

# KIC 009582784

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009582784-01	OBS	No	40.998619	135.651257	30.9	9.862	10.1	7.5	19.18	4385	13.06	2494.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009582784-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED— HALO_GHOST

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

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

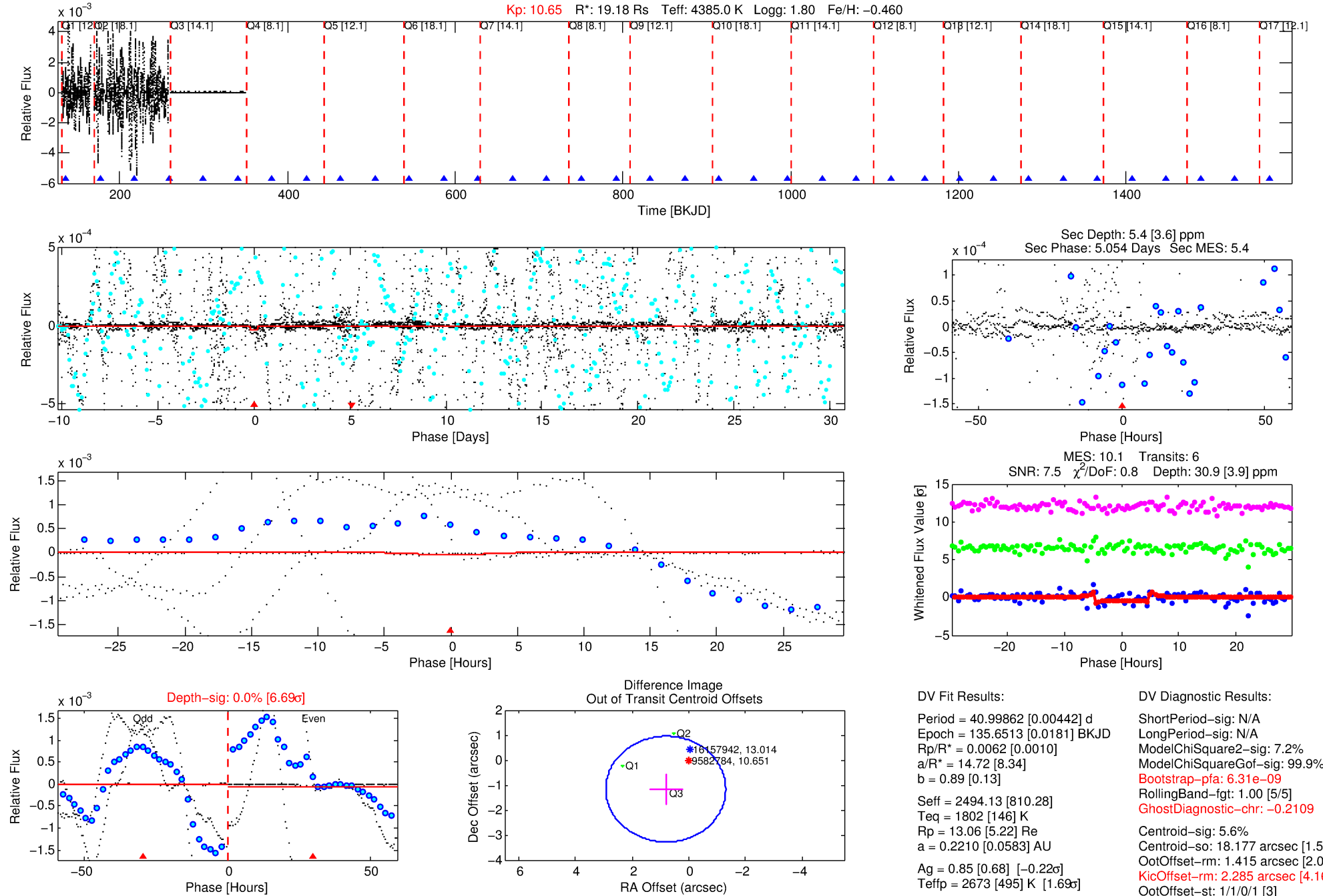
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009582784-01

No Significant Match Found

# DV One-Page Summary

KIC: 9582784 Candidate: 1 of 1 Period: 40.999 d



## DV Fit Results:

Period = 40.99862 [0.00442] d  
Epoch = 135.6513 [0.0181] BKJD  
Rp/R\* = 0.0062 [0.0010]  
a/R\* = 14.72 [8.34]  
b = 0.89 [0.13]  
Seff = 2494.13 [810.28]  
Teff = 1802 [146] K  
Rp = 13.06 [5.22] Re  
a = 0.2210 [0.0583] AU  
Ag = 0.85 [0.68] [-0.22 $\sigma$ ]  
Teffp = 2673 [495] K [1.69 $\sigma$ ]

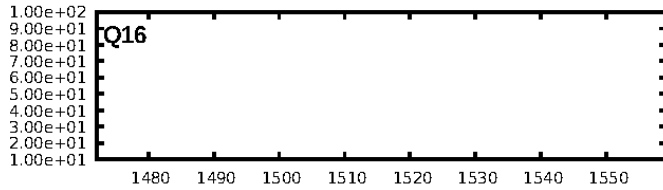
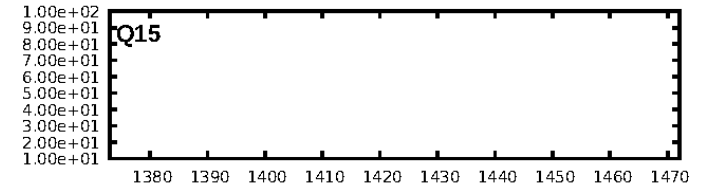
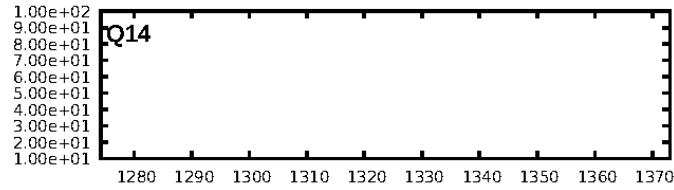
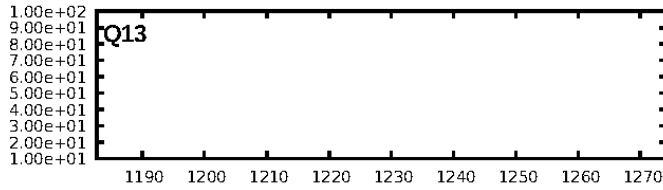
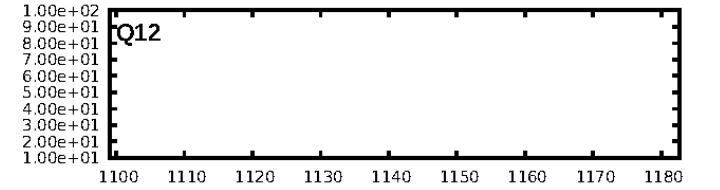
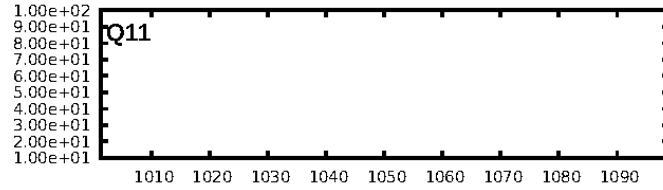
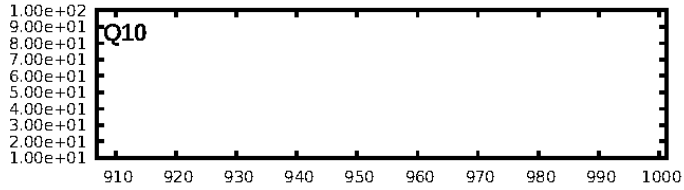
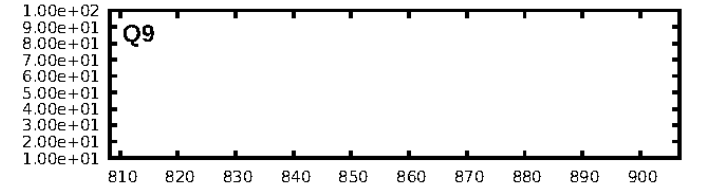
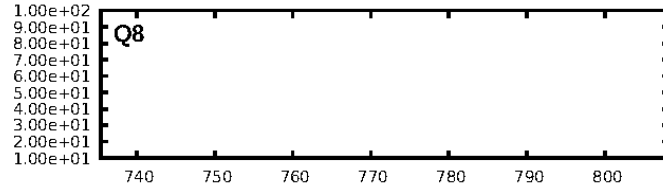
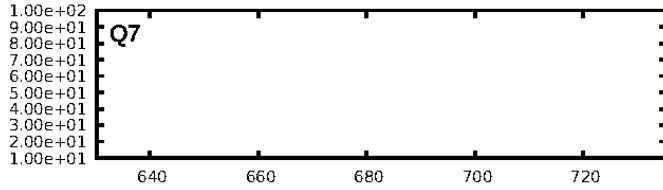
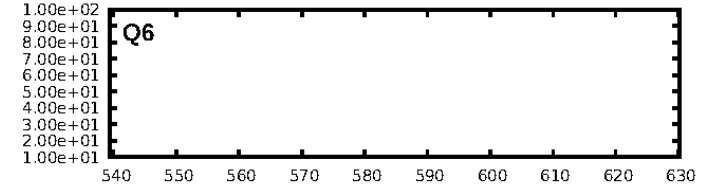
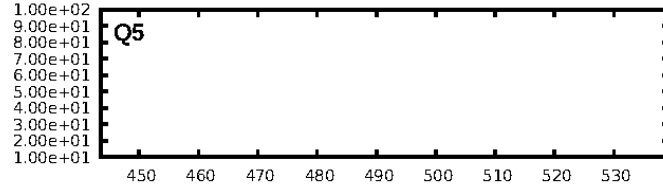
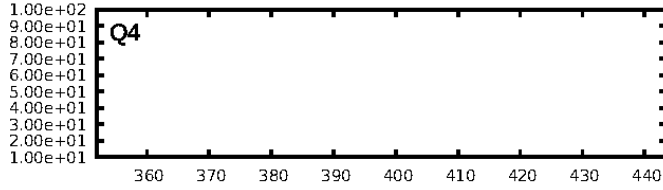
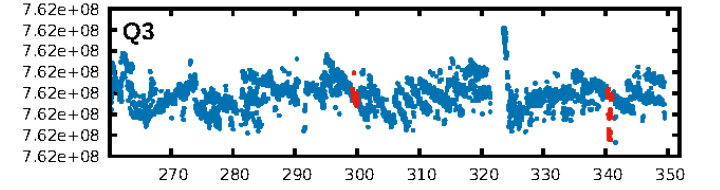
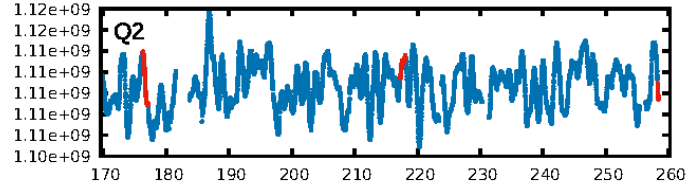
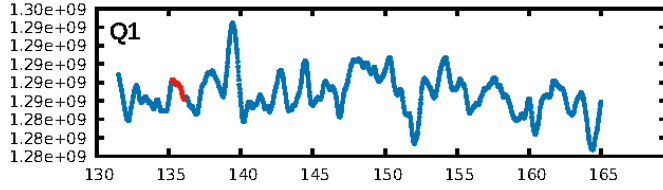
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.2%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 6.31e-09  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.2109  
Centroid-sig: 5.6%  
Centroid-so: 18.177 arcsec [1.54 $\sigma$ ]  
OotOffset-rm: 1.415 arcsec [2.00 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-rm: 2.285 arcsec [4.16 $\sigma$ ]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

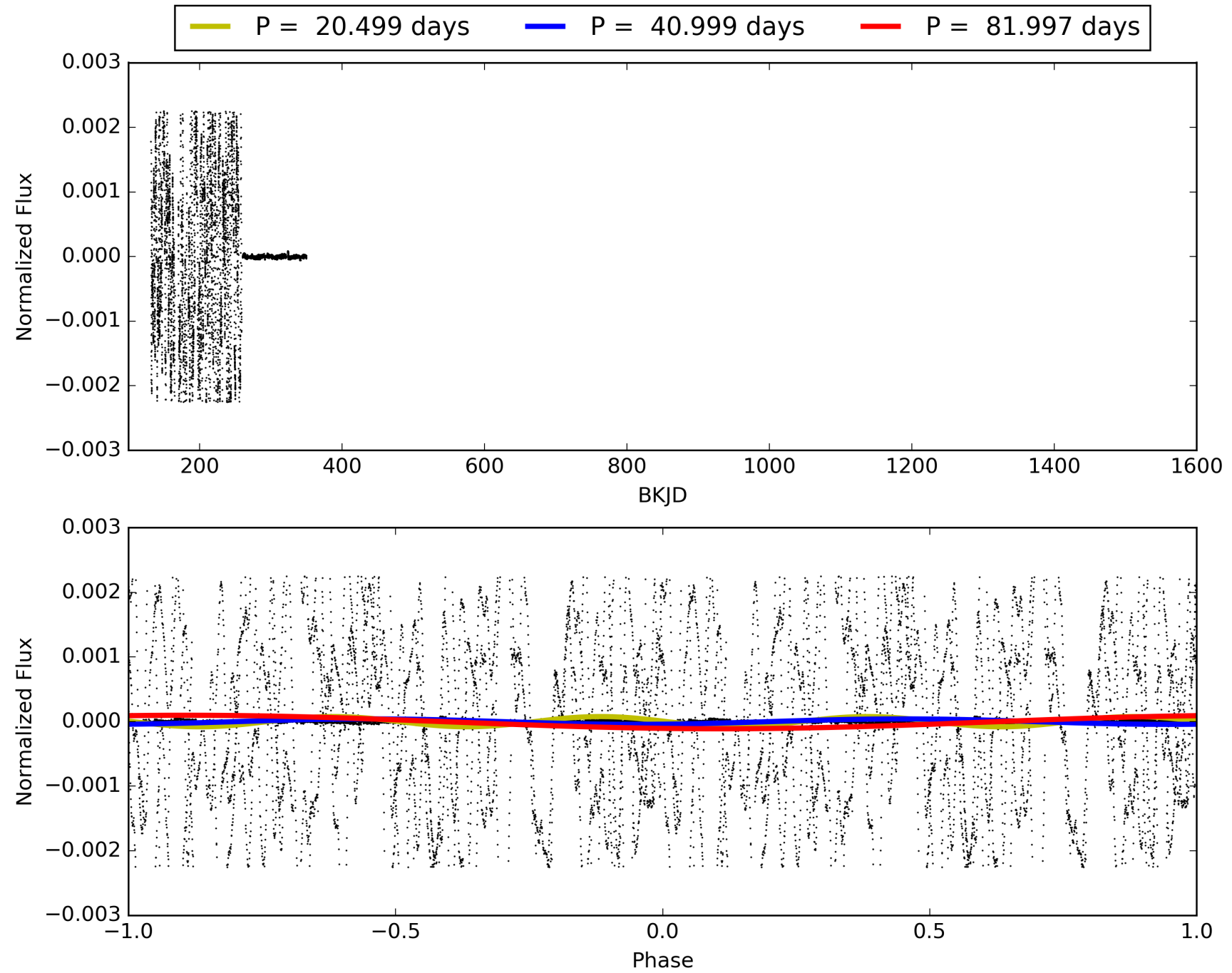
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:24:00 Z

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

# TCE 009582784-01, PDC Light Curves

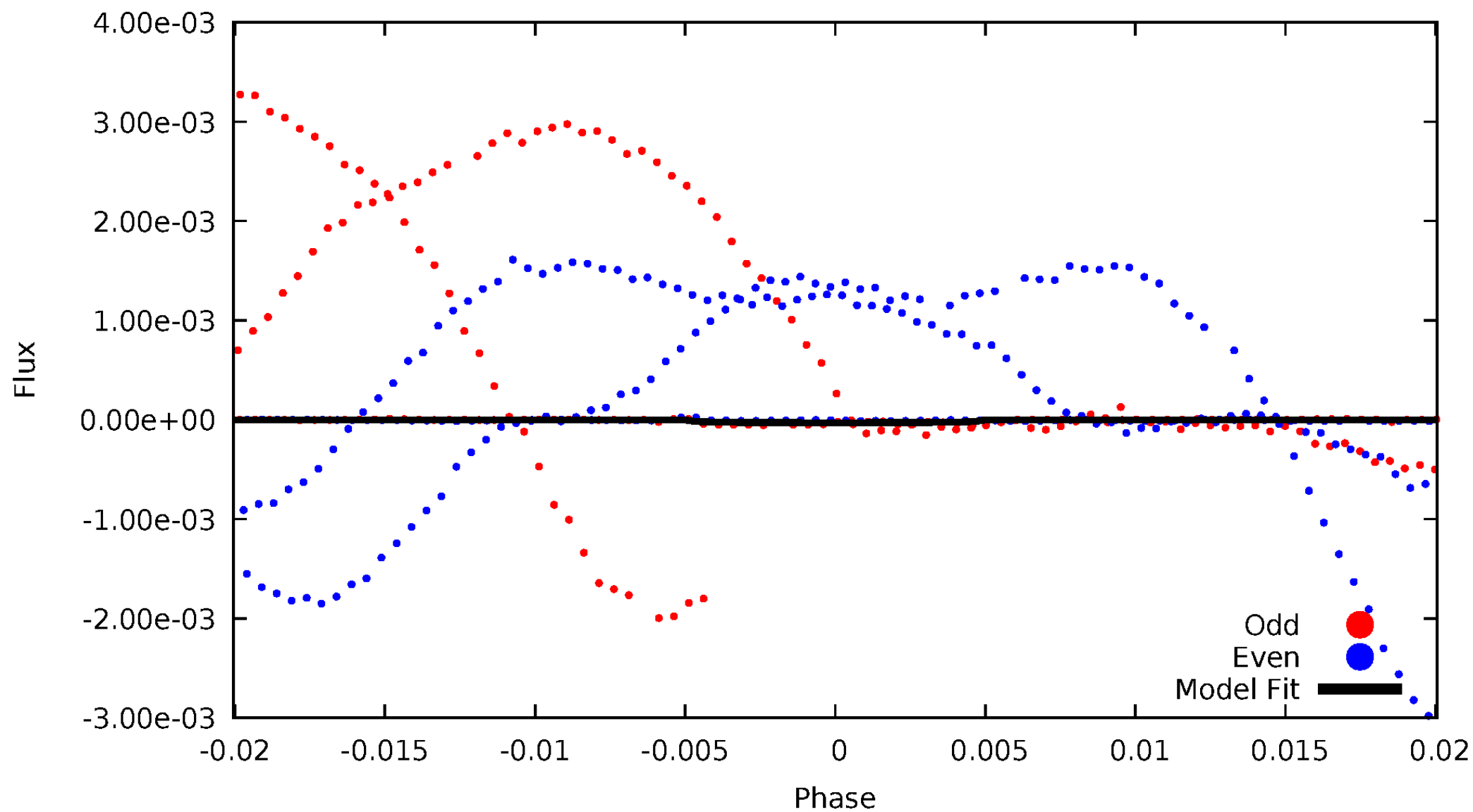


# TCE 009582784-01



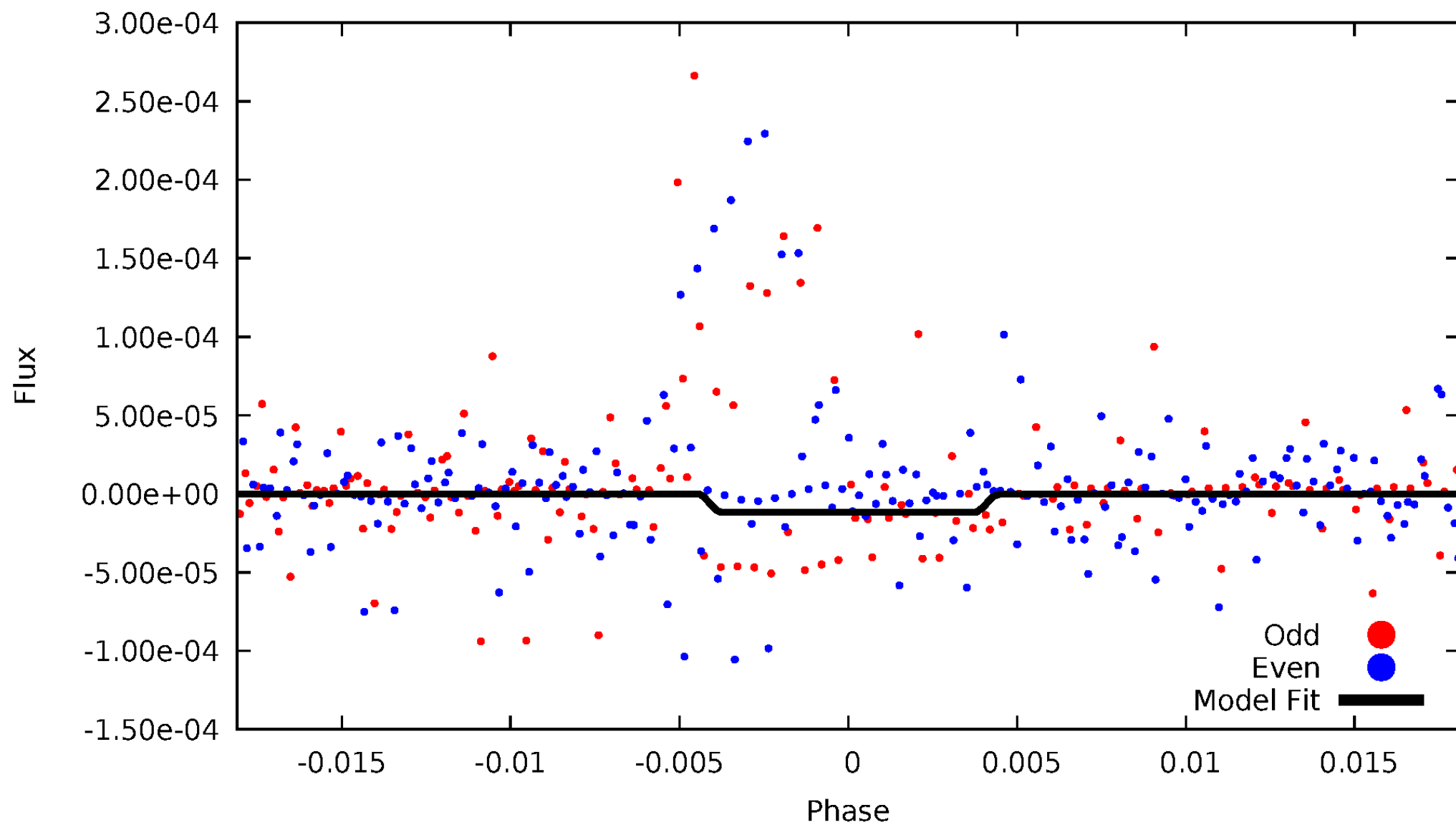
# DV Odd/Even

TCE 009582784-01



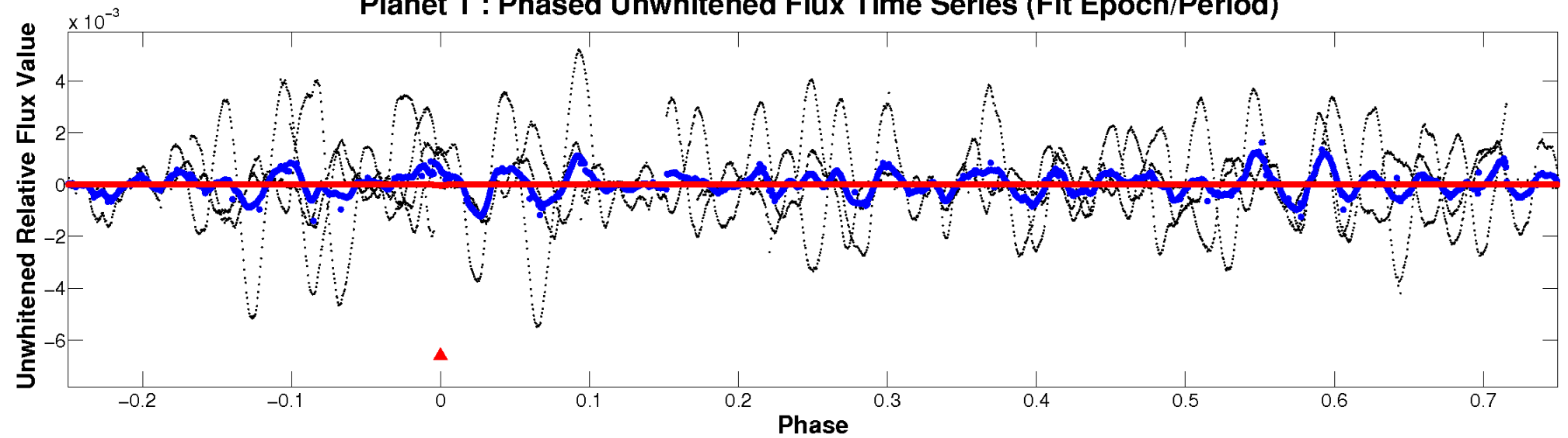
# ALT Odd/Even

TCE 009582784-01

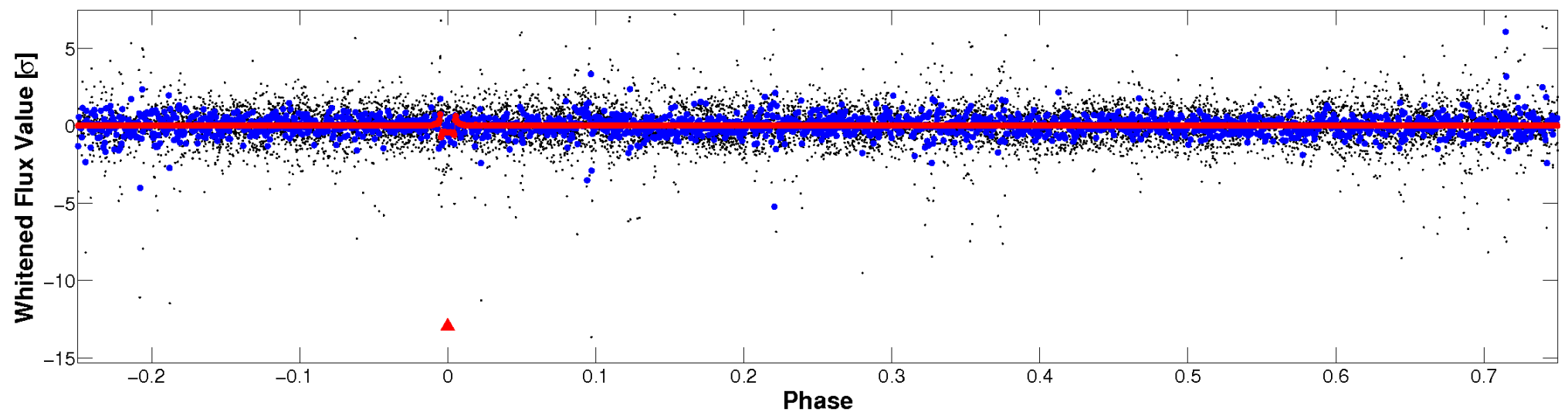


# Non-Whitened Vs. Whitened Light Curve

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

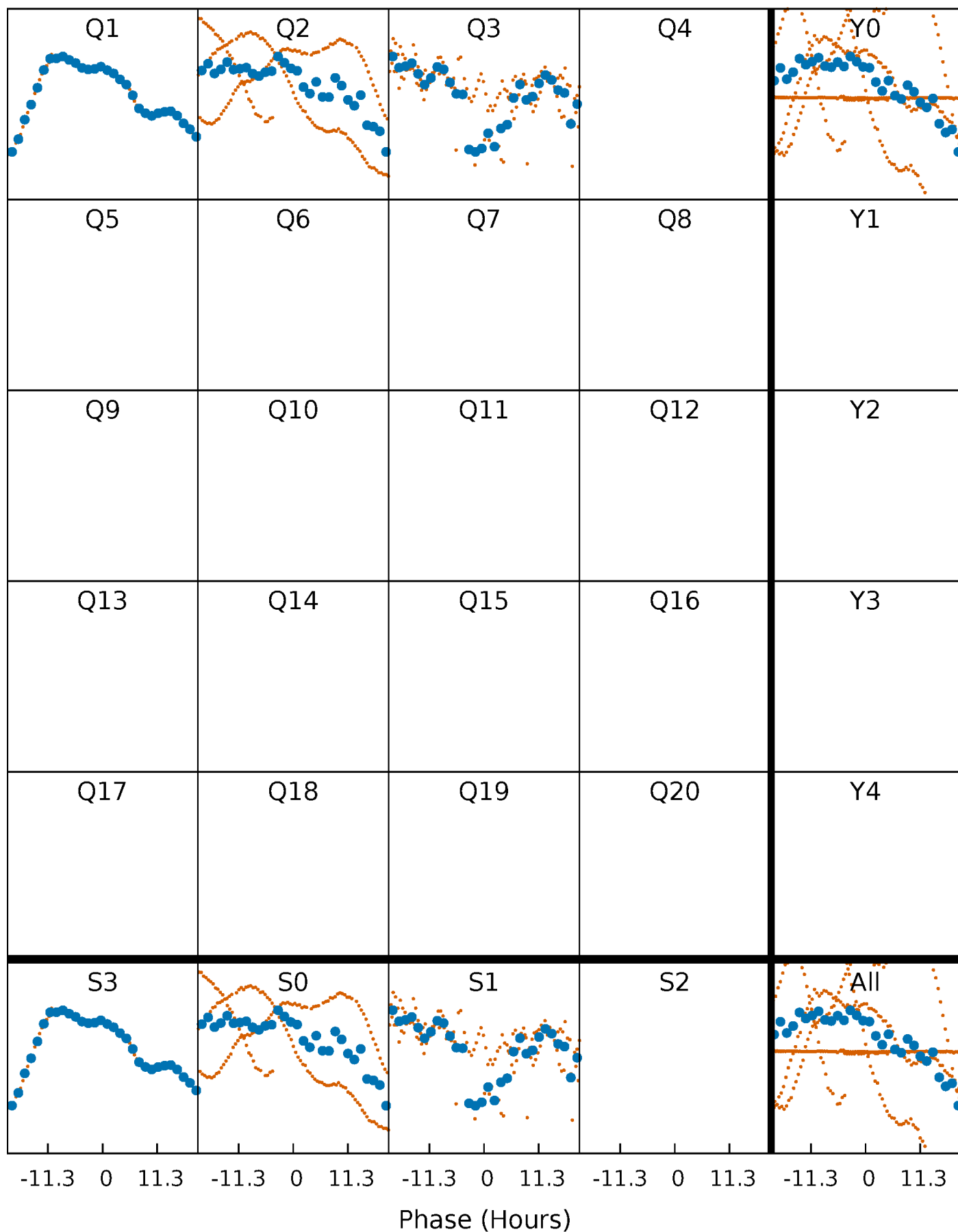


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

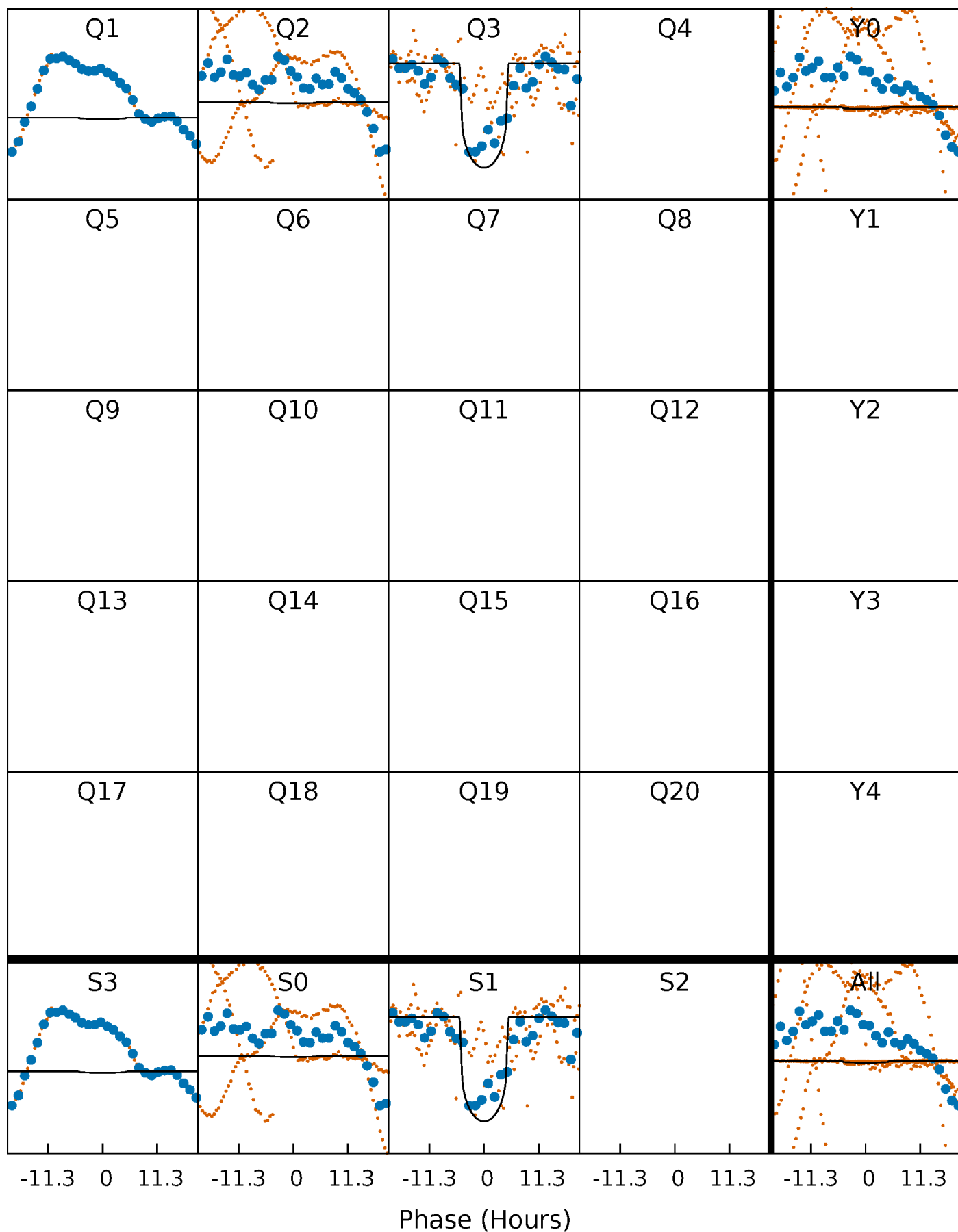
TCE 009582784-01   P= 40.998619 Days    $T_0=135.651257$  (BKJD)





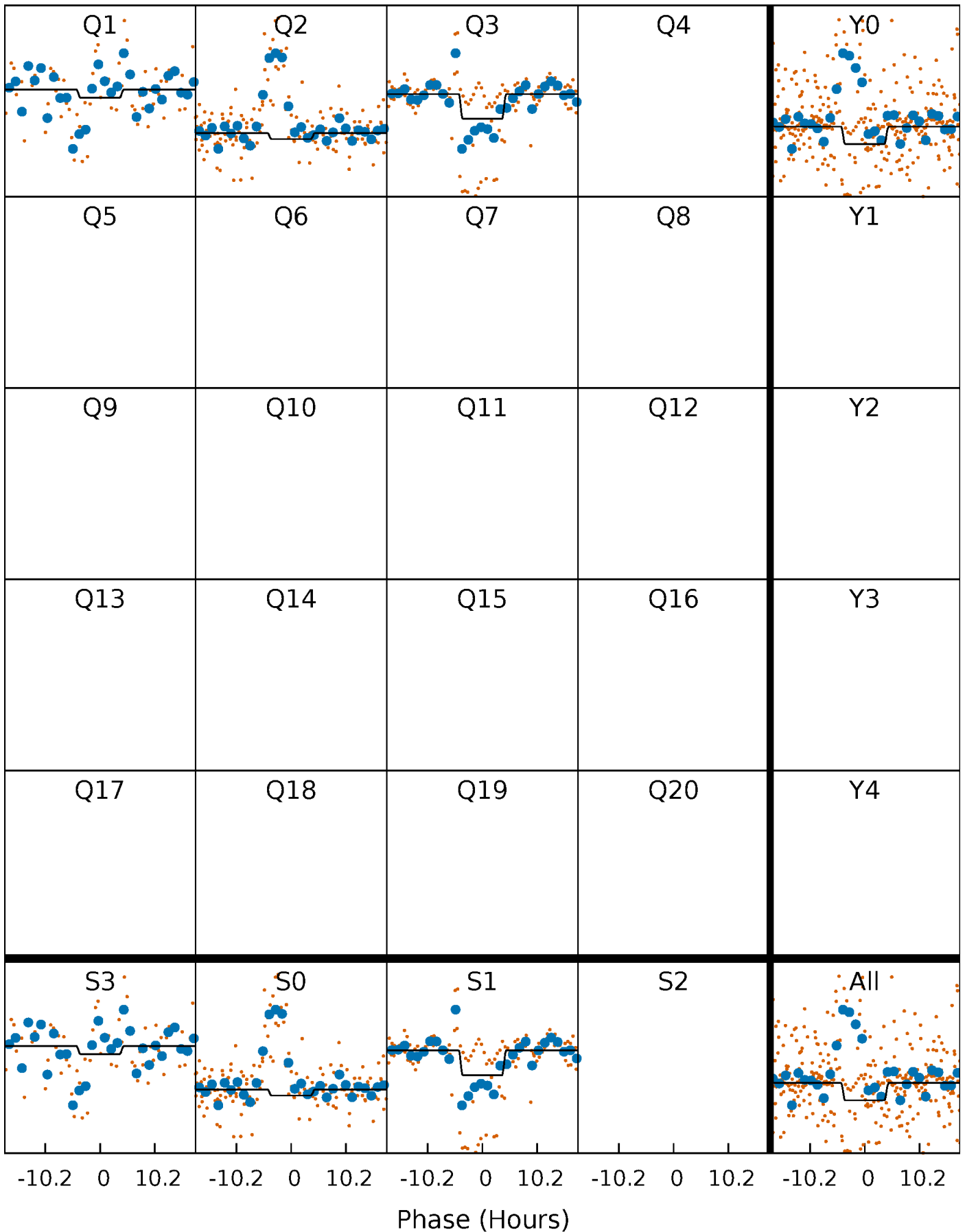
# DV Quarter-Phased Transit Curves

TCE 009582784-01 P= 40.998619 Days  $T_0=135.651257$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

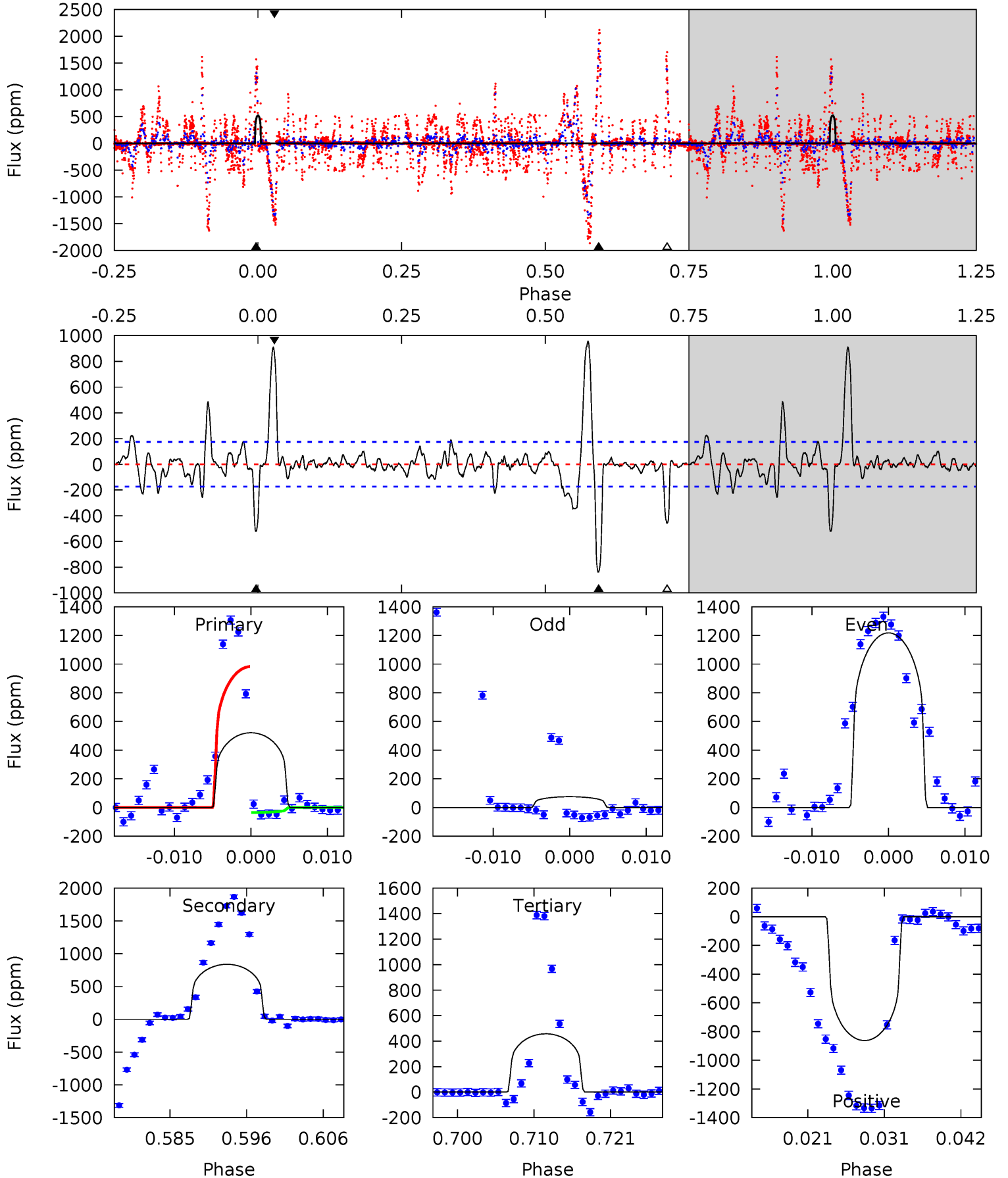
TCE 009582784-01     $P = 40.992825$  Days     $T_0 = 135.675777$  (BKJD)



# DV Model-Shift Uniqueness Test

009582784-01, P = 40.998619 Days, E = 94.652638 Days

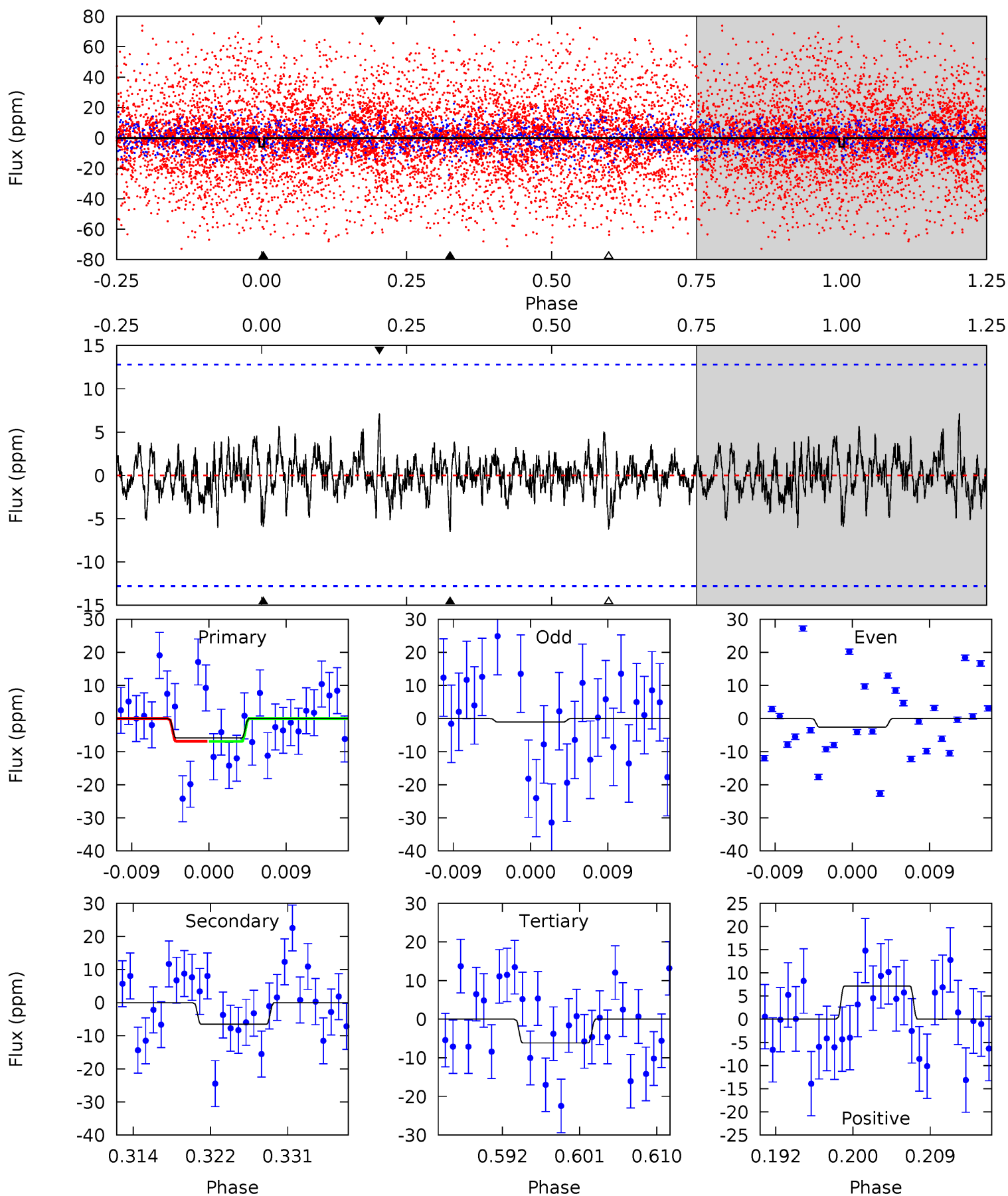
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	24.2	13.2	24.9	5.02	2.56	4.31	1.84	-9.86	11.0	-0.73	6.71	0.05	0.53	14.6



# Alt Model-Shift Uniqueness Test

009582784-01, P = 40.992825 Days, E = 94.682952 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
2.32	2.57	2.43	2.82	5.05	2.62	0.73	-0.11	-0.50	0.14	-0.25	0.31	-14.9	0.52	0.01



### Stellar Parameters For KIC 009582784

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4385^{+79}_{-53}$	$1.805^{+0.108}_{-0.132}$	$-0.460^{+0.150}_{-0.100}$	$19.176^{+7.004}_{-2.335}$	$0.857^{+0.554}_{-0.029}$	$0.000^{+0.000}_{-0.000}$
	+2%/-1%	+6%/-7%	+33%/-22%	+37%/-12%	+65%/-3%	+45%/-43%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 009582784-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-837 \pm 35$	$13.41^{+3.39}_{-2.41}$	$2523^{+154}_{-109}$	$9746^{+1551}_{-1099}$	$133^{+65}_{-42}$
Alt.	$-7 \pm 3$	$7.42^{+2.50}_{-2.24}$	$2523^{+139}_{-104}$	$3844^{+642}_{-463}$	$3.192^{+3.958}_{-1.681}$

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

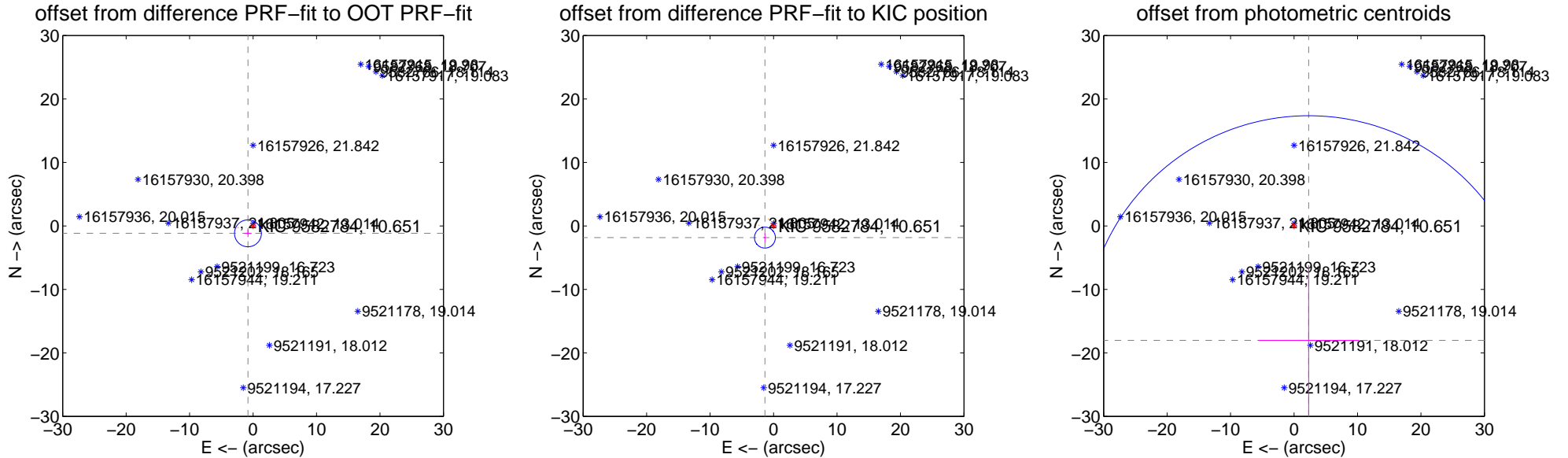
## DV Centroid Data

Supplemental centroid analysis for 009582784-01. **Kepler magnitude: 10.65.** Transit SNR 7.51

**There are 1 quarters with good PRF difference image offsets**

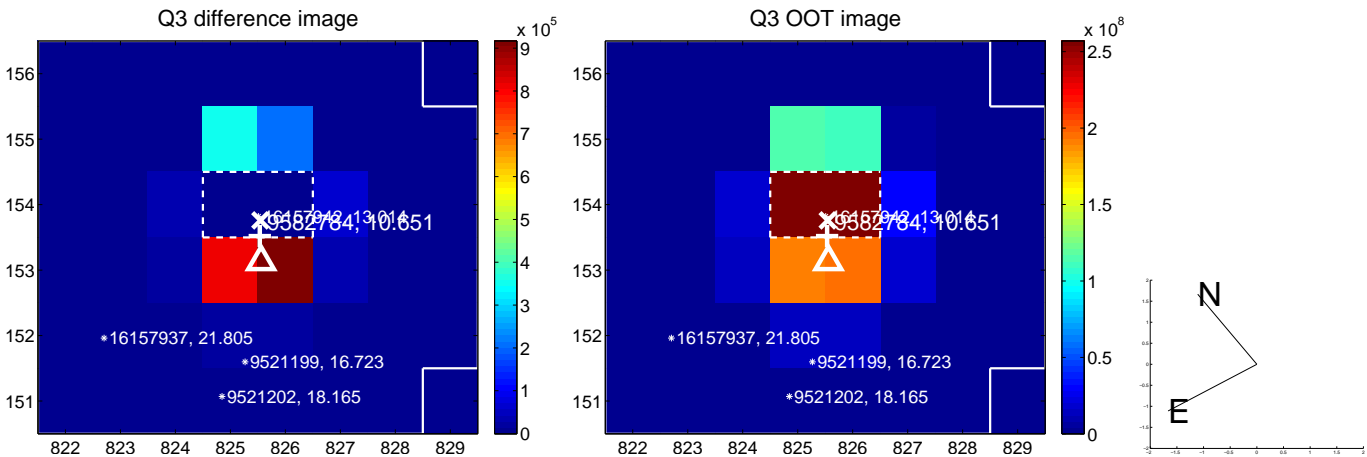
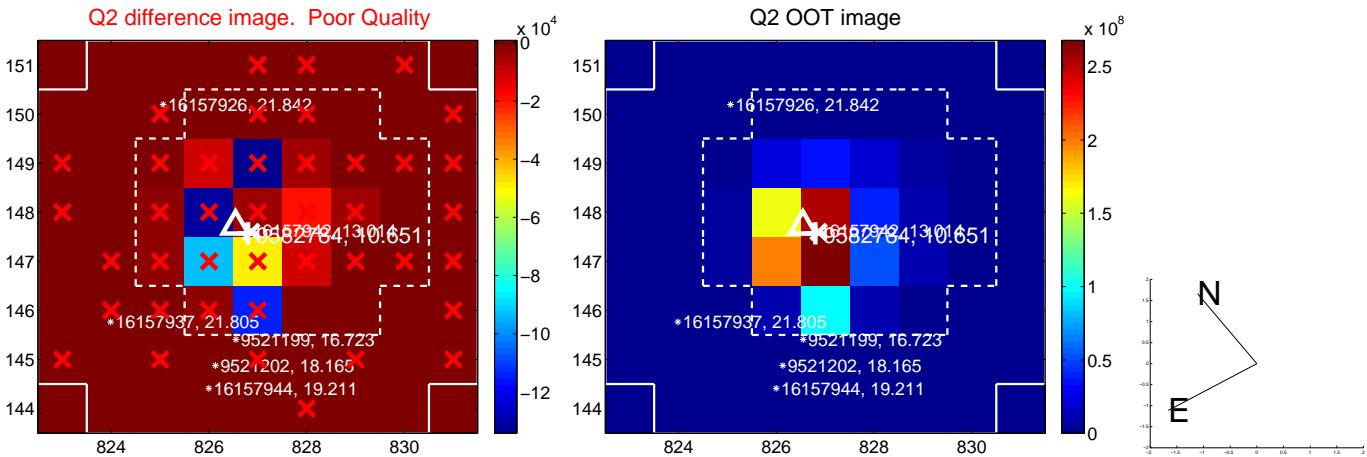
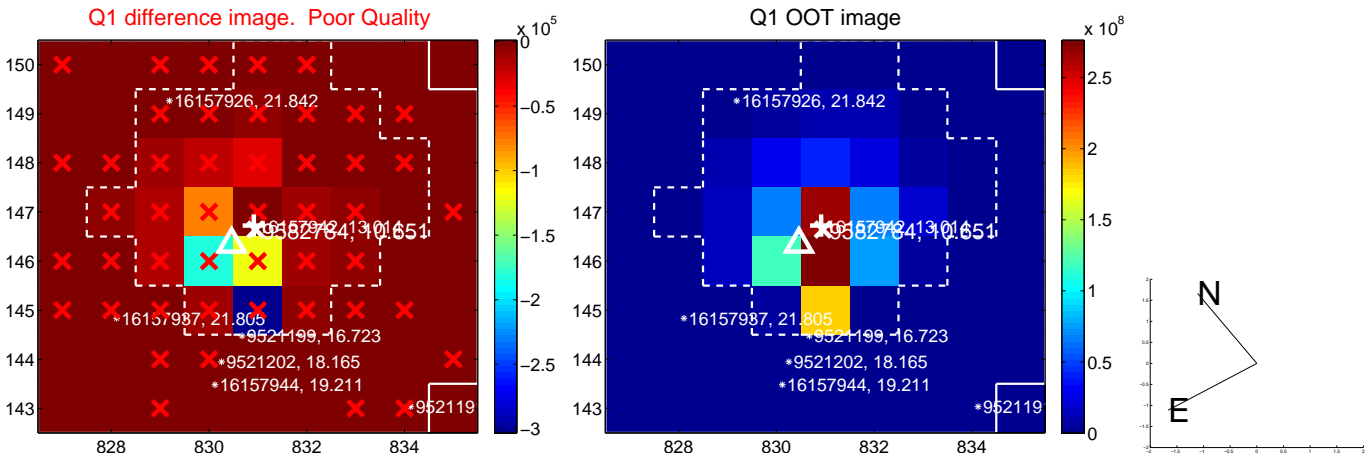
The direct PRF centroid is offset from the target star catalog position by about 0.96 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.415 \pm 0.706$	2.00	$0.806 \pm 0.575$	$-1.163 \pm 0.597$
PRF-fit source offset from KIC position	<b><math>2.285 \pm 0.549</math></b>	<b>4.16</b>	$1.356 \pm 0.153$	$-1.839 \pm 0.673$
photometric centroid source offset	$18.18 \pm 11.80$	1.54	$-2.31 \pm 7.94$	$-18.03 \pm 11.85$



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.





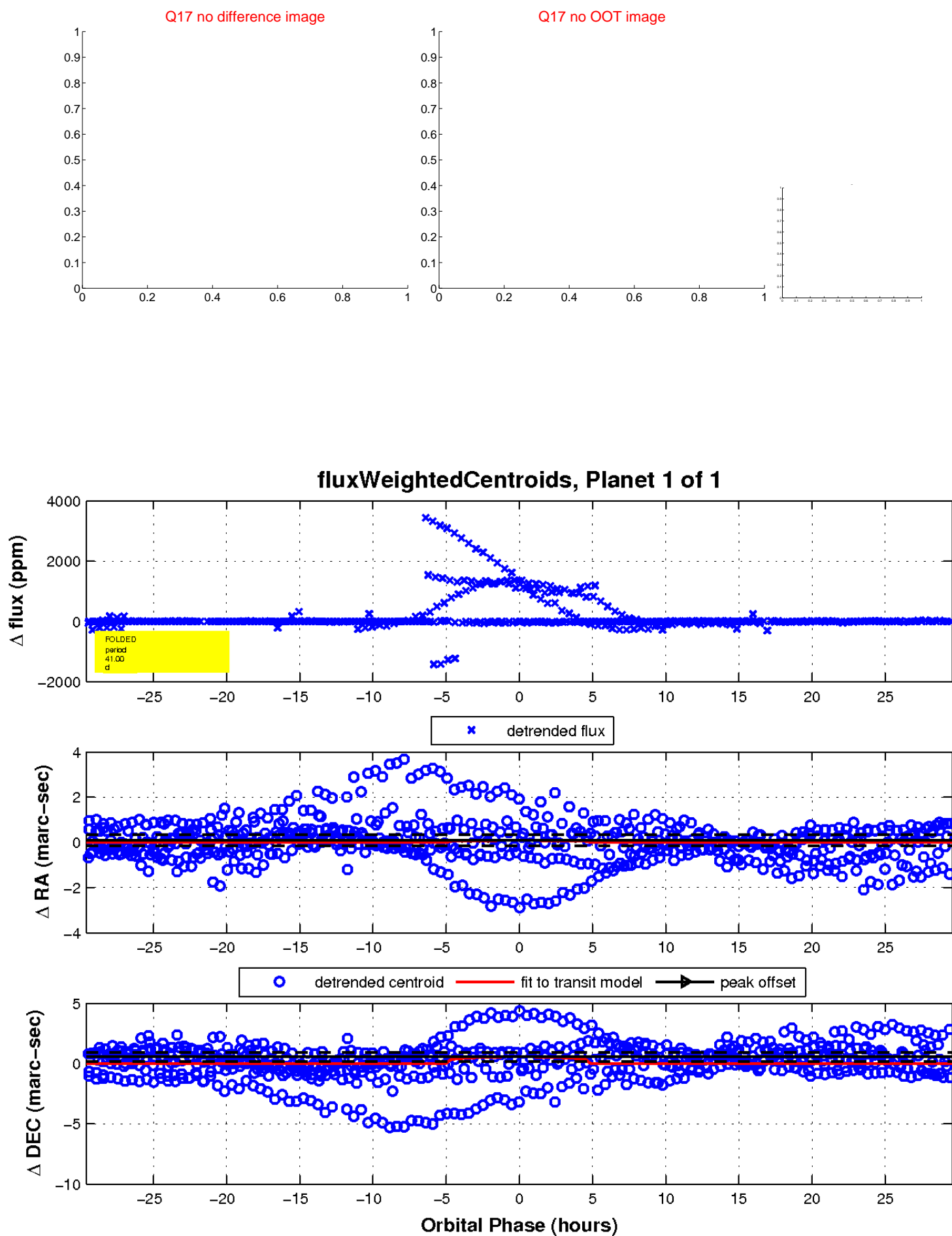
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

