

# KIC 008360916

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008360916-01	OBS	No	385.895864	184.500464	429.0	35.281	8.6	11.9	0.81	5467	2.10	0.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008360916-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

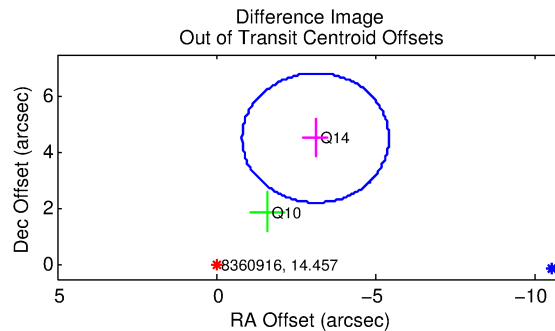
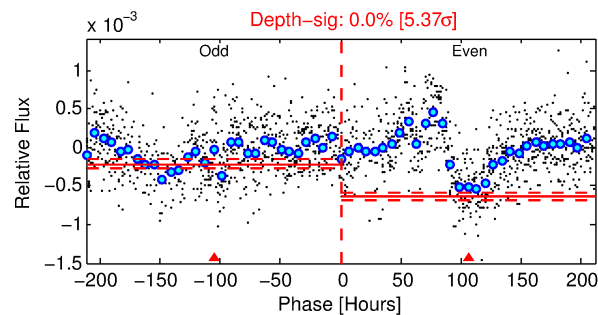
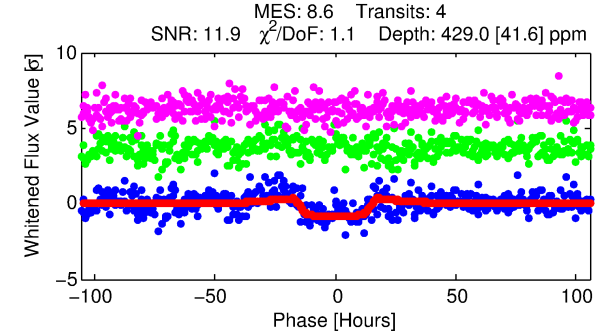
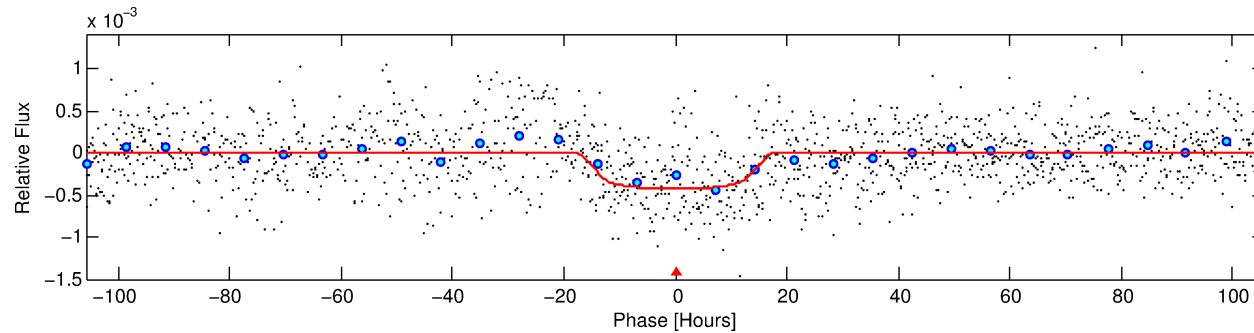
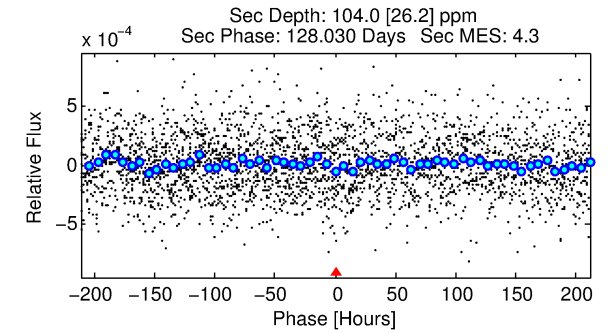
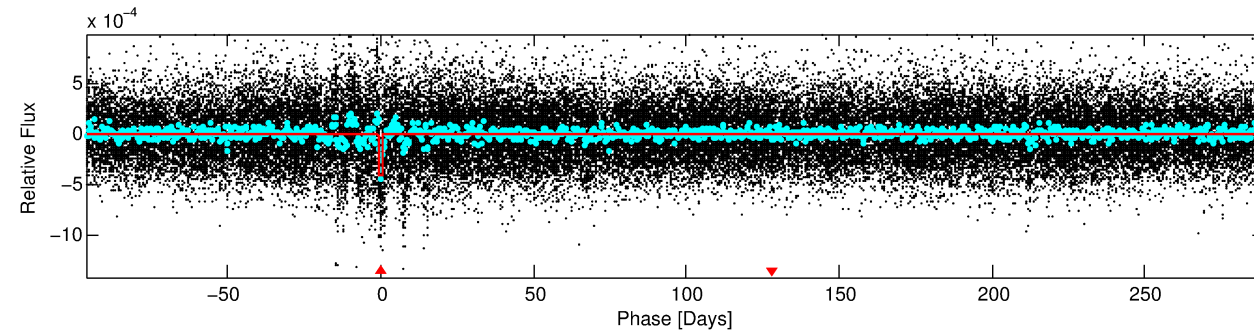
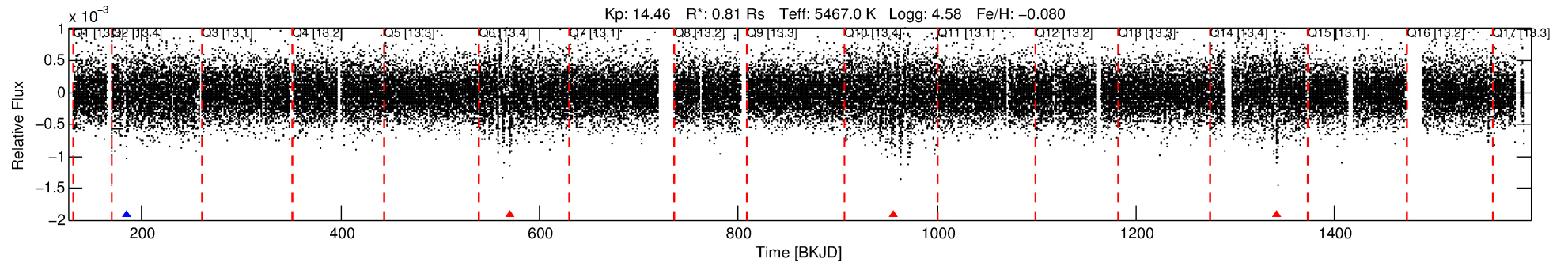
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008360916-01

No Significant Match Found

# DV One-Page Summary

KIC: 8360916 Candidate: 1 of 1 Period: 385.896 d



## DV Fit Results:

Period = 385.89586 [0.02323] d  
Epoch = 184.5005 [0.0455] BKJD  
Rp/R\* = 0.0238 [0.0018]  
a/R\* = 34.52 [8.48]  
b = 0.94 [0.03]  
Seff = 0.52 [0.15]  
Teff = 217 [15] K  
Rp = 2.10 [0.48] Re  
a = 1.0022 [0.1822] AU  
Ag = 12999.31 [5151.98] [2.52 $\sigma$ ]  
Teffp = 3575 [281] K [11.93 $\sigma$ ]

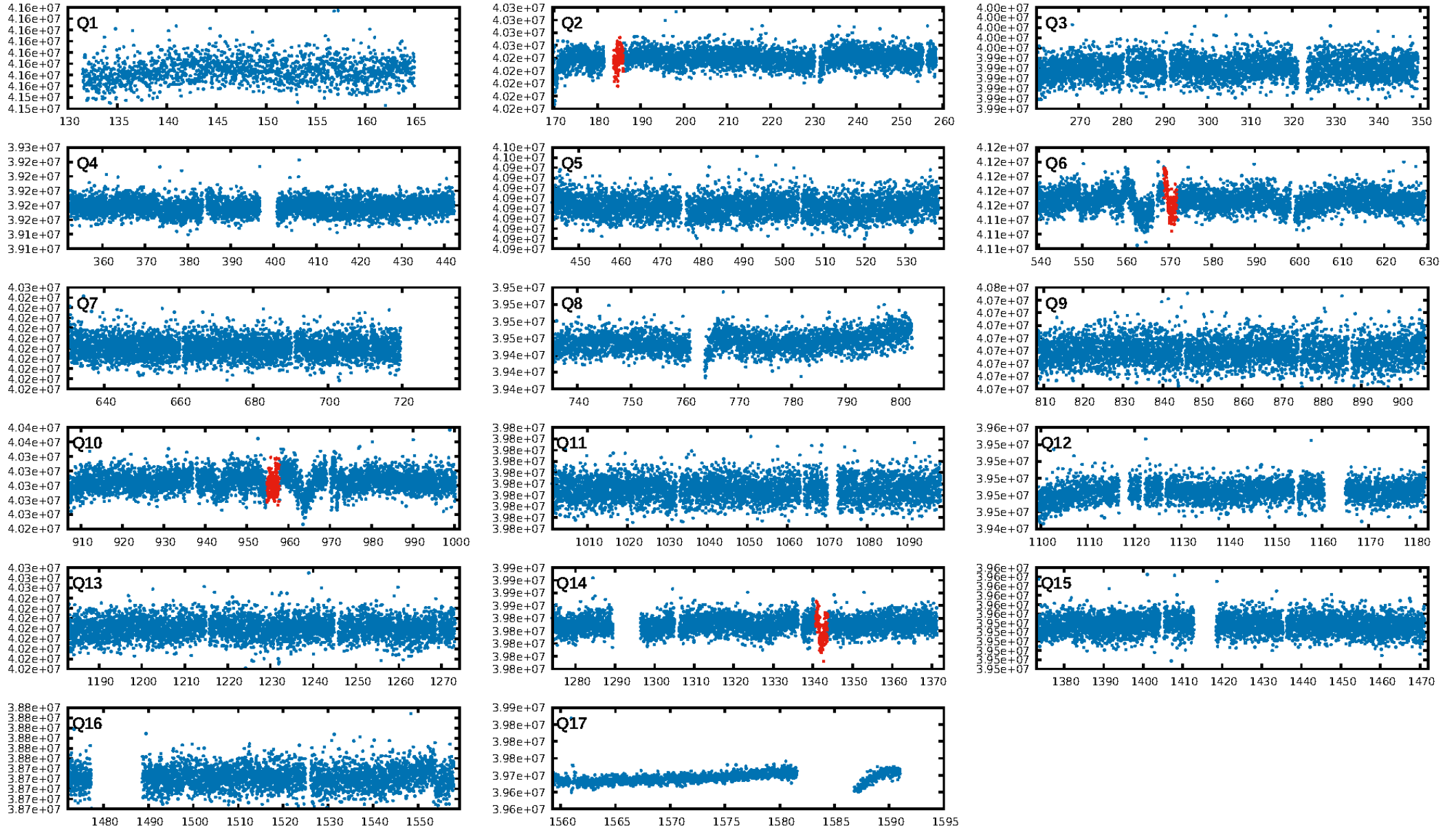
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.29e-10  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 0.3461  
Centroid-sig: 0.0%  
Centroid-so: 2.996 arcsec [2.32 $\sigma$ ]  
OotOffset-rm: 5.497 arcsec [7.15 $\sigma$ ]  
KicOffset-rm: 5.196 arcsec [4.21 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

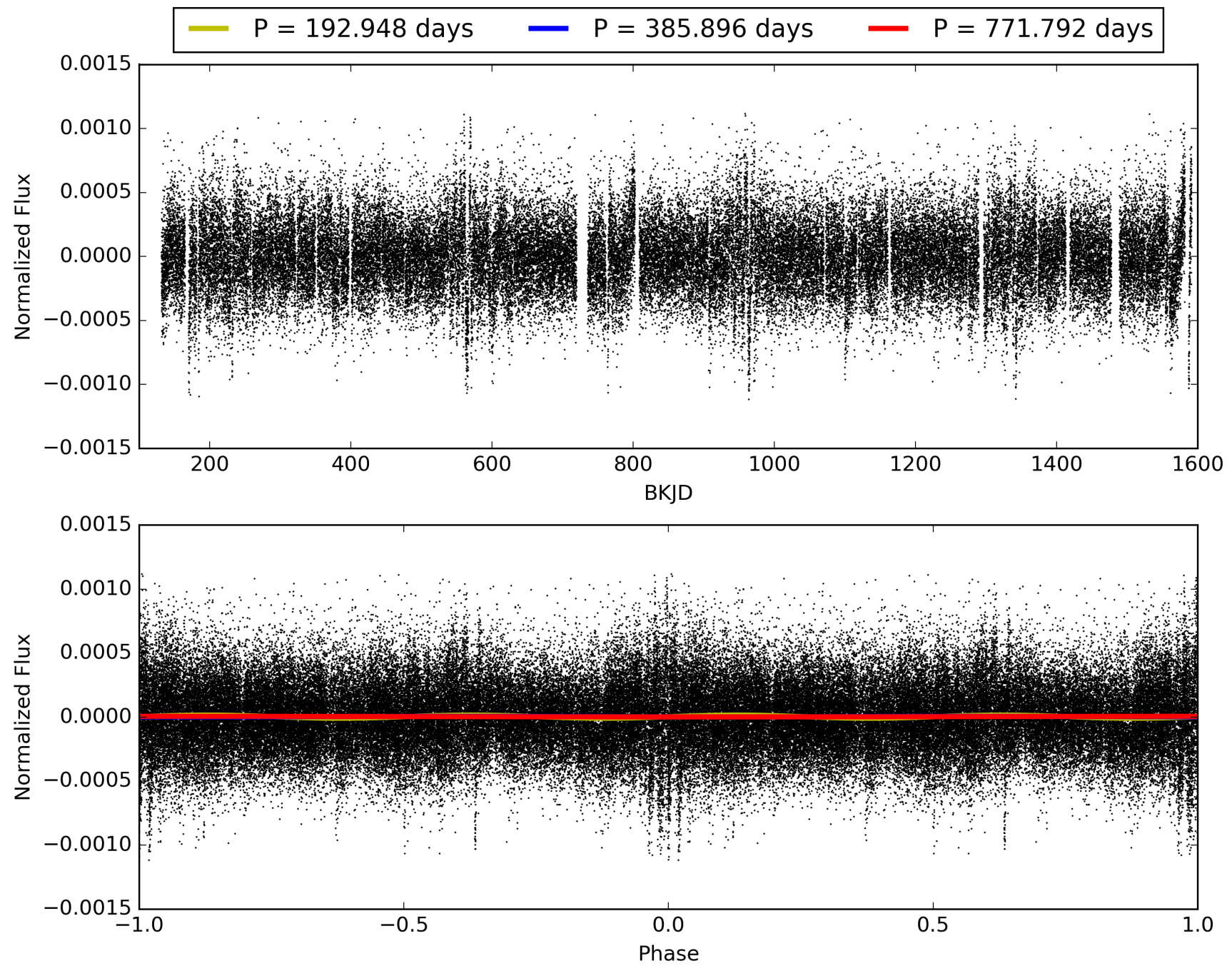
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:48:58 Z

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

# TCE 008360916-01, PDC Light Curves

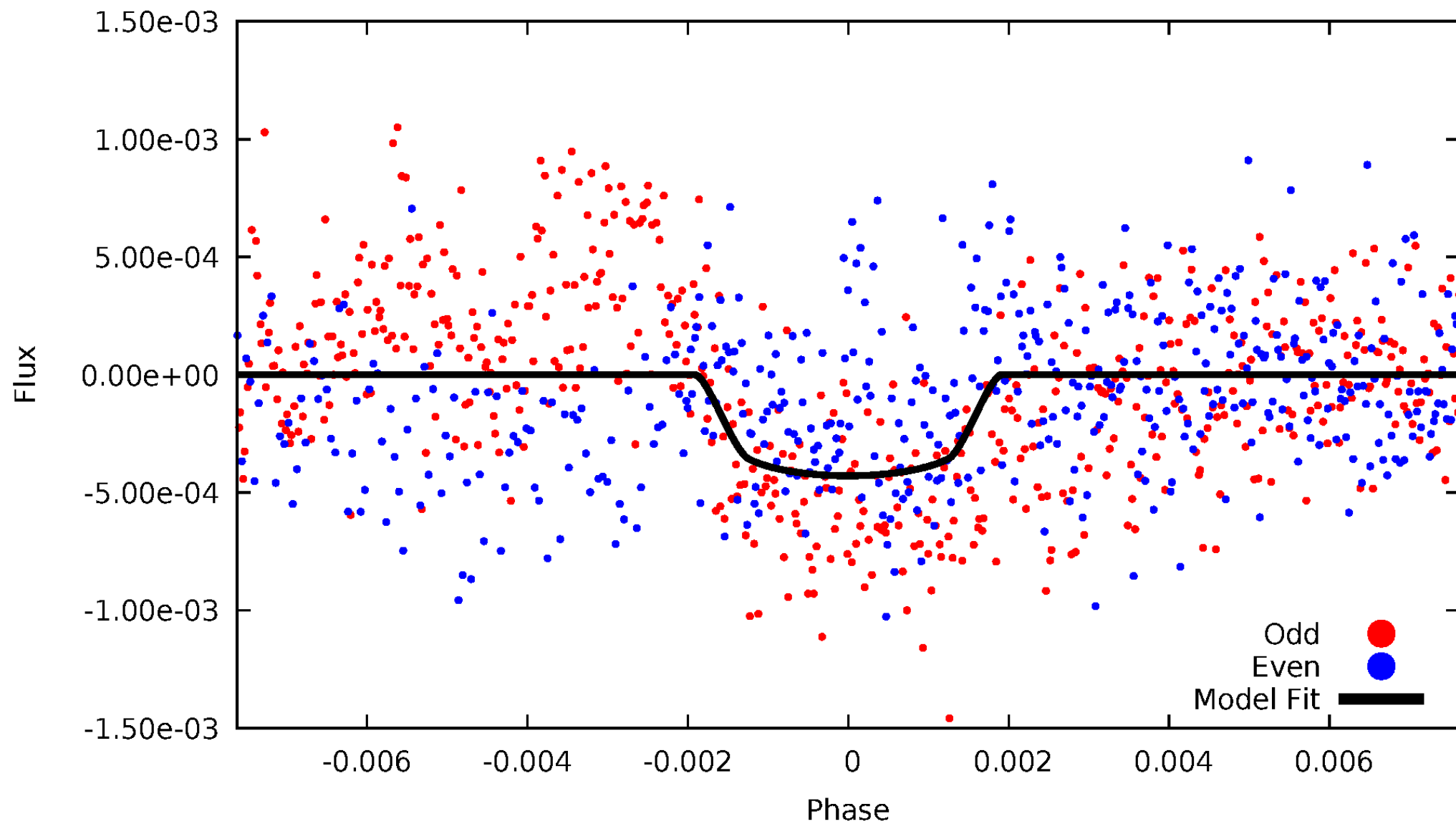


TCE 008360916-01



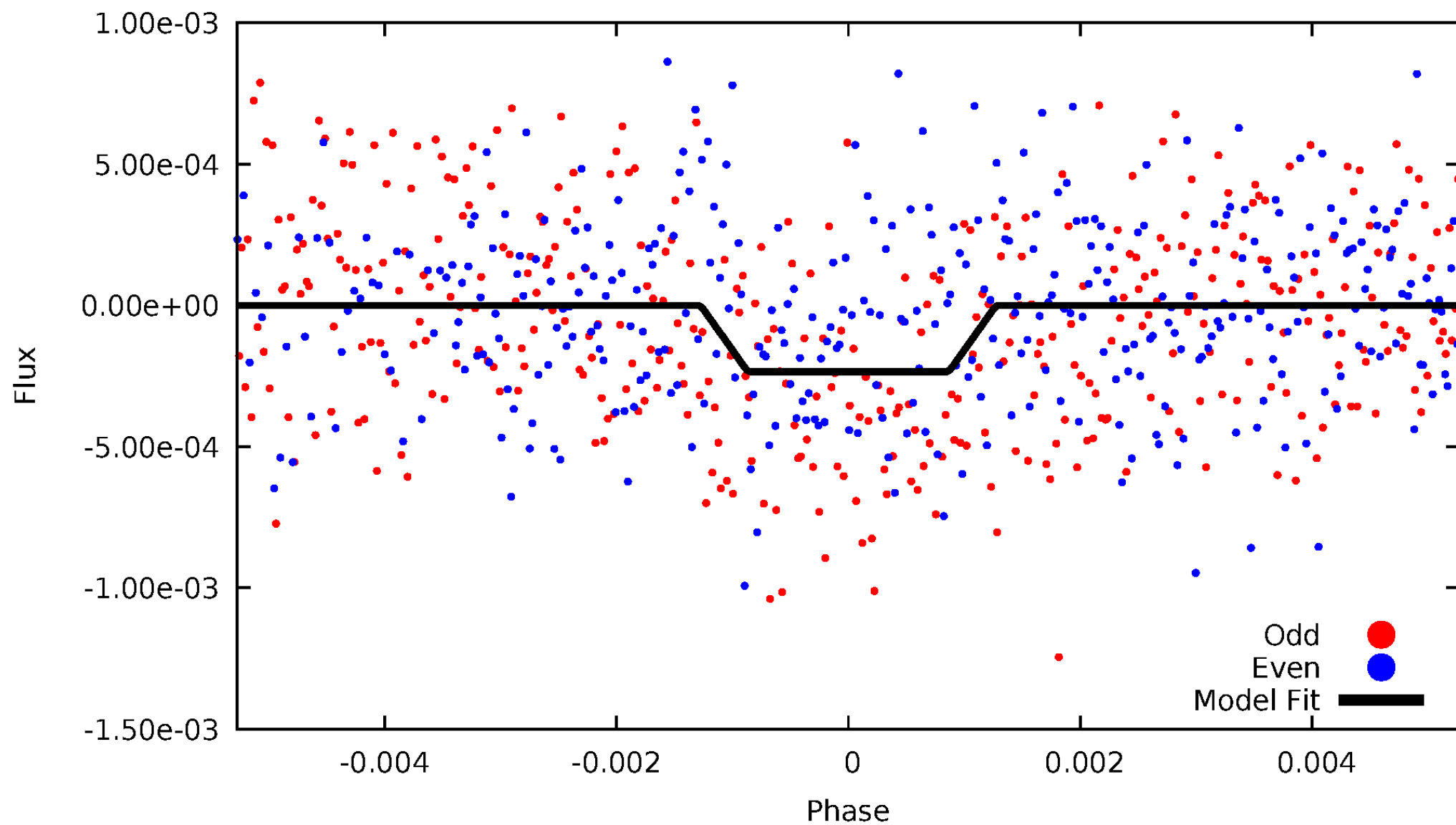
# DV Odd/Even

TCE 008360916-01



# ALT Odd/Even

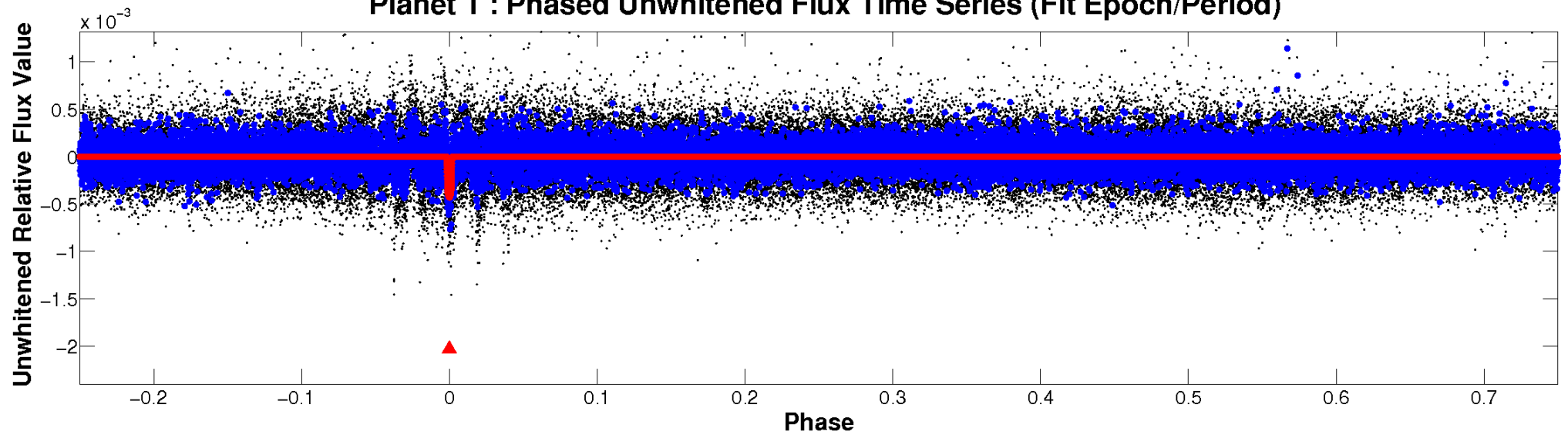
TCE 008360916-01



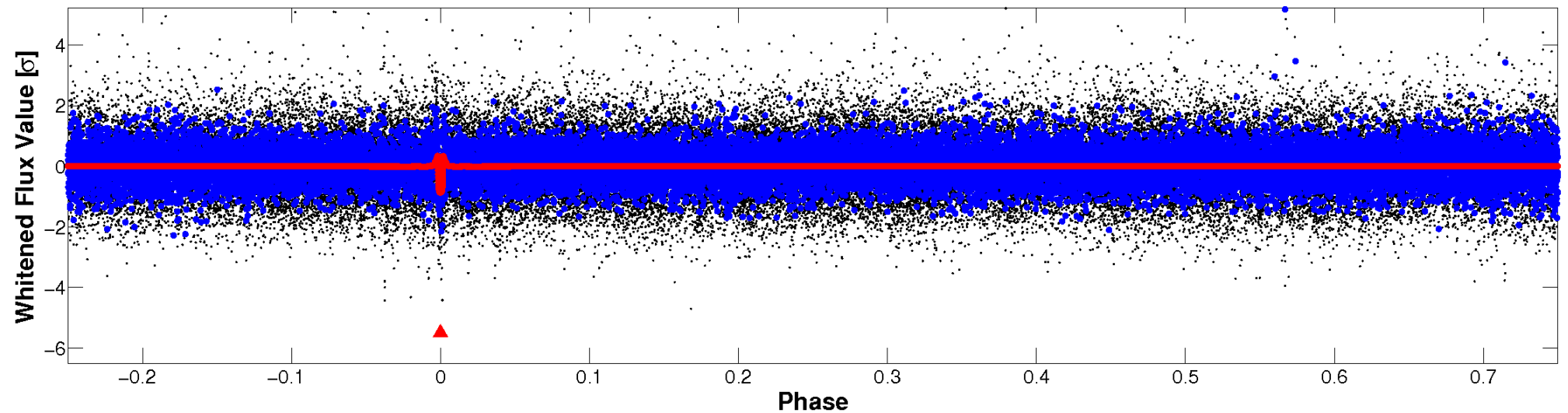


# Non-Whitened Vs. Whitened Light Curve

**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

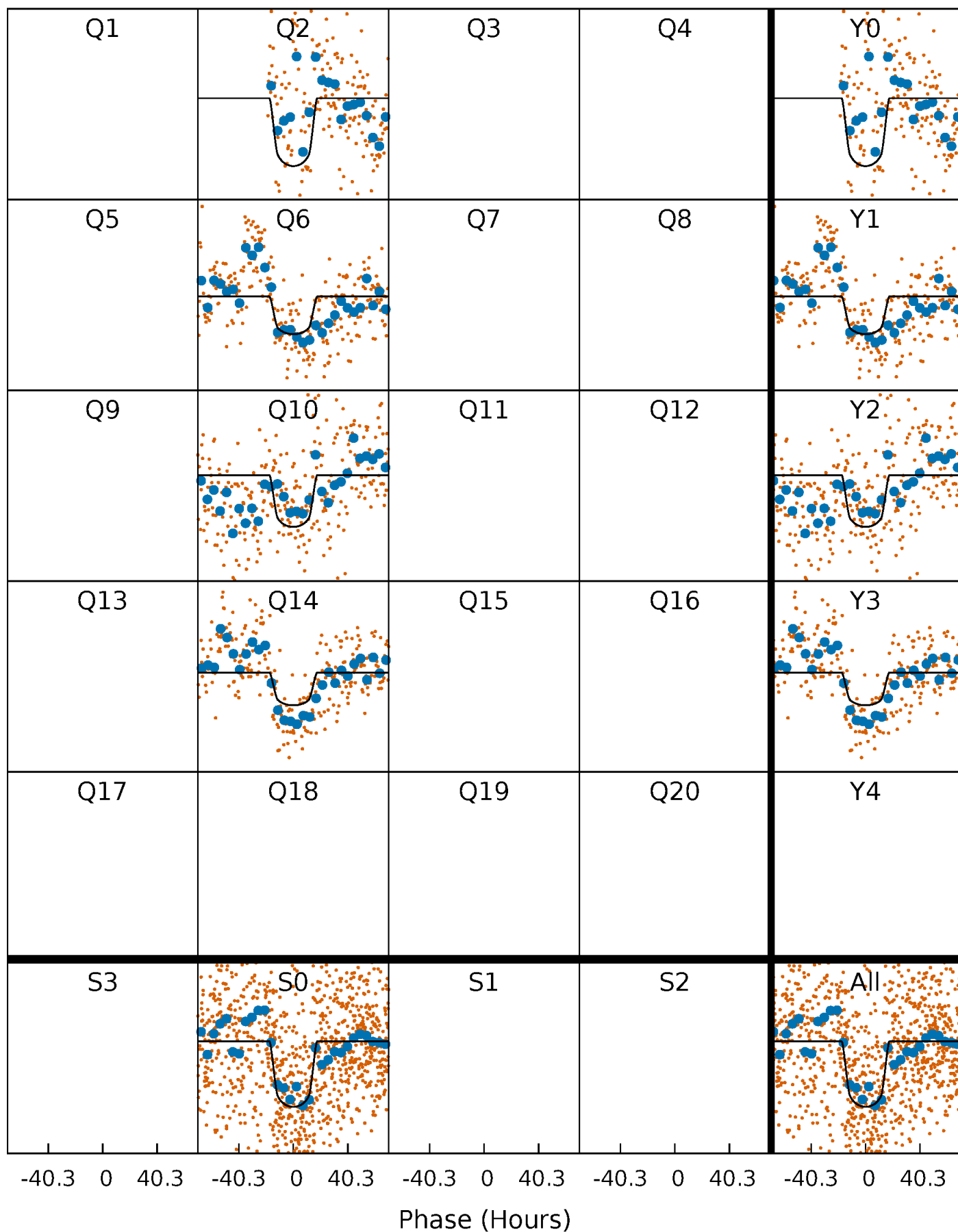
TCE 008360916-01 P=385.895864 Days  $T_0=184.500464$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008360916-01 P=385.895864 Days  $T_0=184.500464$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

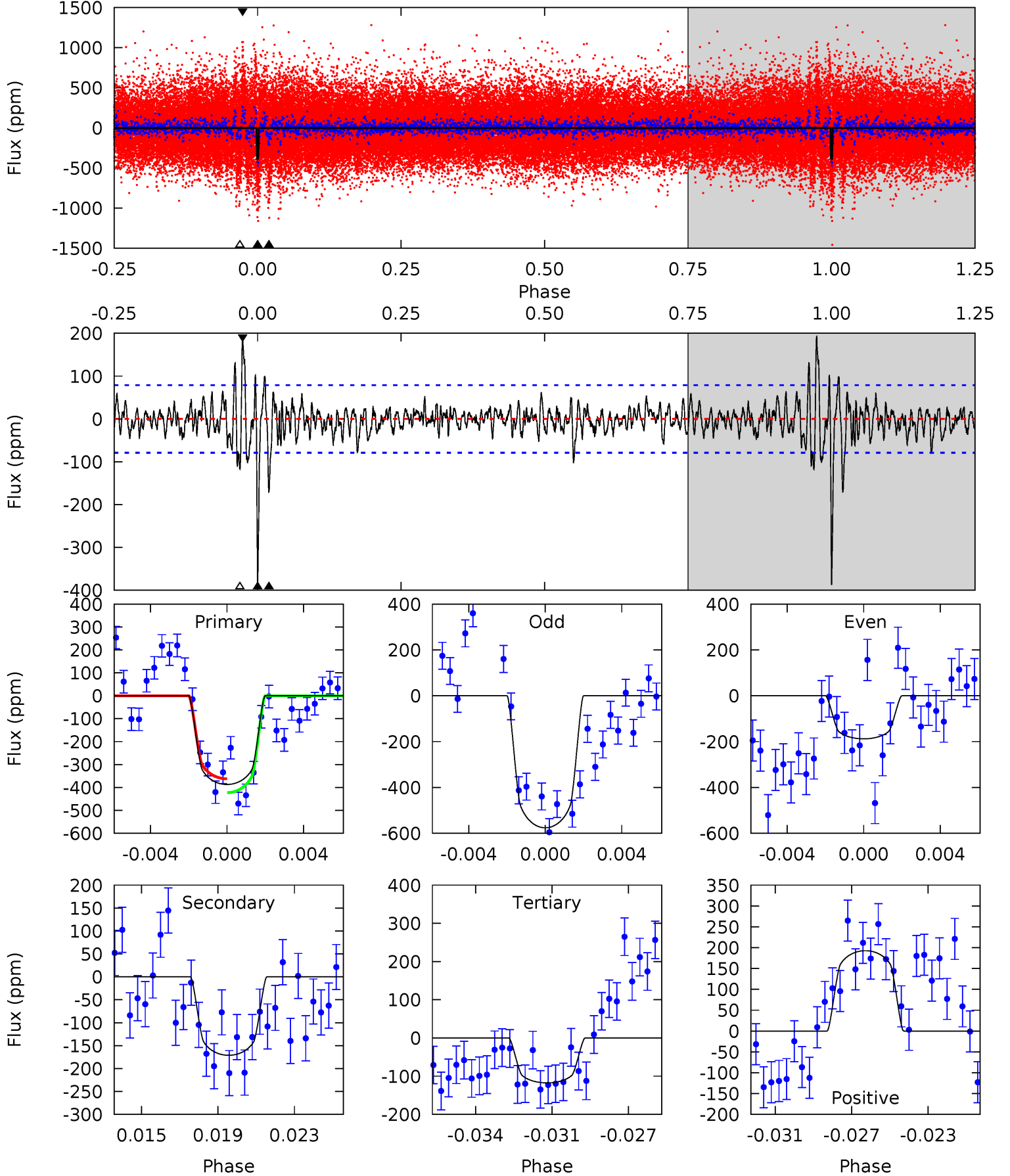
TCE 008360916-01 P=385.649389 Days  $T_0=185.026868$  (BKJD)



# DV Model-Shift Uniqueness Test

008360916-01, P = 385.895864 Days, E = 184.500464 Days

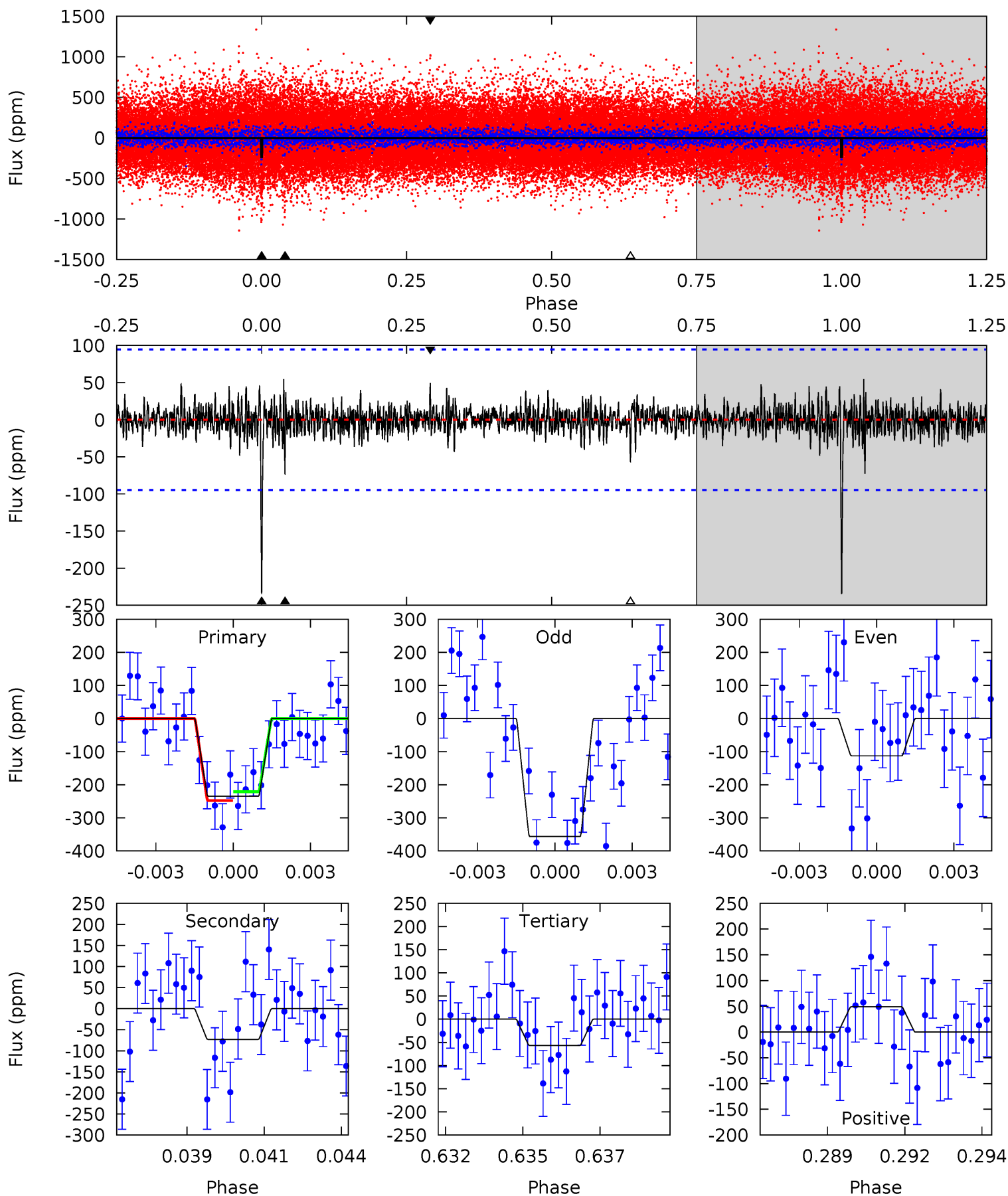
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	11.3	7.77	12.7	5.21	2.89	2.01	17.8	12.8	3.54	-1.43	12.9	1.03	0.33	1.99



# Alt Model-Shift Uniqueness Test

008360916-01, P = 385.649389 Days, E = 185.026868 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
13.1	4.07	3.16	2.74	5.28	3.01	0.75	9.92	10.3	0.91	1.33	6.82	1.24	0.19	0.74



### Stellar Parameters For KIC 008360916

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5467^{+147}_{-147}$	$4.578^{+0.034}_{-0.144}$	$-0.080^{+0.300}_{-0.300}$	$0.808^{+0.175}_{-0.070}$	$0.906^{+0.073}_{-0.101}$	$2.421^{+0.443}_{-1.009}$
	+3%/-3%	+1%/-3%	+375%/-375%	+22%/-9%	+8%/-11%	+18%/-42%
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 008360916-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-171 \pm 15$	$2.17^{+0.28}_{-0.22}$	$308^{+16}_{-11}$	$4282^{+158}_{-170}$	$19560^{+4858}_{-3974}$
Alt.	$-73 \pm 18$	$1.40^{+0.21}_{-0.19}$	$307^{+16}_{-11}$	$4289^{+309}_{-275}$	$20005^{+9199}_{-6143}$

$T_{\text{max}}$  = 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

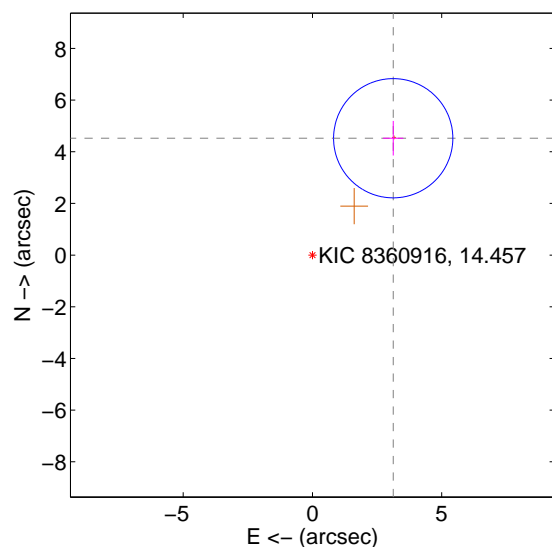
Supplemental centroid analysis for 008360916-01. Kepler magnitude: 14.46. Transit SNR 11.90

There are 0 quarters with good PRF difference image offsets

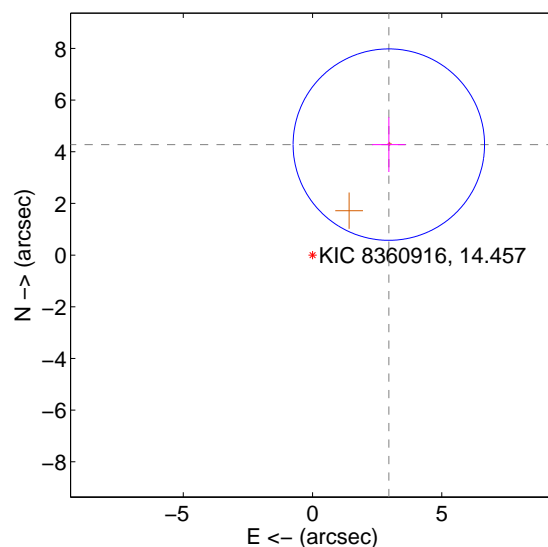
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.497 \pm 0.769$	7.15	$-3.126 \pm 0.392$	$4.523 \pm 0.668$
PRF-fit source offset from KIC position	$5.196 \pm 1.235$	4.21	$-2.953 \pm 0.644$	$4.276 \pm 1.058$
photometric centroid source offset	$3.00 \pm 1.29$	2.32	$-1.45 \pm 1.20$	$-2.62 \pm 1.32$

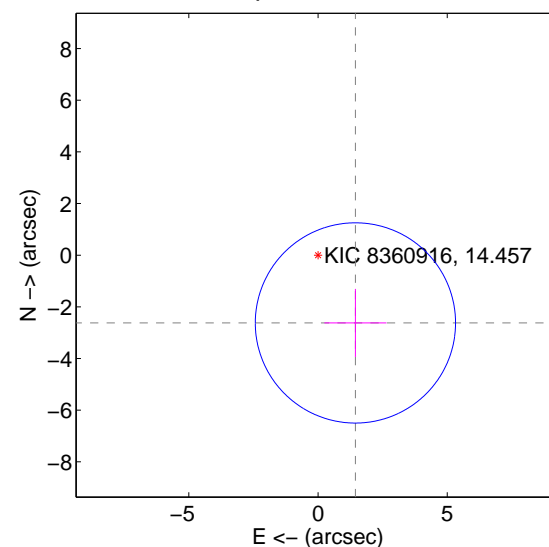
offset from difference PRF-fit to OOT PRF-fit



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.



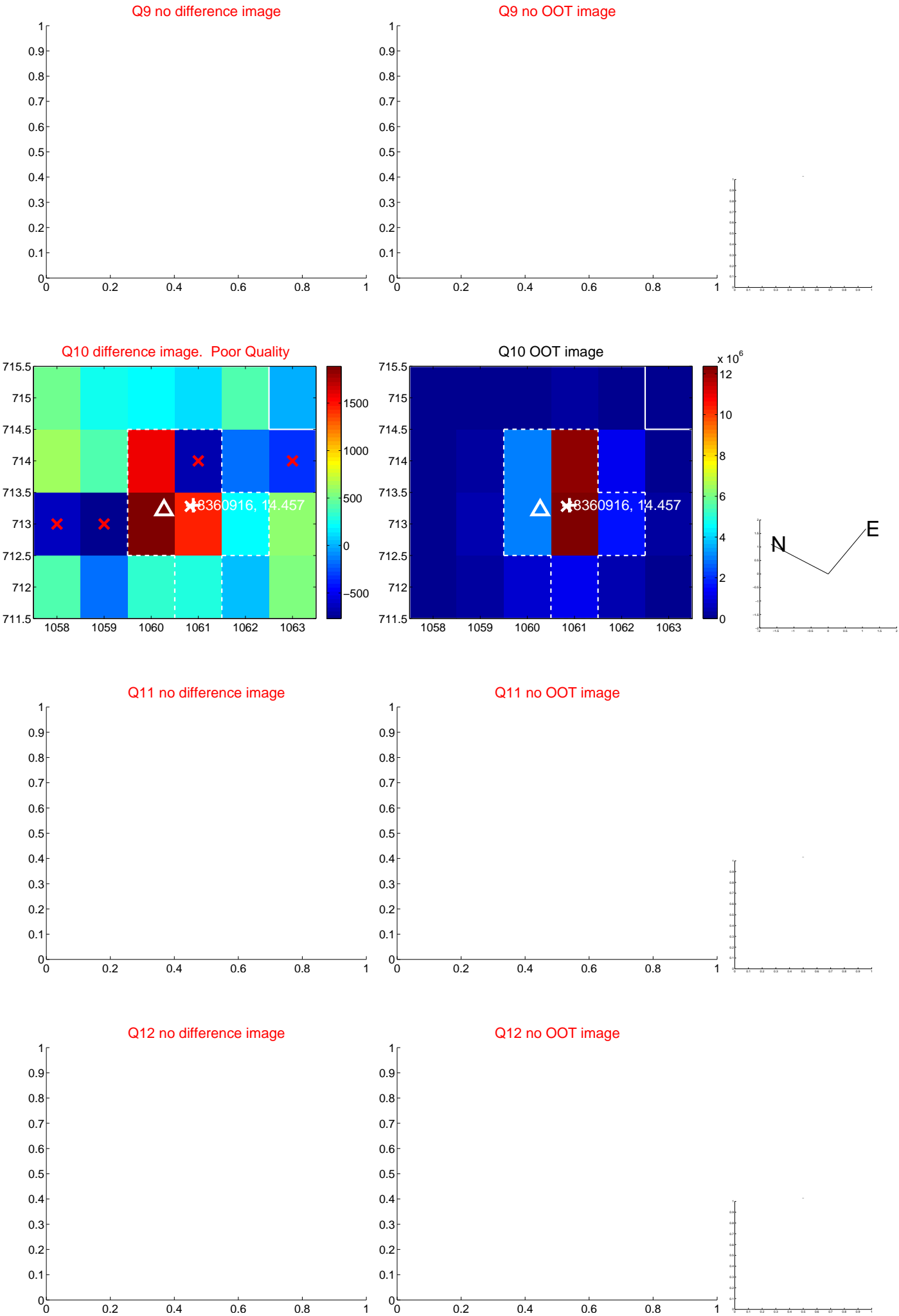
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



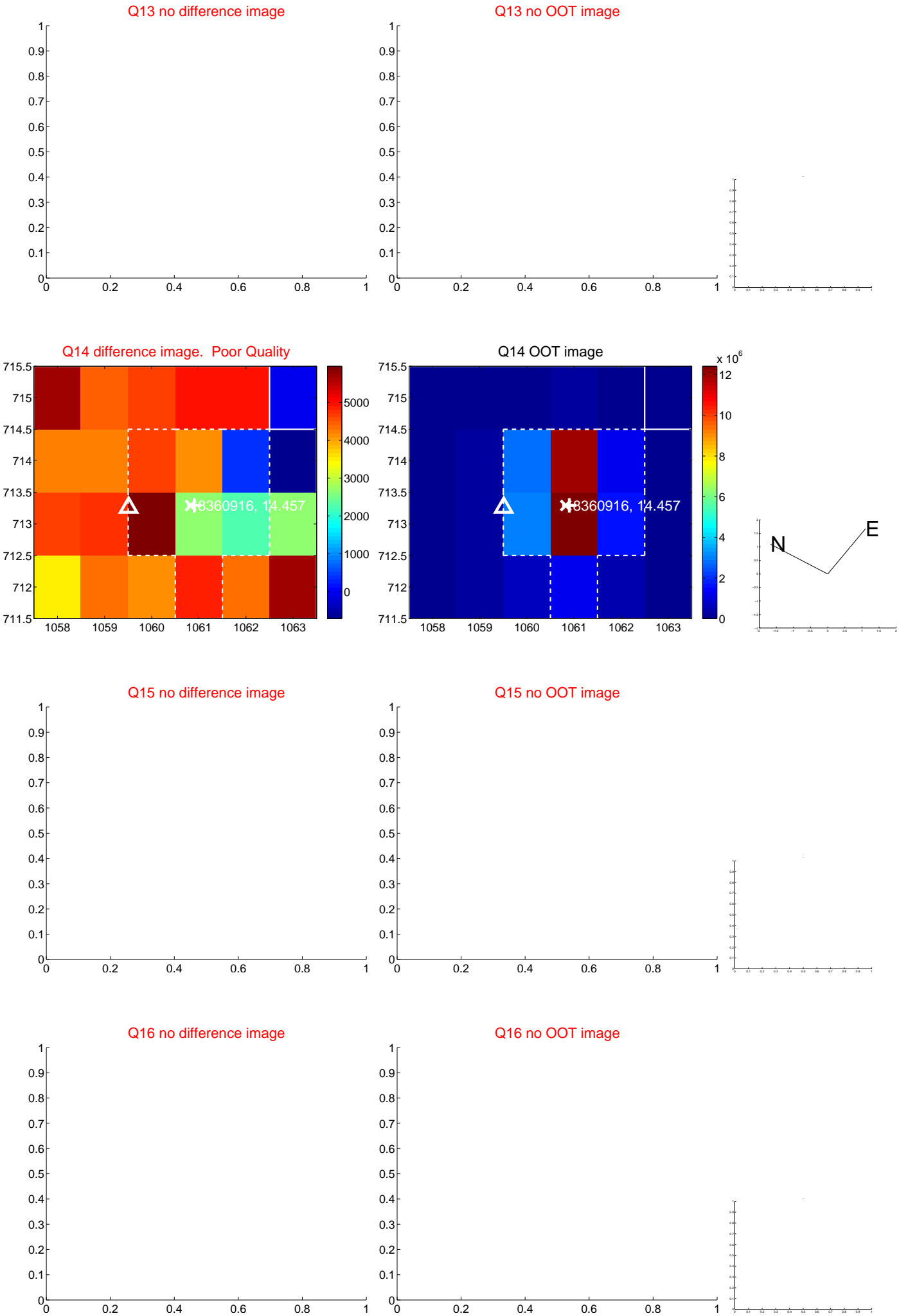
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



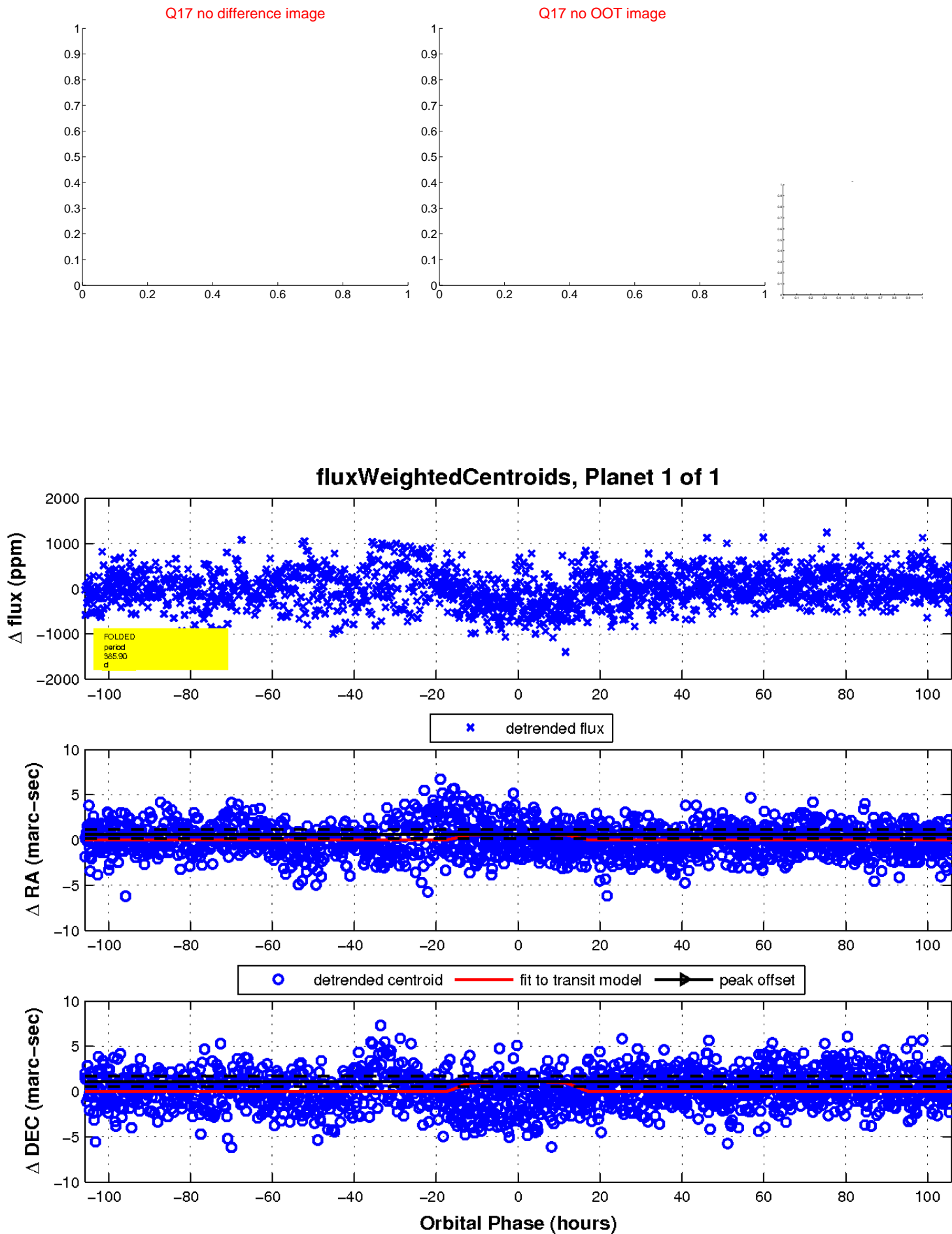
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



# UKIRT Image

Declination

