

# KIC 008645874

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008645874-01	OBS	No	0.608865	131.830165	159.1	6.441	14.8	15.1	1.86	6689	2.62	25582.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008645874-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

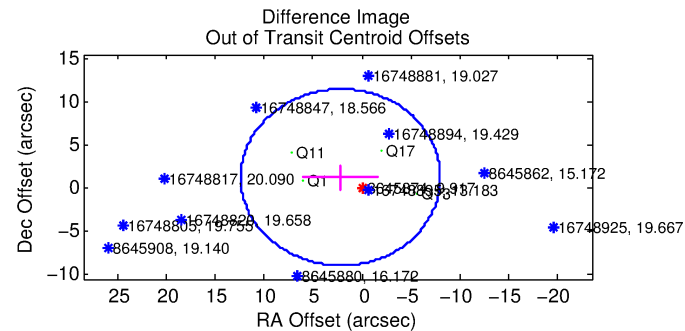
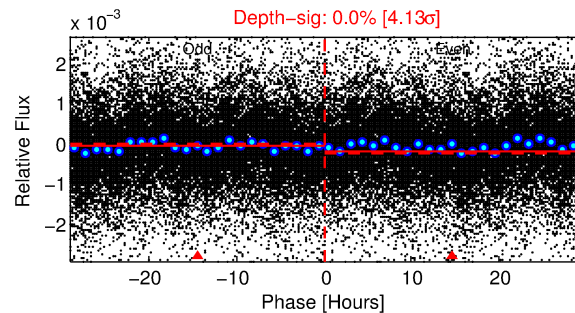
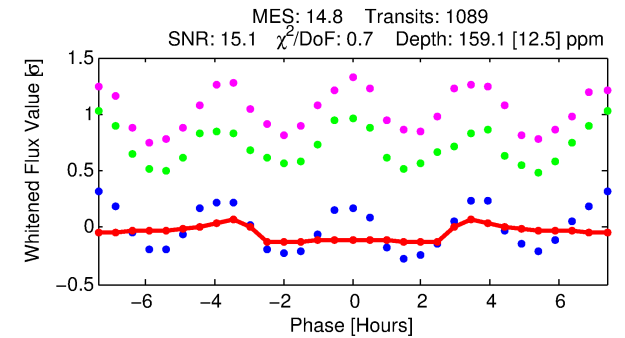
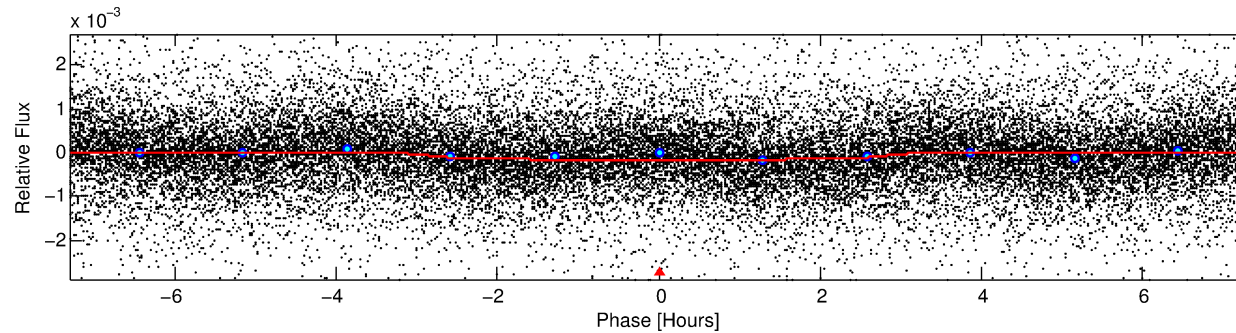
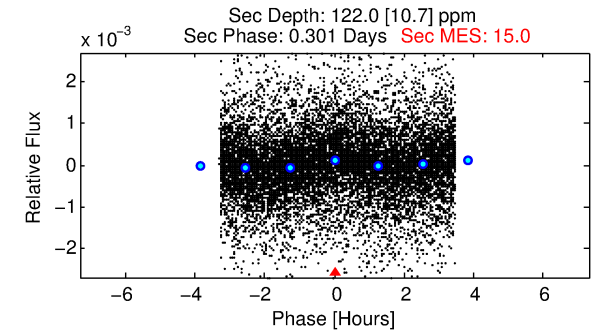
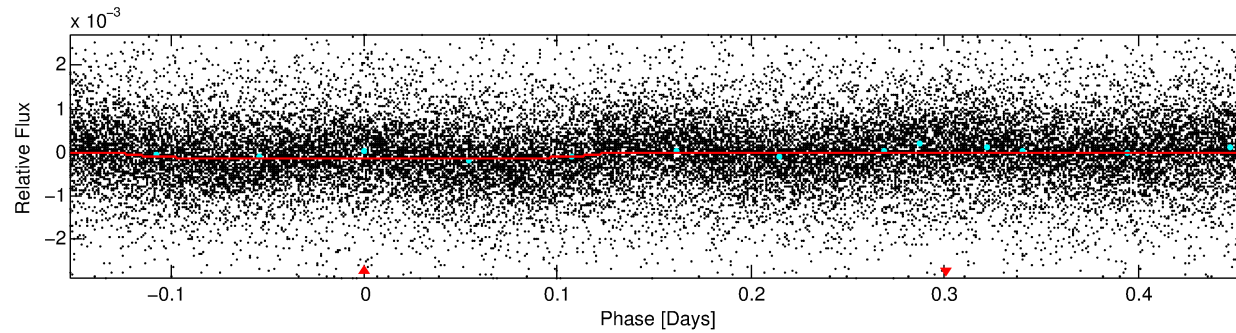
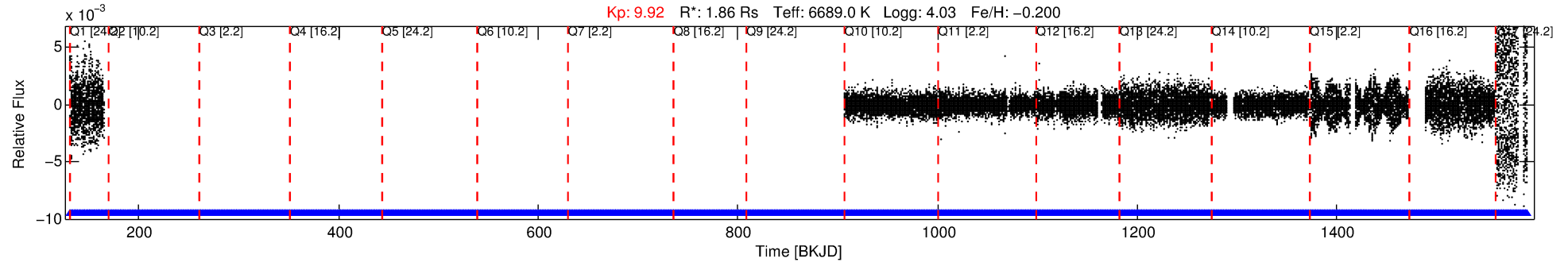
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008645874-01

No Significant Match Found

# DV One-Page Summary

KIC: 8645874 Candidate: 1 of 1 Period: 0.609 d



## DV Fit Results:

Period = 0.60887 [0.00001] d  
Epoch = 131.8302 [0.0020] BKJD  
Rp/R\* = 0.0129 [0.0009]  
a/R\* = 1.02 [0.01]  
b = 0.82 [0.12]  
Seff = 25582.41 [13211.51]  
Teq = 3225 [416] K  
Rp = 2.62 [0.90] Re  
a = 0.0156 [0.0049] AU  
Ag = 2.38 [1.23] [1.12σ]  
Teffp = 6192 [347] K [5.48σ]

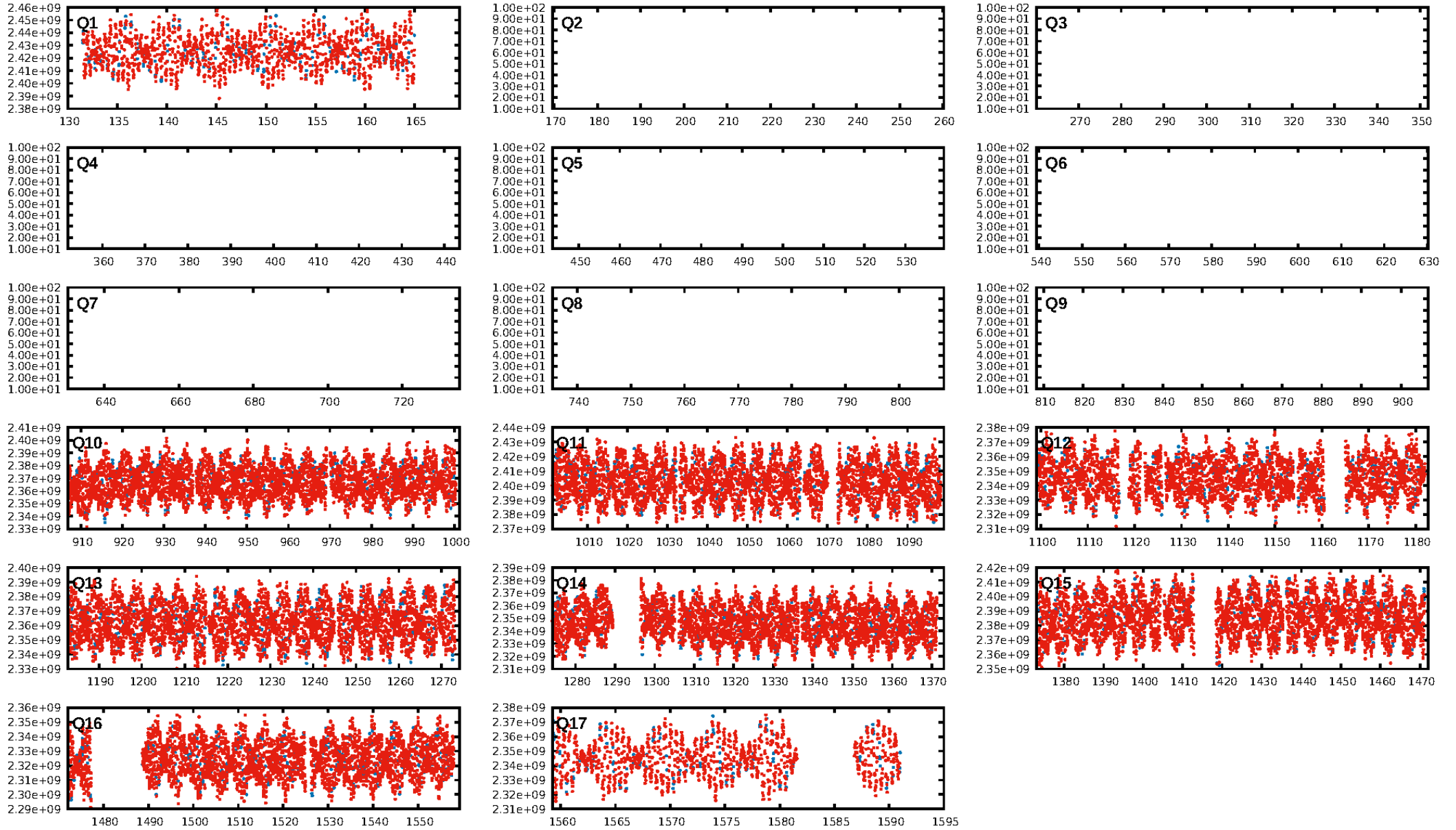
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [990/990]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 1.144 arcsec [5.79σ]  
OotOffset-rm: 2.532 arcsec [0.74σ]  
OotOffset-st: 0/1/0/3 [4]  
KicOffset-rm: 0.838 arcsec [0.23σ]  
KicOffset-st: 0/1/0/3 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 1.00 [9/9]

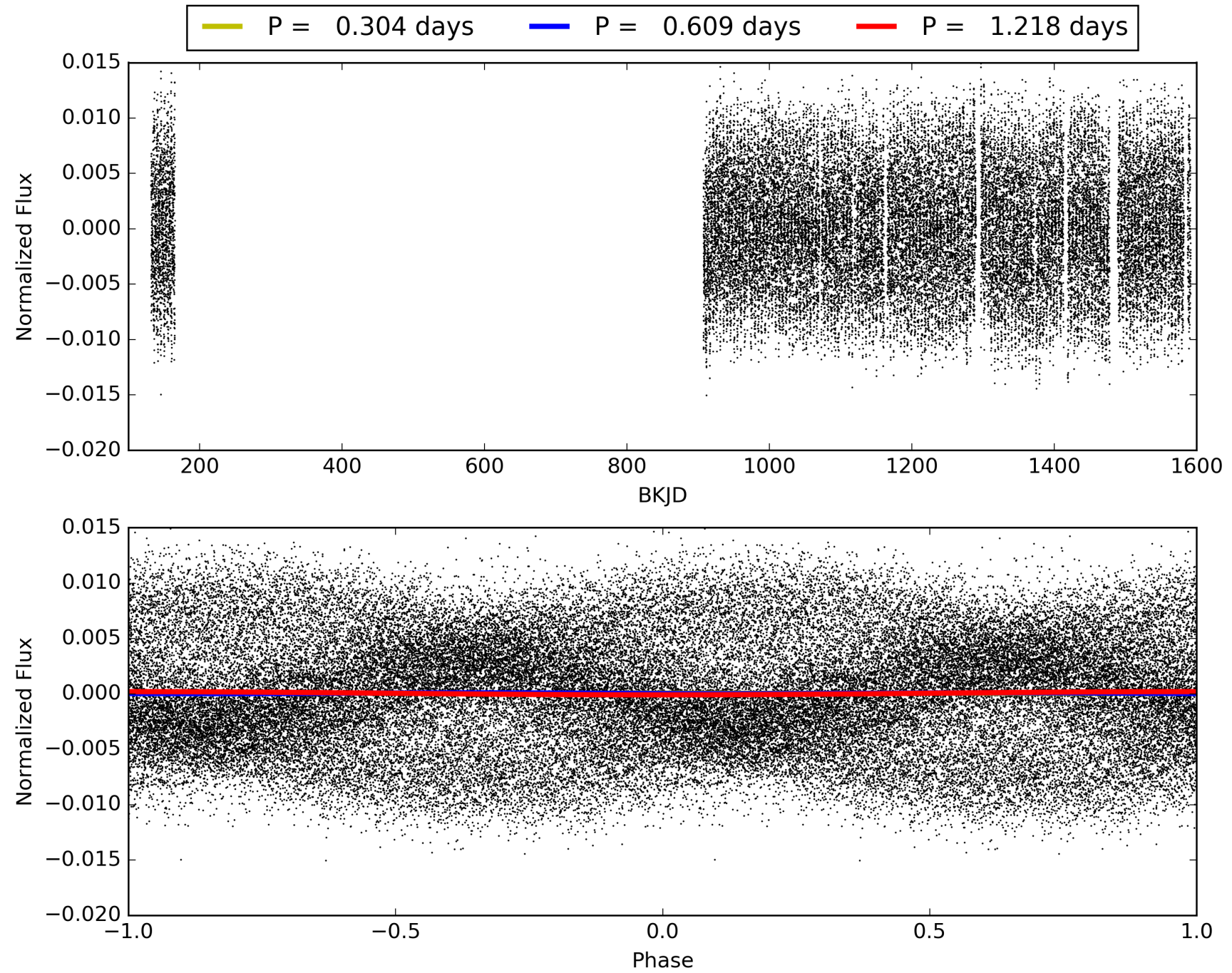
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:00:13 Z

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

# TCE 008645874-01, PDC Light Curves



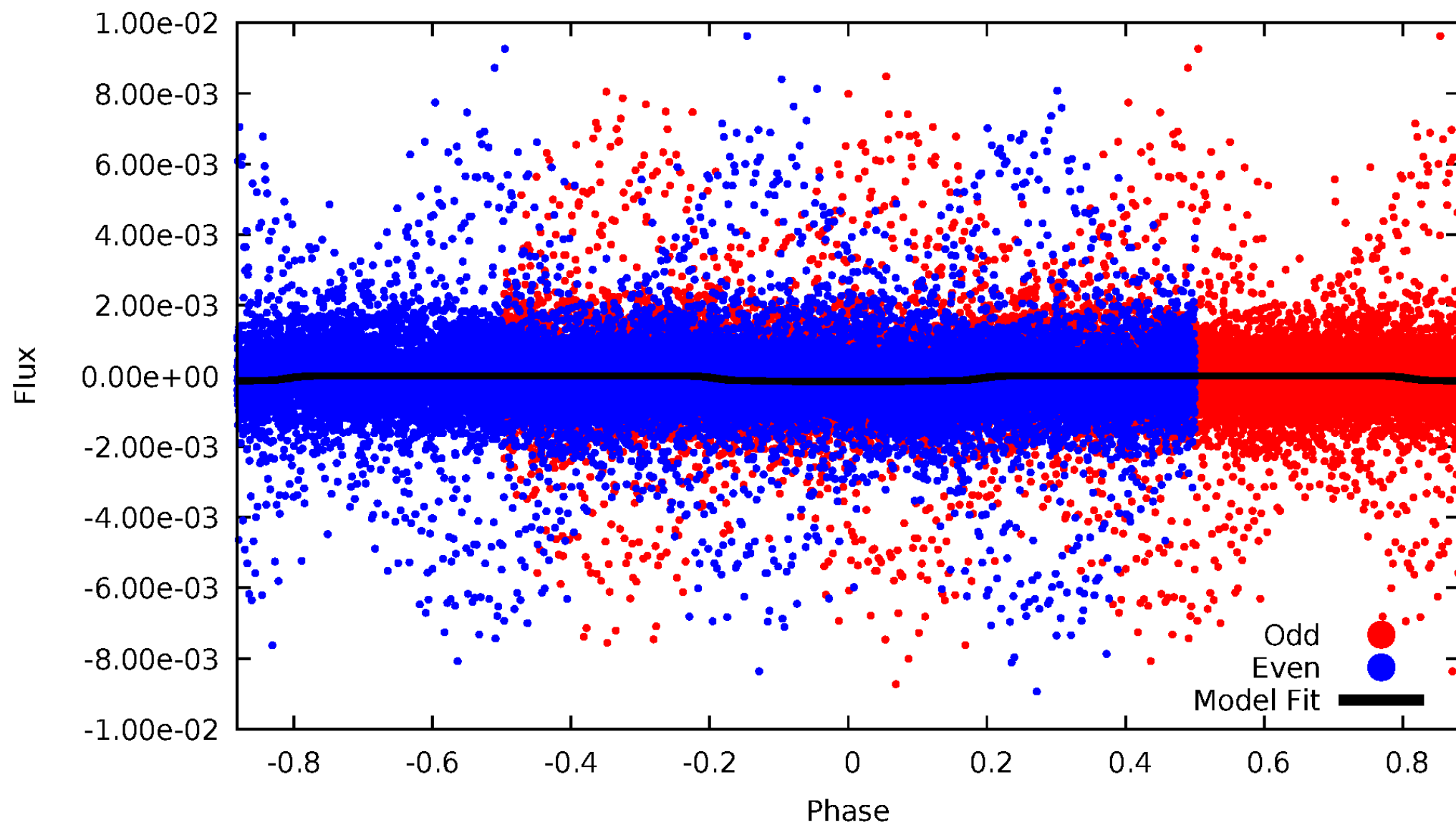
# TCE 008645874-01





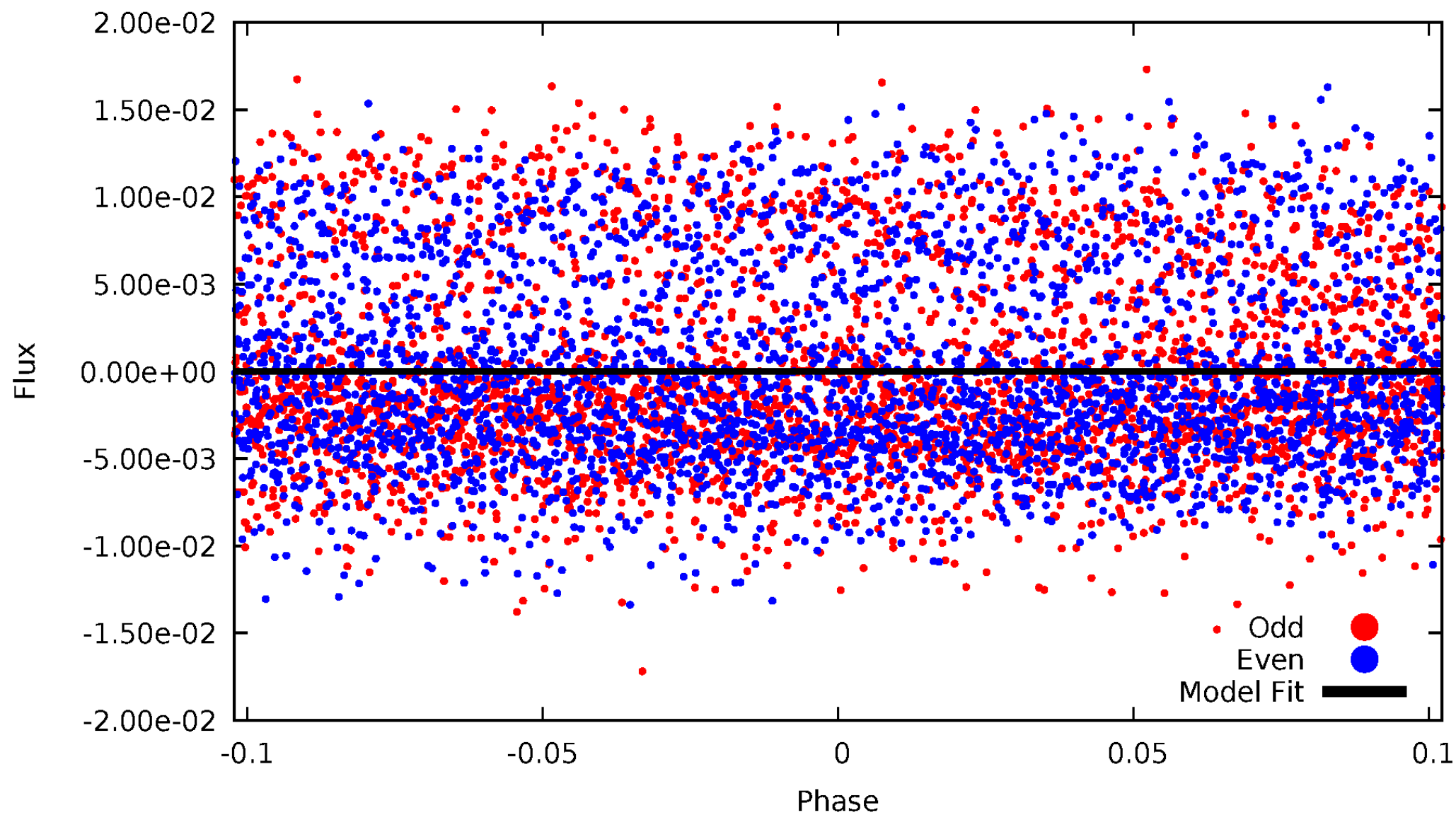
# DV Odd/Even

TCE 008645874-01



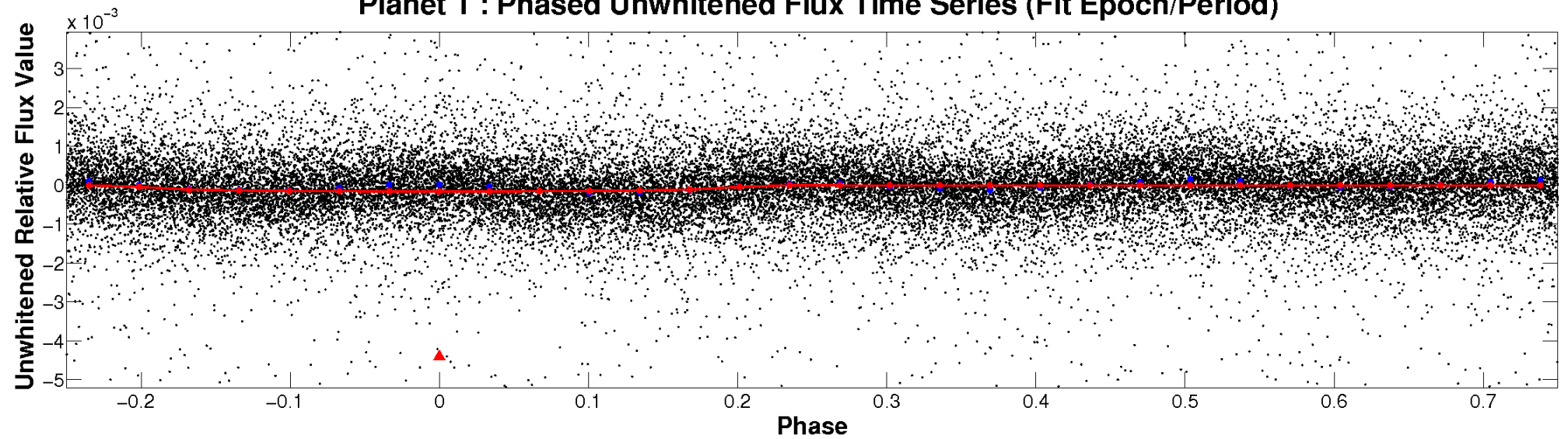
# ALT Odd/Even

TCE 008645874-01

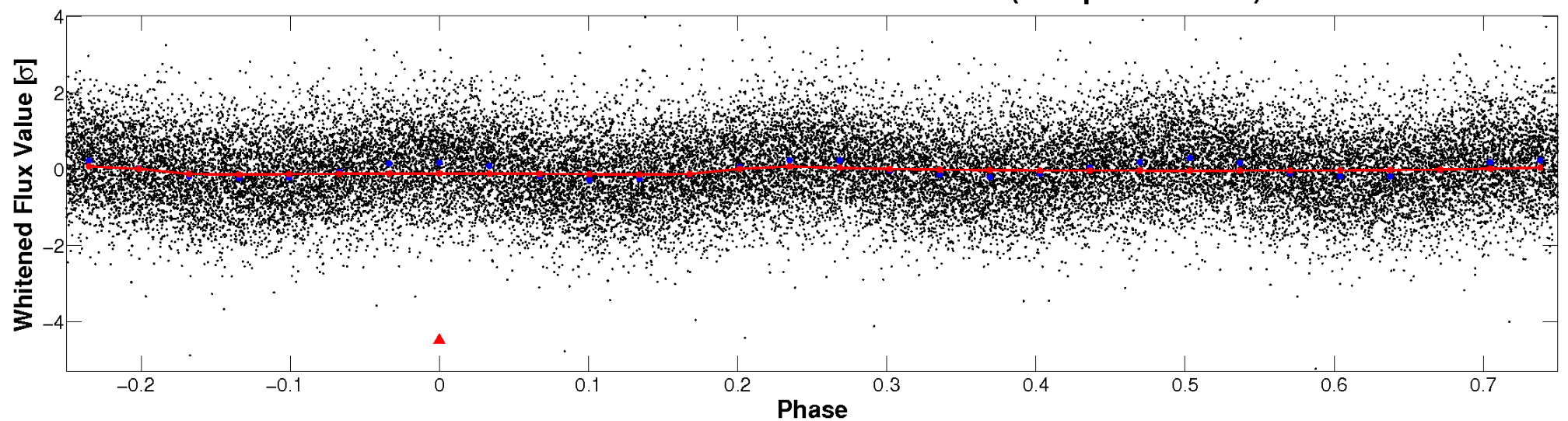


# Non-Whitened Vs. Whitened Light Curve

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

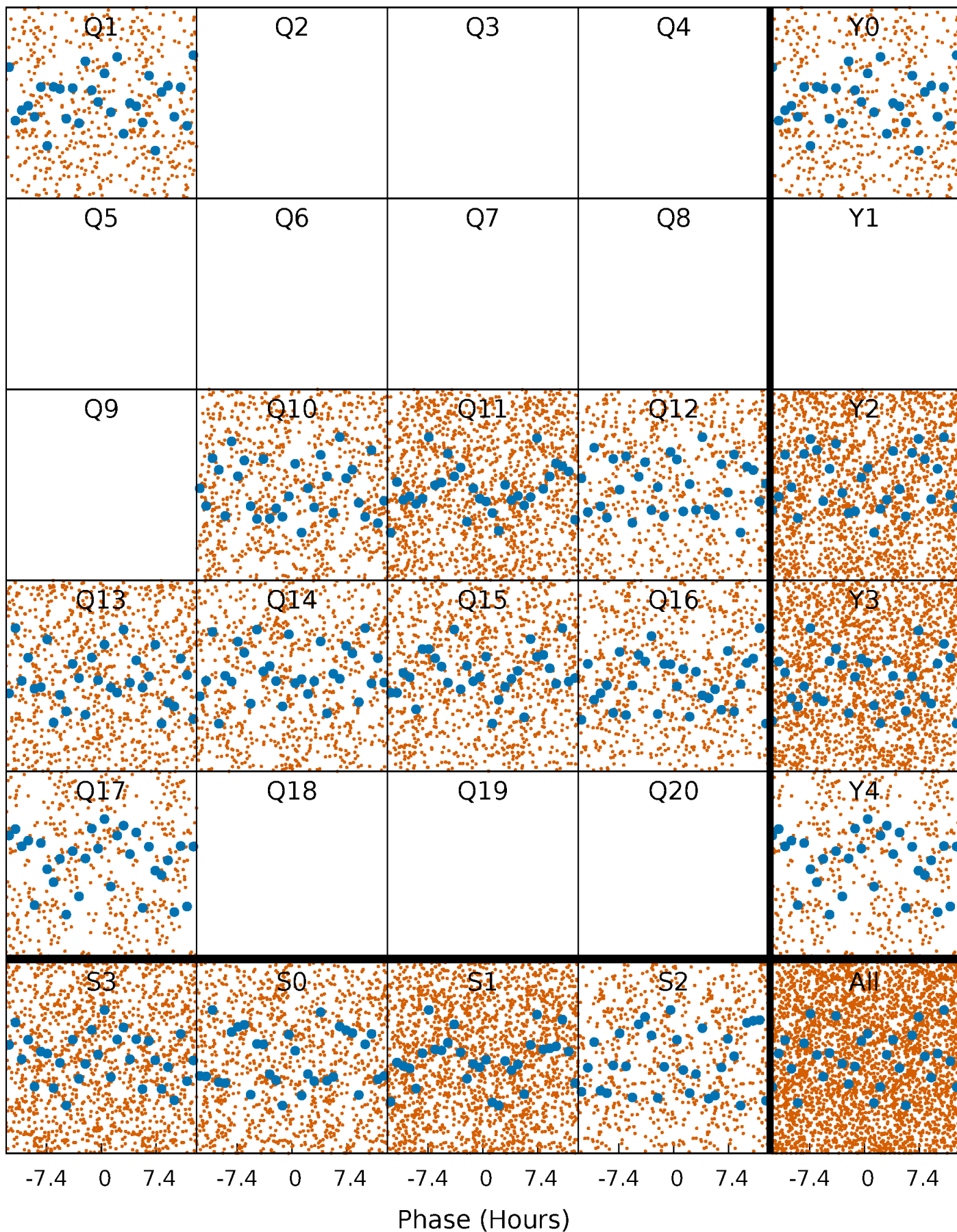


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

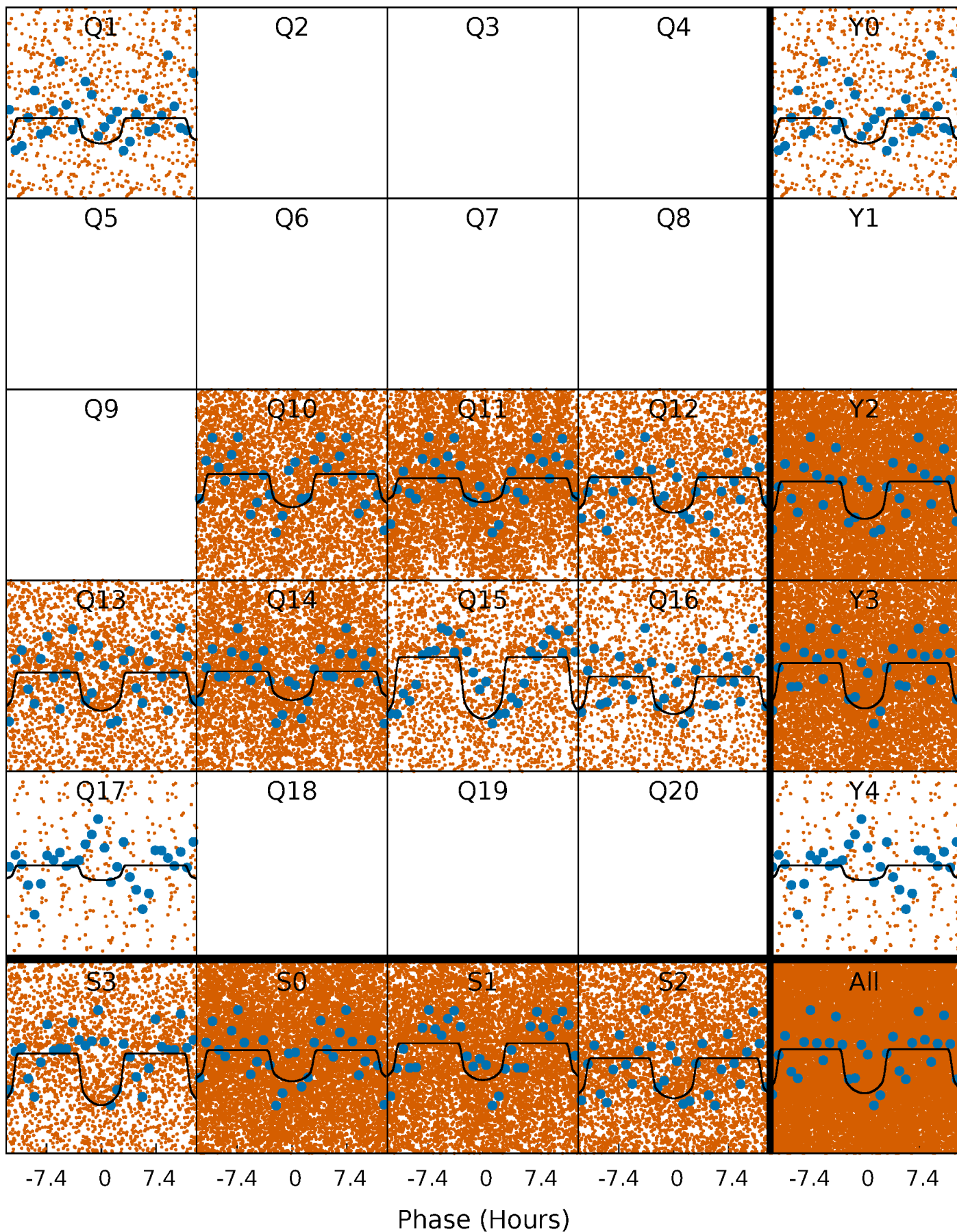
TCE 008645874-01   P= 0.608865 Days    $T_0=131.830165$  (BKJD)





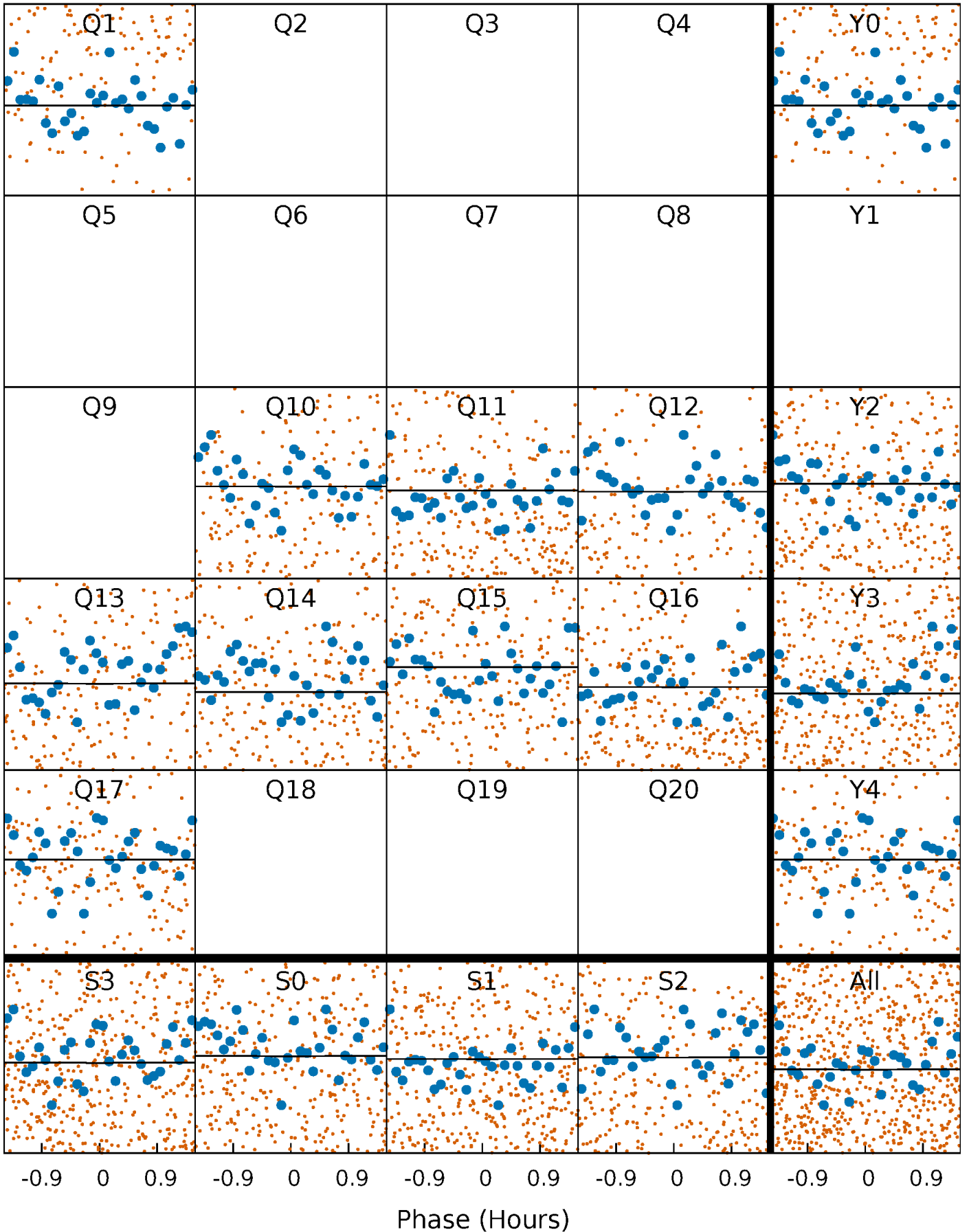
# DV Quarter-Phased Transit Curves

TCE 008645874-01   P= 0.608865 Days    $T_0=131.830165$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

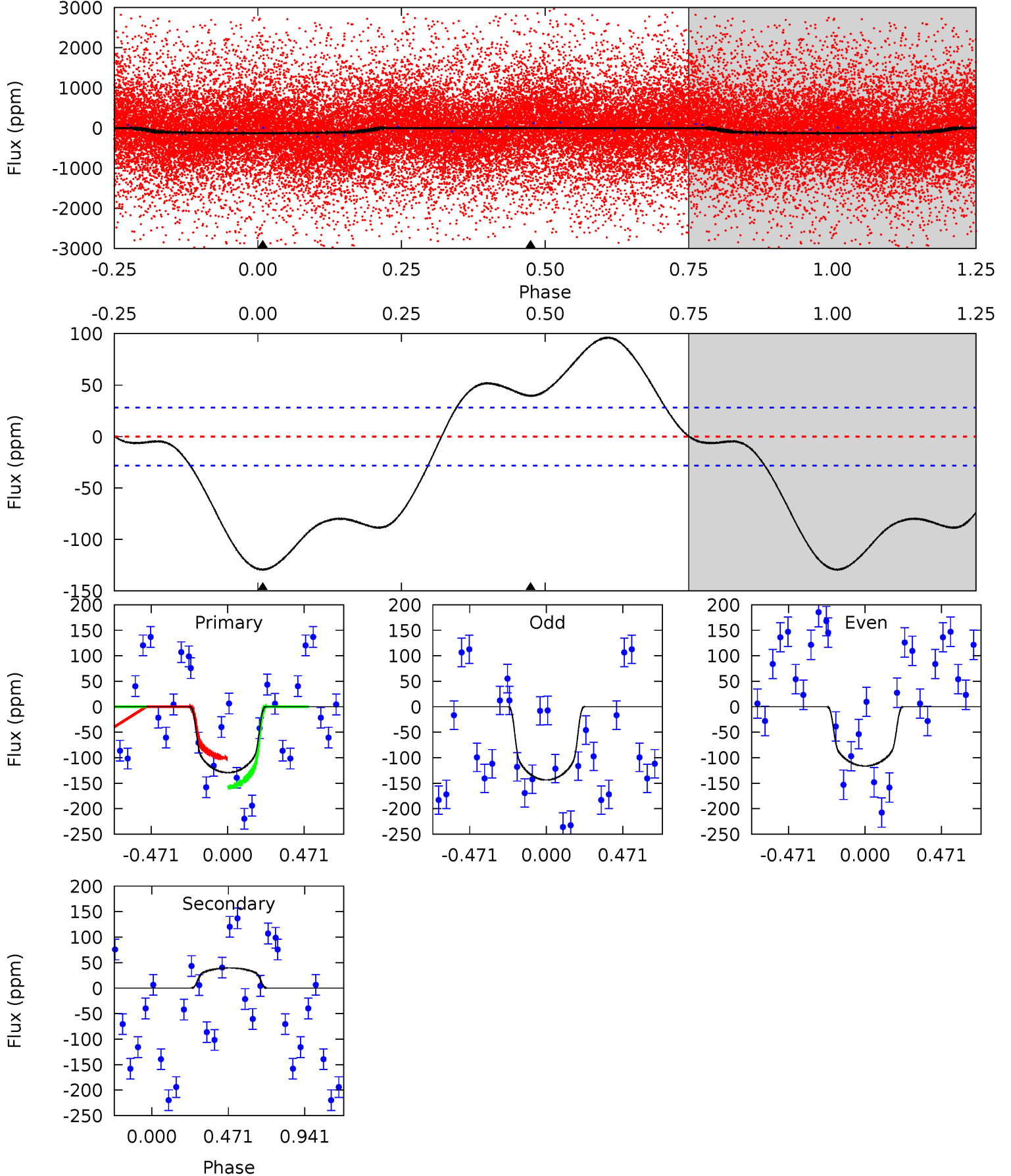
TCE 008645874-01   P= 0.608863 Days    $T_0=131.909826$  (BKJD)



# DV Model-Shift Uniqueness Test

008645874-01, P = 0.608865 Days, E = 131.221300 Days

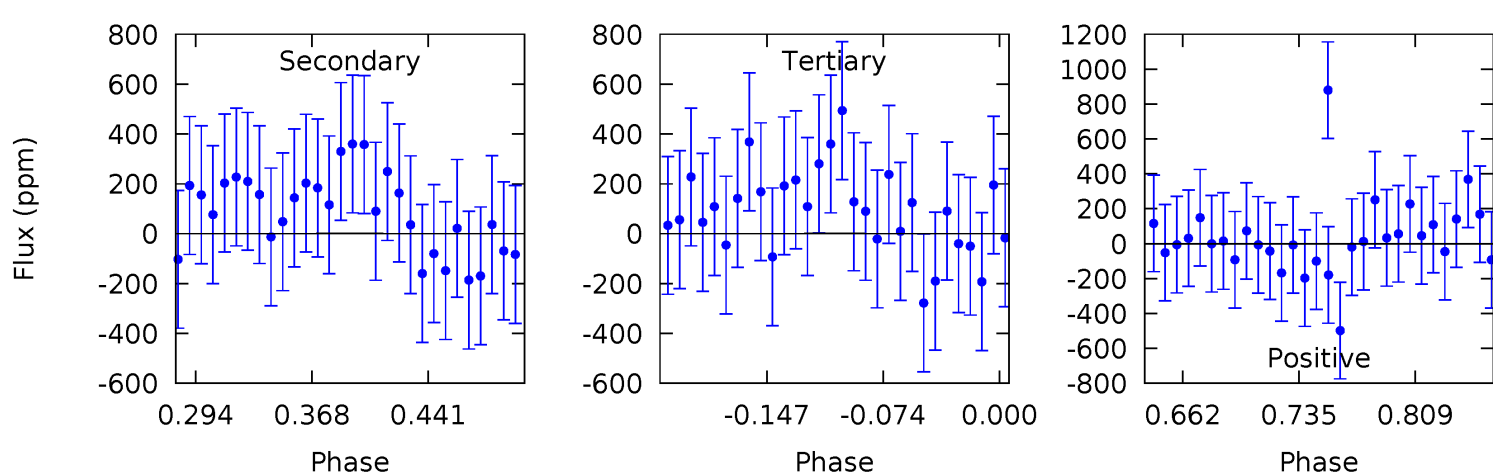
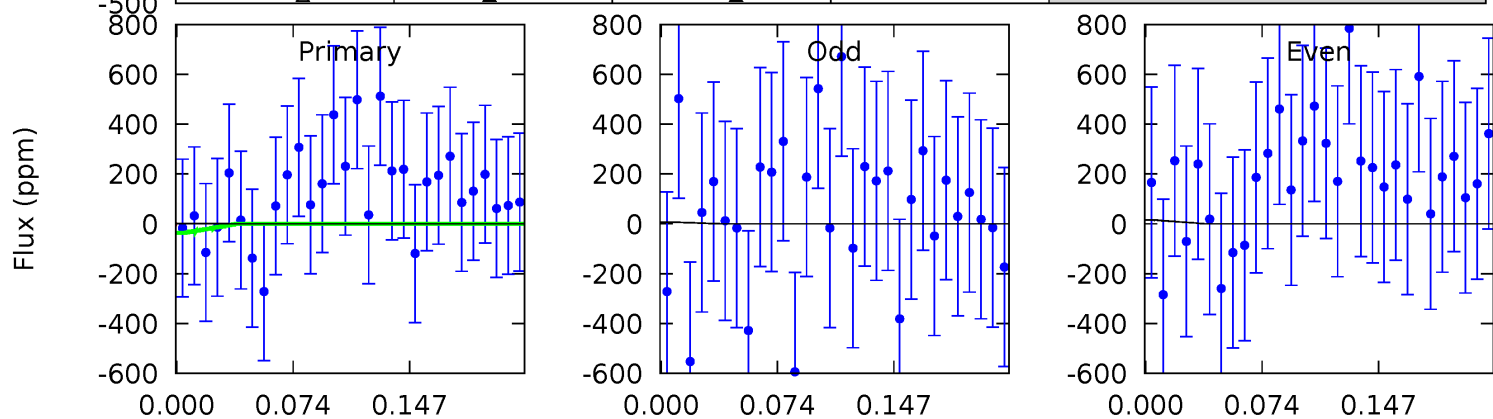
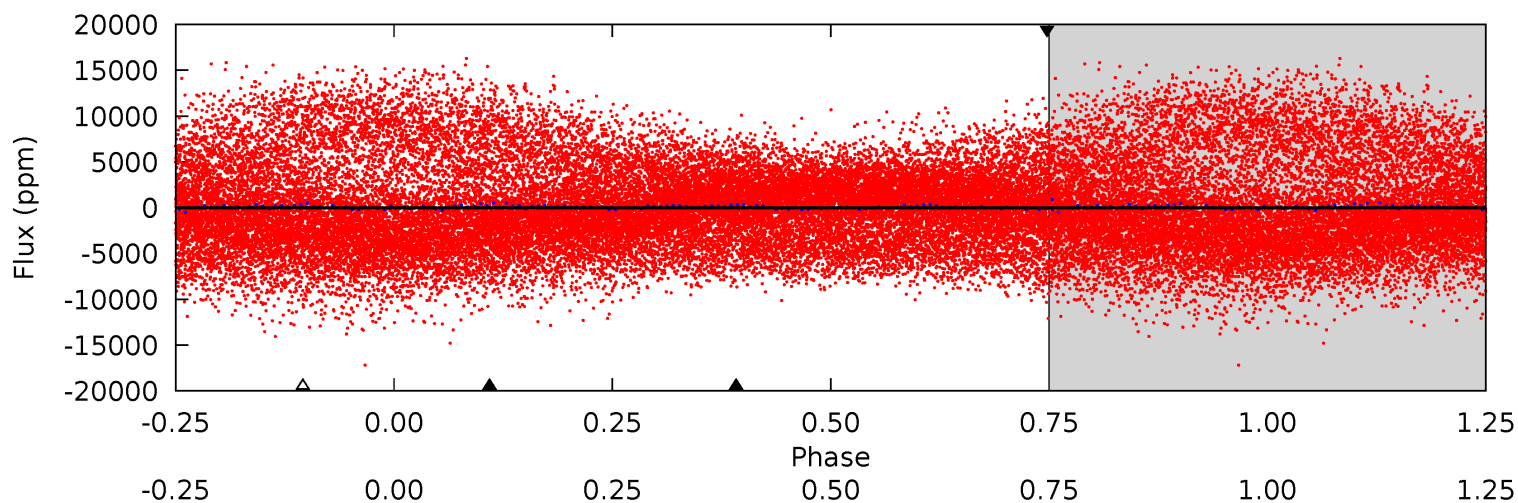
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	-5.94	0	0	4.23	0.72	5.40	19.4	19.4	-5.94	-5.94	2.07	0.68	0.43	4.34



# Alt Model-Shift Uniqueness Test

008645874-01, P = 0.608863 Days, E = 131.300963 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
0.01	0	0	0	4.63	1.79	0.00	0.01	0.01	0	0	0.05	-0.01	0.38	0.21





### Stellar Parameters For KIC 008645874

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6689^{+188}_{-259}$	$4.033^{+0.286}_{-0.154}$	$-0.200^{+0.250}_{-0.300}$	$1.864^{+0.511}_{-0.625}$	$1.372^{+0.185}_{-0.300}$	$0.298^{+0.580}_{-0.145}$
	+3%/-4%	+7%/-4%	+125%/-150%	+27%/-34%	+13%/-22%	+194%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008645874-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$40 \pm 7$	$2.53^{+0.47}_{-0.45}$	$4424^{+334}_{-364}$	$-5092^{+231}_{-253}$	$-0.804^{+0.228}_{-0.417}$
Alt.	$-1 \pm 93$	$0.37^{+0.19}_{-0.17}$	$4436^{+333}_{-401}$	$7353^{+23287}_{-32775}$	$4.738^{+115.559}_{-93.499}$

$T_{\text{max}}$  = 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

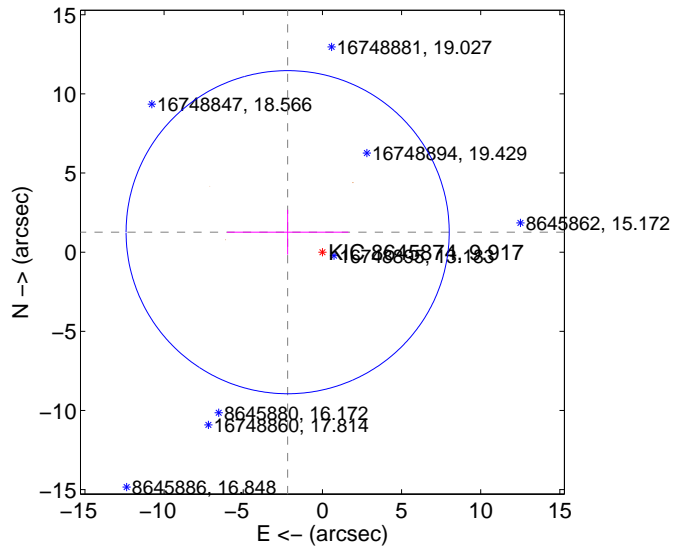
Supplemental centroid analysis for 008645874-01. **Kepler magnitude: 9.92.** Transit SNR 15.06

**There are 0 quarters with good PRF difference image offsets**

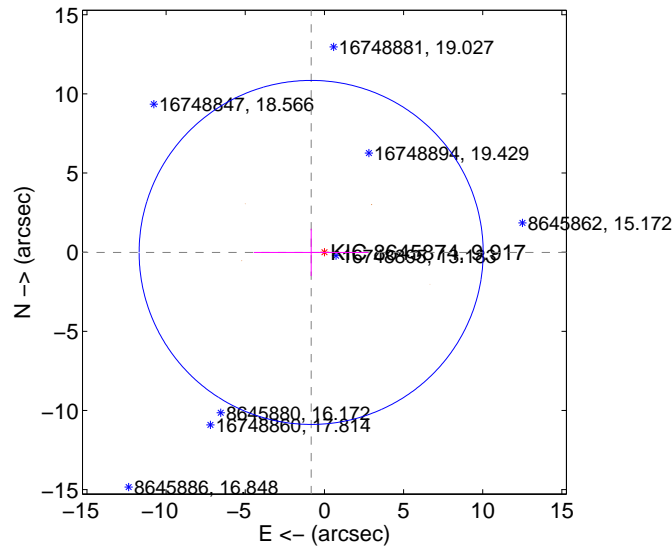
The direct PRF centroid is offset from the target star catalog position by about 1.74 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.532 \pm 3.403$	0.74	$2.195 \pm 3.839$	$1.262 \pm 1.421$
PRF-fit source offset from KIC position	$0.838 \pm 3.623$	0.23	$0.838 \pm 3.623$	$-0.017 \pm 1.495$
photometric centroid source offset	$1.14 \pm 0.20$	<b>5.79</b>	$-0.89 \pm 0.23$	$-0.72 \pm 0.13$

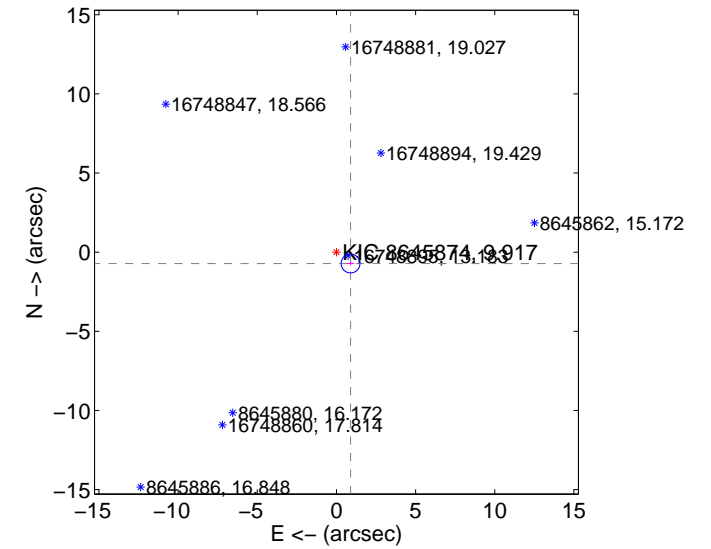
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

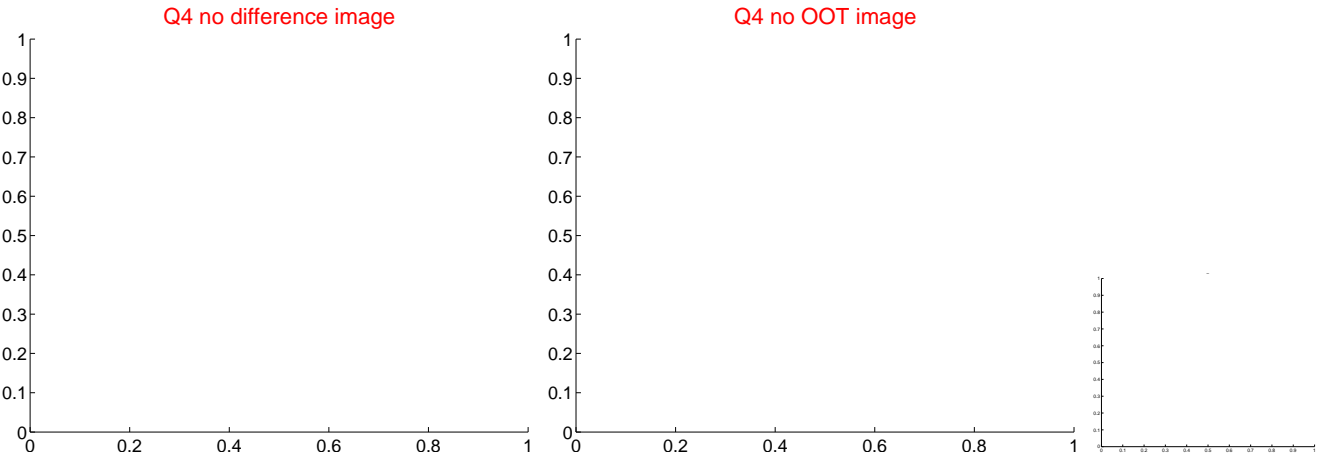
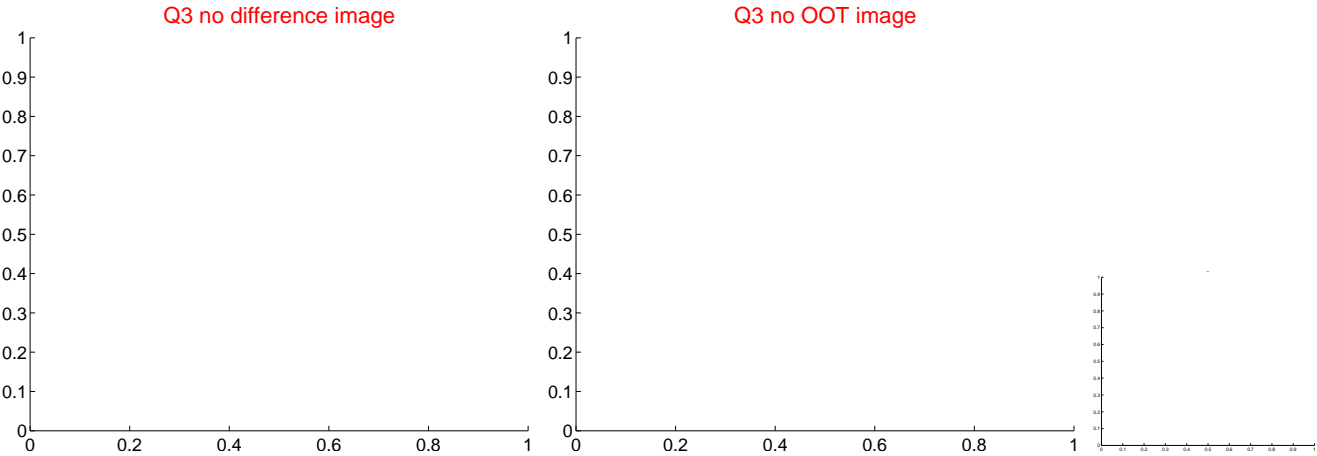
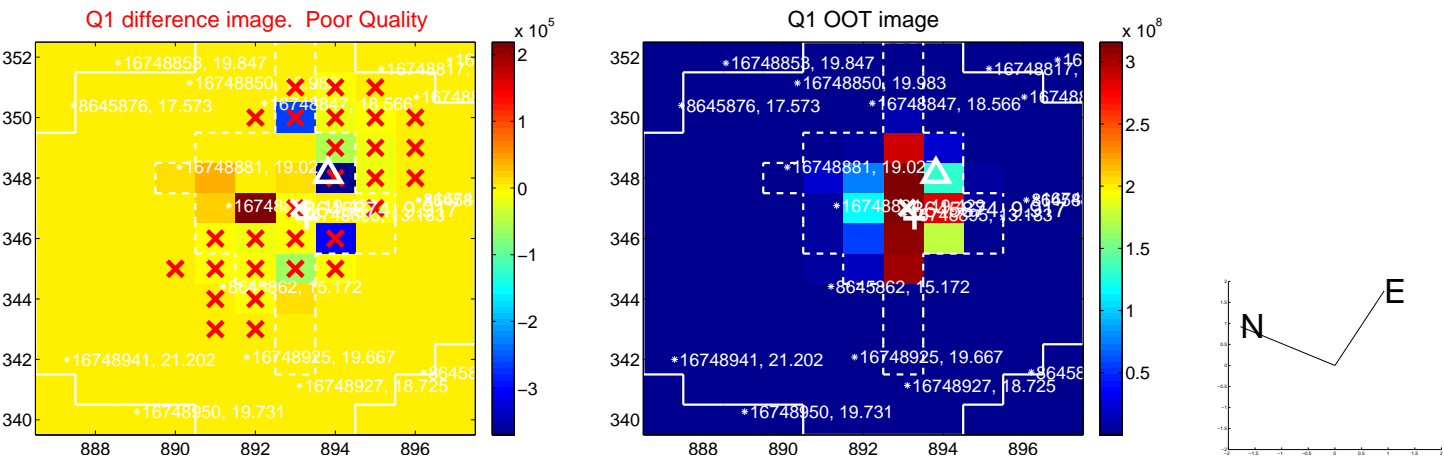


offset from photometric centroids



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.

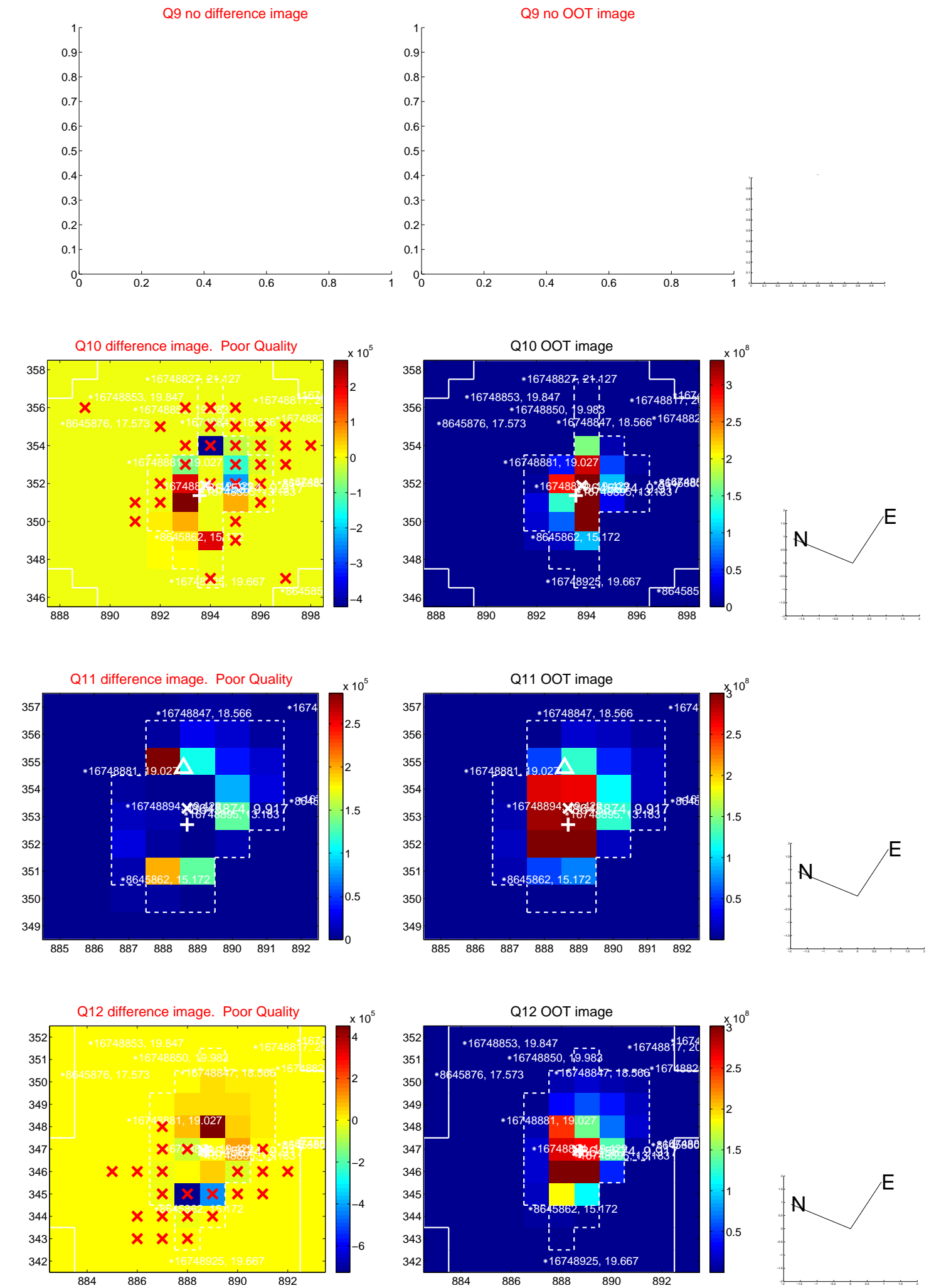


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

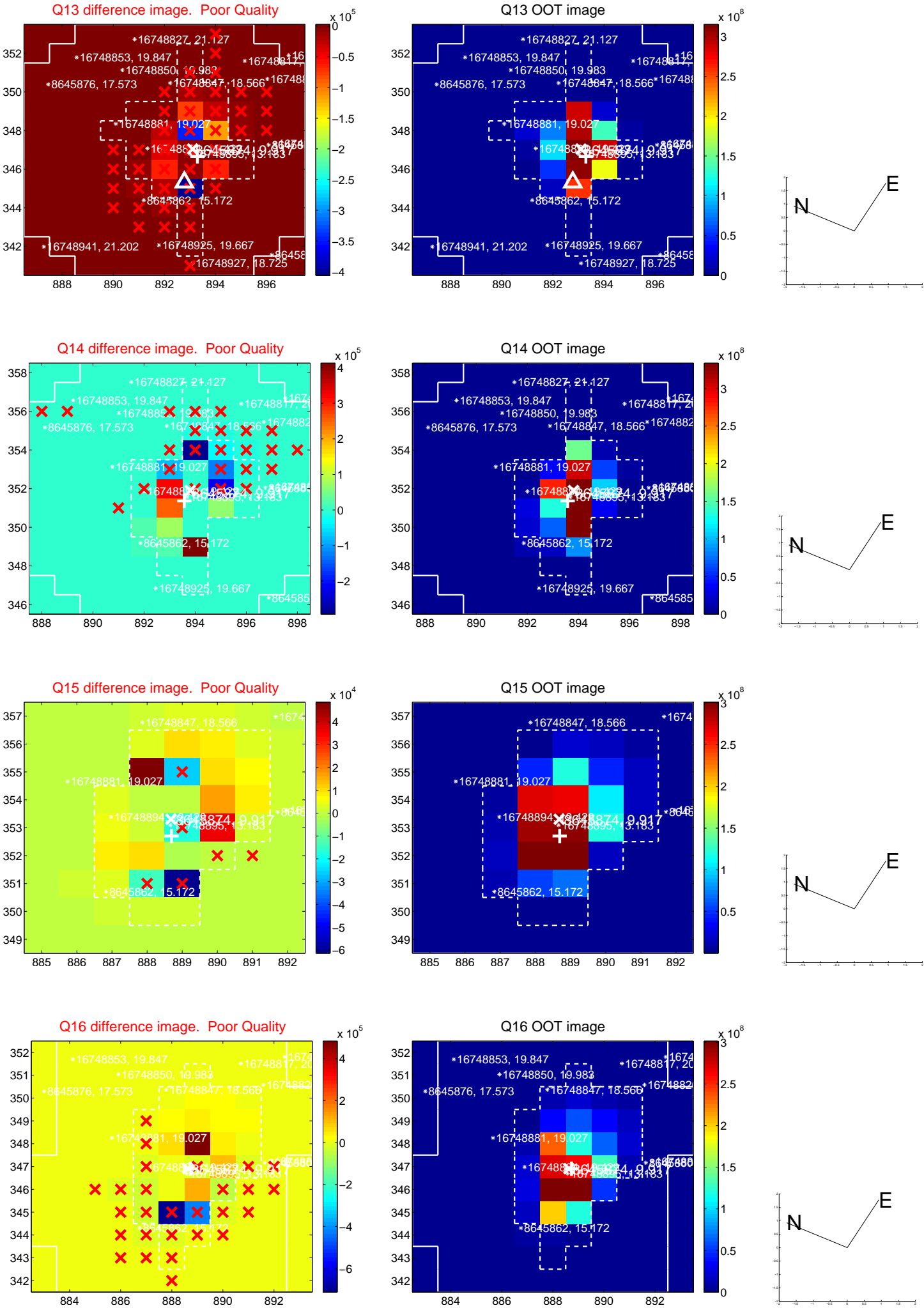




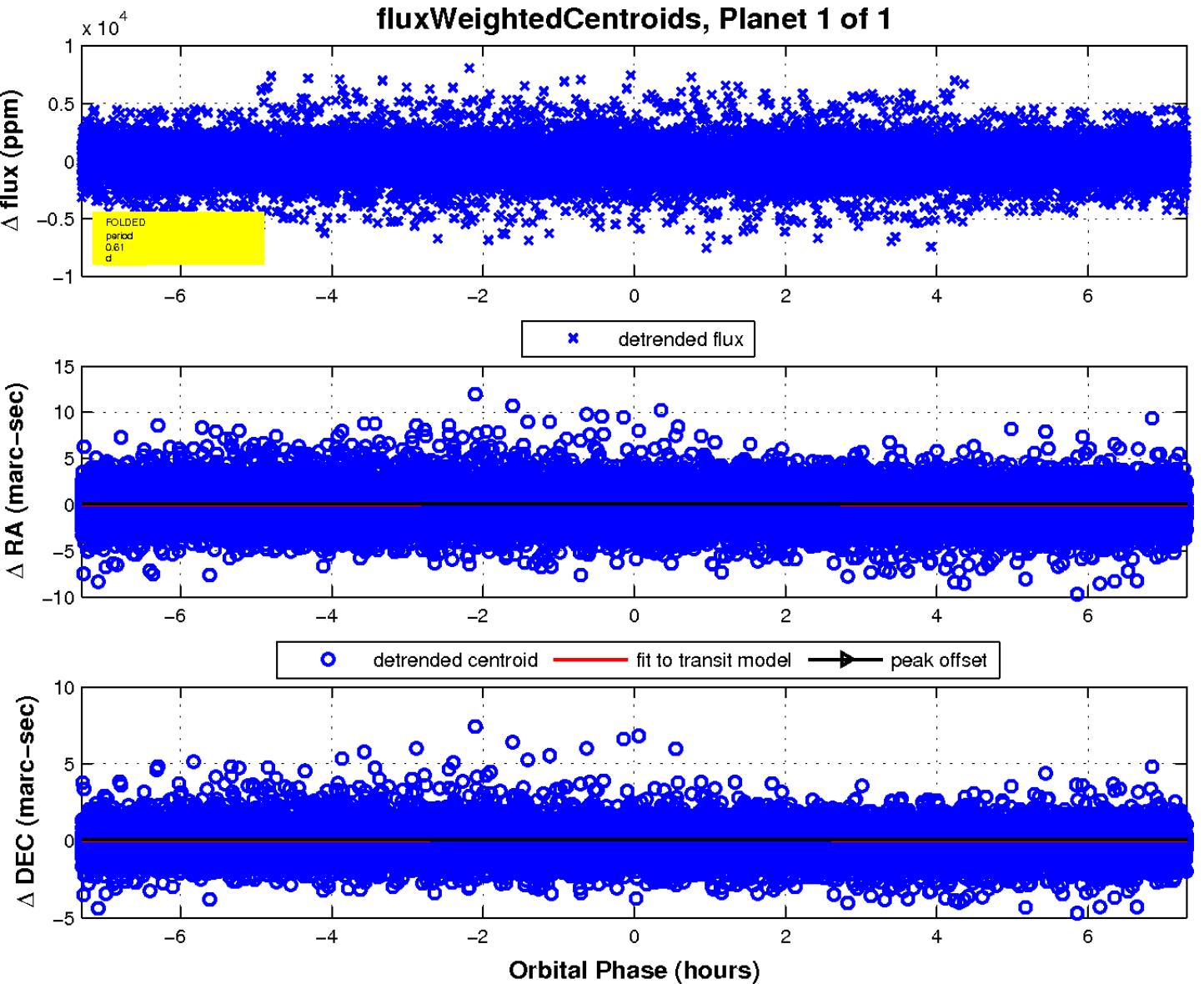
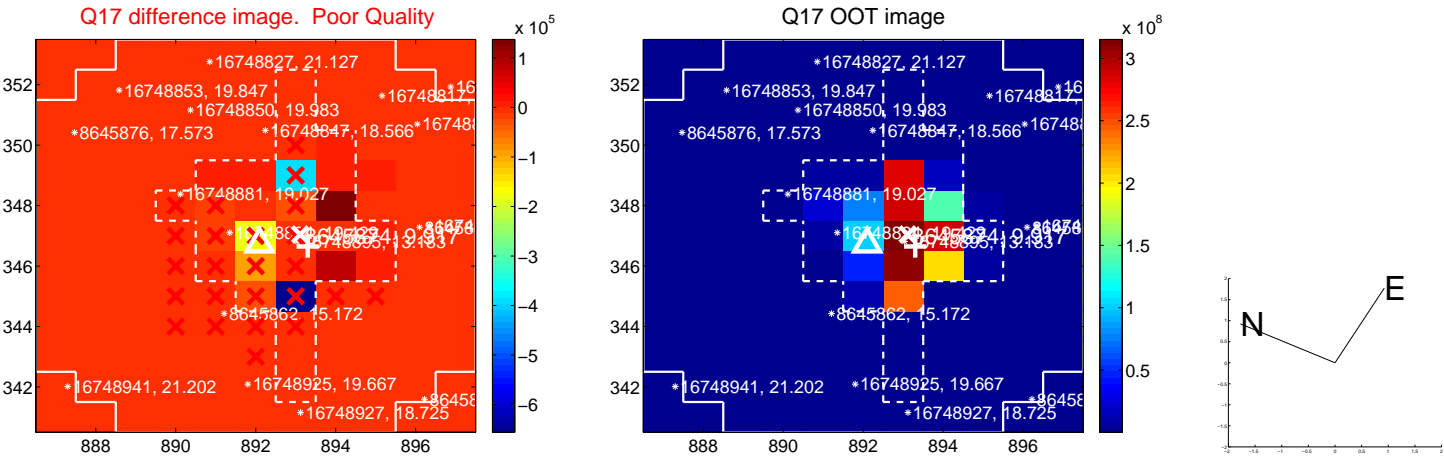
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

