

# KIC 006776594

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006776594-01	OBS	No	498.077993	431.905496	231.8	8.601	9.8	9.5	1.80	5964	3.29	2.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006776594-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—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.

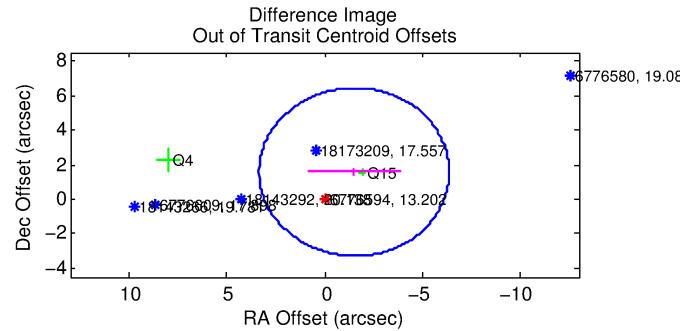
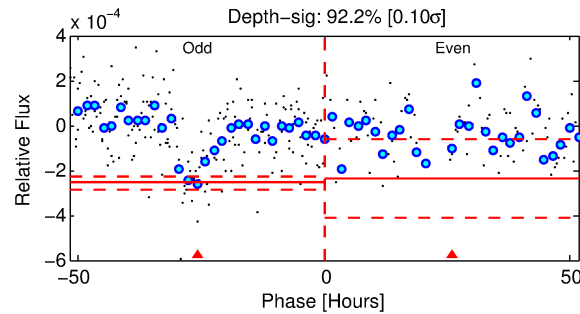
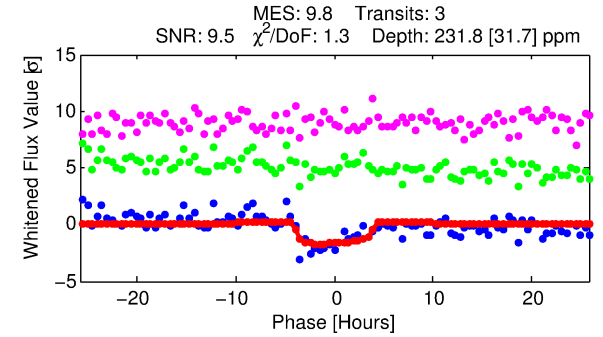
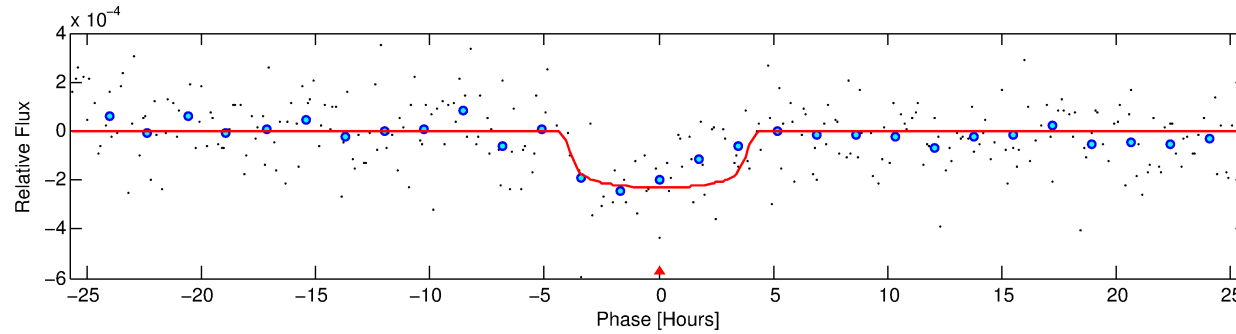
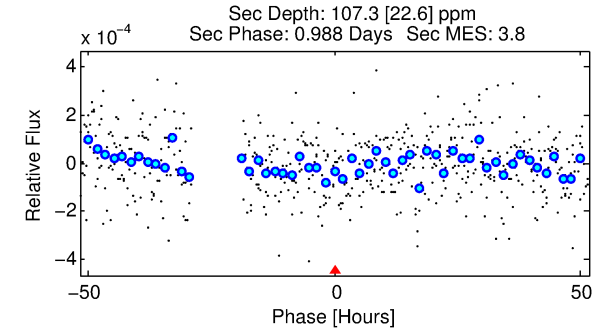
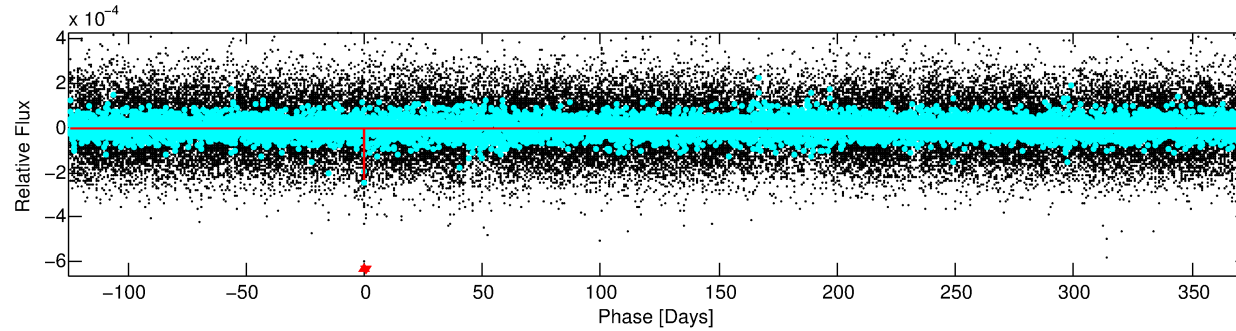
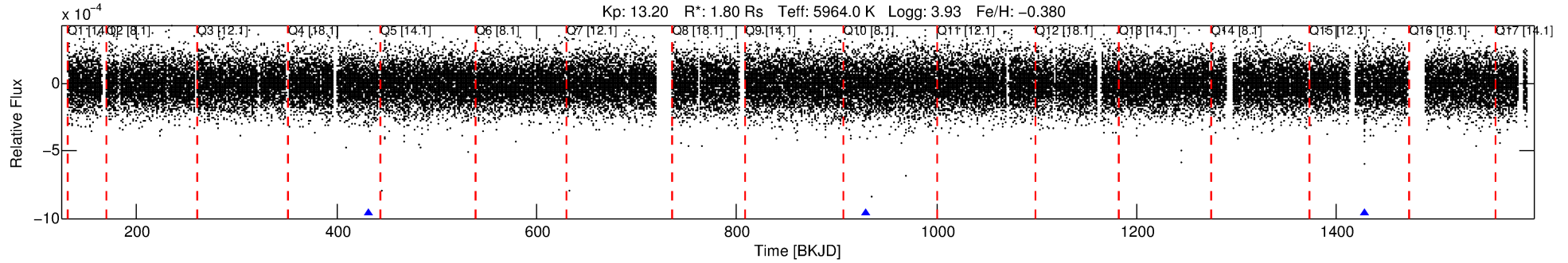
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006776594-01

No Significant Match Found

# DV One-Page Summary

KIC: 6776594 Candidate: 1 of 1 Period: 498.078 d



## DV Fit Results:

Period = 498.07799 [0.01150] d  
Epoch = 431.9055 [0.0160] BKJD  
Rp/R\* = 0.0167 [0.0035]  
a/R\* = 191.07 [194.73]  
b = 0.92 [0.17]  
Seff = 2.40 [1.95]  
Teff = 318 [64] K  
Rp = 3.29 [1.68] Re  
a = 1.2366 [0.5959] AU  
Ag = 8337.24 [7732.26] [1.08σ]  
Teffp = 4691 [573] K [7.59σ]

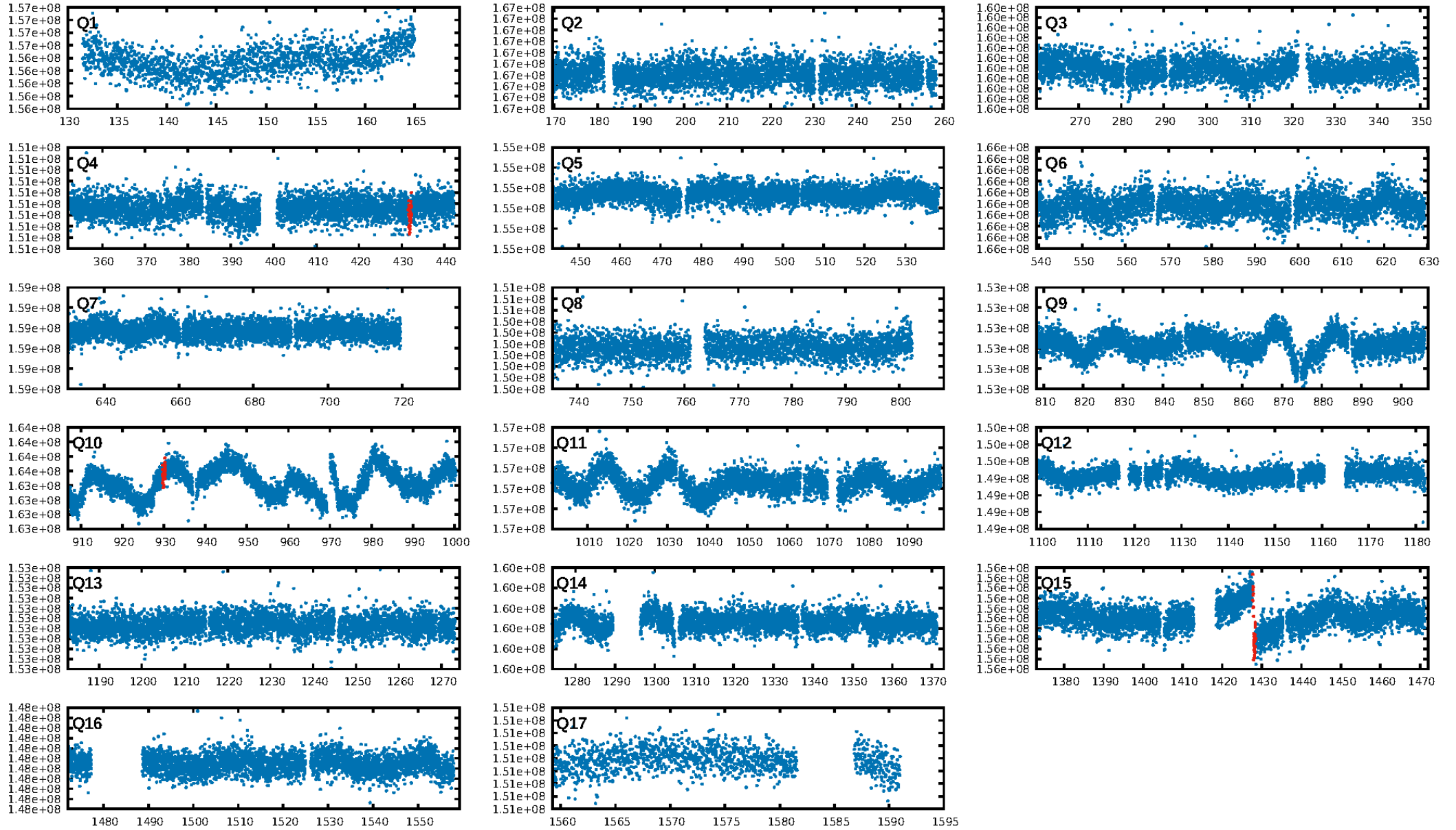
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 96.7%  
Bootstrap-pfa: 7.89e-26  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.164  
Centroid-sig: 29.5%  
Centroid-so: 1.563 arcsec [1.08σ]  
OotOffset-rm: 2.181 arcsec [1.35σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 2.359 arcsec [1.03σ]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

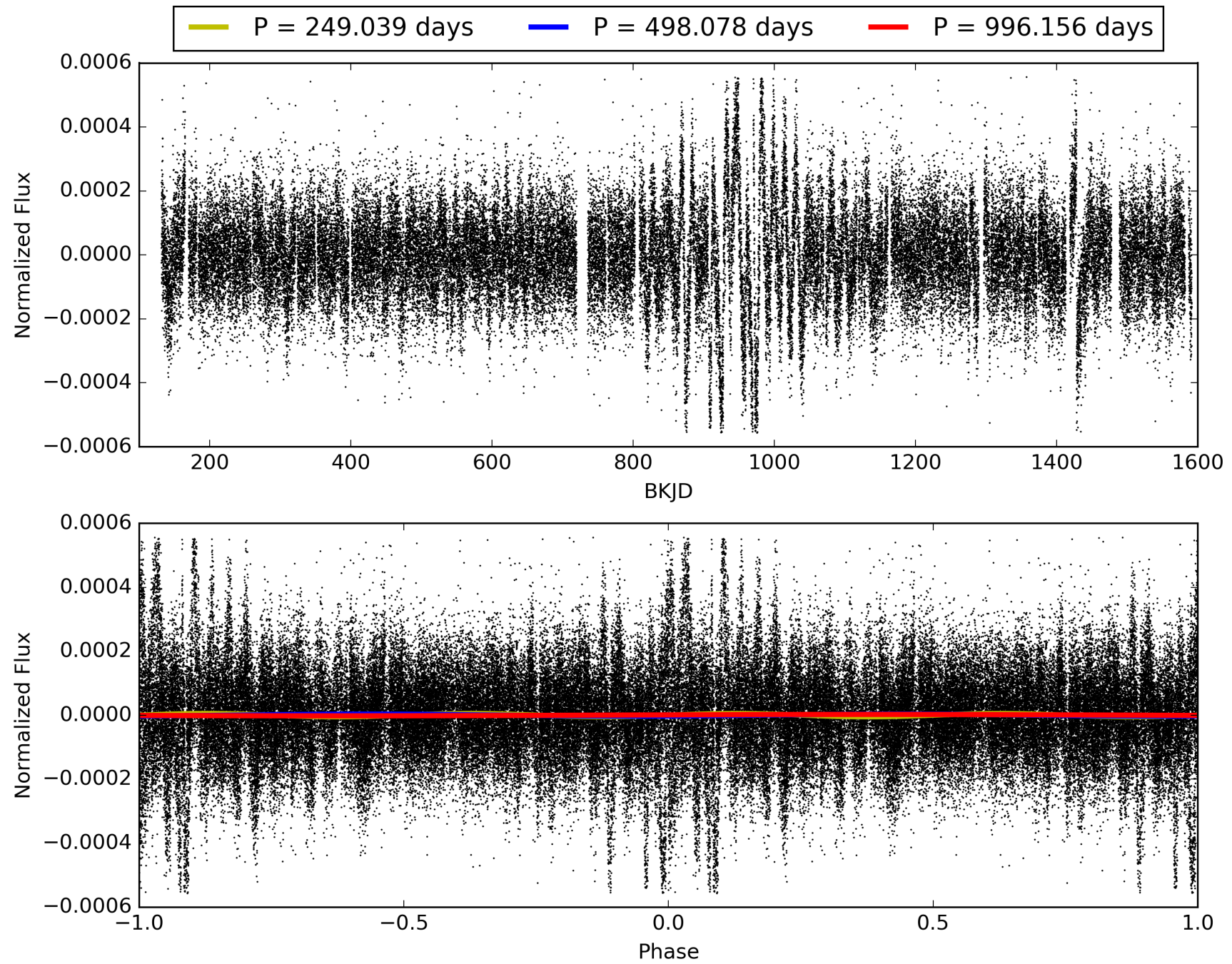
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:04:54 Z

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

# TCE 006776594-01, PDC Light Curves

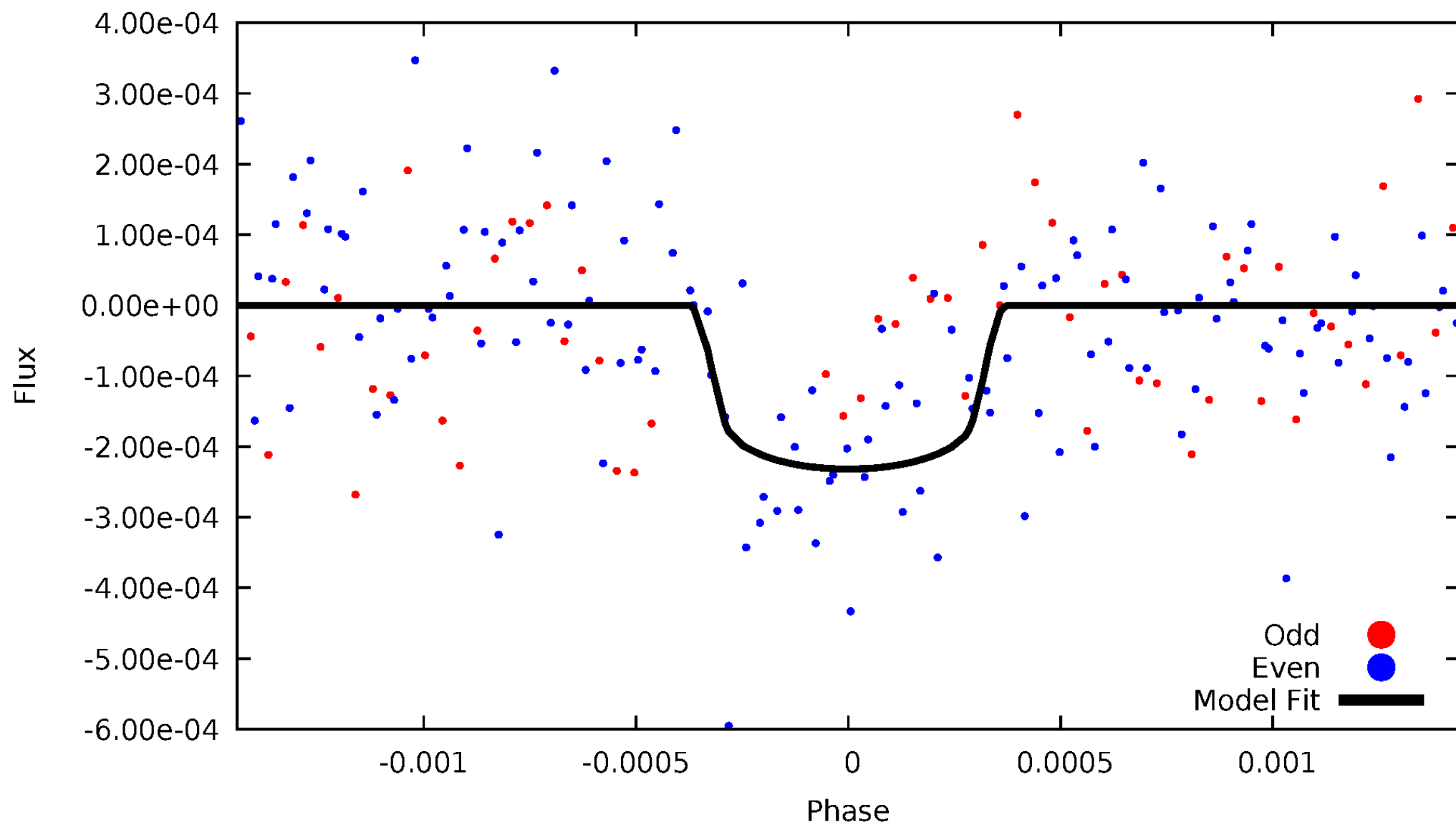


TCE 006776594-01



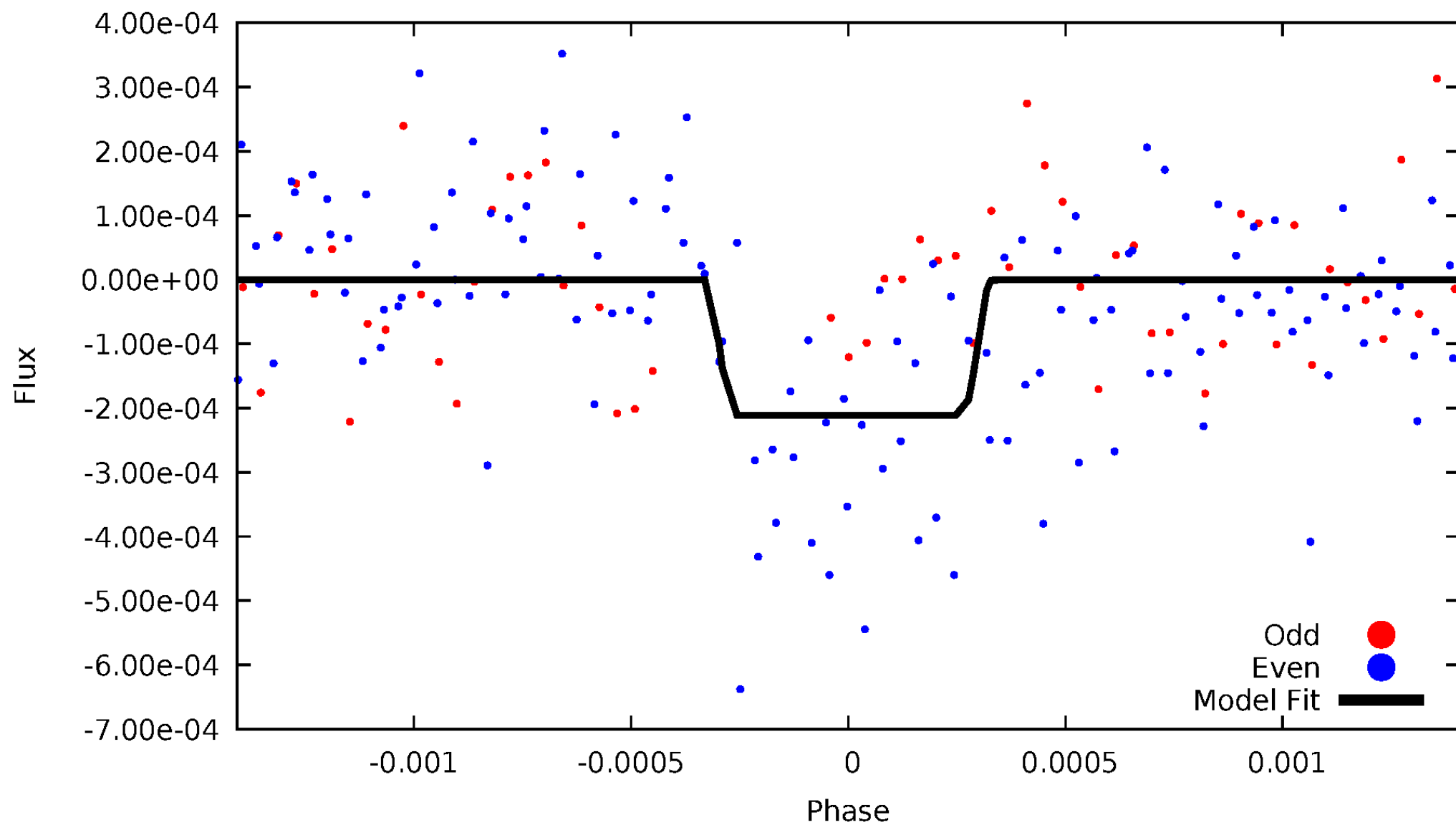
# DV Odd/Even

TCE 006776594-01



# ALT Odd/Even

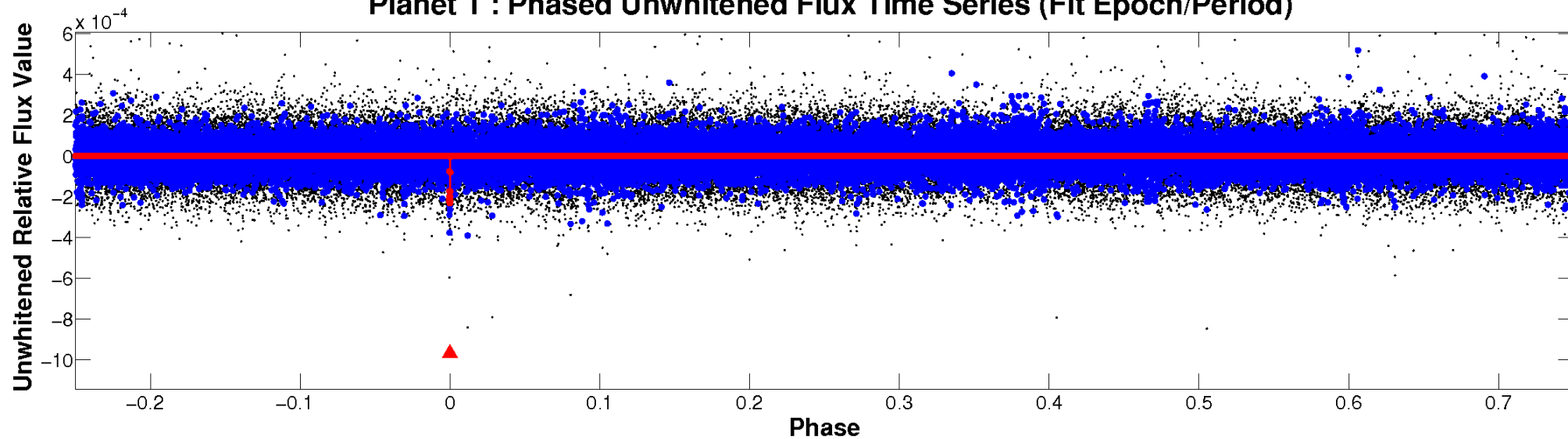
TCE 006776594-01



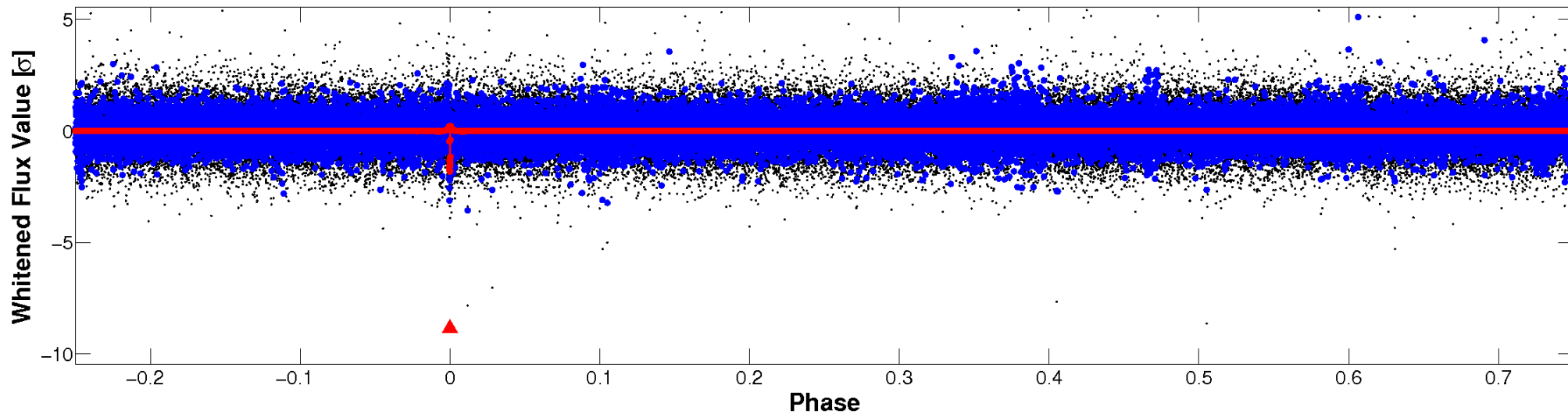


# Non-Whitened Vs. Whitened Light Curve

**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

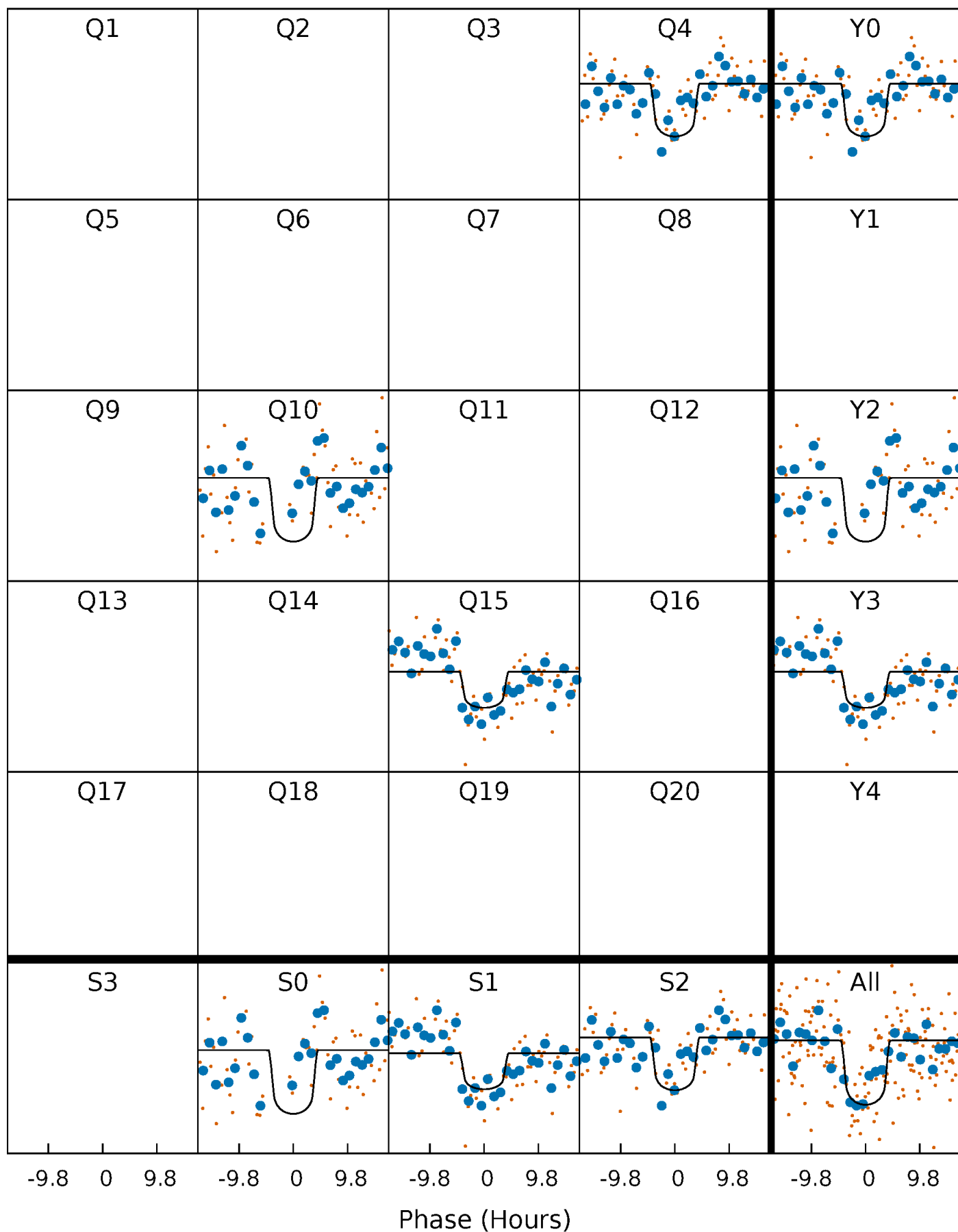
TCE 006776594-01 P=498.077993 Days  $T_0=431.905496$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 006776594-01 P=498.077993 Days  $T_0=431.905496$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

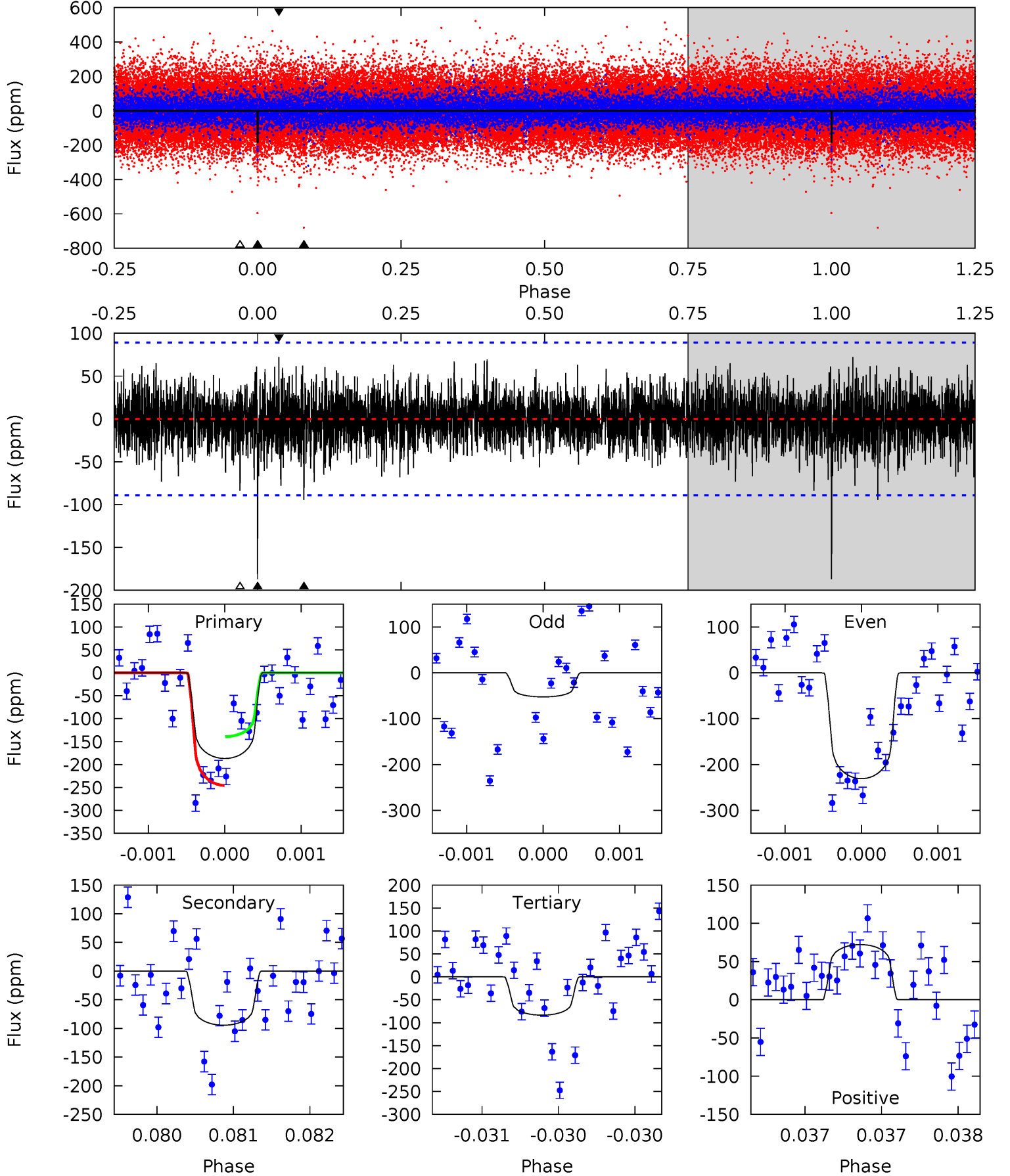
TCE 006776594-01 P=498.068025 Days  $T_0=431.908981$  (BKJD)



# DV Model-Shift Uniqueness Test

006776594-01, P = 498.077993 Days, E = 431.905496 Days

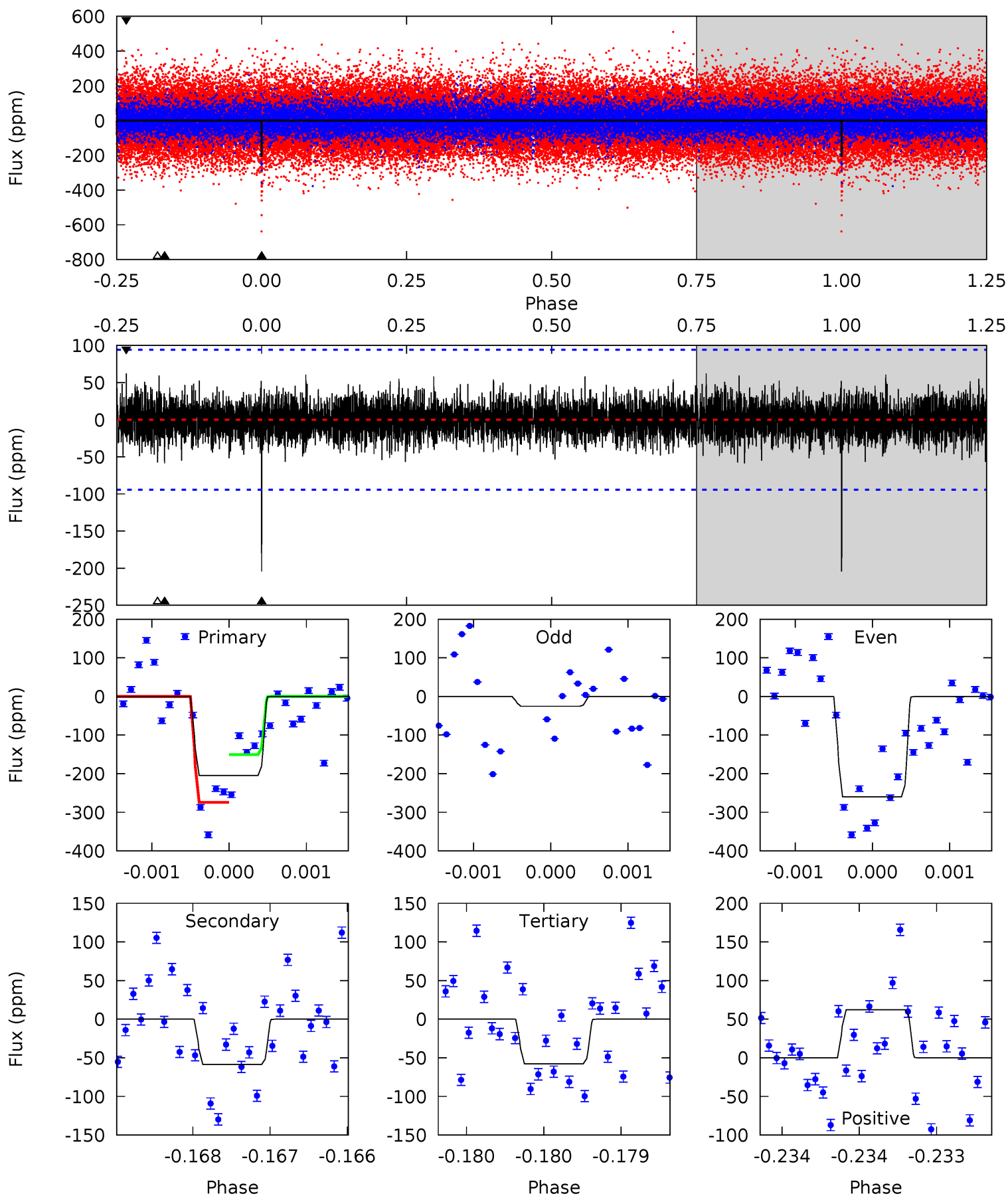
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	5.82	5.16	4.46	5.50	3.37	1.28	6.37	7.08	0.67	1.37	4.60	1.10	0.28	3.23



# Alt Model-Shift Uniqueness Test

006776594-01, P = 498.068025 Days, E = 431.908981 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
12.0	3.43	3.38	3.65	5.52	3.41	0.96	8.61	8.34	0.05	-0.22	5.70	1.44	0.23	3.59



### Stellar Parameters For KIC 006776594

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5964^{+198}_{-198}$	$3.934^{+0.480}_{-0.160}$	$-0.380^{+0.300}_{-0.300}$	$1.801^{+0.452}_{-0.839}$	$1.016^{+0.146}_{-0.175}$	$0.245^{+1.135}_{-0.106}$
	+3%/-3%	+12%/-4%	+79%/-79%	+25%/-47%	+14%/-17%	+463%/-43%
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 006776594-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-94 \pm 16$	$3.06^{+0.92}_{-0.92}$	$434^{+39}_{-55}$	$4697^{+487}_{-401}$	$8386^{+8410}_{-3449}$
Alt.	$-59 \pm 17$	$2.66^{+0.92}_{-0.83}$	$436^{+36}_{-53}$	$4499^{+592}_{-466}$	$6841^{+8633}_{-3367}$

$T_{max}$  = 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

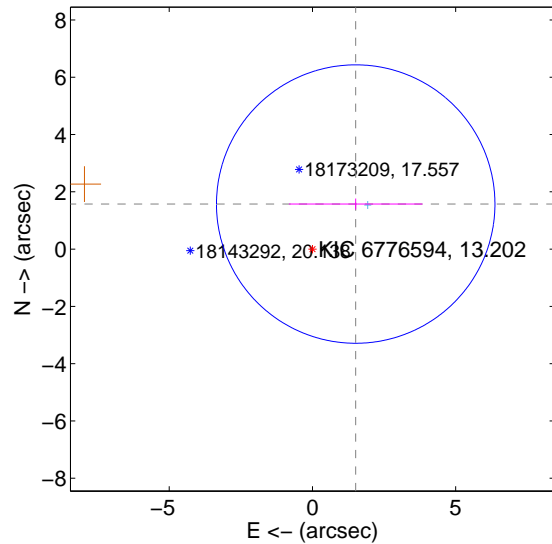
Supplemental centroid analysis for 006776594-01. Kepler magnitude: 13.20. Transit SNR 9.55

There are 1 quarters with good PRF difference image offsets

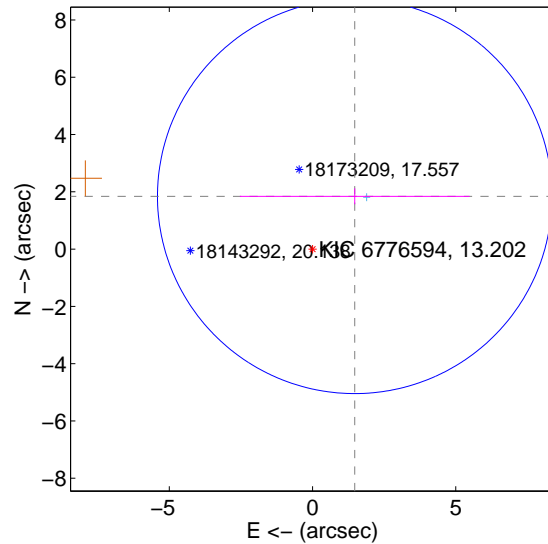
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.181 \pm 1.620$	1.35	$-1.511 \pm 2.331$	$1.573 \pm 0.192$
PRF-fit source offset from KIC position	$2.359 \pm 2.296$	1.03	$-1.474 \pm 4.011$	$1.842 \pm 0.278$
photometric centroid source offset	$1.56 \pm 1.44$	1.08	$-1.56 \pm 1.44$	$-0.11 \pm 1.29$

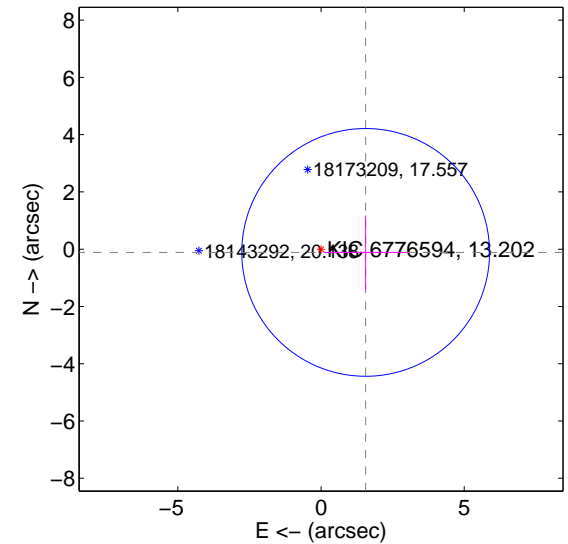
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



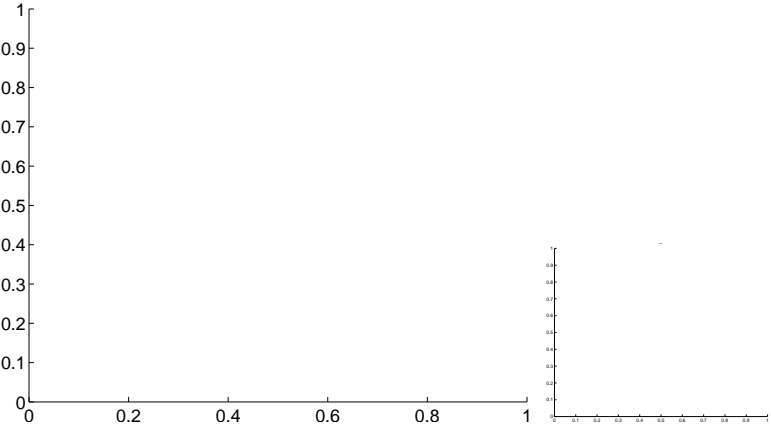
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

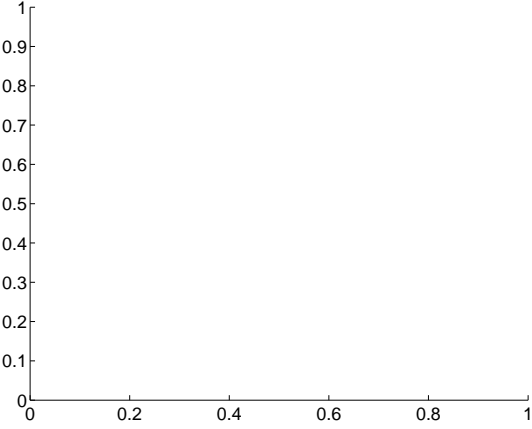
Q1 no difference image



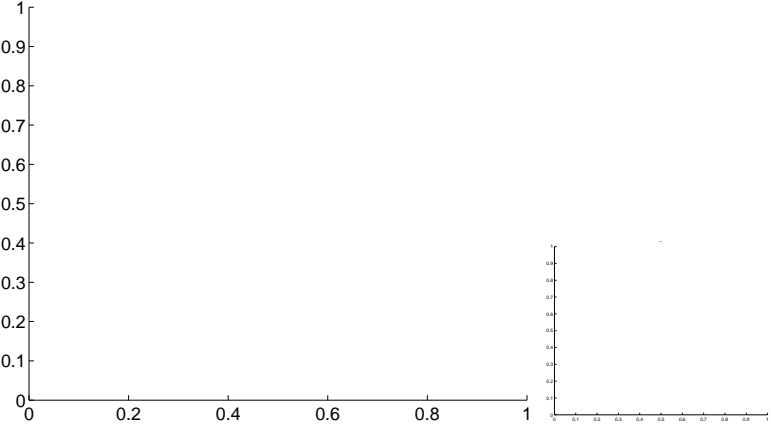
Q1 no OOT image



Q2 no difference image



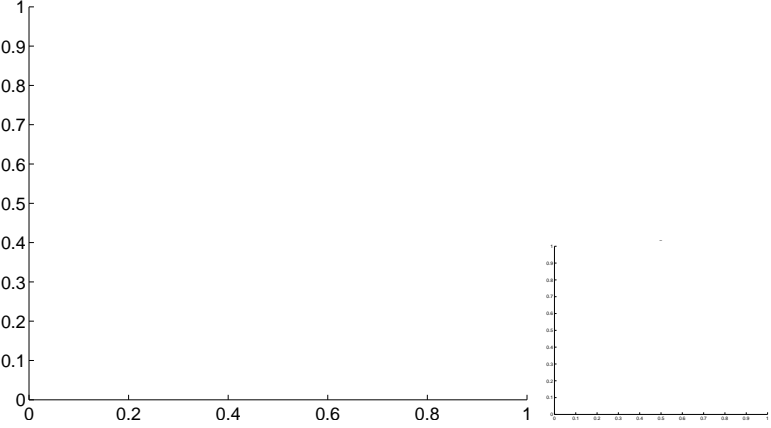
Q2 no OOT image



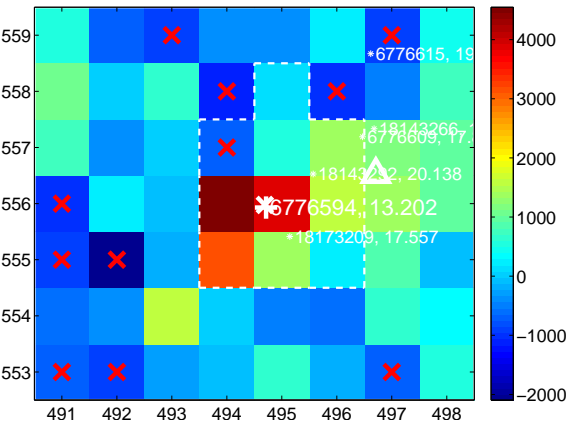
Q3 no difference image



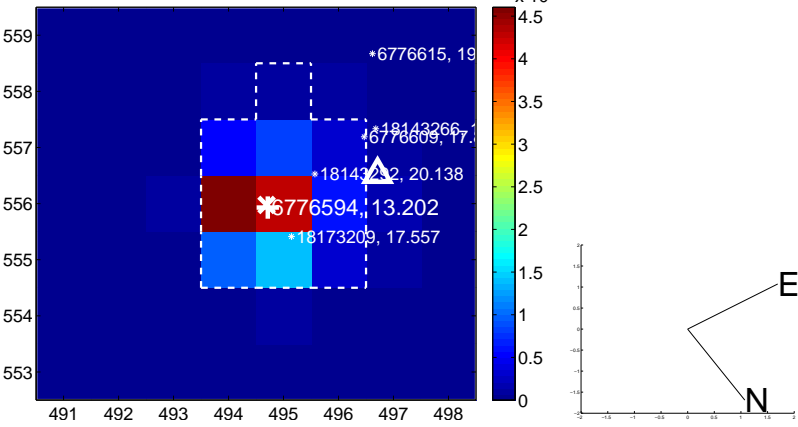
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image





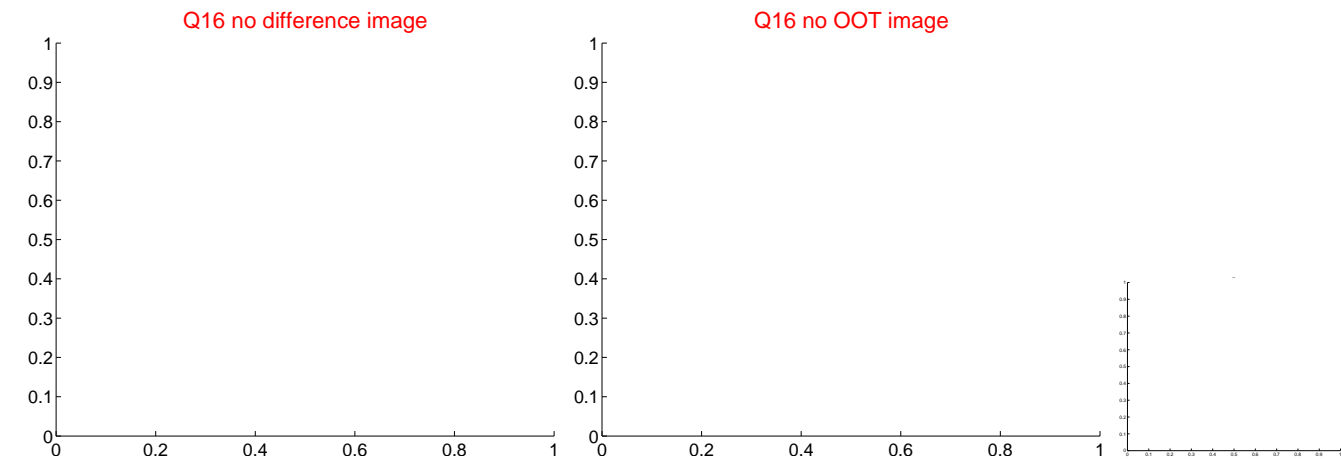
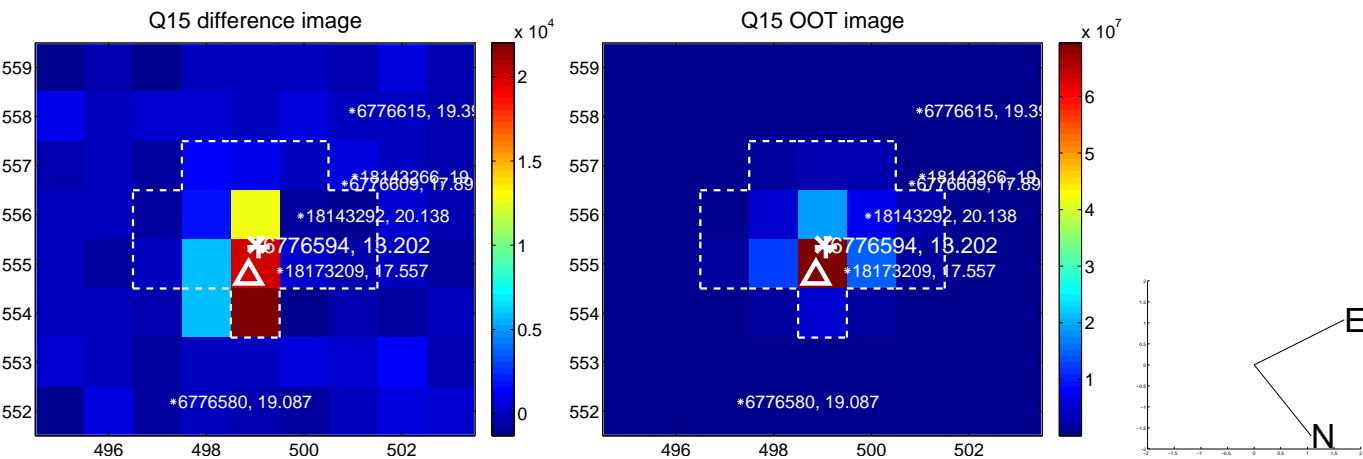
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



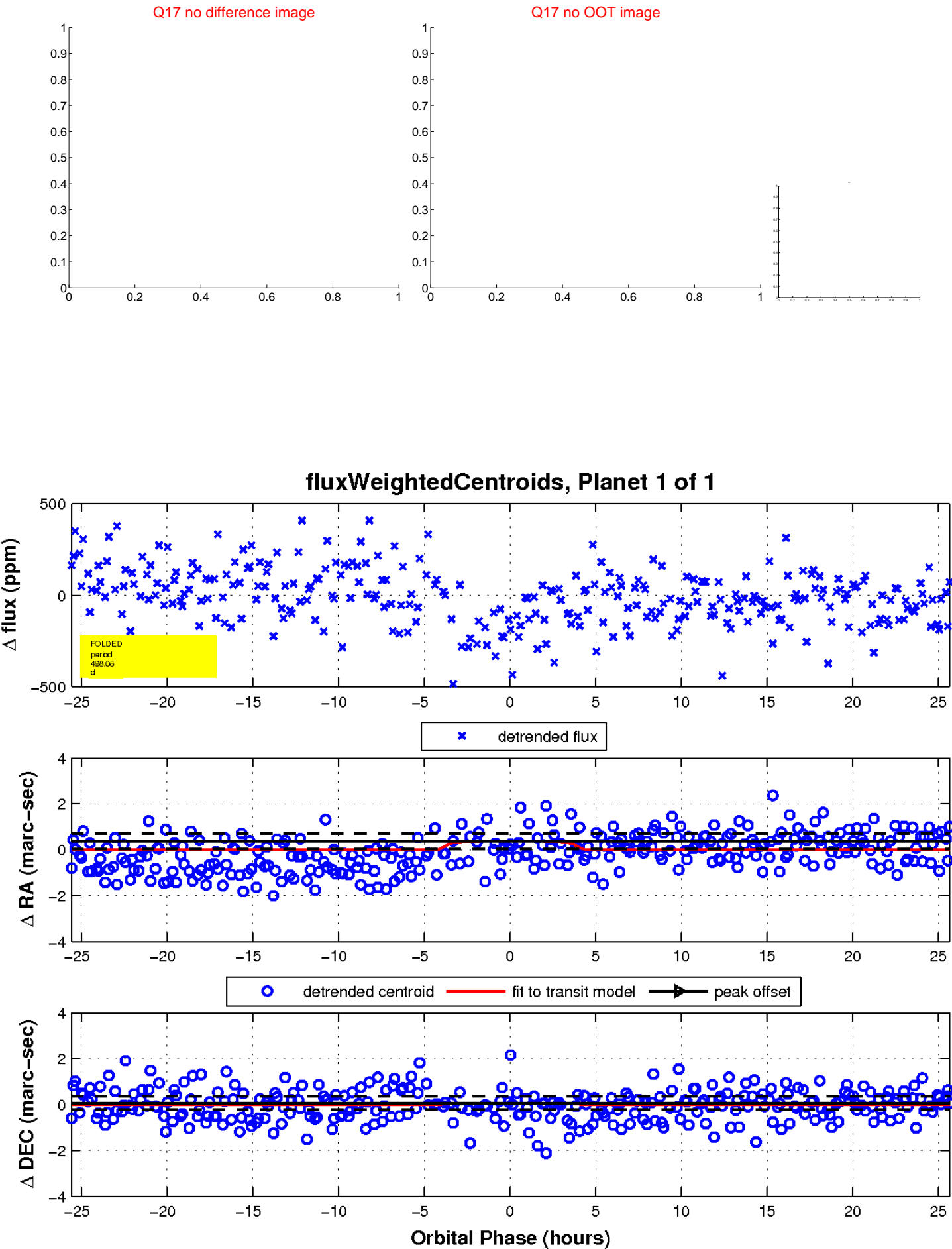
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

