

# KIC 009655134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009655134-01	OBS	No	465.970758	186.995482	294.5	13.780	12.0	3.9	0.73	5397	1.36	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655134-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

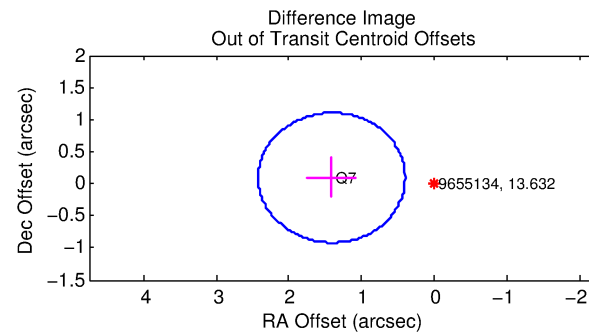
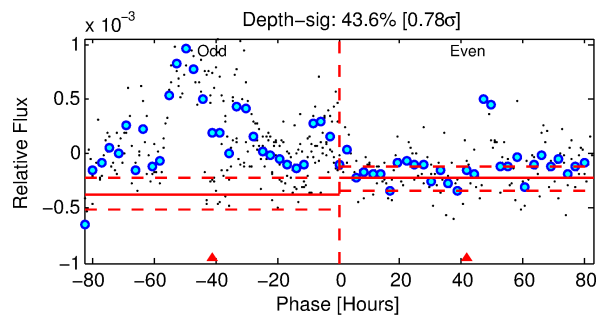
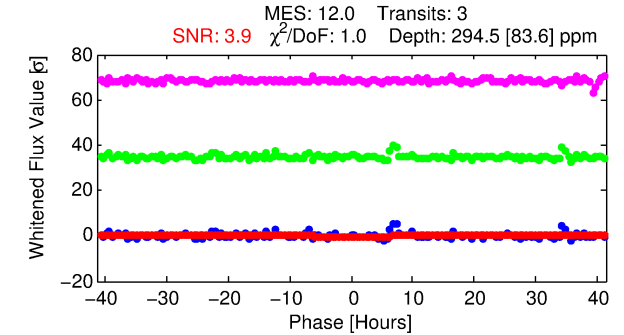
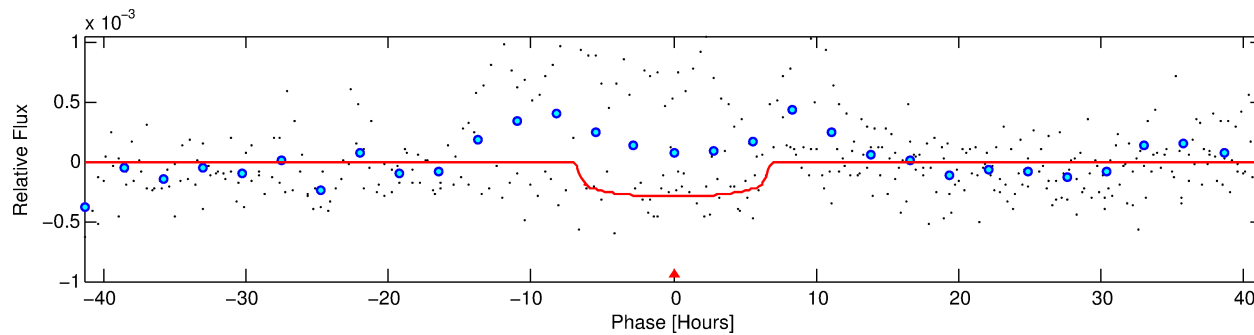
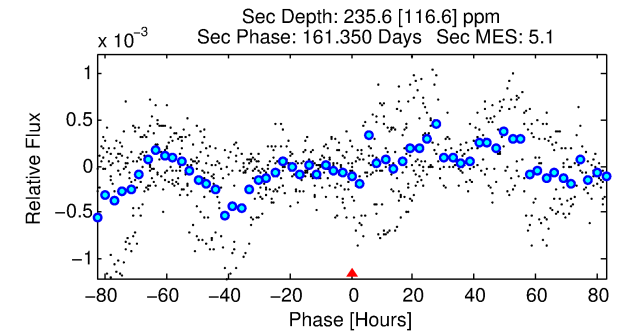
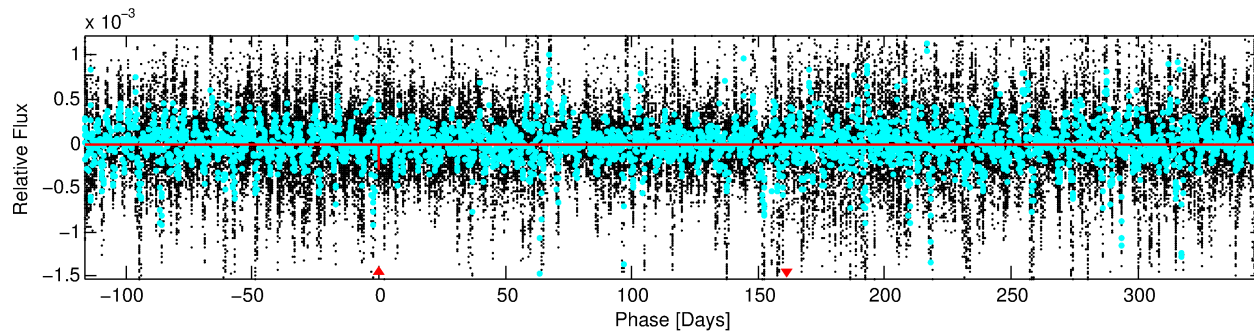
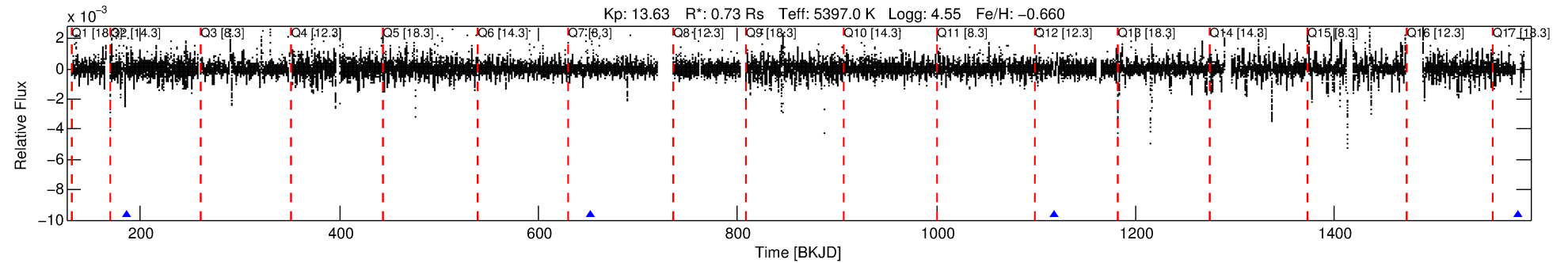
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009655134-01

No Significant Match Found

# DV One-Page Summary

KIC: 9655134 Candidate: 1 of 1 Period: 465.971 d



## DV Fit Results:

Period = 465.97076 [0.01954] d  
Epoch = 186.9955 [0.0238] BKJD  
Rp/R\* = 0.0170 [0.0099]  
a/R\* = 181.17 [442.73]  
b = 0.74 [1.53]  
Seff = 0.38 [0.08]  
Teq = 200 [10] K  
Rp = 1.36 [0.81] Re  
a = 1.0382 [0.1120] AU  
Ag = 75895.70 [97325.58] [0.78σ]  
Teffp = 5131 [1638] K [3.01σ]

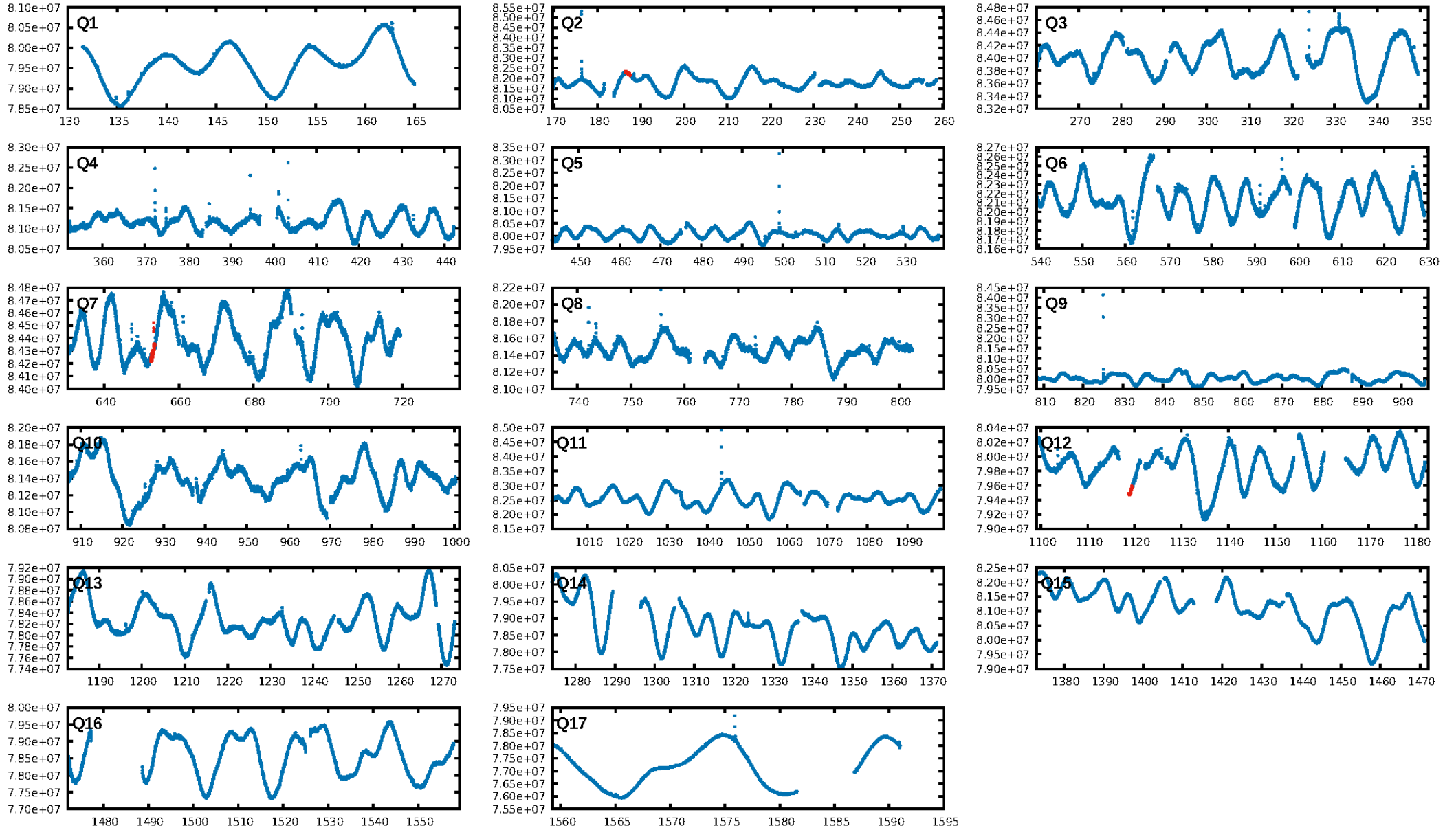
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 31.3%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 3.11e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -7.169  
Centroid-sig: 85.9%  
Centroid-so: 0.355 arcsec [0.36σ]  
**OotOffset-rm: 1.414 arcsec [4.19σ]**  
**KicOffset-rm: 1.512 arcsec [4.49σ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

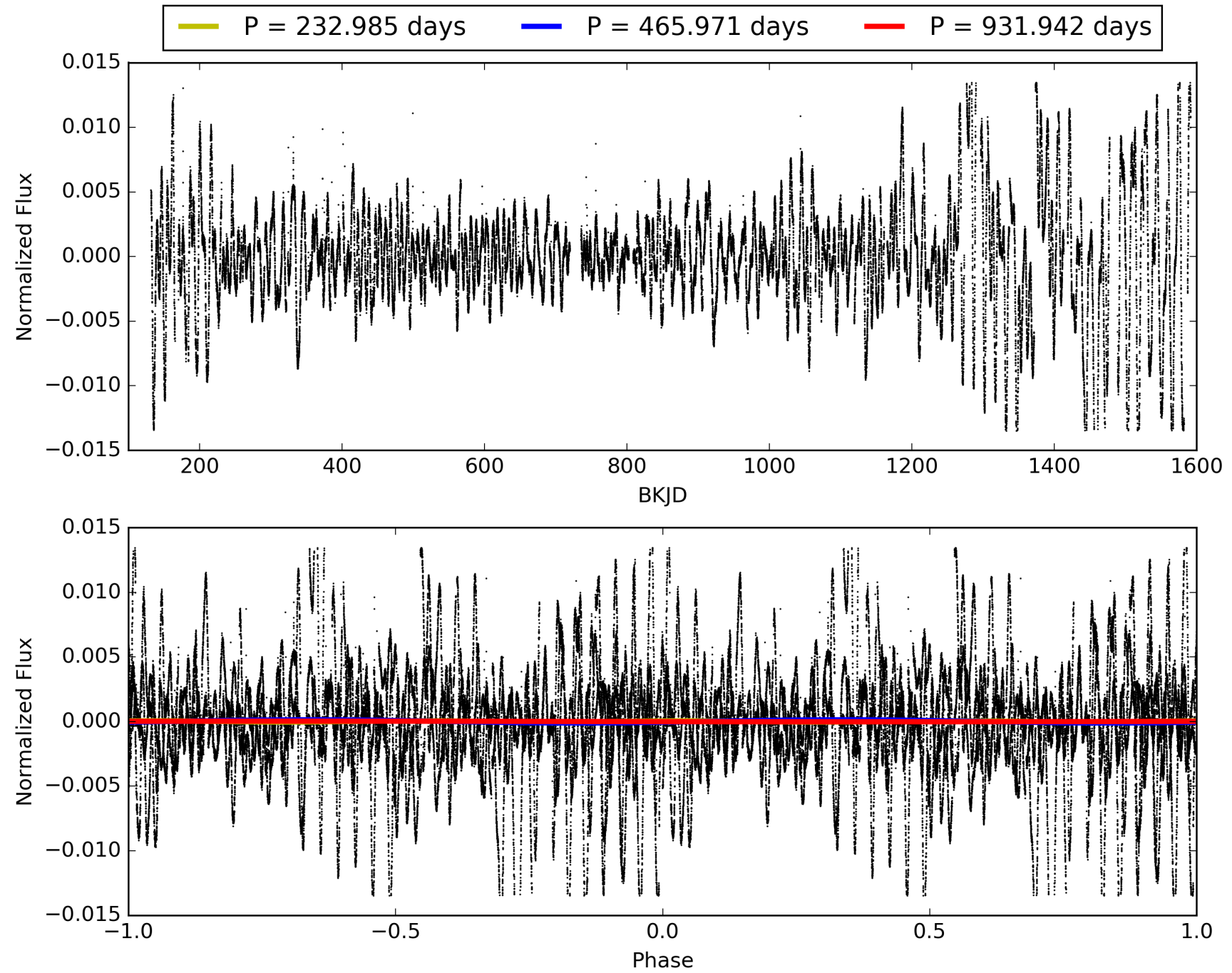
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:30:03 Z

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

# TCE 009655134-01, PDC Light Curves

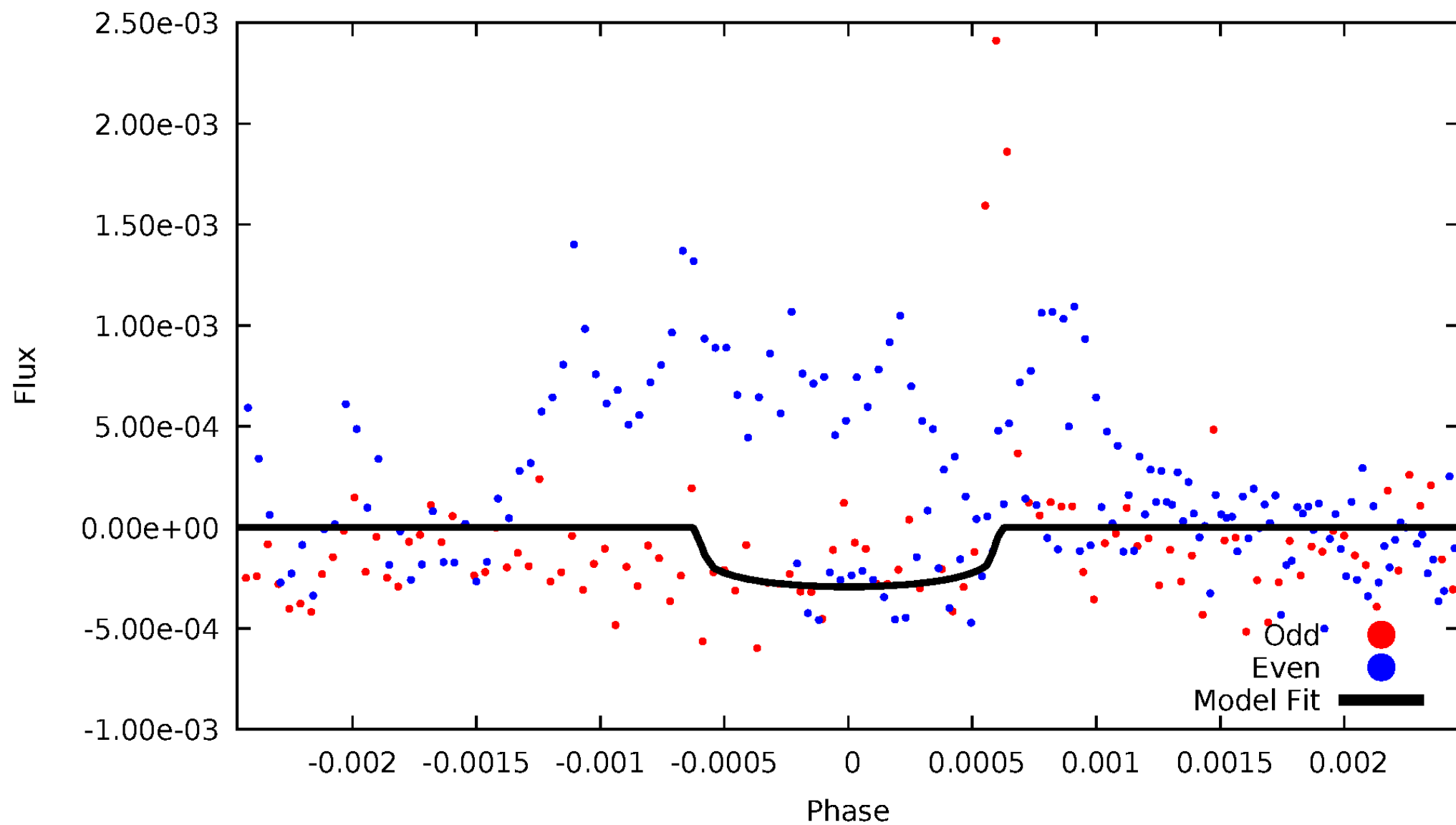


TCE 009655134-01



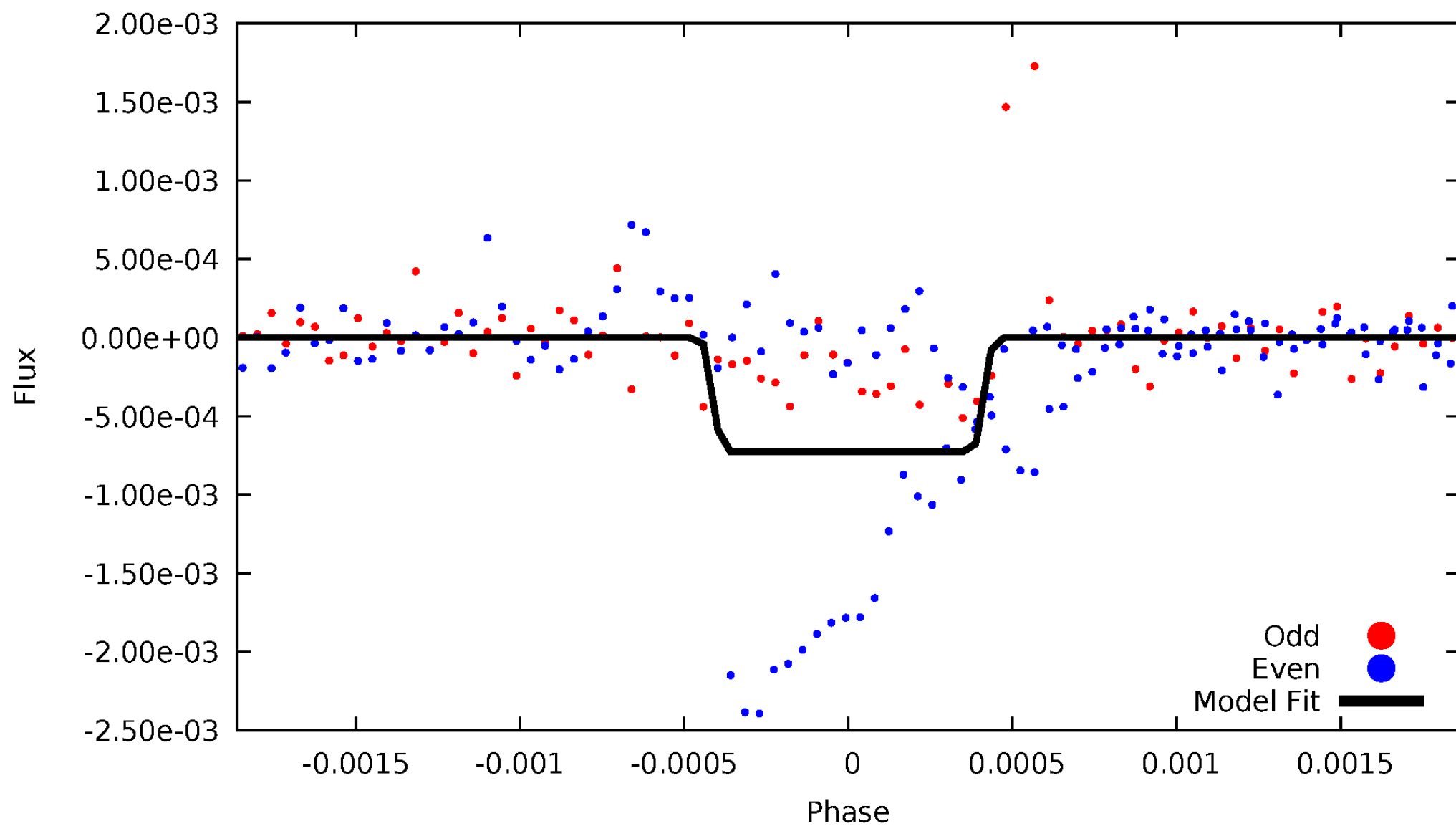
# DV Odd/Even

TCE 009655134-01



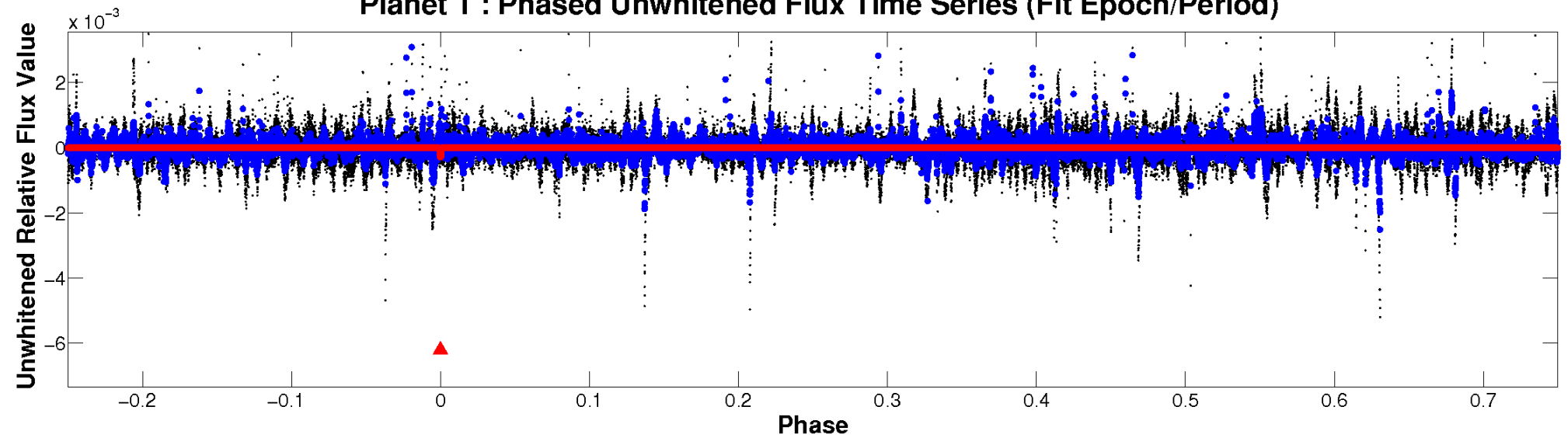
# ALT Odd/Even

TCE 009655134-01

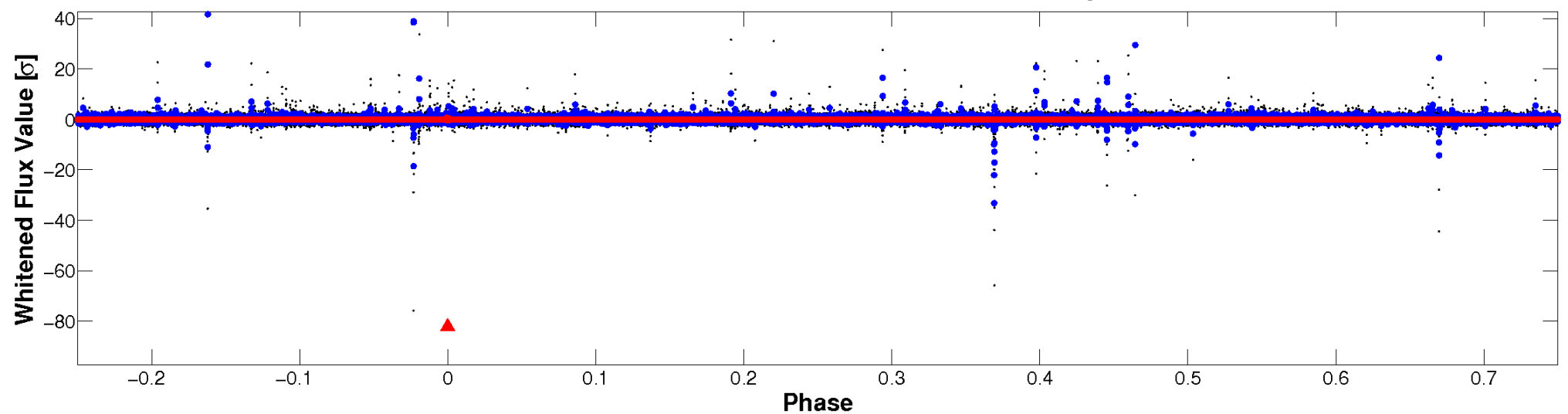


# Non-Whitened Vs. Whitened Light Curve

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

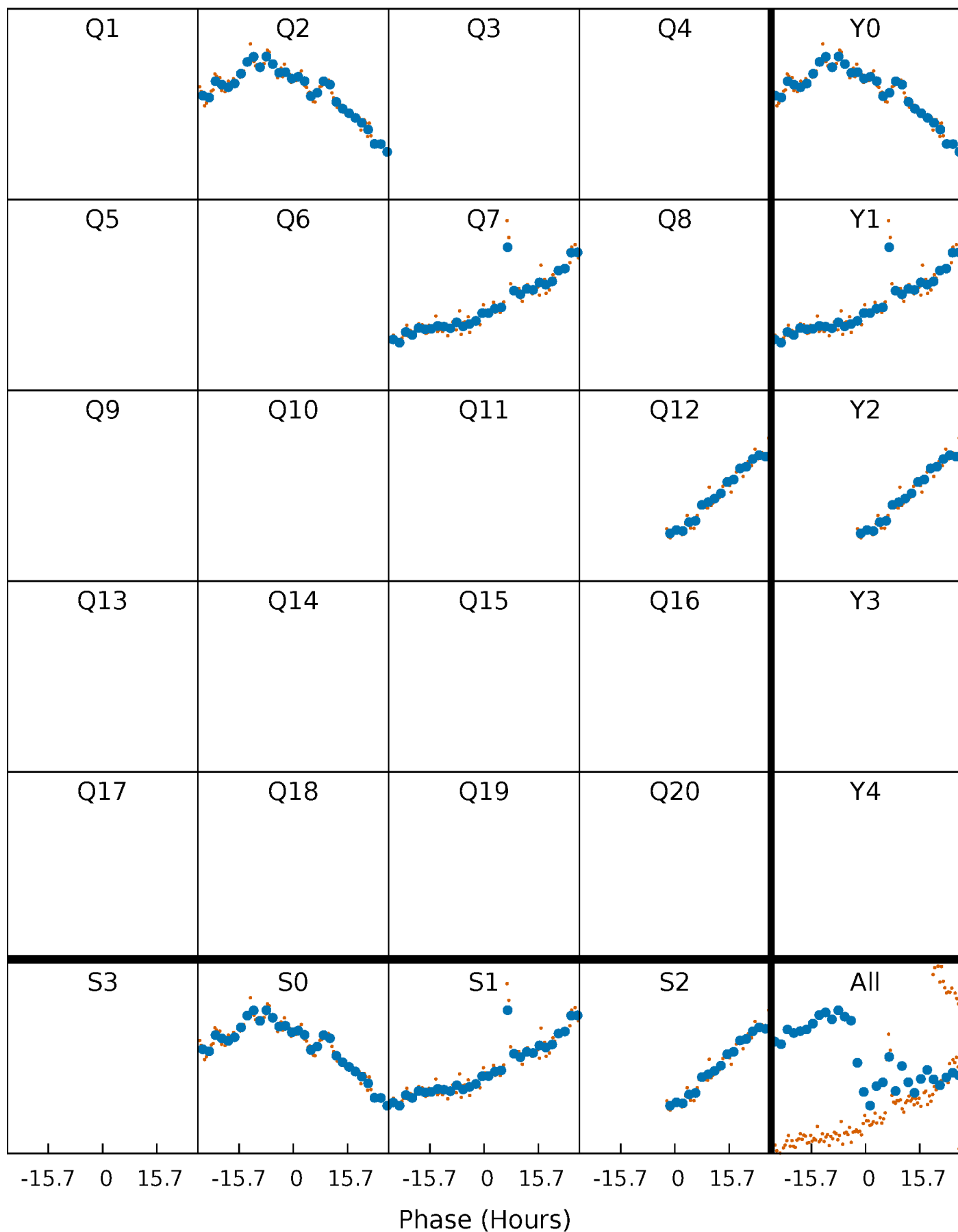


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

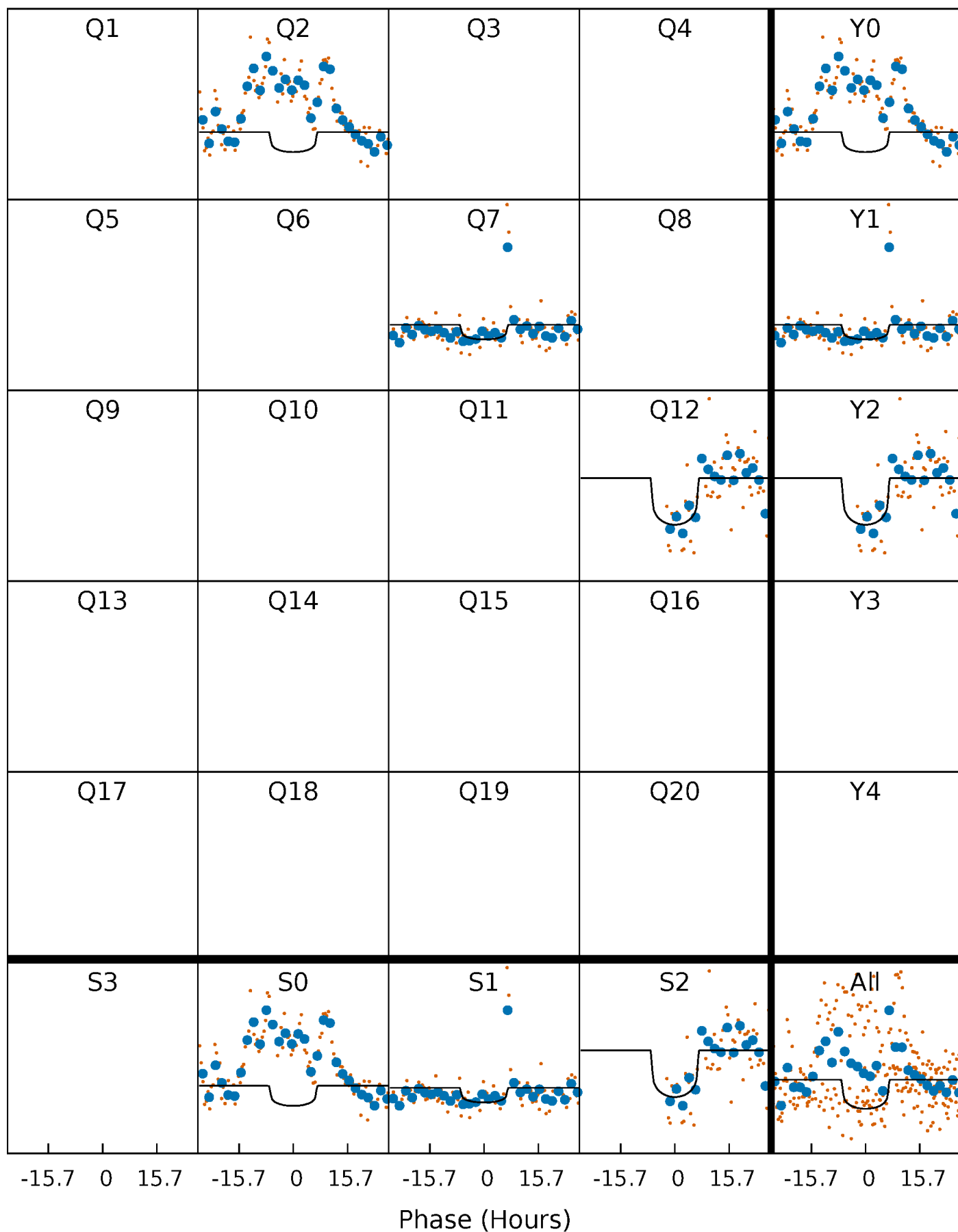
TCE 009655134-01 P=465.970758 Days  $T_0=186.995482$  (BKJD)





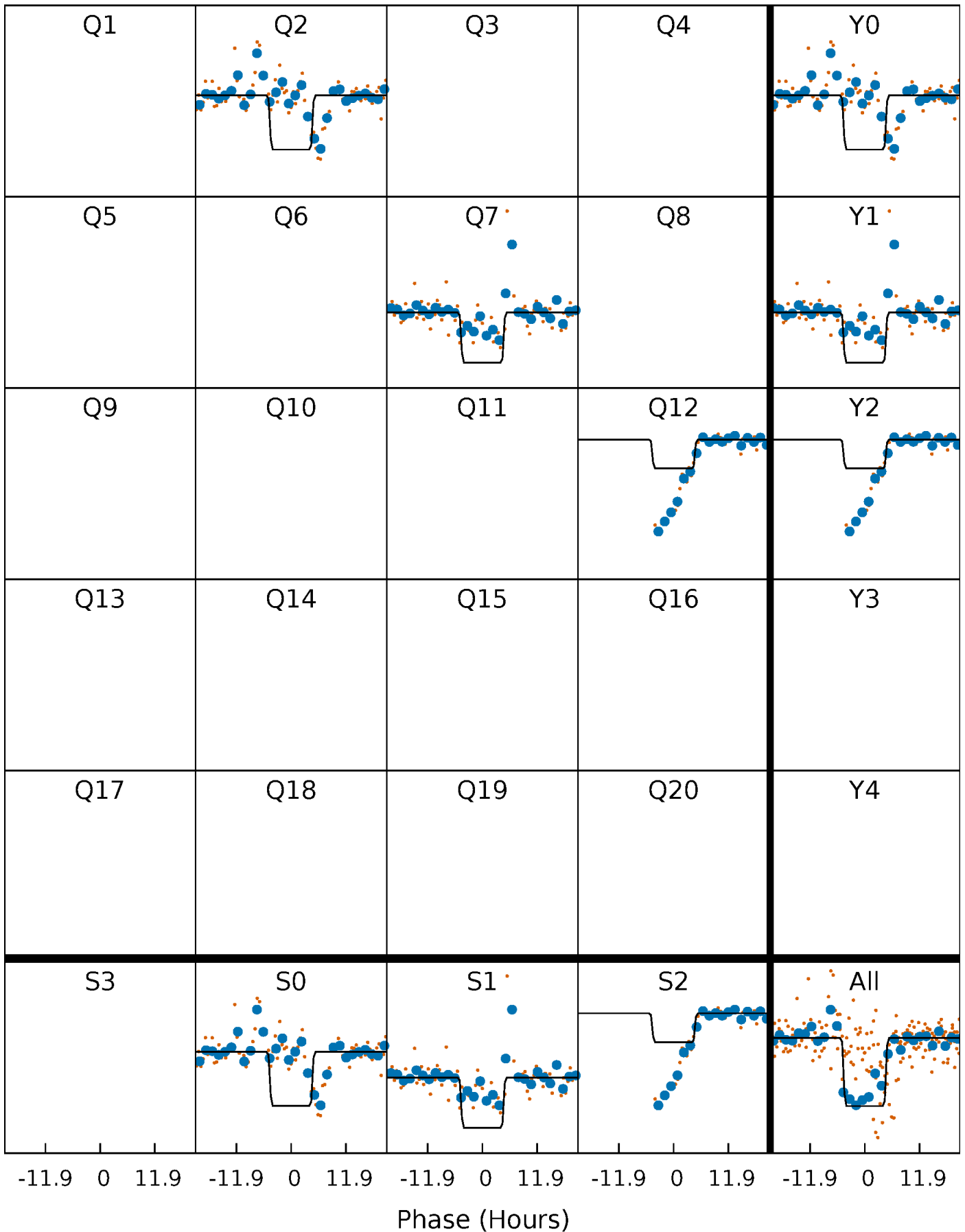
# DV Quarter-Phased Transit Curves

TCE 009655134-01 P=465.970758 Days  $T_0=186.995482$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

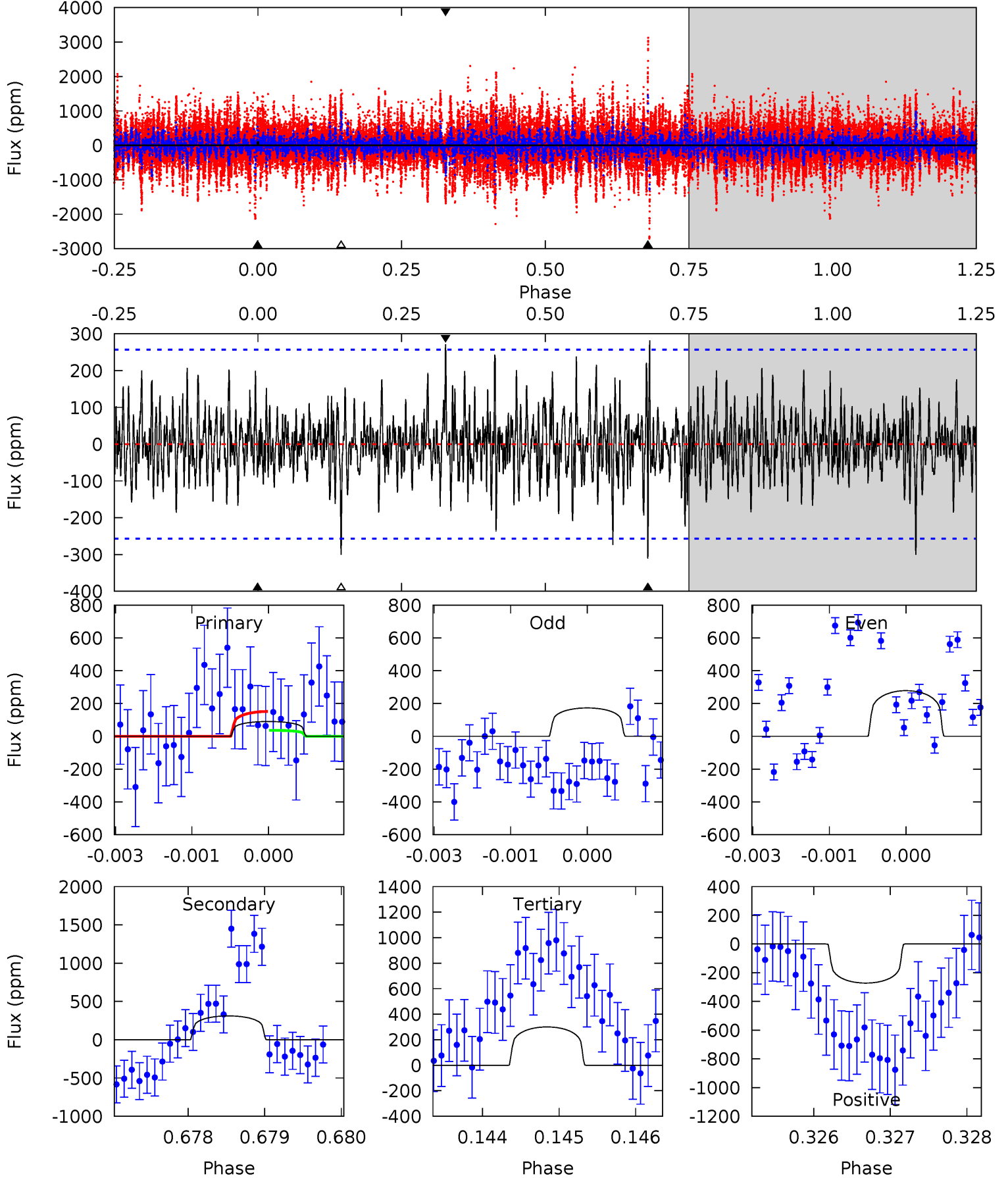
TCE 009655134-01 P=466.007769 Days  $T_0=186.992250$  (BKJD)



# DV Model-Shift Uniqueness Test

009655134-01, P = 465.970758 Days, E = 186.995482 Days

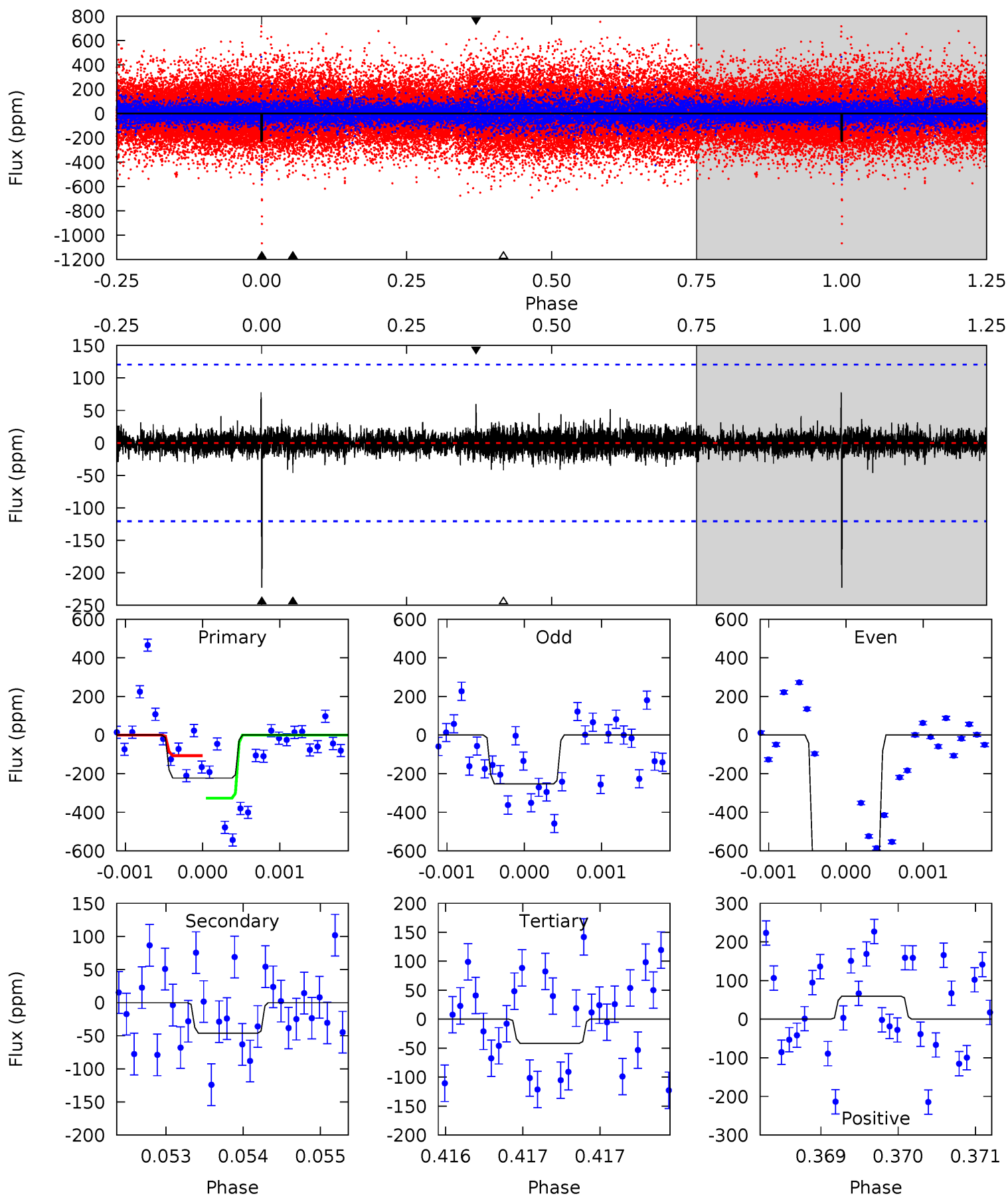
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.90	6.56	6.33	5.73	5.41	3.22	1.48	-4.43	-3.83	0.23	0.83	0.90	-0.44	0.48	1.21



# Alt Model-Shift Uniqueness Test

009655134-01, P = 466.007769 Days, E = 186.992250 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
10.1	2.10	1.89	2.71	5.47	3.32	0.44	8.21	7.39	0.20	-0.61	12.0	2.46	0.26	4.98



### Stellar Parameters For KIC 009655134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5397^{+160}_{-160}$	$4.546^{+0.094}_{-0.068}$	$-0.660^{+0.350}_{-0.300}$	$0.732^{+0.088}_{-0.080}$	$0.687^{+0.086}_{-0.034}$	$2.468^{+0.973}_{-0.589}$
	+3%/-3%	+2%/-1%	+53%/-45%	+12%/-11%	+13%/-5%	+39%/-24%
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 009655134-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-311 \pm 47$	$1.45^{+0.77}_{-0.74}$	$278^{+12}_{-11}$	$5315^{+2316}_{-848}$	$88517^{+292455}_{-50532}$
Alt.	$-46 \pm 22$	$2.19^{+0.77}_{-0.79}$	$278^{+11}_{-12}$	$3210^{+553}_{-366}$	$5384^{+9006}_{-3104}$

$T_{max}$  = 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

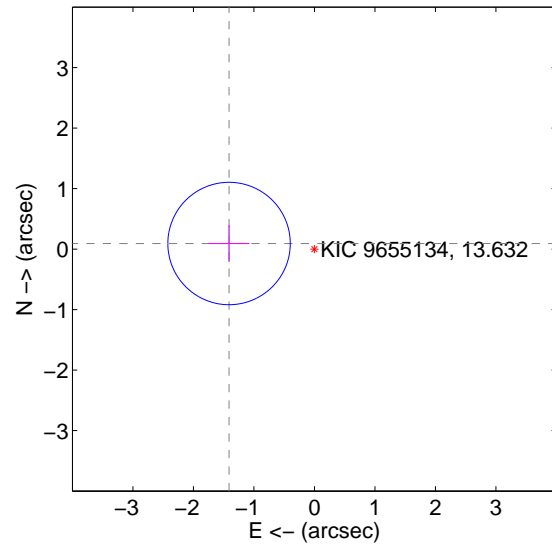
Supplemental centroid analysis for 009655134-01. Kepler magnitude: 13.63. Transit SNR 3.93

There are 1 quarters with good PRF difference image offsets

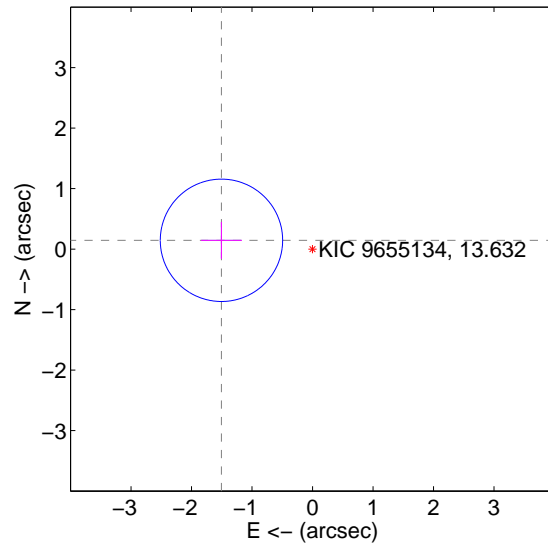
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	1.414 $\pm$ 0.337	4.19	1.411 $\pm$ 0.337	0.092 $\pm$ 0.305
PRF-fit source offset from KIC position	1.512 $\pm$ 0.337	4.49	1.505 $\pm$ 0.337	0.145 $\pm$ 0.305
photometric centroid source offset	0.36 $\pm$ 0.99	0.36	0.18 $\pm$ 0.93	-0.30 $\pm$ 1.02

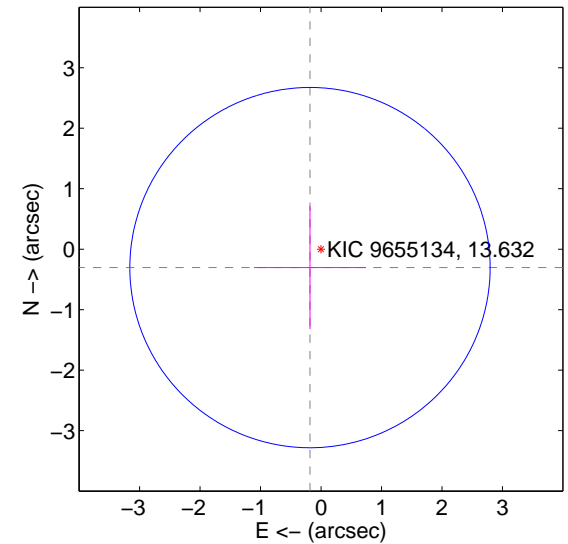
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

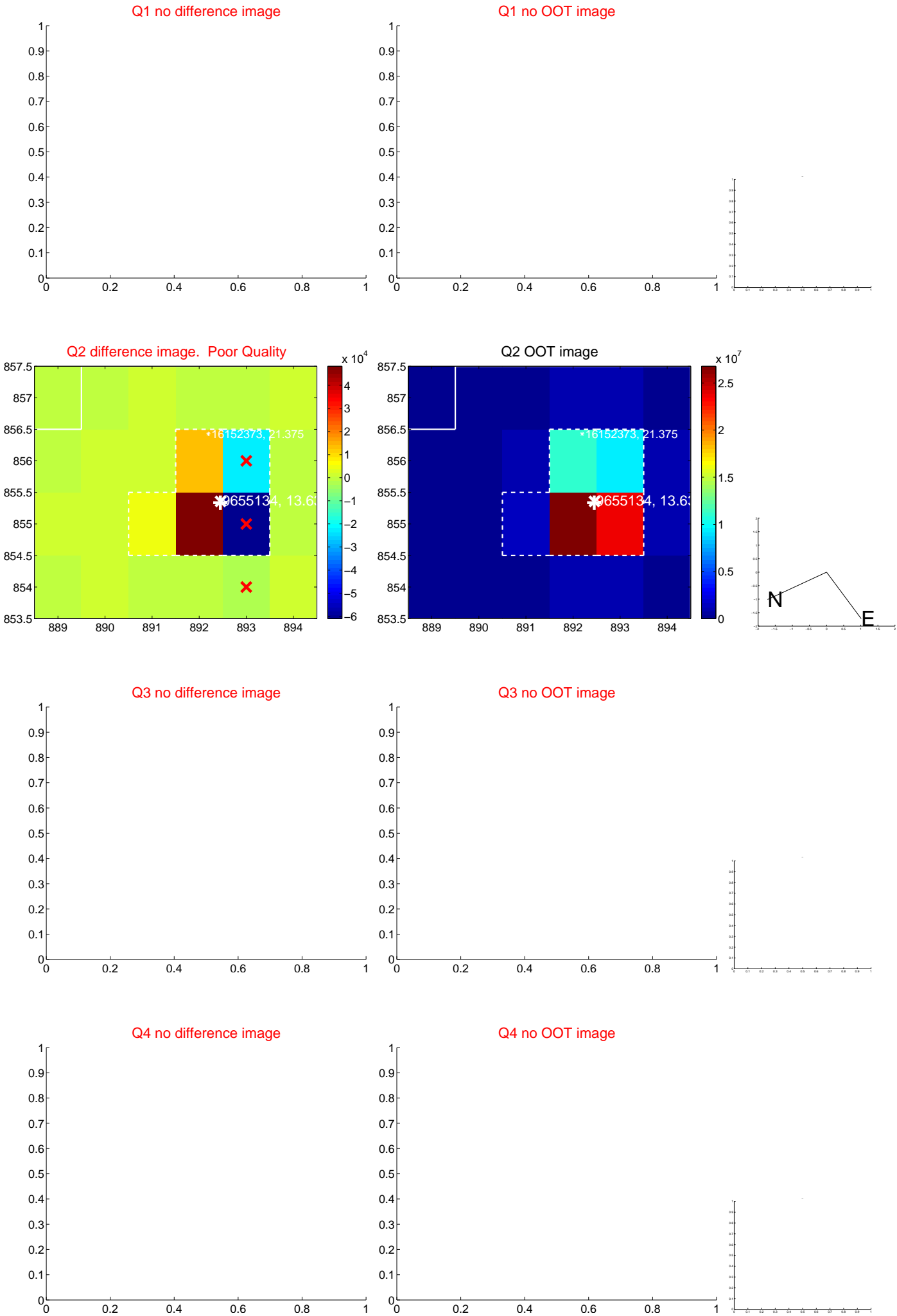


offset from photometric centroids



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.



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

Q5 no difference image



Q5 no OOT image



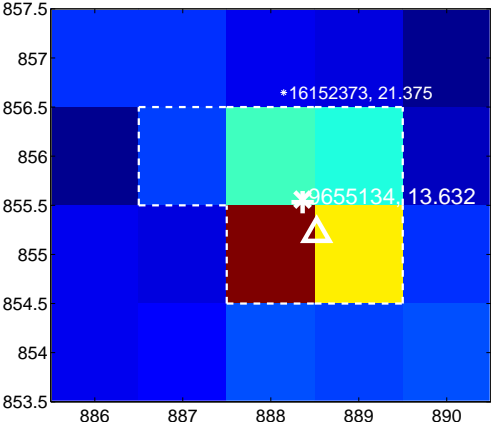
Q6 no difference image



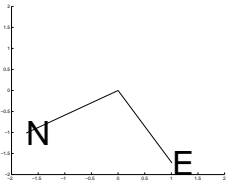
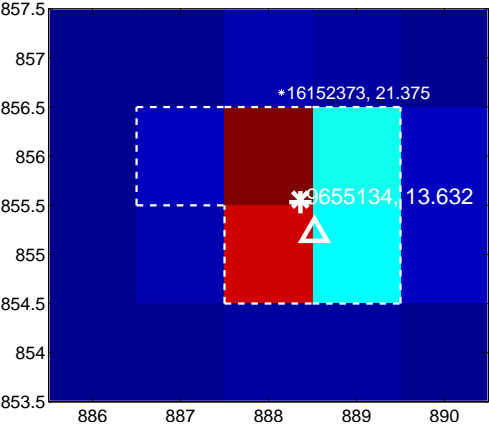
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image





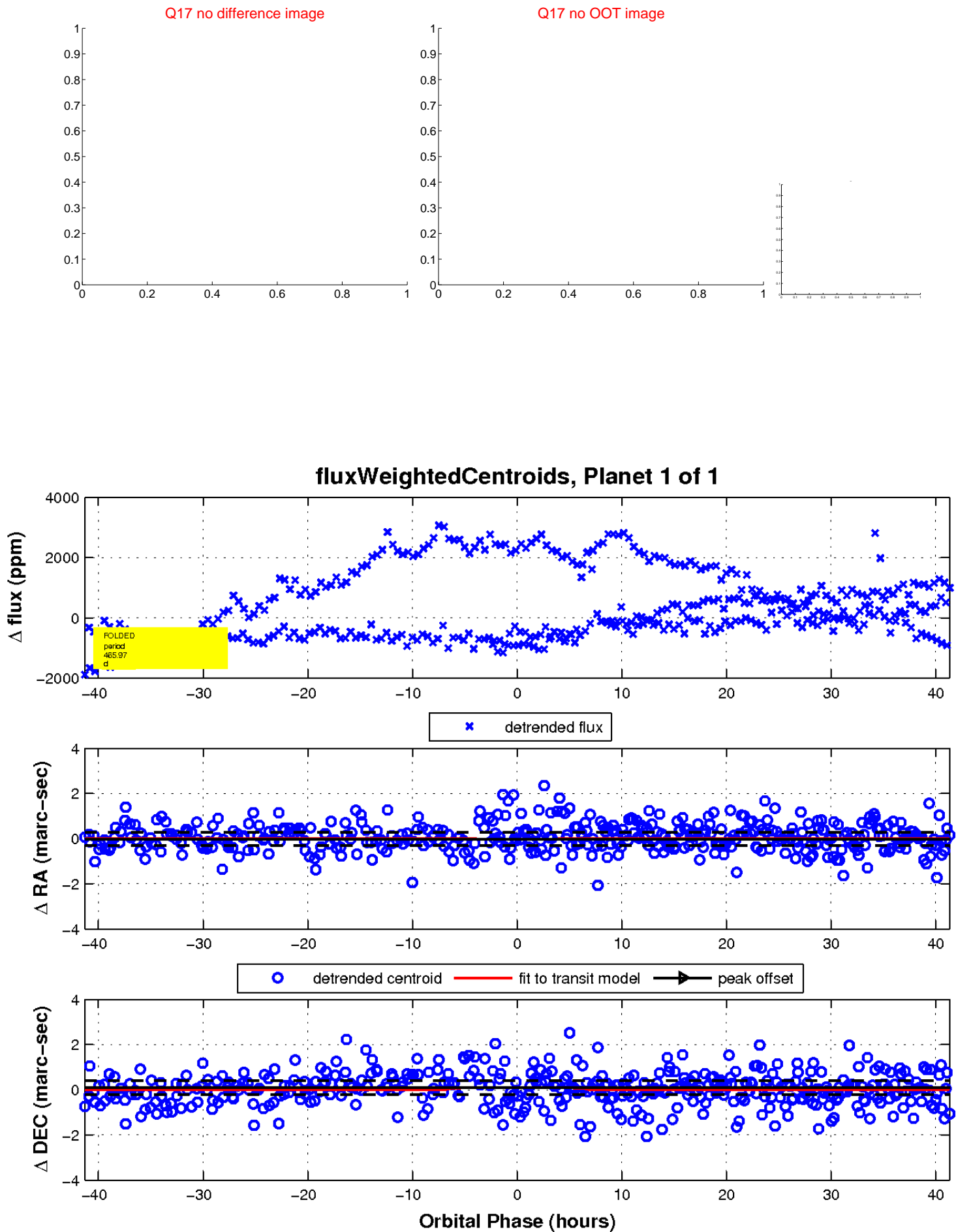
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

