

# KIC 006594945

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006594945-01	OBS	5300.01	188.933471	160.801265	141.7	16.729	7.8	7.7	1.90	6392	2.51	11.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006594945-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

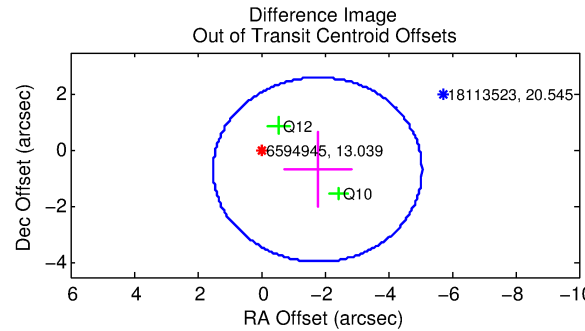
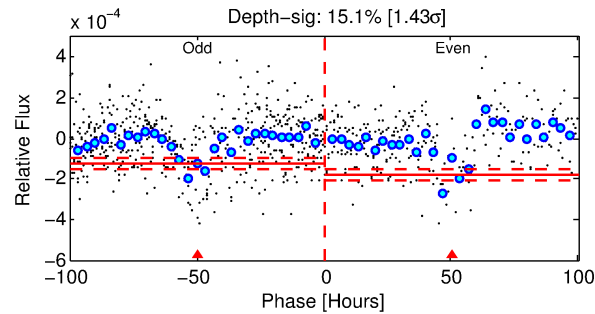
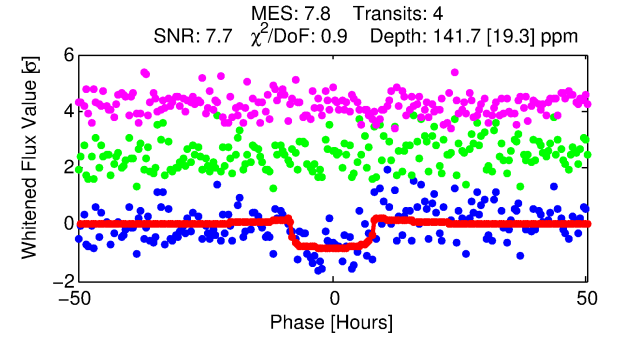
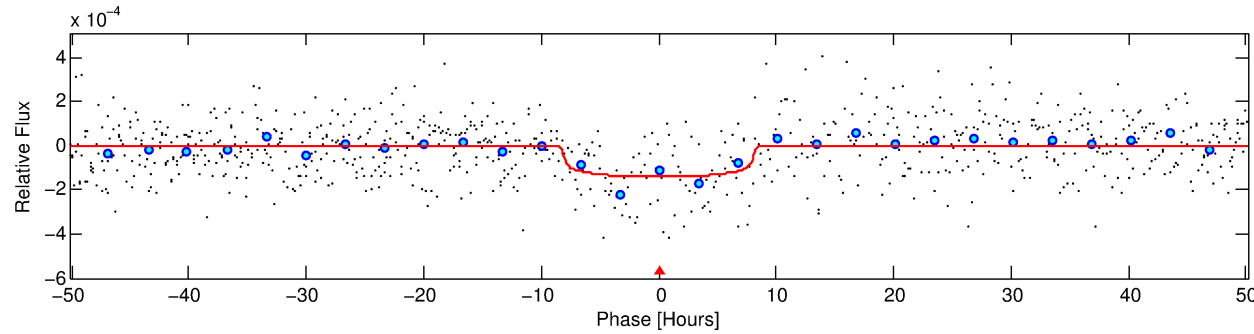
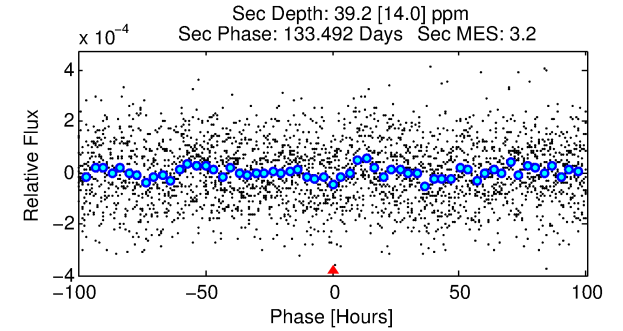
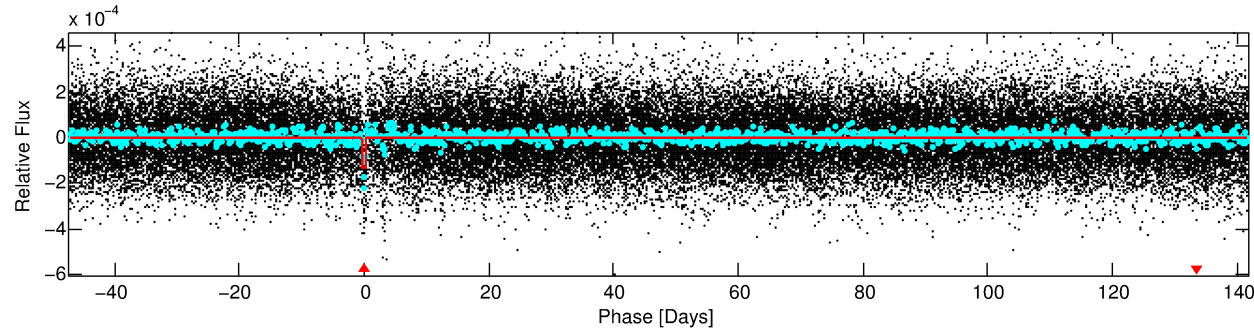
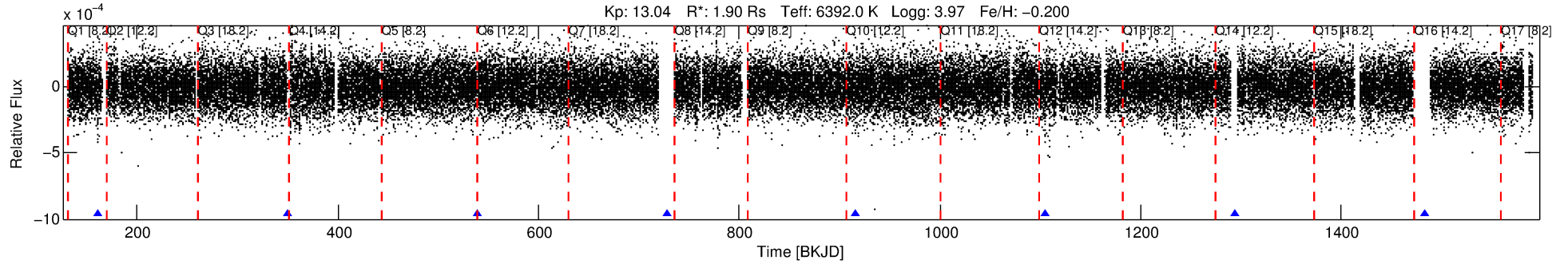
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006594945-01

No Significant Match Found

# DV One-Page Summary

KIC: 6594945 Candidate: 1 of 1 Period: 188.933 d  
KOI: K05300.01 Corr: 0.877



## DV Fit Results:

Period = 188.93347 [0.00597] d  
Epoch = 160.8013 [0.0208] BKJD  
Rp/R\* = 0.0121 [0.0029]  
a/R\* = 51.82 [63.08]  
b = 0.81 [0.51]  
Seff = 11.38 [5.31]  
Teq = 468 [55] K  
Rp = 2.51 [0.95] Re  
a = 0.6885 [0.1957] AU  
Ag = 1619.43 [1209.23] [1.34σ]  
Teffp = 4593 [693] K [5.94σ]

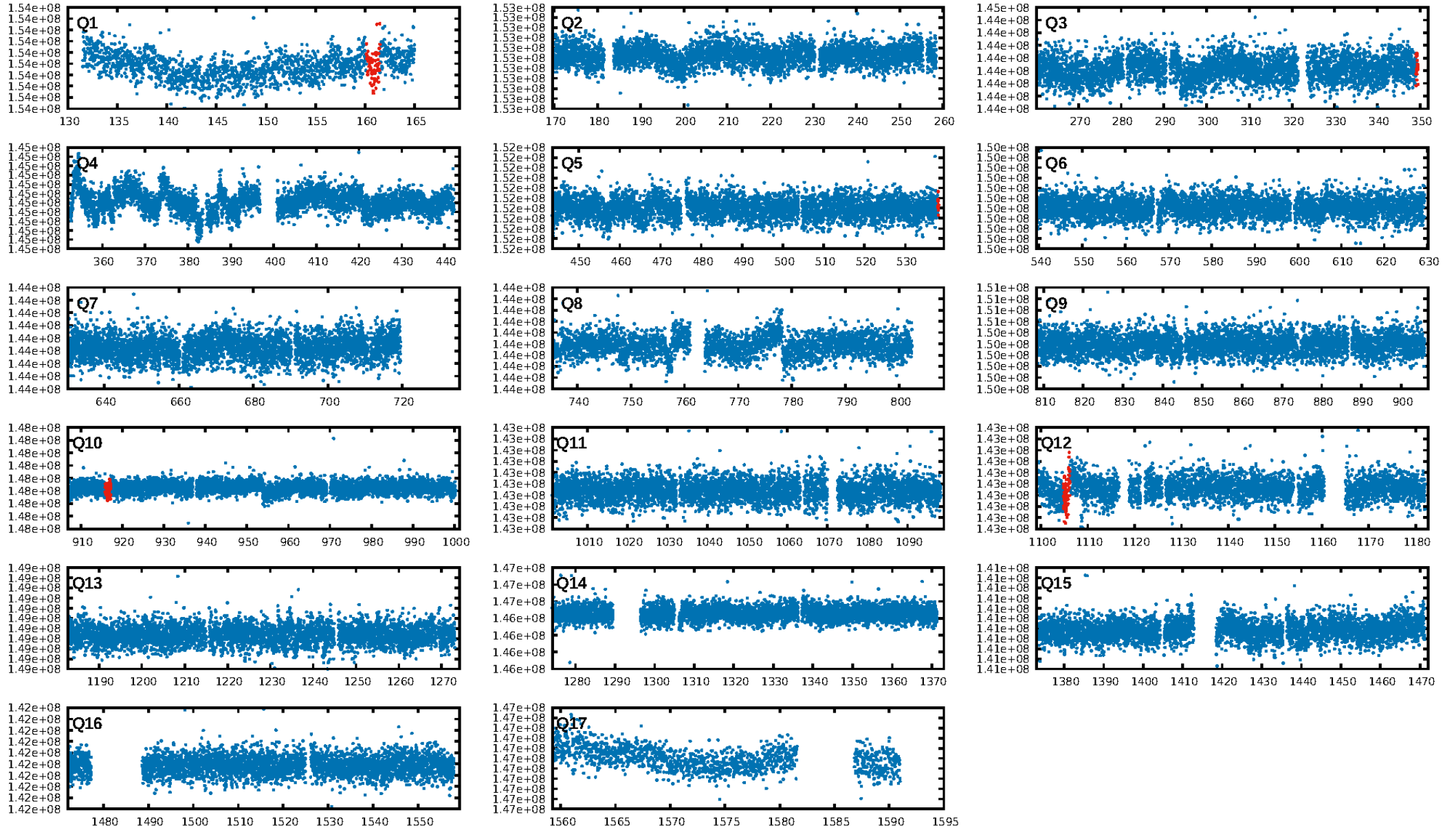
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 53.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.08e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.97  
Centroid-sig: 44.9%  
Centroid-so: 1.241 arcsec [0.88σ]  
OotOffset-rm: 1.907 arcsec [1.74σ]  
KicOffset-rm: 1.858 arcsec [1.70σ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

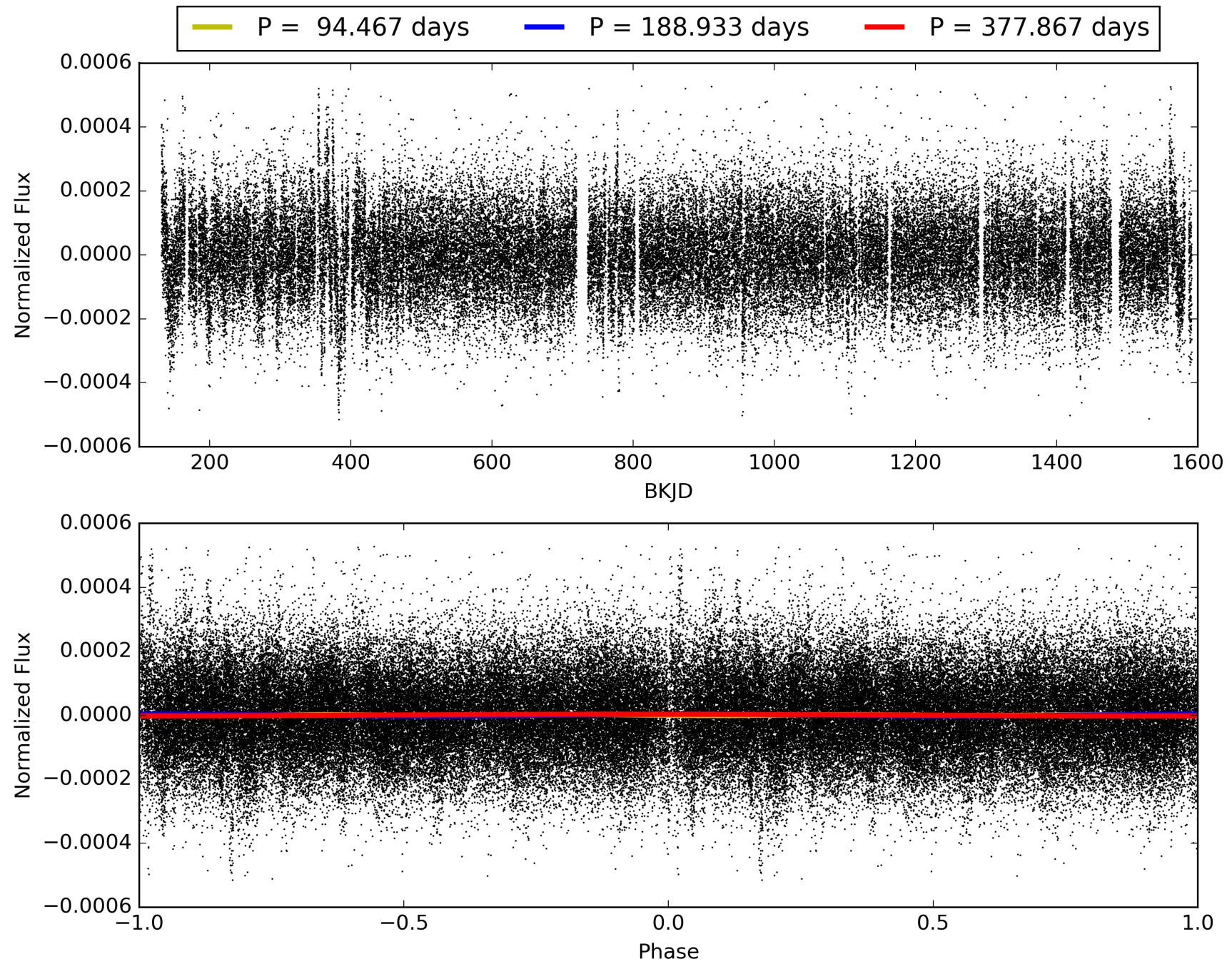
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:09:52 Z

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

# TCE 006594945-01, PDC Light Curves

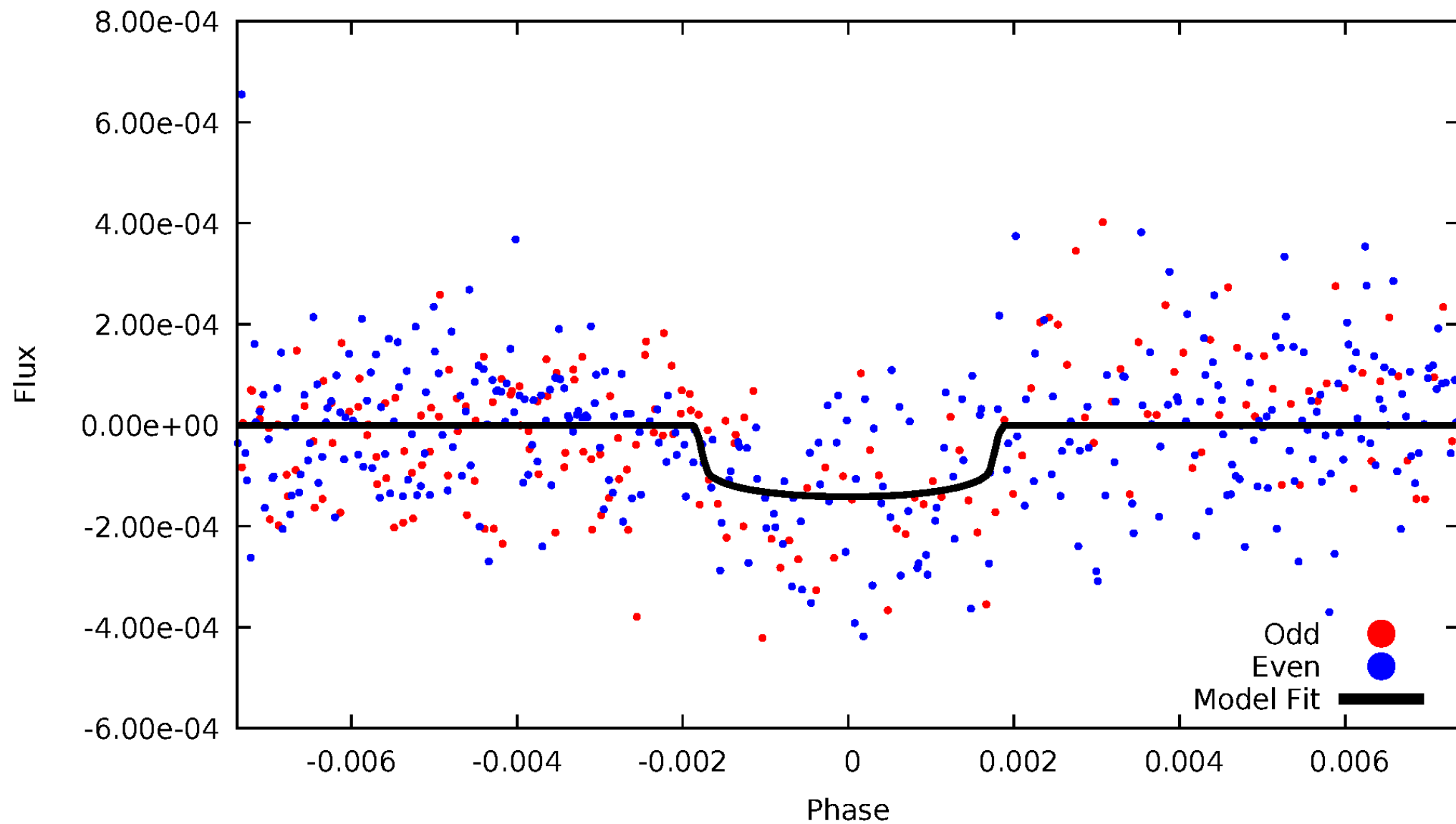


TCE 006594945-01



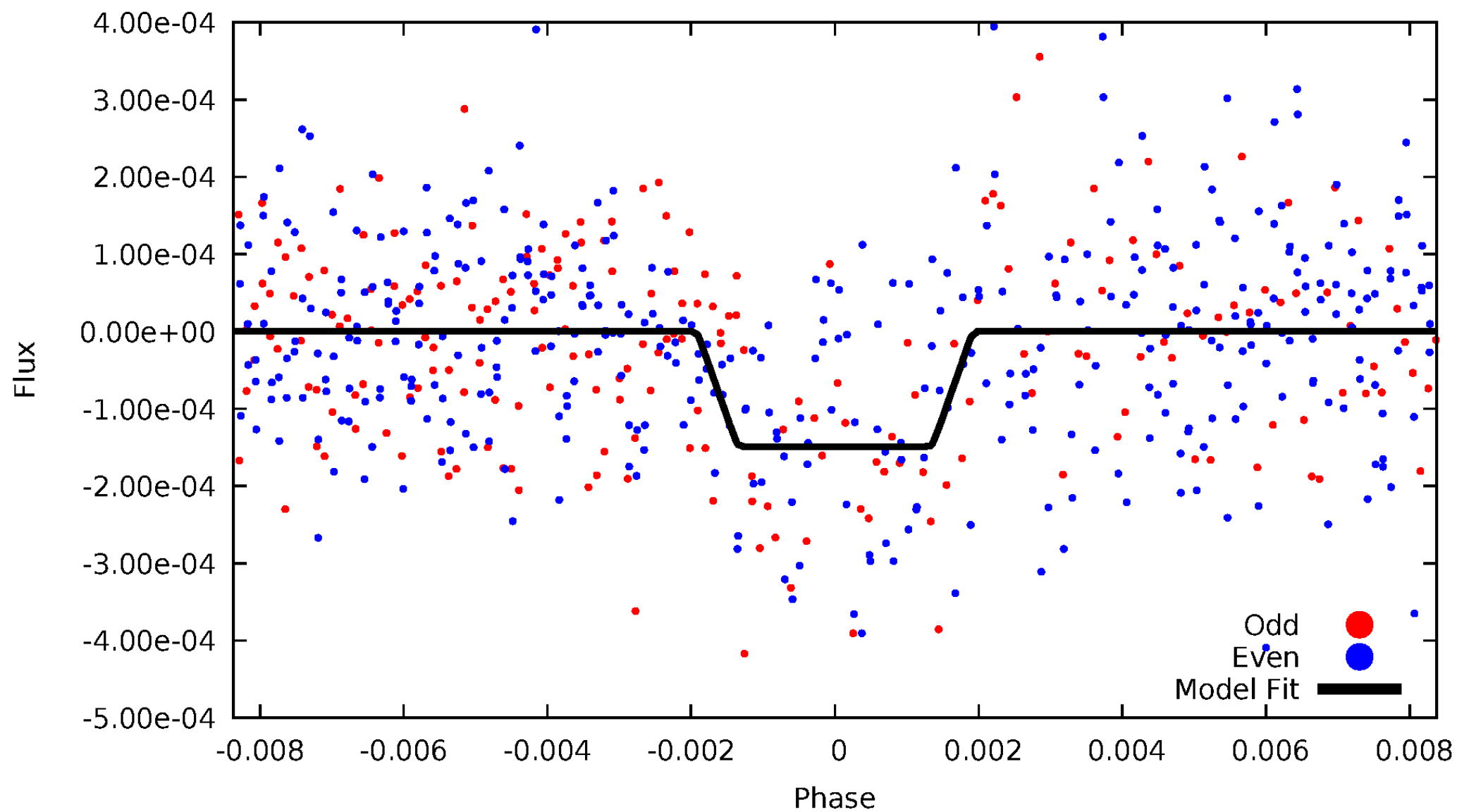
# DV Odd/Even

TCE 006594945-01



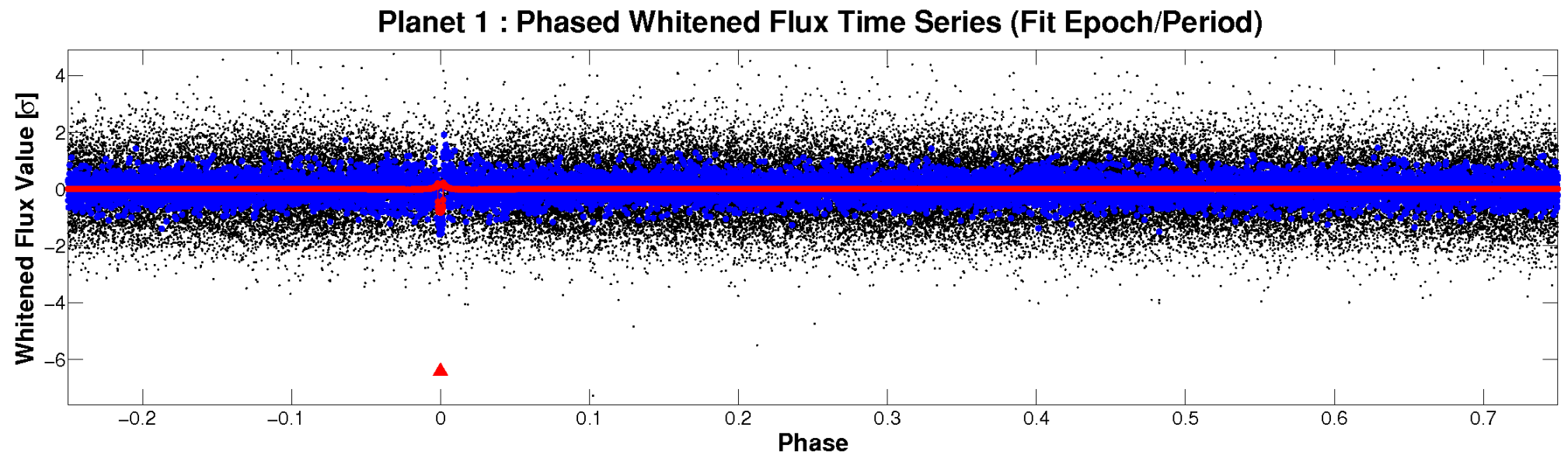
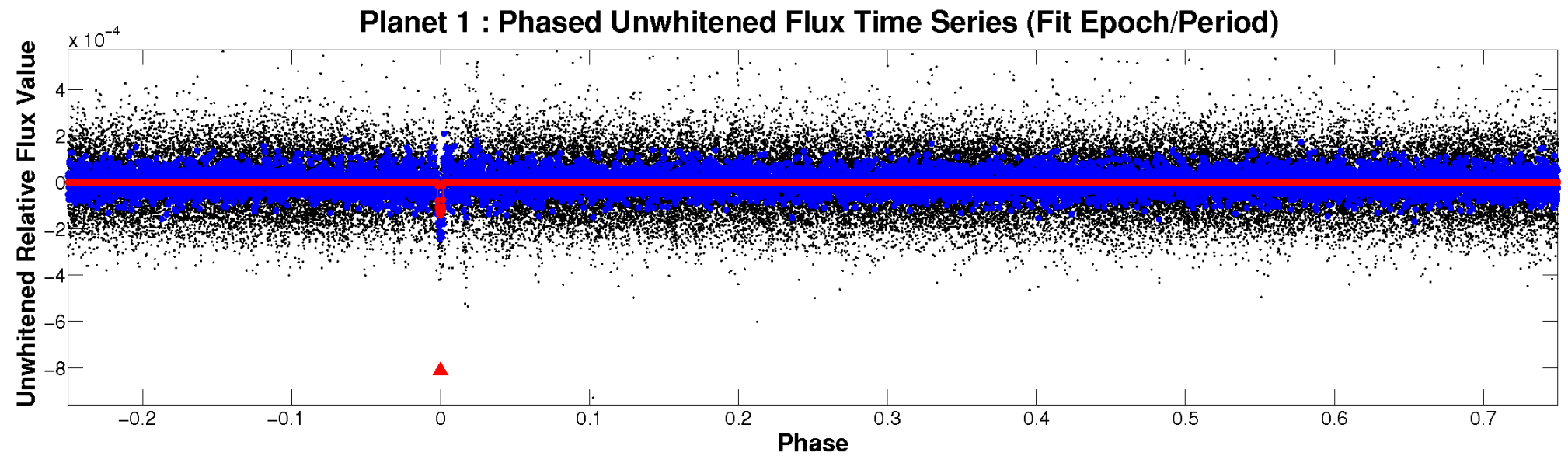
# ALT Odd/Even

TCE 006594945-01





# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

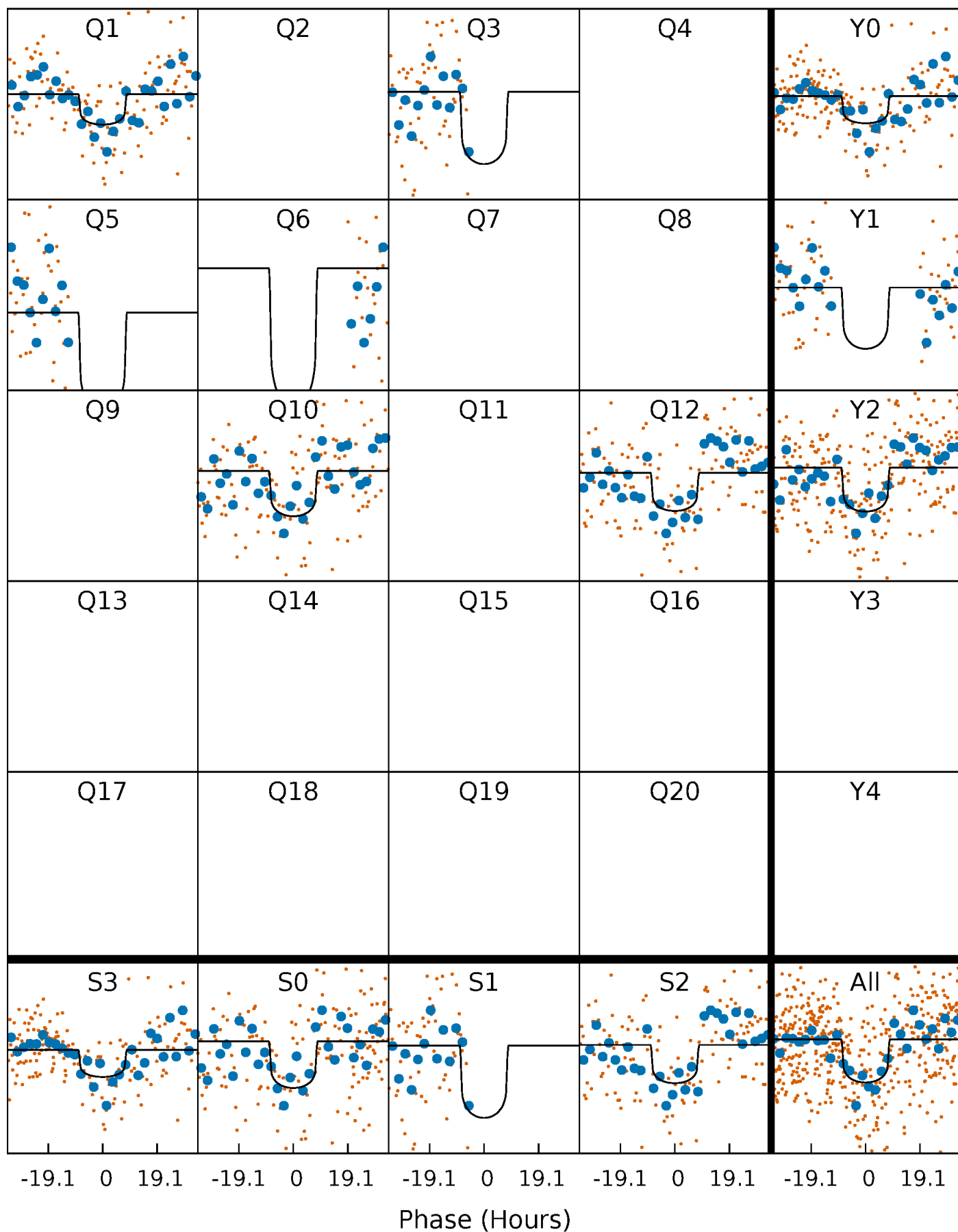
TCE 006594945-01 P=188.933471 Days  $T_0=160.801265$  (BKJD)





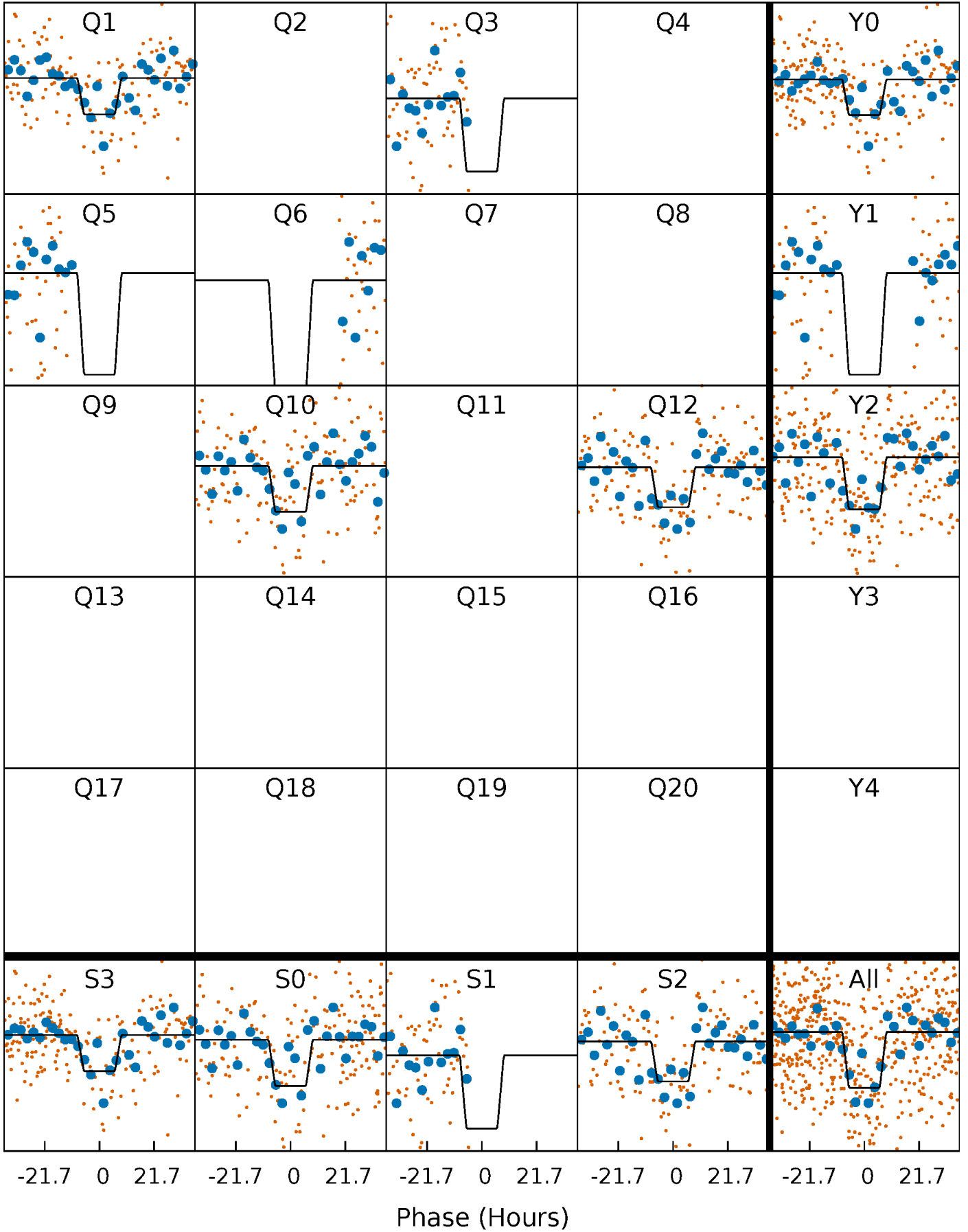
# DV Quarter-Phased Transit Curves

TCE 006594945-01 P=188.933471 Days  $T_0=160.801265$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

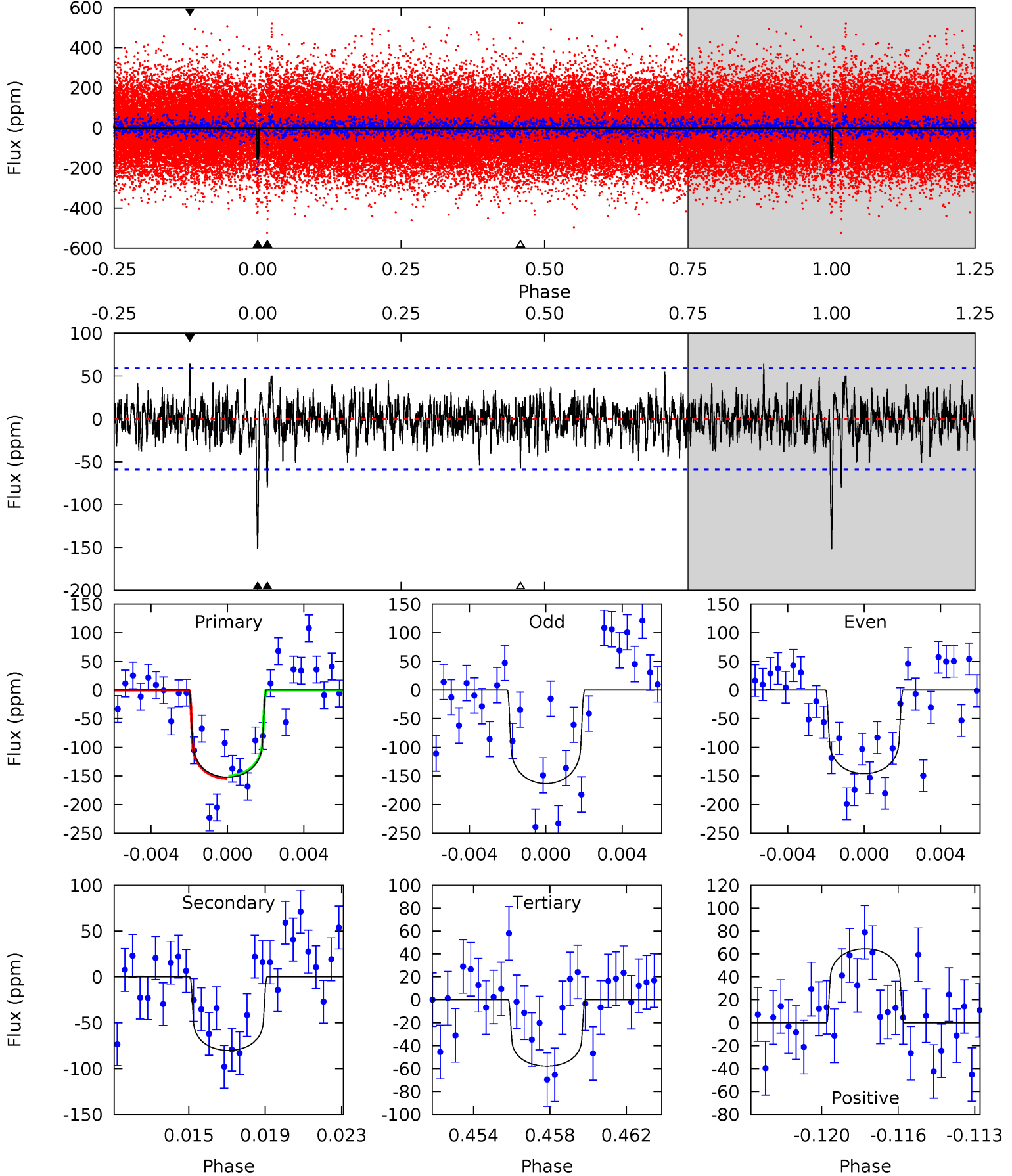
TCE 006594945-01 P=188.949129 Days  $T_0=160.765225$  (BKJD)



# DV Model-Shift Uniqueness Test

006594945-01, P = 188.933471 Days, E = 160.801265 Days

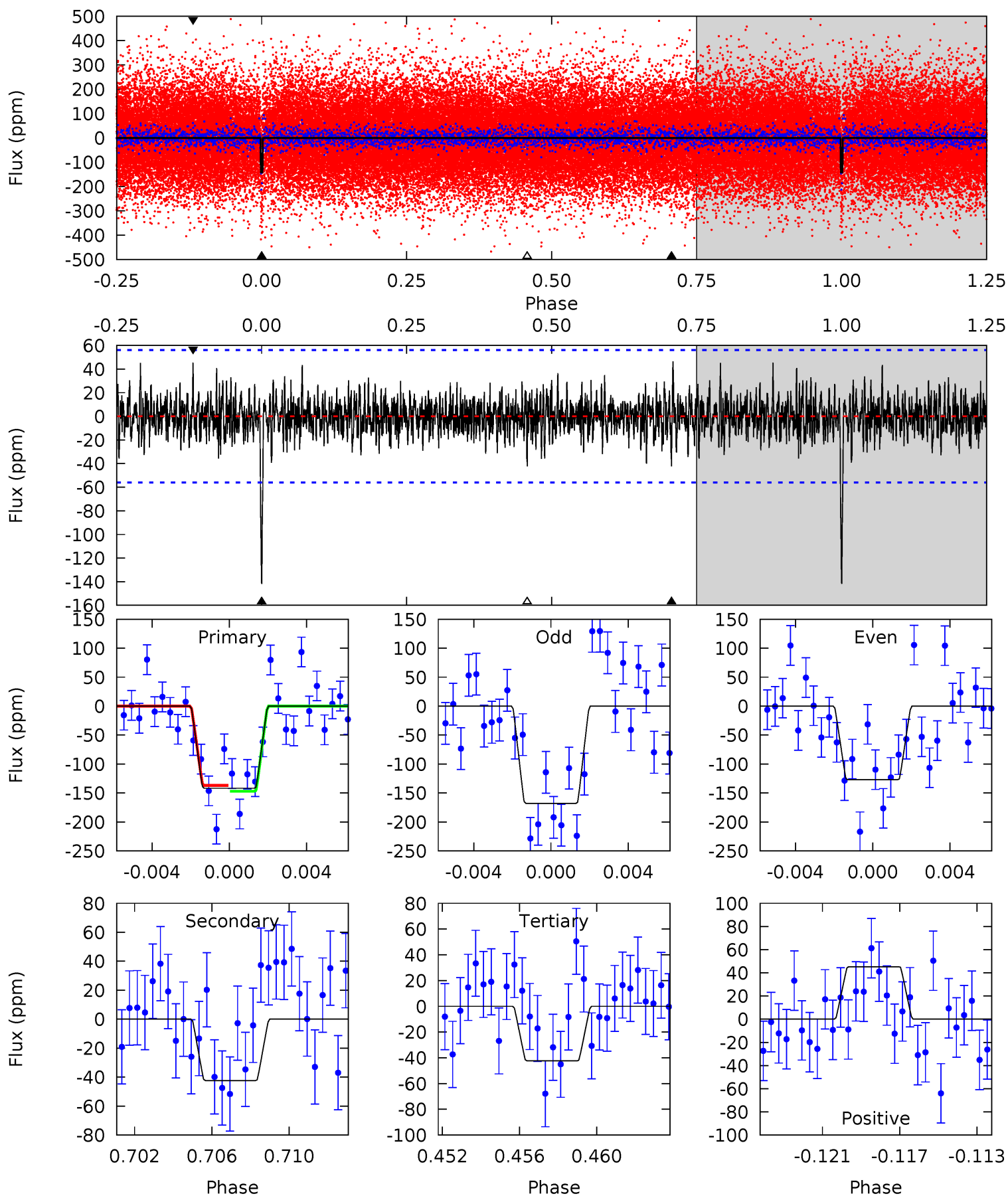
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	7.06	5.09	5.67	5.21	2.90	1.42	8.28	7.70	1.97	1.39	0.74	0.93	0.30	0.19



# Alt Model-Shift Uniqueness Test

006594945-01, P = 188.949129 Days, E = 160.765225 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
13.2	3.93	3.93	4.20	5.20	2.89	1.12	9.23	8.96	0.00	-0.27	1.84	0.95	0.25	0.47



### Stellar Parameters For KIC 006594945

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6392^{+155}_{-175}$	$3.967^{+0.266}_{-0.114}$	$-0.200^{+0.250}_{-0.250}$	$1.899^{+0.410}_{-0.563}$	$1.219^{+0.221}_{-0.181}$	$0.251^{+0.383}_{-0.099}$
	+2%/-3%	+7%/-3%	+125%/-125%	+22%/-30%	+18%/-15%	+153%/-39%
Source	PHO1	FLK73	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 006594945-01 / KOI 5300.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-80 \pm 11$	$2.37^{+0.69}_{-0.63}$	$645^{+40}_{-53}$	$5537^{+814}_{-538}$	$3734^{+3186}_{-1521}$
Alt.	$-42 \pm 11$	$2.44^{+0.74}_{-0.65}$	$643^{+41}_{-55}$	$4735^{+649}_{-457}$	$1845^{+1626}_{-809}$

$T_{\text{max}}$  = 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

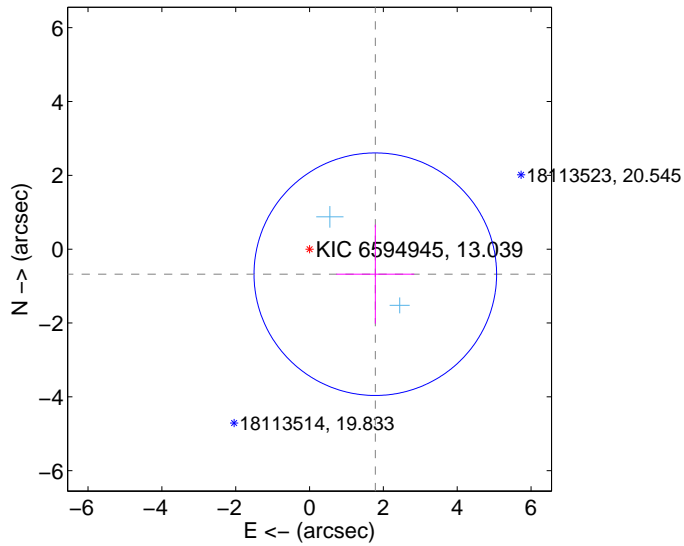
Supplemental centroid analysis for 006594945-01. Kepler magnitude: 13.04. Transit SNR 7.70

There are 2 quarters with good PRF difference image offsets

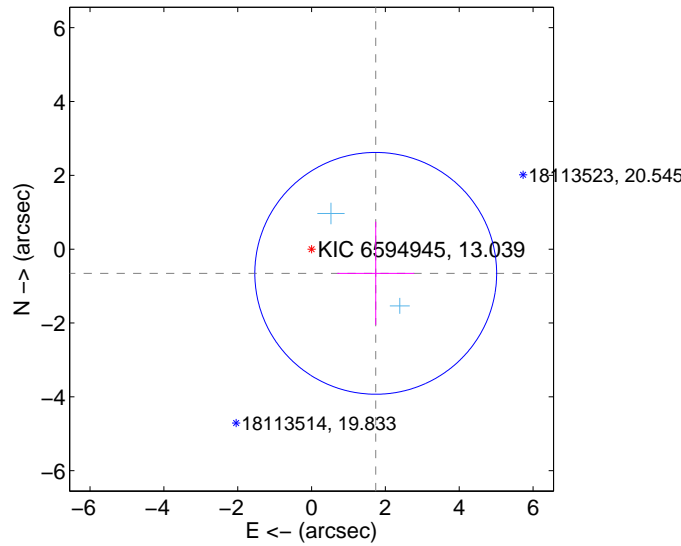
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.907 \pm 1.095$	1.74	$-1.782 \pm 1.055$	$-0.678 \pm 1.340$
PRF-fit source offset from KIC position	$1.858 \pm 1.092$	1.70	$-1.739 \pm 1.041$	$-0.655 \pm 1.398$
photometric centroid source offset	$1.24 \pm 1.41$	0.88	$1.13 \pm 1.39$	$0.51 \pm 1.49$

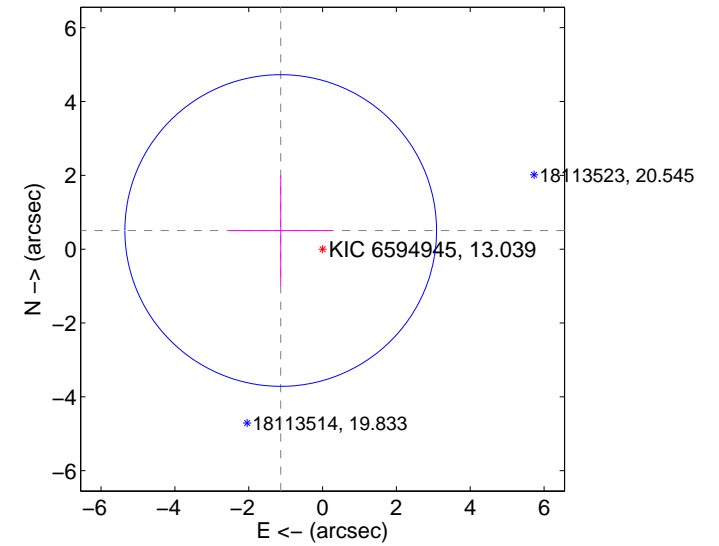
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



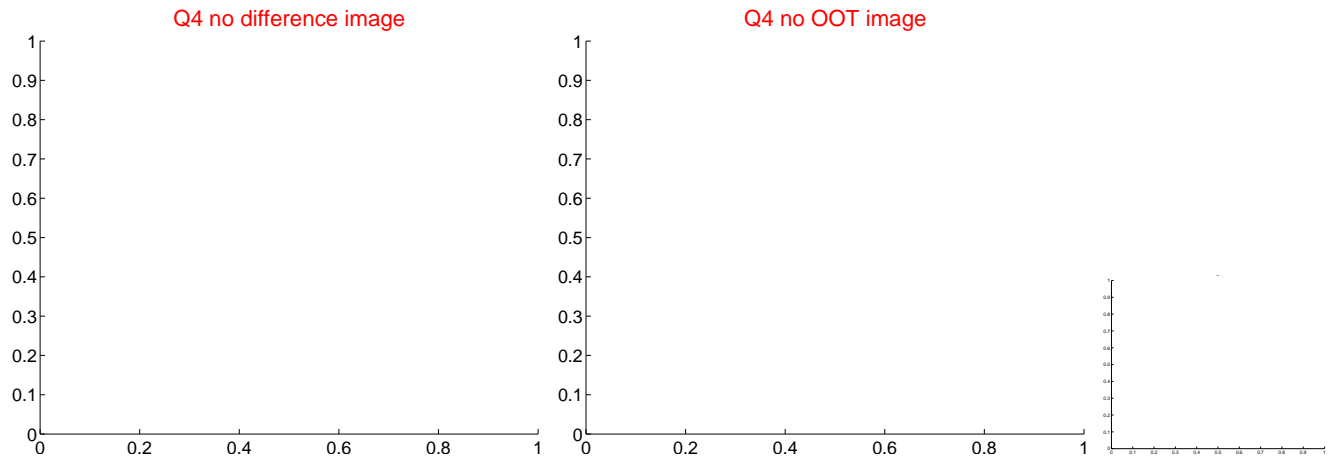
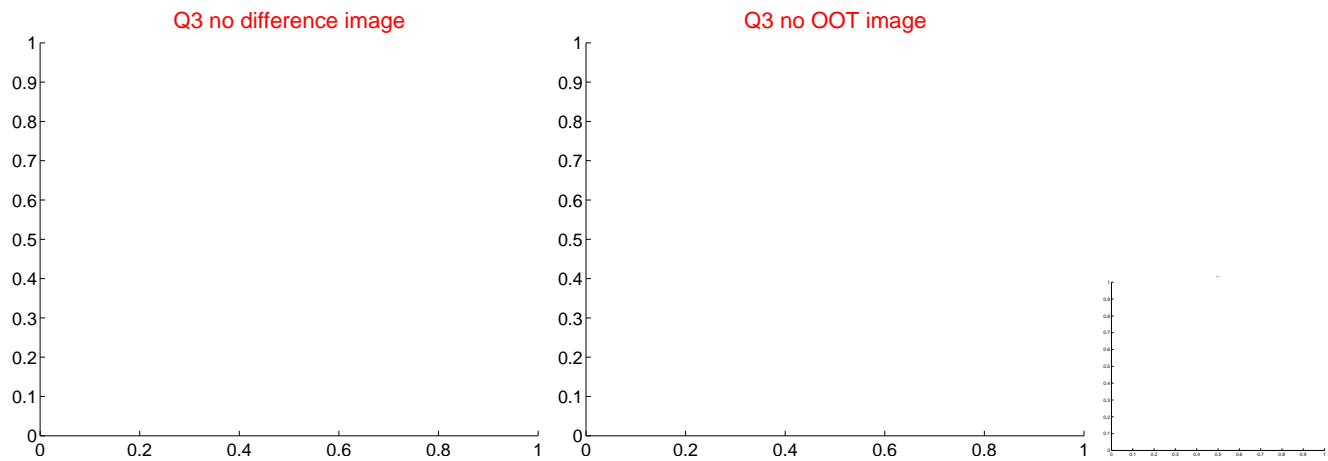
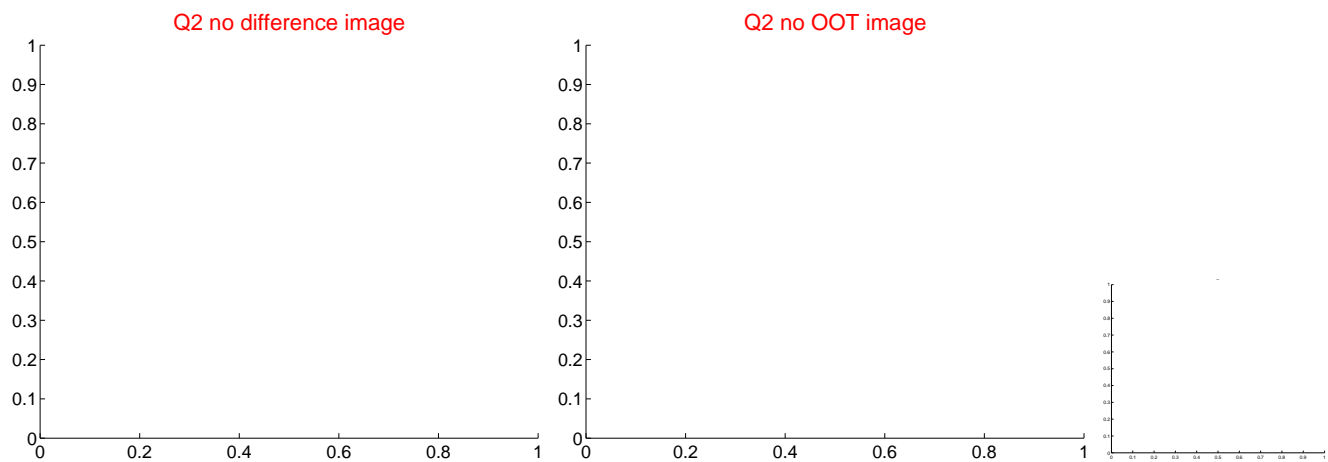
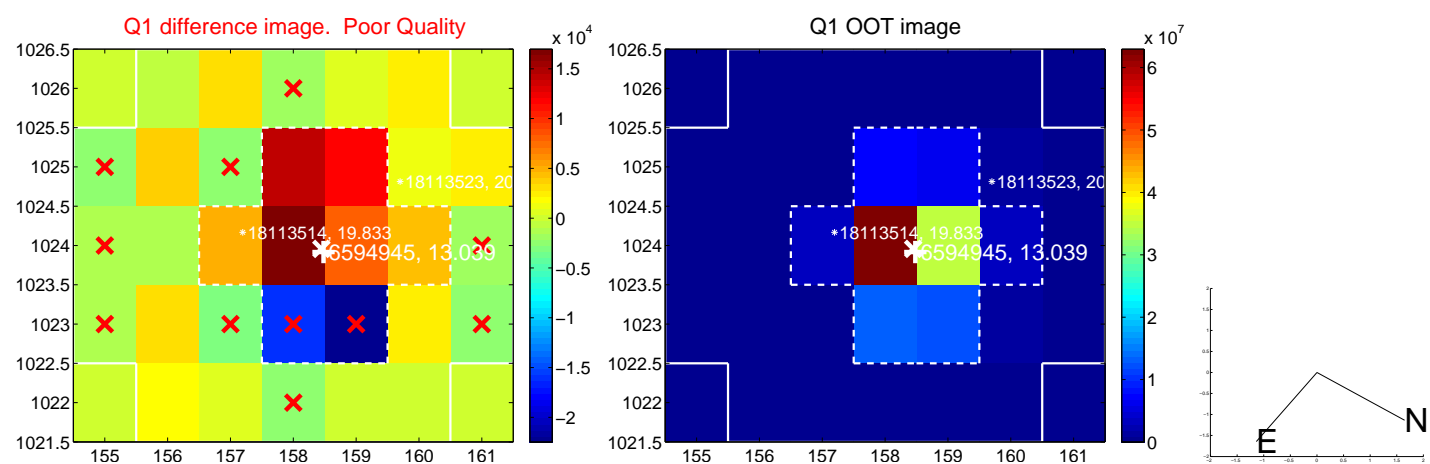
offset from photometric centroids



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.

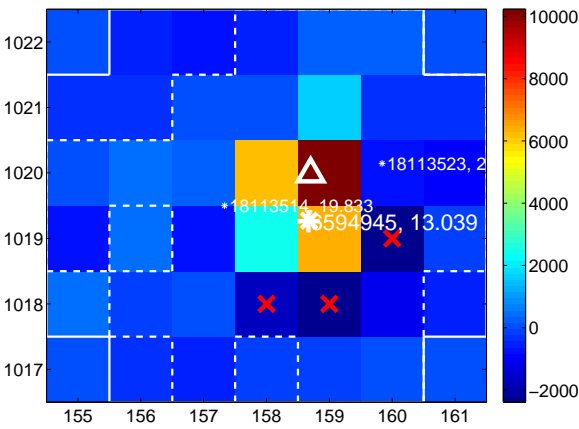
Q9 no difference image



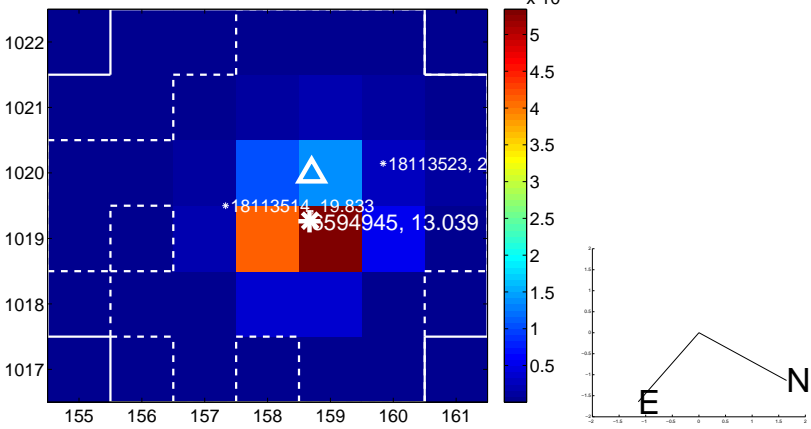
Q9 no OOT image



Q10 difference image



Q10 OOT image



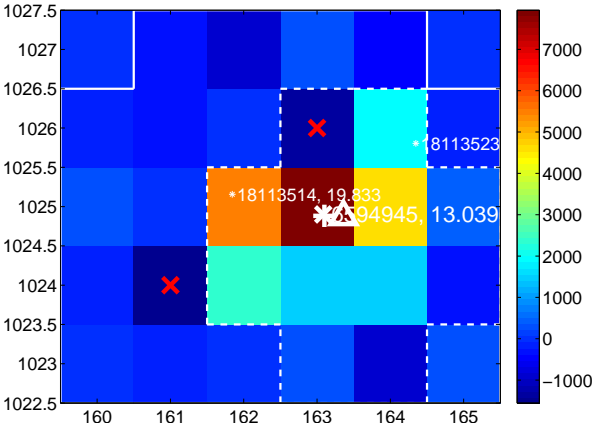
Q11 no difference image



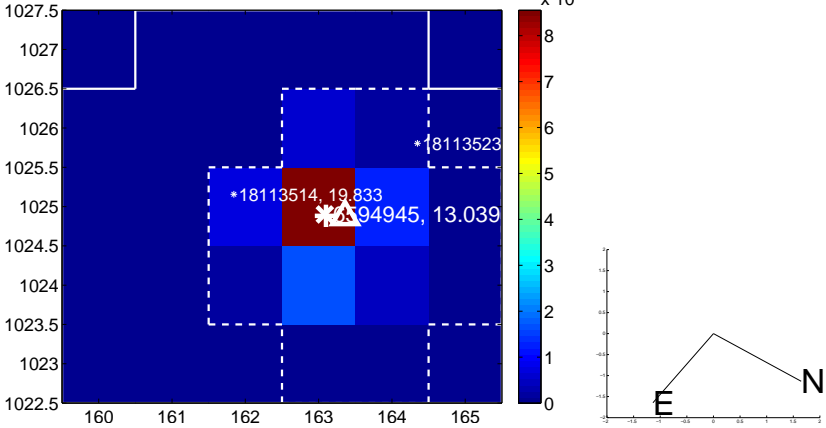
Q11 no OOT image



Q12 difference image



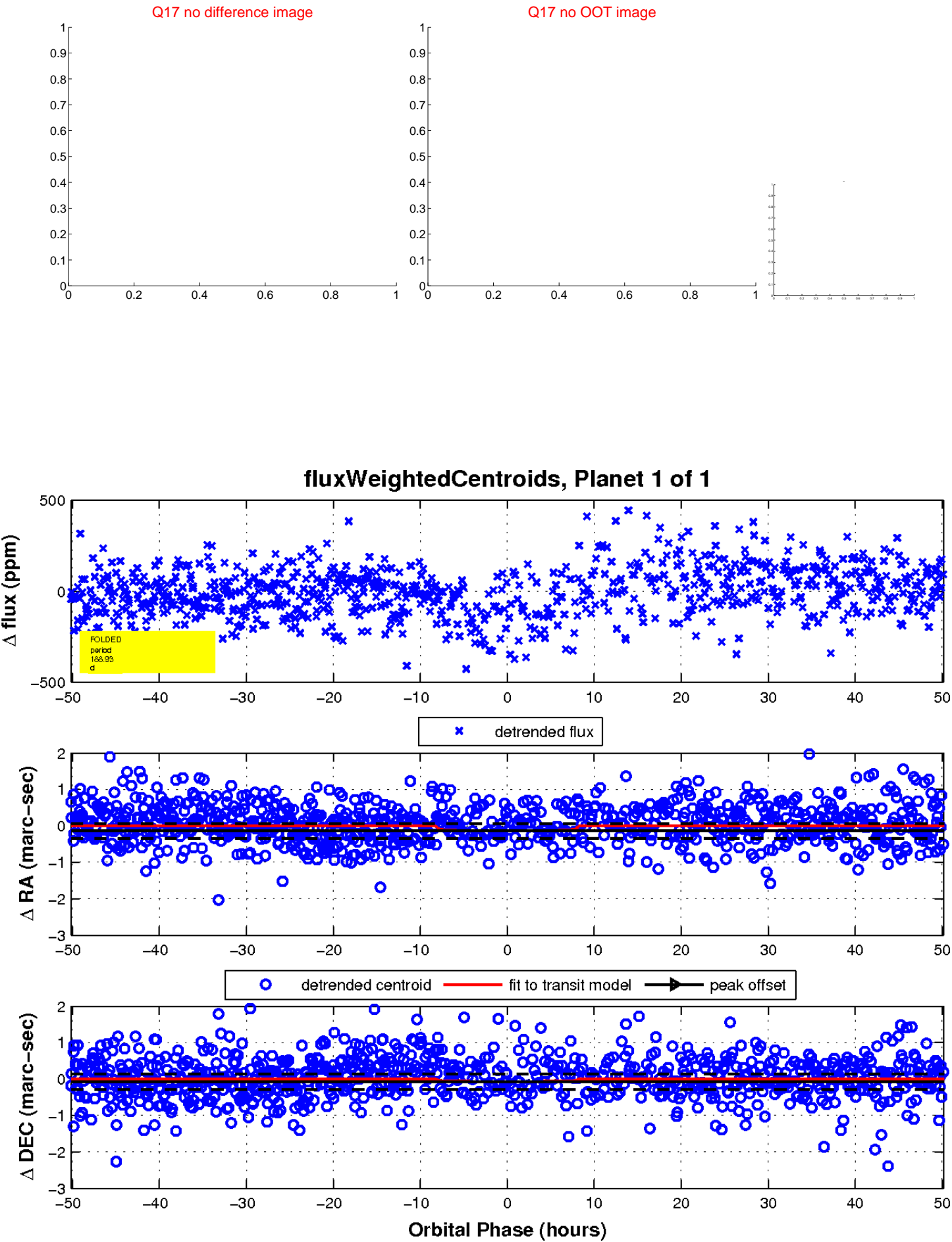
Q12 OOT image



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.



UKIRT Image

Declination

