

# KIC 006681618

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006681618-01	OBS	8265.01	364.377094	304.090144	1779.5	18.953	8.1	8.2	1.00	6047	5.03	1.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006681618-01	OBS	FP	0.13	1	0	0	0	ALL_TRANS_CHASES—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.

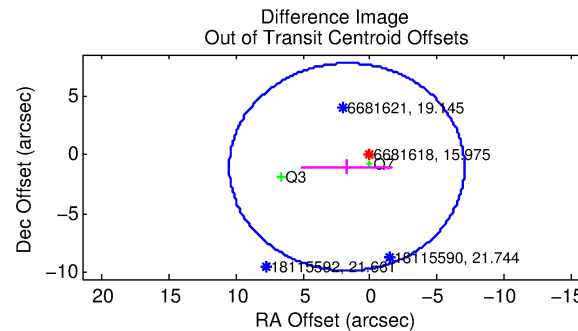
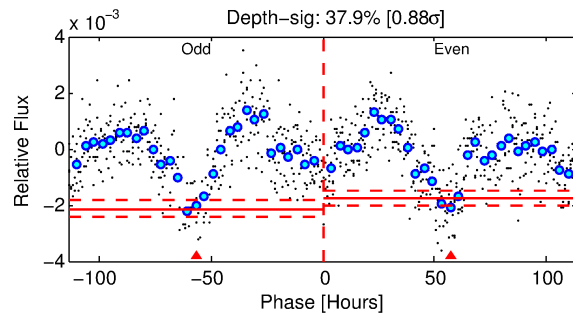
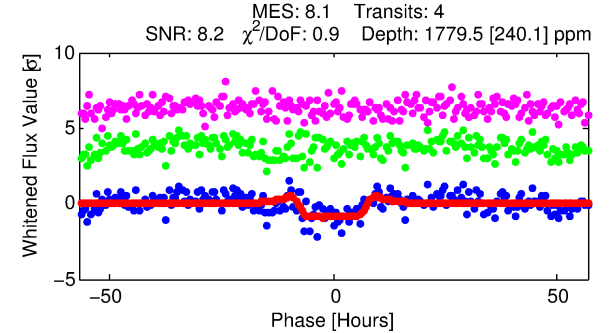
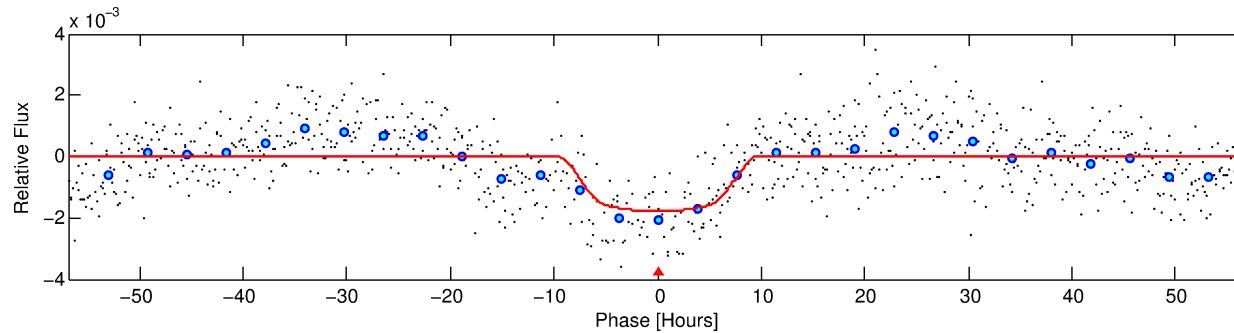
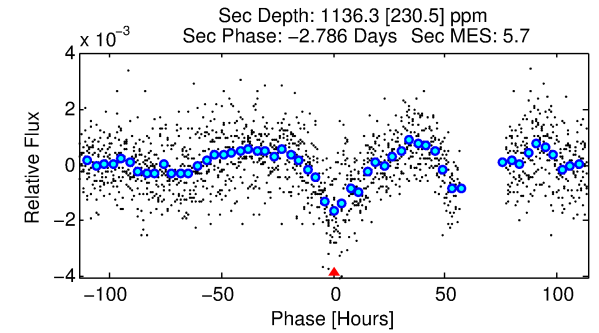
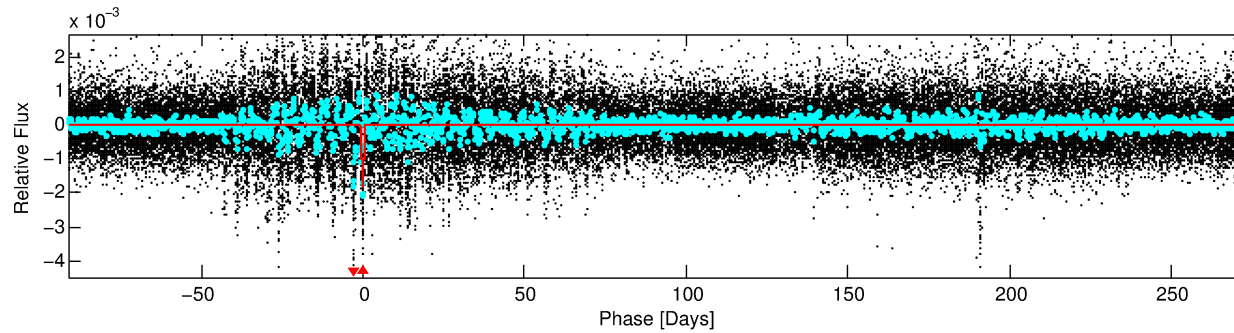
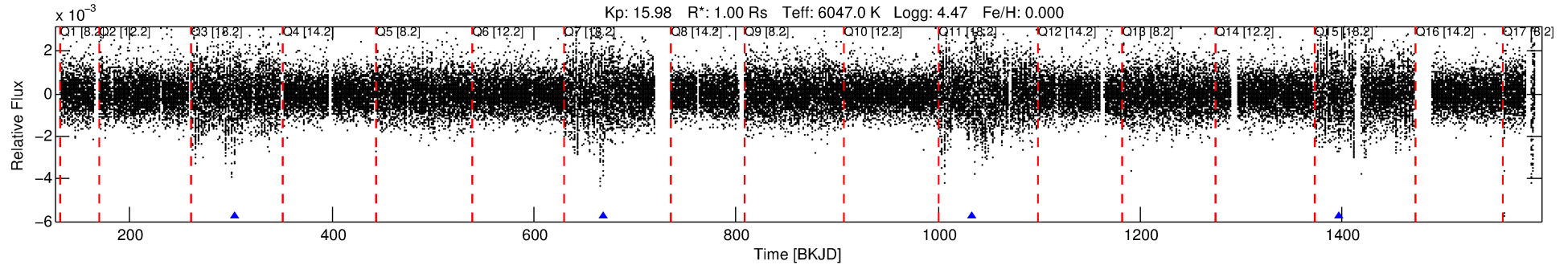
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006681618-01

No Significant Match Found

# DV One-Page Summary

KIC: 6681618 Candidate: 1 of 1 Period: 364.377 d



## DV Fit Results:

Period = 364.37709 [0.01339] d  
Epoch = 304.0901 [0.0236] BKJD  
Rp/R\* = 0.0460 [0.0039]  
a/R\* = 76.50 [13.60]  
b = 0.91 [0.04]  
Seff = 1.15 [0.47]  
Teq = 264 [27] K  
Rp = 5.03 [1.58] Re  
a = 1.0248 [0.2630] AU  
Ag = 25920.58 [11932.81] [2.17σ]  
Teffp = 5175 [395] K [12.41σ]

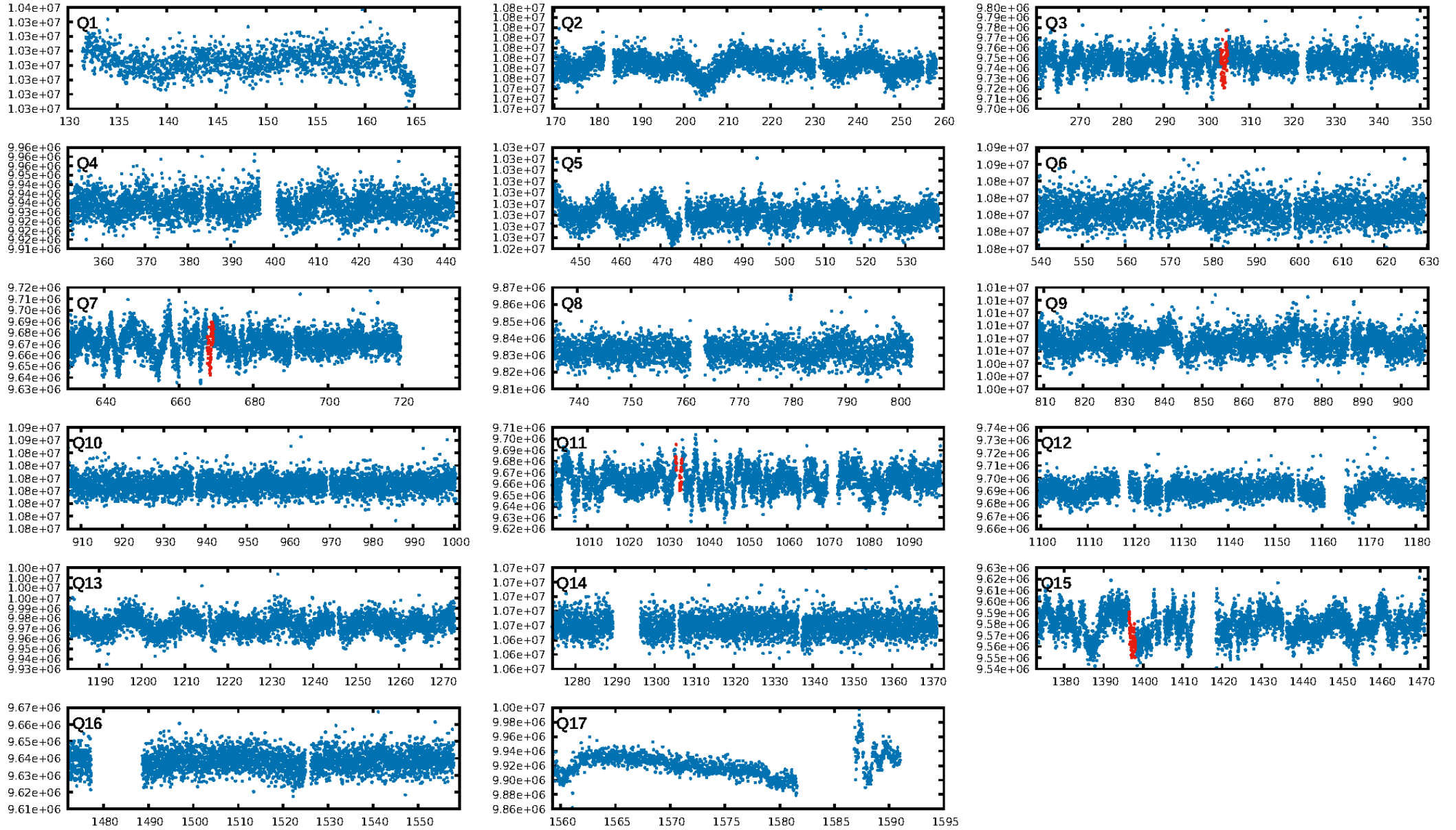
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 84.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.26e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.6541  
**Centroid-sig: 0.2%**  
Centroid-so: 4.570 arcsec [2.19σ]  
OotOffset-rm: 2.005 arcsec [0.69σ]  
KicOffset-rm: 2.103 arcsec [0.73σ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

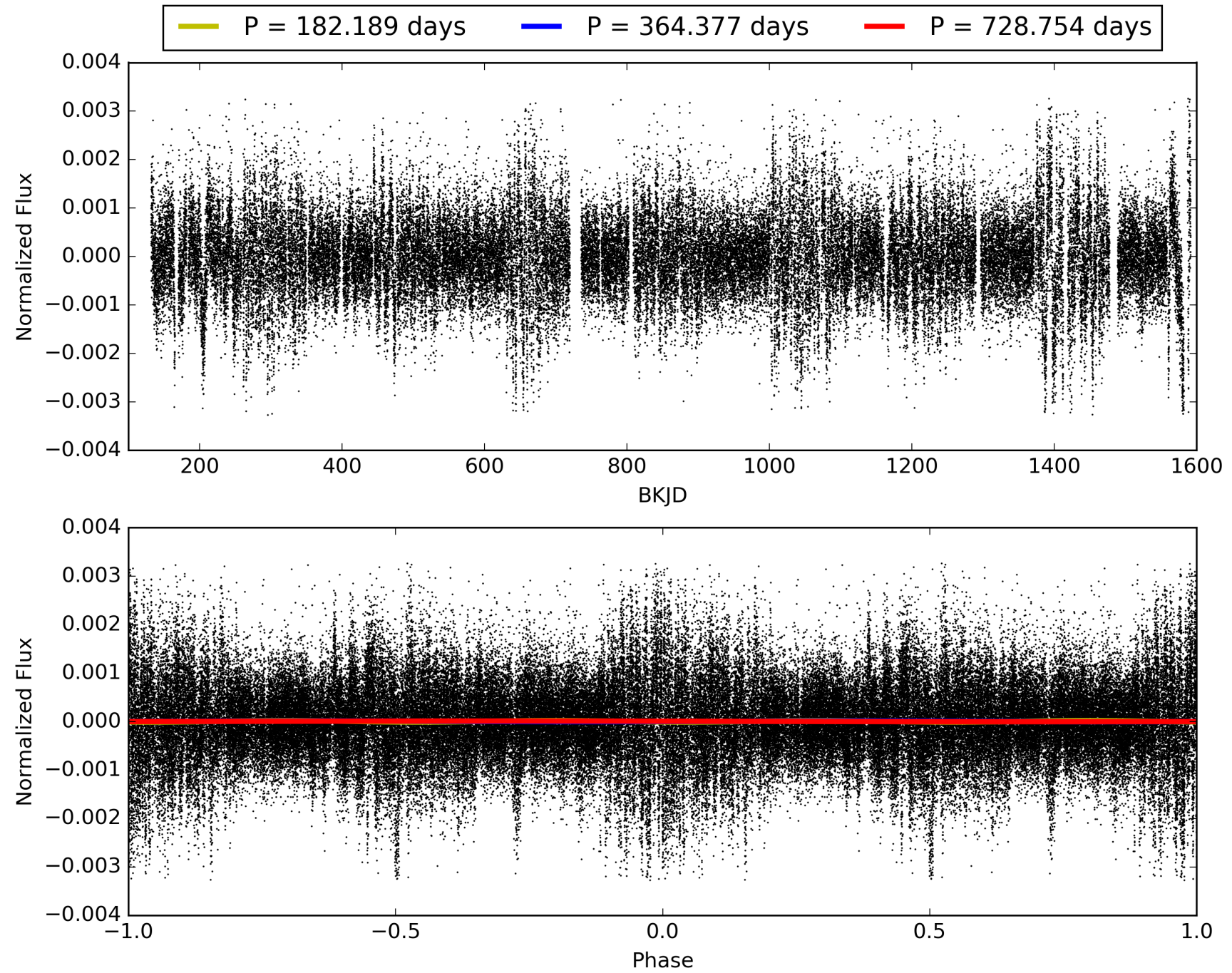
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:20:14 Z

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

# TCE 006681618-01, PDC Light Curves

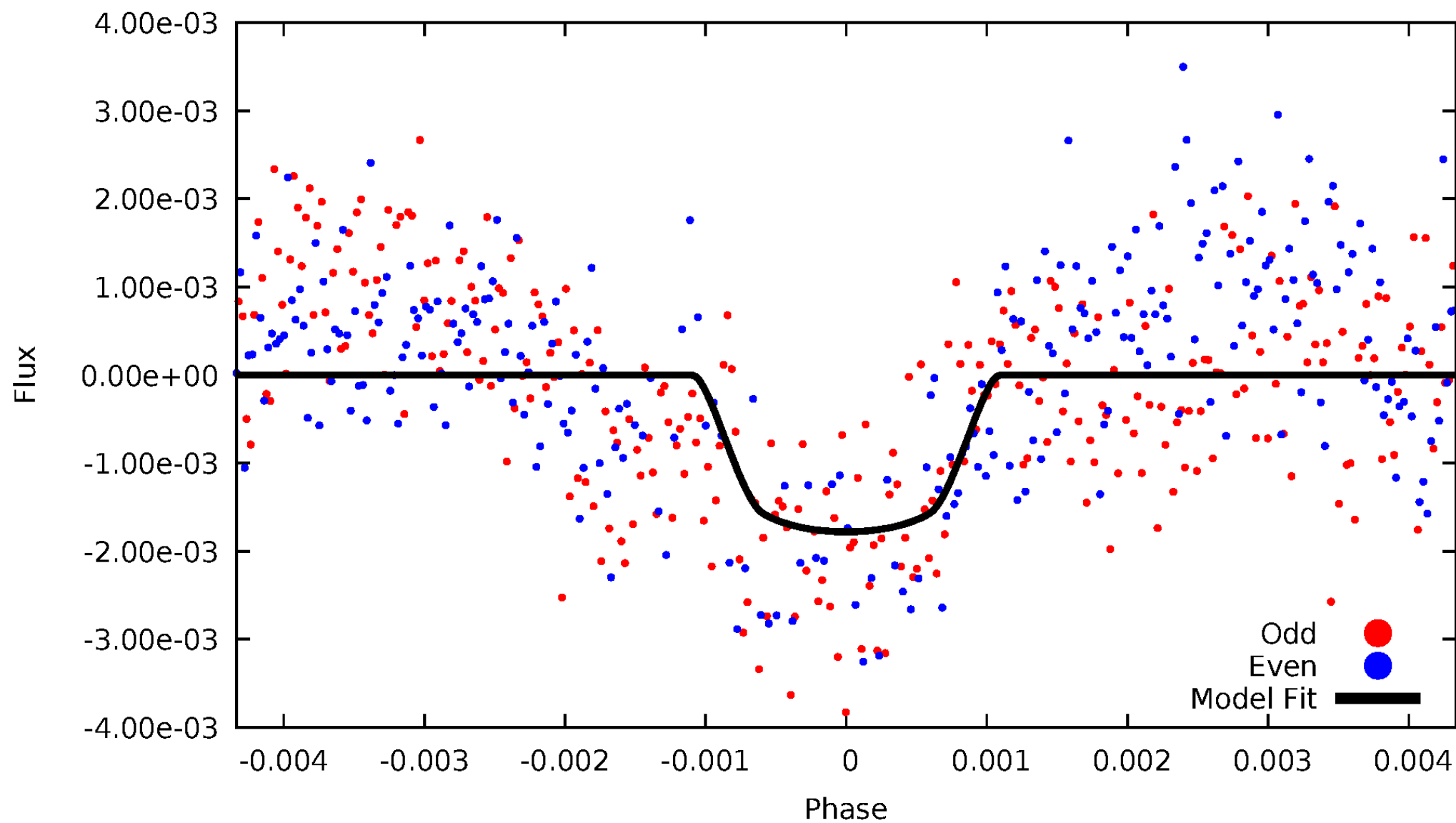


TCE 006681618-01



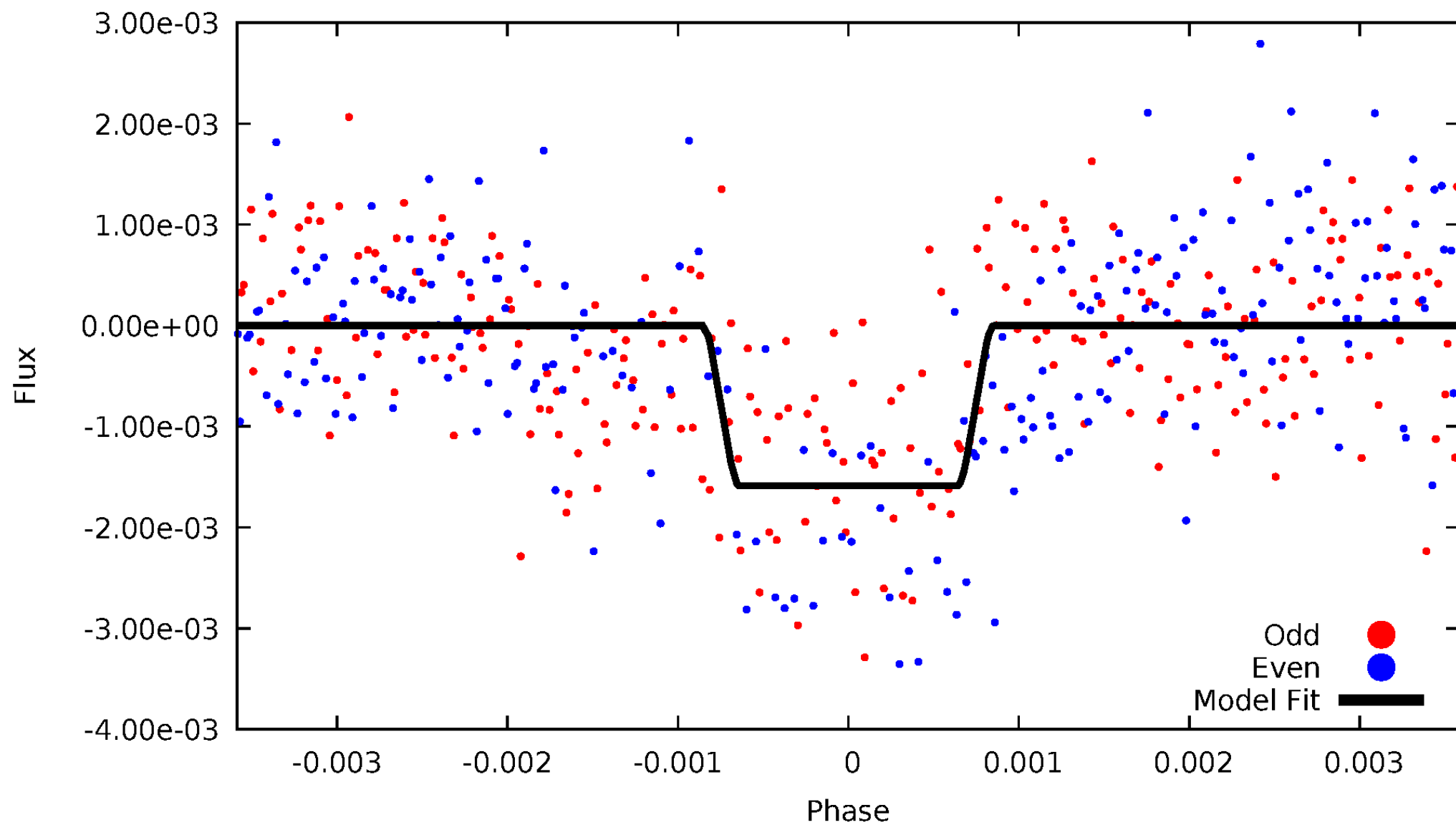
# DV Odd/Even

TCE 006681618-01



# ALT Odd/Even

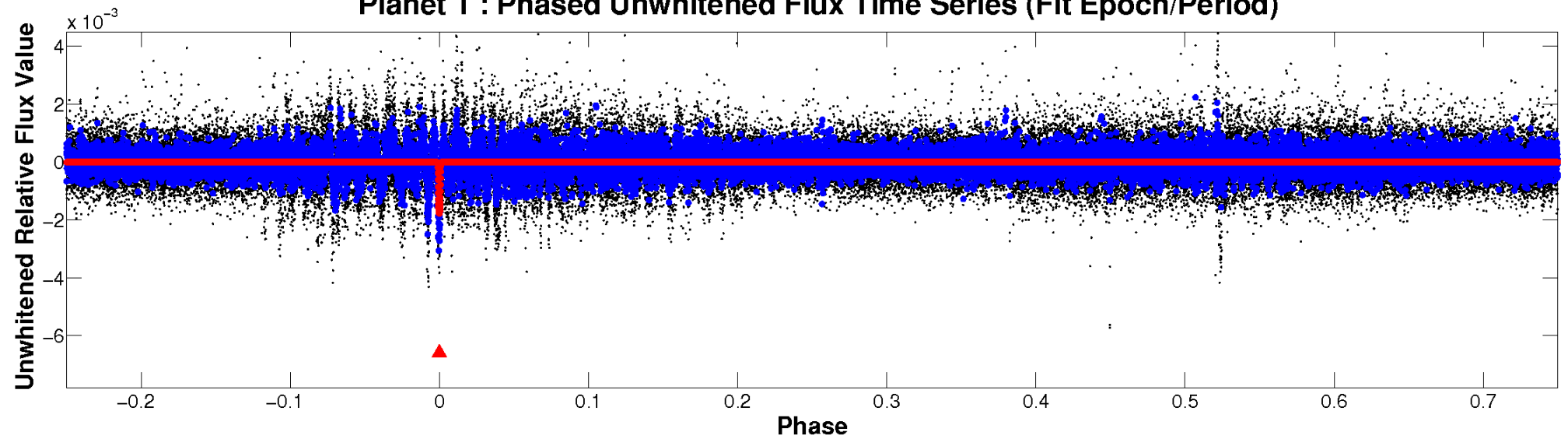
TCE 006681618-01



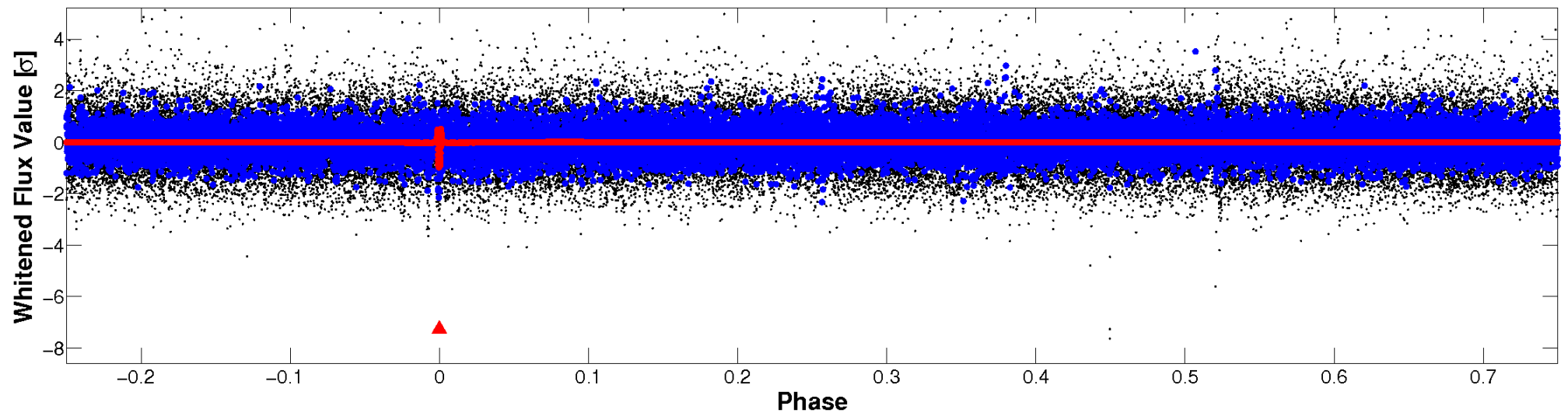


# Non-Whitened Vs. Whitened Light Curve

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

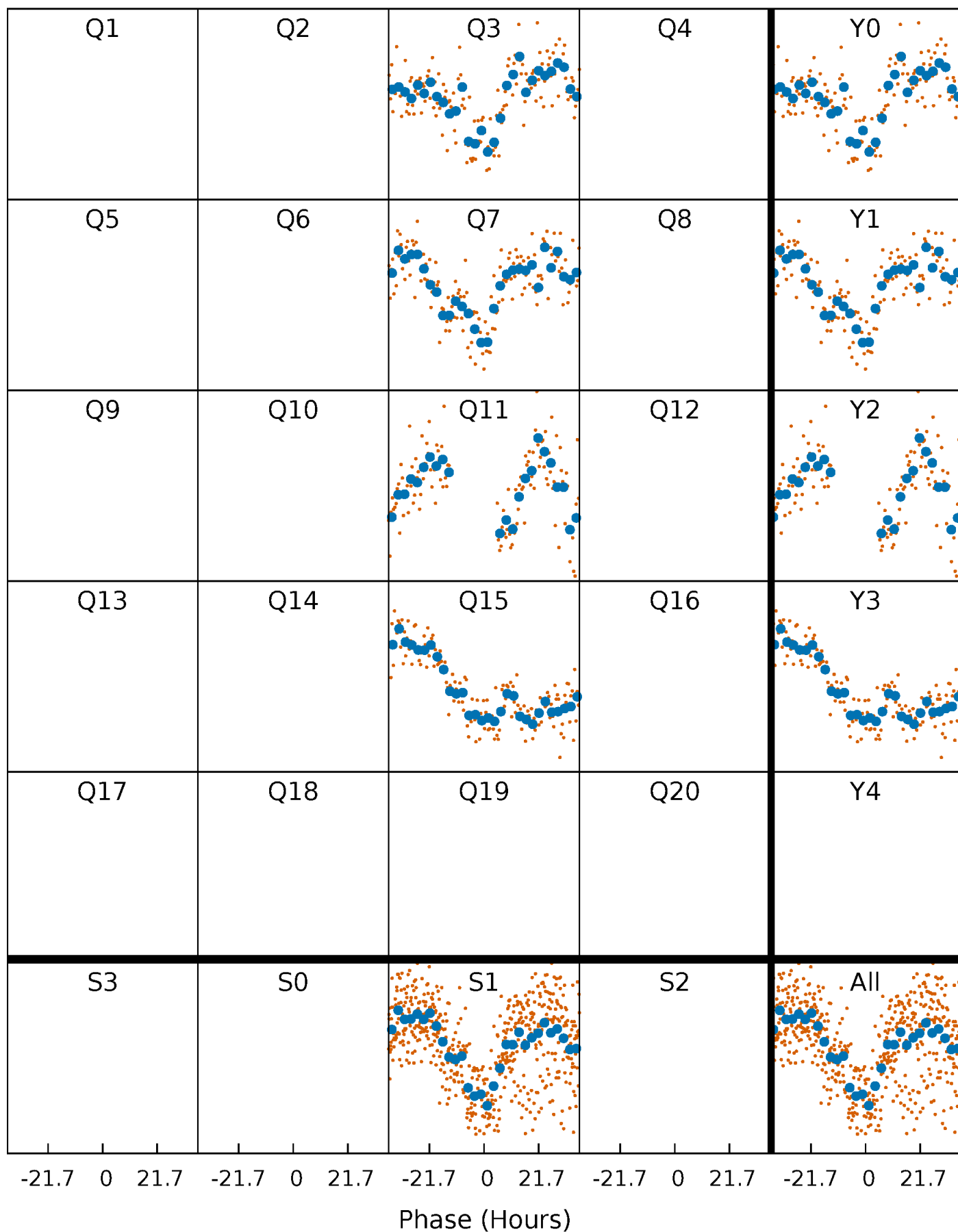


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

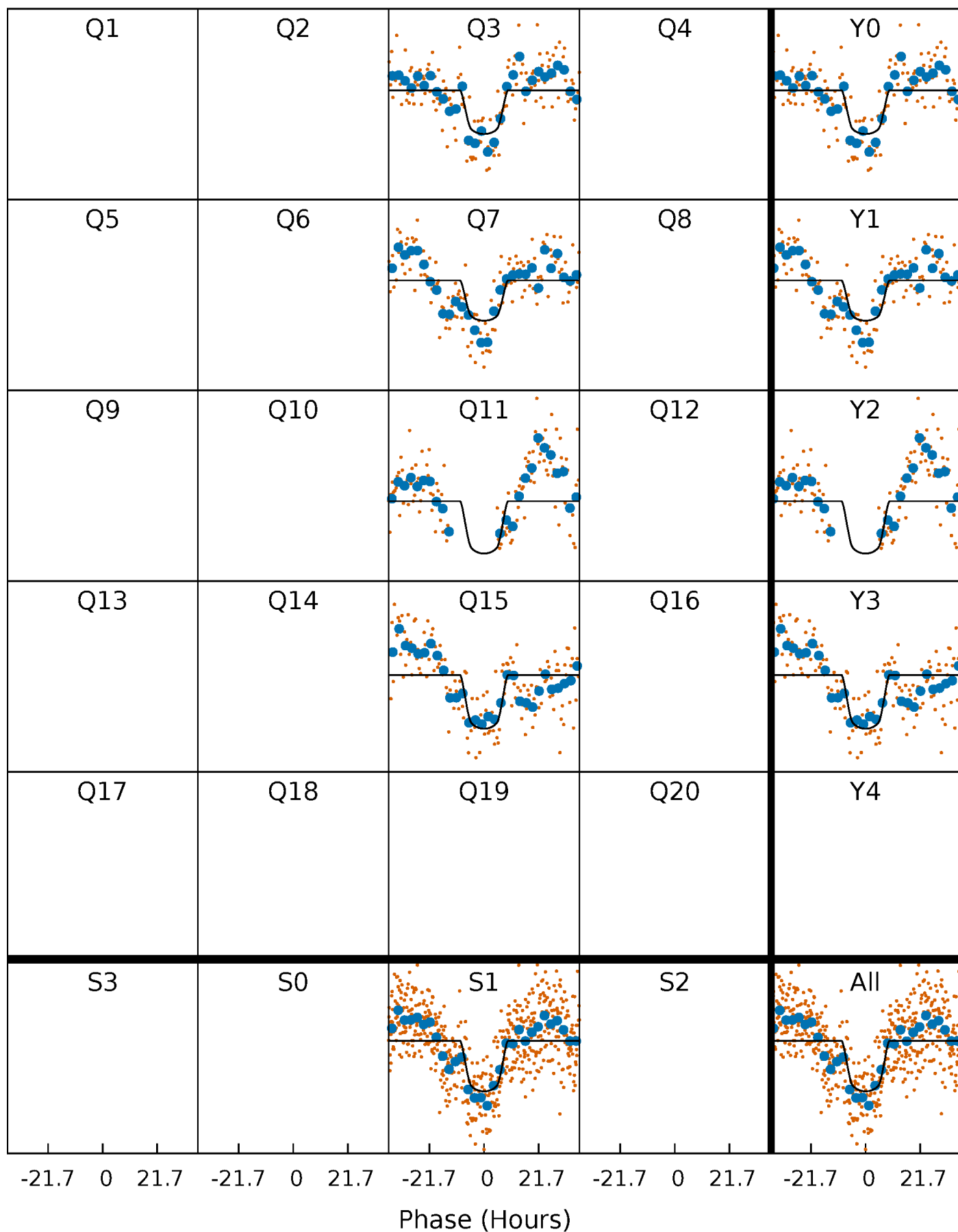
TCE 006681618-01     $P=364.377094$  Days     $T_0=304.090144$  (BKJD)





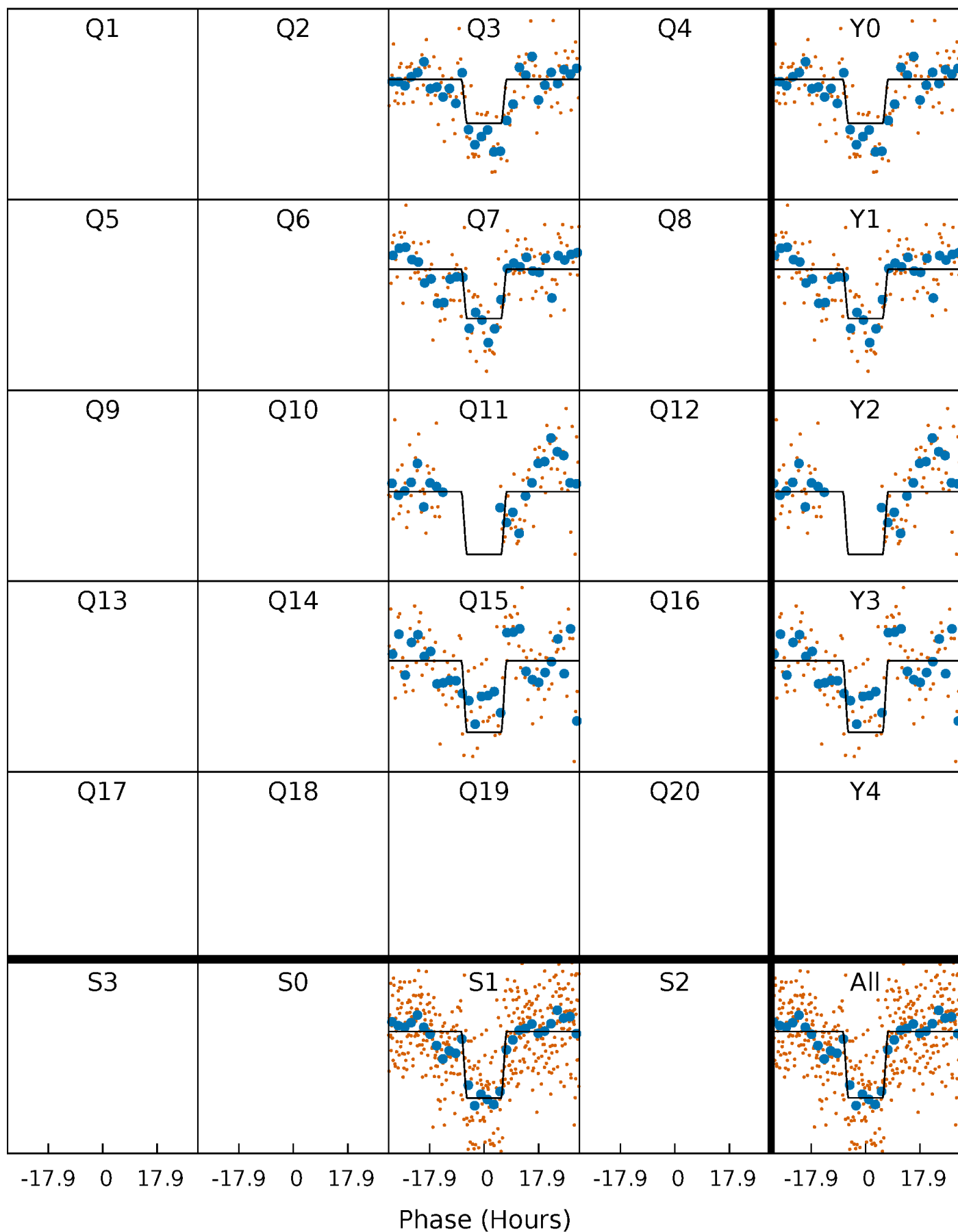
# DV Quarter-Phased Transit Curves

TCE 006681618-01 P=364.377094 Days  $T_0=304.090144$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

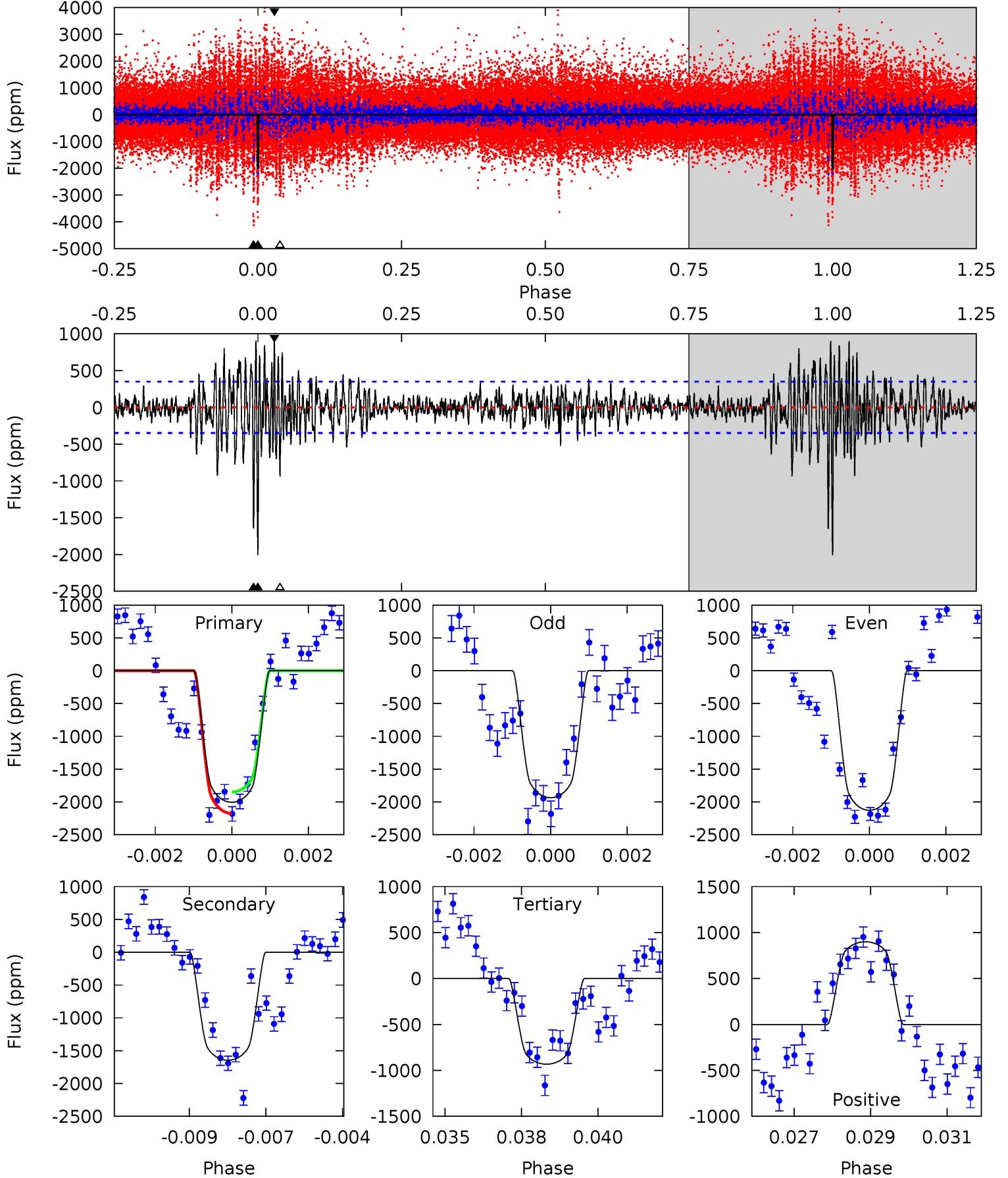
TCE 006681618-01 P=364.405298 Days  $T_0=304.025613$  (BKJD)



# DV Model-Shift Uniqueness Test

006681618-01, P = 364.377094 Days, E = 304.090144 Days

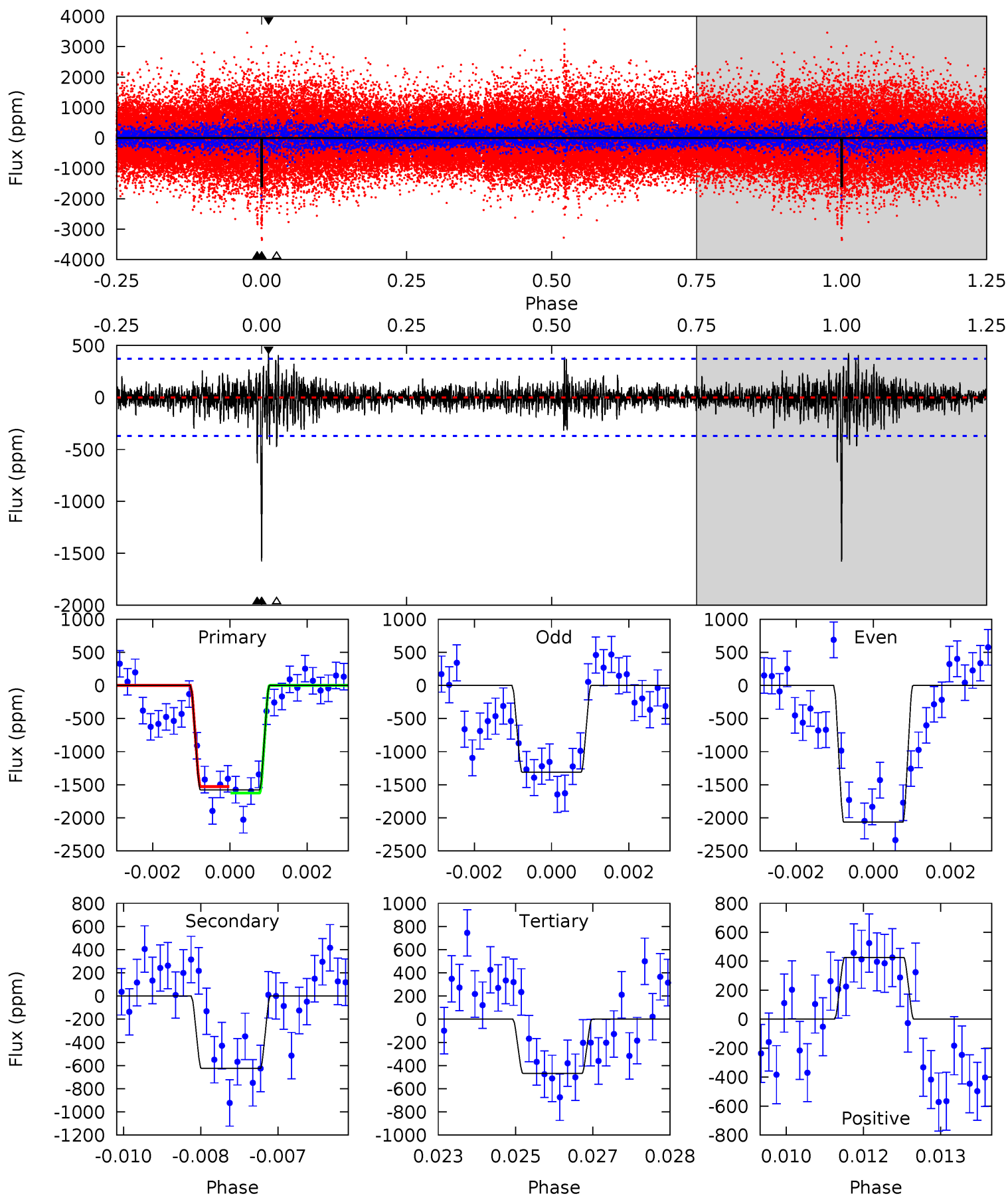
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	25.0	14.2	13.7	5.31	3.06	3.08	16.3	16.8	10.8	11.3	1.40	0.99	0.31	2.46



# Alt Model-Shift Uniqueness Test

006681618-01, P = 364.405298 Days, E = 304.025613 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
22.8	9.02	6.75	6.15	5.36	3.14	1.19	16.0	16.6	2.27	2.87	5.27	1.07	0.21	0.70



### Stellar Parameters For KIC 006681618

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6047^{+190}_{-232}$	$4.470^{+0.052}_{-0.208}$	$0.000^{+0.250}_{-0.300}$	$1.002^{+0.302}_{-0.101}$	$1.081^{+0.130}_{-0.145}$	$1.512^{+0.411}_{-0.775}$
	+3%/-4%	+1%/-5%	+inf%/-inf%	+30%/-10%	+12%/-13%	+27%/-51%
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 006681618-01 / KOI 8265.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1645 \pm 66$	$5.20^{+0.82}_{-0.62}$	$376^{+27}_{-19}$	$5674^{+292}_{-279}$	$34037^{+8953}_{-8128}$
Alt.	$-625 \pm 69$	$4.54^{+0.80}_{-0.58}$	$376^{+27}_{-20}$	$4882^{+291}_{-279}$	$17068^{+5552}_{-4714}$

$T_{\text{max}}$  = 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

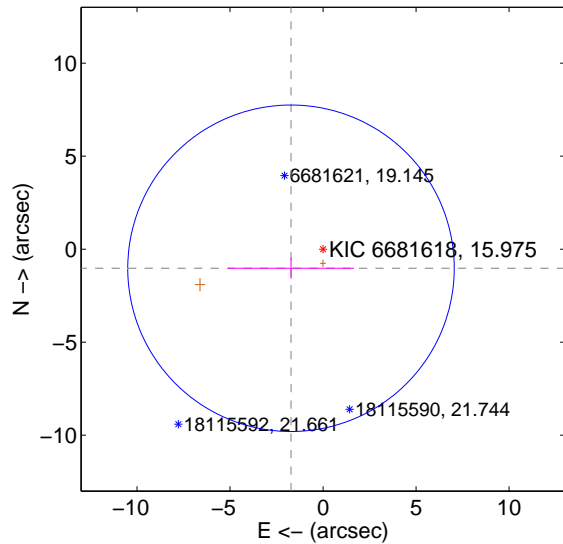
Supplemental centroid analysis for 006681618-01. Kepler magnitude: 15.97. Transit SNR 8.22

There are 0 quarters with good PRF difference image offsets

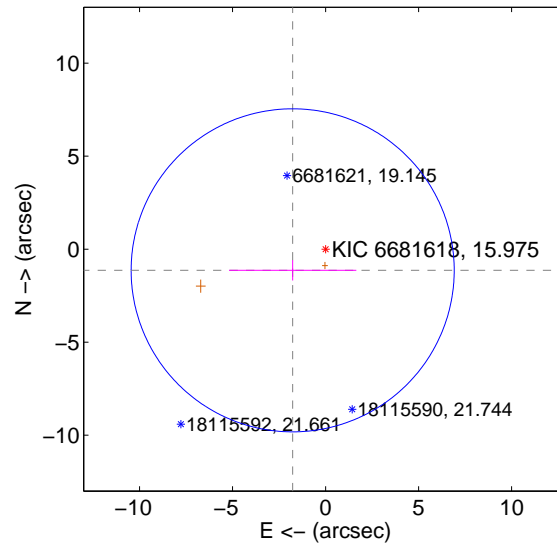
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.005 \pm 2.926$	0.69	$1.723 \pm 3.389$	$-1.027 \pm 0.566$
PRF-fit source offset from KIC position	$2.103 \pm 2.895$	0.73	$1.769 \pm 3.424$	$-1.138 \pm 0.547$
photometric centroid source offset	$4.57 \pm 2.09$	2.19	$3.41 \pm 1.94$	$-3.04 \pm 2.27$

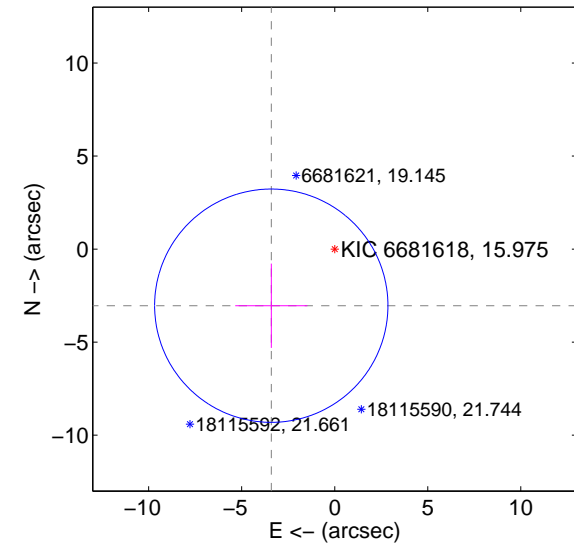
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



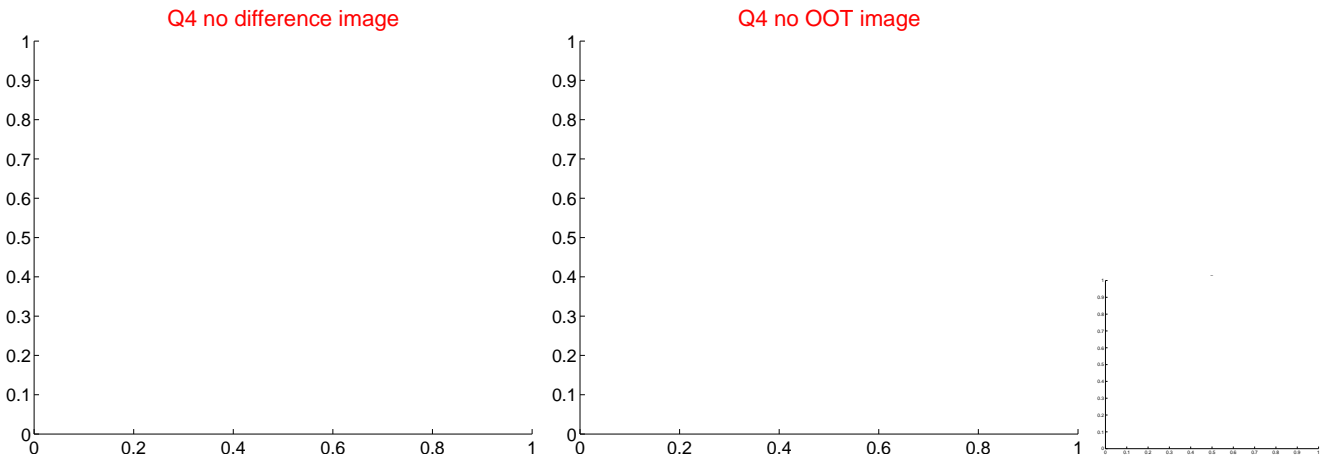
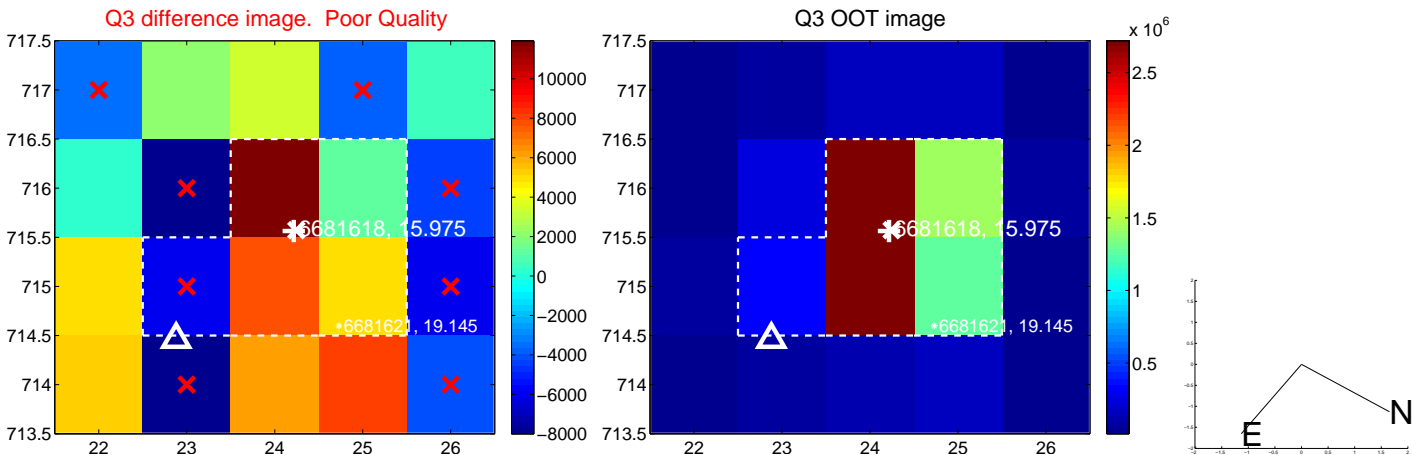
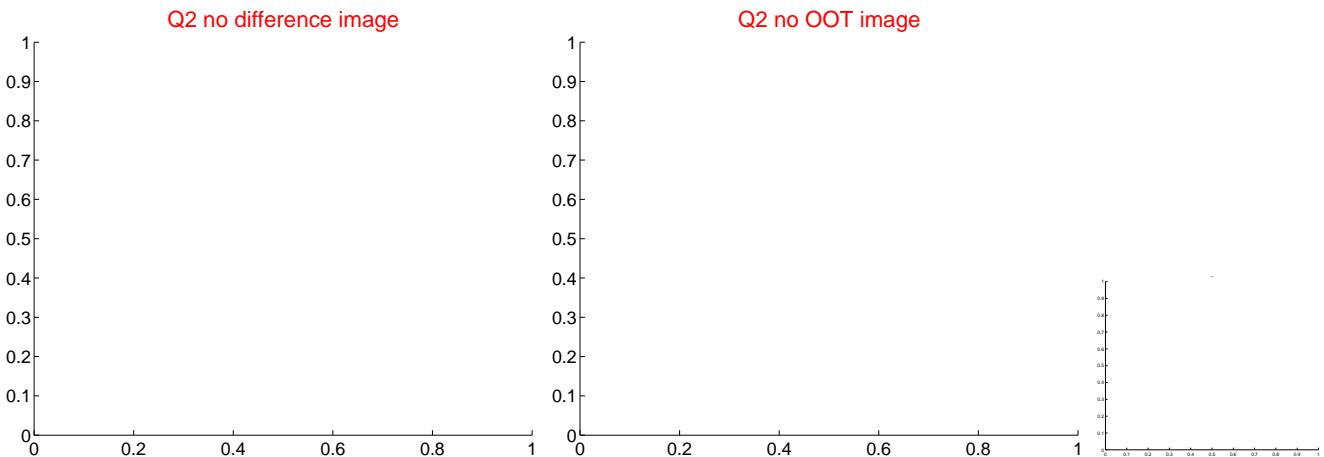
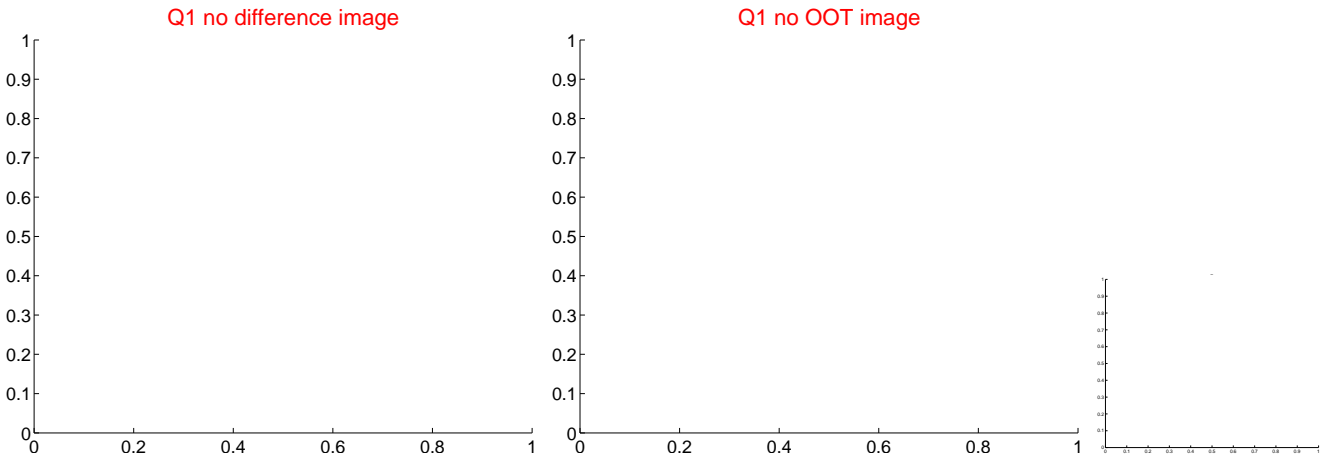
offset from photometric centroids



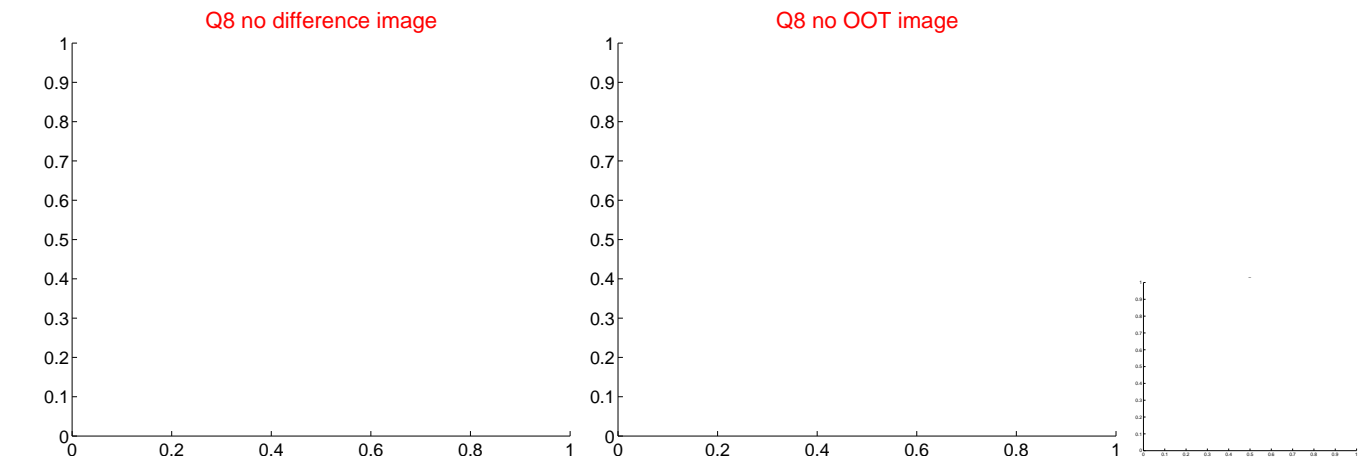
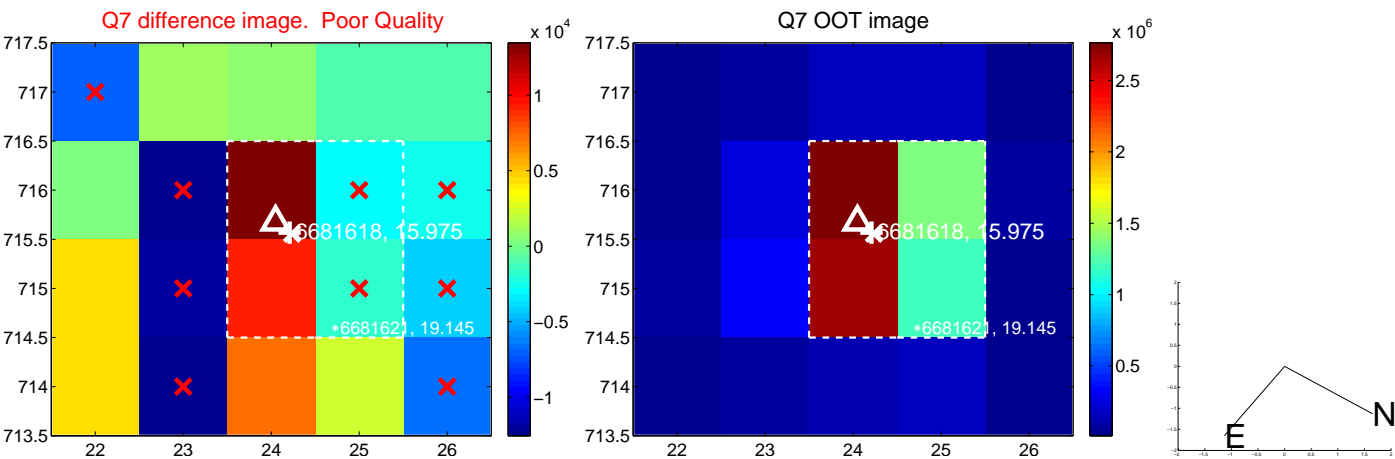
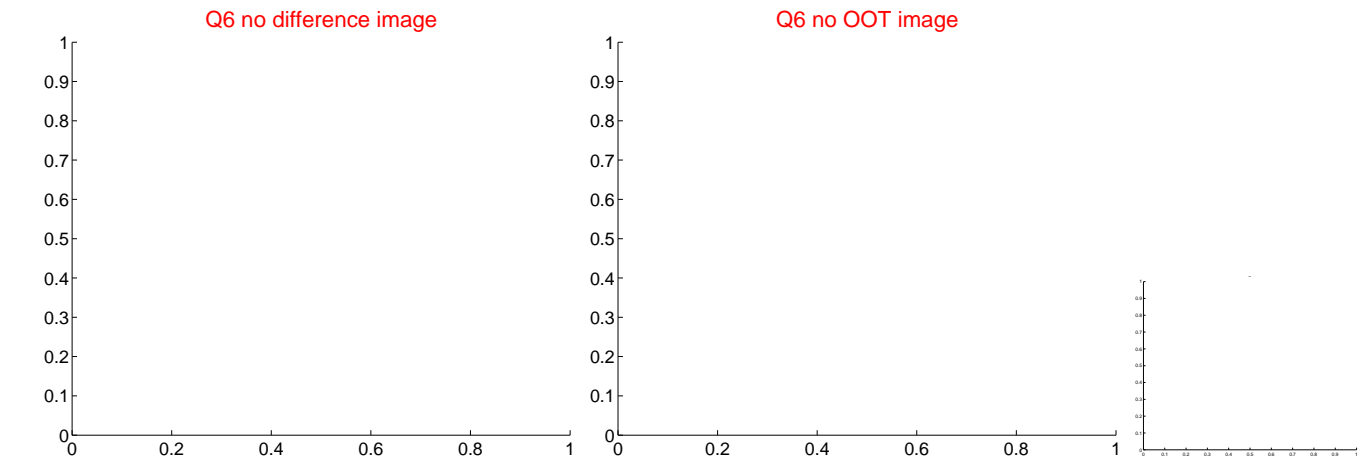
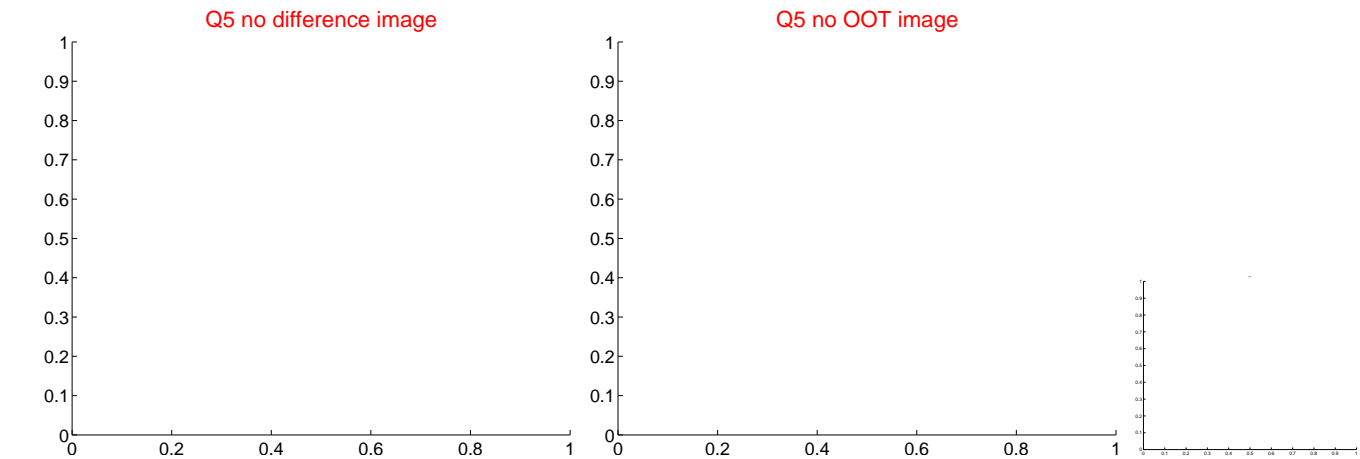
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



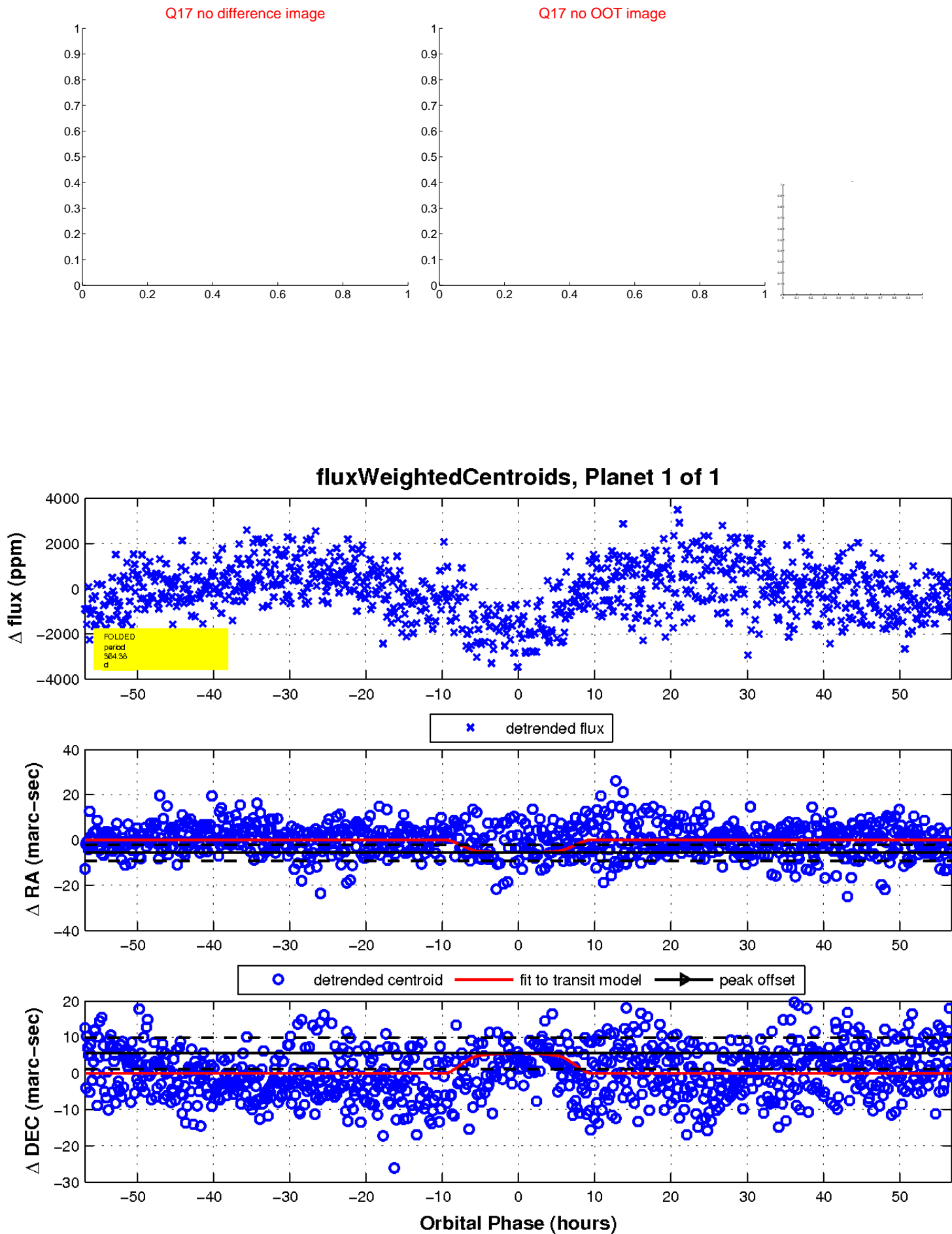
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

