

# KIC 006356400

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006356400-01	OBS	7776.01	541.942312	326.852186	1466.4	21.569	9.6	9.4	0.61	4378	3.11	0.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006356400-01	OBS	PC	0.74	0	0	0	0	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.

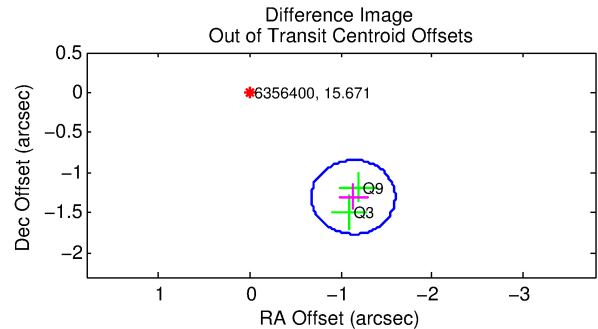
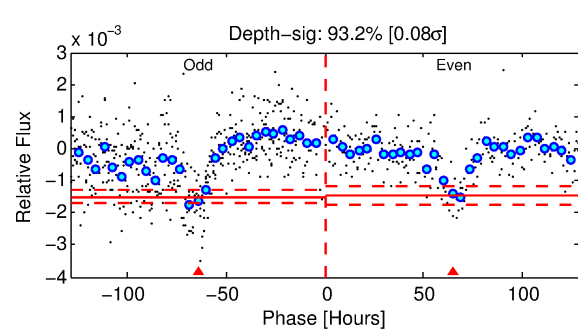
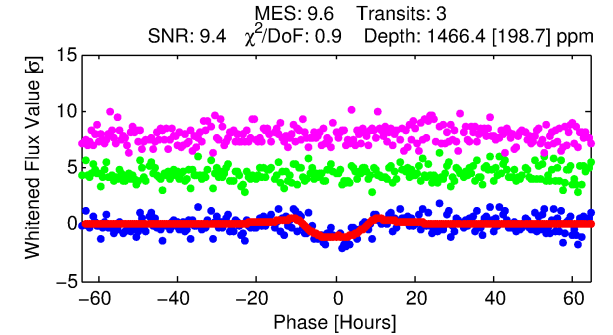
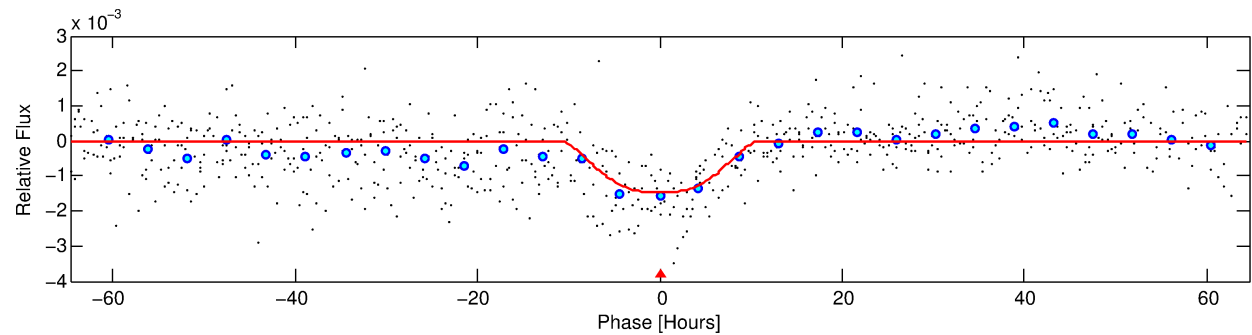
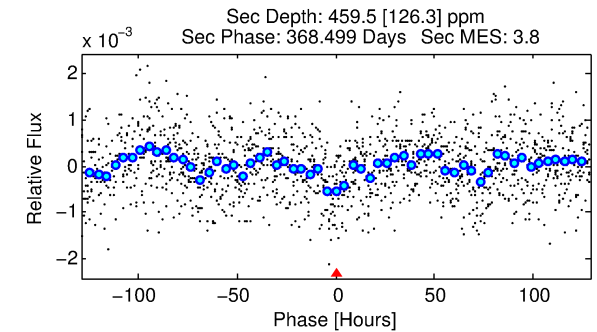
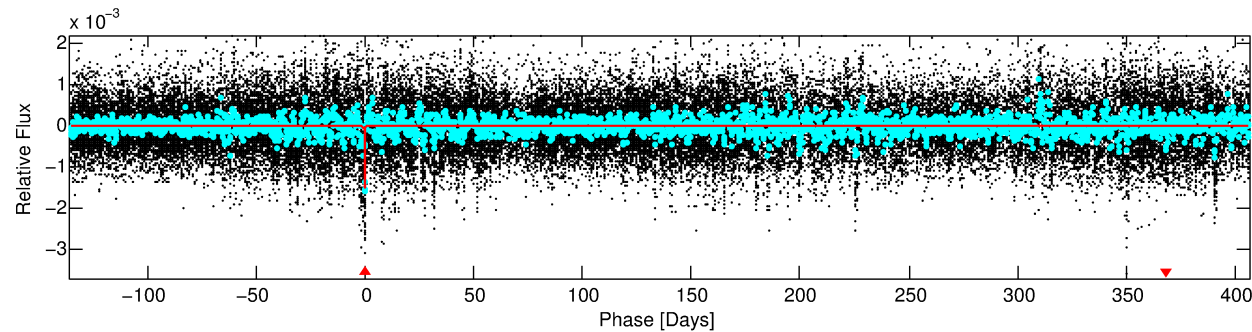
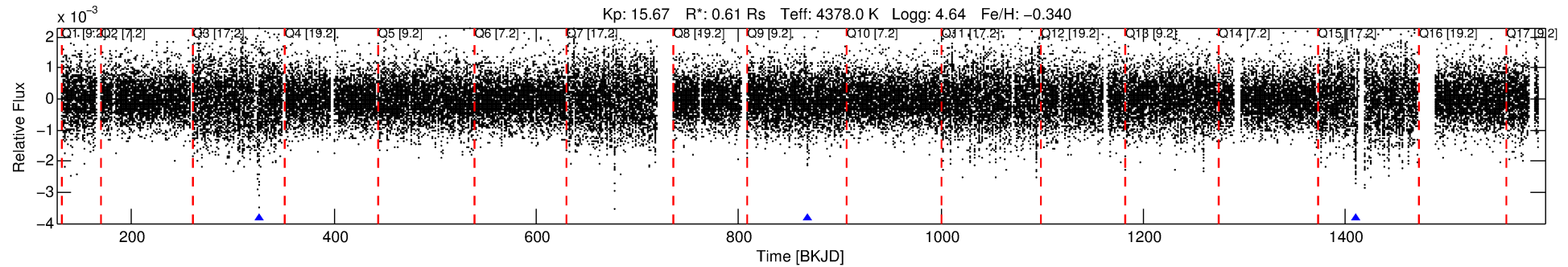
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006356400-01

No Significant Match Found

# DV One-Page Summary

KIC: 6356400 Candidate: 1 of 1 Period: 541.942 d



## DV Fit Results:

Period = 541.94231 [0.02807] d  
Epoch = 326.8522 [0.0348] BKJD  
Rp/R\* = 0.0465 [0.0046]  
a/R\* = 84.59 [11.78]  
b = 0.95 [0.02]  
Seff = 0.10 [0.02]  
Teq = 144 [6] K  
Rp = 3.11 [0.42] Re  
a = 1.0976 [0.0798] AU  
Ag = 31431.98 [11090.60] [2.83σ]  
Teff = 2974 [267] K [10.60σ]

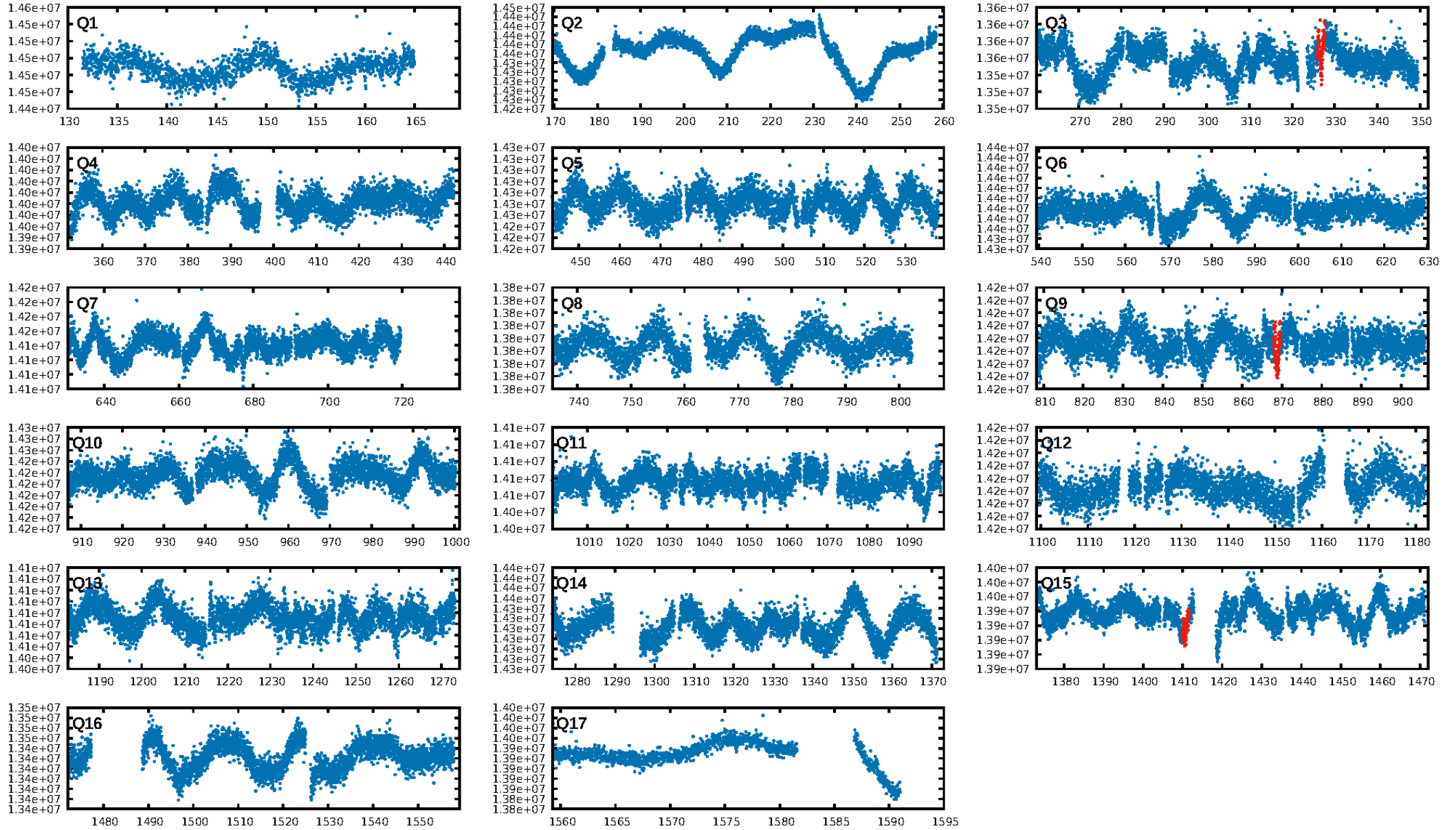
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 52.8%  
ModelChiSquareGoF-sig: 100.0%  
**Bootstrap-pfa: 2.76e-12**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.8547**  
Centroid-sig: 0.6%  
Centroid-so: 2.709 arcsec [2.06σ]  
**OotOffset-rm: 1.731 arcsec [11.26σ]**  
**KicOffset-rm: 2.070 arcsec [13.49σ]**  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

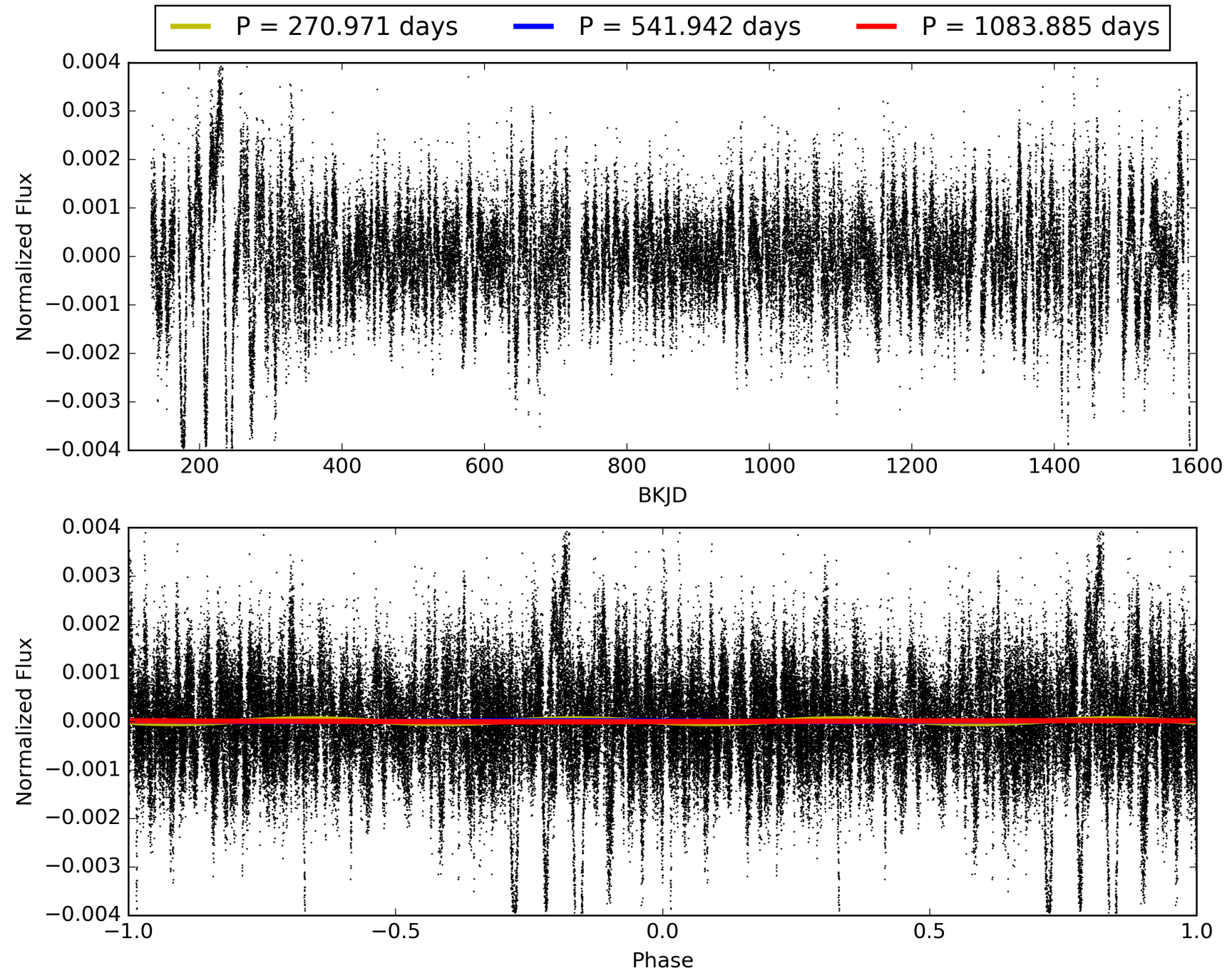
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:34:18 Z

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

# TCE 006356400-01, PDC Light Curves

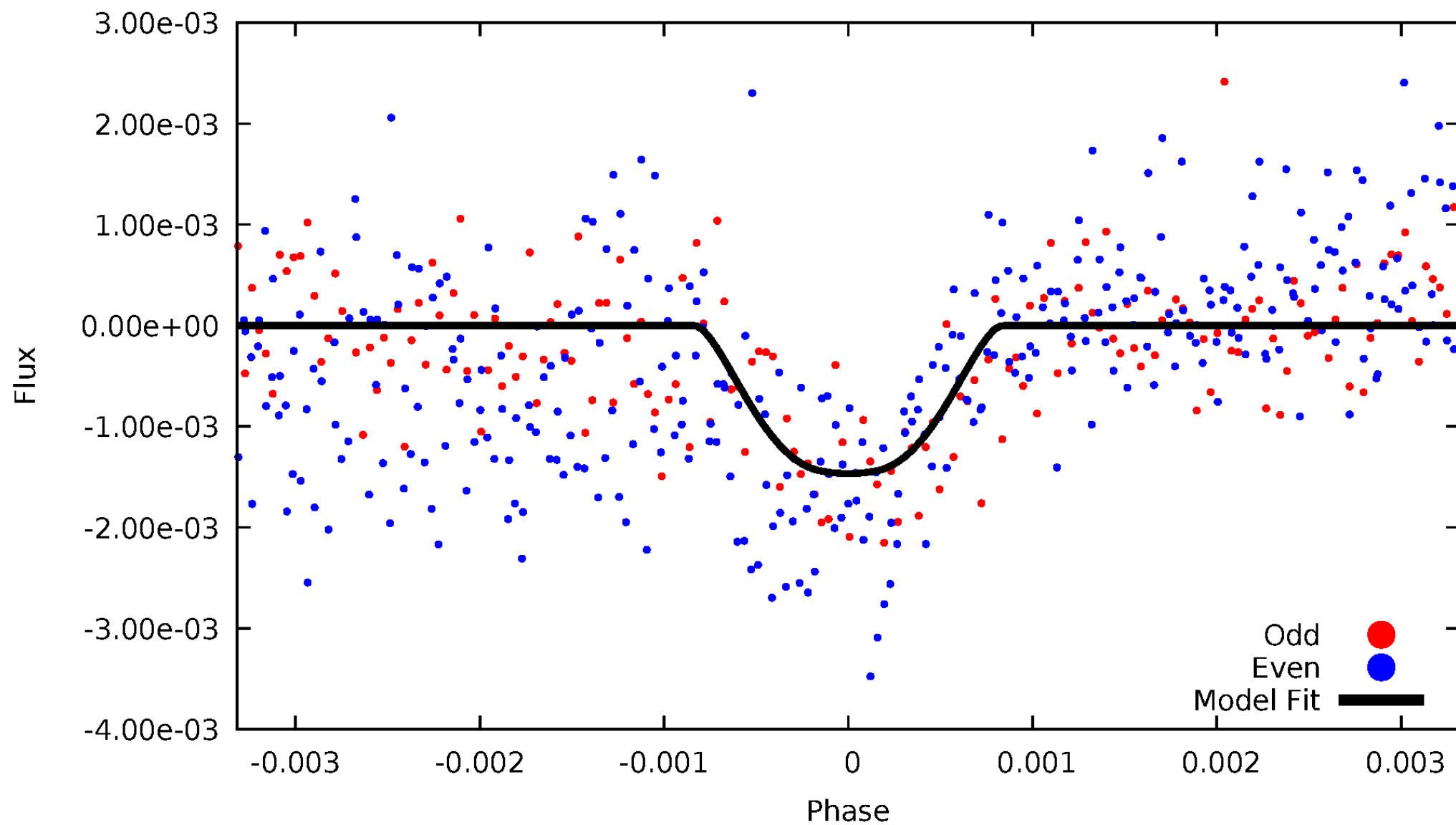


# TCE 006356400-01



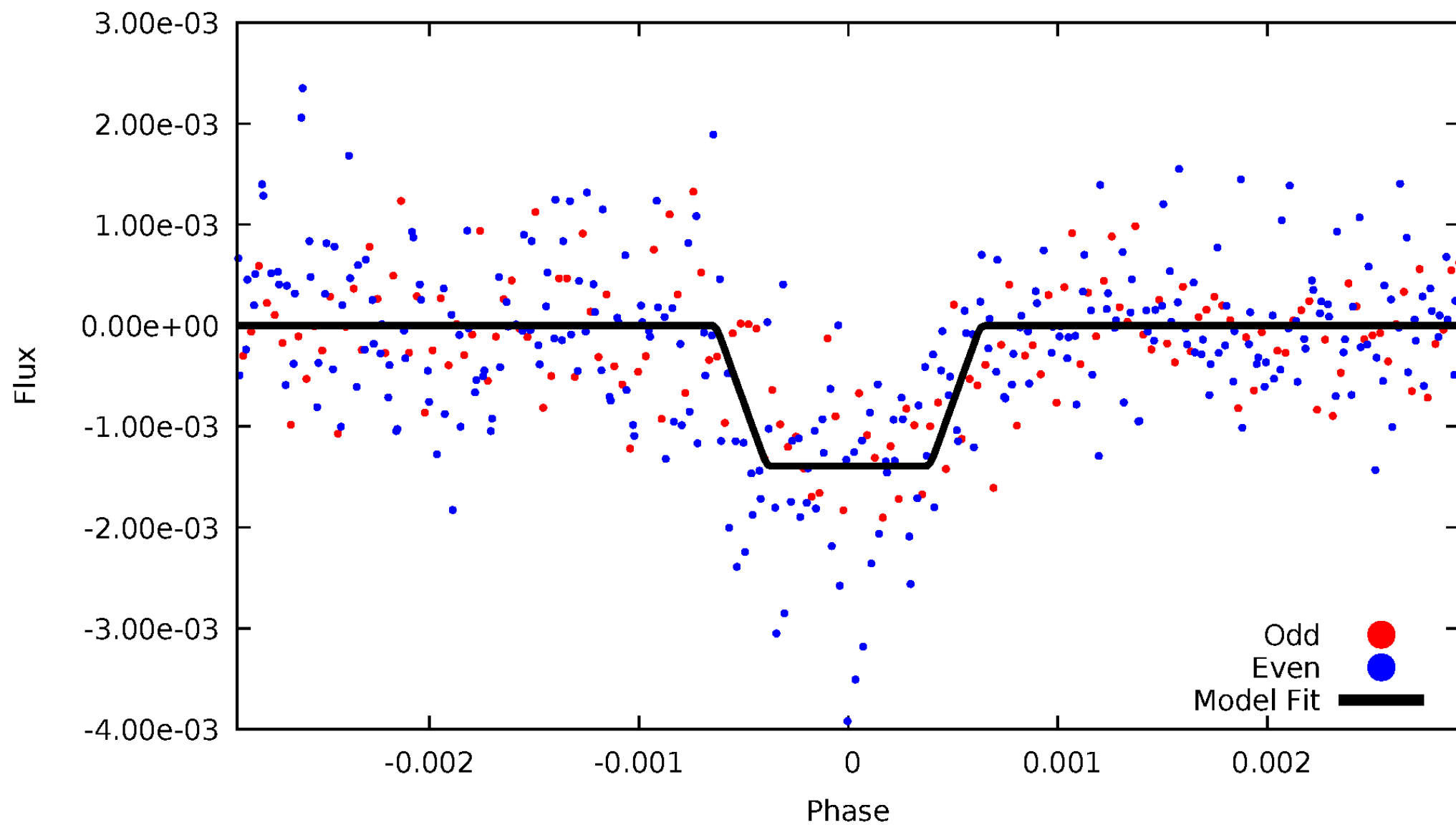
# DV Odd/Even

TCE 006356400-01



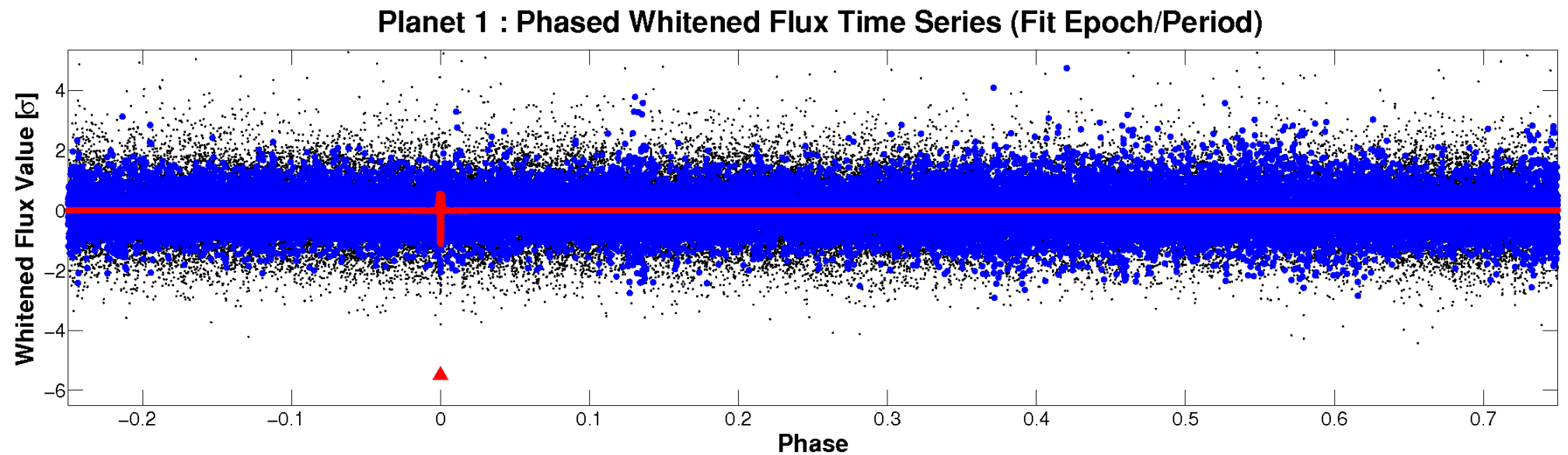
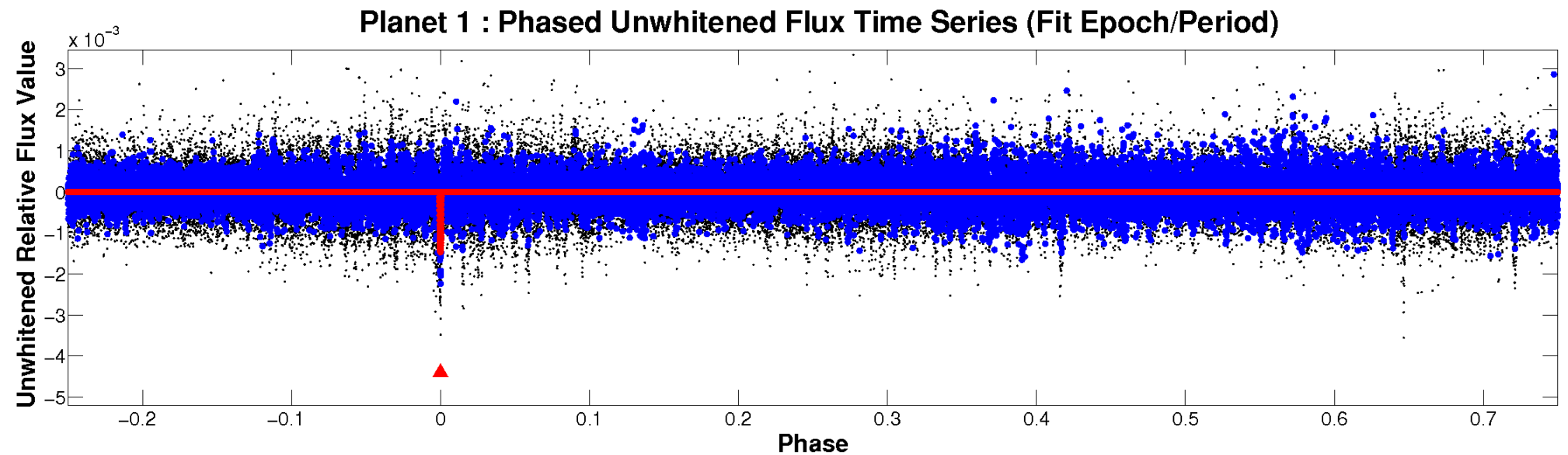
# ALT Odd/Even

TCE 006356400-01



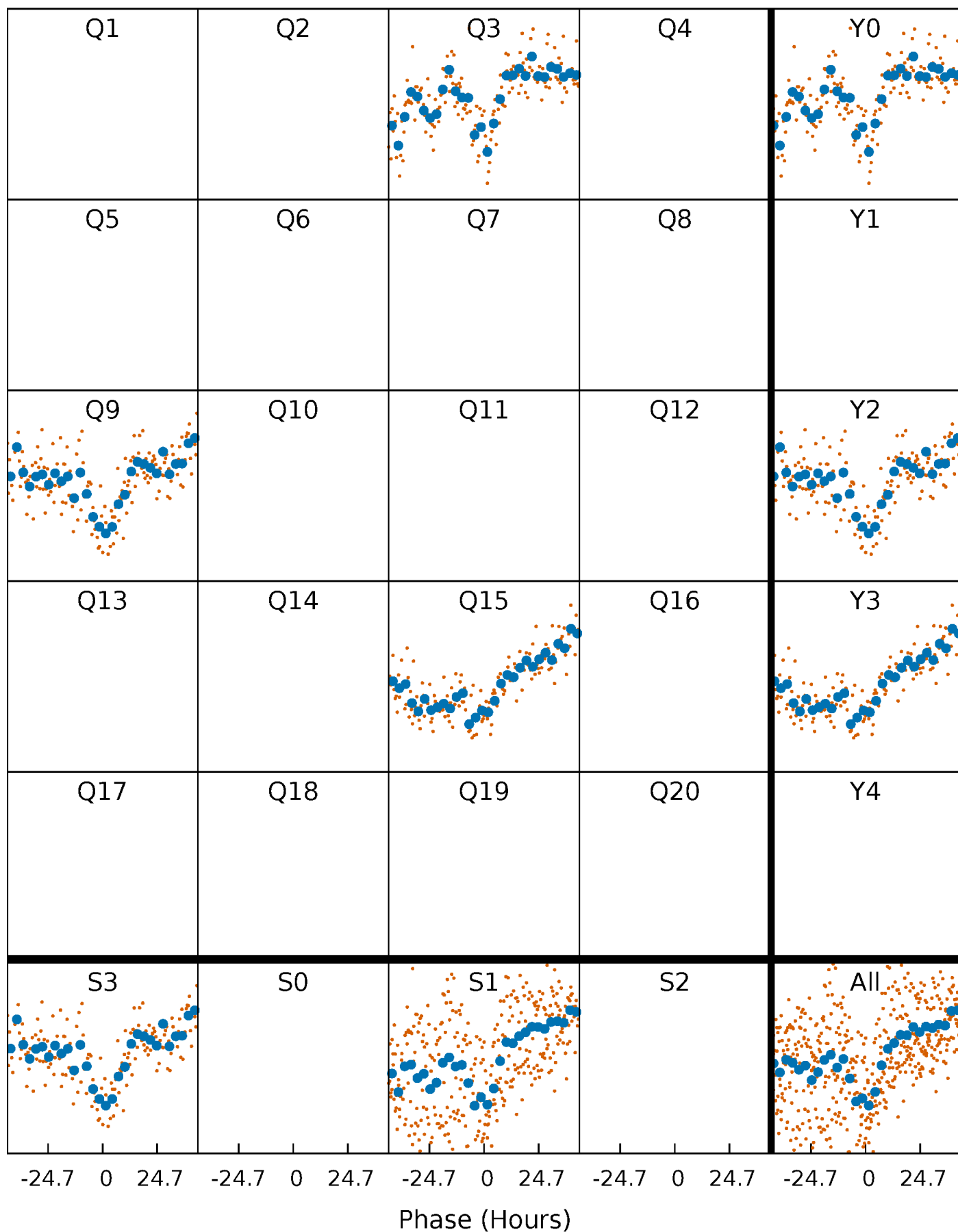


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

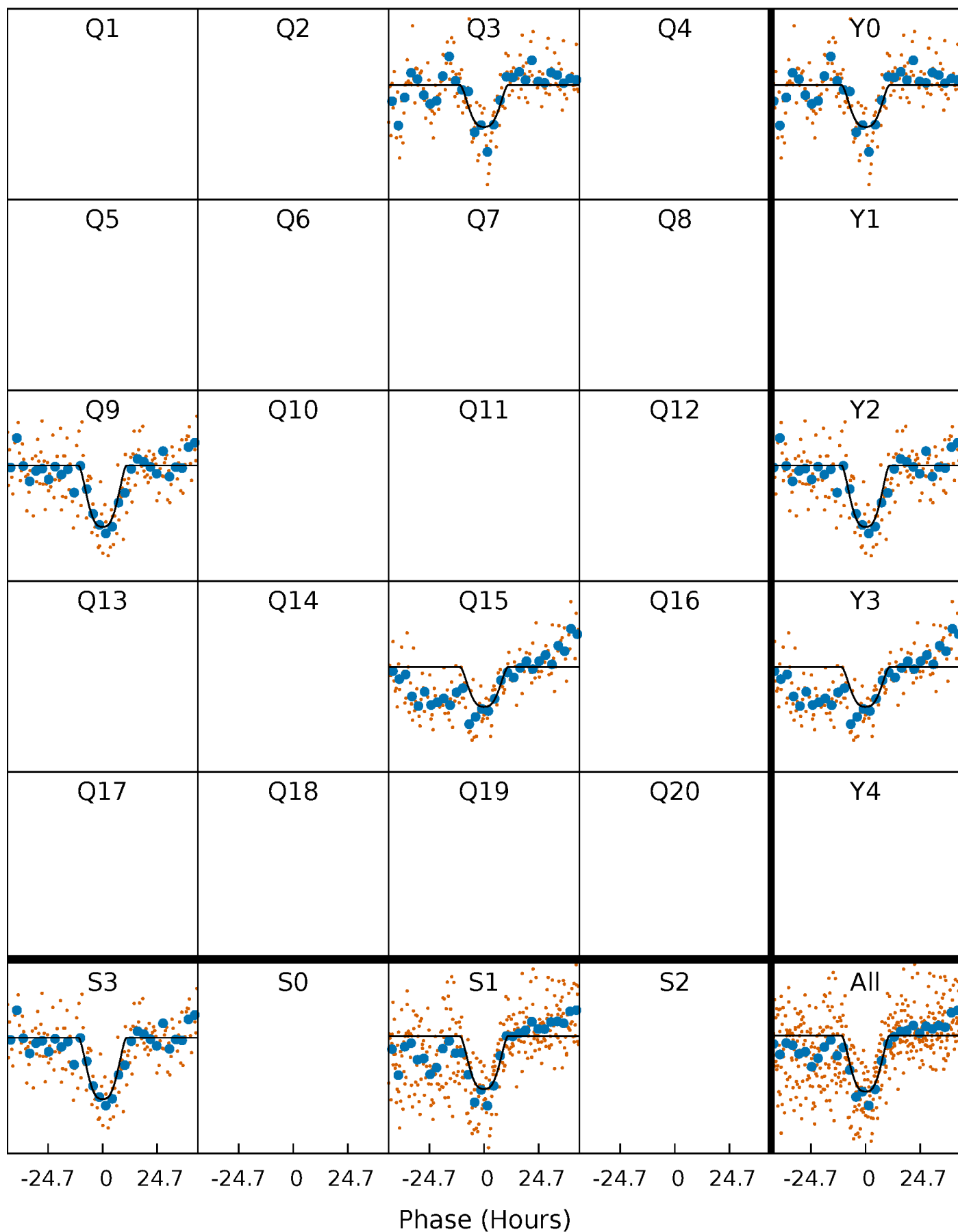
TCE 006356400-01 P=541.942312 Days  $T_0=326.852186$  (BKJD)





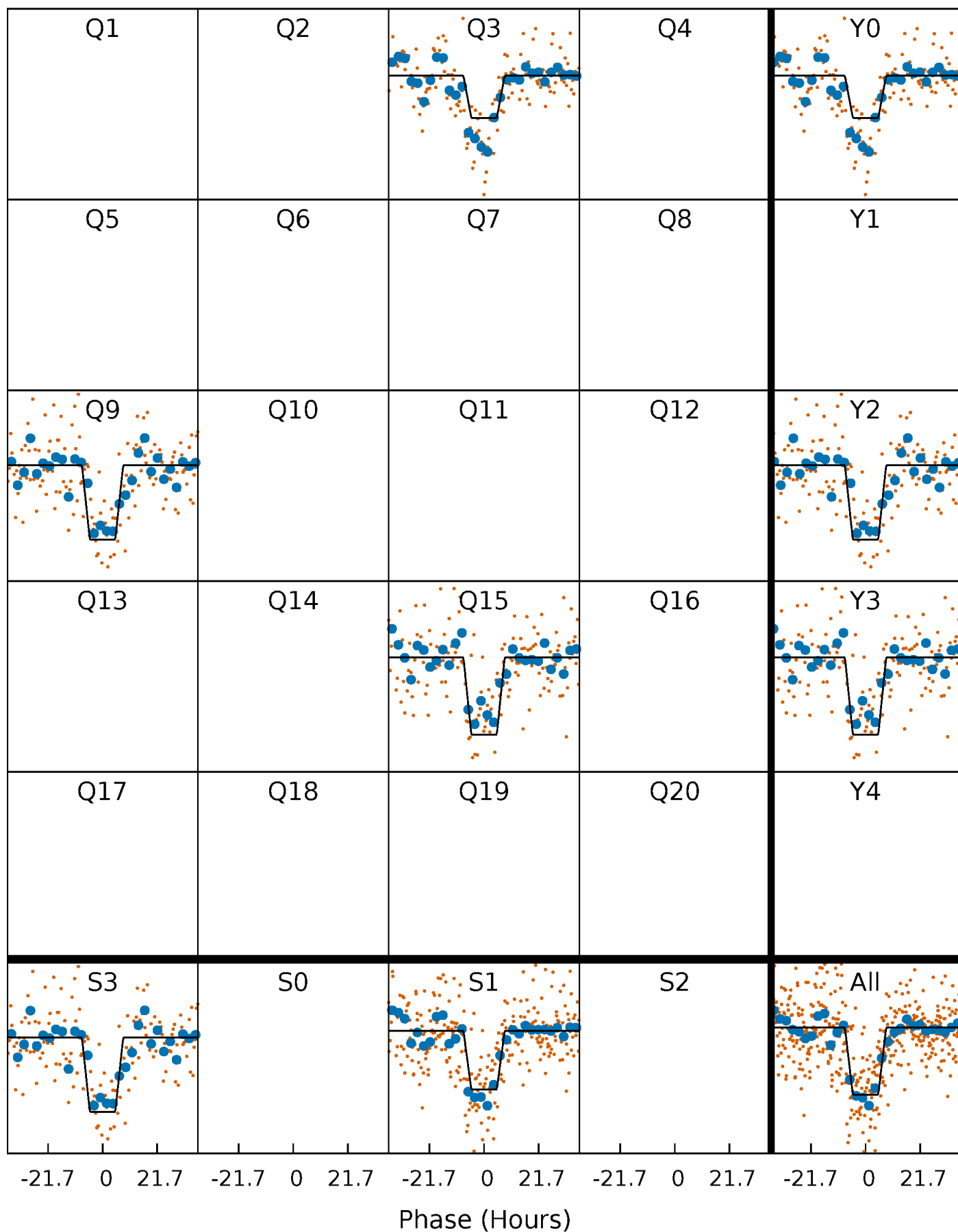
# DV Quarter-Phased Transit Curves

TCE 006356400-01 P=541.942312 Days  $T_0=326.852186$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

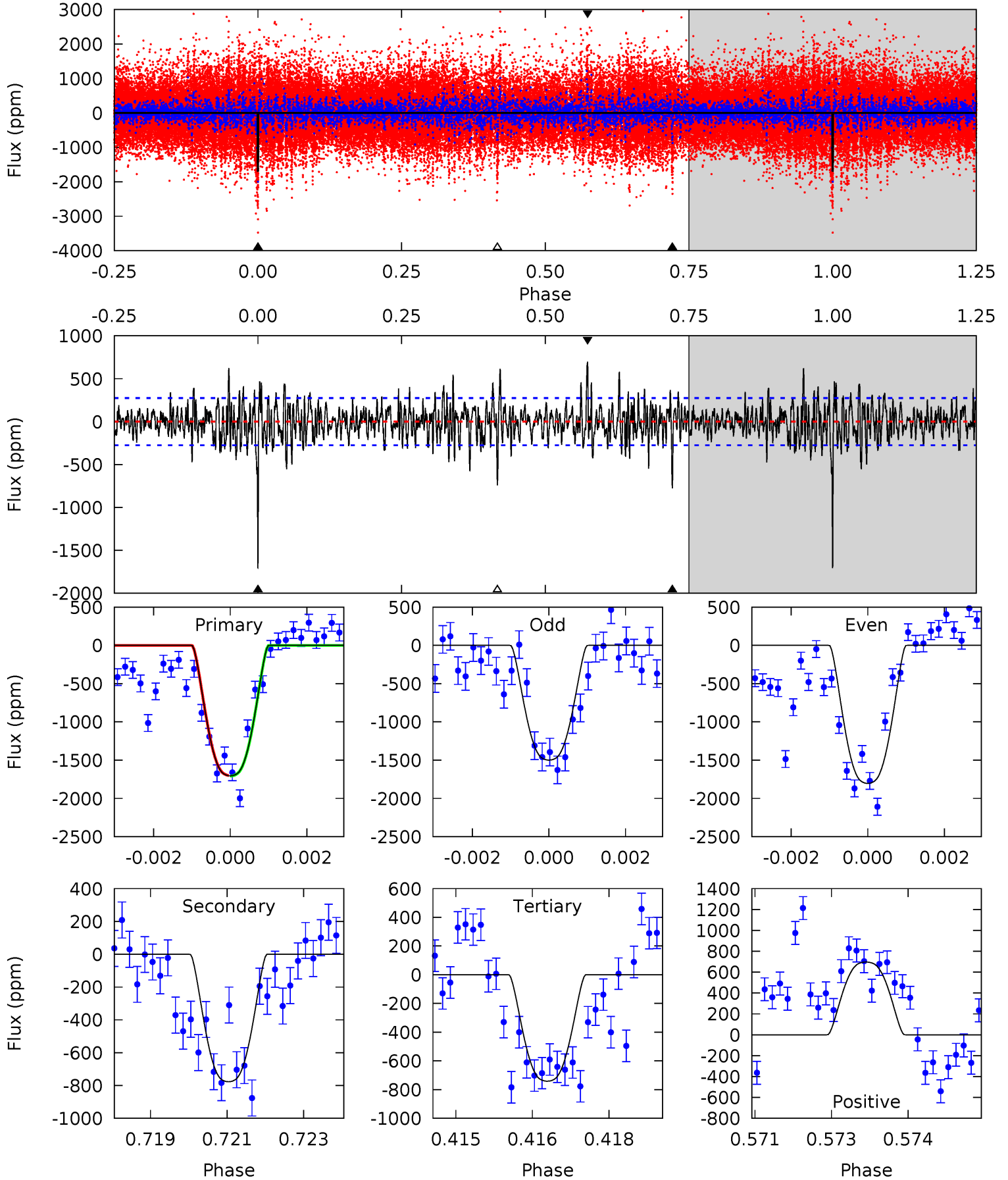
TCE 006356400-01 P=541.891200 Days  $T_0=326.919304$  (BKJD)



# DV Model-Shift Uniqueness Test

006356400-01, P = 541.942312 Days, E = 326.852186 Days

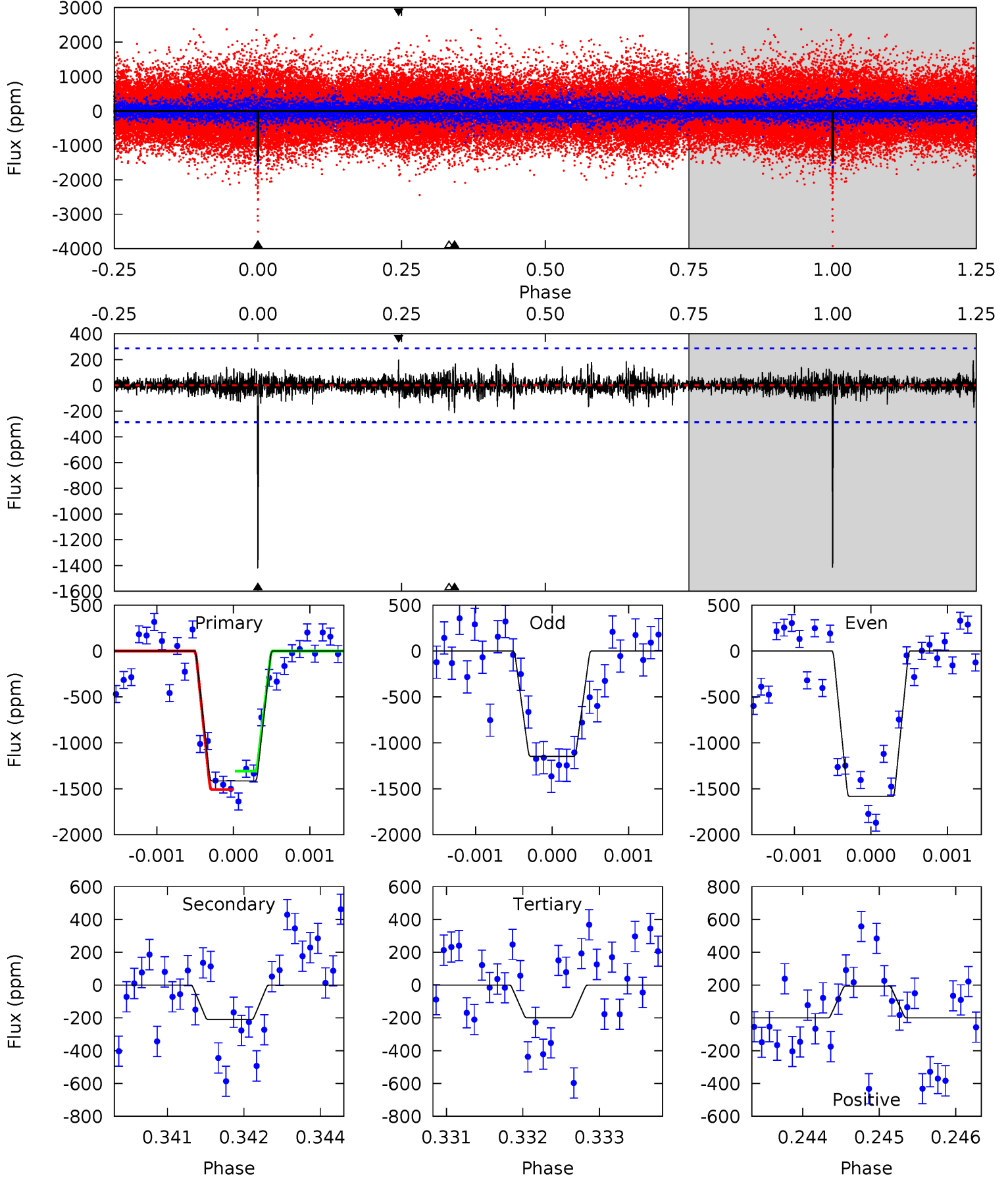
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.2	15.1	14.4	13.5	5.36	3.14	3.29	18.7	19.6	0.69	1.58	2.79	0.99	0.29	0.07



# Alt Model-Shift Uniqueness Test

006356400-01, P = 541.891200 Days, E = 326.919304 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
26.7	3.96	3.75	3.64	5.41	3.22	0.81	22.9	23.0	0.21	0.33	3.84	1.23	0.12	1.88



### Stellar Parameters For KIC 006356400

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4378^{+131}_{-131}$	$4.640^{+0.052}_{-0.024}$	$-0.340^{+0.300}_{-0.300}$	$0.614^{+0.045}_{-0.056}$	$0.601^{+0.070}_{-0.047}$	$3.656^{+0.845}_{-0.473}$
	+3%/-3%	+1%/-1%	+88%/-88%	+7%/-9%	+12%/-8%	+23%/-13%
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 006356400-01 / KOI 7776.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-777 \pm 51$	$3.09^{+0.34}_{-0.34}$	$200^{+7}_{-7}$	$3653^{+170}_{-145}$	$54516^{+14933}_{-10077}$
Alt.	$-210 \pm 53$	$2.47^{+0.36}_{-0.33}$	$200^{+7}_{-7}$	$3182^{+217}_{-185}$	$22684^{+10588}_{-7233}$

$T_{\text{max}}$  = 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

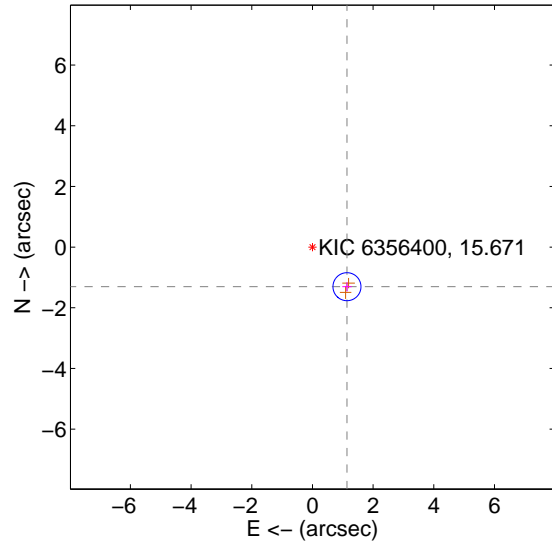
Supplemental centroid analysis for 006356400-01. Kepler magnitude: 15.67. Transit SNR 9.44

There are 0 quarters with good PRF difference image offsets

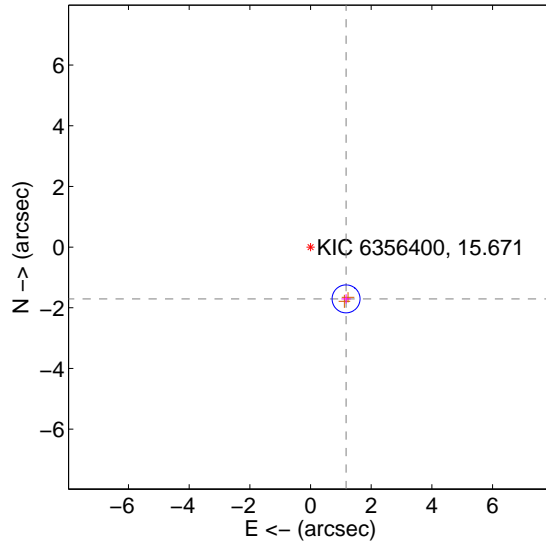
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.731 \pm 0.154$	11.26	$-1.138 \pm 0.156$	$-1.305 \pm 0.152$
PRF-fit source offset from KIC position	$2.070 \pm 0.153$	13.49	$-1.171 \pm 0.156$	$-1.706 \pm 0.152$
photometric centroid source offset	$2.71 \pm 1.31$	2.06	$1.88 \pm 1.48$	$-1.95 \pm 1.13$

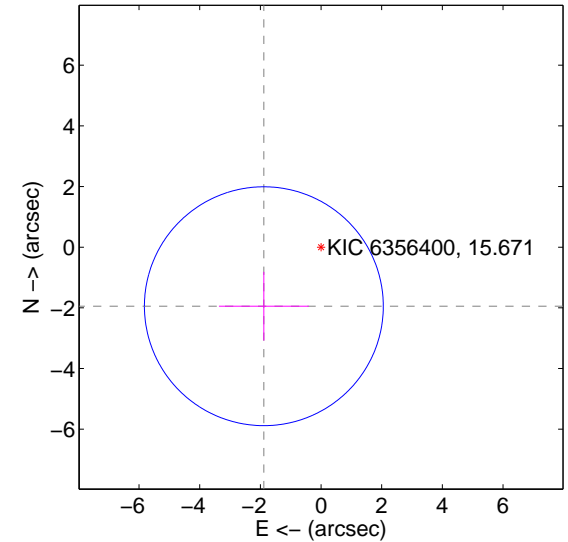
offset from difference PRF-fit to OOT PRF-fit



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

Q1 no difference image



Q1 no OOT image



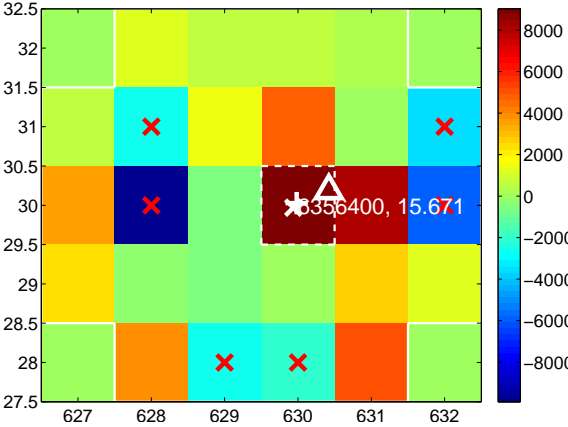
Q2 no difference image



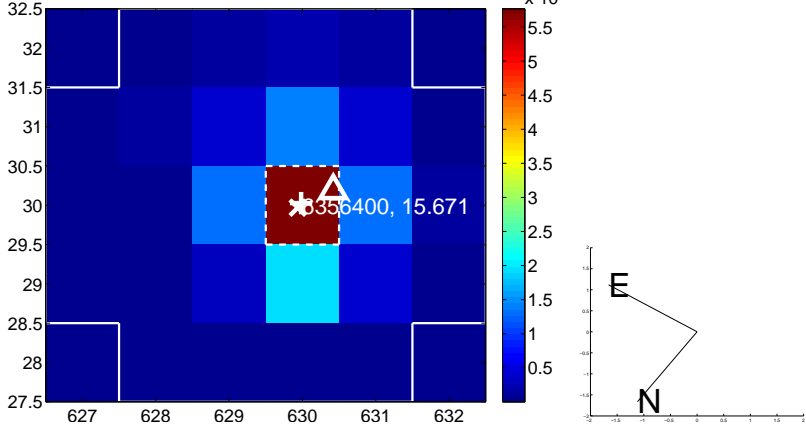
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image

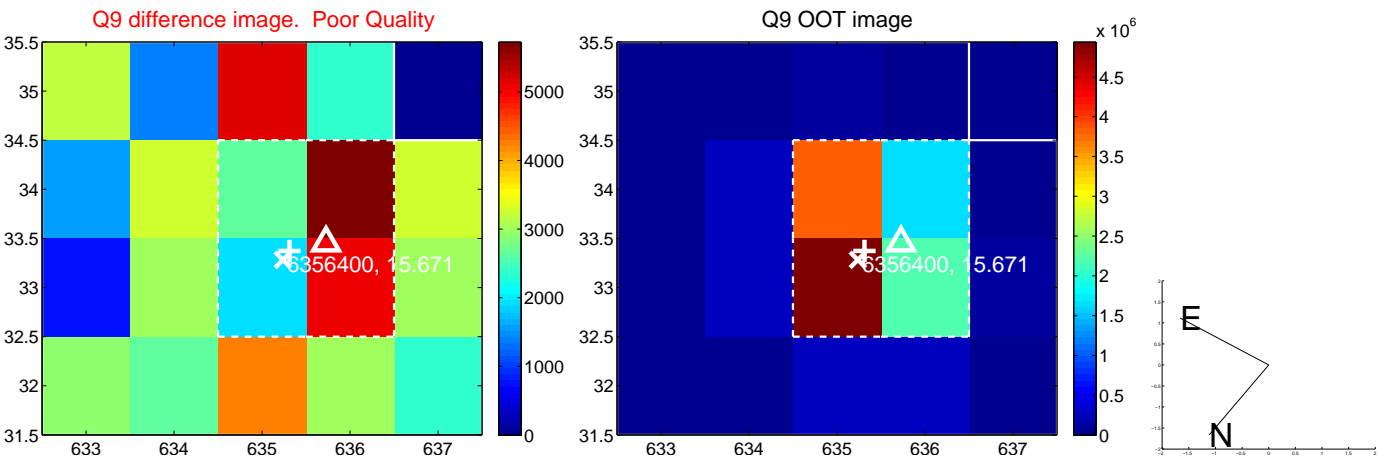




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



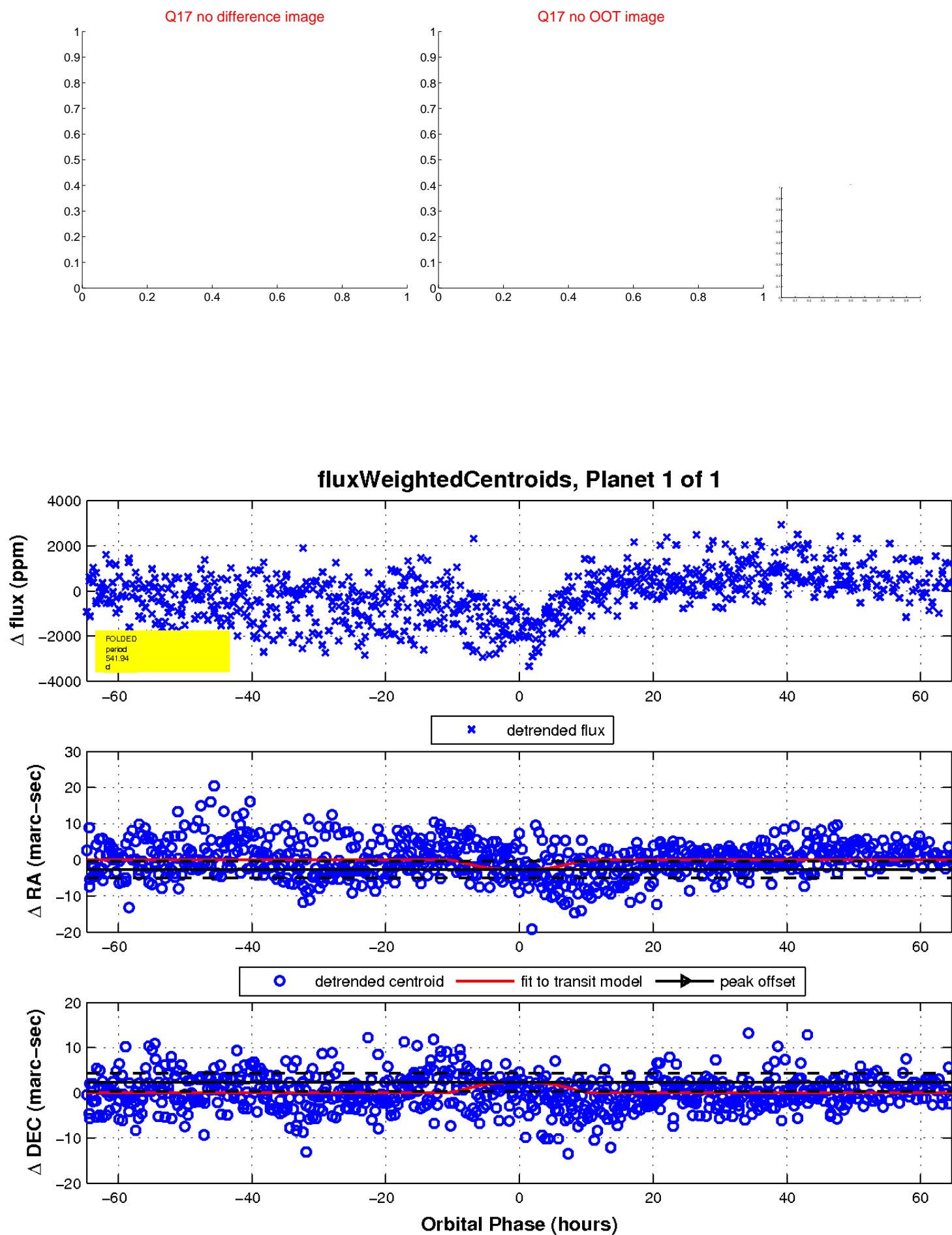
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

