

# KIC 007764546

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007764546-01	OBS	No	369.001164	233.134918	551.7	16.141	8.3	8.1	0.90	5743	2.19	0.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007764546-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_CHASES_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH

**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.

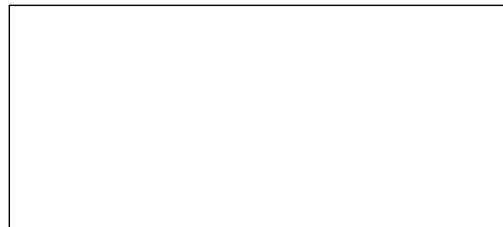
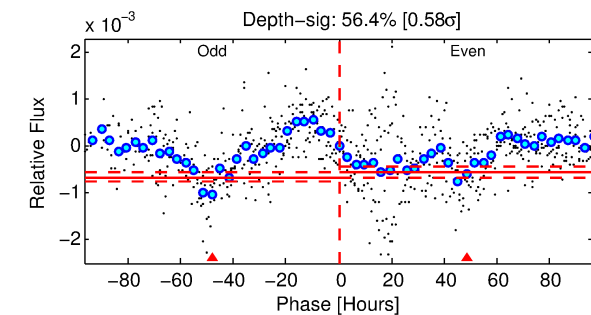
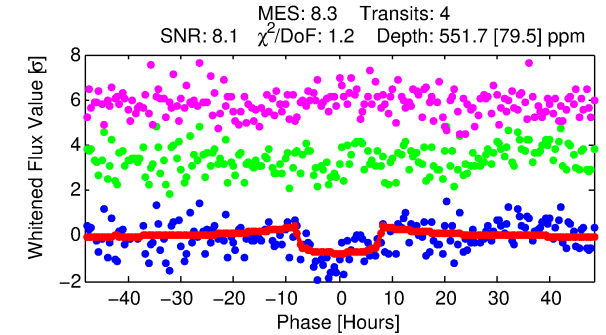
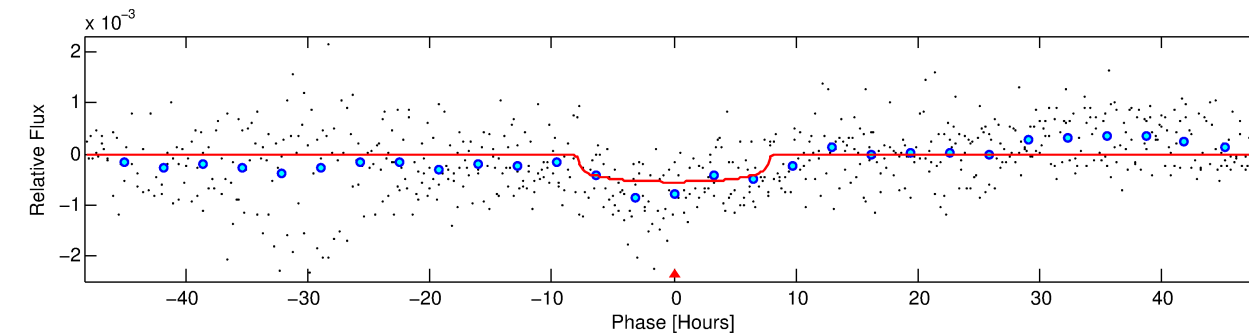
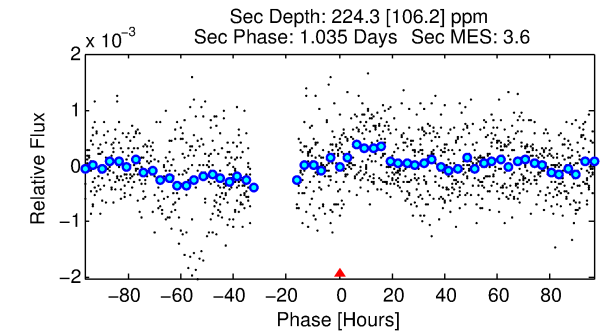
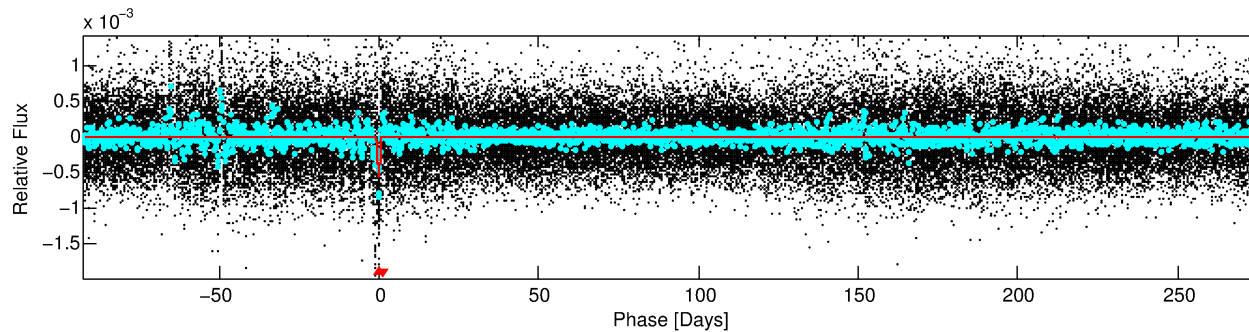
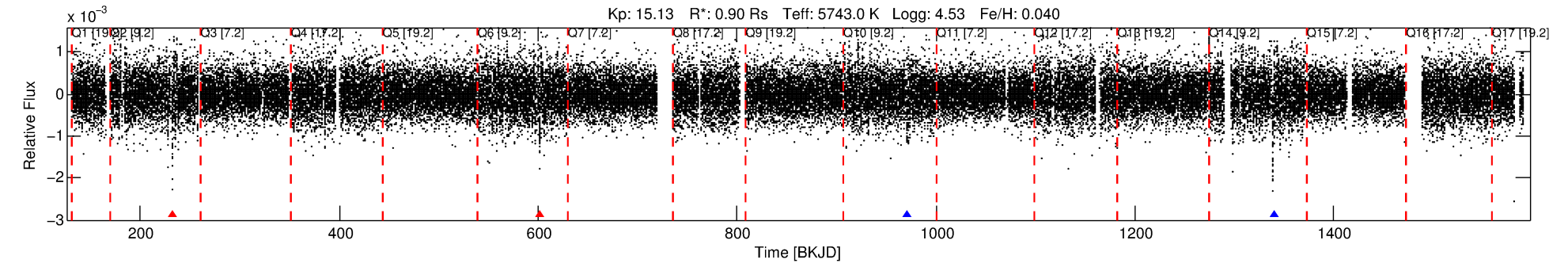
## Ephemeris Match Information For 007764546-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $\prime$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007764546-01	7764546	007693494-01	7693494	1:1	648.8	163	-3	15.47	15.13	2.14	Col-Anomaly	1	1.23	0.34

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7764546 Candidate: 1 of 1 Period: 369.001 d



## DV Fit Results:

Period = 369.00116 [0.01111] d  
Epoch = 233.1349 [0.0207] BKJD  
Rp/R\* = 0.0222 [0.0117]  
a/R\* = 148.66 [332.16]  
b = 0.57 [2.70]  
Seff = 0.78 [0.31]  
Teq = 240 [23] K  
Rp = 2.19 [1.31] Re  
a = 1.0081 [0.2484] AU  
Ag = 26090.99 [31646.75] [0.82σ]  
Teffp = 4715 [1372] K [3.26σ]

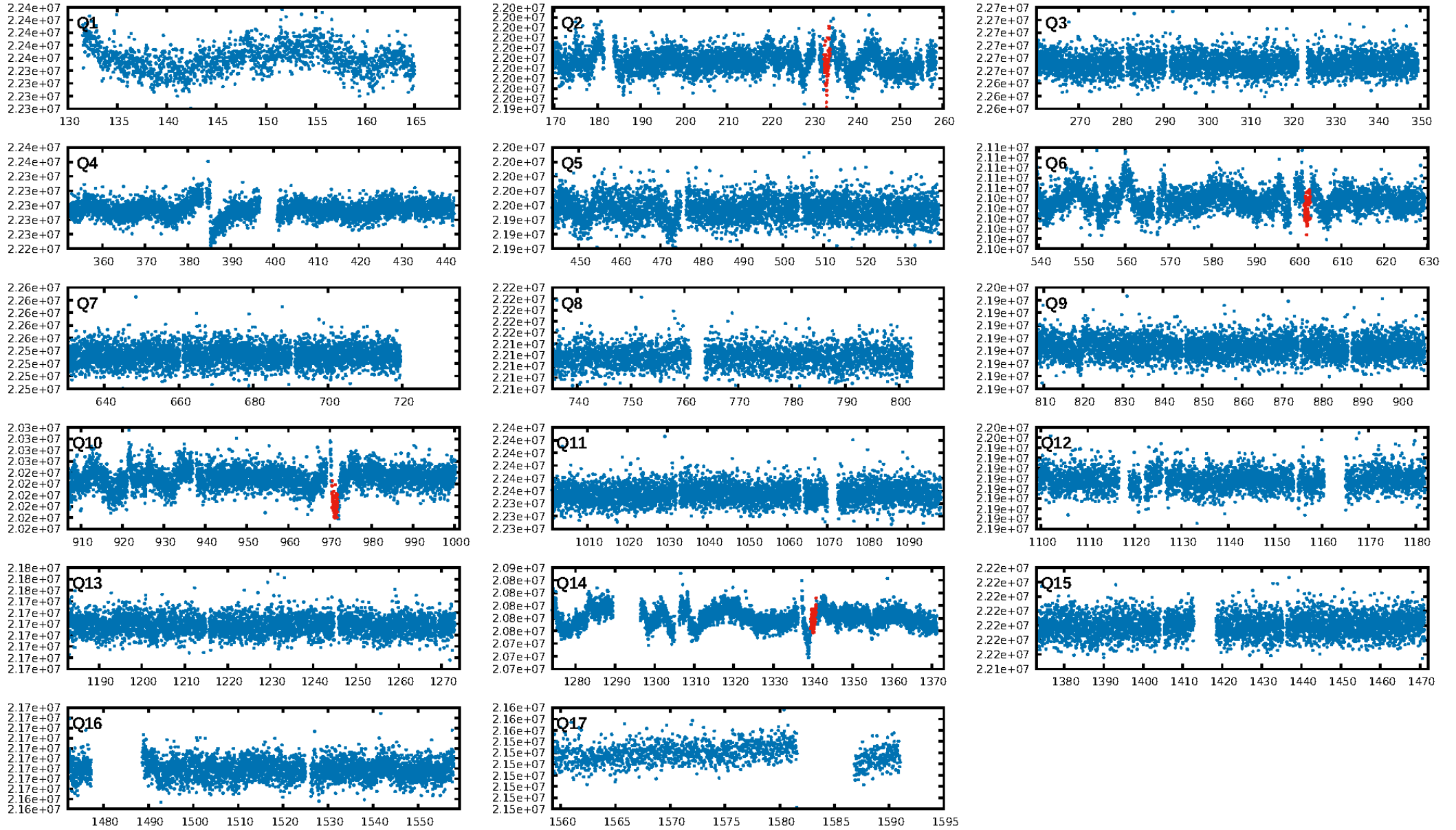
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 74.6%  
ModelChiSquareGof-sig: 94.0%  
Bootstrap-pfa: 4.32e-14  
RollingBand-fgt: 0.50 [2/4]  
GhostDiagnostic-chr: 0.2438  
Centroid-sig: 35.5%  
Centroid-so: 1.243 arcsec [0.87σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

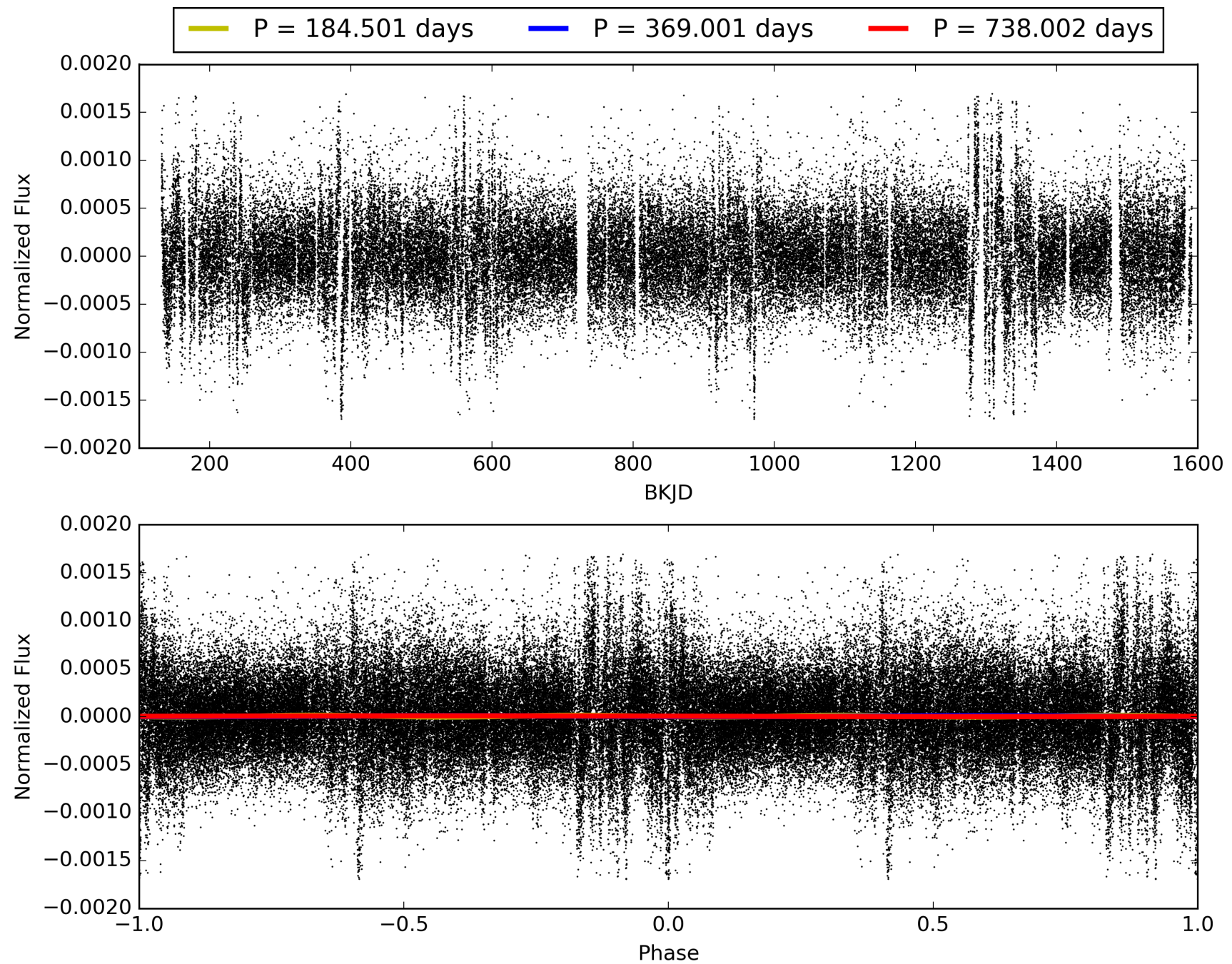
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:21:15 Z

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

# TCE 007764546-01, PDC Light Curves

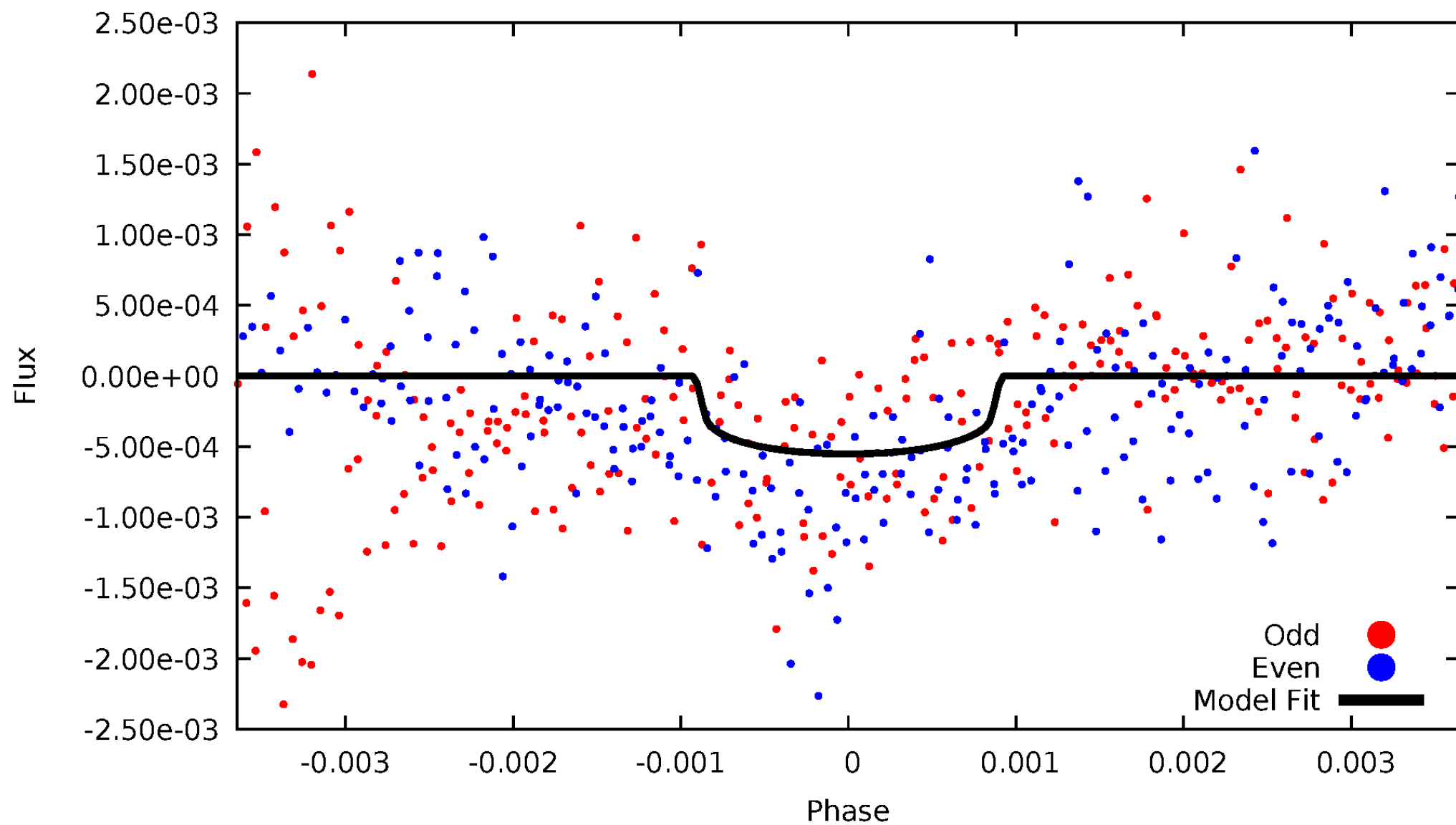


TCE 007764546-01



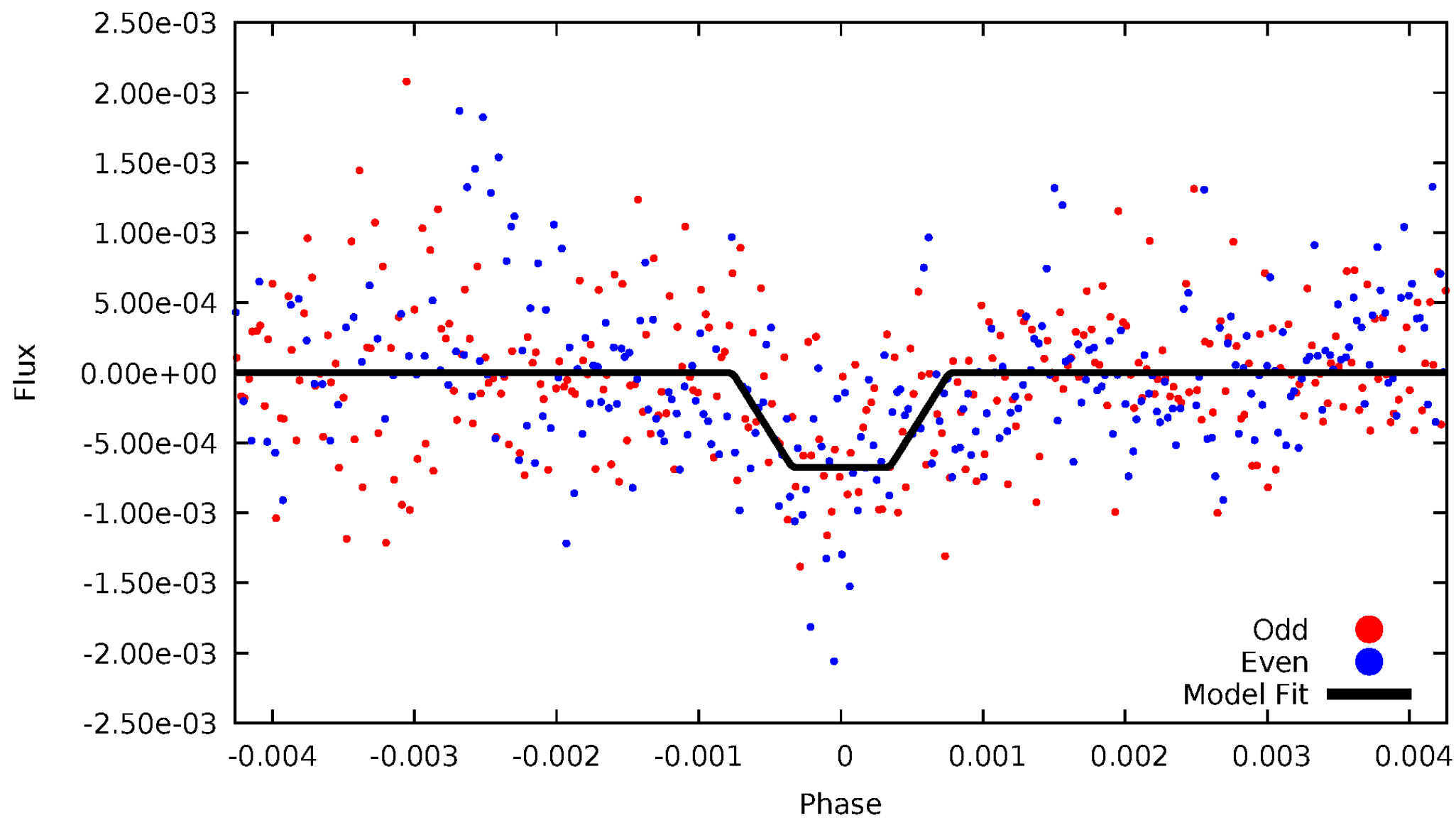
# DV Odd/Even

TCE 007764546-01



# ALT Odd/Even

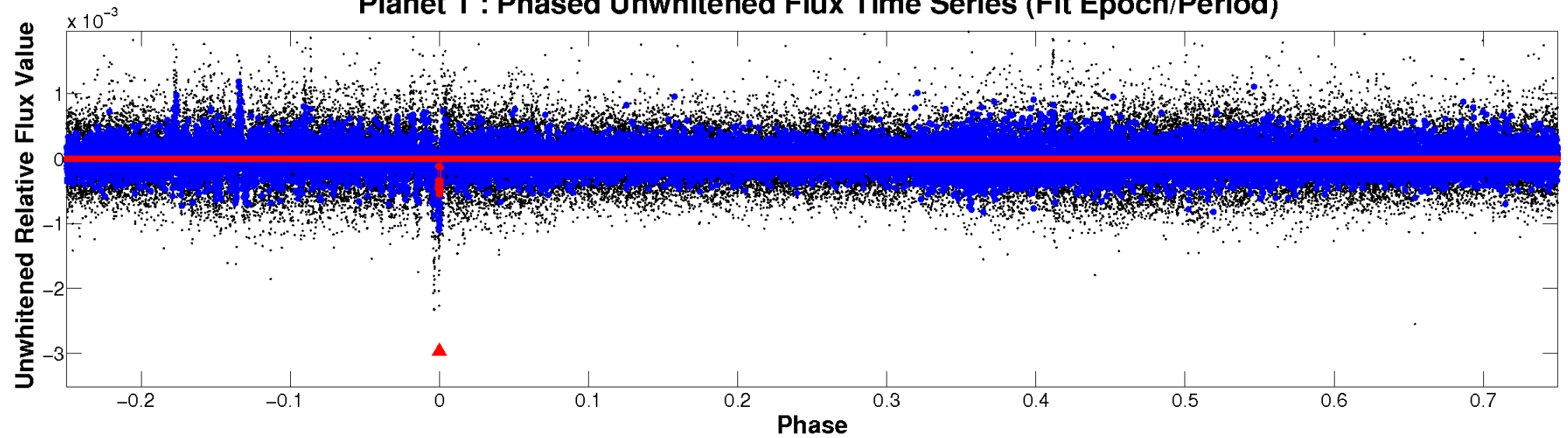
TCE 007764546-01



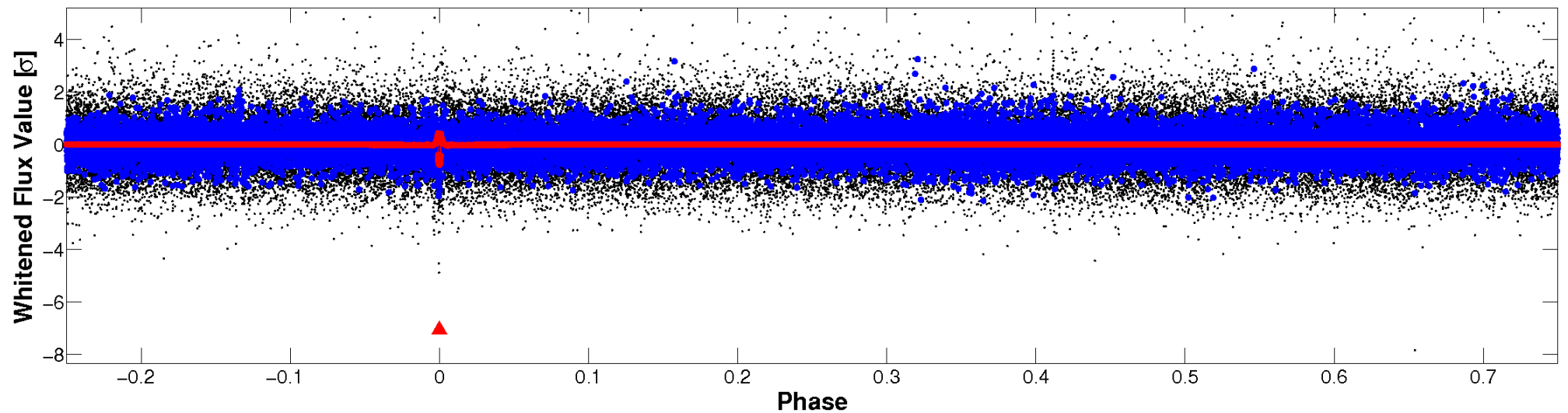


# Non-Whitened Vs. Whitened Light Curve

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

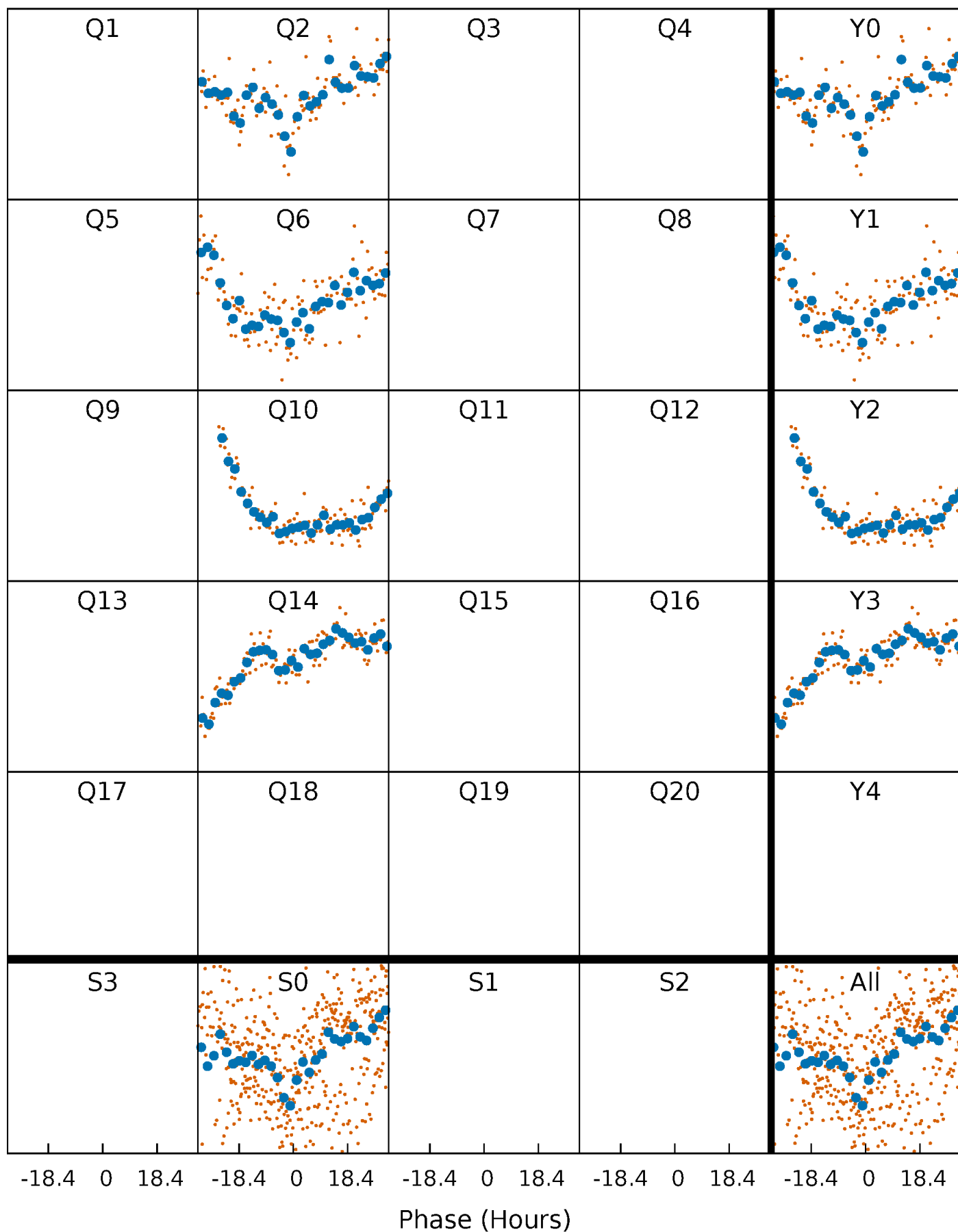


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

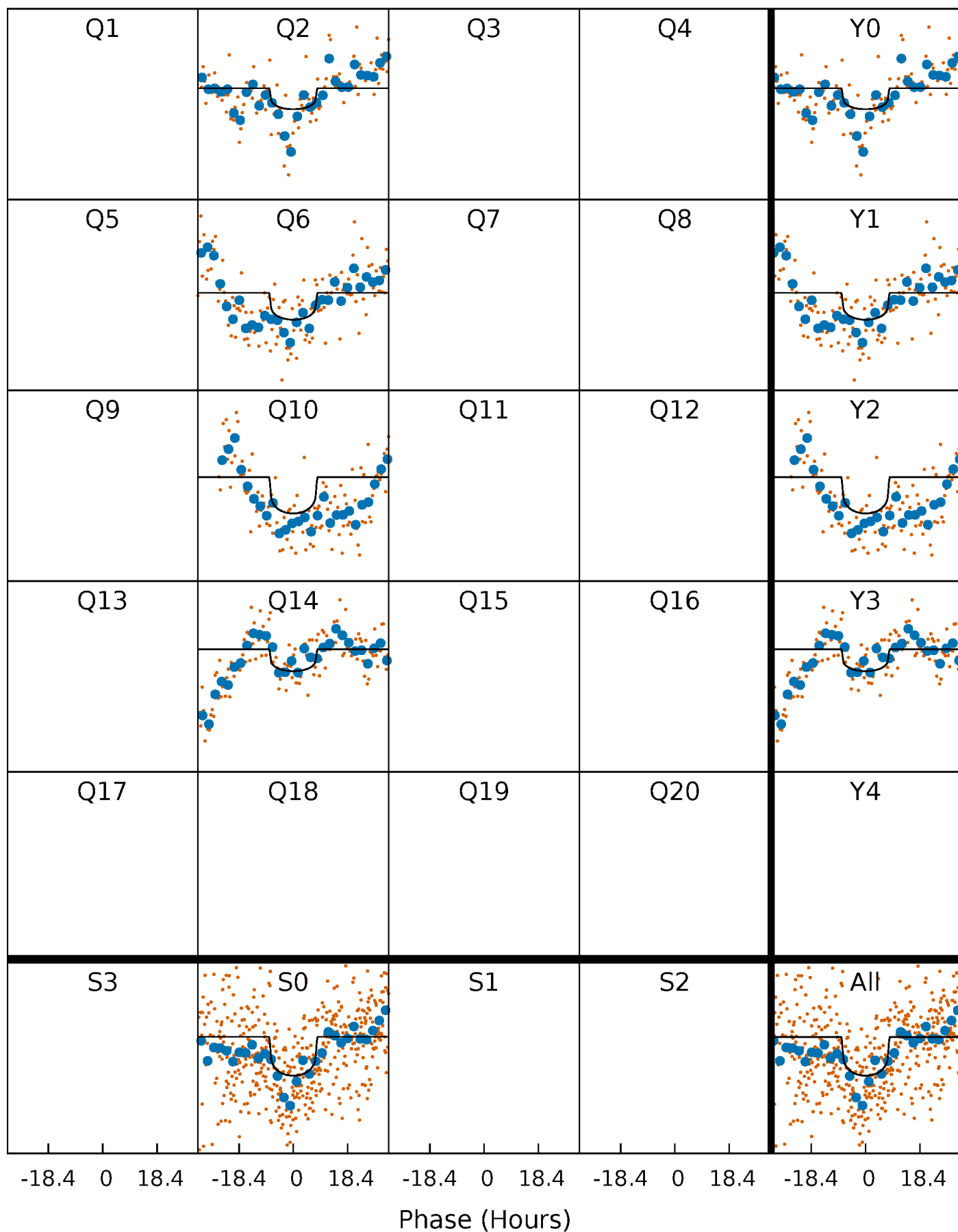
TCE 007764546-01 P=369.001164 Days  $T_0=233.134918$  (BKJD)





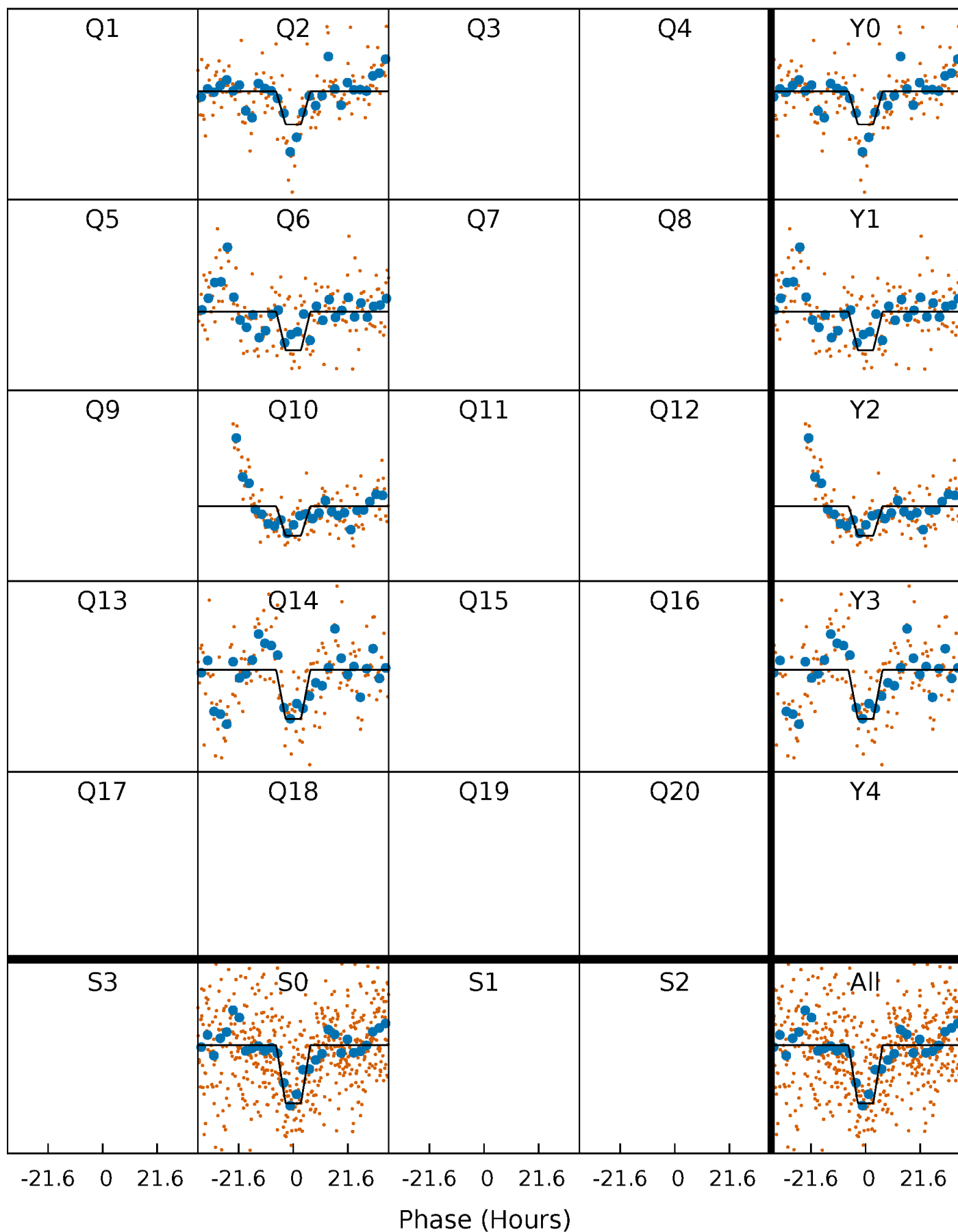
# DV Quarter-Phased Transit Curves

TCE 007764546-01 P=369.001164 Days  $T_0=233.134918$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

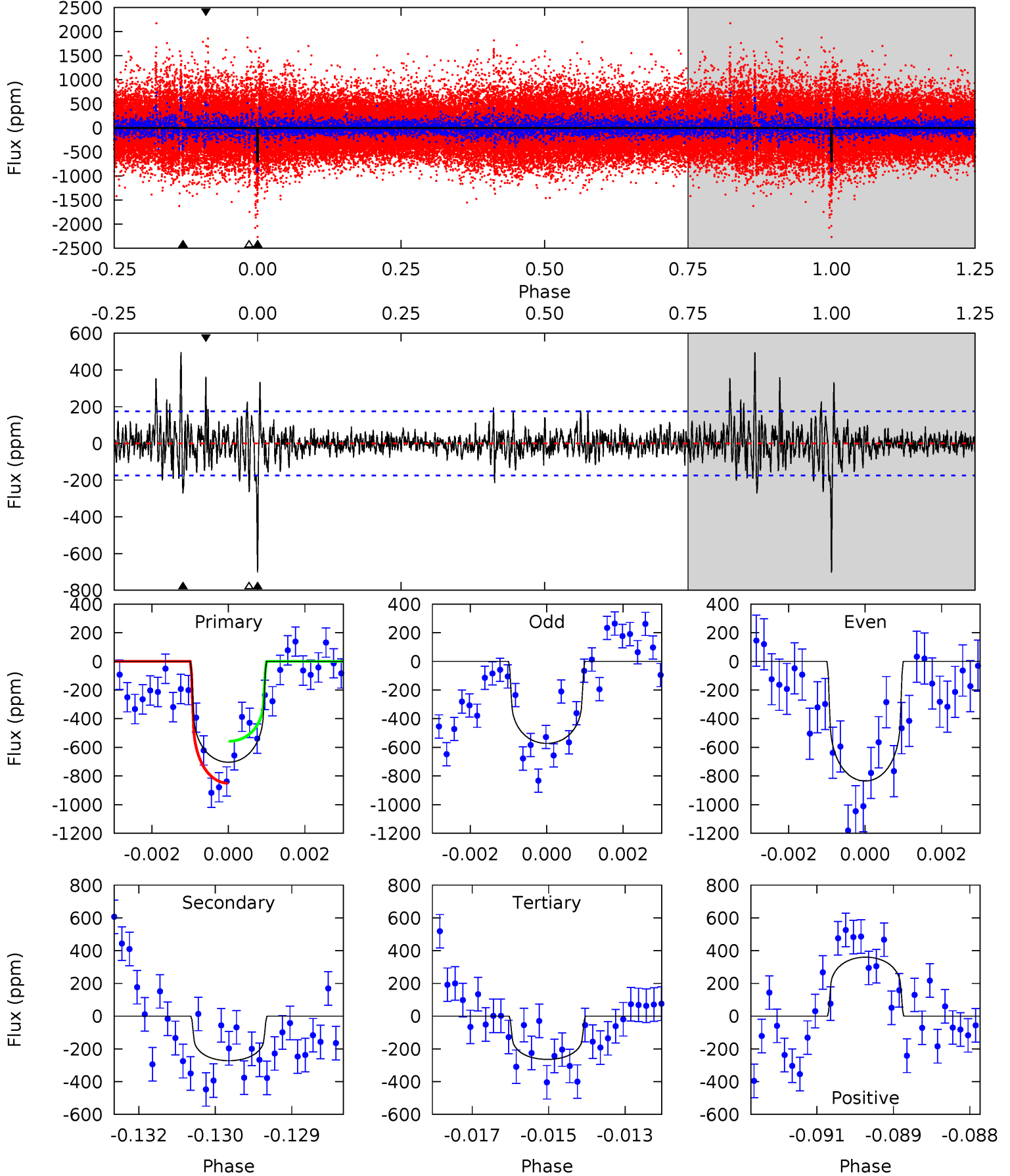
TCE 007764546-01 P=368.996038 Days  $T_0=233.087011$  (BKJD)



# DV Model-Shift Uniqueness Test

007764546-01, P = 369.001164 Days, E = 233.134918 Days

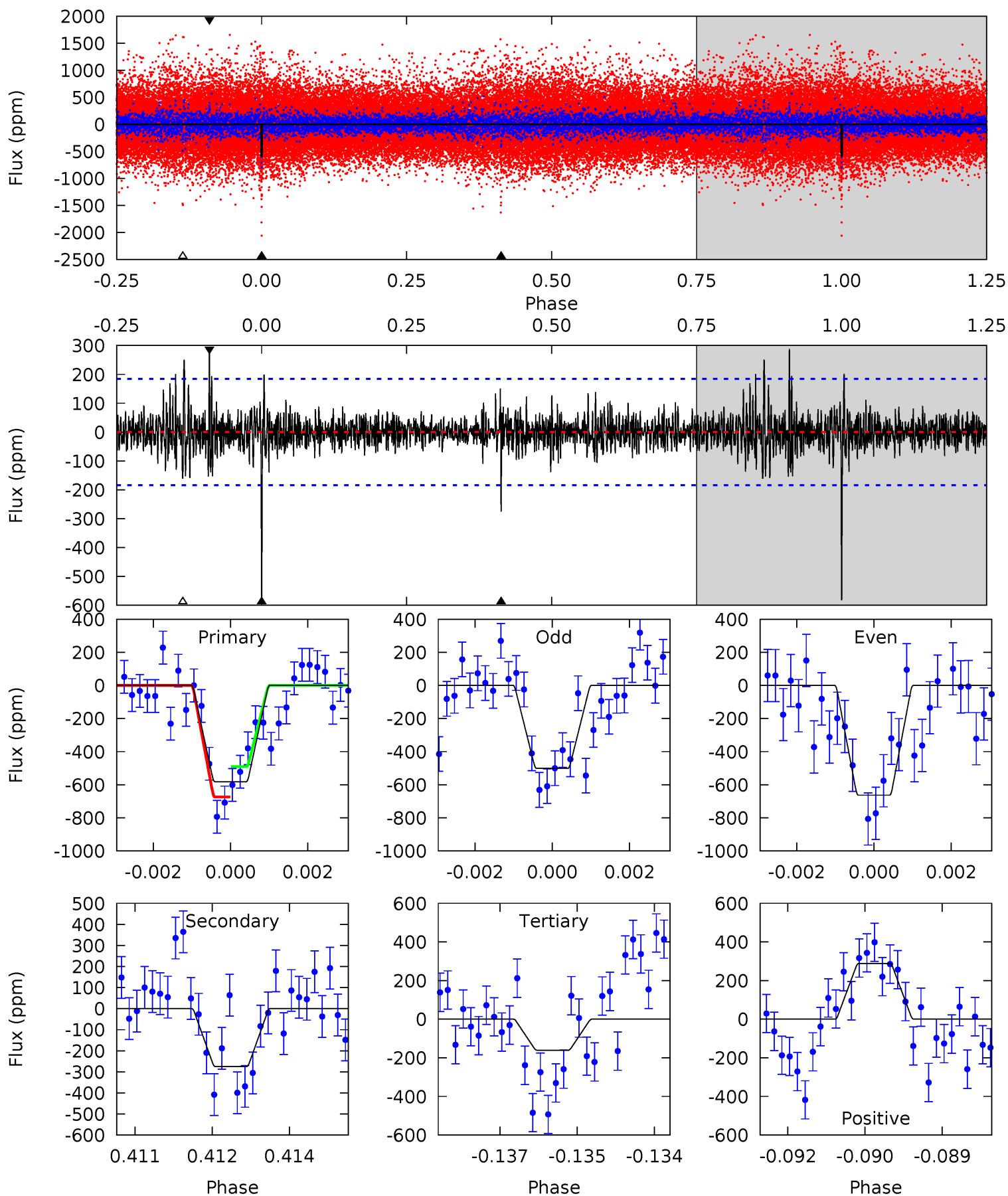
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	8.31	8.07	11.0	5.34	3.11	1.88	13.4	10.5	0.24	-2.69	4.03	0.93	0.41	4.48



# Alt Model-Shift Uniqueness Test

007764546-01, P = 368.996038 Days, E = 233.087011 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
17.0	8.03	4.69	8.41	5.37	3.16	1.24	12.3	8.58	3.34	-0.39	2.37	1.09	0.33	2.67



### Stellar Parameters For KIC 007764546

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5743^{+156}_{-190}$	$4.527^{+0.036}_{-0.204}$	$0.040^{+0.250}_{-0.300}$	$0.904^{+0.258}_{-0.086}$	$1.003^{+0.102}_{-0.125}$	$1.914^{+0.373}_{-0.972}$
	+3%/-3%	+1%/-5%	+625%/-750%	+29%/-10%	+10%/-12%	+19%/-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 007764546-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-272 \pm 33$	$2.37^{+1.26}_{-1.28}$	$343^{+23}_{-16}$	$4955^{+2252}_{-775}$	$26192^{+102297}_{-15267}$
Alt.	$-275 \pm 34$	$2.69^{+1.26}_{-1.23}$	$342^{+23}_{-15}$	$4726^{+1521}_{-651}$	$21124^{+49272}_{-11595}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

Supplemental centroid analysis for 007764546-01. Kepler magnitude: 15.13. Transit SNR 8.14

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.24 \pm 1.43$	0.87	$-0.37 \pm 1.29$	$1.19 \pm 1.44$

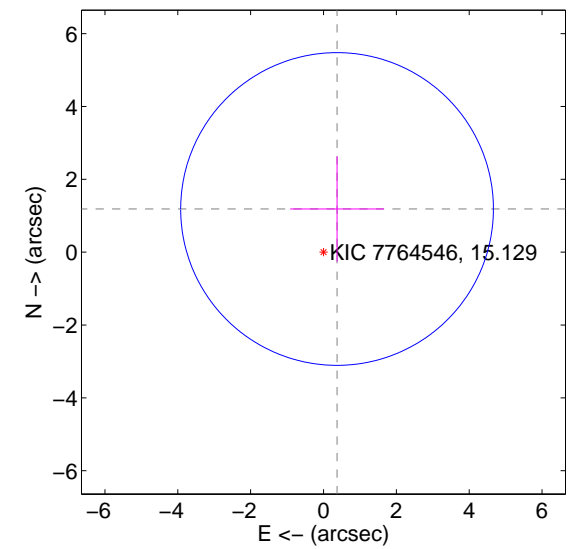
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



offset from photometric centroids



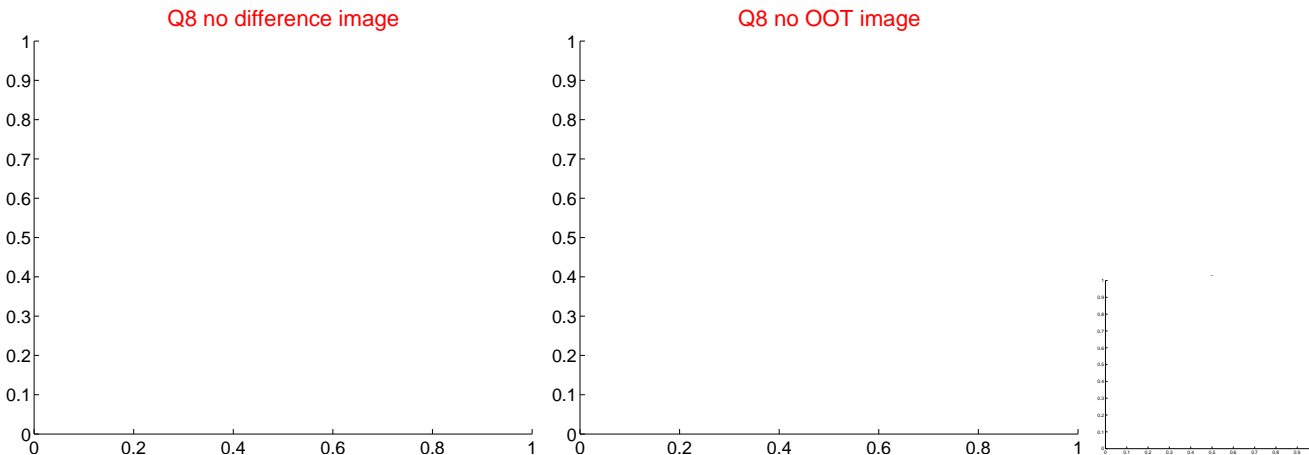
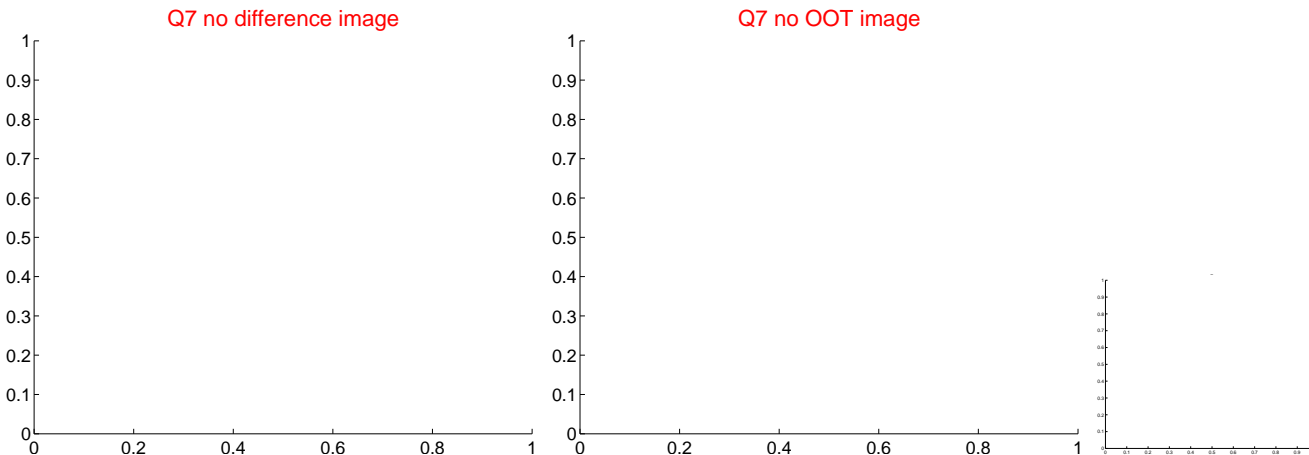
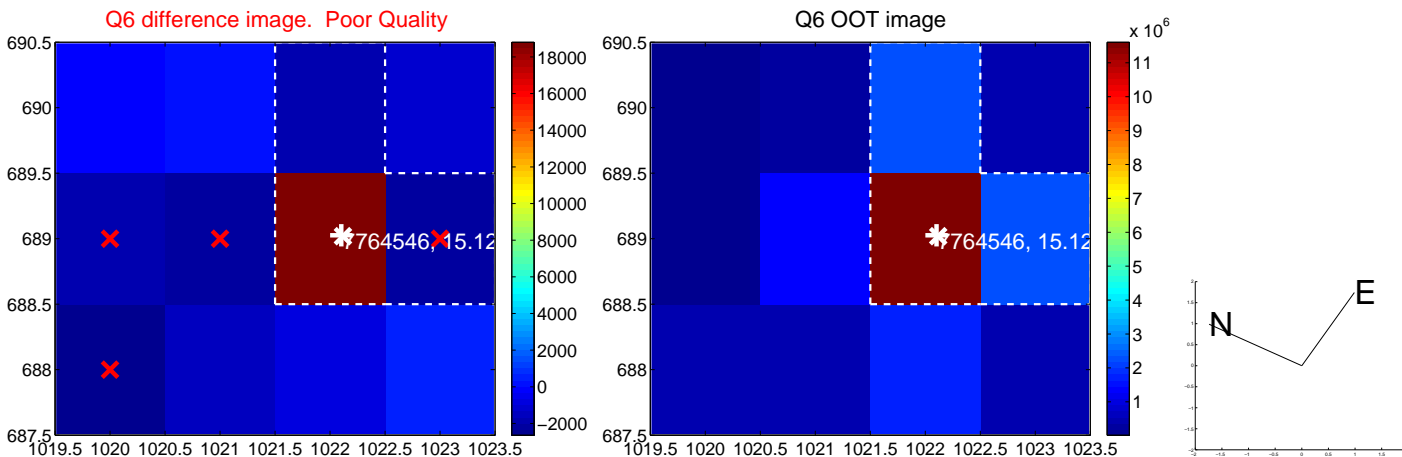
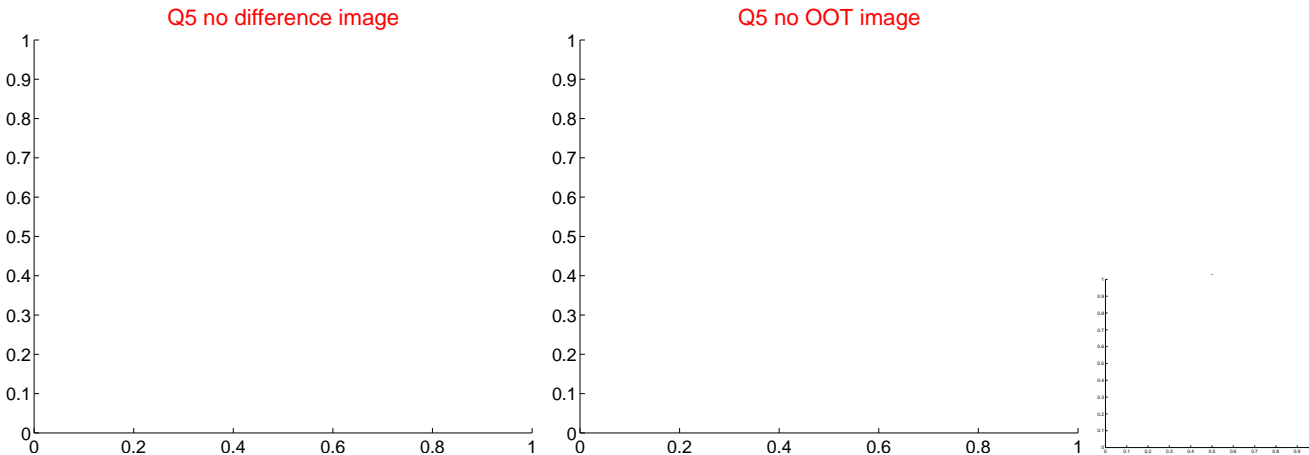
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.



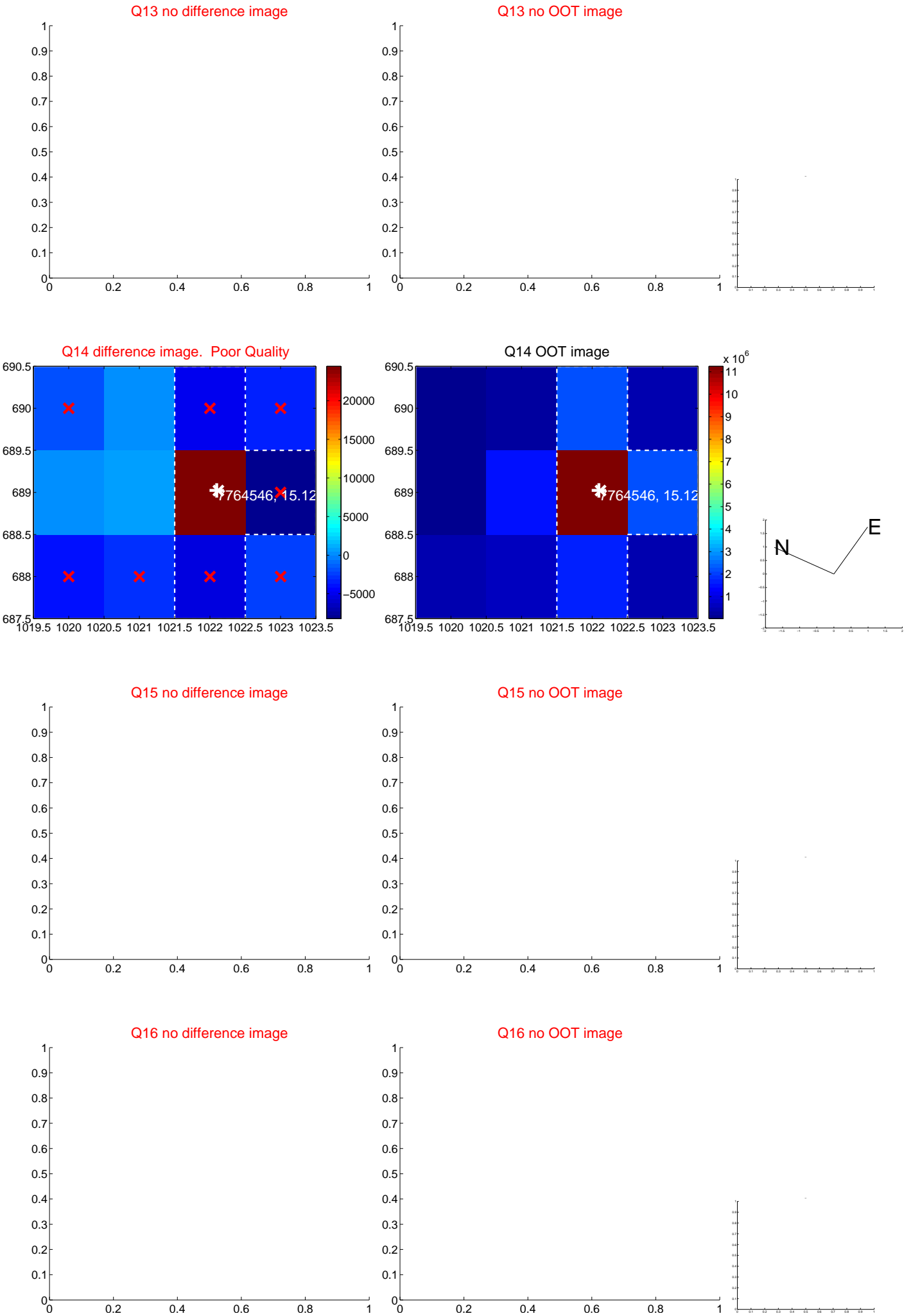
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



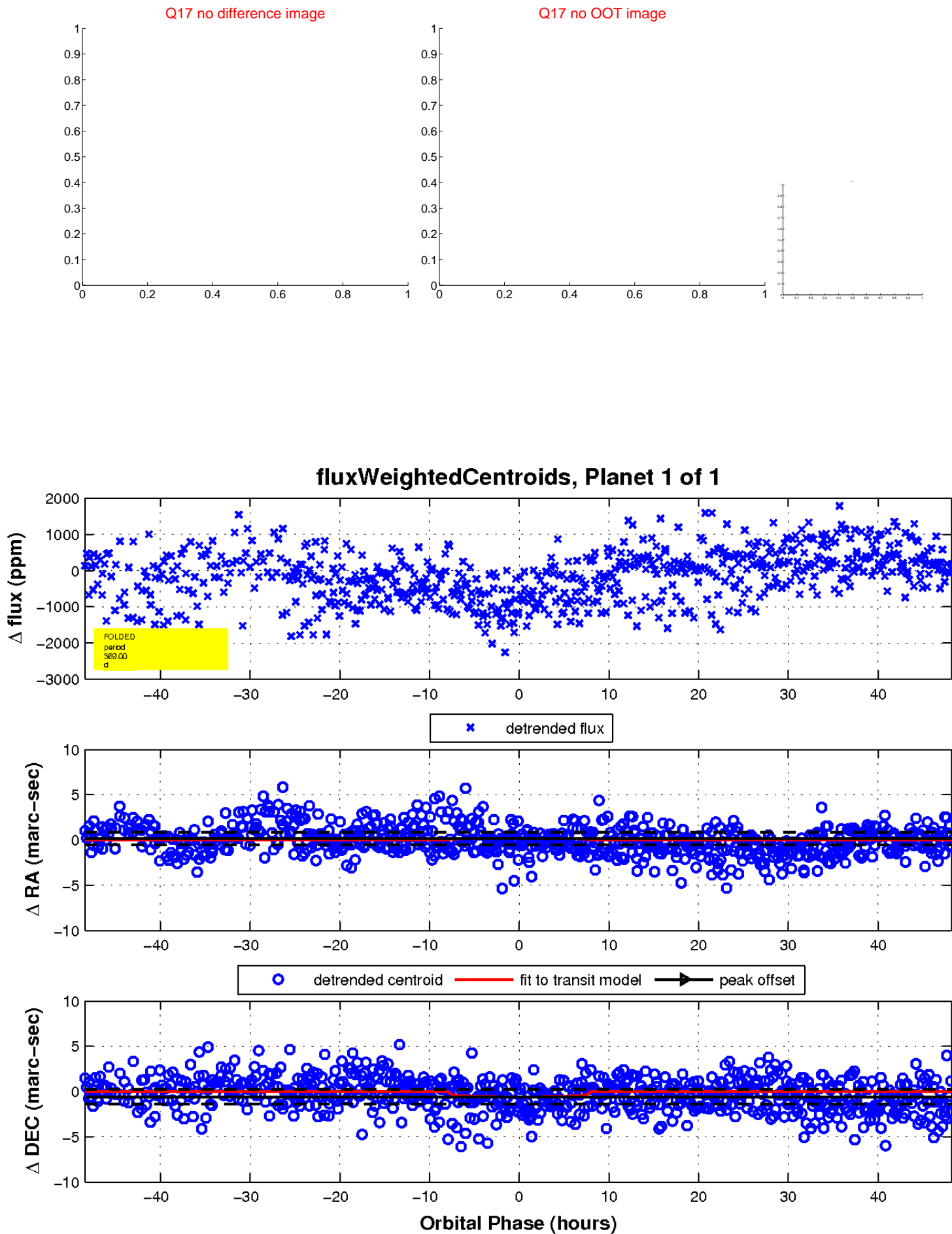
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

