

# KIC 007460709

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007460709-01	OBS	No	513.388431	158.431500	118.2	15.432	10.7	9.0	1.47	6014	1.72	1.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007460709-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—CENT_SATURATED

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

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

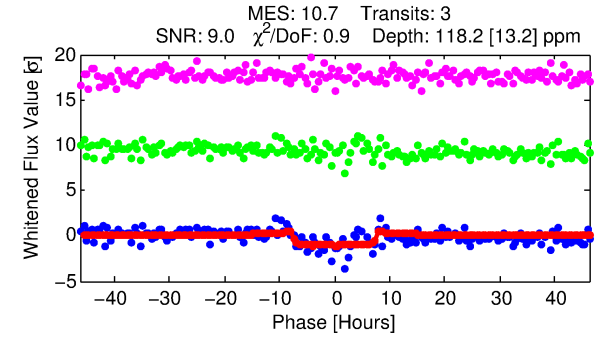
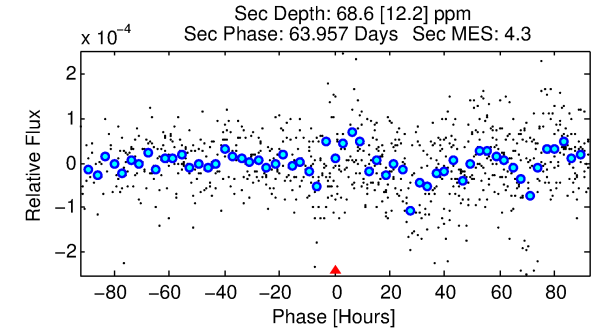
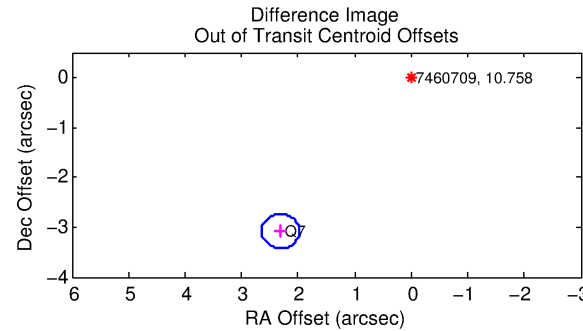
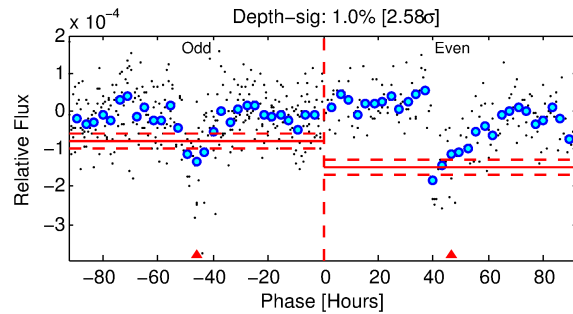
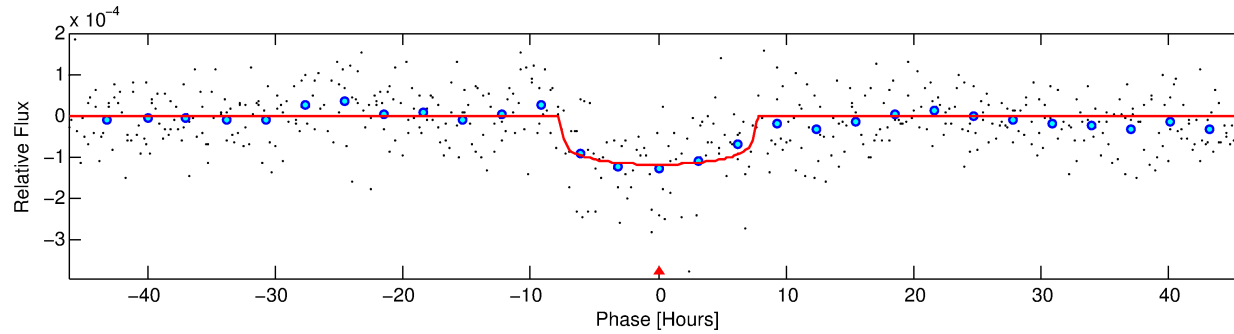
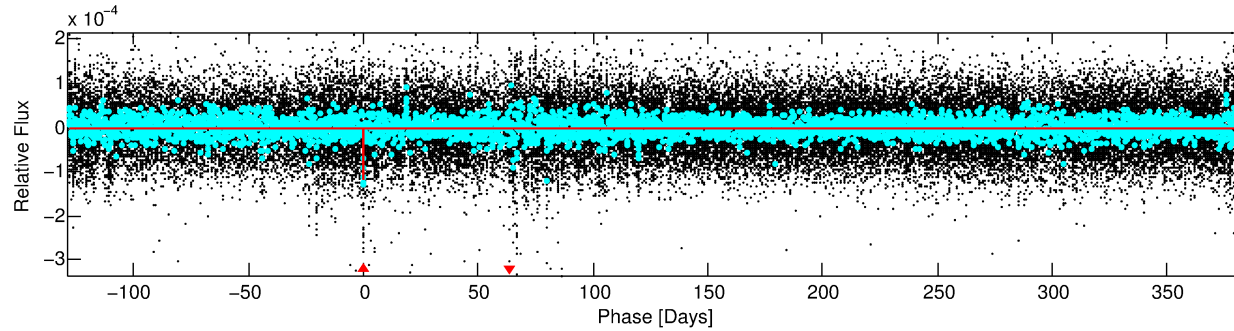
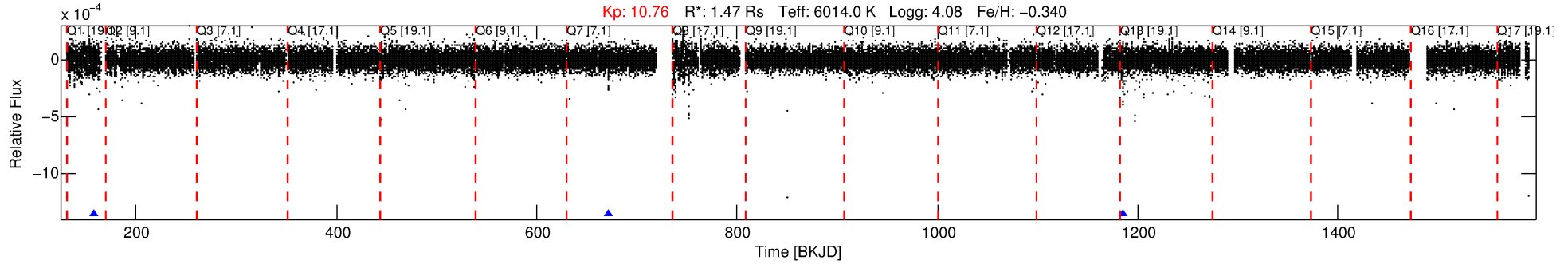
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007460709-01

No Significant Match Found

# DV One-Page Summary

KIC: 7460709 Candidate: 1 of 1 Period: 513.388 d



## DV Fit Results:

Period = 513.38843 [0.00978] d  
Epoch = 158.4315 [0.0125] BKJD  
 $R_p/R^*$  = 0.0107 [0.0030]  
 $a/R^*$  = 180.71 [251.62]  
 $b$  = 0.72 [0.94]  
 $\text{Seff}$  = 1.66 [1.01]  
 $\text{Teq}$  = 289 [44] K  
 $R_p$  = 1.72 [0.77]  $R_e$   
 $a$  = 1.2386 [0.4421] AU  
 $A_g$  = 19577.52 [16444.96] [1.19 $\sigma$ ]  
 $\text{Teffp}$  = 5290 [805] K [6.20 $\sigma$ ]

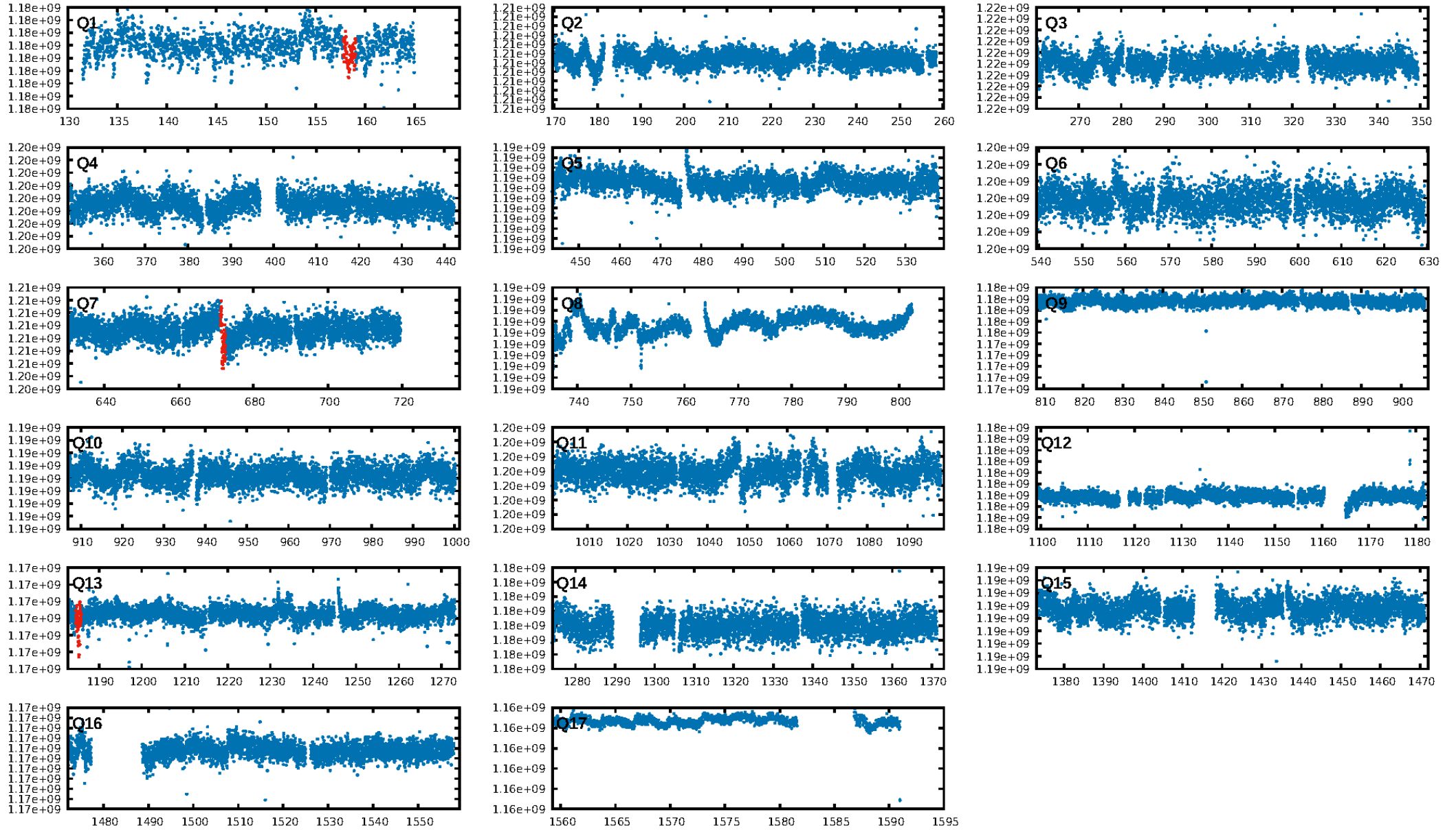
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 27.3%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: 5.27e-13  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -3.751  
Centroid-sig: 69.6%  
Centroid-so: 0.322 arcsec [0.39 $\sigma$ ]  
OotOffset-rm: 3.858 arcsec [34.03 $\sigma$ ]  
KicOffset-rm: 3.900 arcsec [35.86 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

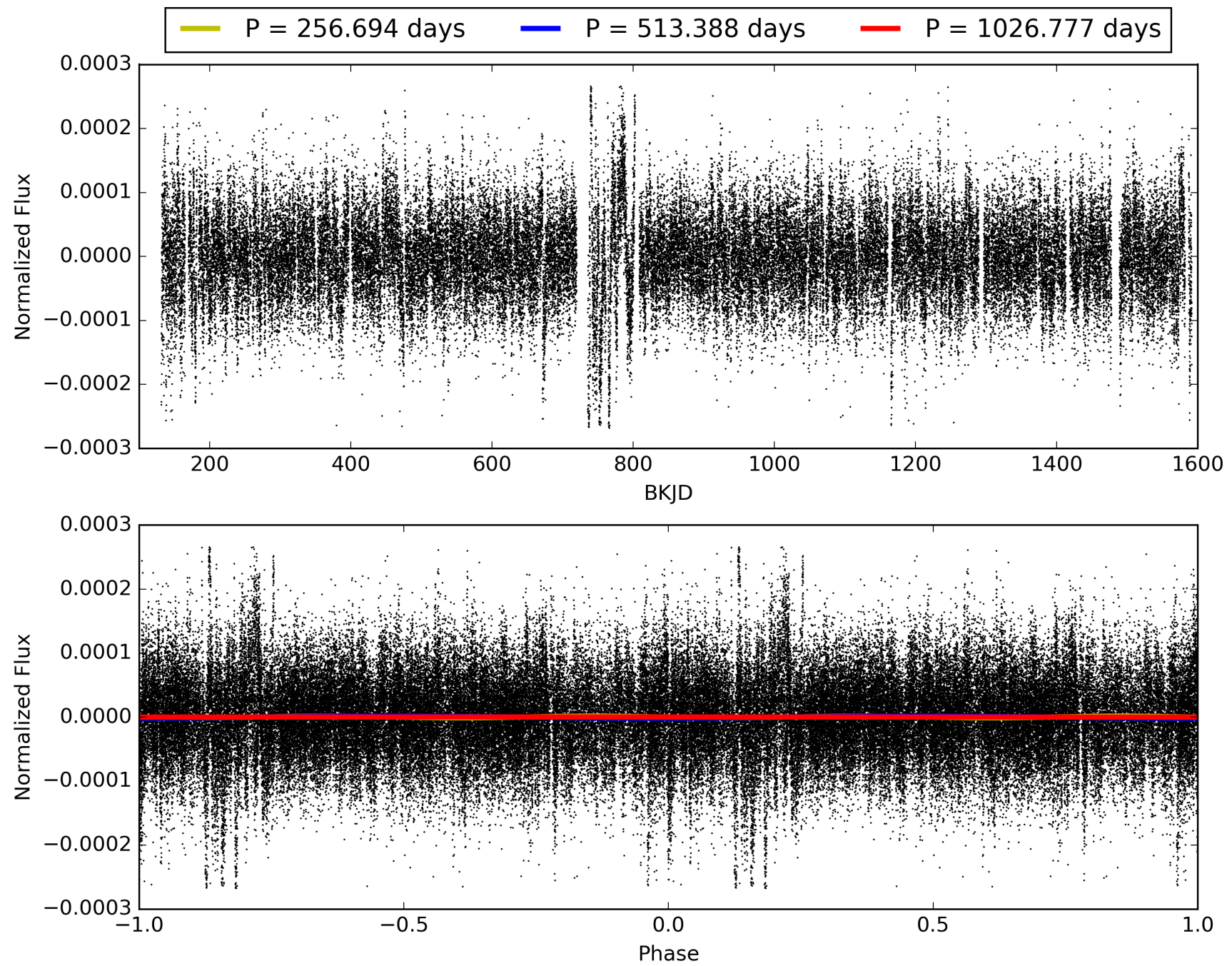
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:15:42 Z

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

# TCE 007460709-01, PDC Light Curves

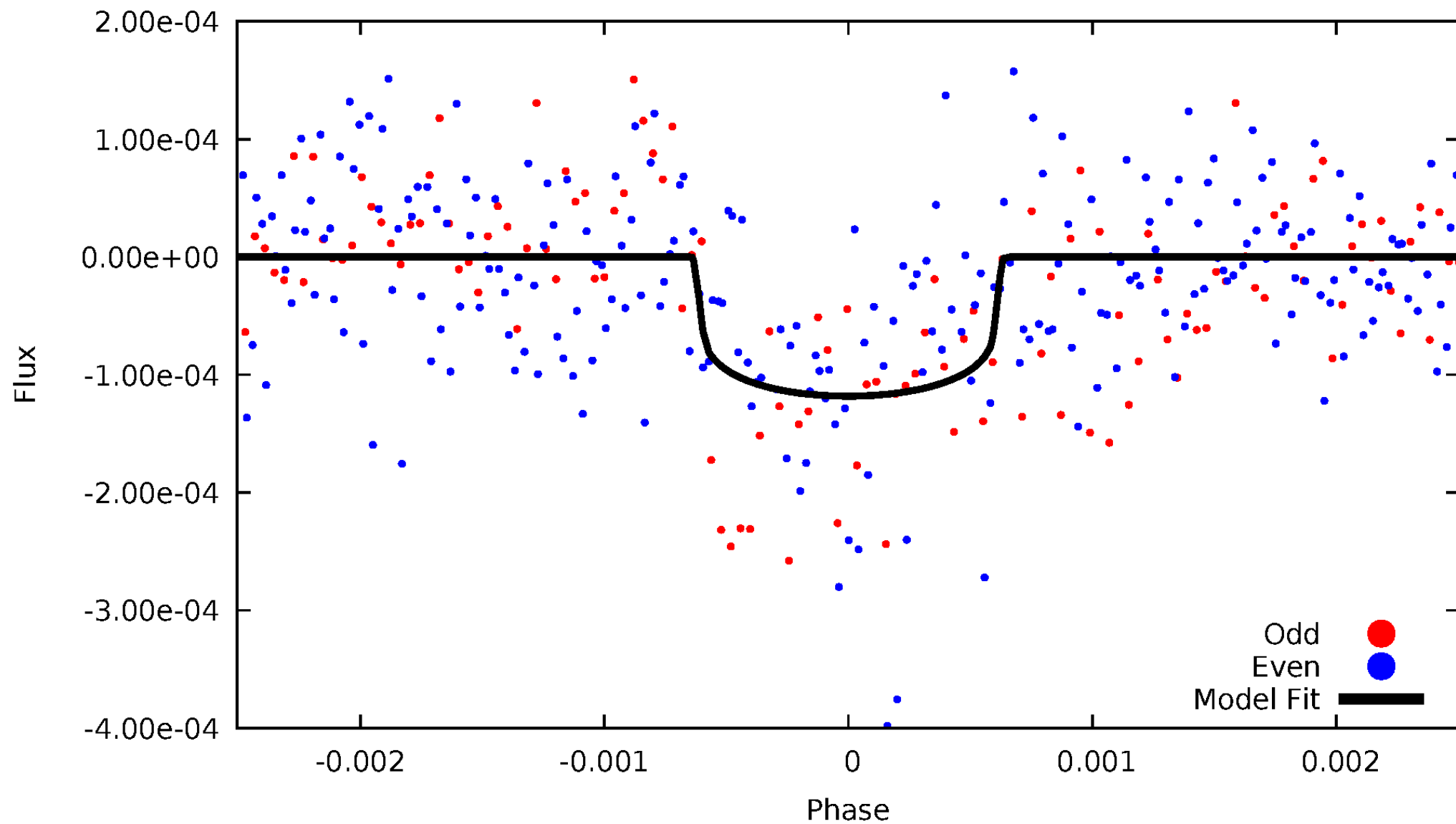


TCE 007460709-01



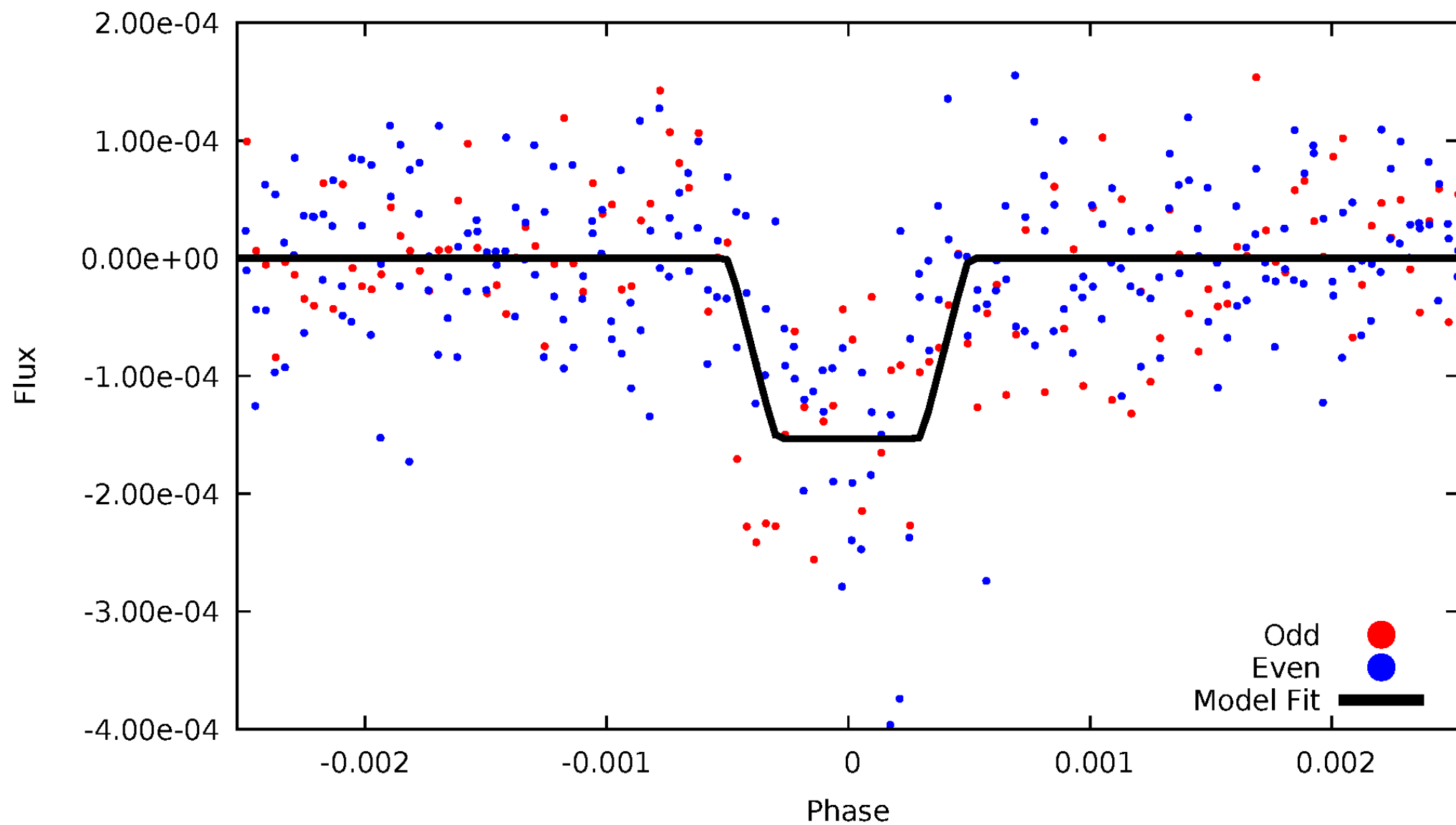
# DV Odd/Even

TCE 007460709-01

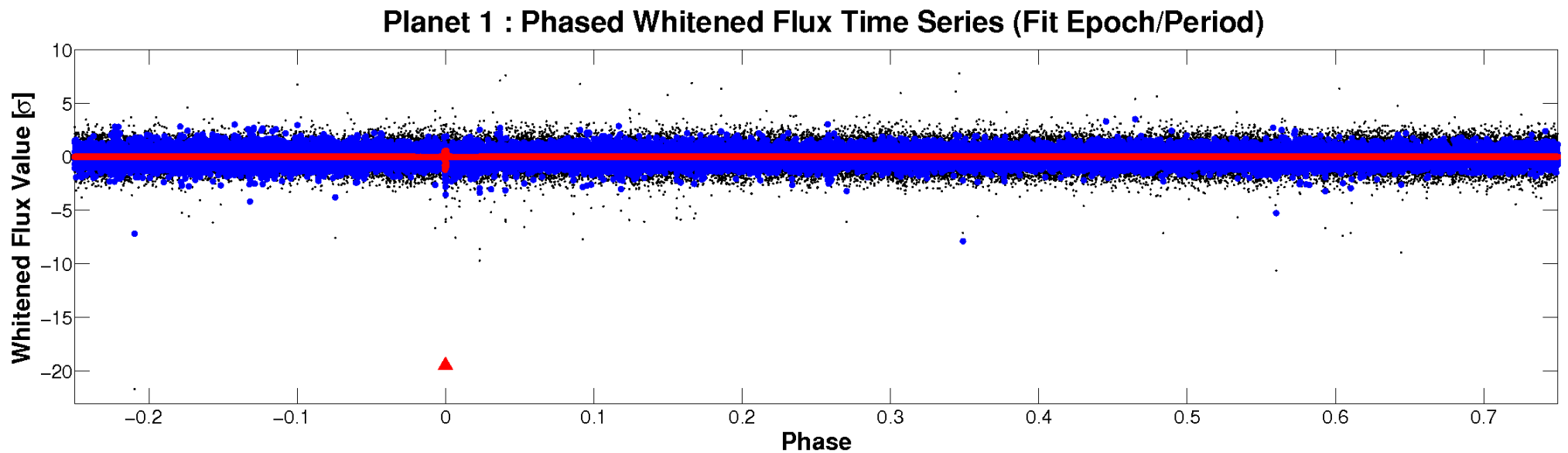
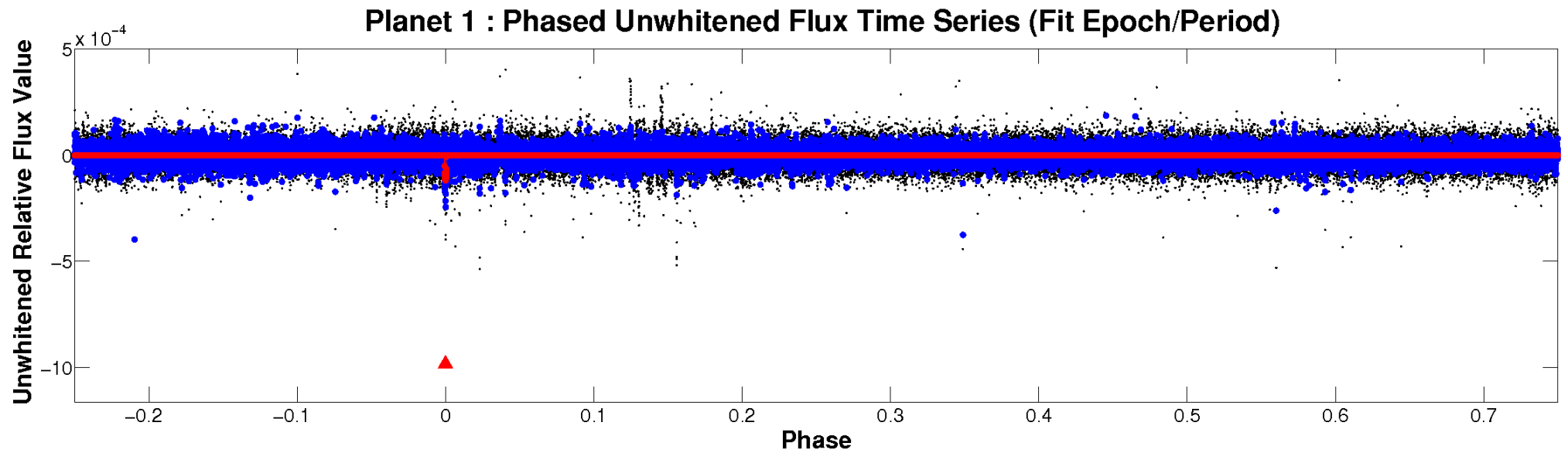


# ALT Odd/Even

TCE 007460709-01

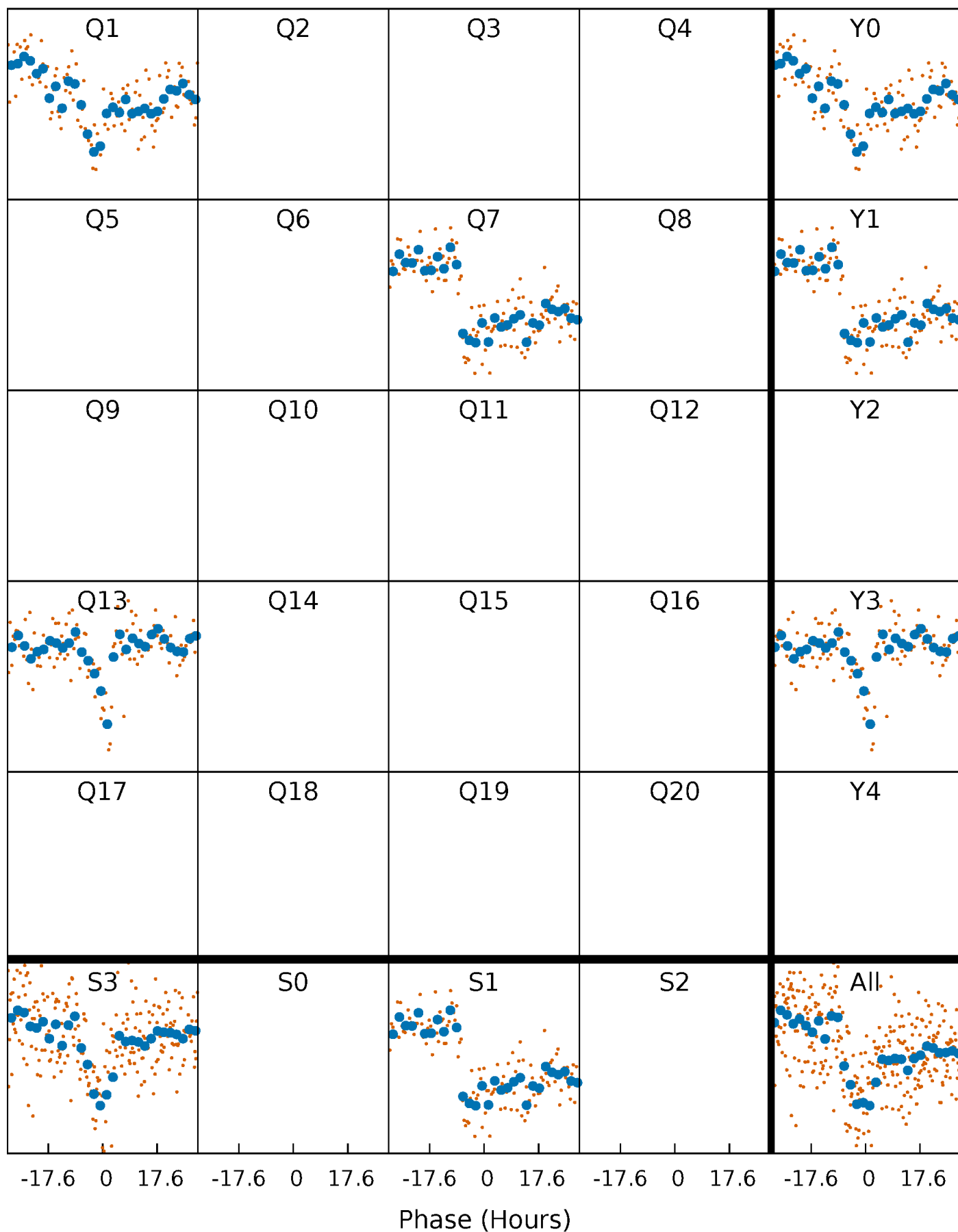


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

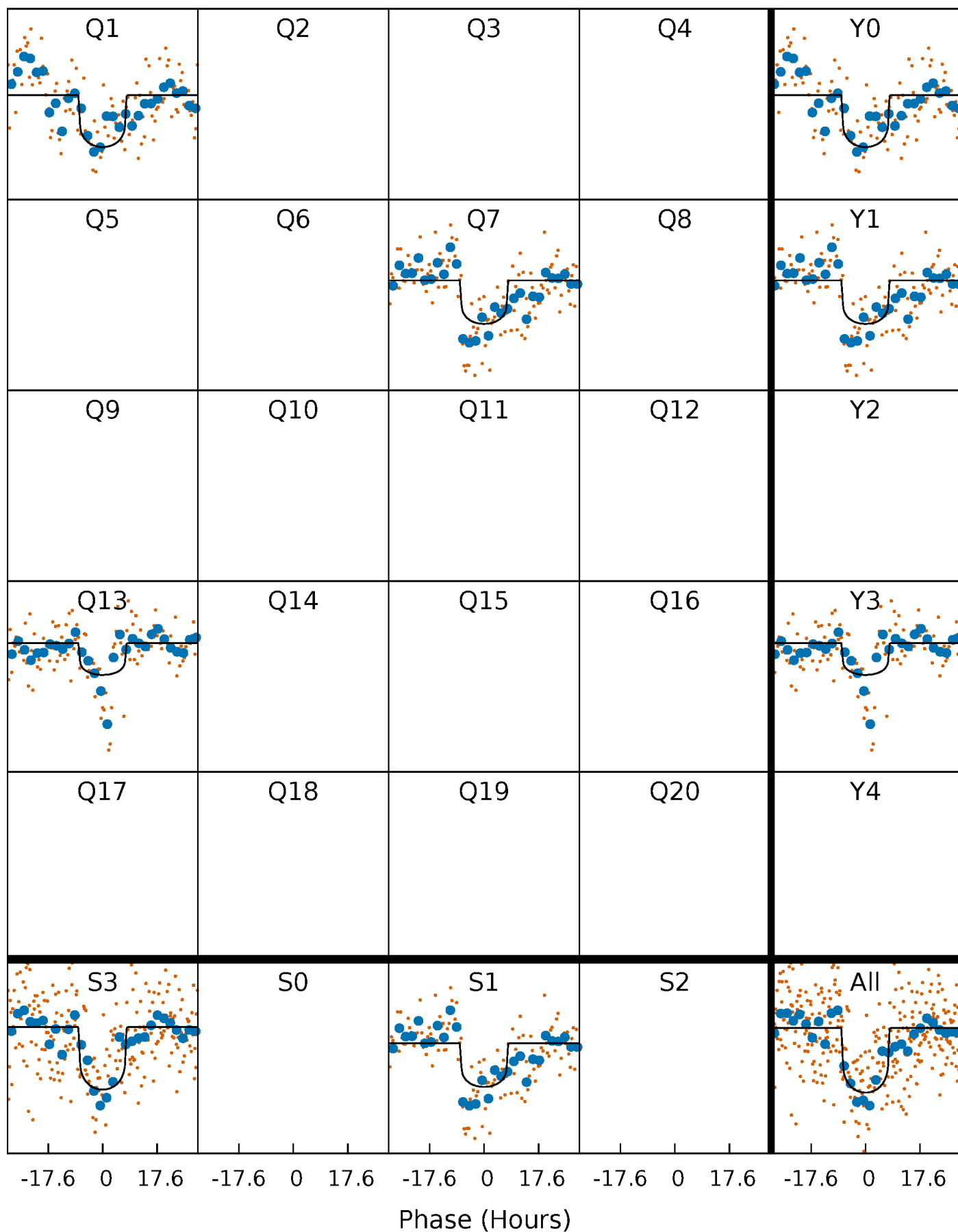
TCE 007460709-01 P=513.388431 Days  $T_0=158.431500$  (BKJD)





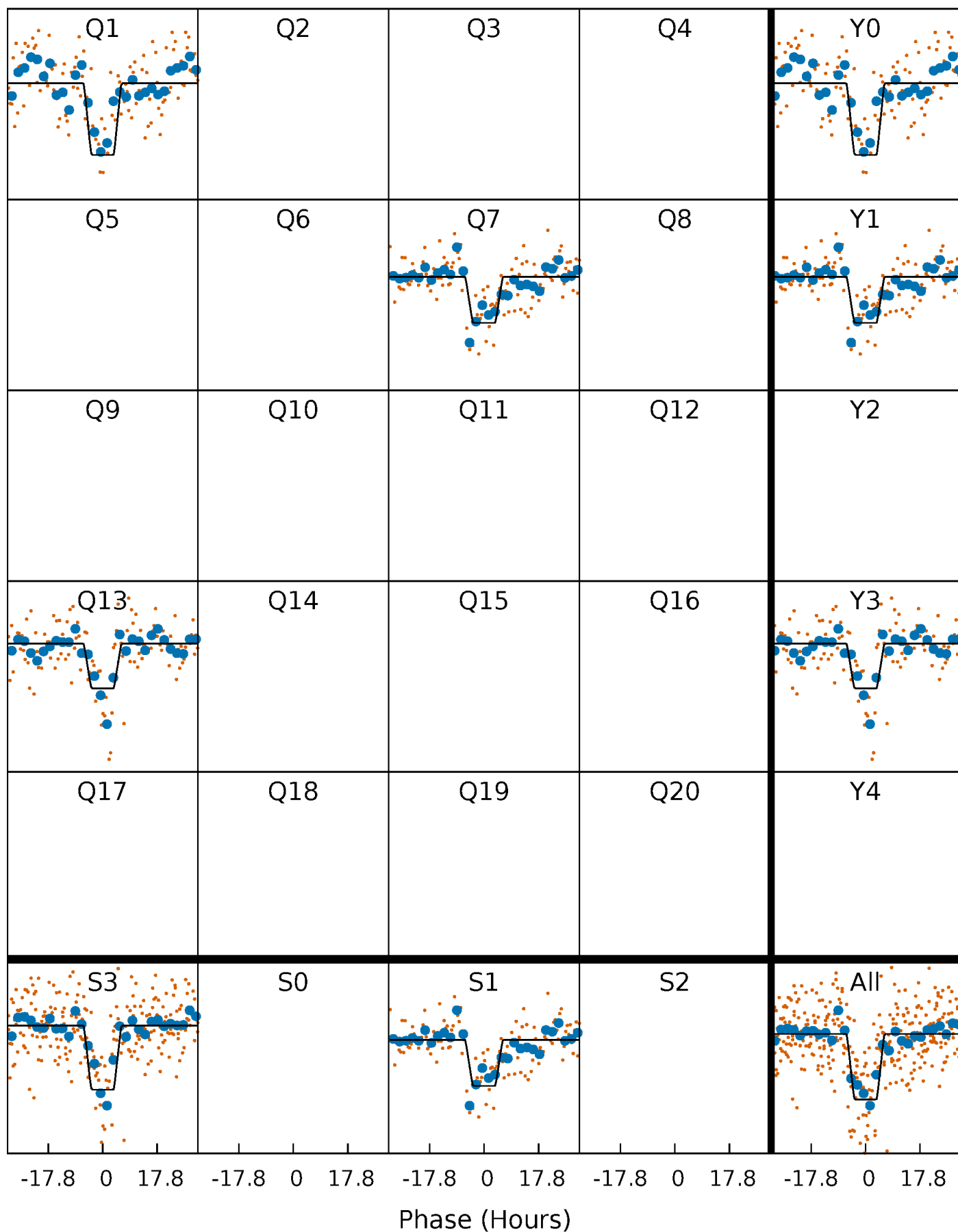
# DV Quarter-Phased Transit Curves

TCE 007460709-01     $P=513.388431$  Days     $T_0=158.431500$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

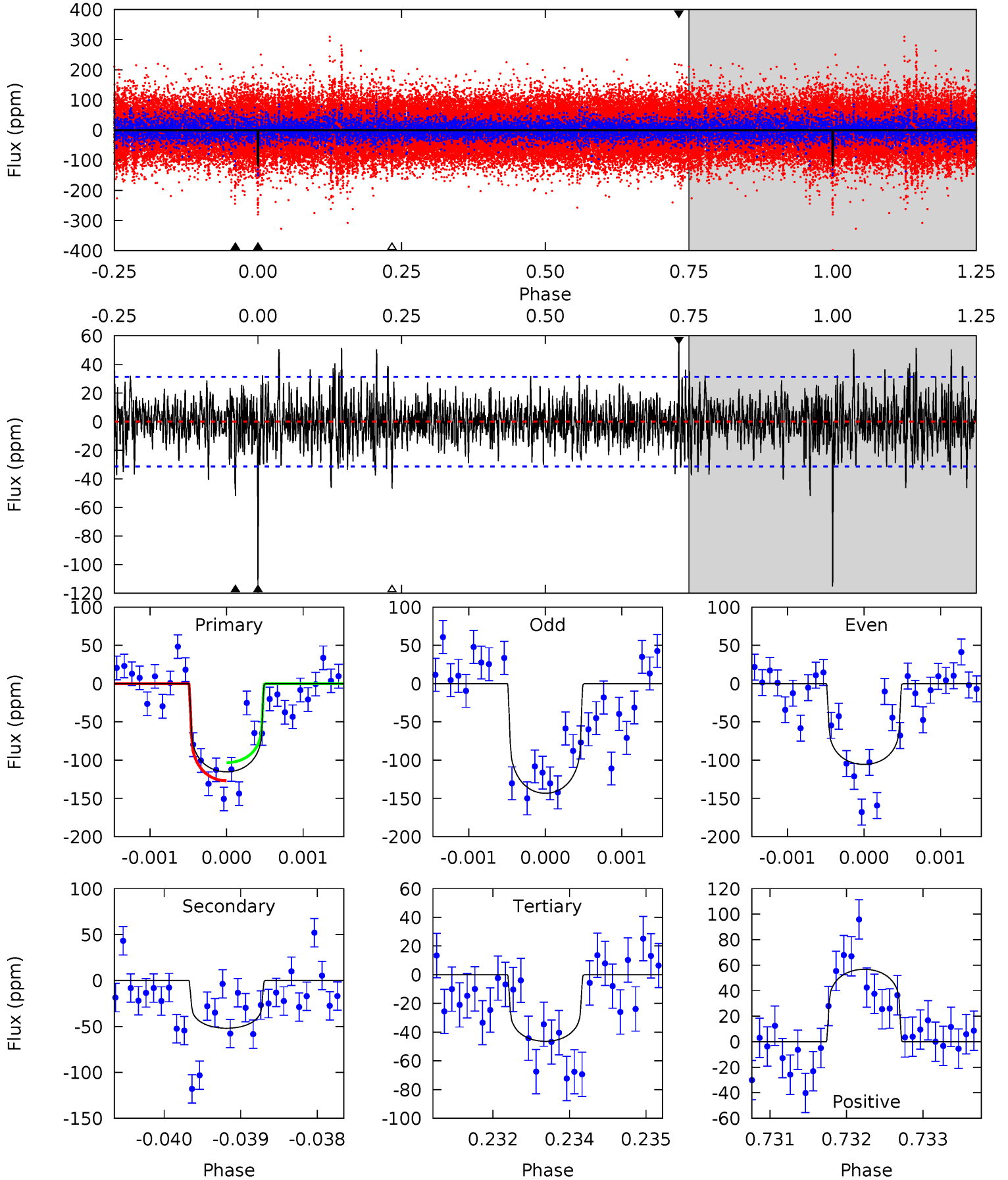
TCE 007460709-01 P=513.434062 Days  $T_0=158.333912$  (BKJD)



# DV Model-Shift Uniqueness Test

007460709-01, P = 513.388431 Days, E = 158.431500 Days

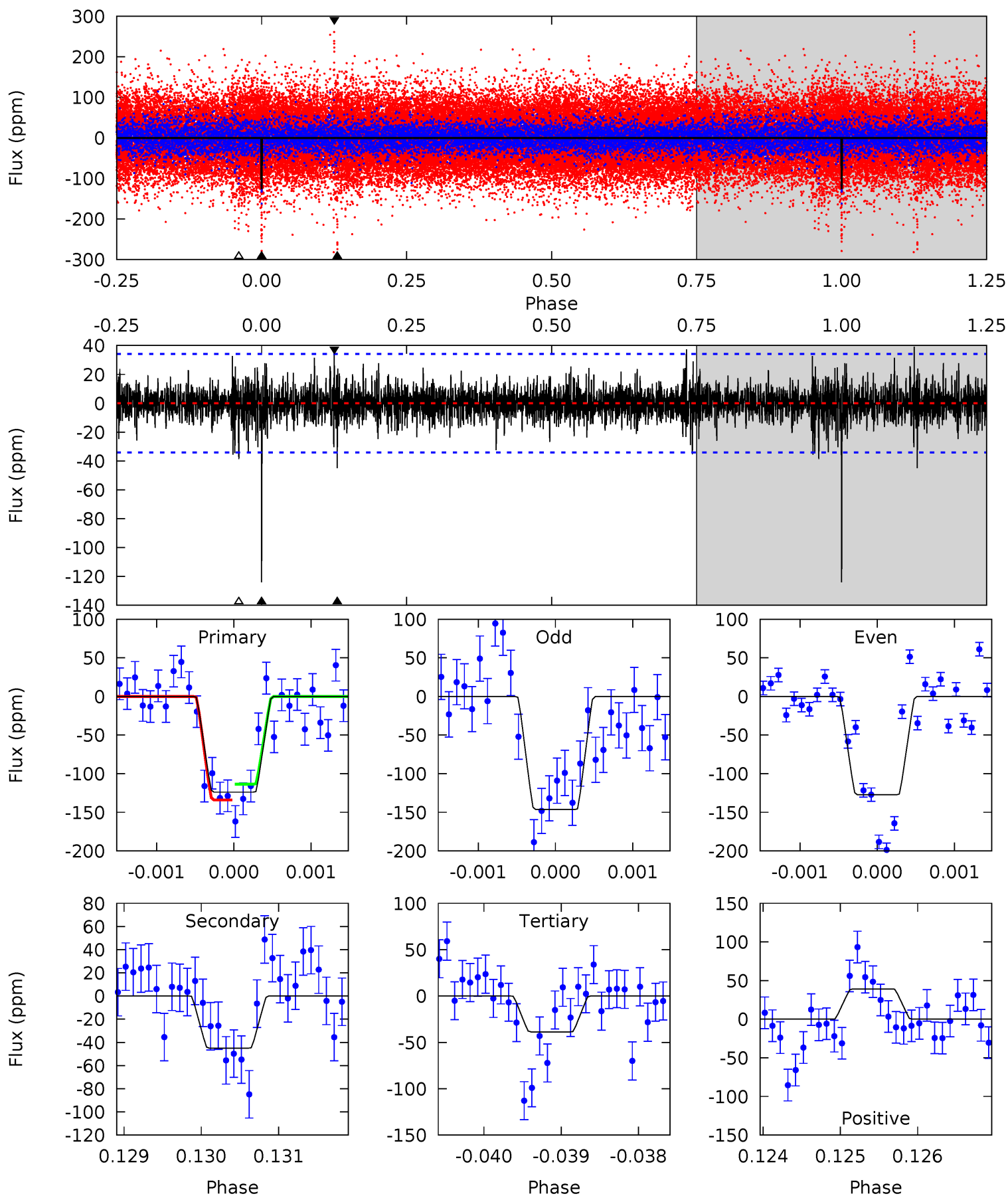
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	8.94	7.98	9.77	5.40	3.22	2.09	11.8	10.1	0.96	-0.83	3.08	0.92	0.33	2.04



# Alt Model-Shift Uniqueness Test

007460709-01, P = 513.434062 Days, E = 158.333912 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
19.8	7.18	6.16	6.24	5.45	3.28	1.33	13.6	13.5	1.01	0.94	1.49	0.92	0.24	1.62



### Stellar Parameters For KIC 007460709

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6014^{+200}_{-200}$	$4.085^{+0.357}_{-0.153}$	$-0.340^{+0.300}_{-0.300}$	$1.472^{+0.413}_{-0.505}$	$0.961^{+0.142}_{-0.116}$	$0.424^{+1.107}_{-0.176}$
	+3%/-3%	+9%/-4%	+88%/-88%	+28%/-34%	+15%/-12%	+261%/-42%
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 007460709-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-52 \pm 6$	$1.64^{+0.64}_{-0.53}$	$399^{+32}_{-36}$	$5004^{+926}_{-509}$	$16231^{+20818}_{-7696}$
Alt.	$-45 \pm 6$	$1.84^{+0.67}_{-0.56}$	$396^{+34}_{-42}$	$4628^{+646}_{-443}$	$11341^{+13062}_{-5335}$

$T_{max}$  = 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

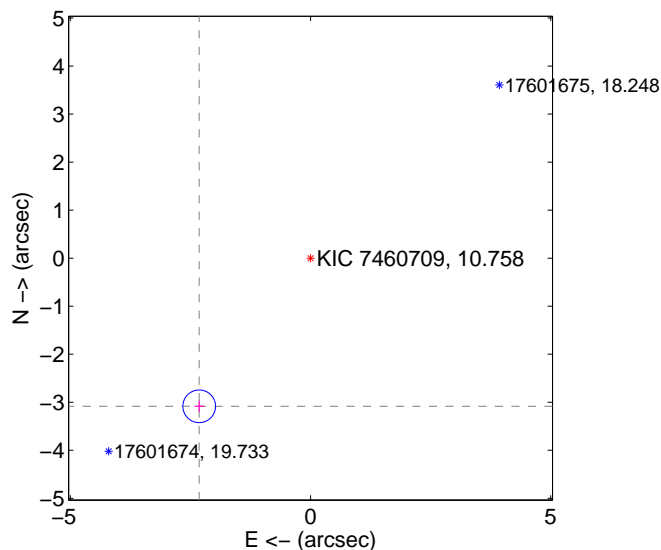
Supplemental centroid analysis for 007460709-01. **Kepler magnitude: 10.76.** Transit SNR 8.98

**There are 0 quarters with good PRF difference image offsets**

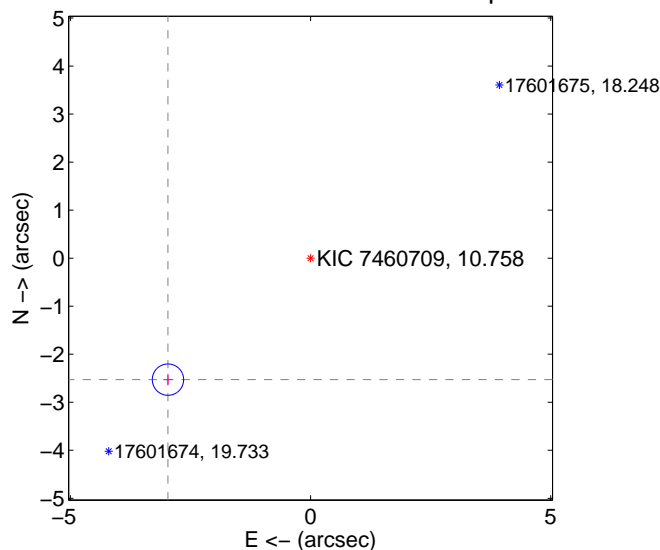
The direct PRF centroid is offset from the target star catalog position by about 0.86 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>3.858 <math>\pm</math> 0.113</b>	<b>34.03</b>	2.318 $\pm$ 0.099	-3.084 $\pm$ 0.121
PRF-fit source offset from KIC position	<b>3.900 <math>\pm</math> 0.109</b>	<b>35.86</b>	2.969 $\pm$ 0.099	-2.529 $\pm$ 0.121
photometric centroid source offset	0.32 $\pm$ 0.83	0.39	0.17 $\pm$ 1.03	0.27 $\pm$ 0.74

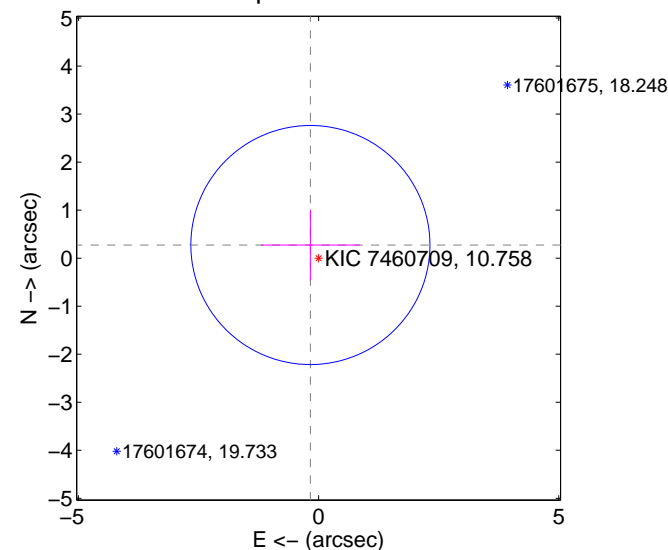
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

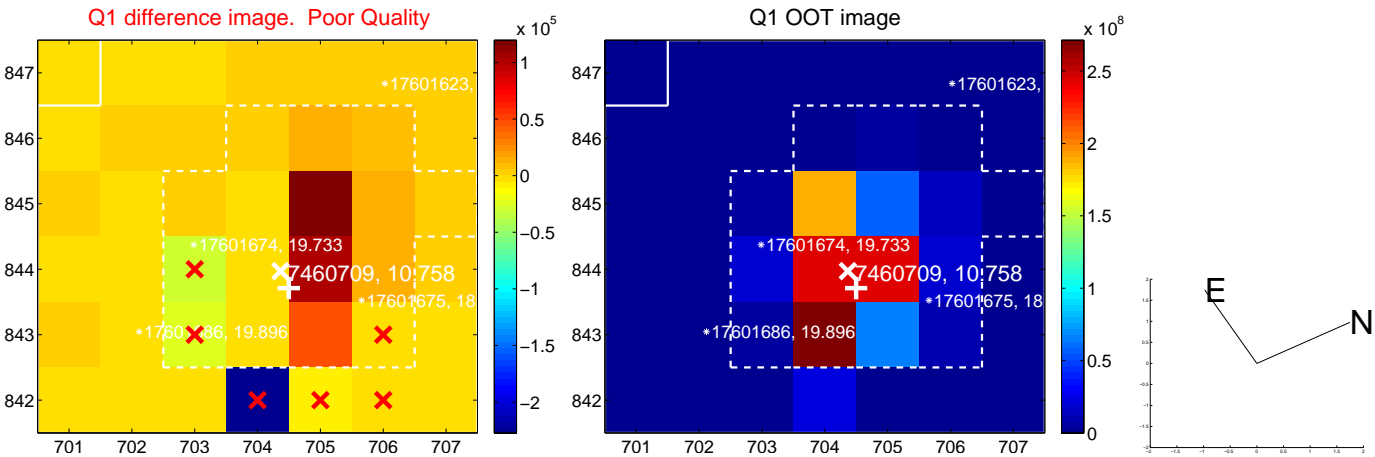


offset from photometric centroids

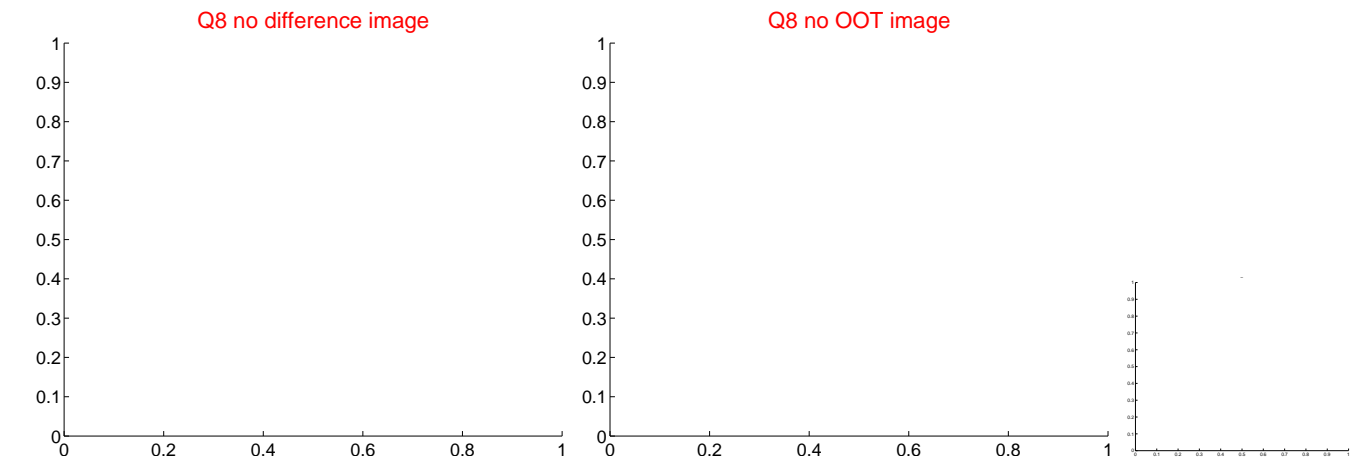
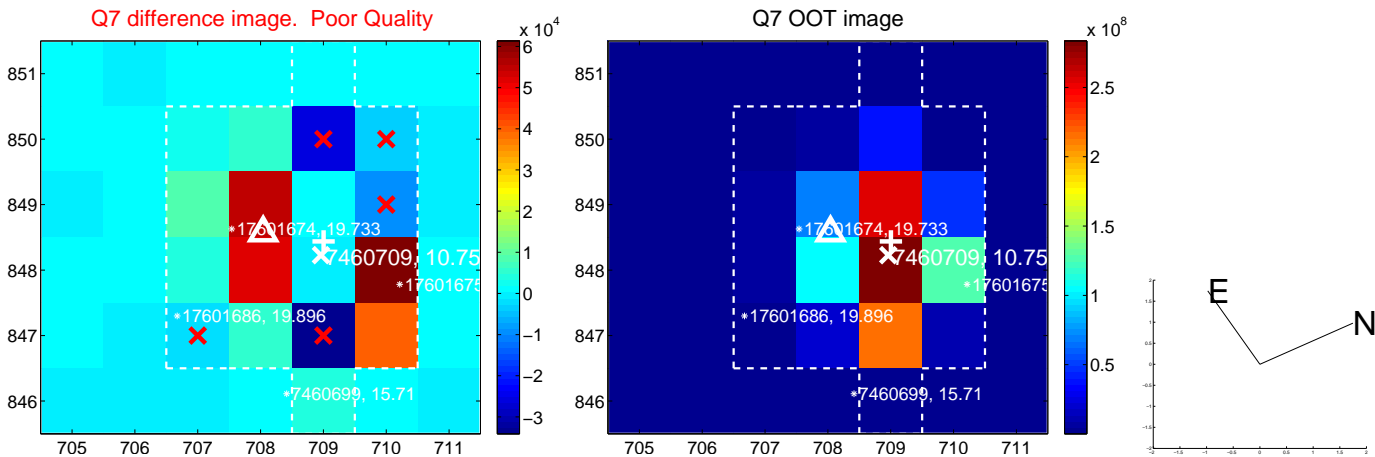
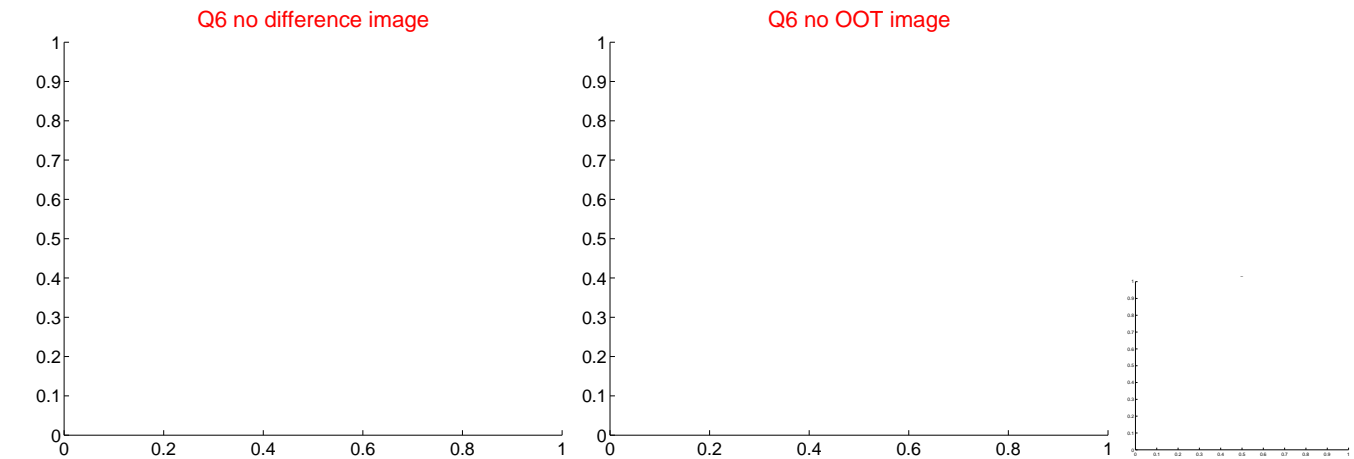
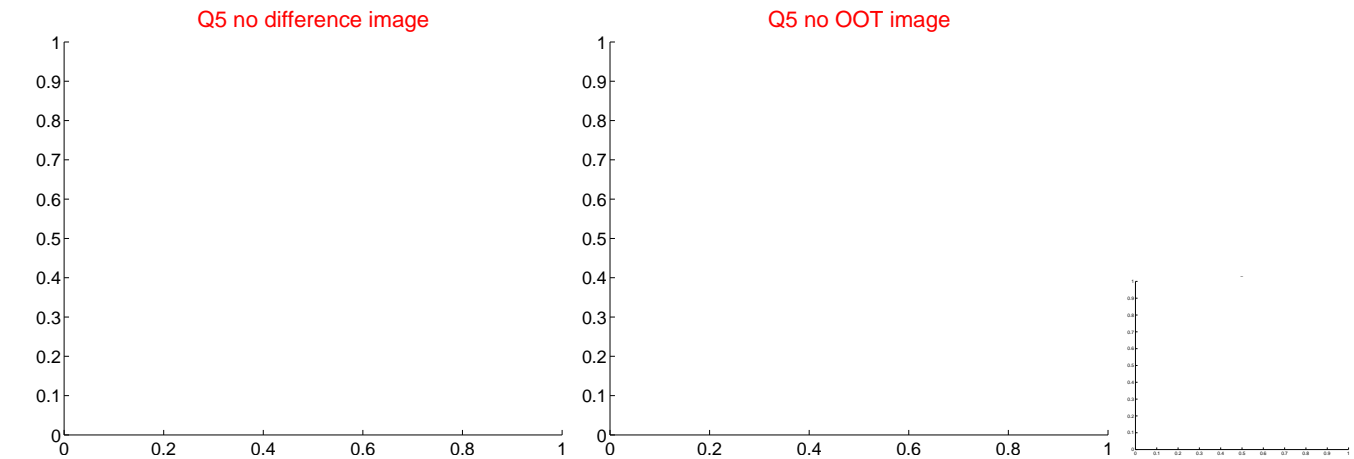


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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





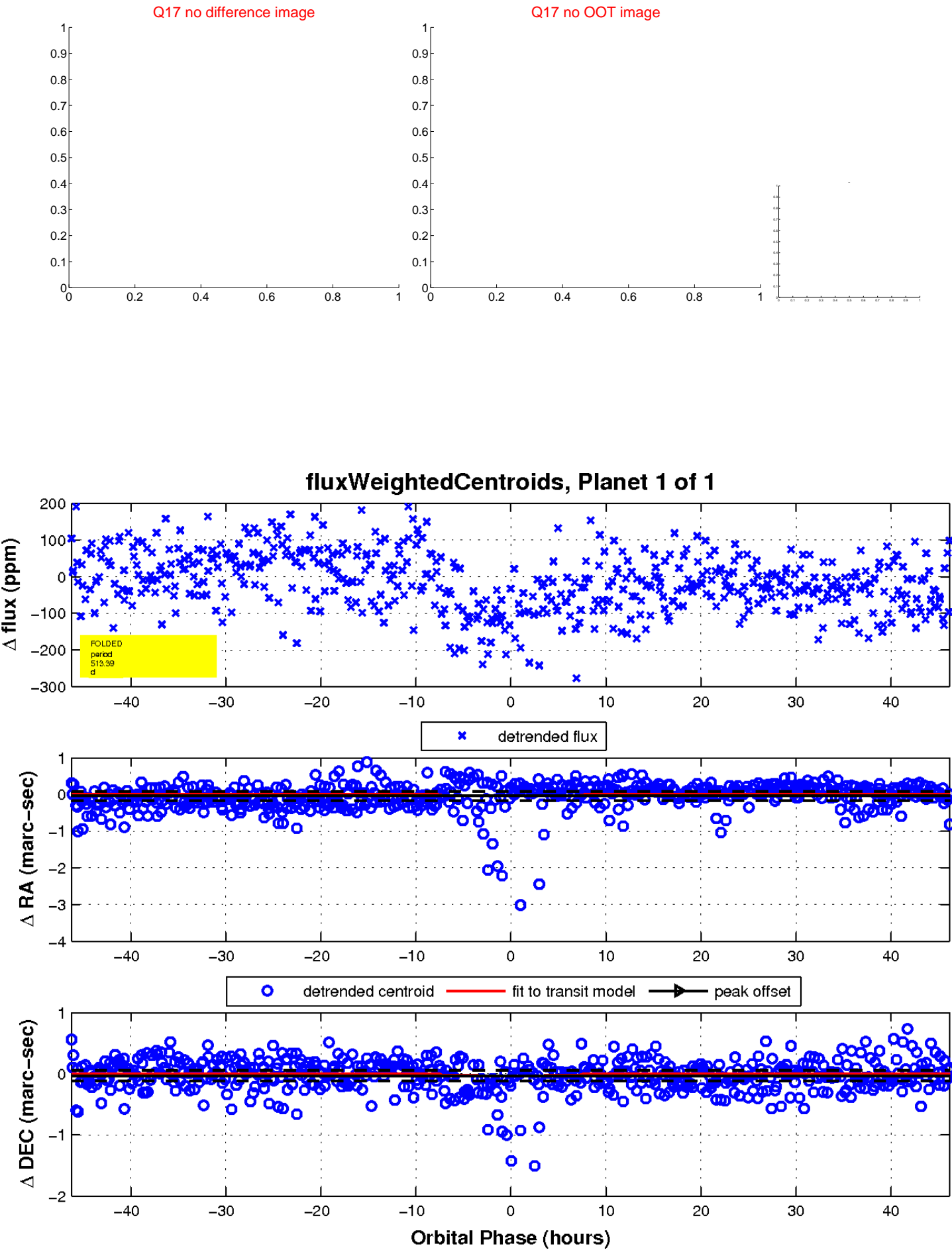
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

