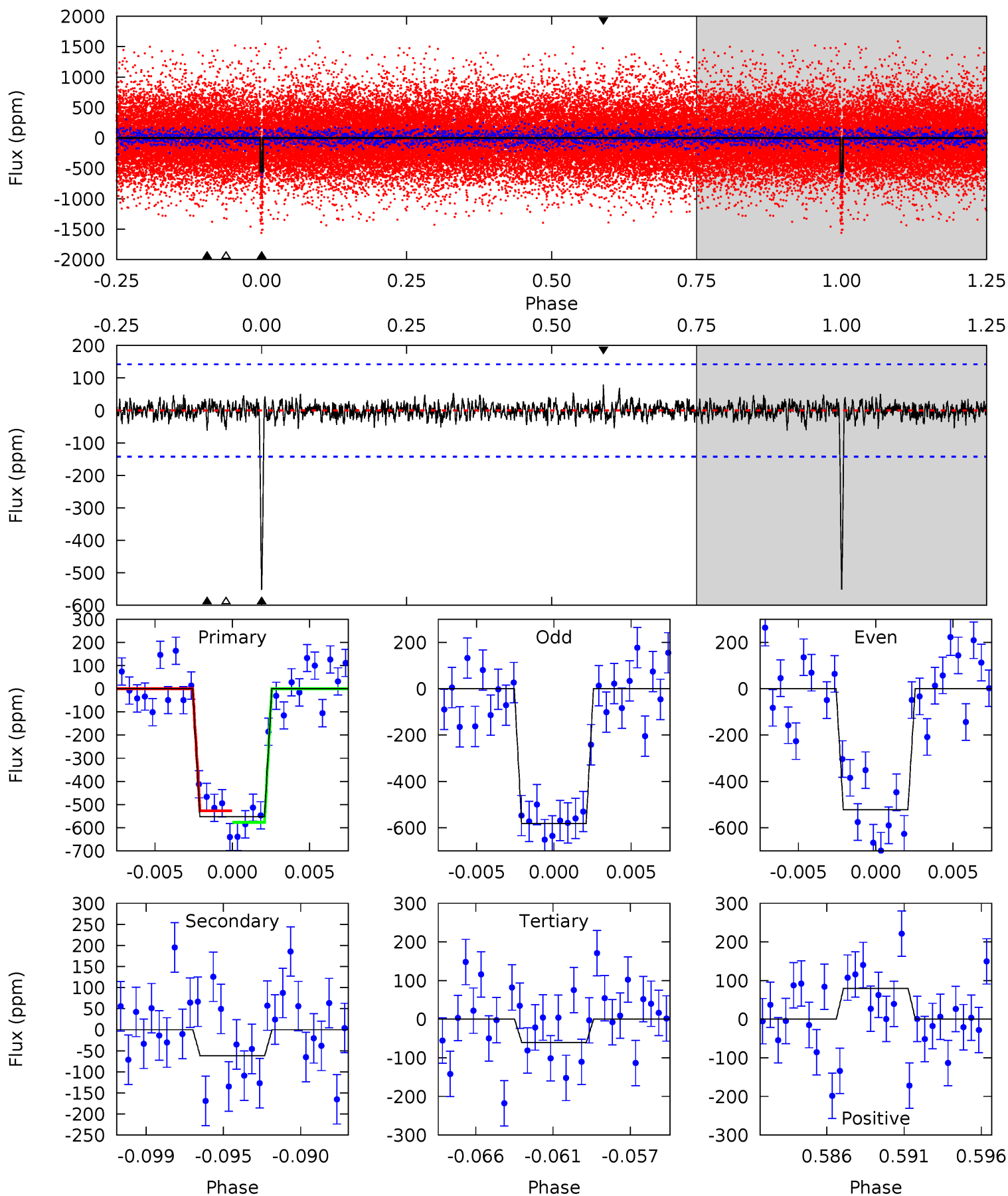
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	4.53	4.28	4.54	5.15	2.79	1.31	18.3	18.0	0.25	-0.01	1.61	1.04	0.17	0.77



# Alt Model-Shift Uniqueness Test

004846856-01, P = 46.151361 Days, E = 101.657957 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
20.0	2.24	2.18	2.89	5.17	2.83	0.63	17.9	17.1	0.06	-0.65	1.09	0.96	0.13	0.92



### Stellar Parameters For KIC 004846856

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5204^{+168}_{-153}$	$4.525^{+0.095}_{-0.104}$	$-0.320^{+0.350}_{-0.300}$	$0.769^{+0.105}_{-0.086}$	$0.723^{+0.106}_{-0.049}$	$2.241^{+0.925}_{-0.655}$
	+3%/-3%	+2%/-2%	+109%/-94%	+14%/-11%	+15%/-7%	+41%/-29%
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 004846856-01 / KOI 2900.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-131 \pm 29$	$2.17^{+0.64}_{-0.60}$	$592^{+29}_{-28}$	$3800^{+506}_{-330}$	$788^{+765}_{-350}$
Alt.	$-62 \pm 28$	$1.97^{+0.65}_{-0.58}$	$594^{+27}_{-28}$	$3465^{+539}_{-420}$	$445^{+573}_{-255}$

$T_{\text{max}}$  = 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

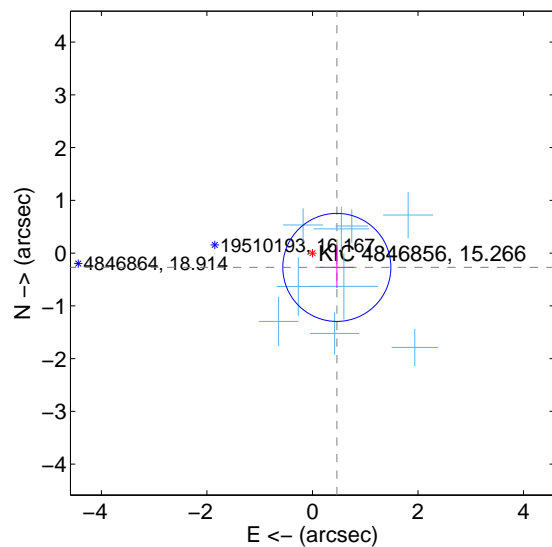
Supplemental centroid analysis for 004846856-01. Kepler magnitude: 15.27. Transit SNR 13.87

There are 9 quarters with good PRF difference image offsets

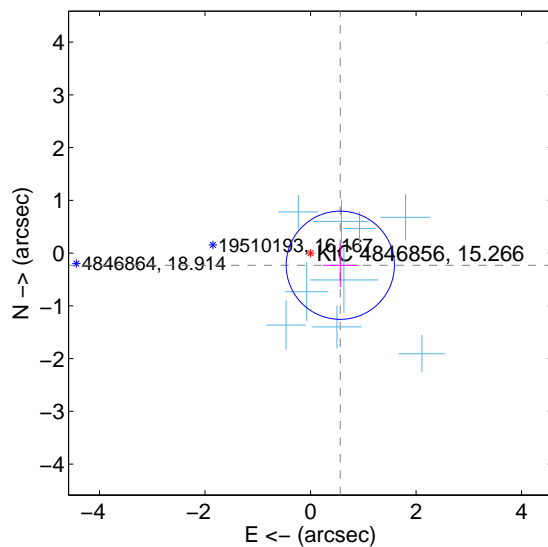
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.536 \pm 0.341$	1.57	$-0.462 \pm 0.323$	$-0.271 \pm 0.389$
PRF-fit source offset from KIC position	$0.609 \pm 0.342$	1.78	$-0.564 \pm 0.329$	$-0.230 \pm 0.411$
photometric centroid source offset	$1.13 \pm 0.90$	1.26	$-0.65 \pm 1.08$	$-0.93 \pm 0.79$

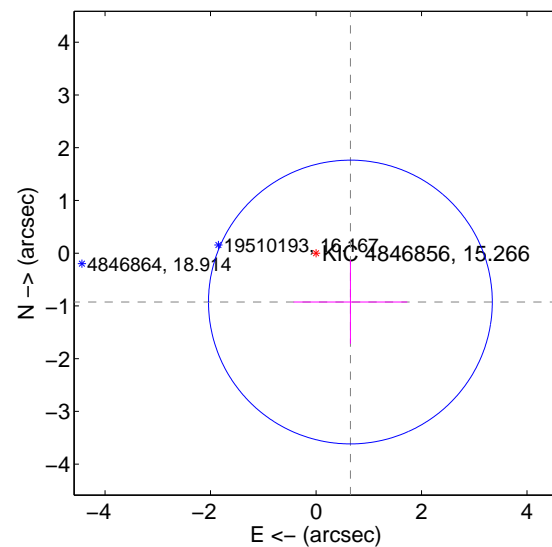
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

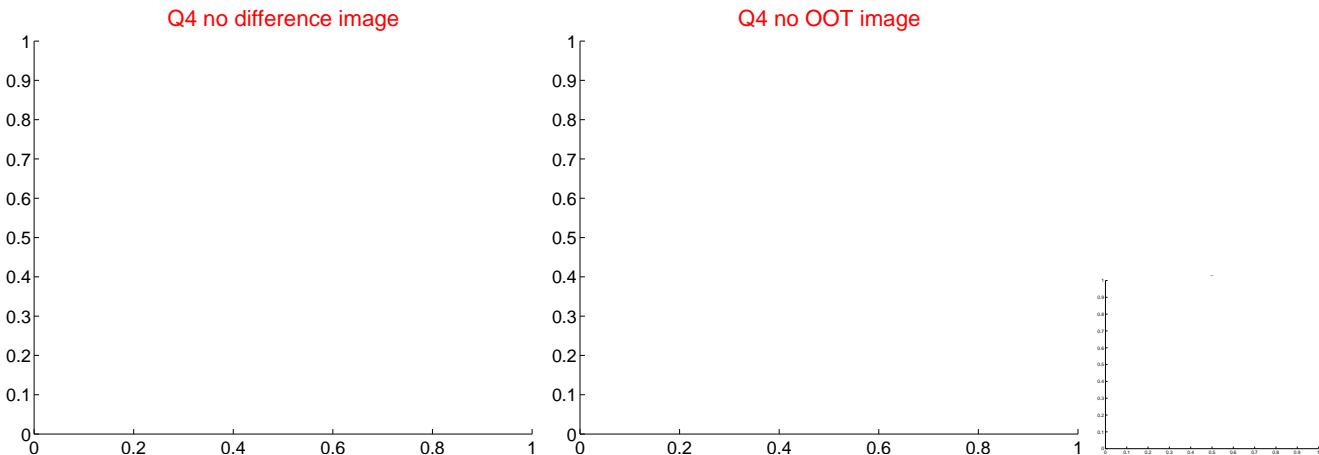
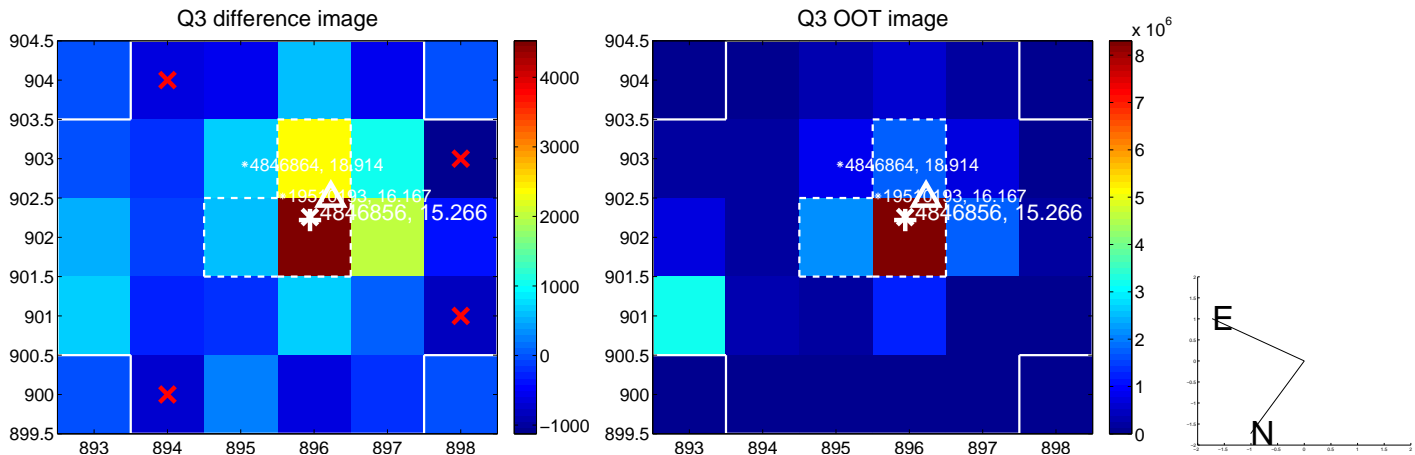
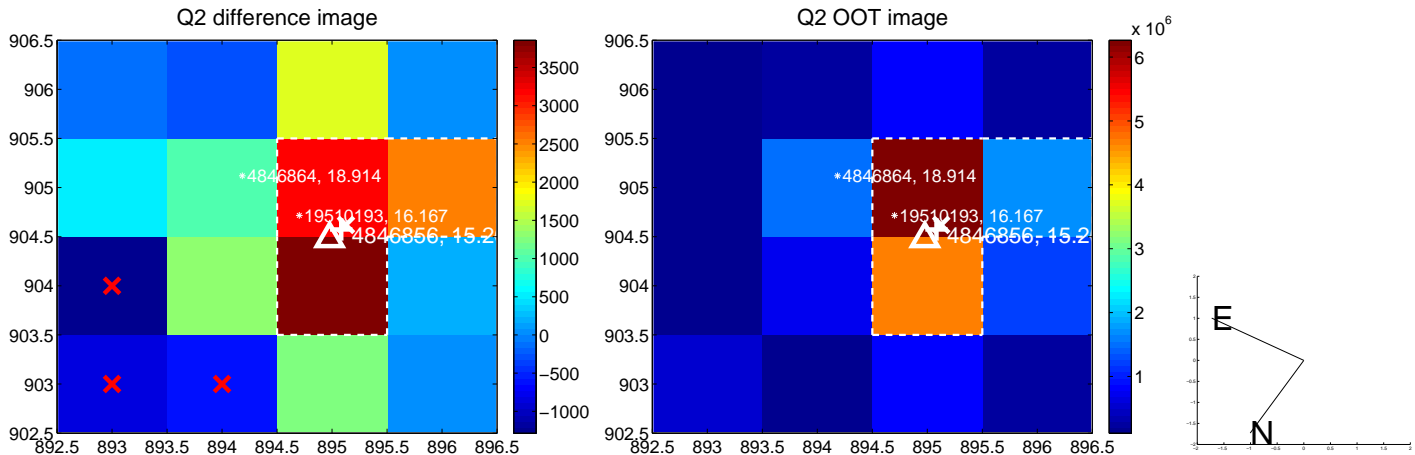
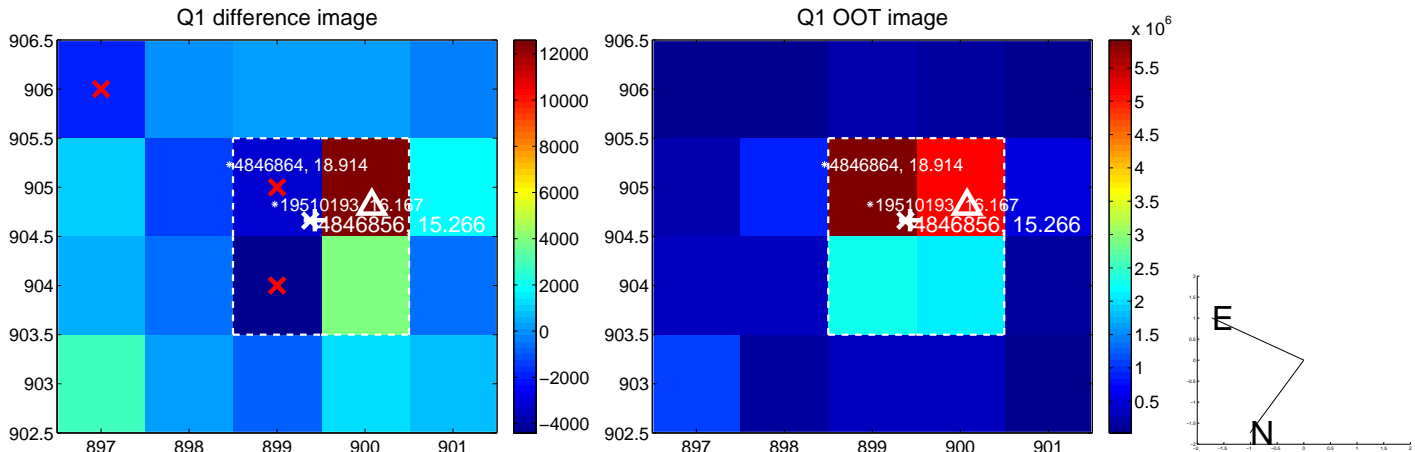


offset from photometric centroids



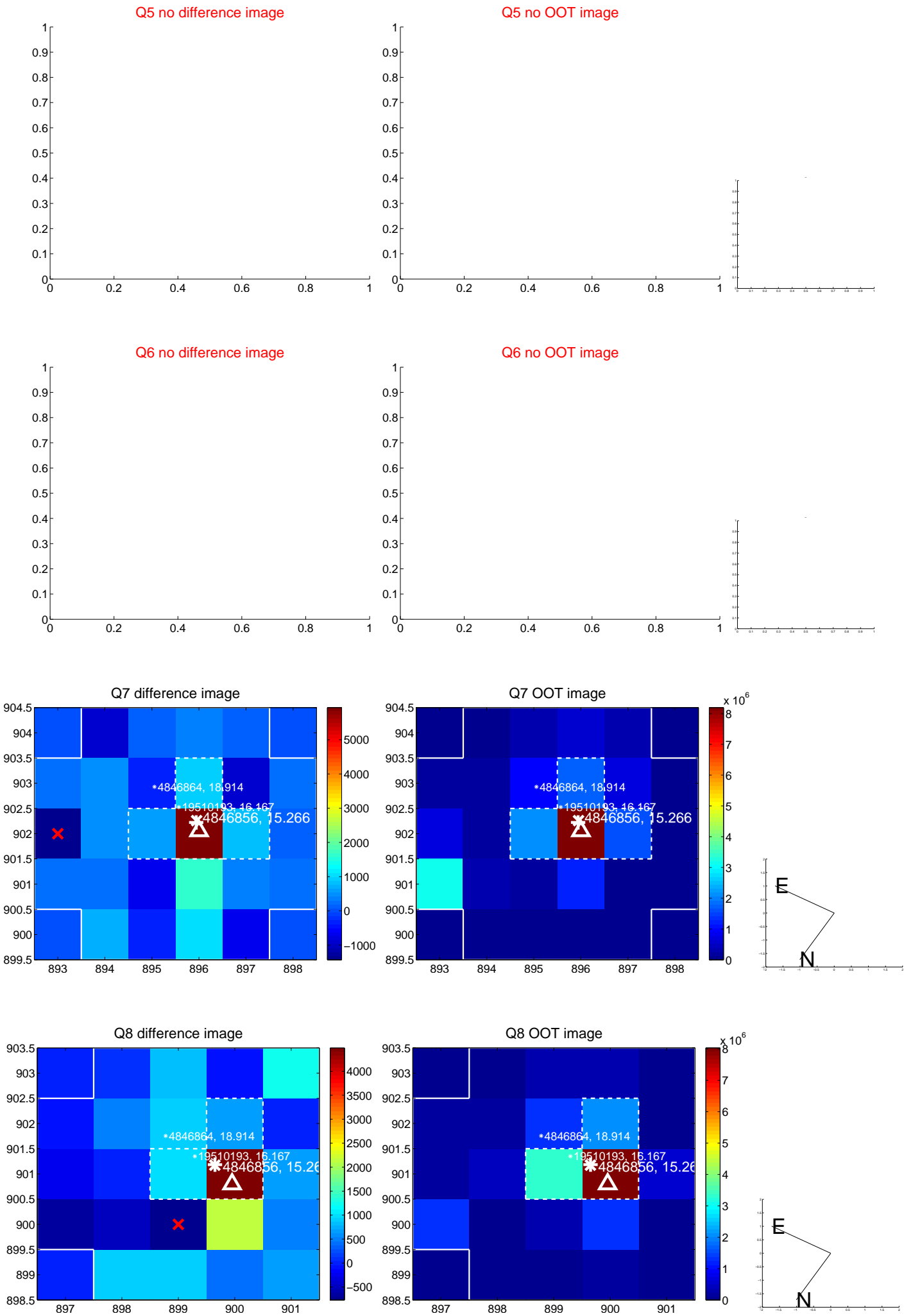
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

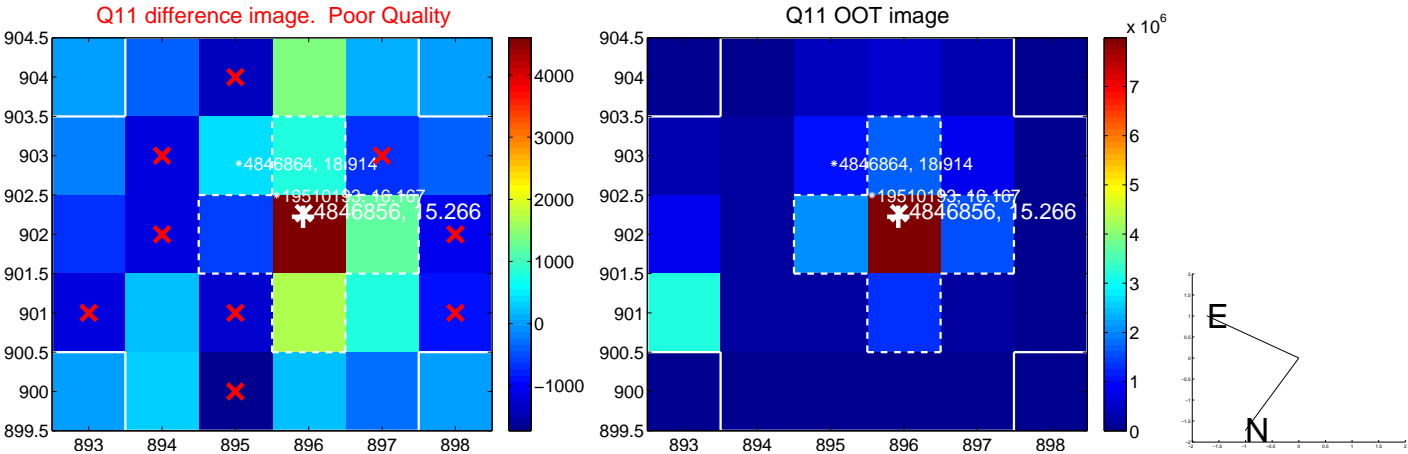
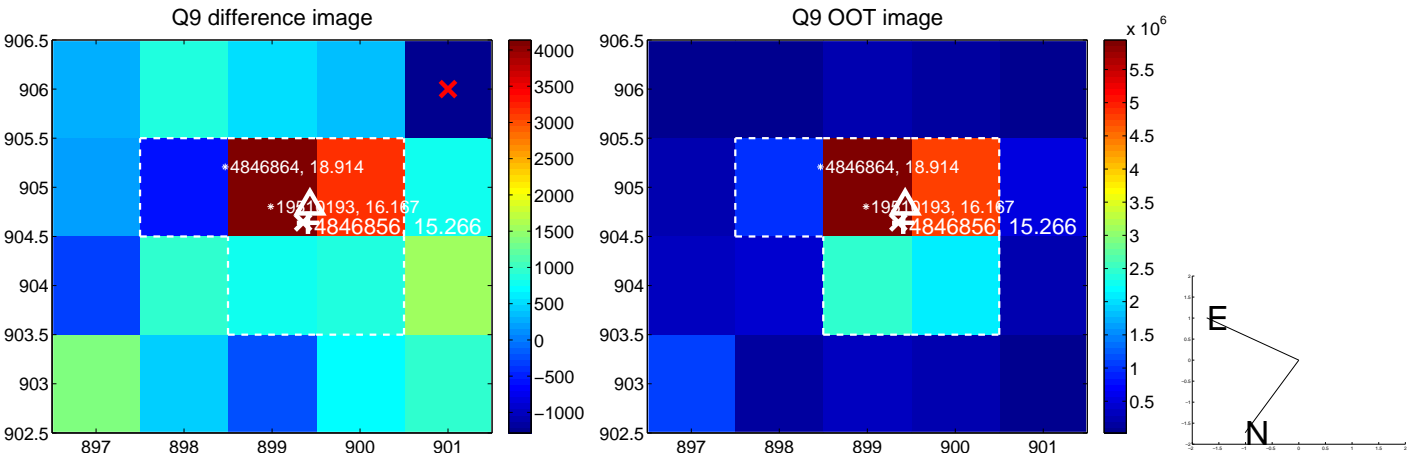




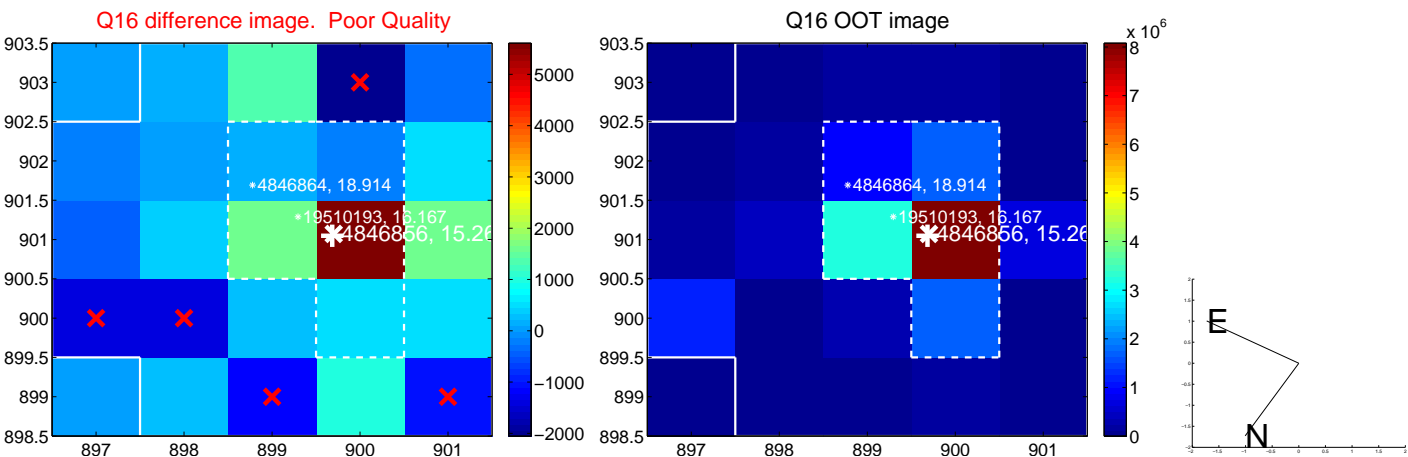
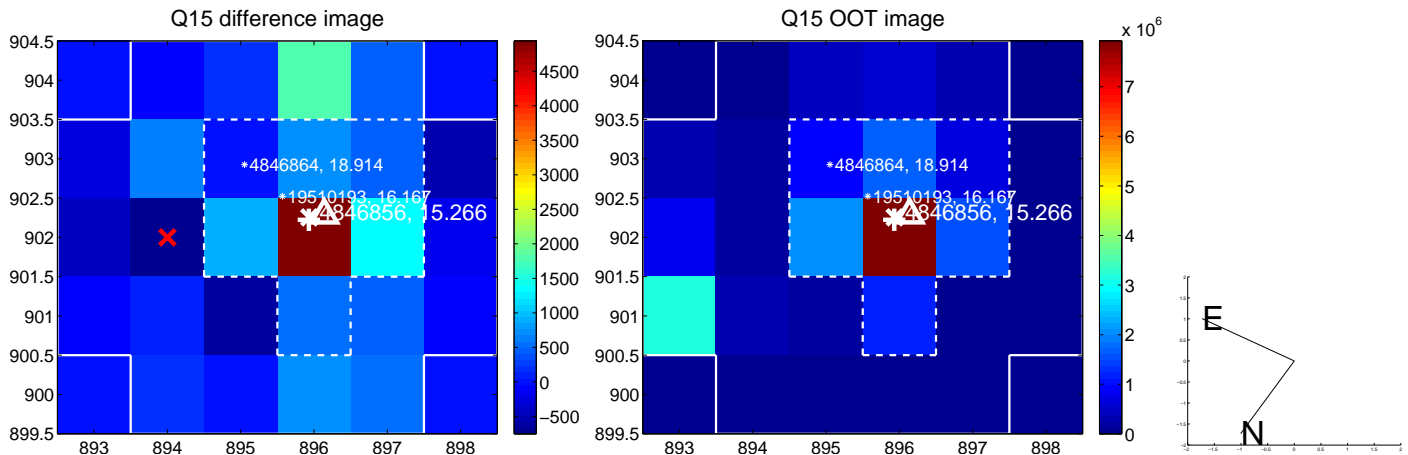
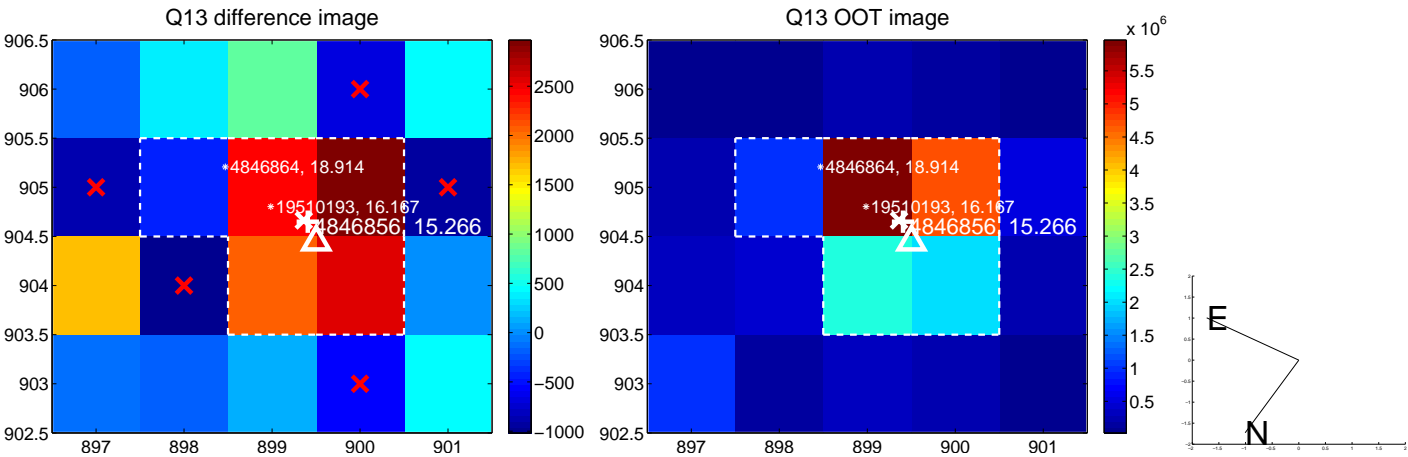
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



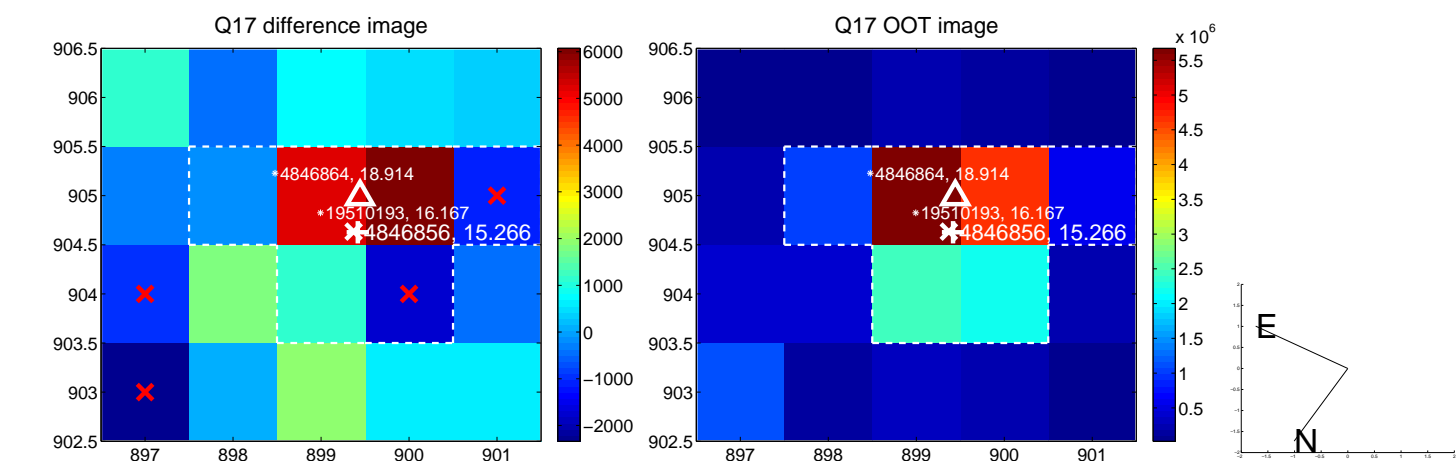
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



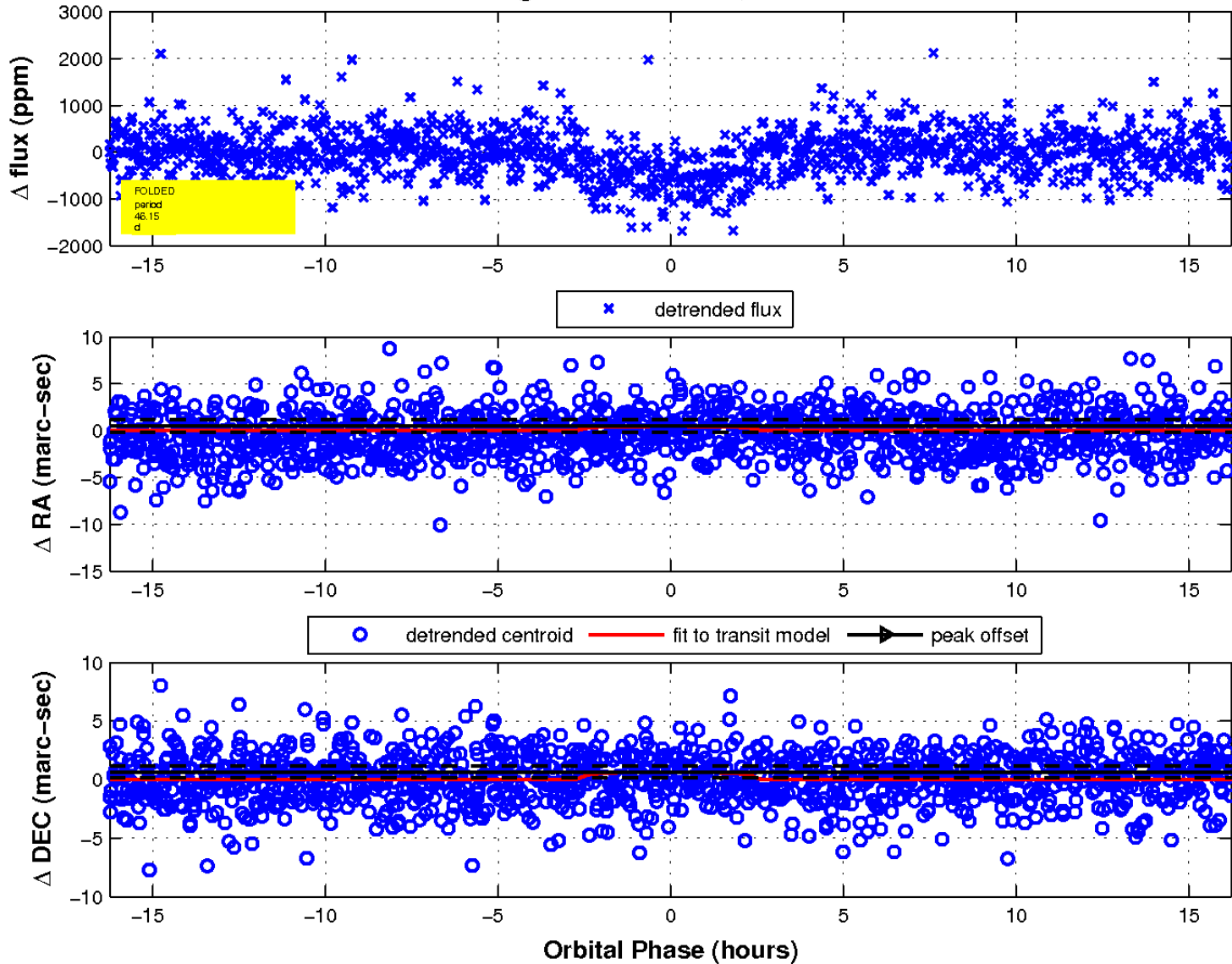
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

