

# KIC 008872565

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008872565-01	OBS	No	684.531724	176.959420	360.2	46.284	11.0	11.7	0.18	3319	0.43	0.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008872565-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—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.

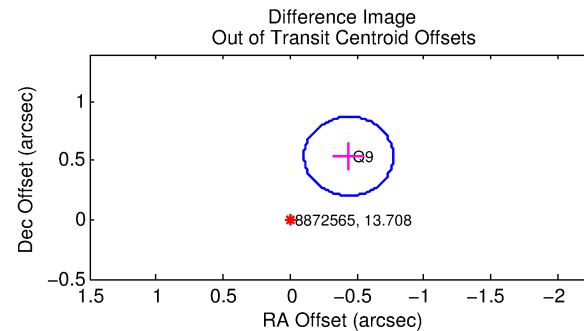
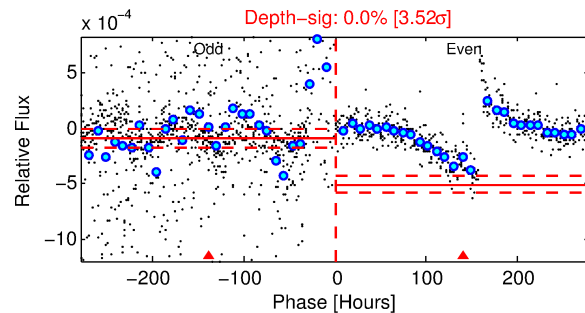
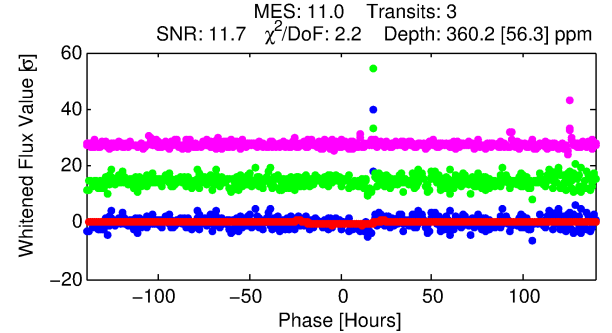
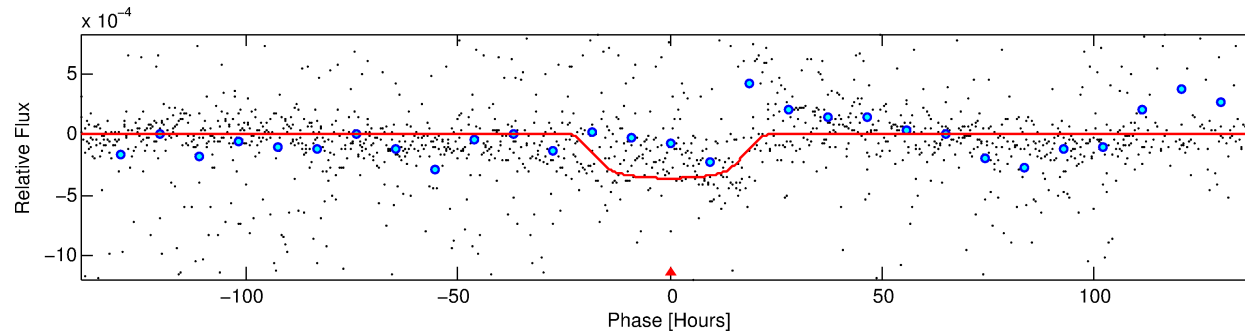
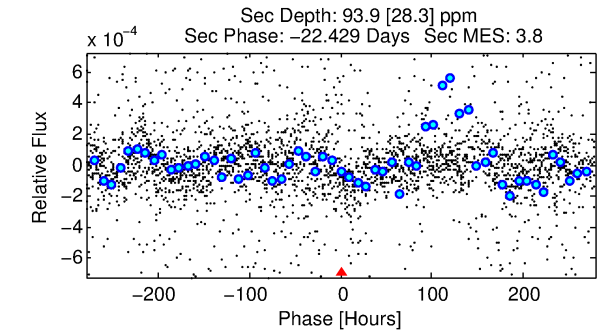
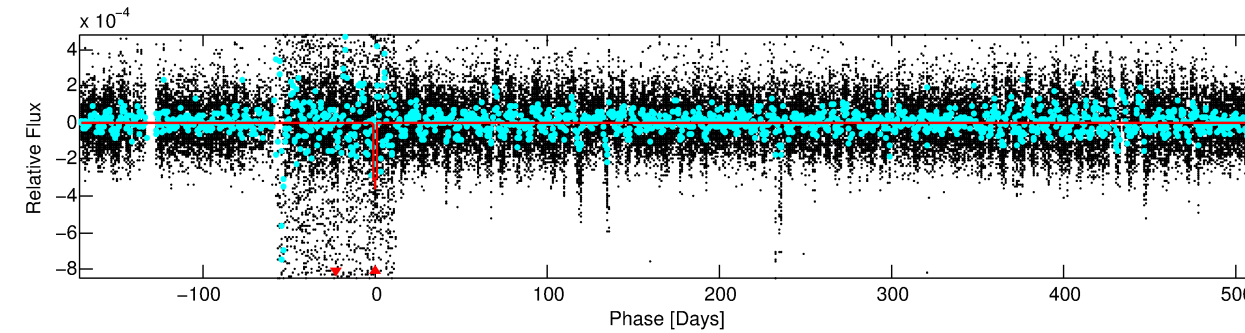
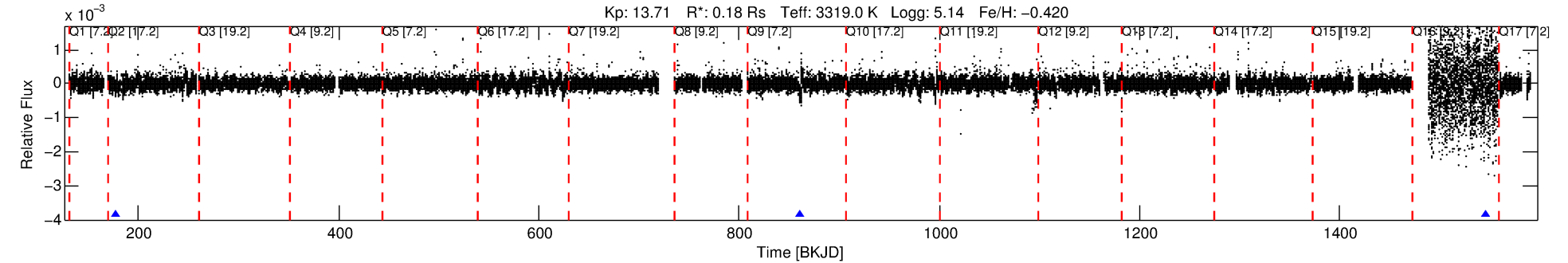
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008872565-01

No Significant Match Found

# DV One-Page Summary

KIC: 8872565 Candidate: 1 of 1 Period: 684.532 d



## DV Fit Results:

Period = 684.53172 [0.06528] d  
Epoch = 176.9594 [0.0725] BKJD  
Rp/R\* = 0.0224 [0.0021]  
a/R\* = 40.36 [7.09]  
b = 0.96 [0.02]  
Seff = 0.01 [0.00]  
Teq = 68 [7] K  
Rp = 0.43 [0.22] Re  
a = 0.8196 [0.2852] AU  
Ag = 185804.56 [98524.34] [1.89σ]  
Teffp = 2184 [209] K [10.11σ]

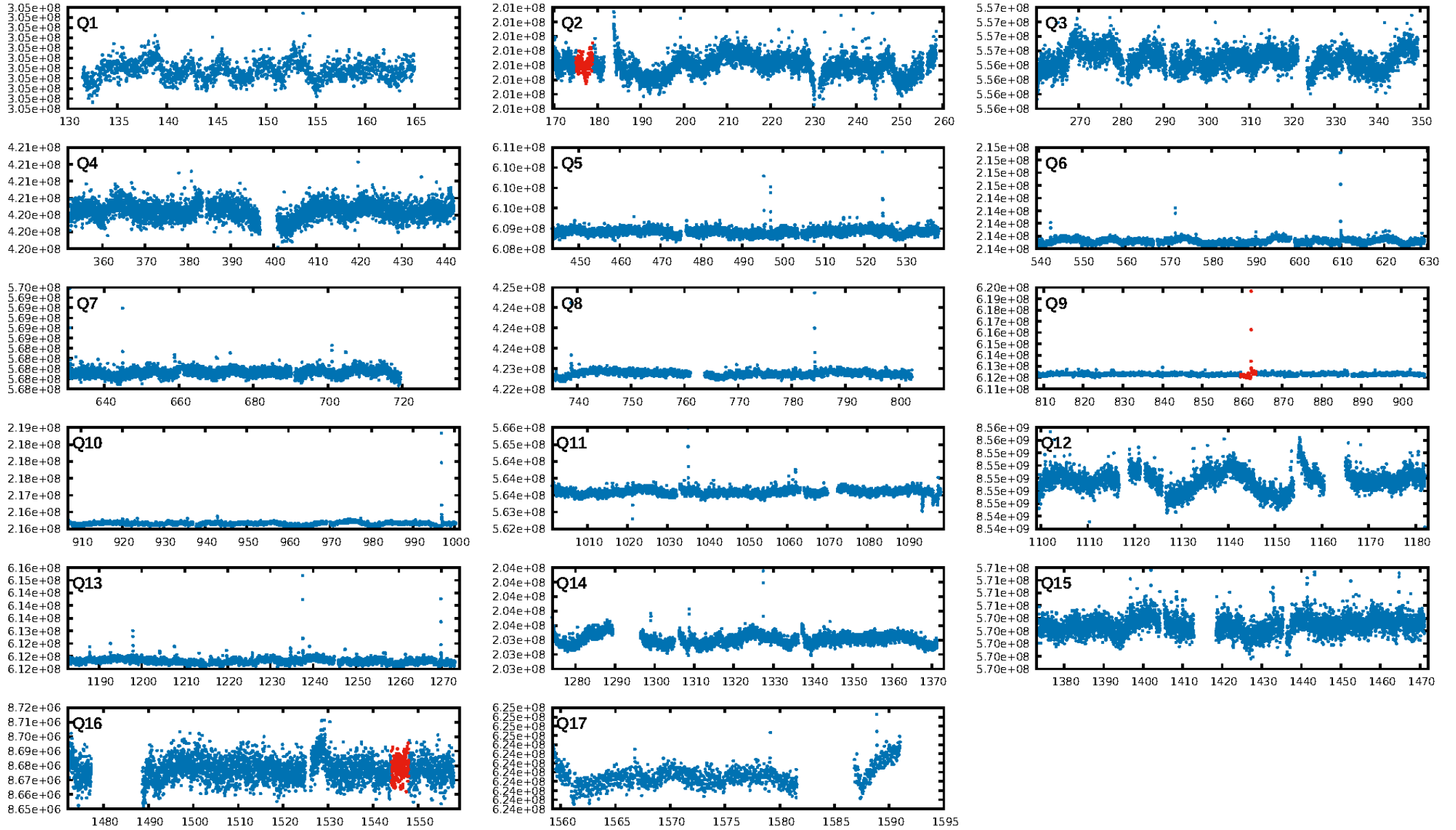
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 8.84e-08  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.6233  
Centroid-sig: 9.1%  
Centroid-so: 6.194 arcsec [13.39σ]  
OotOffset-rm: 0.692 arcsec [6.23σ]  
KicOffset-rm: 6.379 arcsec [57.69σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

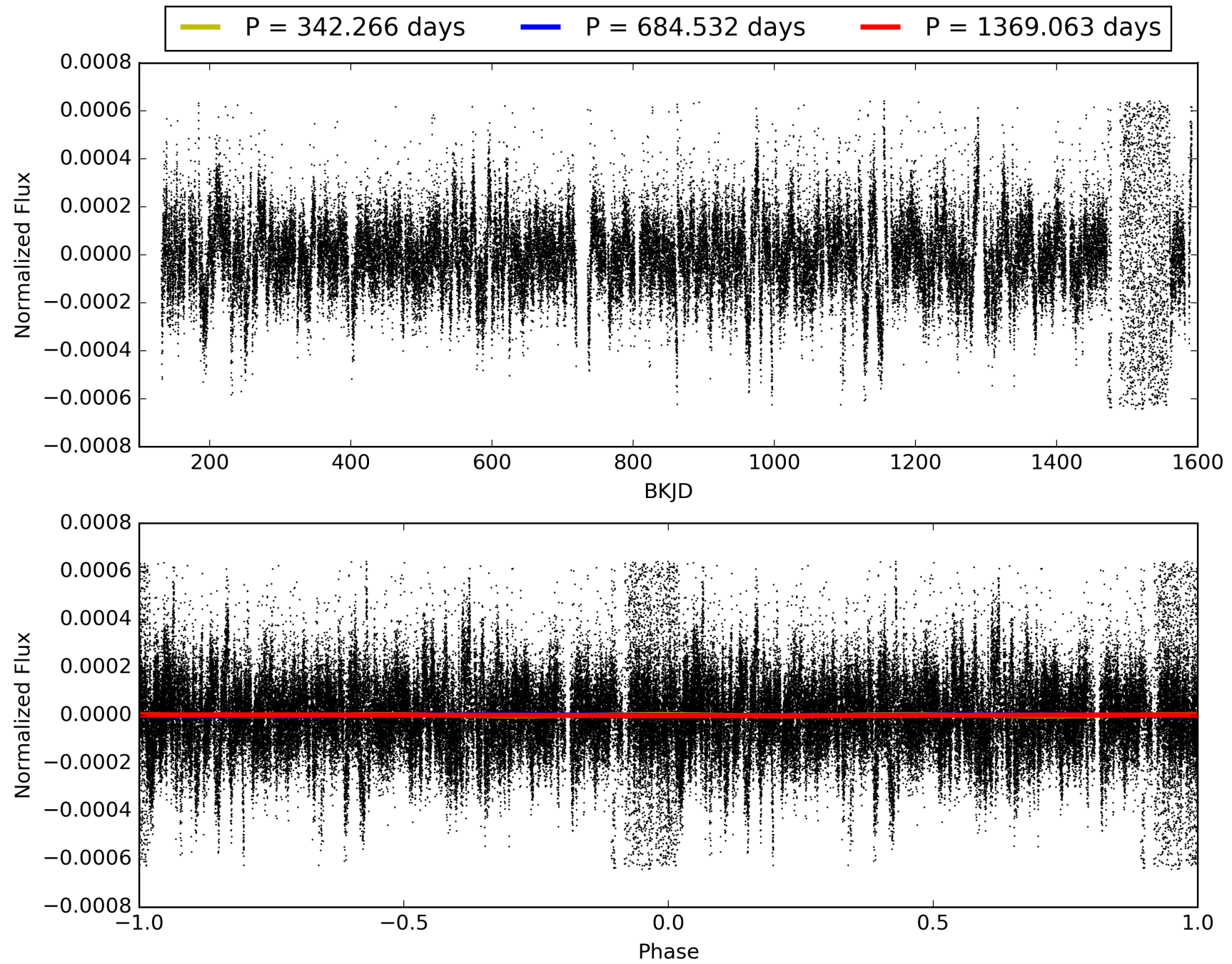
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:27:20 Z

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

# TCE 008872565-01, PDC Light Curves

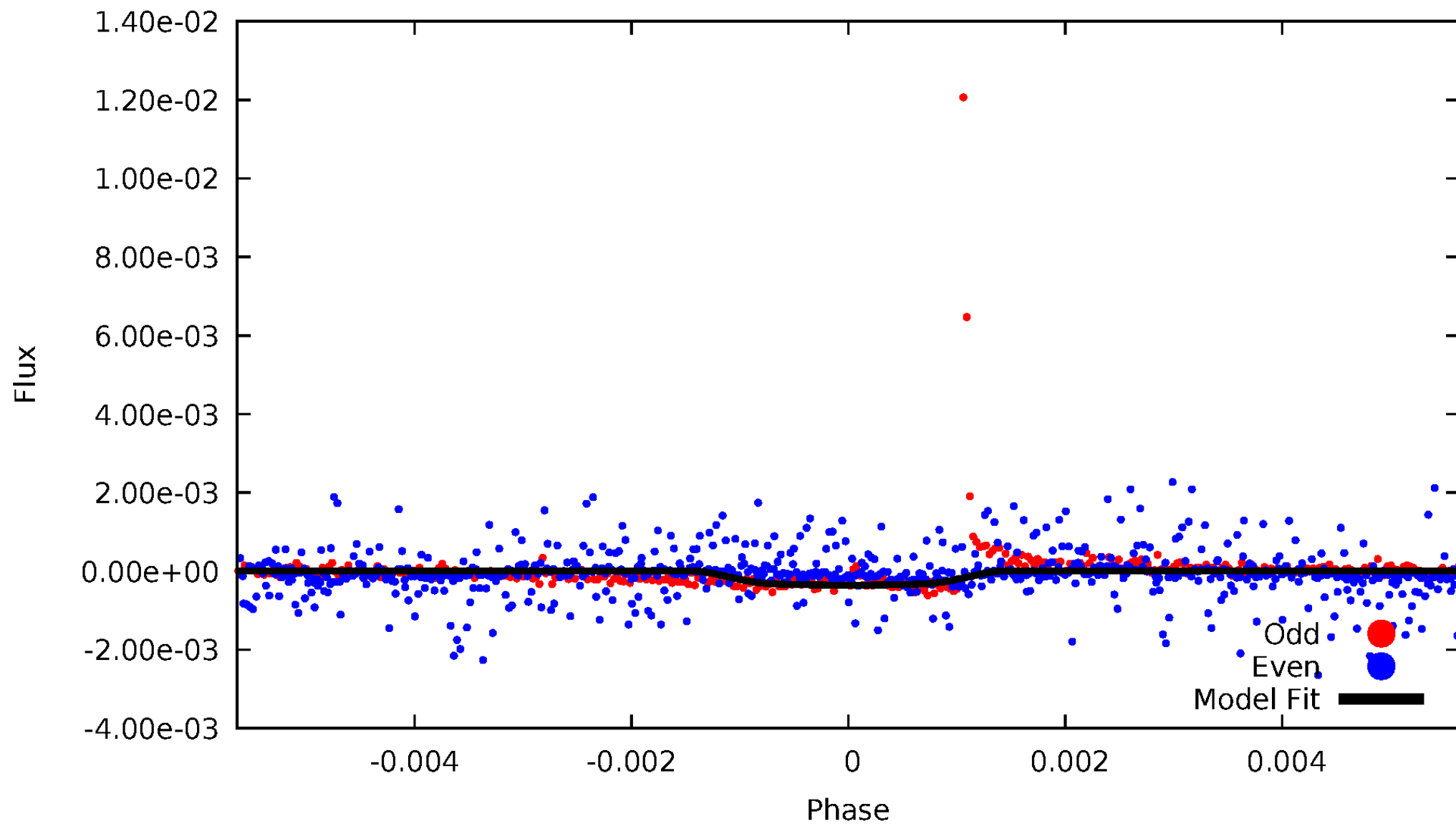


TCE 008872565-01



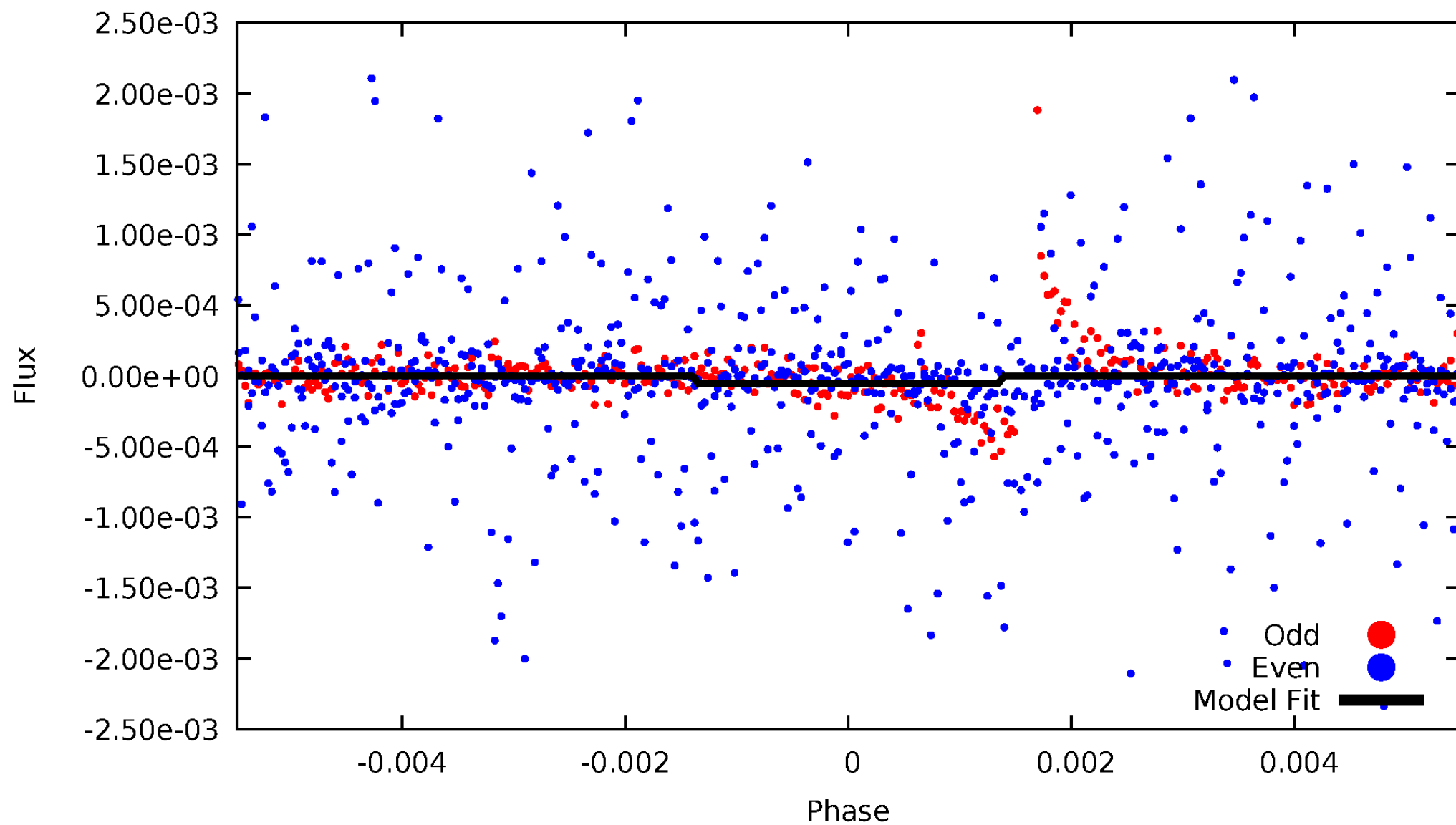
# DV Odd/Even

TCE 008872565-01



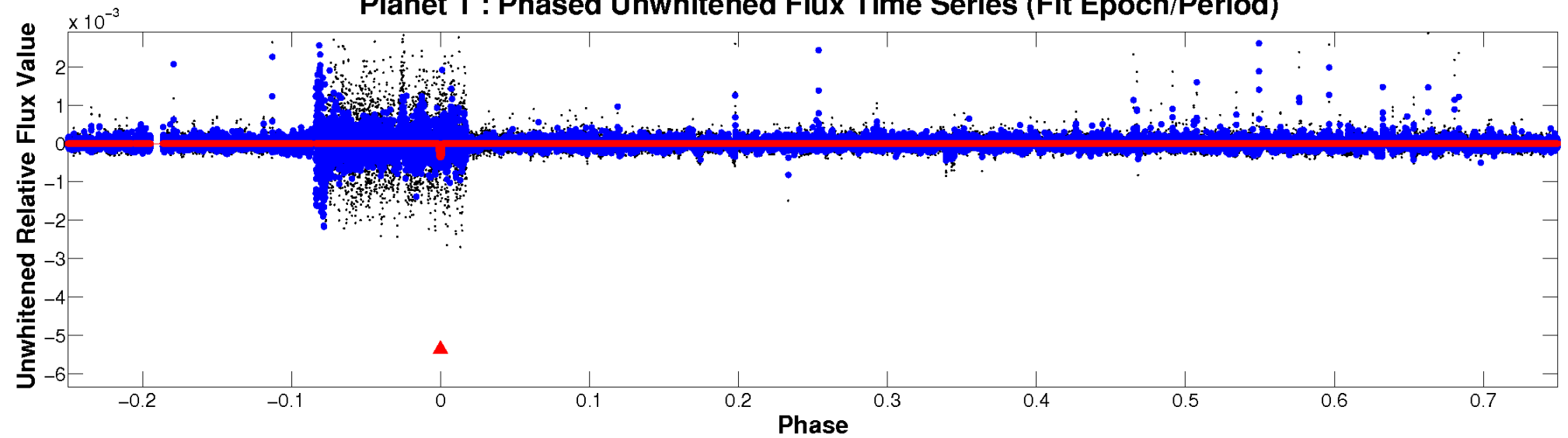
# ALT Odd/Even

TCE 008872565-01

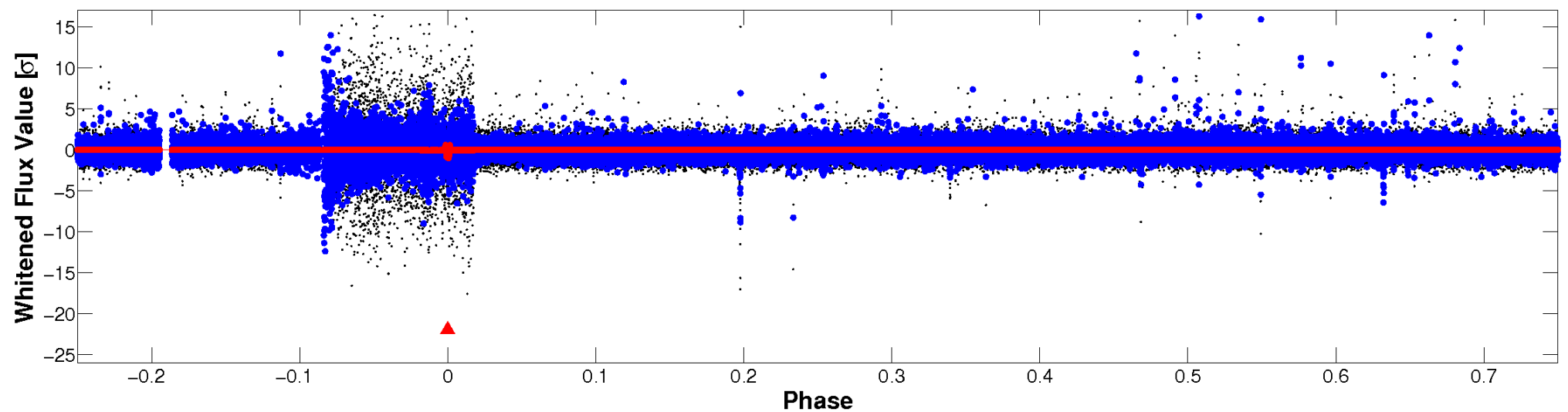


# Non-Whitened Vs. Whitened Light Curve

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

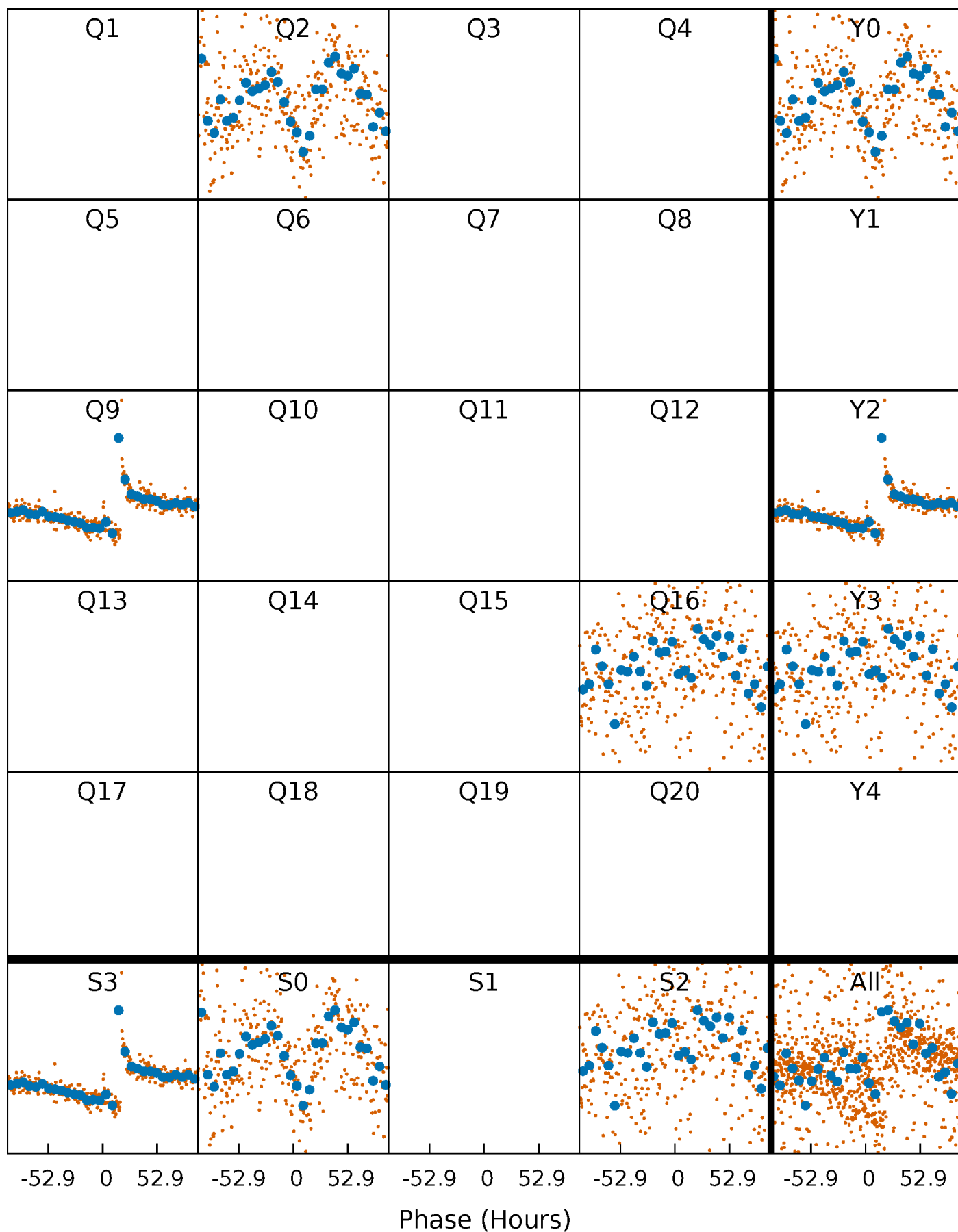


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

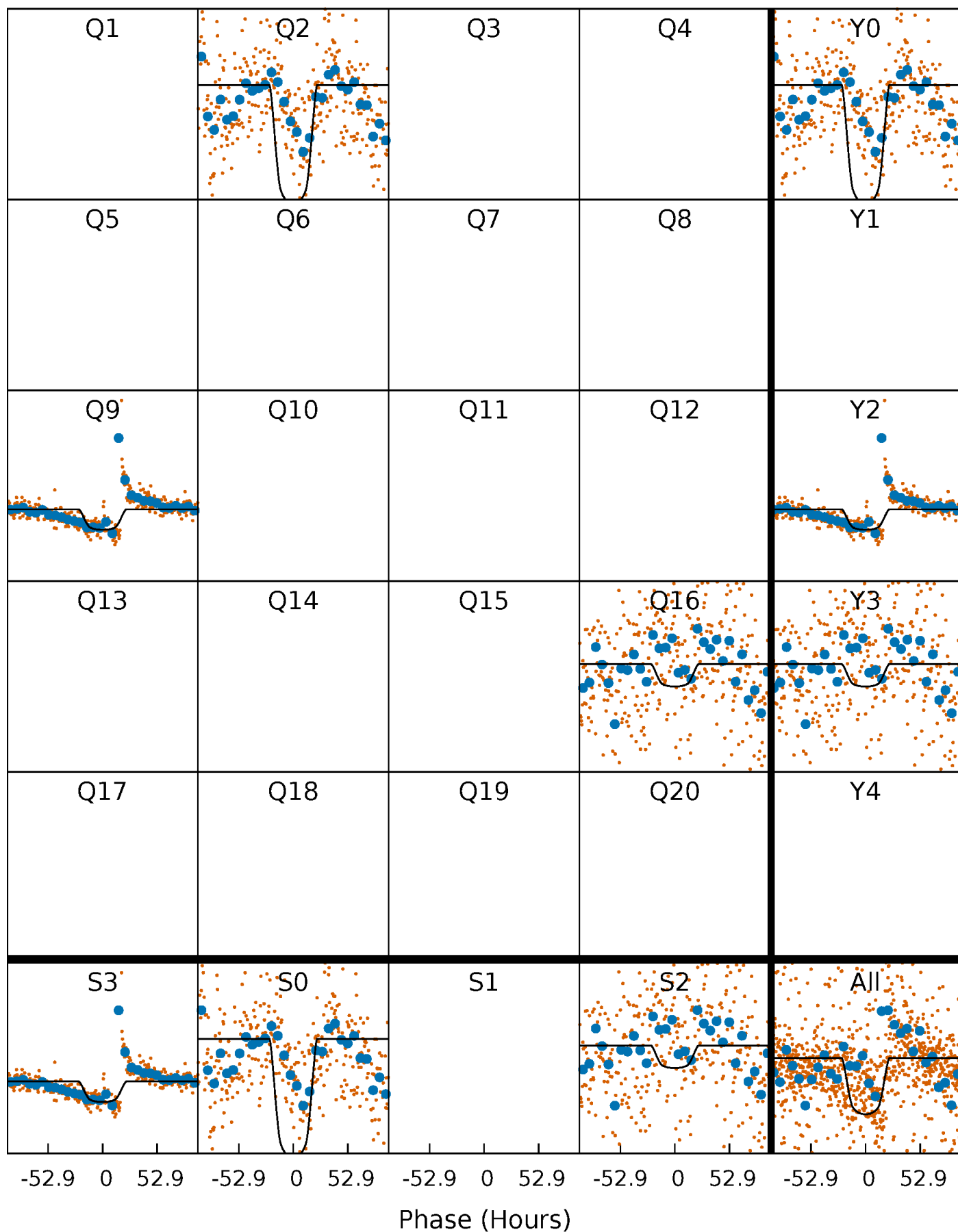
TCE 008872565-01 P=684.531724 Days  $T_0=176.959420$  (BKJD)





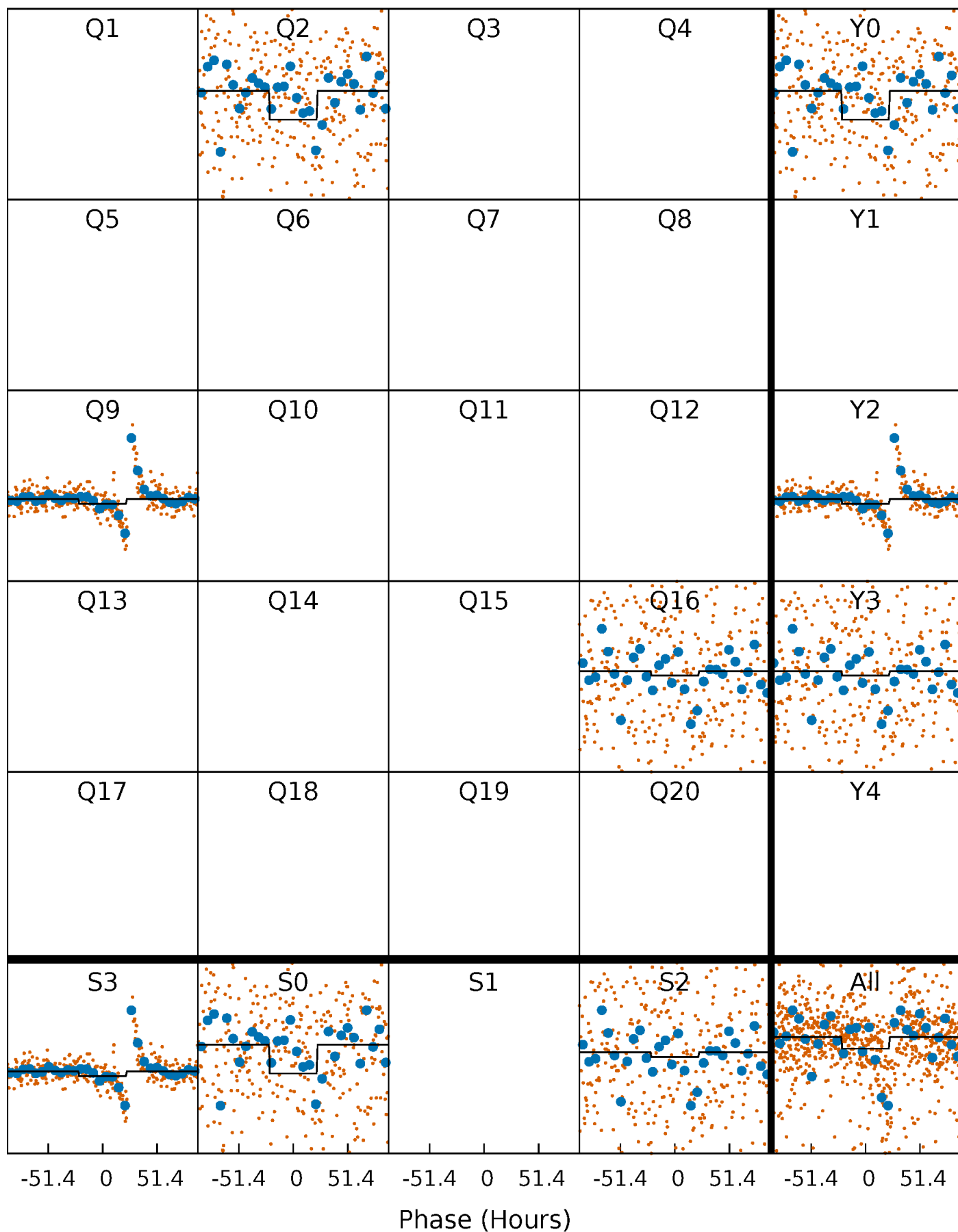
# DV Quarter-Phased Transit Curves

TCE 008872565-01 P=684.531724 Days  $T_0=176.959420$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

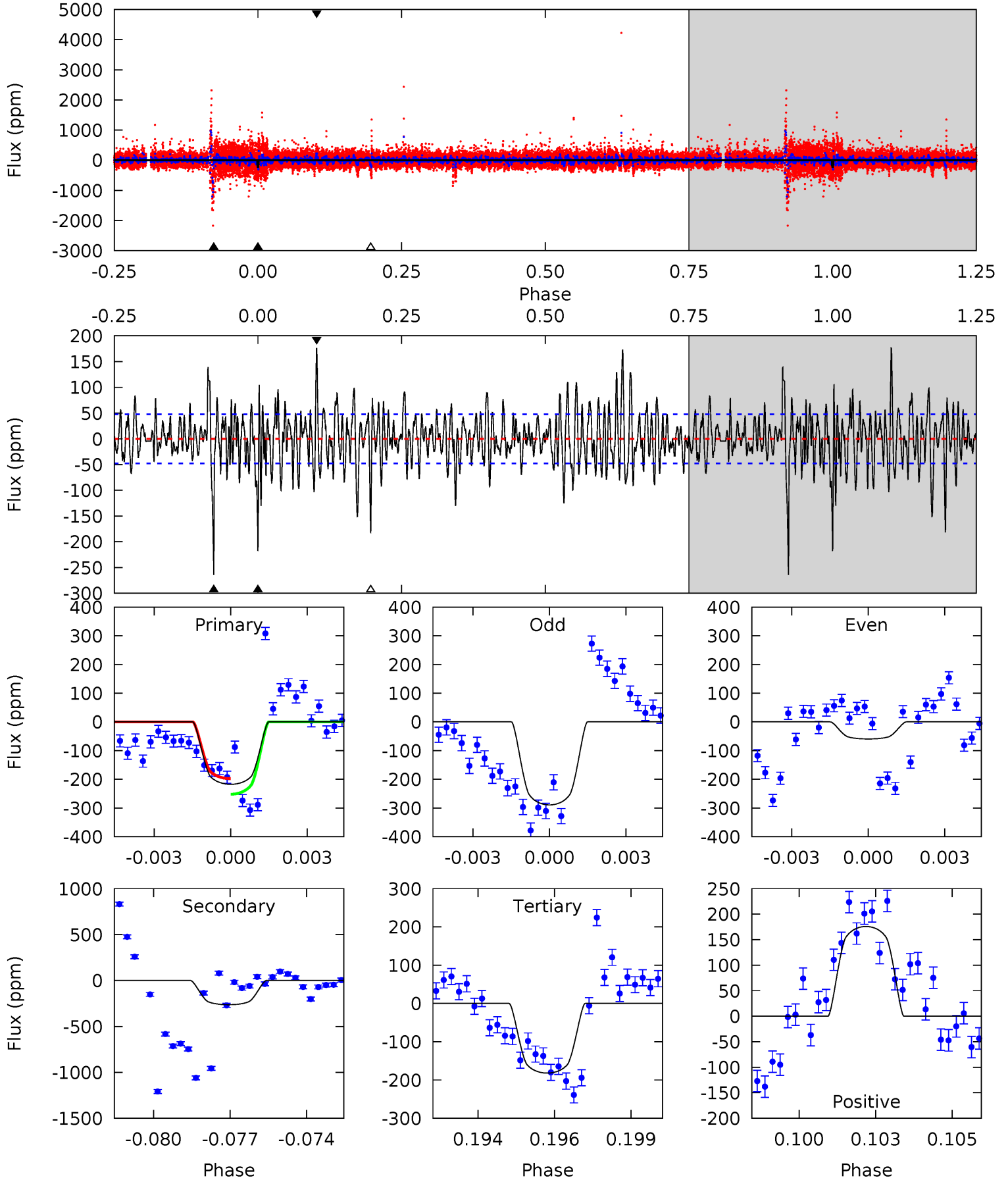
TCE 008872565-01 P=684.605994 Days  $T_0=176.490706$  (BKJD)



# DV Model-Shift Uniqueness Test

008872565-01, P = 684.531724 Days, E = 176.959420 Days

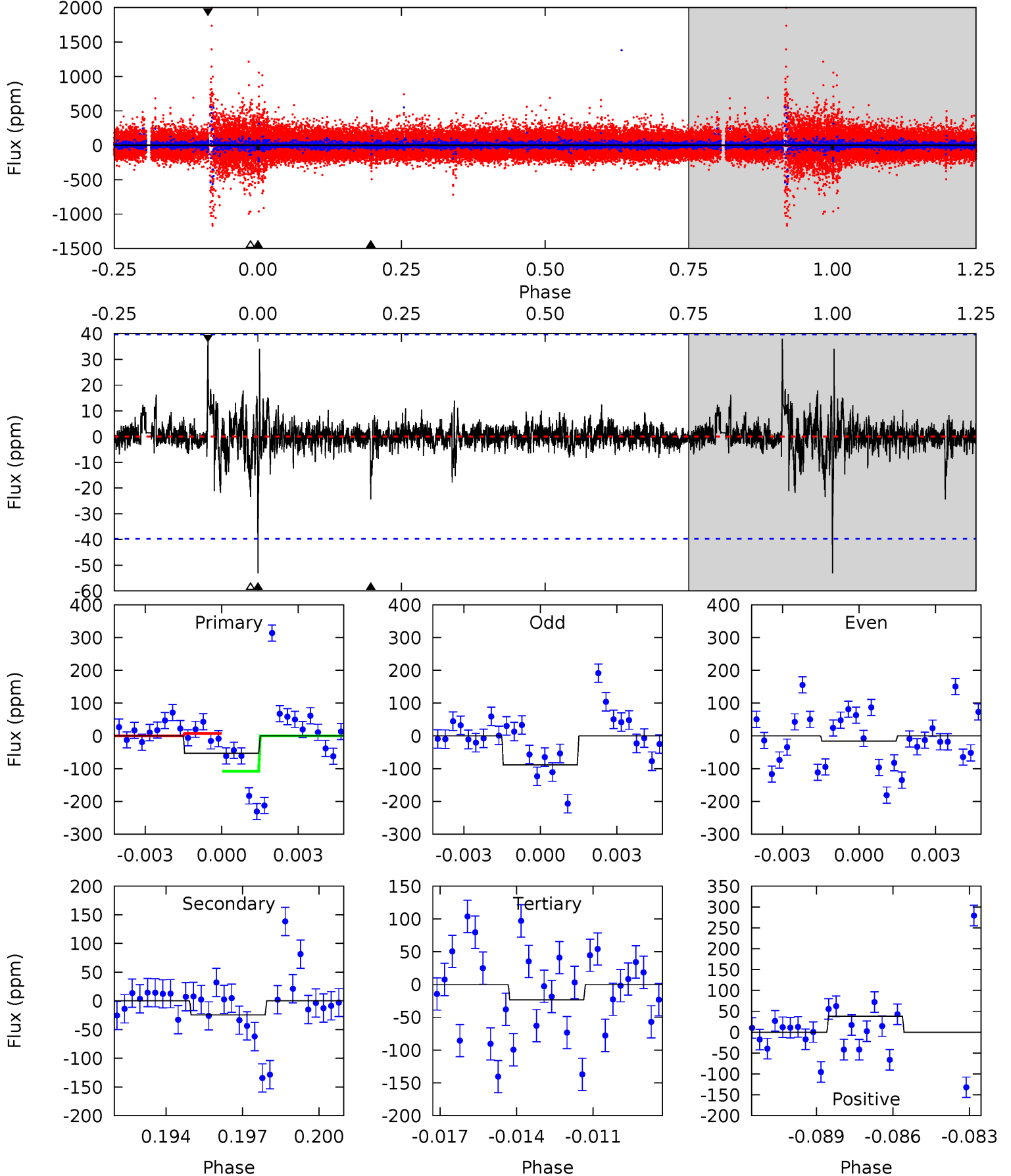
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.0	29.1	20.1	19.4	5.26	2.98	4.84	3.93	4.59	9.07	9.74	11.2	0.51	0.40	2.99



# Alt Model-Shift Uniqueness Test

008872565-01, P = 684.605994 Days, E = 176.490706 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
7.04	3.24	3.11	5.04	5.27	2.99	0.52	3.93	1.99	0.13	-1.80	4.62	0.87	0.42	6.81



### Stellar Parameters For KIC 008872565

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3319^{+118}_{-49}$	$5.137^{+0.092}_{-0.138}$	$-0.420^{+0.350}_{-0.250}$	$0.177^{+0.088}_{-0.038}$	$0.157^{+0.099}_{-0.033}$	$39.670^{+20.030}_{-21.260}$
	+4%/-1%	+2%/-3%	+83%/-60%	+50%/-21%	+63%/-21%	+50%/-54%
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 008872565-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-264 \pm 9$	$0.44^{+0.12}_{-0.08}$	$97^{+7}_{-5}$	$3047^{+115}_{-102}$	$493912^{+163051}_{-124372}$
Alt.	$-24 \pm 8$	$0.14^{+0.06}_{-0.05}$	$97^{+6}_{-5}$	$2981^{+350}_{-284}$	$429310^{+489045}_{-222425}$

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

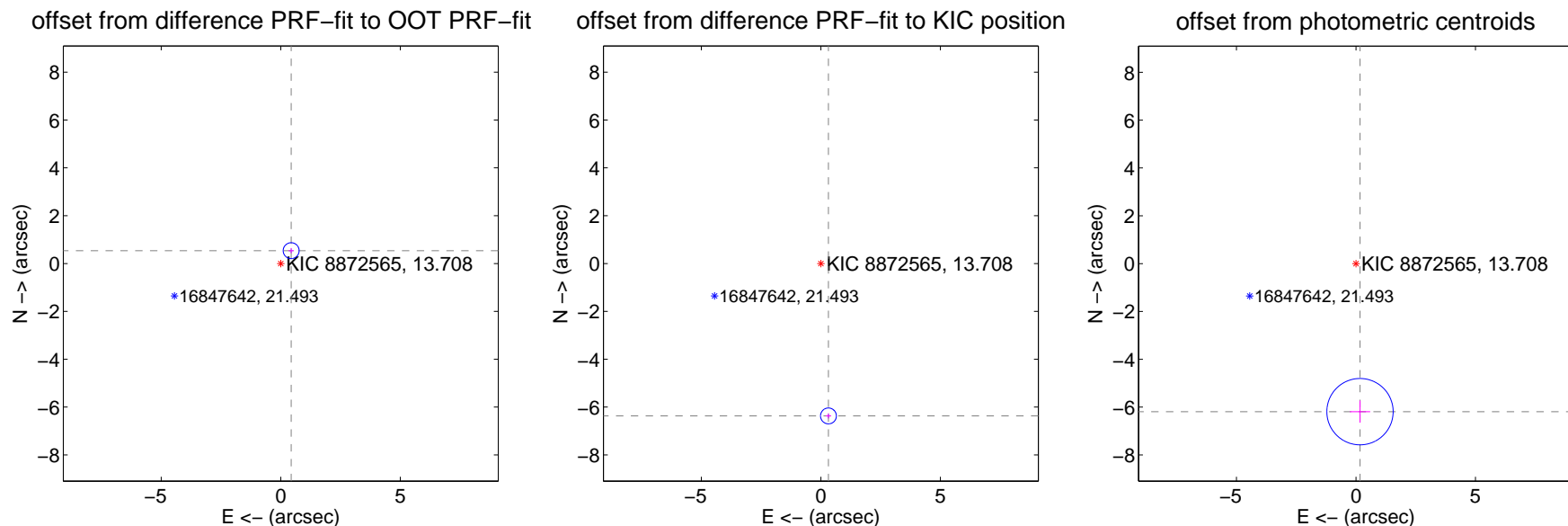
## DV Centroid Data

Supplemental centroid analysis for 008872565-01. Kepler magnitude: 13.71. Transit SNR 11.71

There are 1 quarters with good PRF difference image offsets

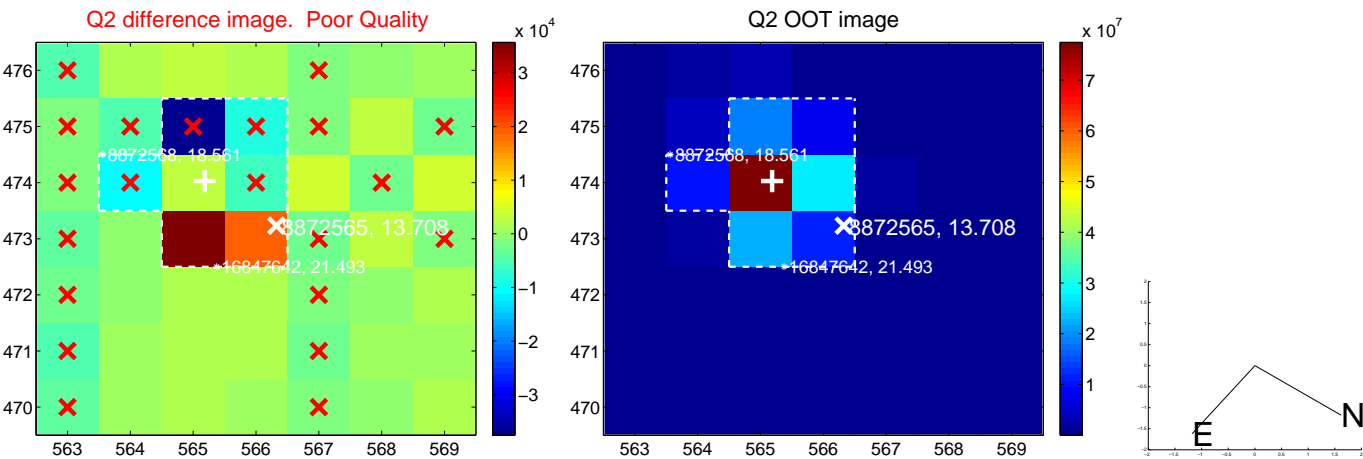
The OOT PRF centroid is offset from the target star catalog position by about 6.91 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.692 \pm 0.111$	6.23	$-0.436 \pm 0.112$	$0.538 \pm 0.111$
PRF-fit source offset from KIC position	$6.379 \pm 0.111$	57.69	$-0.317 \pm 0.112$	$-6.371 \pm 0.111$
photometric centroid source offset	$6.19 \pm 0.46$	13.39	$-0.17 \pm 0.43$	$-6.19 \pm 0.46$



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.

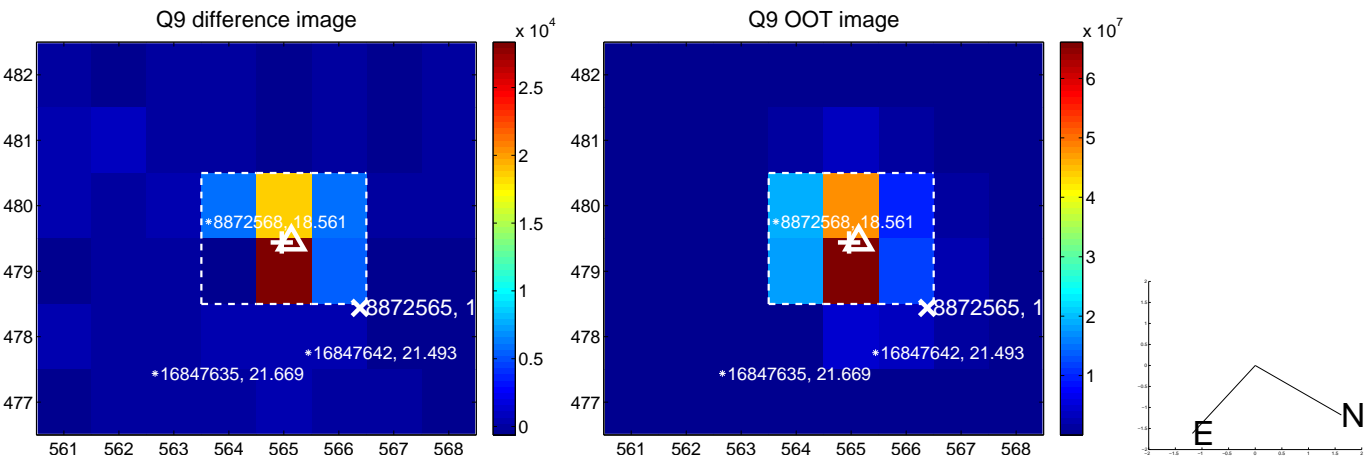


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





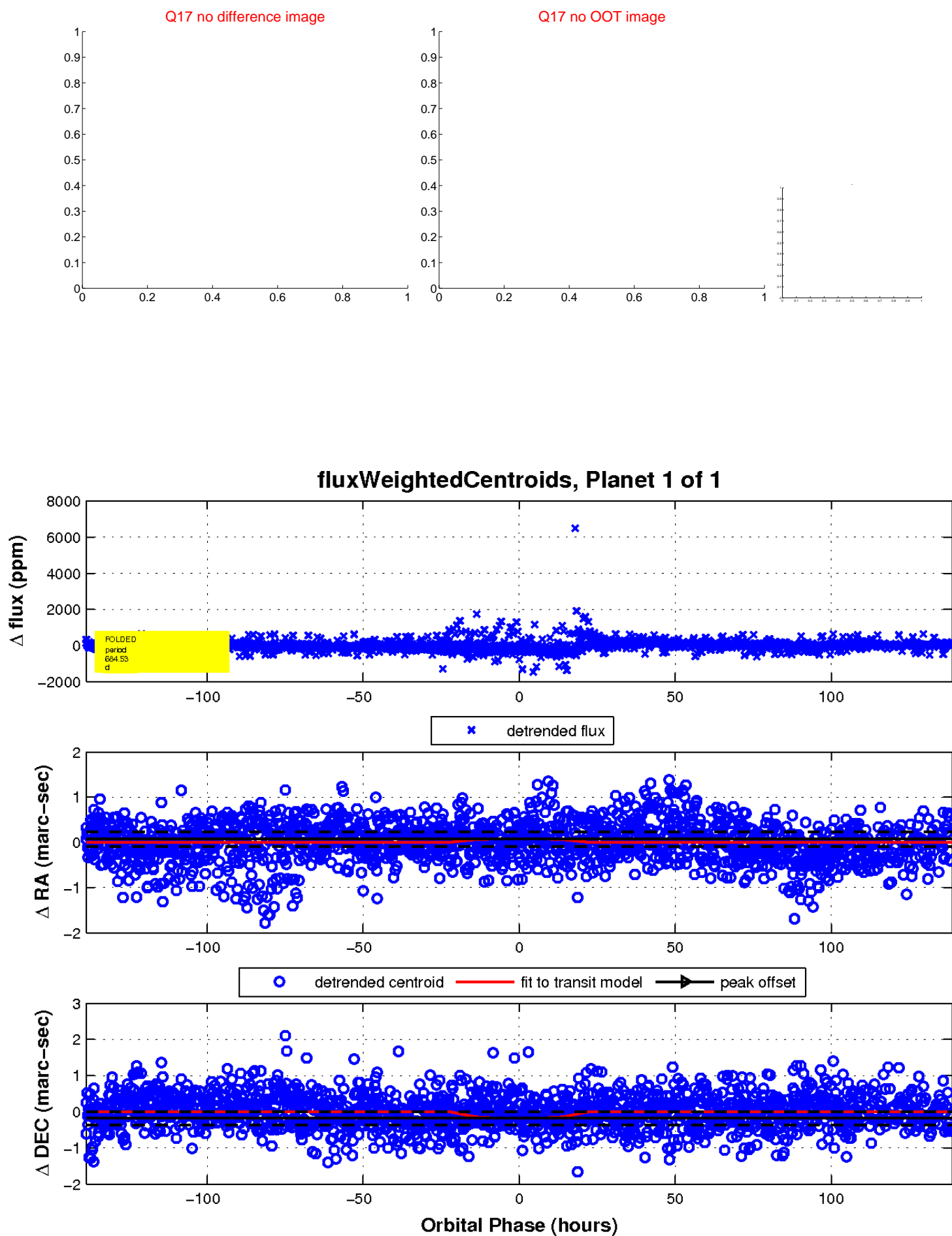
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

